

***Perceived Food Quality and Healthiness:
Integrating Means-end Chain and Conjoint Analysis,
With Emphasis on Olive Oil Extrinsic Cues***

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Declaration:

No portion of the work referred to in this thesis has been submitted in support of an application for any other degree or qualification from this or any other university or institute of learning

ABSTRACT

Today's consumer attitude and behaviour are increasingly driven by quality, safety and health consciousness. From the producer viewpoint, quality control has evolved from an efficiency challenge to a tremendous opportunity by building competitive advantages through pursuing relationships based on an integrated chain approach with quality guarantees. To succeed in today's competitive agri-food marketplace, two options are available: organise production more efficiently and work more consumer-oriented in order to meet consumer requirements. During recent years, several concepts like Organic and PDO/PGI labels, and the ISO and HACCP schemes, embodied into the wider Supply Chain Management, or Total Quality Management initiatives, have been introduced. All these concepts share the objectives of adding value to the entire chain, of releasing competitive advantages and a better performance of the chain through increased responsiveness to consumer needs, wants and demands.

The research at hand addresses questions related to collecting valuable information at consumer level, since this is the prerequisite for the practical application of the aforementioned concepts by industries such as the olive oil industry. The work focuses on assessing both the quality perception of olive oil and the attitude of consumers to olive oil quality assurance schemes. The central theme of the study is the domestic consumer as an alternative source of profit and competitiveness for the high quality olive oil firms. This is to be achieved through the identification of a quality and health-conscious urban segment and the explanation of its purchasing motives and behaviour by relating quality olive oil attributes to its personal values.

Instead of following a “positivistic” way of clearly presenting the research hypotheses, a description of the wider environment surrounding the quality-conscious consumer internationally is chosen. In this mostly “phenomenological” way, ideas about the quality consumer are implied through induction from data. The methodological nature of the study is two-dimensional. The horizontal “conjoint analysis” dimension is used to quantitatively prove the findings of the vertical “laddering method” qualitative dimension, which develops quality consumers’ psychographic profile and predicts purchase behaviour.

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Summary Table of Contents

	<i>Page</i>
Abstract.....	<i>i.</i>
Summary Table of Contents.....	<i>iv.</i>
List of Tables.....	<i>vii.</i>
List of Figures.....	<i>x.</i>
CHAPTER 1: Introduction: Overview of the Subject Matter	
1.1.	1.
Value of the Present Work.....	2.
1.1.1.	2.
Main Problems of the Greek Olive Oil Sector.....	2.
1.1.2.	5.
Managerial and Academic Importance of the Present Work.....	5.
1.2.	8.
Structure of the Thesis.....	8.
CHAPTER 2: The Greek Olive Oil Market and the Greek Food Consumer: Non-economic Factors Influencing Consumption	
2.1.	12.
Olive Oil Definitions and Technology.....	12.
2.1.1.	12.
Attributes and Diversity.....	12.
2.1.2.	13.
Quality and Flavour – Influential Factors.....	13.
2.1.3.	16.
Definitions – Olive Oil Categories – Assessing Quality.....	16.
2.1.4.	20.
Nutritional Value of Olive Oil.....	20.
2.1.5.	22.
Processing Virgin Olive Oil.....	22.
2.1.6.	30.
International Rules for Olive Oil Packaging.....	30.
2.2.	30.
The Greek Olive Oil Market.....	30.
2.2.1.	30.
The EU Olive Oil Production and Consumption.....	30.
2.2.2.	34.
The Greek Olive Oil Market.....	34.
1. <i>Consumption</i>	37.
2. <i>Trade</i>	39.
2.3.	40.
Non-Economic Factors Influencing Food Demand.....	40.
2.3.1.	43.
Economic Factors and Alternative Views.....	43.
2.3.2.	46.
Non-Economic Factors Influencing Food Consumption.....	46.
1. <i>Analysis of the Non Economic Factors – New Attitudes Towards Food</i>	49.
2.3.3.	54.
EU Consumption Trends Pre and After 1990.....	54.
2.4.	60.
The Case of Greece.....	60.
2.4.1.	60.
The Mediterranean Diet in Greece.....	60.
2.4.2.	63.
Diet-related Health Changes in Greece Until the Late 80’s.....	63.
2.4.3.	65.
Nutritional Policy Initiatives: a Little of History.....	65.
2.4.4.	71.
Factors Influencing Food Consumption in Greece.....	71.
1. <i>The Changing Social Environment</i>	71.
2. <i>The “Metamorphosis” of the Greek Family</i>	72.
2.4.5.	78.
Food Consumption Patterns in Greece.....	78.
1. <i>General Trends in Comparison to the Rest of the EU</i>	78.
2. <i>Analysis of the Main Socio-demographic Factors Influencing Food Expenditure</i>	80.
3. <i>Projection of Food Expenditure Shares Until the Year 2010</i>	87.
2.5.	91.
Conclusion of Chapter 2.....	91.

		<i>Page.</i>
CHAPTER 3: Consumer-perceived Food Quality, Nutritional Value, Safety and Health-related Labelling		
3.1.	..... Introduction	93.
3.2.	..... Defining Consumer-oriented Quality	94.
3.2.1.	..... Towards a Definition of Quality.....	95.
3.2.2.	..... Objective vs. Subjective (or Perceived) Quality.....	100.
3.2.3.	..... Perceived Quality and Consumer Behaviour	103.
	1. <i>Expected (Pre-purchase) vs. Experienced (Post-purchase) Quality: Key-quality Model Selection</i>	109.
	2. <i>Sociological Approaches to Food Quality</i>	114.
3.2.4.	..... Quality Measurement Implications	116.
3.3.	..... Healthiness as a Food Quality Aspect	118.
3.3.1.	..... Helping the Consumer Understand and Its Shortcomings.....	120.
	1. <i>Health Education and Consumer Understanding</i>	121.
	2. <i>Labelling and Other Sources of Health Information</i>	123.
	3. <i>Health-related Behaviour and Consumer Lifestyle</i>	126.
3.3.2.	..... Consumer Health Behaviour Models.....	127.
3.3.3.	..... EU Consumer Attitudes to Nutrition and Health.....	130.
3.3.4.	..... Food Label Nutritional/Health Claims and Consumer Attitude..	136.
	1. <i>Health Claims and Regulation</i>	139.
	2. <i>Functional Components of Food</i>	142.
3.4.	..... Safety as a Food Quality Aspect	144.
3.4.1.	..... Different Views of Food Safety.....	147.
3.4.2.	..... Public Perceptions of Food Risk and its Measurement.....	151.
3.4.3.	..... The Role of Safety Information	156.
	1. <i>Labelling and Food Safety</i>	158.
	2. <i>Education</i>	160.
3.5.	..... Conclusion of Chapter 3	163.
CHAPTER 4: Research Questions, Aims and Objectives		
4.1.	..... The Environment Surrounding The Quality-conscious Consumer	166.
4.2.	..... Research Problem Definition, Aims and Objectives	173.

		<i>Page</i>
CHAPTER 5: Means-end Chains and Laddering Interviewing Technique		
5.1.	Introduction	179.
5.1.1.	Marketing Research: Variations and Controversies.....	179.
5.2.	Qualitative Research	184.
5.2.1.	Qualitative Research Inferential Processes.....	186.
	1. <i>Analysis</i>	186.
	2. <i>Interpretation</i>	190.
	3. <i>Evaluation</i>	191.
5.2.2.	Integration of Qualitative and Quantitative Methods.....	192.
5.3.	Means-end Theory and Laddering Technique	194.
5.3.1.	Personal Values Research.....	196.
	1. <i>Conceptual Model for Means-end Chains and Laddering</i>	199.
	2. <i>Models of Cognitive Structure and Product Quality</i>	203.
5.3.2.	Laddering Technique.....	205.
	1. <i>Laddering Interviewing Environment, Problems and Remedies</i> ...	206.
	2. <i>Laddering Method Description</i>	211.
	3. <i>Criteria for Assessing the Predictive Validity of the Laddering Data</i>	217.
5.3.3.	Laddering Applications.....	224.
	1. <i>Benefit Segmentation</i>	225.
	2. <i>Laddering Application and Olive Oil</i>	229.
5.4.	Conclusions of Chapter 5	233.
CHAPTER 6: Laddering Interviewing Technique Implementation		
6.1.	Method Implementation	235.
6.1.1.	Sample Selection.....	235.
	1. <i>Consumers' purchase involvement and laddering</i>	238.
	2. <i>Sample's Behavioural and Personality Factors</i>	243.
6.1.2.	Laddering Application.....	248.
	1. <i>Selection of the Appropriate Attributes' Elicitation Technique</i>	248.
	2. <i>Selection of Laddering Type – Recruitment- Process Description</i>	253.
	3. <i>Analysis of the Importance Assigned to Each Attribute</i>	255.
	4. <i>Coding of Laddering Data – Selection of Abstraction Level</i>	260.
	5. <i>Homogeneity of Respondents – Identified Consequence-level Clusters</i>	271.
	6. <i>Comparison of the Attribute and Consequence-level Cluster</i>	
6.1.3.	<i>Solutions</i>	275.
	1. <i>Data Analysis</i>	284.
	2. <i>Iteration of the Coding Process – Use of Laddering Software</i>	284.
	3. <i>The Implication Matrix – Selection of the Cut-off Level</i>	287.
	<i>The Hierarchical Value Map (HVM)</i>	292.
6.2.	Discussion	296.
6.2.1.	Cognitive Structures' Analysis.....	296.
6.2.2.	Test of Method's Predictive Validity Criteria.....	302.
6.3.	Conclusion of Chapter 6	305.
	Chapter Appendix	308.

	CHAPTER 7: Conjoint Analysis Implementation	<i>Page</i>
7.1.	Introduction	318.
1.1.	Conjoint Analysis Definition	320.
1.2.	Comparing Conjoint Analysis with Other Multivariate Methods	322.
7.2.	Designing the Conjoint Experiment	324.
2.1.	Selection of Factors and Factor Levels	324.
2.2.	Specification of the Conjoint Model Form – The Composition Rule	331.
2.3.	Data Collection Method	337.
2.4.	Sample Description	344.
	1. <i>The “Food and olive oil purchase/consumption behaviour” and “Olive oil involvement and overall attitude” variables</i>	348.
	2. <i>The “Quality assurance schemes’ awareness” variables</i>	351.
7.3.	Estimating the Conjoint Analysis Model	352.
3.1.	Assumptions of Conjoint Analysis	352.
3.2.	Implementing Conjoint Analysis	353.
3.3.	Evaluating Model’s Goodness of Fit	355.
7.4.	Interpreting the Conjoint Results	356.
7.5.	Reliability and Validity of the Conjoint Results	363.
7.6.	Managerial Applications	364.
6.1.	Segmenting the Greek Olive Oil Market	364.
	1. <i>Development of the Five Clusters’ Profile</i>	367.
	2. <i>The Target-cluster 1</i>	376.
6.2.	Choice Simulation Study	380.
7.7.	Conclusion of Chapter 7	384.
	Chapter Appendix	388.
	CHAPTER 8: Summary-Conclusions	
8.1.	Introduction	393.
8.2.	Summary of the Survey	393.
2.1.	Summary of the Results in Terms of the Research Objectives	398.
8.3.	Research Implications at a “Real World” and Academic Level	400.
3.1.	What is Learned from the Laddering Phase	400.
	1. <i>Strategic Use of the HVM</i>	400.
	2. <i>Conclusions and Extensions of the Laddering Phase</i>	401.
3.2.	What is Learned from the Conjoint Phase	403.
	1. <i>Strategic Analysis of the Five Clusters’ Profile</i>	403.
	2. <i>Conclusions of the Choice Simulation Laddering Phase</i>	406.
3.3.	Understanding the Phenomenon of Quality	408.
8.4.	Limitations-Extensions	410.
4.1.	Methodological Limitations of the Laddering Phase	410.
4.2.	Managerial and Methodological Limitations of Real Demand Predictions	412.
4.3.	Extensions	416.
	Appendix 1: European Olive Oil Policies	419.
	List of References	433.

PAGE

NUMBERING

AS ORIGINAL

List of Tables

No.	Title	Page
CHAPTER 2		
2.1.	Fatty Acids Content of Olive Oil.....	22
2.2.	Products with the Highest Yearly “Underlying Trend in Demand”, 1993.	47
2.3.	Private Expenditure Structure in the EU, 1985-1995.....	49
2.4.	Major Trends in Consumer Attitudes and their Likely Impact on Food Choice.....	54
2.5.	Evolution of the Total Caloric Intake, Share of Animal Calories, Per Capita GDP and Food Share Expenditure (calories/capita/day, US dollars at 1985 exchange rates, %)......	55
2.6.	The Evolution of Food Consumption Patterns, 1970-1994.....	55
2.7.	Caloric Share Growth Rate of Different Food Products in European Countries.....	56
2.8.	Demographic Comparison in Western Europe, 1994.....	56
2.9.	Sources of Calories Consumed, by Percentages, in Crete ¹ and the US ² , 1948.....	63
2.10.	Budget Shares of Major Food Categories in Greece, 1950-1995.....	81
2.11.	Private Expenditure in Adult Equivalents per Occupation Type, Selected EU Countries, 100 = average private consumption per country...	82
2.12.	Average Household Food Expenditure Index per Factor, 1993-94.....	86
2.13.	Projections of Different Socio-demographic Variables in Greece.....	88
2.14.	Projections of the Average Food Expenditure Index, 2000-2010, 100 = 1994.....	89
CHAPTER 3		
3.1.	Quality Attributes for Food Products.....	99
3.2.	Formats for Presentation of On-pack Nutrition Information as Laid Down in the EU Nutrition Labelling Directive.....	125
3.3.	Overview of Health Models from Different Disciplines.....	129
3.4.	Definitions of Healthy Eating by EU Country Member (%)......	132
3.5.	Percentage of Subjects Selecting Factors Perceived to be Among the Three Most Important on Food Choice in Each Member State of the EU.....	132
3.6.	Perceived Barriers Towards Healthy Eating in the 15 EU Member States (%)......	134
3.7.	Percentage of Subjects in Each Member State Using Sources on Health Eating.....	134
3.8.	Health Claims Allowed in the US by the FDA, 1993 (*) and 1998 (* *)...	140
CHAPTER 4		
4.1.	Problem Definition, Aims and Objectives.....	178
CHAPTER 5		
5.1.	The Positivist and Phenomenological Paradigms.....	182
5.2.	Summary of Differences in Qualitative and Quantitative Research.....	186
5.3.	Weaknesses of Different Qualitative and Quantitative Techniques.....	195
5.4.	Basic Problems of Laddering.....	210
5.5.	Most Commonly Used Laddering Techniques.....	210
5.6.	Olive Oil Pan-EU Segments Membership (%)......	233

No	Title	Page
CHAPTER 6		
6.1a.	Different Sizes of Means-end Samples in the International Literature.....	237
6.1b.	Sample Socio-demographic Description (Col. 1-3) -Number of Attr Chosen, Consequences and Values Elicited (Col. 4-8) -Number of Ladde Ladders Leading to a Value per respondent (Col. 9-10).....	239
6.2.	Sample Description in Terms of “Purchasing/Consumption Behaviour” and “Olive Oil Involvement and Overall Attitude”.....	244
6.3.	The Attribute List Used as a Starting Point of the Laddering Method.....	252
6.4.	Frequencies of Selected Attributes According to their Degree of Importance for the Sample.....	256
6.5.	Consumer Ethnocentrism and Purchase Behaviour with Respect to Agricultural Products from Other Countries	258
6.6.	Content Analysis: 54 Groups of Consequences Elicited, n=40.....	262
6.7.	Content Analysis: 42 Groups of Values Elicited, n=40.....	263
6.8.	13-Factor Solution from the 36 Groups of Benefits Chosen After the Content Analysis.....	267
6.9.	Profile of the 4 Clusters Derived from the 36 Groups of Consequences Elicited, n=40.....	273
6.10.	Interpretation of the 4 Clusters Derived from 36 Groups of Consequences Elicited, In Terms of the Main Common and the Statistically Significant Variables, n=40.....	274
6.11.	16-Factor Solution from the 52 Initial Attributes.....	276
6.12.	Profile of the 4 Clusters Derived from the 52 Initial Attributes, n=40.....	279
6.13.	Interpretation of the 4 Clusters Derived from the Initial 54 Attributes, n=40.....	280
6.14.	Comparison of the Attribute-level with the Consequence-level Cluster Membership.....	283
6.15.	Final 47 Consequence Codes Used in the LADDERMAP Software After the Merger of the Benefits Commonly Participating to the Same Benefit Code.....	286
6.16.	Extrinsic Attributes of Expected Quality Selected for the Development of the HVM.....	289
6.17.	Summary of Direct (XX) and Indirect (YY) Relations for Each Element (Code).....	295
CHAPTER APPENDIX		
6.18.	Content Analysis: Initial <u>Functional Consequences</u> Mentioned by the Respondent (Before Grouped into the 29 Groups of Functional Consequences), n=40.....	308
6.19.	Content Analysis: Initial <u>Psychological Consequences</u> Mentioned by the Respondents (Before grouped into the 25 Groups of Psychological Consequences), n=40.....	309
6.20.	Content Analysis: Initial <u>Instrumental Values</u> Mentioned by Respondent (Before grouped into the 24 Groups of Instrumental Values) , n=40.....	310
6.21.	Content Analysis: Initial <u>Terminal Values</u> Mentioned by Respondent (Before grouped into the 18 Groups of Terminal Values), n=40.....	311
6.22.	“Socio-demographic”, “Olive Oil Purchase and Consumption Behaviour”, “Involvement” and “Overall Attitude” Questionnaire..	312
6.23.	Implication Matrix, Parts I and II	315
6.24.	Implication Matrix, Parts III and IV.....	316

CHAPTER 7

7.1.	Commercial Use of Conjoint Analysis in the 70's and 80's.....	319
7.2.	CA Factor Choice Criteria Based on the Laddering Findings, Extra Virgin Olive Oil.....	327
7.3.	Levels of the CA Factors Selected, Extra Virgin Olive Oil.....	328
7.4.	Selection of Various CA Applications, 1995-1999.....	336
7.5.	Factor Levels' Relationships of the present study.....	336
7.6.	Survey's Optimal Fractional Factorial Design (SPSS Conjoint 8.0), Extra Virgin Olive Oil.....	341
7.7.	Conjoint Sample's Socio-demographic profile, n=160.....	345
7.8.	Sample Description in Terms of "Quality Assurance Schemes' Awareness", "Purchasing/Consumption Behaviour" and "Olive Oil Involvement and Overall Attitude".....	349
7.9.	SPSS 10.0 Categories Subfile Summary (aggregate level) and Average Factor Importance.....	354
7.10.	Summary of Reversals by Factors.....	356
7.11.	Predicted Preference for the 16 Olive Oil Profiles According to their Total Utilities.....	360
7.12.	Comparison Between Laddering and Conjoint Attribute Importance.....	362
7.13.	Clusters of Respondents with Respect to Attribute % Importance (n=159)	368
7.14.	One way ANOVA of All Variables (n=159).....	369
7.15.	Description of the Profile of the Five Clusters in Terms of the Statistically Significant Variables (n=159).....	370
7.16.	Comparison between the Laddering Sample and the Conjoint Cluster 1...	377
7.17.	One way ANOVA between the Laddering Sample and the Conjoint Cluster 1.....	378
7.18.	Simulation Olive oil Brands' Profile and Predicted Preferences and Market Shares.....	383
	CHAPTER APPENDIX	
7.19.	Conjoint Questionnaire Used in the Survey.....	388

List of Figures

No.	Title	Page
CHAPTER 2		
2.1.	The Typical Olive Oil Process.....	24
2.2.	Traditional Olive Oil Mill.....	25
2.3.	Modern Olive Oil Mill.....	26
2.4.	EU Olive Oil Production Trends in the 90s, x1000t.....	32
2.5.	EU Olive Oil Production, 1997 (%).....	32
2.6.	Per Capita Consumption Trend in Selected North European Countries (kg), 1986-1995.....	34
2.7.	Per capita Consumption Trend in Selected Southern European Countries (kg), 1986-1995.....	34
2.8.	Geographical Distribution of Olive Cultivation in Greece (green coloured).....	37
2.9.	Olive Oil Imports of the Five EU Olive Oil Producing Countries, x1000t., 1986-1995.....	41
2.10.	Olive Oil Exports of the Five EU Olive Oil Producing Countries, x1000t., 1986-1995.....	41
2.11a	Supply Chain of the Greek Olive Oil (I).....	42
2.11b	Supply Chain of the Greek Olive Oil (II).....	42
2.12.	Food Consumption Out-of-home per Type, 1998.....	73
2.13.	Income Distribution per Population Layers, Greece and EU, 1994.....	76
2.14.	Evolution of Food Budget Shares in Greece, 1950-1995.....	81
2.15.	Decomposition Analysis Results for Food Demand in Greece, 1950-1993	82
2.16.	Projections of the Average Food Expenditure Index, 2000-2010, 100 = 1994.....	89
CHAPTER 3		
3.1.	The Perceived Quality Component.....	107
3.2.	Grunert's Total Food Quality Model.....	111
3.3.	Key-quality Model of the Study, Based Upon Elements of Grunert's TFQM.....	114
3.4.	"Plate Model" for achieving a Healthy Diet.....	122
3.5.	Structure of Risk Analysis.....	152
3.6.	Continuum of Food Quality and Safety Characteristics.....	158
CHAPTER 4		
4.1.	Number of Collective Quality Marks in EU Countries at the End of 1997 (total: 1861).....	168
4.2.	Distribution of Collective Quality Marks in Europe by Promoting Organisation.....	168
4.3.	"What Does your Mark Guarantee?" (404 interviews, multiple answers)..	168
4.4.	The Industrialised Food System and the Consumer.....	170
4.5.	Two-dimensional Research Structure.....	177

No.	Title	Page
CHAPTER 5		
5.1.	Six-level Means-end Chains.....	196
5.2.	Conceptual Model for Means-end Chains.....	202
5.3.	Grunert's Quality Perception Cognitive Model.....	205
5.4.	Example of Revised Hierarchical Value Map (HVM) for Ski Destination Choice.....	216
5.5.	Typical HVM for Ski Destination Choice.....	216
5.6.	Types of Segmentation According to the Means-end Level.....	229
5.7.	Hierarchical Value Maps (HVM) for Virgin Olive Oil.....	231
CHAPTER 6		
6.1.	Graphical Presentation of the Sample According to its First Two Factor Scores.....	268
6.2.	Sample Distribution According to the Frequency of Mentioning Functional and Psychological Consequences (FC, PC) and Instrumental and Terminal Values (IV, TV), n=40.....	270
6.3.	Graphical Presentation of the Sample According to its First Two Attributes' Factor Scores.....	278
6.4.	Graphical Representation of the Implication Matrix.....	289
6.5.	The Hierarchical Value Map.....	293
6.6.	The Olive Oil <i>Quality</i> Perceptual Orientation Part.....	297
6.7.	The Olive Oil <i>Healthiness</i> Perceptual Orientation.....	298
6.8.	The Olive Oil <i>Ethical</i> Perceptual Orientation.....	300
6.9.	The Olive Oil <i>Taste</i> Perceptual Orientation.....	301
6.10.	The Olive Oil <i>Practical</i> Perceptual Orientation Part.....	302
CHAPTER 7		
7.1.	Stages of the CA Decision Process, Extra Virgin Olive Oil (Saturated Fatty Acids<1).....	325
7.2.	The Three Basic Types of Relationships Between Factor Levels.....	335
7.3.	Comparison Between the Survey Sample and the Population of the Area of Attiki (Athens) in Terms of Selected Socio-demographic Strata.....	346
7.4.	Sample Awareness of the Four Quality Schemes under Investigation (%).	352
7.5.	Actual and Predicted Preference Scores for the 16 Olive Oil Profiles.....	357
7.6.	Purchase Question by Predicted Preference of the 16 Profiles.....	362
7.7.	Market Segmentation in the Context of Conjoint Analysis.....	366
7.8.	Discriminant Analysis' All-groups Scatter Plot (n=159).....	368
7.9a.	Market Share as a Function of Organic label, PDO label and HACCP Certification (clusters with highest and lowest factor importance).....	385
7.9b.	Market Share as a Function of Organic label, PDO label and HACCP Certification (target-cluster 1 and cluster with the lowest factor importance).....	386
CHAPTER 8		
8.1.	Understanding Quality: Key-quality Model of the Study (Involved, Quality and Health-conscious Consumers).....	409

CHAPTER 1

INTRODUCTION: OVERVIEW OF THE SUBJECT MATTER

“...If it was good enough for the gods, then it is certainly superior enough to tantalise the American palate...Rich, fruity, extra virgin olive oil, whether produced traditionally or in state-of-the-art mills, has been ubiquitous in the Greek cuisine for centuries. Enhancing both family and restaurant recipes from the traditional taramosalata to more contemporary dishes, the superior quality Greek olive oil has consistently maintained its reputation as the finest in the world” (from a Greek olive oil promotional campaign in the USA).

More than 4000 years ago, the ancient Greeks mastered the art of harvesting and processing the fruit that yields what they referred to as the “liquid gold”. During the ancient Olympic games, period where even the war had to be stopped, the winners were given a chaplet made of the branches of a young olive oil tree. This symbolised the greatness and honour for a young man to represent his city participating and winning in the Olympic games. Even the ancient symbol of peace, the dove carrying an olive branch, shows olive tree’s importance to the ancient world. Until recently, the harvest, however exhausting and tedious the process may seem, has always been viewed as a time when families and communities come together to pluck, beat and gather the olives – a process that perpetuates a chain that links them with their earliest ancestors.

Today, Greece is the world’s largest producer of virgin olive oil. Nearly 75 percent of the country’s crop yield olive oil classified as virgin (c.f. Section 2.2), compared to 50 percent of the Italian yield and 30 percent of the Spanish. On average, the yearly per capita consumption rate is an astonishing 20 litres, by far the highest in the world. The respective figures for Italy and Spain are 11 and 9 litres per capita. Perhaps this explains why Greece is one of the nations whose people enjoy a great life expectancy.

1.1. Value of the Present Work

1.1.1. Main problems of the Greek olive oil sector

“...The penetration of Greek bottled olive oils with well established brand names it has been proven to be difficult in markets where the consumer has been got used to the taste of Italian or Spanish olive oils and to recognise them on the supermarket selves. Moreover, the Greek, generally small, firms are refrain from trying to penetrate into new markets, due to the cost of having a new product on these shelves. Thus, the marketing policy followed so far has to be changed...Greek olive oil marketing efforts have to stress the distinctive quality characteristics of olive oil and should not target the consumer who decides with only criterion the product price. In the contrary, Greek olive oil should be addressed to the sophisticated, well informed consumer, who decides based on taste, healthiness and quality...”(Tokouzbaidis, 1996).

Despite its large size, the sector faces a multitude of constraints, both of structural and managerial nature, in Greece’s effort to establish an image as one of the world olive oil leaders. The high cost of capital (interest rates), especially in comparison with that of the main competitors (Tokouzbaidis, 1996; Krystallis, 2000); the unjustifiable bureaucratic delays during the export process; the changes of the EU olive oil Common Market Organisation (see Appendix 1); and the lack of a National Olive oil Council, existing in the main competing countries, are among the most pressing *structural obstacles* for a product which accounts for 10% of the Greek gross agriculture product (Tokouzbaidis, 1996).

On the other hand, among sector’s main *managerial problems* is the “traditional” way of exporting olive oil bulk, turning Greece into a cheap source of extra quality material for the Italians. The management of the product all along the supply chain, from the tree to the mill and then to the retailer’s shelf is also problematic. Although Greek olive oils have a distinctive variety of tastes and aromas similar to those of wine, the way of product transportation (e.g. use of dirty tanks) and the conditions of processing or storage are often far from ideal. The lack of integration of the different phases

according to pre-establish quality schemes is evident.

There is no point in creating a premium quality first material to sell it cheaply to the highly concentrated domestic processing industry to produce a generic, internationally unknown brand, bottled in plastic. Neither to export it to Italy in bulk and without any added value. Pre-selling it, yet at the lowest price possible, the producer deprives himself the opportunity to create long-term loyalty and competitiveness (Tsiaousi, 1998). In this way the whole supply chain loses the benefits of a high added value product which would command a premium price in the world market. Also missing is the opportunity to create national competitive advantage, to become synonymous to a highly respectful producer and to improve country's image in the world trade field.

Hence, despite the olive oil sector's crucial role in the Greek agricultural economy, the policies followed to date have not yielded the best possible results. The whole sector seems to be viewed from an apparently "old-fashioned" perspective. The actions undertaken have been occasional, uncoordinated and not focussed on improving supply chain efficiency, neglecting to communicate any quality improvements to the market, and thus achieving the market share the Greek olive oil deserves.

The first step, then, to solve problems of this nature would be to create a competitive advantage for the Greek olive oil industry; to make clear to the domestic and the global consumer that Greek olive oil has a distinctive characteristic that makes it superior to other olive oils. The ideal soil and climatic conditions of the country - although supplementary - apparently do not constitute a serious enough point to convince international markets and consumers whose dietary culture does not include olive oil.

The phenomena of olive oil substitution for cheaper vegetable oils appeared in the 90's also in the domestic market, indicating that the existence of high quality brands is equally necessary to maintain and further expand the loyalty of the Greek consumers.

To create a distinctive capability leading to a competitive advantage there are many ways, involving changes towards the direction of Greek olive oil differentiation. These can be: a) differentiation of its physical, chemical and organoleptic characteristic according to different production areas, fruit maturity level, harvest dates etc; b) differentiation based on the influence of various storage and processing techniques on its quality; c) differentiation based on its quality and safety assurance for the end-user, with the adoption of quality schemes, such as the HACCP, the use of software for food traceability, the Protected Denomination of Origin and/or Protected Geographical Indication (PDO/PGI) scheme and the organic production methods, which command price-premiums; and d) differentiation through cost reductions with the adoption of managerial techniques such as the ISO, embodied to a wider Total Quality Management and Supply Chain Management concepts, covering the whole length of the supply chain and offering wider flexibility in implementing domestic and international product pricing policies.

For the Greek olive oil industry to become more competitive, the premium quality of the best olive oil products has to be stressed. These products are extra virgin olive oils, PDO/PGI and organic brands. Greece's main target should be to create brands with optimum quality characteristics of high added value to achieve brand loyalty. This can be guaranteed by the processing of premium first material (olive fruit), the use of technically advanced processing equipment, the storage of the final product under

optimum conditions and, overall, the adoption of modern marketing and management techniques all along the supply chain. Above all, a continuous information campaign should be undertaken, to communicate to the national and international consumer the proven superiority of olive oil:

“...The European Commission was to spend ECU 45million on a new promotional campaign for olive oil, with particular emphasis placed on the three Member States which have joined the Union since the previous campaign began. Studies of the Austrian, Finnish and Swedish markets for olive oil will be carried out to assess the potential for growth there...” (Eurofood, 1998)

Although the cost of olive oil production will never decrease at the very low level of other vegetable oils, its higher nutritional value and superior organoleptic characteristics (see Sections 2.1 and 2.4) justify its higher price. A continuous effort to decrease its price should not be undertaken, since it is practically impossible to be achieved at low enough levels, it will deter producers from any further improvement of the cultivation and marketing techniques and, in the long run, it will underestimate olive oil's reputation in the world markets (Karidis, 1996). In contrast, both cost reductions and price-premiums can be achieved with the adoption of advanced managerial techniques, such as the use of quality-based differentiation mechanisms, whose use as marketing strategies will be widely covered in this work.

1.1.2. Managerial and academic importance of the work

The Greek consumer changes and a whole range of non-economic, lifestyle and value factors influence its behaviour (c.f. Section 2.4), making the adoption of a new national strategy for the promotion of the Greek olive oil necessary. From a *managerial* point of view, the specific product should be competitive in this new environment in both the domestic and the world markets.

According to Porter's "diamond", one of the five parameters of international competitiveness is the existence of sophisticated domestic demand (Porter, 1998). The value of the present work stems, then, from its *attempt to examine the problem from a managerial/marketing point of view*. This is achieved by identifying the existence of a sophisticated domestic demand for the Greek premium quality (extra virgin, organic and/or PDO/PGI, with ISO and/or HACCP) olive oil, produced by usually very small, family-based, independent, progressive firms, pioneers in the adoption of innovative ideas of differentiation. *The present study is mainly concerned with the small-scaled, family-based olive oil processing and trading firms, which are the great majority of the industry. It covers the "real world" (marketing and management) gap observed in the Greek olive oil research*, which mainly focuses on the improvement of the cultivation and processing techniques, ignoring the others aspects of the problem.

The prospects for the Greek olive oil industry should not be examined solely from an export-orientated point of view, since the domestic market shows saturation phenomena that can be misleading. The present work will attempt to prove that domestic segments not explored so far exist, constituted by quality and health conscious consumers of specific socio-demographic profile. Exploitation of these segments can be proven particularly profitable for especially the small-scale, family-based processing/trading firms, which are the majority of the olive oil sector. This will be achieved through the measurement of market shares hypothetical quality olive oil brands would acquire, if tailored after the wants and needs of the pre-defined quality conscious segment.

From an *academic* point of view, the value of present work stems from its *distinctive methodological approach*, since it combines two of the most powerful marketing research techniques: *the Means-end qualitative methodology embodied into the wider “personal values” research theories; and the quantitative Conjoint multivariate data analysis method, based on the findings of the qualitative phase.*

This approach is innovative, given that it offers the advantage of mutual utilisation of the positive aspects of the two methods and, at the same time, exclusion of their weaknesses. The Means-end phase and the corresponding laddering technique offer a response to a “why” question, namely, through consumer cognitive structures’ description, a clear picture of quality olive oil purchase motivation based on their values and consequences from the use of quality olive oil. However, for this description to have purchase predictive validity, the sample used has to be homogeneous. It is exactly this homogeneity which is statistically proven with the use of Conjoint analysis and its managerial applications (segmentation, estimation of future market shares).

On the other hand, the qualitative laddering phase which precedes offers a solid psychographic framework, from which the most important for the consumer olive oil quality attributes are revealed, through their relevance to consumers’ quality olive oil benefits and related personal values. In this way, the Conjoint profiles developed by combining these attributes are accurate, valid and clearly reflect consumers’ most preferred (existed or hypothetical) quality olive oil products.

Hence, the Means-end phase is important for the validity of the Conjoint phase and vice versa. This *advantageous mutuality* can also be highlighted based on the fact that the order of the two phases could easily be reversed, with the quantitative phase preceding the qualitative, as some researchers suggest. For example, Cahill (1996) proposes to use qualitative after quantitative research, as plausibility test of the latter's results. The laddering method could easily follow the conjoint analysis phase without distorting the coherence of the methodology, in order to validate its findings by connecting profiled attributes to segment members' personal values.

1.2. Structure of the Thesis

The structure of the work includes, apart from the current introductory part (Chapter 1), the literature review part (Chapters 2 and 3), the research aims and objectives part (Chapter 4), the empirical methodological part (Chapters 5 to 7), and the concluding Chapter 8, as follows:

An account of the status and dynamics of the Greek olive oil market, focusing on conveying the key facts and trends, is the starting point of *Chapter 2*, together with olive oil technology and definitions. The chapter is mainly concerned though with food consumption being more of a human "culture" than an everyday habit. Its main objective is to analyse the non-economic factors which influence our choice of food as individuals or members of a group (family, society etc.) and on this basis to describe the changes that are being observed in the consumption patterns of Greece. Since some consumption patterns are attributable to economic factors, the remaining part, especially from the early 80's, is a consequence of non-economic factors. This part is analysed further in this chapter. The theory of the underlying trend in demand based

on product “utility” is described, along with the factors that determine contemporary Western consumer’s tastes and preferences. Based on the above, a detailed description of the Greek consumers’ dietary patterns evolution the last decades is also included, together with a projection of food expenditure until the year 2010.

Chapter 3 attempts to present the wide concept of quality from the consumer point of view. After suggesting the multi-dimensionality of quality, it offers a brief review of quality definitions. Then; it distinguishes between objective and subjective or perceived quality, describes how consumers incorporate quality in their behavioural process and presents a variety of models which differentiate between expected and experienced quality. Then, the Chapter attempts to offer more insights into the matter of health-related food choice, moving at a two-fold level of food healthiness and safety. The difficulties of consumers to perceive food nutrition value are noted at the beginning, together with the role of education and nutrition labels on the understanding process. Different health behaviour models are described, coupled with a presentation of the most recent health-related EU consumer studies. The importance of food health claims and the relevant regulation are analysed. The Chapter continues with the related concept of food safety and the views of it held by different interested parts. It proceeds with an analysis of the risk concept as perceived by consumers and the role of information and labels in the food safety problem. Finally, the neglected issue of food safety education closes the Chapter.

Chapter 4 constitutes a short summary of what has been discovered about the subject matter and broad research problem from the literature review, coupled by explicit stating of the key research questions to be addressed by the empirical research of the following Chapters 6 and 7.

The purpose of *Chapter 5* is to introduce Means-end chain theory and the laddering data collection method. It opens with a brief review of the qualitative research concept, its theoretical background and relation with marketing research, its stages, results' interpretation and evaluation. The role of the non-directive in-depth interview techniques, where laddering belongs, is highlighted. The main part of the Chapter is dedicated to the development of the Means-end chain methodology. The method's broader conceptual model is introduced, followed by a detailed description of the laddering technique: interview environment, probing techniques, stages' analysis, criteria to assess the validity of the results, and laddering applications. The Chapter ends with cases of laddering application in the international olive oil research.

The Means-end method application of *Chapter 6* starts with the selection of a convenience sample with a specific profile, similar to that of the quality-conscious consumer suggested by the literature. It continues with the identification of the olive oil attribute elicitation method and the practical implementation of the laddering interviews, according to the limitations and instructions mentioned in the previous Chapter. Then, a series of analyses transforms data to the appropriate for the use of software form. The ultimate task of the Chapter includes to development of the sample's cognitive map (Hierarchical Value Map), where the links between olive oil quality attributes and consumers' values are clearly designated. This map serves as

quality olive oil purchase behavioural predictor of the sample.

The objective of *Chapter 7* is, using conjoint analysis, to describe a study of consumer preferences for “quality” olive oil brands – quality being defined after the laddering findings as a bundle of extrinsic quality cues such as quality assurance labels, health-related information, country of origin indication, bottling material and price. A four times larger, more variant, random, stratified sample is used. A consumer preference rating for the selected quality cues is developed. By evaluating different olive oil profiles with equivalent ratings, a set of olive oil virtual “brands” with different combinations of the above selected extrinsic quality cues is created and evaluated for marketing purposes. Then, consumers’ preference for, and market shares of these “brands” are revealed. Above all, however, the use of conjoint analysis statistically and quantitatively proves the validity of the Means-end phase and the homogeneity of the laddering sample.

Finally, *Chapter 8* opens with a clear summary of the key-findings and results of the research structured according to the research questions. Next follows a discussion of the implications of these findings, what has been learned from them, what is known now that was not known before. Both “real world” and academic/theoretical implications are presented. Then, limitations of the study are discussed, followed by avenues for future research.

CHAPTER 2

THE GREEK OLIVE OIL MARKET AND THE GREEK FOOD CONSUMER: NON-ECONOMIC FACTORS INFLUENCING CONSUMPTION

2.1. Olive Oil Definitions and Technology

2.1.1. Attributes and diversity

Olive oil has an ancient history dating back to 3000BC or even earlier. Cultivation of the olive tree probably started in the Middle East and spread throughout the Mediterranean basin. All the nations of the area took advantage of its culinary properties. It has also been used to produce light, heal wounds and maintain body tone. It has not been until only recently, however, that olive oil is appreciated outside the Mediterranean area for both its culinary and health properties.

Olive oil not only provides an essential cooking medium, it is also a flavouring in its own right. Most vegetable oils are deliberately designed to be neutral in flavour but olive oil offers a means of adding flavour as well as lubricating and cooking food. It is also unique among widely available vegetable oils in that it is produced from the flesh of a fresh fruit – that of the olive tree. Its extraction is purely mechanical and if the olives are of sufficiently good quality the oil is edible immediately after extraction.

On the health front, olive oil offers a very high ratio of monounsaturated to saturated and polyunsaturated fatty acids. Modern research seems to show that monounsaturated are at least as useful in the fight against coronary heart disease as polyunsaturated fatty acids. Indeed, there is some evidence to show that they can be

even more beneficial. Olive oil also contains some substances not present in other oils, such as natural antioxidants, which may be helpful too (Ridgway, 1993). Within all the Mediterranean countries are many producing areas with hundreds of different producers. The climate, soil, cultivation and harvesting methods can be quite distinct and there are at least 60 different varieties of olives (Kiritsakis, 1995). All these result in an immense diversity of flavour and no two olive trees taste exactly the same. It has to be noted that the same factors lead to quite large variations in marketed quality.

2.1.2. Quality and flavour – influential factors

In general, poor quality oils will have poor flavour and good quality oils will have a diverse flavour. Quality in olive oil has to do with acidity levels, colour, aroma and flavour. The first of these can be measured chemically. As yet, the others cannot. According to Ridgway (1993), the acidity level of an oil is important because it will affect the speed at which the oil will decompose. Thus, the lower the acidity the better the quality of oil. Acidity does not directly contribute either positively or negatively to flavour. It is tasteless. However, oils with a high level of acidity are more likely to ferment and develop off-flavours which are detectable.

Acidity alone is not a sufficient indicator of quality. An oil with a low acidity level could still fail on bad colour, aroma or flavour. Because of the diversity of olive oils, there are a wide range of colours, aromas and flavours that fall within the quality spectrum. Quality in olive oil has more to do with the fact that it is free from certain smells and off-flavours than that it has a particular colour, aroma or flavour, though olive fruitiness and balance of flavours are very important:

Everything that happens to the olive tree, from pruning in spring, to flowering, fruiting and harvesting in late autumn to crushing and milling, will have a bearing on the flavour and quality of the finished oil. The harvest is a particularly critical time as far as quality is concerned. Ideally the olives should be picked at optimum ripeness: ripe enough to produce good quantities of first class olive oil, but not so ripe that the fruit will start to oxidise and ferment as soon as it is picked. This is a difficult decision for there is, as yet, no substitute for the farmer's experienced eye. In practice the harvest will begin when most of the fruit is ripe. In the northern parts of the Mediterranean this means November or early December (in Greece, for example, black-coloured olives are usually harvested from November to early February). Northern varieties tend to ripen earlier than those in the south and the crop must be picked before the weather gets too cold and causes damage to the fruit.

The degree of fruit maturity may affect the colour of olive oil and will certainly affect the flavour. Oil produced from unripe olives will taste very different compared with that from ripe or over-ripe olives. In some areas, such as Tuscany (Italy) olives have traditionally been picked early to avoid the ruinous effect of an early frost. This happens to result in a particularly young, fresh or "green" flavour.

The way in which the olives are handled and the time that elapses between harvesting and milling are also very important. Olives will also start to oxidise if they are left on the ground for too long. Such olives can give an "earthy" aroma to the oil. Ideally, the olives are handpicked. The workers "comb" the olives on to nets laid beneath the trees. Olives damage easily and once damaged are likely to start to oxidise and

“...The factors that affect quality and flavour tend to be similar. Obviously any factors that lead to poor quality are likely to result in bad flavour. Other factors such as the variety of olive could have less effect on the quality of the oil and more on the flavour... There are six major factors that can affect the quality and flavour of olive oil: variety, soil, climate, cultivation, harvesting and milling....” (Ridgway, 1993).

Each olive oil variety has its own distinct characteristics. Some olives, such as the “Frantoio” (found in various parts of Italy) give a hot and peppery flavour to the oil. Others, such as the “Kalamata” (found in Greece) confer a distinctive verdant or “grassy” flavour. Different varieties ripen at different times and are more or less susceptible to attack by pests. Some varieties give a green colour to the oil regardless of their degree of maturity; others produce green oil only when they are not fully ripe. Most olive-growing areas have their own particular varieties of olive, some of which do not grow outside that area and, with very few exceptions, the oil is produced from a random mix of these varieties.

The soil, climate and methods of cultivation affect the growth of the plant and the speed at which the fruit ripens, and this in turn can affect the flavour of the resulting oil (Kiritsakis, 1995). For example, olives grown at high temperatures in prolonged sunshine will produce oil that tastes quite different from one produced from olives grown in more temperate climates. The weather also plays an important part in the occurrence of *Dacus oleae*; a fly whose grubs attack the olive fruit as it ripens. Careful cultivation can keep such an attack to a minimum. A heavy infestation can result in a grubby or “wormy” flavour.

ferment. The olives are, then, gathered into baskets and taken to the mills for crushing and pressing.

Once the olives reach the mill, they may be stored for a short time. This allows them to heat up sufficiently to release more oil but not enough for them to ferment. The ambient temperature is a key factor here. In hot climates the olives need to be milled the same day they are harvested. In cooler climates they may be stored for up to three days. An error of judgement here and the oil will have a burned or “fusty” smell.

At the mill the fruit is crushed and the resultant paste is spread on to circular mats and pressed in a hydraulic press. These modern presses make it possible to extract almost all the olive oil from a single pressing. They are installed almost everywhere and the practice of pressing the paste two or three times, sometimes with the addition of hot water, is no longer necessary. Thus, almost all olive oil traded is now from the “first pressing”. Good hygiene in the mill is an important factor in quality. Faults such as the overuse of mats, inadequate centrifugation and bad storage will show up in the quality and flavour.

2.1.3. Definitions – olive oil categories – assessing quality

The olive oil is a mixture of tri-glycerins (esters with glycerin) superior fatty acids, saturated and non-saturated. The highest percentage of the olive oil’s fatty acids is non-saturated, with special reference to the mono-saturated oleic acid contained between 56-83 percent, depending on the olive variety, origin, and ripeness of the fruit. The Greek olive oil, due to more favourable (prolonged sunshine and mild autumn) climatic and soil conditions of oil content increase of the olive fruit, contains

a higher percentage of non-saturated tri-glycerins (oleic acid). These are in liquid form, making the Greek olive oil less thick than other countries' olive oils, which contain a higher percentage of more "solid" saturated tri-glycerins (Kiritsakis, 1996).

Apart from tri-glycerins, some other very useful to the human chemical components are included, such as: the hydrocarbon "squalene", which takes part in the human's metabolism; fat-dissolvable vitamins, especially vitamin E ("tocopherol"); phenols, sterols and other natural anti-oxidation elements; and aromatic components, like aldehydes and ketones, which give to the olive oil its mild and pleasant taste and aroma. These components' level is higher when the fruit is harvested in the optimum stage of maturity (change colour from yellow- light green to dark green-brown), when they are processed immediately after harvesting and under perfect processing conditions (especially mild processing temperatures).

The classification and descriptions used are in accordance with the International Olive Oil Council (IOOC) regulation 356/92, which modified the basic council regulation EU136/66, and reviewed the names and definitions of olive oil and olive-residue oils.

Virgin olive oils are oils obtained from the fruit of the olive tree exclusively by mechanical or physical means under conditions, particularly thermal, that do not lead to the deterioration of the oil. The fruit and the oil have furthermore undergone no treatment other than washing, decantation, centrifugation and filtration, to the exclusion of oils obtained with solvents or re-esterification processes and any mixture of other oils.

Virgin olive oils are classified as follows: a) *extra virgin olive oil*: virgin oil having an organoleptic grading no less than 6.5, a free acid content expressed as oleic acid no more than 1gr per 100gr. b) *Virgin olive oil* (the expression “fine” may be used at the production and wholesale stage): virgin oil having an organoleptic grading of not less than 5.5 and a free acid content expressed as oleic acid of no more than 2gr per 100gr. c) *Ordinary virgin olive oil*: virgin olive oil having an organoleptic grading of not less than 3.5, a free acid of no more than 3.3gr. per 100gr. d) *Lampante virgin oil*: virgin olive oil having an organoleptic grading of less than 3.5 and/or a free acid content expressed as oleic acid greater than 3.3gr per 100gr. It is not fit for consumption. This oil should be refined or used in technical purposes.

In the category of *non-virgin Olive Oils* belong: a) *Refined Olive Oil*: olive oil obtained by refining virgin olive oil with an acid content expressed as oleic acid of no more than 0.5gr per 100gr. b) *olive oils (Coupe or Riviera)*: olive oil obtained by blending refined olive oil and virgin olive oil other than lampante oil, having a free acid content expressed as oleic acid of no more than 1.5gr per 100gr. It is fit for consumption and this oil is widespread on markets. c) *olive-residue (pomace) oil*: oil obtained by blending refined olive oil and virgin olive oil other than lampante oil, having a free acid content expressed as oleic acid of no more than 1.5gr per 100gr. d) *Crude olive-residue (pomace) oil*: oil obtained by treating olive-residue oil with solvents, excluding oil obtained by means of re-esterification and mixtures with other types of oils. e) *Refined olive-residue (pomace) oil*: oil obtained by refining crude olive-residue oil, having a free content expressed as oleic acid of no more than 0.5rg per 100gr.

Traditionally, the only way to judge olive oil was by tasting it. A single person often did this and the results were very subjective. Today, chemical tests have been developed to test the acidity levels of the olive and grading within the EU is now carried out by a mixture of chemical tests and testing panels.

There are three main categories of olive oil on sale in the UK (*Ridgway, 1993*). These are, in descending order of quality: a) extra virgin olive oil, which is oil of perfect aroma, flavour and colour, with an acidity level of not more than 1gr per 100gr of oil; b) virgin olive oil, which is oil of perfect aroma, flavour and colour, with an acidity level of not more than 2gr per 100gr of oil; and c) olive oil which consists of a blend of low quality refined and virgin oil, with acidity levels of not more than 1.5gr per 100gr of oil.

A new system of assessing the organoleptic characteristics of virgin oil has come into operation in within the EU countries (*Ridgway, 1993*). Using a basic technique, tasting panels evaluate the aroma and flavour of oils submitted to them. The scheme gives greater emphasis to the importance of taste in olive oil and is undertaken in addition to the chemical analysis of acidity.

Panels are made up of ten specially selected and trained persons and special care has been taken to reduce subjectivity. Rigorous guidelines are laid down for the methodology, procedure and language to be used by the panels. Tasting takes place in custom-built tasting rooms with individual booths. The samples, tasted blind, are served in blue glass so that judgement is not affected by colour, and tasting is limited to a maximum of five per sitting.

Standard tasting sheets are used to record the taster's assessment and marks are given to each attribute according to intensity. The tasters assess the intensity of base sensations and grade the oil between 1 and 9. If a tasting indicates that in even one of the tasting parameters a sample is below the minimum considered acceptable; the oil can not be considered virgin or extra virgin. The results are assessed and amalgamated to give an overall score for each oil. The margin of tolerance in the organoleptic tasting will be reduced as the scheme gains in acceptance.

2.1.4. Nutritional value of olive oil

Olive oil offers many advantages to the consumer, concerning his health, in comparison to the olive-residue or pomace and other vegetable oils. The "Mediterranean diet", whose base and main source of non-saturated acids is olive oil, has been proven to be one of the healthiest diets, related to less cardio-vascular (heart) diseases and more prolonged life expectancies of the inhabitants around the Mediterranean basin (see Section 2.4.1 and the corresponding literature)

Olive oil is the natural "juice" of the olive fruit, produced with mechanical or physical methods under conditions, which do not allow any alteration of its quality and nutritional value. It has been proven that the mono-saturated oils (especially olive oil) increase the valuable HDL cholesterol and decrease the harmful LDL one (Kiritsakis, 1996), which is believed to be responsible for heart attacks. According to different surveys, in areas with increased olive oil consumption, low percentage of heart diseases has been observed, fact that proves olive oil's beneficial role.

Olive oil contains the highest level of mono-saturated (oleic acid) and the lower level of poly-saturated (linoleic and linolenic) acids, in comparison to the pomace oils (Table 2.1). The latter, due to their high poly-saturated acid content, are being easily oxidised and their taste is getting altered (“bitter”) with time. Olive oil, in contrast, has quality attributes more stable in time and can be stored, under specific conditions, for long without quality and taste alterations. This is the reason why, when used in cooking, olive oil gets less oxidised than other types of oil. The oxidation’s side-products are harmful for the liver, heart and arteries. Finally, olive oil contains vitamin E in a much greater percentage than linoleic acid (poly-saturated). The minimum acceptable ratio Vitamin E/ Linoleic acid is 0.8. In olive oil it is 1.5, while in the pomace oils it is much lower.

After all the above mentioned, and especially the scientifically supported theory that the mono-saturated oils (with representative among them the olive oil) have a positive influence on the HDL cholesterol, genetic engineers in the USA have modified the composition of the pomace oils to create new ones with structure similar to that of the olive oil (higher percentage of mono-saturated acids). It is, thus, the duty of the Mediterranean countries to promote by any means the natural mono-saturated content of olive oil, without any genetic modifications, of which the global consumer gets more and more “suspicious”. Mono-saturation is not olive oil’s only competitive advantage, from a nutritional value point of view, after all; its other elements mentioned above are extremely beneficial for the consumer health, enhancing its extra nutrition value, proven thousands of years ago by Hippocrates, the father of medicine.

Table 2.1: Fatty Acids Content of Olive Oil
Source: adapted from Kiritsakis, 1996

Fatty acid	Percentage %
NON-SATURATED	
Elaic (C18:1)	56-83
Linelaic (C18:2)	3.5-20
Linolenic (C18:3)	0.0-1.5
Palmitoleic (C16:1)	0.3-3.5
SATURATED	
Palmitic (C16:1)	7.5-20
Steatic (C18:0)	0.5-5.0

2.1.5. Processing virgin olive oil

Virgin olive oil is oil obtained from the olive solely by mechanical or other physical means under conditions, particularly thermal, that do not lead to deterioration of the oil. It has not undergone any treatment other than washing, crushing, preparation of the paste, separation of the solid and liquid phases, decantation and/or centrifugation and filtration (ELAIS S.A, 1998; c.f. Figure 2.1). Virgin olive oil is therefore the only oil-juice of a fruit (olive). It is virtually the only oil that can be consumed as it is obtained from the fruit and, when properly processed, maintains unchanged the flavour, aroma and vitamins of the fruit.

To produce quality oil, whole sound olives have to be used. This is why farming practices have a significant bearing on the quantity of olives obtained and why they are important in creating optimal conditions for the fruit to bear good oil. However, the way the olives are handled at the mill will also affect quality because, unless every stage of processing is carried out properly, the potential quality contained in the fruits may be at risk.

Upon *arrival at the mill*, the fruit has to be classified in terms of variety, whether it has been picked from the tree or ground, whether it is sound or has been attacked by pathogens, so that each class can be processed separately. The olives must be clean when they enter the mill. Another possibility is to install sorting and washing equipment in the mill itself (Figures 2.1, 2.2 and 2.3).

Quality oils are obtained when the olives are crushed as quickly as possible, since storage triggers fermentation processes in the fruit. When this occurs, the oil in the fruit becomes increasingly acidic and takes on undesirable, detrimental flavours and aromas. If crushing capacity can not cope with the quantity of olives delivered on a particular day, it is advisable to store the potentially worst quality olives (those picked from the ground or attacked by pests or diseases) and to crush the sound olives almost immediately.

Traditionally *crushing* was done by hand in spherical or conical stone basins. To improve yields basin's base block was made bigger and the olives were ground on top by revolving millstones driven by animal power. Over the years, dual rotation of the stones about the vertical shaft of the base block and the shaft of the millstone improved the characteristics of the resultant paste. Blades stir and remove the paste. The traction system has also been improved over the years, with hydraulic energy, steam and gasoline engines being used and now electricity with individual engines on each machine.

Fig. 2.1: The Typical Olive Oil Process
Source: adapted from Kiritsakis, 1996.

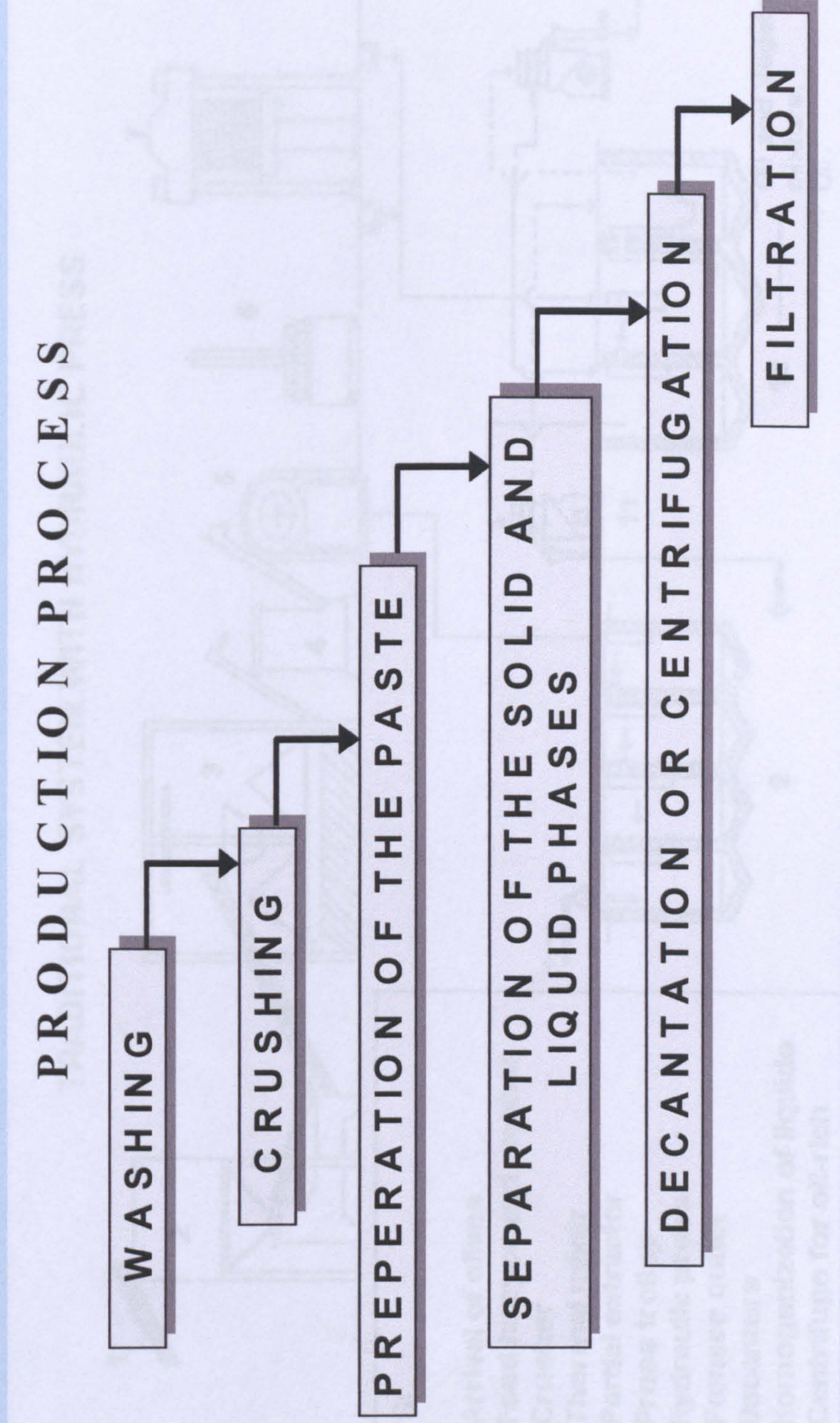
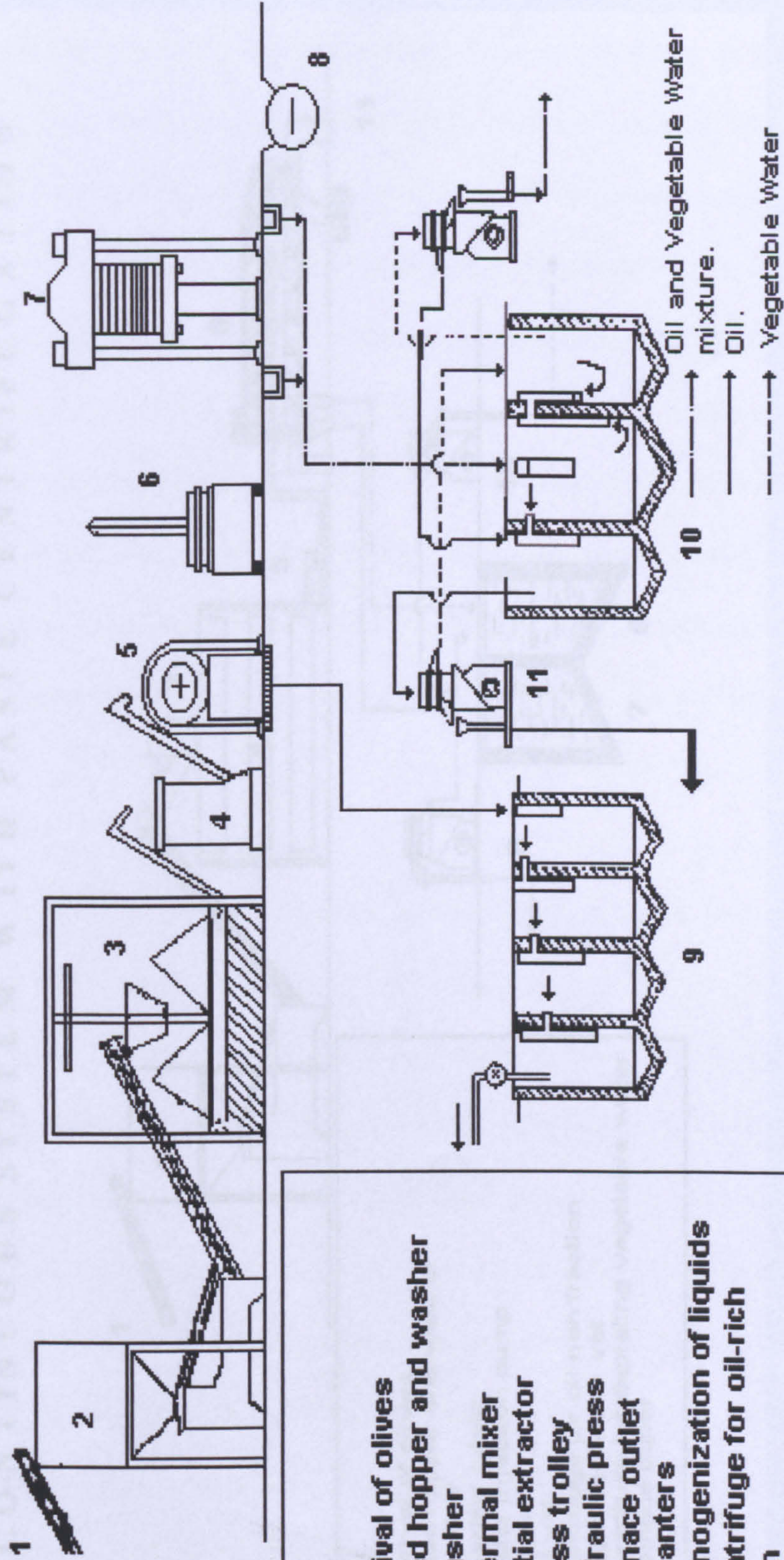


Fig. 2.2: Traditional Olive Oil Mill
Source: Adapted from ELAIS, 1998.

TRADITIONAL SYSTEM WITH HYDRAULIC PRESS

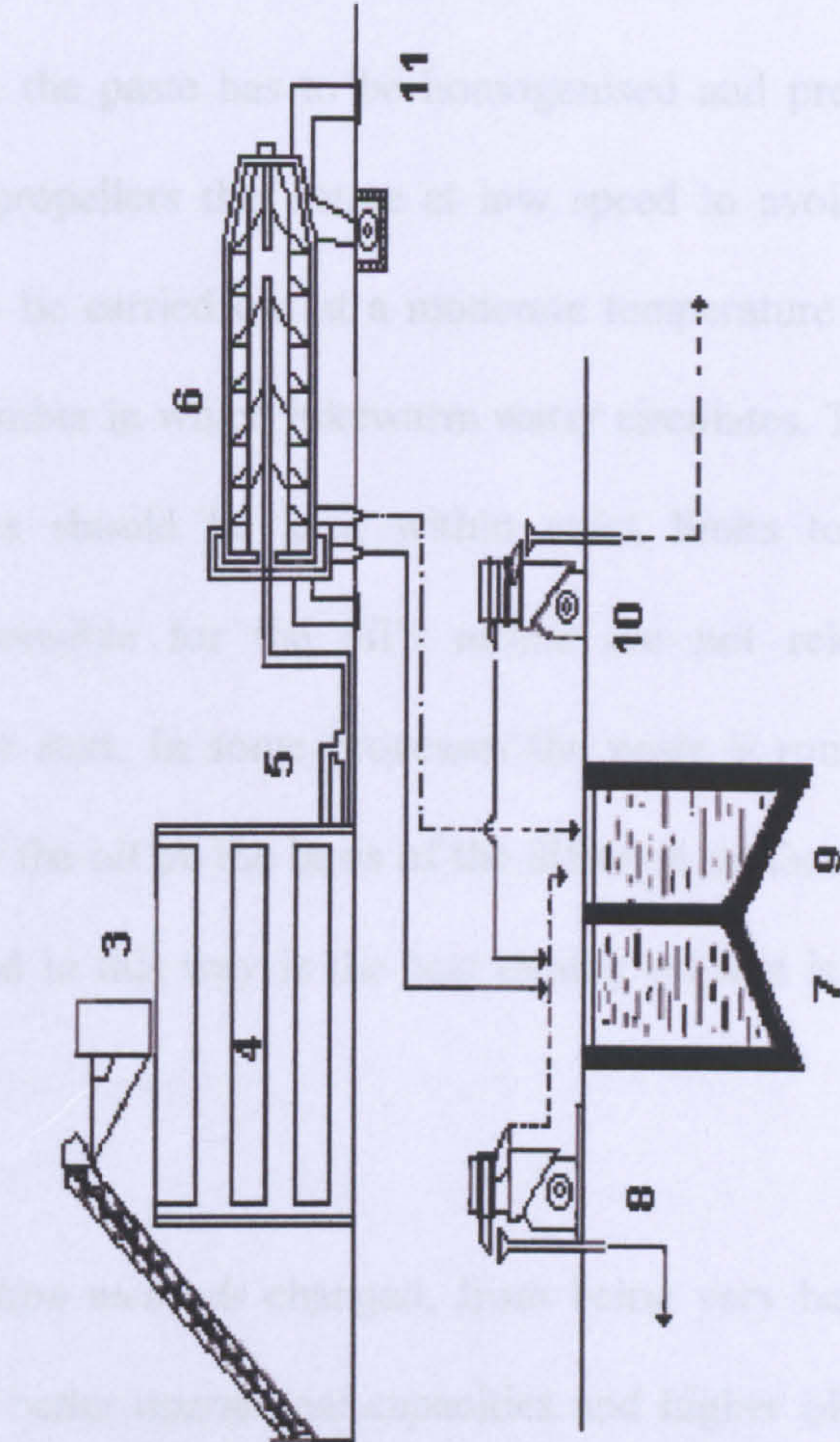


KEYS:

- 1. Arrival of olives
- 2. Feed hopper and washer
- 3. Crusher
- 4. Thermal mixer
- 5. Partial extractor
- 6. Press trolley
- 7. Hydraulic press
- 8. Pomace outlet
- 9. Decanters
- 10. Homogenization of liquids
- 11. Centrifuge for oil-rich fraction

Fig. 2.3: Modern Olive Oil Mill
Source: Adapted from ELAIS, 1998

CONTINUOUS SYSTEM WITH PASTE CENTRIFUGATION



- KEYS:
- 1. Arrival of olives
 - 2. Feed hopper and washer
 - 3. Crusher
 - 4. Thermal mixer
 - 5. Water injection pump
 - 6. Decenter
 - 7. Oil vat
 - 8. Centrifuge for oil-rich fraction
 - 9. Vegetable water vat
 - 10. Centrifuge for depleting vegetable water
 - 11. Pomace outlet

Immediately prior to crushing the olives should be run through a washer to eliminate any remaining impurities. Generally, the olives are crushed whole, without prior stoning (pitting), in roller mills or modern hammer crushers: to make sure the oil separates easily, the paste has to be homogenised and prepared in mixers equipped with blades or propellers that rotate at low speed to avoid creating emulsions. The operation has to be carried out at a moderate temperature and to do so the mixer is fitted with a chamber in which lukewarm water circulates. The oil becomes more fluid but temperatures should be kept within strict limits to ensure that the volatile substances responsible for the oil's aroma are not released and that oxidation processes do not start. In some processes the paste is run through an extractor that separates part of the oil on the basis of the different surface tensions of oil and water. The oil separated in this way is the best quality oil that is least retained by the fruit flesh.

Initially, *separation methods* changed, from being very basic, to a method that was simple but with better operational capacities and higher oil recovery rates. This was the case of the lever press, of the much later screw press and the more recent hydraulic presses. The paste was placed in cages but the juices were not readily or completely released, and so pulp mats or filter discs came into use. A layer of olive paste was spread onto each mat, which was then stacked onto others to form a cylindrical load held fast by a needle or central guide. The pressure exerted on the stack causes the liquids to run out while the solids are retained on the pulp mats. Due to its granular consistency, the paste acts as a filter together with the mats. Modern hydraulic presses apply a pressure of 50-65 kg/cm² to the paste. The vegetable water and oil gradually seep out, running down into the press trolley from where they are run into a set of

decanters. The oily musts obtained at pressures of up to 40kg/cm² can be separated from those that follow because they contain the more easily released, better quality oil.

The paste used to be spread onto the pulp mats by hand although mechanical spreaders have been in use for some time and work well, raising labour productivity. The mats must be washed frequently to stop them from fermenting, which transmits undesirable properties to the oil. In recent years, the solid remaining, oil and water are separated by continuously centrifuging the paste or mash. After being suitably thinned with lukewarm water, the paste is injected into the decanters or horizontal-shaft centrifuges, which revolve at 3000 to 4000r.p.m. Because of the different densities of the three substances, separation is immediate. The rather moist pomace (close to 50 percent) is run through one pipe while the vegetable water mixed with some oil runs through another and the oil containing some water is discharged through a third outlet. Both oily musts are put through an upright centrifuge to separate them properly.

The mixture of water and oil produced by a traditional pressing method can be separated by gravity in decanting vats where it makes a long journey through basins connected by siphons which make it possible to increase the proportion of oil recovered and to further deplete the vegetable water. Rapid separation can also be achieved in upright centrifuges, which revolve at 6000 to 7000r.p.m. However, for the operation to be efficient, the liquids must be homogenised in tanks prior to being run into each centrifuge. Some centrifuges are capable of handling liquids containing a high percentage of oil, while others are for vegetable water with a small amount of recoverable oil. In continuous-process facilities the liquids are always separated immediately by centrifuging each of the liquid fractions discharged by the decanter.

The quantity of virgin olive oil obtained depends on the variety, the moisture content of the fruit, and the characteristics of each growing season. Figures between 15 and 25 percent of the olives used are the most usual, particularly around the 20 percent level.

The oil produced at the mill has to be stored for a relatively long period until it is sold. The best storage tanks keep temperatures relatively constant, are made of material inert to the oil, and protect it from air and light as much as possible. Covered underground tanks internally lined with vitrified tile are recommended the most. When kept indoors, good results are obtained with covered stainless steel tanks or steel-plated tanks lined with epoxy or similar resins that are safe for use with food. If the tanks are stored outdoors, they should be coated with an external lining to prevent extreme changes in temperature. In all cases, the tanks should have slanted or conical bottoms that allow for drainage of accumulated impurities.

The *best virgin olive oils*, which are called extra, fine and ordinary, are packed next, in some cases after blending different oils to achieve a desired taste. These virgin oils are also used to fortify other types of inferior quality olive oils produced, which can not be classified among the three types mentioned. Their production is due to deterioration of raw materials or faulty handling during processing or storage. They are known as “lampante” oils (lamp oil). Inedible as such, they have to undergo a further process to correct the defects that make them unfit for direct consumption.

2.1.6. International rules for olive oil packaging

According to the rules and regulations set by the IOOC (1992a), olive oil intended for international trade must be packed in container complying with the general principles of food hygiene recommended by the Codex Alimentarius Commission (CAC/RCP 1-1996, rev.1). The containers may be tanks, tankers or wooden barrels; metallic sealed drums, lined with the proper type of varnish; tin plated cans or plastic bottles; and small and large glass bottles. The olive oil should never occupy less than 90 percent of the volume.

Labels on containers must include: a) the name of the product and the specific type (e.g. extra virgin); b) when a product has a commercial name, both names should be written; c) free acidity should be expressed either as a percentage of oleic acid or as degree of acidity; d) net content should be mentioned in weight or volume; e) name and address of the manufacturer, packer, distributor, importer and exporter should be on label; f) the country where the product originates should also appear on the label. When the olive oil is processed or packaged in another country, this is considered the country of origin; and g) batch series number, date of packaging and expiration, and storage conditions should be noted clearly on the label. All these rules are applied in order both, to ensure correct consumer awareness and to enhance the product's high quality.

2.2. The Greek Olive Oil Market

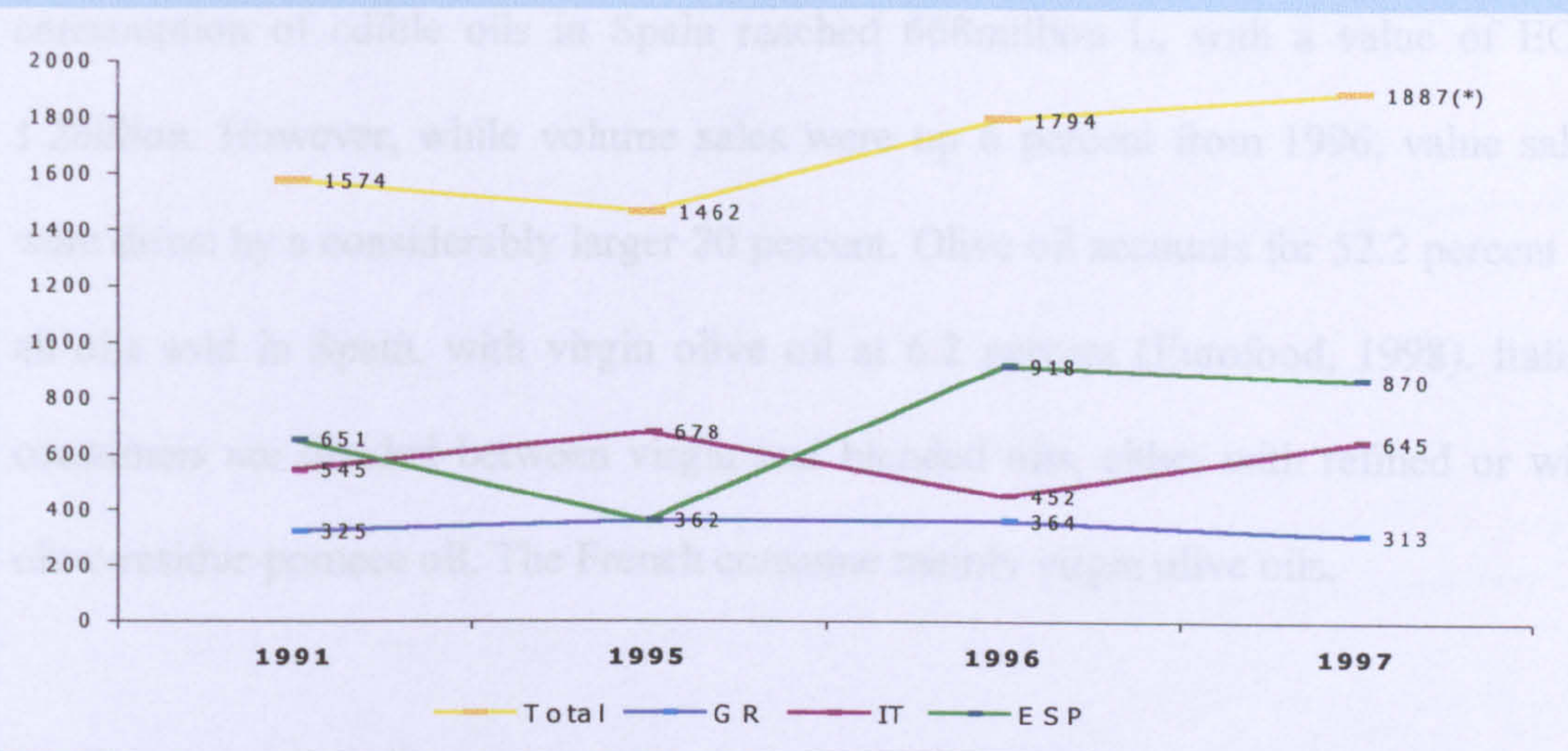
2.2.1. EU olive oil production and consumption

In the 9-member state EU of the late 70s, olive oil production stood at 400,000t and Italy was the main producer. With the entry of Greece in 1981, followed by Spain

and Portugal in 1986, the yearly output rose to over 1,000,000t (EC Commission, 1996 and 1997). During the 90s, the average yearly EU olive oil production has been more than 1,600,000t, which represented 75 percent of world production (FAO, 1997). EU production (Figures 2.4 and 2.5) reached the level of 1.88million t in 1997 and 2.27million t in 1998 (Eurofood, 1998).

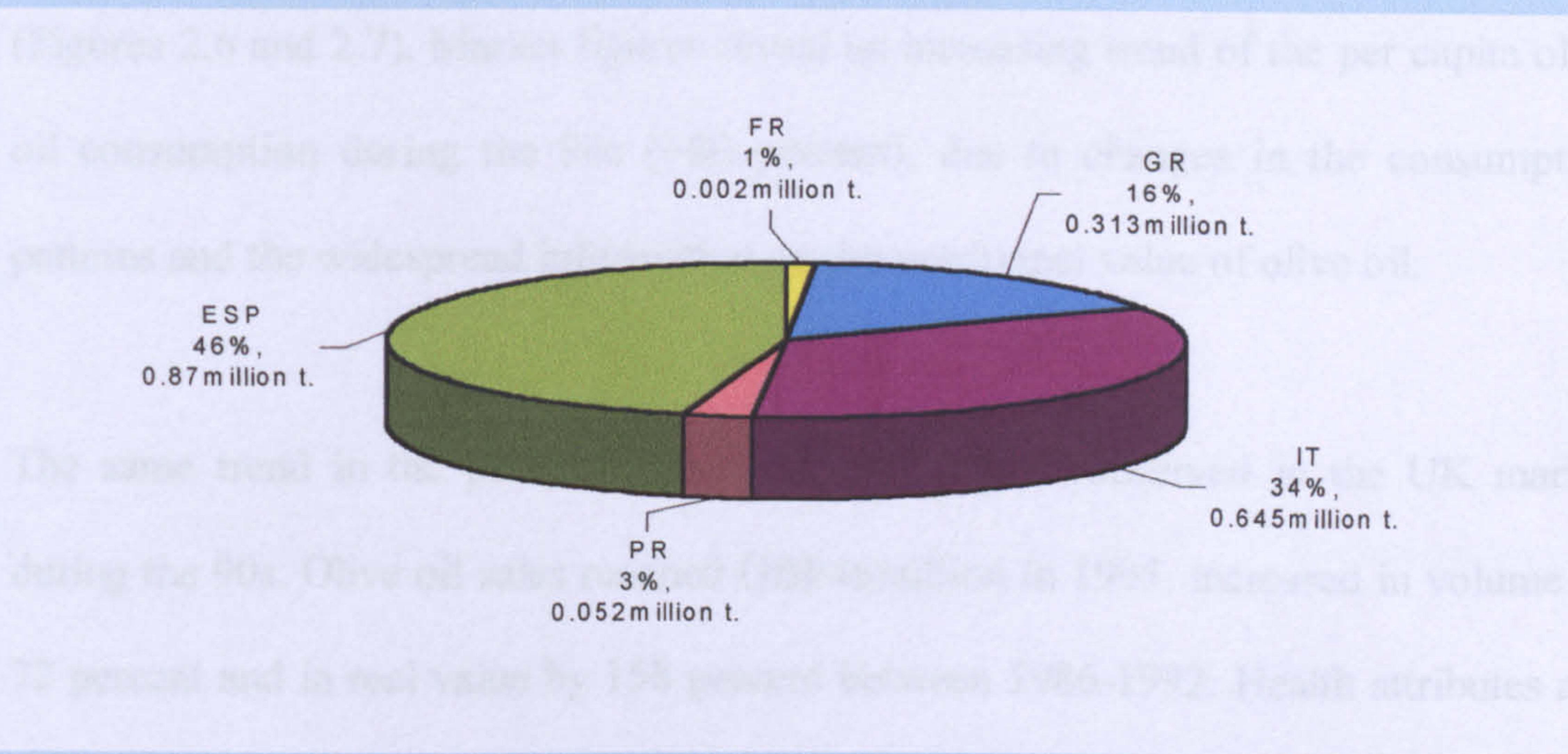
Spain is the major producer of different olive oil types in the world (39 percent of the world production; FAO, 1997). There are 200million olive trees planted in 2.1million hectares. Olive oil production in Spain is a social phenomenon, especially in Andalusia, which produces 60 percent of the total production. The average estate size in the area is 5 hectares with 1000 trees. In other regions, the average is 3 hectares. It must be stressed that the average mill processing volume is 150t of olives per day. *Italy* is second in all types of olive oil in the EU and in the world (29 percent). There are 100 million trees in 2.2million hectares. Italian and Spanish olive oil productions have been improved considerably during the 90s. Today, half of Italian production is virgin olive oil, in comparison to only 30 percent in Spain (ICAP, 1997). *Portugal*, with 35 million trees in 0.5 million hectares produces only the 2.7 percent of EU production. Its production is not very well organised in terms of cultivation and commercial techniques, although a considerable effort has been made lately (FAO, 1997). Overall, the highly concentrated olive oil cultivation around the Mediterranean basin is a striking characteristic of the agriculture sector of the Southern EU Member States. The olive oil culture has a profound economic, social and environmental impact on the European populations of the area.

Fig. 2.4: EU Olive Oil Production Trends in the 90s, x1000t.
Source: adapted from Eurofood, 1998; FAO, 1997; ICAP, 1996



* 1998: 2.27 million t.

Fig. 2.5: EU Olive Oil Production, 1997 (%)
Source: adapted from Eurofood, 1998; FAO, 1997; ICAP, 1996



The nutritional value of olive oil is well known in the Mediterranean countries, thus olive oil occupies a privileged position among the other vegetable oils. Consumption seems to be less affected by price competition with other oils than in the past. It appears to be more sensitive to fluctuations of olive oil own-price, rise in consumer incomes and efforts to improve quality and promote consumption (ICAP, 1997). Spanish consumers are accustomed to blends of refined and virgin oil. Major price cuts for most types of olive oil in 1997 led to increases in consumption, though not

high enough to compensate for the reduction in revenues. Total annual household consumption of edible oils in Spain reached 668million L, with a value of ECU 1.2billion. However, while volume sales were up 6 percent from 1996, value sales were down by a considerably larger 20 percent. Olive oil accounts for 52.2 percent of all oils sold in Spain, with virgin olive oil at 6.2 percent (Eurofood, 1998). Italian consumers are divided between virgin and blended oils, either with refined or with olive-residue pomace oil. The French consume mainly virgin olive oils.

In Germany the olive oil market is relatively restricted, in comparison to the Mediterranean countries, following the north European pattern of fat consumption (Figures 2.6 and 2.7). Market figures reveal an increasing trend of the per capita olive oil consumption during the 90s (+80 percent), due to changes in the consumption patterns and the widespread information on the nutritional value of olive oil.

The same trend in the per capita consumption can be observed in the UK market during the 90s. Olive oil sales reached GBP48million in 1995, increased in volume by 72 percent and in real value by 158 percent between 1986-1992. Health attributes and diet convergence can be also identified as the main reasons for this growth (Mintel, 1997). Considerable television promotion in the form of cookery programs highlighting the benefits of olive oil consumption has been partly responsible for a market value increase by 35 percent in 1996 and 38 percent in 1997. In general, the Northern EU countries are still far behind the South concerning olive oil consumption, despite the increasing trends identified during the 90s. German and the UK citizens consume at average only 0.25L of olive oil per year, quantity that is 76 times less than the annual per capita quantity of the Greeks.

Fig. 2.6: Per Capita Consumption Trend in Selected North European Countries (kg), 1986-1995
Source: adapted from Eurofood, 1998; FAO, 1997; ICAP, 1996

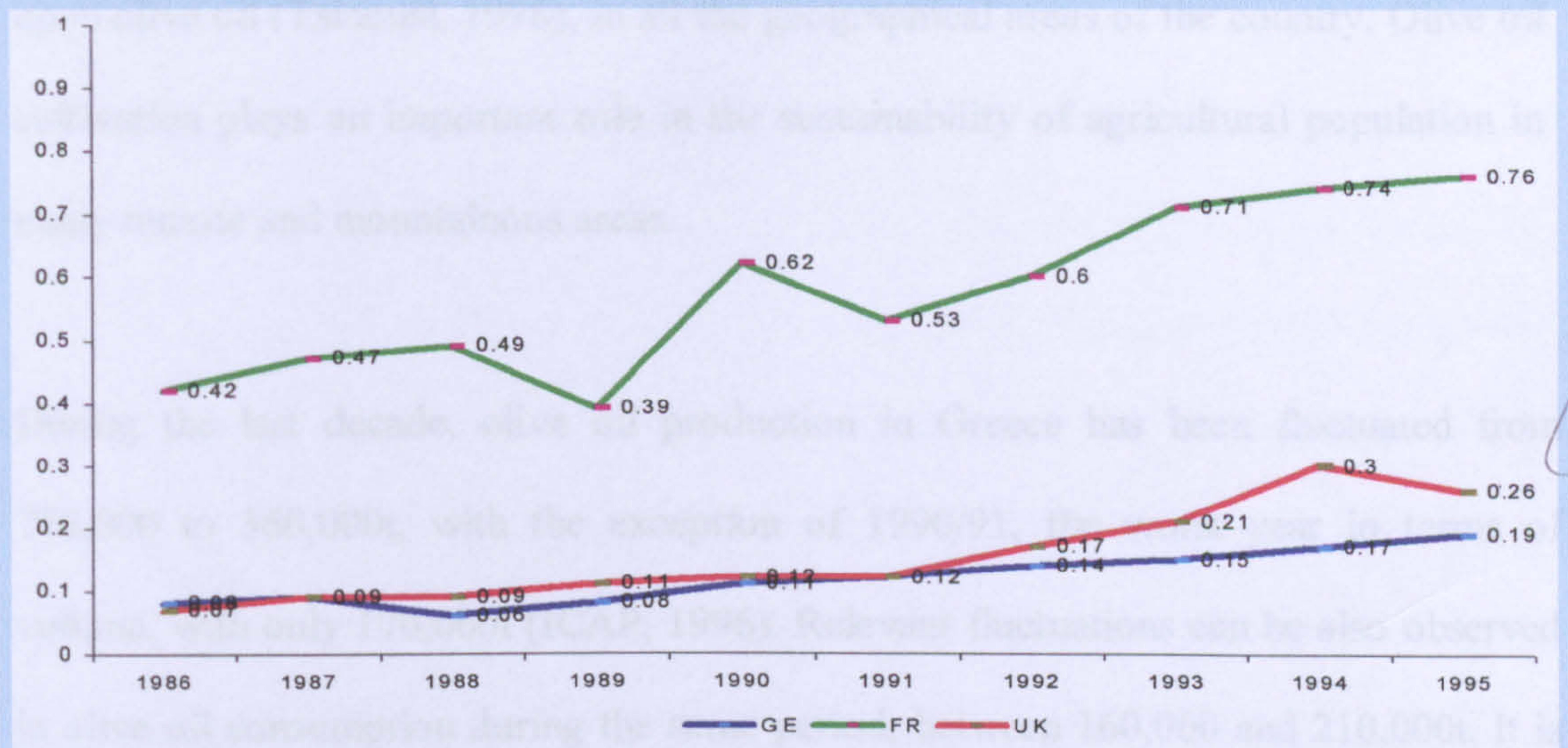
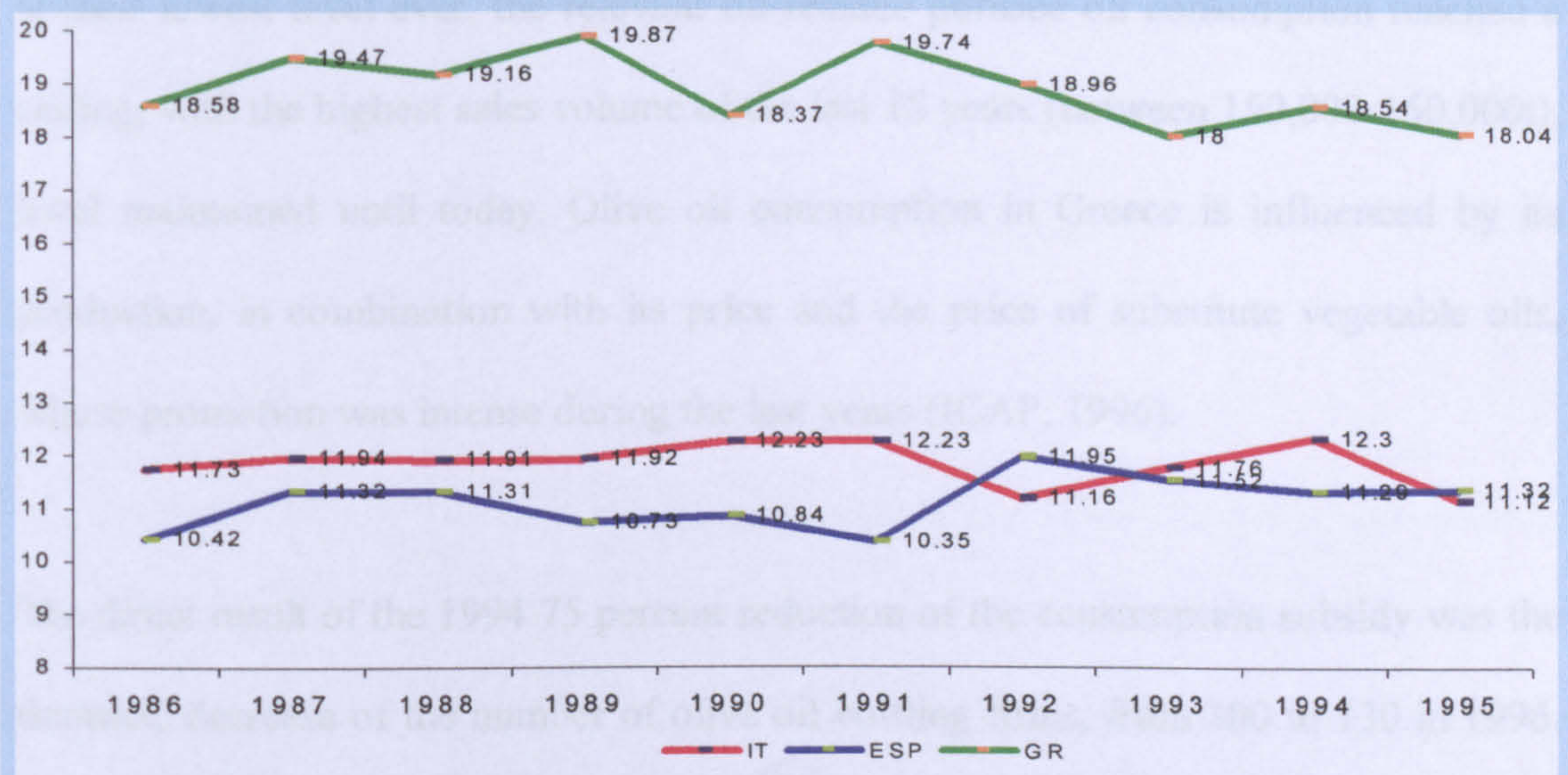


Fig. 2.7: Per capita Consumption Trend in Selected Southern European Countries (kg), 1986-1995
Source: adapted from Eurofood, 1998; FAO, 1997; ICAP, 1996



2.2.2 The Greek olive oil market

Olive cultivation in Greece is one of the oldest in the world. Ancient Greeks, who first developed an olive oil culture, have considered the olive tree as the symbol of peace. Its importance is enormous, since olive oil is considered as one of the crucial and fundamental national products, together with wheat, cotton, tobacco and raisins. In many olive oil producing areas of the country it is the only good source of income

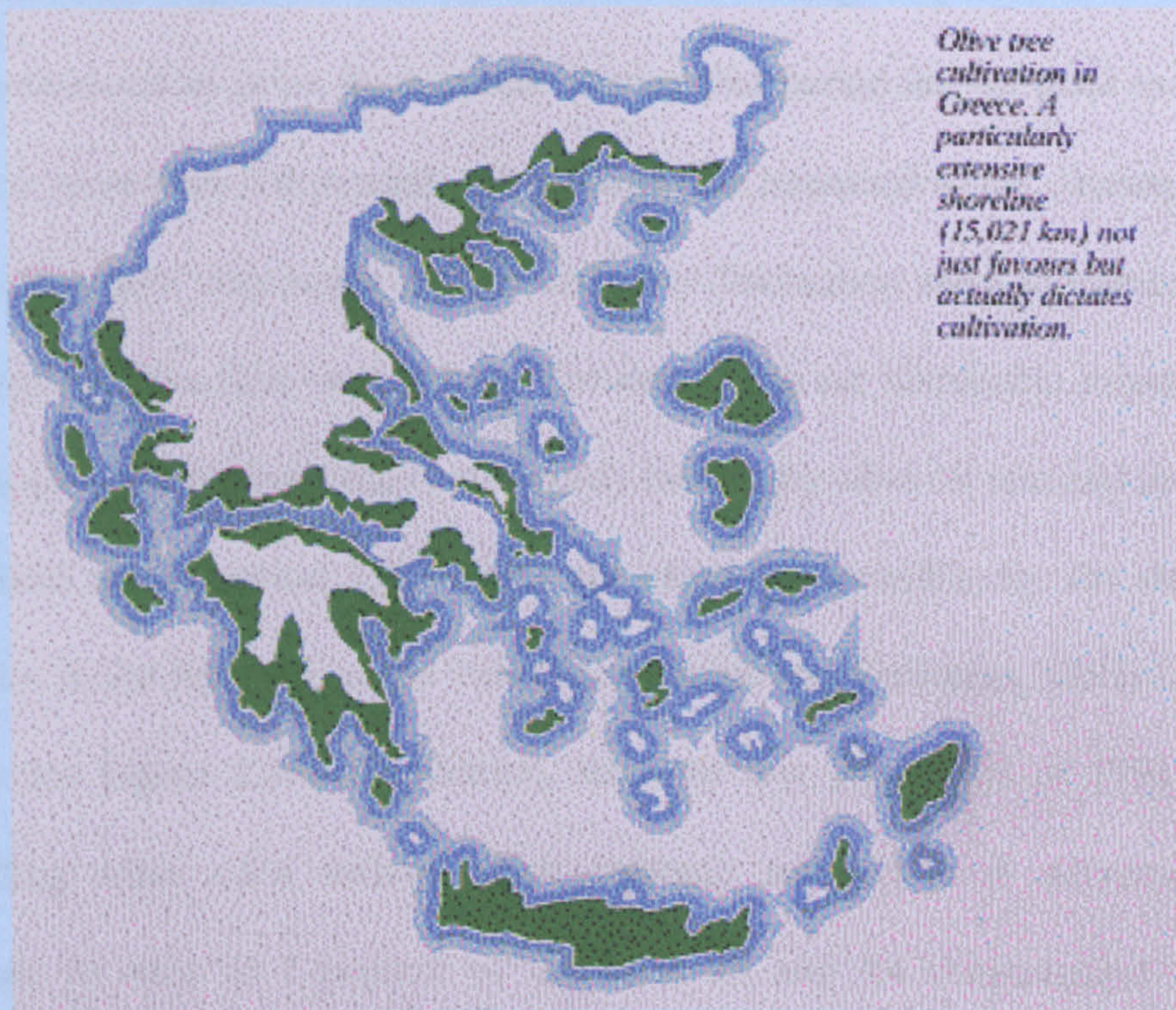
for the agricultural population. Today, 350,000 to 400,000 people's income relies upon olive oil (Tsiaousi, 1998), in all the geographical areas of the country. Olive oil cultivation plays an important role in the sustainability of agricultural population in many remote and mountainous areas.

During the last decade, olive oil production in Greece has been fluctuated from 270,000 to 360,000t, with the exception of 1990/91, the worst year in terms of volume, with only 170,000t (ICAP, 1996). Relevant fluctuations can be also observed in olive oil consumption during the same period, between 160,000 and 210,000t. It is worth mentioning that in 1990-91, when both production and consumption have been at their lowest level ever, the relevant oil-residue pomace oil consumption reached a ceiling, with the highest sales volume of the last 15 years (between 150,000-160,000t), level maintained until today. Olive oil consumption in Greece is influenced by its production, in combination with its price and the price of substitute vegetable oils, whose promotion was intense during the last years (ICAP, 1996).

The direct result of the 1994 75 percent reduction of the consumption subsidy was the dramatic decrease of the number of olive oil bottling firms, from 300 to 130 in 1996. Things are expected to worsen, since there is no detailed quality control on massive quantities distributed bulk in the domestic market, with increased possibility for the consumer to follow a risk-averse behaviour in terms of its safety and prefer substitute oils. Olive oil bottling, in contrast, influences positively the market by ensuring quality and safety warranties and more efficient promotion of the extra quality Greek olive oil in the world markets (ICAP, 1996).

Olive cultivation has been mainly developed in the coastal areas of continental Greece and in the islands. During the period 1970-1992, a serious olive-cultivated land expansion of 7.12 million hectares took place (+27 percent). Simultaneously, an increase of planted olive trees' density has been observed, greater in the hot and dry southern areas of Crete, Peloponese, Aegean and Ionian islands. Although the number of non-intensive, low tree-density farms has been stable, a 28 percent increase of the more "intensive" estates has been observed at the same period (Tsiaousi, 1998). Olive oil production in Greece seems to follow a two-year cycle, since in most of the regions a "good" year is followed by a "bad" year. Peloponese (Southern Greece) and Crete account for most (two thirds) of the domestic production. The prefectures of Messinia (Peloponese) and Heraclion (Crete) account for 15.9 and 13.4 percent of the total domestic 1995 production respectively. The prefectures of Lakonia (Peloponese) and Lesbos (Northeastern Aegean see) account for 8.5 and 7 percent respectively (Figure 2.8).

Despite the expansion of olive cultivation the last three decades, the average productivity is still low. The average per tree production for the period 1970-92 was 20kg of olives (20-30 percent of which could be transformed to olive oil), fluctuating from 15 to 100kg per tree. Yet, the average olive oil production per tree was only 2-2.7kg per tree, due to the high percentage of old trees and the particularly dense plantations of some areas, which does not favour the high oil content of the fruit (Tsiaousi, 1998).

Fig. 2.8: Geographical Distribution of Olive Cultivation in Greece (green coloured)

Despite the expansion of olive cultivation the last three decades, the average productivity is still low. The average per tree production for the period 1970-92 was 20kg of olives (20-30 percent of which could be transformed to olive oil), fluctuating from 15 to 100kg per tree. Yet, the average olive oil production per tree was only 2-2.7kg, due to the high percentage of old trees and the particularly dense plantations of some areas, which does not favour the high oil content of the fruit (Tsiaousi, 1998).

2.2.2.1. Consumption

Olive oil consumption in Greece reaches the level of 200,000t at a yearly rate, almost 60 percent of the yearly production. The per capita consumption has been almost 20Kg, and it is still the highest in the world (see Figure 2.6). During the 90s, however, a descending trend has been observed, at a yearly rate of $-0.4\text{kg}/\text{per capita}$ (c.f. Section 2.4.5). Only recently this decreasing trend has been reversed, though not entirely.

The long-term consumption of olive oil was inelastic during the period 1970-1985, not seriously influenced by price fluctuations. During that period the net price increase of olive oil was more than 100 percent, yet consumption remained stable. During the 90s, however, consumers' disposable income and price fluctuation seem to influence olive oil consumption more than ever before. The decreasing net disposable income of the average Greek household and the continuously increasing olive oil nominal retail price (+300 percent in the period 1983-1996) are mainly responsible for the decreasing consumption in the first half of the 90's (Karagiannis and Velentzas, 1997; Lazaridis, 1999, also see Figure 2.16). In addition, the very low production of 1991 and the corresponding olive oil's serious price increase resulted in a decrease of its consumption to only 53.7 percent of the total oil and fat consumption in 1992, compared to 65.2 percent in 1991. On the other hand, the consumption share of other vegetable oils increased from 12.2 percent to 19.3 percent in the same year 1992, and remained stable since then (ICAP, 1996).

The inefficient modernisation of processing and trading methods followed by co-operatives and traditional market leaders, despite the strong state financial support they received during the 90s, has been a second reason for the decrease of olive oil consumption. Thus, only 35-38 percent of domestic consumption represented well-known brands of bottled olive oil, packed according to EU legislation (ICAP, 1996). The 1993/94 abolition of the consumption subsidy worsened the situation, as we have seen, since that period the bottled olive oil brands represented 65-70 percent of the domestic consumption.

Another important constraint has been consumers' distrust regarding the origins and quality standards of the olive oil they buy, due to different cases of adulteration, and the state of confusion amongst consumer because of the complicated terminology used to classify different olive oil types. Many Greek families living in urban areas still are owners of small olive orchards, inherited from previous generations, and still cover their family needs with a percentage of their own-produced olive oil. Yet, they know little about olive oil qualities and even less about how to distinguish among them (c.f. Section 7.2.4). It is estimated (ICAP, 1996) that 30-33 percent of annual consumption takes place according to this traditional way and the remaining 30-35 percent is distributed regionally in bulk by individual farmers.

From the marketing period 1996/97, a recovery of the domestic olive oil market has been observed, despite the increased foreign demand resulting in high prices. This is mainly due to the organised information campaigns undertaken and the increasing efforts to improve the quality of the domestically distributed brands and reduce the adulteration phenomena of the past.

2.2.2.2. Trade

Greek olive oil exports were between 50,000-160,000t during the 90s, with an average of 95,000t. Olive-residue pomace oil production fluctuated between 20,000-30,000t, with the exception of the 1991/92 year (40,000t, ICAP, 1996). Prior to Greece's accession in the EU, exports were particularly limited, yet during the 90s (especially in 1992, year of the maximum quantity exported of 160,000t or 53 percent of the quantity produced) exports increased substantially. Nevertheless, an intense fluctuation in the trend is present, mainly because exports mirror olive oil production, since 95 percent

of the olive oil is exported bulk. In 1998, 60 percent of Greek olive oil production has been consumed domestically. The remaining 40 percent has been exported (Figures 2.9 and 2.10), either to the EU countries (90-95 percent bulk to Italy) or bottled (the remaining 5-10 percent) to third countries such as the USA (60 percent), Australia (23 percent) Canada (13 percent) and Japan (3 percent). An overview of the Greek olive oil supply chain can be seen in Figures 2.11a and b.

2.3. Non-Economic Factors Influencing Food Demand

Food has been the “subject-matter” of a wide range of disciplines including, for example, biology, nutrition, economics, psychology, sociology, anthropology, history, agriculture, and food science. Yet, there has been little in the way of “trans-disciplinary” debate. The dominant discourse has been in the area of (sensory) food science, psychology and nutrition. Interdisciplinary communication is virtually non-existent and differences, even intradisciplinary, exist as much in terms of vocabulary as perspective and method (Marshall, 1995; Steenkamp, 1996).

The implicit rationale that seems to drive much of the (commercial) research into why consumers choose what they do is that food choice can be explained by looking at some inherent physical property or product characteristic. Moreover, manufacturers and food scientists continue to measure consumers’ reactions to the taste, textures, flavours and even smells of their products in an attempt to explain why consumers choose what they do. Food acceptability and consumer preference offer a more “scientific” explanation and serve as surrogate measures of food choice.

“...It has been argued for a long time that people like what they eat rather “eat what they like” and food choice is moulded by “cultural representation”, which dictates what is eaten long before food reaches the mouth...” (Falk, 1994, in Marshall, 1995).

Fig. 2.9: Olive Oil Imports of the Five EU Olive Oil Producing Countries, x1000t., 1986-1995
Source: adapted from Eurofood, 1998; FAO, 1997; ICAP, 1996

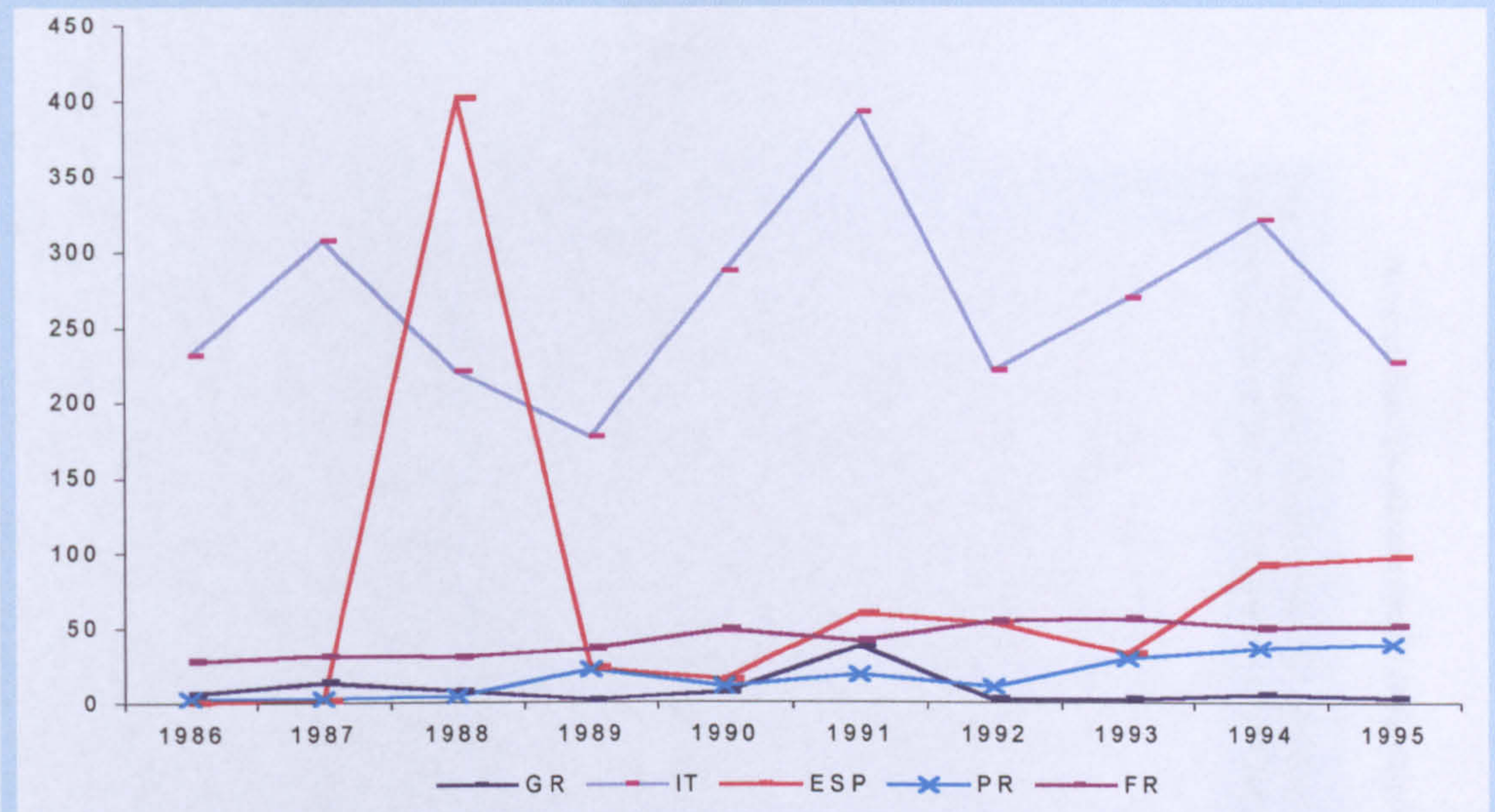
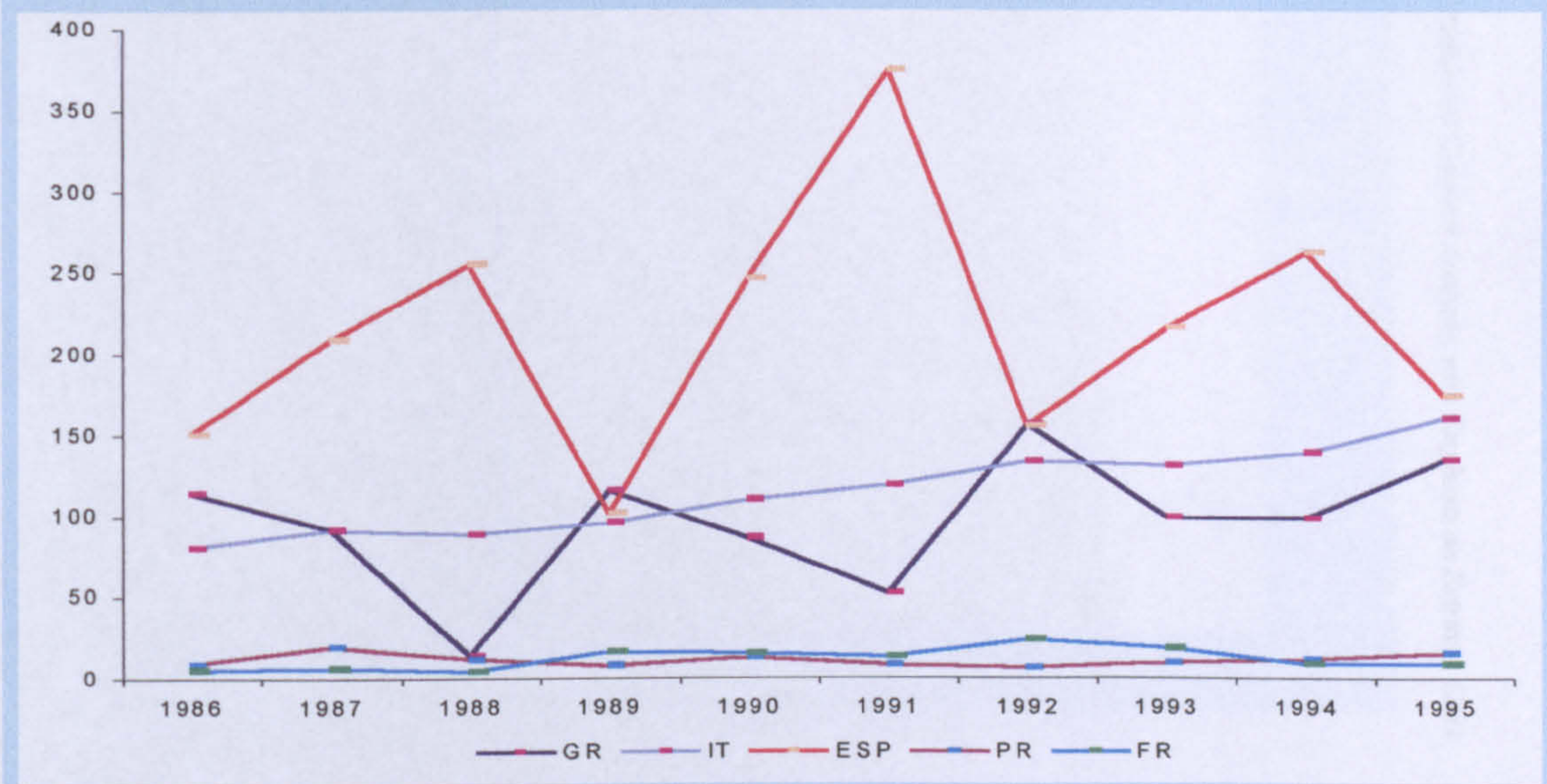


Fig. 2.10: Olive Oil Exports of the Five EU Olive Oil Producing Countries, x1000t., 1986-1995
Source: adapted from Eurofood, 1998; FAO, 1997; ICAP, 1996



While there is recognition of external influences such as availability and economic factors, most food choice models focus on the interaction between the individual and the food product. There is, however, an increasing body of evidence that suggests that consumer choice may be much less involved than previously supposed. Nevertheless, the focus is still on a rational consumer making a hierarchical decision in which social,

Fig. 2.11a: Supply Chain of the Greek Olive Oil (I)
 Source: adapted from Tzouramani and Mattas, 1999

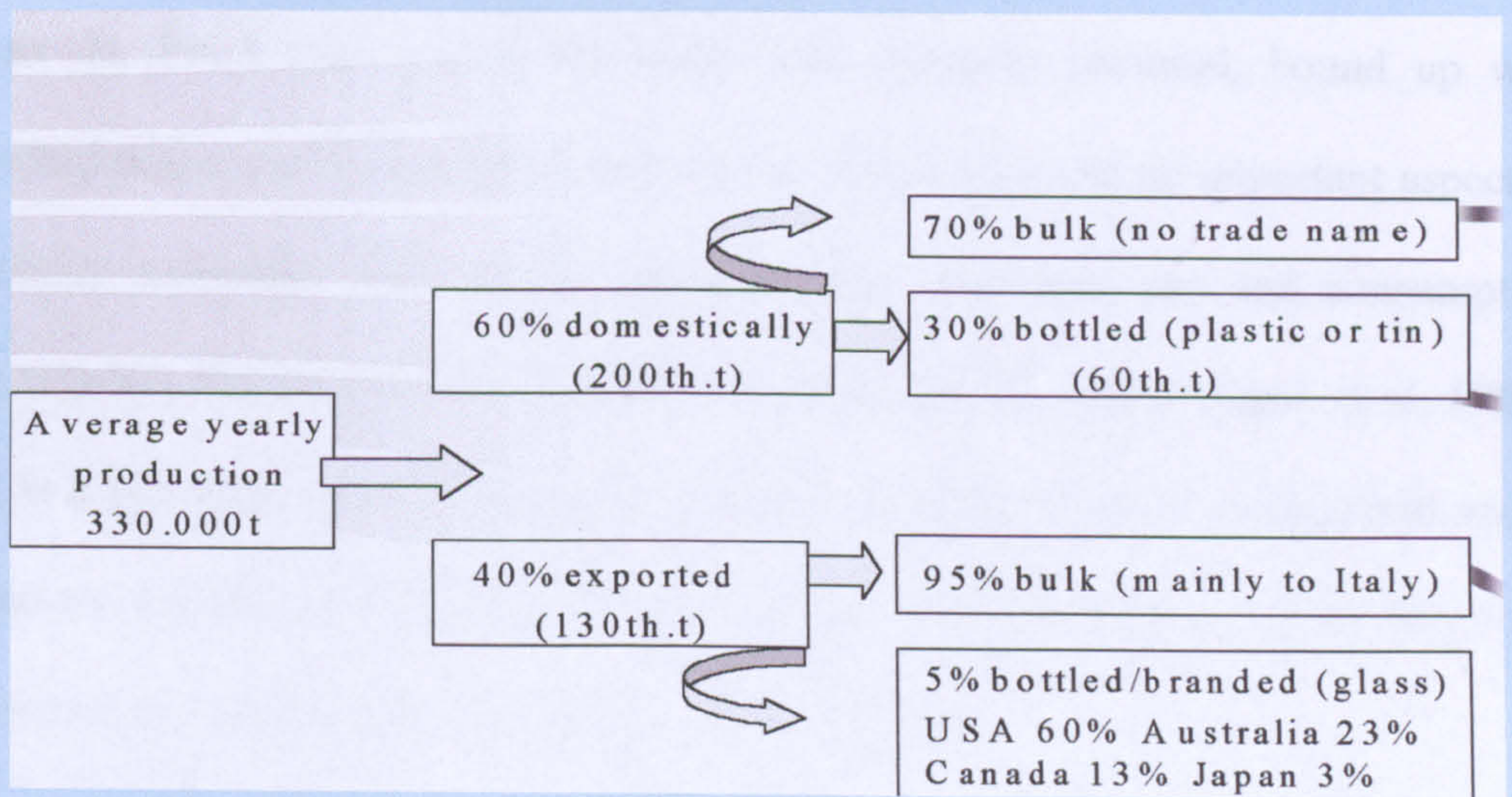
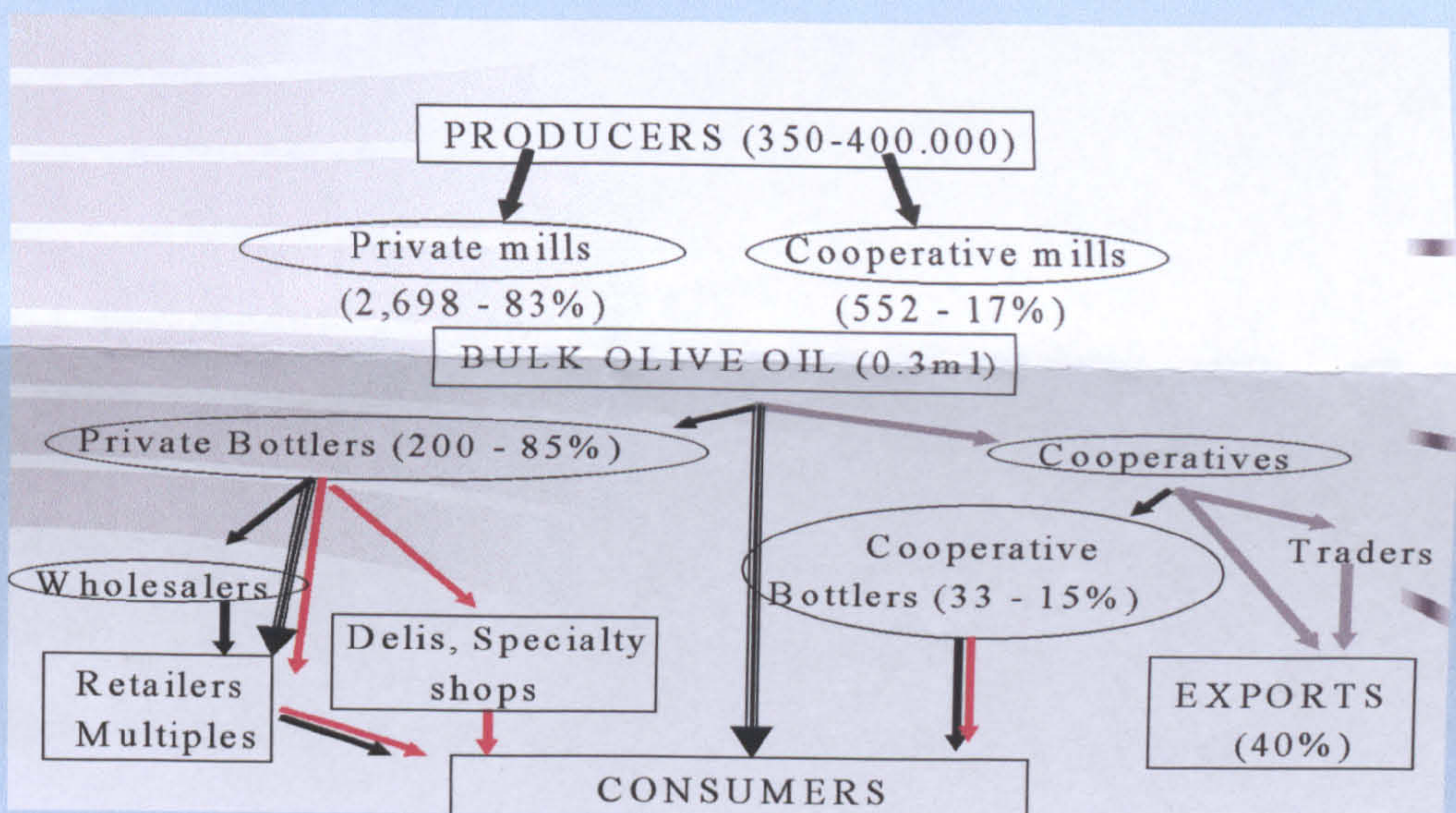


Fig. 2.11b: Supply Chain of the Greek Olive Oil (II)
 Source: adapted from Tzouramani and Mattas, 1999



cultural and situational influences are afforded a peripheral role:

"...Food culture can be defined as a culinary order whose traits are prevalent among a certain group of people. Food cultures may be distinguished from the micro-level (family) to the macro-level (countries, regions, or social classes). Since the categories of a culinary order are used to structure events involving the intake of food, food products are important cultural modes of expression used for communication purposes...They may indicate whether it is an everyday, special or perhaps even festive occasion; the degree of formality expected...one's emotional engagement in the situation; one's own emotional condition; sense of adventure or regard for tradition..." (Askegaard and Madsen, 1995).

