

# Food Consumption Issues in the 21st Century

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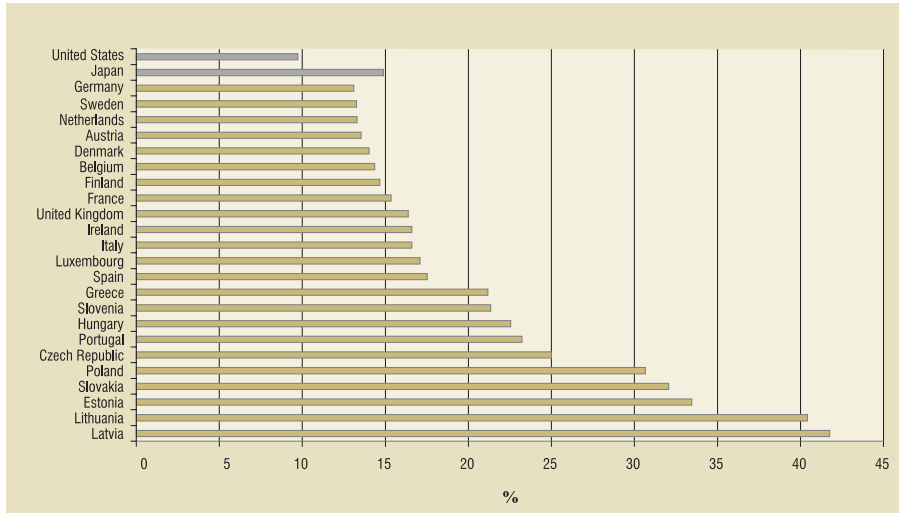
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## 1.1 INTRODUCTION

This chapter gives an overview of food consumption issues in the 21st century. In the sections that follow we describe patterns of current food consumption and how demand analysis changed over the last few decades to incorporate new factors, now considered more important than prices and income, in order to explain modern food choice process in affluent societies. The last section briefly discusses current consumption issues using the product characteristics theory of Lancaster (1966) which for the purpose of this chapter is applied to food.

## 1.2 CURRENT FOOD CONSUMPTION PATTERNS

Driven primarily by income growth, the share of food in total consumption has been declining continuously in the last few decades in Europe as well as in many high income countries. Cross country comparisons as well as country level time series figures confirm the now famous Engel's Law.



**Figure 1.1** Food share in total consumption expenditure by country (Seale et al., 2003)

The decline in food share has also been followed by a change in structure of consumer food consumption. Taking as an example the case of Greece (Table 1.1) we notice that in the last 40 years the consumption of meat has tripled, the consumption of vegetables and milk has doubled, while the consumption of the other food categories has also increased but not so rapidly with the exception of cereals where the consumption has declined.

**Table 1.1** Per capita availability of basic food items in Greece (kg/year)

	Average 1961-63	Average 1971-73	Average 1981-83	Average 1991-93	Average 2001-03
Meat	24.1	53.3	67.1	72.6	77.8
Fish, Seafood	19.3	16.8	17.3	21.7	23.3
Vegetables	123.3	225.0	262.7	274.5	255.0
Fruits	127.9	119.1	144.9	162.7	160.3
Cereals	163.1	158.5	153.6	149.4	152.7
Milk (whole)	37.5	62.4	69.0	73.8	72.9

Source: FAOSTAT data, 2005

Another way to examine the structure of consumption is through the expenditure of households. In this case we take into account not only the role of real consumption but also the role of prices. That is why the changes in the shares of the basic food categories in total food spending in the last 25 years (Table 1.2) are not as important as those in Table 1.1. However, one of the most important characteristics of the changing pattern of food spending in Greece is the increasing role of food prepared or prepared and consumed away from home. The percentage of this food item increased from nearly 8% in 1974 to 32.5% in 1998/99.