The choice of food made by individuals and households is influenced by a large range of factors including prices, incomes, tastes, social attitudes, desire for convenience, and so on. Food choice is at the same time intensely personal, bound up with individual tastes and household experiences of domesticity and an important aspect of citizenship nationally and, indeed, globally. Food purchase, use and consumption bring together the private and the public, the local and the global (Cook et al, 1998). Food is a powerful cultural medium, symbolising important relationships and social institutions (Gofton, 1995). It is, however, extremely difficult to say how important each factor is in influencing any particular food purchase.

It may be more relevant to try to explain why one household purchases a large quantity and another only a small quantity of a particular good, by comparing differences in the households. The explanation might lie, for example, in income differences, social background, price advantage, a food allergy or a host of other factors. Similarly, it may be possible to explain why average levels of consumption of different foods change over time among the population as a whole. An understanding of the causes of changes in average levels of food consumption over time, and variations within the population, is of great interest to nutritionists, policy makers and the food industry.

2.3.1. Economic factors and alternative views

Food consumption is, among others, very much an economic activity. A large share of most households' incomes is spent on the purchase of food and the amount and the type of food bought very much depends on economic factors. Thus, there is good reason to be concerned with the economics of the demand for food. Economic analysis is not essentially oriented towards the behaviour of individual persons but, rather,

towards the aggregate outcome of activities of groups of persons (food consumers) or the behaviour of an “average” or typical person (“the” food consumer). Given the complexity of individual behaviour, it would be extremely difficult to arrive at a clear picture. Hence economists have tended to abstract from most details of human behaviour, to concentrate on what *in economic terms* are the most prominent elements of behaviour, and thereby they have provided a basis for understanding and, to a certain extent, predicting the aggregate outcome of the individual actions in groups of people:

“...Models of economic theory are a group of abstractions that represent simplifications of a very complex reality. The benefits of such theoretical models are that they allow one to focus on the essential factors or interactions in a relationship, provide a method of structuring the analysis and, hence, yield insights into real events and human behaviour, one would not be able to see without theory as an aid...” (Senauer et al, 1993).

Ritson (1985) argues that there are two reasons why the economic analysis of food consumption has important implications for successful marketing. First, although it is extremely difficult to say which factors (i.e. price, taste, packaging, nutrition etc.) are the most important for the consumer choice process, the economic factors have the characteristic that they are more readily measured and statistical analysis allows us to estimate how consumption in aggregate of individual food products changes in response to changes in incomes and related prices. Second, again by statistical analysis, we are able to use this information to estimate what proportion of past changes in patterns of food consumption is attributable to economic factors and, thus, by implication, what proportion is attributable to non-economic ones. Connor (1994) argues that three factors are enough to satisfactorily explain most annual variation in per capita expenditures with quite impressive predicting power: household real income, product price, and the prices of substitute products.

The economics literature is full of formal modes of consumer behaviour. Tangerman (1986) argues that the most basic model starts from the notion that, with given prices and incomes, the consumer is able to buy various combinations of quantities of all goods. The second element of this theoretical model is a well-defined preference order, which enables the consumer to rank all relevant bundles of goods. Confronting the set of all available combinations of quantities of goods with this preference order, the model consumer can then pick that bundle of goods which ranks highest within this constrained set, or which provides him with the great “utility”. This is the model of the “*homo economicus*”. This theoretical person has full information of all possible actions and decides in favour of that which maximises his objectives.

However, the act of consumption can be split up into two sets of activities: first, the buying of goods in the market place and, second, the use of these things in the household. The consumer, then, can be interpreted as an economic agent who combines market goods, time and “human capital” in order to produce utility-yielding non-market goods (Tangerman, 1986; Senauer, 1993). In this way, it is no longer the goods themselves which are relevant for the consumer decision but certain “characteristics” of these goods (c.f. Section 5.1.1). Developments of this approach have, therefore, successfully been applied to the analysis of the implications of quality changes in consumer goods.

Kotler (1986) stated that consumer behaviour is diverse, and consumers are not rational human beings, they do not in all cases prefer low-priced products to the products they “like” or are used to. This type of approach may appear rather far from the traditional economic models of consumption, since it also includes non-economic

factors determining food choice. However, to economists it has proven rather useful in two aspects. First, to structure their ideas of the way in which various factors may interact when consumers make decisions. Second, it has greatly helped to develop methods with which they have been able to pursue systematic empirical research into consumer behaviour.

In any case, the stability of cultural values is in contrast to what economists expect, that with converging incomes, cultural values and habits will also converge. Rather the opposite is true. Cultural values are stable and with converging incomes will become more manifest. When people possess enough of everything, they will spend their incremental income on what most fits their value pattern (de Mooij, 2000).

2.3.2. Non-economic factors influencing food consumption

Apart from providing estimates of the response of food consumers to changes in the economic factors, economic analysis provides a second important contribution to our understanding of the market for food products. Statistical analysis of the changing pattern of food consumption identifies the proportion of changes in food consumption that are attributable to prices and/or income effects. The remaining change – labelled by the British Ministry of Agriculture, Fisheries and Food, MAFF (Ritson, 1985), “*the underlying trend in demand*”(UTD) – must be ascribed to other, non-economic, causes. UTD is a much better guide to successful marketing than actual consumption and it shows what would have happened if prices and incomes had remained constant in real terms. It can, therefore, be used to project future levels of consumption at constant real prices and incomes, revealing long-term changes in behaviour and attitudes (Ritson and Hutchins, 1991).

Hutchins (1993) has drawn up a league table for the UK, ranking the products from those with the highest UTD to those with the lowest. The “top ten” products are listed in Table 2.2. This list makes interesting reading. Two features of these products stand out. They seem to be associated either with *convenience* or with *healthy eating*. In both cases there is sometimes also an UTD of *novelty* and *variety*.

Hence, there are several limitations of the standard estimation techniques of economists. Among the factors usually omitted from such analyses are demographic, psychological, sociological, cultural and nutritional characteristics (Steenkamp, 1993). These factors were often assumed to be incorporated in household utility functions and thus fixed over the domain of the analysis, though work since the 80’s has explicitly introduced novel factors into demand systems. From the point of view of business decision-makers, the degree of aggregation useful to economists is often too great to be also useful in the more narrowly defined markets in which pricing, new products and strategic decisions are usually made (Connor, 1994).

The income-representing variables are known to be highly correlated with a number of other socio-demographic characteristics that may be more useful in making marketing decisions. For foods sold through typical grocery stores or advertised on certain mass media, most data sources do not permit segmenting demand by income levels. After all, as we have seen, income and prices become weaker determinants of food expenditure when food becomes a smaller share of total expenditure. Factors like convenience, variety, healthful image, ethnic identity and the social status conferred by purchase become correspondingly more important, though some of these factors are positively correlated with price (Connor, 1994).

Table 2.2: Products With the Highest Yearly “Underlying Trend in Demand”, 1993

Source: adapted from Hutchins, 1993, in Marshal, 1996.

Product	Annual % change in demand
“Other” fresh green vegetables (i.e., spinach, broccoli)	+29.0
Wholemeal and whole-wheat bread	+18.2
Frozen chips and other frozen convenience potato products	+13.1
All “other” fats (i.e., low fat spreads)	+11.6
Frozen convenience cereal foods (i.e. pastries and pizzas)	+11.2
“Other” vegetable products (i.e. salads, pies, ready meals)	+8.8
Fruit juices	+7.6
Crisps and other potato products, not frozen	+7.2
“Other” fresh fruit (i.e. melons, pineapples and exotics)	+6.9
Shellfish	+6.4

In an attempt to briefly categorise these (non-economic) factors that cause a strong positive (or negative) adverse UTD, one first step would be to distinguish between factors related to behaviour and structure of the households, and factors related to the preferences of individual food consumers (Ritson and Hutchins, 1991; Connor, 1994; Fearne and Lavelle, 1996). Among the former would be influences such as the breakdown of traditional meal patterns within the household, with families no longer regularly sitting down together for combined meals, but eating different things at different times and in different ways; the growth of single-person, no-children households; the impact of the above mentioned on habit formation by young people, making it more possible for positive trends to develop, as young consumers carry habits with them as they get older (“vintage effect”); and the increasing proportion of women who are out at work. All the above relate to time and convenience.

Turning to the second category, it is also possible to identify four main influences: first, the changing attitudes to diet, health and nutrition, which is the most talked about cause. The point after which the UTD begins to predominate as the force causing changes in diet more or less coincides with the time at which the issue of the relationship between diet and health began to become high profile within the media.

Second, the shift from “quantity” to “quality”. Average incomes have reached a level where, for most households, sufficient quantity, even of high priced foods, has no longer been an issue. Third, the relation between food production and the environment. This expresses itself in the demand for organic products, but also for products which guarantee some kind of acceptable well-fare environment in terms of production. And forth, the increasing demand for novelty and variety in food purchases, which is no more than a food-related demonstration of the general development in patterns of consumer demand (Ritson and Hutchins, 1991; Connor, 1994; Covino and Mariani, 1999).

2.3.2.1. Analysis of the non economic factors – new attitudes towards food

In 1995 in the EU, according to Eurostat (1998), the expenditure for lodging has been the larger household expense (19.8 percent of the total private expenditure, Table 2.3). Food expenditure decreased by 4 percent in the decade 1985-95. Faced with low rates of population growth in developed economies, 0.3 percent in Europe and 1percent in the US in the period 1990-95 (Gracia and Albisu, 1997; Lazaridis, 1999), the number of food consumers is unlikely to grow. Holding onto existing customers and attracting new ones is likely to become increasingly difficult (Covino and Mariani, 1999). To win market share, international food manufacturers and retailers are wooing customer with an abundance of new products, therefore increasing consumer choice and perhaps adding to consumer confusion.

Table 2.3: Private Expenditure Structure in the EU, 1985-1995

Source: adapted from Eurostat, 1998; Covino and Mariani, 1999.

Category	1985 %	1995 %	Trend
Lodging (rent, electricity, gas)	18.4	19.8	↗
Food, drinks, Tobacco	22.3	18.2 *	↘
Transportation and Communication	14.8	15.4	↗
Health	7.4	8.9	↗
Education	8.2	8.7	↗
House Equipment	7.7	7.6	-
Clothing	7.8	6.6	↘
Other	13.1	14.7	↘

* 1997: 17%

While some feel that industry is meeting consumer “wants”, others argue that much of this new product development is wasteful and really about stealing market share from the competitors (Hughes, 1994). Faced with more “choice”, today’s consumers are more discerning, better informed and discriminatory, as they select from the multitude of brands on the supermarket shelf. What they choose to eat has serious effects throughout the whole of the food system, affecting retail, distribution, processing and farm production.

The population is ageing. Consumers over pensionable age, the “third” age market, will account for around 25 percent of the UK population by the year 2000 and represent a market of 68million US consumers by the year 2040 (Marshall, 1996). The EU average of consumers over 65-year-old accounted for 13.6 percent in 1980 and 14.8-15.3 percent in 1995 (c.f. Table 2.8), with the greatest increase in the Mediterranean countries (Gracia and Albisu, 1997). These consumers are more conservative in their food consumption and can remember the restrictions on their

choice imposed by rationing and post-war food shortages. They have different wants to the younger generation of consumers who eat more, eat out more often and are more likely to follow food ads (Senauer et al, 1993; Covino and Mariani, 1999).

Marriage is on the decline and divorce rates are up on both sides of the Atlantic. One consequence has been a change in the size and composition of households. The average size of the EU households was 2.4 in 1996 and married couples with children represent only 30 percent of households (Eurostat, 1998). There has been a significant rise in the number of single person households in the UK, from 14 percent in 1961 to 27 percent in 1992, only 11 percent in Spain, but 41 percent in Sweden in 1996 (CSO, 1994, in Marshall, 1996; Gracia and Albisu, 1997). A high proportion of these contains older women over 65-years-old, reflecting the ageing population. The food industry has responded with single food portions, smaller packs, or ready meals for one person. Eating out among the younger singles is on the increase. Companies are increasingly recognising the diversity of single household's wants and segmenting the market into distinct groups in terms of their shopping habits, food habits and attitudes towards health (Marshall, 1996; Senauer et al, 1993; Covino and Mariani, 1999).

Perhaps the most important single influence on food provisioning has been the changing role of women in the work force. Across Europe, an increasing number of women under 55 are employed outside the home, figures ranging from 90 percent in Sweden to 37 percent in Greece (Marshall, 1996; Gracia and Albisu, 1997). One consequence has been greater economic independence for women and a corresponding rise in the number of "dual income" households. Despite these changes, women are still responsible for the majority of domestic tasks, spending double the time

compared to males full-time employed (Hughes, 1994).

While the number of food consumers is unlikely to grow, per capita disposable income is rising and the proportion of consumer expenditure on food has fallen to around 12 percent in the UK and the US over the past 20 years (Hughes, 1994; Blandford, 1986). Most of the EU countries have figures between 10 and 15 percent, with some exception between 15 and 20 percent and the extraordinary example of Greece with 28 percent in 1996 (c.f. Tables 2.5 to 2.8, Section 2.4.5 and Gracia and Albisu, 1997; Karagiannis and Velentzas, 1997; Lazaridis, 1999; Covino and Mariani, 1999). There is a trend towards buying better quality produce and added value products. However, the gap between the “haves” and the “have-nots” is widening and the lower fifth of the UK population has a lower real income than they did over 15 years ago (c.f. Figure 2.13 and Marshall, 1996; Covino and Mariani, 1999).

The direct effects of all the above factors on food choice have been greater use of convenience foods/ready prepared meals for everyday use, increasingly “casual” meals, a growing distinction between foods for nourishment and foods for fun, and an increase in the number of meals eaten outside the home (see, for example, the US survey on the matter by Carlson et. al, 1998). Between 1992 and 1995 the percentage of the EU consumers who ate out-of-home more frequently than 3 times per week increased from 28 to 37 percent, while the average increased from 0.84 to 1.26 times per week. Hence, in 1995, 87 percent of the Europeans eat out-of-home 5.35 times per month (Self-service, 1999). A parallel trend has been the increase in ownership of “time-saving” kitchen equipment: the microwave oven can be found in 80 percent of the US and 60 percent of the UK households, and most households (85 percent)

have a freezer (Marshall, 1996).

On the other hand, consumers are becoming increasingly concerned with what happens to their food before it reaches the supermarket shelf (Covino and Mariani, 1999). While this does not appear to have seriously altered food choice, excluding the short-time effects of recent food scares, it represents a “latent” concern. Over-nutrition is a major health issue in developed countries, as policy makers and health educators warn the public to decrease its consumption of fat, sugar and salt. Despite this, the evidence suggests that the majority of consumers are reluctant to change. In the US, fat intake is currently top of the list and, while there is an abundance of low fat products, consumers continue to over-consume (Marshall, 1996). In the UK, there is some evidence of a trend towards healthier diet, but the twin trends of health and convenience seem somewhat at odds (Gofton and Ness, 1991).

The ethnic gourmet group has been stimulated through increased travel and an ever-increasing exposure to ethnic cuisine via the restaurant, take-away and retail trade. Further rise to the demand for more exotic foods comes from the increasingly ethnic diversity in many countries, as immigrants bring their flavourings and foods (Covino and Mariani, 1999). Animal welfare and environmental issues surrounding food are increasingly becoming consumer issues (Hughes, 1994). These trends, undoubtedly promoted by the interests of government policies, are likely to influence choice for some consumers. In Table 2.4 can be seen what Senauer et al., (1993) report as major trends in consumer attitudes and their likely impact on food choice identified by the US Food Marketing Institute.

Table 2.4: Major Trends in Consumer Attitudes and their Likely Impact on Food Choice
Source: adapted from Senauer et al, 1993.

-
1. *Neo-traditionalism*, a trend towards better quality produce with minimal processing
 2. *Adventure*, a renewed desire for increased variety, particularly among smaller households and adult women
 3. *Indulgence*, as individuals reward themselves for all that hard work and take on more responsibility for what they eat
 4. *Individuality*, with single-serve portions and ready meals to meet the demands of single-person households
 5. *Cocooning*, since the "Take Home ready To Eat" (TOTE) foods' growth reflects a new focus on the home
 6. *Grazing*, eating on the move, which is a further response to working away from home and pursuing leisure interests which restricted the amount of time available for cooking and eating at home
 7. *Wellness*, the adoption by consumers of a holistic approach to food, which includes a renewed interest in diet and exercise
 8. *Controlling time*, the rising attractiveness of convenience goods and shopping
 9. *Selectivity*, the abundance of choice, which helps consumers to exercise their rights to "exit, voice, or loyalty" in the marketplace
 10. *Ethics*, a declining narcissism and a search for moral stability in food choice decisions.
-

2.3.3. EU consumption trends pre and after 1990

Tables 2.5 to 2.8 show the evolution of the apparent per capita daily food consumption for the EU countries. The average food consumption was 3,211 cal/head/day in 1970, and increased at an average rate of 0.4 per cent per year, to reach 3,452 cal/head/day in 1990. Consumption in most countries has shown an upward trend, except for the Netherlands and Sweden, where it has remained constant, and the UK and Finland, where it has declined slightly. Spain, the country with the lowest per capita consumption in 1970, has shown the largest increase, about 25 per cent, between 1970 and 1990 (Gil et al., 1995).

The proportion of calories derived from *animal products* is lower than that from *vegetable products* in each country, although there have been significant changes in many countries in recent years. In 1970, and especially in the Mediterranean countries, differences were more significant and, on average, animal products provided just 19 percent of total food calorie intake. In the other countries, over 30 percent of total calories were derived from animal products. Over time, two major trends in food

Table 2.5: Evolution of the Total Caloric Intake, Share of Animal Calories, Per Capita GDP and Food Share Expenditure (calories/capita/day, US dollars at 1985 exchange rates, %)

Source: FAO Databases, IMF Financial Statistics and Eurostat, adapted from Gracia and Albisu, 1997.

	1970		1980		1990		1994	
	Cal. / % animal	GDP / % Food expenditure	Cal. / % animal	GDP / % Food expenditure	Cal. / % animal	GDP / % Food expenditure	Cal. / % animal	GDP / % Food expenditure
Austria	3227 /32.5	5717 /-	3352 /35.4	8087 /17.8	3507 /34.6	9848 /15.5	3419 /35.9	10264 /14.1
Belgium-Luxemb.	3123 /33.4	5981 /23.8	3262 /35.7	8003 /17.7	3564 /34.6	9582 /15.7	3657 /34.2	10378 /13.4
Denmark	3356 /41.1	8271 /20.4	3489 /44.8	9942 /17.3	3621 /45.1	12186 /14.8	3710 /43.0	12696 /14.1
Finland	3115 /40.4	7320 /-	3082 /43	9854 /20.9	2982 /40.5	12842 /16.2	3014 /38.0	11622 /15.7
France	3279 /35.9	6902 /20.9	3379 /39.4	9003 /17.4	3529 /38.5	10696 /15.3	3522 /38.0	10840 /13.9
Germany	3148 /33.9	7448 /17.8	3314 /34.4	9621 /14.3	3317 /35.4	11550 /12.2	3319 /33.3	9631 /10.6
Greece	3204 /19.4	2099 /34.8	3347 /24.5	3032 /25.0	3779 /24.7	3032 /25.0	3687 /25.9	3343 /29.0 (*)
Ireland	3693 /40.6	3639 /26.4	3905 /42.6	4915 /25.3	3987 /36.9	6844 /18.6	3575 /31.8	7704 /17.3
Italy	3421 /18.8	5032 /32.2	3588 /23.4	7018 /24.5	3483 /25.6	8543 /17.8	3426 /26.6	8865 /16.6
Netherlands	3043 /31.7	6901 /20.0	3097 /33.6	8474 /14.8	3024 /32.5	9622 /11.9	3284 /30.9	9975 /11.1
Portugal	2991 /16.5	1360 /-	2929 /19.5	2027 /31.6	3420 /24.3	2631 /25.2	3645 /27.5	2710 /-
Spain	2882 /22.7	3174 /33.1	3268 /28.8	4118 /27.8	3494 /32.3	5296 /21.7	3655 /33.3	5481 /20.0
Sweden	2927 /33.5	9418 /-	3036 /37.0	11062 /18.0	2962 /36.1	12974 /16.1	2926 /38.0	12301 /14.5
Great Britain	3316 /38.9	6186 /20.0	3146 /37.0	7425 /16.4	3281 /33.4	9297 /11.4	3174 /32.8	9500 /10.6
Norway	3047 /37.2	10774 /-	3387 /38.7	12065 /-	3219 /36.7	14809 /-	3266 /34.4	16721 /-

*1999: 17.4% (Family Accounts Survey, 1999, in Liberal Press, 2000)

Table 2.6: The Evolution of Food Consumption Patterns in Selected European Countries, 1970-1994

Source: adapted from Gracia and Albisu, 1997 and Lazaridis, 1999.

	Bread	Total meat	Total milk	Cheese	Yoghurt	Oils/Fat	Fruits	Eggs	Fish	Sugar
Bel.-Lux.	↘*	↗**		↗	↗	↗				
Denmark	↘	↗	↗	↗	↗	↘		↗		↘
France	↘	↗				↗		↗		↗
Germany	↘	↗	↗				↗	↗		↗
Greece	↘	↗	↗	↗	↗	↘	↘	↗	↗	↗
Italy	↘	↘	↘	↗	↗	↗	↗	↗	↗	↗
Netherlands				↗		↘				↘
Spain	↘	↗	↗	↗	↗	↘	↗	↗	↗	↘
Sweden	↗	↘								
G. Britain				↗		↘	↗			↘
Norway				↗	↗	↘	↗	↗	↗	↘

*: Decreasing share in total caloric intake

**: Increasing share in total caloric intake

Table 2.7: Caloric Share Growth Rate of Different Food Products in European Countries
Source: FAO Database, adapted from Gracia and Albisu, 1997.

	Meat		Milk		Vegetable oil		Vegetables		Fruits	
	1970-90	1990-94	1970-90	1990-94	1970-90	1990-94	1970-90	1990-94	1970-90	1990-94
Austria	0.97	0.64	-0.12	1.42	1.42	0.36	0.48	3.16	0.19	0.34
Bel.-Lux.	0.29	2.23	-0.15	-1.52	0.74	3.5	0.33	8.9	0.49	3.64
Denmark	2.82	-0.54	0.18	-8.8	-0.4	-0.6	1.79	4.03	-0.07	-0.6
Finland	1.82	-2.41	-0.21	-0.44	1.11	4.6	5.87	3.08	2.51	0.42
France	0.19	-0.94	0.14	-0.27	2.03	0.74	-0.54	0.66	-0.46	-0.23
Germany	1.01	-2.18	0.38	0.07	0.44	3.9	1.3	0.4	0.09	-2.07
Greece	1.25	-0.04	0.55	-0.11	0.39	-0.47	-0.01	2.84	-0.24	1.73
Ireland	0.2	0.67	-0.59	-1.31	3.59	-1.94	1.95	2.26	0.9	-3.49
Italy	1.56	1.25	0.81	-1.26	0.77	-0.07	-0.11	-0.22	-0.33	2.91
Netherlands	0.77	0.32	-0.07	0.7	0.23	0.83	-0.44	-2.85	0.47	0.52
Portugal	2.78	3.17	1.76	0.48	0.55	-3.17	0.33	-2.61	0.53	-1.09
Spain	3.05	1.44	-0.58	2.06	2.03	1.14	0.15	-4.47	0.91	-4.47
Sweden	0.28	2.74	0.16	-0.01	0.56	-6.13	2.52	1.38	0.59	-0.97
G. Britain	-0.15	-0.66	0.03	-0.49	1.82	2.34	0.5	0.39	0.35	3.35
Norway	0.44	1.3	-0.57	-1.24	1.42	-2.02	0.44	2.02	0.41	1.19

Table 2.8: Demographic Comparison in Western Europe, 1994**Source:** adapted from Gracia and Albisu, 1997; Covino and Mariani, 1999; Lazaridis, 1999 *

	Population growth %	Age distribution				Women in working force		Household size 1995	Single adult household % 1995
		Under 15 %		Over 65 %		1980	1995		
	1980-95	1980	1995	1980	1995	1980	1995	1995	1995
Austria	0.33	-	18	-	14.7	38.3	43.5	-	-
Belgium	0.17	17	18.1	15	15.6	35	41.3	2.60	26
Luxemb.	0.66	18	18.4	13	13.2	30	35.9	2.63	-
Denmark	0.77	17	16.9	16	16.1	43.9	45.5	2.21	34
Finland	0.20	-	19.3	-	13	46.1	47.9	-	-
France	0.20	20	19.8	14	14.7	38.5	45.5	2.49	25
Germany	0.40	15	16.2	15	15.8	38.4	42.9	2.16	35
Greece	0.40	20	16.6	14	17.2	28	37.8	2.74	15* -17
Ireland	0.26	28	24.8	10	10.9	28.3	37.6	3.96	21
Italy	0	17	15.4	14	15.6	31.3	37.3	3.02	23
Netherlands	0.48	18	18.7	13	12.3	30	41.3	2.45	29
Portugal	0.30	21	16.6	13	14.6	38	45.0	2.94	14
Spain	0.24	20	16.6	13	16.5	27.9	38.2	2.55	11
Sweden	-	-	na	-	16.5	45.4	47.7	-	41
G. Britain	0.14	22	19.8	13	15.2	39.7	43.8	2.56	26

caloric consumption can be identified: first, all countries, with the exception of Germany, showed an upward trend in the share of animal calories consumed over the period 1970 to 1980. Second, in the decade from 1980 to 1990, the share of animal calories has stabilised or even declined. In 1990, on average, EU countries derived 34 percent of their total consumption calories from animal products (Gil et al., 1995).

Gil et al. (1995) and Angulo et al (1997a), using cross-section data and having divided the common European diet into ten different foods or food categories (cereals, potatoes, meat, fish, vegetable oils, animal fats, milk/dairy products/eggs, vegetables and pulses, fruits, and sugar), tried, using factor and cluster analyses, to identify groups of EU countries with similar dietary patterns in terms of their caloric intake structure until 1990. The basic conclusion derived has been that two measures of convergence can be used to test the significance of, mainly, the Mediterranean countries' differences from the rest of the EU member-states. First, the total caloric intake, which does not demonstrate a strong evidence of convergence and, second, the proportion of total calories derived from the main food groups, where convergence can be found in most products till 1990, yet of a decreasing speed during the 90s.

Three forces were responsible for this convergence until 1990 (Connor, 1994; Gil et al., 1995): first, the largely parallel trends in the determinants of food demand in European countries, such as the stable economic factors of household income and relative food prices (as EU market becomes integrated), and the common non-economic factors we have already seen. Second, the increased vertical and horizontal integration in European firms: technological transfers, multinational marketing strategies (European brands, promotion etc.) and the internationalisation of food

distribution. Third, the evolving similarities in public policies (i.e. the CAP).

Askegaard and Madsen (1995) have adopted a different approach. Using data from a 1989 lifestyle survey carried out in 17 European countries (the EU-15 plus Norway and Switzerland), they tried to investigate the existence of any homogeneity across these countries in terms of dietary culture-related subjects, like: general food behaviour and attitudes (“fundamental food style”, “consumption trends”), product-related food behaviour (“nibbling habits”, “drinking habits”), and health-related food behaviour and attitudes (“diet willingness”). The cultures most concerned with food and practising gastronomy as a passion are found in areas speaking a Roman or Greek language (Askegaard and Madsen, 1995). The greatest health consciousness is, however, particularly found in the parts of Europe speaking a Germanic language, with the British Isles constituting the main exception. In the peripheral countries of Europe, the food culture seems to follow the existing nation-states, whereas the picture is more diversified in the centre of the continent. A generally larger degree of similarity can be identified between the northern countries than between the Southern ones. Finally, some counties were found to be more heterogeneous than others and show strong regional characteristics. This represents a reason not to overlook the regional aspect of the European consumption patterns.

From 1990, Angulo et al. (1997b) argues that European food consumption has changed and the early 90s are a starting point for a new stage in dietary intake. The new trends can be summarised as follows: the declining trend in cereals, potatoes and sugar consumption changes in some countries (Austria, Germany, the Netherlands and Portugal for cereals; Denmark, Ireland, Italy, the Netherlands, Portugal and Sweden

for potatoes; and Denmark, Finland, France, Germany, Ireland, the Netherlands, Spain and Sweden for sugar) and it increases since 1990. On the other hand, the increasing trend in meat, milk and fish consumption reversed in 1990 and decreased in Denmark, Finland, France, Germany and Greece for meat; in Denmark, France, Greece, Italy and the UK for milk; and in Belgium, Luxembourg, France, Germany, Ireland and Sweden for fish.

Generally speaking, in the 90's the per capita food consumption in the EU appears to have reached a ceiling, although national differences still exist. Furthermore, in some countries, total calorie consumption has declined in recent years. This result indicates that further growth in per capita income will generate a smaller increase in total food consumption. Since the rate of population growth is relatively low in these countries, no further increase in food consumption is expected.

Hence, since 1990, the convergence trend seems to be slowing down or even reversing. No convergence process can be identified, at least at the aggregate level (Angulo et al., 1997a). In contrast, diverse trends for the different food product consumption can be found (Gracia and Albisu, 1997). It is possible that some similarities in buying behaviour (looking for good price-quality relationship, shopping concentration on weekends, etc.) or in consumer attitudes (health, fat content, etc.) exist, but still culture patterns and habit persistence play an ever increasing role in consumers' choice.

According to Unusier (1997, in de Mooij, 2000), globalisation in food choices remains mainly a belief, since no empirical evidence has been brought to show homogenisation of tastes or the appearance of universal price-minded consumer segments. A rare case of empirical evidence demonstrates that, rather than converging in terms of macro-environmental characteristics as hypothesised, industrialised countries are becoming more divergent (Craig et al, 1992, in de Mooij, 2000).

Most of the European countries are well developed and face a saturated food demand. Differentiation has become a crucial marketing strategy to survive in the market. Thus, results suggest that there is room not only for big agri-food industries with powerful branded products, but also for small sized food firms, able to produce well differentiated products to compete in local and regional markets.

“...It is difficult to identify the “Euro-consumer”...Convergence exists, but it is more likely that there are market segments with homogeneous socio-economic characteristics that cut across national boundaries...Marketers and policy makers should be aware of these segments to identify and satisfy them...” (Gil et al, 1995).

Moreover:

“...European consumers’ food preferences and habits will be different across countries and the market will be more and more fragmented, although they face more homogeneous market conditions...We should be prone to consider groups of consumers with similar food consumption profiles (niches). Companies must focus on satisfying a diversity of segments with different needs and to offer them the perceived quality with differentiated products at good prices...” (Gracia and Albisu, 1997).

2.4. The Case of Greece

2.4.1. The Mediterranean diet in Greece

Much attention has been focused in the 60’s on the “Mediterranean diet” (MD) as a food pattern associated with low mortality from diet-related diseases, especially heart diseases and cancer. A large number of books and reports have been written about

this specific pattern and its health benefits (Trichopoulou, 2000, also see reference list on MD). However, a precise description of it is difficult to achieve. Ferro-Luzzi and Sette (1989, in Gracia and Albisu, 1999) and Trichopoulou (2000) define the MD as:

“...High in cereals (more than 60 percent of total energy, excluding alcohol), low in total fats (less than 30 percent), with moderate amounts of added fats, predominantly olive oil, which represents more than 70 percent of total lipids, and relatively rich in a variety of fruits and vegetables, which provide at least half of the total amount of dietary fibre (30g/day)....” (Ferro-Luzzi and Sette, 1989, in Gracia and Albisu, 1999).

The Mediterranean food pattern is in no way uniform. There are large differences between the North African and the South European MD, for example with regard to the consumption of cereals, vegetables and fruits. The so-called MD comprises very different dietary patterns that have always been changed over time. Ferro-Luzzi (1989), Gracia and Albisu (1999), and Trichopoulou (2000) suggest that, at least as far as Italy, Greece and Spain are concerned, the “ideal” and traditional food pattern may have been that of the early 60’s, 70’s and early 80’s respectively. After that time, the diet has changed towards the pattern of Northern Europe.

The Greek food pattern has also changed very rapidly since the 60’s. This has many causes, ranging from national agricultural policy to membership of the EU. Greece is also affected by global secular trends in food patterns seen in all industrialised countries in their movement towards the mass consumer society. This is the society, which has access to the consumption of goods in a universal manner. Certain requirements have been necessary to bring about this situation (FOESSA Foundation, 1976, in de Rada, 1998): First, the availability of a high per capita income, which implies a high acquisitive capacity. In addition, there is a widely balanced income distribution so that the acquisitive capacity is shared adequately among the

components of the society. Furthermore, there is a production system that has the capacity to satisfy all consumer needs. These “needs”, once minimal subsistence level have been surpassed, are closely linked to and conditioned by the socio-cultural framework within which that society is immersed.

This evolution was not developed simultaneously in all societies and indeed there have been some substantial differences in the manner of the evolutionary process in each country. One of the classic definitions in the analysis of this development process is that which divides the evolutionary process in five stages (Rostow, 1963, in de Rada, 1998): the traditional society (in Greece during the 50’s), the pre-ordained conditions for the initial impulse (late 60’s), the initial impulse (70’s), the maturing (80’s) and the period of the mass-consumer society (late 80’s and during the 90’s).

The Mediterranean Greek dietary pattern may very well have been that described in a study by the Rockefeller Foundation undertaken in 1948 on the island of Crete (Helsing, 1990). The study was undertaken by the American foundation to explore the features of an “underdeveloped” community. To a modern nutritionist it does not seem as though the community is particularly underdeveloped in a nutritional sense:

“...Olives, cereal grains, pulses, wild greens and herbs and fruits, together with limited quantities of goat meat and milk, game, and fish have remained the basic Cretan foods for forty centuries. Evidences of this include the agricultural products, storage facilities, equipment and art work found in the Minoan ruins...”

Moreover:

“...The Cretan diet consisted chiefly of foods of vegetable origin, with cereals, fruits and olive oil predominating. Pulses and nuts were eaten in appreciable quantities –especially during the winter- and potatoes were used quite extensively. On the other hand, meat, fish, milk, eggs and sweets were consumed in relatively small amounts. Butter was seldom used. Slightly more cheese per person was consumed in Crete than in the US (Table 2.9)...” (Allbaugh, 1953, in Helsing, 1990).

Table 2.9: Sources of Calories Consumed, by Percentages, in Crete¹ and the US², 1948
Source: adapted from Helsing, 1990.

Food group	Crete, Fall 1948	United States 1948-1949	Difference
Cereals	39	25	-14%
Potatoes	4	3	-1%
Sugar and honey	2	15	+13%
Pulses and nuts	7	3	-4%
Vegetables and fruits	11	6	-5%
Meat, fish and eggs	4	19	+15%
Dairy products	3	14	+11%
Oils and fats	29	15	-14%
Wine, beer and spirits	1	*	
Total	100	100	

1: Based on a seven-day dietary recording

2: Based on Food Balance Sheets, 1950 supplement, FAO, April, Washington D.C.

*: Not given

The Rockefeller study revealed other “typically Mediterranean” dietary quality features. No meal was considered complete without bread, even though most of the grain had to be imported. Olives and olive oil contributed heavily to the energy intake. To the foreign visitor, food seemed literally to be “swimming” in oil. In addition to being used freely as cooking fat and as oil for salads, it was added to soups and cooked vegetables. Methods of food preparation were relatively simple. A large part of fruits and vegetables were eaten raw. Apart from that, boiling and stewing were the most used methods of preparation. Few homes had the facilities for roasting: this had on occasions to be ordered specially from a baker. For preservation, simple methods such as sun drying were used.

2.4.2. Diet-related health changes in Greece until the late 80’s

Life expectancy at birth has over the last decades increased in Greece, as in most other countries, and it has been among the highest in Europe for many years: from 76 years in 1970 to 78.9 in 1986 (WHO, 1990, in Helsing, 1990). This has not always been so: in 1879, it has been estimated that life expectancy at birth was 36 years for men and 37.5 for women, in 1920 the figures were 43 and 46.5 respectively,

in 1940 53 and 56, and in 1980 72.2 and 76.4 (Valaoras, 1984). The relative rapid improvement of welfare is also evident in other health variables. A comparative study of a new cohort of men aged 40-59 studied in 1982 in the same geographical area as a 1960 study in Crete showed an increase in the average Body Mass Index in this age from 22.6kg/m² to 26.9 6kg/m² (Aravanis et al, 1988). It is therefore possible that segments of the Greek population are, since the 80's, growing fatter.

Some early studies on diet-related health variables were carried out by the same Rockefeller Foundation study in Crete in the late 40's (Helsing, 1990). Ten years later, new studies were undertaken in Crete and Corfu as part of the well-known "seven countries study" (Keys et al, 1968; Aravanis, 1983; Aravanis and Ioannidis, 1984; Alekos, 1994; Trichopoulou, 2000). At the time of that study, in 1959, Greece had one of the lowest cardiovascular mortality rates in Europe: 48/100,000 population. Mortality from all causes was low as well: 650/100.000 population (Helsing, 1990).

This picture is, however, changing. Mortality figures from the 30's, 60's and 80's, although not strictly comparable, do indicate trends. Available data show that heart disease mortality of both sexes, which may have been lower than 60/100,000 people for the whole country in the 30's, thirty years later had roughly doubled to 123/100,000 in 1960-64, and has almost doubled again to 236/100,000 in 1980-85 (Valaoras, unpublished, in Helsing, 1990). Diabetes mortality has increased over the last 20 years, from a total of 11/100,000 population in the 1960-64 to 33.6 in 1980-85. The increase is particularly notable in women, where the rate almost quadrupled over the period. Diabetes might be linked to obesity, of which we have indication

of an increase in this period. In conclusion, the situation in diet-related diseases in Greece in the late 80's has been that the mortality rates are relatively low, compared with those of Northern Europe, but there was a tendency towards an increase in many of them. From a public health point of view this made the case for a health promoting nutritional policy.

2.4.3. Nutrition policy initiatives: a little of history...

The first contemporary systematic nutrition policy activities can be dated to the mid-1930. In 1934, spurred by activities initiated by the International Health Division of the US Rockefeller Foundation, a Nutrition Section was to be created in the Greek Ministry of Hygiene to participate in the nation's public health program. In the newly founded School of Hygiene a chair of nutrition was established and a Greek nutrition professor was appointed. A young physician was sent to study nutrition abroad on a Rockefeller fellowship. Greece had several nutrition experts at this time. A government appointed committee had been requested to study the nutrition situation. In 1938 they published a report on "Problems of Nutrition in Greece", which reviewed the situation comprehensively and made recommendations for improving it (Tsongas, 1951).

These early initiatives do not seem to have been followed up, in that the doctor who had been trained abroad returned to find that there was no position for him to fill. When the chair of nutrition became vacant it was not filled either. The Nutrition Section in the Ministry of Hygiene never did become a reality (Helsing, 1990). Public health-related nutrition efforts in this pre-war period were mainly directed towards relief programs for the socially disadvantaged or nutritionally-at-risk groups. They

were often designed at the same time to assist agriculture in its surplus disposal, such as the “raisin program” or the 1939 school feeding program for needy children, which provided 100,000 children in urban centres with a complete hot meal (Tsongas, 1951).

The Greek public had had one of its first exposures to nutrition education in the immediate post-war and Greek civil war period 1947-50. Helsing (1990) reports that, to follow up the emergency work carried out by the UN Relief Rehabilitation Agency (UNRRA) immediately after the War, the Greek Government in 1947 requested FAO to provide a consultant to assist with the development of a long-term program to improve the diet of the population and to create nutrition services on a permanent basis. One of the tasks the consultant then saw was to design the national agricultural policy to satisfy the requirements of the population as defined by nutritional science. For example, the consultant advocated the increased cultivation and use of potato, a protein and energy rich crop fitting well into the Greek food pattern. She saw it more useful for the future to increase potato production than wheat.

The FAO nutritionist further suggested that post-war Greeks should be convinced to become fish-eaters rather than meat-eaters. With regard to food imports, she proposed that the greater part should be foods low in cost and high in nutrient value. The importation of “unnecessary luxury items” of special and expensive foods was thus not recommended. She refused to approve the importation of baby foods, for example, and became unpopular especially among importers and the press for her advisory activities.

On the issue of food processing she noted that the extraction rate of cereals should be kept high, both because this would save the country money and because the consumption of low-extraction cereals would reduce the nutritive content of the diet. Enrichment of food was carried out in two cases: addition of soya meal to bread flour in order to increase the protein content of the diet, and of vitamin A to “oleomargarine”, which was of excellent quality, often made on the basis of inferior quality olive oil. Among others she presented three “dietaries” or food lists providing at retail level 2,300, 2,400 and 2,500 calories respectively.

In line with scientific knowledge at the time, great emphasis was placed on the provision of enough protein from animal sources. It was found that the only feasible way of doing this was through the use of milk, usually in the form of powder. The utilisation of this product increased from 0.56kg/cap/year (on a liquid milk basis) in 1935-38 to 15.3kg/cap/year in 1948-49 (Helsing, 1990). It is conceivable that the continual since then increase in the use of milk and milk products in Greece demonstrates program’s long-term success.

In October 1950, a “Research Bureau on Nutrition Problems” was established by Royal Decree under the Ministry of Agriculture. It was charged with collecting the statistical data necessary for improving the nutritional status of the population, systematically monitoring the activities concerning “the policy followed on nutrition matters in foreign countries”, establishing a “national dietary program”, especially concerned with imports but also local food production, the study and preparation of Food Balance Sheets, the formulation of dietary standards, and assistance and education in nutrition related matters. Nevertheless, the whole effort did not survive

more than 5 years and the Bureau's personnel was "absorbed" by other branches of the Ministry of Agriculture.

The Greek government at the time after the Civil War (late 40's) was in a weak position. The first popularly elected centre-liberal government in 1950 was soon overthrown and conservative governments followed throughout the 50's. It is possible that these governments were more attentive to the interests of the food importers, who evidently felt their liberty restricted by the FAO consultant than to public health needs as perceived by Greek nutritionists and health educators.

Possibly resigning to these realities, and thus resetting their priorities, the problem of nutrition in Greece was in the years to come after 1955 to be seen by nutritionists as mainly related to rural poverty. The so-called "home economics" services through the Ministry of Agriculture had been established to take up this problem. Qualified personnel in nutrition subsequently put their energies to work in home economics and rural extension. The few Greek scientists with an interest or expertise in nutrition may have felt that, as the overall food deficit slowly disappeared, nutritional problems were also being solved. International nutritional science before 1970 was generally very much geared towards nutritional deficiencies (Helsing, 1990). Relatively few nutritional scientists paid any attention to the problems of plenty. It is therefore not surprising that nutritionists turned their attention towards the rural areas where deficiency problems still existed. Iron deficiency anemia as well as protein-calorie malnutrition is described in Greek scientific studies at the time (Kondakis, 1965; Doxiadis, 1968, both in Helsing, 1990; Malamos, 1966).

Greece had no epidemic of heart disease or other non-communicable diseases at the time before 1975 to build a case for public attention to nutrition. Moreover, the 60's were a time of still high political instability, which led to the military coup of 1967 and a junta, which lasted until 1974. Hence, apart from reports on isolated studies of nutrient deficiency problems, all the medical profession as well as the public got to know that the country had one of the healthiest diets in the world, as witnessed by the low heart disease mortality rate. The "Seven Countries" study we have seen made this notion internationally accepted, so that it stuck for decades.

In 1970, a Committee was mandated to draft the first Greek Food Law, called the "Code of Food, Drinks and Food Items of Common Use". It was based upon a previous Decree on the subject, the 1929 (!) "Decree on the work of the Highest Chemical Council of Food Standards". In 1978, a Greek review of nutrition education reported on the changes in diet and mortality pattern over the last decades:

"...It appears therefore important that a national nutrition policy be formulated in Greece encompassing multiple objectives directed to different segments of the Greek population..." (Polychronopoulou-Trichopoulou, 1980, in Helsing, 1990).

This must have been one of the first signs of a revival of interest in nutrition policy after the early 50's. In the 80's, Greece has been one of the few countries in the EU without any official national Recommended Dietary Allowances. Again, this may result from the rather long period during which few professionals worked consistently with nutrition questions. A list of nutrient recommendations has been worked out by the Pharmaceutical Office in the Ministry of Health, which was primarily intended as a guide in administrative questions of permission to produce vitamin supplements and nutrient fortified foods. These recommendations were based on the US

Recommended Dietary Allowances from 1980 (Helsing, 1990).

Since the beginning of the 80's, there have been repeated requests from those working with nutrition in the national context, both in academia and within the Ministries of Health and Agriculture, for the formulation of a national nutrition policy. Yet, epidemiological information which linked the dietary changes of the 70's and 80's with the changing disease mortality pattern have not been used, maybe because the level of chronic disease mortality, especially from circulatory diseases was still comparatively low. In addition, no attempts have yet been made to create cross-sectoral alliances between nutritionists and politically stronger sectors.

Theoretically Greece is today self-sufficient in all foods, including, for the first time in its history, wheat. Two factors seem to have made this possible: employment of the EU funds supporting agriculture in outlying areas, and irrigation schemes. Whether Greek self-sufficiency in food will be regarded as desirable by the larger Community it remains to be seen. The production of livestock, for example, is one of the areas where Greece is trying to expand its self-sufficiency. Production of these commodities is however done much more efficiently by other EU members who need a market for their surplus production. According to Helsing (1990):

“...Future agriculture policy should not be an obstacle to a nutrition policy in Greece, with a climate and a tradition for production of the foods modern nutrition science hails as the best for health, most notably fruit, vegetables and olive oil. The present emphasis on meat and milk may possibly be changed without adverse consequences for Greek agriculture. The Greek food sector has the ability to adapt its production to clearly established nutrition policy objectives...” (Helsing, 1990).

2.4.4. Factors influencing food consumption in Greece

2.4.4.1. The changing social environment

These changes are more and more apparent within the Greek society, such as the increase of the small households' percentage, the ageing of the population, the decrease of the birth rate, or the rising number of working housewives. The, often uncontrolled, domination of the media and their influence on Greeks' everyday lives, the expansion of the information and communication technology, from the mobile phone to the internet, the electronic commerce and the use of multimedia in everyday life, in education or at work, open new and unknown roads for the, so far seen as mostly "traditional", Greek consumer.

Conflicting trends, different ideas and unpredicted changes characterised, during the last decade of the 20th century, the food market in Greece, leading to a seemingly everlasting change. One can observe a steady decrease of basic food expenditure and of consumers strictly examining prices on the super market shelf. On the other hand, there is an always-rising expenditure for products and services of "life style". Health, beauty, recreation, education, communication and transportation expenditures demand a bigger and bigger share of the household's monthly expenses. Apart from satisfying their basic needs, contemporary Greeks seem to race to satisfy their "new" and pressing needs of "self-respect" and "success", a thirst that can be quenched with the over-consumption of lifestyle products. Everyday life also changes through the search of disposable time for sports, exercise, use of the modern electronic means or the demand for acquiring more information.

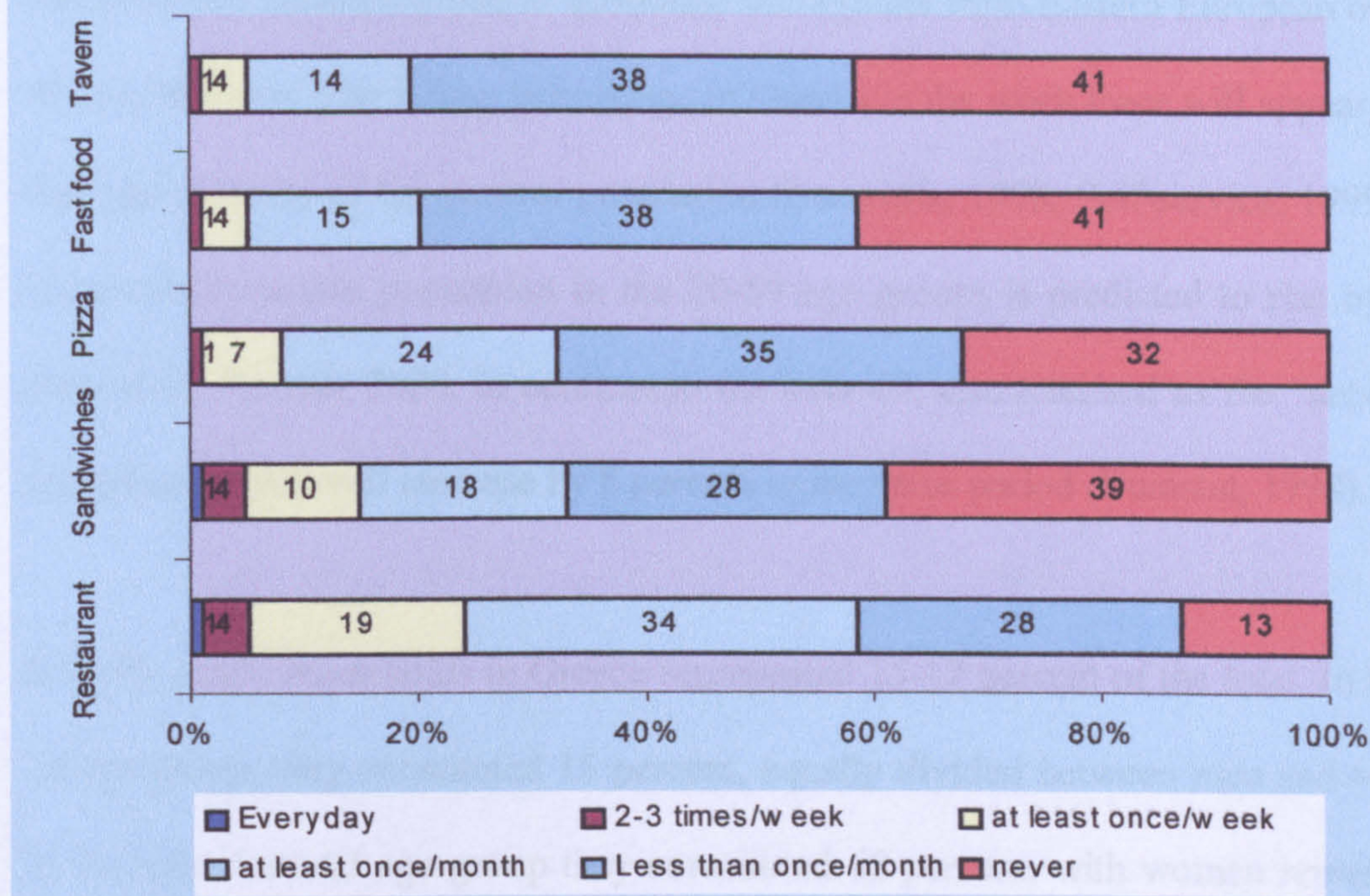
In this environment of the last 20 years, quality, or what is termed “quality” has lost its true meaning. Dozens of thousands of industrial products with “acceptable” quality, flashing packaging and overwhelming advertising do not progress in the marketplace despite their desperate efforts to convince due to their lack of distinctive personality and the monotony of their messages. Periodical maturity of products and services gives birth, upon completion, to some renewal, which keeps the market “warm” and modifies market shares among products or firms. Yet, in the end the question stays always the same: “have we created a truly satisfied, loyal consumer?”

2.4.4.2. The “metamorphosis” of the Greek family

In the interior of the Greek family more things have changed than these revealed by the surveys. For people older than 40, the view of the family sitting around the table during lunch is only a memory. This image disappeared completely over time, according to the geographical or social distribution of the country. The average Greek household resembles to the western European model more than ever before. On the other hand, 83 percent of the Greeks ate 4.16 times per month out-of-home in 1995. Food consumed out-of-home represented in 1982 17 percent of the food expenditure, rising to 21 percent in 1988, 25 percent in 1994 and 27-29 percent in 1998 (Figure 2.12). Despite the fact that 74 percent of the Greeks consumed home-made food everyday during 1998, impressive is the observation that another 19 percent consume home-made food never or almost never. These are mainly people 45-64 year old, of higher education and social level, in the urban areas of the country (Centrum, 1998, in Self-service, 1999; Family Accounts Survey, 1999, in Liberal Press, 2000).

Figure 2.12: Food Consumption Out-of-home per Type, 1998

Source: adapted from Self-service, 1999.



Not only the percentage of working women is steadily rising in Greece, but also does the percentage among them in high-rank business positions. These women differ largely from the traditional model of the Greek housewife. They are getting married at older ages, have fewer children at an age older than the housewives and their involvement in housekeeping is rather an unwanted burden. In 1995, they reached 38 percent of women in the 25-42 age group (see Table 2.8; Eurostat, 1998; Lazaridis, 1999).

The very low birth rates constitutes a real threat for all European countries. In Greece, the 1995 average population increase rate has been 0.5 percent. The 2000-2010 average population increase rate will be only 0.07 percent, by the year 2020, the number of deaths is predicted to exceed that of births and a population decrease will appear.

On the other hand, 80 percent of the work force's increase in the 20-59 age groups in the 90's have been identified to economic immigrants from Eastern European or Third World countries. The falling percentage of Greeks in the work force will appear earlier than the decrease of the general population (Lazaridis, 1999; Self-service, 1999). The economically active population in the 20-59 age groups is predicted to rise by 2.5-3 percent by the year 2020, in contrast to the over-60, characterised as the "dependent" age group, which will increase by 8 percent in the same period (Eurostat, 1998).

In 1996, single households in Greece represented 15-17 percent of the total. In the 20-29 age group, they constituted 15 percent, equally divided between men and women. In the older-than-65 age group they constituted 62 percent, with women representing two thirds. In addition, the percentage of young people living at their parents' house is the second highest of all the EU countries, after Italy, and increased from 63 percent in 1987 to 73 percent in 1996 in the 20-24 age group and from 39 to 50 percent in the 25-29 age group, with the EU average to 32 percent (Eurostat, 1998). This increase is mainly attributable to the unequal redistribution of incomes in Greece, the difficulties of the young people to enter the labour market, and the very low, compared to the EU average, entry-level salaries (Self Service, 1999).

With a fast-rising unemployment rate of 12 percent in 1999, almost double among the younger age groups, and the masses of economic immigrants, new types of employment are being developed. Part-time employment is expanding especially among women, reaching 29.1 percent (Self-service, 1999). On the other hand, the Greeks were the second poorest among the Europeans, after the Portuguese, with 8.803PPS (Purchase Parity Standards) in 1994, yet, according to OECD data (in Self-

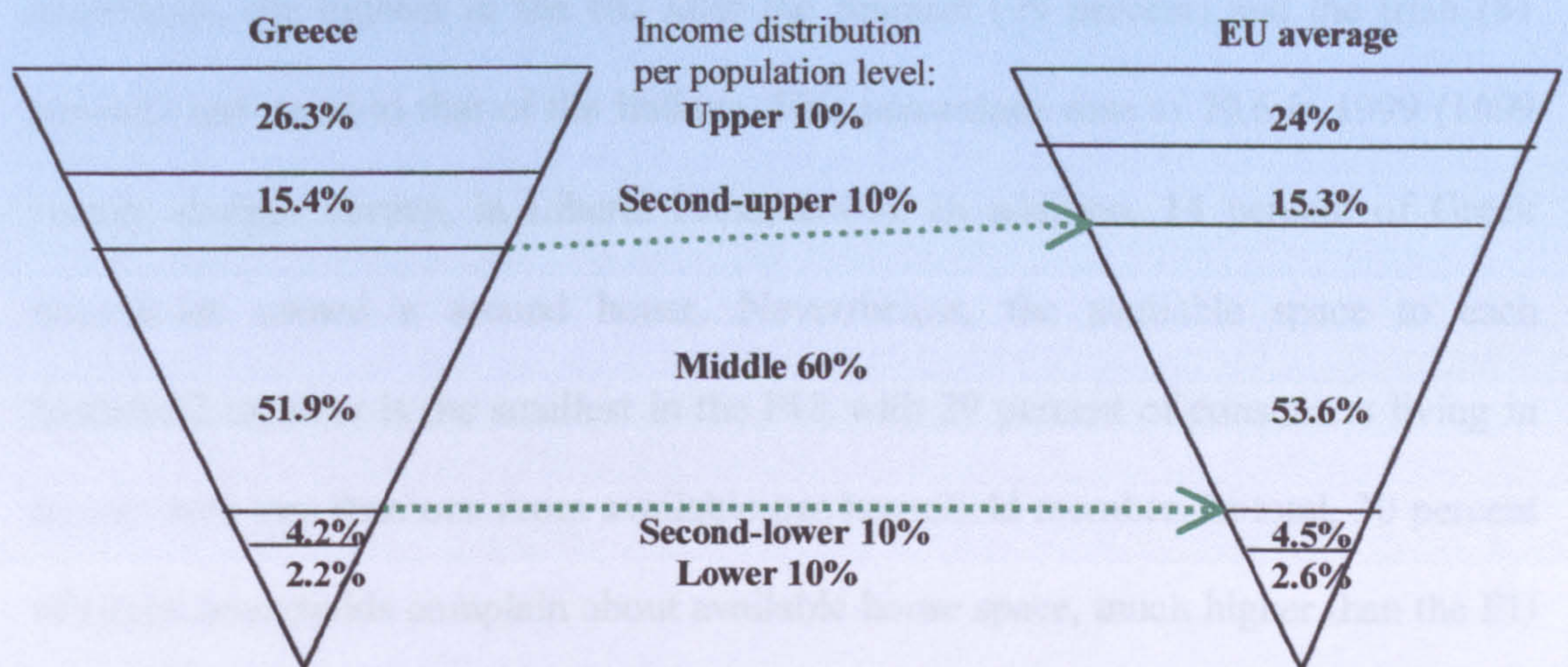
service, 1999), the “unofficial” economy reached 35 percent of all registered economic activity in the same year. The OECD report suggests adding an approximately 10 percent when talking about the disposable income of the Greeks.

Generally speaking, income distribution in Greece is one of the most unequal of the EU (Figure 2.13), where the general rule is that the higher the income the more fair is wealth distribution among the social layers (Self-service, 1999). In Greece, 15 percent of people gained less than the average income level (defined as the higher minus the lower registered income, divided by two) in 1994, percentage that increased to 22 percent in 2000 (1999 Family Accounts Survey, in Liberal Press, 2000). In the other extreme, the most fair wealth distribution has been in Denmark, with only 4 percent under the average income level (Eurostat, 1995). As a result, in 1994, 32 percent of the Greek households declared not able to buy new clothes (EU average: 10 percent), and another 50 percent not able to take a week of vacation per year (EU average: 24 percent).

Nevertheless, it is important to examine the source of this income. Thus, in 1994, 70.2 percent yielded from all types of employment, of which one third (24.8 percent of total) from self-employment, the highest in the EU and one of the largest in the world (Eurostat, 1995). The income distribution in Greece follows in the 90’s the general trend of people of superior education gaining more than those of lower education, yet not as much as their European colleagues. In addition, women’s labour is the worst paid in the EU. Nevertheless, the self-employed professionals gain more than the (private and state) employees, and similarly the experienced, older, gain more than the inexperienced, younger professionals (Self-service, 1999).

Fig. 2.13: Income Distribution per Population Layers, Greece and the EU, 1994

Source: adapted from Self-service, 1999 and Eurostat, 1995



Compulsory education in Greece lasts for 9 years, from the age of 6 to 15, and it is one of the shortest in the EU, after Italy. A large increase in the demand for education of all levels has been observed since 1980, and the number of 4-year-old children in pre-elementary school programs was risen from 38 percent in 1980/81 to 54 percent in 1994/95. Similarly, the number of students increased from 121,000 in 1980/81 to 296,000 in 1994/95 (Self-service, 1999). It seems, though, that the inequalities of the income distribution are reflected on the inequality of education opportunities within the society. According to Eurostat (1995), in 1994, the percentages of children not receiving education of any level have been the highest, with Italy, of the EU. Hence, 32 percent of the children receive no education when the family's decision maker is of low education (9-year compulsory education cycle), 12 percent when the family's decision maker is of average education (12-year education cycle or high school degree) and 6 percent when the family's decision maker has a superior education (university degree). The relevant EU average numbers are 25, 9 and 4 percent.

In 1994, 77 percent of Greek consumers lived at privately owned houses or apartments, the highest in the EU after the Spanish (79 percent) and the Irish (81 percent) and equal to that of the Italians. This percentage rose to 79.6 in 1999 (1999 Family Budget Survey, in Liberal Press, 2000). In addition, 14 percent of Greek households owned a second house. Nevertheless, the available space to each household member is the smallest in the EU, with 29 percent of consumers living in houses with less than one room available per household member. In total, 30 percent of Greek households complain about available house space, much higher than the EU average of 19 percent. Another 38 percent complain about heat problems, 29 percent about the house general condition, 26 percent about the noise in the neighbourhood and 21 percent think that there are serious problems concerning the wider environment in which they live (Self-service, 1999).

In terms of car ownership, the Greeks are the last, with the Portuguese, with only 55 percent of the households owning a car in 1994, and with another 23 percent declaring unable to buy one (though the situation has dramatically been changed since then, due to a serious decrease of the taxes imposed on cars). On the other hand, in 1994, 88 percent of households had a telephone and 87 percent a colour TV, percentages increased in 1999 to 93.6 and 97.6 percent respectively. Regarding the ownership of a mobile phone, there has been a fast growing trend since 1994, and it reached almost 40 percent of the households in 1999 (Yionas, 1999), especially among the 25-44 age group and the higher socio-economic layers. In addition, the number of PC users reached 31 percent in 1997, though the PC owners among them are less (12 percent) and the internet users even less: approximately 6-7 percent (Focus, 1998; Yionas, 1999; 1999 Family Accounts Survey, in Liberal Press, 2000).

Regarding the healthiness of their lifestyle, only 7.5 of the contemporary Greeks find it bad or very bad. Infant mortality has decreased by 40 percent since 1960, to 8 percent in 1995, though it is still one of the highest in the EU. The causes of death related to the modern lifestyle have dramatically changed (see Section 2.4.2) and 7 percent of the Greeks now suffer from a chronic disease or disability that influence their everyday lifestyle, such as traffic accidents, cardiovascular diseases and cancer. The percentage of smokers in Greece is much higher than the EU average of 37 percent, and it reached in 1997 46 percent in the 15-34 age groups. Annual alcoholic drink consumption equals 11L of pure alcohol per capita, which makes the Greeks the heaviest drinkers in Europe (c.f. Section 2.4.5.1). All these have led to a sharp increase of the per capita health care expenses, from 288PPS in 1985 to 748PPS in 1996, yet this amount is the lowest in the EU, compared with the 1077PPS of the Portuguese, the 1520PPS of the Italians and the 2222PPS of the Germans in the same year (OECD, 1997, in Self-service, 1999).

2.4.5. Food consumption patterns in Greece

2.4.5.1. General trends in comparison to the rest of the EU

Greece still shows one of the highest consumption of cereals, fruits and vegetables and vegetable oils, and the lowest of dairy products, meat and sugar, compared to the rest of the EU countries (Angulo et al., 1997):

“...The food culture in Greece is one that deviates the most from the other Europeans. Greeks have a preference for light meals composed of several dishes. They like to eat out and they are not convenience-oriented when it comes to home cooking. The burger culture does, however, seem to attract

them. They are heavy users of more than half of all beverages of the study', like white wine (retsina) and alcoholic beverages (ouzo). Greeks are the heaviest users of coffee and very light users of mineral water...' (Askegaard and Madsen, 1995).

Greek food expenditure is connected to a particularly large agriculture sector, compared to the rest of the EU, and a fast growing food processing sector (Lazaridis, 1999). During the post-war period 1950-1995, food expenditure in constant 1970 prices, as well as per capita food expenditure, increased by almost 250 percent (Karagiannis and Velentzas, 1997) or at a yearly rate of +2.93 for food, +4.40 for drinks and +4.59 for tobacco products.

Food expenditure as a percentage of GDP reached its peak in the 60's, with a steady decrease in the 70's and 80's, to recover again during the early 90's. Overall private expenditure at the same period followed the same trend, though at an always-higher level than that of food expenditure, whose share, hence, steadily decreased from 45.58 percent in 1950 to 29 percent in 1994 and 28 percent in 1995 (see Table 2.5; Lazaridis, 1999). Food expenditure share exhibited the fastest decrease of all components of expenditure comprising the overall private expenditure, especially after 1995 (clothes and shoes, housing, furniture and home equipment, health expenses, transportation and communication, recreation, education etc.) and reached 17.4 percent in 1999 (1999 Family Accounts Survey, in Liberal Press, 2000). This is directly opposite to the expenditure for recreation, including eating out-of-home, which exhibited the fastest growth at the same period (Lazaridis, 1999).

¹ The following percentages show how many Greeks would consume one of the following beverages at least once per week (the European average is shown in brackets) : colas 52 per cent (26), fruit juice 60 per cent (50), beer 51 per cent (34), white wine 43 per cent (19), whiskey 19 per cent (6), vodka 9 per cent (2), rum 6 per cent (1), cognac brandy 10 per cent (3) (Askegaard and Madsen, 1995).

In terms of individual food items, Greek consumers have tended over time to reduce consumption of bread and cereals, fruits-vegetables, and oils-fats by -18, -6 and -5 percent respectively, between 1950 and 1995 (Figure 2.14 and Table 2.10). On the other hand, they have increased the consumption of all other food items, with the most striking examples these of meat (+17 percent), fish (+4) and livestock products such as milk, cheese and eggs (+4), though at a slower rate in the 90's.

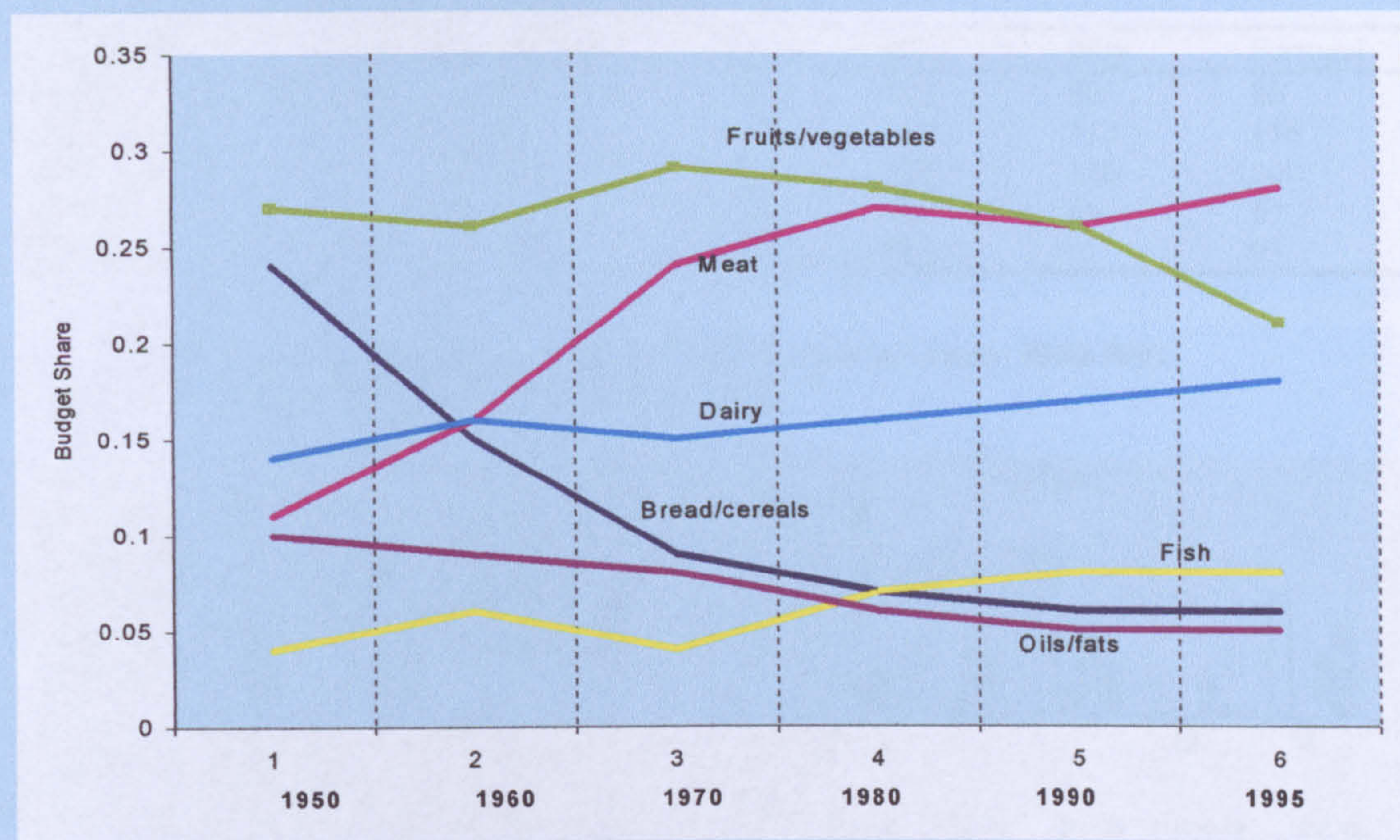
If individual food products are taken under consideration, despite some changes in eating habits, Greek consumers in the 90's seem to be staying loyal to certain aspects of their traditional diet. Greek coffee, Greek-type yoghurt, feta cheese, margarine, olive oil in bulk, individually packed ice cream and fresh pasteurised milk have been identified as the star buys in each of the seven corresponding categories of food products (Eurofood, 1997).

2.4.5.2. Analysis of the main socio-demographic factors influencing food expenditure

Expenditure in Greece is tightly connected to the socio-economic level of the household (Table 2.11). Karagiannis and Velentzas (1997) tried to decompose the observed changes in food budget shares over the period 1950-1993 into three components: the *total substitution effect* (substitution among food products due to price changes), the *total expenditure or budget effect* (proportional changes in total expenditure according to income and price changes) and the *habit effect* (whether previous consumption patterns play or not a role in determining present consumption). The empirical results indicated that the accession to the EU in 1981 increased the relative contribution of the total substitution effect (Karagiannis and Velentzas,

Fig. 2.14: Evolution of Food Budget Shares in Greece, 1950-1995

Source: adapted from Karagiannis and Velentzas, 1997 and Lazaridis, 1999.

**Table 2.10:** Budget Shares of Major Food Categories in Greece, 1950-1995

Source: adapted from Karagiannis and Velentzas, 1997; Lazaridis, 1999; Self-service, 1999.

Food Items	1950s	1960s	1970s	1980s	1990	1995	1990-1995 change
Bread and Cereals	0.24	0.15	0.09	0.07	0.06	0.06	0
Meat ¹	0.11	0.16	0.24	0.27	0.26	0.28	+2%
Fish	0.04	0.06	0.04	0.07	0.08	0.08	0
Milk, Cheese, Eggs ²	0.14	0.16	0.15	0.16	0.17	0.18	+1%
Oils and Fats	0.10	0.09	0.08	0.06	0.05	0.05	0
Fruit and Vegetables	0.27	0.26	0.29	0.28	0.26	0.21	-5%
Sugar	0.08	0.09	0.02	0.01	0.01	0.01	0
Coffee, Tea, Cocoa	0.01	0.01	0.01	0.01	0.01	0.01	0
Drinks and beverages (all types)	0.03	0.03	0.03	0.03	0.04	0.04	0
Tobacco	0.03	0.03	0.03	0.02	0.03	0.03	0
Other food	0.00	0.00	0.06	0.07	0.07	0.08	+1%
Ready meals eaten out-of-home				0.17	0.21	0.25	+4%
Food Expenditure*	39,061	59,456	84,083	99,628	106,289		
Food Share	0.45	0.41	0.35	0.25	0.25	0.29	-1%

* Defined in 1970 Constant Prices, in Million Drachmae.

¹: 1999 meat budget share: 0.23²: 1999 dairy budget share: 0.18 (source: 1999 Family Accounts Survey, in Liberal Press, 2000)

1997). Due to price increases under the CAP (Georgacopoulos, 1990), consumers became more price sensitive and oriented. Fish, and fruits and vegetables are the only exceptions. The slow-down in *meat's budget share* expansion during the post-1980 era (Figure 2.15) was solely attributed to the relative contribution of the total

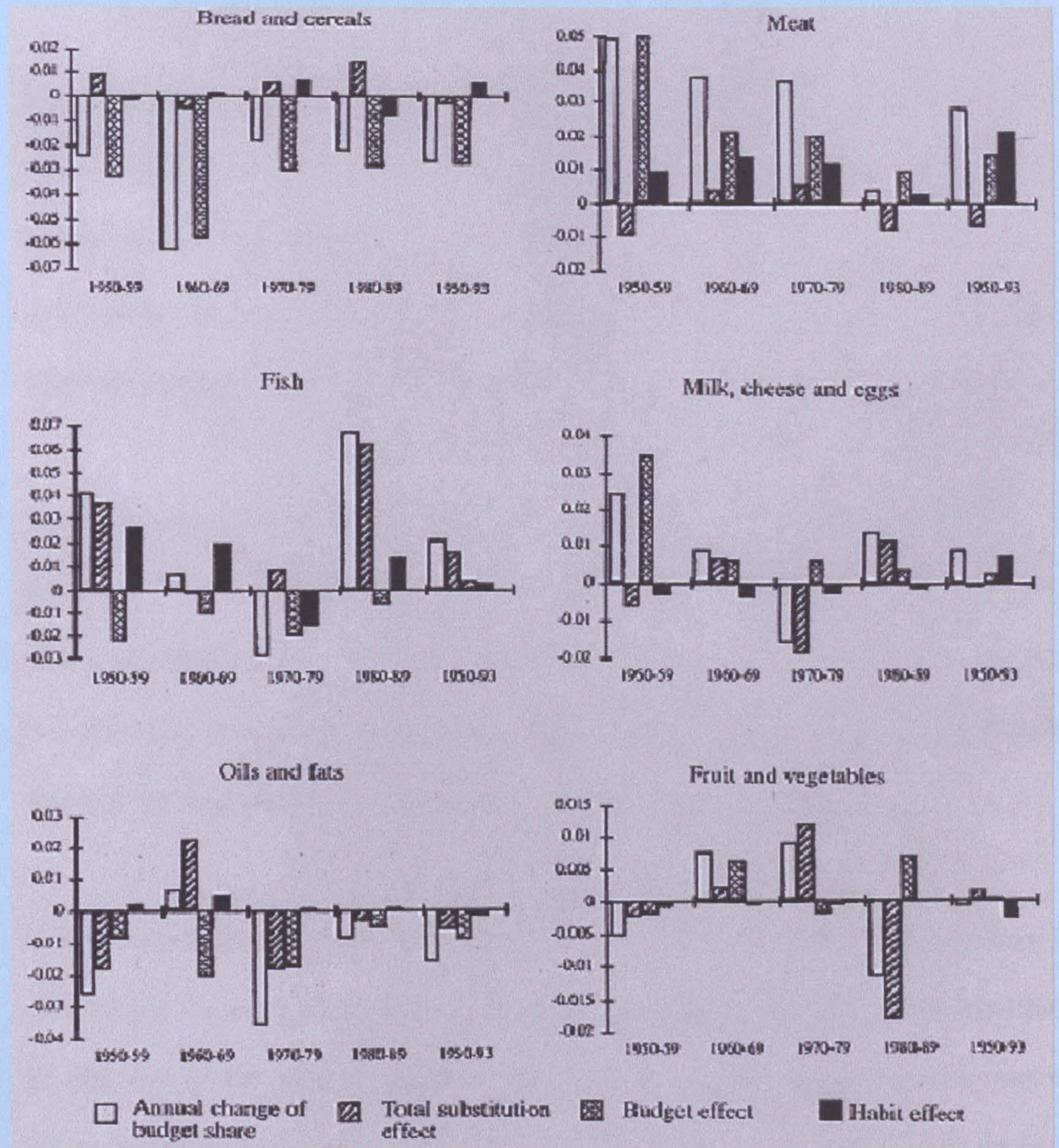
Table 2.11: Private Expenditure in Adult Equivalents per Occupation Type, Selected EU Countries
100 = average private consumption per country

Source: adapted from Eurostat, 1998; Self-service, 1999.

Occupation	Belgium	Greece	UK	Italy	Portugal
Unskilled worker	90	88	103	90	86
Employee	109	126	133	113	156
Self-employed	102	117	124	116	100
Farmer	98	86	102	81	67
Unemployed	78	82	66	-	91

Fig. 2.15: Decomposition Analysis Results for Food Demand in Greece, 1950-1993.

Source: adapted from Karagiannis and Velentzas, 1997.



substitution effect, which almost doubled in terms of its relative magnitude. This is due to large increases in meat prices under the CAP (in accordance with Ritson,

1997), especially for beef and chicken, which contributed to the enlargement of the negative total substitution effect. However, the share of *milk, cheese and eggs* increased faster during the post-1980 period, even though their price increased in absolute but not in real terms, resulting to a positive total substitution effect, which still seems to be the major contributor to their budget share's fast expansion, together with a strong habit effect after the early 90's.

The budget share of *oils and fats* seems to have been affected less by Greece's accession to the EU. However, the forces affecting the evolution of the oils and fats budget share have changed after 1981. The relative contribution of both the total substitution and the total expenditure (budget) effects have decreased significantly, whereas that of the habit effect increased.

The substantial increase of the *fish budget share* is not attributed to the CAP, as policy in fishery and aquaculture has little to do with prices (Karagiannis and Velentzas, 1997). It is probably due to production quantity increases, which resulted in a price fall. On the other hand, the role of habits should be emphasised, as both the sign and the magnitude of the habit effect have been changed after 1981.

In both periods (pre- and post-1980), the total budget effect was the dominant force in determining the changes in the *bread and cereals* budget share. In the period 1980-93, the sign of the total substitution effect turned positive, indicating that relative prices favoured the expansion of bread and cereals, since their prices went up by a percentage smaller to other food items under the CAP (Georgakopoulos, 1990).

Lazaridis (1999) analysed the demand for different food categories based on primary data of the National Statistical Service of Greece's 1994 Family Accounts Survey, on a sample of 6,756 households. The survey concerns the quantity and value of the goods and services purchased in 1993-94. A number of economic and socio-demographic factors are also included, such as household members' characteristics (age, education, income), household's characteristics (size, working housewife) and other characteristics (population of the place of residence or seasonal variation in consumption). This allowed him to investigate the socio-demographic factors' effects on Greeks' food demand, according to the trends observed to the rest of Europe.

The first factor examined is the "household's income". The rate of food expenditure increase is less than proportionate (slowing down) with increasing income, fact that characterises the food categories that cover basic human needs, and indicates, *ceteris paribus*, the existence of a consumer saturation point at a specific income level. The food expenditure rate is, hence, influenced by the income level, as well as the size and structure of the household. The highest income elasticity is being exhibited by the alcoholic drinks, eating out-of-home, and fish food categories (luxurious items for the Greeks) and the lowest by the bread and cereals, dairy and vegetables food categories.

The second factor analysed by Lazaridis (1999) is the "household structure by its members' age distribution", which revealed details not visible when simply the household size was used. For example, demand elasticity of foods for children up to six-year old (e.g. baby food or yoghurt) is much higher than the average, in contrast to, as expected, the eating out-of-home, tobacco and alcoholic drinks categories. On the other hand, the 19-25 age group exhibits the lowest elasticity values. Here first

are the expenses for coffee and tobacco and eating out-of-home and last are those for fish, honey and hard alcoholic drinks.

The next factor is the “size of consumers’ place of residence”. It showed that, while moving from urban to rural areas, an increase in the consumption of bread and cereals, vegetables, fish, dairy, sugar, coffee and tea, alcoholic drinks and, surprisingly, for food consumed out-of-home can be observed (Table 2.12). Hence, a trend of higher consumption in rural areas can be observed, though not easily generalisable for entire food categories (Lazaridis, 1999). It is worth noting the observed difference in the lamb/goat meat expenditure between Athens/Thessaloniki and the rest of the country, where the expenditure is tripled. Large differences are also observed in the alcoholic drinks, especially wine expenditure. The reverse trend can be found for ready meals consumed on vacation, and milk, yoghurt and fruit expenditure, which are larger in the areas of Athens/Thessaloniki.

Regarding the “household decision maker’s education level”, a clear relation with the level of food expenditure can be found for the majority of food categories: the lower the education level the higher the households’ consumption tendency. The most notable examples are the lamb/goat meat, tobacco, oils and fats and beer expenditure. The opposite trend holds for ready meals, especially during vacations, beef, fish, milk, and yoghurt expenditure. In the case of education, hence, the inverse relation with the food expenditure level is more easily generalisable, with the most striking exceptions those which express a clear tendency towards convenience and health consciousness, similarly to other European societies (Lazaridis, 1999).

Table 2.12: Average Household Food Expenditure Index per Factor, 1993-94.

Source: adapted from Lazaridis, 1999.

Food category	Population ¹			Education ²		Seasonal variations ³			Working house- wife ⁴	Single house- hold ⁵
	>29.999	2-29.999	<2000	High Sch.	Univers.	Jan.-Mar.	Apr.-Jun.	Jul.-Sept.	NO	NO
Bread/cereals	103.46	105.68	121.19	93.51	88.02	100.04	99.76	99.36	99.41	104.42
Meat	115.65	110.23	126.65	92.14	79.48	97.39	99.31	90.24	96.31	120.13
Beef	90.87	97.59	103.84	108.06	101.72	95.88	83.75	87.45	102.91	142.63
Lamp/goat	336.13	298.60	348.08	70.72	41.54	122.99	212.20	72.61	100.43	110.09
Pork	115.64	95.52	124.17	94.06	69.27	100.72	64.96	92.48	102.62	215.85
Poultry	102.19	99.48	105.09	90.97	74.30	90.19	76.23	100.72	105.02	141.94
Fish	113.33	129.53	129.05	103.90	100.87	118.30	95.40	93.63	95.13	143.05
Oils/fats	125.42	118.81	139.30	87.87	76.74	99.58	101.08	104.07	98.35	126.45
Olive oil	137.84	123.46	153.05	86.18	72.71	100.43	100.51	103.76	98.44	129.24
Dairy/eggs	95.60	106.41	109.10	102.52	102.35	103.94	109.01	109.66	94.32	116.50
Milk	68.44	80.63	64.72	108.55	111.56	98.09	108.47	108.27	97.52	131.19
Yogurt	82.68	88.12	64.56	114.78	126.11	141.23	135.36	124.45	93.15	102.38
Cheese	104.96	114.06	122.38	99.04	95.39	98.85	106.34	110.40	90.68	124.85
Eggs	105.00	128.02	160.84	95.76	90.12	111.55	118.94	83.79	101.08	129.35
Potatoes	112.97	91.75	104.92	88.89	83.10	121.38	144.03	119.92	103.08	146.73
Fresh vegetables	105.88	107.24	110.44	96.54	89.92	93.56	144.00	144.01	95.12	138.78
Fresh fruits	99.62	100.60	98.77	108.43	108.22	132.38	101.86	65.09	95.08	123.53
Coffee/tea/cocoa	103.99	113.46	115.87	93.14	89.27	98.22	94.97	106.03	100.96	101.78
Non-alcoh. drinks	98.29	104.29	100.47	106.68	99.53	87.79	127.81	167.03	88.46	114.31
Alcoholic drinks	111.05	127.55	186.33	95.11	97.72	73.63	92.51	84.64	81.68	131.36
Wine	129.12	141.71	269.18	86.11	98.66	88.06	80.81	42.32	78.38	169.24
Beer	100.33	124.33	135.05	88.00	79.22	40.66	157.12	187.07	90.09	147.01
Tobacco	90.57	87.83	102.67	86.18	50.88	91.52	107.88	111.81	101.56	116.16
Ready meals	82.19	100.41	111.47	108.72	118.22	109.63	109.46	123.94	100.99	84.28
Out-of-home	94.84	117.03	133.34	105.56	109.79	109.69	109.08	122.80	101.08	86.20
On vacations	33.68	46.37	16.29	144.69	186.17	104.05	100.42	120.31	103.97	82.68
Olive oil trend 100										
Total	101.50	107.55	116.80	98.38	91.88	101.85	104.70	105.44	97.93	116.12

1: Athens/Thessaloniki = 100

2: Elementary education = 100

3: October-December = 100

4: Working wife = 100

5: Single household = 100

In terms of the “seasonal variation in food expenditure”, most of the food categories exhibit a changing pattern with the succession of the four seasons. The only exceptions are bread and cereals, and olive oil expenditure (see Table 2.12), indicating the necessity of these two foodstuffs for the everyday diet of Greeks. As it can be expected, this seasonal variation appears in different form and severity for different foods and it is difficult for a generalised conclusion to be drawn. The most extreme seasonal variation appears in the lamp/goat meat increased expenditure in

springtime, due to the dietary customs of the orthodox Easter, and the beer and non-alcoholic drinks' expenditure decrease during winter.

As far as the "presence of working wife in the household" is concerned, Lazaridis (1999) argues that most of the food categories are positively influenced, such as alcoholic and non-alcoholic drinks, dairy (milk, yoghurt and cheese), bread and cereals, oils and fats (olive oil included), fruits and vegetables, and fish. It is worth noting that the presence of a working wife in the Greek household does not favour the expenditure for foods related to convenience (e.g. ready meals), contrary to what one might expect (see Table 2.12), and negatively affects the expenditure of different meat categories and tobacco.

For "single households", the expenditure of all food categories is lower than that of non-single households, with the expected exception of that for ready meals. Finally, for all food categories the "age of the main decision maker" positively influences expenditure, with the exception of ready meals, and alcoholic drinks except for wine.

2.4.5.3. Projection of food expenditure shares until the year 2010.

Lazaridis (1999), based on the above described findings, country's population, average household size and total private expenditure trends of the last 50 years (Table 2.13), predicted that, until the year 2010, the average household size will be decreasing with a yearly rate of -0.15 to -0.25 percent, country's population will be practically the same ($+0.07$ percent average growth rate) and total private consumption will be increasing by a slower rate of $+1.78$ percent. Based on these predictions, he found that the yearly food expenditure per household would be

Table 2.13: Projections of Different Socio-demographic Variables in Greece
Source: adapted from Lazaridis, 1999.

	1981/82	1987/88	1993/94	Projection 2000-2010
Total private Consumption	+0.95%	+1.32%	+1.96%	+1.78%
Population / area:				
Athens	0.35%	0.36%	0.36%	0.35%
Thessaloniki	0.08%	0.09%	0.08%	0.10%
>29,999	0.19%	0.20%	0.20%	0.10%
2,000-29,999	0.10%	0.10%	0.11%	0.20%
<2,000	0.29%	0.25%	0.24%	0.25%
Country's population	9,789,513	10,037,037	10,426,289	10,652,034 +0.07%
Education level				
University	0.10%	0.15%	0.15%	0.20%
High School	0.18%	0.25%	0.29%	0.45%
Elementary	0.73%	0.59%	0.56%	0.35%
Single households	0.10%	0.12%	0.15%	0.20
Average age of the main decision maker	50.25	52.1	52.9	55

increasing by a similarly slower rate of +1.28 to 1.38 until the year 2010, proportionately less than the increase of the total private expenditure.

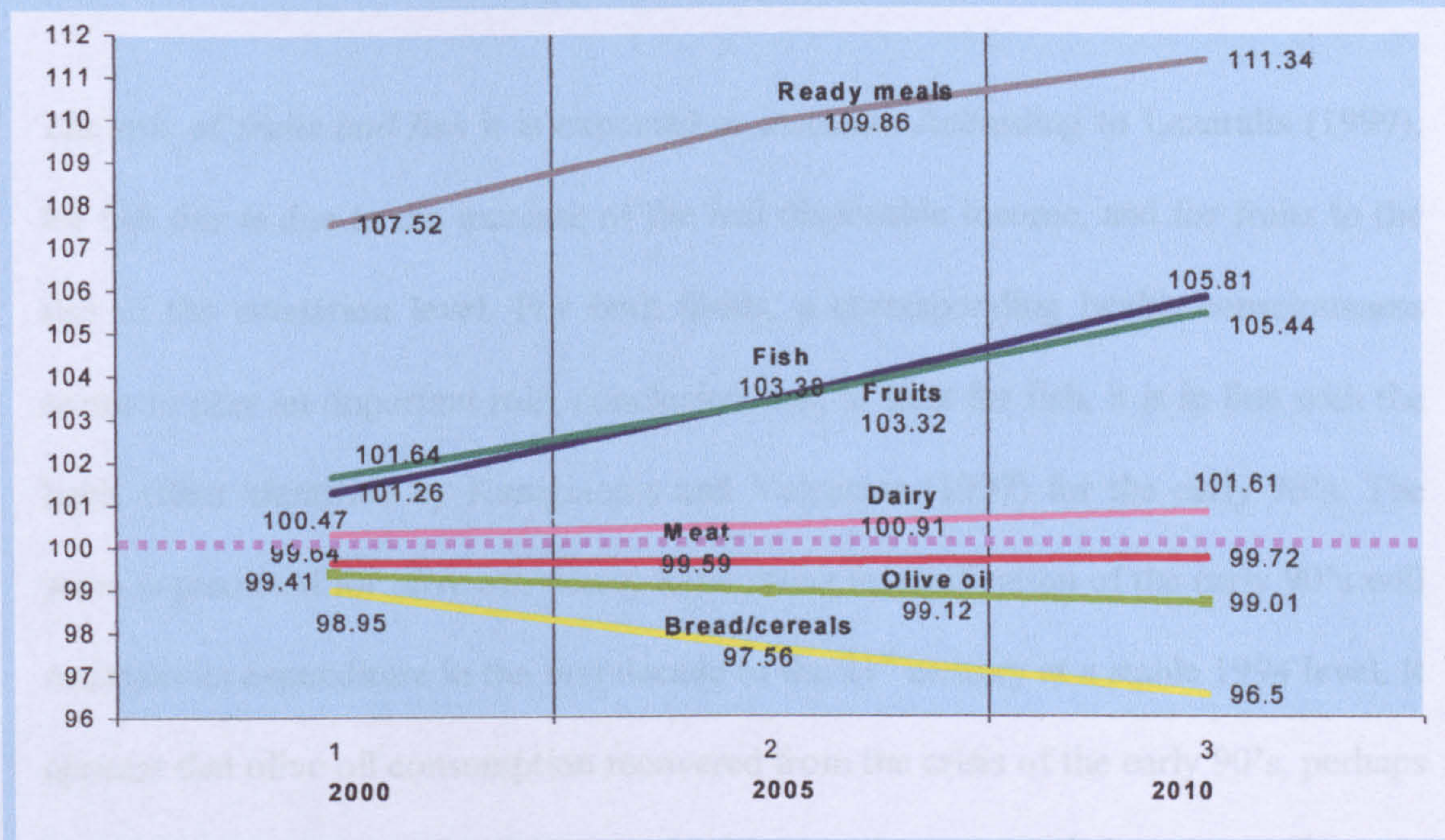
One of the major food categories' expenditure, which will exhibit the highest increase, is that of *ready meals*, both eaten out-of-home and during vacation (Table 2.14 and Figure 2.16). This increase only partially represents the demand for convenience food. Its larger part mainly expresses the increasing trend of contemporary Greeks spending money in recreational activities. Based on the experiences of other western countries, Lazaridis (1999) argues that this expenditure category has a huge growth potential in Greece, due to the predicted increase of the disposable income, the further distortion of the traditional Greek household structure with more single households, and the rise of the population's education level by the year 2010. On the other hand, the population increase of the area of residence, from rural to urban areas, which has a negative influence on ready meals' expenditure, is not expected to change much.

Table 2.14: Projections of the Average Food Expenditure Index, 2000-2010, 100 = 1994.
Source: adapted from Lazaridis, 1999.

Food category	2000	2005	2010
Bread/cereals	98.95	97.56	96.50
Meat	99.64	99.59	99.72
Beef **	101.02	102.49	104.27
Lamb/goat	99.34	98.59	97.57
Pork	97.69	95.61	93.54
Poultry	99.18	98.79	98.36
Fish **	101.26	103.38	105.81
Oils / fats	99.35	98.90	98.67
Olive oil	99.41	99.12	99.01
Dairy/eggs	100.47	100.91	101.61
Milk	98.99	99.33	100.36
Yogurt *	105.24	110.05	114.83
Cheese	100.98	101.27	101.73
Eggs	98.54	97.36	96.38
Potatoes	97.64	95.41	93.40
Fresh vegetables	100.28	100.43	100.81
Fresh fruits *	101.64	103.32	105.44
Coffee/ tea/ cocoa	101.10	101.08	100.91
Non-alcoholic. Drinks	101.37	101.42	102.02
Alcoholic drinks	103.36	105.25	106.77
Wine	102.73	104.30	105.67
Beer	102.16	102.60	102.52
Tobacco *	101.31	98.93	94.91
Ready meals	107.52	109.86	111.34
Out-of-home	107.38	109.15	109.88
On vacations	108.58	115.36	122.62
Total	101.64	101.97	102.18

*: Food categories indicating a tendency towards healthy eating

Figure 2.16: Projections of the Average Food Expenditure Index, 2000-2010, 100 = 1994.
Source: adapted from Lazaridis, 1999.



It is also predicted that *meat and dairy products'* expenditure, which exceeded 45 percent of households' total food expenditure in 1995 and 41 percent in 1999, will maintain this large percentage (dairy expenditure: +1.14 percent and meat expenditure: -0.08 percent in the period 2000-2010). It appears that both meat and dairy expenditure reached a pick in 1994 and stay stable since then. Lazaridis (1999) claims that, for meat, this is due to the demographic factors' change and especially the population size, education level and single household percentage, which influence meat consumption negatively. It can also be due to safety concerns and health-sensitive behaviours. The same factors influence dairy products' expenditure, but to a much lesser extent. The substitution effect due to meat price increases after the 1981 accession of Greece in the EU and under the CAP are considered responsible for the slow down on meat expenditure in the late 80's and early 90's (Karagiannis and Velentzas, 1997). It seems that they are fully absorbed by the Greek society by the year 2000 and from now on the socio-demographic factors identified by Lazaridis (1999) will start to prevail.

The role of *fruits and fish* it is expected to increase. According to Lazaridis (1999), for fish this is due to the increase of the real disposable income, and for fruits to the rise of the education level. For both foods, a corresponding health consciousness seems to play an important role, conclusion that, at least for fish, it is in line with the habit effect identified by Karagiannis and Velentzas (1997) for the early 90's. The same is predicted for *olive oil*, whose habit effect intensification of the early 90's will maintain its expenditure in the first decade of the 21st century at a stable 1994 level. It appears that olive oil consumption recovered from the crisis of the early 90's, perhaps due to the same underlying increased health consciousness and the minor effect of

the CAP on olive oil prices (see Appendix 1). Finally, for *bread, cereals* and *tobacco* Lazaridis (2000) predicts that they will be categories whose expenditure will exhibit a serious decrease, contrary to that of alcoholic drinks.

In general, there is a clear divergence from animal products and a strong tendency towards fish and fruits, as well as ready meals eaten out-of-home for recreation rather than convenience. The changes of the Greeks' consumption model not attributed to economic or demographic factors should be taken under consideration. The role of the media and the entrance of multinationals in food retailing and processing finally resulted in the 90's to a (somewhat delayed due to its uniqueness) partial convergence of the Greek consumption model to that of western Europe, at least in terms of meat and dairy consumption. The rise of the non-differentiated by country food brands and the globalisation of the advertising strategies intensified this phenomenon. More extensive consumer research will follow in the next chapters, to establish the indication of convergence reversal in Greece, the emergence of consumer niches with distinctive needs and wants and the revival of quality and health consciousness in the beginning of the new century.

2.5. Conclusion of Chapter 2

An account of the status and dynamics of the Greek olive oil market, focusing on conveying the key facts and trends, has been the starting point of the present Chapter, together with olive oil technology and definitions.

However, the present chapter was mainly concerned with food consumption being more of a human “culture” than an everyday habit. Its main objective has been to analyse the non-economic factors which influence our choice of food as individuals or members of a group (family, society etc.) and on this basis to describe the changes that are being observed in the consumption patterns of Greece. Since some consumption patterns are attributable to economic factors, the remaining part, especially from the early 80’s, is a consequence of non-economic factors. This part was analysed further in this chapter. The theory of the underlying trend in demand based on product “utility” was described, along with the factors that determine contemporary Western consumer’s tastes and preferences.

In the peripheral countries of Europe, the food culture seems to be following the existing nation-states. Generally, a larger degree of similarity can be identified between the northern countries than between the southern ones. Some countries are found to be more heterogeneous than other and show strong regional characteristics. This represents a reason not to overlook the regional aspect of the European consumption patterns. The conclusion of the existence, since the 90’s, of different market segments (niches) with homogeneous socio-economic character across national boundaries, supports the idea of nation-based, product-differentiation strategies, fact that constitutes one of the key-points of the present work.

Finally, a detailed description of the evolution of Greek consumers’ dietary patterns the last decades was included, together with an analysis of the food expenditure budget shares of individual food types, and their projection until the year 2010.

CHAPTER 3

CONSUMER PERCEIVED FOOD QUALITY NUTRITIONAL VALUE, SAFETY and HEALTH-RELATED LABELLING

3.1. Introduction

No topic could be closer to the present work than a fuller understanding of what is meant by the term “quality”. Is the concept so broad that we cannot get our arms around it? Is it so vague that we cannot define it adequately? Is it so qualitative and so individual that we cannot measure it in any meaningful way?

The development and the promotion of products of quality represent for agricultural politics one of the major challenges of the recent years (Meiselman, 1995). Quality constitutes the main topic of numerous seminars. It is top priority for the organisation of research groups and the reorganisation of structures within firms. It constitutes the subject of legislation secured by guarantees at different levels. Quality is one of the hottest topics in the media today, frequently addressed in books, professional journals and training seminars (Neergaard, 1999).

In industrialised countries in the post-war period, all of the efforts were oriented with success toward the satisfaction of the alimentary needs of the population. Consequently, this helped to increase enormously the diversity of foods offered and the saturation of the market, for which investments were directed toward diversification. In such a context, the themes relative to quality became more present, passing from the preoccupation of the individual to that of society and finally to the environment. (Bertozi, 1995).

Quality can be defined, but is measured only in part. This attribute, therefore, remains for the most part vague (Neergaard, 1999), subjective, depending on decisions and evaluations that have a limited range. Quality remains a concept linked to culture. One, then, could ask if there can exist a valid means to exceed the limits of subjectivity, suitable to describe, evaluate and defend “quality” (Bertozzi, 1995).

3.2. Defining Consumer-oriented Quality

Due to the low growth in the demand for food, increasing supply of food products and growing international competition, world food markets have become buyers’ rather than sellers’ markets (Steenkamp and Van Trijp, 1996). To be successful in these highly competitive saturated environment agribusiness companies must become more market-oriented, in that a consumer focus should be the central element in their strategy (Kohli and Jaworski, 1990).

This strategic reorientation of agribusiness coincides with an important trend in consumer behaviour. European food consumers have become very demanding about quality and show willingness to pay more for better quality products. Consequently, the quest for better quality has become one of the most important strategic priorities confronting the food industry (Gilg and Battershill, 1998).

Research has demonstrated the strategic benefits of quality in contributing to market share and return on investment (Phillips et al, 1983), as well as lowering manufacturing costs and improving productivity (Garvin, 1983). Furthermore, similar evidence comes from the Profit Impact on Marketing Strategy (PIMS) database, where is shown that

quality is positively correlated with the market share and profitability (Buzzell and Gale, 1987). Lots of similar research evidence come to fortify the argument of many writers that quality is a means of gaining a competitive edge (Madu and Kuei, 1994; Powell, 1995; Rajagopal et al., 1995; Gundogan et al., 1996; Beecroft, 1999). However, today's buyers' markets require companies to approach the issue of improving product quality from the consumers' perspective rather than starting with the product per se.

3.2.1. Towards a Definition of Quality

The key to market-oriented quality enhancement programs lies in the "translation" of consumer demands with respect to food quality into those physical product parameters that will best substantiate the desired quality image (Steenkamp and Van Trijp, 1996). Which physical product characteristics should be modified to enhance consumer perceptions of the quality of a food product? This requires insight into how consumer quality perceptions are formed and the role of physical product characteristics therein.

There is no generally agreed definition of quality products and this is mainly due to the fact that perceptions of what constitutes quality vary for specific products and among individuals, regions and countries. Yet, it is precisely the consumers' definition of food quality about which we know the least and which we are most challenged to quantify (Cardello, 1995; Booth, 1995). Quality is complex and multi-dimensional, contains both subjective and objective components, is situation-specific, and is fluid and dynamic across time (Lawless, 1995).

From a commercial point of view, one popular definition comes from the USDA Marketing Workshop Report (in Cardello, 1995): “*quality is the combination of attributes or characteristics of a product that have significance in determining the degree of acceptability of the product to a user*”. Although this is a reasonably satisfactory definition, it falters by placing emphasis on the “attributes” or “characteristics” of the food itself, rather than on the perception of acceptability of those characteristics (Cardello, 1995).

From a regulatory point of view, quality measurement is the evaluation of a product compared to some pre-existing set of expected characteristics to meet a defined minimum level of quality, which allows its distribution as a food product (York, 1995). Some authors defined quality simply as the “*degree of excellence*”, “*fitness for use*” or “*conformity to specifications*” (Juran, 1974; Wimmer, 1975; Genth, 1981; Box, 1984, all in Steenkamp, 1991; York, 1995; Neergaard, 1999). Skuras and Vakrou (1999) argue that, although its definition is fundamentally imprecise, it can be agreed that “*quality characteristics are positional characteristics against the standard or normal product*”. In other words, quality characteristics are those that lie above minimum standards and give a product or service a competitive edge over its normal rivals.

Zeithaml (1988) broadly defines quality as “superiority” or “excellence”. By extension, perceived quality can be defined as “*the consumer’s judgement about a product’s overall excellence or superiority*”. Perceived quality is: (a) different from objective or actual quality, (b) a higher-level abstraction rather than a specific attribute of a product, (c) a global assessment that in some cases resembles attitude, and (d) a judgement

usually made within a consumer's evoked set (Zeithaml, 1988). And when talking about perceived quality, Kotler (1997) means "*the rated ability of the brand to perform its functions as perceived by consumers*" and Beecroft (1999) implies the "*degree to which a product fulfils its functions, given the needs of the consumer*".

Important aspects of the concept of quality are the satisfaction of consumer needs and a consistent level of performance, taste, etc. provided by the product. According to Vatzakas and Jukes (1997), "*quality is the totality of features and characteristics of a product or service that bear its ability to satisfy stated or implied needs*".

A market definition of quality must also consider the cost of the product as being important, if not the most important factor (Smith, 1995). The price is also specific to the market for which the produce is destined. In addition, markets vary in their intrinsic quality and packaging requirements. A definition of quality that encompasses all of these factors can be: "*a quality product is one that is grown, graded and packed to meet customers' requirements*". For this definition the right price is considered as a customer requirement. Similarly, Neergaard (1999) argues that "*quality is meeting or exceeding the expectations of the customer*".

Despite these definitions, it has early been concluded that quality remains an elusive and indistinct concept (Parasuraman et al., 1985). There are no absolutes in the definition of food quality. It is a concept that is relative to person, place and time. What is crucial with food quality definition and measurement is that these are made relative to a referent that has construct validity, and of which the essential element is the

consumer. Only during the past 20 years has the field of food science and sensory evaluation come to recognise that, whether taken individually or together, nutritional quality, microbiological quality, chemical stability, expert opinion etc. are inadequate measures of what the public views as food quality. Rather it is the perception of its nutritional value or its safety by the consumer that is critical.

On the other hand, attributes of a food are considered desirable and functional depending on the situation. Lowless (1995) argues that consumer perceptions are not static in time or consistent across people. Segments exist, and psychophysical approaches that look only at measures of central tendency on relative-to-ideal scales are bound to miss different consumer groups. People change their ideas about quality with experience. These issues pose strong challenges to the measurement and optimisation of food quality.

Garvin (1983) and Civille (1991) list different quality dimensions and discuss how they relate to food (Table 3.1). *Performance* includes sensory attributes as well as nutrition and wholesomeness. *Features* might include attributes like convenience in preparation. *Conformance* Civille suggests is a match between product concept, consumer expectations, and what the product delivers. *Reliability* concerns the degree to which the product is consistent upon repeat tasting or repeat purchases. *Durability* may imply a good shelf life. *Serviceability* for a food may be the equivalent of ease at preparation or “recipe tolerance” –wide limits on the abuse of the product during cooking due to failure to measure accurately or follow preparation instructions. *Response* would include customer support such as telephone hotline. *Aesthetics* include not only sensory

Table 3.1: Quality Attributes for Food Products.

Source: adapted from Lawless (1995), Smith (1995), Hooker and Caswell (1996)

Dimensions of Quality (Civille, 1991)	Commercial Quality Criteria of Fresh Produce (Smith, 1995)	Quality Attribute Subsets (Hooker and Caswell, 1996)
Performance	Appearance: colour, shape, size, 'aesthetics' Internal characteristics: colour, texture/juiciness, product-specific characteristics (bolting in lettuce, split stones in stone fruit etc. Condition: fresh, maturity, product specific characteristics (dehydrated stems, sulphur damage to grapes etc.) Organoleptic: Taste (brix, sugar/acid ration, cultivar). Shelf-life	Food safety attributes: Foodborne pathogens, heavy metals, pesticide residues, food additives, naturally occurring toxins, veterinary residues
Features		
Conformance		
Reliability		
Durability		Nutrition attributes: Purity, compositional integrity, size, appearance, taste, convenience of preparation
Serviceability		
Response		
Aesthetics		
Reputation	Package attributes: Package materials, labelling, other info provided	

attributes but package design. Finally, *reputation* is the continuing goodwill of consumers toward the integrity of the brand name.

Obviously, there is a better fit of some of these concepts to durable goods like cars. However, the list serves to remind us that sensory quality, as perceived by a person in a single sensory test, is only one aspect of a much larger picture (Lawless, 1996). Factors such as the consistency of delivery will engender consumer loyalty in the long run, constituting the time dimension very important.

Smith (1996) provides a list of considerations or consumer requirements that are used to determine a product's commercial quality: *appearance* (colour, shape, size, "aesthetics"), *internal characteristics* (colour, texture/juiciness, etc.), *condition* (freshness, maturity, etc.), *organoleptic* (taste, aroma, etc.) and *shelf life*. In addition to the product's intrinsic properties, presentation is also important to customers: *size*

grading, packaging, outer, labelling of the outer. Certain minimum standards also have to be met, to comply with the EU and member-state legislation.

Hooker and Caswell (1996) argue that there is no definite list of all food quality attributes, because quality itself is multi-dimensional and what are important characteristics will vary across circumstances and among consumers. However, they provide a list with several important subsets of quality attributes. Many quality concerns embody attributes from more than one subset and have multiple regulatory regimes that apply to them. For example, consumers who purchase organic produce may be concerned with food safety, nutritional and value attributes.

In conclusion, a complete food quality definition should embody three critical aspects: a) it uses the consumer as a referent, b) it focuses on acceptability as the key measurement construct, and c) it connotes the relativity of judgement reflected in the qualifying concepts of “product category” and “target market”. In order to understand food quality one must understand the psychology of food acceptance, choice and consumption; in order to measure food quality, one must account for the context, in which food is presented and eaten, and the psychological factors that affect contextual and relative judgements (Cardello, 1995).

3.2.2. Objective vs. subjective (or perceived) quality

A rough distinction between three types of food quality has been proposed by Grunert (1995): *Product-oriented* quality is measured by means of a food product’s physical properties, like fat percentage of meat, vitamin contain of vegetables etc. *Process-*

oriented quality is concerned with the extent to which the product-oriented quality remains stable at pre-specified levels, and this is mainly what ISO certification is about. Finally, *user-oriented* quality is the subjective quality perception of a user, and this may be the end-user or an intermediate user in the food chain. Since product and process oriented quality can be measured at the product itself by physiological methods, it may also be called “objective” quality. Since user oriented quality can be measured only at the user and can differ for the same product between users, it may also be called “subjective” quality (Grunert, 1995; Altmann, 1997).

The three types of quality are interrelated. User-oriented quality can be affected by process and product-oriented quality. However, these inter-relationships are by no means clear and easy (Steenkamp and Van Trijp, 1996) and in addition user-oriented quality can be influenced by factors in addition to characteristics of the product itself, like the purchase situation, the type of retail outlet, the price etc. (Grunert, 1995). Much of the quality discussion in the food industry is centred on the product and process-oriented quality. But changes in objective quality will improve the competitive situation of a food company only when this change leads to a change in subjective quality.

Several researchers have emphasised the difference between objective and perceived (or subjective) quality (see for example Zeithaml, 1988; Altmann, 1997). Holbrook and Corfman (1985) distinguish between mechanistic and humanistic quality:

“...mechanistic involves an objective aspect or feature of a thing or event; humanistic ... involves the subjective response of people to objects and is therefore a highly relativistic phenomenon that differs between judges...”
(Holbrook and Corfman, 1985).

Moreover, “objective” quality has been the term used in the literature to describe the actual technical superiority or excellence of the products (Monroe and Kirshnan, 1985). Then the term “objective” quality refers to measurable and verifiable superiority on some predetermined ideal standards. Researchers and experts do not agree on what these ideal standards should be. Others claim that objective quality does not exist, that all quality evaluations are subjective (Zeithaml, 1988). Managers’ views may differ considerably from consumers or users’ views. In a research study for General Electric, Morgan (1985) points out striking differences between consumer, dealer, and manager perceptions of appliance quality.

Altmann (1997) argues that the subjective and objective ways to identify quality in food products are overlapping and he recognises that advertising, sales promotion, social influences, price, distribution and psychological influences affect the image of the product. Grunert (1995) and Zeithaml (1988) proposed to view subjective quality as an aspect of the overall process in which consumers perceive “value” in a food product. The extent to which consumers see value in a product relative to its perceived cost can be expected to motivate consumer purchases in general.

Behavioural researchers in the food area certainly agree upon the fact that food quality should be viewed and measured from the consumer’s perspective, and that objective product characteristics should, hence, be related to subjective perceptions. However, much research in the food area has attempted to relate consumer preference directly to perceived concrete product characteristics, assuming that there is a stable relationship between them.

Nevertheless, consumer preferences may be related more to the way a product is bought. Preference for certain concrete product characteristics may actually be dysfunctional in terms of the consumer's own quality aspects and buying motives, but this will become obvious only when these relationships are explicitly analysed. Preferences for concrete characteristics may also be unstable when the salience of buying motives varies with different types of consumption situation (Grunert, 1995; also see Section 5.3.1.2).

3.2.3. Perceived quality and consumer behaviour

Consumers' evaluation of food quality is one of the more problematic areas in the study of consumer behaviour (Grunert, 1997). Food comes in infinite variety, and food choices are a major component of all purchase decisions made by consumers. Food products are described by a large number of characteristics, but the degree of satisfaction obtained from consuming the product is often only loosely related to the cues available in the purchase situation.

Consumer's perceptions of food quality and their attitudes and practices related to food are themes of interest for food producers and retailers, public authorities and health educators. In the scientific literature this interest is reflected in discussions about how food quality should be defined, how consumers perceive food quality and chose food, and about risk perception and risk communication. Several authors have suggested that more elements should be included in a modern food quality concept. Ecological concerns and political values have been put forward (Holm and Kildevang, 1996).

Within the behaviourally oriented analysis of consumers' perception of quality food, several broad approaches can be distinguished. Within the "economics of information" approach, Nelson (1974, in Grunert, 1997; Choi and Kim, 1996) contributed the distinction between *search attributes*, when quality can be evaluated before the purchase, and *experience attributes*, when quality can be evaluated only after the purchase. In the latter case, consumers will try to infer quality from surrogate indicators mentioned on the packaging (Lange et al, 2000), like a brand name with an established record of credibility or the market share of the product. According to Grunert (1997) and Choi and Kim (1996), this theory was later extended so as to include a third group of characteristics called *credence*, where the consumer never, not even after the purchase, has the possibility of finding out whether the product actually possesses the characteristic, whether, for example, a vegetable has been ecologically produced or a piece of meat was produced with due respect for animal welfare.

Similarly, the "multi-attribute approach" assumes that quality is a multi-dimensional phenomenon (Grunert, 1997). Here, overall quality is described by a set of product attributes perceived by the buyer, who then forms an overall, one-dimensional quality evaluation by some weighing of the various attributes. Many variations of this basic model have been used in consumer behaviour, the Fishbein model being the best known (Fishnein and Ajzen, 1975).

To some extent, the distinction between search, experience and credence characteristics has been incorporated into multi-attribute models by the distinction between *intrinsic* and *extrinsic* quality cues (Olson and Jacoby, 1972, in Grunert, 1997; Holm and Kildevang, 1996), the former referring to attributes of the physical product and the latter to everything else. Hellöfs and Jacobson (1999) note that it is difficult to think of any product whose quality can be appraised fully through a brief inspection. And with ever changing product characteristics, consumers may never possess complete information about the quality of any product. Moreover, consumers are not perfect information processors (Monroe and Krishnan, 1985). As such, they possess imperfect information about brand quality and will make use of cues. Extrinsic attributes like price, brand name and sales outlet are used mainly in situations where information on intrinsic attributes is difficult to obtain, e.g. when in the choice situation experience and/or credence characteristics predominate (Steenkamp, 1991; Holm and Kildevang, 1996).

Multi-attribute models have been the most widely used approach to analyse quality judgements in consumer behaviour, but they have also been widely criticised (Zeithaml, 1988; Grunert, 1997). One point of criticism is that the interrelationship of attributes is not taken into account: e.g. consumers may infer taste from price, or package can be considered an intrinsic or extrinsic cue depending on whether the package is part of the physical composition of the product -squeezable ketchup container- or protection and promotion of the product -computer cardboard container. This criticism is dealt with in a group of models we may call “hierarchical models”. They have in common the notion that consumers infer some attributes from others, in most cases the inference being

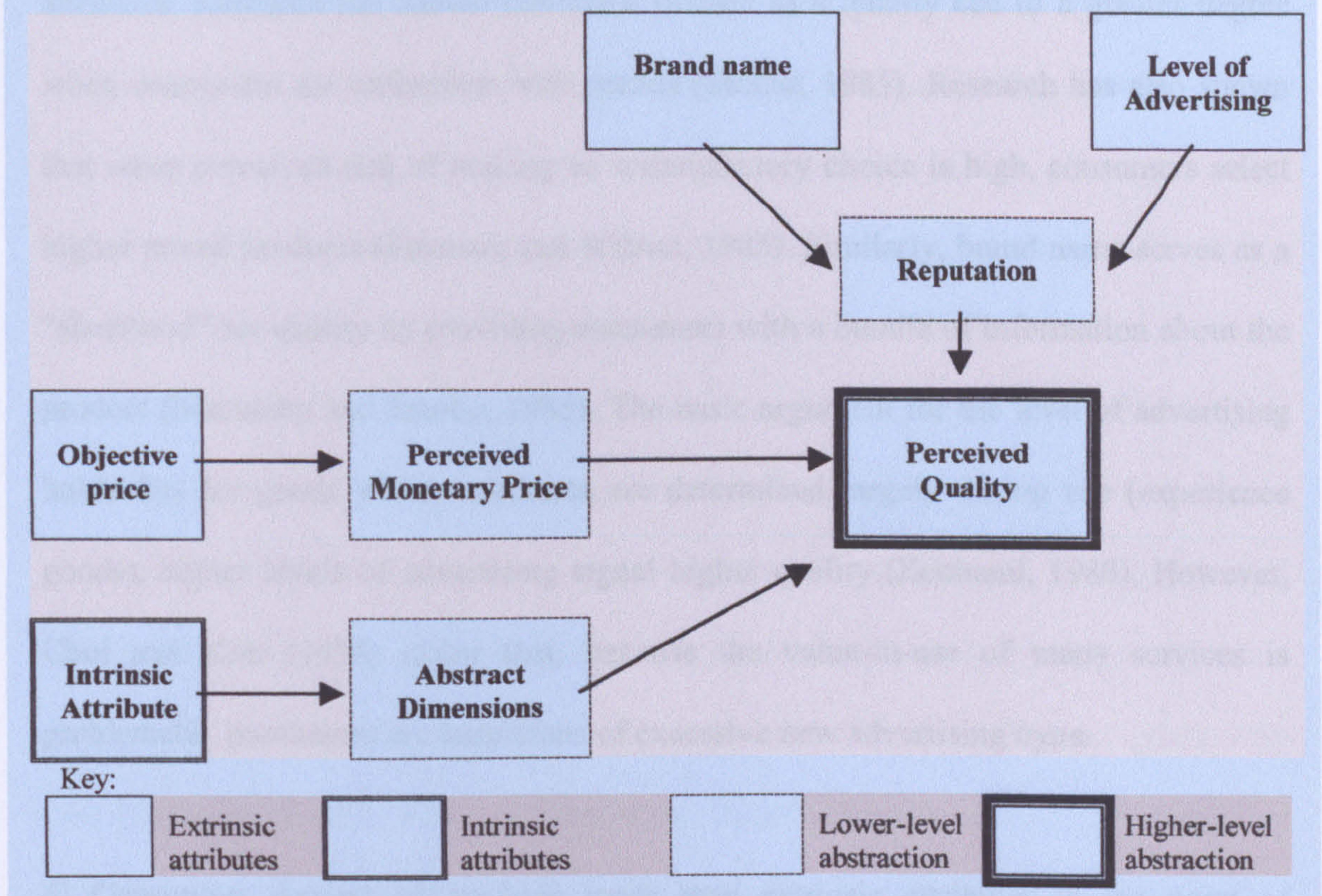
from the concrete to the abstract. This idea is central in the “means-end chain theory” (c.f. Chapter 5).

Trying to combine the multi-attribute and the means-end approaches, Zeithaml (1988) proposed the “Perceived Quality Component” model (Figure 3.1; also see Grunert’s “Quality Perception Cognitive Model”, Section 5.3.1.2). According to this, perceived quality can be defined as the consumers’ judgement about the superiority or excellence of a product, similar to the user-based approach of Grunert (1996) or, even earlier, Garvin (1983, see Section 3.2.2) and differs from product and manufacturing-based approaches. Perceived quality is also different from objective quality, which arguably may not exist because all quality is perceived by someone, consumer or manager.

Zeithaml’s model is being based on the following assumptions: a) Consumers use concrete or lower level abstract attribute cues to infer quality. Attributes that signal quality have the dichotomous intrinsic-extrinsic character of Olson and Jacoby we have seen. Olshavsky (1985) terms this tendency to infer quality from specific attributes “surrogate-based preference forming behaviour” and cites examples of product categories in which a given surrogate is highly associated with quality (e.g. style signals quality in cars or clothes).

b) The intrinsic product attributes that signal quality are product-specific, but dimensions of quality can be generalised to product classes or categories. Though the concrete attributes that signal quality differ across products, higher level abstract dimensions of quality can be generalised to categories of products. As attributes

Fig. 3.1: The Perceived Quality Component
Source: adapted from Zeithaml, 1988.



become more abstract (higher in the means-end chains, c.f. Chapter 5), they become common to more alternatives. Garvin (1983) and Civile (1991) proposed, as we have seen, that all product quality can be captured in eight dimensions: performance, features, reliability, conformance, durability, serviceability, aesthetics, and reputation.

c) Extrinsic cues serve as generalised quality indicators across brands, products, and categories. Price, brand name and level of advertising are three extrinsic cues frequently associated with quality in research (see, for example, Siskos et al, 1995, for an application in olive oil). Yet many other extrinsic cues are useful to consumers, among which product warranties and seals of approval. Price appears to function as a surrogate for quality when the consumer has inadequate information about intrinsic

attributes. Research has shown that price is used as a quality cue to a greater degree when consumers are unfamiliar with brands (Stokes, 1985). Research has also shown that when perceived risk of making an unsatisfactory choice is high, consumers select higher priced products (Peterson and Wilson, 1985). Similarly, brand name serves as a “shorthand” for quality by providing consumers with a bundle of information about the product (Mazursky and Jacoby, 1985). The basic argument for the level of advertising holds that for goods whose attributes are determined largely during use (experience goods), higher levels of advertising signal higher quality (Zeithaml, 1988). However, Choi and Kim (1996) claim that, because the value-in-use of many services is problematic, purchasers are suspicious of excessive new advertising hype.

d) Consumers depend on intrinsic more than extrinsic attributes at the point of consumption, in pre-purchase situations when intrinsic attributes are search attributes (rather than experience attributes), and when the intrinsic attributes have high predictive value.

e) Consumers depend on extrinsic more than intrinsic attributes in initial purchase situations when intrinsic cues are not available, when evaluation of intrinsic cues requires more effort and time than the consumer perceives is worthwhile, and when quality is difficult to evaluate (experience and credence goods).

Finally, f) the cues that signal quality change over time because of competition, promotional efforts of companies, changing consumer tastes, and information.

Which type of cue -intrinsic or extrinsic- is more important in signalling quality to the consumer? An answer to this question would help firms decide whether to invest resources in product improvements (intrinsic) or in marketing (extrinsic cues) to improve perceptions of quality. Darden and Schwinghammer (1985) have concluded that intrinsic cues were in general more important to consumers in judging quality because they had higher predictive value. Zeithaml (1988) claims that this argument does not account for the fact that many assessments about quality are made with insufficient information about intrinsic cues. Holm and Kildevang (1996) argue that positive quality criteria for a food are more often based on intrinsic quality and experience than are negative comments, where credence is more often the basis. And Lange et al. (2000) argue that consumers' certainty about perceived quality is less important when perceived quality is based only on packaging information than when it is based on a combination of sensory perceptions and packaging information.

3.2.3.1. Expected (pre-purchase) vs. experienced (post-purchase) quality: key-quality model selection

There have been a few attempts to integrate these various approaches into a unified framework for analysing the quality perception process for food products. The most notable has been the work by Steenkamp (1991) and Andersen (1994), which both assume that search characteristics are used by the consumer only as indicators for the qualities actually sought. These indicators are both attributes of the product itself and

other (e.g. firm-specific) attributes. Based on these observable indicators, the consumer forms expectations about experience and credence qualities, which in term are aggregated into an overall, *expected one-dimensional quality*, which later may be compared to the *experienced quality* that gives rise to adjustments in the way future quality evaluations will be.

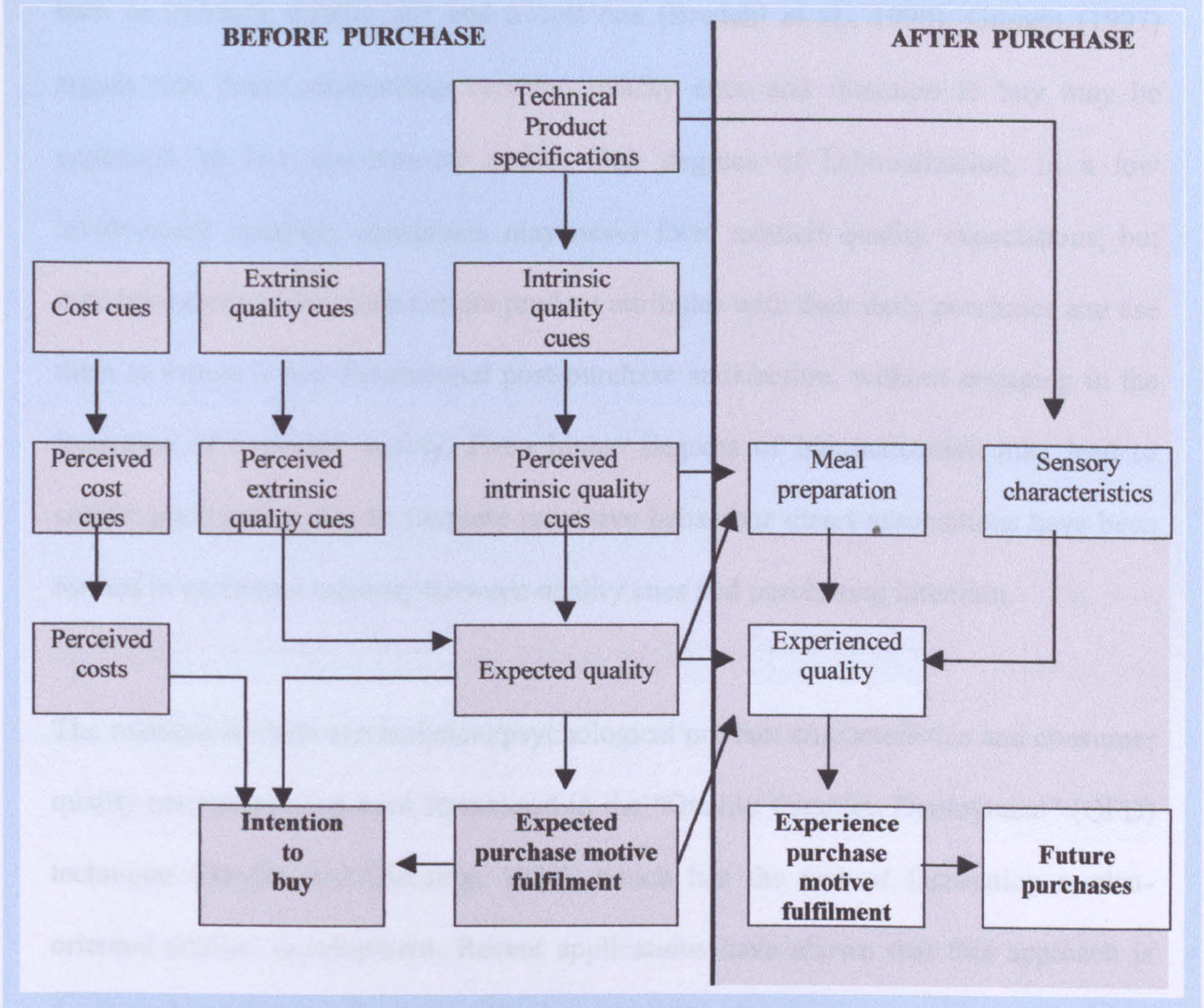
The fundamental that lies behind the expected quality concept is that, according to Booth (1995), any sort of act or verbal response is under the control of that person's own combination of the patterns of stimulation from the current situation, usually in symbolic as well as concrete form. The individual's overall interpretation of the information coming in from the senses is based on past experiences or similar situations: that is, the patterns are combined in ways that reflect learned norms of proper or ideal quality called "expectations".

The name of a food or brand or an advertising slogan or a nutrient content label is not necessary to trigger a personal norm, nor can a person necessarily express in words what is in effect "expected" in the combining of the perceived features of the food. Nevertheless, the cognitive norms are always there in memory, ready to be deployed (Booth, 1995).

Grunert et al. (1996) have built further on these approaches and developed the "Total Food Quality Model" (TQFM, Figure 3.2), whose additional aspect refers to the determinants of experienced as opposed to expected quality. Those *product characteristics (cues)* used as quality indicators by the consumer in order to infer

Fig. 3.2: Grunert's Total Food Quality Model.

Source: adapted from Bredahl et al., 1998.



expected quality might also impact experienced quality, and not necessarily in the way consumer expects. A second additional aspect refers to the *technical product specifications*, which will determine both the intrinsic quality cues perceived by the consumer and the final experienced quality. A third aspect refers to the *sensory characteristics* of the product, which consumers regard as important mediators between technical product specifications, meal preparation, and experienced quality. A fourth aspect is that the consumers' expected quality evaluation will determine their intention to buy only in relation to the *perceived costs* associated with the product. Price can be

both an extrinsic quality cue and a cost cue (Bredahl et al., 1998). Grunert (1997) argues that direct relationship between quality cues and intention to buy may be explained by low involvement and/or high degrees of habitualization. In a low involvement situation, consumers may never form explicit quality expectations, but may have come to associate certain product attributes with their daily purchases and use them to ensure a one-dimensional post-purchase satisfaction, without engaging in the formation of expected quality. Even higher degrees of habitualization may lead to similar phenomena: due to frequent repetitive behaviour direct associations have been formed in consumer memory between quality cues and purchasing intention.

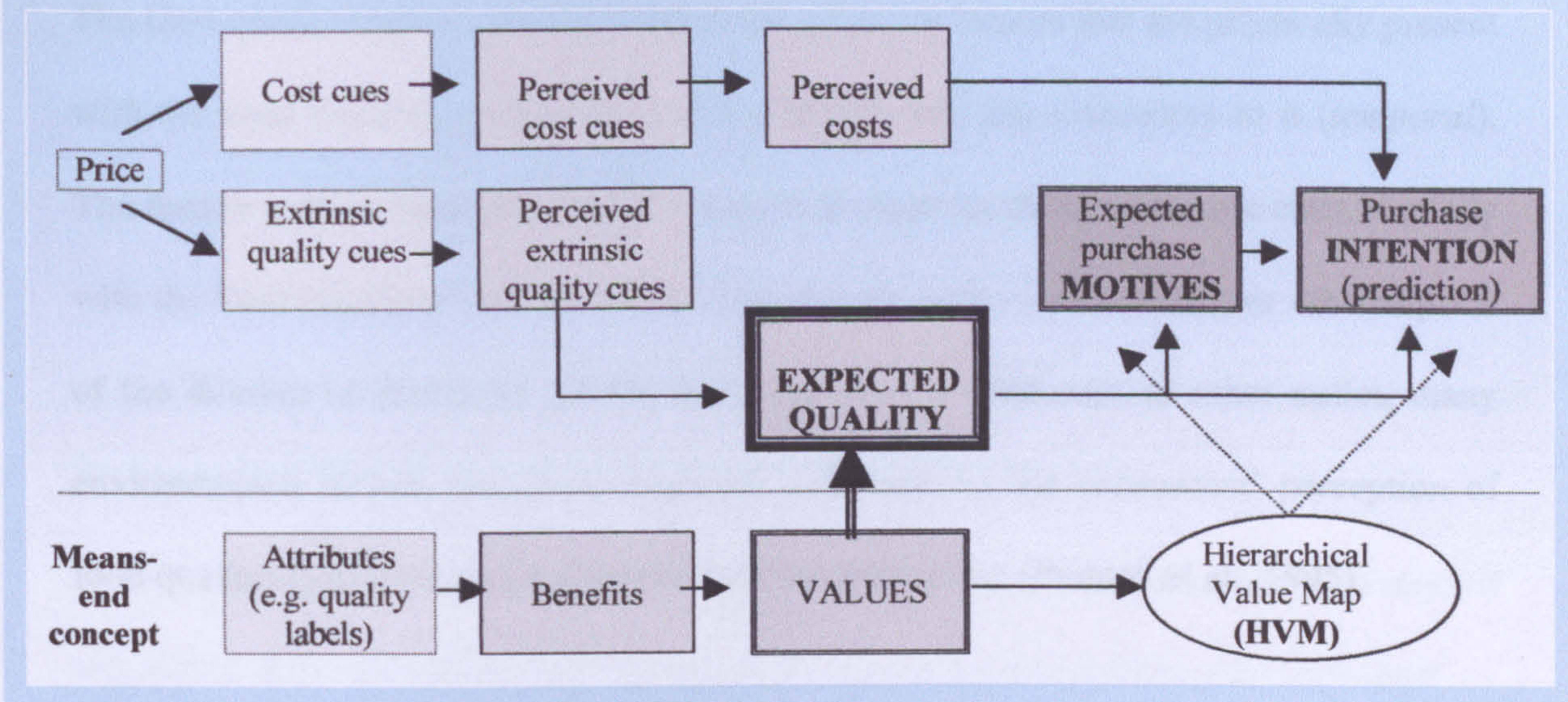
The relationship between technical/psychological product characteristics and consumer quality perceptions has been formalised in the “Quality Function Deployment” (QFD) technique (Hauser and Clausing, 1988), which has the aim of facilitating market-oriented product development. Recent applications have shown that this approach is feasible also in the food industry (Bech et al., 1994; Bredhal et al., 1998; Viaene and Januszewska, 1999), supplemented by the distinction between expected and experienced quality. It could be argued that it is easier to develop or improve a product than it is to determine whether the product is really needed or desired by the consumer (Meiselmann, 1995).

Steenkamp and Van Trijp (1996) have presented the concept of “Quality Guidance” (QG) aiming to bring about consumer-related knowledge on the quality perception process as a useful input to product development. They suggest a statistical estimation of the relationships between physical product characteristics and both quality

perceptions and quality performance, much in line with the QFD model. Poulsen et al. (1996) have extended this framework by adding the “Quality Formation” (QF) concept, suggesting various ways in which expected and experienced quality determine the overall quality evaluation. All the TFQ, QFD, QG, and QF models have the aim of aiding in market-oriented product development (Bredahl et al., 1998).

In the present study, elements of the Grunert’s Total Food Quality Model are being selected to form a key-quality model upon which the perceived olive oil quality concept can be built (Figure 3.3). Assuming that the buyers of high quality, differentiated olive oil brands are involved in the purchasing process (c.f. Section 6.1.1.1. and 2) and according to the TFQM, we expect them to form an expected quality based, among others, on a combination of perceived cost and extrinsic quality cues. At this point we have to further highlight the role of consumers’ personal values as a self-guidance behavioural element (c.f. Section 5.3.1) that imposes which of the available cues will be used as expected quality components. These cues “approved” by consumers’ value system will lead to aspects of perceived quality with the form of benefits individually sought from the use of these quality cues. The final output of the model is a cognitive map hierarchically structured, which reveals expected quality-related purchase motives and, upon condition, accurately predicts purchase intentions. The remaining of the study essentially builds around this model, with Chapter 5 developing the meanings of personal value research and Means-end theory, which conceptually couple the TFQM, and Chapters 6 and 7 being concerned with the selection of extrinsic quality cues and the empirical evaluation of the model. Finally, Chapter 8 offers an overall conclusion regarding the model’s selection validity and implications.

Fig. 3.3: Key-quality Model of the Study, Based Upon Elements of Grunert's TFQM (Involved Consumers)



3.2.3.2. Sociological approaches to food quality.

The sociological and socio-anthropological approaches to food quality claim that foods are often studied in isolation as single products. Generally, the different studies presented above have not examined the wider social framework and the cultural system in which food products are consumed. According to Holm and Kildevang (1996), the providing and eating of meals takes place within the stream of events that make up ordinary daily life, and is enmeshed in a complex of social relations. Furthermore, eating is guided by cultural concepts of meals, dishes and foods, which attach meaning and status to these elements (Mennel et al., 1997). Concerns about food are based on worries not only about health but also about agriculture, ecology and food culture. Such broader issues should be included in a realistic contemporary concept of food quality (Holm and Kildevang, 1996).

The food quality context may be established either by factors that are physically present with the food object (*simultaneous*) or by factors that are antecedent to it (*temporal*). The former include food-related factors such as other foods served/eaten coincidentally with the food of interest and non-food related, such as the social setting or other aspects of the dining environment. If the environment is a restaurant or other outlet, many environmental factors may have a greater influence on the consumers' perception of food quality than the inherent properties of the food alone (Pierson et al., 1995).

Similarly, the food-related temporal factors encompass all foods recently consumed, while non-food related factors subsume such variables as time of day or season of year. Although contextual variables physically present with the food are more easily identified, temporal factors, especially those mediated through learning and memory (past experience) can have profound effects on the quality perception (Cardello, 1995).

As defined herein, food quality is a psychological construct and, as such, it is subject to the same contextual effects as other perceptually based phenomena (e.g. the judged quality of a fast-food meal, eating while one is out for shopping is different than that of the same meal served in a luxurious hotel). Contextual effects such these have been discussed, among others, by Schutz (1988) within the theoretical framework of "situational appropriateness". In this analysis, consumers' liking for a food combines with the perceived appropriateness of the food for that situation to determine overall acceptance.

Contextual effects are only one example of the many factors that can affect judgements of food quality. Numerous others fall into either the category of physiological influences (e.g. hunger) or cultural and ethnic influences. However, it is clear that food quality, when defined in terms of consumer perceptions and acceptance, must be measured using the tools of psychology and consumer behaviour, fact that justifies the development of the relevant models. It is important that the judgements be relative to person, place and time, sensitive to contextual influences operating to the food occasion and across time, and incorporate the effects of consumer expectations on the product.

Cardello (1995) concluded that, to be valid, food quality must be judged by consumers of the product. This requires careful market segmentation to identify current and potential consumers. Qualitative data to identify product characteristics essential to perceived product quality (c.f. Chapter 6) must be obtained from these consumers early in product design and development. However, this should not limit the study of food quality at the level of complete subjectivity. Comparing the study of food quality to that of sensory experiences like those of sweetness or bitterness, it is realised that the study of these processes occurs routinely and in an objective manner. To deny the utility of a consumer-based definition of food quality on the grounds that subjective experience cannot be quantified is to deny validity to all sensory and psychophysical methods.

3.2.4. Quality measurement implications

Academic research measuring quality has depended heavily upon uni-dimensional rating scales, not allowing quality to be interpreted in any way the respondent chooses. This practice does ensure that respondents are interpreting quality similarly or in the

way the researcher, not the respondent, intends (Zeithaml, 1988). Holbrook and Corfman (1985) call for ambiguous quality measures to be replaced with scales based on conceptual definitions of quality. An example of the approach they recommend is illustrated by Parasuraman et al. (1985) who defined quality as a comparison between consumer expectations and perceptions of performance based on dimensions emerged from an extensive exploratory study about service quality. This approach allows for individual differences across subjects in the attributes that signal quality. Zeithaml (1988) suggests following the same approach in different food categories.

Olson and Reynolds (1983) developed methods to aggregate the qualitative data from individual consumers. Aggregate cognitive mapping, structural analysis, cognitive differentiation analysis, and value structure mapping are all techniques designed especially to analyse and represent higher order abstractions such as quality. These techniques are more appropriate than preference mapping or multi-attribute modelling for investigating concepts like quality and value (Zeithaml, 1988; Gutman and Alden, 1988; Reynolds and Jamieson, 1985).

Several researchers have developed approaches to link product attributes to perceptions of higher level abstractions. Mehrorta and Palmer (1985) suggest a methodological approach to relating product features to perceptions of quality based on the work of Olson and Reynolds (1983). In their procedure, lists of cues and benefits are developed from focus groups or in-depth interviews with consumers, semantic differential scales are constructed to capture the benefits, a trade-off procedure is used to determine the importance of the cues, and respondents match cues to product concepts. Through this

type of analysis, degree of linkage between cues and benefits, value of a cue, and competitive brand information are provided (Zeithaml, 1988). A similar approach is developed around “Means-end chains” methodology described and implemented in Chapters 5 and 6 respectively.

Though managers increasingly acknowledge the importance of quality, many continue to define and measure it from the company’s perspective. Closing the gap between objective and perceived quality requires that the company view quality the way consumer does. Research that investigates which cues are important and how consumers form impressions of quality based on those technical, objective cues is necessary.

3.3. Healthiness as Food Quality Aspect

Diet is a contributing factor of overweight and related to 4 of the 10 causes of death in the US: heart disease, some cancers, cerebrovascular disease and diabetes mellitus (Bush and Williams, 1999; Blaylock et al, 1999). From examination of the most recent health data, the most significant trend among US citizens is an increasing prevalence of overweight, defined as Body Mass Index greater than or equal to 27.8kg/m^2 for men and 27.3kg/m^2 for women. Over one-third of the population, 36.6 percent in 1988-1994, were overweight as compared to 25.7 percent in 1976-1980, an increase of over 40 percent. Although age-adjusted death rates have declined significantly, the leading cause of death in the US is still heart disease. In 1996, it caused about 32 percent of all deaths. Cerebrovascular disease, including stroke, is the third leading cause of death in the US. The best scientific evidence thus far indicates that as many as one-third of all cancer deaths are attributable to dietary factors. The link between colorectal cancer and dietary

risk factors, such as overweight, high fat diets, and diets low in fibre, fruits, and vegetables, has been well established. Cancer remains the second leading cause of death in the US, increased at an almost 30 percent since 1980 (Bush and Williams, 1999; also see the relevant indicators for Greece, Section 2.4.2).

Dietary intake has changed little in the EU since the early 80's (see Section 2.3.2). For example, the percentage of food energy derived from fat was estimated at 42.6 percent in 1983 and in 1992 this had decreased to just 41.7 percent. However, the percentage of food energy derived from saturated fat had decreased from 18.7 percent in 1983 to 16.3 percent in 1992 (Anderson et al., 1995). There is, hence, some evidence to suggest that the public is responding to health messages that target specific foods as opposed to nutrients. Nevertheless, it is clear that these changes are most notable in higher social class groups. Despite some apparently healthy food choices by some adults, the population is not achieving current dietary targets (Anderson et al., 1995). One reason why the European diet has not changed significantly over the last 15 years may relate to emphasis on qualitative changes in the consumption of certain foodstuffs with no guidance on quantitative change. Nevertheless, the major problem in dietary education has been the compromise that arises from recommendations that, although scientifically accurate, do not meet public needs and are not applicable for "the man on the street".

One of the major problems for both consumers and professionals in understanding dietary advice is the language and form in which advice is presented. For example, advises for individuals such as "to reduce their total fat intake to less than 35 percent of energy from fat and 15 percent of energy from saturated fat" are almost impossible to be

understood by the consumer and difficult even for dieticians to be assessed. Despite the development of many dietary self-assessment tools and quizzes, consumers cannot easily and accurately measure their own nutrient intake and thus assess the adequacy of their food intake.

Anderson et al. (1995) argue that current approaches to increasing nutritional knowledge should focus on familiarising people with important nutrition terms, emphasising reductions in intake of certain nutrients and focusing on certain foods which should be substituted by “healthier” variations or reducing intakes of certain foods. This approach has yet to succeed in achieving major dietary change. It seems clear that for dietary advice to be effective it must be understood and hence must be able to provide a true practical understanding of appropriate food choice concerning issues that confront consumers on a daily basis.

3.3.1. Helping the consumer understand and its shortcomings

With the evolution of the food industry in the present century has come a vast increase in the range of available food products. In parallel, there has been increasing recognition within the food industry that the nutritional content of the diet, and thus of component foods, is important to consumers and therefore of value for marketing.

However, agriculture has measured its success in a narrow economic way, in terms of increasing production and efficiency and not in terms of well nourished healthy people. Crop improvement programs for fruits and vegetables have largely been concerned with such traits as shape and size, firmness, texture, moistness, sweetness, visual appeal and,

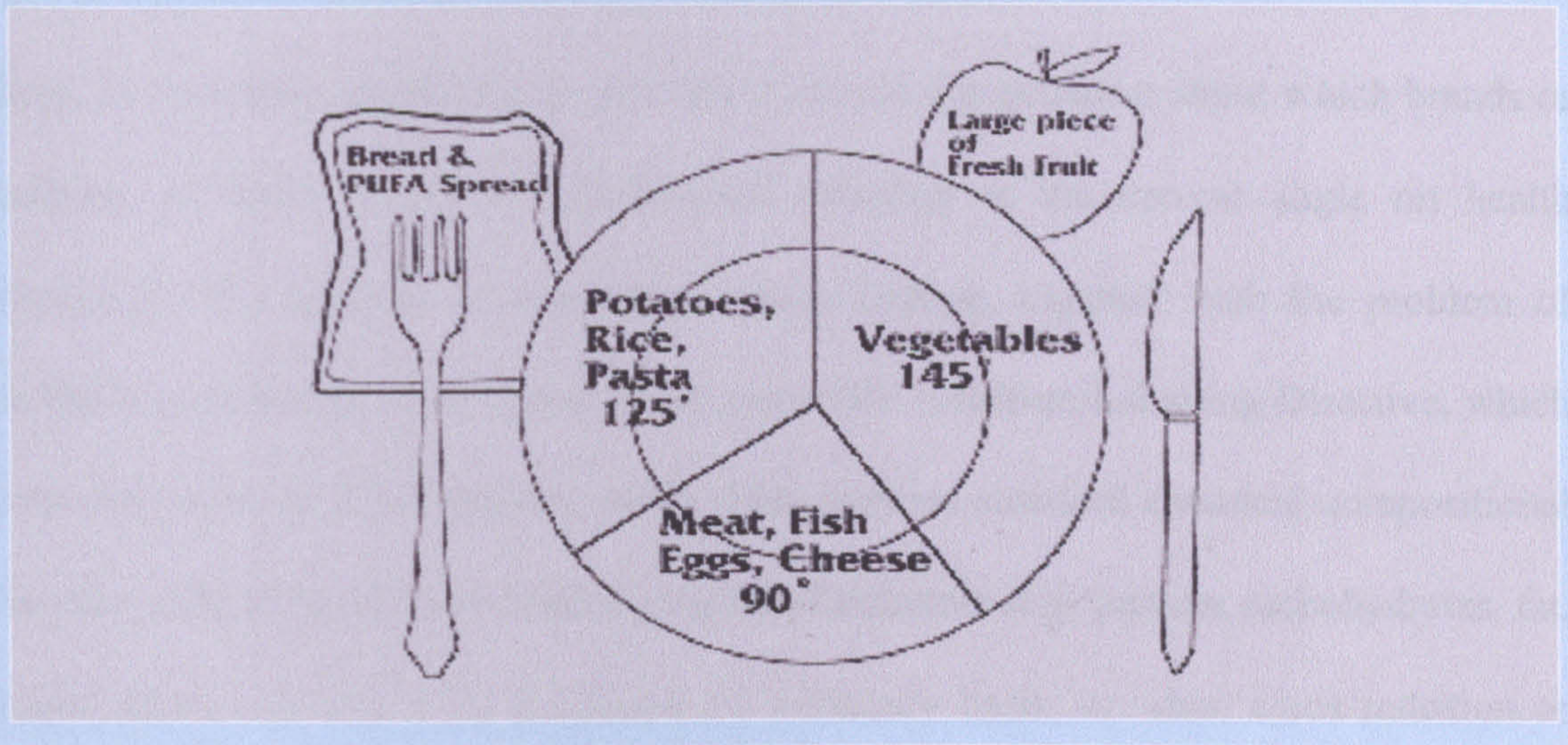
occasionally, taste. Introducing nutritional quality as a guiding principle has tremendous potential for financial gaining to farmers, and health and economic benefits to individuals and society. Of course, agricultural production is only one component of a complex food system where clever product formulation and convenience have attracted large numbers of people to rather unhealthy diets. Nevertheless, a proactive agriculture community in partnership with the food industry could seek to change unhealthy eating habits by developing and promoting healthy foods and diets (Duxbury et al, 1999).

3.3.1.1. Health education and consumer understanding

Health claims such as “low fat” can be powerful determinants of brand selection. There seem to be at least two approaches towards helping consumer to decide (Anderson et al., 1995). The first is to *educate and guide choices between broad “food groups”*, which have general characteristics and which can be considered as equivalent in terms of function or role in the diet and in nutritional terms. There is still enormous mileage in the food group approach for dietary education. This is evidenced by the relatively recent campaigns to eat five portions of fruit and vegetable daily in the US, Australia and the UK. Or the “Plate Model” (Figure 3.4), developed to show how a healthy diet can be created by simply placing foods in the correct position on a standard plate (Armstrong and Lean, 1993, in Anderson, 1995). However, problems immediately arise when it is realised that amongst the huge number of choices between individual foods, there are combinations that introduce undesirable nutritional consequences and consumers need to be able to select combinations that are desirable.

Fig.3.4: “Plate Model” for achieving a Healthy Diet.

Source: adapted from Armstrong and Lean, 1993, in Anderson et al., 1995.



For instance, there is no debate that food away from home is becoming ever more popular and that income and economic forces are among the major determinants. Consequently, a greater proportion of nutrient intakes has been obtained from away-from-home food sources. For example, food away from home provided 34 percent of total caloric intake in the US in 1995, nearly double the 19 percent in 1977 (Blaylock et al, 1999). Rising consumption away from home may make it more difficult for consumers to make informed choices regarding the nutritional content of meals. This has become an increasingly important problem in our society as dining out, fast foods, home delivery, and pre-packaged meals become an ever-growing part of our culture. People may be aware of the nutrient content of a particular food but the situation becomes more complex when foods and ingredients are combined in unknown portions with unknown preparation methods.

3.3.1.2. Labelling and other sources of health information

There is, therefore, a need for consumers to have some guidance about which brands or varieties of foods to choose. *Nutritional labelling* is the second angle on health promotion. The need to be consistent within Europe, together with the problem of labelling on imported foods, have led to a new EU Nutrition Labelling Directive, which came into force in 1994 (Sadler, 1999). This requires standard chemical compositional data (per 100g of food) for a limited number of nutrients (e.g. protein, carbohydrates, fat, dietary fibre, sodium) to be presented on voluntary basis, or when some nutrition or health claim (e.g. “low in...high in...”) is made.

Senauer et al. (1993) reported that most US consumers did not regularly read the ingredient and nutrition labels while shopping. In the 1990 US Food Marketing Institute survey of food shoppers, 36 percent reported always reading the ingredient and nutrition labels when buying packaged food. Another 45 percent said that sometimes read the nutrition labels, and 49 percent reported always reading the label for information on ingredients and nutrition when buying the product for the first time. Over 70 percent said they always check the expiration date. In the 2000 Greek National Agricultural Research Foundation survey of Greek organic consumers, only 29.8 percent of the organic buyers reported always reading the label when not familiar with a foodstuff, percentage decreased to 7 percent when familiar with it (Fotopoulos and Krystallis, 2001c).

Blaylock et al. (1999) claim that time constraints are an important consideration because they affect the gathering of nutrition information. A consumer seeking nutrition information can use a variety of sources, each with a time and monetary cost and a perceived contribution to his/her well being. Generally, consumers obtain information from sources low in search costs, but value information from other sources more highly. In one poll, respondents cite print media and TV as the most common sources of nutrition information (c.f. Section 3.3.3) but doctors, books and dieticians as the most useful. Family and friends fell in between. This apparent discrepancy between use and usefulness is consistent with the costs of information sources: information from medical professionals is both expensive in time and money and rarely used. Information from books takes time and is rarely sought. Virtually free information through the mass media is widely used, even if given marginal value (Blaylock et al, 1999).

The “per 100g of food” form of food labelling (Table 3.2) is convenient for producers and manufacturers, but from the point of view of nutritionists and consumers it has serious shortcomings (Wandel, 1997; Abbot, 1997). According to Anderson et al. (1995), Shine et al. (1997) and Humphries (1998), the simplest, but most pervasive, problem is that, in this way, it is not possible to make nutritional comparisons between foods or to decide in nutritional terms whether the food is higher or lower in a nutrient if the food contains an unknown and possibly variable amount of water.

Table 3.2: Formats for Presentation of On-pack Nutrition Information as Laid Down in the EU Nutrition Labelling Directive

Source: adapted from Sadler, 1999.

Nutrition Information			
GROUP 1		GROUP 2	
Typical values	Per 100g.	Typical values	Per 100g.
Energy	Kj and kcal	Energy	Kj and kcal
Protein	g	Protein	g
Carbohydrates	g	Carbohydrates of which sugars	g
Fat	g	Fat of which saturates	g
		Fibre	g
		Sodium	g

One alternative to the “per 100g” criterion would be to base the analytical nutrient content of a food on an average portion size (Anderson, 1995; Sadler, 1999). This approach has been adopted particularly in the USA and has the attraction that consumers can relate more easily to a “portion” than to 100g. Yet, average portions can be very misleading, and this approach is not suitable for a standard system of labelling. Other useful future modifications of the nutrition panel of food labels would include re-ordering of the nutrient in the list according to their relevance to consumers, avoiding use of the term kilojoules and using calories only, or using rounded numbers and familiar terms only (Sadler, 1999).

Reicks et al. (1997) report a series of US studies concerning the effects of supermarket shelf labelling on nutrition education, for example helping consumers identify and locate low and high fat food products. Customers were concerned with the amount of fat in their products but did not want to take the time to read nutrition labels. Shelf labels marked products with a red or green light according to the fat content of the food. Nutrition knowledge, attitudes and awareness of nutrition information significantly increased in intervention stores. The signs produced the most dramatic changes when products were compared based on a perceived negative ingredient such as added sugar,

rather than on a positive attitude, such as vitamins. To produce the effects described, advertising expenditures were substantial and the intervention had to run for long periods of time, since the effects disappeared almost immediately after the removal of the signs (Reicks et al, 1997).

3.3.1.3. Health-related behaviour and consumer lifestyle

Qualitative work has also challenged the tendency of quantitative surveys to detach particular items of health knowledge and behaviour (e.g. food choice) from the realities of daily social life where they are experienced, tested out, and given meaning. Most Western studies, quantitative or qualitative, indicate that most people are well aware of epidemiologically identified health risks. However, it also appears that, overall, there is no automatic long-term translation of knowledge of behavioural risks into modifications of personal lifestyle. Socio-cultural factors play, thus, a part in health-relevant decisions and actions (Asp, 1999). Therefore, change in dietary behaviours relevant to heart disease, for example, may appear to be perfectly reasonable with Mediterranean or Japanese cultures but not, perhaps, within Scotland or to particular groups of the population in other Western countries.

Anderson et al. (1995), Milburn (1995), Blaylock et al. (1999), and Asp (1999), claim that, although supposedly health-damaging behaviours involve risks, they also involve benefits in terms of, for instance, wellbeing, social acceptability, or pleasure. So-called risky behaviours might, therefore, be seen as “life enhancing”. Studies have indicated that, in practice, what constitutes a “risk” may be viewed differently at different points in the life course. There has been a strong tendency of respondents to pay attention to the

short-term rather than long-term consequences. Hence, Nayga Jr. (1999) concludes that perceptions about health food attributes can be also affected by psychological cues. And Blaylock et al. (1999) argue that there is simply no guarantee to a consumer that a lifetime of healthy eating will result in increased longevity.

Finally, Ippolito (1999) adopts an economic perspective. He assumes that consumers will not deliberately change their diets unless they perceive a *net benefit* from making a particular change. Even if consumers receive advice to change their diets in some particular way, they will actually make changes only to the extent that they perceive a health gain from the changes sufficient to justify the costs in taste, convenience, price, or other factors implicit in the change. Recognising the importance of this trade-off in shaping individuals' food selection behaviour is fundamental.

In considering how health information influences dietary choices, it is important to view the issue as an inherently dynamic question in which scientific uncertainty plays a central role. What we "know" today about how diet influences health is changing and surrounded by scientific uncertainty. Moreover, anyone who follows these developments even casually understands that scientific knowledge of the diet-health relationship is likely to continue changing in significant ways for the foreseeable future.

3.3.2. Consumer health behaviour models

Despite the obvious importance of health behaviours, investigations from the field of consumer research regarding health have been limited. One reason may be a lack of comprehensive models to explain consumers' health behaviours. Instead, research has

typically focused on single dependent variables, such as nutrition information processing or patient satisfaction, or on single independent variables, such as age, social class, or health beliefs (Moorman and Matulich, 1993). Another reason for limited consumer research is that health behaviour is an interdisciplinary concern in itself, including fields such as psychology, health education, preventive medicine, epidemiology, sociology, nutrition, public health, social marketing, and consumer research (Table 3.3).

Moorman and Matulich (1993) tried to draw on research across disciplines to develop an applied conceptual framework of consumers' health behaviours:

"...The consumer characteristics have been conceptualised as either a health motivation or a health ability, and the theory introduced interactions among these characteristics to explain a series of preventive behaviours ranging from health information acquisition to health maintenance behaviours..." (Moorman and Matulich, 1993).

Two categories of consumer characteristics are examined, thus, as predictors: the first, *health motivation*, is defined as consumers' goal-directed arousal to engage in preventive health behaviours and focuses on consumer's willingness to perform health behaviours. The second, *health ability*, refers to consumers' resources, skills, or proficiencies for performing preventive health behaviours, such as health knowledge, status, or locus of control. The general structure of the framework is that health motivation would individually facilitate health behaviours, whereas the effect of health ability would be strengthened by the presence of health motivation. *Health information acquisition* refers to the degree to which consumers acquire health information from various sources, including media and labels, friends and family, and health professionals. *Health maintenance behaviours* refer to the degree to which consumers perform health-enhancing behaviours, including utilising health professionals for check-ups,

Table 3.3: Overview of Health Models from Different Disciplines

Source: adapted from Moorman and Matulich, 1993.

Models and Description	Sample studies
A. Communication models:	
Threatening health communication models: describe the change of health cognition through the use of threatening communications	Higbee (1969); Leventhai (1970)
Persuasive communication models: describe the interpretation and reception of persuasive health communications as a function of message and recipient characteristics	McGuire (1981); Petty and Cacioppo (1986)
Diffusion of innovation models: theorise that patterns of health innovation adoption depend on acceptance and communication by opinion leaders	Rogers (1983); Smith, Cishansky and Smith (1979)
B. Social models:	
Socio-cultural models: assess impact of cultural, subcultural, group norms, life-style and socio-economic factors on health behaviours	Bullough (1972); Cobum and Pope (1974); Langlie (1977)
Empowerment education models: illustrate how group participation and community action enhance beliefs in ability to change health behaviours	Friere (1983); Wallestein and Bemstein (1988)
C. Cognitive models:	
Health belief models: focus on health behaviour's perceived benefits and barriers, the perceived threat of harm, and perceived internal and external cues to action as determinants	Becker (1974); Janz and Becker (1984); Rosenstock (1974)
Perceived utility models: predict choice of health-related actions with greatest perceived utility	Cohen (1984); Marsh and Matheson (1983)
Behavioural intention models: explore relationships between attitudes and health behaviours with behavioural intention as a mediator	Ajzen and Madden (1986); Fisbein and Ajzen (1975); Fisbein and Jaccard (1973)
Health consciousness model: investigates health involvement, self-monitoring, and awareness as determinants	Gould (1990)
D. Behavioural models:	
Social learning theory: focuses on role of modelling behaviours, necessity of developing skills, and encouragement of self-efficiency	Bandura (1977, 1986)
Health locus of control models: theorise about the effects of health outcome control orientations (i.e. the degree to which health outcomes result from personal efforts, chance, health-care providers, or general threats)	Lau (1982, 1988); Lau and Wara (1981); Wallston and Wallstone (1982)
Behavioural modification models: use operand-conditioning techniques to influence health	Davidson and Davidson (1980); Pomertau, Bass and Crown (1975)
E. Marketing models:	
Contingency framework: suggests health provider-patient relationships differ depending on power sources	Friedman and Churchill (1987)
Social marketing models: theorise that manipulation of marketing mix variables can motivate health behaviours	Geib and Gilly (1979); Kotler and Zaltman (1971)
Health information utilisation models: theorise about the effects of consumer and information characteristics on cognitive and behavioural health activities	Cole and Gaeth (1990); Moorman (1990) Russo et al. (1986); Scammon (1977)
F. Combination models	
Self-regulating behaviour models: theorises that personal, behavioural and environmental variables influence health behaviours	Clark and Zimmerman (1990)
PRECEDE model: classifies health influences as predisposing factors (e.g. knowledge), enabling factors (e.g. environment) and reinforcing factors	Anderson and Newman (1973); Smith and Scammon (1986)
Empowering potential/wellness motivation models: focuses on imaging health behaviour change and the role of support structures in initiating and maintaining health behaviours	Fleury (1991)
Person-environment dynamic interaction model: stresses reciprocal relationships among situational and personal determinants of health behaviours	Levy (1991)
Protection-motivation and adaptive/maladaptive coping model: models sources of information and cognitive-mediating processes (i.e. perceived self- and response efficiency) as determinants of adaptive and maladaptive health-coping strategies	Rippetoe and Rogers (1987)
Health marketing strategy evaluation model: includes psychological, social, and behavioural variables as health behaviour determinants in less developed countries	Zaltman and Vertinsky (1971)
Health promotion model: consists of cognitive-perceptual elements, modifying environmental factors, and other cues to action as health behaviour determinants	Pender (1987); Weitzel (1989)

minimising stress, moderating alcohol consumption, and eliminating tobacco use.

Despite the complexity of the model, the interaction between health motivation and health abilities was not found to uniformly drive consumers' health behaviours in positive ways. For example, higher use of media sources was found for highly motivated but less able (e.g. low education or low health status) consumers. This suggests that ability and motivation are not always critical and sufficient precursors of behaviour.

Moreover, *health knowledge* was found to relate to *health behaviour* only when *health motivation* is present, conclusion also supported by more recent studies (e.g, Baylock et al, 1999). Nevertheless, health motivation was found not to overcome the negative effects of older age and lower income on health behaviours. Instead, age has considerable predictive value, affecting health maintenance behaviours positively and health information acquisition negatively. Income, on the other hand, has considerably less value as main health behavioural predictor. Nevertheless, findings suggest that using health programs to increase health motivation levels will not eliminate differences attributable to age and income. As a result, different programs need to be developed for different age and income groups (Moorman and Matulich, 1993).

3.3.3. EU consumer attitudes to nutrition and health

The 1997 Institute of European Food Studies (IEFS) pan-EU survey on consumer attitudes to food, nutrition and health (Gibney et al., 1997; de Almeida et al., 1997; Kearney et al., 1997; Lappalainen et al., 1997; Lennernas et al., 1997; Margets et al., 1997; Zunft et al., 1997; and deGraaf et al., 1997) provides baseline comparable data across all member states. It allows comparisons to be made between countries along with the socio-cultural factors which may influence people's perception of a healthy diet. The

objectives of the survey were to investigate what do people understand by the term “healthy eating”, the perceived benefits of and obstacles to healthy eating, the factors perceived to be the most important influences on the choice of foods, the perceived need among subjects to alter their eating habits, the sources people believe they obtain their information on health eating from and their level of trust.

Table 3.4 presents the most commonly mentioned broad definitions of healthy eating. Looking at food groups, about half of the respondents mentioned low fat as part of a healthy diet, followed by just over 40 percent mentioning more fruit and vegetables and balance and variety. Only half of the Italian and Finish people, but 80 percent or more in Greece and Belgium believed that for the general population healthy eating helps one to stay healthy. In more than 10 countries, over 50 percent of people believed that healthy eating may help control weight. In addition, Wandel (1997), in exploring Norwegian consumer attitude towards healthy eating concluded that a healthy diet ought to contain as few fatty foods as possible (57 percent), have a large variety of foods (57 percent) and include as many fresh products and home-made dishes as possible.

“Quality/freshness”, “price”, “taste”, “trying to eat healthy”, and “what my family wants to eat” were perceived to be the top five influences on food choice in all member states (Table 3.5). Among these, “quality/freshness” was perceived as an outstanding factor influencing the EU consumers’ food choice. The influence of “price” factor upon food choice varied greatly between countries, but overall was the second most frequently mentioned influence. Slimming was surprisingly selected by only 6 percent overall, despite the fact that overweight is an increasing and severe problem. Overall, in the EU

Table 3.4: Definitions of Healthy Eating (*) by EU Country Member (%).

Source: adapted from Lappalainen et al, 1998.

Country	More fruit and vegetables	Fresh natural foods	Balance and variety	Nutrient approach	Less fat fatty food low-fat diet	Less red meat, meat products	Less sugar	More staples, fibre
Austria	42	29	48	12	25	18	5	13
Belgium	+	53	74	16	57	54	23	+
Denmark	41	6	53	3	29	6	5	0
Finland	56	12	42	13	49	13	10	22
France	17	37	54	16	30	7	6	23
Germany	44	13	38	27	74	22	27	25
Greece	66	15	11	11	42	35	14	15
Ireland	58	13	28	8	40	18	11	25
Italy	33	56	30	10	38	17	7	16
Luxembourg	59	36	29	11	64	28	24	19
Netherlands	48	28	36	25	52	8	10	18
Portugal	54	24	24	5	31	33	7	4
Spain	49	33	44	8	31	21	5	5
Sweden	50	29	46	9	51	7	10	27
GB	63	9	44	13	65	16	19	25
EU	42	28	41	16	49	18	11	16

* Open-ended question, responses grouped into broadly similar categories.

+ In Belgium "eating fruit/vegetables/fish/meat everyday" was one definition of healthy eating; this was included under balance and variety

Within each column are the highest and the lowest values indicated by bold format.

Table 3.5: Percentage of Subjects Selecting Factors Perceived to be Among the Three Most Important on Food Choice in Each Member State of the EU.

Source: adapted from Lappalainen et al, 1998.

Country	Quality freshness	Price	Taste	Trying to eat healthy	Family preference	Habit	Convenience	Content of additives	Availability	Slimming
Austria	90	54	25	50	32	10	8	8	3	6
Belgium	76	34	46	37	29	19	12	11	6	4
Denmark	64	39	29	48	22	18	25	17	9	3
Finland	67	62	41	40	17	20	17	7	8	3
France	77	57	42	25	21	20	13	5	3	7
Germany	76	40	31	31	29	26	11	5	6	6
Greece	75	18	47	32	38	28	11	5	5	6
Ireland	49	30	45	35	36	29	13	5	14	5
Italy	84	29	40	25	36	19	15	5	4	7
Luxembourg	68	18	49	24	18	18	14	21	10	12
Netherlands	73	36	41	28	36	21	16	9	7	4
Portugal	66	38	40	34	24	21	12	5	5	3
Spain	80	52	22	32	25	20	11	5	7	9
Sweden	73	59	37	30	31	21	17	8	8	1
GB	59	43	49	40	30	20	15	5	9	4
EU	74	43	38	32	29	21	13	6	6	6

more than 70 percent of subjects agreed with the statement "I do not need to make changes to the food I eat as it is already healthy enough" (64 percent of the Italians and 48 percent of the Spaniards strongly agreed, compared to about 20 percent in Finland,

Denmark, Sweden and Germany, perhaps indicating a perceived superiority of Mediterranean diet's healthiness).

The most common barrier category towards healthy eating (Table 3.6) reported by the total EU population was "lack of time" (including the statements "irregular working hours" and "busy lifestyle") -in accordance with the findings of Blaylock et al. (1999, Section 3.3.1.2) about US consumers- with large variation between the 15 member states. Second was "lack of self-control", in accordance with Asp (1999). Respondents with lower education mentioned resistance to change more often, compared to those with university background. Practically in all member states "irregular working hours" was a more frequently cited difficulty by the highly educated people.

The five sources of information on healthy eating most frequently mentioned in the EU were TV/Radio, magazines and newspapers (also in accordance with Goody et al, 1995 and Abbot, 1997), health professionals, food packages, and relatives/friends. Media sources were used more often in central and northern EU countries than in the southern (Greece, Italy, Spain and Portugal had an average of 20 percent). Professionals were among the most common information sources (Table 3.7). Nevertheless, only one out of four Europeans trusts government agencies, with great consistency across countries (in accordance with Goody et al, and Shine et al, 1997). This result is in contrast with other studies, which demonstrate a higher percentage of consumers trusting and valuing doctors, dieticians or nutritionists, (Ritson et al., 1986; Blaylock et al, 1999). Food package is the fourth most common source, yet with large differences among countries. For example, Greece exhibits the lowest percentage in the EU, with only 9 percent,

Table 3.6: Perceived Barriers Towards Healthy Eating in the 15 EU Member States (%).
Source: adapted from Lappalainen et al, 1998.

Country	Lack of Time	Self-control	Resistance to change	Food preparation	Cost of food	Unpleasant foods	Influence of other	Knowledge	Selection influence
Austria	37	48	23	28	19	15	19	24	15
Belgium	46	37	24	33	16	23	21	15	23
Denmark	35	30	21	23	17	9	11	24	9
Finland	32	42	15	25	15	15	13	13	15
France	32	35	21	19	19	14	14	10	14
Germany	16	25	22	18	9	5	14	16	5
Greece	23	30	25	16	13	16	18	13	16
Ireland	30	50	20	19	17	13	22	15	13
Italy	44	25	17	10	7	14	9	5	14
Luxembourg	50	53	35	50	24	35	31	27	35
Netherlands	39	30	24	19	16	14	14	9	14
Portugal	39	31	27	25	21	23	18	17	23
Spain	37	33	19	20	16	27	13	13	27
Sweden	48	43	18	31	21	14	15	22	14
GB	38	45	20	21	23	15	13	20	15
EU	33	33	21	19	5	14	14	14	14

Table 3.7: Percentage of Subjects in Each Member State Using Sources on Health Eating.
Source: adapted from Lappalainen et al, 1998.

Country	TV Radio	Magazines	Newspapers	Health professionals	Food packaging	Relatives, friends	Advertisements	Books	Super markets	Health Food shops
Austria	33	31	37	31	16	25	26	26	7	14
Belgium	37	36	34	39	34	29	29	18	14	13
Denmark	35	26	32	15	22	20	23	11	12	7
Finland	47	43	36	32	14	21	29	25	19	7
France	17	19	18	31	27	26	12	15	9	8
Germany	39	35	40	23	20	28	17	16	5	17
Greece	18	17	18	27	9	15	11	15	5	5
Ireland	23	20	23	18	11	16	12	13	8	4
Italy	26	21	19	26	21	17	15	9	5	6
Luxembourg	48	49	40	45	30	33	32	35	15	19
Netherlands	24	29	27	18	28	22	26	15	22	11
Portugal	27	14	16	39	27	16	13	16	8	7
Spain	26	12	13	26	23	22	21	15	10	2
Sweden	35	30	46	25	35	33	30	13	15	10
GB	30	37	28	19	20	12	15	15	18	6
EU	29	27	27	26	22	22	17	15	10	9

result that is supported by more recent Greek studies (see, for example, Fotopoulos and Krystallis, 2001d). Finally, countries with a higher proportion of people reporting not getting health information were Greece (33 percent), Ireland and France.

The results from this survey (Lappalainen et al., 1998) suggest that, in broad terms, the majority of the population in each country has been able to cite aspects of the healthy dietary guidelines when describing a healthy diet. However, not all respondents appear to have been influenced by these. Older, less educated respondents (in accordance with Moorman and Matulich, 1993), were consistently less likely to mention any aspects of a healthy diet. Price plays a significant role in the choice of food for many people, particularly for those of reduced incomes or who are responsible for the household food shopping. Quality, on the other hand, appears to be of paramount importance among all groups.

The efforts of nutritional policy have not resulted in any convincing success at the population level. This could be explained by the observation that personal benefits of healthy eating were reported clearly less seldom as compared to perceived benefits of healthy eating for other people (e.g. general population). Interestingly, more than 70 percent of Europeans believed there is no need to change their diets. Yet, the majority of people did not report knowledge of healthy eating as a barrier.

Food labels are one of the most used and trusted sources of information. Consumers have positive attitudes towards labels (Shine et al, 1997). In general, the availability of nutrition information is not a major problem, although the limited quantity (Wandel, 1997; Abbot, 1997) and, mainly, the quality of information coming from major sources (TV/radio, newspapers/magazines, and health professionals) is under question. The problem facing healthy eating promoters in Europe should be how nutritional guidelines are explained by individuals.

3.3.4. Food label nutritional/health claims and consumer attitude

Nutrient content claims (e.g. low fat, low cholesterol, light, extra lean, healthy, good source of fibre etc.) have become commonplace on food labels. Similar to claims made in advertising, these nutrient content claims prominently featured on food labels may create consumer expectations about product healthfulness. However, the proliferation of these claims has confused some consumers. For example, a total of 76 percent of respondents to a 1995 American consumer survey questioned the reliability of some claims and agreed with the statement that too many foods claimed to be healthy (Nayga Jr, 1999). And the *Financial Times* (1995, in Nancarrow et al, 1998) state that the invention of categories such as “low fat, low salt, low cholesterol or simply light”, which can mean anything from light in alcohol to light in colour, has added to the choice headache. Misleading or ambiguous product claims add to the confusion.

For the consumer, the health claim on the label can become the value-added point of product differentiation. Therefore, for the food industry, access to a health claim for use on the product label is an important marketing variable (Ovesen, 1999). Health claims, if accepted with confidence, may also play a role in public health education as they inform the consumer of a food’s health advantage. To the degree the health claim influences purchase decisions, it helps the consumer conform to public policy goals by assisting in the selection of healthier food choices (Childs, 1998; Nayga Jr, 1999). Consumers’ confidence on the reliability of nutritional/health claims may be tied to perceptions about the negative impacts of unhealthy diet and stem from a broad range of personal characteristics, experiences and related knowledge. Consumers who are aware of the relationship between cholesterol and heart disease or who are generally

health conscious are likely to consider such product information to be of high value to them (Wright, 1997; Nancarrow et al, 1998).

Nayga Jr. (1999) uses a set of socio-demographic characteristics to analyse US consumers' confidence on food health claims, in accordance with the "health motivation – health behaviour" model of Moorman and Matulch (1993). He argues that the higher the income of consumers the less likely they are to be confident about the reliability of these claims. Then, age is negatively related to consumers' confidence. This implies that older consumers are more sceptical about the reliability of health claims. Moreover, regional and urbanisation variables do not affect the likelihood of consumers' confidence. However, results concerning the gender variable indicate that males are less likely to be confident than are females. This may explain the finding that males are less likely to use nutritional information on food packages, to perceive nutrition as important in food shopping and to be interested in diet and health issues than are female. In addition, higher educated individuals are more likely to be confident about the reliability of claims such as "low cholesterol", "good source of fibre" and "extra lean" (Nayga Jr, 1999).

Wandel (1997) and Abbot (1997), also claim that in the UK, women, the highly educated and those who are on special diets tend to read nutritional/health food labels to a greater extent than others (the "motivated" of the Moorman-Matulich model). They also argue that the interest in reading the nutritional/health food labels increases with age up to the mid-fifties and it declines thereafter. The typical food reader is middle-aged woman with high education, profile that closely resembles that of consumers who

are highly health conscious. It is likely that health considerations are the most decisive driving forces for reading food nutritional labels.

Wright (1997) also investigated UK consumer attitudes to product health labels. Exploring whether the statements on the health labels were comprehensive, misleading or untrue with regard to language, imagery, ingredients and nutritional information, provoked discussion ranging from the use of sugar-free claims that were considered misleading, difficulties in interpreting how many calories the “low in calorie” claim could represent, and lack of understanding on what chemical names of additives meant (also in accordance with Wandel, 1997). Statements about no added sugar or artificial colourings were seen as marketing tactics.

Moreover, regarding the ease or difficulty in finding information about ingredients and additives, the respondents thought that small print and technical jargon added to the frustration and confusion at the time of purchase (in accordance with Wandel, 1997). Different manufacturers used different formats for storage instructions, date marks and “best before” recommendations. These were found by the respondents in different places on the labels, on caps or even on the underside of bottles (Wright, 1997). Hence, Wandel (1997) and Nancarrow et al. (1998) conclude that, in order to be useful, the health label information must deal with those aspects that are of most concern to the consumers (e.g. the substances that they try to avoid or reduce the intake of, such as fat and additives) and it should be formulated in such a way that they can understand it.

3.3.4.1. Health claims and regulation

There is always a regulatory responsibility for food safety (c.f. Section 3.4), in this case to protect consumers from unsafe concentrations of bioactive food components. This regulatory tension has initiated numerous policy debates regarding health claim labelling across the developed nations. The debate is played against a backdrop of a globalized, highly concentrated food industry comprising multi-national corporate players in an environment accelerating towards free markets with the diminishing of agricultural trade barriers (Tansey, 1994). The Uruguay Round GATT agreement allowed countries to set their own standards, as long as these are clear, science-based.

The US has regulated health claims more stringently than the EU, where health claims on food products are more common. In 1990, the US Nutrition Labelling and Education Act (NLEA) directed the Food and Drug Administration (FDA) to impose to all foods a revised label that provides information about saturated fat, cholesterol, and dietary fibre, in a format designed to help consumers choose a more healthful and nutritious diet (Ippolito, 1999). According to Unnevehr et al. (1998), the potential health benefits from these new labels had been estimated as much as 1.2 million life years gained during the following 20 years. The US Dietary Supplement Health and Education Act (DSHEA) of 1994 changed how FDA regulated these products. It allowed manufacturers to make certain claims and market products without obtaining FDA's pre-approval. The 1998 final health claims on food labels allowed by the FDA can be seen in Table 3.8.

Table 3.8. Health Claims Allowed in the US by the FDA, 1993 (*) and 1998 (* *).

Source: adapted from Unnevehr et al, 1998.

Food component	Health claim
Calcium*	Reduced risk of osteoporosis
Sodium*	Increased risk of hypertension
Dietary saturated fat*	Cholesterol, increased risk of coronary heart disease
Dietary fat*	Increased risk of cancer
Fibre-containing grain products, fruits and vegetables*	Reduced risk of cancer
Fibre-containing (especially soluble fibre) grain products, fruits and vegetables*	Reduced risk of coronary heart disease
Fruits and vegetables*	Reduced risk of cancer
Oat products* *	Reduced risk of coronary heart disease

Health claims are not permitted at the EU level. The limited body of existing regulations (in Childs, 1998; Sandler, 1999; Ovesen, 1999) has been tolerant to various EU member states in permitting the use of health claims on labels and in advertising. Individual EU members adhere to the European level regulations on labelling and marketing of products, but enforcement depends on the resources and interests at the country level. In the EU process the European Commission is taking the initiative on harmonising claims, selecting eminent outside guests to the review panel. A main Committee for EU member states will be formed, and sub-committees will be composed of scientific commissions for foods. A council "Regulation on novel foods and novel food ingredients" will be adopted. Manufacturers will have to request a safety clearance by submitting a dossier of evidence to the council.

Childs (1998) argues that this process for the present can be characterised as fragmented: while products are actively entering the marketplace with health claims, particularly in the dairy and spread categories, they vary by country with respect to the detail of the health claim. In most cases the claim is limited to a structure-function

statement ascribing the benefits of good health. The process itself involves a broad range of participants and government units. Thus, products do not have the legal possibility of leveraging the economies of scale of a pan-European approach.

The continuing regulatory and legislative attention to health claims reflects, in part, the issues at the core of this debate. Pre-approval of only the strongest health claims prevents any deception before it occurs and reduces the likelihood that the science will ever move against the claim. Moreover, the rules limiting the claims to only the “best” foods help to highlight those foods and to limit misunderstandings. On the other hand, limiting producers to spreading information only about the most conclusive diet-disease relationships has the potential to stifle a broad range of other truthful diet-disease information that could be beneficial. This is a particular concern because evidence suggests that consumers are better able to respond to diet-related information if “consequence” information is provided (Ippolito, 1999).

Nevertheless, before information reaching consumers, food nutritional research has to be conducted. Concerning the question who will do the research and provide consumers with information about the health attributes of food, food producers have an incentive to fund such activities, but may also have an incentive to exaggerate the health benefits of their products. Dieticians disseminate information but have no incentive to pay for the research that generates new information. These and other shortcomings in the supply of health information are the basis for specific public policies. In the US, publicly funded government agencies supply the bulk of the health-related research (Unnevehr et al, 1998; Ippolito, 1999). These sources, news reports, and health professionals, most often

provide information about the links between overall diet and health outcomes.

Consumers obtain information linking health benefits to specific product choices most easily when specific purchase decisions are being made, e.g. in the grocery store (see for example Reicks et al, 1997 and Nancarrow et al, 1998) or restaurant. For the most part, the health-related information available at these times is supplied by food producers through package labels and product advertisements. Therefore, public policy regarding which health claims producers are permitted to make can have important consequences for public health (Unnevehr et al, 1998). However, while much discussion has been going on regarding the differentiation between categories of claims that nobody truly understands, the consumer aspect has been given extremely little attention (Ovesen, 1999).

3.3.4.2. *Functional components of food*

New scientific understanding of the role of diet in preventing disease is rapidly emerging. Scientists are beginning to understand how some components of food could promote health and reduce the risk of illness. Examples include phytochemicals that might prevent cancer or other components of food that might reduce the risk of cardiovascular disease, such as poly-unsaturated fat acids in olive oil (see Sections 1.1.4 and 2.4.1) with obvious market effects for the Greek olive oil. These so-called “functional” components of food:

“...Encompass potentially healthful products...including...any modified food or food ingredient that may provide a health benefit beyond the traditional nutrients it contains...” (US National Academy of Science, Institute of Medicine, in Unnevehr et al, 1998)

Ovesen (1999) argues that an adequate definition of the term “functional food” can hardly be given:

“(Functional food)...comprise a class of food with scientifically proven health benefits over and above that seen in common foods....They can be naturally occurring foods or foods to which specific health-promoting components (nutrients or non-nutrients) have been added ” (Ovesen, 1999)

It is implied that functional foods only comprise “customarily consumed foods”, consumed in customary amounts, and not products for restricted groups of consumers, meaning that dietary supplements and dietetic foods are not included in the definition. Foods fortified with vitamins and minerals to correct a deficiency may or may not be included in the functional food concept.

The functional components of food differ from the more widely understood “nutritional”, such as calories and protein. This emerging knowledge potentially increases consumer welfare by broadening the range of health-promoting activities. Consumer demand for this information and the functional food products that it may generate is growing as consumers live longer and become more affluent.

No specific regulation exist for functional foods within the EU but this does not mean that they operate in a legal vacuum. Functional foods fall in the grey area between foods and medicine, but from a regulatory point they are foods and not medical products, and accordingly are subject to regulations concerning foods. Some functional foods are classified as novel foods, e.g. food ingredients that never or only in limited amounts have been consumed by humans, including foods that have been genetically modified, and as such subject to EC Regulation 258/97 (Ovesen, 1999).

The marketing of functional foods is intimately connected with the issue of health claims. However, functional health claims, similarly to the nutritional claims, have some potential drawbacks to be considered (Ovesen, 1999). First, it seems wrong that fear of disease is taken advantage of, in connection with the marketing and sale of foods. Second, health-related information of this nature should not be entrusted to food producers, whose income will be increased with the “smartness” of the advertising.

To improve their health and well being, consumers need information about the implications of new research results and new products that make it easier to consume the functional component of foods. Public policy plays a role in regulating and providing information to consumers, and it can influence the incentives to develop new functional food products or more effectively promote these already existing. (Unnevehr et al, 1998). It is essential that functional foods must not present a danger to the consumer, and that the marketing must not mislead him. To avoid it, a liberalisation of the regulation by necessity requires that strict scientific criteria are laid down for the “proof” that consumption of the food or ingredient in question actually will benefit the consumer. After all, it is the total diet, the composition of foods in the diet over an extended period, which is essential to health, an effect that will not be achieved by the occasional consumption of a functional food.

3.4. Safety as Food Quality Aspect

Food safety is broadly defined to cover nutritional quality of the diet and consumer concerns relating to novel foods, as well as microbiological and chemical safety (Ritson and Mai, 1998). Both food quality and safety concerns have become increasingly

important. They can be viewed as normal goods, and perhaps even luxury goods. The demand for a normal good increases as income level rise and the demand for a luxury grows faster than the growth in income.

People are, of course, concerned about their health. Moreover, they do not attach utility to things or events that produce anxiety. With rising incomes and better information, food safety is more in demand. Swinbank (1993) describes safety as an “income-elastic” good, which means that we expect the demand for food safety to rise at a faster rate than growth in incomes. Moreover, its nature -the way it is characterised- will change: in low-income countries, food safety is most likely to be interpreted as the provision of enough food to stay alive, reducing the risk of death by starvation, rather than the risk dominating the contemporary debate in the developed countries.

Food consumers are clearly one of the largest groups of intended beneficiaries of food safety policies. However, it is important to understand from the beginning that consumer benefits are not synonymous with social benefits (van Ravenswaay and Hoehn, 1997). What consumers may be willing to pay for food safety policies is not the same as what they might be willing to pay in their role as a citizen, producer, or investor. These roles bring additional concerns such as reducing social health care costs; protecting vulnerable, poor, or uneducated segments of the population; reducing liability; and maintaining competitiveness in domestic and export markets.

In the US, much of the acute concern about food safety generated by the 1989 Alar and grape tampering episodes in late 80's dissipated over several months. In the 1990 US Food Marketing Institute survey of consumers, confidence in the food supply had recovered at nearly the same level as a year earlier, before the two incidents. 80 percent of consumers claimed completely or mostly confident that the food found in supermarkets was safe, compared with 81 percent in January 1989 (Senauer et al, 1993). Consumer underlying awareness of and sensitivity to food safety issues remained high, however. Furthermore, there were certain to be cases in the future, when particular food safety issues or incidents again become major new stories. In the US there are as many as 6.5-33 million cases of food poisoning each year caused by seven of the most prevalent foodborne pathogens, up to 9000 deaths in 1994 and a societal cost of \$6.6-37.2 billion annually (1995 prices) in the 90's (Buzby and Frenzen, 1999).

In Europe, since the early 90's, there has been -and still is- a furore over the possible safety concerns posed by BSE (Bovine Spongiform Encephalopathy), commonly called "mad cow" disease. These disclosures caused a sharp drop in British (and from October 2000 in French) cattle sales and a major trade conflict "*whose economic impact far outweighs that of any other food safety problem*" (Hobbs, 1999). Much attention has been given to a variety of other food poisoning issues, especially microbial food poisoning, such as *Listeria* in cook-chill foods and *Salmonella* in eggs during the late 80's and *E. coli O157:H7* in the 90's. For example, within England and Wales the number of food poisoning notifications has risen steadily from approximately 15,000 cases reported in the early 80's to over 70,000 in 1996 (Henson, 1996; Miles et al, 1999) and in Scotland figures show a 21 percent increase in one year, 1995 (Reid et al, 1998).

Even more recently (summer 1999), the dioxin scandal in dairy products and eggs from (mainly) Belgium provoked the same public concern over the safety of food originated from countries with -supposedly- very high food hygiene and technology standards.

Henson and Caswell (1999) claim that the rationale of food safety regulation and/or its success/failure can be objectively assessed according to scientific and/or economic justification. The literature on the economics of food safety identifies a number of ways in which the market for food safety is imperfect, that is where food safety regulation is required. These “imperfections” are (Ritson and Mai, 1996): the divergence between perceived and real dangers of consumer safety, consumer perceptions of risk; the consumer information approach and the asymmetry in his/her knowledge; food safety as a public good and the social costs and benefits of safety regulation.

3.4.1. Different views of food safety

For most consumers, food safety and a variety of food-borne diseases may be a growing (Wheelock, 1989; Griffith et al, 1994; Connor, 1994; Griffith et al, 1995; Henson, 1996), but at most times still a largely latent concern, as it has been very early shown in the 1989 and 1990 Food Marketing Institute surveys (Senauer et al, 1993).

The most worrisome food safety concern for the US and EU consumers in the 80's has been pesticide and herbicide residues, followed by antibiotic and hormone use, nutrients, irradiation, additives and preservatives, and then artificial colours. The greatest food safety concern of consumers “is that suspected or known cancer-causing chemicals are being used in food production and processing, with unknown long-run health risks”

(Archibald and March, 1988). This helps explain why consumers rank pesticide and herbicide residues as such serious health hazards. Generally speaking, in the 90's there has been an increase in the so-called "diseases of affluence" (Steptoe et al, 1995) and those coming as a result of the intensive production systems, although there is an element of consumer "self-involvement" in disease susceptibility, as we have seen, including diet, lack of exercise, smoking and excessive alcohol consumption (Griffith et al, 1995).

The hazard posed by microbial contamination was usually quite far down on most consumers' lists of food safety concerns (Middlekauff, 1988). This ranking is (or at least was) quite different from the priorities that food safety experts place on various issues (Ritson and Mai, 1996). The professional staff of the Food and Drug Administration (FDA) considers pathogen contamination to be the major health hazard associated with food (MacDonald and Crutfield, 1997). However, it seems that after the serious impact of food scares on public opinion, a convergence exists between consumers and scientists towards food contamination hazards' priority. For instance, Goody et al. (1995) reported that the first food scares cited by the UK consumers of his sample had been BSE and salmonella.

Consumers may respond to food contamination in at least four ways. They include: product avoidance (e.g. Eom, 1994), brand switching (e.g. Hammit, 1993), averting, and mitigating actions (e.g. Van Revenswaay and Hoehn, 1997). Product avoidance eliminates exposure to contaminants. Brand switching may eliminate or reduce exposure by selection of a similar product, which differs in the amount of the contaminants and,

possibly, related quality factors (e.g. pest damage). Averting actions reduce food contaminants in products by methods such as thorough cooking, proper storage or sanitation. Mitigation involves treatment of illness from food contaminants.

Each of these possible consumer responses to food contamination depends on consumers' perceptions of several factors (van Ravenswaay and Hoehn, 1996): first, consumers have some, partial only, imperfect or asymmetric knowledge of marginal product contamination levels. Second, consumers have some vague idea of the effect of averting on marginal product contamination level. Third, consumers have some incomplete awareness of the health effect of total exposure to the contaminant. Finally, consumers have some perception only of the possibility and cost of mitigating these health effects, all these depending on their age and socio-economical status.

The increasing recognition of its consequences has prompted a re-evaluation of the true cost of foodborne diseases (Todd, 1989). Costs may be both social and economic, which cumulatively can represent a considerable burden to the economy of a country. Some consumer advocates and some people in the food industry hold quite extreme views on the food safety issue. For example, various US consumer and environmental groups think that government regulations are irresponsibly ignoring chemicals that pose insidious health threats (Middlekauff, 1988).

On the other side of the food safety issue are many in the food industry, which complain about over-regulation to the point where costs are increased with only marginal returns to safety. They argue that the elimination of all food-related risks is not possible, either economically or technically (Burbee and Kramer, 1986). Public policy ends up being made more on the basis of political expediency than scientific facts (Archibald and Marsh, 1988; Henson and Caswell, 1999). Not surprisingly, given these divergent viewpoints, food safety concerns can become highly charged public policy issues.

“...How much safety do we want in our food? This is a dangerous question to ask. The instinctive answer is 100 percent, or at least as much as we can get. But if food safety is viewed as a consumption attribute, then much the same reaction will apply to other aspects of food consumer behaviour...(Ritson and Mai, 1998).

As Henson and Caswell (1999) put it, we normally see the forces leading to the decision to purchase a food as a complex trade-off between alternative demands that reflect the interests of the different groups that might be affected. The characterisation of food safety as a consumption attribute allows us to identify a number of useful messages relating to the economics of food safety (Ritson and Mai, 1998). It underlies the willingness of individuals to accept a degree of food risk in exchange for other attributes. In addition, the kind of risk involved also affects the trade-off, with risk associated with overall diet attracting less hostility. Thus, as long as there is an inverse relationship between safety and some positive attribute, such as taste, appearance or price, then consumers are not seeking 100 percent of it.

3.4.2. Public perceptions of food risk and its measurement

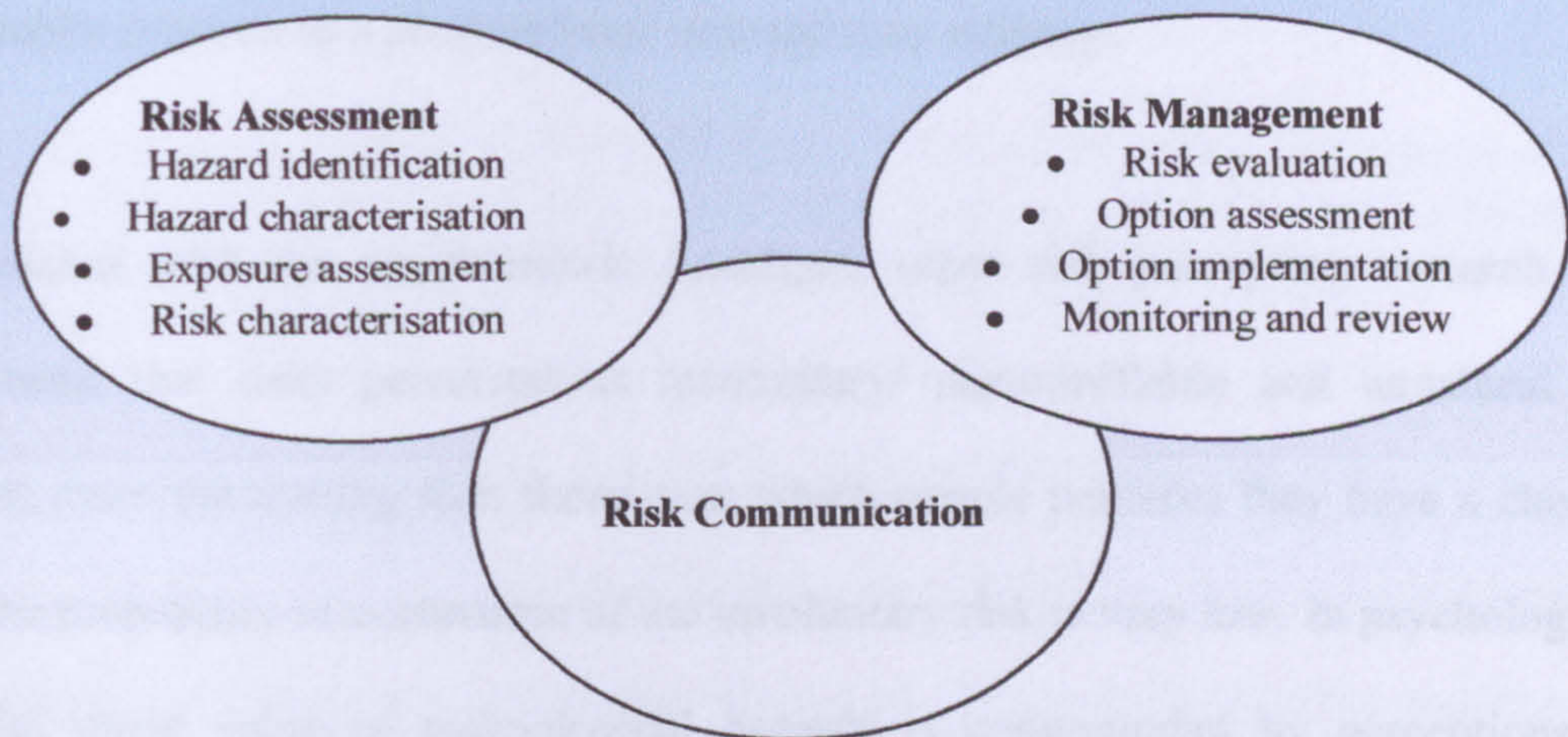
The scientific rationale for food safety regulation, according to Henson and Caswell (1999), is incorporated into the framework of risk analysis, a structured approach whereby risks to human health are assessed and the best means for their control identified. Best practice dictates that this consists of a three-stage process (Figure 3.5): *risk assessment*, which is an assessment of the risk to human health associated with particular foodborne hazard; *risk management*, which concerns the decisions made regarding the acceptable level of risk and measures implemented for its control; and *risk communication*, that is the information about the risk and chosen methods of control.

At the theoretical level, Antle (1999) shows that an individual's demand for risky foods depends on income, prices, the objective risk associated with the food, the "perceived risk" of the food (similar to the "risk assessment" of Henson and Caswell, 1999), the likelihood that an individual will be exposed to the risk and the individual's susceptibility to the risk. It follows that the market demand functions for foods that pose a health risk depend on income and prices, and also on the factors that determine how individual characteristics such as risk perceptions and susceptibilities are distributed in the population. These factors are likely to include demographics (age, education) and policy (product labelling, availability of food safety information).

A methodology known as the "*psychometric paradigm*" has been used to investigate public perceptions of risk (Miles et al, 1999). The psychometric paradigm indicates that every hazard has its own unique pattern of psychologically determined characteristics that were related to perceptions of risk. (Sparks and Shepherd, 1994). It is found that

Fig. 3.5: Structure of Risk Analysis

Source: adapted from Henson and Caswell, 1999.



microbiological contamination, for example, is high on a “severity” dimension (which includes characteristics like “threatening widespread disastrous consequences” and “becoming more serious”) but low on an “unknown” dimension (which includes characteristics like “risk known to those exposed”, “risks known to science” and “accuracy of assessment”). Factor analysis indicates that there were two broad classifications of hazards: “dreaded” as opposed to “not dreaded” and “known” (by those exposed or by scientists) and those “not known”. For example, *Salmonella* is dreaded but known. These findings confirm that consumers feel that they, and science, have a high degree of knowledge about different types of food poisoning but there is a perception that the hazard has serious negative effects (Miles et al, 1999).

Within the psychometric paradigm, the location of the potential hazards within the factor space can give us information about how risks from different hazards might be viewed relative to each other, and the kind of perceived hazard characteristics that may influence public attitudes. Data derived from the psychometric paradigm might usefully inform policy with regard to regulation and would enable risk regulators to more accurately

predict public reaction to a proposed risk management strategy.

In accordance with the psychometric paradigm, other risk perception research has demonstrated that risks perceived as involuntary/ uncontrollable and unnatural are viewed as more threatening than those over which people perceive they have a choice, even if the probability of occurrence of the involuntary risk is very low. In psychological terms, the threat value of technological hazards is compounded by perceptions of unnaturalness and is increased by beliefs that the associated risks are poorly understood, both by science and the consumer. In general, there is an inverse relationship between perceptions of risk and benefit associated with technological hazards, e.g. if controversial processes such as genetic modification are involved in attempts to scientifically improve food safety, then consumer concerns about risk and ethics are likely to arise (Frewer et al, 1998, in Miles et al, 1999).

Henson and Caswell (1999) believe that for new and fast developing aspects of food safety such as the GMOs, for which the scientific understanding is insufficient to undertake a rigorous risk analysis, there is no agreement as to what governments should do. They suggest governments should adopt the "*precautionary principle*" where scientific evidence is not conclusive enough to determine an appropriate level of protection, but there is a perceived necessity to protect human health. However, the precautionary principle does not have such general acceptance in the case of food safety. The US, for example, generally rejects it as a rationale for food safety regulation. The EU, however, has argued that to maintain a high level of protection a precautionary approach can legitimately be applied where scientific evidence is incomplete or

unconvincing:

“...Precautionary approach (is)...a general customary rule of international law or at least a general principle of law, the essence of which is that it applies not only in the management of risk, but also in the assessment thereof...” (Henson and Caswell, 1999).

Less risk is not free. Producing less of it will require reducing something else. Sometimes, the cost of giving up a possibly hazardous product or activity would be quite minor, whereas at other times it would be substantial. (Senauer, 1993). This problem has led to the widespread use of the “*contingency valuation*” (willingness to pay, WTP) technique, in which a survey attempts to establish how much people would be willing to pay for different amounts of amenity provision or environmental protection. The results are aggregated and compared with the cost of provision, establishing an artificial market and an optimum amount of provision relative to cost (Henson, 1996; Ritson and Mai, 1998). While WTP literature should in principle provide the basis for benefit valuation in regulatory analysis, it is difficult to make use of it because it covers different consumer populations and measure willingness to pay for specific risks that are not generalisable. Another difficulty is the controversy surrounding contingency validation’s validity (Antle, 1999).

On the other hand, the “*cost-of-illness*” approach (COI) is based on the measurement of the medical costs of an illness plus the forgone market income due to lost work time. The COI approach is intuitively appealing to non-economists and empirically tractable, but, according to Antle (1999), it lacks a solid theoretical foundation and has obvious shortcomings. The COI approach is not equivalent to WTP, and empirical evidence shows that mean WTP in a sample does typically exceed mean COI for certain health

symptoms. Despite COI's shortcomings in valuation of health risk, it remains important for two reasons. First, it accounts for important details, such as the various consequences of disease that are possible. Second, medical costs are often not borne by the respondents in a WTP study and will need to be added to obtain an accurate estimate of the total amount that society is willing to pay (Antle, 1999).

In trying to establish an acceptable risk standard for the consumer, a "risk-benefit" legislation approach has been established. The justification for a risk-benefit standard is that pesticides and other chemicals are supposedly essential to ensuring an adequate food supply, and some residue is unavoidable (Archibald, 1988). In other words, the rationale behind legislation is that it leads to safer food at the point of sale either in shops or food service establishments. This has been identified as a long-term goal and the food industry, food scientists and governments having invested considerable time and effort in attempting to achieve it.

A risk-benefit approach focuses on balancing the risks and benefits to society from an activity or the use of a substance (Dardis, 1988). Some find this approach ethically unappealing or unacceptable, or even economically irrational and costly (Caswell and Mojduszka, 1996), since the major risks typically involve placing a monetary value on human health and life. In addition, the people bearing the greatest health risks are frequently different from those receiving the greatest benefits. For example, the greatest risk from the use of pesticides falls on agricultural labourers. However, consumers themselves seem to apply risk-benefit criteria when the benefits are obvious and substantial (Senauer et al, 1993).

3.4.3. The role of safety information

Safety is a quality attribute of foods (Antle, 1996; see Section 3.2). Food safety issues are related to the level of trust and confidence consumers have in the food industry and in the ability of the government regulatory process to protect them. Food safety is mostly a credence attribute, one which must be accepted on trust, since consumers cannot evaluate most hazards themselves. There has been erosion in the public confidence in both the food industry's and government's ability to ensure the safety of the food supply. This loss of public confidence makes it more difficult for government and industry to deal with specific food safety issues.

Some argue that the best approach to food safety issues is simply to provide the relevant labelling and information flow to consumers and allow them to make their own decisions concerning behaviour and products (Clancy, 1988; Caswell and Modjuszka, 1996). When US consumers were asked who they most rely upon to ensure the safety of the food they buy, 41 percent answered themselves, whereas only 20 percent said the government, 14 percent food manufacturers, 10 percent food retailers, and 8 percent consumer organisations (US Food Marketing Institute, 1989, in Senauer et al, 1993).

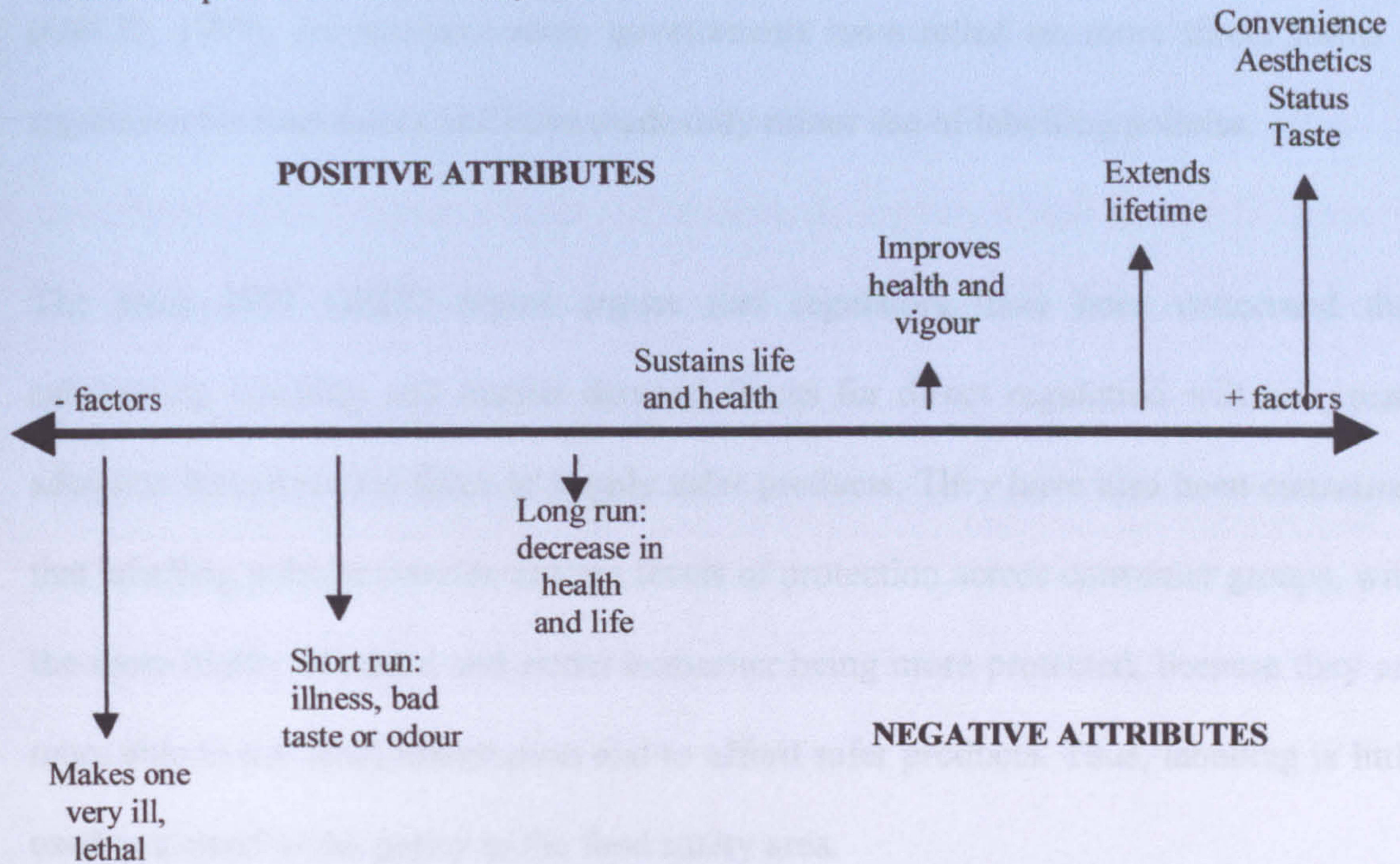
Relying on well-informed consumers to make their own food safety decisions is appealing for several reasons. For example, because individuals differ in their attitudes towards risk and their willingness to pay to reduce it, the imposition of a single level of safety by government regulation will be inefficient. It is more efficient to allow consumers to adjust their own behaviour and product purchases in terms of their own risk preferences (Dardis, 1988).

On the other hand, a purely informational approach would require large amounts of time for consumers to become adequately informed, likely more time than most people would be willing to commit. Since time is a limited resource with an opportunity cost, the information approach imposes large costs on consumers, which is also inefficient. The issue of information overload is relevant. Increased use of warning labels on products, for example, and similarly to nutritional labels (see Section 3.3.1), carries a danger of consumers no longer paying attention to them. On the other hand, after a point, simplified information that is easier to process can be obtained only at the cost of less precision. Unfortunately, the optimum level of simplicity and detail is likely to be different for different individuals. Survey results suggest that some consumers prefer simplified presentation of health information messages, while others prefer more detailed information content (Teisl et al, 1997).

Furthermore, the technical expertise necessary to evaluate many food safety issues is simply beyond the level of the typical consumer. If the experts and the regulators cannot decide what to do about a complex food safety issue, it is totally unreasonable to expect the average consumer to be able to make such a decision (Clansy, 1988). For these reasons and others, consumer information by itself has an important, yet limited role to play as a remedy for food safety concerns.

Figure 3.6 shows a continuum of food quality and safety factors from imminent, lethal hazards on the left, to desirable characteristics on the right; moving from left to right, the need for strict government regulation decreases and the possibility to “privatise” decisions through information increases (Kinsey, 1990). Consumers want two major

Fig. 3.6: Continuum of Food Quality and Safety Characteristics.
Source: adapted from Senauer et al., 1993.



types of safety information. One type describes the product, its ingredients, nutrient composition, chemicals used in its production, and the type of packaging material. The other type informs consumers of any potential risk associated with the product's consumption. Consumers would like to know the nature of the hazard and its probability. Current laws and regulations do a better, although far from complete, job of providing consumers with the descriptive information (Senauer et al, 1993).

3.4.3.1. Labelling and food safety

Labelling has not been a prominently used regulatory tool in the area of food safety nor has voluntary labelling of food safety attributes by companies been widespread. While terms such as "pasteurised" and "UHT" appear on many labels, consumers are often not fully aware of the their safety implications. An exception may be organic labelling, which, at least in part, relates to the food safety attribute of pesticide residue levels

(OECD, 1997). As we have seen, governments have relied on more direct forms of regulation for food safety and have made only minor use of labelling policies.

The same 1997 OECD report argues that regulators have been concerned that substituting labelling and market demand forces for direct regulation will not create adequate incentives for firms to supply safer products. They have also been concerned that labelling policies provide uneven levels of protection across consumer groups, with the more highly educated and richer consumer being more protected, because they are more able to use label information and to afford safer products. Thus, labelling is little used as a stand-alone policy in the food safety area.

Governments have basically pursued varying policies in relation to the use of labelling policy as a complement to other types of regulation for food safety. One complementary use of labelling is to differentiate safety levels above the minimum levels set by direct regulation. Policy design in this area can be challenging. For example, it raises the question of where in the distribution chain the safety level should be measured and labelled. A second complementary use of labelling in the food safety area is to educate consumers about safe use practices for the product. For example, even with food-borne pathogens being present, the food may be safe to eat if properly handled and cooked by the food service operator or consumer (OECD, 1997).

Overall, governments have taken a cautious approach to the use of labelling as a policy tool for food safety. Serious policy design questions exist related to the increased use of labelling for food safety attributes. Most difficult are identifying important attributes and designing formats that accurately communicate complex safety information to consumers. Because of this complexity and the common use of labelling as a complement to underlying food safety assurance systems, safety labelling may have a potential for creating significant non-tariff barriers to international trade. As markets for safety attributes develop, it is possible that only products with the highest safety level will be viable in the market.

3.4.3.2. Education

Food hygiene education, the other and preferred half of the strategy described by Todd (1989) as “the final line of defence” and a short-term goal, has received far less attention (Griffith et al, 1995). It is difficult to understand why this attitude prevails. Griffith (1995) suggests that one possible explanation for the low investment in consumer education may be the lack of a suitable means of assessing its effectiveness. In other words:

“...Control measures cost money and unless it is perceived to be cost effective, no serious effort will be made to implement them...”(Todd, 1989).

Ritson and Mai (1996) argue that “education” arises as a consequence of the divergence between real (consumer) and perceived (by scientists) risk. Should we devote resources to reducing real or perceived risks? Thinking here seems to change: “educating the public” is recognition that consumer concerns are much more complex than those perceived and measured by scientists.

Consumer education can deal with food preparation at home, which is normally exempt from legislation. Food hygiene education needs to be a research area adopted by behavioural and other scientists and it is more likely to be effective if introduced at an early age. The World Health Organisation in 1985 recommended the inclusion of food hygiene in all primary school curricula. Education efforts should also be focused on risk groups, as well as those preparing food for these groups. Examining the causes of food poisoning outbreaks can also help to identify where there is a need for better hygiene training of food manufacturers or restaurants. On the other hand, it has been pointed out that consumers can reduce the risk of foodborne illness with a few simple precautions, given that 60 percent of food poisoning is acquired in the home (Miles et al, 1999).

The financial cost of foodborne illness can be considerable and should not be neglected. In a study examining the costs of reported cases of salmonellosis in England and Wales, it was found that over half of the total cost of illness was to the wider economy, resulting from lost production due to sickness absence from work. Also, more than a third of the cost were to the public sector, due to the costs of healthcare and local authority investigation of cases (Miles et al, 1999). We have seen that Buzby and Frenzen (1999) claim that seven food-borne pathogens found in animal products cost the USA an estimated \$6.6 to \$37.2 billion (1995 prices) each year. These figures cover only a small range of the organisms and sources of food poisoning; if the figures were extrapolated to include all cases of foodborne illness, the total costs to the individual countries' economies would be greater.

In the final analysis, the amount of risk society will tolerate is decided by policy processes (Archibald, 1988). Major food safety decisions will remain political because costs and benefits cannot be measured precisely and inevitably entail value judgements. A public policy decision is typically the result of compromise that reflects the impact of various special interest groups in relation to their political influence. The protection of consumers is but one factor influencing policy decisions concerning food safety issues. To achieve a healthy diet the concerned consumer needs not only to understand nutrition but also the relevance of other food and health issues such as salmonella food poisoning, BSE, additives, colourings, pesticides, contaminants etc. All of these issues mean that food manufacturers have to address health seriously and this was illustrated by the fact that in the first half of the 1980s, 40 percent of all new food products launched in the UK made one or more health claims. Food manufacturers now offer low-fat foods, low-salt products, salt substitutes, low alcohol drinks, as well as spreads high in polyunsaturates, artificial sweeteners, sugar-free products, and products with dietary fibre added (Anderson et al, 1995).

Many of us seem to have the perception that we face more risks and live in a more dangerous world than in the past. Such anxieties may be partially attributable to the complex, technologically advanced nature of modern society. It may be worth reminding ourselves, though, that most of us can expect to live longer, healthier lives than ever before. Although there is certainly room for improvement, the existing laws and regulatory system are perhaps given too little credit for the level of safety the food supply already offers.

3.5. Conclusion of Chapter 3

During the 90's, there have been four major influences on the food chain: changing technology, changing patterns of consumption, the global dynamics of production and distribution, and regulation and government intervention. Of these influences, one of the most important driving forces has been the consumer. Understanding the consumer is one of the keys to a better understanding of the prospects for the food and agriculture industry (Taylor, 1996, in Baines and Davis, 1997). On the other hand, increasing affluence in many areas including Europe, North America and South Eastern Asia has led to the market place becoming both more competitive and more global. At the same time there have been moves to reduce barriers to trade by harmonisation of many legal requirements including those for food. These efforts have tended to develop over on a regional basis with the European Union representing one major example.

Linked to this increased competition, during the last 10 years, food quality issues have become of greater importance. In today's highly competitive markets, product quality has become a critical factor for business success. The battle for the world market looks increasingly fierce and it seems likely that only business that are fully committed to quality will survive.

The first part of the present Chapter attempted to present the wide concept of quality from the consumer point of view. After suggesting the multidimensionality of quality, it offered a brief review of quality definitions. It also distinguished between objective and subjective or perceived quality, described how consumers incorporate quality in their behavioural process and presented a variety of models which distinguish between

expected and experienced quality.

The health effects of a high-sugar, high-fat diet, low on fibre-rich carbohydrates, fruit and vegetables, were being questioned since the late 70's. The increase in chronic diseases and their epidemiological links with diet led several leading scientists to address problems of malnutrition relating to over-eating rather than under-eating. In the USA, the McGovern report (Senate Committee on Nutrition and Human Needs, 1977) identified specific nutrition targets for the general population. Six years later in the UK the National Advisory Committee on Nutrition Education (Health Education Council, 1983) and documents such as Healthy People 2000 (1992) and The Health and the Nation (1992), produced a discussion within which specific nutrition targets and goals for the population were presented (Steptoe et al, 1995). Such reports helped initiate the change in public attitude towards food and health from a minority fetish into a mass public concern. It is clear that the majority of international committees now agree on the need to promote a diet high in fibre-rich carbohydrates, fruits and vegetables and low in fat (especially saturated fat), sugar, salt, and alcohol. (Anderson et al, 1995).

On the other hand, consumers insist that high standards of hygiene and safety are applied when food is manufactured and retailed. These concerns have been clearly demonstrated by the response to the outbreaks of E. Coli, BSE and Dioxins in Europe. In both developed and developing countries food safety assurance systems are generally becoming more stringent, in response to enhanced, both real and perceived, food safety problems. This is occurring through changes in both public (for example direct regulation and product liability) and private (self and third party certification) quality

control systems. In addition, the relationship between public and private systems is shifting and the process is being influenced by the implementation of the Sanitary and Phytosanitary Sanctions (SPS) Agreement under the World Trade Organisation (Henson and Caswell, 1999).

The second part of the present Chapter attempted to offer more insights into the matter of health-related food choice, moving at a two-fold level, that of food healthiness and food safety. The difficulties of consumers to perceive food nutrition value have been noted at the beginning, together with the role of education and nutrition labels on the understanding process. Different consumer health behaviour models have been described, coupled with a presentation of the most recent health-related EU consumer studies. The importance of food health claims and the relevant regulation have also been analysed. The Chapter continued with the related concept of food safety, the views of it held by different interested parts and its role as a public policy matter. It proceeded with an analysis of the risk concept as perceived by consumers and the role of information and labels in the food safety problem. Finally, the neglected solution of food safety education closed Chapter 3.

CHAPTER 4

RESEARCH QUESTIONS, AIMS AND OBJECTIVES

4.1. The Environment Surrounding the Quality-Conscious Consumer

Food has a symbolic character in the social and cultural traditions of many European societies. Yet, in recent years, serious doubts about the actual quality of food have become widespread. Following Swinbank (1992, in Gilg and Battershill, 1998), quality can be evaluated in terms of: a) the intrinsic value of the food in terms of taste, its wholesomeness etc. and b) whether it is healthy to eat or not and its conditions of production. Consumers may be concerned with one or both of these attributes. For the growing number of consumers concerned about both they are usually to be found in food produced with traditional ways.

Thus, one finds across Europe a steadily broadening “niche” of quality markets derived from particular traditional farming systems, most notably organic food, labelled regional foods (PDO/PGI), or even from quality managed food systems, such as ISO-series or HACCP-labelled products. The Commission found the overall EU quality market in 1990 to be 7.5 percent of food expenditure, and predicted a 50 percent growth rate by 2000, including an eight-fold increase in the organic market (Commission for the European Communities, 1991). Bouquery (1994, in Trognon et al, 1999) estimated that the market value of “typical” quality foods (most identified with a territorial identity) was 7.5 percent of the EU market (EURO45billion) and estimated an increase of 1 to 2billion EURO per year. At the end of 1997, 63 percent of the agricultural food collective marks in the 15 EU member states were approved under an EU quality scheme, with a large prevalence of PDOs among them (Peri and

Gaeta, 1999, Figures 4.1 to 4.3). In some EU countries consumer interest for quality food has been rising since the mid 80's. All these should not be perceived as mere fashion phenomenon, but as a deep trend (Trognon et al, 1999).

By a fortunate coincidence, most quality foods are produced on traditional farms, in traditional ways, and in traditional landscapes. Therefore, the growing demand for quality food could be used to sustain the traditional way of life and landscapes of Europe's marginal farming areas, help local producers and small firms to survive and expand, and reduce the need for public subsidies to keep farming and producing in these marginal areas going (Gilg and Battershill, 1998).

There are several reasons why consumers are becoming more concerned about food quality, as we have seen in Chapter 3. Yet, more subtle changes have also occurred. An ample supply of cheap food has been achieved through the industrialisation of agriculture, including a dramatic intensification and specialisation of production. The externalities of intensive food production have been high, in particular in terms of environmental over-exploitation and degradation. Environmental issues have helped create a sector of consumers motivated by quality concerns and willing to support initiatives supplying food products whose quality represents an alternative to that of the intensive or industrial model (MacKenzie, 1990). Other related issues, for example extravagant patterns of food transportation, the loss of gene pools and seasonality, over-packing, and in particular food health and hygiene problems, have further undermined consumer faith in the function of the conventional agri-food industry and increased the demand for alternative, quality food produce (Henson, 1995; Shine et al, 1997).

Fig. 4.1: Number of Collective Quality Marks in EU Countries at the End of 1997 (total: 1861)
Source: adapted from Peri and Gaeta, 1999.

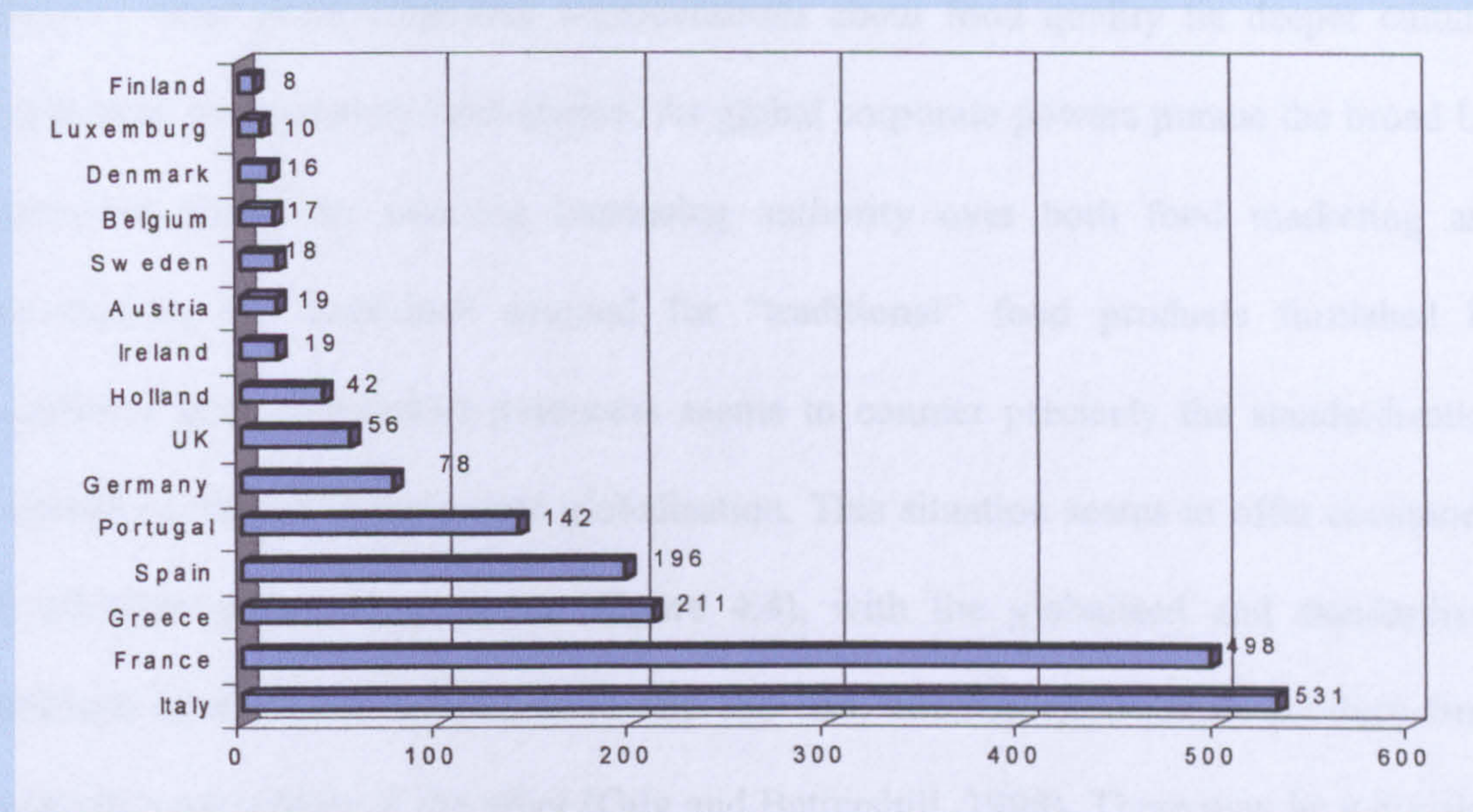


Fig. 4.2: Distribution of Collective Quality Marks in Europe by Promoting Organisation
Source: adapted from Peri and Gaeta, 1999.