**Table 1.2** The structure of food expenditure in Greece (%)

	Categories	1974	1981/82	1987/88	1993/94	1998/99
% of food expenditure	Flour, bread, cereals etc.	9.72	8.61	8.77	10.00	8.22
	Meat	25.91	26.70	23.18	20.24	15.32
	Fish	4.49	5.04	4.75	4.97	4.96
	Oil and fat	8.02	6.24	4.53	4.22	5.76
	Dairy and eggs	11.58	11.90	12.62	13.01	11.81
	Legumes and scallions	1.20	0.80	0.89	0.97	0.83
	Potatoes	1.96	2.12	1.70	1.88	1.58
	Vegetables fresh	6.33	5.46	5.13	4.70	4.97
	Vegetables frozen etc.	0.41	0.82	0.75	0.83	0.95
	Fruits fresh	7.35	6.45	6.63	5.76	4.70
	Fruits dried and nuts	1.05	0.65	1.01	0.50	0.52
	Sugar and confectionary	6.80	4.85	5.29	4.69	3.78
	Other food	5.60	2.00	2.11	1.89	0.57
	Food away from home	7.94	17.43	21.07	24.37	32.52
	Beverages	1.63	0.93	1.57	1.97	3.49
% of total expenditure	Foods	35.67	33.86	29.90	27.83	24.20
	Alcoholic beverages	1.62	0.76	0.67	0.57	0.51
	Tobacco	3.04	2.14	2.70	3.04	2.64

Source: National Statistical Service of Greece, Family Budget Surveys.

Even though the above tables refer to a specific country they reflect more general food patterns that characterize most European countries. The current food consumption pattern is characterized by (a) more food-away-from-home consumption (b) more consumption of food items with greater convenience attributes (c) consumer concerns for safety, health and nutrition and (d) sensitivity to production technologies, distribution systems and ecological sustainability.

The complexity of consumer behavior can not be explained further with the basic tools (income and prices) of traditional demand analysis.

### **1.3** QUANTITY vs. QUALITY AND DEMAND FOR CHARACTERISTICS

Rozin et al. (1986, p.86) argues that the economic factors such as price, income and product availability influence only the actual consumption of food, i.e. what and how much is chosen. This choice under budget and availability constraints does not always reflect our real preference. A person, currently using a special diet, might 'prefer' cabbage to pastry but still like pastry better. Economic factors can influence what people eat but cannot determine their likes. In times of economic wellbeing, where budget constraints are relaxed, personal preferences become more important for purchasing decisions.

The inadequacy of the traditional demand model to explain consumer behavior has led many studies, especially in the last 20 years, to incorporate demographic factors in applied food demand analysis. They are used mainly as proxies for the unobservable factors that determine consumer preferences.

The demand for food is no longer a demand for quantity but has become more and more a demand for quality. The traditional demand elasticities may lead to wrong conclusions if they do not take into account the incorporated quality element (Nelson, 1991). If, for example, after an increase in the price of meat the quantity demanded remains at the same level, the traditional demand analysis will conclude that demand is perfectly inelastic. However, this could very easily be the result of substitution of beef with pork. This change in quality demanded and the corresponding quality elasticity, though important, will be missing if we employ traditional tools (Lazaridis, 2003).

The decreasing influence of income and prices for food demand during the last decades has given rise to new approaches to consumer modeling.

Lancaster (1966) developed a product characteristics theory where consumers do not consume goods as direct objects of their utility rather it is the properties or characteristics of the goods from which utility is derived. Gary Becker, the Nobel Prize winner in Economic sciences in 1992, one year before Lancaster, argued that households do not derive utility directly from market goods or services. Households use these goods or/and services along with their available time to produce more basic commodities. For example, although people purchase raw foods, utility is derived from consumption of the completed meal, which has been produced by combining raw food products with labour, time inputs (shopping or/and cooking time) and other inputs.

The impact of these two related theories on economics was substantial since the demand for quantity that was investigated up to then by traditional microeconomic theory was transformed into demand for product characteristics or product attributes. Therefore, the utility derived by meals or foods can now be deconstructed into utility derived from product characteristics.