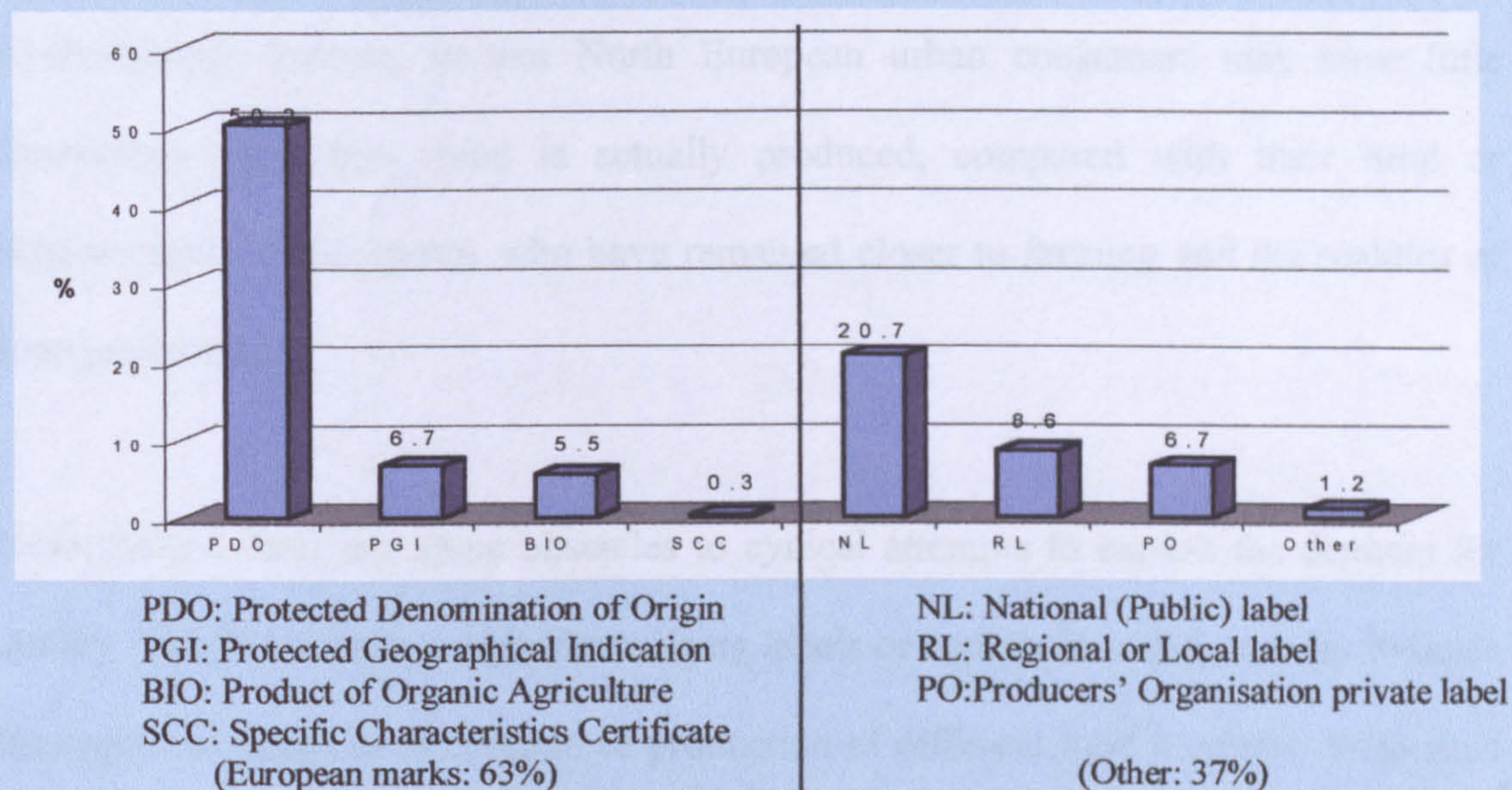
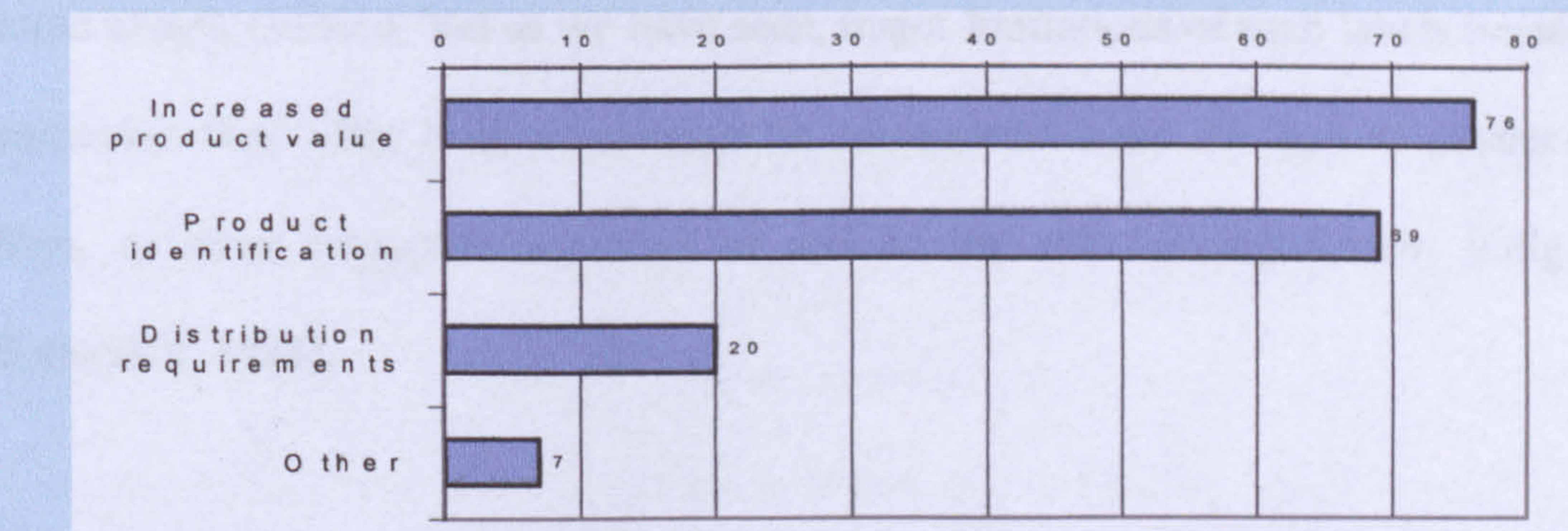


Fig. 4.3: "What Does your Mark Guarantee?" (404 interviews, multiple answers)
Source: adapted from Peri and Gaeta, 1999.



Beyond these more conscious considerations about food quality lie deeper cultural influences on consumer food choice. As global corporate powers pursue the broad US agri-food model by exerting increasing authority over both food marketing and production, the consumer demand for “traditional” food products furnished by extensive and independent producers seems to counter precisely the standardisation offered by industrialisation and globalisation. This situation seems to offer consumers a tripartite agri-food spectrum (Figure 4.4), with the globalised and standardised produce of intensive agriculture at one end and, alternatively, quality produce from extensive agriculture at the other (Gilg and Battershill, 1998). There may be a division here between urban and rural consumers and between those in Northern and Mediterranean Europe, in that North European urban consumers may have little knowledge about how food is actually produced, compared with their rural or Mediterranean counterparts, who have remained closer to farming and the realities of food production.

Nevertheless, there are some obstacles to cynical attempts to exploit the demand for quality. The EU is increasingly formalising labels or appellations that broadly indicate the region of origin or the system of production of different food products. With such labels harmonised and regulated, the opportunities for direct misrepresentation are, to some extent, reduced. Yet as we have seen, major limitations of such labels remain. In particular, they offer little information to consumers about the type of producer or farm, or other important activities in and around the farming system (Gilg and Battershill, 1998).

The attitudinal factor of *confidence through official quality marks* is extremely influential, according to Trognon et al. (1999), with the expectation to *pay more for quality assured products*. Acebron and Dopico (2000) argue that most of the studies about quality have found that price and quality are positively related: the greater the price, the greater the expected quality.

Within the perception factors, *differentiation from other similar products* is also influential. It appears that quality consumers prefer the visual confirmation of quality through official certification, which in turn influences the perception of product attributes and the comparison with other products. Similarly, Acebron and Dopico (2000) claim that brands or designations of origin exert a positive influence on the expected quality.

Hence, Trognon et al. (1999) conclude that, for a variety of EU countries (Greece included), the typical quality consumer: a) seldom perceives quality food as being much more expensive than average; b) thinks the origin of the product is important; c) thinks quality food supports local or regional (small) business; d) expects to pay extra for it and thinks it is worth the extra cost; e) claims to have knowledge about official quality marks.

On the other hand, Tse (1999) claims that a market niche to be reckoned with in the world of marketing nowadays is the health and safety-conscious consumer segment. Consumers are willing to pay for improved food product safety incorporated into the wider quality concept. He further suggests that perceived safety is affected by a number of product-related factors such as *price* (higher prices are associated with a

higher level of product safety), *product and brand reputation, country-of-origin perceptions, and type of information source.*

Shine et al. (1997a), questioning the effectiveness of nutrition labelling, add that *education* is the key to the improvement of an individual's health, in line with the findings by Nayga Jr. (1999) for the US and Wandell (1995) and Abbot (1997) for the UK consumers. The factors who differentiate those who read nutrition and health labels from those who do not also include *gender* (with females having completed tertiary education being the typical health information seeker). *Age, socio-economic status, marital status, children in the household and household size*, they argue to also affect the health conscious behaviour. Health-conscious consumers generally perceive nutritional content as an important attribute of a food product (see Section 3.3.4).

Overall, Shine et al. (1997b) report that quality (referring to intrinsic factors other than taste) is found to be the most important food attribute for the contemporary average consumer, nutritional value and safety are deemed second, followed by taste and price, and with convenience and brand being of less importance. And Henson and Northen (2000), analysing consumer assessment of beef safety, conclude that for a variety of EU countries (Germany, Ireland, Italy, Spain, Sweden, UK), among the most important indicators of safety are extrinsic quality cues such as, mainly, the country-of-origin and, then, the organic label.

However, whilst quality labels may be important influences on the ability to assess food safety, in many cases experience is as important. This reflects the fact that ability to judge the quality and healthiness of food at the point of purchase is a skill learned over time. The implication is that, in certain contexts, brand and quality labels may play a secondary role in the quality assessment process. More experienced consumers might be expected to make less use of quality labels. This suggests that these consumers may be less influenced by the quality assurance and marketing initiatives (Henson and Northen, 2000).

4.2. Research Problem Definition, Aims and Objectives

Based on the above, the present work performs from a managerial point of view a segmentation task following a quality differentiation approach. The “research problem” can be defined, then, as: *Greek food firms, especially the small-scaled ones among them, should produce competitive brands of higher added value by applying quality differentiation strategies, such as the adoption of quality and health assurance schemes. These firms should target a domestic, non price-sensitive segment, willing to pay price-premiums, constituted by demanding, sophisticated, quality and health-conscious, young, educated, above-average income, urban consumers. Their needs and wants can be anticipated and satisfied by means of tailored marketing mixes offered and based on the implementation of these quality differentiation strategies.*

In accordance with the above-defined problem, research’s main objective is to *help the Greek food SMEs and other crucial links of the supply chain by suggesting possible alternative routes of competitiveness through the targeting of the neglected, domestic, quality and health-conscious segment. This can be achieved through the identification*

of the existing demand for perceived quality and health olive oil brands (real or hypothetical) and the market shares they will acquire in the market.

In addition, the work will attempt *to clarify the profile of the domestic olive oil market and to reliably describe its existing segments in terms of a combination of product quality attributes*, with obvious effects on the implementation of more effective marketing strategies (positioning, advertising etc.). In this way, not only the food firms will find alternative competitive routes, but also *specific consumer segments such as that of the quality and health-conscious would be satisfied through the added value they will enjoy*. This constitutes the essence of market orientation, which can further lead to competitiveness through the creation of brand loyalty.

Overall, the work *will attempt to enhance Greek olive oil agricultural research, which has been mainly focussed on the raw material's improvement, ignoring the market effectiveness of the Greek olive oil brands*. A huge loss of profit due to its massive bulk exports and the corresponding non-existent added value is being going on for years. Thus, though simple in its perception, a strong incentive to improve agricultural income in the long run will be provided. Finally, the effort to *improve the overall quality of the Greek olive oil brands* will be supported and *the need for a quality differentiation strategy* will be highlighted.

From an *academic point of view*, the objective of the present work is to follow a distinctive methodological approach by combining two of the most powerful marketing research techniques: the Means-end qualitative methodology embodied into the wider “personal values” research theories; and the quantitative Conjoint multivariate data

analysis method, based on the findings of the qualitative phase. This approach is innovative, given that it offers the advantage of mutual utilisation of the positive aspects of the two methods and, at the same time, exclusion of their weaknesses. The Means-end phase is important for the validity of the Conjoint phase and vice versa. This *advantageous mutuality* can also be highlighted based on the fact that the order of the two phases could easily be reversed, with the quantitative preceding the qualitative (Cahill, 1996).

The aims of the study, the means by which its objectives will be achieved, are developed at both vertical (depth) and horizontal levels: Vertically, our aim is *to accomplish a benefit segmentation task, applying a Means-end technique with the aid of the Laddering methodology* (c.f. Chapter 5). A pre-specified convenience, stratified, homogeneous sample is used, of younger, more educated, higher income level, urban consumers, members of small families. Based on the social trends described in Chapter 2, the study assumes that the specific consumer type has greater potential of being quality and health conscious and willing to pay price-premiums for quality-differentiated brands, according to 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.

Then, the work attempts to discover the purchasing motives of the above-defined consumer group and reveal how it connects different quality attributes to its values by means of the benefits it enjoys from their use (c.f. Chapter 6). This is further translated into cognitive structures and, by proving that the specific sample constitutes a

homogeneous consumer group, it is shown that these structures have purchase behaviour predictive validity.

Horizontally, after developing the motivational profile of the above-defined consumer type and assessing the predictive validity of the method, our aim is, *with the accomplishment of a Conjoint Analysis task*, to test the vertical results across a four times bigger, random, similarly stratified, urban sample, close to the population of Athens, check the validity of the results and translate them into a corresponding marketing strategy. Olive oil extrinsic quality attributes most strongly linked to the laddering sample's personal values are used as starting points for the development of the Conjoint profiles, bridging the two research dimensions (c.f. Figure 4.5 and Table 4.1). Special emphasis will be given to the development and evaluation of different quality marketing mixes and the analysis of the importance consumers attach to a series of extrinsic quality cues. The identification of different consumer segments in terms of this importance and the development of their socio-demographic and behavioural profile will be also emphasised. And the measurement of demand for quality through the calculation of potential larger market shares across segments of different quality (hypothetical) brands in comparison to the common (real) will be the final output of the research.

Essentially, the central idea of the two-dimensional nature of work resembles to the qualitative method's application suggested by Cahill (1996): use qualitative after quantitative research, as plausibility test of the latter's results. The laddering method could easily follow the conjoint analysis phase without distorting the coherence of the methodology, in order to validate the finding of the quality and health-conscious

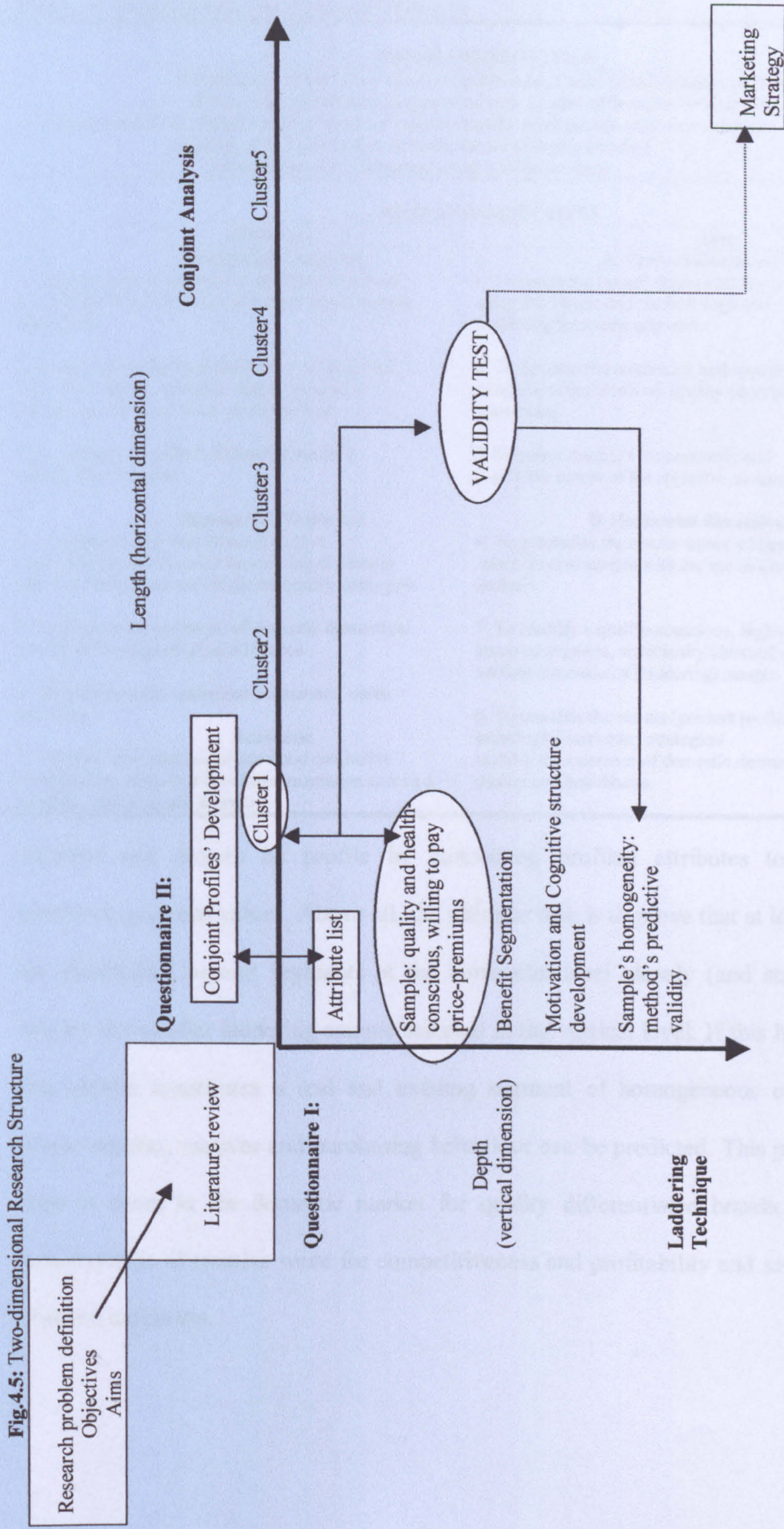


Table 4.1: Problem Definition, Aims and Objectives.

PROBLEM DEFINITION	
Examination of the Greek olive oil (small-scale, family-based) industry problem from a managerial/marketing point of view (quality differentiation approach): <i>Greek olive oil SMEs should produce brands of superior quality (with quality assurance schemes applied), target and exploit domestic niches of highly involved, quality-conscious consumers as an alternative route</i>	
AIMS AND OBJECTIVES	
Objectives	Aims
Managerial, Long-run	A. Vertical dimension: depth
1. To contribute to the survival and profitability of the branded olive oil SMEs and other crucial supply chain links	1. To conduct a benefit segmentation research using the Means-end methodology and Laddering interview approach
2. To reduce the observed deficiency of the Greek olive oil research, which is mainly focused of improving first-level olive oil production	2. To develop the motivation and cognitive structure of the involved, quality-conscious consumers
3. To enhance the effort of Greek olive oil's quality improvement.	3. To prove sample's homogeneity and predictive power of the cognitive structure
Managerial, Short-run	B. Horizontal dimension: length
4. To improve domestic olive oil market segmentation and describe the existing clusters in terms of attitude towards different quality strategies	4. To generalise the results across a bigger and more diverse sample with the use of Conjoint analysis
5. To identify the existence of domestic demand for quality-differentiated olive oil brands	5. To identify a quality-conscious, highly involved segment, statistically identical with the vertical dimension's (laddering) sample
6. To satisfy quality conscious consumers' needs and wants	6. To translate the results (product profiles) into corresponding meaningful marketing strategies/ identify the existence of domestic demand for quality and healthiness.
Academic	
7. Combine powerful quantitative and qualitative techniques to perform a benefit-segmentation task in a mutually advantageous manner	

segment and deepen its profile by connecting profiled attributes to segment members' personal values. Above all, the ultimate task is to prove that at least one of the identified Conjoint segments at the horizontal level closely (and statistically) mirrors the smaller laddering sample selected at the vertical level. If this holds, then this sample constitutes a real and existing segment of homogeneous consumers, whose number, motives and purchasing behaviour can be predicted. This proves that there is room in the domestic market for quality differentiated brands, fact that constitutes an alternative route for competitiveness and profitability and satisfies our problem definition.

CHAPTER 5

MEANS-END CHAINS AND LADDERING INTERVIEWING TECHNIQUE

5.1. Introduction

Man or, more accurately, woman, is probably more closely observed and persistently measured in his/her role of a food consumer than in any other aspect of daily life. There is always someone somewhere who wants to know what he/she eats, when, where and in what combinations, where and when he/she buys the food, and, especially, why he/she chooses one foodstuff or brand to another. The sponsors of these inquiries are either governments and other relatively disinterested public bodies or firms and organisations with a clearly acknowledged profit motivation.

5.1.1. Marketing research: variation and controversies

According to the American Marketing Association definition:

“...Marketing research is the function that links an organisation to its market through information. This information is used to identify and define marketing opportunities and problems; generate, refine and evaluate marketing actions; monitor marketing performance and improve understanding of marketing as a process...Marketing research specifies the information required to address these issues; designs the method for collecting information; manages and implements the data collection process; interprets the results and communicates their findings and implications...” (Gofton, 1997)

Marketing research may be required to describe a market (gathering and presenting data which are “market facts”), to diagnose (“what if” the marketing mix is changed), to identify the factors which are relevant to a particular state of a market or consumers’ decision-making, or to predict outcomes of various marketing mix combinations.

According to Marketing News (1994, in Zimmerman and Szenberg, 2000), effective global marketing begins with strong marketing research. World market research expenditures continue to grow. A total of 10.4 billion EURO was spent on market research in 1997 (or nearly USD 12 billion at the 1997 exchange rate). Of all marketing research expenditures in Europe (the largest market for research), 9 percent was devoted to only qualitative research. Applying this percentage to all world-wide research yields a market of approximately USD1 billion for world-wide qualitative research (Zimmerman and Szenberg, 2000).

A number of consumer researchers have produced empirical studies –variously labelled “naturalistic” (Belk et al., 1988), “phenomenological” (Thompson et al., 1990), “semiotic” (Holbrook and Grayson, 1986)- intellectual justification (Holbrook, 1987; Thompson et al., 1989), and some practical guidelines for conducting research (Belk et al., 1989; McCracken, 1988).

Much of the controversy in consumer research takes place at the level of *epistemology* –particularly the issue of how knowledge products can and should be evaluated. At the heart of this debate is how readers can have faith in conclusions, inferences, and results, what controls are employed over them, and how researchers can adequately present them to others. In answer to these questions consumer researchers have generally focused on data collection procedures and post-inferential processes to establish trustworthiness (Spiggle, 1994). A different agenda includes *interpretative, empirical research* that studies consumer experience and behaviour through participant observation (Belk et al., 1988; Belk et al., 1989; Hill and Stamey, 1990; Hill, 1991; Celsi et al., 1993) or from data gathered in depth interviews

(Hirschman, 1992). These researchers are interested in understanding and interpreting the meanings and experiences of their informants.

It is important for all researchers to have a clear understanding of the most appropriate philosophical position from which to derive a suitable research method. There is an absence of consensus about which position is best to help a novice researcher make simple choices in deriving methods to conduct the work. Nevertheless, it is essential to have a clear understanding of the philosophical basis for the research strategy selected and this helps to provide the researcher with clarification, focus and consistency of research design. According to Hines (2000), researchers often take two diametrically opposing philosophical stances (*positivism* and *phenomenology*) and they may be regarded as two poles on a methodological continuum (Table 5.1).

The *inferential processes* that connect the end product of research to its data, Spiggle (1994) argues that result from the process of “analysis” and “interpretation” that investigators use to generate conclusions, insights, connections, conceptual frameworks, and theories.

“Analysis” breaks down or divides some complex whole into its constituent parts (from the Greek, “analyein”: to break up). Through analytical operations researchers dissect, reduce, sort, and reconstitute data. Researchers use analysis to manipulate data. In “interpretation”, one asks what something means, or grasps the sense of it. “Interpretation” can refer to the higher-order, more abstract conceptual layers of meaning constructed from or imposed on data (Spiggle, 1994). Interpretation can also

Table 5.1: The Positivist and Phenomenological Paradigms
Source: adapted from Hines, 2000.

	Positivist paradigm	Phenomenological paradigm
Basic beliefs	The world is external, objective Observer is independent Science is value-free	The world is socially constructed, subjective Observer is part of what is being observed Science is driven by human interests
Researcher should	Focus on facts Look for causality and fundamental laws Reduce phenomenon to simplest elements Formulate hypotheses and test them (deductive reasoning)	Focus on meanings Try to understand what is happening Look at the totality of each situation Develop ideas through induction from data
Preferred methods include:	Operationalising concepts so they can be measured Use large samples	Using multiple methods to establish different views of phenomenon Small samples investigated in depth or over time

refer to assessing the intentions and inferences of those one is studying (e.g. Holbrook and O'Shaughnessy, 1988), making sense of experience and behaviour, and seeing or understanding some phenomenon in its own terms, grasping its essence (e.g. interpreting a cultural form). Investigators use both analysis and interpretation, employing them in a linear or circular way, in a more or less systematic fashion, with more or less conscious deliberation, and with more emphasis on one than the other. Many different combinations of integrating these processes have resulted in high-quality and innovative work in these various studies (Spiggle, 1994).

The attempts to answer the question of *why* consumers choose particular foods are most commonly predicated on the assumption that attitudes condition behaviour, so that to measure attitude is to measure how people are likely to behave and thus to uncover the reasons for this behaviour. On the definition of attitude commonly used in marketing as a "predisposition to behave" (Lesser et al., 1986), what is being attempted is to measure the factors, cognitive and emotive, which influence a particular class of behaviour.

A more satisfactory presentation of the analysis starts from the definition of the product as a bundle of perceived want satisfactions, physical and psychological. This, which has long been a commonplace of marketing analysis, was introduced to economists by Lancaster (1971, in Senauer et al., 1993) in his “characteristics of goods” theory, in which he argued that consumers do not buy products but the attributes of those products. In fact, it is not actual attributes in any objective sense but the consumers’ perception of those attributes in relation to satisfying his or her own perceived wants. The object is to measure these perceptions. The standard approach is through an exploratory qualitative stage (focus groups discussions or unstructured intensive interviews with individuals) to establish the range of perceptions, followed by a quantifying stage to measure both the importance of each dimension of perception and the rating of each food or brand on that dimension.

In any case, when examining the methods employed in the different types of research the question arises of whether those methods are as powerful as they could be and whether they are usually applied as effectively as they should be. Disregarding odd mistakes and such straightforward matters as whether the data have been honestly collected and intelligently analysed, there are two conceptual reasons why market research may not be as good as it should be. These are that the decisions that depend on the research are not sufficiently specified, and that the research design does not adequately model the real-world situation (Lesser et al., 1986).

5.2. Qualitative research

Strauss and Corbin (1990), the supporters of the “grounded” qualitative theory (for more see Carson and Coviello, 1996), indicating the usefulness of qualitative data in interpreting quantitative findings, identify the tasks of qualitative research as:

“...to uncover and understand what lies behind any phenomenon about which little is yet known.... to gain novel and fresh slants on things about which quite a bit is already known....Qualitative methods can give the intricate details of phenomena that are difficult to convey with quantitative methods...”(Strauss and Corbin, 1990)

Qualitative methods are:

“...an array of interpretative techniques which seek to describe, decode, translate and otherwise come to terms with the meanings, not the frequency, of certain more or less naturally occurring phenomena in the social world...” (Van Maanen, 1983, in Gilmore and Carson, 1996)

Or, qualitative research is:

“...any kind of research that produces findings not arrived at by means of statistical procedures or other means of quantification. This could be research about people’s lives, stories, behaviour, organisational functioning, social movements, and most interestingly, inter-actional relationships...” (Strauss and Corbin, 1990)

Studies employing qualitative data analysis are very common in marketing research.

Rust and Cooil (1992) report that 46 percent of the marketing journal articles on reliability measures involved qualitative judgements. Some of the most commonly used qualitative research methods include focus group discussions, in-depth interview surveys, observations, ethnographies and conversational analysis. The use of one or more of these different methods or a combination of a number of these will allow data to be gathered on verbal occurrences, visually recorded occurrences, written reports and documentation, and researcher experiential data within a specific context (Gilmore and Carson, 1996).

Jarratt (1996) argues that critics of empirical research focused their criticisms on the deductive nature of the quantitative process, and the preoccupation that researchers supporting quantitative process have with statistical analysis to the detriment of quality data production (Table 5.2). This narrow approach forces researchers to work within theory, rather than challenge or extend it, as it is the case with the inductive, explanatory, less structured qualitative methods (Jarratt, 1996; Carson and Coviello, 1996). These methods are being implemented in areas such as: the investigation of food choice in the domestic situation (Gregory, 1995), the illumination of the social and cultural contexts structuring the attitudes and meanings that influence food choice (Milburn, 1995), and the assessment and generation of discussions with key decision makers in organisations and with industry experts (Wright, 1996).

Thus, qualitative interviews should encourage the respondent to describe the phenomena under investigation. Qualitative research methods are more intrusive and less structured than quantitative research techniques and, thus, are appropriate when the research is exploratory in nature, when the area of examination is unfamiliar to the researcher and when the research is clinical. In all of these situations the interviewer must gain insight into a specific topic area (Jarratt, 1996; Gilmore and Carson, 1996). A characteristic of qualitative research that offers many advantages is its *holistic* dimension. The object of taking a holistic outlook is to gain a comprehensive and complete picture of the whole context in which the phenomena of interest occur. It is an attempt to describe and understand as much as possible about the whole situation of interest (Gilmore and Carson, 1996).

Table 5.2: Summary of Differences in Qualitative and Quantitative Research
Source: adapted from Jarratt, 1996.

Dimensions	Quantitative Paradigm	Qualitative Paradigm
Purpose	<i>Prediction and control</i>	<i>Understanding</i>
Reliability	<i>Stable-reality is made up of facts that do not change</i>	<i>Dynamic-reality changes with changes in peoples' perceptions</i>
Viewpoint	<i>Outsider-reality is what quantifiable data indicate it to be</i>	<i>Insider-reality is what people perceive it to be</i>
Values	<i>Value free-values can be controlled</i>	<i>Value bound-values will impact on understanding the phenomena</i>
Focus	<i>Particularistic-defined by variables studied</i>	<i>Holistic</i>
Orientation	<i>Verification</i>	<i>Discovery</i>
Data	<i>Objective</i>	<i>Subjective</i>
Instrumentation	<i>Non-human</i>	<i>Human</i>
Conditions	<i>Controlled</i>	<i>Naturalistic</i>
Results	<i>Reliable</i>	<i>Valid-the focus is on design and procedures to gain real, rich and deep data</i>

5.2.1. Qualitative research inferential processes

5.2.1.1. Analysis

Qualitative data consists of:

“...Detailed descriptions of events, situations and interactions between people and things providing depth and detail. Such data are symbolic, contextually embedded, cryptic and reflexive, standing for nothing so much as their readiness or stubbornness to yield to a meaningful interpretation and response...” (Patton, 1980, in Gilmore and Carson, 1996)

Spiggle (1994) claims that, according to the “analysis” idea mentioned in the previous section, the different qualitative data manipulation operations, which are part of the analytical process, include categorisation, abstraction, comparison, dimensionalization, integration, iteration, and refutation. Neither are they discrete activities nor do they occur in an ordered, sequential fashion. They are not stages in the research process but are operations that researchers use in the various stages of qualitative analysis (McCracken, 1988).

“Categorisation” is the process of classifying or labelling units of data. Qualitative researchers categorise data during the process of *coding* (Straus, 1987; Strauss and Corbin, 1990). The essence of categorisation is identifying a unit of data (e.g. a passage of text of any length) as belonging to, representing, or being an example of some more general phenomenon. It involves naming, or giving labels to instances of the phenomenon found in the data (McCracken, 1988, uses the term *observations*). The investigator categorises in the initial stages of analysis and continues throughout. The other operations depend on some initial identification of categories. However, investigators consider initial categories as provisional, permitting the flexible use of subsequent interpretation.

“Abstraction” builds on categorisation. Spiggle (1994) claims that it surpasses categorisation in that it collapses more empirically grounded categories into higher-order conceptual constructs. Abstraction goes beyond the identification of patterns in the data. It groups previously identified categories into more general, conceptual classes. Abstraction includes both incorporating more concrete categories into fewer more general ones (Miles and Huberman, 1984) and recognising that a unit of data is an empirical indicator of a more general construct of interest (Spiggle, 1994). The theoretical significance of a construct springs from its relationship to other constructs or its connection to a broader gestalt of an individual’s experiences.

“Comparison” explores differences and similarities across incidents within the data currently collected and provides guidelines for collecting additional data. Comparison begins in the initial stages of analysis as one categorises and abstracts the data. While categorising, the investigator notes general similarities in the specific empirical

instances in the data and labels them as representing the same category. Initially this process occurs somewhat implicitly and unsystematically, while one explores the data. As analysis proceeds, the investigator may conduct comparisons in a systematic and methodical way (Strauss, 1987; McCracken, 1988; Straus and Corbin, 1990; Spiggle, 1994).

“Dimensionalization” involves identifying properties of categories and constructs (Strauss, 1987; Strauss and Corbin, 1990; Spiggle, 1994). Once a category has been identified, the analyst may explore its attributes or characteristics along dimensions. The properties represent conceptual dimensions that vary empirically in the data across the incidents depicting the construct. The identification of properties and their dimensions permits the researcher to explore and define relationships across categories and constructs.

“Integration” is, according to Strauss (1987), Strauss and Corbin (1990) and Spiggle (1994), to build theory that is grounded on the data. It requires the mapping of relationships between conceptual elements. These relations may be hierarchical or ungraded. The construction of theory takes the analyst beyond the identification of themes, or even of propositions:

“...Producing complex, conceptually woven, integrated theory, which is discovered and formulated developmentally in close conjunction with intensive analysis of data...” (Strauss, 1987).

Categorisation, abstraction, comparison, and integration are the fundamental, basic analytical operations. They enable the construction of a coherent conceptual framework. Dimensionalization aids in abstraction and comparison, stimulating the development of concepts and the specification of their relationships. The two other

operations, iteration and refutation, are operational tactics that promote scientific warrant by engaging the processes of deduction, and verification (Spiggle, 1994).

“Iteration” involves moving through data collection and analysis in such a way that preceding operations shape subsequent ones. Iteration implies that investigators do not perform specific research stages in a sequential manner but move back and forth between stages. Consumer researchers make frequent references to analysis as an iterative process (e.g. Hill and Stamey, 1990). Iteration allows the investigator several advantages. It permits the development of provisional categories, constructs, and conceptual connections for subsequent exploration; it allows a more unified interpretation of data by encouraging the back and forth between part and whole.

“Refutation” involves deliberately subjecting one’s emerging inferences –categories, constructs, propositions, or conceptual framework- to empirical scrutiny (Spiggle, 1994). Strauss and Corbin (1990) recommended adopting a general stance of scepticism towards one’s developing ideas. Throughout the research process, the analyst should constantly subject the emerging analysis to the test of data, reformulating and modifying the analysis, and specifying conditions. Three different specific techniques of refutation have been used in consumer research: negative case analysis, purposive sampling and testing by context.

A number of consumer researchers report using *negative case analysis* (e.g. Hill, 1991), the intentional seeking out of specific cases that disconfirm one’s emerging analysis. In her study of addiction, Hirschman (1992) purposively sampled six drug users who were not self-labelled addicts to compare their experiences with those of

admitted addicts. Belk et al., (1989) tested their emerging interpretation by examining it sequentially in different contexts using succeeding contexts as empirical checks on ideas developed in preceding ones.

5.2.1.2. Interpretation

Analytical procedures manipulate data; interpretation makes sense of data through more abstract conceptualisations. We can describe data manipulation as a series of operations; not so for interpretation. The intuitive, subjective, particular nature of interpretation renders it difficult to model or present in a linear way. In interpretation the investigator does not engage a set of operations:

“The interpreter translates some distant, less familiar, abstract, indirectly apprehended object, experience or domain into one that is near, more familiar, concrete, directly apprehended” (Spiggle, 1994).

As investigators, we attempt to *understand* our informants by grasping a concept, idea, or experience in their terms. We may grasp their meanings and experiences by translating between their “text” (e.g. a passage in an interview) –the target, distant domain- and our own experience, knowledge and ideas –the source, near domain. Interpretation of others’ experiences is inherently subjective. No two investigators have the same store of experience archives. Working in interpretative groups and studying close to the data minimise the possibility of idiosyncratic readings (Thompson et al., 1989).

Many investigators *represent* the meanings and experiences of informants as forming coherent patterns. They do so by aggregating them into larger wholes, identifying unified themes by which individuals built their world and more generalised patterns that characterise their sample of informants. Thus, here interpretation results in

recognition of resemblance in meanings across contexts, situations, projects, and individuals (Wallendorf and Brucks, 1993).

5.2.1.3. Evaluation

Spiggle (1994) and Wallendorf and Belk (1989) argue that we can specify criteria for evaluating qualitative research using the analytical and interpretative styles: usefulness, innovation, integration, resonance and adequacy.

First, with “usefulness”, we might use two tests to assess a study on this issue: “do investigators make connections between their representations and the central issues, problems, and debates in the field?” And, “are the constructs, ideas, and framework applicable, transferable to other research settings, contexts, and domains?” Then, with “innovation”, we ask whether do the constructs, ideas, and framework provide new and creative ways of looking at experience and behaviour and if they transform researcher’s conceptualisation.

“Integration” asks if the representation achieve a synthesis, an emergent integration, a framework that goes beyond the identification of common themes in the data.

“Resonance” puts the question if the representation enrich our understandings about identical, similar and even dissimilar phenomena. Finally, “adequacy” asks if there is a sufficient basis presented for assessing how grounded in the data the representation is. Even if we assume that many interpretations of a text are possible, can we admit that some have greater validity than others?

5.2.2. Integration of qualitative and quantitative methods

Prominent researchers (e.g. Strauss and Corbin, 1990) indicate the benefits of *combining qualitative and quantitative techniques* within a research method, not only for developing or extending theory and testing its applications, but also to achieve between-method triangulation through enhancing the quantitative output with rich, one-on-one interview data.

For example, Jick (1983) supports the notion that qualitative and quantitative methods should be viewed as complementary rather than as rival camps, but claims those who support “mixed methods” fail to provide adequate guidelines on how this should be accomplished. Moreover, he describes the integration and blending of methods (*triangulation*) on a continuum of simple to complex designs. He provides the principal behind the triangulation concept’s implementation:

“...In all the various triangulation designs one basic assumption is buried. The effectiveness of triangulation rests on the premise that the weakness in each single method will be compensated by the counter-balancing strengths of another...” (Jick, 1983)

The research method described by Jick (1983) combined multiple viewpoints and approaches gathered through direct and indirect reports, observation, qualitative surveys and semi-structured or non-directive, probing, qualitative interviews. He found that the quantitative results were used largely to supplement the qualitative data, rather than the reverse.

In-depth interviews, being one approach to qualitative research, may be either non-directive or semi-structured (Jarratt, 1996). In *non-directive* interviews it is important that a relaxed, sympathetic relationship develops between the interviewer and the interviewee, and that probing does not cause bias in responses. The interviewer must be able to guide the session back to the topic being explored when the interviewee digresses or exploration of a particular area becomes fruitless. “Laddering” is an example of a technique used in non-directive interviews (c.f. Section 5.3.2.). On the other hand, a semi-structured approach to in-depth interviews allows the researcher to cover a specific list of topic areas, with the time allocated to each topic area being left to the discretion of the interviewer. The open structure ensures that unexpected facts or attitudes can be easily explored.

In a research conducted by Jarratt (1996), the use of the two qualitative interviewing techniques has been explored as part of an early data generation process within an integrated research design. In addition, the contribution of the data produced through the two interview techniques to the overall quantitative research design and analysis has been examined. Data from the semi-structured and the non-directive interviews were used to develop a questionnaire for a quantitative study on shopping and out-shopping behaviour (projects 1 and 2 respectively).

It is evident that there was some consistency in the information gathered through the two interviewing techniques. However, three key aspects emerging through the non-directive, experiential approach of laddering provided an in-depth dimension to the data not found through the semi-structured approach. Those three areas were a) The broader definition of customer service; b) the desire to see the local business survive;

and c) the need to address the issue of knowledge isolation. These important aspects were, therefore, not available for inclusion within the questionnaire design in project 1, not for interpretation of the quantitative data, but contributed to the quantitative design and interpretation in project 2. Therefore, Jarratt (1996) recommended non-directive interviews using a laddering technique to be incorporated into any research design that requires qualitative input. These non-directive interviews, together with information gathered from the literature, form the basis of further qualitative assessment using a structured interview prior to quantitative assessment. The weaknesses of the data inherent within each of the three methods (semi-structured interviews, non-directed interviews and quantitative analysis, Table 5.3) can be mutually resolved, stimulating us to better define and analyse problems in research.

5.3. Means-end Chains Theory and Laddering Technique

Means-end chains are hierarchical cognitive structures that model the basis for personal relevance by relating consumers' product knowledge to their self-knowledge. The lower levels of a means-end hierarchy contain relatively concrete knowledge about *product attributes* and their perceived linkages to the *functional consequences* of product use. These functional consequences may be associated with more abstract knowledge about the *psychological and social consequences* of product use. Finally, some means-end chains may connect these psychosocial consequences to abstract self-knowledge about the consumer's life goals and *values*. Consumers see products as more self-relevant or involving to the extent that their product knowledge about attributes and functional consequences is connected, via means-end structures, to their self-knowledge about desirable psychosocial consequences and values.

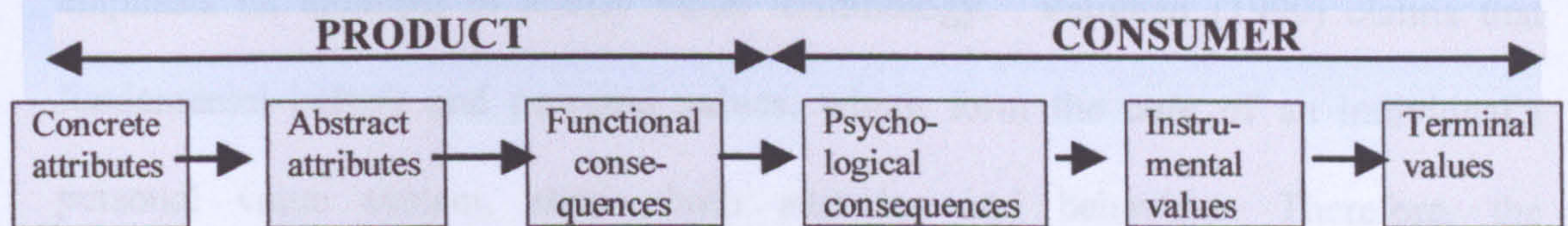
Table 5.3: Weaknesses of Different Qualitative and Quantitative Techniques
Source: adapted from Jarratt, 1996.

Semi-structured qualitative technique	Non-directive "laddering" qualitative technique	Quantitative analysis
<i>Provides breadth of information, confirming and extending current knowledge and assists in the development of constructs for further testing, BUT without putting the researcher in touch with real emotions and detailed understanding of experiences by consumers</i>	<i>Provides in-depth understanding of experiences, BUT not necessarily touching on the broad range of issues that may have an influencing role in the consumer decision process and behaviour</i>	<i>Providing measurements on how each of the constructs might influence specific shopper segments, without providing the insight for understanding the detail of problems experienced by customers nor how those problems might be rectified</i>

Each of the key constructs (attributes-consequences-values) can be further dichotomised to allow a more detailed analysis of the consumer knowledge structures: *concrete attributes*, represent tangible, physical characteristics of the product; *abstract attributes*, represent intangible, subjective characteristics; *functional consequences* are directly experienced, tangible outcomes of product use; *psychological consequences* are more personal and less tangible outcomes; *instrumental values* are the cognitive representations of preferred modes of behaviour; and *terminal values* represent preferred end-states. Walker and Olson (1991) have suggested that in this six-level means-end chain, the three lower levels comprise the product-knowledge of consumers, while the three higher levels comprise consumers' self-knowledge (Figure 5.1).

As a model of personal relevance, the means-end approach implies that marketing strategies should create and/or reinforce connections between product attributes (the means) and self-relevant consequences and values (the ends). To develop effective marketing strategies that build personal relevance, marketing managers need to understand the factors that underlie consumers' perceptions of importance and self-

Figure 5.1: Six-level Means-end Chains
Source: adapted from Walker and Olson, 1991



relevance (Olson, 1995). A basic task for marketing managers is to develop an overall strategy in the form of a competitive positioning for their product. The means-end approach treats this strategic position as a distinctive means-end chain that establishes the basis for the perceived personal relevance of the product. Once the positioning strategy is determined, all marketing decisions about price, product features, channels of distribution, sales promotions and advertising should contribute toward creating and reinforcing this means-end strategy.

5.3.1. Personal value research

Personal value research in marketing has the last decade received a substantial amount of attention from both academics and practitioners. This more in-depth profiling of the consumer and his/her relationship to products offer potential not only for understanding the “cognitive” positioning of current products but also permit the development of new product positioning strategies (Reynolds and Gutman, 1988), since it is one of the most powerful ways to understand and touch consumers (Pitts et al, 1991; Pitts and Woodside, 1991; Durgee et al, 1996; Goldsmith et al, 1997).

The concept of values is somewhat elusive. Values can mean different things to different people, but, as a concept, “values” have always held a certain fascination, as is evidenced by the plethora of literature in this field (see, for example, Pitts et al, 1991; Durgee et al, 1996; Erdem et al, 1999). Philosophers often placed major

emphasis on attempts to clarify value terminology. Vaughan (1990) claims that fundamental beliefs and personal values, which form the core of an individual's personal value system, shape both attitudes and behaviour. Therefore, the measurement of personal values is one way in which social values can be tracked.

One of the most influential contributors to the realm of personal values is Milton Rokeach. He categorised them into two types: *instrumental values*, which pertain to modes of conduct that are personally and socially preferable, and *terminal values*, which relate to some end-state of existence that is personally and socially worth striving toward. Adults, according to Rokeach (in Vaughan, 1990), possess many thousands of attitudes toward specific objects and situations, but only several dozen instrumental values and perhaps only a handful of terminal values (Pitts et al, 1991).

Personal values can be seen as a kind of self-guidance system, which serves an individual when confronted with a choice among alternatives. Whether the choices are between products, services, stores or shopping centres, a reference to the personal value system would be made, thus enabling the consumer to make a choice and consider consequences of that choice and their relative importance. Values, then, are part of an individual's life and thought, are usually taken for granted, unless they become challenged, and are formed through socialisation. It is felt, however, that the assumption concerning the antecedents of human values being traced to culture or society (Pitts et al, 1996), is not strictly accurate. Rather, it would seem that a reverse argument can be made, in that values and value systems are also the building blocks upon which culture and society are founded (Vaughan, 1990).

Marketing practitioners have slowly come to realise that an understanding of basic personal values might allow them to make actionable predictions with respect to consumer behaviour and reaction to marketing efforts. To uncover, measure, and leverage key life and product wants, marketers have used many approaches: VALS, Laddering, AIO, motivation research, Rokeach Value Inventory, LOV, and ethnographic research (see for applications Pitts and Woodside, 1991; Durgee et al, 1996; Goldsmith et al, 1997; Erdem et al, 1999 etc.). These methods have greatly enhanced our ability to understand and represent target buyers. All these applications can be classified into two theoretically grounded perspectives, “macro” representing sociology and “micro” representing psychology (Reynolds, 1985; Aurifeille and Valette-Florence, 1992).

The macro approach, more quantitative in nature, refers to standard survey research methodology combined with a classification scheme to categorise respondents into predetermined clusters or groups. Products and their positioning strategies are then directed to appeal to these general target groups. Reynolds (1985) notes that these rather general classifications fail to provide an understanding, specifically, of how the concrete aspects of the product fit into consumers’ life. As such, the macro survey approach only gives part of the answer, namely the overall value orientation of target segments within the marketplace. Missing are the linkages between the product and the personally relevant role they have in the life of the consumer.

The more psychological perspective offered by the micro approach, based upon Means-end theory, specifically focuses on the linkages between the attributes that exist in products, the consequences for the consumer provided by the attributes, and the personal values the consequences reinforce.

5.3.1.1. Conceptual model for means-end chains and laddering

Several early attempts have been made to provide a theoretical and conceptual structure connecting consumers' values to their behaviour (e.g. Vinson et al., 1977; Young and Feigin, 1975). Part of these attempts can be subsumed under the title of a means-end chain. Means are objects (products) or activities in which people engage. Ends are valued states of being such as happiness, security, and accomplishment. A means-end chain is a model that seeks to explain how a product or service selection facilitates the achievement of desired end states. Such a model consists of elements that represent the major consumer processes that link values to behaviour.

According to Gutman (1982), the model is based on two fundamental assumptions about consumer behaviour: (a) that values defined here as desirable end-states of existence play a dominant role in guiding choice patterns; and (b) that people cope with the tremendous diversity of products that are potential satisfiers of their values by grouping them into sets or classes so as to reduce the complexity of choice. This suggests that, in addition to the product-class type of product categories, consumers are capable of creating categories based on product functions.

In addition to these two assumptions about consumers' behaviour that are essential to the model, there are two other assumptions of a more general nature: *all consumer actions have consequences* (although all consumers would not agree that the same actions in the same situations produce the same consequences), and that *consumers learn to associate particular consequences with particular situations* (Gutman, 1982).

“Consequences” may be defined as any result (physiological or psychological) accruing directly or indirectly to the consumer from his/her behaviour. Consequences can be desirable or undesirable. There is a literature in marketing dealing with desirable consequences called benefits (e.g. Haley, 1968; Myers, 1976), which are the advantages consumers enjoy from the consumption of products. Benefits differ from attributes in that people receive benefits whereas products have attributes.

Consequences may be physiological in nature (satisfying hunger, thirst, or other need), psychological (self-esteem, improved outlook for the future) or sociological (enhanced status, group membership). Direct consequences come directly from the thing consumed or from the act of consumption. Indirect consequences can occur when other people react favourably or unfavourably to us because of our consumption behaviour. The central aspect of the model is that consumers choose actions that produce desired consequences and minimise undesired ones (Gutman, 1982). It is suggested that values provide consequences with positive or negative valences. Therefore, the *values-consequences linkage* is one of the critical linkages in the model. To the extent that values are ordered in importance, they also give consequences importance respectively.

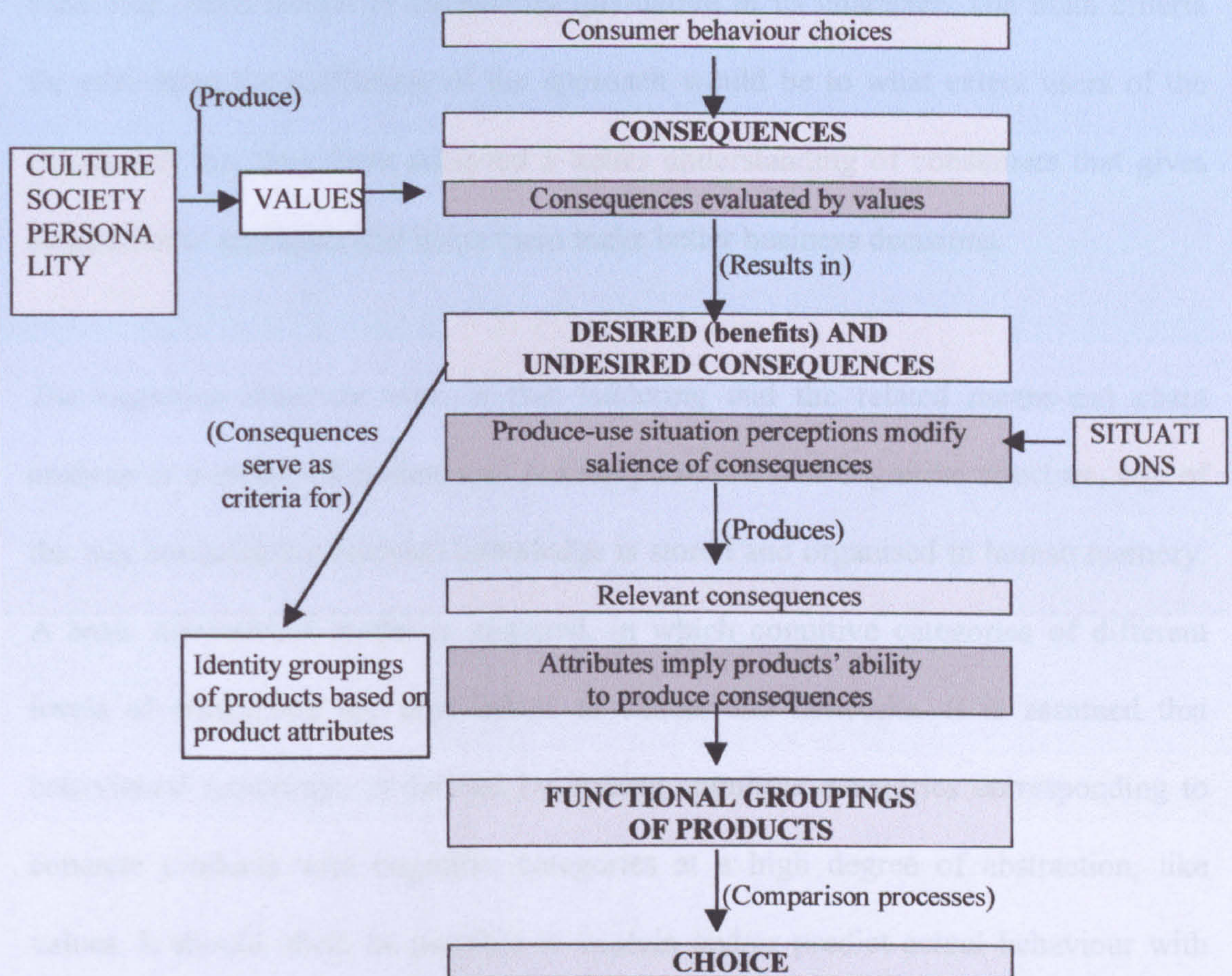
An act of consumption must occur in order for the desired consequences to be realised. Thus, a choice among alternative products has to be made. In order to make this choice, the consumer has to learn which products have attributes that will produce these desired consequences. Therefore, the second important *linkage* in the model is that between *consequences and product attributes*.

To summarise, the model may be conceptualised as shown in Figure 5.2. The method of studying how consumers organise their thinking about specific product alternatives has been named “categorisation process”. It is hypothesised that consumers create arrays of products (categories) that will be instrumental in helping them achieve their desired consequences, which in turn move consumers toward valued end-states. If the connection can be made, marketing will be in a better position to understand how personal values influence everyday consumer choices (Gutman, 1982). The marketplace is full of many more objects than individuals have values. Therefore, “ends” are few, but “means” are many (Vinson et al., 1977).

It is essential for consumers to reduce the complexity inherent in the multitude of alternatives with which they are faced. Although grouping is determined by the object’s properties, the choice of properties to be focused on is influenced by values. Consumers group products in different categories depending on which features they emphasise and which they ignore. This means that values are translated from their context at the more abstract or inclusive levels of the chain to the less abstract, where products are categorised into classes. Consumers are more likely to be in agreement on what physical characteristics products possess than at high levels of abstraction or inclusiveness where categories are based on the function of value-producing

Fig. 5.2: Conceptual Model for Means-end Chains

Source: adapted from Gutman, 1982.



consequences. This categorisation process takes place at each level of the means-end chains as categories of greater inclusiveness are formed at higher and higher levels of the chain (according to Gutman, 1982, inclusiveness refers to the degree of similarity among objects in a category).

According to Grunert and Grunert (1995), the Means-end Interviewing technique of laddering can be regarded from two different points of view: the motivational and the cognitive structure view. The *motivational view* is that laddering is concerned with obtaining insight into consumer's buying motives –e.g. in the way basic motives are linked to shopping behaviour. Laddering can give valuable insights by prompting consumers to reflect on their buying motives in a way not typical for daily shopping

behaviour. Such insight is necessarily qualitative in its character. The main criteria for evaluating the usefulness of the approach would be to what extent users of the results feel that they have achieved a better understanding of consumers that gives inspiration to managers and helps them make better business decisions.

The cognitive structure view is that laddering and the related means-end chain analysis is a model of consumers' consumption-relevant cognitive structure, e.g. of the way consumption-relevant knowledge is stored and organised in human memory. A basic hierarchical model is assumed, in which cognitive categories of different levels of abstraction are inter-linked in chains and networks. It is assumed that behavioural motivation is derived by linking cognitive categories corresponding to concrete products with cognitive categories at a high degree of abstraction, like values. It should, then, be possible to explain and/or predict actual behaviour with regard to these concrete objects by specifying how, in a given situation, parts of the cognitive structure are retrieved and used to guide behaviour.

5.3.1.2. Models of cognitive structure and product quality

Cognitive mapping is a qualitative technique designed to identify cause and effect as well as to explain causal links (Hines, 2000). Grunert (1995) claims that cognitive structures can, in general, contain two types of knowledge: declarative and procedural. *Declarative* is factual knowledge about things, actions, consequences etc., which can usually be verbalised easily and which, therefore, is also easily transmitted between individuals. Means-end chains refer to declarative knowledge: product characteristics, consequences of product use, and values are all declarative knowledge. *Procedural* knowledge refers to skills, usually perceptual, and is obtained

by training, it is more difficult to verbalise, and is not easily transmitted between individuals, e.g. quality perception.

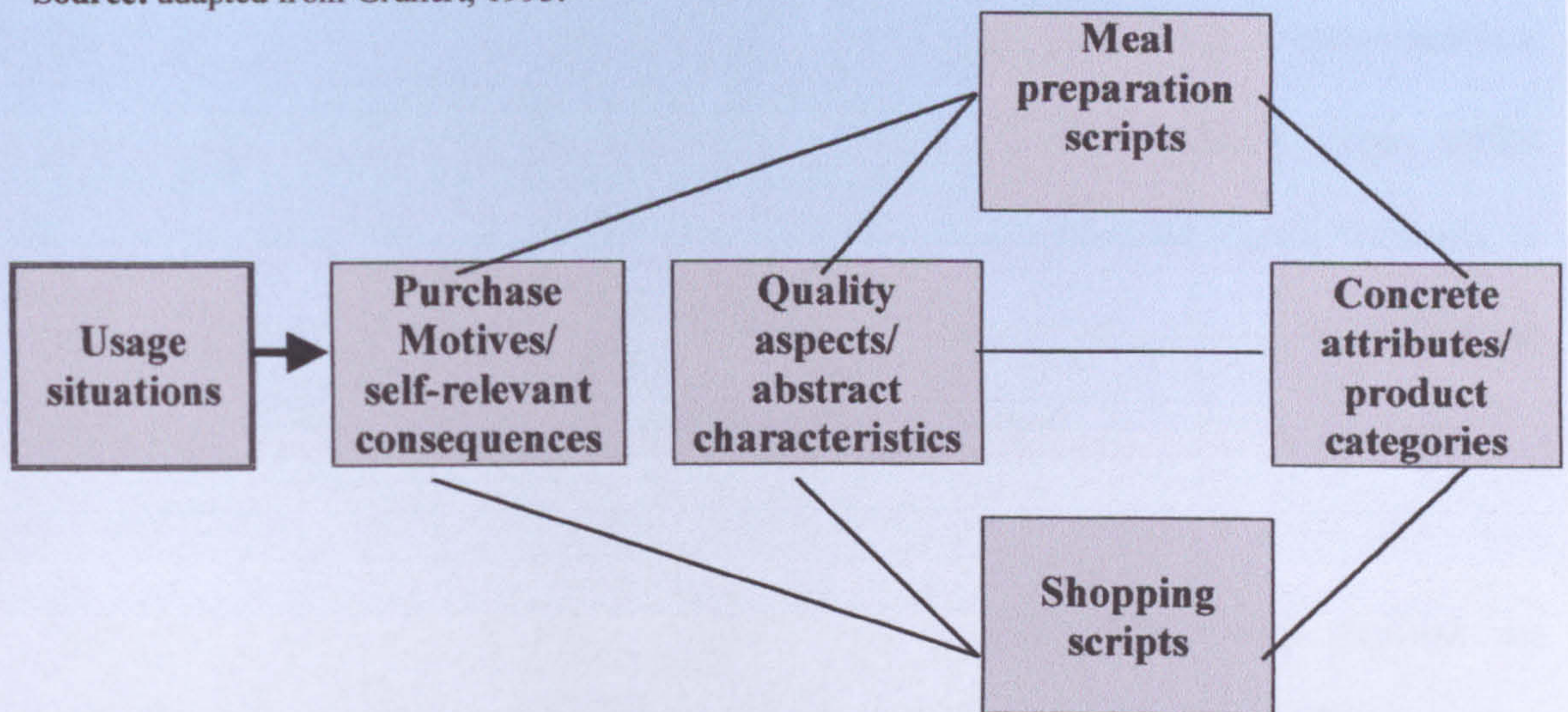
Two types of declarative knowledge (scripts) seem relevant: knowledge about how to use food products in meals, and knowledge about the purchase of food products. Consumers will usually expect that the attainment of self-relevant consequences of food products will depend not only on the product's characteristics, but also on how and where the product was bought and how it is used in the preparation of meals.

When we add the notion that the importance of various types of self-relevant consequences will depend upon the consumption situation (e.g. saving time is more important on weekdays and perfecting your cooking skills is more important on weekends), we can have the model shown in Figure 5.3. This is a model of how consumers mentally link the perception of food product characteristics to self-relevant consequences. Its components are, in means-end terminology, concrete product characteristics, abstract product characteristics, and self-relevant consequences, augmented by consumption situations, meal preparation and shopping.

Self-relevant consequences can also be termed *buying motives*, because it is these consequences, not the product itself, the consumer is interested in. Moreover, abstract product characteristics are called *quality aspects*. Subjective quality, thereby, becomes consumers' belief of the extent to which a product possesses higher-order characteristics, which facilitate the attainment of buying motives. Grunert (1995) suggests the whole model to be called *quality perception model*.

Fig. 5.3: Grunert's Quality Perception Cognitive Model

Source: adapted from Grunert, 1995.



5.3.2. Laddering technique

Laddering refers to an in-depth, one-on-one interviewing technique used to develop an understanding of how consumers translate the attributes of products into meaningful associations with respect to self, following means-end theory. Laddering involves a tailored interviewing format using primarily a series of directed probes, typified by the “*Why is this important to you?*” question, with the express goal of determining sets of linkages between the key conceptual elements across the range of attributes (A), consequences (C), and values (V). Distinctions at the different levels of abstraction, represented by the A-C-Vs, provide more personally relevant ways in which products are grouped and categorised.

The analysis of laddering data, such as this across respondents, first involves summarising the key elements by standard content-analysis procedures, while bearing in mind the levels of abstraction (A-C-V) conceptualisation (categorisation and abstraction phases, see Section 5.2.1.1). Then a *summary table* can be constructed representing the number of connections between the elements (integration phase).

From this summary table dominant connections can be graphically represented in a tree diagram, a *hierarchical value map* (HVM). This type of cognitive map, unlike those output from traditional factor analysis or multidimensional scaling methods, is structural in nature and represents the linkages across levels of abstraction without reference to specific brands (Reynolds and Gutman, 1988).

Interpretation of this type of qualitative, in-depth information permits an understanding of consumers' underlying personal motivations with respect to a given product class in that the underlying reasons why an attribute or a consequence is important can be uncovered (Reynolds and Gutman, 1988). Each unique pathway from an attribute to a value represents a possible perceptual orientation with respect to viewing the product category. Herein lies the opportunity to differentiate a specific brand, not by focussing on a product attribute but rather by communicating how it delivers higher level consequences. This understanding serves as a basis for the development of segmentation and advertising strategies (Olson and Reynolds, 1983).

5.3.2.1. Laddering interviewing environment, problems and remedies

Since the introduction of the laddering methodology into the consumer research domain 20 years ago, numerous applications, both applied and academic, have been executed: Gutman, 1982; Olson and Reynolds, 1983; Gutman, 1984; Reynolds and Gutman, 1984; Gutman and Alden, 1985; Reynolds and Jamieson, 1985; Reynolds and Gutman, 1988; Reynolds and Craddock, 1988; Zeithaml, 1988; Jolly et al, 1988; Gutman, 1991; Reynolds and Rochon, 1991; Walker and Olson, 1991; Valette-Florence and Rapacchi, 1991; Pitts et al, 1991; Aurifeille, J. and Valette-Florence, P, 1992; Baker and Knox, 1994; Mulvey et al, 1994; Gutman et al, 1995; Grunert, 1995;

Grunert and Grunert, 1995; Grunert et al, 1995; Pieters et al., 1995; Claeys et al., 1995; Gengler et al., 1995; Reynolds et al., 1995; Reynolds and Whitlark, 1995; Aurifeille and Valette-Florence, 1995; Grunert and Sorensen, 1996; Audenaert and Steenkamp, 1997; Valli, 1997; Nielsen et al., 1998; Valette-Florence et al, 1998; and Botschen et al., 1999. The primary application has been to develop a cognitive value map indicating the interrelation of the attributes, consequences, and personal values for a given product or service category.

Unfortunately, the term laddering in the marketing community has very early become a somewhat generic term representing merely a qualitative, in-depth interviewing process (Morgan, 1984), without reference to either its theoretical underpinnings or the rather critical distinction between the interview process and analytical methods used to derive meaning from the resulting data (Durgee, 1985). Given the value of this type of in-depth understanding of the consumer, in particular the potential with respect to the specification of more appropriate segmentation and positioning strategies, a comprehensive documentation of this research approach is needed.

An interviewing environment must be created, such that the respondents are not threatened and are thus willing to be introspective and look inside themselves for the underlying motivations behind their perceptions of a given product class. This process can be enhanced by suggesting in the introductory comments that there are no right or wrong answers, thus relaxing the respondent, and further reinforcing the notion that the entire purpose of the interview is simply to understand the ways in which the respondent sees this particular product. Put simply, the respondent is positioned as the expert. The goal of the questioning is to understand the way in

which the respondent sees the world, where the world is the product domain comprised of relevant actors, behaviours and contexts (Reynolds and Gutman, 1988).

Importantly, interviewers must position themselves as merely trained facilitators of this discovery process. In addition, due to the rather personal nature of the probing process, Reynolds and Gutman (1988) advise to create a slight sense of vulnerability on the part of the interviewer. This can be accomplished by initially stating that many of the questions may seem somewhat obvious and possibly even stupid, associating this predicament with the interviewing process, which requires the interviewer to follow certain specific guidelines.

Obviously, as with every qualitative research, the interviewer must maintain control of the interview, which is somewhat more difficult in this context due to the more abstract concepts that are the focus of the discussion. This can be best accomplished by minimising the response options, in essence being as direct as possible with the questioning, while still following what appears to be an “unstructured” format. By continually asking the “why is this important to you” question, the interviewer reinforces the perception of being genuinely interested and thus tends to command the respect and control of the dialogue (Reynolds and Gutman, 1988).

By creating a sense of involvement and caring in the interview, the interviewer is able to get below the respondent’s surface reasons and rationalisations to discover the more fundamentals underlying its perceptions and behaviour. Understanding the respondent involves putting aside all internal references and biases while putting oneself in the respondent’s place. Reynolds and Gutman (1988) claim that rapport

established before the actual in-depth probing as well as maintained during the course of the interview is critical. The interviewer must instil confidence in the respondent so the opinions expressed are perceived as simply being recorded rather than judged. Finally, as in all interview situations, since the respondents will react directly in accordance with the interviewer's reactions, it is vital to make the respondent feel at ease. One should carefully avoid potentially antagonistic or aggressive actions. Moreover, to avoid any non-verbal cues, such as approval, disapproval, surprise, hostility, or implying rejection. Put simply, the interviewer should be perceived as a very interested yet neutral recorder of the information.

The two most common problems of laddering and their recommended solution can be found in Table 5.4. The most commonly used probing techniques, according to Reynolds and Gutman (1988), are illustrated in Table 5.5. The central idea is to keep the focus of the discussion on the person rather than on the product or service. This is not an easy task because typically at some point the respondent realises that the product seems to have disappeared from the conversation. Typically, two or three ladders can be obtained from roughly three-fourths of the respondents interviewed.

Approximately one-fourth of the respondents, depending on the level of involvement in the product class, cannot go beyond one ladder. The time required from distinctions to final ladders varies substantially, of course, but 60 to 75 minutes represents a typical standard (Reynolds and Gutman, 1988).

Table 5.4: Basic Problems of Laddering
Source: adapted from Reynolds and Gutman, 1988.

PROBLEM	SOLUTION RECOMMENDED
<i>The respondent really does not "know" the answer</i>	(a) Ask what would happen if the attribute or consequence was not delivered (Negative laddering): the "non-conscious" reason is then discovered in relating the absence of a construct to what must be delivered if that negative is to be avoided. (b) Rephrase the question in a situational context: an answer is in this way typically "discovered" due to the ability to deal with specific circumstances.
<i>Issues that become too sensitive</i>	(a) Moving the conversation into a third person format: creating a role playing exercise. (b) The interviewer to reveal a relevant personal fact (typically fabricated) about himself: it makes the respondent feel less inhibited by comparison (c) Make a note of the problem area and come back to the issue when other relevant information is uncovered later in the interview.

Table 5.5. Most Commonly Used Laddering Techniques
Source: adapted from Reynolds and Gutman, 1988.

TECHNIQUE	APPLICATION
<i>1. Evoking the situational context.</i>	Respondents are providing associations while thinking of a realistic occasion in which they would use the product.
<i>2. Postulating the absence of an object or a state of being.</i>	Respondents are encouraged to consider what it would be like to lack an object or to not feel a certain way.
<i>3. Negative Laddering.</i>	Inquiring into the reasons why respondents do not do certain things or do not want to feel certain ways (using the device of making the opposite assumption).
<i>4. Age-regression contrast probe.</i>	Moving respondents backward in time encourages respondents to think critically about and be able to verbalise their feelings and behaviour.
<i>5. Third person probe.</i>	Respondents are asked how others they know feel in similar circumstances.
<i>6. Redirecting techniques: silence, communication check</i>	Silence on the part of the interviewer can be used to make the respondent keep trying to look for more appropriate or definitive answer. A communication check simply refers to repeating back what the respondent has said and asking for clarification and more precise expression of the concept

5.3.2.2. Laddering method description¹

Initially the attributes of the product, used by the consumer to judge, evaluate and compare, are elicited via several available techniques (e.g. exploratory qualitative research, use of techniques like repertory grid, or triadic sorting etc.). Then, these attributes serve as a starting point for the depth interview in which the consumer is continuously probed with some form of the question “why is that important to you?” This type of questioning forces the consumer up on the ladder of abstractness, until the value level is reached or the consumer indicates that he is unable to provide any reason for his answer at the previous level.

The initial task of the analysis is to content-analyse all of the elements from the ladders. The goal of content analysis is to reduce the bulk of the raw data by finding common patterns of meaning. The first step is to record the entire set of ladders across respondents on a separate coding form (categorisation – comparison phases). Having inspected them for completeness and having developed an overall sense of the types of elements elicited, the next step is to develop a set of summary codes (abstraction phase) that reflect everything that was mentioned and summarise the responses and words that “go together”. If the coding is too broad, too much meaning is lost. One of the keys to producing consistency in this stage is reliability checks across multiple coders. The goal at this level of the analysis is to focus on meanings central to the purpose of the study, remembering that it is the relationships between the elements that are the focus of interest, not the elements themselves.

¹ For more details on Sections 5.3.2.2 and 5.3.2.3 it is suggested to advise the following references: Olson and Reynolds, 1983; Reynolds and Jamieson, 1985; Reynolds and Gutman, 1988; Reynolds and Craddock, 1988; Gutman, 1991; Valette-Florence and Rapacchi, 1991; Baker and Knox, 1994; Grunert, 1995; Grunert and Grunert, 1995; Pieters et al., 1995; Reynolds et al., 1995; Aurifeille and Valette-Florence, 1995; Gengler et al., 1995; Audenaert and Steenkamp, 1997; Nielsen et al., 1998; Zeithaml, 1998.

Once the master codes are finalised, numbers are assigned to each. These numbers are then used to score each element in each ladder producing a matrix (integration phase), with rows representing an individual respondent's ladder (one respondent can have multiple ladders and thus multiple rows), with the sequential elements within the ladder corresponding to the consecutive column designations. Thus, the number of the columns corresponds to the number of elements in the longest ladder.

The next step is the straightforward one of constructing a matrix called *Implication matrix*, which displays the number of times each element in a given row precede other elements in the same row. Such a matrix reflects the number of elements one is trying to map, usually between 30 and 50. Two types of relations may be represented in this matrix: direct and indirect relations. Direct relations refer to implicative relations among adjacent elements. The designations of (A) through (E) for the elements refer simply to the sequential order within the ladder. That is: *Attribute (A) → Consequence (B) → Consequence (C) → Value (D) → Value (E)*. The A-B relation is a direct one as is B-C, C-D, and D-E. However, within any given ladder there are many more indirect relations, A-C, A-D, A-E, B-D, and so on. It is useful to examine both types of relations in determining what paths are dominant in an aggregate map of relationship among elements.

Another option in constructing the overall matrix of relations among elements is whether to count each mention of a relationship among elements that an individual respondent makes or to count a relation only once for each respondent, no matter how many times each respondent mentions it. Often, of all the cells having any relations, only one-half will be mentioned by as many as three respondents. The numbers in the

Implication matrix are expressed in fractional form, with direct relations to the left of the decimal and indirect or total to the right.

It is this “crossing over” from the qualitative nature of the interviews to the quantitative way of dealing with the information obtained that is one of the unique aspects of laddering and clearly the one that sets it apart from other qualitative methods. This summary score matrix, then, serves as the basis for determining the dominant pathways or connections between the key elements as well as providing the ability to summarise by subgroups (e.g. different segments of respondents resulted from a cluster analysis).

In constructing the Hierarchical Value Map (HVM), “chains” have to be reconstructed from the aggregate data. To avoid confusion, the term “ladders” will refer to the elicitation from individual respondents; the term “chains” will be used in reference to sequence of elements which emerge from the aggregate implications matrix. To construct a HVM from the matrix of aggregate relations, one begins by considering adjacent relations, that is, if $A \rightarrow B$ and $B \rightarrow C$ and $C \rightarrow D$, then a chain A-B-C-D is formed. There does not necessarily have to be an individual with an A-B-C-D ladder for an A-B-C-D chain to emerge from the analysis. A HVM is gradually built up by connecting all the chains that are formed by considering the linkages in the matrix of relations among elements

The most typical approach is to try to map all relations above several different cut-off levels (usually between 3 to 5 relations, given a sample of 50 to 60 individuals). The use of *multiple cut-offs* permits the researcher to evaluate several solutions, choosing the one that appears to be the most informative and most stable set of relations. It is typical that a cut-off of 4 relations with 50 respondents and 125 ladders will account for as many as two-thirds of all relations among elements. Indeed, the number of relations mapped in relation to the number of relations in the square Implication matrix above cut-off level can be used as an index of the ability of the map to express the aggregate relationships. In establishing a cut-off level, one may count only the direct linkages in any cell or one may count the total number of linkages, direct and indirect.

Two additional criteria for choosing a cut-off level might be mentioned: first, one can graph the number (or percentage) of connections accounted for at a given cut-off against different cut-off levels and look for an elbow (similar to a screen test in factor analysis). Second, one may compare the proportion of active cells in the implication matrix to the proportion of all connections between goals accounted for at a given cut-off. The latter rule of thumb most directly reflects the goal of accounting for a large percentage of the total number of goal connections made by respondents with a small number of distinct relations between goals.

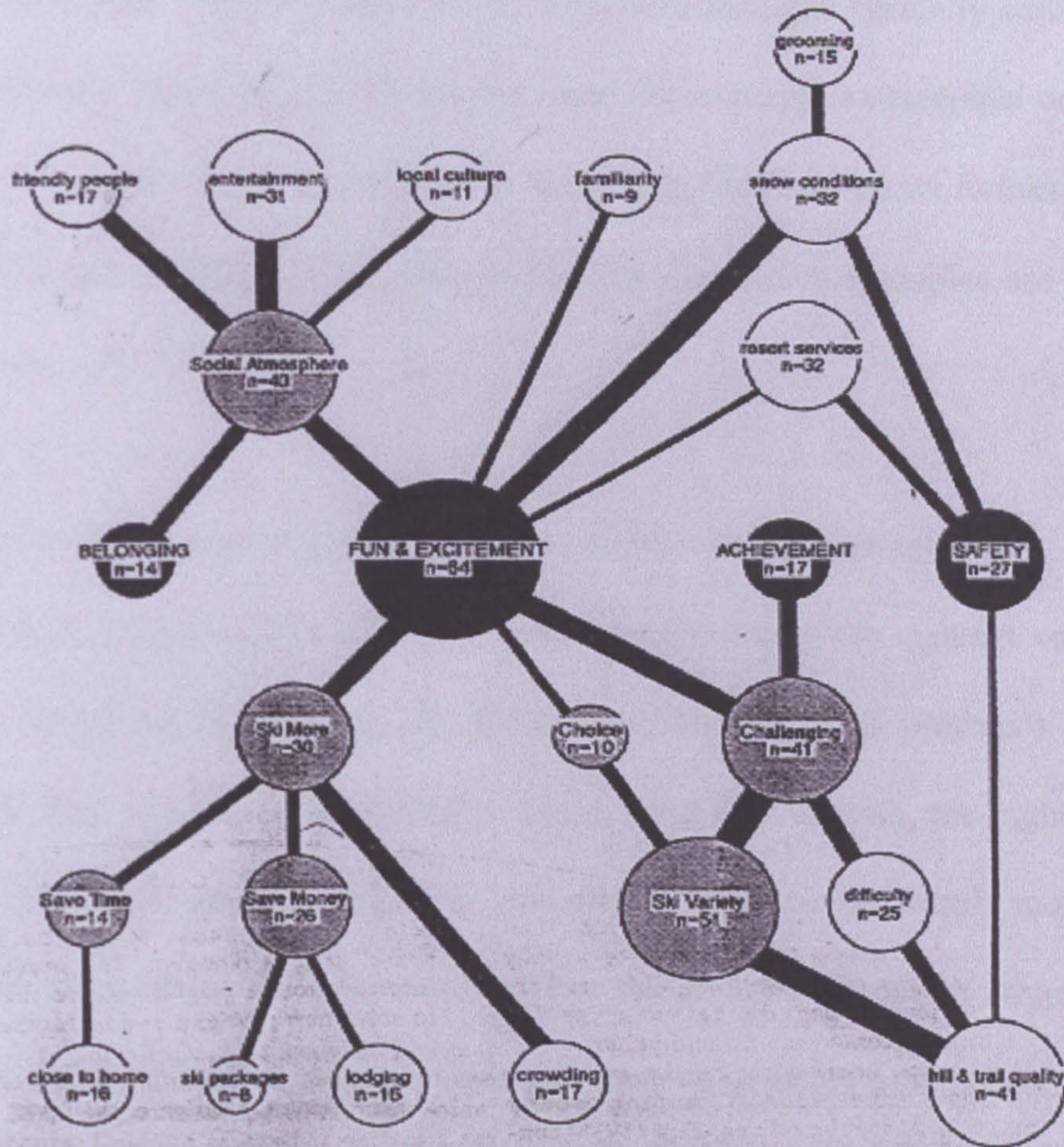
A unique advantage of graphics is that a large amount of quantitative data can be both displayed and absorbed. By representing means-end data in a graphical format, the chaotic data set is organised and transformed into meaningful information. Researchers should strive to design HVMs, which are both simple and meaningful.

The reader should be able to identify the attributes, consequences and values in an HVM at a glance. Organising information by location on the diagram and using shading or colour are particularly effective for reducing search time. Recognition can be enhanced using shapes and patterns. In an HVM it would be desirable to immediately identify which concepts were mentioned most and least often. This could be achieved by manipulating the shape of a label and making its size proportional to the number of subjects mentioning the concept (Figures 5.4, 5.5).

Finally, a good design will facilitate inferences. The graphic representation of means-end data in an HVM may allow the researcher to “see” things that may be not evident in the raw data or summary statistics, like evidence of potential market segments. These segments “emerge” from the graphic through pattern recognition. Many researchers (e.g. Kumar and Rust, 1989) advocate the use of a “visual” approach to market segmentation. By taking advantage of the inherent human ability to recognise patterns, graphics may facilitate the discovery of the underlying structure of the data. In the hands of a knowledgeable academic researcher, a marketing analyst, or a brand manager, the HVM can be an effective tool to identify patterns or clusters. Coupled with experience, the researcher may recognise strategic opportunities or develop ideas for building theory (integration phase). The HVM may be used to communicate the results to others and may also serve as a means of supporting a conclusion.

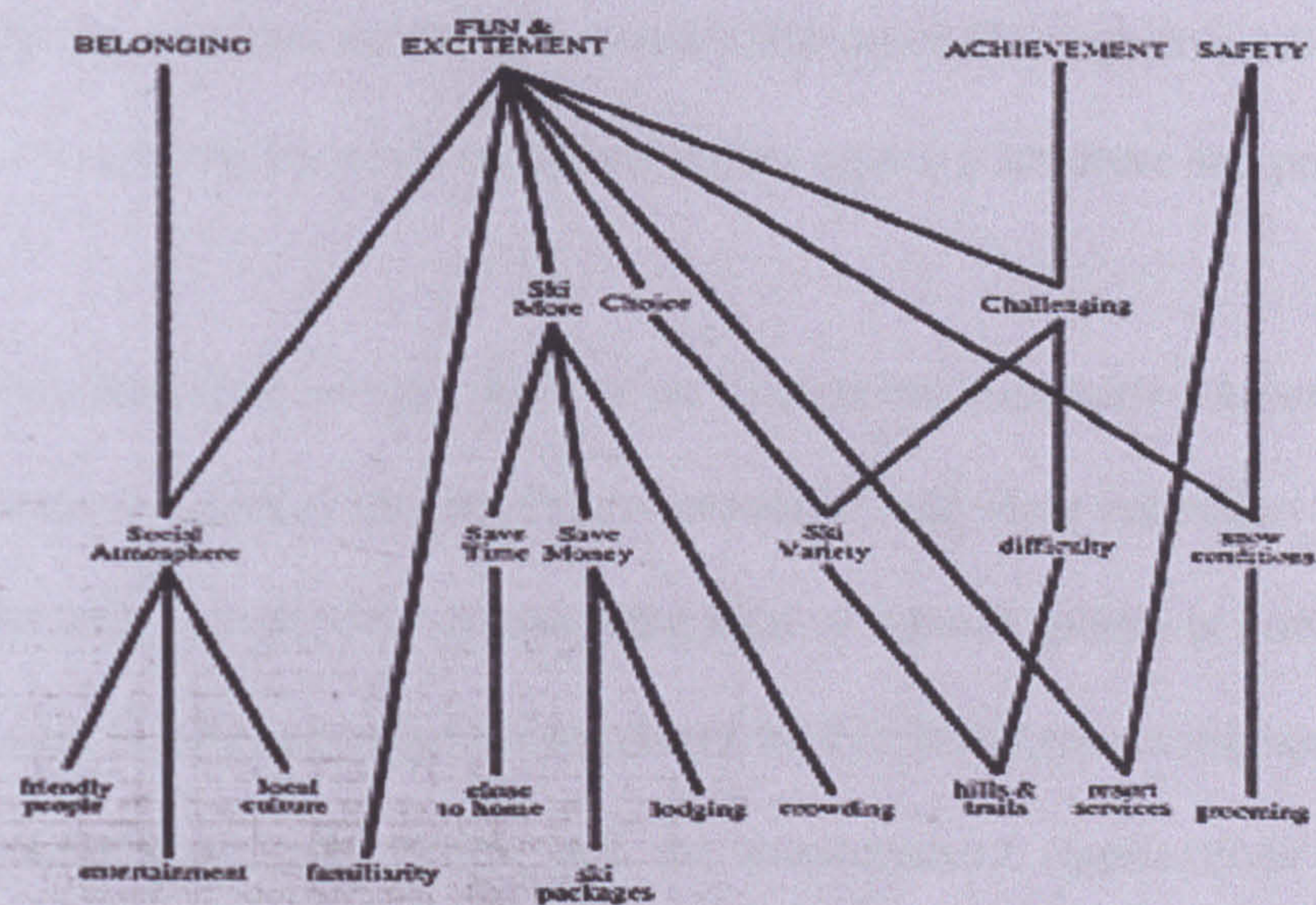
Having plotted all relations, it is desirable to look at all elements in the map in terms of the numbers of direct and indirect relations they have with other elements, both in terms of other elements leading into them and in terms of their connections to higher order elements. *A Summary of Direct and Indirect Relations for Each Element* table

Fig. 5.4: Example of Revised Hierarchical Value Map (HVM) for Ski Destination Choice
Source: adapted from Gengler et al., 1995.



Note: Total sample size was 90 subjects. Area of circles is proportional to the number of subjects who mentioned concepts. Width of lines is proportional to the number of subject who associated concepts (white circles: attributes, grey: consequences, and black: values).

Fig. 5.5: Typical HVM for Ski Destination Choice
Source: adapted from Gengler et al., 1995.



can be constructed. Finally, once a HVM is constructed, one typically considers any pathway from bottom to top as a potential chain representing a perceptual orientation. To more fully understand the strength of the chains, the *Intra-chain Relations* can be summarised and evaluated in separate tables (for illustrative examples see Reynolds and Gutman, 1988).

5.3.2.3. Criteria for assessing the predictive validity of the laddering data

One can identify four criteria for an instrument (methodology) to measure consumers' cognitive structures (consumers' definitions and meanings of product's cognitive characteristics). The more an instrument fulfils these four criteria, the higher will be the data predictive validity: (1). The raw data should be the result more of the respondent's cognitive structures than of the researcher's cognitive structures and processes; (2). The data collection should not involve strategic process not typical of the target situation (respondent's answers should be the result of a retrieval process and not of a "problem-solving" one); (3). Coding should preferably be based on cognitive categories widely shared among consumers, researchers, and users of research results, and not on the researcher's idiosyncratic cognitive categories; (4). Data reduction should be based on theory about cognitive structure and processes.

The raw data should be a result more of the respondent's cognitive structures than of the researcher's cognitive structures and processes: any data collection method that does not allow the respondent to use some kind of natural speech is prove to violate this criterion. Measuring cognitive structures by Fishbein-type rating scales (see for more Fishbein and Ajzen, 1975, and the measurement implications on quality, Section 3.2.4) violates it, because the cognitive categories are specified in advance,

and not formulated by the respondent. The same goes for the cart-sorting tasks used in some studies (e.g. Valette-Florence and Rapacchi, 1990). Only when, based on previous research, there is a very strong evidence of high similarity of the cognitive categories used by respondent and researcher will that type of closed questioning not violate this first criterion. Hence, the first criterion calls for open methods, in which each respondent can relate her/his own cognitive categories. We can immediately acknowledge that laddering allows the respondents to answer in their own words, freely generating cognitive categories, thus meeting criterion 1.

The data collection should not involve strategic process not typical of the target situation (respondent's answers should be the result of a retrieval process and not of a "problem-solving" one): one can make sure that the strategic processes in the data collection situation (laddering) are very similar to those one expects to the target situation (consumption) or one tries to find a data collection situation with minimal strategic processing (problem-solving).

An assumption about the cognitive processes occurring during laddering can be as follows: at each step in the laddering process the interviewer's repeated question "why is it important to you..." activates the cognitive category that the respondent has named last. Activation spreads from this category throughout the network, causing retrieval of additional categories, if the associations between the categories are strong enough. Presumably, the respondent would then answer with the category that has received the highest activation ("Spreading activation" theory, Anderson, 1983, in Grunert and Grunert, 1995). At some point no strong associations exist between the category last named and any category not yet named. Then the respondent will be

unable to answer, and the laddering would stop. If the respondent's retrieval process in the data collection would work in this way, data collection would be mainly determined by automatic processes, and criterion 2 would be met. However, it seems plausible that deviations from this "ideal" laddering process can occur, especially when the cognitive structure with regard to the product in question is either especially weak or especially sophisticated.

When the cognitive structure is weak, the more the task changes from retrieval to a problem-solving one, the more criterion 2 is violated. In this case, the predictive validity of the results is likely to be lower, because it becomes increasingly unlikely that the strategic processes in the data collection situation will resemble those in a consumption situation.

Grunert and Grunert (1995) report that, in a post-laddering interview, several respondents mentioned that the laddering task led them to considerable amount of strategic processing, especially when they got to the more abstract levels. They said that the laddering task made them think of connections they had never thought about before, and that they gained new insights during the process. This seems to indicate that the laddering task actually changed their cognitive structure. Respondents also said that they felt some pressure to come up as high as possible in the ladder, and that they felt silly when they stopped the ladder at the concrete levels. Some actually said that they thought the interviewer should press them to give more answers as long as possible, because it gives a more interesting experience. Other respondents said that, when they had reached the value level, they had a feeling of having come "up too far" Obviously, the interviewer has considerable influence on the amount of strategic

processing occurring in this way. For instance, the interviewer can try to guide the respondent into answering from a specific situational context. This suggests that the respondent uses a strategic process of thinking to provide an answer. By providing a more or less relaxed interview atmosphere, automatic retrieval may be facilitated. When the cognitive structure in respondents' mind is especially sophisticated in relation to a specific product, one retrieval process may result in the retrieval of several cognitive categories at the same level of abstraction. How this affects the interview will again depend on how the interviewer reacts.

Strategic processes (thinking) on behalf of the respondent are time-consuming and will, therefore, be noticeable to the attentive interviewer as pauses, breaks, unfinished sentences etc. To minimise unwanted strategic processing, the interviewer should end this line of questioning, thus avoiding construction of new associations.

The interview where the natural flow of speech of the respondent is restricted as little as possible has been designated as "soft" laddering. In contrast, "hard" laddering refers to interviews and data collection techniques where the respondent is forced to give answers in such a way that the sequence of the answers reflects increasing levels of abstraction. Data collection techniques that do not involve personal interviews at all, like self-administered questionnaires (Walker and Olson, 1991; Young and Feigin, 1975) and computerised data collection devices, are all examples of the "hard" laddering, which make it impossible to detect strategic processing of the respondent. "Softer" methods are being proposed whenever we can expect the cognitive structure of the respondent (attitudes' perceptions and its relation to respondents values) to be weak, due to low involvement and/or little experience with

the product, and whenever the cognitive structure is very elaborate, due to high involvement and much experience, such as when the respondent is an expert in the respective area.

Coding should preferably be based on cognitive categories widely shared among consumers, researchers, and users of research results, and not on the researcher's idiosyncratic cognitive categories: coding means grouping different answers together, fact that, by necessity, is based on researcher's estimate of the semantic distance between the various answers, and hence on her/his cognitive structures. This gives the researcher considerable influence on the results.

Concerning this third criterion and laddering, two problem areas are being discussed by the literature: first, that the distinction between attributes, consequences and values should be based on a conceptual definition of these terms. The laddering literature is surprisingly void of such definitions. In practice, many borderline cases turn up. Making such categorisations in a uniform way is heavily dependent on the availability of context information², which will again depend on the way the laddering is executed, with the "hard" form usually providing very little context information. Only when the interviews are taped and transcribed is the full context available in coding.

² It reflects the much more general qualitative research problem of *indexicality*, according to which for the researcher, it is possible to understand or make sense of a respondent's answer only by relating it to the respondent's individual background

The less one knows in advance about how respondents think about the topic to be researched, the more difficult to relate the respondent to his/her background and thus to understand his/her definitions of attributes, consequences and values is. Thus, it is more important to devise a data collection method that helps the researcher understand the meanings in the respondents' answers, like methods employing natural speech (focus groups, in-depth interviews).

Second, to find the "right" level of abstraction is the other problem associated with coding. The difference between two answers is rarely purely lexical. To define them as synonyms and group them into the same category, the category has to be at a more abstract level than the answers themselves. For example "excellent taste" and "pretty good taste" may be both sorted into "tasty". It is at the consequence and value levels where the real difficulties start. Can "joy" and "not being depressed" both be coded into "well-being"? Such rather broad categories usually have to be created, if a technically manageable implication matrix is to result.

Having parallel coders is of course the most common resource used in research practice. But it may be helpful to draw on some of the experiences and tools developed within the realm of computer-assisted content analysis (Catterall, 1996). The basic idea developed is that of *iterative coding*. This means that a first coding is performed, and the implications of this coding are made transparent by aids like keywords-in-context lists, leftover lists, and insertion of codes into the text database. Based on these aids, the coding is revised, and the implications are analysed in the same way. This procedure continues until the coding appears satisfactory. Of course, the decision about what can be regarded as satisfactory still rests to a large extent on

face validity considerations and, therefore, on the judgement of the individual researcher. However, such procedures provide documentation for how the coding has proceeded, thus increasing the inter-subjectivity of the process.

Data reduction should be based on theory about cognitive structure and processes:

data reduction in analysing laddering encompasses two main steps: aggregation and condensation (Grunert and Grunert, 1995). *Aggregation* involves the step from the individual to the collective. The HVM, the main output from a laddering analysis, is a characterisation of a group of respondents. An HVM is not only a device that allows us to see the major results from a laddering study without having to go through all the individuals ladders, but also –according to a more “ambitious” view- it is an estimate of cognitive structure for that group of respondents. At the individual level our data are not rich enough to estimate a respondent’s cognitive structure because the cognitive structure itself is not a collection of single chains, but an interrelated net of associations. However, when we obtain ladders from a group of *homogeneous* respondents (c.f. Section 6.1.2.4), then the set of ladders obtained taken together will yield an estimate of this group’s cognitive structure and have predictive validity.

Condensation refers to reducing the HVM to a small subset of the associations between cognitive categories that have shown up in the data. In principle, one could, based on the implication matrix, draw a map that shows all the cognitive categories which resulted from the coding process, and in which two cognitive categories are linked whenever the corresponding cell in the implication matrix has a non-zero entry. In practice, this is seldom the possible or desirable, since one tries to find a HVM that includes the most important links. This is achieved by two means: first, by

specifying the condition that the network has to be *non-redundant*, and secondly, by specifying, as we have seen, a *cut-off level* (see Section 5.3.2.2).

Non-redundancy means that, if category 1 at abstraction level A is linked to category 2 at abstraction level B, which again is linked to category 3 at abstraction level C, then there should not be a direct link between categories 1 and 3, because such a link would be redundant. The way this is usually handled when creating a HVM is as follows: if, at the aggregate level, there is a link 1-2-3 (categories 1 and 3 are linked indirectly), then there will be no link 1-3, even if such links were observed at the individual level.

In trying to develop a better understanding of the analysis of laddering data, the first step should be an explicit stand on what a HVM is supposed to do. If it is meant as an estimate of cognitive structure, then the next step would be to spell out clearly the assumptions made about non-redundancy. The technical problem then will be to aggregate only respondents whose cognitive structures can be regarded as homogeneous with regard to the product in question. This should be achieved by applying clustering methods to the laddering data before aggregation or using a pre-specified homogeneous sample.

5.3.3. Laddering applications

The HVM obtained through the Laddering procedure offers several particularly valuable types of information. It can serve as a basis for: (1) segmenting consumers with respect to their values orientations for a product class (the case of the present work) or brand; (2) for assessing brands or products in a fashion similar to the use of

more traditional ratings; (3) evaluating competitive advertising; and (4) as a basis for developing advertising strategies.

5.3.3.1. Benefit segmentation

The goal of *segmentation schemes* is to classify respondents with respect to some aspect of their behaviour, attitudes, or dispositions in a way that helps us understand them as consumers. The value orientations in a person's ladder may serve as basis for classification, or the researcher may group these values at a still higher level. It is also possible to include attribute-value connections in the segmentation scheme. Once a segmentation scheme has been developed, respondents' brand-consumption behaviour or reactions to advertising may be assessed. These segmentation bases could be translated into larger scale research. That is, the findings from this research could become the basis for more traditional paper-and-pencil methods that more readily lend themselves to larger-scale data collection (c.f. Chapters 6 and 7).

Market segmentation strategies presume that consumers are different, that these differences are related to differences in market demand, and that segments of consumers can be isolated within the overall market (O'Connor and Sullivan, 1995). Market segmentation strategies offer important advantages, such as: a) marketers are in a better position to spot and compare market opportunities; b) marketers can make finer adjustments in their product and selling appeals; and c) marketers can develop programs and budgets based upon a clearer understanding of the response characteristics of specific market segments (Kotler, 1997).

According to Dickson (1982), early published market segmentation research focused on internalised consumer characteristics and ignored situation-specific aspects of the purchase process. Numerous cross-sectional studies have shown only modest association between demographic, socio-economic, and personality variables and specific aspects of purchasing behaviour, indicating weak predictive ability (Gerhardy et al, 1995). Earlier, marketing researchers have examined the relationship between consumers and the product class to predict brand choice (Boyd et al., 1989). Wind (1978) referred to “situation-specific customer characteristics” and included product usage and purchase patterns, attitudes towards the product and its consumption, benefits/attributes sought in a product category, and responses to specific marketing variables such as new product concepts or advertisements.

The person/product approach emphasises desired product benefits/attributes. “Expectancy-value” theory, widely applied in marketing research, offers insight on the linkage between benefits/attributes desired end product evaluations. According to this theory, product benefits/attributes and brand perceptions are combined multiplicatively to determine brand preference. Because of this linkage, simple brand preference measures offer an indirect and less obstructive means to assess salient product benefit/attributes (O’Connor and Sullivan, 1995).

The concept of *benefit/attribute segmentation* first discussed in the marketing literature by Haley (1968), offered a possible solution to the shortcomings of earlier approaches. Haley (1968) argued that benefit/attribute segmentation identifies market segments by causal, as opposed to descriptive, factors. According to Wind (1978), benefits/attributes sought is the preferred segmentation technique for understanding

markets, product positioning, new product introduction, pricing, advertising, and distribution. Young and Feigin (1975), argued that benefit/attribute segmentation is most meaningful to marketers because it facilitates product planning, positioning, and advertising. They indicated that although psychographic and general attitudinal approaches may work well statistically, they are not always helpful in devising effective marketing strategies.

Several marketing researchers have proposed specific market segmentation criteria. From the person/product perspective, three criteria are proposed as requirements for effective market segmentation: (a) identification of homogeneous consumer groups; (b) differentiation in brand usage; and (c) sensitivity to marketing mix inputs. Each should be viewed as necessary but not sufficient condition. An attempt to maximise one at the expense of the others will fail to result in optimal segmentation. Thus, each criterion must be considered in relation to the other (O'Connor and Sullivan, 1995).

Although the basic idea of benefit segmentation lies in using causal, as opposed to descriptive factors as segmentation criteria, most of the empirical studies do not differentiate between product attributes and the benefits sought by consumers. According to the means-end chain theory of cognitive structures, however, consumer behaviour is driven by the "true" benefits sought, which cause the desire or preference for certain attributes. Drawing direct conclusions from preferred attributes on future purchase behaviour without clearly distinguishing them from the underlying benefits seems, therefore, problematic (Botschen et al., 1999). Indeed, means-end chain theory has been proposed as ideally suitable for the development of segments (Aurifeille and Valette-Florence, 1995; Reynolds and Gutman, 1988; etc.).

Benefit segmentation studies frequently treat attributes as benefits. As a result, benefits as the reason for attribute preference are often overlooked because the same attribute may lead to different benefits, a case of *multifinality* and because a single benefit may be based on multiple attributes, a case of *equifinality* (Botschen et al., 1999). Thus, segments based on attributes may differ from segments based on benefits sought, and benefit segmentation, which is actually based on attributes instead of actual benefits sought, may be grossly misleading.

Nevertheless, in response to the identified problems and opportunities for finding segmentation variables, which determine the behaviour of consumers more accurately, segments could be based on the specific meanings and/or linkages between meanings contained in means-end chains.

There are three types of segmentation (Figure 5.6), according to different levels within means-end chains (Olson, 1989, in Botschen et al., 1999): segments of A type can be built on the attribute level consisting of concrete and/or abstract attributes, or on the benefit-level consisting of functional and/or psychological consequences, or on the value level consisting of instrumental and terminal values. Type B of a segmentation approach focuses on linkages between attributes and consequences, linkages between consequences and values, and linkages between attributes and values. This type of segmentation would cluster customers according to the similarity of parts of their perceptual structure. For instance, one could group together all consumers for whom sugar in a candy-case leads to energy which provides a strong feeling, and all consumers for whom sugar provides a good taste. Finally, type C would segment on the basis of the entire means-end chain(s). Consumers who share

Fig. 5.6: Types of Segmentation According to the Means-end Level

Source: adapted from Botschen et al, 1999.

Levels of Means-end Chains	Concrete Attributes	Abstract Attributes	Functional Consequences	Psycho-social Consequences	Instrumental Values	Terminal Values	
	Attribute based		"True" benefit based		Value Based		A
Type of Segmentation.	← Linkages based			↔ Linkages Based →			B
	Entire Means -end Chain						C

one or several means-end chain(s) might be grouped together and treated as a segment (Botschen et al., 1999).

Since consequences/benefits are the central reason why consumers choose a product or service (Gutman, 1982), segmentation on the "true" benefit-level seems to be very promising. Therefore, we will focus on this level of segmentation (c.f. Chapter 6). From a managerial perspective, benefit segmentation based on means-end chains allows a deeper understanding of why people look for certain attributes.

5.3.3.2. Laddering application and olive oil

The means-end approach has very often been proposed to analyse cross-cultural differences or identify segments based on product preferences, product perceptions and purchase motives. Numerous studies where a means-end approach had been applied are mentioned so far. Using modified versions of the laddering technique, data on consumer preference, perceptions and purchase motives concerning olive oil (among other vegetable oils) were collected in different EU countries such as Denmark, France, the UK, Italy etc. The results show considerable differences

between these countries with regard to olive oil-specific preferences and purchase motives.

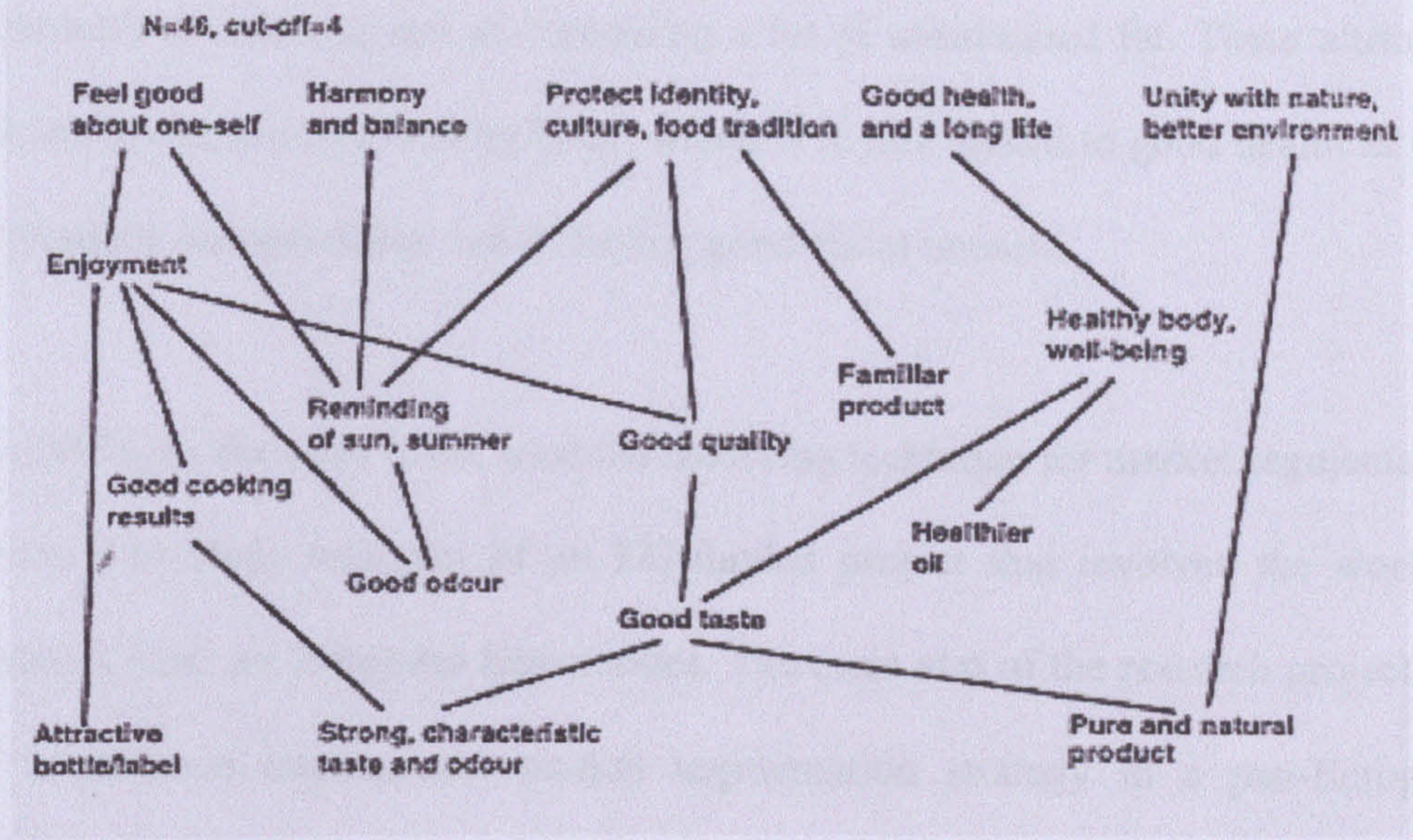
The HVMS for virgin olive oil in the countries France and the UK (Nielsen et al., 1998, Figure 5.7), represent the links between product attributes, self-relevant consequences and personal values most often attributed to virgin olive oil. It is quite clear that the product-related knowledge differs considerably across countries.

The French consumers regard virgin olive oil as a tasty product with a good odour and these attributes lead to good cooking results, enjoyment and ultimately to feeling good about oneself. Virgin olive oil is also seen as a healthy product, which leads to good health and a long life. In general, French consumers connect this product with many values indicating a high involvement in the product. The values “protect identity”, “culture”, and “food tradition” are unique to the French consumers, which is not surprising since France is the only country in the study where virgin olive oil is part of the traditional diet.

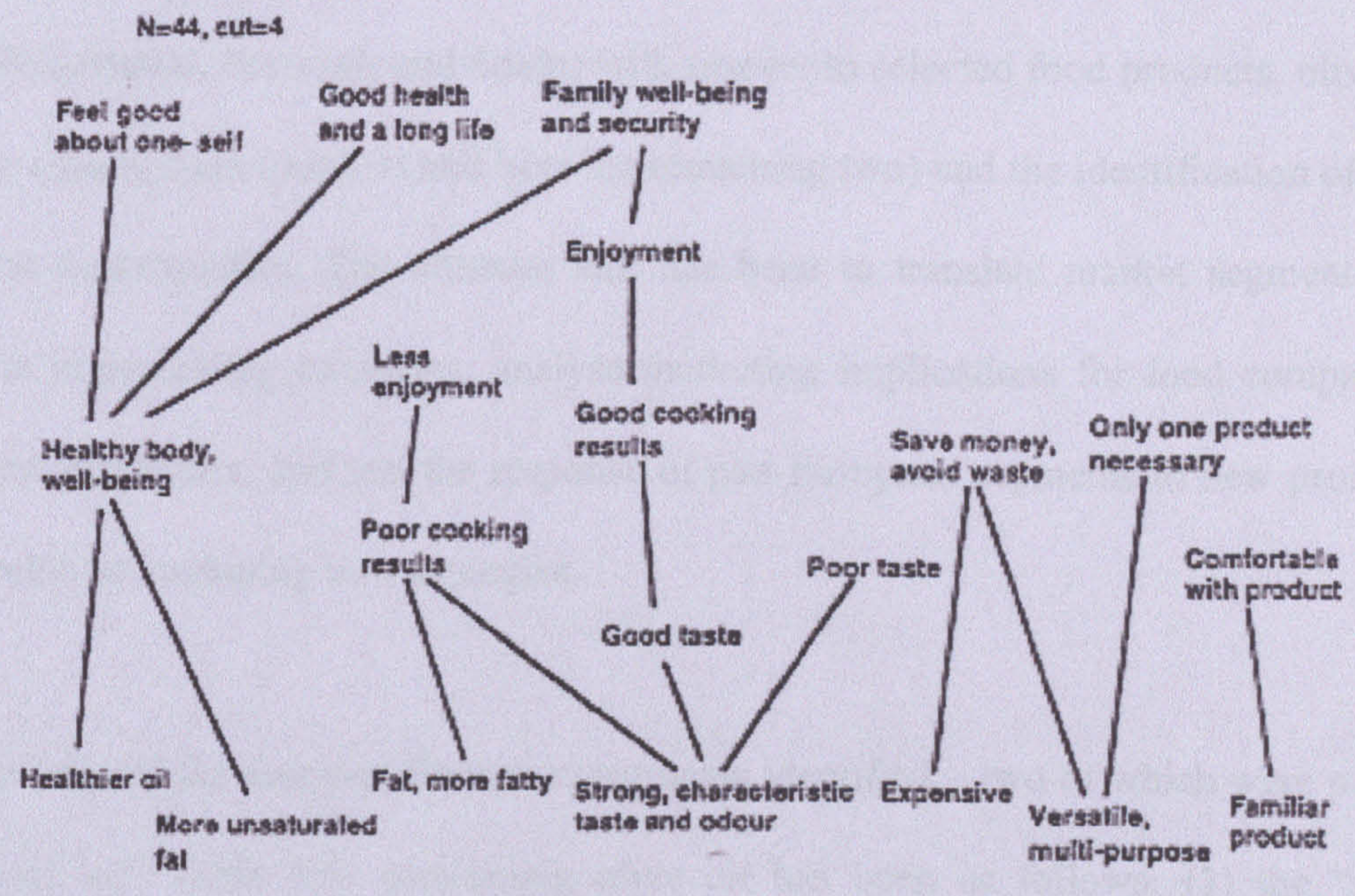
The British consumers, on the other hand, are much more divided with regard to their perception of virgin olive oil. Some link the characteristic taste of olive oil to good taste and enjoyment and feeling good about oneself, but others link it to poor taste, less enjoyment or poor cooking results. Some British consumers also think virgin olive oil is expensive. They agree with the French that olive oil is a healthy product that helps you achieve good health and a long life.

Fig. 5.8: Hierarchical Value Maps (HVM) for Virgin Olive Oil
Source: adapted from Nielsen et al., 1998.

a) FRANCE



b) UK



The Danish consumers seem to have a mostly favourable attitude towards virgin olive oil. Most of the respondents think that it tastes good, leading to good cooking results, enjoyment for the family and ultimately to feeling good about oneself. There are consumers, however, who link the strong, characteristic taste of virgin olive oil to poor cooking results. Like the French and the British, the Danish consumers

regard virgin olive oil as a healthy product. It is regarded as being cholesterol-free/cholesterol reducing and as containing a lot of unsaturated fat. These attributes are ultimately linked to a healthy body, which is in turn linked to good health as well as to freedom, independence and to feeling good about oneself.

Valli (1997), on the other hand, used the laddering technique for market segmentation purposes. Her study was part of an EU-funded project that involved the work of researchers from six European Universities. The main aim of the research project has been to improve international market segmentation strategy in a pan-European context (Belgium, Denmark, Germany, Great Britain, France, Greece, Ireland, Italy, the Netherlands, Portugal, and Spain) with respect to selected food products, olive oil being among them (yoghurt and beef the remaining two) and the identification of new market opportunities. The ultimate aim has been to translate market segmentation results in marketing strategies; analyse marketing implications for food companies, particularly SMEs; and test the response of pan-European segments to new products and relative marketing mix strategies.

The profile of the four pan-European segments identified – two of which were purely national, c.f. Table 5.6- concerning olive oil has been as follows: (1) the “good quality Italian olive oil seeker”. It includes high socio-economic status consumers from Italy, France, Belgium and the Netherlands. They are quality and environmentally conscious and giving emphasis on extra virgin oil from Italy, with good taste and smell, and superior quality. (2) The “knowledgeable price conscious, seeking olive oil from Spain” consumers. They are elderly, mainly from Spain, who believe in the nutritious values of olive oil and enjoy using it. (3) The

Table 5.6: Olive Oil Pan-EU Segments Membership (%)**Source:** Consumer-led Approach to Olive Oil in the EU, 1997 Annual Meeting Task II (Unpublished).

	S1	S2 (Spanish)	S3 (Greek)	S4
<i>Belgium</i>	68.8	4.3	2.5	24.5
<i>Denmark</i>	31.7	1.6	3.6	63.1
<i>Germany</i>	46.3	1.8	6.7	45.2
<i>UK</i>	16.9	1.7	5.2	76.1
<i>France</i>	83.5	2.6	3.3	10.6
<i>Greece</i>	4.8	0.7	78.2	16.2
<i>Ireland</i>	16.5	3.4	4.6	75.5
<i>Italy</i>	88.1	0.8	0.7	10.4
<i>Netherlands</i>	49.3	8.1	3.3	39.3
<i>Portugal</i>	39.8	0.5	13.3	46.4
<i>Spain</i>	8.5	82.5	0.5	8.5
Total	46.7	6.2	5.7	41.4

“knowledgeable traditional olive oil user seeking olive oil from Greece” large family consumers. They are mainly from Greece, believing in the nutritious values of olive oil and its cooking abilities. And (4), the “price conscious “rookie” buyer of olive oil” consumers, mainly from the UK, Ireland, Denmark and Germany. They are bargain seekers who like to experiment with various products, including olive oil, which is perceived as being good for health and can be used for cooking traditional Mediterranean dishes.

5.4. Conclusion of Chapter 5

European agribusiness companies increasingly attempt to add value to agricultural raw materials, in reaction to the problems associated with slow growth in the demand for food. To be successful, they must make the transition from the well-known product-oriented approach (based on homogenisation and cost minimisation through economies of scale) to a consumer-oriented approach (identifying and meeting the needs of consumers). As a consequence, consumer motivations underlying consumer behaviour have become a central consideration in the marketing of food products.

Why do consumers use certain product attributes or benefits as choice criteria in a purchase decision? Why are consumers emotionally involved with some products, but not others? What do product attributes mean to consumers? Questions such as these concern a critical issue in marketing: “In what distinctive way can I make my product or brand personally relevant to the consumer?” Establishing the personal relevance of a product or service should be the primary objective of marketing strategy.

Recently, Means-end Chains theory with its accompanying laddering research technique are proposed as a new integrated way to study the relations between consumers and products. This approach offers great potential for the consumer-oriented marketing of agricultural and food products.

The purpose of Chapter 5 was to introduce Means-end Chain theory and the laddering data collection method. The Chapter opened with a brief review of the qualitative research concept, its theoretical background and relation with marketing research, its stages, results’ interpretation and evaluation. The role of the non-directive in-depth interview techniques, where the laddering belongs, was also highlighted.

The main part of the Chapter was dedicated to the development of the Means-end Chains methodology. The method’s broader conceptual model was introduced, followed by a detailed description of the laddering technique: interview environment, probing techniques, stages’ analysis, criteria to assess the validity of the results, and laddering applications. The Chapter ended with cases of laddering application in the international olive oil research.

CHAPTER 6

LADDERING INTERVIEWING TECHNIQUE IMPLEMENTATION

6.1. Method Implementation

6.1.1. Sample selection

The motivation behind the selection of the sample in terms of size and structure has been based on the aims and objectives of Section 1.3.1 and the supporting extended literature review of Chapters 2 and 3. According to our stated objectives, we will try to identify a segment -whose size has not yet been specified but evidence suggests that it is small -of the Greek olive oil market constituted by consumers: a) of a pre-determined socio-demographic profile (young, educated, with few or no children, of higher income, living in the major urban areas); b) quality and health conscious; c) highly involved in the quality olive oil purchasing process; and d) with a variety of psychologically based, personal values-related purchasing motives.

Based on these assumptions, a *convenience stratified sampling* methodology (Gutman, 1984; Gofton, 1997) is followed to construct the sample. The first step was to divide the population of interest into groups on the basis of control criteria (*strata*), in the present case different demographic characteristics such as gender, age, educational level, marital status, place of residence and income. In addition, purchase of only bottled olive oil has been specified as a prerequisite for sample participation.

However, we wanted to “skew” the sample because the focus is on a hypothetical market segment with the above-mentioned characteristics, so a disproportionate number of respondents of both sexes and marital statuses was gathered on three variables: a) well educated; b) younger people; c) of average to higher income. Convenience sampling enabled us in this way to gather more homogeneous people in terms of the specific characteristics than if gathering a random or proportionate sample based generally on normal socio-demographic variables.

Both sample’s structure and size have been based on an extended literature review of the work undertaken in the field of values and cognitive structures’ research. In Table 6.1a a representative sample of research work is presented, together with the size of the samples chosen. Additionally, time and resource constraints and the phenomenological nature of the study that dictates small sample sizes have been seriously taken into consideration. As a result, the number of sample participants has been 55, 15 as a pilot sample and 40 as the main sample used in the laddering process.

The use of a pilot sample is necessary due to the complexity of the method process and the inexperience of the researcher. Piloting is generally carried out in order to identify with the form, meaning, order and structure of the technique and questionnaire. It is used to develop lists of possible answers, especially at the value level, examine the form of data, which a question provided, refine the classification schemes and identify problems in the way the data can be further analysed. The main purpose of the pilot, however, has been twofold: a) to fix the form of the attribute list respondents will be presented with, as a starting point of the method (c.f. Section 6.1.2.1); and b) to provide the interviewer with a first estimation of the abstraction level a respondent of

Table 6.1a: Different Sizes of Means-end Samples in the International Literature

Author	Research topic	Sample participants	Sample size
1. Reynolds and Gutman, 1988	Federal Express Advertising strategy	Secretaries, traffic managers, executives	81
2. Pieters et al, 1995	Willingness to losing weight	Undergraduate marketing Students (USA)	51
3. Audenaert and Steenkamp, 1997	Groceries purchase behaviour	Women of different age and social class in Belgium	50
4. Gutman, 1984	Different beverages consumption patterns	Graduate marketing students (USA)	80
5. Clayers et al, 1995	'Think- feel' products and involvement	Marketing students (Europe)	100
6. Gengler and Reynolds, 1995	Consumer choice of pet food	Different consumer types	67
7. Grunert et al, 1995	Consumer attitudes towards different meat	Women from the Copenhagen area	90
8. Walker and Olson, 1991	Consumer choice of post-cards	Female	40
9. Grunert and Grunert, 1995	Organic food purchase frequency		31
10. Reynolds et al, 1995	Advertising strategy evaluation	Specific soft drink users in the Dallas area, USA.	192
11. Nielsen et al, 1998	Consumer perceptions of vegetable oils	Cross-national survey (FR, UK, DK)	50-90
12. Valette-Florence et al, 1998	Consumer choice of sea-food	Women in the Copenhagen and Montpellier areas	85-96
13. Sorensen et al, 1996	Consumer choice of fresh fish	Copenhagen area consumers	90
14. Pitts et al, 1991	Consumer evaluative structures in two ethical situations	Undergraduate students (USA)	257
15. Grunert and Sorensen, 1996	Consumer perceptions of yoghurt	Yoghurt firms' marketing responsables (DK, GE, UK)	32
16. Jolly et al, 1986	Performance appraisal	Female nursing managers	22

the pre-specified characteristics can reach. In other words, to give an idea about what the groups of olive oil use consequences and the corresponding person-related values might be. Having an, even general, picture of the consumers' possible consequences and values elicited is necessary for the successful accomplishment of the method's tasks. The final use of piloting has been to check on the form and conditions of administration: how long did it take, were people likely to be prepared to answer the repeated "why is this important to you" question, where and when the ideal place and time to carry the interview has been, etc.

A description of the main sample can be seen in Table 6.1b: a) 21 respondents are female and 19 male. b) Average age is 29.5 years, from 24 to 38 (“skewed” quota). Average female age is 29 and male 30. c) 20 respondents constitute a single-person household and the other 20 (8 male and 12 female) are couples, 12 of which have 1 to 3 children (5 people with 1, another 5 with 2 and the remaining 2 with 3 children). d) 17 respondents are married. e) For 21 respondents a working woman belongs to their household. f) 16 respondents have a university degree, and another 12 a postgraduate title (6MScs and 6PhDs), increasing the number of the educated respondents to 28 (“skewed” quota). From the remaining 12, 2 are students and 10 have a high school or technical school degree. Finally, g) 17 respondents have a lower- average yearly income of GBP4-8, 000 with another 10 having lower than GBP4, 000 and 13 higher than the GBP8, 000 limit, which is considered as an upper-average or high income at a national level (c.f. Section 7.2.4 and Figure 7.3).

6.1.1.1. Consumers’ purchase involvement and laddering

The concept of product involvement comes from Social Psychology and, broadly developed in the 70’s, it is considered as “an observable state of motivation, excitement and interest” (Tissier-Desbordes, 1992). It is created by external variables (situation, product characteristics, communication) and internal variables (ego, personal values); it is the source of behaviours, ways of looking for products, of getting informed about them, and of making buying decisions (Rothschild, 1984, in Carsky et al, 1994). Mitchell (1979, in Tissier-Desbordes, 1992) defines involvement as:

“...an individual level, internal state variable that indicates the amount of arousal, interest or drive evoked by a particular stimulus or situation. Thus it may be with respect to a product category, a particular brand and the purchase of a product for a particular reason...” (Mitchell, 1979)

Table 6.1b: Sample Socio-demographic Description (Col. 1-3) -
 Number of Attributes Chosen, Consequences and Values Elicited (Col. 4-8) -
 Number of Ladders and Ladders Leading to a Value per respondent (Col. 9-10)

Gender	Age	Educational Status	Attr.	Functional Conseq.	Psychological Conseq.	Instrumental Values	Terminal Values	No. of ladders elicited	No. of A-C-V ladders
M	28	PhD.	16	10	5	10	5	37	10
M	25	MSc.	11	9	6	13	6	27	13
M	25	MSc.	17	7	5	9	8	30	12
M	29	MSc.	17	5	3	12	2	21	4
M	28	PhD.	17	8	1	12	2	29	7
F	28	MSc.	28	11	4	12	8	40	10
M	36	PhD.	18	13	4	12	5	37	11
M	28	B.A.	16	11	3	15	7	32	12
F	26	B.A.	13	10	6	9	2	25	6
M	28	B.A.	20	9	5	6	3	24	5
M	26	B.A.	22	12	9	15	4	32	7
M	26	High School	25	13	11	12	10	36	14
M	38	High School	28	10	5	12	3	37	7
F	30	High School	21	10	9	13	5	41	11
F	26	Student	22	9	4	14	3	32	10
M	30	B.A.	25	12	7	13	5	39	10
F	26	Technical School	16	9	5	13	6	26	9
M	30	Student	26	12	6	8	6	33	10
F	30	High School	21	7	4	6	8	36	7
M	34	High School	18	11	3	11	6	21	8
F	28	Technical School	23	10	3	10	4	32	11
F	28	B.A.	20	10	5	14	7	29	10
F	31	PhD.	29	12	4	11	6	43	12
F	34	PhD.	20	10	4	10	3	28	8
F	24	B.A.	21	12	5	12	8	29	12
F	25	B.A.	19	10	6	12	5	27	11
F	34	B.A.	19	9	4	12	7	33	12
M	36	B.A.	23	12	5	9	6	31	10
M	33	PhD.	25	11	7	13	2	36	4
M	30	Technical School	23	11	5	13	8	31	11
F	33	B.A.	21	10	6	13	5	33	12
F	26	High School	23	10	5	8	8	36	10
F	32	B.A.	19	10	5	12	8	29	14
F	30	B.A.	24	13	6	13	4	36	12
F	28	B.A.	18	9	4	14	6	23	10
M	31	B.A.	20	6	5	16	5	30	12
F	31	MSc.	20	9	5	18	8	30	13
F	33	Technical School	17	13	5	11	6	28	12
F	27	MSc.	28	14	6	15	10	48	16
M	30	B.A.	14	10	3	8	2	18	6

SAMPLE AVERAGE (n=40): 20.5 10.9 4.8 11.7 5.5 31.6 10

1. 52% female – 48% male
2. Average age: 29.5, female: 29, male: 30
3. 50% single households – 50% couples (of which: 25% (5) with 1 child, 25% (5) with 2 children, 10% (2) with 3 children and 40% (8) with no children)
4. 70% university degree (40% BA, 15% MSc, 15% PhD)
30% high school or technical school degree or student
5. 42.5% of average income (4-8000GBP), 32.5% of higher income, 25% of lower income.
6. 42% married
7. 52.5% working woman

Many other researchers tried to define involvement. Mittal and Lee (1989) summarise some of the most useful involvement definitions, including:

“...(Involvement) is said to reflect the extent of personal relevance of the decision to the individual in terms of his/her basic values, goals and self-concept...” (Engel and Blackwell, 1985), and
“...there is a consensus that high involvement means (approximately) personal relevance or importance...” (Greenwald and Levitt, 1984)

Most authors agree on the multidimensionality of the concept (see for example, Cohen, 1983). Laurent and Kapferer (1985, in Hughes et al, 1998) concluded that:

“...no single indicator of involvement could satisfactorily describe, explain, or predict involvement....(researchers should) stop thinking in terms of single indicators of its level and instead use an “involvement profile” to specify more fully the nature of the relationship between a consumer and a product category...” (Laurent and Kapferer, 1985, in Hughes et al, 1998)

However, researchers do not agree on the dimensions to be taken into account. Park and Young (1986) distinguish between the affective and cognitive dimensions. Zaichkowsky (1985) defined involvement as a “person’s perceived relevance of the object based on inherent needs, values and interests” and classifies it into three categories: a) something about the person (e.g. how personally relevant the person perceives the object); b) something about the object itself (e.g. physical characteristics that cause differentiation); and c) something about the situation that temporarily increases the perceived relevance of the object.

Earlier, Houston and Rothschild (1978, in Carsky et al, 1994, and Beharrell and Denison, 1995) presented a comprehensive framework for studying involvement and identified three types: a) *situational involvement*, which is evoked by a particular purchase situation and is influenced by product attributes as well as the situation. For example, purchasing a bottle of wine as a gift would be more involving than for

family consumption; b) *enduring involvement*, which is the ongoing concern with a product the individual brings to a purchase situation. It is a function of past experience and the strength of values to which the product is relevant. It is dependent of the purchase situation and motivated by the degree to which products relate to the self and pleasure received from the product; c) *response involvement*, which represents the complexity of consumer decision-making, refers to the consequences of the inner state of being involved and is defined as a need derived from a value in the individual's hierarchy-of-needs. In other words, response to marketing strategies and communications is a consequence of the level of involvement.

Most empirical studies on involvement have focused on a product, product category, or service. Investigations have focused on defining the construct vis-à-vis a product category, the manner in which individuals attend to information about products and services, the dimensions of search, incentives to purchase or to switch service suppliers, and individual consumer motivations and actions as they are mediated by involvement (Carsky et al, 1994; Beharrell and Denison, 1995).

A first classification of consumer decisions can be based on decisions taken about high and low involvement products (Engel et al., 1995; von Alvensleben, 1997): *high involvement products* bear a high risk of a wrong decision, because of, for example, high price, high importance for the self-image (cosmetics, jewellery, etc.), or strong influence from outside reference groups. This leads to extended problem solving: active search and use of information, careful processing of information, weighting and evaluating of many product attributes in a complex manner. The outcomes are beliefs about alternatives, evaluation of the pros and cons and purchase intention.

Low involvement products bear a low risk of a wrong decision because of, for example, low price, product alternatives are not very different, low importance for self-image, costs of extended information search outweigh the expected benefits etc. This leads to simple problem solving, e.g. when passive learning and information processing, information is stored in the form of an image, limited number of evaluation criteria, choice is made on the basis of existing information.

The use of incentives to motivate consumer response is found to vary by involvement levels. Individuals who are highly involved are more interested in acquiring information and will do so without incentives. Typically, low involvement consumers will respond to price incentives, as they see less difference across brands or quality levels of the product (Carsky et al, 1994). In particular, the routine buying situation such as the weekly shop for groceries has inevitably been regarded as a low involvement activity, characterised by negligible information search, little deliberation in brand choice and ease of brand switching to a substitute within a category (Beharrell and Denison, 1995).

Celsi and Olson (1988) suggest that Means-end knowledge structures can be regarded as the cognitive basis for involvement, and the retrieval of Means-end knowledge would then be subject to the mentioned effects. The perceived personal relevance of a product is inferred by the activated cognitive structure of means-end associations that link people's knowledge about product attributes and benefits to their self-knowledge about important needs, goals, and values. On the other hand, given that highly involved consumers are more likely to process product related information, the degree of involvement may influence the number of concepts that can be generated in a

laddering interview. Based on the above, Sorensen et al (1996) conclude that it is possible to employ the laddering method with consumers with both higher and lower degrees of involvement. This conclusion is supported by the fact that both consumers with high and low involvement levels show a similarity in the positive and discrepancies in the negative consequences/barriers perceived. In addition, the degree of involvement seems to mainly influence the *number* of ladders produced, which is expected based on the grounds of both the sophistication of the underlying cognitive structure and processes at work during retrieval. On the other hand, there are no or only very small effects on the *type* of ladders produced; especially the ladders in the low involvement conditions are not necessarily shorter. It therefore seems that the laddering method can be used to extract the substantial differences in the subjective product meanings of consumers with higher and lower degrees of involvement, without jeopardising the basic assumption of the method, that subjective product meanings can be analysed by extracting Means-end chains (Sorensen et al, 1996).

6.1.1.2. Sample's behavioural and personality factors

In a small socio-demographic questionnaire (c.f. Chapter Appendix, Table 6.21), a number of olive oil behaviour, involvement and overall attitude questions have been included prior to the laddering interviews, together with the definitions of the four main quality assurances under examination, assuming possible low awareness level on behalf of some of the respondents (the matter of quality elements' awareness will be deeply investigated further, c.f. Sections 7.2.4 and 7.6.1.2). Thus, 33 respondents purchase food at least once per week (Table 6.2). The whole sample spends in food on average GBP30 per week. Another 28 persons consume at least 1L of olive oil per week, double the country's average per capita consumption (see Section 1.2.3). This

Table 6.2: Sample Description in Terms of “Purchasing/Consumption Behaviour” and “Olive Oil Involvement and Overall Attitude”, n=40

CHARACTERISTIC	% (number)		% (number)		% (number)
<i>Food and Olive Oil Purchase Behaviour</i>	>1 / week		1 / week		< 1 / week
Food purchase frequency	42.5 (17)		40 (16)		17.5 (7)
	> 30GBP		30GBP		<30GBP
Food expenditure	40 (16)		15 (6)		45 (18)
	>1L		1L		<1L
Olive oil purchase quantity	40 (16)		30 (12)		30 (12)
	Frequent.		Rarely		Never
Olive oil purchase place: minimarket	5 (2)		22.5 (9)		72.5 (29)
: supermarket	37.5 (15)		27.5 (11)		35 (14)
: hypermarket	37.5 (15)		27.5 (11)		35 (14)
: specialty shop	5 (2)		20 (8)		75 (30)
: bulk from producers	5 (2)		10 (4)		85 (34)
Olive oil substitute: pomace oil	7.5 (3)		5 (2)		87.5 (35)
: sunflower oil	12.5 (5)		15 (6)		72.5 (29)
: soy oil	2.5 (1)		2.5 (1)		95 (38)
: other vegetable oils	15 (6)		22.5 (9)		37.5 (15)
Olive oil use: frying	57.5 (23)		7.5 (3)		35 (14)
: boiling	87.5 (35)		7.5 (3)		5 (2)
: in salads	95 (38)		-		5 (2)
<i>Olive Oil Involvement and Overall Attitude</i>	Strongly agree	Agree	Neither... nor...	Disagree	Strongly disagree
Interested in production method	32.5 (13)	37.5 (15)	25 (10)	2.5 (1)	2.5 (1)
Compare olive oil brands before buying	40 (16)	42.5 (17)	15 (6)	2.5 (1)	-
Olive oil brands have differences	35 (14)	40 (16)	20 (4)	5 (2)	-
Preferable olive oil brand	30 (12)	32.5 (13)	22.5 (5)	7.5 (3)	7.5 (3)
Good overall knowledge about olive oil	7.5 (3)	45 (18)	30 (8)	12.5 (5)	5 (2)
Olive oil is: good for health	95 (38)	5 (2)	-	-	-
: good cooking ingredient	77.5 (31)	22.5 (9)	-	-	-
: good substitute of other oils	67.5 (27)	27.5 (11)	5 (2)	-	-
: tasty in salads	90 (36)	10 (4)	-	-	-
Olive oil has: nice aroma	72.5 (29)	17.5 (7)	10 (4)	-	-
Olive oil is: of high quality	80 (32)	17.5 (7)	2.5 (1)	-	-
: natural product	82.5 (33)	15 (6)	2.5 (1)	-	-
: environmentally friendly	60 (24)	25 (10)	10 (4)	5 (2)	-
: traditional Greek product	70 (28)	25 (10)	2.5 (1)	-	2.5 (1)
: consumed out of habit	15 (6)	17.5 (7)	15 (6)	37.5 (15)	15 (6)
Olive oil has a ‘value for money’ price	42.5 (17)	42.5 (17)	15 (6)	-	-

indicates that the sample is being mainly constituted by heavy olive oil users. In addition, none of the respondents has its own olive oil production facilities but all purchase olive oil from the commerce.

Concerning the place of olive oil purchase, the results are less clear: 29 and 30 individuals “rarely or almost never” purchase olive oil at minimarkets-local convenience stores and specialty shops respectively. The exclusion of specialty shops from the places of frequent olive oil purchase is a contradictory result compared to

what we would expect from a sample of quality conscious consumers. A possible explanation is the scarcity of specialty shops in Greece, the very low market share they possess and the corresponding convenience and access problems consumers might face, which almost prohibit their inclusion to the common olive oil purchase places. In addition, 34 respondents claimed that they “rarely or almost never” purchase bulk olive oil directly from producers. This coupled with the fact that all the respondents purchase olive oil, increases sample selection’s accuracy in terms of bottled olive oil use.

It seems that the most usual outlets of bottled olive oil purchase are the supermarkets and hypermarkets (15 persons both). Yet, these percentages are close to those who purchase olive oil “rarely or almost never” at the specific places (14 respondents for both), making the purchase place selection more confusing. In other words, two thirds of the respondents do not seem to strongly prefer a specific outlet, despite the fact that they do not have their own olive oil production and do not buy bulk olive oil directly from producers. The researcher feels that the respondents did not reveal their real olive oil buying attitude and possibly the percentage of those who purchase bulk olive oil is bigger or some of them might have their own olive oil production without admitting it.

The situation seems clearer when talking about other, competitive to olive oil, oils. Thus, pomace olive oil, sunflower oil, soy oil and other vegetable oils are frequently preferred by only 3, 5, 1 and 6 respondents respectively. Furthermore, the most frequent olive oil use is raw in salads (38 individuals), followed by its use as a cooking ingredient, when boiling (35), or frying (23). This further indicates Greek consumers’ familiarity with olive oil and its great importance to their everyday diet

habits.

Finally, a purchase decision factor, which has to be included in our analysis, is the existence of children in the household. Hence, of the 12 respondents having 1 to 3 children, 11 purchase food at least once per week, 8 spend more than GDP30 per week, and 10 consume at least 1Lt of olive oil per week. The existence of children in the household does not seem to influence the selection of olive oil purchase place, with only 3 and 5 respondents with children frequently preferring supermarkets and hypermarkets respectively. Yet, 11 out of 12 reject the specialty shops as purchase places and all reject buying bulk unbottled olive oil, possibly expressing their increased quality and health consciousness due to the existence of children in their household.

In terms of olive oil involvement, four elements of Zaichkowski's (1985) "Personal Involvement Inventory" measurement scale is used, assuming a simple linear combination of the scale items. These are: a) *search for product information* (Table 6.21, question 14a). High involvement consumers should be more interested in acquiring information about the product than low involvement consumers; b) *alternative evaluation* (question 14b). Since the highly involved consumer searches for relevant information, the available alternatives are thought to be consciously compared before a selection is made; c) *Perception of brand differences* (question 14c). High involvement scorers would perceive greater differences among brands in the product class than low involvement scorers; d) *brand preferences* (question 14d). People highly involved in a product class are hypothesised to have a most preferred brand in the product category. The preference of a particular brand stems from the

perception of differences among brands. Since high involvement implies perceiving greater differences about product attributes, then the consumer should have a greater preference based on that product differentiation.

The sample seems to be highly involved in the purchasing process of the product, since 28, 33, 30 and 25 respondents (totally) agree that “they are interested in olive oil production method”, “have compared different brands before purchasing one”, “believe that there are differences between olive oil brands” and “have a favourite brand” respectively. In total, more than half of them (21) believe that they “have a good overall knowledge on olive oil”, yet with another 12 being reluctant to express a clear opinion. This is more or less expected and possibly due to the great variety of olive oil tastes, aromas and flavours, which make olive oil knowledge a real “culture”, in a way similar to that of wine.

Finally, in terms of overall attitude towards olive oil, the great majority of the respondents (totally) agree with a series of positive olive oil characteristics, such as its healthiness (40 respondents), high quality (39), tastiness (40), naturalness (39) and traditional character (38). Even for a number of negative characteristics respondents’ opinion is basically positive, such as olive oil processing’s environmental friendliness (34 persons -totally- agreeing) and its consumption out of habit (21 persons -totally- disagreeing). However, another one third of the respondents (totally) agree with olive oil’s consumption out of habit, fact that somewhat decreases sample’s involvement. Overall, 34 participants to the sample find olive oil being “value for money” priced, result crucial for further analyses.

6.1.2. Laddering application

6.1.2.1. Selection of the appropriate attributes' elicitation technique

A number of techniques have been developed for the purpose of identifying important attributes. These techniques range from complex elicitation of idiosyncratic attributes, e.g. triadic sorting, to simpler techniques as picking from a pre-specified list of attributes. The five main techniques are: 1) triadic sorting, 2) free sorting, 3) direct elicitation, 4) ranking, and 5) picking from an attribute list (Grunert et al, 1995; Bench-Larsen et al, 1997):

Triadic sorting is a technique developed by Kelly (1955) with the purpose of mapping cognitive structures. The sorting procedure starts by the respondent being shown triple combinations of the product concerned, for each one of which the respondent is repeatedly asked for “an important attribute on which two of the products are alike and at the same time different from the third”.

In *free sorting*, the respondent forms groups on the basis of all the products presented. The respondent is told to group products, which on some important points are the same and at the same time different from the products in other groups. The groups can consist of as many or as few products as the respondent pleases. Then, the respondent is asked how the products in the groups are alike, and how they differ from the other groups of products.

Direct elicitation does not involve a sorting procedure. The respondent is asked to come up with the attributes most important to him/her when choosing among the assortment of products presented. Thus, this technique is the one that comes closest to a “natural speech” interviewing technique. In *ranking* the respondents are asked to decide the priority of the products according to preference and to state the causes for the ranking.

The *attributes on the list* must be generated in some way. This is often done by the use of a focus group or another qualitative technique. Thus, picking from a list is not based on idiosyncratic wording like the other techniques.

The attributes elicited by different techniques potentially differ on a number of dimensions, such as: 1) their number, 2) their perceived importance, 3) time consumption, 4) their abstraction level, 5) ability to discriminate between alternative products, 6) ability to discriminate within products, and 7) their predictive validity.

According to Bech-Larsen et al. (1997) and concerning the number of attributes elicited, the attribute list generates fewer attributes than free sorting and triadic sorting, but not significantly less than direct elicitation and ranking. Thus, the respondent does not seem to “elicit” a lot of irrelevant attributes when using it, fact that speaks for an acceptable validity of the attribute list method. On average, the attributes generated by this technique are perceived as more important than the attributes generated by triadic sorting. A possible explanation could be that respondents are asked explicitly to pick the most important attributes when using it. In addition and not surprisingly, letting respondents mark attributes from a list is by far

the quickest technique. The time dimension has potential beneficial implications for the quality of the data collected after the elicitation procedure, due to the possible fatigue or busyness of respondents.

When talking about the level of abstraction of the attributes elicited, some methods like triadic or free sorting generate more concrete attributes than the attribute list, but not at the expense of the abstract attributes, which are mentioned in equal number across methods. Furthermore, no significant differences exist between the methods with regard to their between and within-product discriminating power. Finally, not any significant difference across elicitation techniques was revealed regarding their predictive ability, especially when talking about a low-involvement product (Bech-Larsen et al., 1997) like virgin olive oil for the average Greek consumer.

From all the above mentioned, the answer to the question “which technique should be chosen when studying low-involvement consumer choices” seems to be straightforward: pick the cheapest or least complex technique. However, the fact that the selection should depend on the purpose of the research makes the answer not so obvious. When predicting behaviour is the main purpose, the attribute list method is recommended because it is the cheapest and least complex, and its results are easier to quantify and to be used as an input for the available set of market-analytic instruments (Bech-Larsen et al., 1997).

In the case of the present study, the elicitation method chosen was that of the attribute list, mainly for reasons of simplicity and limited time and resources. The method complies with our aim of exploring the behaviour of a specific type of Greek consumer regarding the consumption of quality differentiated Greek olive oil brands¹.

The list of attributes has been constituted by 27 groups of attributes covering 6 cognitive and abstract categories (Table 6.3). It has been based on secondary data, namely: a) previous research on vegetable oils and specifically olive oil consumption in a pan-European context (see for example: Bech-Larsen et al, 1996; Vali, 1997; Steenkamp and Avlonitis, 1998; Nielsen et al., 1998; Krystallis, 2000. Also see Section 5.3.3.2). And b) the extensive literature review on the Means-end models application in the food consumer research we have seen in Chapter 5.

Of great importance for the development of the olive oil attribute list has also been the research conducted by Siskos et al (1995). According to this, the percentage of Greek consumers using extra virgin olive oil is significant (69.65 per cent), while the use of common olive oil and corn oil is 31.84 per cent and 47.26 per cent respectively. It is very important to mention that consumers preferring extra virgin olive oil use it daily. Therefore, Siskos et al. segmented Greek consumers into two broader categories: those using extra virgin olive oil daily and those using other types frequently.

¹ However, Means-end Chains models can not by themselves predict behaviour, since they have not been integrated into a theory that includes assumptions about cognitive processes (for a criticism of the MEC models see the Aarhus Business School, WP 34, Nov. 1995).

Table 6.3: The Attribute List Used as a Starting Point of the Laddering Method

Source: adapted from Valli, 1997; Steenkamp and Avlonitis, 1998; Nielsen et al., 1998.

General Appearance	Sensory characteristics	Label information	Price	Perceived quality	Innovativeness
1. Glass bottle: a. transparent b. coloured c. cylindrical d. squared 2. Plastic bottle 3a. Size of 1L 3b. Size <1L 3c. Size >1L 4a. Label with good overall appearance 4b. Label with text or design which brings in mind an image of Greek tradition	5. Taste: a. Soft-sweet b. Strong-bitter 6. Aroma: a. Light b. Heavy 7. Texture: a. Oily-thick b. Smooth-thin 8. Colour: a. Green b. Yellow c. Cloudy d. Clear	9. Nutritional value: a. calories b. unsaturated fatty acids c. cholesterol free d. additives/preservatives 10. Dates written: a. Best before b. Harvest c. Bottling 11. No. of bottle per harvest year 12. Olive variety 13. Country of origin 14. Area of production-origin 15. Quality assurances (*): a. Extra virgin label b. PDO/PGI label c. ISO/HACCP certifi d. Organic label e. 'keep until' instructions	16a. High 16b. Low 16c. Value for money	17. Country of origin: a. Greece b. Other Med. country 18. PDO/PGI label 19. ISO/HACCP assurance 20. Extra virgin category indication 21. Organic label 22. Natural-pure product assurance 23. 'Keep until' instructions	24. Olive oil bottle with herbs inside 25. Olive oil bottle with different than the usual 'wine bottle' shape 26. Olive oil bottle with unusual label in appearance and information written 27a. Olive oil carton boxed bottle with a layer of straw inside 27b. Olive oil wooden boxed bottle with a layer of straw inside

* Used both as "perceived quality" and "label information" attributes, increasing their total number to 52.

In terms of packaging, three main consumer groups were identified: one related to large cans bought directly from producers (17L), another related to smaller cans (5L), and a third related to mainly plastic bottles (1L), both bought mainly from supermarkets. Each segment is an exclusive user of one specific type of container. Young age has been the identified factor influencing positively the purchase of glass bottles, and large family size and lower income these positively influencing the use of bigger cans. Greek consumers use extra virgin olive oil in almost all purposes and especially in salads and it is preferred to other oils mainly for its taste, aroma,

healthiness, colour and liquidity (structure). Consumer extra virgin olive oil brand selection criteria are the company image (88 percent), the packaging attractiveness (55 percent), the different information sources' influence (52 percent), and the overall brand perceived quality (40 percent). Price has little influence on Greek consumers (only 3 percent).

6.1.2.2. Selection of laddering type, recruitment, process description

Most of the laddering problems can be detected and possibly circumvented by a trained interviewer, if the interviews are conducted in a manner encouraging a natural and redundant flow of speech. Then the interviewer reconstructs ladders only after the interview (Grunert et al, 1995). As we have seen in Chapter 5, the "soft" laddering type restricts as little as possible respondent's natural flow of speech, and is more suitable for low-involvement products. Thus, the soft-type, or more specifically an as least as possible restricted hard-laddering approach, is selected.

The subjects were selected based on the criteria discussed previously (from the wider social circle of the interviewer with whom, hence, they have been familiar) and visited. The discussion took place at their most suitable room of the house, in order to create an informal, cosy atmosphere. The time and day of the visit were arranged by the respondent. Telephone calls made prior to the visit assured the appropriateness of the day and time or offer the opportunity for a rearrangement when necessary. The purpose was to make the subject feel comfortable and at ease in order to induce a positive mood state towards talking freely during the interview. The interview opened with a short introduction to welcome the subject and to thank him/her for participating. The subject was informed that the goal of the interview was to extract

the personal meaning he/she assigns to the quality differentiated branded olive oil. It was stressed that data were strictly confidential. Also, the definitions of four perceived quality elements whose real meaning can possibly be ambiguous for the respondents (namely the organic and PDO labels and the ISO and HACCP schemes) have been provided in written form (see Chapter Appendix, Table 6.22), to clarify things and avoid confusion. Then, the phase of consequences and values elicitation was initiated. The interview started by showing the subject a sheet of paper with the attribute list and asking for importance weights on a scale of 1 to 3: “when purchasing olive oil, I believe that the following characteristics are *very important/rather important/unimportant* criteria for my decision” (Claeys et al, 1995; Bech-Larsen et al, 1996; Botschen et al, 1999).

In the second step, all the attributes chosen as “very important” have been selected as laddering starting points. The subject was encouraged to follow the ladder of abstraction mainly by using probes of the form “why is this important to you”. A ladder was considered to be at its terminal level when a) subjects started giving circulate answers, or b) the respondent was unable or unwilling to answer. In this case, the interviewer first tried to stimulate the process by using techniques suggested in Reynolds and Gutman (1988), such as referring to a third person, evoking a usage context etc. (see Table 5.5). When one ladder was completed, the interviewer returned to the next salient attribute and the laddering process was repeated:

Interviewer: “You said that the organic label is important to you in deciding what olive oil to buy. Why is that?” (Attribute)
Respondent: “Because I believe that if I buy olive oil without chemicals, I buy a healthy product” (Functional benefit)
Int: “Why is it important for you to buy a healthy product?”
Resp: “Because I want to be healthy” (Psychological benefit)
Int: “Why is it important for you to be healthy?”

Resp: "Because then I can enjoy my life more" (Instrumental value)
Int: "Why is it important for you to enjoy your life?"
Resp: "Because I think I would be happier" (Terminal value)
Int: "Why is it important for you to be happy?"
Resp: "It just is!" (the end)

The time necessary for the accomplishment of the method per subject varied from 30 to 60 minutes, mainly according to the willingness of the individual to answer and his/her ability to express him/herself. The interviewer observed that education level, individual's experiences and sociability played a major role in his/her ease of reaching a high abstraction level.

6.1.2.3. Analysis of the importance assigned to each attribute

A first frequency analysis of the importance assigned to each attribute revealed the following result (Table 6.4): Only 16 (30 percent) of the 52 attributes included in the list are "unimportant". Another 7 (13 percent) are characterised as "rather important", yet given as alternatives to the "very important" attributes (31 or 57 percent). Thus, it would be more accurate to talk about consumers being indifferent towards some olive oil alternative combinations of attributes rather towards the attributes per se, justifying the accuracy of our selection. From the 31 very important attributes, the majority are those concerning the "perceived quality" and "label information" categories.

It can be observed that 39 of the 40 respondents *want olive oil to be of Greek origin*. This indicates a kind of respondents' ethnocentric attitude (c.f. Section 6.2.1), which possibly has its source to their strong belief that Greek olive oil is of higher quality compared to that from other Mediterranean countries, towards which they are indifferent. The *geographic origin* of the food product constitutes a type of guarantee. Most studies found that "country of origin" does indeed affect product evaluations. In

Table 6.4: Frequencies of Selected Attributes According to their Degree of Importance for the Sample

Very important Attributes, 57%	Fr.	%	Rather important Attributes, 13%	Fr.	%	Unimportant Attributes, 30%	Fr.	%
1. Glass bottle	34	85	1. Glass bottle cylindrical	21	52.5	1. Glass coloured bottle	29	72.5
2. Size 1L.	22	55	2. Size more 1L.	17	42.5	2. Glass bottle squared	16	40
3. Attractive label	26	65	3. Calories on label	17	42.5	3. Plastic bottle	24	60
4. Traditional label	29	72.5	4. Harvest date on label	17	42.5	4. Size less 1L.	19	47.5
5. Soft taste	23	57.5	5. Olive variety on label	16	40	5. Strong taste	26	65
6. Light aroma	28	70	6. Olive oil from other Mediterranean country	19	47.5	6. Heavy smell	25	62.5
7. Thin structure	27	67.5	7. Different than the usual bottle	18	45	7. Thick structure	18	45
8. Green colour	28	70				8. Yellow colour	23	57.5
9. Clear	33	82.5				9. Cloudy	36	90
LABEL INFO:						10. Number of bottle/year	16	40
10. Fatty acids on label	25	62.5				11. High priced	21	52.5
11. Cholesterol free on label	26	65				12. Low priced	22	55
12. Additives on label	35	87.5				13. Herbs in the bottle	19	47.5
13. Best before date on label	37	92.5				14. Different than the usual label	16	40
14. Harvest date on label	17	42.5				15. Use of carton box	33	82.5
15. Bottling date on label	22	55				16. Use of wooden box	23	57.5
16. Olive variety on label	16	40						
17. Country of origin on label	38	95						
18. Production area on label	31	77.5						
19. Extra virgin	34	85						
20. PDO label	22	55						
21. ISO/HACCP certification	27	67.5						
22. Organic label	25	62.5						
23. 'Keep until' instructions	18	45						
24. 'Value for money' priced	37	92.5						
PERCEIVED QUALITY								
25. Greek country of origin	39	97.5						
26. PDO label	18	45						
27. ISO/HACCP	27	67.5						
28. Extra virgin	34	85						
29. Organic label	26	65						
30. Natural product label	31	77.5						
31. 'Keep until' instructions	37	92.5						

general, consumers prefer food products from their own country to products from other countries (Steenkamp, 1996). Consumer ethnocentrism is defined as “the beliefs held by consumers about the appropriateness, indeed morality, of purchasing foreign-made products” (Shimp and Sharma, 1987). Consumers who are more ethnocentric have more negative beliefs, attitudes, and purchase intentions. Steenkamp (1996) used the CETSCALE model developed by Shimp and Sharma (1987) to study consumer ethnocentrism in Greece, Belgium, Great Britain and Spain. Greece was on average highest in consumer ethnocentrism and Belgium lowest. For example, 36.3 percent of the high ethnocentric Greeks had never bought Dutch cheese, 60.4 percent had never bought Dutch flowers and 95.9 percent had never bought Dutch pork (Table 6.5).

It can be also observed that 37 of the 40 respondents *want olive oil to be priced according to its perceived value*. Another indication is that respondents are neither price-sensitive (low price has been unimportant for 22 respondents) nor willing to spend more than “it should be” (high price unimportant for 21 respondents). This demonstrates the fact that olive oil is a valuable but rather common consumer good, whose price should only partially indicate its quality. The term “value for money” is more accurate to describe their attitude towards its price.

In terms of *appearance*, an important message to the processors is the fact that there is a consumer type, which prefers a glass bottle (34 people), of 1L or more, to the traditional plastic one, which dominates the domestic market (unimportant for 24 respondents). The most favourite combination of sensory characteristics is that of soft taste, light aroma, thin structure, and green and clear colour, indicating that urban consumers are mostly familiar with the more “industrialised” types of commercial

Table 6.5. Ethnocentrism and Purchase Behaviour with Respect to Products from Other Countries
Source: adapted from Steenkamp, 1996.

Product/ Country of origin	Belgium		GB		Greece		Spain	
	LE*	HE	LE	HE	LE	HE	LE	HE
Cheese								
Netherlands	3.0**	3.3	14.7	24.1	21.1	36.3	42.8	50.9
France	4.1	6.9	21.7	50.4	-	-	41.4	57.6
Flowers								
Netherlands	29.5	43.0	29.9	40.7	45.8	60.4	73.3	83.2
Pork								
Netherlands	72.3	81.1	-	-	89.9	95.9	97.8	97.9
Bacon								
Netherlands	-	-	44.0	59.9	-	-	-	-
Denmark	-	-	8.3	15.9	-	-	-	-

* LE: low ethnocentricity, HE: high ethnocentricity, -: no available data.

** Given is the percentage of consumers that has never eaten the product from a certain country.

olive oil brands of “softer” taste. And this, despite the fact that 1/3 of the quantity consumed in Greece is being purchased directly from producers. This may further suggest a lack of deeper knowledge or “culture” of olive oil, at least on behalf of the younger urban consumers of the sample.

In terms of *label information*, the “country of origin” (38 respondents), “best before” date (37), additives-preservatives information (35) and “extra virgin” categorisation indication (34) are found to be the most important. Nutritional and health information (fatty acids, cholesterol free), and quality and safety assurances (ISO/HACCP, PDO/organic label) are also very important for approximately 2/3 of the sample.

Concerning especially the *perceived olive oil quality*, the importance of the quality assurance labels of ISO (27 respondents) and Organic (26) is found to be of substantial importance, in consistency with the *label information* results. Of interest to the processors is that the “natural product” label has been found to be very important for 31 respondents. Quality labelling is internationally considered as another type of guarantee. For example, Steenkamp (1996) found that the presence of a quality label had a significant effect on the perceived quality of smoked sausages. Van Trijp et al

(1996) proposed and tested a conceptual model for the value added to the food product by a quality label. They found that pork with a quality label (e.g. concerning integral chain management) received 'significantly more positive quality perceptions, associations, and overall attitude, lower perceived risk, and higher commitment.

Also interesting is the percentage of respondents considering the "area of production" attribute to be very important. This fact proves that, overall, the olive oil origin is crucial for the consumer. The concept of region of origin is related to the country of origin. EU regulations on "designation of origin" (EEC, 2081/92), the marketing success of products like Parmesan or Feta cheese, "appellation d' origine controlee" French wines, and the tendency of groups of consumers to prefer products from their own regions due to the lack of a national food culture (Askegaard and Madsen, 1995), have stimulated food industry to market products with a region of origin guarantee. The psychological concepts involved in explaining the effects of country of origin and region of origin guarantees are in principle the same. However, adding value to the product with a region of origin guarantee will generally be more difficult because awareness of, and associations with, a particular region will typically be more limited (especially when the product is marketed outside the home country). On the other hand, it can be a useful tool for small and medium sized food companies to compete with big multinationals in the national and international market (Steenkamp, 1996).

Finally, the majority of the sample feel that the product commercially proposed is satisfactory enough and found different innovative ideas concerning the actual product (labelling, bottling, packaging) as unimportant, with a varying percentage from 40 ("different than usual label") to 82.5 ("use of carton box"). Only the idea of "different

bottle shape” is rather important. This indicates that even younger and more educated consumers prefer the more traditional or typical image of the product, suggesting that its differentiation should be based on extrinsic (credence or experience) attributes different than its appearance (search attribute).

6.1.2.4. Coding of laddering data – selection of abstraction level

The distinction between attributes, consequences and values should, of course, be based on a conceptual definition of these terms. The laddering literature is surprisingly void of such definitions (Grunert et al, 1995). Making categorisations in a uniform way is heavily dependent on the availability of context information, e.g. on the extent to which a term like *healthy* is embedded in a redundant flow of natural speech. How much context information is available will depend on how the laddering interview is executed. In laddering tasks where the interviewer records the answers as notes in ladder schemes, the context information is available to the interviewer only and not in subsequent coding. Only when the interviews are taped and transcribed, is the full context available in coding, an approach also adopted in this work and consequently an archive of recorded and transcribed tapes has been created (pilot and main sample).

Concerning the transparency and reliability of the coding, having parallel coders is, as we have seen in Section 5.3.2.3, the most common practice used in laddering. Yet, parallel coders can be a problem as well (Grunert et al, 1995). The raw data used for the coding already involve information loss compared to the original interview. Context information, which may be helpful or important when coding the data, is already lost. The interviewer is the best possible coder, because she/he will remember part of the context information and may also better clarify matters by referring back to

a tape. A second coder, who does not have this background information, may perform the coding in a different way, due to this lack of implicit context information. We would, then, observe low inter-coder reliability, the reason being a difference in the context information available to the two coders (Grunert et al, 1995)².

In order to increase the indexicality of our research, the solution of the interviewer-coder was selected. Nevertheless, finding more inter-subjective ways of coding text data is always helpful. Thus, the idea of *iterative coding* was followed (see Section 5.3.2.3.). A first coding was performed and the implications of this coding were made transparent by aids like keyword-in-context list and insertion of codes into the text database. After a month and based on these aids, the coding was revised and the implications of the revised coding were analysed in the same way. Although the number of codes selected in the 1st and the 2d iteration was different, 78 percent of the elicited concepts have been assigned to the same code each time. This procedure was repeated once again after another month, until the coding appeared satisfactory, with the agreement measure between the 2d and 3d iteration reaching 92 percent.

The consequences and values elicited after the question “why is this important to you?” being repeatedly asked by the interviewer to the 40 respondents were grouped after the 3d iteration into 29 functional consequence, 25 psychological consequence, 24 instrumental value and 18 terminal value codes (Table 6.6 and 6.7), by assigning a number to each one of them. The initial consequences and values mentioned by the

² The need for context to attach meaning to an answer refers to the general problem qualitative researchers call *indexicality*. For the researcher, it is possible to understand, or make sense of a respondent’s answer only by relating it to that respondent’s individual background. Answers must be interpreted relative to the respondent’s background, experience, career etc (For more see: Grunert et al, 1995; Gutman, 1991).

Table 6.6. Content Analysis: 54 Groups of Consequences Elicited, n=40

<i>Code Functional Consequences</i>	<i>Frequen.</i>	<i>Code Psychological Consequences</i>	<i>Frequen.</i>
1. Healthy	39	1. Healthy/long life	39
2. Keeps you in shape	8	2. Easier/simple life	21
3. Safe	3	3. Energy/strength	7
4. Environmentally friendly	4		
5. Tasty	35	4. Enjoy eating	33
6. Joyful	1	5. Good mood/relaxation	36
		6. Confidence	
7. Natural-authentic	26	7. Confidence on Greek products	30
8. Traditional	18	8. Brand loyalty/ customer respect	2
9. Educational	3		7
10. Pure-no additives	22	9. Money management/ value for money	4
11. Fresh	12		
		10. Effectiveness/creativity	24
12. Attractive	26	11. Perfectionism	1
13. High quality	38	12. Cover standards	19
14. Quality warrantee	37	13. Keep/follow values	10
15. Longevity	9	14. Take right/stable choices see clearly	17
16. Reliable	3	15. Have the right to choose	6
17. Valuable-prestigious	7	16. Being informed/knowledge experience	11
18. Professionally made-organised	11		
		17. Self-identity	9
19. Distinctive-innovative	19	18. Cultural identity/roots	4
20. Practical-functional	25		
21. Useful	2	19. Self-respect	3
22. Helps you to save money	19	20. Satisfied consciousness-moral	2
23. Abundant	1		
		21. Success with the opposite sex	1
24. Contains valuable info	10		
		22. Being emotional/ Daydreamer	1
25. Fair-honest	32		
		23. Social morality	20
26. Support your country	18	24. Social equilibrium/rules	8
27. Brand name value	1		
		25. Distinctive as a nation	1
28. Convincing	1		
29. Usual-out of habit	5		

Green characters: Groups of benefits mentioned by less than 10 per cent (4) of the sample

Blue characters: Groups of benefits mentioned by 10 per cent of the sample.

respondents before the content analysis can be found in the Chapter Appendix, Tables 6.18-6.21. At average, approximately 20 olive oil attributes are selected by respondents as “very important” These lead to the elicitation of, approximately, 11 functional consequences, 5 psychological consequences, 11 instrumental values and 5 terminal values (see Table 6.1a, columns 4-10). It is interesting to note that the

Table 6.7. Content Analysis: 42 Groups of Values Elicited, n=40

<i>Code Instrumental Values</i>	<i>Frequen.</i>	<i>Code Terminal Values</i>	<i>Frequen.</i>
1. Self-esteem/feel successful	37	1. Personal progress	23
2. Self-confidence	36	2. Self-knowledge	21
3. Ambitions' fulfilment	33	3. Psychological satisfaction	28
4. Cover your needs	33	4. Accomplishment	18
5. Internal calm/peace of mind/ emotional equilibrium	35	5. Fulfilment	15
6. Intellectuality	7	6. Happiness	19
7. Open-minded	3	7. Excitement	3
8. Variety/refreshing	13	8. Positive/ Optimistic	7
9. Enjoyment/ pleasure/ enjoy life	31	9. Make dreams	1
10. Reward for an effort	19	10. Approach god	1
11. Motives for more...	23	11. Instinct of creation	5
12. Social status	18	12. Instinct of survival	3
13. Distinctiveness	12	13. Quality of life	18
14. Professional success	32	14. Fight in life	8
15. Family well-being	24	15. Being a "normal" human being	5
16. Feel useful	17	16. Freedom	15
17. Social relationships	32	17. Understand/ learn the world	4
18. Belonging/ part of a team/ social approval	15	18. National pride	14
19. Belonging/ friendship	5		
20. Security/safety	33		
21. Satisfactory income	10		
22. Organised life	12		
23. Social well-fare/ make the world a better place	10		
24. National reputation/history	4		

Green characters: Groups of values mentioned by less than 10 per cent (4) of the sample

Blue characters: Groups of values mentioned by 10 per cent of the sample.

number of (at a higher abstraction level) psychological consequences and terminal values is lower than that of functional consequences and instrumental values respectively. Regarding the "right" level of abstraction when coding the laddering data, the difference between two answers is rarely purely lexical. To define them as synonyms and group them into the same category, this has to be at a more abstract level than the answers themselves. Such coding appears intuitively apparent, even though it obviously leads to a loss of information:

“If the coding stops at that level, the resulting number of categories will usually still be large (40-50 concepts). The implication matrix will be correspondingly large, the cell frequencies will be low, and it will not be possible to compute and draw a hierarchical value map, destroying the most appealing device of the laddering technique...” (Grunert et al, 1995).

Thus, a more radical coding is typically required to reduce the data (Gutman, 1991).

This usually means that the level of abstraction for each category has to be raised considerably. Based on these, it was decided to follow a *factor analysis* procedure, in order to decrease the number of consequences and values elicited by increasing the level of abstraction.

Different factor analysis approaches took place at the level of consequences elicited. Initially all the 54 groups of benefits were used as binary (dammy) input variables, with a number 1 assigned to each respondent when he/she had mentioned the specific variable and 0 when had not.

The first effort was to identify the underlying factors out of all the 54 groups of benefits. SPSS 9.0 identified 20 factors with eigenvalues greater than 1 and acceptable statistical properties (Hair et al, 1995) in terms of communalities and total variance of the sample explained by the factors. Nevertheless, a) from the initial 54 groups of benefit-variables, only 38 could be used in the translation of the factors to meaningful factor profiles (variables with factor loadings greater than 0.6), 14 mentioned by less than 10 percent of the sample (4 individuals). And b) 4 of the 20 factors were constituted by single variables mentioned by only one individual (factors 14, 18, 19, and 20). Interpretation of the factors was unclear. These findings led us to reject this approach.

The next scenario was to factor-analyse separately the 29 groups of functional from the 25 groups of psychological benefits. Then, 8 functional and 6 psychological factors were identified. Yet, individual ladders based on these factors (instead of the groups of consequences elicited) could not be constructed, because variables mentioned consecutively by individual respondents (thus constructing ladders) were not included in the translation of the corresponding “functional” and “psychological” factors, making the construction of meaningful factor ladders impossible. This led us to also reject this second approach.

It was clear, then, that a kind of *cut-off level* in terms of lower frequency limit was necessary regarding the variables used in factor analysis, in order for the corresponding factors to be constituted by meaningful and frequently mentioned groups of benefits-variables. The limit chosen for a specific group of benefits was to be mentioned by more than or equal to 4 individuals. This left us with a group of 39 or 36 important groups of benefits, if the cut-off level for variable exclusion has been 3 (less than 10 percent) or 4 (10 percent) individuals respectively.

The two solutions gave us 15 and 13 meaningful factors correspondingly. What was observed in the 39-benefit solution is that, like the 54-benefit one, variables mentioned by the minimum acceptable number of 4 respondents weighted higher in the translation of a factor (greater factor loadings) than other variables more frequently mentioned (e.g. factors 7: “keep your cultural identity” and 8: “environmental friendliness” weighted for .736 and .815 respectively, although mentioned by only 4 individuals).

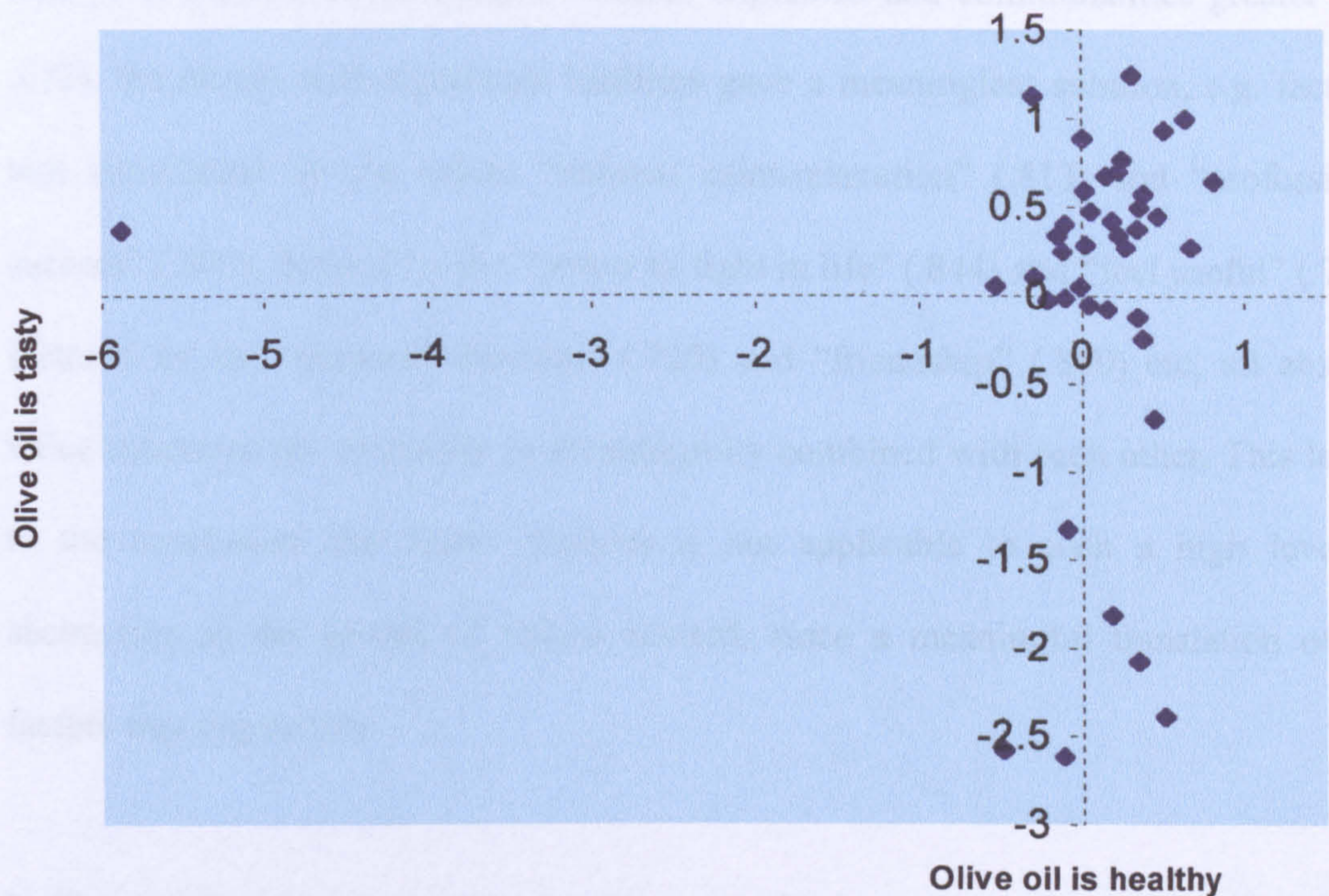
Then, the cut-off level of “greater than 10 percent” was finally chosen and a number of 36 out of the initial 54 consequences elicited by the laddering interviews was used. This solution gave us 13 meaningful factors, the translation of which, together with the statistical properties of the model, can be seen in Table 6.8. The 13 factors explain satisfactorily from 63.3 to 94.6 percent of the corresponding variables. The total variance explained by the model is satisfactory as well: 76.5 percent of the sample. Finally, the sample members can be graphically represented based on their scores in the first two most important benefit factors “health” and “taste”, figure that provides a first indication of the homogeneous sample distribution across them (Figure 6.1).

The weakness of the 36-benefit solution is that only 30 elicited benefits are included in the translation of the factors, 8 of which have factor loadings lower than .60. Especially the target variables “high quality” and “confidence”, which were mentioned by 36 and 30 sample members respectively, are absent. In addition, the interpretation of the 9th factor is contradictory, because of the negative sign of the variable “good mood”. Nevertheless, different quality characteristics were used in the translation of different factors, which are included in the meaning of “quality”, such as “tasty”, “purity-no additives”, “naturalness-authenticity”, “professionally made”, “information written on the label” and “traditional”. Moreover, the variable “quality guaranteed” has been included as well, decreasing the importance of the missing “confidence” variable.

Table 6.8: 13-Factor Solution from the 36 Groups of Benefits Chosen After the Content Analysis

No.	Factor Description (Underlying dimension)	Main Variables- Communalities	Variable Frequency	Variable loading	Factor Eigenvalu	% of Variance	Cumulative Variance
f1	Healthy food leads to healthy life	Healthy food - .946 Healthy life - .946	39 39	.952 .952	2.538	7.049	7.049
f2	Tasty food leads to enjoy eating	Tasty food - .835 Enjoy eating - .867	35 33	.878 .899	2.514	6.983	14.033
f3	Tradition enhances one's self-identity	Self-identity - .728 Traditional food - .658	9 18	.817 .587	2.347	6.519	20.552
f4	Longevity of a product helps you to save money, but cheap things might not cover one's standards	Longevity - .753 Save money - .740 Cover your standards - .732	9 19 19	.713 .560 -.751	2.274	6.317	26.869
f5	Pure products with no additives are honest to the consumer and make him more effective in everyday life	Honest/fair - .869 Pure/no additives .882 Effectiveness/creativity - .699	32 22 24	.807 .770 .507	2.202	6.117	32.986
f6	Quality products with many info on the label, professionally made by well organised firms and natural, authentic create brand loyalty	Contains valuable info - .792 Professionally made/organised .776 Natural/authentic .852 Brand loyalty/customer respect .676	10 11 26 7	.723 .697 .575 .502	2.160	6.000	38.986
f7	Preserving one's personal values leads to an equilibrated well-ruled society	Social equilibrium - .784 Keep/follow your values - .844	8 10	.817 .768	2.138	5.939	44.924
f8	Supporting your country is a sign of social morality	Social morality - .811 Support your country - .633	20 18	.799 .516	2.069	5.748	50.672
f9	Right to make free choices (can affect your good mood?)	Good mood - .748 Having the right to choose - .647	36 6	-.751 .697	2.006	5.571	56.243
f10	Practical, functional things lead to easier life, which proves that one's decisions are right	Easier/simple life - .804 Practical/functional .805 Right/stable choices .685	21 25 17	.835 .647 .539	1.870	5.194	61.437
f11	Distinctiveness of a product	Distinctive/Innovative .743	19	.830	1.824	5.066	66.504
f12	Valuable, prestigious products are quality guaranteed	Valuable/prestigious .830 Quality warrantee .669	7 37	.699 .653	1.818	5.051	71.555
f13	Habitual things can't keep you in shape	Usual-habit .769 Keep in shape .743	5 8	.789 -.535	1.801	5.002	76.556

In conclusion, all the benefits elicited from the use of different olive oil attributes were content analysed with the aim to increase the level of abstractness of the model. This led us to a 54-group of benefits solution, 36 of which were factor-analysed according to the same objective. A 13-factor solution was chosen, increasing the level

Fig. 6.1: Graphical Presentation of the Sample According to its First Two Factor Scores

of abstraction to the maximum and succeeding in a data reduction of 76 percent. This is believed to improve the predictive ability of the model (Bech-Larsen and Grunert, 1998) and facilitate the further analysis and use of the *Laddermapper* software in the next stage. The factors chosen are easy to interpret and include many important consumer perceptions of the product, such as healthiness, taste, price sensitivity, traditional image, purity, authenticity, honesty, professionally made leading to brand loyalty, distinctiveness, and quality guarantee. Important social parameters were included as well, like social equilibrium, national support and social morality.

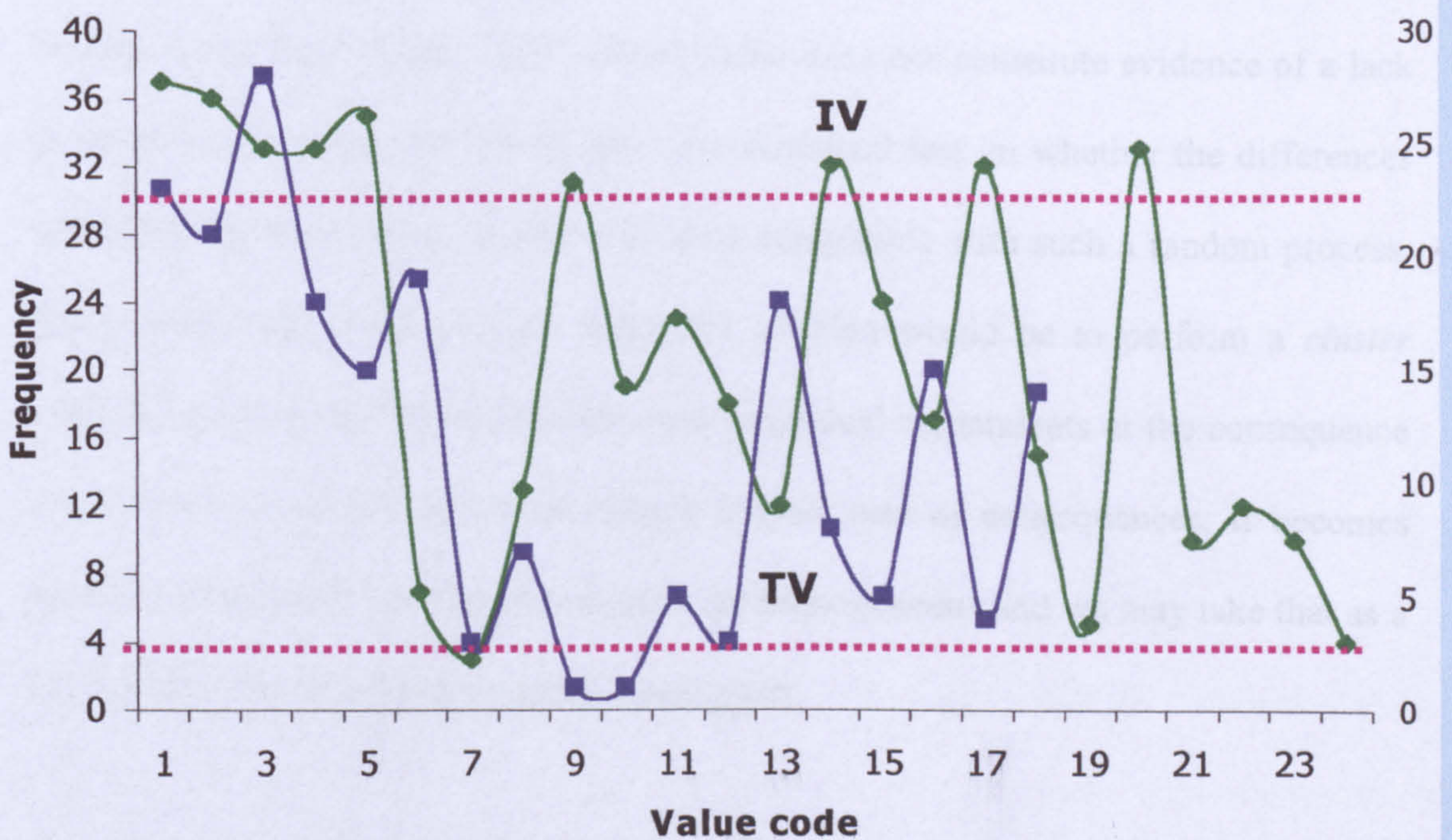
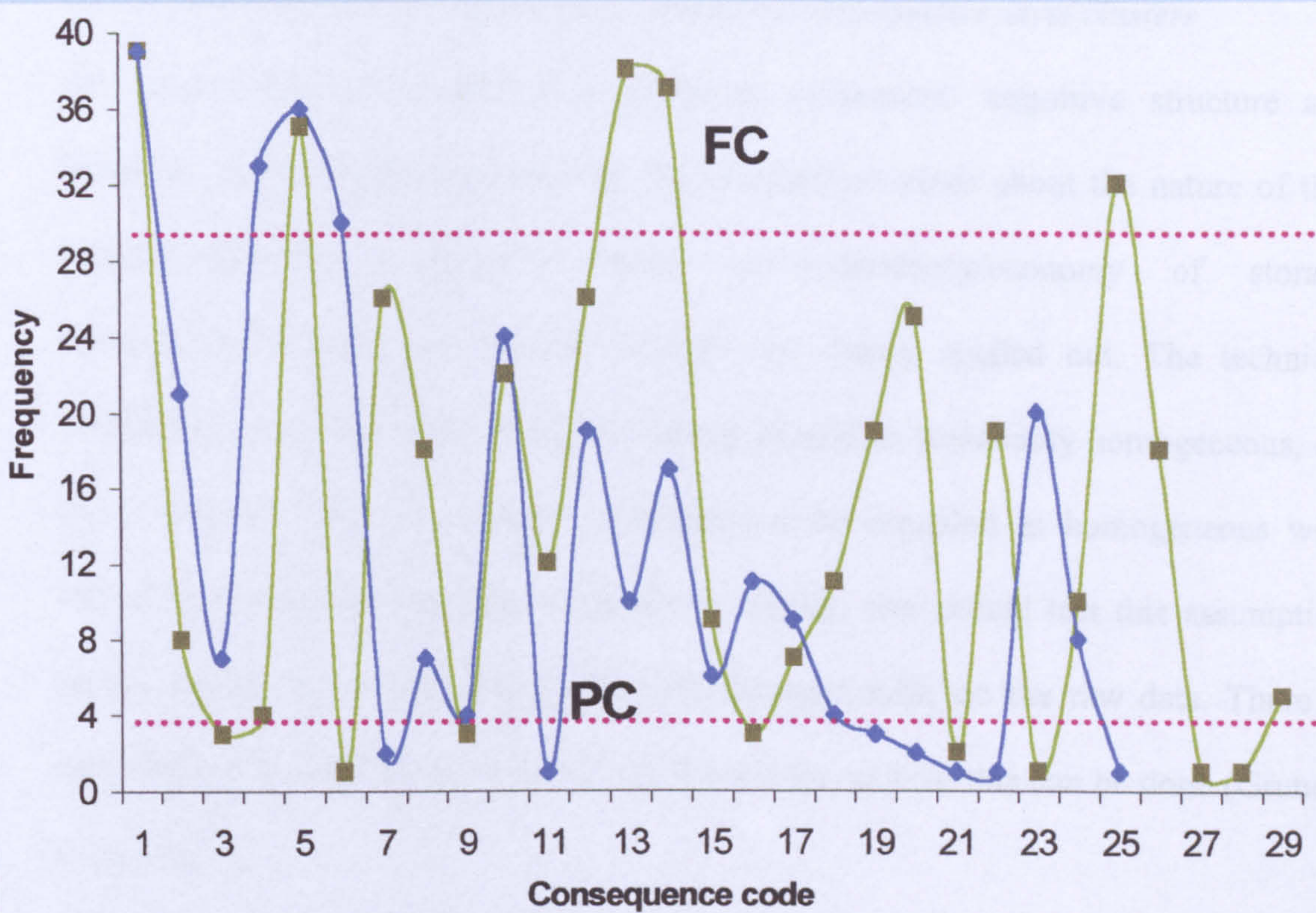
Finally, it has to be noted that, when the same methodology was applied to the 42 value-codes of the elicited values' content analysis (applying the same 10 percent cut-off level), the output was far less clear and easy to interpret. Despite the fact that SPSS identified a 16-factor solution that is statistically acceptable (with eigenvalues greater

than 1, 81 percent of the sample variance explained and communalities greater than .672), the factors with significant loadings gave a meaningless solution, e.g. factor 1 was constituted by the values “internal calm-relaxation” (.813) and “professional success” (.803), factor 2 by the “power to fight in life” (.844) and “feel useful” (.778), factor 6 by the “personal freedom” (.729) and “friendship” (.860) etc, all abstract value structures not obviously or meaningfully combined with each other. This led us to the conclusion that factor analysis is not applicable to such a high level of abstraction as the groups of values elicited, since a meaningful translation of the factors was impossible.

In Figure 6.2, sample’s distribution in terms of the two consequence and value-type frequencies can be found. It has to be noted that: a) The number of consequences mentioned by 4 and less respondents (9 functional and 9 psychological) is much higher than that of values (2 instrumental and 5 terminal), although these mentioned by more than 30 is high in both categories. This can be an additional, indirect indication of sample’s cognitive homogeneity and it is in line with Gutman (1982, see Section 5.3), which suggests that consumers are more likely to be in agreement at more concrete levels of constructs. In the specific case, it appears to be a more “solid” agreement at the consequence level, with fewer consequences with lower frequencies than values.

b) Frequencies higher than 20 are much more common among functional than psychological benefits and, similarly, among less abstract instrumental than terminal values. In other words: *the higher the abstraction, the lower the number of respondents commonly mentioning consequences or values, at the same level.* This can

Fig. 6.2: Sample Distribution According to the Frequency of Mentioning Functional and Psychological Consequences (FC, PC) and Instrumental and Terminal Values (IV, TV), n=40



be seen graphically, if observing that the PC and TV lines are positioned “lower” than the FC and IT of lower abstraction level respectively.

6.1.2.5. Homogeneity of respondents – identified consequence-level clusters

An interpretation of laddering analyses as consumers' cognitive structure and behaviour predictor presupposes that the assumptions made about the nature of that structure/behaviour, especially about non-redundancy/economy of storage (condensation phase, see Section 5.3.2.3), are clearly spelled out. The technical problem to be solved, then, is that this group should be reasonably homogeneous, or, more precisely, that its cognitive structure can be regarded as homogeneous with regard to the excerpt we want to measure. Ideally, one should test this assumption before attempting interpretations of the laddering results, on the raw data. There is only limited methodological research giving advice on how this can be done (Grunert et al, 1995).

The mere fact that the individual ladders differ does not constitute evidence of a lack of homogeneity. What we would need is a statistical test on whether the differences between individual sets of ladders would be compatible with such a random process. Not having such a test, a more pragmatic solution would be to perform a *cluster analysis* on the existence of links between individual respondents at the consequence level. If we obtain clusters with clearly distinct sets of consequences, it becomes intuitively less likely that the respondents are homogeneous and we may take that as a face validity test of the homogeneity assumption.

Roehrich and Valette-Florence (1991, in Grunert et al, 1995) have reported an example in which laddering data served as input to a cluster analysis. Their clustering was based on the existence of links between categories, and the units to be clustered were ladders, not respondents (type B segmentation, see Figure 5.6). Every respondent

may then be a member of more than one cluster so that, interpreted on the basis of respondents and not ladders, a set of overlapping clusters results. However, it should be possible to conduct a similar procedure with respondents instead of ladders as the units of analysis.

A similar approach is followed in our case. A hierarchical cluster analysis, with binary squared Euclidean distances and Ward's method is used (Hair et al, 1995; Botschen et al, 1999) in order to implement a type-A segmentation task. At the three different levels of the 54 groups of consequences (no cut-off level), 39 (cut-off level of less than 4 respondents) and 36 (cut-off level of 4), the analysis lead to a number of 3 to 5 clusters each, number that also facilitates the interpretation of the results. A k-means cluster analysis followed, aiming to identifying the relevant clusters.

Then, the main indication that supports sample's homogeneity has been that: *at all three levels of 54, 39 and 36 variables, the consequences mentioned by more than 75 percent of respondents (>30) participate commonly to the interpretation of all the clusters derived at any scenario, namely 3-5 clusters, with no statistically significant differences among them* (Tables 6.9 and 6.10). This means that some of the benefits from the use of olive oil, (many of great importance for the present study, according to our objectives) such as healthiness and healthy life, high quality, warrantee and confidence, good taste, enjoy eating and good mood, have been collectively very important for all respondents, fact that indicates a kind of homogeneous cognitive structure and behaviour.

Table 6.9: Profile of the 4 Clusters Derived from the 36 Groups of Consequences Elicited, n=40
(1: consequence mentioned by an individual, 0: consequence not mentioned)

Variables (Consequences)	Freq.	Cluster 1	Cluster 2	Cluster 3	Cluster 4	d f 3, 36	F _{.001}	Sign.
<i>Functional consequences</i>								
Healthy	39	1	1	1	1	39	.536	.661 n.s.
Shape	8	0	0	0	0	39	.863	.469 n.s.
Tasty	35	1	1	1	1	39	1.563	.215 n.s.
Natural	26	0	1	1	1	39	2.121	.115 n.s.
Traditional	18	0	1	0	1	39	4.054	.014 n.s.
Pure	22	0	1	1	1	39	3.875	.017 n.s.
Fresh	12	0	0	0	1	39	1.714	.181 n.s.
Attractive	26	1	1	0	1	39	1.845	.157 n.s.
Quality	38	1	1	1	1	39	1.029	.391 n.s.
Warrantee	37	1	1	1	1	39	1.409	.256 n.s.
Longevity	9	0	0	0	0	39	1.721	.180 n.s.
Valuable	7	0	0	0	0	39	1.533	.223 n.s.
Professionally made	11	0	0	0	0	39	1.928	.142 n.s.
Distinctive	19	0	1	1	0	39	1.494	.233 n.s.
Practical	25	1	1	0	0	39	3.873	.017 n.s.
Save money	19	1	0	1	0	39	4.463	.009 *
Informative	10	0	1	0	0	39	1.697	.185 n.s.
Fair	32	0	1	1	1	39	8.571	.000 **
Supports nation	18	1	0	0	1	39	.269	.848 n.s.
Habitual	5	0	0	0	1	39	2.253	.099 n.s.
<i>Psychological consequences</i>								
Healthy	39	1	1	1	1	39	.563	.661 n.s.
Easy life	21	0	1	1	1	39	1.919	.144 n.s.
Energy	7	0	0	0	0	39	1.895	.148 n.s.
Enjoy eating	33	1	1	1	1	39	3.273	.032 n.s.
Good mood	36	1	1	1	1	39	.629	.601 n.s.
Confidence	30	1	1	1	1	39	1.075	.372 n.s.
Loyalty	7	0	1	0	0	39	7.895	.000 n.s.
Effectiveness	24	0	1	1	1	39	2.222	.102 n.s.
Follow standards	19	0	1	1	1	39	6.642	.001 *
Keep values	10	0	1	0	1	39	4.915	.006 *
Right choices	17	0	1	0	0	39	1.180	.331 n.s.
Free choices	6	0	0	0	0	39	1.068	.375 n.s.
Knowledgeable	11	1	0	0	0	39	7.937	.000 **
Self identity	9	0	1	0	1	39	4.305	.011 n.s.
Social morality	20	0	0	1	0	39	3.385	.028 n.s.
Social equilibrium	8	0	0	0	1	39	.863	.469 n.s.

* : p < 0.01, ** : p < 0.001

Var. Freq. < 25% (Absent from all clusters)
 Var. Freq. > 75% (Common to all clusters)
 Statistically significant variables (High discriminating power)

On the contrary: *the majority of consequences mentioned by less than 25 percent of respondents (<10) were collectively excluded from the interpretation of the clusters derived at all the three levels of 54, 39 and 36 variables, having zero participation to all (especially to the 3 and 4-cluster scenario), and with no statistically significant*

Table 6.10: Interpretation of the 4 Clusters Derived from 36 Groups of Consequences Elicited, In Terms of the Main Common and the Statistically Significant Variables, n=40

Cluster 1: 15	Cluster 2: 5	Cluster 3: 16	Cluster 4: 4
COMMON CHARACTERISTICS (frequent but statistically insignificant):			
-They believe that olive oil is a healthy product that helps them to protect their health, which is very important for a long life.			
-They find olive oil tasty , fact that makes them enjoying eating and being in a good mood			
-They think that branded olive oil is a high quality product , with many quality warranties which result to an increased confidence towards the product.			
IN ADDITION (statistically significant):			
<ul style="list-style-type: none"> - They want to save money - They want to be knowledgeable as consumers and human beings - They want to follow their standards 	<ul style="list-style-type: none"> - They want to keep their values - They pay great attention to fairness-honesty in life 	<ul style="list-style-type: none"> - They want to save money - They pay great attention to fairness-honesty in life 	<ul style="list-style-type: none"> - They want to keep their values - They pay great attention to fairness-honesty in life

differences among them. In other words, given that the most frequently mentioned consequence-variables are common to all the 4 clusters and the less frequently mentioned ones are commonly absent, without significant differences among them, the development of a cluster profile can be based only on statistically significant variables of limited importance or no distinctive clusters can be identified. It is clear that the most important variables participate commonly in all clusters and, if based on the statistically significant variables remained, we will not be able to develop a satisfactorily detailed cluster profile. An interesting extension would be to test cluster membership with the use of discriminant analysis (for an application see Botschen et al, 1999, p. 49).

It also has to be noted that the results of Cluster Analysis and the corresponding statistical tests using binary variables are not easy generalisable and can be criticised on various methodological - statistical grounds. However, their inclusion at this point of the study is purely descriptive, since they offer a valuable indication of sample's

homogeneity. This will be further during the type-A segmentation at the attribute level in the following section and overall in the second quantitative Conjoint analysis part. After all, the compatibility of the cluster and conjoint analyses results justify in any case the line of thinking surrounding clustering. Nevertheless, it is clear and beyond any doubt that the specific phase remains disputable.

6.1.2.6. Comparison of the attribute and consequence-level cluster solutions

It is interesting to compare data reduction and classification results from the use of factor and cluster analyses at the two levels, that of the 52 initial olive oil attributes shown to the respondents, and that of the corresponding 54 consequences sought from their use. We have to keep in mind though, that the sample is only a group of consumers, biased in some of its characteristics (e.g. young age, high education level, etc.) and of very small size. Moreover, the nature of the two sets of variables used is different: attributes classified using a 1 to 3 scale (interval metric variables), compared to elicited corresponding benefit participation variables (non-metric binary variables).

Having in mind the previous limitations and in order to compare the two solutions, a similar attribute level factor analysis (varimax with Kaiser normalisation) approach was followed at the attribute level. The result was a statistically acceptable solution of 16 attribute-factors, only some of which can be clearly interpreted, revealing however some underlying dimensions of olive oil attributes' preference. It can be observed that (Table 6.11) the first six factors represent an easily identified underlying dimension based on a substantial number of high frequency attributes. These are: factors 1 and 3, which indicate a *preference towards perceived quality elements and quality labels*; factor 2, which demonstrates a *tendency towards specific sensory characteristic*

Table 6.11: 16-Factor Solution from the 52 Initial Attributes

No.	Factor Description (Underlying dimension)	Main Attributes	"Very Important Attribute" Frequency	Variable loading	Factor Eigenvalue	% of Variance	% Cumulative Variance
f1	<i>Elements of perceived quality and quality labelling</i>	ISO indication ISO as quality element 'Keep until' instruction Organic as quality element Organic label	27 27 37 26 25	.898 .898 .754 .564 .542	5.069	9.748	9.748
f2	<i>Sensory olive oil characteristics</i>	Soft taste Bitter taste Light aroma Heavy aroma Thick structure	23 12 28 7 10	.901 -.835 .800 -.796 -.583	4.756	9.146	18.893
f3	<i>Olive oil production area as quality characteristic</i>	'Extra virgin' on the label Extra virgin as element of perceived quality PDO label PDO as quality element 'Area of production' on the label	34 34 22 18 31	.819 .766 .631 .620 .553	4.230	8.134	27.028
f4	<i>Greek olive oil</i>	'Country of origin' on the label 'Greek olive oil' as element of quality	38 39	.932 .903	2.909	5.594	32.622
f5	<i>Innovativeness</i>	Olive oil with herbs Olive oil with different bottle shape	7 9	.833 .756	2.896	5.569	38.190
f6	<i>Olive oil preservation concern</i>	'Best before' date 'Keep until' instruction as a quality element	37 37	.925 .925	2.874	5.526	43.716
f7	<i>Transparency 1</i>	Clear coloured oil	33	.803	2.444	4.701	48.417
f8		Use of carton box Yellow colour	4 1	.848 .644	2.353	4.525	52.942
f9	<i>Use of glass bottle</i>	Glass cylindrical bottle Glass squared bottle	8 11	.847 .515	2.339	4.498	57.440
f10	<i>Traditional image</i>	Traditional label	29	.834	2.275	4.376	61.816
f11	<i>Size of the bottle</i>	Size less than 1Lt	3	.726	2.133	4.102	65.918
f12	<i>Colour of the bottle</i>	Coloured glass bottle	1	.854	2.119	4.075	69.993
f13	<i>Glass bottle is valuable</i>	Value for money Plastic bottle	37 2	.731 -.825	2.112	4.062	74.055
f14	<i>Colour of the oil</i>	Green	28	-.837	1.988	3.824	77.879
f15	<i>Health and Nutritional label info</i>	Calories Cholesterol free	15 26	.705 .557	1.948	3.746	81.625
f16	<i>Transparency 2</i>	Cloudy oil	1	.882	1.928	3.707	85.331

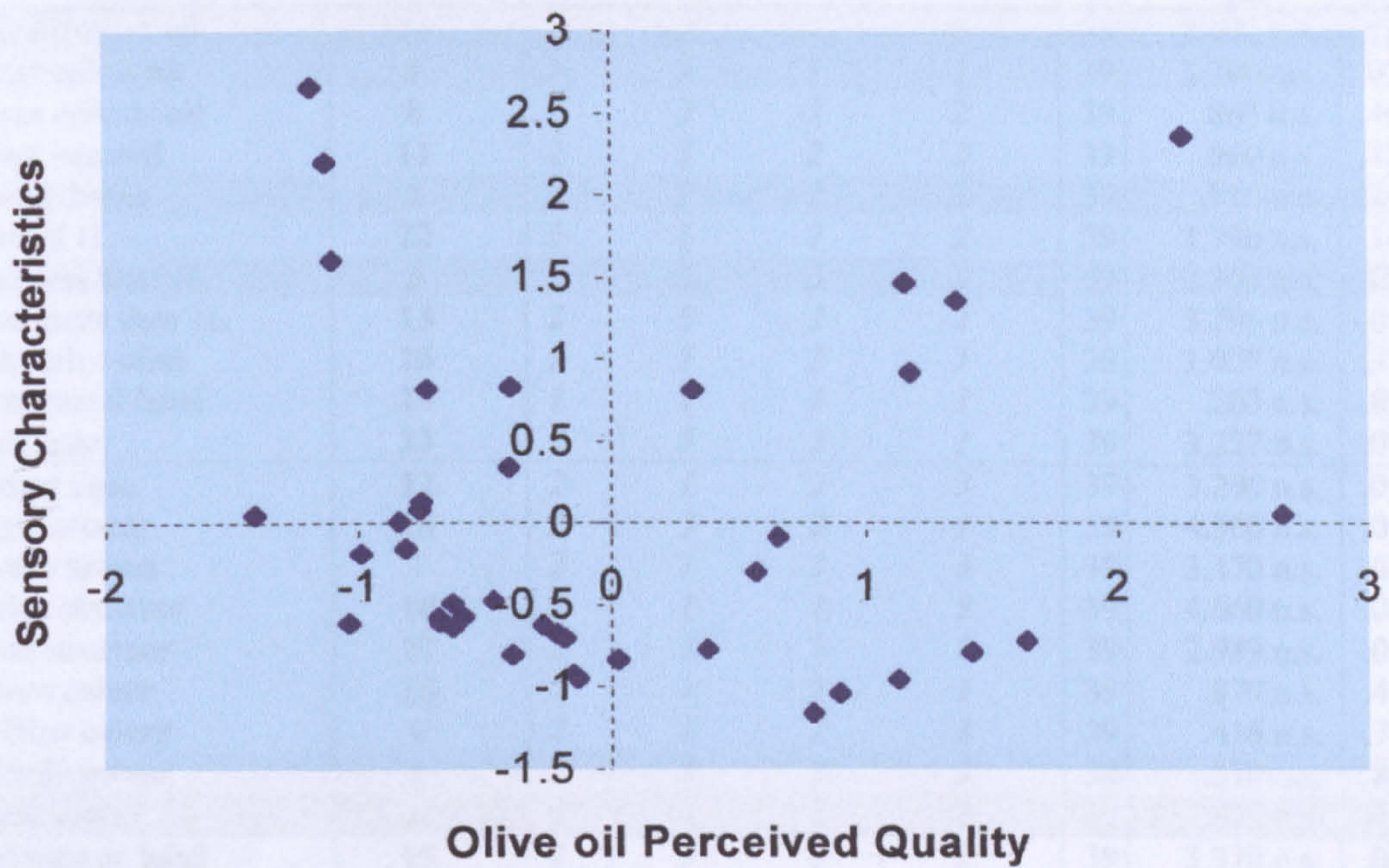
combinations; factor 4, which indicates *a strong belief in the superiority of the Greek olive oil*; and factor 6, which explains an *underlying consumer concern about the*

preservation of olive oil, perhaps closely linked to a health or price sensitivity. These results complete the image of sample's olive oil preference initially described in Section 6.1.2.3.

The remaining factors, although statistically acceptable, seem to indicate underlying preferences for various olive oil appearance characteristics, such as bottle shape, size, colour and material (factors 8, 9, 11, 12); label (factor 10) and olive oil colour (factors 7, 8, 14, 16). Only factor 15 seems to be connected to health and nutritional label information preference and factor 13 to an expressed "value for money" preference in terms of price. A possible explanation might be that the sample size is very small to reveal realistically interpreted underlying preferences.

Nevertheless, the solution seems satisfactory, since almost all the high frequency attributes (see Table 6.4) participate to the first 6 factors, together with the crucial for the research quality assurance labels. A graphical representation of the sample can be found in Figure 6.3, where it is clear that the sample members are more scattered, compared with the consequences' factor solution of Figure 6.1. This constitutes a first visual indication that attribute and consequence segmentations give substantially different results. The nature of the two factor sets is totally different, since the attribute-level builds around the product and the consequence-level around the person.

We proceeded by conducting a cluster analysis with the attributes of the list as metric interval variables with values from 1 ("very important attribute") to 3 ("unimportant attribute"). A hierarchical clustering (squared Euclidean distances and method of the "nearest neighbour") identified a 4-cluster solution, the profile of which was

Fig. 6.3: Graphical Presentation of the Sample According to its First Two Attributes' Factor Scores

developed with the use of a corresponding k-means clustering and ANOVA (Table 6.12). All the 13 attributes selected as “very important” by more than 75 percent of the sample (30 respondents) commonly participate to all 4 clusters –or at least to 39 of the 40 respondents. This is similar to what was observed at the consequence-level clustering with the benefits elicited by more than 75 percent of the sample. This also indicates a kind of homogeneous consumer cognitive structure, since almost all agree in a substantial number of olive oil attributes as being very important. These are: glass transparent bottle of 1L, attractive label of a traditional Greek image, with additives and “best before” date information, the country of origin, the “natural product” sign and the production area clearly indicated, of Greek origin, clear coloured, “extra virgin”, and priced according to its perceived value. Moreover, due to the nature of the variables, the interpretation of the clusters and their profile development are much clearer and reliable compared to these at the consequence clustering, with 9 statistically significant variables of frequencies higher than 25 (Table 6.13).

Table 6.12: Profile of the 4 Clusters Derived from the 52 Initial Attributes, n=40

Variables (Var.) (Attributes)	Freq. (Very Important)	Cluster 1: 14	Cluster 2: 1	Cluster 3: 7	Cluster 4: 18	df	$F_{0.001}$	Sign.
Glass transparent	34	1	2	1	1	39	2.072 n.s.	.121
Glass coloured	1	3	3	2	3	39	3.296 n.s.	.031
Glass cylindrical	8	2	3	2	2	39	.863 n.s.	.469
Glass squared	11	2	3	2	2	39	.960 n.s.	.422
Plastic bottle	2	3	2	2	3	39	.910 n.s.	.446
Size of 1L	22	1	1	1	2	39	1.790 n.s.	.166
Size less than 1L	3	2	3	3	3	39	2.304 n.s.	.093
Size more than 1L	13	2	3	2	2	39	3.796 n.s.	.018
Attractive label	26	1	1	2	1	39	1.079 n.s.	.370
Traditional label	29	1	1	1	1	39	.203 n.s.	.894
Soft taste	23	2	3	2	1	39	3.227 n.s.	.034
Strong taste	12	2	1	2	3	39	3.296 n.s.	.031
Light aroma	28	2	3	2	1	39	4.360 n.s.	.010
Heavy aroma	7	2	1	2	3	39	3.470 n.s.	.026
Thick structure	10	2	1	2	3	39	4.660 n.s.	.007
Thin structure	27	2	3	1	1	39	2.989 n.s.	.044
Green colour	28	2	1	2	1	39	.879 n.s.	.461
Yellow colour	4	2	1	2	3	39	.416 n.s.	.743
Cloudy colour	1	3	3	3	3	39	.310 n.s.	.818
Clear colour	33	1	1	1	1	39	.822 n.s.	.491
Calories on label	15	2	3	2	2	39	3.378 n.s.	.029
Fatty acids on label	25	1	3	2	2	39	6.667 n.s.	.001
'Cholesterol free' on label	26	2	3	1	1	39	2.512 n.s.	.074
Additives on label	35	1	3	1	1	39	6.115 n.s.	.002
'Best before' date on label	37	1	3	1	1	39	23.878 *	.000
Harvesting date on label	17	2	3	2	2	39	5.549 n.s.	.003
Bottling date on label	22	1	3	2	1	39	6.190 n.s.	.002
Variety of olives on label	16	1	3	2	2	39	3.797 n.s.	.018
Number of bottle on label	12	2	3	3	2	39	5.237 n.s.	.004
Country of origin	38	1	1	1	1	39	.175 n.s.	.913
Area of production	31	1	3	1	1	39	5.195 n.s.	.004
Extra virgin label	34	1	3	1	1	39	8.083 *	.000
PDO/PGI label	22	1	3	2	1	39	6.641 n.s.	.001
ISO/HACCP label	27	1	3	2	1	39	8.006 *	.000
Organic label	25	1	3	2	1	39	8.356 *	.000
'Keep until' instruct.	18	1	3	3	2	39	6.047 n.s.	.002
High priced	2	2	3	3	2	39	.767 n.s.	.520
Low priced	4	2	3	2	2	39	.213 n.s.	.886
'Value for money' priced	37	1	1	1	1	39	2.033 n.s.	.127
Greek olive oil	39	1	1	1	1	39	.388 n.s.	.762
From other med. country	9	2	3	2	2	39	1.072 n.s.	.373
PDO as quality indication	18	2	3	2	2	39	3.940 n.s.	.016
ISO as quality indication	27	1	3	2	1	39	8.006 *	.000
Extra virgin as quality	34	1	3	1	1	39	8.083 *	.000
Organic as quality indicat	26	1	3	2	2	39	9.106 *	.000
'Natural product' label	31	1	3	1	1	39	7.812 *	.000
'keep until' as quality ind	37	1	3	1	1	39	23.878 *	.000
Olive oil with herbs	7	2	3	2	3	39	2.136 n.s.	.113
Different bottle shape	9	2	3	1	2	39	5.180 n.s.	.004
Different label	14	2	3	1	3	39	6.813 n.s.	.001
Boxed in carton	1	3	3	3	3	39	1.285 n.s.	.294
Boxed in wood	1	2	3	2	3	39	4.254 n.s.	.011

* : significant for $p < 0.001$,

n.s.: non significant

□ Freq. <25%

□ Freq. >75%

■ Statistically significant variables

(Absent from all clusters)

(Common to all clusters)

(High discriminating power)

Table 6.13: Interpretation of the 4 Clusters Derived from the Initial 54 Attributes, n=40

Cluster 1: 14 <i>“The very conscious, organic fans”</i>	Cluster 2: 1 <i>“The indifferent ethnocentric”</i>	Cluster 3: 7 <i>“The health conscious”</i>	Cluster 4: 18 <i>“The health and quality conscious consumers”</i>
<p align="center">COMMON CHARACTERISTICS (at least for 39 of the 40 respondents):</p> <ul style="list-style-type: none"> - They prefer olive oil to be in a glass transparent bottle of 1L and to have a clear colour. - They like its label to be attractive, to remind of the Greek tradition and to have information on additives-preservatives, a ‘best before’ date, the country of origin and the area of production within Greece. - The olive oil they purchase has to be definitely ‘Extra virgin’, which should be written on the label. - In terms of price, they all want to pay according to olive oil’s value, neither more nor less - In terms of perceived quality, it has to be of Greek origin, to carry a ‘Natural Product’ label, and to have the ‘keep until’ instructions clearly written <p align="center">IN ADDITION (statistically significant variables):</p>			
<ul style="list-style-type: none"> - They strongly approve the organic and ISO labels - They are quality conscious 	<ul style="list-style-type: none"> - From the common characteristics, they only want olive oil to be Greek - They are not quality sensitive 	<ul style="list-style-type: none"> - They are indifferent towards quality and quality assurances - They are health conscious 	<ul style="list-style-type: none"> - They are quality conscious but indifferent towards the organic products - They are health conscious

With the limitation of the very small sample size, it can be observed that almost 70 percent of the sample (clusters 1 and 4) are quality conscious and appreciate the quality assurances, mainly the ISO and secondary the Organic label. Concerning the PDO/PGI label, we can again observe the controversy previously found, that is, although important as label information, respondents assign to the PDO label a smaller significance as element of perceived quality. Perhaps the declared by all respondents high importance of the “production area” information outlines the importance of the PDO/PGI scheme and/or consumers’ familiarity with it is not yet widespread. Moreover, almost all respondents (clusters 1, 3 and 4, or 97.5 percent of the sample) are health conscious.

Generally speaking, the results of the attribute-level analysis are satisfactory compared to our stated aims. At least 39 of the 40 participants of the selected consumer group are quality and health conscious, non price-sensitive, interested in different quality assurance schemes, and demanded Greek olive oil bottled in glass, priced according to its perceived value. All these indicate again sample's homogeneity, even at the attribute preference level.

Nevertheless, when comparing the cluster solutions of Tables 6.9 and 6.10 to 6.12 and 6.13, their differences in terms of both cluster profile and cluster membership are obvious from a simple visual inspection. The consequence-level cluster profile tries to offer an answer to a "why" question concerning the selection of the attributes present at the attribute-level clusters. Although quality and health consciousness and sensory combination consequences are present in both solutions, a whole set of different underlying consumer motives (such as the value of the information for the consumer, enjoyment as a buying motive, confidence, different social trends etc.), is only present at the consequence-level. All these motivation structures are absent from the attribute-level solution, the explanation of which is based on simply hypotheses on behalf of the researcher.

What is the meaning of a consumer preferring olive oil in glass bottle or with soft taste and light aroma? The fact that he/she might be interested in the additives/preservatives or the fatty acids information can certainly lead us to infer a health conscious tendency? What is his/her motive behind his/her interest in quality assurance labels? Why he/she is not willing to pay either a lower or a higher price than that he/she finds "satisfactory"? What do we mean by "satisfactory" after all? These and other

questions are not easily answered without having a deeper knowledge of consumers' perceptions and their cognitive development process.

In Table 6.14 it is clear that no significant relation can be found between the two cluster solutions. Members of the various benefit segments do not appear in certain attribute segments and vice versa. This result shows that, as expected, segments based on the attribute-level will significantly differ from segments built on the benefit-level. It is obvious that different benefit segments value certain attributes in a different way in terms of importance. For all benefit segments there is a number of attributes desired by most of their members. This result supports that *the same attribute can lead to different benefits sought* and that *a single benefit can be based on multiple attributes* (multifinality and equifinality concepts, Botschen et al, 1999).

In order to summarise our steps so far it has to be said that the Means-end method started with the selection of the sample. It continued with the identification of the olive oil attribute elicitation method and the practical implementation of the laddering interviews, according to the limitations and instructions mentioned in Chapter 5. Then, a series of analyses transformed data to the appropriate for the use of software form: data coding resulted to a grouping of all the consequences and values mentioned by respondents and factor analysis at the consequence level further increased codes' abstraction level and predictive validity and decreased their number. Factor analysis at the attributes chosen as important offered an indication for the existence of some interesting underlying consumer preference dimensions of olive oil attributes, especially in terms of its quality. And cluster analyses both at the consequence and important attribute levels offered some more insights in relation to

Table 6.14: Comparison of the Attribute-level with the Consequence-level Cluster Membership

	<i>Attribute clusters</i>				Row total
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	
<i>Benefit clusters</i>					(benefit cluster membership)
Cluster 1					
Freq.	4	-	1	10	15
Row percentage	10	0	2.5	25	37.5
Col. percentage	28.5	0	14.5	55	
Cluster 2					
Freq.	3	1	1	-	5
Row percentage	7.5	2.5	2.5	0	12.5
Col. percentage	21.5	100	14.5	0	
Cluster 3					
Freq.	5	-	4	7	16
Row percentage	12.5	0	10	17.5	40
Col. percentage	30.5	0	46.5	39.5	
Cluster 4					
Freq.	2	-	1	1	4
Row percentage	5	0	2.5	2.5	10
Col. percentage	19.5	0	14.5	5.5	
Column total	14	1	7	18	40
(attribute cluster membership)	35	2.5	17.5	45	100

sample profile and motivation when choosing olive oil and stressed the clear difference between attribute and benefit segmentation. Finally, the series of factor and cluster analyses at both levels offered an indication of sample’s homogeneity, condition necessary to use laddering as a method for estimating consumers’ cognitive structures with predictive validity.

6.1.3. Data analysis

6.1.3.1. Iteration of the coding process - use of Laddermapping software

Often content analysis is an iterative task, where the analyst may recode data several times combining categories, splitting, eliminating or creating new ones, until he/she feels that he/she has achieved the optimal solution. This stage of the analysis process is drastically improved by the use of interactive computer software, so that the content analysis can easily be reviewed and modified (Gengler and Reynolds, 1995).

The Laddermap software is used in this stage of the research. An interactive data entry feature is provided, under which multiple A-C-V ladders per respondent are entered, with up to ten “steps” per ladder. As ladders are entered per respondent, the content analysis done so far manually is being implemented. This is undertaken by, first, classifying each “step” as either an attribute, a consequence, or a value and then by interactively defining a “dictionary” of the content codes assigned a priori to each of the ladders’ “steps” and into which classification is made. Similar codes could then be easily grouped hierarchically under a larger code, making reassignment an easy task.

This procedure is really the heart of laddering analysis. It is the step where qualitative data (the raw verbatim responses from the Laddering interviews) are interactively converted into nominal codes, which can be quantified. Because codes can be easily combined hierarchically with each other when using the software, Gengler and Reynolds (1995) recommended a large number of very specific codes when first analysing the data and gradually combining and grouping similar meanings until a manageable number of approximately 50 remain. In our case, the initial number of 96 codes (29 functional-25 psychological consequences, and 24 instrumental-18 terminal values), decreased, after the implementation of the consequence-level factor analysis and the establishment of the cut-off level to 48 (13 consequence factors, 22 instrumental and 13 terminal values).

However, after having clearly indicated sample’s homogeneity and the attribute and benefit-level segmentations differences, a problem similar to that when trying to factor-analyse the values elicited (see Section 6.1.2.4) appeared: the ladders constructed with the use of the 13 consequence-factors are meaningless when these

factors are linked to the corresponding per individual values. Apparently, the level of consequence abstractness with the use of the 13 consequence-factors is higher than it should be in order to achieve a meaningful linkage between benefit-factors and successive values.

Thus, given the iterative nature of the process and the recoding possibilities of Laddermapping, the process was repeated using the initial 54 consequence-level codes recoded according to the factor analysis results. In other words, instead of using the factors per se, some consequence-codes were combined with each other, with the criterion of participation to the same factor. Hence, (see Table 6.8) “healthy olive oil” and “healthy/long life”, “tasty olive oil” and “enjoy eating”, “traditional olive oil image” and “having a self-identity”, “quality warrantee” and “valuable/prestigious olive oil”, “professionally made olive oil” and “offering valuable information”, “practical/functional product” and “easier/simple life”, and “keep/follow your values” and “social equilibrium/rules” are merged. The final consequence codes used can be seen in Table 6.15. The codes’ total number is finalised, then, to 89, and, with the use of the cut-off level of 4, to 64 (18 functional, 11 psychological consequences, 22 instrumental and 13 terminal values).

Once the individual ladders are entered and the classification into codes is finalised, data can be quantitatively analysed to produce a diagrammatic representation of the meaning structure. It is this “crossing over” from the qualitative nature of the interviews to the quantitative way of dealing with the information obtained that is one of the unique aspects of Laddering and clearly the one that sets it apart from other qualitative methods (Reynolds and Gutman, 1988). The end product of a laddering

Table 6.15: Final 47 Consequence Codes Used in the LADDERMAP Software After the Merger of the Benefits Commonly Participating to the Same Benefit Factor

Code	Functional Consequences	Freq	Code	Psychological Consequences	Freq
1.	Healthy olive oil/ long life	39	1.	Good/relaxed mood	36
2.	Keeps you in shape	8	2.	Confidence	30
3.	Safe	3	3.	Confidence on Greek products	2
4.	Environmentally friendly	4	4.	Brand loyalty/ customer respect	7
5.	Tasty/enjoy eating	35	5.	Money management/ value for money	4
6.	Joyful	1	6.	Effectiveness/ productivity	24
7.	Natural-authentic	26	7.	Perfectionism	1
8.	Traditional/ self-identity	18	8.	Cover your standards	19
9.	Educational	3	9.	Keep/follow values/ social equilibrium/ rules	10
10.	Pure-no additives	22	10.	Right/ stable choices, see clearly	17
11.	Fresh	12	11.	Have the right to choose	6
12.	Attractive	26	12.	Being informed/ Knowledgeable/ experienced	11
13.	High quality	38	13.	Cultural identity/roots	4
14.	Valuable/ Prestigious/Quality warrantee	37	14.	Self-respect	3
15.	Longevity	9	15.	Satisfied consciousness-moral	2
16.	Reliable	3	16.	Success with the opposite sex	1
17.	Professionally made/valuable info	11	17.	Being emotional/ daydreamer	1
18.	Distinctive-innovative	19	18.	Social morality	20
19.	Practical-functional/easier simple life	25	19.	Distinctive as a nation	1
20.	Useful	2	20.	Energy/strength	7
21.	Helps you to save money	19			
22.	Abundant	1			
23.	Fair-honest	32			
24.	Support your country	18			
25.	Brand name value	1			
26.	Convincing	1			
27.	Usual-out of habit	5			

Green characters: Consequences mentioned by less than 10 per cent (4 respondents) of the sample
 Blue characters: Consequences mentioned by 10 per cent of the sample.

data analysis is a graphical representation of means-end structures aggregated across all subjects, the Hierarchical Value Map (HVM).

An HVM consists of the different content codes derived from content analysis arranged on a map and connected with lines. These lines show the common pathways of meanings, representing how product attributes are related to personal values. The main goal of the analysis is the construction of the HVM, which is the framework for assessing strategic positioning in the market place. This involves two stages: determining what connections should be represented on the HVM, and constructing the HVM in a fashion that is easily readable.

6.1.3.2. The implication matrix – selection of the cut-off level

For determining what associations should be illustrated in an HVM, each association is compared against a cut-off level. If it has strength greater than or equal to that value, then the association has been illustrated on the HVM. The Laddermap software implements this decision rule in its HVM construction algorithm. The algorithm consists of the following steps: initially, it constructs an aggregate *Implication Matrix*, which contains the sums of all of the concepts linked in the laddering interviews. All the direct plus indirect associations are counted. The sum of direct and indirect associations is an indicator of the strength of a given association. *Associations between concepts mentioned several times in different ladders elicited from the same individual are counted only once by the software when constructing the implication matrix, in order to prevent bias in the aggregate results.* Thus, the higher number of times an association can be found in the implication matrix is 40. Numbers are expressed in fractional form, with direct relations to the left of the decimal and total relations (direct plus indirect) to the right.

It has to be noted that not all of the 52 initial attributes are used in the construction of the implication matrix. Based on the results of the factor and cluster analyses conducted in the previous steps, we finalised the number of olive oil attributes chosen to participate to our HVM to 23 *extrinsic cues of expected quality*. These can be seen in Table 6.16, they mainly concern *olive oil perceived quality and health attributes usually found on the label*, and are either frequently chosen as important attributes or have an important meaning as factor or cluster components. A number of attributes concerning experience olive oil quality, sensory (intrinsic cues) and innovative (extrinsic cues) characteristics are excluded, as being far from our initial aims. This selection is also necessary due to the number of the concepts mentioned during the interviews and facilitates greatly the meaningful representation of our findings. A graphical representation of the implication matrix can be seen in Figure 6.4 and its separate parts in the Chapter's Appendix, Tables 6.23 and 6.24. Obviously, the number of the corresponding consequence and value-codes linked to the 23 attributes used and included in the HVM is decreased accordingly.

After the construction of the implication matrix, a cut-off value is to be selected in order to determine which connections should be represented on the HVM. A bar chart is being provided by the Laddermap software to show how much variance would be explained by different levels of cut-off values. Furthermore, automation of the task allowed us experimentation with different cut-off levels, with flexibility and control over the process. The chosen level was that of 4 respondents mentioning a specific association, in consistency with the findings of the factor and cluster analyses, with a satisfactory variance explained of 77 percent, and in accordance with the literature, which suggests a level from 3 to 5 relations for a sample from 40 to 60 individuals

Table 6.16: Extrinsic Attributes of Expected Quality Selected for the Development of the HVM

Attributes selected	Justification	Attributes selected	Justification
<i>Perceived expected quality</i>		<i>Label information</i>	
'Made in Greece'	FS, AFA, ACA	Caloric content	
PDO label	AFA	Unsaturated fatty acids content	ACA
HACCP/ISO assurances	AFA	'Cholesterol free' indication	
'Extra virgin'	FS, AFA, ACA	Additives/preservatives content	FS, ACA
'Organic product' label	AFA	'Best before' date	FS, AFA, ACA
'Natural-pure product' assurance	FS, ACA	Country of origin (in general)	FS, AFA, ACA
'Keep until' instructions	FS, ACA	Area of production	AFA, ACA
<i>General characteristics</i>		'Extra virgin' indication	FS, AFA, ACA
Glass transparent bottle	FS	PDO indication	AFA
1Lt sized (*)		HACCP indication	AFA
<i>Price</i>		'Organic product' indication	AFA
Low priced (**)		'keep until' instructions	AFA
'Value for money' priced	FS, ACA		

Key: FS: Frequently Selected as very important olive oil attribute by respondents

AFA: Attribute Factor Analysis's important component

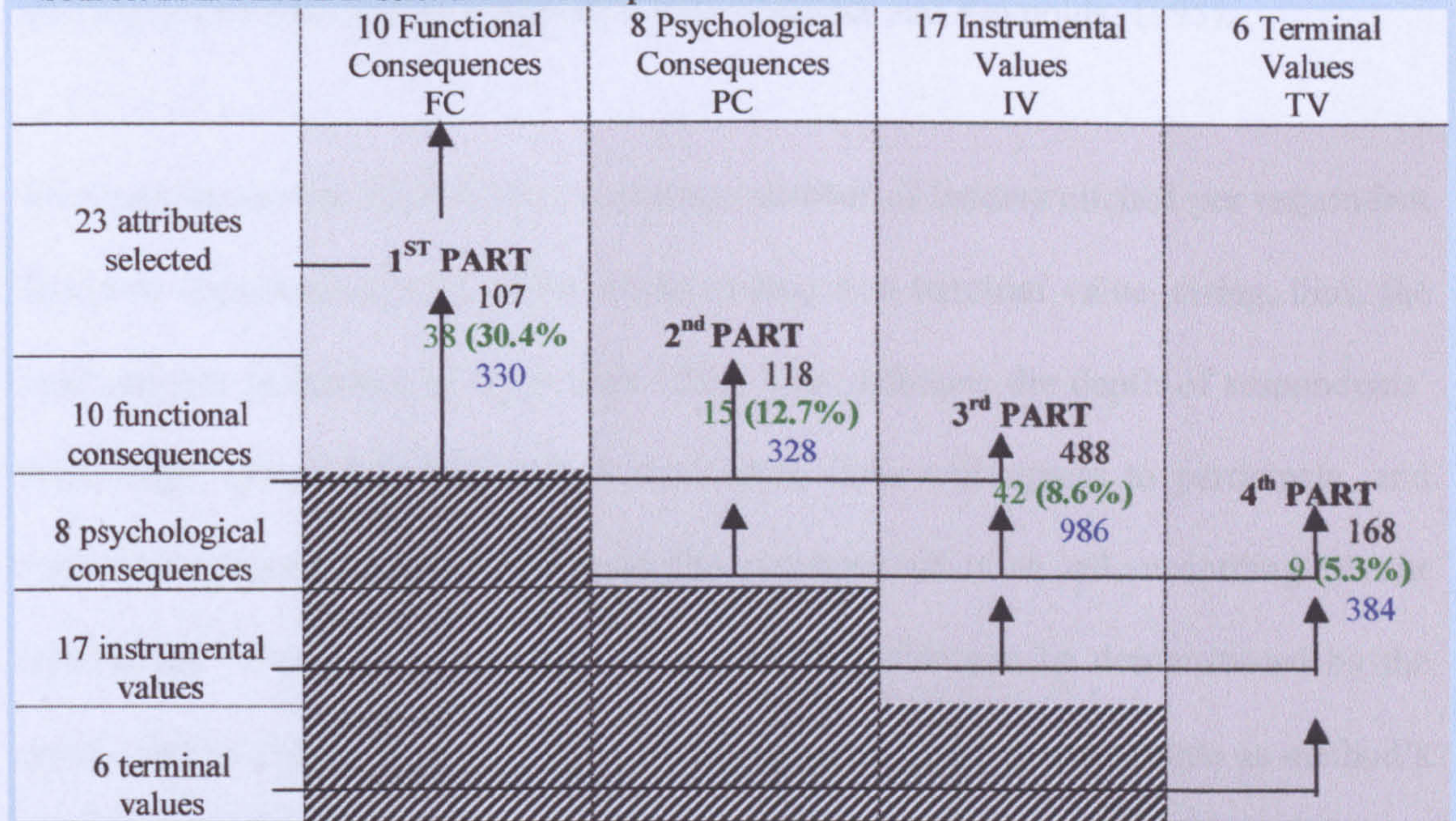
ACA: Attribute Cluster Analysis's important component

* : Included in order to introduce the 'practical/functional' parameter in the HVM

** : Included in order to introduce the 'price sensitivity' parameter in the HVM.

Fig. 6.4: Graphical Representation of the Implication Matrix

Source: LADDERMAP software Initial Implication Matrix.



Key: Not applicable, direction of the associations

Black characters: number of elicited associations = 881 or 43.4% (empty cells=56.6%)

Green characters: association values > cut-off level = 101 or 11% of the elicited associations

Blue characters: total number of possible associations = 2028

(Reynolds and Gutman, 1988).

Typically, this cut-off level is compared against the number of direct associations in each cell of the implication matrix. A binary matrix is formed, which contains a 1 in each cell for which the corresponding element of the implication matrix is greater than or equal to 4 and a 0 otherwise. These binary flags indicate which associations or connecting linkages should be illustrated on the HVM. Nevertheless, not all of the marked associations are actually drawn as individual lines. 17 redundant associations, which accounted for 16.8 percent of all the associations higher than the cut-off level (which were 101), have been incorporated into the 67 associations mapped, finalising their number to 84 (c.f. Section 6.1.3.3 and Figure 6.5). Otherwise, the map would quickly degenerate into an unreadable state (Gengler and Reynolds, 1995).

As it can be seen in Table 6.1b, the average number of ladders elicited per respondent has been approximately 30, 10 of which ending to a terminal value, rising, thus, the total number of ladders to more than 1200. This indicates the depth of respondents' knowledge, given their high educational level, their willingness to participate, and their high degree of involvement in the purchase of olive oil, according to our hypotheses. Their interest in olive oil is great, fact that can be demonstrated by the great number of very important olive oil attributes selected by the sample as method's starting point. However, this fact constitutes a practical weakness, though, since due to the enormous diversity and number of between-code associations, only a small percentage of them are greater than the cut-off level. Thus, a large number of empty cells (56.6 percent) or cells with only indirect relations between concepts can be found in the implication matrix (c.f. Chapter Appendix, Tables 6.23 and 6.24). From a total of 881 associations accounted for in the matrix, 101 (11 percent) constitute those with values higher than 4. This percentage, in relation to the number of relations finally

mapped on the HVM (84 out of 101 or 83.1 percent), is an index of the ability of the map to express aggregate relationships (Gengler and Reynolds, 1995; Reynolds and Gutman, 1988). A closer look on the different parts of the implication matrix is needed, though.

In the first part of the matrix, which includes the links between the product (attributes) and the first level of consequences (functional), the maximum number of matrix associations which can be mapped reaches the very satisfactory 30.4 percent (38 out of 107 associations above cut-off level). Even in the second part, where the psychological consequences are introduced, the same percentage is 12.7 (15 out of 118). On the contrary, when values are introduced in the 3rd (consequences leading to instrumental values) and 4th (consequences and instrumental values leading to terminal values) parts of the matrix, this percentage decreases to 8.6 (42 out of 488) and 5.3 (9 out of 168) respectively.

In other words, and in accordance with the consequence-level factor analysis results (see Figure 6.2), *at the less abstract and more “objective” consequence level related to the perceived quality concept, more concepts from the great diversity of consequences elicited seem to be really important to the sample.* These concepts are mostly related to the meanings of olive oil quality, quality guarantees and olive oil healthiness and safety, justifying our stated hypotheses. *At the more “subjective” value level, respondents’ choices related to perceived quality are more scattered and evenly distributed between a greater variety of concepts.* This proves that the sample’s cognitive structure is homogeneous at the benefit-level when especially the “quality” component is examined.

6.1.3.3. The Hierarchical Value Map (HVM)

Constructing the HVM in a fashion that is easily readable is the final step of the analysis. To actually construct the HVM from the series of connected pairs we must literally build up the map from the chains extracted from the matrix of implicative relations. The main guideline at this stage has been to try at all costs to avoid crossing lines, providing coherence to the map and adding considerably to its interpretability (Reynolds and Gutman, 1988).

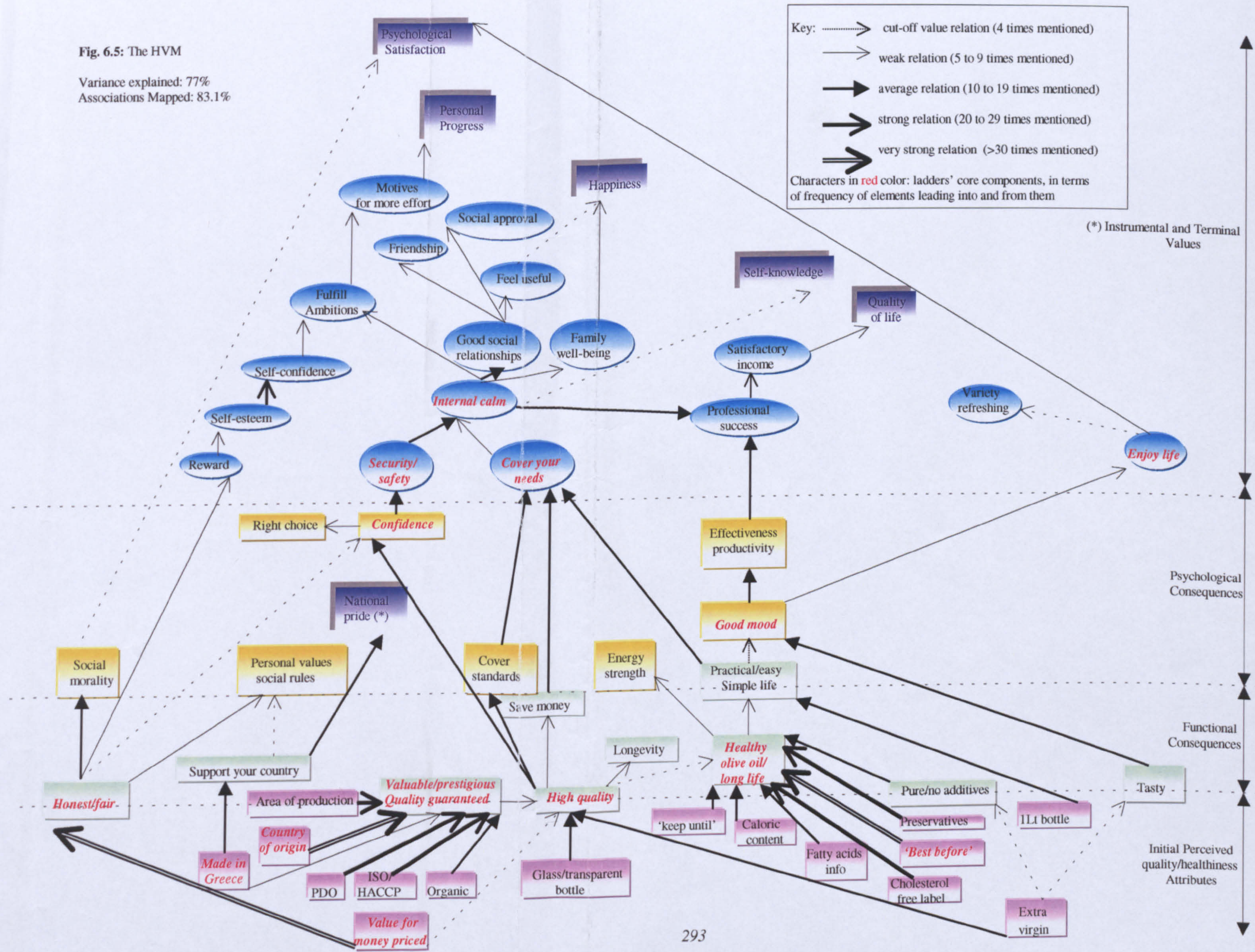
The substantial requirement imposed then is that the finished HVM must represent a significant number of the associations derived from the raw laddering data above cut-off value. According to Gengler and Reynolds (1995), the minimum threshold value should never be less than 70 percent, with an average number typically between 75-85 percent. In our case, the HVM represents 83.1 percent of the associations greater than 4 in the implication matrix (84 out of 101).³

In Figure 6.5 the HVM can be seen. The use of different colours and shapes improves map's coherence and meaningful interpretation. Two types of relations can be found in the HVM (Reynolds and Gutman, 1988): the A-D type, where *two adjacent elements have a high number of direct connections*, such as the “tasty olive oil-enjoy life” and “best before date- healthy olive oil” relations. And the N-D type of *non-adjacent elements with a high number of direct connections*, such as the “glass transparent bottle-high quality- confidence-security-internal calm-good social relationships” chain which includes a number of N-D relationships like “high quality-security” and “confidence-internal calm”. These two types of relationships, then,

³ 17 redundant relations are included in the actual 67 relations mapped.

Fig. 6.5: The HVM

Variance explained: 77%
Associations Mapped: 83.1%



represent the standard basis used in constructing the map.

Two other types of relationships can be found in the implication matrix as well, but not in the HVM: the A-I type of *adjacent elements with a high number of indirect connections* and the N-I type of *non-adjacent elements with a high number of indirect connections*. Either types are mostly frequent in part 3 (where consequences and instrumental values lead to instrumental values) and 4 of the matrix (where consequences and values lead to terminal values). These two types of relationships are responsible for the low representation percentages of these two parts on the HVM, as we have seen. Thus, even though not plotted, all relationship types are important determinants of HVM's quality and representativeness.

Having plotted all relations, it is desirable to look at all elements in the map in terms of numbers of direct and total relations they have with other elements, both in terms of other elements leading to them and in terms of their connections to more "abstract" higher order elements. Table 6.17 presents the sums of the direct and total relations for each element. At the elicited consequence-level, the concepts of "*quality guaranteed*", "*fair-honest product*", "*high quality*" and "*healthy product*" are mostly involved in the HVM, leading mainly to "*confidence*" and "*good mood*", and then to "*security*", "*covered needs*", "*internal calm*" and "*enjoy life*".

The elicitation of functional consequences as such demonstrates the importance consumers attach to higher quality olive oil with the attributes selected (c.f. Section 6.2.1). Being able to identify the connections between concepts in the mind of the consumer is essential to understanding the perceptual basis for decision making.

Table 6.17: Summary of Direct (XX) and Indirect (YY) Relations for Each Element (Code)

	Leading to...	Leading from...		Leading to...	Leading from...
<i>A Attributes</i>			<i>D. Instrumental values</i>		
Value for money	40.40	-	Internal calm	42.55	21.28
Made in Greece	32.32	-	Security	19.27	31.37
Extra virgin	25.30	-	Enjoy life	9.9	35.45
Organic label	24.25	-	Cover needs	7.12	37.43
ISO/HACCP	24.24	-	Fulfil ambitions	6.12	28.56
PDO label	20.20	-	Self-esteem	15.24	0
'keep until' instruct.	17.17	-	Professional success	17.21	27.28
Natural/pure label	0	-	Good social relations	18.26	11.12
Low price	0	-	Reward	12.13	6.10
Country of orig.	30.30	-	Self-confidence	8.9	10.14
'best before' date	32.36	-	Family well-being	5.6	8.9
Glass trans. bottle	18.19	-	Motives for more	8.8	11.17
1Lt bottle	17.17	-	Feel useful	4.5	6.10
Area of product.	23.24	-	Variety/refreshing	0	4.4
Caloric content	10.10	-	Social approval	0	7.11
Fatty acids info	18.20	-	Income	6.6	9.10
Cholesterol free	21.23	-	Friendship	0	5.5
Additives/preservatives	29.32	-			
<i>B. Functional consequences</i>			<i>E. Terminal values</i>		
Healthy olive oil	24.28	30.34	Psychological satisfaction	-	5.5
High quality oil	24.29	32.33	Personal progress	-	6.6
Quality guarantee	27.36	62.62	Quality of life	-	4.6
Tasty olive oil	36.40	4.5	Self-knowledge	-	9.11
Simple life	17.24	5.5	Happiness	-	11.13
Fair/honest	34.41	31.31	National pride	-	
Pure/no additives	0	4.4			
Save money	14.15	10.12			
Country support	15.17	10.10			
Longevity	0	8.8			
<i>C. Psychological consequences</i>					
Good mood	24.30	28.30			
Confidence	26.35	28.35			
Effectiveness	14.14	20.24			
Social morality	4.4	16.17			
Right choices	0	9.11			
Cover standards	10.10	14.15			
Personal values	0	12.13			
Energy/strength	0	5.5			

Moreover, once a positioning strategy is determined, the next task essentially involves developing words, images, and/or symbols that will create the desired connections in the mind of the consumer. Thus, focusing on the connections between concepts is central to both understanding and using laddering research.

6.2. Discussion

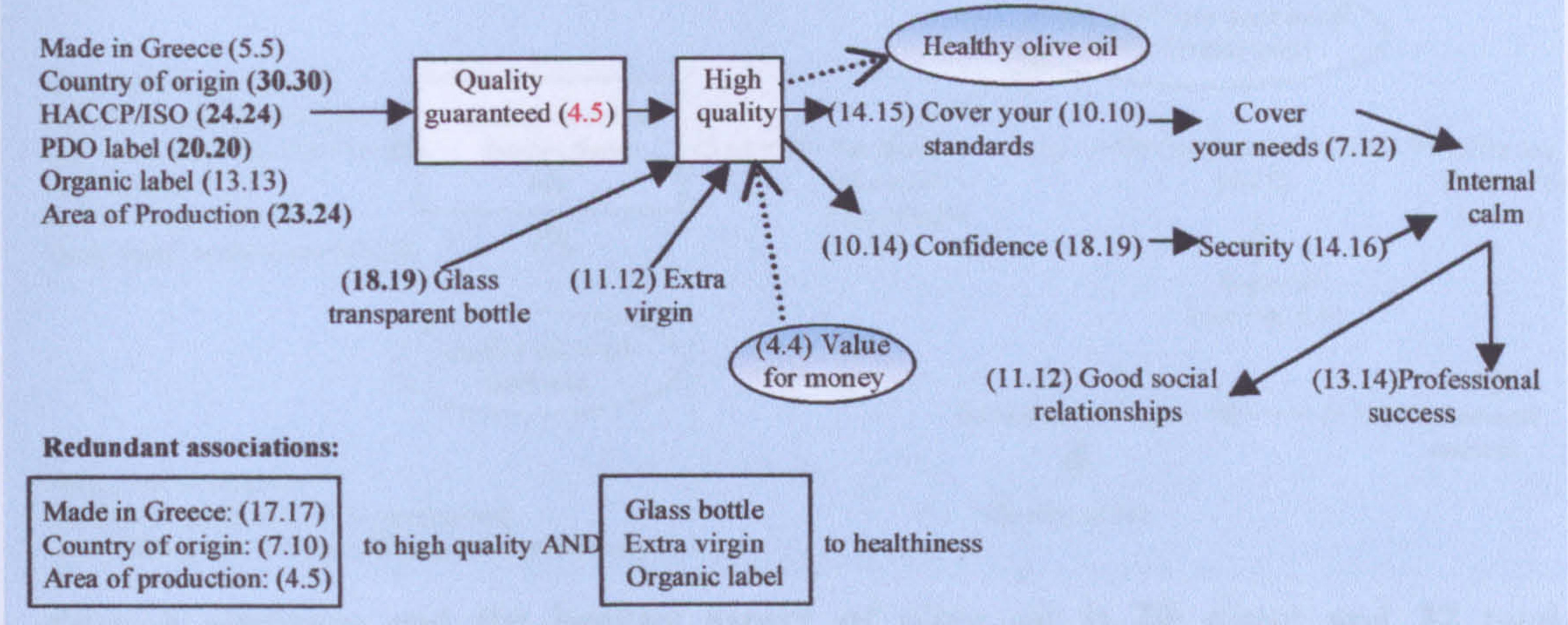
6.2.1. Cognitive structures' analysis

Once the HVM is constructed, one typically considers any pathway from bottom to top as a potential chain representing a perceptual orientation. To more fully understand the strength of the chains, the intra-chain relations can be summarised and evaluated. Based upon these strengths, the whole HVM can be divided into the following five related olive oil perceptual orientations: a) *quality*; b) *healthiness*; c) *ethical*; d) *taste*; and e) the *practical* perceptual orientations.

The olive oil *quality* perceptual orientation (Figure 6.6): it constitutes the core-part of the HVM, which supports our main hypothesis concerning the quality consciousness of the sample. It proves that olive oil attributes such as the *olive oil origin in terms of country and production area* and the different *quality assurance schemes* (PDO/PGI label, Organic label, and ISO/HACCP certification) are perceived by consumers as olive oil quality attributes rather than simply product characteristics leading to a “safe” food. In the same category the “glass transparent bottle” attribute has to be included as well, as one that gives olive oil a special quality image in the eyes of the Greek consumers. The average strength of the links between these 8 attributes and the quality aspect of olive oil is 18 direct and 18 total associations⁴. The rationale behind the high and guaranteed quality requirement of consumers seems to be *their need to feel calm*, either through the *security and confidence offered by a quality product* or *through the satisfaction of their consumption needs and standards*. Their need to be calm in everyday life helps them, then, to *succeed professionally and socially*. The concepts of confidence and security consumer feels when purchasing the product enhance his/her

⁴ $(11.12+18.19+5.5+30.30+20.20+24.24+13.13+23.24) / 8 = 18.18$

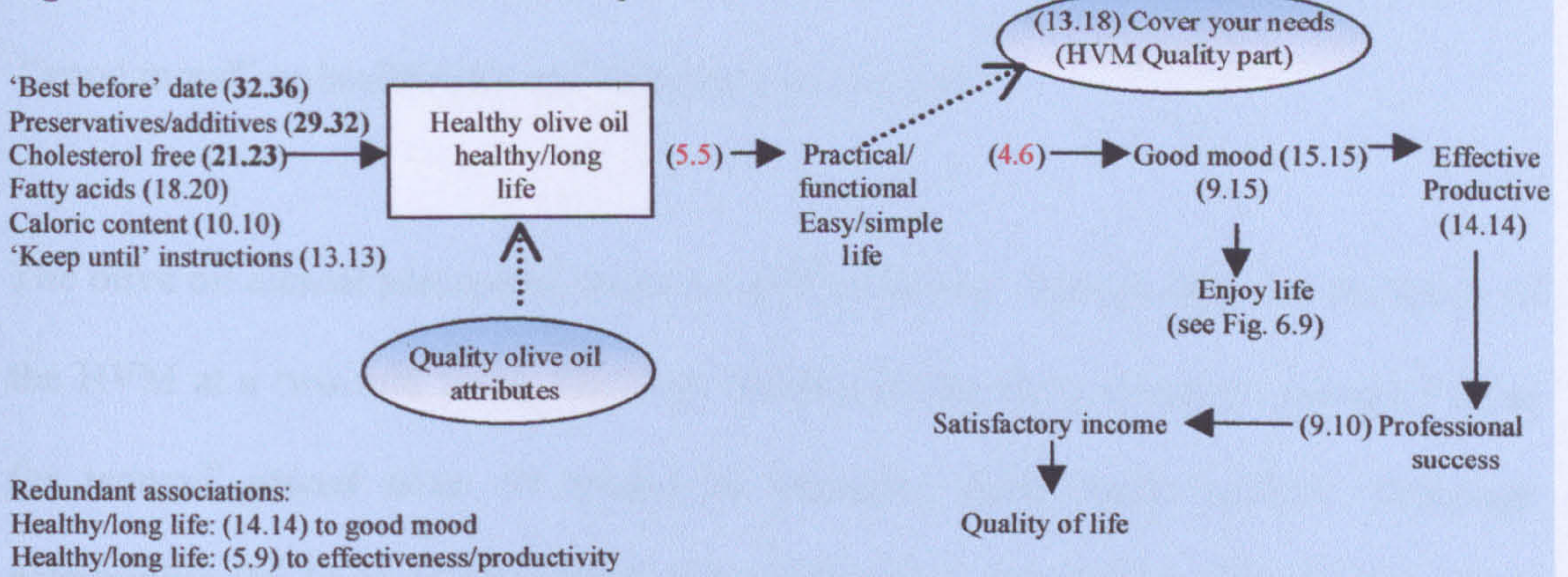
Fig. 6.6: The Olive Oil *Quality* Perceptual Orientation Part



overall safety.

A number of associations directly relate olive oil origin (country, area of production) to high quality, yet these associations are not mapped due to the non-redundancy rule. Due to the same rule, associations between the “extra virgin”, “glass transparent bottle” and “organic label” attributes and *olive oil healthiness* are not mapped, yet they constitute the links that bridge the two main parts of the HVM. Finally, the weak 4.5 link between “quality guaranteed” and “high quality” possibly indicates a not accurate coding on behalf of the researcher, since it seems that these two concepts are linked in the eyes of consumers in a more or less obvious way. Their joint inclusion in the same coding category appears necessary.

The olive oil *healthiness* perceptual orientation (Figure 6.7): it constitutes the second important axis around which consumers’ selection of olive oil is being developed, according to our hypotheses. It demonstrates that a number of *nutritional label information* (“best before” date, additives/preservatives, “cholesterol free” label, fatty acids, caloric content, “keep until” instructions) offer to the product the image of healthy, leading to a *healthy and long life*. The average strength of the links between

Fig. 6.7: The Olive Oil *Healthiness* Perceptual Orientation

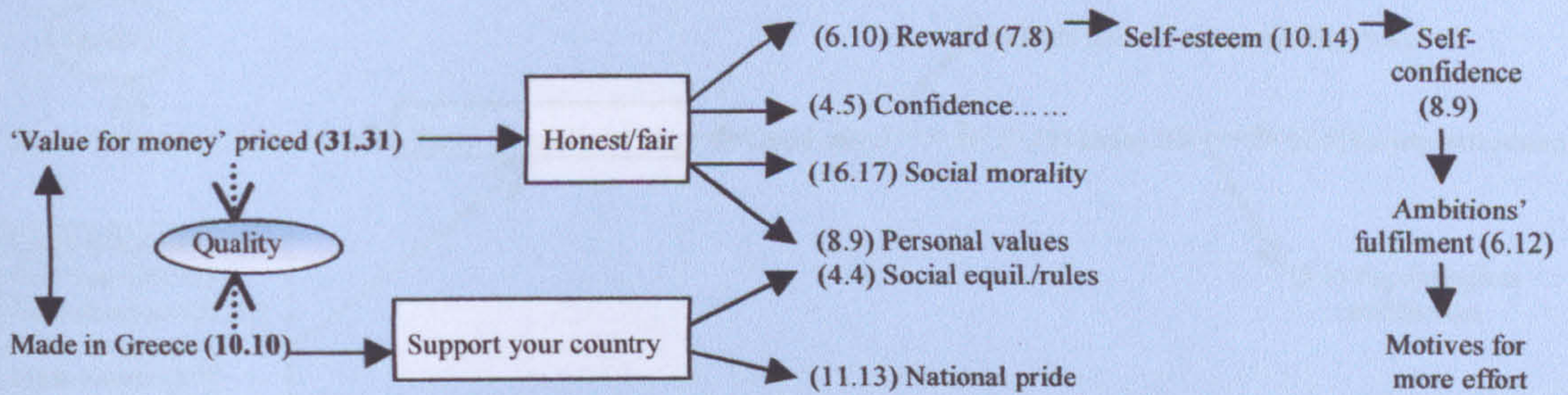
these 6 attributes and the healthy aspect of olive oil is 20 direct and 22 total associations. The motive behind consumers' elicited benefit of healthy olive oil/healthy long life seems to be their *need for an easy and simple life through practical, functional* (and apparently healthy) products. Coverage of that need leads to *good, relaxed mood*, which again makes them to *enjoy pleasures and their life*, and more *productive and effective in everyday life*, which in turn brings *professional success, satisfactory income and higher quality of life* as lifetime targets.

Again, a number of associations directly relate olive oil healthiness to “good mood” and “effectiveness”, fact that enhances ladder's validity. Yet, these associations are not mapped due to the non-redundancy rule. Moreover, a strong but redundant link between the quality and healthiness concepts constitutes, as we have seen, the perception that the “extra virgin” (6.9), “organic label” (11.12), and “glass bottle” (13.18) quality characteristics of olive oil also indicate a healthy product as well. On the other hand, the weak association between healthiness, simple life and good mood indicates an area not well defined in consumers' cognitive structure. It has to become clearer that consuming olive oil as a healthy product can lead to good mood through a simple and healthy, long life. Or, to exclude the “practical/easy, simple life” link from the chain, given the existence of redundant associations between healthiness and

“good mood” or healthiness and “effective/productive”.

The olive oil *ethical* perceptual orientation (Figure 6.8): this has been the third axis of the HVM at a two-fold level. The first introduces the olive oil price concept: “*value for money*” *priced olive oil* means an honestly, fairly made product. Although determining the level of price “rightness” still remains subjective, the choice of the “value for money” price level by respondents indicates a lack of price sensitivity, at least to a point, according to the literature and our hypotheses. The lack of the “low price” attribute from the HVM, despite its inclusion to the set of attributes selected for analysis, justifies the lack of price sensitivity. On the other hand, for more than half of the sample the “high price” attribute is unimportant, indicating that, although not price-sensitive, they would possibly prefer an average between low and high price level. High price does not necessarily mean “better” product. Further investigation is needed to determine what exactly those price levels can be translated into, in an effective pricing strategy (c.f. Chapter 7).

Nevertheless, an olive oil priced according to its “value” means that it is an honest and fair attempt on behalf of the firm. Efforts like this can lead to a *general social morality*, introducing the “politically correctness” factor in the supply part of the industry. Moreover, an honest/fair product through its “right” price is being seen by respondents as a *reward* to their choice to purchase it. The concept of reward is linked to that of *motives for more effort/personal progress*, through the *self-esteem/self-confidence/ambitions’ fulfilment* ladder.

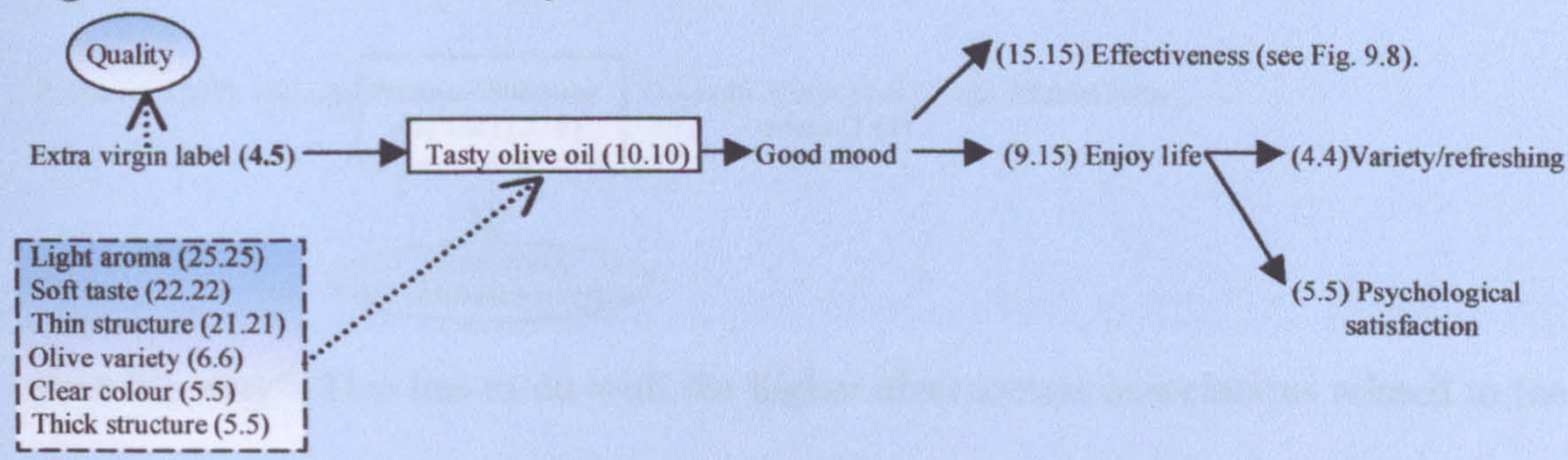
Fig. 6.8: The Olive Oil *Ethical* Perceptual Orientation

The second ethical level relates the “made in Greece” quality attribute mostly to the notion of *national pride*, fact that makes respondents to *support their country*. That finding again is in accordance with the literature and introduces ethnocentrism as a food selection motive of the Greeks (see Section 6.1.2.3).

The average strength of the links between these 2 attributes and the corresponding benefits is 20 direct and 20 total associations. Although fewer attributes lead to a greater number of consequences with average strengths, compared to the previous HVM areas the connections are clear with no weak links. Both attributes are related to each other by means of the “personal values/social rules” concept and to the quality HVM area, since they both also constitute quality attributes.

The olive oil *tasty* perceptual orientation (Figure 6.9): the *tasty olive oil* benefit immerses as another “extra virgin olive oil” consequence, indicating the multi-fold significance of the specific attribute and justifying its selection as very important by 85 percent of the sample. Yet, the concept of taste was elicited from mainly sensory attributes, such as “light aroma”, “soft taste”, “thin structure” and “clear colour”, together with “olive variety”

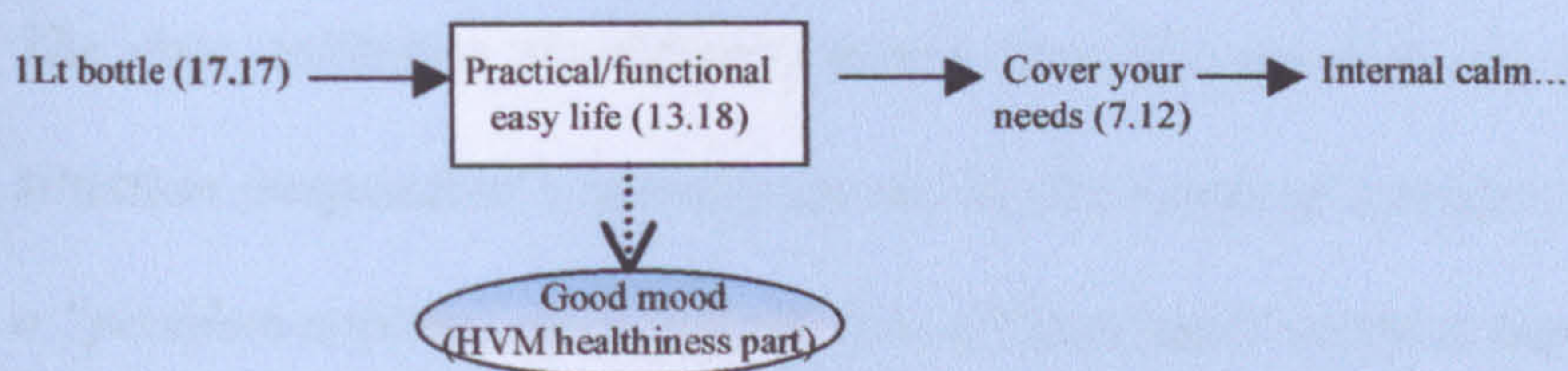
Fig. 6.9: The Olive Oil Taste Perceptual Orientation



The inclusion of sensory characteristics has not been in our aims of data analysis, yet their significance can not be ignored. Extra virgin olive oil means tasty olive oil, which in turn leads to *life enjoyment* through a state of *good mood*, connecting the concept of taste to the ladders of healthiness.

The olive oil *practical* perceptual orientation (Figure 6.10): the “1L size” attribute, although chosen as very important by a lower percentage than the attributes used so far, is included in our analysis in order to complete the olive oil bottle characteristics. As we have seen, only the “glass transparent bottle” attribute was very important, the others (such as “cylindrical” or “square” bottle shape and “less” or “more than 1L size”) being either rather important or unimportant. Hence, the 1L size is selected to couple the glass/transparent bottle attribute and to expand, through its inclusion, the concept of *practical/functional/easy life*, which leads to *covering someone’s needs*.

It has to be stressed that the concept of “practical everyday life” is more strongly linked to the 1Lt attribute than to “olive oil healthiness/healthy everyday life” through different nutritional information, in a way similar to the tasty-good mood link that we saw. In other words, the idea that “a 1Lt sized olive oil brand is more practical and makes your life easy seems more obvious for respondents than that of “a healthy olive oil brand with different nutritional information on its label is more practical and makes

Fig. 6.10: The Olive Oil *Practical* Perceptual Orientation Part

your life easy”. This has to do with the higher abstractness associations related to the concept of practical/easy life: in the case of healthiness, it is weakly linked to the “good mood” consequence; in the case of practicality, it is strongly linked to the “cover your (everyday) needs” value. Apparently, the satisfaction of respondents’ needs, although at the value-level, is an association clearer than that of being in a good mood through the consumption of healthy food.

6.2.2. Test of Method’s Predictive Validity Criteria

As we saw in Chapter 5, one can identify four criteria to measure consumers’ cognitive structures (Grunert and Grunert, 1995). The more our method fulfils these four criteria, the higher the data predictive validity will be. First, *the raw data should represent the respondent’s cognitive structures than of the researcher’s cognitive structures and processes*. Any data collection method, which does not allow the respondent to use some kind of natural speech, is proven to violate this criterion. Hence, the first criterion calls for open methods, in which each respondent can relate her/his own cognitive categories. We can immediately acknowledge that the “least hard” laddering effort selected here allowed the respondents to answer freely, in their own words- freely generate cognitive categories, meeting, thus, this criterion.

The data collection should not involve strategic process not typical of the target situation (respondent's answers should be the result of a retrieval process and not of a "problem-solving" one). As we saw, a "least hard" method was followed according to the literature, since we expected the cognitive structure of the respondents (attitudes' perceptions and its relation to respondents values) to be very elaborate, due to high involvement and much experience, such as when the respondent is an expert in the respective area. Obviously, the interviewer had considerable influence on the amount of strategic processing occurring in this way. For instance, the interviewer tried to guide the respondent into answering from a specific situational context. This suggested that the respondent used an unavoidable strategic process of thinking to provide an answer, violating this criterion. This partially justifies the great number of concepts elicited and ladders formed during the interviews.

Coding should preferably be based on cognitive categories widely shared among consumers, researchers, and users of research results, and not on the researcher's idiosyncratic cognitive categories. As we saw, the distinction between attributes, consequences and values should be based on a conceptual definition of these terms. The less one knows in advance about how respondents think about the topic to be researched, the more difficult to relate the respondent to his/her background and to understand his/her definitions of attributes, consequences and values is. Thus, it was important to devise a data collection method that helps the researcher understand the meanings in respondents' answers. A method employing natural speech is selected, since only when the interviews are taped and transcribed is the full context available in coding. Thus, the principal of indexicality is met.

Then, *to find the “right” level of abstraction* is the other problem associated with coding. The iterative coding process and the solution of the interviewer-coder were selected. Of course, the decision about what can be regarded as satisfactory code in terms of abstractness still rested to a large extent on face validity considerations and, therefore, on the judgement of the individual researcher. However, such procedures, couples with the factor analysis results used as an “abstraction guide” to coding, provide documentation for how the coding proceeds, increasing the inter-subjectivity of the process and satisfying this criterion.

Finally, *data reduction should be based on theory about cognitive structure and processes*. Data reduction in analysing laddering encompasses two main steps: aggregation and condensation (Grunert and Grunert, 1995). *Condensation* refers to reducing the HVM to a small subset of the associations between cognitive categories that have shown up in the data. This is achieved, as we saw, by two means: first, by specifying the condition that the network has to be *non-redundant*, and secondly, by specifying a *cut-off level*.

In trying to develop a better understanding of laddering data analysis, our first step is an explicit stand on what our HVM is supposed to do. Since it is an estimate of cognitive structure, then the next step is to spell out clearly the assumptions made about non-redundancy. The technical problem, as we have seen, is to aggregate only respondents whose cognitive structures can be regarded as homogeneous with regard to the product in question (Grunert and Grunert, 1995). This is achieved by applying clustering methods to the laddering data before aggregation. *Aggregation*, then, involved the step from the individual to the collective. The HVM is not only a device

that allows us to see the major results from a laddering study without having to go through all the individuals ladders. It also constitutes an estimate of cognitive structure for that consumer group, since we obtain ladders from an apparently group of *homogeneous* respondents, as will be quantitatively proven in the following Chapter 7, satisfying this final criterion.

The laddering problems underline that the conceptual status of Means-end chains and laddering is unclear. More classification would be desirable on the following questions: What does laddering measures? What are the results to be used for? If means-end chains are to have an explanatory/predictive function, what kind of behaviour is to be explained/predicted and in which way? What exactly is a HVM and how should it be used? Answers to these questions would require the development of theory that integrates means-end chains into a larger cognitive model of consumer behaviour, a model that also deals with the links between cognitive structure and behaviour (Grunert and Grunert, 1995).

6.3. Conclusion of Chapter 6

Chapter 6 was dedicated to the implementation of the MECA theory, which represents the vertical (depth) axis of the methodology. The method started with the selection of the sample. It continued with the identification of the olive oil attribute elicitation method and the practical implementation of the laddering interviews, according to the limitations and instructions mentioned in Chapter 5.

Then, a series of analyses (categorisation and abstraction qualitative phases) transformed data to the appropriate for the use of software form. Data coding had as a result the grouping of all the consequences and values mentioned by respondents and factor analysis at the consequence level further increased codes' abstraction level and decreased their number. Then, factor analysis at the attributes chosen as important offered an indication for the existence of interesting underlying consumer preference dimensions of olive oil, especially in terms of its quality. And cluster analyses both at the consequence and important attribute levels offered more insights in relation to the sample's profile and motivation when choosing olive oil and stresses the clear difference between attribute and benefit segmentation. Finally, these series of factor and cluster analyses at both levels illustrated the homogeneity of the sample, condition necessary to use laddering as a method for estimating consumer cognitive structures' predictive validity.

The Means-end and the corresponding laddering techniques revealed that young people, with average to higher income, high educational status, belonging to single-person households or having one or no child, seem to be highly involved in the olive oil purchase process, pay a special attention to a number of quality assurances and nutritional information on the label of an olive oil brand. They strongly prefer olive oil of Greek origin, seem not to be particularly price sensitive, with the "right" price of olive oil being more an ethical problem to them.

These people derive confidence, security and calm from the consumption of a quality guaranteed product, by means of which they cover their standards and satisfy their needs. This calm helps them to their family, personal and professional relationships, fact that in turn can make them happy. They seek a satisfactory income to improve their quality of life by means of professional success through the effectiveness and the good mood they derive from the consumption of a healthy foodstuff. They strongly believe in social morality derived from an honestly marketed product, which further is seen as a reward to their purchase. This reward can lead them to become better persons by means of the motives offered to better satisfy their ambitions through an increased self-esteem and self-confidence process.

CHAPTER APPENDIX

Table 6.18: Content Analysis: Initial Functional Consequences Mentioned by the Respondents (Before Grouped into the 29 Groups of Functional Consequences), n=40

Functional consequence Mentioned	Grouped under the name:	Code No.	Functional consequence mentioned	Grouped under the name:	Code No.
Practical, functional, handy Helps you to save time-effort Time management	Practical- Functional	20	Professional, taken care of Well structured Organised, 'cleaver' firm	Professionally made- organised	18
Support your country	Support your country	26	Traditional	Traditional	8
Tasty	Tasty	5	Usual, done out of habit	Usual-habit	29
Lasts for longer	Longevity	15	Value of the brand name	Brand value	27
Indication of quality High quality product	High quality	13	Valuable, precious, rare Prestigious	Valuable- Prestigious	17
Guarantee quality	Guarantee Quality	14	Contains valuable info- Offers new knowledge	Contains valuable info	24
Natural, authentic	Natural- Authentic	7	Environmentally friendly Preserves natural resources	Environmental Friendliness	4
Pure, no additives Clear	Pure- No additives	10	Convincing	Convincing	28
Healthy product High nutritional value	Healthy	1	Has an educational value	Educational	9
Fresh	Fresh	11	Reliability	Reliable	16
Attractive	Attractive	12	Usefulness	Useful	21
Differentiated, unusual Distinctive, unique Innovative, new idea New experience Identifiable	Distinctive- Innovative	19	Childish, innocent Honest, sincere, real Reflects honest effort Fair, right, reasonable Reflects necessary effort	Fair-honest	25
Keeps you in shape	Keeps you in shape	2			
Helps you to save money	Helps you to save money	22	Joyful	Joyful	6
Safe	Safe	3	Abundant	Abundant	23

Table 6.19: Content Analysis: Initial Psychological Consequences Mentioned by the Respondents (Before grouped into the 25 Groups of Psychological Consequences), n=40

Psychological consequence Mentioned	Grouped under the name:	Code No.	Psychological consequence mentioned	Grouped under the name:	Code No.
Make life easier, more simple Avoid problems, difficulties Find solutions	Easier-Simple life	2	Social morality Respect of the individual Social honesty, sincerity Justice, solidarity, support Social responsibility	Social morality	23
Healthy life Live longer	Healthy life	1	Respect the customer Create brand loyalty	Brand loyalty-Customer respect	8
Feeling good, in a mood Feel relaxed Avoid routine	Good mood-Relaxation	5	Social peace, healthiness Social equilibrium Organised society Social values, rules	Social rules-Equilibrium	23
Confidence Avoid risk	Confidence	6	Confidence on Greek products	Confidence on Greek products	7
<i>Achievements:</i>			Self-identity	Self-identity	17
Keep your values in time	Keep-Follow values	13	Self-respect	Self-respect	19
Maintain your cultural identity Know your roots	Cultural Identity- roots	18	Money management Value for money	Money management-value	9
Keep, follow, cover your standards	Cover Standards	12	Achieve perfection	Perfectionism	11
Take right, stable choices Take correct decisions Make correct judgements Think clearly, realistically	Take right stable choices-See clearly	14	Physical strength to continue everyday in life Being energetic	Energy-Strength	3
Being effective, productive creative, efficient, focused in every activity in life	Effectiveness-Creativity	10	Being part of a distinctive nation	Distinctive as a nation	25
Being informed experienced Having the knowledge	Informed-Knowledge-Experience	16	Being emotional Have the right to dream	Being emotional-Daydreamer	22
Being moral Having your conscious satisfied	Satisfied consciousness-Morality	20	Success with the opposite sex	Success with the opposite sex	21
Do things you like Have the right to choose	Have the right to choose	15	Enjoy eating	Enjoy eating	4

**Table 6.20: Content Analysis: Initial Instrumental Values Mentioned by the Respondents
(Before grouped into the 24 Groups of Instrumental Values) , n=40**

Instrumental Value Mentioned	Group under the name:	Code No.	Instrumental Value mentioned	Grouped under the name:	Code No.
Have your personal needs (wants) covered (equally)	Cover needs	4			
<i>self-esteem</i>			Being open-minded	Open-minded	7
Feeling better with oneself Having your ego satisfied Being proud of yourself Having value as a personality Growing up learning to have values Being responsible, capable as a person Doing great things in life Feel successful	Self-esteem/ Feel successful	1	High social profile, status, Good social image Social ascension Being socially respectful, appreciated Having good social reputation	Social status	12
Self-confidence Feeling superior Having the power	Self-confidence	2	Finding motives for a new (more) effort, achievements	Motives for more	11
Having variety, change in your life Doing different things Being refreshed	Variety-refreshing	8	Good national reputation Being equal to other countries Nation's history continuity	National reputation-History	24
Having your internal calm Feeling relaxed Peace of mind Tranquillity Personal psychological, physical equilibrium, harmony Emotional order	Internal calm/ Peace of mind/ Emotional equilibrium	5	Being distinctive, different unique as a person Being yourself	Distinctiveness	13
Fulfilling your ambitions Succeeding in your targets (easier)	Ambitions' fulfilment	3	Being psychologically rewarded Efforts' compensation	Reward of an effort	10
Enjoyment-pleasure Enjoy, find a meaning in life Leading an intense, joyful life	Enjoyment-Pleasure/ Enjoy life	9	Being part of a team Being socially approved, accepted	Part of a team/ Social approval	
Professional success	Professional Success	14	Social well-fare Society of equal, more opportunities Social collaboration for the common good Understand, make the world a better place Make next generation better	Social well-fare/make the world a better place	23
Family well-being	Family well-being	15			
Belonging/part of a team	Belonging/ Part of a team	18			
Good, sincere social relationships Communicate with people	Good social relationships	17	Value of friendship	Friendship	19
Offer to/ share things with others Feel useful	Feel useful	16	Security/safety	Security/safety	20
Being sophisticated, intellectual Search things deeper Satisfy your curiosity	Intellectuality	6	Earning a satisfactory Income Leading an organised life Avoiding excessiveness Being self-disciplined	Satisfactory Income Organised life	21 22

**Table 6.21: Content Analysis: Initial Terminal Values Mentioned by the Respondents
(Before grouped into the 18 Groups of Terminal Values), n=40**

Terminal Value Mentioned	Grouped under the name:	Code No.	Terminal Value mentioned	Grouped under the name:	Code No.
Being 'normal' as a human Follow the human nature	Being 'normal'	15	Satisfying the instinct of survival Self-maintenance	Instinct of survival	12
Progress in life Personal evolution, maturity Becoming a better person Being kind, humane Do the right thing	Personal progress	1	Being free to do what you like, to be yourself, to follow your values, to express your self, thoughts		
Accomplishment	Accomplish	4	Control your life, choices Being independent Rely upon your powers	Freedom	16
Improving the quality of your standards of living	Quality of life	13	Psychologically-Emotionally satisfied, Worth effort	Psychological satisfaction	3
Happiness	Happiness	6	Self-fulfilment	Self-fulfilment	5
Self-knowledge Knowing your limits, potentials Discovering, reconciliation with yourself Being happy with yourself Proving that you are right Proving your effort justified	Self-knowledge	2	Thinking positively Being optimistic	Positive-Optimistic	8
			Being religious Approaching god	Approach god	10
			Having the right to make dreams	Make dreams	9
Satisfying the instinct of creation	Instinct of creation	11	Excitement	Excitement	7
Being proud of your nation Being patriot	National pride	18	Understanding, learning The world	Understand-learn the world	17
Having the power to fight in life	Fight in life	14			

Table 6.22: “Socio-demographic”, “Olive Oil Purchase and Consumption Behaviour”, “Involvement” and “Overall Attitude” Questionnaire

A. DEFINITIONS

1. **ORGANIC PRODUCTS** are those produced without any use of chemical input not approved by the relevant EU Regulation, from their early production stages till they reach the end-user. The organic products have on their label a specific sign or certification that assures the absence of chemical input. The particular sign/certification is provided by a private organisation authorised by government to do so.

2. **Protected Denomination of Origin (PDO) LABEL** characterises the products typical of a particular area, in terms of their original, authentic and/or traditional production, processing and standardisation methods, approved by a relevant EU Regulation. The PDO products have on their label a specific sign or certification that assures the above. The particular sign/certification is provided by a private organisation authorised by government to do so or by governmental bodies.

3. **ISO CERTIFICATION** scheme assures the implementation on behalf of a firm/producer of a pre-specified management system of various production activities, such as the optimum exploitation of the available production resources, the adoption of production methods controlled all along their stages or the use of environmentally friendly production techniques. The ISO certification is being provided by internationally approved private agencies and/or governmental organisations and often constitutes an indirect guarantee of end-product’s high quality

4. **HACCP CERTIFICATION** scheme assures that a company/producer follows a particular production system that certifies produce’s hygiene in relation to several microorganisms that may affect it during its different production/processing stages. The HACCP certification is being provided by relevant private agencies and/or governmental organisations and basically assures foodstuffs’ safety for the end-user.

B. SOCIO-DEMOGRAPHIC INFORMATION

1. Age:.....

2. Education level:

Element.	High School	Graduate	Postgraduate	Technical
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

3. Number of children:

0	1	2	3	>3
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

4. Income level:

<4,000 GBP	4-8,000 GBP	8-12,000 GBP	12-20,000 GBP	>20,000 GBP
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

5. Working woman-member
of the family

YES	NO
<input type="text"/>	<input type="text"/>

6. Marital status:

Married	Unmarried
<input type="text"/>	<input type="text"/>

7. Gender:

Male	Female
<input type="text"/>	<input type="text"/>

C. FOOD AND OLIVE OIL PURCHASE/CONSUMPTION BEHAVIOR

8. I usually purchase food:			
>once per week	once per week		< once per week
<input type="text"/>	<input type="text"/>		<input type="text"/>
9. Last week I spent for food purchase:			
> 30GBP	30 GBP		< 30GBP
<input type="text"/>	<input type="text"/>		<input type="text"/>
10. Last month I purchased:			
> 1 L of olive oil	1 L of olive oil		<1 L of olive oil
<input type="text"/>	<input type="text"/>		<input type="text"/>
<i>11. I purchase olive oil:</i>	Frequently	Rarely	Never
11a. At a minimarket or convenience store	<input type="text"/>	<input type="text"/>	<input type="text"/>
11b. At a supermarket	<input type="text"/>	<input type="text"/>	<input type="text"/>
11c. At a hypermarket or superstore	<input type="text"/>	<input type="text"/>	<input type="text"/>
11d. At a specialty shop (e.g. with organic food)	<input type="text"/>	<input type="text"/>	<input type="text"/>
11e Unbotled olive oil from free sellers (e.g. small producers)	<input type="text"/>	<input type="text"/>	<input type="text"/>
11f. I do not purchase commercial olive oil because I produce my own	<input type="text"/>	<input type="text"/>	<input type="text"/>
<i>12. Instead of olive oil, I usually purchase as an alternative:</i>	Frequently	Rarely	Never
12a. Pomace olive oil	<input type="text"/>	<input type="text"/>	<input type="text"/>
12b. Sunflower oil	<input type="text"/>	<input type="text"/>	<input type="text"/>
12c. Soya oil	<input type="text"/>	<input type="text"/>	<input type="text"/>
12d. Other non-vegetable oil	<input type="text"/>	<input type="text"/>	<input type="text"/>
<i>13. I use olive oil as:</i>			
13a. A cooking ingredient, when frying Things	<input type="text"/>	<input type="text"/>	<input type="text"/>
13b A cooking ingredient, when boiling Things	<input type="text"/>	<input type="text"/>	<input type="text"/>
13c. I use (raw) olive oil in salads	<input type="text"/>	<input type="text"/>	<input type="text"/>

D. OLIVE OIL PURCHASE INVOLVEMENT AND OVERALL ATTITUDE

	I totally agree	I agree	Neither agree nor disagree	I disagree	I totally disagree
14a. I would be interested in knowing how an olive oil brand is being produced	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
14b. Before purchasing, I have compared different brands with each other	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
14c. I believe that there are many differences between olive oil brands	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
14d. There is a specific olive oil brand I prefer	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
14e. I believe that I have a good overall olive oil knowledge	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<i>15. I believe that olive oil:</i>					
a. is good for health	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. is a good cooking ingredient	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
c. replaces other low quality oils	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
d. is tasty raw in salads	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
e. has a nice aroma	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
f. is a high quality product	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
g. is a natural product	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
h. is an environmentally friendly product	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
i. is traditional Greek	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
j. is being consumed mainly out of habit	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
k. is a reasonably priced product	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Table 6.23: Implication Matrix Parts I, II. (Red Characters: Associations with values >4, Blue Characters: Redundant Associations, Green Characters: Associations not Mapped).

Attribut. (*)	Fc1	Fc13	Fc14	Fc5	Fc19	Fc23	Fc10	Fc21	Fc24	Fc15	Pc1	Pc2	Pc6	Pc18	Pc10	Pc8	Pc9	Pc20
16c		4.4			31.31			5.5				1.4	0.1	1.14	0.1			0.7
17a	1.2	17.17	5.5	2.2		2.2			10.10		0.1	0.1		0.3	0.1	0.1		0.1
15a/20	6.9	11.12	13.13	4.5		4.4				0.1		0.3			0.1			
15d/21	11.12	2.2	13.13			2.2				0.1		0.1				0.1		
15c/19		3.3	24.24			0.1	1.1					0.4			0.1	0.1		
15b/18		2.2	20.20	2.2							0.2	0.2			0.1			
15e/23	13.13	1.1				4.4				1.1	0.1	0.1		0.1				
22	2.2	1.1		1.1														
16b						3.3									0.1			
1a	13.18	18.19		3.3	0.7	2.2	5.5	0.2		0.1	0.15	2.19	1.15	0.1	0.6	0.3	0.1	0.1
13	3.5	7.10	30.30	0.1	0.1			0.4		0.4	0.1	1.13		0.1	0.7	0.3		
3a	0.1	1.2	3.3	0.1	17.17			3.4			0.5	0.1	0.1	0.1	0.1	0.1		
10a	32.36	1.1	1.1		2.2			1.2			0.2							
14	1.1	4.5	23.24	5.5		0.1				0.1	0.4	0.4		0.1	0.1	0.1		
9d	29.32		1.1		1.1		2.2				0.2			0.1	0.1			
9c	21.23		1.1				1.1				0.2							
9b	18.20	1.1	1.1		0.1		1.1				0.1		0.1		0.1			
9a	10.10										0.4							
Conseq.																		
Fc1					5.5						14.14	1.4	5.9		1.1			5.5
Fc13	4.5			0.1	2.3	1.1		5.7		8.8	2.3	10.14	0.4	0.3	2.8	14.15	0.1	
Fc14	1.2	4.5		0.1		2.2			1.1		0.1	14.16	0.1		5.7	3.4		
Fc5	1.1										10.10	1.1	0.3					
Fc19	1.2							3.3			4.6			0.1	1.1			1.1
Fc23					1.2							4.5	0.2	16.17	0.3		8.9	
Fc10	16.17	4.4	1.1	1.1	0.2	1.1						0.2	0.2	0.1	1.2			
Fc21											2.2	1.1		3.3	1.1			
Fc24						1.1								3.4	0.1		4.4	
Fc15			1.1	1.1				2.2						0.1	2.2	1.1		
Pc1												2.2	15.15		1.1			
Pc2													2.3		4.4		1.1	
Pc6												0.1						
Pc18												1.2	0.1		2.2		0.1	
Pc10												1.1	1.2					
Pc8												1.1			2.2		1.1	
Pc9																		
Pc20													2.2					

* Attribute, consequence and value codes according to Tables 6.3, 6.14 and 6.6 respectively.

Table 6.24: Implication Matrix Parts III, IV (Red Characters: Associations with values >4, Blue Characters: Redundant Associations, Green Characters: Associations not Mapped)

	Iv5	Iv20	Iv9	Iv4	Iv3	Iv1	Iv14	Iv17	Iv2	Iv15	Iv11	Iv10	Iv16	Iv8	Iv18	Iv21	Iv19	Tv3	Tv1	Tv13	Tv2	Tv6	Tv18
Attrib. (*)																							
16c	0.4	0.7	0.1	0.2	0.1	0.3	0.1	0.2	0.2	1.5	0.10	0.2					0.1	0.1	0.2	0.2	0.2		
17a	0.1	0.3																0.1	0.1	0.1	0.1	0.5	
15a/20	0.1	0.2			0.1																		
15d/21	0.2	0.3		0.1									0.1										
15c/19	0.2	0.7		0.1	0.1	0.1	0.1	0.1	0.1				0.1										
15b/18	0.1	0.3																					
15e/23	0.1	0.1		0.1																			
22																							
16b				0.2																			
1a	0.21	0.14	0.10	0.5	0.21	0.25	0.19	0.17	0.17	0.14	0.9	0.2	0.7	0.3	0.9	0.4	0.2	0.11	0.10	0.9	0.3	0.3	0.10
13	0.5	0.10	0.1	1.8	0.3	0.4	0.2	0.1	0.1	0.1	0.1	0.1	0.1				0.1	0.2	0.2	0.1	0.1	0.1	
3a	0.11	0.2	0.4	0.14	0.8	0.4	0.2	0.3	0.4	0.2	0.3	0.3	0.2	0.1	0.1	0.2		0.6	0.2	0.2	0.1	0.1	0.3
10a								0.1															
14	0.2	0.6			0.1					0.1													
9d	0.1		0.2		0.2																		
9c	0.1				0.1			0.1															
9b					0.1			0.1				0.1		0.1				0.1					
9a			0.1					0.1	0.1														
Cons.																							
Fc1	3.12	2.4	7.15	0.3	4.16	0.10	0.8	1.6	1.7	3.9	0.5	0.2	0.1	0.2	1.2	0.4	0.1	0.2	0.5	0.5	0.1	0.4	
Fc13	0.14	0.10	2.3	0.14	1.10	1.14	0.10	0.12	1.11	0.5	1.2	1.4	0.6	0.1	0.6	0.1	0.2	0.11	0.3	2.5	0.1	0.3	
Fc14	0.6	8.13	0.2	2.6	0.3	1.5	0.1	0.3	0.1	0.1				1.1		0.1		0.2	0.2	1.2	0.1	0.1	
Fc5	0.8	0.1	26.30		0.3	0.2	0.1	0.2	0.1	1.3	0.2	1.3	0.1	0.3	0.1		0.1	1.4	0.2	0.1	0.1	0.1	
Fc19	3.12	2.3	3.9	13.18	3.11	0.5	0.3	0.5	0.5	0.3	0.4	0.2	0.3	0.2	0.3	0.3		0.6	1.7	0.4	0.2	0.3	
Fc23	1.10	0.10	0.2		0.4	0.6	0.3	1.5	0.3	0.2	1.4	6.10	0.3	0.2	0.2	0.1		0.2	1.1	0.2	1.3	0.1	
Fc10	0.6		0.4	0.2	0.3	0.4	0.1	0.1	0.3	0.3			0.1					0.2	0.1	0.3		0.1	
Fc21	0.3	1.5	0.2	14.15	0.2	1.4	0.2	1.2	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.1		0.3	0.1	0.3	0.1	0.1	
Fc24	0.2	2.2			0.1			0.1				1.1							0.2	0.2	0.1		11.13
Fc15	0.2			3.5	0.1	0.2	0.1	0.1						0.1				0.1	0.1		0.1		
Pc1	4.9	0.2	9.15	0.1	2.10	1.11	2.14	5.13	0.5	1.5	0.4	0.1	0.4	2.3	1.5	0.3	0.1	0.4	1.7	1.2	0.4	0.6	
Pc2	3.17	18.19	0.3	1.1	4.12	0.12	0.9	0.10	3.11	0.6	1.4	1.2	0.5	0.4	0.2	0.1		0.5	0.5	0.5	0.1	0.6	
Pc6	0.4	0.1	2.4	0.2	3.10	1.11	14.14	5.7	0.5	4.6	0.6	1.2		0.1	0.3	0.2		1.2	0.3	0.3	0.1	1.3	
Pc18	4.7	5.5	0.1		0.1	0.2	0.2	1.3	1.1	0.1	1.1	0.1	0.1	0.1	0.1	0.1	0.1	4.4	0.1	2.3	0.1	1.1	
Pc10	3.4	1.1		3.3	1.3	0.3	0.1	0.2	2.2	0.1	1.1	1.1	1.2	0.1	0.1			1.3	0.1		1.1		
Pc8	0.3	1.2	0.1	10.10	0.1	1.3	0.1	0.1	0.2	0.1	0.1	0.1						0.5	0.1	2.2			

	Pc9	1.2	2.3	0.1	0.2	0.1	0.1	1.2	0.1	1.1	0.1	1.1	1.1	0.1	0.1								
Pc20		2.2	2.3	0.1	2.3	0.1	1.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1								
	Iv5	Iv20	Iv9	Iv4	Iv3	Iv1	Iv14	Iv17	Iv2	Iv15	Iv11	Iv10	Iv16	Iv8	Iv18	Iv21	Iv19	Tv3	Tv1	Tv13	Tv2	Tv6	Tv18
Iv5		0.2	1.7	1.3	6.14	1.10	13.14	11.12	2.11	8.9	0.4	0.3	0.8	2.3	0.5	0.5	0.5	2.8	2.8	1.6	4.6	2.8	
Iv20	14.16		0.3		5.11	0.8	1.7	2.7	5.10	1.6	0.3	0.2	0.5	0.3	0.2	0.2	0.2	1.6	0.4	1.4	1.1	0.4	
Iv9	8.11	0.1			0.2	0.1	0.1	1.2	0.1	0.1	0.2	2.2	0.1	4.4	0.1	0.1	0.1	5.5	0.3	1.1	0.3	2.2	
Iv4	7.12	0.2	3.5		1.7	8.10	0.3	0.1	0.8	0.2	2.4	1.2	1.3	1.2	1.3	1.3		5.11	0.7	1.3	0.5	0.3	
Iv3	0.4		1.3	0.2			3.5	2.3		3.4	6.12	2.2	0.2	0.2	0.2	0.3		1.4	1.9	1.4	0.1	3.6	
Iv1			1.3		5.10		0.3	2.5	10.14	0.2	3.7	1.1	3.5	1.5				1.2	1.9	0.2	1.6	2.4	
Iv14	0.2	0.2	0.3	2.3	3.14	10.17		1.2	3.12	2.2	0.7	0.3	2.4	0.2	9.10			0.1	0.4	2.9	0.2	0.4	
Iv17	1.2	2.8	2.8	1.1	0.3	3.6			0.2	0.1	0.1	6.10	0.1	7.11	5.5			2.5	1.3	0.1	1.1	0.1	
Iv2	2.4		1.1	1.1	8.9		2.3	3.3		1.1	3.4	1.1	1.2	2.3				0.4	3.5			0.1	
Iv15		1.1		0.1		3.3		0.1	0.1			1.1	1.1	0.1				1.2	0.1		0.2	5.6	
Iv11	0.1	1.1			2.2	1.1		0.1	0.1			2.2		0.1				2.2	8.8	1.1	2.2	2.2	
Iv10	0.2				0.1	7.8		0.1	0.2	5.5			1.2	0.1				0.1			2.3		
Iv16	1.1	0.2	2.3		0.1			1.1		2.2		1.1		2.2				2.3			0.1	4.5	1.1
Iv8	2.2		2.2							1.1								3.3	2.4		3.3	0.1	
Iv18		1.1	1.1		0.1			1.1				2.3						2.3				0.1	
Iv21		1.1		1.1	2.2	0.2		0.1	0.1	0.1		1.1						0.1	2.3	6.6		0.2	
Iv19		0.1	1.1		0.1							2.3		2.3				0.1				0.1	
Tv3																							
Tv1																							
Tv13																							
Tv2																							
Tv6																				3.3			
Tv18																							

* Attribute, consequence and value codes according to Tables 6.3, 6.14 and 6.6 respectively.

CHAPTER 7

CONJOINT ANALYSIS IMPLEMENTATION

7.1. Introduction

Although the origins of Conjoint Analysis (CA) can be traced back to the 1920's, the point of true conception is generally agreed to be 1964 and a seminal paper by Luce and Tukey. The technique was developed in the fields of mathematics, psychology and psychometrics, where it was used for evaluating multi-attribute alternatives (Beilock et al, 1986; Walley et al, 1999). Since the mid-70s, CA has attracted considerable attention as a method that portrays consumers' decisions realistically as trade-offs among multi-attribute products or services (Ness, 1997).

CA gained widespread recognition and use in many industries, with usage rates increasing up to tenfold in the 1980s, according to Wittink and Cattin (1989, c.f. Table 7.1). Some of the highlights of their study are: the large majority of conjoint studies pertained to consumer goods; new product/concept evaluation, repositioning, competitive analysis, pricing, and market segmentation were the principal types of applications; personal interviewing is the most popular data-gathering procedure; and the full-profile method using rating scales or rank orders was the most common type of application (Green and Srinivasan, 1990).

During the period 1989-1994, a survey revealed almost 1000 applications in Europe alone (Walley et al, 1999). During the 1990s, CA is regarded as a "mature" research technique, although some of its aspects are still being developed. Its application increased even further, spreading to many fields of study, such as energy and transportation system policy, tourism, health care and consumer service industries

Table 7.1: Commercial Use of Conjoint Analysis in the 70's and 80's
Source: adapted from Wittink and Cattin, 1989.

	Percentage of applications	
	1981-1985	1971-1980
Product / service category		
Consumer goods	59	61
Industrial goods	18	20
Financial services	9	8
Other services	9	5
Other	5	6
Purpose ^a		
New product / concept identification	47	72
Competitive analysis	40	na
Pricing	38	61
Market segmentation	33	48
Repositioning	33	na
Advertising	18	39
Distribution	5	7
Means of data collection ^b		
Personal interview	64	
Computer-interactive method	12	
Mail questionnaire	9	na
Telephone interview	8	
Combination	7	
Stimulus construction		
Full profile	61	56
Paired comparisons	10	na
Tradeoff matrices	6	27
Combination	10	14
Other	13	3
Response scale		
Rating scale	49	34
Rank order	36	45
Paired choice	9	11
Other	6	10
Estimation procedure ^c		
Least squares	54	16
MANOVA	11	24
Logit	11	10
LINMAP	6	-
Other ^d	18	55

^a A given study may involve multiple purposes

^b This category was not included in the 1971-80 survey

^c The percentages reported for 1971-80 reflect the use of multiple procedures by some studies

^d This category includes PREFMAP and monotone regression for 1971-80.

in general (Batt and Katz, 1997). Marketing's widespread utilisation of conjoint in new product development for consumers led to its adoption in many other areas, such as industrial marketing. This accelerated CA's use has coincided with the widespread introduction of computer programs that integrate the entire process. Today, several widely employed packages can be accessed by any researcher (Walley et al, 1999).

CA is actually a family of techniques and methods, all theoretically based on the models of information integration and functional measurement. In terms of its basic dependence model, CA can be expressed as (Hair et al, 1998):

$$\begin{array}{ccc} Y_1 & = & X_1 + X_2 + X_3 + \dots + X_N \\ \text{(Non metric or metric)} & & \text{(Non metric)} \end{array}$$

CA is best suited for understanding consumers' reactions to and evaluations of predetermined attribute combinations that represent potential products or services. While maintaining a high degree of realism, it provides the researcher with insight into the composition of consumer preferences. The flexibility and uniqueness of CA arise primarily from its ability to accommodate either a metric or a non-metric dependent variable and the quite general assumptions about the relationships of independent with the dependent variables.

7.1.1. Conjoint Analysis definition

CA is a multivariate technique used specifically to understand how respondents develop preferences for products or services. It is based on the simple premise that consumers evaluate the value of a product/service/idea by combining the separate amounts of value provided by each attribute (Gerhardy and Ness, 1995; Walley, 1999; also see Section 5.1.1). *Utility*, which is the conceptual basis for measuring value in CA, is a subjective judgement of preference unique to each individual. It encompasses all product features, tangible and intangible, and as such it is a measure of overall preference. In CA, utility is assumed to be based on the value placed on each of the levels of the attributes and expressed in a relationship reflecting the manner in which the utility is formulated for any combination of features. We might sum the utility values associated with each feature of a product to arrive at an overall

utility. Then we would assume that products with higher utility values are more preferred and have a better chance of being selected.

CA is unique among multivariate methods in that the researcher first constructs a set of real or hypothetical products by combining selected levels of each attribute. These combinations are then presented to respondents, who provide only their overall evaluations. As a technique for investigating consumers' purchase decisions, CA is a good external reflection of internal reality (MacLachlan et al, 1988, in Walley et al, 1999). Unlike traditional research techniques, CA does not ask respondents directly which attributes of a product are important. Rather, by forcing them to make trade-offs between products (Batt and Katz, 1997), it mimics their actual behaviour when purchasing products: preferences are revealed through a series of rating, or trade-off decisions. As a result, CA circumvents the problem of respondents saying one thing and doing another, thereby generating results of greater validity and reliability (Walley et al, 1999).

Since the researcher is asking the respondent to perform the very realistic task of choosing among a set of alternative products, to be successful, the researcher must be able to describe the product or service in terms of both its attributes and all relevant values for each attribute. The term "factor" is being used when describing a specific attribute or other characteristic of the product. The possible values for each factor are called "levels" (Hair et al, 1998). By constructing specific combinations ("stimuli"), the researcher is attempting to understand a respondent's *preference structure*. This structure explains not only how important each factor is in the overall decision, but also how the differing levels within a factor influence the formation of

an overall preference (“utility”). This utility, which represents the total “worth” of an object, can be thought of as based on the “part-worths” for each level. The general form of a conjoint model can be shown as:

$$\begin{aligned} \text{Total worth for product } ij\dots n &= \text{Part-worth of level } i \text{ for factor 1} \\ &+ \text{Part-worth of level } j \text{ for factor 2} + \dots \\ &+ \text{Part-worth of level } n \text{ for factor } m \end{aligned}$$

where the product has m attributes, each having n levels. The product consists of level i of factor 1, level j of factor 2, and so forth, up to level n for factor m .

The flexibility of CA gives rise to its application in almost any area in which decisions are studied. It assumes that any set of objects (e.g. brands) or concepts (e.g. positioning) is evaluated as a bundle of attributes (Walley et al, 1999). Having determined the contribution of each factor to the consumer’s overall evaluation, the marketing researcher could then (Gil and Sanchez, 1997): a) define the object or concept with the optimum combination of features; b) show the relative contributions of each attribute and each level to the overall evaluation of the object; c) use estimates of purchaser judgements to predict preferences among objects with different sets of features; d) isolate groups of potential customers who place differing importance on the features to define high and low potential segments (e.g. Green and Krieger, 1991); and e) identify marketing opportunities by exploring the market potential for feature combinations not currently available.

7.1.2. Comparing CA with other multivariate methods

CA differs from other multivariate techniques in four distinct areas (Hair et al, 1998):

a) its decompositional nature; b) the conjoint variate; c) that CA can be carried out at the individual level; and d) that CA is not limited at all in the types of

relationships required between the dependent and independent variables. CA's *decompositional nature* (Green and Srinivasan, 1990): CA allows for a buyer's total utility for a multidimensional product to be decomposed into combinations of part-worth utilities for each attribute of the product (Harrison et al, 1998). In this way, CA differs from *compositional* models such as Discriminant Analysis and many regression applications, in which the researcher collects ratings from the respondent on many separate product characteristics and then relates these ratings to some overall rating to build a predictive model.

The conjoint variate: as we have seen, it is a linear combination of effects of the independent variables (factors) on a dependent variable. The important difference is that in the CA variate the researcher specifies both the independent variables AND their values (levels). The only information provided by the respondent is the dependent measure. The levels specified by the researcher are then used by CA to decompose the respondent's response into effects for each level.

CA can be carried out at the individual level, meaning that the researcher generates a separate "model" for predicting preference for each respondent. Most other multivariate methods take a single measure of preference (observation) from each respondent and then perform the analysis using all respondents simultaneously.

CA is not limited at all in the types of relationships required between the dependent and independent variables. It can make separate predictions for the effects of each level of the independent variable and does not assume they are related. It can easily handle non-linear relationships –even the complex curvilinear relationship, in which

one value is positive, the second negative, and the third positive again.

7.2. Designing the CA Experiment

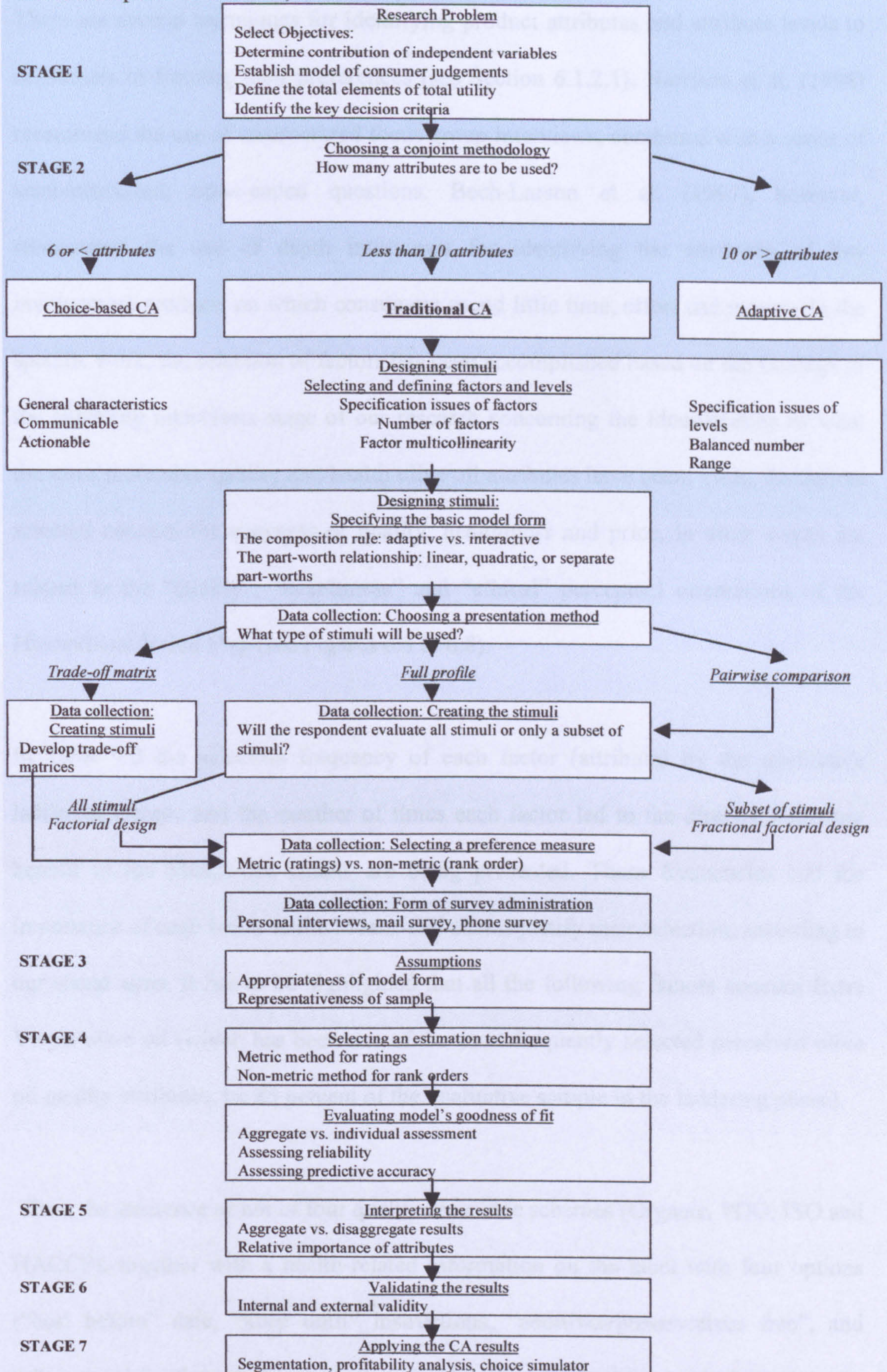
Although CA places the fewest demands on the respondent in terms of both the number and types of responses needed, the researcher must make a number of key decisions in designing the experiment and analysing the results (Figure 7.1).

7.2.1. Selection of factors and factor levels

Our starting point is CA's research question. The experimental design in the analysis has the objective to establish, based on the findings of the Means-end qualitative stage undertaken, a valid model of consumer judgements, which will allow us to predict consumer acceptance of a combination of olive oil quality and health attributes chosen and determine what the key-decision criteria involved in the choice process for this type of product would be.

The experimental foundations of CA place great importance on the design of the stimuli evaluated by respondents. The design involves specifying the conjoint variate by selecting the factors and levels to be included in constructing the stimuli. In defining the factors and levels, issues must be addressed that relate to the general character of either measure, whereas other considerations are specific to factors and levels. The researcher had to be sure to include all determinant factors drawn from the concept of determinant attributes in terms of olive oil quality and healthiness. The goal has been to include the factors that best *differentiate*, or vary substantially, between the objects.

Fig. 7.1: Stages of the CA Decision Process, Extra Virgin Olive Oil (Saturated Fatty Acids<1)
Source: adapted from Hair et al, 1998.



There are several techniques for identifying product attributes and attribute levels to consumers in forming their preferences (see Section 6.1.2.1). Harrison et al. (1998) recommend the use of unstructured focus group interviews, combined with a series of semi-structured, open-ended questions. Bech-Larson et al. (1997), however, recommend the use of depth interviews for identifying the attributes of low involvement products on which consumers spend little time, effort and money. In the specific work, the selection of factors has been accomplished based on the findings of the laddering interviews stage of our research concerning the identification of what the most preferable quality and health olive oil attributes have been. Thus, the factors selected concern the concepts of quality, healthiness and price, in other words are related to the “quality”, “healthiness” and “ethical” perceptual orientations of the Hierarchical Value Map (see Figures 6.6 to 6.8).

In Table 7.2 the selection frequency of each factor (attribute) by the qualitative laddering sample and the number of times each factor led to the directly following benefit in the Means-end chains are being presented. These frequencies and the importance of each factor in the Means-end chains justify their selection, according to our stated aims. It has to be highlighted that all the following factors concern Extra Virgin olive oil (which has been one of the most frequently selected perceived olive oil quality attributes, by 85 percent of the qualitative sample in the laddering phase).

Thus, the existence or not of four quality assurance schemes (Organic, PDO, ISO and HACCP), together with a health-related information on the label with four options (“best before” date, “keep until” instructions, “additives/preservatives free”, and “cholesterol free” sign), the use or not of a glass (transparent) bottle, the inclusion or

Table 7.2: CA Factors Choice Criteria Based on the Laddering Findings, Extra Virgin Olive Oil

Concept:	QUALITY				HEALTH	QUALITY		PRICE
<i>Factor:</i>	Organic label	PDO label	ISO certif.	HACCP certific.	Health Info	Glass bottle	Count. Origin	Price levels
<i>Frequency of selection as very important by qualitative sample (%):</i>	62.5	55	67.5	67.5	65 to 92.5 (*)	85	95	92.5 (**)
<i>No. of times a factor led to a benefit in a Means-end chain (***):</i>	13.13	20.20	24.24	24.24	13.13 to 32.36 (*)	18.19	30.30	13.13 (**)
<i>Benefit related with in Means-end chains:</i>	Quality guaranteed				Healthy olive oil/ healthy, long life	High quality, Support your country		Honest, fair

* It includes: 'best before' date (92.5% and 32.36 relations), additives/preservatives information (87.5% and 29.32), 'cholesterol free' label (65% and 21.23) and the perceived quality attribute 'keep until' instructions (92.5% and 13.13). See Table 6.4.

** It includes: 'value for money' priced (92.5% 31.31), low priced, and high priced (not included in the Laddering survey output)

*** Number of direct and total relations of the attribute (factor) with the following benefit (see Table 6.16), Max=40, redundant relations excluded

not of the "country of origin" on the label, and four price levels are being included in our CA factors' levels (Table 7.3).

Since the definition of the "value for money" price level, which has been selected as very important by 92.5 percent of the qualitative sample, is a rather subjective matter, it has been decided to include in the study a variety of price levels, such as: a low price level of GRD 1,200 (2.18 GBP), a high price of GRD 1,500 (2.72 GBP), a low organic olive oil price level of GRD 2,000 (3.63 GBP) and an average organic olive oil price level of GRD 2,300 (4.18 GBP). Price levels have been averaged retail prices in Athens, in the period April-May 2000 (Olive and Olive Oil, 2000). In this way, the negative factor levels of "low price" and "high price" –not selected as very important by the laddering sample- are being included in the experimental design, condition necessary to avoid respondents' judgement distortions by focusing on only positive factor levels (Hair et al, 1998).

Table 7.3: Levels of the CA Factors Selected, Extra Virgin Olive Oil

Factors								
	Organic label	PDO label	ISO certif.	HACCP certific.	Health info	Glass bottle	Count. Origin	Price levels
No. of levels:	2	2	2	2	4	2	2	4
Levels:	1: YES, 0: NO	1: YES, 0: NO	1 YES 0: NO	1: YES, 0: NO	1: Best before date 2: Keep until instructions 3: Additives/ preservatives free 4: Cholester. free label	1: YES 0: Other than glass (*)	1: Written on the label 0: Not written on the label	1: 3.25 Euro or 2.18GBP 2: 4.41 Euro or 2.72GBP 3: 5.88Euro or 3.63GBP 4: 6.76 Euro or 4.18GBP

1EURO: 340GRD or 1GBP: 550GRD, as in 1st May 2000.

* 'Other than glass bottle' usually means plastic bottle

In general, relevant product attributes (factors) and their levels must be defined in a manner that is consistent with the buyer's understanding of the product (Harrison et al, 1998) and covers the entire range of representative levels (Gil and Sanchez, 1997). In the specific case, the factors and levels selected can be easily communicated for a realistic evaluation. They are also capable of being put into practice, in other words the attributes are distinctive and represent concepts that can be precisely implemented. The number of factors directly affects the statistical efficiency and reliability of the results. Hair et al. (1998) claim that the minimum number of stimuli (combinations of the selected factors) that must be evaluated by a respondent if the analysis is performed at the individual level is:

$$\text{Min. number of stimuli} = \text{Total number of levels across all factors} - \text{number of factors} + 1$$

In our case, the number of stimuli should be at least $(2+2+2+2+4+2+2+4)-8+1=13$.

Multicollinearity among the factors is another problem that must be remedied. The correlation among factors known as *inter-attribute* or *environmental correlation* denotes a lack of conceptual independence among them (Goldberg et al, 1984). In such cases, the parameter estimates are affected just as in regression (Hair et

al, 1998) and create unrealistic stimuli (c.f. Section 7.2.3).

Green and Srinivasan (1978, in Goldberg et al, 1984) discuss the problem of correlated attributes. For studies using the full-profile data collection method as the present, three general approaches to the problem have been described: a). If the environmental correlation is low, the researcher may wish to assume complete independence and take advantage of highly efficient partial factorial designs, whose virtue is their high efficiency and unambiguous allocation of accounted-for variance to each contributing factor. b). If some subset of attributes is highly correlated environmentally (e.g. glass bottle and organic label), the researcher can prepare a *composite* attribute, each level of which represents a cluster of the more basic attribute levels. As such, it is no longer possible to separate out the effects on utility of the sub-factors making up the composite factor. c). In the intermediate case of moderate environmental attribute correlation (e.g. price and organic label), the researcher may wish to sample attribute levels from some multivariate distribution that reflects this correlation. In the case of “price” and “organic label” correlation, this could be implemented by including an experimentally designed deviation term to be added algebraically to the “true” price of common olive oil, given the organic label. The larger the deviation term relative to the “true” price, the less the correlation and the higher the profile’s realism (Goldgberg et al, 1984).

Price is a factor frequently included in conjoint studies because it represents a distinct component of value for many products examined. In many instances, however, price has a high degree of inter-attribute correlation with other factors. For many attributes, an increase in the amount of the attribute is associated with an increase in price, and a

decreasing price level may be unrealistic. Then, the price-quality relationship may be operand between certain factors, such that certain combinations may be unrealistic or have unintended perceptions (Goldberg et al, 1984; Horsky, 1984; Hair et al, 1998). Price interacts with mainly intangible factors such as the brand name (or the value of a quality label), meaning that a certain price level carries different messages for different brands, one that may be a “premium” and another a “discount” brand. Nevertheless, in our case the focus has not upon price and, thus, no specific adjustment has been made in our experimental model. Yet, the researcher considered this issue in the definition of the price levels, in the construction of the stimuli and in the interpretation of the results.

The definition of levels has been another critical aspect of CA, because the levels are the actual measures used to form the stimuli. The researcher attempted as best possible to balance the number of levels across factors. It has been found using both ranking and rating data that the estimated relative importance of a variable increases as the number of levels increases, even if the end point stay the same (Green and Srinivasan, 1990; Wittink et al, 1982, in Hair et al, 1998) and it causes consumers to focus on that factor more than on other, thereby increasing its apparent importance in determining overall preference (Green and Srinivasan, 1990). Yet in the specific case, (since the importance of the factors chosen was investigated a priori, at least from the qualitative point of view offered by the laddering technique), the researcher intended to expand the number of the “health information” and “price” factor levels, in order to avoid a dilution of importance of the former and to capture additional information on the latter. Thus, the number of their levels has been set to four.

The criteria of *practical relevance* and *feasibility* in defining the levels have been satisfied as well. Levels that were impractical and would never be used in a realistic situation have been excluded. Especially unrealistically low price levels could seriously distort the results, since respondents would logically be most favourable to such levels and price would artificially appear more important than it would actually be in day-to-day decisions. Moreover, all bottled olive oil brands in the Greek market are made in Greece, thus the “country of origin written on the label” factor level implies the existence of the “made in Greece” sign. However, it has been decided not to focus specifically on the Greek origin of the product but rather on the more general notion of the Country of Origin concept, implying product’s Greek origin.

The same criteria of feasibility and practical relevance applied to the construction of the stimuli in order to ensure that stimuli that will be favourably viewed by the respondent but never have a realistic chance of occurring are not created. This prohibits not only the selection of the levels per se, but also the combination of different factor levels with each other, e.g. an organic label or a glass bottle could not be compatible with low price levels (c.f. Section 7.2.3).

7.2.2. Specification of the CA model form – the Composition Rule

After the researcher has determined the basic attributes that constitute the utility of the product, the fundamental question is which of the three basic CA methodologies should be used. This choice resolves around three basic characteristics of the proposed research: number of attributes handled, level of analysis and the permitted model form (see Figure 7.1, stage 2). *Traditional CA* is characterised by a simple additive model containing up to nine factors estimated for each individual. The

Adaptive CA is developed to accommodate a large number of factors (many times up to thirty) that would not be feasible in traditional CA. The *Choice-based approach* method not only employs a unique form of presenting stimuli in sets rather than one-by-one, but also differs in that it directly includes interactions and must be estimated at the aggregate level (Hair et al, 1998).

Then, the most wide-ranging decision by the researcher involved the specification of the respondents' *composition rule*, which describes how the respondent combines the part-worths of the factors to obtain overall worth. The most common basic composition rule is the *additive model* (Green and Srinivasan, 1990; Gil and Sanchez, 1997; SPSS, 1997; Hair et al, 1998), with which the respondent simply "adds up" the values for each attribute (part-worths) to get the total value for a combination of attributes. The additive model accounts for the majority (up to 80-90 percent) of the variation in preference in almost all cases, and it suffices for most applications (c.f. Table 7.4).

The composition rule using *the interactive model* allows for certain combinations of levels to account for more or less than just their sum, corresponding to the statement "the whole is greater (or less) than the sum of its parts". Application areas include sensory phenomena and styling and aesthetic features (Green and Srinivasan, 1990). In our case, a respondent may be willing to buy a brand at a high price level, but only if this is organic olive oil. Then, "price" and "organic label" are interacting with each other, apart from their additive separate effect on consumers' preference.

Many times, though, adding interaction effects to the model decreases predictive power because the reduction in statistical efficiency (more part-worths have to be used to include interactions) is not offset by increases in predictive power gained from the interactions, which predict substantially less variance than the additive effects, most often not exceeding a 5 to 10 percent increase. In addition, interactive effects add substantial complexity to the estimation process and in most cases cause the analysis to be performed at the aggregate rather than individual level. Moreover, an additive model requires fewer evaluations from the respondent and it is easier to obtain estimates for the part-worths, despite the fact that the interactive form may be a more accurate representation of how respondents actually value a product, especially in terms of its intangible attributes (Hair et al, 1998).

After careful consideration, and given that the emphasis is on a thorough understanding of consumers' preference structure, the researcher felt confident in applying the *traditional CA method*, assuming that an *additive composition rule* has been appropriate, based on its advantages mentioned above, although evidence suggests that "price" interacts mainly with the "organic label" and "glass bottle" factors. Thus:

$ \begin{aligned} \text{Total worth for olive oil } ij\dots n &= \text{Part-worth of level } i \text{ for factor "organic label"} \\ &+ \text{Part-worth of level } j \text{ for factor "PDO label"} + \\ &+ \dots\dots\dots\dots\dots\dots\dots\dots\dots\dots + \\ &+ \text{Part-worth of level } n \text{ for factor "price"}. \end{aligned} $ <p style="text-align: center;"><i>(where i,j,...n are the factor levels of Table 7.2)</i></p>
--

The flexibility of CA in handling different types of variables comes from the assumptions the researcher makes regarding the relationships of the part-worths (levels) within a factor. CA gives the researcher three alternatives, ranging from the most restrictive (a linear relationship or vector model) to the least (discrete or separate part-worths or part-worth function model), with the ideal point or quadratic model, falling in between (Green and Srinivasan, 1990; SPSS, 1997, Figure 7.2).

The *linear model* is the simplest, yet most restricted form, because we separate part-worth values for each level. In the *ideal model*, the assumption about strict linearity is relaxed, so that we have a simple curvilinear relationship, indicating the existence of an ideal level at which individual preference is maximised. Finally, the *discrete part-worths form* is the most general, allowing for separate estimate only a single part-worth, which is multiplied by the level's value to arrive at each level, assuming that the researcher has no any a priori knowledge about the relationship between levels. The choice of part-worth relationships' form does not affect how the stimuli are created and part-worth values are still calculated for each level. It does, however, impact how and what types of part-worths are estimated by CA.

If we can reduce the number of part-worths estimated for any given set of stimuli by using a more restricted part-worth relationship, the calculations would be more efficient and reliable from a statistical estimation perspective. Wittink and Cattin (1989) report that the typical commercial CA has too few degrees of freedom. The average study uses 16 stimuli evaluated on 8 attributes at three levels each. Taken literally, such a design leads to no degrees of freedom for the discrete model, which would increase using the linear and ideal models.

Table 7.4: Selection of Various CA Applications, 1995-1999

Authors	Sample size	Type of data collection method	Topic	Factors	Levels' relationship model
1. Gerhardy and Ness, 1995	160	Home interviews	Consumer preference for eggs	Production method, price, Country of origin, Freshness	Linear additive
2. Van der Pol and Ryan, 1996	375	Mail survey	Fruits and vegetables consumer preference	Quality, Package, Convenience Price	Linear additive
3. Batt and Katz, 1997	572	Telephone-mail-telephone survey	Enhanced voice mail service perceptions	n.m.	n.m.
4. Gil and Sanchez, 1997	289	Personal interviews	Consumer preference for wine attributes	Year, Price, Area of origin	Linear additive
5. Halbrendt et al, 1997	557	Personal interviews	Consumer acceptance of GM pork	Price, GM label, Fat content	Linear interactive
6. Harrison et al, 1998	155	Mail survey	Seafood new product development	Price, Form, Flavor	Linear additive
7. Quester and Smart, 1998	303	Personal interviews	Preference for wine attributes under different involvement and purchase situations	Region of origin, Price, Variety, Style	Additive
8. Walley et al, 1999	120	Street interviews	Means beef quality assurance labels	Brand name, Price, Quality label, Overall quality, Packaging	n.m.

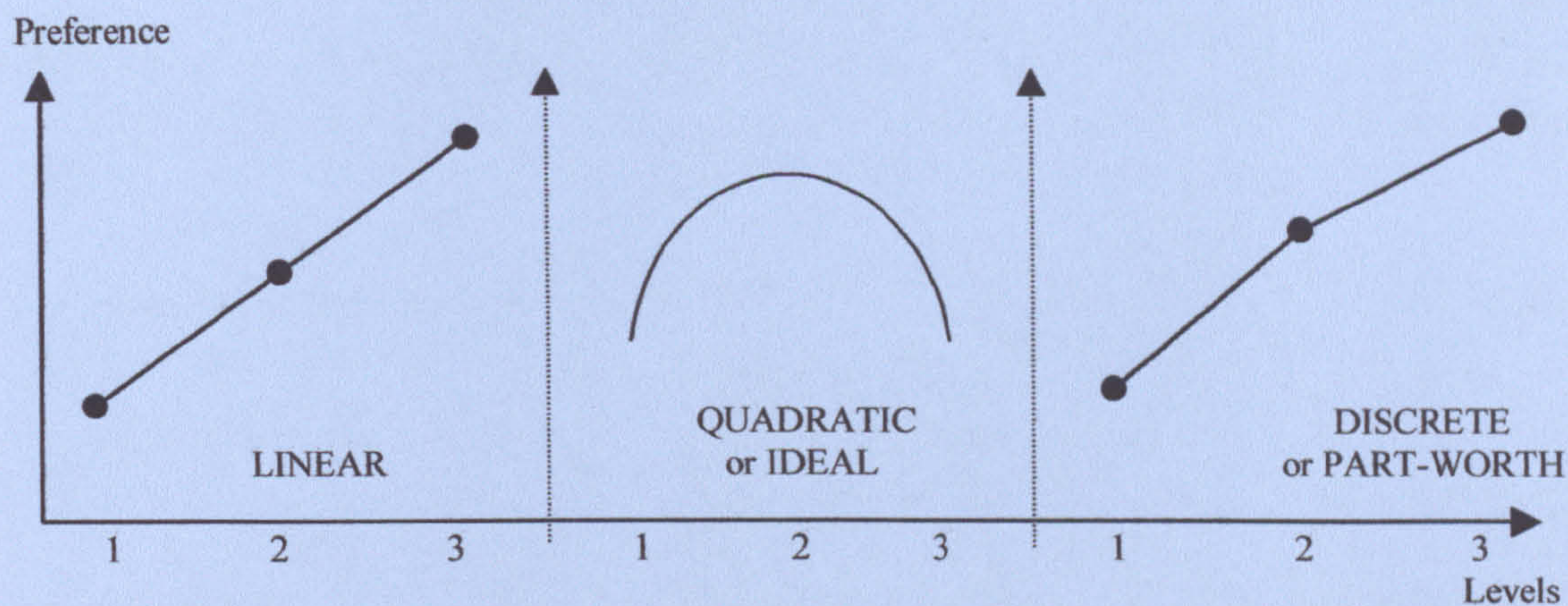
n.m.: not mentioned

Table 7.5: Factor Levels' Relationships of the present study

FACTORS	LEVELS	Relationship
1. Organic label	1: YES, 0: NO	Linear more (direct)
2. PDO label	1: YES, 0: NO	Linear more
3. ISO label	1: YES, 0: NO	Linear more
4. HACCP label	1: YES, 0: NO	Linear more
5. Health information	1: Best before date 2: Keep until instructions 3: Additives/ preservatives free 4: Cholesterol free label	Discrete
6. Glass bottle	1: YES, 0: Other than glass	Linear more
7. Country of origin written	1: YES, 0: NO	Linear more
8. Price	1: 3.25 Euro or 2.18GBP 2: 4.41 Euro or 2.72GBP 3: 5.88Euro or 3.63GBP 4: 6.76 Euro or 4.18GBP	Linear less (inverse)

has been assumed to follow a discrete, non-restrictive, model. Finally, the quadratic ideal model has been initially assigned to the "price" factor, assuming that in the price

Fig. 7.2: The Three Basic Types of Relationships Between Factor Levels
Source: adapted from Hair et al, 1998.



However, the researcher must consider the possibly more accurate representation of how the consumer actually forms overall preference if he employs less restrictive part-worth relationships (Hair et al, 1998). The criteria to decide on the type of levels' relationship for each factor are several. The researcher may rely on prior research or, alternatively, assess the changes in predictive ability under different combinations of relationships for one or more variables. Yet, in this case, at least some theoretical or empirical evidence for the possible type of relationships is necessary. In all instances, a balance between predictive ability, intended use of the results, conceptual background available, and degree of managerial relevance and interpretation is needed. In Table 7.4 a selection of various CA applications in the period 1995-1999 can be found, where it is clear that the additive linear composition rule prevails.

The specified relationships between the factor levels of our research can be seen in Table 7.5. The six two-level, non-metric factors have been assumed to follow a restrictive linear direct model (e.g. existence of a quality label maximises consumers' preference and vice versa). For the four-level non-metric "health information" factor, since the only prior information available has been the laddering qualitative results, it

range between GBP 2.18 and 4.1 a specific price exists, where consumers' preference is maximised, and, at any other price level lower or higher than the ideal, preference departs from maximum.

Halbrend et al (1997) argue that, although a linear response seems reasonable for a two-level price factor, using three or four-level attributes would have allowed for the estimation of quadratic functional forms. Yet, despite the reasonable justification of the use of the ideal model, after testing both combinations of linear and ideal price relationships, it has been decided to adopt an inverse linear relationship between price levels and preference of respondents (the higher the price the lower the preference level). The ideal model resulted in the highest number of price reversal warnings in the CA output and the linear in none (c.f. Table 7.10). Moreover, the choice of a linear price model has been more consistent with the CA literature.

7.2.3. Data collection method

Having specified the factors and levels, plus the basic model form, the researcher next decides on the type of presentation of the stimuli (trade-off, full-profile, or pairwise comparison). The *trade-off method* compares attributes two at a time by ranking all combinations of levels. It has the advantage of being simple for the respondent and easy to administer, and it avoids information overload by presenting only two attributes at a time. However, usage of this method has decreased dramatically in recent years, owing to several limitations: a sacrifice in realism, the large number of judgements necessary for even a small number of levels, a tendency for respondents to get confused or follow a routinised response pattern because of fatigue, the inability to employ pictorial or other non-written stimuli, the sole use of non-metric

responses and its inability to use fractional factorial stimuli designs to reduce the number of comparisons made (Hair et al, 1998).

The *pairwise comparison method* is a comparison of two profiles with the respondent most often using a rating scale to indicate strength of preference for one or the other profile. Its distinguishing characteristic is that this profile typically does not contain all the attributes examined, but instead, only a few attributes at a time are selected in constructing profiles. It is also instrumental in many specialised conjoint designs, such as Adaptive CA, which is used in conjunction with a large number of attributes.

The most popular presentation method is *full-profile*, principally because of its perceived realism and its ability to reduce the number of comparisons through the use of fractional factorial designs (Green and Srinivasan, 1990; Hair et al, 1998; Walley et al, 1999). In this approach, each stimulus is described separately, most often on a profile card. This approach elicits fewer judgements, but each is more complex and the judgements can be either ranked or rated. Among its advantages are a more realistic description achieved by defining a stimulus in terms of a level for each factor, a more explicit portrayal of the trade-offs among all factors and the existing environmental correlation among the attributes, and the possible use of more types of preference judgements, such as intentions to buy and chances of switching to a new brand, both difficult to answer with other methods (Green and Srinivasan, 1990).

The full-concept method faces two major limitations. First, as the number of factors increases, so does the possibility of information overload. The respondent is tempted to simplify the process by focussing on only a few factors. Walley et al. (1999) argue that, although the point at which this becomes apparent is subjectively assessed by the researcher, yet it is at the six attribute stage, fact that is being suggested as a rule of thumb (Green and Srinivasan, 1990; Walley et al, 1999). Second, the order in which factors are listed on the stimulus card may have an impact on the evaluation. Thus, the researcher needs to rotate the factors across respondents, when possible, to minimise order effects (Hair et al, 1998).

In a typical CA with a relatively high number of factors and levels, such as the present, the respondent is asked to evaluate $(2 \times 2 \times 2 \times 2 \times 4 \times 2 \times 2 \times 4) = 1024$ stimuli to cover all the combinations of factors. This is obviously impossible. A *fractional factorial design* is the most common method for defining a subset of stimuli for evaluation. It selects a sample of possible stimuli, with the number of stimuli depending on the type of composition rule assumed to be used by respondents. In our study, using the additive model, which assumes no interactions among factors, and the full-profile data presentation method, a fractional factorial design has been initially used, which has been *optimal*, as it was *orthogonal* (no correlation among levels across factors) and *balanced* (each level appeared the same number of times).

Thus, an orthogonal fractional factorial design or *orthogonal array* (SPSS, 1997) is a subset of all of the possible combinations that still allows estimation of the part-worths for all main effects. Interactions, where the part-worth for a level of one factor depends on the level of another, are assumed to be negligible. In an orthogonal array,

each level of one factor occurs with each level of another factor with equal or at least proportional frequencies, assuming independence of the main effects. Information is not really lost by omitting some combinations, because once you have utilities for each factor level, you can use them in prediction equations for those combinations that subjects did not evaluate. Thus, the orthogonal array allows the CA to be conducted on a considerably reduced number of concepts while still retaining statistical reliability (Walley et al, 1999). One restriction on the number of profiles is that it must sufficiently exceed the number of factors to allow for error degrees of freedom (SPSS, 1997).

The creation of an optimal design with orthogonality and balance does not mean, however, that all of the stimuli in that design will be acceptable for evaluation. There are several reasons for the occurrence of unacceptable stimuli, such as the creation of unreal stimuli due to inter-attribute correlation, which can create stimuli with unrealistic combinations of levels. Then, constraints may be placed on some combinations of attributes. In any case, the unacceptable stimuli present unrealistic choices to the respondent and should be modified or, if alternative profiles can not be found, eliminated (Hair et al, 1998).

In Table 7.6, the fractional factorial design of the present study can be found, constituted by 16 product profiles with the corresponding factor levels' combinations. They all concern extra virgin olive oil, which traditionally contains no additives or preservatives. Since an organic olive oil costs in the Greek market at average 40 percent more (Olive and Olive Oil, 2000) and it is always bottled in glass, it has been necessary to modify unrealistic stimuli whenever an organic label is being included.

Table 7.6: Survey's Fractional Factorial Design (SPSS Conjoint 8.0), Extra Virgin Olive Oil

Olive oil profile	Organic label	PDO label	ISO certif.	HACCP certific.	Health info	Bottle	Country of origin	Price GBP/litre
1	No	Yes	Yes	No	Keep until instructions	Other than glass	Not Written	2.18
2	Yes	No	No	Yes	Additives/Preservatives free	Glass	Not written	3.63
3	Yes	Yes	No	No	Best before date	Glass	Not written	4.18
4	No	No	Yes	No	Best before date	Glass	Not written	2.72
5	Yes	No	Yes	Yes	Keep until instructions	Glass	Written	3.63
6	Yes	Yes	Yes	Yes	Best before date	Glass	Written	4.18
7	No	No	No	Yes	Best before date	Other than glass	Written	2.72
8	No	No	No	No	Cholesterol free	Other than glass	Written	2.18
9	No	Yes	No	Yes	Keep until Instructions	Glass	Written	2.72
10	Yes	Yes	Yes	No	Cholesterol free	Glass	Written	3.63
11	Yes	Yes	No	Yes	Cholesterol Free	Glass	Not written	4.18
12	No	Yes	Yes	Yes	Additives/Preservatives free	Other than glass	Not written	2.72
13	Yes	No	No	No	Keep until instructions	Glass	Not written	3.63
14	No	Yes	No	No	Additives/Preservatives free	Glass	Written	2.18
15	No	No	Yes	Yes	Cholesterol free	Glass	Not written	2.18
16	Yes	No	Yes	No	Additives/preservatives free	Glass	Written	4.18
17	Yes	No	Yes	Yes	Additives/preservatives free	Other than glass	Written	4.18
18	Yes	No	Yes	Yes	Best before date	Glass	Not written	3.63

Thus, the two higher price levels of GBP 3.62 and 4.18 are assigned to the 8 organic product profiles, together with the “glass bottle” factor level. According to Hair et al (1998), although the design will not be totally orthogonal (it will be somewhat correlated and it is termed to be *nearly orthogonal*), it will not violate any assumptions of CA, creating problems similar to multicollinearity in regression (e.g. instability of the estimates when levels are slightly changed and a lessened ability to assess the unique impact of each attribute). Finally, the last two profiles 17 and 18

constitute the *holdout cases* generated by SPSS Conjoint 8.0 (SPSS, 1997), stimuli which are judged by the subjects but are not used by the CA to estimate utilities. Instead, they will be used as a check on the validity of the estimated utilities (c.f. Section 7.3.2).

The researcher must also select a measure of consumers' preference. Once the sample has been chosen, the researcher administered the set of full-concept profiles (cards) to each respondent. The CA procedure allows for three methods of data recording. In the first method, subjects are asked to assign a preference score to each profile. This kind of method is typical when a likert scale is used or when the subjects are asked to assign a number from 1 to 100 or 0 to 10 to indicate preference (*rating method*). In the second method, subjects are asked to assign a rank to each profile ranging from 1 to the total number of profiles (*ranking method*). In the third method, subjects are asked to sort the profiles in terms of preference and the researcher records the profile numbers in the order given by each subject (*sequence method*, SPSS, 1997; Hair et al, 1998).

Obtaining a rank-order or sequence preference measures has two major advantages: it is likely to be more reliable because ranking is easier than rating with a reasonably small number of stimuli, and it provides more flexibility in estimating different types of composition rules. However, it is difficult to administer, because the ranking process is most commonly performed by sorting stimulus cards into the preference order, and this sorting can be done only in a personal interview setting.

The alternative *rating of preference on a metric scale method* has been selected in the present study. Metric measures have been easily analysed and administered and allowed conjoint estimation to be performed by multivariate regression, although respondents could be less discriminating in their judgements. Also, given the large number of stimuli evaluated, it has been useful to expand the number of response categories. A rule of thumb followed here has been to use 11 categories in a 0-10 rating preference scale for our 18 stimuli evaluated (Hair et al, 1998).

Prior to the presentation of the 18 cards (stimuli), each respondent has been provided with a definition of the “organic label”, “PDO label”, “ISO certification” and “HACCP certification” concepts and asked to indicate his/her awareness of the subjects in a 5-point scale with its end-points termed “I am totally aware – unaware”. Moreover, each respondent has been informed about the average retail price of 1L extra virgin olive oil (GBP 2.54) and organic extra virgin olive oil (GBP 4.18) in Athens for the period April-May 2000.

Then, a successive presentation of the 18 cards has been followed, with respondents indicating their preference and purchase intention: a non-metric categorical question “would you buy the specific olive oil/ stimulus?” followed directly after the 0-10 rating selection by respondents. The holdout stimuli were rated at the same time as the other stimuli but withheld from the analysis at the estimation stage. A series of shopping behaviour and socio-demographic questions have been included as well, similar to those used in the laddering interviews. Finally, the questionnaire concluded with the inclusion of a series of questions on olive oil purchase involvement and overall attitude (c.f. Chapter Appendix, Table 7.19).

7.2.4. Sample description

A series of personal interviews conducted in the region of Attiki (Athens) in the period May-July 2000. The recruitment areas selected have been: two municipalities in the metropolitan area of the city of Athens, two nearby suburban municipalities and two small towns 35km far from Athens. In each one of the three pairs, the two areas chosen exhibited different socio-demographic structure of their population, according to the 1991 National Census data. A total number of 160 randomly chosen interviews took place, equally divided in each one of the six recruitment areas, with residents of the above areas aged from 25 to 70 years.

The strata used as selection criteria (similar to the laddering phase) and a description of the sample's structure can be seen in Table 7.7. Exactly two thirds of the sample are women and more than half (58.8 percent) belong to the 25-45 "younger to middle" age group. Slightly more than two thirds of the respondents are married and another two thirds state that a working woman belongs to their household. Slightly more than one third of the sample have no children (37.5 percent), followed by another third with 2 (35.6 percent). 62.8 percent of the households with a working woman have at least one child. In terms of education, more than one third have finished high school (35.6 percent) and another third have a university or higher degree (38.2 percent). Finally, the most frequent income group is that of GBP 4.000-8.000 (lower-middle, 45.6 percent), followed by the GBP 8.000-12.000 group (middle-upper to high, 22.5 percent), given that the per capita income in the area of Athens has been GBP 6.836 in 1998 (National Statistical Service of Greece, 1999) or GBP 7.781 in 1999 (Alpha Bank, 2000).

Table 7.7: Conjoint Sample's Socio-demographic profile, n=160

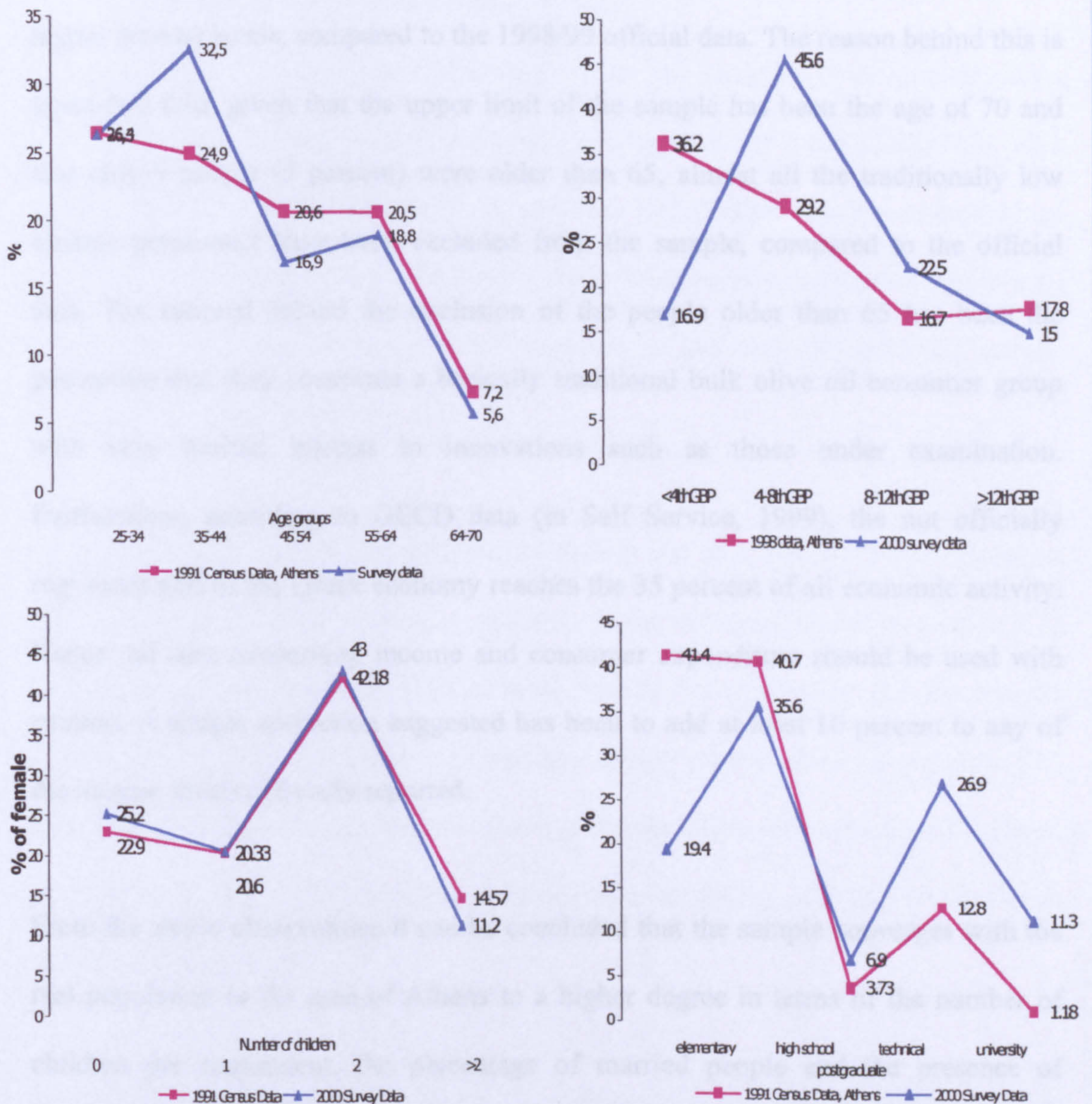
Frequency					Percentage %				
Age group									
25-35	36-45	46-55	56-70		25-35	36-45	46-55	56-70	
42	52	27	39		26.3 (26.4) *	32.5 (24.9)	16.9 (20.6)	24.4 (27.9)	
Gender									
Male	Female				Male	Female			
53	107				33.1	66.9			
Education									
Elementary	High school	Technical	University	Post-graduate	Elementary	High school	Technical	University	Post-graduate
31	57	11	43	18	19.4 (41.4)	35.6 (40.7)	6.9 (3.73)	26.9 (12.8)	11.3 (1.18)
Income in GBP									
<4th	4-8th	8-12th	12-20th	>20th	<4th	4-8th	8-12th	12-20th	>20th
27	73	36	19	5	16.9 (36.2)	45.6 (29.2)	22.5 (16.7)	11.9 (11)	3.1 (6.8)
Marital status									
Married	Unmarried				Married	Unmarried			
111	49				69.4 (79.4)	30.6 (20.6)			
No of children									
0	1	2	>2		0	1	2	>2	
60	28	57	15		37.5 (25.2)	17.5 (20.6)	35.6 (43)	9.4 (11.2)	
Working woman in the household									
yes	no				yes	No			
105	55				65.6	34.4			

* Green characters: official Attiki's population data for the ages 25-70
(Source: National Statistical Service of Greece, 1998 and National Census Data, 1991)

Generally speaking, the sample differentiates rather well between the different socio-demographic strata selected and a satisfactory variability seems to exist. Nevertheless, comparing our sample to the 1991 National Census data and the 1998 data of the National Statistical Service of Greece for the area of Athens (Figure 7.3), some useful observations can be made. First, in terms of age, the sample is biased towards the “younger-average” age group of people in their 40s. The reason behind this is that the focus of the research has been on people in their most physically productive age, with younger children, fact that makes them more “active” consumers for a variety of food

Fig. 7.3: Comparison Between the Survey Sample and the Population of the Area of Attiki (Athens) in Terms of Selected Socio-demographic Strata

Source: adapted from 1991 National Census data and 1998 National Statistical Service Official data



products. It has to be highlighted that 65.7 percent of the households having a working woman belonged to the 25-45 age group. Moreover, the complexity of the stimuli evaluation method and the almost complete unfamiliarity of the Greek people with the concepts under investigation made the inclusion of younger people necessary, even for just the accomplishment of the task. This also is the main reason that justifies the bias appeared in respondents' education status towards higher education levels (university degrees and postgraduate studies).

Second, in terms of income, there appears to be a serious bias towards average and higher income levels, compared to the 1998/99 official data. The reason behind this is again two fold: given that the upper limit of the sample has been the age of 70 and that only 9 people (5 percent) were older than 65, almost all the traditionally low income pensioners have been excluded from the sample, compared to the official data. The rationale behind the exclusion of the people older than 65 has been the perception that they constitute a basically traditional bulk olive oil consumer group with very limited interest in innovations such as those under examination. Furthermore, according to OECD data (in Self Service, 1999), the not officially registered part of the Greek economy reaches the 35 percent of all economic activity. Hence, all data concerning income and consumer expenditure should be used with caution. A simple correction suggested has been to add at least 10 percent to any of the income levels officially reported.

From the above observations it can be concluded that the sample converges with the real population in the area of Athens to a higher degree in terms of the number of children per respondent, the percentage of married people and the presence of working woman in the household. Also satisfactory is the high percentage of women in the sample that guarantees the inclusion of the main food purchase decision-maker in the survey. Yet, we have to keep in mind that there appears to be a more or less serious divergence of the sample towards younger, wealthier and more educated people. This limitation should be taken under consideration in the analysis of the CA results and their further application.

7.2.4.1. The “food and olive oil purchase/consumption behaviour” and “olive oil involvement and overall attitude” variables

In terms of the food and olive oil purchase behaviour variables of the questionnaire, 85.6 percent of the sample purchase food once or more per week (Table 7.8), 83.1 percent spend for food at least GBP 30 per week and 76.3 percent buy at least 1L of olive oil per week, indicating that the sample is being mostly constituted by olive oil heavy users. We can observe that all these are in line with the laddering sample characteristics (see Section 6.1.1).

Concerning olive oil place of purchase, 82.5, 86.3 and 58.1 percent “never” purchase olive oil at a minimarket-local store, specialty shop, and hypermarket respectively. In addition, 70 percent never buy bulk olive oil directly from producers. It seems that the most usual places of bottled olive oil purchase are the supermarkets (40 percent). Yet, this percentage is equal to that who never purchase olive oil at the specific places (42.5 percent), making the purchase place selection confusing, in a way similar to that of the laddering sample.

In other words, at least 60 percent of the consumers of the specific socio-economic profile as such of our sample do not seem to strongly prefer a specific outlet, despite the fact that all are heavy users. In addition, only two thirds of the respondents always buy olive oil from the commerce, with the remaining one third consuming own-produced olive oil. We will also have to bear in mind that another 13 percent of respondents frequently buy bulk olive oil directly from producers, decreasing the percentage of those who buy bottled olive oil at the usual retail outlets even further. This fact should be kept in mind in further analyses.

Table 7.8: Sample Description in Terms of "Quality Assurance Schemes' Awareness"
"Purchasing/Consumption Behaviour" and "Olive Oil Involvement and Overall Attitude"

CHARACTERISTIC	%	%	%	%	%
	Totally		Neither		Totally
<i>Quality Assurance Schemes' Awareness</i>	aware	Aware	aware nor unaware	Unaware	unaware
Awareness of the organic label	35.6	48.1	1.3	10.6	4.4
Awareness of the PDO label	26.9	40.6	5	18.1	9.4
Awareness of the ISO certification	30.6	26.3	5	19.4	18.8
Awareness of the HACCP certification	4.4	9.4	14.4	36.9	35
<i>Food and Olive Oil Purchase Behaviour</i>					
	>1 / week		1 / week		< 1 / week
Food purchase frequency	43.8		41.9		14.4
	> 30GBP		30GBP		<30GBP
Food expenditure	60.6		22.5		16.9
	>1L		1L		<1L
Olive oil purchase quantity	63.1		13.1		23.8
	Frequent.		Rarely		Never
Olive oil purchase place: minimarket	6.9		10.6		82.5
: supermarket	40		17.5		42.5
: hypermarket	21.3		20.6		58.1
: specialty shop	5		8.1		86.3
: bulk from producers	13.1		16.9		70
: own production	29.4		8.1		62.5
Olive oil substitute: pomace oil	6.3		11.3		82.5
: sunflower oil	10.6		20		69.4
: soy oil	3.1		5.6		91.3
: other vegetable oils	23.1		30		46.9
Olive oil use: frying	64.4		16.9		18.8
: boiling	87.5		7.5		5
: in salads	95		1.9		3.1
<i>Olive Oil Involvement and Overall Attitude</i>					
	Strongly		Neither		Strongly
	agree	Agree	agree nor disagree	Disagree	disagree
Interested in production method	40.6	40	18.1	1.3	0
Compare olive oil brands before buying	31.9	43.8	20.6	2.5	1.3
Olive oil brands have differences	45	36.9	13.8	2.5	1.9
Preferable olive oil brand	35	36.9	18.8	6.9	2.5
Good overall knowledge about olive oil	13.1	28.8	41.3	13.1	3.8
Olive oil is: good for health	88.8	11.3	-	-	-
: good cooking ingredient	82.5	16.3	1.3	-	-
: good substitute of other oils	55.6	18.1	11.9	8.1	6.3
: tasty in salads	88.1	11.9	-	-	-
Olive oil has: nice aroma	71.7	22	5.7	.6	-
Olive oil is: of high quality	64.4	23.8	6.3	5	.6
: natural product	79.4	18.8	1.3	.6	-
: environmentally friendly	63.8	25	10	.6	-
: traditional Greek product	78.1	14.4	3.8	3.8	-
: consumed out of habit	22.5	8.1	11.9	34.4	23.1
Olive oil has a 'value for money' price	45.6	35	15	3.8	.6

When talking about other competitive to olive oil oils, pomace olive oil, sunflower oil, soy oil and other vegetable oils are being frequently preferred by only 6.3, 10.6, 3.1 and 23.1 percent of the respondents respectively. Furthermore, the most frequent olive oil use is raw in salads (95 percent of the sample), followed by its use as a

cooking ingredient, when boiling (87.5) or frying (64.4), all in line with the laddering sample. This further indicates Greek consumers' familiarity with olive oil and its great importance to their everyday diet as a source of nutrients.

In terms of olive oil purchase involvement, more than two thirds of the sample at average seem to (strongly) agree that they are interested in knowing how a specific olive oil brand is being produced (80.6 percent), have compared different brands before selecting one (75.6 percent), believe that there are differences among different brands (81.9 percent), and have a preferable brand (71.9 percent). Yet, when directly asked, only 41.9 percent (strongly) agree in having a good overall knowledge of the product, with another 41.3 percent hesitating to express an opinion. This fact decreases to a point their real involvement level. It is perhaps due to the fact that olive oil has a great variety of flavours, aromas and colours difficult for an urban consumer to be fully aware of, similar to that of wine. Nevertheless, the stated olive oil purchase involvement level of the Greek consumers is high, with only 16.8 percent of the sample (strongly) disagreeing to have a good overall knowledge of the product.

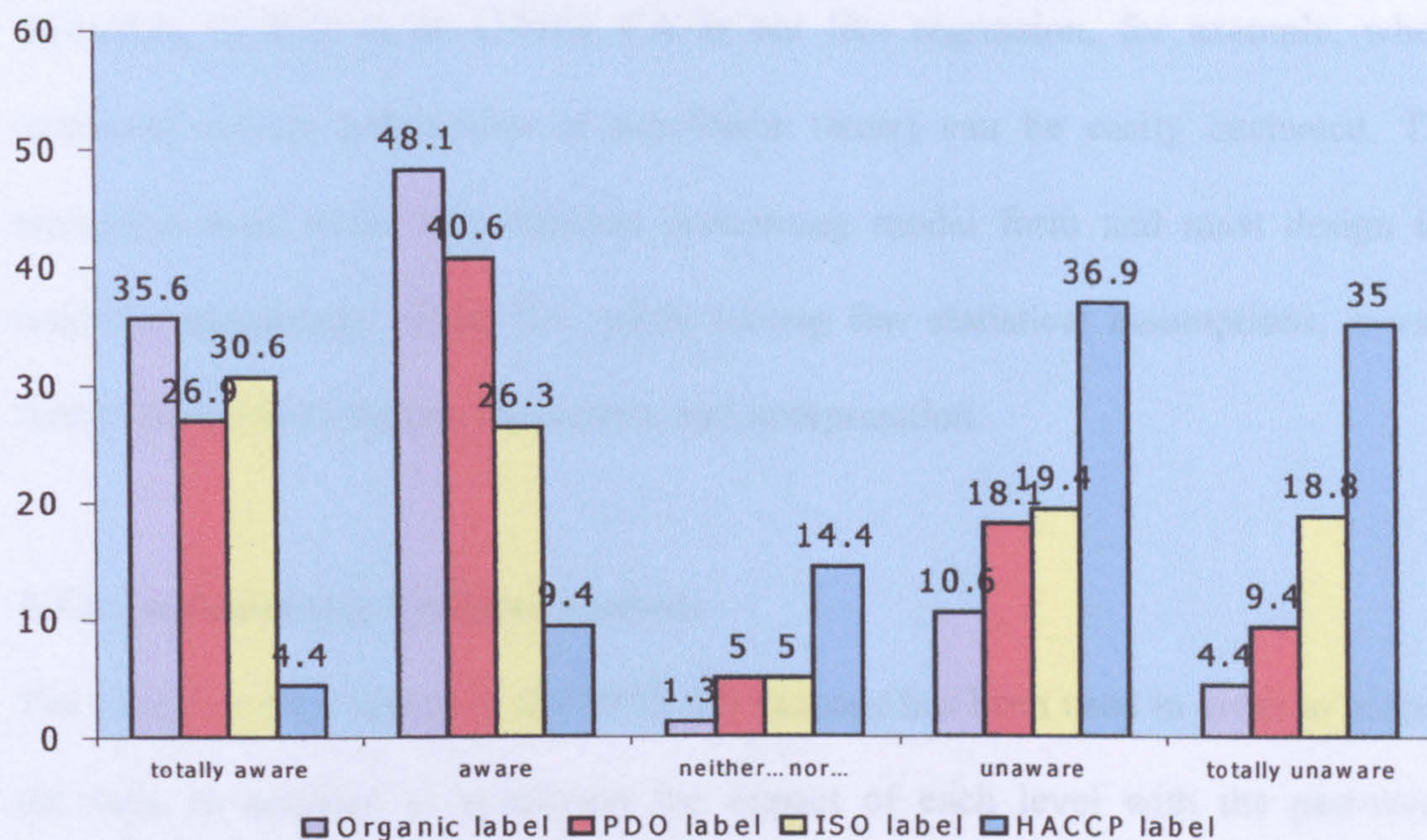
Finally, sample's overall attitude towards olive oil is highly positive. The agreement percentages for a number of positive olive oil characteristics are very high. For example, 100 percent (strongly) agree that olive oil is good for health and tasty in salads, and 98.2, 92.5 and 88.2 percent that it is a natural, traditional and high quality product respectively. However, the fact that only one third believe that olive oil is being consumed out of habit decreases to a point the sample's high stated involvement with olive oil purchasing process. Overall, it has to be highlighted that 80.6 percent of the sample find olive oil's price reasonable for what it offers ("value

for money”) conclusion also with serious implication on the further analyses.

7.2.4.2. *The “Quality assurance schemes’ awareness” variables*

At this point, it is very crucial to examine the level of sample’s awareness of the four quality labels and certificates under investigation (see Table 7.8). A first conclusion is that awareness decreases from labels to certification, fact more or less expected, given the nature and purpose of each one of the four schemes and the delay of the Greek food industry compared with other industrial sectors in the adoption of the ISO and HACCP strategies. It is interesting, thus, that 83.8 and 67.5 percent of the sample are (totally) aware of the organic and PDO label, in comparison to 56.9 and only 13.8 percent of the awareness of the ISO and HACCP respectively (Table 7.8 and Figure 7.4). In other words, given that consumers are almost totally unaware of the HACCP and almost 40 percent of them ignore the ISO, everything stated concerning these two schemes is basically theoretical and should be used with caution.

Especially concerning the organic label, the awareness level of the sample is close to other surveys undertaken in Greece (e.g. Fotopoulos, 1999; Fotopoulos and Krystallis, 2001a). Yet, when consumers have been asked to provide a definition of the word “organic”, a variety of inaccurate answers seriously decreased the real awareness level (Fotopoulos and Krystallis, 2000a). Similarly, other studies indicated the very low penetration grade of the PDO scheme, even among rural populations in Greece (e.g. Fotopoulos and Krystallis, 2001b and c), despite their very positive attitude towards PDO products, revealed after the provision of PDO’s definition. Thus, the Greek consumers seem be in a state of confusion concerning the real meaning of the organic and PDO products. After all, a common suggestion of all the

Fig. 7.4: Sample Awareness of the Four Quality Schemes under Investigation (%)

above surveys has been the need for a huge communication campaign to be undertaken in order to inform and educate the Greek consumers. Hence, all these constitute a serious limitation of the practical value of the further results.

7.3. Estimating the Conjoint Analysis Model

7.3.1. Assumptions of Conjoint Analysis

CA has the least restrictive set of assumptions involving the estimation of the CA model. The structural experimental design and the generalised nature of the model make most of the tests performed in other dependence methods unnecessary (Hair et al, 1998). Therefore, the statistical tests for normality, homoscedasticity and independence that were performed for other dependence techniques are not necessary. The use of statistically based stimuli designs also ensures that the estimation is not confounded and that the results are interpretable under the assumed composition rule.

According to Hair et al. (1998), CA is not like regression, for example, where additional effects (interaction or non-linear terms) can be easily evaluated. The researcher must make this decision concerning model form and must design the research accordingly. Thus, CA, while having few statistical assumptions, is very theory-driven in its design, estimation, and interpretation.

7.3.2. Implementing Conjoint Analysis

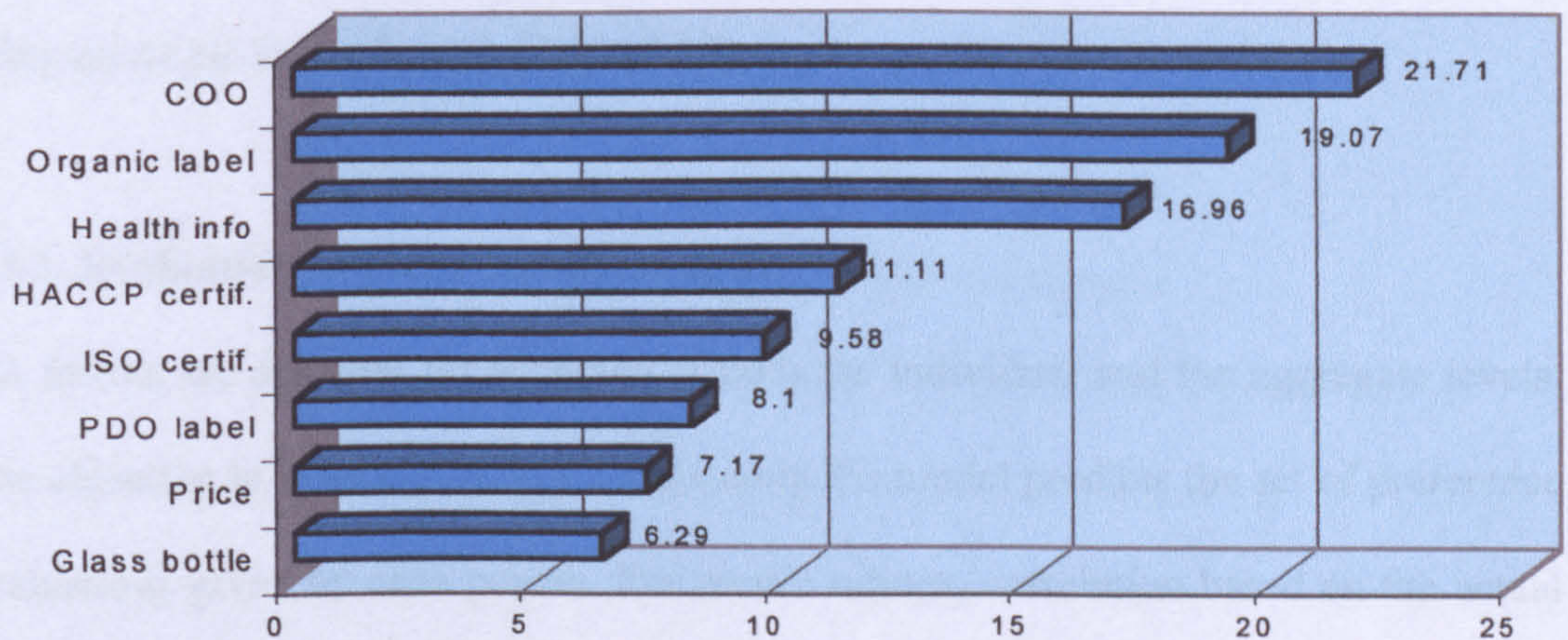
The Categories 8.0 option of the SPSS 9.0 package has been used in order to process the data. In addition to portraying the impact of each level with the part-worth estimates, CA analysis can assess the relative importance of each factor. Because part-worth estimates are typically converted to a common scale, the greatest contribution to overall utility –and, hence, the most important factor- is the factor with the greatest range (low to high) of part-worths. The importance values of each factor can be converted to percentages summing to 100 percent by dividing each factor's range by the sum of all range values. This allows for comparisons across respondents in a common scale as well as giving meaning to the magnitude of the importance score.

In Table 7.9 the CA aggregate results for the whole sample can be seen, together with the percentage average importance of each factor under examination. The part-worth scores (utilities) presented indicate the influence of each factor level on the respondents' preference for a particular combination. They are computed by the procedure through a set of regressions of the scores on the profiles. Since they are all expressed in a common unit, the part-worth scores can be added together to give the *total utility* of a combination. To be useful, the individual total utilities should be

Table 7.9: SPSS 10.0 Categories Subfile Summary (aggregate level) and Average Factor Importance

FACTORS	UTILITY	LEVELS
HEALTH	.2469 .0440 -.5173 .2264	- 'Best before' date 'Keep until' instructions 'Additives free' sign 'Cholesterol free' sign
ORGANIC LABEL	.0000 1.5660 B=1.5660	--- NO YES
PDO LABEL	.0000 .6399 B=.6399	- NO YES
ISO CERTIFICATION	.0000 .7673 B=.7673	-- NO YES
HACCP CERTIFICATION	.0000 .9701 B=.9701	-- NO YES
GLASS BOTTLE	.0000 .4135 B=.4135	- NO YES
Country Of Origin SIGN	.0000 2.0094 B=2.0094	---- NO YES
PRICE / L	.0318 .0635 .0953 .1270 B=.0318	2.18GBP 2.72GBP 3.63GBP 4.18GBP
Constant	2.4057	
Pearson's R=	.995	Significance = .0000
Kendall's Tau=	.967	Significance = .0000
Kendall's Tau=	1.000 for 2 holdouts	Significance = .0000

% Average Importance of Factors



highly correlated with the observed preference data (SPSS, 1997). Moreover, the total utilities might be a little off from the observed data due to a lack of fit. The standard error for each utility is one indication of how well the model fits that particular subject's data. Looking at the individual results for subjects 1 to 160 (see output file, attached CD-ROM), the great majority of standard error values for almost all the respondents is very low (lower than unit), indicating that the selection of the between-level relationship models has been accurate.

The value of B is the linear regression coefficient or slope for linear models. The predicted preference score for a specific factor can be calculated by multiplying the factor value by B. At the individual level results, there are two asterisks (**) displayed next to different factor names, indicating that the direction MORE or LESS of the linear model was not always observed. "Reversals" are marked in this way. When specific directions in the seven linear models have not been specified, no reversals have been identified. With the specification of "linear less" model for price (the higher the price the lower the preference), a number of 84 reversals have been found, indicating that for 84 respondents "price level" and "preference of the relevant product" were directly related. A number of reversals can also be observed for the other six of the linear factors (Table 7.10)

7.3.3. Evaluating Model's Goodness of Fit

CA results are assessed for accuracy at both the individual and the aggregate levels. The objective is to ascertain how consistently the model predicts the set of preference evaluations given by each person. For metric ratings, correlation based on the actual and the predicted ratings such as Kendall's tau and a Pearson's *R* correlation

Table 7.10: Summary of Reversals by Factors
Source: SPSS Conjoint 8.0 Output

	Factor name	Relation between factor levels	No. of reversals
1	PRICE	Linear LESS	84 (*)
2	BOTTLE	Linear MORE	32 (*)
3	PDO	Linear MORE	25 (*)
4	ISO	Linear MORE	18 (*)
5	ORGANIC	Linear MORE	17 (*)
6	HACCP	Linear MORE	12 (*)
7	COO	Linear MORE	6 (*)
8	HEALTH	Discrete	0

* When no direction has been specified, no reversals have been reported

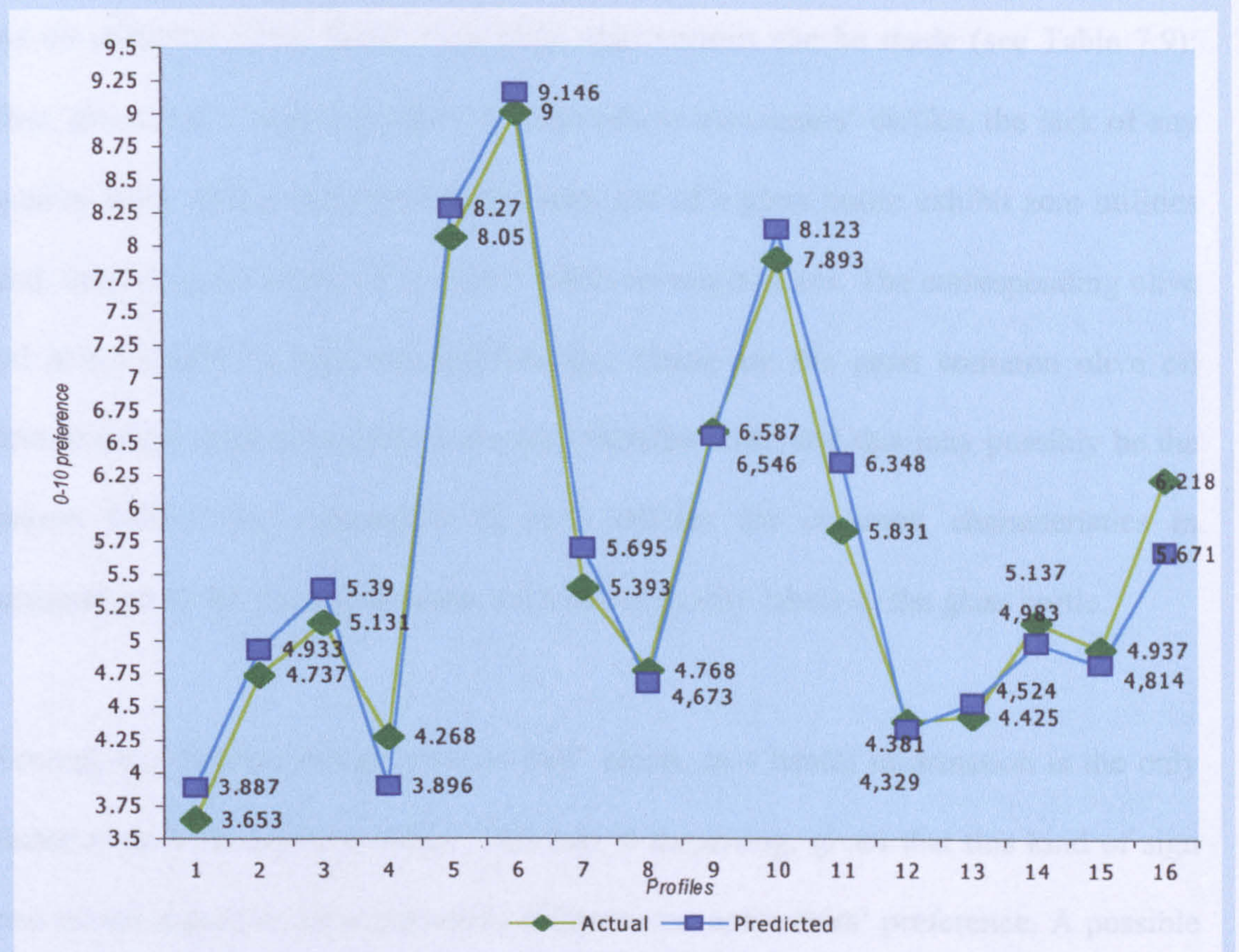
coefficient are used. In cases of prediction at the individual level, the actual and predicted preferences are correlated for each person and tested for statistical significance. In our case (see Table 7.9, Figure 7.5 and c.f. Table 7.11) and at the aggregate level, both coefficients are very satisfactory and statistically significant for $p < .001$.

In most conjoint experiments, however, the number of stimuli does not substantially exceed the number of parameters, and there is always the potential for “over-fitting” the data (SPSS, 1997). Then, model’s accuracy has been measured not only on the original stimuli but also with the set of holdout stimuli no. 17 and 18. Parameters from the estimated conjoint model were used to predict preference for these two stimuli, which have been compared with actual responses to assess model’s reliability. At our aggregate estimation level, Kendall’s tau for the two holdout cases indicates model’s overall satisfactory fit (see Table 7.9).

7.4. Interpreting the Conjoint Results

The most common approach to interpreting CA results is disaggregate (Hair et al, 1997), when each respondent is modelled separately by examining the part-worth estimates for each factor and assessing their magnitude and pattern for both practical

Fig. 7.5: Actual and Predicted Preference Scores for the 16 Olive Oil Profiles (n=160)



relevance as well as correspondence to any theory-based relationships among levels. The higher the part-worth (either positive or negative), the more impact it has on overall utility. After examination at the individual level, the results are aggregated and average part-worths and factors' importance are being calculated.

Interpretation can also take place with aggregate results only. Whether the model estimation is made at the individual level and then aggregated or aggregate estimates are made for a set of respondents, the analysis fits one model to the aggregate of the responses. Although aggregate results should not be used as the only method of analysis when one is trying to predict what any single respondent would do (unless we dealing with a population definitely homogeneous), many times aggregate analysis more accurately explains behaviour such as market share (Hair et al, 1997).

At the different factor levels, two main observations can be made (see Table 7.9): first, given that a negative utility corresponds to consumers' dislike, the lack of any quality label, of the country-of-origin sign and of a glass bottle exhibit zero utilities and, thus, exercise a kind of "neutral" effect on respondents. The corresponding olive oil brand might be regarded indifferently. These are the most common olive oil brands of the market consumers are very familiar with, and this may possibly be the reason behind the appearance of zero utilities for common characteristics in comparison to the innovating ones, such as the quality labels or the glass bottle.

Second, the "additives/preservatives free" claim, as a health information is the only factor level with negative utility. This fact is surprising, given that this kind of sign one would expect to have a positive influence on consumers' preference. A possible explanation may be that, in accordance with the findings of Wright (1997, see Section 4.2.4) regarding the "no added sugar" claim for the UK consumers, the Greeks are generally aware of the fact that olive oil, from the way it is produced, does not contain any kind of chemical additives or preservatives. Hence, the "additives/preservatives free" claim may be considered as irrelevant, useless or even misleading for a food product such as olive oil.

All the remaining factor levels have positive part-worths, representing preferred product attributes. Especially concerning price, all the levels present in the market have positive utilities for consumers. As a matter of fact, the higher the price the greater the utility derived from it, justifying the large number of reversals on price we have seen. Given the high (stated) olive oil involvement of the Greek consumer, it seems that the notion of a "value for money" olive oil brand price is being generally

satisfied by the actual price levels of the Greek market. The total utility of each one of the 16 olive oil profiles under examination, following the additive model, can be found in Table 7.11 and were calculated according to the variate:

$$\begin{aligned}
 \text{Total worth for olive oil}_k &= \text{Part-worth of level } i \text{ for factor 'health information'} \\
 &+ \text{Part-worth of level } j \text{ for factor 'organic label'} \\
 &+ \dots \\
 &+ \text{Part-worth of level } n \text{ for factor 'price'} \\
 &+ \text{CONSTANT.}
 \end{aligned}$$

(Where i, j, \dots, n are the factor levels of the k profiles, $k=1-16$)

It is clear that predicted preference follows factors' importance, given that the most preferred brands are those with the organic label and the country of origin sign on the label. Yet, a more profound analysis at the individual level is needed, in order to finalise a definite conclusion (c.f. Section 7.6.1).

As we have already seen, to assist in demand estimation (c.f. Section 7.6.2), each respondent was also asked to again consider their rated concepts and provide a final "yes" or "no" answer to the question: "if this version of the product at this price were available today, would you buy it?" This step was added to allow the researcher to avoid having to make subjective judgements as to the meaning of self-estimated purchase probabilities (Batt and Katz, 1997). For example, what do consumers mean when they indicate a 6-point purchase probability? How should one respondent's 6 be compared with another respondent's 7? In effect, the inclusion of the final binary choice question allowed the respondents themselves to calibrate their purchase probabilities. As such, it eliminated the "subjective probabilities versus objective choices" issue that is sometimes regarded as a weakness of the conjoint technique against related trade-off methodologies.

Table 7.11: Predicted Preference for the 16 Olive Oil Profiles According to their Total Utilities

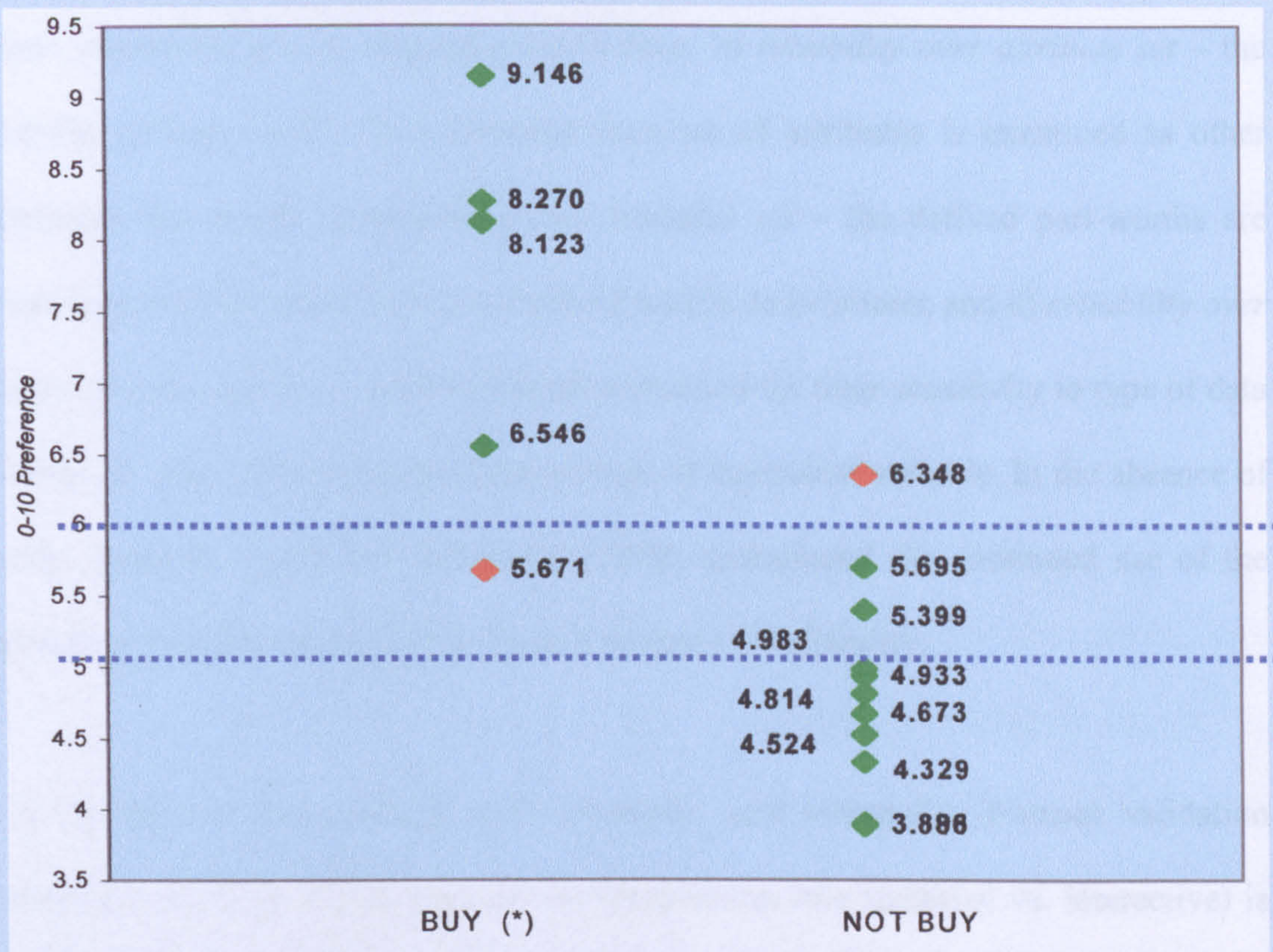
Rank	Profile Number and Description	Predicted Preference (actual preference)
1	6: Organic and PDO olive oil, with ISO and HACCP, 'best before' date and the Greek origin on the label, bottled on glass and with the highest price (4.18GBP)	MOST PREFERRED 9.1460 (9.00)
2	5: Organic olive oil, with ISO and HACCP, 'keep until' instructions and the Greek origin on the label, bottled on glass and with average for organic olive oil price (3.63GBP)	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 on glass, with average for organic olive oil price (3.63GBP)	8.1235 (7.893)
4	9: PDO olive oil with HACCP, 'keep until' instructions and the Greek origin written on the label, bottled on glass, with average for conventional olive oil price (2.72GBP)	6.5461 (6.587)
5	11: Organic and PDO olive oil, with HACCP, 'cholesterol free' sign written on the label, bottled on glass, with the highest price (4.18GBP)	6.3486 (5.831)
6	7: Olive oil with HACCP, 'best before' date and the Greek origin on the label, bottled on other than glass bottle, with average for conventional olive oil price (2.72GBP)	INDIFFERENT 5.6956 (5.393)
7	16: Organic olive oil with ISO, 'additives/preservatives free' sign written on the label, bottled on glass, with average for organic olive oil price (4.18GBP)	5.6716 (6.218)
8	3: Organic and PDO olive oil, with 'best before' date written on the label, bottled on glass, with the highest price (4.18GBP)	5.3990 (5.131)
9	14: PDO olive oil with the 'additives/preservatives free' sign and the Greek origin on the label, bottled on glass, priced cheaply (2.18GBP)	LEAST PREFERRED 4.9830 (5.137)
10	2: Organic olive oil, with HACCP, 'additives/preservatives free' sign, bottled on glass, with average for organic olive oil price (3.63GBP)	4.9333 (4.737)
11	15: Olive oil with ISO and HACCP, with the 'cholesterol free' sign written on the label, priced cheaply (2.18GBP)	4.8148 (4.937)
12	8: Olive oil with 'cholesterol free' sign and the Greek origin written on the label, bottled on other than glass bottle and priced cheaply (2.18GBP)	4.6733 (4.768)
13	13: Organic olive oil with 'keep until' instructions on the label, bottled on glass, with average for organic olive oil price (3.63GBP)	4.5245 (4.425)
14	12: PDO olive oil with ISO and HACCP, with 'additives/preservatives free' sign written on the label, bottled on other than glass bottle, with average for conventional olive oil price (2.72GBP)	4.3292 (4.381)
15	4: Olive oil with ISO and 'best before' date written on the label, bottled on glass, with average for conventional olive oil price (2.72GBP)	3.8969 (4.268)
16	1: PDO olive oil, with ISO, 'keep until' instructions written on the label, bottled on other than glass bottle, priced cheaply (2.18GBP)	3.8887 (3.653)

In the present case, the methodology incorporated the strengths of both approaches. Figure 7.6 shows a simple plot of the frequency of respondents' answers to the binary purchase question and the corresponding predicted preference for the 16 experimental profiles. Although there has been some respondents' inconsistency with two profiles (no. 16: 5.671 and no. 11: 6.348), casual observation of the plot suggests a high level of correspondence between high or low preference scores and associated "yes" or "no" responses for the remaining 14 out of 16 profiles.

Finally, compared with the laddering findings (see Table 7.2), some differences appear in the importance rank of the eight olive oil attributes, especially concerning price (Table 7.12). Again, the satisfaction of the "value for money" olive oil price condition might offer an explanation. This means that consumers possibly find olive oil prices as being "fair", or even low, for what the product offers to them. Moreover, the organic label appears to be over-estimated in CA compared with laddering.

Of course, the two results are not directly comparable, since the importance in laddering is assigned to each attribute in comparison to a list of other olive oil attributes of different type (e.g. appearance characteristics, perceived quality characteristics etc.) respondents have been presented with. On the other hand, the importance in Conjoint is assigned to each factor in comparison to the other seven factors under examination. Moreover, the two sample sizes and the overall structure and purpose of the two methods are different. Nevertheless, the consistency of the two results for the majority of the factors could be an indication of their complementary use's value and validity of our observations.

Fig. 7.6: Purchase Question by Predicted Preference of the 16 Profiles



* : When more than 50 percent of respondents would buy the specific profile.

Table 7.12: Comparison Between Laddering and Conjoint Attribute Importance

Factor/Attribute	Laddering (n=40)		Conjoint (n=160)
	Frequency of selection as 'Very important'	No. of times leading to a benefit in a means-end chain	Average Importance
1. Country of origin	95%	30.30	21.71%
2. Organic label	62.5%	13.13	19.07%
3. Health information			
'best before' date	92.5%	32.36	
'keep until' instruct.	92.5%	13.13	16.96%
'cholesterol free' sign	65%	21.23	
'additives free' sign	87.5%	29.32	
4. HACCP sign	67.5%	24.24	11.11%
5. ISO sign	67.5%	24.24	9.58%
6. PDO label	55%	20.20	8.10%
7. Price			
'value for money'	92.5%	13.13	7.17%
8. Glass bottle	85%	18.19	6.29%

7.5. Reliability and Validity of the Conjoint Results

A comprehensive review of conjoint reliability studies is provided by Bateson et al. (1987, in Green and Srinivasan, 1990). They consider four types of reliability: a) *reliability over time* – conjoint measurements are taken and then repeated with the

same instrument at a subsequent point in time; b) *reliability over attribute set* – the stability of part-worths for a common core set of attributes is examined as other attributes are varied; c) *reliability over stimulus set* – the derived part-worths are examined for their sensitivity to subsets of profile descriptions; and d) *reliability over data collection method* – part-worths are examined for their sensitivity to type of data collection, data gathering procedure, or type of dependent variable. In the absence of better measure, Green and Srinivasan (1990) recommend the continued use of the correlation coefficient we have seen as a measure of reliability.

CA results can be validated both internally and externally. Internal validation involves confirmation that the selected composition rule (additive vs. interactive) is appropriate. The researcher is typically limited to empirically assessing the validity of only the selected model form in a full study, owing to the high demands of data to test both models (Hair et al, 1997). In the present case we have already discussed the use of holdout stimuli to assess the predictive accuracy for each individual and the rationale behind the selection of the additive model.

External validation involves in general the ability of CA to predict actual choices (Green and Srinivasan, 1990), and in specific terms the issue of sample representativeness (Wittink and Cattin, 1989). While conjoint has been employed in numerous studies in the past 20 years, Hair et al. (1997) argue that relatively little research has focused on its true external validity. The researcher must always ensure the sample is representative of the population of study. This becomes especially important, when the conjoint results are used for segmentation or choice simulation purposes, which are among the most important managerial applications of CA. On the

other hand, Green and Srinivasan (1990) argue that several studies have demonstrated the ability of CA to predict actual choice behaviour. These validation studies have typically entailed three approaches: a) comparing aggregate-level market shares; b) individual-level comparisons in which CA is used to predict some surrogate of purchase intention or of actual behaviour; and c) individual-level comparisons in which CA is used to predict actual choices at some later date.

A few studies have compared market shares predicted by CA with actual results. Such studies are the most relevant tests of predictive validity in a marketing context, but are difficult to conduct because of the confounding effects of marketing mix variables such as advertising and distribution (Wittink and Cattin, 1989).

7.6. Managerial Applications

7.6.1. Segmenting the Greek olive oil market

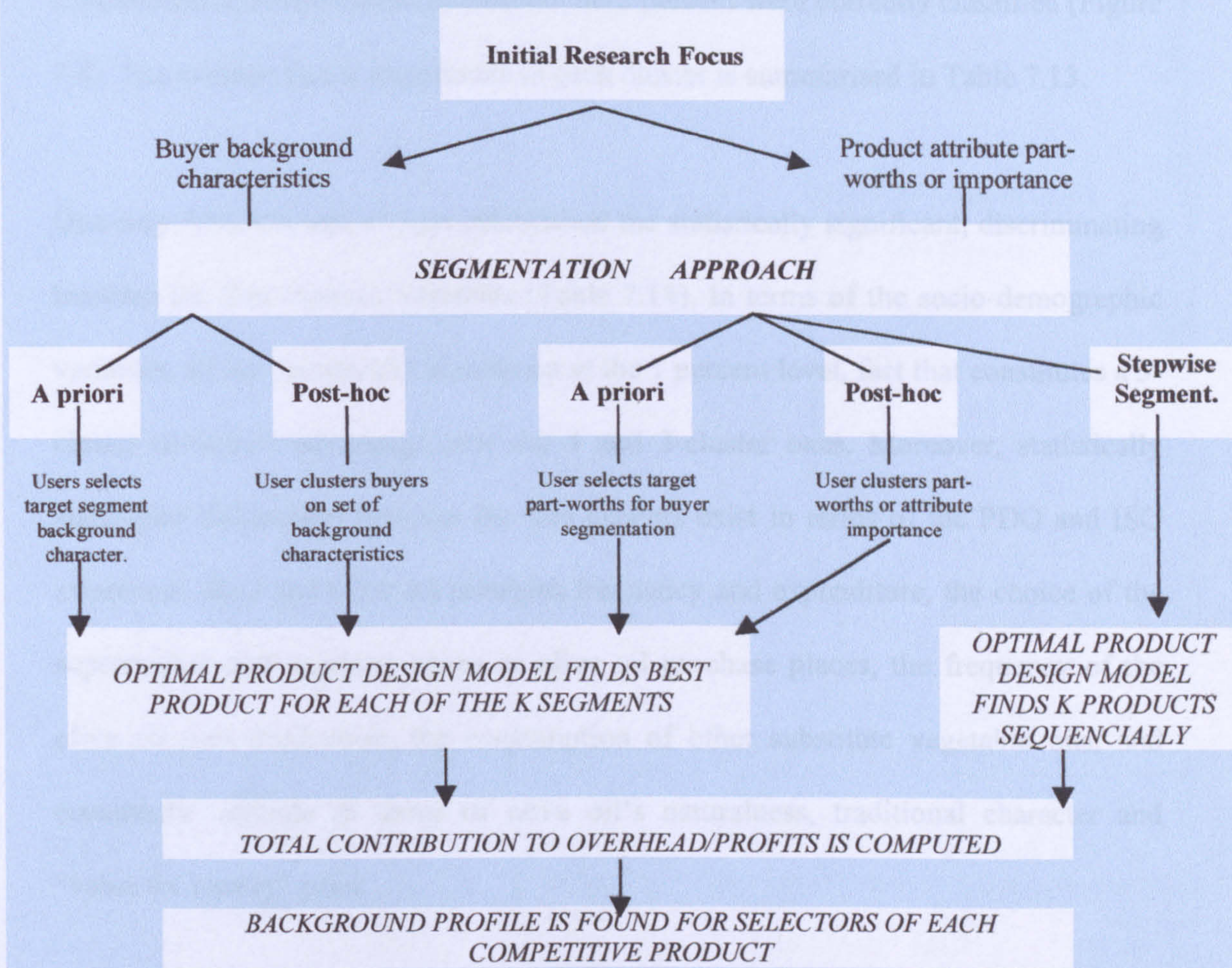
CA is well suited for the implementation of selected types of market segmentation due to the following (Green and Krieger, 1991): a) the focus of CA on the measurement of buyer preferences for product attribute levels and the buyer benefits that may flow from the product attributes; b) CA is a micro-based measurement technique. Part-worth functions are measured at the individual level. Hence, if preference heterogeneity is present, the researcher can find it; c) conjoint studies typically entail the collection of respondent background information. One should bear in mind, however, that buyer demographic variables do not necessarily correlate well with attribute preferences; and d) even rudimentary CA usually include a buyer choice simulation stage in which the researcher can enter new or modified product profiles and find out who chooses them vs. those of competitors.

Figure 7.7 is a schematic diagram of the proposed by Green and Krieger (1991) segmentation approach. They first consider the researcher's initial focus: buyer background characteristics vs. product attribute part-worths/importance (as computed from CA). All segmentation approaches ultimately consider both facets. However, in some cases the researcher first target the specific type of buyer he/she is looking for and then design the best product for that type of buyer. In other cases the researcher uses the part-worths or factor individual importance themselves as a basis for clustering buyers' attribute-level preferences and then design the best product for each resulting buyer segment.

At the next step, Green and Krieger (1991) suggested choosing either an *a priori* or a *post-hoc* (cluster-based) method. In the *a priori* approach, the researcher's initial focus is on buyer background characteristics. He/she defines a set of *a priori* target segments or clusters the battery of background characteristics to find segments. Then, the researcher may analyse buyers' preferences in terms of their part-worths for one or more product attributes. The procedure is somewhat different when he/she focus on the part-worths or importance. In this most common *post-hoc* approach it is the part-worths or factors' importance that are clustered to obtain buyer segments having preference similarities across the full-set of attributes. Which approach is "best" becomes a managerial question once related and more subjective criteria such as substantiality, reachability and actionability are introduced (Green and Krieger, 1991). In our case, we have chosen to follow the most customary *post-hoc* factor-importance based cluster approach, similar to that followed by Gerhardy and Ness (1995).

Fig. 7.7: Market Segmentation in the Context of Conjoint Analysis.

Source: Adapted from Green and Krieger, 1991.



Hence, the percentage importance respondents attach to the eight olive oil attributes under investigation has been used as a grouping criterion. A k-means clustering approach in SPSS 10.0 followed, with the option of identifying 3, 4, or 5 clusters considered as the most appropriate in relation to the size of our sample. The 5-cluster solution of 40 (25 percent), 21 (14), 10 (8), 60 (37.5) and 28 (18 percent) respondents has been finally selected as ideal and easiest to interpret, also in relation with the seven socio-demographic variables used as background consumer information. Significant differences between these clusters were substantiated by discriminant analysis, with the between-cluster variances being larger than those within-cluster (Wilk's Lambda: .035 and F : .0001). When a linear discriminant function was used to

re-substitute the respondents in clusters, 96.2 percent were correctly classified (Figure 7.8). The average factor importance in each cluster is summarised in Table 7.13.

One-way ANOVA and χ^2 tests established the statistically significant, discriminating between the five clusters, variables (Table 7.14). In terms of the socio-demographic variables, all are statistically significant at the 1 percent level, fact that constitutes a 5-cluster solution's advantage over the 4 and 3-cluster ones. Moreover, statistically significant differences between the five clusters exist in terms of the PDO and ISO awareness, food and olive oil purchase frequency and expenditure, the choice of the supermarket and specialty shops as olive oil purchase places, the frequency of the olive oil own-production, the consumption of other substitute vegetable oils, and consumers' attitude in terms of olive oil's naturalness, traditional character and "value for money" price.

7.6.1.1. Development of the five clusters' profile

In order to develop the profiles of each one of the five clusters, a cross-tabulation process took place between the cluster membership and the statistically significant variables. We should keep in mind that non-significant differences exist between the five clusters in terms of the "PDO label" and "Price" importance levels, their organic and HACCP schemes' awareness, and the majority of the "food and olive oil purchase/consumption behaviour" and "olive oil involvement and overall attitude" variables (Tables 7.14 and 7.15, also see Tables 7.7 and 7.8.). It is worth stressing the statistical insignificance of the "overall knowledge" and "out of habit consumption" variables, which do not have discriminating power among the 5 clusters. The results of the process have been as follows:

Fig. 7.8: Discriminant Analysis' All-groups Scatter Plot (n=159)

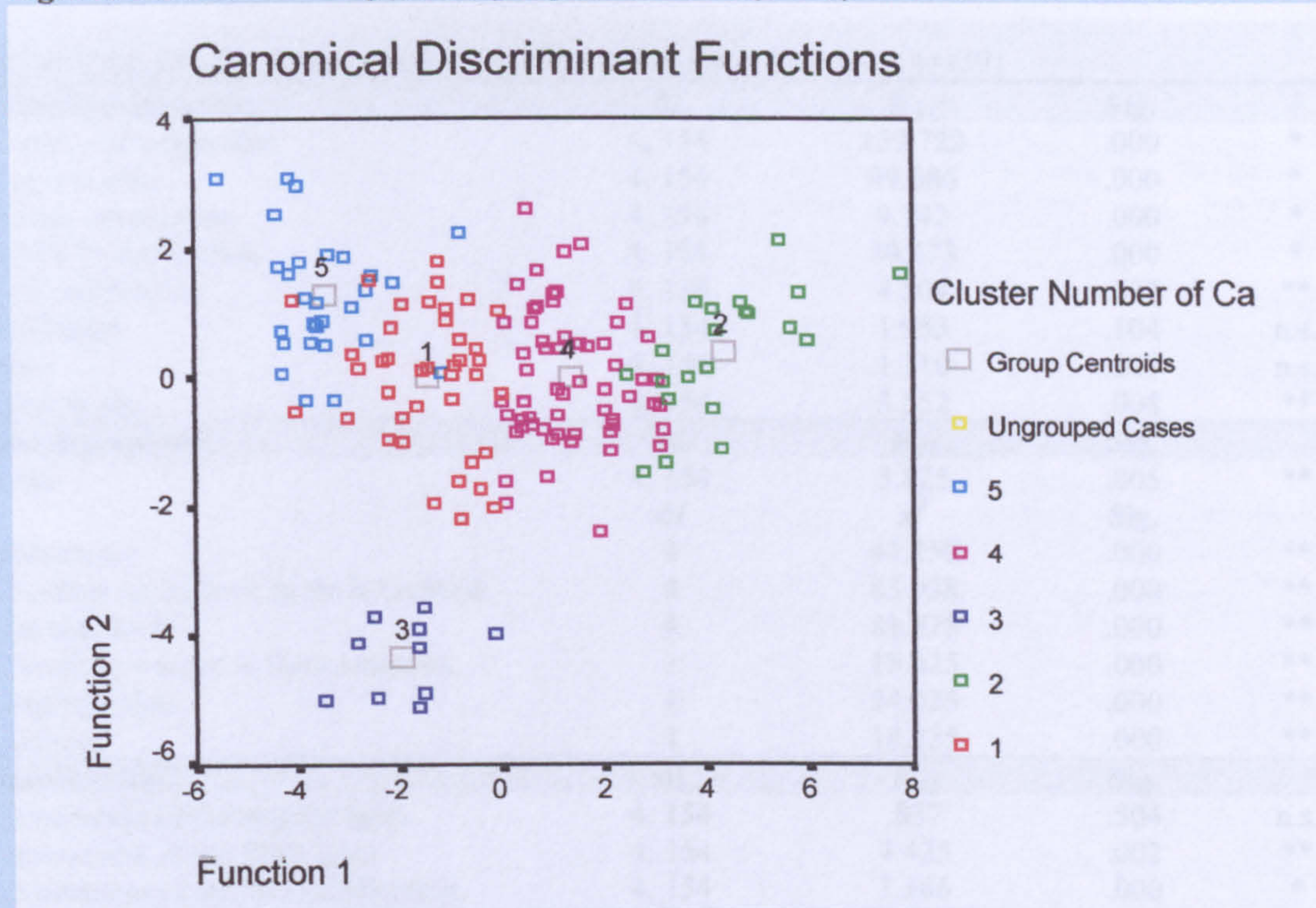


Table 7.13: Clusters of Respondents with Respect to Attribute % Importance (n=159)

Attributes	CLUSTERS				
	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

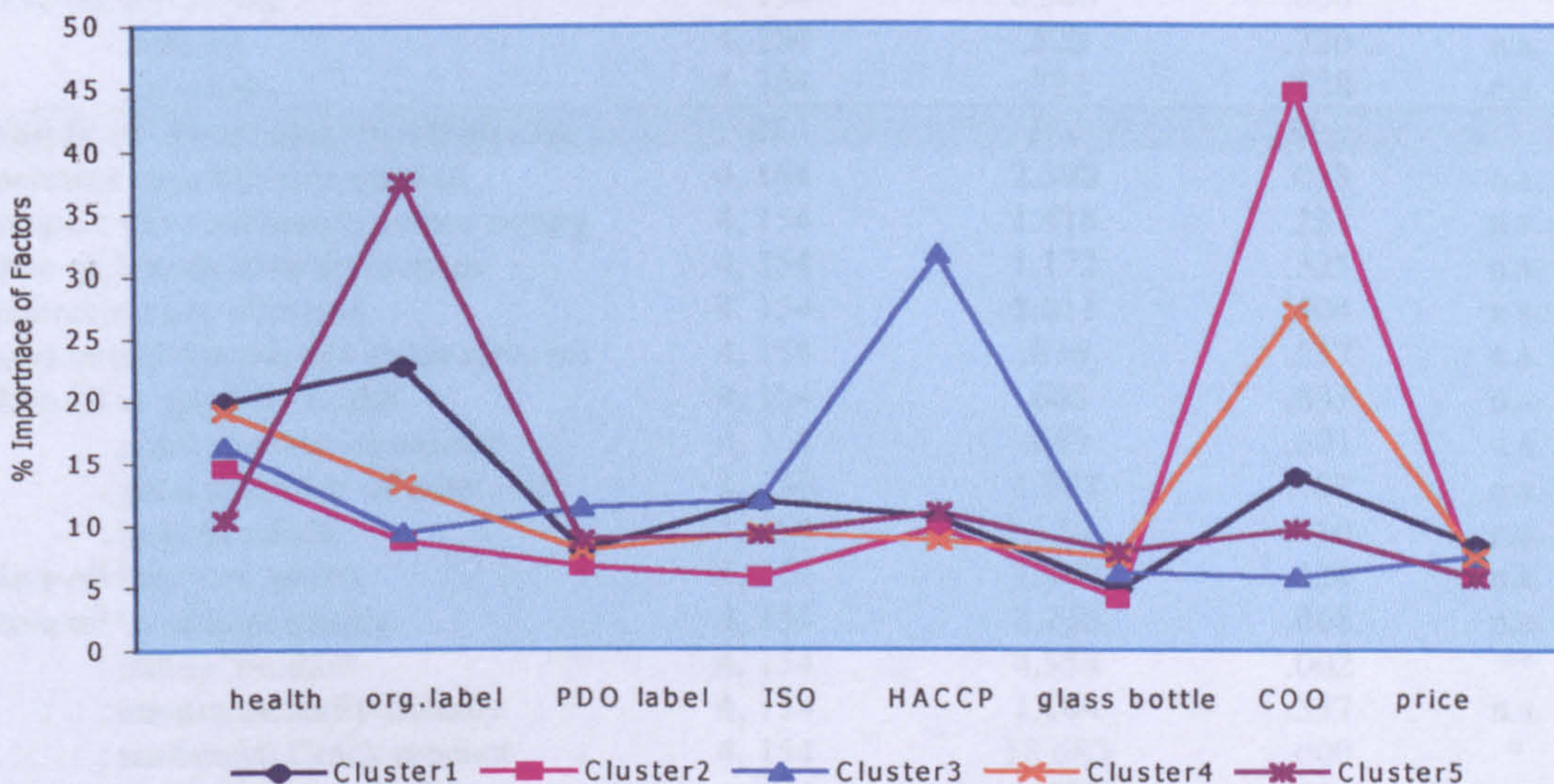


Table 7.14: Chi-square and One way ANOVA Tests of All Variables (n=159)

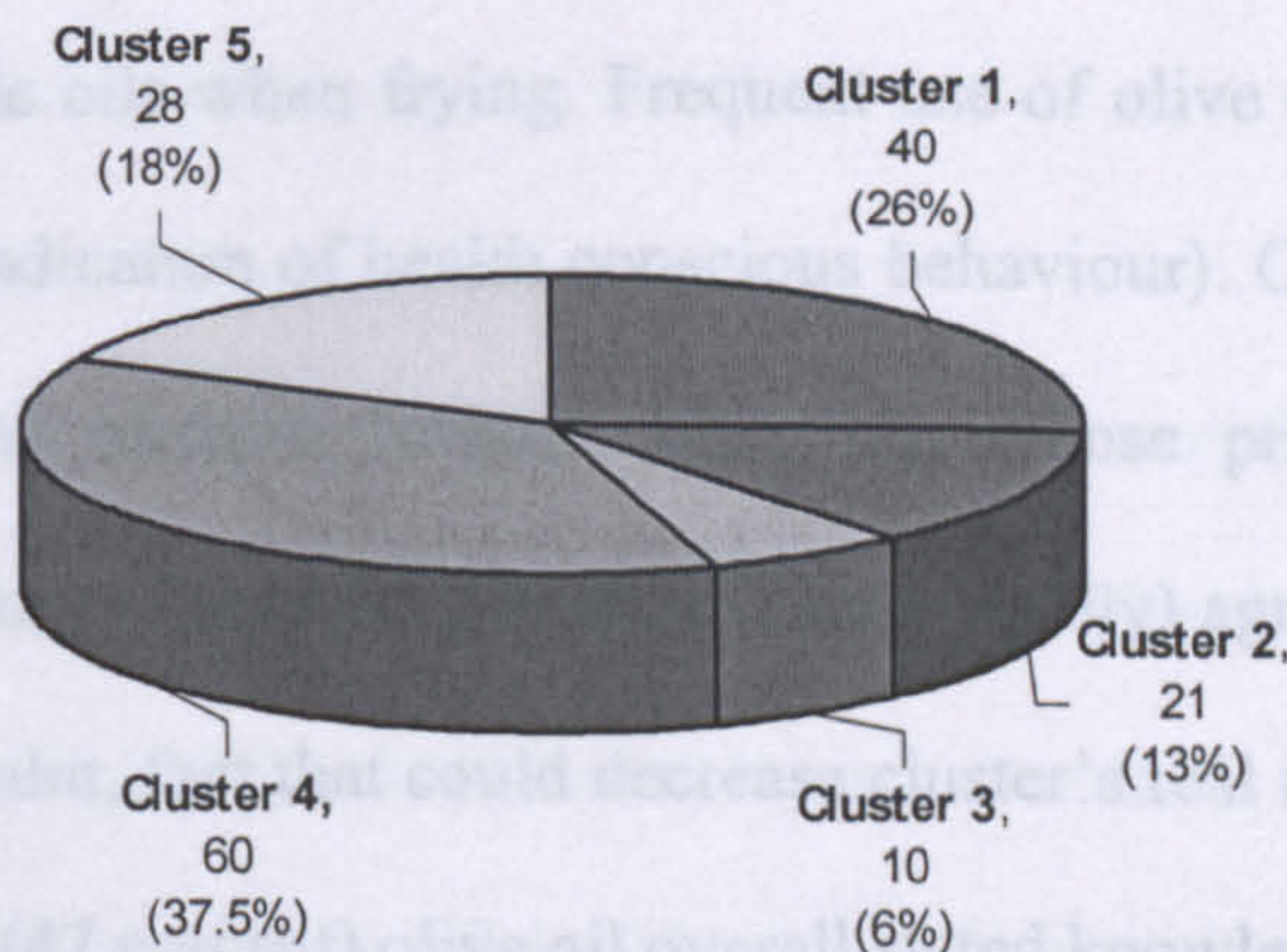
% Attribute Importance	df	F_{.01}	Sig.	
1.Country of origin sign	4, 154	159.722	.000	*
2.Organic label	4, 154	99.086	.000	*
3.Health information	4, 154	9.742	.000	*
4.HACCP certification	4, 154	40.673	.000	*
5.ISO certification	4, 154	4.504	.002	**
6.PDO label	4, 154	1.953	.104	n.s.
7.Price	4, 154	1.310	.269	n.s.
8.Glass bottle	4, 154	3.552	.008	**
Socio-demographic	df	F_{.01}	Sig.	
9.Age	4, 154	3.825	.005	**
	df	x²	Sig.	
10.Education	4	43.250	.000	**
11.Number of children in the household	4	83.938	.000	**
12.Income level	4	81.875	.000	**
13.Working woman in the household	1	15.625	.000	**
14.Marital status	1	24.025	.000	**
15.Gender	1	18.225	.000	**
Awareness level	df	F_{.01}	Sig.	
16.Awareness of the organic label	4, 154	.837	.504	n.s.
17.Awareness of the PDO label	4, 154	4.425	.002	**
18.Awareness of the ISO certification	4, 154	7.366	.000	*
19.Awareness of the HACCP certification	4, 154	1.839	.124	n.s.
Food and Olive oil purchase behaviour	df	x²	Sig.	
20.Food purchase frequency	2	25.963	.000	**
21.Food expenditure	2	54.388	.000	**
22.Olive oil purchase quantity	2	66.613	.000	**
	df	F_{.01}	Sig.	
23.Olive oil purchase place: minimarket	4, 154	.421	.793	n.s.
: supermarket	4, 154	4.228	.003	**
: hypermarket	4, 154	.686	.603	n.s.
: specialty shop	4, 154	6.499	.000	*
: bulk from producers	4, 154	1.880	.117	n.s.
: own production	4, 154	3.463	.010	***
29.Olive oil substitute: pomace oil	4, 154	.204	.936	n.s.
: sunflower oil	4, 154	.348	.845	n.s.
: soy oil	4, 154	.735	.569	n.s.
: other vegetable oils	4, 154	3.358	.011	***
33.Olive oil use: frying	4, 154	8.508	.000	*
: boiling	4, 154	.522	.720	n.s.
: in salads	4, 154	.722	.578	n.s.
Olive oil involvement and overall attitude	df	F_{.01}	Sig.	
36.Interested in production method	4, 154	2.390	.053	n.s.
37.Compare olive oil brands before buying	4, 154	1.418	.231	n.s.
38.Olive oil brands have differences	4, 154	1.172	.325	n.s.
39.Preferable olive oil brand	4, 154	1.011	.404	n.s.
40.Good overall knowledge about olive oil	4, 154	.816	.517	n.s.
41.Olive oil is: good for health	4, 154	.643	.633	n.s.
: good cooking ingredient	4, 154	.689	.601	n.s.
: good substitute of other oils	4, 154	1.977	.101	n.s.
: tasty in salads	4, 154	.536	.710	n.s.
45.Olive oil has: nice aroma	4, 154	1.840	.124	n.s.
46.Olive oil is: of high quality	4, 154	2.236	.068	n.s.
: natural product	4, 154	4.558	.002	**
: environmentally friendly	4, 154	1.104	.357	n.s.
: traditional Greek product	4, 154	18.683	.000	*
: consumed out of habit	4, 154	2.022	.094	n.s.
51.Olive oil has a 'value for money' price	4, 154	5.056	.001	**

n.s.: not significant, *: p<0.001, **: p<0.01, ***: p<0.1

Table 7.15: Description of the Profile of the Five Clusters in Terms of the Statistically Significant and Selected Non-significant Variables (n=159)

VARIABLES	Cluster 1: 25% The health and quality conscious	Cluster 2: 14% The ethnocentric working women	Cluster 3: 8% The sophisticated innovators	Cluster 4: 37.5% The common consumer	Cluster 5: 18% The organic fun housewives
<i>% Attribute Importance</i>					
Country of orig.		Very important	Least important	Second important	
Organic label	Second import.	Least important		Average	Very important
Health info.	Very important	Average	Average	Second important	Least important
HACCP certif.			Very important	Least important	Second import.
ISO certification	Second import.	Least important	Very important	Average	
Glass bottle		Least important		Second important	Very important
PDO label *		Least important	Very important	Average	
Price *	Very important	Low importance	Average	Average	Least important
<i>Socio-demographic</i>					
Age	Very young	Middle-aged	Young and old	Young	Older
Education	High	Low	Very high	Average to low	Very low
Family size	2.8	3.67	2.9	3.08	3.75
Income level	Upper-average	Lower-average	Average	Average	High
Working woman	55%	85.7%	100%	71.7%	42.9%
Married	52.5%	81%	70%	65%	92.9%
Female	55%	81%	50%	61.7%	89.3%
<i>Awareness level</i>					
Organic *	Very high	Very high	Very high	Very high	High
PDO	Very high	High	High	Average	Low
ISO	High	Average	Very high	Average	Low
HACCP *	Very low	Zero	Low	Very low	Zero
<i>Food and Olive oil purchase behaviour</i>					
Food purchase frequency	1/week	1/week or more	>> than 1/week	1/week or more	1/week or more
Food expenditure	30GBP or more	> than 30 GBP	>> than 30 GBP	30GBP or more	> than 30GBP
Olive oil purchase quantity	> 1L for 40% < 1L for 40%	> 1L	1L average	> 1L	>> 1L
Supermarket	Low	Average	Frequently	Low	Very frequently
Specialty shop	Never	Never	Average	Never	Never
Own production	42.5%	33.3%	10%	31.7%	7.1%
Vegetable oils	Average	Rarely	Average	Rarely	Frequently
Olive oil frying	Frequently	Frequently	Never	Frequently	Rarely
<i>Involvement and overall attitude</i>					
Knowledge level*	47.4%, average	33.3%, low	70%, high	38.4%, low	39.3%, low
Natural product	Agree	Totally agree	Sceptic	Totally agree	Totally agree
Traditional	Agree	Totally agree	Sceptic	Totally agree	Totally agree
Out of habit *	45%, sceptic	Disagree	Totally disagree	Disagree	Disagree
'Value for money' priced	Agree	Agree	Sceptic	Agree	Totally agree

* Not significant at .01% level.



A. Cluster 1 (25 percent): it exhibits the highest “health” and the second highest “ISO certification” and “organic label” importance levels of all clusters. In terms of their socio-demographic characteristics, the members of this cluster are very young (40 percent in their 30’s and 32.5 percent in their 40’s), well educated (57.5 percent with a BA or higher title), and belong to small families (57.5 percent with no children or family size of 2.8 persons at average). They have an upper-average income level of approximately GBP 8,000. For almost half of them a working woman belongs to their household, only half are married and, again, only half are female. They are (totally) aware of the PDO label (82.5 percent) and ISO certification (70 percent). More than half (52.5 percent) purchase food once per week, for which they spent GBP30 or more. They purchase either more than 1L of olive oil (42.5 percent) or less than 1L of olive oil (40 percent) per month and exhibit a low frequency of olive oil purchase at supermarkets and specialty shops (47.5 and 95 respectively percent purchase “never” at these outlets), both because 42.5 percent of them have their own olive oil production (the highest of all clusters).

They show an average (compared to other clusters) substitution frequency of olive oil for other vegetable oils (20 percent), but 77.5 percent of them frequently use olive oil for frying, justifying their health consciousness (Greek consumers mainly use cheaper but less healthy vegetable oils when frying. Frequent use of olive oil when frying is being considered as an indication of health conscious behaviour). Overall, they claim to be involved with and positive towards olive oil, whose price they think is reasonable (“value for money”), yet 45 percent of them (totally) agree that olive oil is being consumed out of habit, fact that could decrease cluster’s real involvement when coupled with its average (47 percent) olive oil overall stated knowledge.

B. Cluster 2 (14 percent): it exhibits the highest “country of origin” importance level of all clusters and the lowest in almost all the remaining seven attributes under examination. The members of this cluster are middle-aged (66.7 percent at least in their 40’s), of low education level (66.7 percent of high school or lower level), and members of large families (3.67 persons at average). It is characteristic that they have low-average income (approximately GBP 6,500). For the great majority of them (85.7 percent) a working woman exists in their household, 81 percent are married and 81 percent are female. They are (totally) aware of the PDO label (76.1 percent) but only half of them of the ISO certification (57.2 percent). Almost half (47.6 percent) purchase food more than once per week, and the majority (76.2 percent) spent more than GBP30. They purchase more than 1L of olive oil (66.7 percent) per month. They exhibit an average frequency of olive oil purchase at supermarkets (52.4 percent purchase there “frequently”), and very low at specialty shops (95 percent purchase there “never”). On the other hand, one third have their own olive oil production (the second highest of all clusters). They show a low (compared to other clusters) substitution frequency of olive oil for other vegetable oils (14.3 percent) and 71.4 percent frequently use olive oil for frying. Overall, they claim to be involved with and positive towards olive oil, whose price they think is reasonable (“value for money” concept). In contrast, they exhibit a low overall olive oil knowledge (variable not statistically significant, however).

C. Cluster 3 (8 percent): it exhibits the highest “HACCP certification” and “ISO certification” and the lowest “country of origin” importance levels of all clusters. In terms of their socio-demographic characteristics, the members of this cluster are either younger (60 percent are 40 or less) or older (40 percent at least in their 60’s),

very well educated (60 percent with a BA or higher title), and belong to small families (2.9 persons at average). They have average income (approximately GBP 7,000). For all of them a working woman exists in their household, 70 percent are married and evenly distributed between male and female. They are (totally) aware of the PDO label (70 percent) and especially of the ISO certification (90 percent). Although very interested in the HACCP scheme, half of them admit to be (totally) unaware of it, although they show the highest of all clusters percentage of HACCP awareness (20 percent). They show the highest percentages of food shopping more than once per week (80 percent) and food weekly expenditure more than GBP30 (80 percent). However, they are not particularly heavy olive oil buyers, with 40 percent purchasing more than 1L and another 30 percent purchasing less than 1L per month. They exhibit the highest of all clusters frequency of olive oil purchase at supermarkets and specialty shops (60 and 30 percent respectively purchase there “frequently”) and only 10 percent of them have their own olive oil production (the second lowest of all clusters).

They show an average (compared to other clusters) substitution frequency of olive oil for other vegetable oils (20 percent), but 70 percent of them never use olive oil for frying, exhibiting a more rational and less health conscious thinking. Overall, they claim to be highly involved with olive oil (exhibiting the highest disagreement that olive oil is being consumed out of habit -although not statistically significant) and positive towards it, although their agreement seems to be much less absolute compared to other clusters. Generally, they claim to be olive oil experts. In addition, 40 percent of them disagree that olive oil should be seen only as a traditional Greek product and another 20 percent seem reluctant to express a firm opinion,

demonstrating a kind of scepticism towards the so-called “olive oil culture”. The same reluctance is present when asked to express their agreement with the “value for money” olive oil price, with which (totally) agree the lowest percentage of all clusters (40 percent).

D. Cluster 4 (35 percent): it does not exhibit a maximum importance level in any of the attributes under examination. However, its “country of origin”, “health information” and “glass bottle” importance levels are the second and the “organic label” and “ISO certification” importance levels are the third highest of all clusters. This may indicate an underlying health and quality consciousness potential of the cluster. The members of this cluster are younger (63.3 percent are 40 or less), of average to low education level (56.7 percent of high school or lower), and members of average to large families (3.08 persons at average). It is characteristic that they have average income (approximately GBP 7,000). For the majority of them (71.7 percent), a working woman exists in their household, 65 percent are married and 61.7 percent are female, very close to the sample’s average. Two thirds are (totally) aware of the PDO label and the ISO certification (68.3 and 63.4 percent respectively), again very close to the sample’s average.

They buy food once per week (41.7 percent) or more (43.3 percent), half of them (56.7 percent) spend more than GBP30 per week, and two thirds (68.3 percent) purchase more than 1L of olive oil per month, all very close to the overall sample’s corresponding figures. They exhibit a low frequency of olive oil purchase at supermarkets (30 percent purchase “frequently” but another 51.7 percent “never”) and practically zero at specialty shops (86.7 percent purchase there “never”), because

one third of them have their own olive oil production (31.7 percent, the closest to the sample's average). They show a low (compared to other clusters) substitution frequency of olive oil for other vegetable oils (16.7 percent) and 75 percent of them frequently use olive oil for frying. Overall, they claim to be involved with olive oil at the closest of all clusters average sample level, and positive towards olive oil, whose price they think is reasonable ("value for money" concept). In contrast, they exhibit a low overall olive oil knowledge (variable not statistically significant, however).

E. Cluster 5 (18 percent): it exhibits the highest "organic label" and the corresponding "glass bottle" and the lowest "health information" importance levels of all clusters, fact that seems somewhat contradictory. The members of this cluster are older (60.7 percent at least in their 50's), of very low education level (42.9 percent of basic level), and members of very large families (75 percent have at least two children or 3.75 persons average family size). It is characteristic that they have the highest income of all clusters (approximately GBP 9,000). For the majority of them (57.1 percent), no working woman exists in their household, fact that characterises the specific cluster, whose almost all members are married and female (92.9 and 89.3 percent respectively). They are aware of the PDO and ISO schemes to the lesser extent compared to the other clusters (only 39.4 and 14.4 percent respectively). They buy food once per week (42.9 percent) or more (46.4 percent), two thirds (64.3 percent) spend more than GBP30 per week, and almost all (89.3 percent) purchase more than 1L of olive oil per month, fact that makes them the heaviest olive oil buyers of the sample. Consequently, they exhibit the highest frequency of olive oil purchase at supermarkets (71.4 percent purchase there "frequently") but very low at specialty shops (92.9 percent purchase there "never"), and only 7.1 percent have their

own olive oil production (the lowest of all clusters).

They show the highest (compared to other clusters) substitution frequency of olive oil for other vegetable oils (50 percent) and only 32.1 percent of them frequently use olive oil for frying, in accordance with their very low interest in health information acquisition. These facts constitute members of cluster 5 the least loyal olive oil consumers. Overall, they claim to be involved with and positive towards olive oil, whose price they think is reasonable (“value for money” concept) to the highest extent of all clusters (85.7 percent totally agree). In contrast, their overall olive oil knowledge is low (variable not statistically significant, however).

7.6.1.2. The Target-cluster 1

Cluster 1 constitutes the target-cluster of the present study. It is the cluster that better than any other satisfies our hypotheses of the existence of a health and quality conscious consumer group. Although not directly comparable, the percentage of the laddering sample respondents selecting the eight olive oil attributes as “very important” and the percentage of importance the members of cluster 1 attach to the same attributes can be seen in Table 7.16. It can be observed that the convergence is not absolute, mainly due to the fact that in the conjoint study each one of the importance levels is being derived in comparison with the other seven. In the laddering study, no such comparison took place. Instead, respondents have been asked to freely select as “very important” any one from a list of olive oil attributes separately from the others included in the same list.

Table 7.16: Comparison between the Laddering Sample and the Conjoint Cluster 1

	<i>Conjoint Cluster 1(n=40): Attribute Importance</i>		<i>Laddering Sample (n=40): Attribute Selected by... of the Sample</i>	
	Importance	Rank	Respondents	Rank
Country of origin	13.87%	3 ^d	95%	1 st
Organic label	22.71%	1 st	62.5%	7 th
Health information:				
Additives free sign			87.5%	
Best before date	19.88%	2 nd	92.5%	2 nd
Keep until instructions			92.5%	
Cholesterol free sign			65%	
HACCP certification	10.52%	4 th	67.5%	6 th
ISO certification	11.87%	5 th	67.5%	5 th
Glass bottle	4.81%	8 th	85%	4 th
PDO label	7.96%	7 th	55%	8 th
Price	8.38%	6 th	'Value for money': 92.5%	3 ^d

Thus, in order to statistically establish the convergence of the cluster 1 with the laddering sample, chi-square and one way ANOVA tests took place in terms of the common “socio-demographic”, “food and olive oil purchase and consumption behaviour and involvement” and “overall attitude” variables of the two questionnaires (see Appendices, Chapters 6 and 7), the results of which can be found in Table 7.17.

It is clear that the two clusters exhibit statistically significant differences in only five out of the 38 variables under comparison. Especially for eight variables, in the demographics (variables no. 1 and 5), olive oil substitution (no. 16, 17), olive oil use (no. 21), olive oil involvement (no. 24, 26) and olive oil overall attitude (no. 29, 31) categories, an almost perfect convergence (significance from .823 to 1.000) between the laddering sample and the Conjoint cluster 1 is being presented. In terms of the 4 quality schemes' awareness, we can assume by reflection, since no specific questions have been included during the Means-end phase, that the laddering sample exhibits a generally high awareness level, with the exception of the HACCP scheme. Its inclusion in the laddering attribute list constitutes a methodological drawback of the laddering phase not overcome by the provision of the relevant definition, which increased HACCP awareness level artificially (c.f. Limitations, Section 8.4).

Table 7.17: Comparison Between the Laddering Sample and the Conjoint Cluster 1

<i>Socio-demographic</i>	<i>df</i>	<i>F_{.01}</i>	<i>Sig.</i>	
1. Age: Average Laddering: 29.5, Cluster 1: 31	1, 78	.000	1.000	n.s.
	<i>df</i>	<i>x²</i>	<i>Sig.</i>	
2. Education	4	43.300	.000	**
3. Number of children in the household	4	40.075	.000	**
4. Income level	4	3.475	.176	n.s.
5. Working woman in the household	1	.050	.823	n.s.
6. Marital status	1	.200	.655	n.s.
7. Gender	1	.800	.371	n.s.
<i>Food and Olive oil purchase behaviour</i>	<i>df</i>	<i>x²</i>	<i>Sig.</i>	
8. Food purchase frequency	2	11.425	.003	**
9. Food expenditure	2	6.100	.047	n.s.
10. Olive oil purchase quantity	2	3.775	.151	n.s.
	<i>df</i>	<i>F_{.01}</i>	<i>Sig.</i>	
11. Olive oil purchase place: minimarket	1, 78	.657	.420	n.s.
12. : supermarket	1, 78	1.505	.224	n.s.
13. : hypermarket	1, 78	3.428	.068	n.s.
14. : specialty shop	1, 78	3.120	.081	n.s.
15. : bulk from producers	1, 78	2.455	.121	n.s.
16. Olive oil substitute: pomace oil	1, 78	.042	.839	n.s.
17. : sunflower oil	1, 78	.024	.878	n.s.
18. : soy oil	1, 78	1.606	.209	n.s.
19. : other vegetable oils	1, 78	1.358	.247	n.s.
20. Olive oil use: frying	1, 78	7.129	.009	**
21. : boiling	1, 78	.000	1.000	n.s.
22. : in salads	1, 78	.065	.799	n.s.
<i>Olive oil involvement and overall attitude</i>				
23. Interested in production method	1, 78	3.616	.061	n.s.
24. Compare olive oil brands before buying	1, 78	.018	.895	n.s.
25. Olive oil brands have differences	1, 78	.129	.721	n.s.
26. Preferable olive oil brand	1, 78	.009	.926	n.s.
27. Good overall knowledge about olive oil	1, 78	.192	.663	n.s.
28. Olive oil is: good for health	1, 78	.709	.402	n.s.
29. : good cooking ingredient	1, 78	.000	1.000	n.s.
30. : good substitute of other oils	1, 78	14.012	.000	*
31. : tasty in salads	1, 78	.000	1.000	n.s.
32. Olive oil has: nice aroma	1, 78	.532	.468	n.s.
33. Olive oil is: of high quality	1, 78	.151	.699	n.s.
34. : natural product	1, 78	.140	.710	n.s.
35. : environmentally friendly	1, 78	.512	.476	n.s.
36. : traditional Greek product	1, 78	.726	.397	n.s.
37. : consumed out of habit	1, 78	1.336	.251	n.s.
38. Olive oil has a 'value for money' price	1, 78	.189	.665	n.s.

n.s.: not significant, *: p<0.001, **: p<0.01

Regarding the “education” and “number of children” variables, it appears that the laddering sample members are even better educated and belong to even smaller families than the health and quality conscious consumers of cluster 1, indicating an over-rigorous selection process during the laddering phase in terms of these two variables. However, we can conclude that both the laddering sample and cluster 1 members are well educated and belong to small families, despite their statistically

significant differences. The main difference, though, between the two identical consumer groups has been the fact that 47.5 percent (or 17 persons) of cluster 1 never purchase bottled olive oil because they produce their own¹. It is certain that a similar finding would have appeared in the laddering sample if people with own production had not been excluded in order for a more representative HVM to be derived. This fact decreases the size of cluster 1 by approximately half.

Yet, when trying to discriminate between the members of cluster 1 with own olive oil production and those without, only the “olive oil supermarket purchase” variable has been statistically significant, with the “own producers” never buying olive oil at supermarkets, as expected. All the other variables have been statistically insignificant ($F_{.01}=5.229$ for 2,37 d.f.). Nevertheless, just for descriptive purposes, it is worth mentioning that the own-produced olive oil consumers of cluster 1 (in comparison to the non-producers of the same cluster) are slightly younger, less educated, of lower income, mostly male. Moreover, they never buy bulk from other producers, exhibit a higher overall olive oil knowledge and agree more strongly on olive oil’s “value for money” price, characteristics rather expected.

Apart from that difference, the laddering convenience sample, although selected based on theories and meanings rather than facts, following the phenomenological paradigm (see Table 5.1), it is proven to constitute a realistic existing market segment. The qualitative laddering sample used has been tested with a quantitative conjoint methodology approach, with the eight quality and health olive oil attributes examined being the connecting links between the two stages. The result has been the

It is possible that these young people are members of urban families, heirs of olive orchards, from the production of which they cover their yearly olive oil needs. Many urban consumers are generation-old city dwellers. The farmers left in rural areas exploit all orchards with the obligation to send to cities a quantity equal to the yearly needs of the orchard owning families. 379

establishment of a cluster of specific size (approximately 12-15 percent of the market) and with a detailed variety of characteristics (socio-demographic, schemes' awareness, olive oil purchase, consumption, involvement and overall attitude). In addition, based on the HVM of the laddering sample, the three-level connections between the cluster members' values, the benefits they derive from olive oil use and the olive oil attributes under examination, are all derived and analysed in depth. Laddering sample's homogeneity is in this way statistically proven and the corresponding HVM can be used as an olive oil preference and behaviour predictor. Ultimately, this cluster constitutes a potential purchaser of health and quality assured olive oil brands.

7.6.2. Choice simulation study

The role played by choice stimulators is to help CA achieve its other primary objective: using "what-if" analysis to predict the share of preferences that a stimulus (real or hypothetical) is likely to capture in various competitive scenarios of interest to management (Wittink and Cattin, 1989; Green and Srinivasan, 1990; Gil and Sanchez, 1999). Choice stimulators follow a three-step process (Hair et al, 1998): a) estimate and validate conjoint models for each respondent or group; b) select the sets of stimuli to test according to possible competitive scenarios; and c) simulate the choices of all respondents or groups for the specified sets of stimuli and predict share of preference for each stimulus by aggregating their choices.

After the conjoint model has been estimated, the researcher can specify any number of sets of stimuli for simulation of consumer choices. Among the possible uses are assessing the impact of adding a product to an existing market, the increased potential from a multi-product or multi-brand strategy including estimates of cannibalism, and the impact of deleting a product or brand from the market. In each case, the researcher provides the set of stimuli representing the market and the choices of respondents are then stimulated. According to Green and Krieger (1988), choice stimulators typically use two types of rules in predicting choice of a stimulus. The first is the Maximum Utility Model, which assumes that the respondent chooses the stimulus with the highest predicted utility score. This is most appropriate in cases of markets with individuals of widely different preferences and in situations involving sporadic, non-routine purchases (Hair et al, 1998). It also tends to exaggerate the market share of a specific product by assigning a 100 percent of market share to the first choice (Gil and Sanchez, 1997).

The alternative choice rule is a purchase probability measure, in which predictions of choice probability sum to 100 percent over the set of stimuli tested. This approach is best suited to repetitive purchasing situations, for which purchases may be more tied to usage situations over time (Gil and Sanchez, 1997). The two most common methods of making these predictions are the BTL (Bradford-Terry-Luce) and Logit models, which make quite similar predictions in almost all situations. The BTL model computes the probability of choosing a profile as the most preferred by dividing the profile's utility by the sum of all the simulation total utilities. The Logit model is similar to BTL, but uses the natural logarithm instead of the utilities themselves.

Hair et al (1998) and Gil and Sanchez (1997), however, caution the researcher in assuming that the share of preference in a conjoint simulation directly translates to market share. The simulator represents only the product and perhaps price aspects of marketing management, omitting all of the other marketing factors (e.g. advertising and promotion, distribution, competitive responses, availability) that ultimately impact market share. The conjoint simulation does present a view of the product market and the dynamics of preferences that may be seen in the sample under study.

In the present study, three olive oil brands have been tested (Table 7.18): first, an organic, glass bottled, with HACCP certification, country of origin and “keep until” information on the label, with high price for organic olive oil (GBP 4.18/L); second, a PDO, glass bottled, with HACCP certification, country of origin and “best before” date on the label, with high price for conventional olive oil (GBP 2.72/L); and third, a common brand of the market, without any quality label, bottled in plastic, but with the country of origin and “best before” date clearly indicated on the label, and with low price (GBP 2.18/L).

Both of the quality brands are hypothetical, since olive oil brands with HACCP are not yet present in the Greek market. The inclusion of the HACCP scheme in both of the quality stimuli indicates researcher’s interest in something that, at the present, is considered as a rather useless luxury; however, HACCP soon will be a compulsory requirement and valuable exporting advantage of the Greek food industry (Vermisso, 2000). Apart from the HACCP certification, all the other characteristics of the two quality stimuli are already present in the market. Thus, the main comparison is between two high priced quality brands, the organic and the PDO. Our aim, hence,

Table 7.18: Simulation Olive oil Brands' Profile, Predicted Preferences and Market Shares

Profile of the Simulation Brands								
	Organic label	PDO label	ISO certif.	HACCP certif.	Health info	Bottle	Country of origin	Price
1	YES	NO	NO	YES	Keep until instructions	Glass	Written	4.18 GBP/L
2	NO	YES	NO	YES	Best before date	Glass	Written	2.72 GBP/L
3	NO	NO	NO	NO	Best before date	Other than glass	Written	2.18 GBP/L
Average Predicted Preference								
	Cluster 1*	Cluster 2*	Cluster 3*	Cluster 4*	Cluster 5*	All sample		
1	6.875	8.124	6.530	7.493	8.525	7.493		
2	6.337	8.195	6.990	6.996	5.750	6.724		
3	4.500	6.923	3.560	4.986	3.289	4.843		
Predicted Market Shares (**)								
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	All sample		
Maximum Utility Model								
1	67.5%	42.86%	40%	66.67%	96.43%	67.3%		
2	17.5%	47.62%	60%	31.67%	3.57%	27.04%		
3	15%	9.52%	-	1.67%	-	5.66%		
BTL model								
1	39.36%	34.98%	38.56%	38.91%	48.9%	40.2%		
2	35.28%	35.34%	40.91%	35.9%	32.63%	35.43%		
3	25.36%	29.68%	20.53%	25.18%	18.47%	24.37%		
Logit model								
1	55.96%	40.72%	40.03%	56.09%	86.16%	58.16%		
2	30.8%	43.28%	56.41%	36.42%	12.24%	33.04%		
3	13.23%	16.01%	3.56%	7.49%	1.6%	8.8%		

*: All preferences within each cluster statistically significant for $p < .001$

** : Real market shares should be decreased by approximately 30-40% for clusters 1, 2 and 4 and by 7-10 percent for clusters 3 and 5, due to consumers' own production of olive oil.

has been to prove that both of the quality brands would acquire significant market share, much larger than the common olive oil, whose inferiority can be proven for both the overall sample as well as the distinctive clusters.

The choice simulator (SPSS Categories 8.0) calculated the preference estimates for the products for each respondent. Predictions of the expected market shares were made with both of the choice models, the maximum utility model and the probabilistic (BTL and Logit) model. Our focus is on the probabilistic model, given that this approach is best suited to repetitive purchasing situations, for which purchases may be more tied to usage situations over time. Thus, *for the overall*

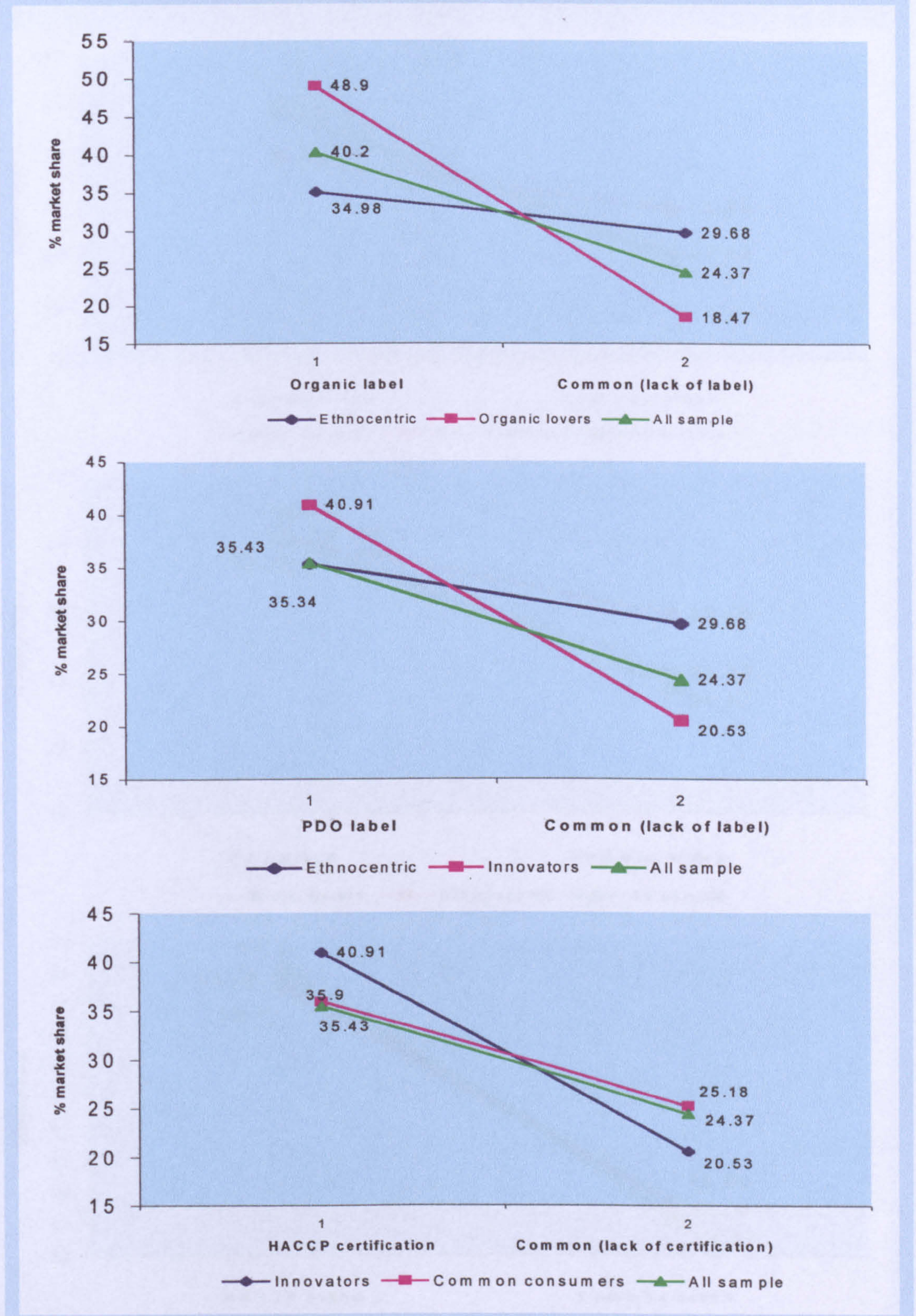
sample the organic brand with HACCP has been more preferable to the PDO brand with HACCP and both have been more preferable to the common olive oil with the country of origin sign.

Figures 7.9a and b present the analyses of market share (BTL method) change due to variations in the level of three quality schemes, on the assumption that the levels of the remaining attributes were unchanged. These analyses were undertaken for those clusters for which the relevant quality scheme had the highest and lowest importance. The change in market share for the pooled sample was also analysed. It is clear that the higher the importance difference of the quality scheme between two clusters, the higher the market share difference between them. For example, organic olive oil's market share was seriously reduced among the ethnocentric consumers in comparison with the organic lovers, and vice versa for the common olive oil's market share

7.7 Conclusion of Chapter 7

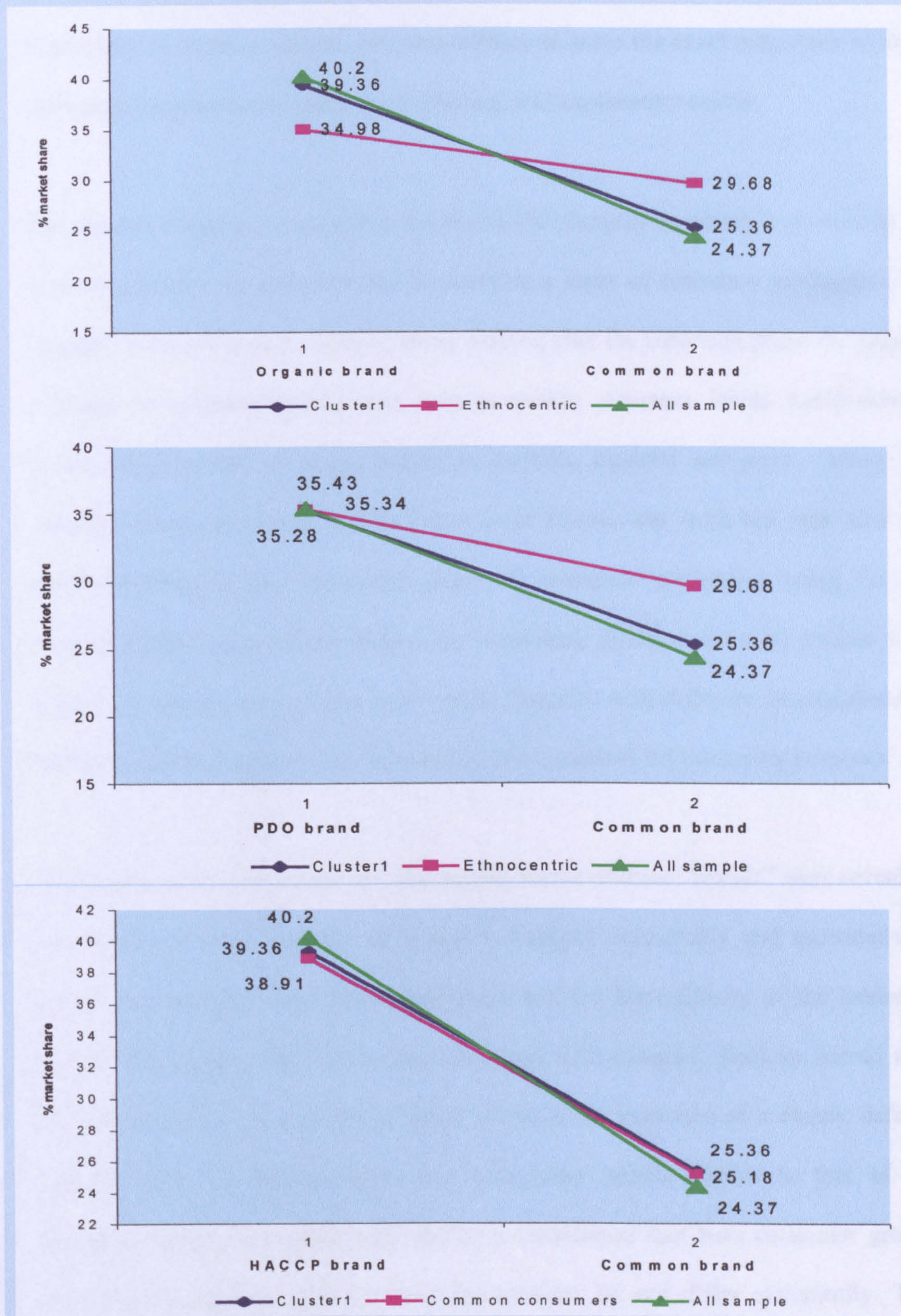
Since the early 70's, Conjoint Analysis has received considerable academic and industry attention as a major set of techniques for measuring buyer's trade-offs among multi-attributed products and services (Green and Srinivasan, 1990). The use of Conjoint Analysis and utility scores to identify consumer decision factors has several advantages over traditional rating/ranking methods (Batt and Katz, 1997): unlike traditional approaches, the conjoint exercise provides a more realistic, whole-product framework. Rather than being asked to rate abstract, context-less, and usually unpriced features, respondents are asked to choose among concrete products or services, much as they would in the actual market place.

Fig. 7.9a: Market Share as a Function of Organic label, PDO label and HACCP Certification (Clusters for which the relevant quality scheme had the highest and lowest importance).



Moreover, the conjoint exercise forces respondents to make choices, greatly reducing their tendency to rate everything as more or less equally important. The indirect

Fig. 7.9b: Market Share as a Function of Organic label, PDO label and HACCP Certification
 (Target-cluster 1 and cluster for which the relevant quality scheme had the lowest importance)



method of questioning used in the conjoint methodology tends to disguise and reduce biasing influences, such as socially correct responses. Finally, while

traditional rating/ranking exercises provide only a rough indication of the relative importance of decision factors, conjoint utilities measure the exact magnitude of their difference in importance, consumer influence, and explanatory power.

The present Chapter 7 constitutes the horizontal (length) quantitative dimension of the methodology. Its objective was to describe a study of consumer preferences for “quality” olive oil brands – quality being defined after the laddering phase findings as a bundle of extrinsic quality cues such as quality assurance labels, health-related information, country of origin indication, bottling material and price – using the Conjoint Analysis method. A four times larger sample was used, one year after the implementation of the Means-end phase. A consumer preference rating for the selected quality cues was developed. By evaluating different olive oil profiles with equivalent ratings, a set of olive oil virtual “brands” with different combinations of the above selected quality cues was created and evaluated for marketing purposes.

Then, consumers’ preference for, and market shares of these “brands” were revealed. Above all, however, the use of Conjoint Analysis statistically and quantitatively proved the validity of the Means-end phase and the homogeneity of the laddering sample. The quality cues’ preference measured with Conjoint Analysis served as a segmentation basis, the results of which revealed the existence of a clearly defined segment with socio-demographic and personality profile similar to that of the laddering sample. Chi-square and ANOVA established that both consumer groups (the conjoint segment and the laddering sample) do not differ statistically. This finding clearly proves that the laddering sample constitutes a segment of quality and health conscious consumers. Hence, their cognitive structure described through the HVM has a wider validity as their behavioural predictor.

CHAPTER APPENDIX

Table 7.19: Conjoint Questionnaire Used in the Survey

A. QUALITY ASSURANCE SCHEMES' AWARENESS

Please indicate how aware you are of the following definitions, by selecting the appropriate box:

1. **ORGANIC PRODUCTS** are those produced without any use of chemical input not approved by the relevant EU Regulation, from their early production stages till they reach the end-user. The organic products have on their label a specific sign or certification that assures the absence of chemical input. The particular sign/certification is provided by a private organisation authorised by government to do so.

I am totally aware	I am aware	I am neither aware nor unaware	I am unaware	I am totally unaware
<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>

2. The **Protected Denomination of Origin (PDO) LABEL** characterises the products typical of a particular area, in terms of their original, authentic and/or traditional production, processing and standardisation methods, approved by a relevant EU Regulation. The PDO products have on their label a specific sign or certification that assures the above. The particular sign/certification is provided by a private organisation authorised by government to do so or by governmental bodies.

I am totally aware	I am aware	I am neither aware nor unaware	I am unaware	I am totally unaware
<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>

3. **ISO CERTIFICATION** scheme assures the implementation on behalf of a firm/producer of a pre-specified management system of various production activities, such as the optimum exploitation of the available production resources, the adoption of production methods controlled all along their stages or the use of environmentally friendly production techniques. The ISO certification is being provided by internationally approved private agencies and/or governmental organisations and often constitutes an indirect guarantee of end-product's high quality

I am totally aware	I am aware	I am neither aware nor unaware	I am unaware	I am totally unaware
<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>

4. **HACCP CERTIFICATION** scheme assures that a company/producer follows a particular production system that certifies produce's hygiene in relation to several microorganisms that may affect it during its different production/processing stages. The HACCP certification is being provided by relevant private agencies and/or governmental organisations and basically assures foodstuffs' safety for the end-user.

I am totally aware	I am aware	I am neither aware nor unaware	I am unaware	I am totally unaware
<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>	<input style="width: 100%; height: 20px;" type="text"/>

B. THE CONJOINT EXERCISE

After having spent some time in examining the following combinations of extra virgin olive oil types, please assign a number from 0 to 10 to each one of the combinations in the appropriate space provided, where:

0: “totally rejected/ not preferable”

10: “totally accepted/ preferable”

It has to be highlighted that you can assign the same number 0 to 10 to more than one combinations, in other words it is not necessary to assign a different number to each one of the 18 cards.

You will have to decide bearing in mind that we are interested in your realistic potential purchase of each one of the 18 olive oil types, if this version of the product at this price were available today

Keep also in mind that:

-all the above combinations concern EXTRA VIRGIN olive oil, and that

-the average market price of 1L of extra virgin olive oil in the area of Athens is 1400GRD (2.6GBP)
organic olive oil is 2300GRD (4.1GBP) as in March 2000.

1. Not organic (conventional)
PDO label
ISO certification
'Keep until' instructions on the label
Other than glass bottle
Country of origin not written
Price 2.18 GBP

Preference from 0 to 10:....

Would you buy this olive oil
(please circle)

YES NO

2. Organic
HACCP certification
'Additives/preservatives free' sign
Glass bottle
Country of origin not written
Price 3.63GBP

Preference from 0 to 10:....

Would you buy this olive oil
(please circle)

YES NO

3. Organic
PDO label
'Best before' date on the label
Glass bottle
Country of origin not written
Price 4.18GBP

Preference from 0 to 10:....

Would you buy this olive oil
(please circle)

YES NO

4. Not organic (conventional)
ISO certification
'Best before' date on the label
Glass bottle
Country of origin not written
Price 2.72GBP

Preference from 0 to 10:....

Would you buy this olive oil
(please circle)

YES NO

5. Organic
ISO certification
HACCP certification
'Keep until' instruction on the label
Glass bottle
Greek country of origin written
Price 3.63GBP

Preference from 0 to 10:....

Would you buy this olive oil
(please circle)

YES NO

6. Organic
PDO label
ISO certification
HACCP certification
'Best before' date on the label
Glass bottle
Greek country of origin written
Price 4.18GBP

Preference from 0 to 10:....

Would you buy this olive oil
(please circle)

YES NO

7. Not organic (conventional)
HACCP label
'Keep until' date on the label
Greek country of origin written
Price 2.72GBP

Preference from 0 to 10:....

Would you buy this olive oil
(please circle)

YES NO

8. Not organic (conventional)
'Cholesterol free' sign on the label
Other than glass bottle
Greek country of origin written
Price 2.18GBP

Preference from 0 to 10:....

Would you buy this olive oil
(please circle)

YES NO

9. Not organic (conventional)
 PDO label
 HACCP certification
 'Keep until' instructions on the label
 Glass bottle
 Greek country of origin written
 Price 2.72GBP

Preference from 0 to 10:....
 Would you buy this olive oil
 (please circle)
 YES NO

10. Organic
 PDO label
 ISO certification
 'Cholesterol free' sign
 Glass bottle
 Greek country of origin written
 Price 3.63GBP

Preference from 0 to 10:....
 Would you buy this olive oil
 (please circle)
 YES NO

11. Organic
 PDO label
 HACCP certification
 'Cholesterol free' sign on the label
 Glass bottle
 Country of origin not written
 Price 4.18GBP

Preference from 0 to 10:....
 Would you buy this olive oil
 (please circle)
 YES NO

12. Not organic (conventional)
 PDO label
 ISO certification
 HACCP certification
 'Additives/preservatives free' sign
 Other than glass bottle
 Country of origin not written
 Price 2.72GBP

Preference from 0 to 10:....
 Would you buy this olive oil
 (please circle)
 YES NO

13. Organic
 'Keep until' instructions on the label
 Glass bottle
 Country of origin not written
 Price 3.63GBP

Preference from 0 to 10:....
 Would you buy this olive oil
 (please circle)
 YES NO

14. Not organic (conventional)
 PDO label
 'Additives/preservatives free' sign
 Glass bottle
 Greek country of origin written
 Price 2.18GBP

Preference from 0 to 10:....
 Would you buy this olive oil
 (please circle)
 YES NO

15. Not organic (conventional)
 ISO certification
 HACCP certification
 'Cholesterol free' sign on the label
 Glass bottle
 Country of origin not written
 Price 2.18GBP

Preference from 0 to 10:....
 Would you buy this olive oil
 (please circle)
 YES NO

16. Organic
 ISO certification
 'Additives/preservatives free' sign
 Glass bottle
 Greek country of origin written
 Price 4.18GBP

Preference from 0 to 10:....
 Would you buy this olive oil
 (please circle)
 YES NO

17. Organic
 ISO certification
 HACCP certification
 'Additives/preservatives free' sign
 Other than glass bottle
 Greek country of origin written
 Price 4.18GBP

Preference from 0 to 10:....
 Would you buy this olive oil
 (please circle)
 YES NO

18. Organic
 ISO certification
 HACCP certification
 'Best before' date written on the label
 Glass bottle
 Country of origin not written
 Price 3.63GBP

Preference from 0 to 10:....
 Would you buy this olive oil
 (please circle)
 YES NO

C. SOCIO-DEMOGRAPHIC INFORMATION

1. Age:.....

2. Education level:

Element.	High Sch.	Graduate	Postgrad.	Technical
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

3. Number of children:

0	1	2	3	>3
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

4. Income level:

<4.000 GBP	4-8.000 GBP	8-12.000 GBP	12-20000 GBP	>20.000 GBP
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

5. Working woman-member
of the family

YES	NO
<input type="text"/>	<input type="text"/>

6. Marital status:

Married	Unmarried
<input type="text"/>	<input type="text"/>

7. Gender:

Male	Female
<input type="text"/>	<input type="text"/>

D. FOOD AND OLIVE OIL PURCHASE/CONSUMPTION BEHAVIOR

8. I usually purchase food:

> once per week	Once per week	< once per week
<input type="text"/>	<input type="text"/>	<input type="text"/>

9. Last week I spent for food purchase:

> 30GBP	30GBP	< 30GBP
<input type="text"/>	<input type="text"/>	<input type="text"/>

10. Last month I purchased:

>1 L of olive oil	1 L of olive oil	<1 L of olive oil
<input type="text"/>	<input type="text"/>	<input type="text"/>

11. I purchase olive oil:

	Frequently	Rather rarely	Never
11a. At a minimarket or convenience Store	<input type="text"/>	<input type="text"/>	<input type="text"/>
11b. At a supermarket	<input type="text"/>	<input type="text"/>	<input type="text"/>
11c. At a hypermarket or superstore	<input type="text"/>	<input type="text"/>	<input type="text"/>
11d. At a specialty shop (e.g. with organic food)	<input type="text"/>	<input type="text"/>	<input type="text"/>
11e. Unbotled olive oil from free sellers (e.g. small producers)	<input type="text"/>	<input type="text"/>	<input type="text"/>
11f. I do not purchase commercial olive oil because I produce my own	<input type="text"/>	<input type="text"/>	<input type="text"/>

12. Instead of olive oil, I usually purchase as an alternative:

	Frequently	Rather rarely	Never
12a. Pomace olive oil	<input type="text"/>	<input type="text"/>	<input type="text"/>
12b. Sunflower oil	<input type="text"/>	<input type="text"/>	<input type="text"/>

12c. Soya oil	<input type="text"/>	<input type="text"/>	<input type="text"/>
12d. Other non-vegetable oil	<input type="text"/>	<input type="text"/>	<input type="text"/>
<i>13. I use olive oil as:</i>			
13a. A cooking ingredient, when frying Things	<input type="text"/>	<input type="text"/>	<input type="text"/>
13b A cooking ingredient, when boiling Things	<input type="text"/>	<input type="text"/>	<input type="text"/>
13c. I use (raw) olive oil in salads	<input type="text"/>	<input type="text"/>	<input type="text"/>

E. Olive oil purchase involvement and overall attitude.

	I totally agree	I agree	Neither agree nor disagree	I disagree	I totally disagree
14a. I would be interested in knowing how an olive oil brand is being produced	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
14b. Before purchasing, I have compared different brands with each other	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
14c. I believe that there are many differences between olive oil brands	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
14d. There is a specific olive oil brand I prefer	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
14e. I believe that I have a good overall olive oil knowledge	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<i>15. I believe that olive oil:</i>					
a. is good for health	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
b. is a good cooking ingredient	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
c. replaces other low quality oils	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
d. is tasty raw in salads	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
e. has a nice aroma	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
f. is a high quality product	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
g. is a natural product	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
h. is an environmentally friendly product	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
i. is traditional Greek	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
j. is being consumed mainly out of habit	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
k. is a reasonably priced product	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

CHAPTER 8.

SUMMARY – CONCLUSIONS

8.1. Introduction

In response to the problems associated with intensifying competition and slow growth in the demand for food, European businesses increasingly attempt to add value to the agricultural raw material. To adopt a successful differentiation strategy, they must make the transition from the well known product-oriented marketing approach (based on homogenisation and cost minimisation through economies of scale) to a consumer-oriented point of view (identifying and meeting the needs of particular groups of consumers). The best performing companies demonstrate an unwavering focus upon the market place and relate all their operating decisions to the dictates of customer trends demanding higher quality than ever before. Therefore, differentiation on product attributes that consumers deem important may be a viable strategy to agribusiness.

8.2. Summary of the Survey

The present study aims to contribute to the widening of the Greek agricultural and specifically olive oil research towards the rather neglected so far marketing management direction. The central theme of the study is the domestic consumer viewed as an alternative source of profit and competitiveness for the high quality olive oil firms. This can be achieved through the identification of a quality and health-conscious urban segment, and the explanation of its purchasing motives and behaviour, by relating quality olive oil attributes to its personal values. The structure of the work includes the introductory part (Chapter 1), the literature review part (Chapters 2 and 3), the research aims and objectives part (Chapter 4), the empirical methodological part (Chapters 5 to 7), and the concluding Chapter 8, as follows:

Chapter 1 constitutes an overview of the subject matter (the nature of production and consumption of olive oil in Greece), together with discussion of why this subject matter is interesting and problematic from a “real world” (marketing) and academic point of view. The real world “audience” for this research, the prevailing on the olive oil sector micro-scale, family-based agri-food firm, is also made explicit. A section to outline the structure of the thesis concludes this introductory chapter.

Chapter 2 is concerned with food consumption being more a human “culture” than an everyday habit. Its main objective is to analyse the non-economic factors, which influence our choice of food as individuals or members of a group (family, society etc.) and, based upon them, to describe the changes which are observed in the consumption patterns of the Greek society. A generally larger degree of food culture similarity can be identified between the northern than the southern European countries. Moreover, some counties are found to be more heterogeneous than others and show strong regional characteristics. This represents a reason not to overlook the regional aspect of the European consumption patterns. The “Euro-consumer” is still a hardly-defined concept. The final conclusion of the existence, since the 90’s, of different market segments (niches) with homogeneous socio-economic character across national boundaries supports the idea of the adoption by the food industry of product-differentiation strategies.

An account of the status and dynamics of the Greek olive oil market, focusing on conveying the key facts and trends opens the Chapter. A description of the olive oil supply chain in Greece as well as an account of olive oil technology and different types of olive oil is also included. A detailed description of the Greek consumers’ dietary

patterns evolution the last decades is also included, together with a projection of food expenditure until the year 2010.

Chapter 3 attempts to present the wide concept of quality from the consumer point of view. After suggesting the multi-dimensionality of quality, it offers a brief review of quality definitions. Then, it distinguishes between objective and subjective or perceived quality, describes how consumers incorporate quality in their behavioural process and presents a variety of models which differentiate between expected and experienced quality. Then, the Chapter attempts to offer more insights into the matter of health-related food choice, moving at a two-fold level of food healthiness and safety. The difficulties of consumers to perceive food nutrition value are noted at the beginning, together with the role of education and nutrition labels on the understanding process. Different health behaviour models are described, coupled with a presentation of the most recent health-related EU consumer studies. The importance of food health claims and the relevant regulation are analysed. The Chapter continues with the related concept of food safety and the views of it held by different interested parts. It proceeds with an analysis of the risk concept as perceived by consumers and the role of information and labels in the food safety problem. Finally, the neglected issue of food safety education closes the Chapter.

Chapter 4 constitutes a short summary of what has been discovered about the subject matter and broad research problem from the literature review, coupled by explicit stating of the key research questions to be addressed by the empirical research of the following Chapters 6 and 7.

The purpose of *Chapter 5* is to introduce Means-end chain theory and the laddering data collection method. It opens with a brief review of the qualitative research concept, its theoretical background and relation with marketing research, its stages, results' interpretation and evaluation. The role of the non-directive in-depth interview techniques, where laddering belongs, is highlighted. The main part of the Chapter is dedicated to the development of the Means-end chain methodology. The method's broader conceptual model is introduced, followed by a detailed description of the laddering technique: interview environment, probing techniques, stages' analysis, criteria to assess the validity of the results, and laddering applications. The Chapter ends with cases of laddering application in the international olive oil research.

The Means-end method application of *Chapter 6* starts with the selection of a convenience sample with a specific profile, similar to that of the quality-conscious consumer suggested by the literature. It continues with the identification of the olive oil attribute elicitation method and the practical implementation of the laddering interviews, according to the limitations and instructions mentioned in the previous Chapter.

Then, a series of analyses transforms data to the appropriate for the use of software form. Data coding results to the grouping of all the consequences and values mentioned by respondents and factor analysis at the consequence level further decreases their number. Factor analysis at the attributes-chosen-as-important level offers an indication for the existence of interesting underlying consumer preference dimensions of olive oil attributes, especially in terms of its quality. Cluster analyses both at the consequence and important attribute levels offers more insights in relation

to the sample's profile and motivation when choosing olive oil and stresses the clear difference between attribute and benefit segmentation. Finally, the series of factor and cluster analyses at both levels illustrate the homogeneity of the sample, condition necessary to use laddering as a method for estimating consumers' cognitive structures. The ultimate task of the Chapter includes to development of the sample's cognitive map (Hierarchical Value Map), where the links between olive oil quality attributes and consumers' values are clearly designated. This map serves as quality olive oil purchase behavioural predictor of the sample.

The objective of *Chapter 7* is, using conjoint analysis, to describe a study of consumer preferences for "quality" olive oil brands – quality being defined after the laddering findings as a bundle of extrinsic quality cues such as quality assurance labels, health-related information, country of origin indication, bottling material and price. A four times larger, more variant, random, stratified sample is used. A consumer preference rating for the selected quality cues is developed. By evaluating different olive oil profiles with equivalent ratings, a set of olive oil virtual "brands" with different combinations of the above selected extrinsic quality cues is created and evaluated for marketing purposes. Then, consumers' preference for, and market shares of these "brands" are revealed.

Above all, however, the use of conjoint analysis statistically and quantitatively proves the validity of the Means-end phase and the homogeneity of the laddering sample. The quality cues' preference measured with conjoint analysis serves as a segmentation basis, the results of which reveal the existence of a clearly defined quality and health-conscious segment with socio-demographic and personality profile similar to that of

the laddering sample. ANOVA and χ^2 establish that both consumer groups (the conjoint segment and the laddering sample) do not differ statistically. This finding clearly proves that the laddering sample constitutes a domestic segment of quality and health conscious consumers. Hence, their motivation and cognitive structure described has a wider validity as their quality purchasing behavioural predictor.

8.2.1. Summary of the results in terms of the research objectives

The combination of the implementation Chapters 6 and 7 and its corresponding findings validates our series of managerial short-run objectives. The identification of a well-defined - in terms of size, socio-demographic composition and psychographic behaviour - quality and health conscious segment (objective 5, see Table 4.1) improves the perceived quality-segmentation knowledge of the domestic olive oil market (objective 4). This can be coupled with the description of the remaining clusters in terms of different olive oil quality attributes of Chapter 7. Further, it can serve as a positioning strategy guide, especially for the small-scaled, family-based differentiated firms of the sector. The fact that this quality and health conscious segment's purchase motives and overall behaviour can accurately be predicted should constitute a clear incentive for at least the highly competitive, market-oriented firms to target differentiated market segments and in this way to satisfy the needs and wants of especially the quality-seeking olive oil consumers (objective 6).

In the long-run, the managerial objectives of the present study are also being satisfied. Having accurately measured potential market shares acquired by high quality, differentiated olive oil brands, the current work contributes to the survival and profitability of those firms of the sector that would adopt the corresponding marketing

strategy (objective 1). Again, it has to be noted that these firms would mainly be the small-scaled family firms, which are the majority of the sector and the present study is being addressed to. Of course, this does not prohibit larger firms from adopting the same proven successful strategy, with equally profitable results. However, it is exactly the micro firms of the sector that mostly are in need of a competitive marketing strategy. From this point of view, the present effort reduces the observed deficiency of the Greek olive oil research towards a managerial direction (objective 2) and enhances Greece's effort to create quality food products with higher added value and worldwide competitiveness for first, the domestic, and then the global consumer (objective 3).

Finally, the advantageous methodological mutuality of the qualitative and quantitative phases satisfies the objective of academic innovativeness of the present work (objective 7). The performance of the benefit-segmentation task proves its superior predictive validity over common attribute-based methods. The analytical psychographic output profile of the Means-end method offers unprecedented power in the hands of an experienced academic researcher in relation to the concepts of perceived and expected food quality. The series of cluster and factor analyses at the attribute and benefit-levels offer valuable insights into the statistical validity of the laddering technique. Above all, the innovate, well-justified and solidly built methodological duality of the survey (combination of Means-end and Conjoint methods) serves as a powerful statistical validity test regarding the sample-homogeneity condition of the Means-end phase and a number of side-conditions which source from it. The mutual exclusion of the two methods' weaknesses and the simultaneous combination of their powers is the overall academic contribution of the present work.

8.3. Research Implications at a “Real world” and Academic Levels

8.3.1. What is learned from the laddering phase

8.3.1.1. Strategic use of the HVM

A common method for interpreting laddering data is to consider the unique pathways of meaning from the attribute to the value level as perceptual orientations that define different *segments* (Reynolds and Gutman, 1988). Due to the non-redundancy rule, HVM is constructed in a way that minimises the number of connecting links required, resulting to a loss of specific orientations. To avoid this problem, one must check the implication matrix to make sure the unique pathways actually represent true key defining elements that are significantly interconnected. In other words, those reading the map are assumed to naturally understand that a link from A to B and from B to C implies a link from A to C (Gengler and Reynolds, 1995).

Apart from the segmentation task, each of the five HVM perceptual orientations could be seen as a potential *olive oil positioning strategy*. This is accomplished by benchmarking the strengths and weaknesses of the product using a combination of more objective traditional attitude data (the attribute-level analyses) and subjective judgement (the HVM). Then, creating a stronger link between what is at present a relatively weak association is one option. This is the case with the healthiness HVM orientation. We have seen that the linkages between “healthy olive oil”, “practical/easy life” and “good mood” are weak, therefore one positioning option would be to build a strong association here, in the context of “healthy olive oil”. That context would then need to be defined in terms of another, higher order meaning, like “effectiveness/productivity”. The result would be a strategic positioning that communicates to the consumer that the meaning of “healthy olive oil-practical life-good mood” is a discriminating characteristic to satisfy

the higher order needs of “professional success”, “satisfactory income” or even “better quality of life”.

Due to the nature and size of our sample, a segmentation or advertising strategy task was not explicitly included in the aims of the means-end phase. Instead, its findings were translated into larger scale research on olive oil brands’ assessment and used as a qualitative basis for more traditional paper-and-pencil methods.

8.3.1.2. Conclusions and extensions of the laddering phase

The consistency between the consequence-level cluster analysis and the Laddermapping results and, hence, the profound differences with the traditional attribute-segmentation technique have to be stressed. Of course, due to the very small sample, the clustering results have only a descriptive value. However, the common to all clusters characteristics of Table 6.10 are identical to the quality-healthiness-taste cognitive areas identified in the HVM. This consistency maximises the reliability of our methodology and the validity of our findings.

The laddering method goes one step further by providing insights into the purchasing motives of consumers and offers answers through the HVM to questions as why a specific consumer group chooses specific olive oil attributes. Young people, with average to higher income, high educational status, belonging to single-person households or having one or no child, seem to pay a special attention to a number of quality assurances and nutritional information on the label of an olive oil brand. They strongly prefer olive oil of Greek origin, seem to be price insensitive and the “right” price of olive oil is more an ethical problem to them.

These people derive confidence, security and calm from the consumption of a quality guaranteed product, through which they cover their standards and satisfy their needs. This calm helps them to their family, personal and professional relationships, fact that in turn can make them happy. They seek a satisfactory income to improve their quality of life by means of professional success through the effectiveness and the good mood they derive from the consumption of a healthy foodstuff. They strongly believe in social morality derived from an honestly marketed product, which further is seen as a reward to their purchase. This reward can lead them to become better persons by means of the motives offered to better satisfy their ambitions through an increased self-esteem and self-confidence process.

The more natural step, then, to extent our research has been to test our findings across a bigger sample of more diverse consumer types, in terms of the main olive oil purchasing factors or motives of quality-healthiness-price-origin identified. Conjoint Analysis followed, in order not only to determine which of the previous extrinsic quality attributes are equally substantial to other consumer types but also to define specific olive oil brand profiles in terms of these preferences. In addition, a more general segmentation task has been undertaken, to quantitatively define the pre-specified consumer group used in the current phase and explore the existence of others into the wider olive oil market context. The pre-specified laddering sample is proven to constitute a clearly-cut, autonomous segment. Then, the HVM revealed not only motives but also quality and health-conscious consumers' cognitive structures with high predictive validity.

8.3.2. What is learned from the Conjoint phase

8.3.2.1. Strategic analysis of the five clusters' profile

The picture presented in Chapter 7 of the five cluster profiles seems clear and comprehensive. Each one of the five clusters discriminates in almost any of the statistically significant variables. Different major consumer types can be identified:

The common consumer is being represented by the larger, as expected, cluster 4, which can be termed the “common, average decision-maker, potentially health and quality conscious”. His/her age is young to middle and all his/her other socio-demographic and behavioural characteristics are closer to the sample's average than any of the other clusters. The same can be said about the fact that one in three common consumers has its own olive oil production, a percentage equal to the national average (see Section 2.2). In terms of olive oil attribute importance, he/she does not seem to strongly prefer any of the eight examined here. Yet, he/she admits to have low olive oil overall knowledge, conclusion that, although not statistically significant, can reveal that the involvement and positive attitude stated by the common consumer are rather theoretical than a result of a thorough searching process. On the other hand, the importance he/she attaches to the country of origin and health information is high enough to demonstrate a possible existence of an underlying quality and health consciousness. Under conditions, and given that he/she finds olive oil price reasonable (“value for money”), he/she could be a potential purchaser of higher quality olive oil brands.

In the opposite end we can find the niche of cluster 3, which can be titled the “innovator, sophisticated, well educated, with no children, sceptic consumer of both sexes”. He/she has a seemingly strong food culture, based on his/her highest of all clusters food purchase frequency and expenditure, despite his/her family’s small size. He/she claims to be an olive oil expert, whose opinions seem to be the result of an intense searching process, part of his/her possibly wider interests and overall way of thinking. Age is not a discriminating factor for that type of consumer, who can be both young and old, and especially well educated. He/she seems to exhibit a wider interest in technology through his/her expressed, higher than any other cluster, awareness of all the labels and schemes under examination. He/she has a sceptic stance towards a number of positive olive oil attributes enthusiastically accepted by almost all the other clusters, such as its naturalness and traditional character. This scepticism, together with the fact that he/she mostly buys bottled olive oil from supermarkets and specialty stores, can be a strong motive for the purchase of highly quality, certified olive oils such as the PDOs and the brands with HACCP and ISO certification.

Two types of female consumers have been identified as well, which are cluster 2, the “ethnocentric, middle-aged, low educated, working mother”, and cluster 5, the “organic lover, older, low educated, wealthy, housewife and mother”. They are married with children, members of large families, and of low education. Those among them who buy olive oil, they do it in large enough quantities and generally spend enough money on food, perhaps due to their families’ large size. Their main difference has been that they possibly are women of different generation, with the middle-aged of cluster 2 working and the older of cluster 5 not working, showing this way one of the major social changes in Greece the last two decades (see Chapter 2).

The working women, possibly due to their low education and income levels, exhibit a rather simplistic attitude towards olive oil, whose only important attribute for them seems to be its Greek origin. They possibly 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”. One third of them consume own-produced olive oil and, as a consequence, they exhibit an average frequency of olive oil purchase at supermarkets. They claim to have an average awareness of the quality schemes under investigation, perhaps due to their work out of home and not to their education. They do not seem to constitute potential buyers of any quality assured, but only of common olive oil brands.

The housewives belong to families with the highest of all clusters income and show the lowest education level and the older age. They have the lowest of all clusters awareness of the four quality schemes, as expected. This type of consumer brings in mind the typical older Greek mother, whose main interest has been her family’s well fare. All that may explain the overemphasised importance they attach to the organic olive oil and the corresponding glass bottle, coupled with the highest of all clusters agreement on olive oil’s “value for money” price. They purchase olive oil almost totally at supermarkets. They exhibit the lowest of all clusters olive oil loyalty, since they would frequently substitute it for other vegetable oils. Generally, their profile is contradictory, given, for example, the least importance they attach to all the health information under examination, possibly due to their low education level. Another explanation of their positive attitude towards organic olive oil has been that they might use it as a means of showing off, indicating a rather “nouveau-riche” stance of life. Nevertheless, they constitute an almost certain buyer of organic and glass bottled olive

oil brands. Both female clusters admit to have low olive oil overall knowledge, conclusion that, although not statistically significant, can reveal that the involvement and positive attitude stated by both types of women are rather theoretical than a result of a thorough searching process, similarly to the cluster 4 of the common consumers.

Finally, cluster 1 constitutes the target-cluster of the present study. It can be termed the “highly health and quality conscious, young, educated, bachelors of both sexes”. It is the cluster that better than any other satisfies our hypotheses of the existence of a health and quality conscious consumer group. In terms of its demographic characteristics, it is almost a “reflection” of the sample selected at the laddering stage, with which it is identical. It includes younger, well-educated, of average to high-income people of both sexes and marital statuses, members of small families. They exhibit a very high awareness of the quality schemes apart from the HACCP, similar to that of the innovators of cluster 3, and have a better olive oil overall knowledge than the common consumers and both types of the female clusters. They express an agreement, yet less absolute, on olive oil’s traditional character and naturalness and, similarly to the others, agree in its “value for money” price. They attach the highest of all clusters importance to the health information, the second highest to the organic label and the ISO certification, and an average importance to the country of origin and HACCP certification, justifying their health and quality consciousness.

8.3.2.2. Conclusions of the choice simulation Conjoint study

For the overall sample, the organic brand with HACCP has been more preferable to the PDO brand with HACCP and both have been more preferable to the common olive oil with the country of origin sign.

When examined separately for each cluster, a series of *t*-tests established that the preference differences for all the three brands within each cluster have been statistically significant. We can observe that: first, both quality brands' predicted preferences are higher than 6 (except for the PDO brand for cluster 5 of the older housewives), in other words both brands belong to the "most preferred" part of the 0-10-preference scale for all clusters. The organic brand is most preferred for cluster 5 and the PDO brand for cluster 3, as expected, given the profile of these clusters. In clusters 1 and 2 both brands exhibit a similar predicted preference, with the organic brand slightly leading. Yet, for cluster 4, organic brand's superiority is clear, as well as for the overall sample.

Second, regarding the common olive oil brand, all clusters' predicted preference is (much) lower than the quality brands' preference, in the "least preferred" part of the 0-10-scale. Cluster 2 is the only exception and exhibited the highest preference (due to its interest only in the country of origin attribute), again lower than the quality brands' preference. Then, cluster 4 of the common consumers shows the second highest preference. On the other hand, clusters 3 and 5, which have a more "exceptional" profile, rank the common brand very low.

We can conclude that both the organic and the PDO brands with HACCP are preferable for the overall sample and each one of the five clusters separately to the common olive oil, with obvious implications for the profitability of the corresponding micro-scale, family-based Greek processing firms. At the aggregate level, the quality brands' market shares have been high: more than 40 percent for the organic and more than 27 percent for the PDO. Even the common olive oil succeeded in gaining a

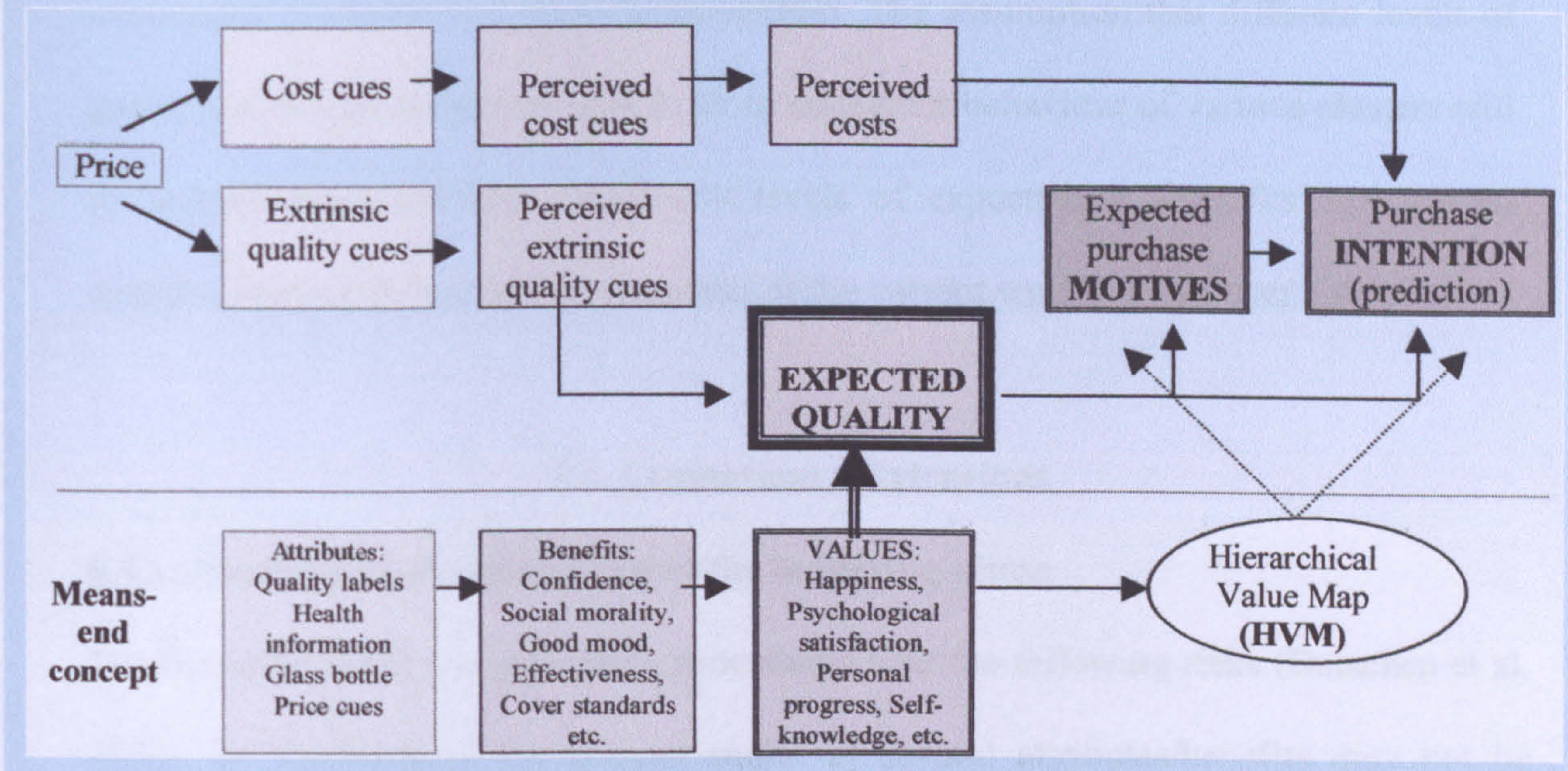
satisfactory market share from 9 to 24 percent, fact perhaps due to its high availability in the market, the resulting consumers' increased familiarity with it and the inclusion of the most important "country of origin" attribute in its concept.

8.3.3. Understanding the phenomenon of "Quality"

In the present study, elements of the Grunert's Total Food Quality Model have been selected to form a key-quality model upon which the perceived olive oil quality concept can be built (see Figure 3.3). Assuming that the buyers of high quality, differentiated olive oil brands are involved in the purchasing process (c.f. Section 6.1.1.1. and 2) and according to the TFQM, we hypothesised that they form an expected quality based, among others, on a combination of perceived cost and extrinsic quality cues. These cues have been derived from the laddering phase, such as the country-of-origin concept, different quality assurances and signs (HACCP, ISO, organic and PDO), a combination of different health-related information ("best before" date, "keep until" instructions, "cholesterol-free" and "additives-preservatives free" indications) and use of glass bottle (Figure 8.1).

At this point we have to accept and note the hypothesised outstanding role of consumers' personal values as a self-guidance behavioural element (c.f. Section 5.3.1) that imposed which of the available cues will be used as expected quality components. As we have seen, young people, with average to higher income, high educational status, belonging to single-person households or having one or no child, seem to pay a special attention to a number of quality assurances and nutritional information on the label of an olive oil brand. These people derive confidence, security and calm from the consumption of a quality guaranteed product, through which they cover their standards

Fig. 8.1: Understanding Quality: Key-quality Model of the Study
(Involved, Quality and Health-conscious Consumers)



and satisfy their needs. This calm helps them to their family, personal and professional relationships, fact that in turn can make them happy. They seek a satisfactory income to improve their quality of life by means of professional success through the effectiveness and the good mood they derive from the consumption of a healthy foodstuff. They strongly believe in social morality derived from an honestly marketed product, which further is seen as a reward to their purchase. This reward can lead them to become better persons by means of the motives offered to better satisfy their ambitions through an increased self-esteem and self-confidence process.

Hence, the quality cues “approved” by consumers’ value system (psychological satisfaction, personal progress, happiness, self-knowledge, quality of life, national pride etc, see HVM, Figure 6.5) imposes aspects of expected quality with the form of benefits individually sought from the use of these quality cues (confidence, good mood, social morality, cover standards, effectiveness etc). In other words, a food product perceived as being of high quality is the one with such a combination of attributes that leads to a number of expected, beneficial states of being guided by

consumers' preferred end-states value system. The assumption that different levels of quality and health-conscious sensitivity in consumer behaviour of various clusters will be derived from different complexity levels of expectations (benefits and values) would constitute an interesting extension of the current work (c.f. Section 8.4.3).

8.4. Limitations - Extensions

8.4.1. Methodological limitations of the laddering phase

Traditionally, benefit segmentation procedures bear the following risks (Botschen et al, 1999), all identified in the present study: a) several attributes/benefits may not be relevant for the respondent, but due to the fact that all of them are presented he/she is forced to evaluate them all; b) respondents tend to rate any attribute/benefit sought relatively high on the corresponding rating scale, even those that are not relevant; c) some important attributes/benefits might be overlooked in the in-depth interviews; d) depending on the amount of items, respondents tend to loose concentration.

An additional limitation of the present study concerns the “soft” laddering method. The main advantage of this method is, as we saw, the concept of *indexicality* and its benefits to the coding process, despite the certain existence of many borderline cases. However, little is known about the comparability of results obtained from that method and paper-and-pencil laddering. Should a test of convergent validity establish that both techniques lead to similar results, one could safely conclude that hard laddering might be a preferable technique, since it is easier to administer and less costly (Botschen et al, 1999). Different results would call for an investigation of predictive validity in a larger context (Grunert et al, 1995).

Another limitation concerns the attribute-list elicitation technique. So far we do not know if the application of other techniques, e.g. triadic sorting or free sorting, would produce similar results. This raises two questions: will the set of attributes finally selected as the starting point of the ladders differ depending on which elicitation method is used? And if yes, which set of attributes is the “right” one?

As far as cognitive structure of the specific segment and its predictive validity are concerned, the study at hand attempts to demonstrate that Means-end chains provide a powerful tool for “true” benefit segmentation. The identified profile of the specific consumer group is described more in detail when connected to both product attributes and their corresponding use consequences. The combination of that with buying situations and additional behavioural and demographic variables would further allow us to predict buying behaviour. Yet, as the sample of young people in the present case can be regarded as a rather homogeneous group right from the start in respect of demographic and behavioural variables, we expect the validity of different “true” benefits segments to improve by studying bigger and more heterogeneous groups.

Different statistical approaches are developed to enable researchers to determine the level of abstraction at which preference judgements are being made by consumers. Results have shown that people are not particularly good at recognising their own most discriminating way of evaluating, for example, the brands within a product class, nor do they recognise the level of abstraction at which their judgements are being made. This further suggests that researchers should be suspicious of self-reported rating systems inherent in many attribute models and consumer surveys (Reynolds and Gutman, 1988).

Finally, during the interviews there have been situations where interviewing techniques and procedures are unable to produce a means-end chain. The respondent has been inarticulate or simply unwilling to answer. It also took a length of time for the interviewer to test all the techniques and develop a personal style that can produce ladders. As with any qualitative technique, experience has been the overall limitation.

8.4.2. Managerial and methodological limitations of real demand predictions

In terms of the methodology-related limitation of the conjoint phase, it has to be noted that participants in market research studies tend to overestimate their probability of purchasing most consumer items. The failure of actual demand to live up to expectations is due to many factors, including the failure of real products (as opposed to product profiles) to meet expectations, lower levels of awareness in the actual market place, the influence in real market conditions of the other components of marketing mix such as advertising and distribution, and simple customer inertia. A major reason for this phenomenon is the tendency of research participants to pay less attention to cost considerations than do real customers, who are faced with multiple potential expenditures competing for their limited resources.

For these reasons then, *market research typically underestimates consumer price sensitivity, overestimates willingness to pay and overestimates demand*. Because conjoint analysis allows respondents to make trade-offs among multiple purchase options, it yields more realistic predictions of purchase behaviour than do traditional methodologies. Nevertheless, the literature (see for example Batt and Katz, 1997) indicates that it is still usually necessary to adjust demand downwards. In this regard, CA provides an interesting solution to the problem of demand overestimation. By

decreasing the utility of price by one third or half, a conjoint model can directly correct for what is considered as the number one source of demand estimation error – the tendency of all market research to underestimate consumer price sensitivity. This can be done by developing alternative demand forecasts scenarios, say the best case, the moderate and the worst case scenarios.

In the present study, though, underestimation of price sensitivity does not seem to be the only limitation. As we have seen (see Section 7.2.3), *the order in which factors are listed on the stimulus card may have an impact on the evaluation*. Thus, the researcher needs to rotate the factors across respondents, when possible, to minimise order effects (Hair et al, 1998), requirement that is not satisfied in the present case. In this way it is possible that the respondents developed a rather “standardised” pattern of profile evaluation, by focusing on one or two target-factors which interest them and are located in the same position in each card, and ignoring the remaining factors which complete the profile. It will be interesting to see what the profile rank would be in case of factor order rotation.

In addition, we have also seen (Section 7.2.1) that the definition of levels has been another critical aspect of CA, because the levels are the actual measures used to form the stimuli. The researcher attempted as best possible to balance the number of levels across factors. It has been found using both ranking and rating data that the estimated relative importance of a variable increases as the number of levels increases, even if the end point stay the same (Green and Srinivasan, 1990; Wittink et al, 1982, in Hair et al, 1998) and it causes consumers to focus on that factor more than on other, thereby increasing its apparent importance in determining overall preference (Green and

Srinivasan, 1990). Yet in the specific case the researcher intended to expand the number of the “health information” and “price” factor levels, in order to avoid a dilution of importance of the former and to capture additional information on the latter. Thus, the number of their levels has been set to four.

There is in any case the possibility that the average importance for these two factors as it can be seen in Table 7.9 is elevated. This fact for price would mean that the specific factor is even more unimportant decision making criterion and the sample is even less price-sensitive. On the other hand, the inclusion of two instead of four levels could seriously decrease the importance of health information acquisition, fact that would distort the current conclusions. In case it would not, however, the health sensitivity of the sample will be further enhanced. Again, it will be interesting to see what the effect would be in case of two price and health information levels and the corresponding changes to sample’s price and health sensitivity.

Nevertheless, one should keep in mind that there are some other, non-methodological problems, when forecasting demand in the Greek quality olive oil market. First, the, at least, *incomplete awareness of the quality strategies under investigation on behalf of the majority of respondents* (similarly to the earlier findings by Wittink and Cattin, 1989). The reason of the low competitiveness or non-existence of the Greek olive oil brands in the world markets is, among others, the lack of a sophisticated domestic demand. This, in turn, is the result of the lack of an organised effort at a private, corporate or state level to educate and communicate to the public the meaning and purpose of, even the most well known, quality labels such as the organic and the PDO labels (Fotopoulos and Krystallis, 2001a, b and c). These reasons lead to the public

being in a permanent state of confusion, fact that is possibly the reason behind the divergence between the stated in marketing research and the actual consumer behaviour.

Batt and Katz (1997) argue that even simple market research participation creates an elevated level of product awareness, a level that will normally take several years to be equated within the market place. In addition, participants can accurately estimate their future behaviour for only limited periods. Given these two factors, the conjoint model should be expected to accurately forecast demand approximately 3-4 years into the future, rather than either the immediate present or beyond the 3-4 years time frame. However, this turns to be an advantage when market failures of late-introduced new products are taken under consideration (see, for example, the work by Kahle et al, 1997, regarding the effects of timely marketing research surveys on newly-introduced products' success).

The second problem sources from the previous and concerns the *almost non-existing availability of quality olive oil brands in the Greek market*. For instance, in the year 2000 the organic supply chain is still in its infancy and one can purchase organic olive oil only at one large retail chain in the main urban areas of Athens and Thessaloniki (Patzios and Tzouvelekas, 1999; Fotopoulos and Krystallis, 2001a). The Greek olive oil market leader ELAIS, winner of the 1999 European Quality Award and subsidiary of Unilever, has in its portfolio only one brand of glass bottled, common olive oil. In a domestic environment as such, any discussion or research effort on quality differentiation strategies seems condemned to fail.

Third, perhaps the most serious distortion of the research forecasting market shares comes from the *nature and tradition of olive oil consumption per se*. Given that one third of the traded quantity is being distributed bulk, directly from producers to urban consumers (Tzouramani and Mattas, 1999), any predicted market share should be decreased by a third at average. This fact is justified by the present study as well, with the overall sample's olive oil own-production reaching 30 percent and that of the quality and health conscious cluster reaching more than 40 percent. Thus, the estimations of Table 7.18 should be adjusted downwards, to, say, 28 percent for the organic, 24.8 percent for the PDO and 17 percent for the common brand respectively, for the overall sample (BTL model) and similarly for the five clusters.

Finally, and in line with Wittink and Cattin (1989), the researcher believes that for projectability of conjoint's market share predictions to a target market, *a probability sample is necessary*, a condition which the present work tried to satisfy at the higher extent possible, given the time and resource limitations of an academic study. The validity of market stimulation predictions depends on *the completeness of the attributes set used to define product profiles*, condition that it is also attempted to satisfy, with the profound behavioural analysis of the target-cluster by means of the laddering methodology.

8.4.3. Extensions

Interesting avenues for future research can be built, with both academic and managerial implications. First, *at the academic level*, an extension used as a validity test of the current work would be to repeat the same methodological steps with inverse order: to start with a typical traditional conjoint study with the task of developing new,

high quality olive oil brands, segment the domestic market and calculate potential market shares. In this way, homogeneous clusters in terms of socio-demographic structure and quality attributes' preference would be pre-specified and used as samples for the implementation of the Means-end method. If this method's output is a similar HVM derived from the quality-conscious cluster, then the assumption regarding the reversibility of methodology's dual character and its corresponding accuracy will be proven.

Again at the academic level, the laddering technique (with the present but mostly with the inverse order of the two phases) can be implemented on all the clusters derived from the conjoint phase, with different involvement levels in the olive oil purchasing process, different complexity of their expectations (quality benefits sought and value system imposing quality benefit and attribute selection) and with a full list of olive oil attributes apart from those related to perceived quality. In this way, the benefit-level segmentation applied here would be completed and the motivational and behavioural image of the domestic market would be enriched with details concerning all, not only the quality-conscious, segments of olive oil buyers in Greece.

This also has obvious *managerial implications*. Having complete motivational and behavioural knowledge and accurate predictive power, capable managers can create competitive olive oil brands oriented towards each one of the derived clusters, succeeding in the product differentiation strategic concept. Potential buyers for each brand and from all the clusters derived can be targeted, stated and real need and wants can be satisfied, and brand loyalty can be achieved in the long run.

But even the current data at hand are not exhausted in terms of the valuable managerial information they can offer. As we have seen, only the perceived-quality attributes and the corresponding consequences and values derived have been used for the development of the present HVM (see Tables 6.16, 6.23 and 6.24). A load of information in terms of olive oil sensory, appearance and innovative characteristics are still at the researcher's disposal (see Table 6.3). The implementation of the laddering technique using these attributes as starting points and the combination of the findings with those currently drawn has obvious, profound managerial and academic implications. Extremely important would also be to compare the new set of derived benefits and values with the existing, test this way the accuracy of the present list and complete its totality.

Finally, avoidance of the current limitations during both phases would offer even better results, especially coupled with increased experience on behalf of the researcher.

APPENDIX 1

EUROPEAN OLIVE OIL POLICIES

1.1. EU Common Olive Oil Market Organisation (CMO)

The olive oil CMO came into operation with the basic regulation 136/66 and it is one of the most complete CMOs of the CAP. During the 30 years of its operation many changes have been taken place, following not only the general modified baselines of the CAP all these years but also the successive EU enlargements with olive oil producing countries of 1981 (Greece) and 1986 (Spain and Portugal).

The olive oil trading period (marketing year) runs from the 1st of November and terminates the end of October of the following year. The Agriculture Ministers' Council every year fixes the following prices. a) The *production target price*: this is the price considered desirable with the aim of providing a fair income for producers, and given the need to maintain Community's production volume. b) The *representative market price*: this is fixed at a level much lower than the production target price. c) *Subsidies*: it is the margin between production target price and the representative market price achieved. Two types of subsidies exist: subsidy on production, which aims to support the olive oil farmers' income; and subsidy on consumption, which aims to support the income of the olive oil processing and bottling firms, and thus promote the consumption of standardised olive oil, especially in comparison to bulk olive oil and other competitive vegetable oils. d) The *intervention price*: its level is the margin between the representative producer price and the subsidy on production, decreased by an amount representative of the olive oil distribution cost from the production to the consumption zones and of the market price

fluctuations. It is the price at which the intervention agencies have to buy the quantities of standard-quality olive oil offered by producers. And e) the *threshold price*: this was fixed at the production target price level minus the production subsidy and a lump sum representing carriage and unloading costs of products from third countries. It has been abolished from 1/7/95, as a result of the recent GATT agreements.

All the above mentioned prices are in ECUs per 100Kg and transferred into GRD according to the valid “green” exchange rate in the date of olive processing by the mills in which the producer delivers his yield (or by the 1st January of the current marketing year for the “small” producers). This policy is expected to change after Greece’s accession to the Common Monetary Unit (1/1/2001).

1.1.1. CMO analysis

1.1.1.1. Production subsidy

Its aim is to contribute to the determination of a fair agricultural income. Already from the period 1994-95 it covers 40 percent of the total olive oil farmer income, regardless the quality of the olive oil produced.

From the period 1987-88 a co-responsibility regime has been established and a *Maximum Quantity Guaranteed (MQG)* has been determined, equal to 1.35million ts in total for all the producing member states, divided in 0.538million ts for Spain, 0.445million ts for Italy, 0.336million ts for Greece, 0.027million ts for Portugal and 0.002million ts for

France (Eurofood, 1998¹). If the total quantity produced (derived by the subsidy applications filled in) exceeds this limit, then the basic amount of support for that specific year defined by the Council of Ministers will be reduced by a percentage equal to surplus of the MQG. If, nevertheless, the quantity of olive oil produced falls shorter than MQG, then this shortage is added to the MQG of the next year.

Concerning the bigger producers (with two-year average subsidised production more than 500Kg) we can say the following: a) they receive the production subsidy determined by the Council of Ministers (e.g. ECU 1.422/kg for the period 1995-96), decreased in cases of MQG violation. Their subsidised quantity is determined according to the documentation provided by the mill (processing plant). Since the MQG determines the final level of subsidy, the latter is paid in two parts. During the current marketing year a kind of deposit is granted, according to the predictions for the yearly production level. During the following marketing year, and after the final determination of the quantity produced and the final subsidy, a complementary payment is taking place, which covers the difference from the already given deposit.

The small producers (whose average subsidised production of the last two years should be less than 500kg) are excepted from the co-responsibility scheme. Their subsidy is determined after taking into consideration the number of the trees they possessed and their average production of the last four years. The level of subsidy for the period 1996/97 was ECU 1.514/kg plus an extra ECU 0.035/kg for 244,000ts., higher than that

¹ These quota levels were changed in July 1998, c.f. 9.2.2.

of the bigger producers. Their subsidised quantity is derived from the average of the production coefficients (= number of productive olive trees x yield per tree x percentage of olive oil content) of the last 4 years, according to the different production zones.

Authorisations to undertake controls have the relevant institutions of each country-member (Ministry of Agriculture and Regional Agricultural Bureaux), the Institution of Olive Oil Subsidies Control (IOOSC), producers' co-operatives and their unions².

1.1.1.2. Consumption subsidy

It is granted to the enterprises, which process, bottle and trade standardised (bottled) olive oil, in order to promote the regular supply of the markets with high quality, guaranteed olive oil. However, only few quality categories receive consumption subsidy: (a) extra virgin (0-1 per cent acidity), (b) virgin (1-2 per cent), (c) coupe olive oils and (d) olive-residue pomace olive oil. A basic condition is for the packaging not to exceed 5lt-content. All processing enterprises are subject to recognition by the Ministry of Agriculture relevant services. The recognition process includes conformity of the processor to regulations concerning the machinery equipment standards, a minimum yearly processing capacity, and acceptance of the controls undertaken by the previously mentioned inspection service.

² Specifically in Greece, the production subsidy is subject to the following deductions (Zabounis, 1996):

- For the olive oil quality improvement program 1.4%
- For the producers' co-operatives 0.8%
- For the organization of the National Olive Oil Land Estate Registry 2.4%

Each producer has the right to receive the subsidy either as an agricultural co-operative member or as an independent producer. The vast majority of producers belong to co-operatives or co-operative unions, which constitute the Co-operatives' Superior Union (a kind of olive oil board), called "Elaiourgiki".

The subsidy is paid through the professional organisations the processing firms belong to. These organisations undertake some complementary controls, apart from the ones imposed by the IOOSC³.

1.1.2. EU mechanisms to control the olive oil surplus

1.1.2.1. Intervention price

It is the minimum guaranteed producer price. The EU buys at this price through the member states' Intervention Agencies the quantity supplied by the producers during the 4-month period July-October, which has not been sold in the market (surplus). In years of shortage these stored surpluses are being supplied to the market or processing firms through public auctions, usually in higher prices and in FEOGA's profit. The auctions take place according to some qualifications concerning the country of origin, quantity, quality and minimum prices decided by the Ministry of Agriculture representatives of all member states.

The intervention price is initially determined for an average quality, the common "virgin olive oil" of 2.01-3.3 percent acidity. Successive price increases are taking place for the superior quality categories and reductions for the inferior ones. The minimum inferior quality category subject to the intervention mechanism is that of 6 percent acidity (olive-residue pomace oils are not accepted since 1987).

³ In Greece (*Zabounis, 1996*) the consumption subsidy is subject to the following deductions: for the support of the processors' professional organisations 5.5%; for the olive oil consumption promotional campaign.

The intervention price is also determined by the co-responsibility scheme: when the predicted quantity exceeds the MQG, then, during the following marketing year, the intervention price would be decreased by the percentage MQG surplus. In any case, however, these reductions should not exceed 3 percent per marketing year.

The producer receives the payment 31-40 days after the delivery of his production to pre-determined points. The delivery right is being given to either independent farmers or co-operatives. Intervention Agencies are responsible for the intervention scheme's management in each member state. These agencies then assign it under contract to the Co-operatives' Superior Union (in Greece: Elaiourgiki). The level of the intervention price of the 1996/97 period has been ECU 1.805/kg and decreases steadily since then.

1.1.2.2. Storage Contracts

The intervention mechanism initially took place all year round, with monthly intervention price increases, but was later changed, limiting the period in 4 months to avoid market distortions due to olive oil surpluses. Thus, the Storage Contracts Mechanism has been adopted. It is activated after a decision taken by the Ministry of Agriculture representatives of all the country-members, when there is a possibility for producer prices to decrease at a level lower than the intervention price. The basic difference from the intervention scheme is that the olive oil quantity under storage contract belongs to co-operatives, which store their members' quantities for a specific time period, until they are released in the market.

All the co-operatives and their superior unions recognised by the Council Regulation 1360/78 have the right to sign Storage Contracts. When its activation has been decided, determined are also the maximum quantities stored per member state. The Storage Contracts are valid for 60 days and can be renewed until the 31st of October each year. For each 60-day period the co-operative receives payment of ECU 4.5/ 100Kg (Zabounis, 1996). If the co-operative fails to release the quantity under contract to the market, then the intervention scheme is being activated and the payment received by the co-operative decreases to ECU 1/ 100Kg.

1.1.3. EU olive oil trade with third countries

Since the EU olive oil prices are held at a level much higher than the rest non-EU olive oil producing countries, different mechanisms have been adopted to protect the EU production from the competition with third, cheaper countries. This protection has been expressed with the imposition of an import levy and an export subsidy. This regime was seriously modified after the 1/7/95 under the GATT agreement.

It has to be mentioned that, due to the special agreements that the EU has signed with third countries (Tunisia, Morocco, Algeria, Lebanon, and Turkey), import levies decrease according to the country of origin. Especially Tunisia has the right to export to the EU 46,000ts annually with the very low levy of ECU 9.419/100Kg, instead of the ECU 75 or the ECU 153.2, which are the average and maximum import levies respectively, under the GATT agreement.

The export subsidy is also increased with olive oil quality. It is higher for the unbottled olive oil, to compensate the lack of the production subsidy given to the bottled one. The Ministry of Agriculture representatives of all member states have determined the level of the export returns (subsidies). The mechanism includes a “fair for all” return on a monthly basis and, simultaneously, an auction every 15 days where the participating exporters can achieve returns higher than these of the “fair for all” scheme⁴.

1.2. GATT Agreement and Olive Oil

After 7 years of negotiations, the Uruguay Round agreement was signed by 124 participant countries, which cover more than the 90 percent of the world trade. The agricultural sector was included from the start. The aim has been to create a regime of world trade liberalisation, through a general abolition of all kind of interventions imposed to support domestic agricultural sectors, and all kind of barriers that do not allow free importation of similar products from third countries. Zabounis (1996) argues that olive oil should not have been included in the agreement, since its importance is minimal compared to the total quantity of vegetable oils traded worldwide.

1.2.1. The GATT and the Olive Oil CMO

All kinds of import barriers imposed since 1986-88 were transformed into import levies, which had to be reduced by 20 percent during a transitional period of 6 years. In the case of virgin olive oil, for example, the average import levy for the period 1986-88 was ECU

⁴ Around 30% of the EU exports are non-levy olive oil imports for processing and re-exportation with no export subsidy right (Horizontal Energetic Perfection Scheme), which is not applied by Greece.

747/t and the average consumption subsidy ECU 809/t. According to the GATT agreement, the sum of these two numbers was the base price which had to be reduced by 20 percent until the year 2000, to the level of ECU 1245 /t.

However, in order to protect EU domestic production from massive imports, which would distort the market, a special levy should be imposed if the CIF import price is lower than a pre-fixed level called "activation price". In addition, olive oil and olive-residue oils are subject to a minimum import quantity equal to at least 3 percent of the Community's consumption for 1995 and 5 percent for the year 2000.

Each country was forced to reduce its domestic support. All the relevant measures were subject to this reduction, apart from those that were considered crucial for the domestic agricultural economy and have zero or minimum effect on the world olive oil trade. The EU succeeded in excluding a number of the agreements under the CAP, the olive oil CMO among others, from the GATT. Thus, apart from the above-mentioned "access to the market", no complementary special measures have been necessary for the EU olive oil industry to conform to the GATT agreement scheme. Any other subsidy reduction (the production subsidy included) is the result of the EU internal policy.

The obligation of the export subsidy reduction included reduction by 36 percent of the export subsidy level and by 21 percent of the subsidised export volume, taking as a base the 1986-90 period. These reductions concern the group of virgin and coupe/refined olive oils and the olive-residue oil products.

Generally speaking, the EU commitments under the GATT agreement did not provoke serious problems not solved within an efficient CMO to the olive oil industry. The most important problem concerned the subsidised volume reduction. Although the exports for the base-period 1986-90 have been 148,000 ts, in 1993-94 they had already reached the level of 217,000ts (Zabounis, 1996). The GATT agreement imposed the subsidised volume to decrease to 117,000ts.

Concerning the export subsidy budget, which had to be reduced at the level of ECU 55million until the year 2000, there has been some flexibility, considering that in 1992, for example, the money spent were ECU 48.4million and that price decreases are expected after the transitional period. From the 1996-97 period, the first implications of the new policy have emerged, due to the practical abolition of the export subsidy for the unbottled and the serious decrease by ECU 3-4.5/100Kg for the bottled olive oil.

1.2.2. Recent Changes and Prospects of the Olive Oil CMO

The EU since 1992/93 follows a policy of successive consumption subsidy reduction, embodying it in the production subsidy. For example, the production subsidy was increased from GRD185/kg in 1992/93 to GRD441/kg in 1996/97 (at the 2001 exchange rate, 1GBP = 550 GRD). In contrast, the consumption subsidy was decreased in the same period from GRD142/kg to GRD38/kg (Zabounis, 1996).

The direct result of this reduction has been a 50-percent decrease of the bottled olive oil quantities produced only in 1994. The most profitable way for producers to trade is to deliver their quantities through the co-operatives to few private or co-operative big processing firms to be exported bulk in Italy or bottled in usually 1 liter plastic bottles or 17 liter-big tin cans and distributed to the domestic market. Thus, a great number of small and medium processing firms were forced to exit the market, since their competitiveness was low and their profitability was based on the level of the subsidy. The result was that the Greek olive oil processing industry became highly concentrated and less export-oriented. On the other hand, a small number of promising and competitive new firms based on high quality end product emerged since 1995.

The importance of the production subsidy to the agricultural family and the Community's budget was maximised. Thus, from 1995, a great debate started concerning the future of olive oil's CMO. The main trends were: a) according to the co-responsibility scheme, a reduction of the production subsidy by GRD 50-55/kg to be imposed for the period 1997-98, due to exceed of the fixed Maximum Quantity Guaranteed (MQG) of 1.35 million ts. Thus, it was proposed to re-distribute this quantity among the five EU producing countries according to the average production of each country for the three of the last five producing years (1992/93 to 1996/97), the best and the worst years excluded. b) The adoption of a fixed production subsidy per olive tree, after registering the tree number for each producing member state (Spain: ECU 4.5 for 166.6 million trees, Italy: ECU 4.5 for 129.6 million trees, Greece: ECU 3.5 for 132.7 million trees, Portugal: ECU 2 for 27.4 million trees, and France: ECU 2 for 3.2 million trees) was also under agreement.

Each member state it was discussed to have the right to diversify the level of the per tree subsidy in different national producing areas by + or – 50%. c) The abolition of the consumption subsidy was proposed, together with the abolition of the special measures for small producers, abolition of the intervention scheme and improvement of the Storage Contracts. Finally, d) the intensification of olive oil's promotional campaign and the improvement of the quality control mechanisms was decided. Quality was recognised as a key factor in order to increase olive oil consumption in the EU and third countries. Its role was dimmed essential for the agricultural income and markets' performance.

The formal presentation of the above proposals was scheduled to take place on the 18th March 1998, at the same time as the Agenda 2000 proposals for the reform of the CAP. However, the olive oil regime was not included in the Agenda, primarily due to the Commission's desire to reach an agreement on olive oil reforms so as to ensure they would have been in place by the start of the next marketing year, when thousands of newly-planted trees would begin to produce (Eurofood, 1998).

The Commission argued that, under the terms of the new proposal, changes to the current aid system would be introduced gradually, over a two-year transitional period. In the 1998-99 and 1999-2000 seasons, aids to both production and consumption would be abolished and the new maximum guaranteed limit would be imposed. From the 1st October 2000, a new system of granting aid either on per tree or per acreage basis would be introduced, as would the requirement of a minimum of 50 trees per acre. At the same time, the current system of market intervention would be scrapped (Eurofood, 1998).

Initially the changes were promoted by Italy, which tried to impose production subsidies to imported from third countries and processed in Italy (and sold as Italian) olive oil quantities. Thus, thousands of “Italian” subsidised tonnes of olive oil would enter the new quota system:

“...The Spanish farmers’ association alleges that the production figures for the period between 1992-97, used by the EU Agriculture Commissioner Fishler as the basis for drawing up the new olive oil quota system, were fabricated by the Italians and therefore put other olive oil producing countries at a disadvantage...Italian olive oil producers received higher subsidies than Spanish producers on the basis of the incorrect figures...” (Eurofood, 1998).

These changes would be extremely damaging for the Spanish olive oil industry, which was fast growing:

“...Spanish producers and politicians have been at the forefront of the opposition to the proposed new system, leaked at the end of January (1998), which would keep the maximum production quota for the EU at 1.35m ts., leaving Spain with a quota of 538,000ts., just over half last year’s output...while that of Italy, 445,000, is far more than the Italian olive oil sector can actually produce” (Eurofood, 1998).

The consequences of the full abolition of the consumption subsidy would be detrimental, since it is considered as a motive for bottling and promotion of olive oil, especially by smaller specialised firms. It is also considered as a means of intervention and control from the bigger processing units:

“...All five olive oil producing nations in the EU are now opposed to reforming the current aid payments regime, according the Spanish agriculture minister Loyola de Palacio. Spain has always been opposed to the radical changes planned to the annual aid scheme, but Greece, France, Italy and Portugal have now rallied to the cause, and could form a blocking minority if the Commission refuses to negotiate... The proposed new system would, according to the European Commission, be simpler and more fraud proof, but Spain in particular was opposed to it as it disagreed with the Commission’s figures for the number of trees in Spain and believed that it would remove the incentive to improve productivity and quality, and could lead to the abandonment of up to a third of the country’s olive groves...” (Eurofood, 1997).

Moreover:

“...The five Member States are all agreed that some changes need to be made –in particular the abolition of the aid system to the small farmers, which is seen as the main source of fraud – but all want to maintain the current production-based system. Spain also wants the aid to bottlers to be maintained, although the other countries do not agree that this is necessary, and there are also disagreements over the setting of ceilings for production qualifying for aid...” (Eurofood, 1998).

On the other hand, Brussels had initially rejected criticisms of the proposed new system of granting aid to EU olive oil producers as “premature”. The proposal would help avoid the serious risk of surpluses in the future and also clamp down on fraud with which the current aid system was riddled. Brussels attitude appeared to be softening in the face of the Spanish protests: Franz Fishler, whose proposals are the cause of the protests, said that it would be necessary to “*wait at least two years*” before taking a final decision on the reform (from 1 October 2000), but added that it had to be proved that the current production-based system could work efficiently (Eurofood, 1998).

Olive oil producing member states’ refusal to give in without a fight to plans by the EU Commission to maintain stable their quota for olive oil subsidies had finally paid off, with four days of negotiations leading to a new EU quota of 1,777,261 ts, of which Spain still had the largest share, 0.760m ts, followed by Italy, 0.543m ts, Greece with 0.419m ts, Portugal with 0.051m ts and France with 0.003m ts. (Eurofood, 1998). Although a small but fragile victory of the 5 olive oil producing member states apparently had been won, it is certain that, with the new millennium and under the pressure of the GATT and CAP reforms, the matter will return in the table of negotiations.

List of References

A.

- Abbot, R. (1997) *Food and Nutrition Information: a Study of Sources, Uses, and Understanding* in: British Food Journal, 99(2): 43-49.
- Acebron, L.B. and Dopico, D.C. (2000) *The Importance of Intrinsic and Extrinsic Cues to Expected and Experienced Quality: an Empirical Application for Beef* in: Food Quality and Preference, 11: 229-238.
- Alexandratos, N. (2000) *Mediterranean Countries and World Markets: Basic Foods and Mediterranean Products* 1st Mediterranean Conference for Agricultural Research Co-operation, December, Athens
- Alpha Bank (2000) *The Prefectures of Greece: Economic and Social Character of the 52 Prefectures* All Media Publications, Athens
- Altmann, M. (1997) *Product Policy in Agro-food Marketing*, Padberg, D. I. Ritson, C. and Albisu, L. M. (eds), CAB International, Oxon, UK.
- Andersen, E. S. (1994) *The Evolution of Credence Goods: A Transaction Approach to Product Specification and Quality Control* MAPP Working Paper 21, The Aarhus School of Business.
- ___ Milburn, K. and Lean, M. (1995) *Food and Nutrition: Helping the Consumer Understand* in: *Food Choice and the Consumer*, Marshall, D.W. (ed.) Chapman and Hall, London.
- Angulo, A.A. Gil, J.M. and Gracia, A. (1997a) *Convergence in Calorie Intake Elasticities Across European Union Countries: a Co-integration Approach* in: *Globalisation of the Food Industry: Policy Implications*, Seminar Proceedings, Reading University, Reading, 18-19 September.
- ___ and ___ (1997b) *A Test of Differences in Food Demand Among European Consumers: a Dynamic Approach* in: Wierenga, B. Tilburg, van A. Grunert, K Steenkamp, J.E.M. and Webel, M. (eds.) *Agricultural Marketing and Consumer Behaviour in a Changing World*, Kluwer Academic Publishers, Boston, MA.
- Antle, J.M. (1999) *Benefits and Costs of Food Safety Regulation* in: Food Policy, 24: 605-623.
- ___ (1996) *Efficient Food Safety Regulation in the Food Manufacturing Sector* in: American Journal of Agricultural Economics, 78(Dec.): 1242-1247.
- Archibald, S.O. (1988) *Next Steps: Looking for Compromise* in: *Regulating Chemicals: A Public Policy Quandary*, Agricultural Issues Center, University of California, Davis, CA.
- ___ and Marsh, R. (1988) *Focusing the Policy Debate* in: *Regulating Chemicals: A Public Policy Quandary*, Agricultural Issues Center, University of California, Davis, CA.
- Askegaard, S. and Madsen, T.K. (1995) *European Food Cultures: an Explanatory Analysis of Food Related Preferences and Behaviour in European Regions*, Working Paper 26, MAPP, The Aarhus School of Business.
- Asp, E.H. (1999) *Factors Affecting Food Decision Made by Individual Consumers* in: Food Policy, 24: 287-294.

- Audenaert, A. and Steenkamp, J.E.M. (1997)** *Means-end Chain Theory in Agricultural Marketing Research* in *Agricultural Marketing and Consumer Behaviour in a Changing World*, Wierenga, B. VanTilburg, A. Grunert, K. Steenkamp, J. and Webel, M. (eds.) Kluwer Academic Publishers, London.
- Aurifeille, J. and Valette-Florence, P. (1992)** *A "Chain-constrained" Clustering Approach in Means-end Analysis: An Empirical Illustration* in: Grunert, K. (ed.) *Marketing for Europe, Marketing for the Future*, Actes du Congres International de l' EMAC: 49-64.
- ____ and ____ (1995) *Determination of the Dominant Means-end Chains: A Constrained Clustering Approach* in: International Journal of Research in Marketing, 12: 267-278.

B.

- Baines, R.N. and Davis, W.P. (1997)** *Food Quality Assurance, Public Perceptions and International Benchmarks* in: *Globalisation of the Food Industry: Policy Implications*, The University of Reading, U.K
- Baker, S. and Knox, S. (1994)** *Getting the Measure of Brand-Derived Values Cross Pan-European Segments: A Cross-Cultural Application of Means-end Analysis* in: *Proceedings of the 1994 Annual Conference, Marketing: Unity in Diversity*, Vol. I, Marketing Education Group, University of Ulster.
- Batt, C. E. and Katz, J.E. (1997)** *A Conjoint Model of Enhanced Voice Mail Services: Implications for New Service Development and Forecasting* in: Telecommunications Policy, 21(8):743-760.
- Bech, A. C. Engelund, E. Juhl, H. J. Kristensen, K. and Poulsen, C. S. (1994)** *Food Optimal Design of Food Products*, MAPP Working Paper 19, The Aarhus School of Business.
- Bech-Larsen, T. Nielsen, N.A. Grunert, K.G. and Sorensen, E. (1996)** *Means-end Chains for Low Involvement Products – A Study of Danish Consumers' Cognitions Regarding Different Applications of Vegetable Oil* Working Paper 41, The Aarhus School of Business, August 1996.
- ____ and ____ (1997) *Attributes of Low Involvement Products – A Comparison of Five Elicitation Techniques and a Test of their Nomological Validity* Working Paper 43, The Aarhus School of Business, February 1997.
- ____ and Grunert, K. G. (1998) *Integrating the Theory of Planned Behaviour with Means-end Chain Theory: a Study of Possible Improvements in Predictive Ability* Anderson, P. (ed.) *Marketing Research and Practice*, Proceedings of the 27th EMA Conference, Stockholm:
- Beecroft, G.D. (1999)** *The Role of Quality in Strategic Management* in: *Management Decision*, 37(6): 499-502.
- Beilock, R. Garrod, P. and Miklius, W. (1986)** *Freight Charge Variations in Truck Transport Markets: Price Discrimination or Competitive Pricing?* in: American Journal of Agricultural Economics (May): 226-236.
- Beharrell, B. and Denison, T.J. (1995)** *Involvement in a Routine Food Shopping Context* in: British Food Journal, 97(4): 24-29.
- Belk, R.W. Sherry, J.F. and Wallendorf, M. (1988)** *A Naturalistic Inquiry into Buyer and Seller Behavior at a Swap Meet* in: Journal of Consumer Research, 14 (March): 449-470.

- ____ Wallendorf, M. and Sherry, J.F. (1989) *The Sacred and the Profane in Consumer Behavior: Theodicy on the Odyssey* in: Journal of Consumer Research, 16, June: 1-38.
- Bertozi, L. (1995) *Designation of Origin: Quality and Specification* in: Food Quality and Preference, 6: 143-147.
- Bladford, D. (1986) *The Food People Eat* in: Ritson, C. Gofton, L. and McKenzie, J. (eds.) *The Food Consumer*, John Wiley and Sons, N.Y.
- Blaylock, J. Smallwood, D. Kassel, K. Variyam, J. and Aldrich, L. (1999) *Economics, Food Choices and Nutrition* in: Food Policy, 24: 269-286.
- Booth, D. A. (1995) *The Cognitive Basis of Quality* in: Food Quality and Preference, 6: 201-207.
- Botschen, G. Thelen, E.M. and Pieters, R. (1999) *Using Means-end Structures for Benefit Segmentation: an Application to Services* in: European Journal of Marketing, 33(1/2): 38-58.
- Boyd, W.H. Westfall, R. and Stasch, S. (1989) *Marketing Research, Text and Cases* Irwin Inc. 7th Edition.
- Bredahl, L. Grunert, K. G. and Fertin, C. (1998) *Relating Consumer Perceptions of Pork Quality to Physical Product Characteristics* MAPP Working Paper 53, The Aarhus School of Business.
- Burbee, C.R. and Kramer, C.S. (1986) *Food Safety Issues for the 80's* in: USDA/Economic Research Service, *National Food Review*, 33(Spring): 17-20.
- Bureau, J-C. Murette, S. and Schiavina, A. (1997) *Trade, Labels and Information: the Case of Hormone Treated Beef* in: *Globalisation of the Food Industry: Policy Implications*, The University of Reading.
- Bush, L.M. and Williams, R.A. (1999) *Diet and Health: New Problems/New Solutions* in: Food Policy, 24: 135-144.
- Buzby, J.C. and Frenzen, P.D. (1999) *Food Safety and Product Liability* in: Food Policy, 24: 637-651.
- Buzzell, R. D. and Gale, B. T. (1987) *The Profit Impact of Marketing Strategy Principles: Linking Strategy to Performance*, The Free Press, NY.

C.

- Cahill, D.J. (1996) *When to Use Qualitative Methods: a New Approach* in: Market Intelligence and Planning, 14(6): 16-20.
- Cardello, A. V. (1995) *Food Quality, Relativity, Context and Consumer Expectations* in: Food Quality and Preference, 6: 135-138.
- Carlson, A. Kinsey, J. and Nadav, C. (1998) *Who Eats What, When, and from Where?* Working Paper 05, The Retail Food Industry Center, University of Minnesota, MN.
- Carsky, M.L. Smith, M.F. and Dickinson, R.A. (1994) *Measuring the Involvement Construct: A Cross – Cultural Examination of Food Shopping Behaviour* in: Journal of International Food and Agribusiness Marketing, 6(4): 71-102.
- Carson, D. and Coviello, N. (1996) *Qualitative Research Issues at the Marketing/Entrepreneurship Interface* in: Marketing Intelligence and Planning, 14(6): 51-58.
- Caswell, J.A. and Henson, S.J. (1997) *Interaction of Private and Public Food Quality Control Systems in Global Markets* in: *Globalisation of the Food Industry: Policy Implications*, The University of Reading.

- ___ and Modjuszka, E.M. (1996) *Using Information Labelling to Influence the Market for Quality in Food Products* Food Marketing Policy Center, Working Paper 43, University of Connecticut.
- ___ and Padberg (1992) *Toward a More Comprehensive Theory of Food Labelling* in: American Journal of Agricultural Economics, 74: 460-468.
- Catterall, M. and Maclaran, P. (1996) *Using Computer Programs to Code Qualitative data* in: Marketing Intelligence and Planning, 14(4): 29-33.
- Celsi, R.L. and Olson, J.C. (1988) *The Role of Involvement in Attention and Comprehension Processes* in: Journal of Consumer Research, 15(September): 210-224.
- ___ Rose, R.L. and Leigh, T.W. (1993) *An Exploration of High-risk Leisure Consumption through Skydiving* in: Journal of Consumer Research, 20 (June): 1-23.
- Childs, N.M. (1998) *Public Policy Approaches to Establishing Health Claims for Food Labels: an International Comparison* in: British Food Journal, 100(4): 191-200
- Choi, C. J. and Kim, J-B. (1996) *Reputation, Learning and Quality Uncertainty* in: Journal of Consumer Marketing, 13(5): 47-55.
- Civille, G. V. (1991) *Food Quality: Consumer Acceptance and Sensory Attributes* in: Journal of Food Quality, 14: 1-8.
- Claeys, C. Swinnen, A. and Abeele, P.V. (1995) *Consumers' Means-end Chains For "Think" and "Feel" Products* in: International Journal of Research in Marketing, 12: 193-208.
- Clancy, K.L. (1988) *Overview of Current Food Safety and Quality Issues and Policies* in: *Consumer Demands in the Marketplace: Public Policies Related To Food Safety, Quality and Human Health*, Clancy, K. (ed.), Washington, D.C.
- Cohen, J.B. (1983) *Involvement and You: 1000 Great Ideas* in: Advances in Consumer Research, 10: 325-328.
- Commission for the European Communities (1991) *Produit Agricole et Alimentaire De Qualite*. The Commission, Brussels.
- Connor, J.M. (1994) *Northern America as a Precursor of Changes in Western European Food Purchasing Patterns* in: European Journal of Agricultural Economics, 21 (2):155-174.
- Cook, I. Crang, P. and Thorpe, M. (1998) *Biographies and Geographies: Consumer Understandings of the Origins of Foods* in: British Food Journal, 100(3): 162-167
- Covino, D. and Mariani, A.C. (1999) *EU Agri-food Systems: an Overview of Structure and Competitiveness* The European Agri-food System and the Challenges of Global Competition, June, ISMEA, Rome.

D.

- Darden, W. R. and Schwinghammer, J. K. L. (1985) *The Influence of Social Characteristics on Perceived Quality in Patronage Choice Behaviour* in: *Perceived Quality*, Jacoby, J. and Olson, J. (eds), Lexington Books, MA.
- Dardis, R. (1988) *Risk Regulation and Consumer Welfare* in: Journal of Consumer Affairs, 22(2): 303-318.

- de Almeida, M.D.V. Graca, P. Lappalainen, R. Giachetti, I. Kafatos, A. Remaut de Winter, A.M. and Kearney, J.M. (1997)** *Sources Used and Trusted by Nationally-representative Adults in the EU for Information on Healthy Eating* in: European Journal of Clinical Nutrition, 51, Suppl. 2: S16-S22.
- de Graaf, C. Van der Gaag, M. Kafatos, A. Lennernas, M. and Kearney, J.M. (1997)** *Stages of Dietary Change Among Nationally-representative Samples of Adults in the EU* in: European Journal of Clinical Nutrition, 51, Suppl. 2: S47.
- de Mooij, M. (2000)** *The Future is Predictable for International Marketers: Converging Incomes Lead to Diverging Consumer Behaviour* in: International Marketing Review, 17(2): 103-113.
- de Rada, V.D. (1998)** *A Single Consumer or Different Types of Consumer: an Analysis of Social Types According to their Consumer Habits* in: British Food Journal, 100(7): 326-336.
- Dickson, P.R. (1982)** *Person-situation: Segmentation's Missing Link* in Journal of Marketing, 46 (Fall): 56-64.
- Durgee, J.F. (1985)** *Depth-interview Techniques for Creative Advertising* in: Journal of Advertising Research, 25(6): 29-37.
- ___ **O'Connor, G.C. and Veryzer, R.W. (1996)** *Observations: Translating Values Into Product Wants* in: Journal of Advertising Research, 36(Nov./Dec.): 90-99.
- Duxbury, J.M. and Welch, R.M. (1999)** *Agriculture and Dietary Guidelines* in: Food Policy, 24: 197-209.

E.

- EC Commission (1995, 1996, 1997)** *Olive oil CAP working notes* Brussels.
- Engel, J. Blackwell, R.D. and Miniard, P.W. (1995)** *Consumer Behaviour* The Dryden Press, N.Y.
- ELAIS S.A. (1998)** *Unpublished data* (in Greek).
- Eom, Y.S. (1994)** *Pesticide Residues and Consumer Valuation of Food Safety* in: American Journal of Agricultural Economics, 76(4): 760-771.
- Erdem, O. Ben Oumlil, A. Tuncalp, S. (1999)** *Consumer Values and the Importance of Store Attributes* in: International Journal of Retail and Distribution Management, 27(4): 137-144.
- Eurostat (1998)** *Social Portrait of Europe* European Statistical Service.
- Eurofood, (1996)** Series of articles on olive oil trade, May, AgraEurope Ltd, London.
- ___ (1997) Series of articles on olive oil trade, April, May, December, AgraEurope Ltd, London.
- ___ (1998) Series of articles on olive oil trade, February, March, April, May, June, July, AgraEurope Ltd, London.

F.

- Fearne, A. and Lavelle, D. (1996)** *Perceptions of Food "Quality" and the Power of Marketing Communications: Results of Consumer Research on a Branded-egg Concept* in: Journal of Product and Brand Management, 5(2): 29-42.
- Fishbein, M. and Ajzen, I. (1975)** *Belief, Attitude, Intention and Behaviour: an Introduction to Theory and Research* Addison-Wesley Publishing Co., MA.
- Food and Agriculture Organisation (1997)** *FAO Statistics (Quarterly Bulletin of)*: March-April.

- Fotopoulos, C. (1999)** *The Production System of the Organic Agriculture as an Alternative for the Development of Greek Rural Areas* National Agricultural Research Foundation (NagReF) Publications, Athens (in Greek).
- ___ and **Krystallis, A. (2001a)** *Purchasing Motives and Profile of the Greek Organic Consumer: A Countrywide Survey* Paper Submitted to the British Food Journal, (forthcoming).
- ___ and ___ (2001b) *Are Quality Labels a Real Marketing Advantage? A Conjoint Application on Greek PDO Protected Olive Oil* in: Journal of International Food and Agribusiness Marketing (in press).
- ___ and ___ (2001c) *Investigating the PDO label as a marketing advantage: a Use of Conjoint Analysis to Segment the PDO Zagora Apple Market in Greece* Paper Submitted to the European Journal of Marketing (forthcoming).
- ___ and ___ (2001d) *Investigating the Profile of the Greek Organic Consumer* in: 72^d EAAE Seminar Proceedings, 9-10 June, Chania, Crete (forthcoming).

G.

- Garvin, D. A. (1983)** *Quality on the Line* in: Harvard Business Review, 61(Sept-Oct): 65-73.
- Gengler, Ch.E. and Reynolds, T.J. (1995)** *Consumer Understanding and Advertising Strategy: Analysis and Strategic Translation of Laddering Data* in: Journal of Advertising Research, 35(July-August): 19-33.
- ___ **Klenosky, D.B. and Mulvey, M.S. (1995)** *Improving the Graphic Representation of Means-end Results* in: International Journal of Research in Marketing, 12: 245-256.
- Georgacopoulos, T.A. (1990)** *The Impact of Accession on Food Prices, Inflation and Food Consumption in Greece* in: European Review of Agricultural Economics, 17: 485-493.
- Gerhardy, H. and Ness, M.R. (1995)** *Consumer Preferences for Eggs Using Conjoint Analysis* in: World's Poultry Science Journal 51(July): 203-214.
- ___ **Hutchins, R.K. and Marshall, D.W. (1995)** *Socio-economic Criteria and Food Choice Across Meals* in: British Food Journal, 97(10): 24-28.
- Gibney, M.J. Kearney, M. and Kearney, J.M. (1997)** *IEFS pan-EU Survey of Consumer Attitudes to Food, Nutrition and Health* in: European Journal of Clinical Nutrition, 51, Suppl. 2, S2.
- Gilg, A.W. and Battershill, M. (1998)** *Quality Farm Food in Europe: A Possible Alternative to the Industrialised Food Market and to Current Agri-environmental Policies: Lessons from France* in: Food Policy, 23(1): 25-40.
- Gill, S.M. Gracia, A. and Perez Y Perez, L. (1995)** *Food Consumption and Economic Development in the European Union* in: European Review of Agricultural Economics, 22: 385-399.
- ___ and **Sanchez, M. (1997)** *Consumer Preferences for Wine Attributes: A Conjoint Approach* in: British Food Journal 99(1): 3-11.
- Gilmore, A. and Carson, D. (1996)** *"Integrative" Qualitative Methods in a Service Context* in: Marketing Intelligence and Planning, 14(6): 21-26.
- Gofton, L. (1995)** *Dollar Rich and Time Poor? Some Problems in Interpreting Changing Food Habits* in: British Food Journal, 97(10): 11-16.
- ___ (1997) *Marketing Research in Agro-food Marketing*, Padberg, D.I. Ritson, C. and Albisu, L.M. (eds.) CAB International, Oxon.

- ___ and Ness, M. (1991) *Twin Trends; Health and Convenience in Food Change* in: British Food Journal, 93 (7): 17-23.
- Goldberg, S.M. Green, P.E. and Wind, Y. (1984) *Conjoint Analysis to Price Premiums for Hotel Amenities* in: Journal of Business 57(1): S111-132.
- Goldsmith, R.E. Freiden, J. and Henderson, K.V. (1997) *The Impact of Social Values on Food-related Attitudes* in: British Food Journal, 99(9): 352-357.
- Goody, J. Beardsworth, A. Haslam, C. Keil, T. and Sherratt, E. (1995) *Dietary Dilemmas: Nutritional Concerns of the 90s* in: British Food Journal, 97(11): 3-11
- Gracia, A. and Albisu, L.M. (1997) *Consumption Patterns in Western Europe* in: *Globalisation of the Food Industry: Policy Implications, Seminar Proceedings, Reading University, Reading, 18-19 September 1997.*
- Gregory, S. (1995) *Using Qualitative Research for the Sociology of Food* in: British Food Journal, 97(7): 32-35.
- Green, P.E. and Srinivasan, V. (1990) *Conjoint Analysis in Marketing: New Developments With Implications for Research and Practice* in: Journal of Marketing 54(October): 3-19.
- ___ and Krieger, A.M. (1989) *Choice Rules and Sensitivity Analysis in Conjoint Simulators* in: Journal of the Academy of Marketing Science, 16 (Spring): 114-127.
- ___ and ___ (1991) *Segmenting Markets with Conjoint Analysis* in: Journal of Marketing 55(October): 20-31.
- Griffith, C.J. Mathias, K. A. and Price P. E. (1994) *The Mass-media and Food Hygiene Education* in: British Food Journal, 96(9): 16-21.
- ___ Mullan, B. and ___ (1995) *Food Safety: Implications for Food, Medical and Behavioural Scientists* in: British Food Journal, 97: 23-28.
- Grunert, K. G. (1995) *Food Quality: A Means-end Perspective* in: Food Quality and Preference, 6: 171-176.
- ___ (1997) *What's in a Steak? A Cross-cultural Study on the Quality Perceptions of Beef* in: Food Quality and Preference, 8(3): 157-174.
- ___ Baadsgaard, A. Larsen, H. H. and Madsen, T. K. (1996) *Market Orientation in Food and Agriculture* Kluwer Academic Publishers, MA.
- ___ and Grunert, S.C. (1995) *Measuring Subjective Meaning Structures By the Laddering Method: Theoretical Considerations and Methodological Problems* in: International Journal of Research in Marketing, 12: 209-225.
- ___ Grunert, S.C. and Sorensen, E. (1995) *Means-end Chains and Laddering: An Inventory of Problems and an Agenda for Research*, Working Paper 34, Centre for Market Surveillance, Research and Strategy for the Food Sector, Aarhus School of Business, November, Denmark.
- ___ Sorensen, E. Johansen, L.B. and Nielsen, N.A. (1995) *Analysing Food Choice from a Means-end Perspective* in: European Advances in Consumer Research, 2: 366-371.
- ___ and Sorensen, E. (1996) *Perceived and Actual Key Success Factors: A Study of the Yogurt Market in Denmark, Germany and the United Kingdom* Working Paper 40, Centre for Market Surveillance, Research and Strategy for the Food Sector, Aarhus School of Business, Denmark.
- Guardia, E. J. and Hopper, P. A. (1990) *Food Safety, an International Concern: Industry Leadership in Producing Safe Food* in: Food Microbiology, 7: 69-72

- Gundogan, M. Groves, G. and Key, J. M. (1996) *Total Quality Management: A Way Towards Total Integration* in: Total Quality Management, 7(4): 127-144.
- Gutman, J. (1982) *A Means-end Model Based on Consumer Categorisation Processes* in: Journal of Marketing, 46 (Spring): 60-72.
- ___ (1984) *Analysing Consumer Orientations Towards Beverages Through Means-end Chain Analysis* in: Psychology and Marketing, 1(3): 23-43.
- ___ (1991) *Exploring the Nature of Linkages Between Consequences and Values* in: Journal of Business Research, 22:143-148.
- ___ and Alden, D. (1985) *Adolescents' Cognitive Structure of Retail Stores and Fashion Consumption: A Means-end Chain Analysis of Quality* in: *Perceived Quality*, Jacoby, J. (ed.) Lexington Books, Lexington, MA.
- ___ Sorensen, E. Johansen, L.B. and Nielsen, N.A. (1995) *Analysing Food Choice from a Means-end Perspective* in: European Advances in Consumer Research, 2: 366-371.

H.

- Hair, J. Anderson, R. Tatham, R. and Black, W. (1995) *Multivariate Data Analysis with Readings* 4th Edition, Prentice Hall International, NJ.
- Haley, R. (1968) *Benefit Segmentation: A Decision-oriented Research Tool* in: Journal of Marketing, 32 (July): 30-35.
- Halbrendt, C. Pesek, J. and Lindner, R. (1997) *Using Conjoint Analysis to Assess Consumers' Acceptance of pST-supplemented Pork* in: Caswell, J. (ed.) *Valuing Food Safety and Nutrition*, Westview Press, Colorado.
- Hammit, J.D. (1993) *Consumer Willingness to Pay to Avoid Pesticide Residues* in Statistica Sinica, 3(July): 351-366.
- Harrison, R.W. Ozayan, A. and Meyers, S.P. (1998) *A Conjoint Analysis of New Food Products Processed from Under-utilised Small Crawfish* in Journal of Agricultural and Applied Economics 30(2): 257-265.
- Hauser, J. R. and Clausing, D. (1988) *The House of Quality* in: Harvard Business Review, 66: 63-73.
- Hellofs, L. and Jacobson, R. (1999) *Market Share and Customers' Perceptions of Quality: When Can Firms Grow Their Way to Higher vs. Lower Quality?* in: Journal of Marketing, 63(Jan.): 16-25.
- Henson, S. (1995) *Consumer Willingness to Pay for Reductions in the Risk of Food Poisoning in the UK* in: Journal of Agricultural Economics, 47: 403-420.
- ___ (1996) *Consumer Willingness to Pay for Reductions in the Risk of Food Poisoning in the UK* in: Journal of Agricultural Economics, 47: 403-420.
- ___ and Heasman, M. (1998) *Food Safety Regulation and the Firm: Understanding the Compliance Process* in: Food Policy, 23(1): 9-23.
- ___ and Caswell, J. (1999) *Food Safety Regulation: an Overview of Contemporary Issues* in: Food Policy, 24: 589-603.
- ___ and Northen (2000) *Consumer Assessment of the Safety of Beef at the Point of Purchase: A Pan-European Study* in: Journal of Agricultural Economics, 51(1): 90-105.
- Herrmann, R. And Roder, C. (1995) *Does Food Consumption Converge Internationally? Measurement, Empirical Tests and Determinants* in: European Review of Agricultural Economics, 22:401-414.

- Hill, R.P. (1991) *Homeless Women, Special Possessions, and The Meaning of 'Home': An Ethnographic Case Study* in: Journal of Consumer Research, 18 (Dec.): 298-310.
- ___ and Stamey, M. (1990) *The Homeless in America: An Examination of Possessions and Consumption Behaviours* in: Journal of Consumer research, 17, December: 303-321.
- Hines, T. (2000) *An Evaluation of two Qualitative Methods (Focus Group Interviews and Cognitive Mapping) for Conducting Research Into Entrepreneurial Decision Making* in: Qualitative Market Research, 3(1): 7-16.
- Hirschman, E. (1992) *The Consciousness of Addiction: Toward a General Theory Of Compulsive Consumption* in: Journal of Consumer Research, 19(Sept.): 155-179.
- Holbrook, M. (1987) *What is Consumer Research?* in: Journal of Consumer Research, 14 (June): 128-132.
- ___ and Corfman, K. P. (1985) *Quality and Value in the Consumption Experience: Phaedrus Rides Again* in: *Perceived Quality*, Jacoby, J. and Olson, J. (eds), Lexington Books, MA.
- ___ and Grayson, M.W. (1986) *The Semiology of Cinematic Consumption: Symbolic Consumer Behaviour in 'Out of Africa'* in: Journal of Consumer Research, 13 (Dec.): 374-381.
- ___ and O'Shaughnessy (1988) *On the Scientific Status of Consumer Research and the Need for an Interpretive Approach to Studying Consumer Behaviour* in: Journal of Consumer Behavior, 15, December: 398-402.
- Holleran, E. Bredahl, M.E. and Zaibet, L. (1999) *Private Incentives for Adopting Food Safety and Quality Assurance* in: Food Policy, 24: 669-683.
- Holm, L. and Kildevang, H. (1996) *Consumers' Views of Food Quality. A Qualitative Interview Study* in: Appetite, 27: 1-14.
- Hooker, N.H. (1999) *Food Safety Regulation and Trade in Food Products* in: Food Policy, 24: 653-668.
- ___ and Caswell, J. A. (1996) *Trends in Food Quality Regulation: Implications for Processed Food Trade and Foreign Direct Investment* in: Agribusiness, 12(5): 411-419.
- Horowitz, J.K. (1996) *Regulating Safety and Quality Standards in Food Marketing, Processing, and Distribution: Discussion* in: American Journal of Agricultural Economics, 78(Dec.): 1261-1262.
- Horsky, D. (1984) *Comments on 'Conjoint Analysis of Price Premiums for Hotel Amenities'* in: Journal of Business 57(1): S139-147.
- Hoyer, W.D. and Brown, S.P. (1990) *Effects of Brand Awareness on Choice for a Common Repeat-purchase Product* in: Journal of Consumer Research, 17(Sept): 141-148.
- Hughes, D. (1994) *Breaking With Tradition. Building Partnerships and Alliances in The European Food Industry* Wye College Press, University of London, Kent.
- ___ Hutchins, R. and Karathanassi, V. (1998) *Purchase Involvement Methodology and Product Profiles: The Case of Cheese Products in Greece* in: British Food Journal, 100(7): 343-350.
- Humphries, C. (1998) *A Code of Practice for Food Labelling* in: Nutrition and Food Science, 4(July/August): 193-197.
- Hutchins, R. (1994) *Changing Patterns of Tastes and Preferences for Food in Great Britain*, unpublished Ph.D. Thesis, University of Newcastle Upon Tyne.

I.

- ICAP (1996) *Olive Oil Market Report* Athens (in Greek).
International Olive Oil Council IOOC (1992) *International Trade Standard to Olive Oil and Pomace Oils* IOOC/T.15/4(1), Madrid.
Ippolito, P.M. (1999) *How Government Policies Shape the Food and Nutrition Information Environment* in: Food Policy, 24: 295-306.

J.

- Janiszewski, C. (1988) *Preconscious Processing Effects: The Independence of Attitude Formation and Conscious Thought* in: Journal of Consumer Research, 15(Sept): 199-209.
Jarratt, D, G. (1996) *A Comparison of two Alternative Interviewing Techniques Used Within an Integrated Research Design: A Case Study in Out-shopping Using Semi-structured and Non-directed Interviewing Techniques* in: Marketing Intelligence and Planning, 14(6): 6-15.
Jick, T.D. (1983) *Mixing Qualitative and Quantitative Methods* in *Qualitative Methodology*, Van Maanen, J. (ed.) Sage, London.
Jolly, J.P. Reynolds, T.J. and Slocum, Jr. J.W. (1988) *Application of the Means-End Theoretic for Understanding the Cognitive Bases of Performance Appraisal* in: Organisational Behaviour and Human Decision Processes, 41: 153-179.

K.

- Kahle, L.R. Douglas, B. H. and Kosinski, M.J. (1997) *The Real-time Response Survey in New Product Research: It's About Time* in: Journal of Consumer Marketing, 14(3): 234-248.
Karagiannis, G. and Veletzas, K. (1997) *Explaining Food Consumption Patterns in Greece*, Journal of Agricultural Economics, 48 (1): 83-92.
Karidis, N. (1996) "Differentiation Strategies for the Greek Olive Oil" in: Crop Production and Animal Husbandry, 1996(5), in Greek.
Kearney, J.M. and Gibney, M. (1998) *A pan-EU Survey of Consumer Attitudes to Food, Nutrition and Health: an Overview* in: Food Quality and Preference, 9(6): 467-478.
Kearney, M. Kearney, J.M. and Gibney, M.J. (1997) *Methods Used to Conduct the Survey on Consumer Attitudes to Food, Nutrition and Health on Nationally Representative Samples of Adults from Each Member State of the European Union* in: European Journal of Clinical Nutrition, 51, Suppl. 2: S3-7.
____ Gibney, M.J. Martinez, J.A. de Almeida, M.D.V. Friebe, D. Zunft, H.J. Widhalm, K. and Kearney, J.M. (1997) *Perceived Need to Alter Eating Habits Among Representative Samples from all Member States of the EU* in: European Journal of Clinical Nutrition, 51, Suppl. 2: S30-35.
Kierstan, M. (1995) *Food Hygiene, Quality and Safety: Towards the Year 2000* in: British Food Journal, 97(10): 8-10.
Kinsey, J. (1990) *Food Quality and Prices* in: *Agricultural and Food Policies for the 90's*, Spitze, R.G.F. (ed.), University of Illinois, Urbana.

- Kiritsakis, A.K. (1996)** *Prospects for the Greek Olive Oil* in: Crop Production and Animal Husbandry 1996(5), Athens (in Greek).
- Kirmani, A. and Rao, A.R. (2000)** *No Pain, No Gain: a Critical Review of the Literature on Signaling Unobservable Product Quality* in: Journal of Marketing, 64, April: 66-79.
- Kohli, K.A. and Jaworski, J.B. (1990)** *Market Orientation: The Construct, Research Propositions and Managerial Implications* in Journal of Marketing, 54, April: 1-18.
- Kotler, P. (1986)** *Global Standardisation-Courting Danger* in: The Journal of Consumer Marketing, 3(2): 13-15.
- Krystallis, K. A. (2000)** *Entrepreneurial Characteristics and Firm Size as Determinants of Small Firms' Success: the Case of Small Olive Oil Trading Firms in Chania, Crete, Greece* 70th EAAE Seminar Proceedings, June 2000, Thessaloniki.
- Kumar, V. And Rust, R.T. (1989)** *Marketing Segmentation by Visual Inspection* in: Journal of Advertising Research, 29(4): 23-29.

L.

- Lange, C. Issanchou, S. and Combris, P. (2000)** *Expected vs. Experienced Quality: Trade-off with Price* in: Food Quality and Preference, 11: 289-297.
- Lappalainen, R. S, A. Holm, L. Mykkanen, H. and Gibney, M.J. (1997)** *Difficulties in Trying to Eat Healthier: Descriptive Analysis of Perceived Barriers for Healthy Eating* in: European Journal of Clinical Nutrition, 51, Suppl. 2: S36-40.
- ___ **Kearney, J. and Gibney, M. (1998)** *A Pan EU Survey of Consumer Attitudes to Food, Nutrition and Health: an Overview* in: Food Quality and Preference, 9(6):467-478.
- Lennernas, M. Fjellstrom, C. Becker, W. Giachetti, I. Schmitt, A. Remaut de Winter, A.M. and Kearney, M. (1997)** *Influences on Food Choice Perceived to be Important by Nationally-representative Samples of Adults in the EU* in: European Journal of Clinical Nutrition, 51, Suppl. 2: S8-15.
- Lesser, D. Hughes, D. and Marshall, D. (1986)** *Researching the Food Consumer: Techniques and Practice in the UK and North America* in: *The Food Consumer*, Ritson, C. Gofton, L. and McKenzie, J. (eds.) John Wiley and Sons Ltd., London.
- Lowless, H. (1995)** *Dimensions of Sensory Quality: A Critique* in: Food Quality and Preference, 6: 191-199.
- Lyonski, S. Durvasula, S. And Zotos, Y. (1996)** *Consumer Decision-making Styles: a Multi-country Investigation*, European Journal of Marketing, 30 (12): 10-21.

M.

- MacDonald and Crutchfield (1997)** *Modelling the Costs of Food Safety Regulation in Strategy and Policy in the Food Sector: Emerging Issues*, Caswell, J.A. and Cotterill, R.W. (eds) Proceedings of NE-165 Conference, June 20-21, Washington D.C.
- MacKenzie, D. (1990)** *The Green Consumer* in: Food Policy, 15: 461-466.
- McCracken, G. (1988)** *The Long Interview* Sage, Beverly Hills, CA.

- Madu, C. N. and Kuei, C. (1994)** *Strategic Total Quality Management – Transformation process Overview* in: Total Quality Management, 5(5): 255-266.
- Margetts, B.M. Martinez, J.A. Saba, A. Holm, L. and Kearney, M. (1997)** Definitions of Healthy Eating: a pan-EU of Consumer Attitudes to Food, Nutrition and Health in: European Journal of Clinical Nutrition, 51, Suppl. 2, S23-S29.
- Marshall, D. (1996)** *Food Choice, the Food Consumer and Food Provisioning* in: *Food Choice and the Consumer*, Chapman and Hall Ltd. London.
- Mazursky, D. and Jacoby, J. (1985)** *Forming Impressions of Merchandise and Service Quality* in: *Perceived Quality*, Jacoby J. and Olson, J. (eds), Lexington Books, MA.
- Mehrotra, S. and Palmer, J. (1985)** *Relating Product Features to Perceptions of Quality: Appliances* in *Perceived Quality*, Jacoby, J. and Olson, J. (eds), Lexington Books, MA.
- Meiselman, H. L. (1995)** *Quality: Introduction to the Special Issue* in: Food Quality and Preference, 6: 135-138.
- Mennel, S. Murcott, A. and Van Otterloo, A. H. (1992)** *The Sociology of Food: Eating, Diet and Culture*, Sage, London.
- Middlekauff, R.D. (1988)** *Issues of Food Safety and Quality Relating to Food Ingredients* in: *Consumer Demands in the Marketplace: Public Policies Related To Food Safety, Quality and Human Health*, Clancy, K. (ed.), Washington, D.C.
- Milburn, K. (1995)** *Never Mind the Quantity, Investigate the Depth!* in: British Food Journal, 97(7): 36-38
- Miles, S. Braxton, D.S. and Frewer, L.J. (1999)** *Public Perceptions About Microbiological Hazards in Food* in: British Food Journal, 101(10): 744-762
- Mintel (1997)** Special Report on Edible Oils London.
- Mittal, B. and Lee, M-S. (1989)** *A Causal Model of Consumer Involvement* in: Journal of Economic Psychology, 10: 363-389.
- Monroe, K. B. and Krishnan, R. (1985)** *The Effect of Price on Subjective Product Evaluations* in: *Perceived Quality*, Jacoby, J. and Olson, J. (eds), Lexington Books, MA.
- Morgan, A.I. (1984)** *Point of View: Magic Town Revisited (A Personal Perspective)* in: Journal of Advertising Research, 24(4): 49-51.
- ___ (1985) *The Importance of Quality* in: *Perceived Quality*, Jacoby, J. and Olson, J. (eds), Lexington Books, MA.
- Mulvey, M.S. Olson, J.C. Celsi, R.L. and Walker, B.A. (1994)** *Exploring the Relationships Between Means-end Knowledge and Involvement* in: Advances in Consumer Research, 21: 51-57.
- Myers, J. (1976)** *Benefit Structure Analysis: A New Tool for Product Planning* in: Journal of Marketing, 40, October: 23-32.

N.

- Nancarrow, C. Wright, L.T. and Brace, I. (1998)** *Gaining Competitive Advantage From Packaging and Labelling in Marketing Communications* in: British Food Journal, 100(2): 110-118.

- National Agricultural Research Foundation of Greece N.Ag.Re.F. (1996)** *Olive Oil Research Report* in: Crop Production and Animal Husbandry, (5) in Greek.
- National Statistical Service of Greece (2000)** *Official Data Series* State Publication, Athens
- Nayga Jr, R.M. (1999)** *On Consumers' Perception About the Reliability of Nutrient Content Claims on Food Labels* in: Journal of International Food and Agribusiness Marketing, 11(1): 43-55.
- Neergaard, P. (1999)** *Quality Management: a Survey on Accomplished Results* in: International Journal of Food and Reliability Management, 16(3): 277-288.
- Ness, M. (1997)** *Multivariate Analysis in Marketing Research* in Padberg, D.I. Ritson, C. and Albisu, L.M. (eds.) *Agro-food Marketing*, CAB International, New York
- Nielsen, N.A. Bech-Larsen, T. and Grunert, K.G. (1998)** *Consumer Purchase Motives and Product Perceptions: A Laddering Study on Vegetable Oil in Three Countries* in: Food Quality and Preference, 9 (6): 455-466.

O.

- O'Connor, P.J. and Sullivan, G.L. (1995)** *Market Segmentation: A Comparison of Benefits/Attributes Desired and Brand Preference* in Psychology and Marketing, 12 (Oct.): 613-635.
- OECD (1993)** *Agricultural Policies, Markets and Trade* Monitoring and Outlook, Paris.
- ___ (1997) *Uses of Food Labelling Regulations* OECD/GD(97)150, Paris.
- Olive and Olive Oil (2000)** *Consumer Retail Prices of Olive Oil in the Greek Market*, April-May Issue 16: 26-27.
- Olshavsky, R. W. (1985)** *Perceived Quality in Consumer Decision Making: An Integrated Theoretical Perspective* in: *Perceived Quality*, Jacoby, J. and Olson, J. (eds), Lexington Books, MA.
- Olson, J.C. (1995)** *Introduction to the Special Issue of Means-end Chains* in: International Journal of Research in Marketing, 12: 189-191.
- ___ and Reynolds, T. J. (1983) *Understanding Consumers' Cognitive Structures: Implications for Advertising Strategy* in: *Advertising and Consumer Psychology* Percy, L. and Woodside, A. (eds) Lexington Books, MA.
- Ovesen, L. (1999)** *Functional Foods: Some Relevant Considerations?* in: British Food Journal, 101(10): 809-817.

P.

- Pantziros, C. and Tzouvelekas, V. (1999)** *Organic Agriculture in Greece* in: Fotopoulos, C. (ed.) *The Production System of the Organic Agriculture as an Alternative for the Development of Greek Rural Areas*, National Agricultural Research Foundation (NAgReF) Publications, Athens (in Greek).
- Parasuraman, A. Zeithaml, V. A. and Berry, L. (1985)** *A Conceptual Model of Service Quality and Its Implications for Future Research* in: Journal of Marketing, 49 (fall): 41-50.
- Park, C.W. and Young, S.M. (1983)** *Types and Levels of Involvement and Brand Attitude Formation* in: *Advances in Consumer Research*, 10: 320-324.

- Peri, C. and Gaeta, D. (1999) *Designations of Origin and Industry Certifications as Means of Valorising Agricultural Food Products* The European Agro-food System and the Challenge of Global Competition. ISMEA, June, Rome.
- Peterson, R. A. and Wilson, W. R. (1985) *Perceived Risk and Price Reliance Schema and Price-perceived Quality Mediators* in: *Perceived Quality*, Jacoby, J. and Olson, J. (eds), Lexington Books, MA.
- Pierson, B. J. Reeve, W. G. and Creed, P. G. (1995) *The 'Quality Experience' in the Food Service Industry* in: *Food Quality and Preference*, 6: 209-213.
- Pieters, R. Baumgartner, H. and Allen, D. (1995) *A Means-end Chain Approach to Consumer Goal Structures* in: *International Journal of Research in Marketing*, 12: 227-244
- Phillips, L. W. Chang, D. and Buzzell, R. D. (1983) *Product Quality, Cost Position and Business Performance: A Test for Some Key Hypotheses* in: *Journal of Marketing*, 47(Spring): 6-43.
- Pitts, R.E. Wong, J.K. and Whalen, D.J. (1991) *Consumers' Evaluative Structures in Two Ethical Situations: A Means-End Approach* in: *Journal of Business Research*, 22: 119-130.
- ____ and Woodside, A.G. (1991) *Special Issue: Examining the Structure of Personal Values and Consumer Decision Making* in: *Journal of Business Research*, 22: 91-93.
- Porter, M.E. (1980) *Competitive Strategy: Techniques for Analyzing Industries and Competitors* Free Press, NY.
- ____ (1998) *The Competitive Advantage of Nations* Macmillan Press, 2d edition, London.
- Poulsen, C. S. Juhl, H. J. Kristensen, K. Bech, A. C. and Engelund, E. (1996) *Quality Guidance and Quality Formation* in: *Food Quality and Preference*, 7(2): 127-155.

Q.

- Quester, P.G. and Smart, J. (1998) *The Influence of Consumption Situation and Product Involvement over Consumers' Use of Product Attribute* in: *Journal of Consumer Marketing*, 15(3): 220-238

R.

- Rajagopal, S. Balan, S. and Scheuing, E. E. (1995) *Total Quality Management Strategy: Quick Fix or Sound Sense?* in: *Total Quality Management*, 6(4): 335-344.
- Reicks, M. Splett, P. and Fishman, A. (1997) *Shelf Labelling of Organic Foods: Effects On Customer Perceptions and Sales* Working Paper 97-03, The Retail Food Industry Center, University of Minnesota, St. Paul, MN.
- Reid, A. Wood, D. and Kinney, D. (1998) *Food Hygiene Information: Power to the People?* in: *Nutrition and Food Science*, 3(May/June): 138-144.
- Reynolds, T.J. (1985) *Implications for Value Research: A Micro vs. Macro Perspective* in: *Psychology and Marketing*, 2(4): 297-305.
- ____ and Gutman, J. (1984) *Advertising is Image Management* in: *Journal of Advertising Research*, 24(1): 27-37.

- ___ and Jamieson, L.F. (1985) *Image Representations: An Analytic Framework* in: *Perceived Quality*, Jacoby, J. and Olson, J. (eds) Lexington Books, Lexington, MA.
- ___ and Gutman, J. (1988) *Laddering Theory, Method, Analysis, and Interpretation* in: *Journal of Advertising Research*, 28 (Febr.): 11-31.
- ___ and Craddock (1988) *The Application of the MECCAS Model to the Development and Assessment of Advertising Strategy* in: *Journal of Advertising Research*, 28 (May): 43-54.
- ___ and Rochon, J.P. (1991) *Means-end Based Advertising Research: Copy Testing is not Strategy Assessment* in: *Journal of Business Research*, 22: 131-142.
- ___ Gengler, C.E. and Howard, D.J. (1995) *A Means-end Analysis of Brand Persuasion through Advertising* in: *International Journal of Research in Marketing*, 12: 257-266.
- ___ and Whitlark, D.B. (1995) *Applying Laddering Data to Communications Strategy and Advertising Practice* in: *Journal of Advertising Research*, 35 (July-Aug.): 9-17.
- Ridgway, J. (1993) *Olive Oil: its Attributes and Diversity* in: *Nutrition and Food Science*, 3(May/June).
- Ritson, C. (1985) *Economic Aspects of the Behaviour of Food Consumers* in: Ritson, C. and Warren, R. M. (eds.) *Agriculture's Marketing Environment*, Potato Marketing Board, pp. 9-14.
- ___ (1997) *The CAP and the Consumer* in: Ritson, C. And Harvey, D. (eds.) *The Common Agricultural Policy*, CAB International, N.Y.
- ___ and Hutchins, R. (1991) *The Consumer Revolution*. In MAFF, *Fifty Years of the National Food Survey*, HMSO.
- ___ and ___ (1996) *Food Choice and the Demand for Food* in: Marshall. D. (ed.) *Food Choice and the Consumer*, Chapman and Hall Ltd. London.
- ___ and Mai, L.W. (1998) *The Economics of Food Safety* in: *Nutrition and Food Science*, 5(Sept.-Octob.): 253-259.
- Rust, R.T. and Cooil, B. (1994) *Reliability Measures for Qualitative Data: Theory and Implications* in: *Journal of Marketing Research*, XXXI (Febr.): 1-14.

S.

- Sadler, M. (1999) *UK Industry Guidelines on Nutritional Labelling to Benefit the Consumer* in: *Nutrition and Food Science*, 1(Jan./Febr.): 24-28.
- Schutz, H. G. (1988) *Beyond Preference: Appropriateness as a Measure of Contextual Acceptance of Food* in: *Food Acceptability*, Thompson, D. M. H. (ed.), Elsevier, London.
- Self Service (1999) *Consumer and Retailing Changes in Greece Annual Market Survey*, Spring, Report Publications, Athens (in Greek).
- Senauer, B. Asp, E. and Kinsey, J. (1993) *Food Trends and the Changing Consumer*, Eagen Press, St Paul, MN.
- Sethuraman, R. and Cole, C. (1999) *Factors Influencing the Price Premiums that Consumers Pay for National Brands Over Store Brands* in: *Journal of Product and Brand Management*, 8(4): 340-351.
- Shimp, T.A. and Sharma, S. (1987) *Consumer Ethnocentrism: Construction and Validation of the CETSCALE* in: *Journal of Marketing Research*, 14, August: 280-289.

- Shine, A. O'Reilly, S. and O'Sullivan, K. (1997a) *Consumer Attitudes to Nutrition Labelling* in: British Food Journal, 99(8): 283-289.
- _____ and _____ (1997b) *Consumer Use of Nutritional Labelling* in: British Food Journal, 99(8): 290-296.
- Siskos, Y. Grigoroudis, E. Matsatsinis, F. Baourakis, G. and Neguez, F. (1995) *Comparative Behavioural Analysis of European Olive Oil Characteristics* in: *Advances in Stochastic Modelling and Data Analysis*, Jansen, J. Skiadas, C. and Zopounidis, C. (eds.): 293-310, Kluwer Academic Publishers, Utrecht.
- Skuras, D. and Vakrou, A. (1999) *Willingness to Pay for Origin Labeled Products: a Case Study of Greek Wine Consumers* in: *The Socio-economics of Origin-labeled Products in Agro-food Supply Chains: Spatial, Institutional and Co-ordination Aspects*, 67th EAAE Seminar, Le Mans, October 28-30.
- Smith, N. J. S. (1996) *Recognizing and Achieving Commercial Quality in Fresh Produce* in: Post-harvest News and Information, 6(3): 28N-30N.
- Sorensen, E. Grunert, K.G. and Nielsen, N.A. (1996) *The Impact of Product Experience, Product Involvement and Verbal Processing Style on Consumers' Cognitive Structures with Regard to Fresh Fish* Working Paper 42, Centre for Market Surveillance, Research and Strategy for the Food Sector, Aarhus School of Business, Denmark.
- Sparks, P. and Shepherd, R. (1994) *Public Perceptions of Food-related Hazards: Individual and Social Dimensions* in: Food Quality and Preference, 5: 185-194.
- Spiggle, S. (1994) *Analysis and Interpretation of Qualitative Data in Consumer Research* in: Journal of Consumer Research, 21 (Dec.): 491-503.
- SPSS (1997) *SPSS Conjoint 8.0* SPSS Inc., Chicago.
- Steenkamp, J-B.E.M. (1991) *A Theoretical Investigation Into the Formation of Quality Perceptions* in: Avlonitis, G. Papavasiliou, G. and Kouremenos, A. (eds) *Marketing Thought and Practice in the 90's*, Proceedings of the 18th EMAC Conference, Athens, April.
- _____ (1993) *Food Consumption Behavior* in: van Raaij, W.E. and Bamossy, G.J. (eds.) *European Advances in Consumer Research*, Association for Consumer Research, Utah, UT.
- _____ (1996) *Dynamics in Consumer Behaviour with Respect to Agricultural and Food Products* in: *Agricultural Marketing and Consumer Behaviour in a Changing World*, Wierenga, B. vanTilburg, A. Grunert, K. Steenkamp, J. and Webel, M. (eds.) Kluwer Academic Publishers, London.
- _____ and Van Trijp, H.C.M. (1996) *Quality Guidance: A Consumer-based Approach to Food Quality Improvement Using Partial Least Squares* in: European Review of Agricultural Economics, 23: 195-215.
- _____ and Avlonitis, G.J. (1998) *A Consumer-led Approach to Marketing of Olive Oil in the EU, A Consumer-led Approach* European Commission, AIR2-CT94-1066 Project, Final Report (Unpublished). Progress Report, Athens (unpublished).
- Steptoe, A. Pollard, T. and Wardle, J. (1995) *Development of a Measure of the Motives Underlying the Selection of Food: the Food Choice Questionnaire* in: Appetite, 25: 267-284.
- Strauss, A. (1987) *Qualitative Analysis for Social Scientists*, Cambridge University Press, Cambridge.

___ and Corbin, J. (1990) *Basics of Qualitative Research: Grounded Theory Procedures and Techniques*, Sage, London.

Swinbank, A. (1993) *The Economics of Food Safety* in: Food Policy, 18(2).

T.

Tangerman, S. (1986) *Economic Factors Influencing Food Choice* in: Ritson, C. Gofton, L. and McKenzie, J. (eds.) *The Food Consumer*, John Wiley and Sons, N.Y.

Tansey, G. (1994) *Food Policy in a Changing Food System* in: British Food Journal, 96(8): 4-12.

Teisl, M.F. Bockstael, N.E. and Levy, A.S. (1997) *Preferences for Food Labels: A Discrete Choice Approach* in: Caswell, J.A. and Cotterill, R.W. (eds), *Strategy and Policy in the Food Sector: Emerging Issues*, Proceedings of NE-165 Conference, June 20-21, Washington D.C.

Tissier-Desbordes, E. (1992) *Product Involvement for the Producers* in: 21st European Marketing Academy (EMA) Conference, Vol. II, Aarhus, Denmark

Thompson, C.J. Locander, W.B. and Polio, H.R. (1989) *Putting Consumer Experience Back into Consumer Research: The Philosophy and Method of Existential-Phenomenology* in: Journal of Consumer Research, 16(Sept.): 133- 146.

___ C.J. Locander, W.B. and Polio, H.R. (1990) *The Lived Meaning of Free Choice: An Existential-Phenomenological Description of Everyday Consumer Experiences of Contemporary Married Women* in: Journal of Consumer Research, 17 (Dec.): 346-361.

Todd, E. C. D. (1989) *Costs of Acute Bacterial Food-borne Disease in Canada and the US* in: International Journal of Food Microbiology, 9: 313-326.

Tokouzbalidis, P. (1996) *Greek Olive Oil Exports: Conclusions Derived from their Evolution So Far* in: Crop Production and Animal Husbandry (5), in Greek.

Trognon, L. Bousset, J-P. Brannigan, J. and Lagrange, L. (1999) *Consumers' Attitudes Towards Regional Food Products. A Comparison Between Five Different European Countries*. 67th EAAE Seminar Proceedings, (October 28-30), Le Mans.

Tse, A.C.B. (1999) *Factors Affecting Consumer Perceptions on Product Safety-The case of Non-durables* in: Journal of International Consumer Marketing, 12(1): 39-55.

Tsiaousi, A. (1998) *Situation and Prospects of the Olive Oil Sector* in: Greek Agronomists' Association Review, (43)4.

Tzouramani, I. and Mattas, K. (1999) *Olive Oil* in: Fotopoulos, C. and Apostolopoulos, K. (eds.) *Mediterranean Products as Traditional Greek and the Future of their Supporting Mechanisms*, National Agricultural Research Foundation (NagReF) Publications, Athens (in Greek).

U.

Unnevehr, L. Ward, M.R. and Hasler, C. (1998) *Regulating Health Claims on Food Products: The Balance Between Consumer Choice and Consumer Protection* in: Choices, First Quarter: 26-30.

- ___ Miller, G.Y. and Gomez, M. (1999) *Ensuring Food Safety and Quality in Farm-level Production: Emerging Lessons from the Pork Industry* in: American Journal of Agricultural Economics, 81(5): 1096-1101. ___
- USDA Agricultural Outlook (1997) *Food Safety Concerns for US Fruits and Vegetables* Economic Research Service (June): 5-6.
- ___ (1998) *Putting the Brakes on Consumption of Added Fats and Oils* Agricultural Outlook, Economic Research Service, September, Washington DC.

V.

- Valette-Florence, P. and Rapacchi, B. (1990) *Value Analysis by Linear Representation and Appropriate Positioning: an Extension of Laddering Methodology* in: Avlonitis, G. Papavasiliou, N. and Kourmenos, A. (eds.) *Marketing Thought and Practice in the 90's*, 18th European Marketing Academy (EMA) Conference, Athens
- ___ and ___ (1991) *Improvements in Means-end Chain Analysis: Using Graph Theory and Correspondence Analysis* in: Journal of Advertising Research, 31 (March): 30-45.
- ___ Sirieix, L. Grunert, K. and Nielsen, N. (1998) *Comparing Means-end Hierarchies: A Multi-dimensional Perspective Applied to a Cross-cultural Context* in: Anderson, P. (ed.) *Marketing Research and Practice, Proceedings of the 27th EMA Conference*, Stockholm.
- Valli, C. (1997) *International Food Market Segmentation: A Conceptual Framework for the Operationalization of Segmentation Results in a Pan-European Context* in: *Globalisation of the Food Industry: Policy Implications*, The University of Reading.
- van der Pol, M. and Ryan, M. (1996) *Using Conjoint Analysis to Establish Consumer Preferences for Fruit and Vegetables* in: British Food Journal 98(8): 5-12.
- van Ravenswaay, E.O. and Hoehn, J.P. (1996) *The Theoretical Benefits of Food Safety Policies. A Total Economic Value Framework* in: American Journal of Agricultural Economics, 78(5): 1291-1296.
- ___ and ___ (1997) *Approaches to Measuring Consumer Benefits from Food Safety* in: Caswell, J.A. and Cotterill, R.W. (eds), *Strategy and Policy in the Food Sector: Emerging Issues*, Proceedings of NE-165 Conference, June 20-21, Washington D.C.
- van Trijp, H.C.M. Steenkamp, J-B.E.M. and Candel, M. J.J. (1996) *Quality Labeling as Instrument to Create Product Equity: the Case of IKB in the Netherlands* in: *Agricultural Marketing and consumer Behaviour in a Changing World*, Wierenga, B. Van Tilburg, A. Grunert, K. Steenkamp, J-B. and Webel, M. (eds.) Kluwer Academic Publishers, London.
- Vatzakas, T. and Jukes, D. J. (1997) *The Globalization of Food Regulation and Quality: A Study of the Greek Food Market* in: *Globalization of the Food Industry: Policy Implications*, The University of Reading.
- Vaughan, C.R. (1990) *Personal Values: a Neglected International Market Segmentation Base* in: Avlonitis, G. Papavasiliou, N. and Kourmenos, A. (eds.) *Marketing Thought and Practice in the 90's*, 18th European Marketing Academy (EMA) Conference, Athens

- Vermisso, G. (2000) *Six "Health" Commands for the Greek Food Industry* in: The Investor, 26-27 August, Athens, p. 25 (in Greek).
- Viaene, J. and Januszewska, R. (1999) *Quality Function Deployment in the Chocolate Industry* in: Food Quality and Preference, 10: 377-385.
- Vinson, D.E. Scott, J.E. and Lamont, L.M. (1977) *The Role of Personal Values in Marketing and Consumer Behaviour* in: Journal of Marketing, 41, April: 44-50.
- von Alvensleben, R. (1997) *Consumer Behaviour* in: *Agro-food Marketing*, Padberg, D.I. Ritson, C. and Albisu, L.M. (eds.) CAB International, N.Y.

W.

- Walker, B.A. and Olson, J.C. (1991) *Means-end Chains: Connecting Products with Self* in: Journal of Business Research, 22: 111-118.
- Wallendorf, M and Brucks, M. (1993) *Introspection in Consumer Research: Implementation and Implications* in: Journal of Consumer Research, 20 (Dec.): 339-359.
- Walley, K. Parsons, S. and Bland, M. (1999) *Quality Assurance and the Consumer: A Conjoint Study* in: British Food Journal 101(2): 148-161.
- Wandel, M. (1997) *Food Labelling from a Consumer Perspective* in: British Food Journal, 99(6): 212-219.
- Westgren, R.E. (1999) *Delivering Food Safety, Food Quality, and Sustainable Production Practices: the Label Rouge Poultry System in France* in: American Journal of Agricultural Economics, 81(5): 1107-1111.
- Wheelock, V. (1989) *Food Safety in Perspective* in British Food Journal, 91(8): 31.
- Wind, Y. (1978) *Issues and Advances in Segmentation Research* in Journal of Marketing Research, 15 (August): 317-337.
- Wittink, D.R. and Cattin, P. (1989) *Commercial Use of Conjoint Analysis: an Update* in: Journal of Marketing 53(July): 91-96.
- Wright, L.T. (1996) *Exploring the In-depth Interview as a Qualitative Research Technique With American and Japanese Firms* in: Marketing Intelligence and Planning, 14(6): 59-64.
- ___ (1997) *Exploring the Need for Extended Research: an Investigation of Consumer Attitudes to Product Labelling* in: Journal of Product and Brand Management, 6(6): 417-427.

Y.

- Yionas, I. (1999) *Mobile Internet* Speech given in the 6th Marketing Week "Retailing The Greek Reality in the Beginning of the 21st Century", Greek Marketing Institute, 25-26 May, Athens (in Greek, unpublished).
- York, R. K. (1995) *Quality Assessment in a Regulatory Environment* in: Food Quality and Preference, 6: 137-141.
- Young, S. and Feigin, B. (1975) *Using the Benefit Chain for Improved Strategy Formulation* in: Journal of Marketing, 39 (July): 72-74.

Z.

- Zabounis, M. (1996) *The EU Olive Oil Common Market Organisation* in: Crop Production and Animal Husbandry 1996(5), Athens (in Greek).
- Zaichkowski, J.L. (1985) *Measuring Involvement Construct* in: Journal of Consumer Research, 12(December): 341-352.
- Zarkadoula, K. (1997) *Marketing of Olive Oil* Unpublished M.Sc. Dissertation, University of Newcastle, U.K.
- Zeithaml, V.A. (1988) *Consumer Perceptions of Price, Quality and Value: a Means-end Model and Synthesis of Evidence* in Journal of Marketing, 52, July: 2-22.
- Zimmerman, A.S. and Szenberg, M. (2000) *Implementing International Qualitative Research: Techniques and Obstacles* in: Qualitative Market Research, 3(3): 158-164.
- Zunft, H.J. Friebe, D. Seppelt, B. deGraaf, C. Margetts, B. Schmitt, A. and Gibney, M.J, (1997) *Perceived Benefits of Healthy Eating Among a Nationally Representative Sample of Adults in the EU* in: European Journal of Clinical Nutrition, 51, Suppl. 2: S41-S46.

Reference list of Section 2.4:

1. On Mediterranean Diet and Olive Oil Consumption Health Benefits
- Alekos, P.J. Thompson, K.E. and Haziris, N. (1994) *Attitudes, Norms and Intentions in Predicting Consumption of Olive Oil* in: 1994 European Marketing Association Conference, Ulster.
- Ferro-Luzzi, A. and Sette, S. (1989) *The Mediterranean Diet: an Attempt to Define its Present and Past Composition* in: European Journal of Clinical Nutrition, 43(8)
- Gracia, A. and Albisu, L.M. (1999) *Moving Away from a Typical Mediterranean Diet: the Case of Spain* in: British Food Journal, 101(9): 701-714.
- Gerber, M. and Richardson, S. (1995) *Consumption of Olive Oil and Specific Food Groups in Relation to Breast Cancer Risk in Greece* in: Journal of National Cancer Institute, 87(13): 1021-1022.
- Helsing, E. (1990) *The Institution of National Nutrition Policies: a Comparative Study of Norway and Greece* Published Doctoral Dissertation, Faculty of Medicine, University of Athens, Greece, Styx Publications, Gronningen.
- Larsen, L.F. and Jespersen, J. (1999) *Are Olive Oil Diets Anti-thrombotic? Diets Enriched with Olive, Rapeseed, or Sunflower Oil Affect Postprandial Factor VII Differently* in: American Journal of Clinical Nutrition, 70(6): 976-982.
- Linos, A. Kaklamani, V.G. Kaklamani, E. Koumantaki, Y. Giziaki, E. Papazoglou, S. and Mantzoros, C.S. (1999) *Dietary Factors in Relation to Rheumatoid Arthritis: a Role for Olive Oil and Cooked Vegetables* in: American Journal of Clinical Nutrition, 70(6): 1077-1082.
- Massaro, M. Carluccio, M.A. and deCaterina, R. (1999) *Direct Vascular Antiatherogenic Effects of Oleic Acid: a Clue to the Cardioprotective Effects of the Mediterranean Diet* in: Cardiologia, 44(6): 507-513.
- McConnell, C. and McConnell, M. (1987) *The Mediterranean Diet. Wine, Pasta, Olive Oil and a Long, Healthy Life* W.W. Norton & Company, NY.
- Trichopoulou, A. (2000) *Mediterranean Diet and Health* Paper Presented at the 1st Mediterranean Conference for Agricultural Research Co-operation, December, Athens

- Waterlow, J.C. (1989) *Diet of the Classical Period of Greece and Rome* in: European Journal of Clinical Nutrition, 43: S3-12.
- Willet, W.C. Trichopoulou, A. Drescher, G. Ferro-Luzzi, A. Helsing, E. Trichopoulos, D. (1995) *Mediterranean Diet Pyramid: a Cultural Model for Healthy Eating* in: American Journal of Clinical Nutrition, 61(6): S1402-06.
2. On Diet-related Health Changes in Greece
- Aravanis, C. (1983) *The Classic Risk Factors for Coronary Heart Disease: Experience in Europe* in: Preventive Medicine, 12: 16-19.
- _____ and Ioannidis, P.J. (1984) *Nutritional Factors and Cardiovascular Diseases in the Greek Islands Heart Study* Nutritional Prevention of Cardiovascular Disease, Academic Press
- _____ Mensink, R.P. and Corcondilas, A. (1988) *Risk Factors for Coronary Heart Disease in Middle-aged Men in Crete in 1982* in: International Journal of Epidemiology, 17(4): 779-783.
- Eurofood (1997) *Greeks Loyal to Old Foods* in: Agra-Europe, August.
- Eurostat (1995) *Women and Men in the European Union* European Statistical Service
- _____ (1998) *Social Portrait of Europe* European Statistical Service
- Focus (1998) *Pan-Hellenic Life Style Survey*, Athens (in Greek)
- Georgacopoulos, T.A. (1990) *The Impact of Accession on Food Prices, Inflation and Food Consumption in Greece* in: European Review of Agricultural Economics, 17: 485-493.
- Helsing, E. (1990) *The Institution of National Nutrition Policies: a Comparative Study of Norway and Greece* Published Doctoral Dissertation, Faculty of Medicine, University of Athens, Greece, Styx Publications, Gronningen.
- Karagiannis, G. and Veletzas, K. (1997) *Explaining Food Consumption Patterns in Greece*, Journal of Agricultural Economics, 48 (1): 83-92.
- Keys, A. (1968) *Official Collective Recommendation on Diet in the Scandinavian Countries* in: Nutritional Review, 26(9): 259-263.
- _____ (1970) *Coronary Heart Disease in Seven Countries* in: Circulation, 11(Suppl. 41): 1211.
- _____ (1980) *Seven Countries: a Multivariate Analysis of Death and Coronary Heart Disease* Harvard University Press, Cambridge, MA.
- Lazaridis, P. (1999) *Major Food Categories' Demand Structure Description in Greece and Projections for the Year 2010* in: Maraveyias, N. (ed.) *Greek Agriculture Towards 2010*, Agricultural University Publications, Athens (in Greek).
- Liberal Press (2000) *The 1999 Family Accounts Survey: Large Increase of Family Expenses the Last Five Years* 17 October, Athens (in Greek).
- Malamos, M. (1966) *Endemic Goiter in Greece. Epidemiology and Genetic Studies* in: Journal of Clinical Epidemiology, 26: 688.
- Self Service (1999) *Consumer and Retailing Changes in Greece* Annual Market Survey, Spring, Report Publications, Athens (in Greek).
- Tsongas, A.G. (1951) *Nutrition Work in Greece* FAO Nutritional Studies, 7, Rome
- Valaoras, V.G. (1984) *The 1980 Life Tables for Greece* Proceedings of the Academy of Athens, 59: 405-436 (in Greek).