## **1.4 DOES FOOD CONSUMPTION CONVERGE IN EU?**

Given the income, price, demographic and preferences trends one question that arises is whether European diets are converging. Several studies have dealt with this problem in the past and the evidence indicates that while European diets are changing and tend to converge in most EU countries, there are still significant differences. One study (Gil et al. 1995) finds that convergence has occurred in animal products calories, cereals, pulses, fruits and vegetables, while no convergence has occurred in the proportion of calories from meat, fish and eggs. According to this study, dietary structures in EU countries are becoming increasingly similar, although some differences have been found in the evolution of the dietary structure of the Mediterranean countries.

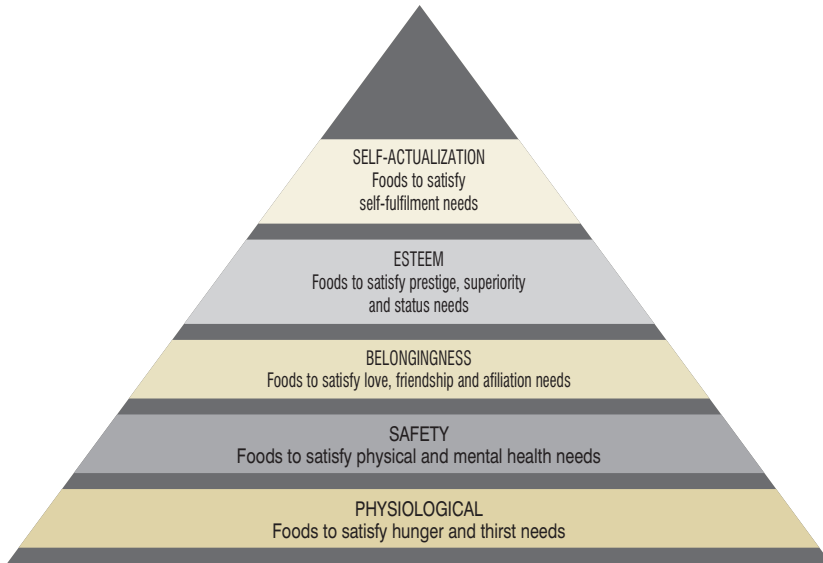
Another study that compared OECD countries (Herrmann and Roder, 1995) finds convergence in wine and meat consumption and concludes that differences in preferences are more important determinants of consumption levels than differences in income and the availability of food. Furthermore, the prices of food have little influence on consumer preferences. A third study (Elsner and Hartmann, 1997) that examined Eastern European countries found that food consumption is converging with that of EU for Estonia, Czech Republic, Hungary and Poland.

In general, even though income and prices have their distinct role in shaping the differences among countries, their importance declines while the importance of other factors (cultural differences, differences in tastes, information, demographics etc.) increase. While European diets are changing and tend to converge in most EU countries, there are still significant differences. Different food patterns exist, even among regions within a country.

## **1.5** CURRENT FOOD CONSUMPTION ISSUES

One way to think about food consumers in developed countries, such as the USA and EU countries is that they have moved up Maslow's hierarchy of needs (Figure 1.2). People at lower income levels want firstly to satisfy their physiological needs for food based on the food preferences of their culture. When income levels increase, a widespread fact in Europe and the USA, consumers move higher on the pyramid. As consumers gain affluence, their attention turns to the quality of food they eat. People then demand foods that are safe or that promote good health and become more concerned about food safety, like pathogens and disease risks.

Food is also used to promote family unity when members eat together, to provide hospitality, as a gift, as an important part in holidays and celebrations, to show status or prestige and to express feelings or emotions. Furthermore, it is used as a reward or a punishment or as a political tool in protests and hunger strikes. It is also used as subject of creative expression by cooks and advertisers to influence food choices (Asp, 1999). It is apparent that foods possess certain attributes and modern consumers do not buy just food, rather it these attributes that they purchase. Therefore, modern food consumption is about consumption of these characteristics. Many authors have proposed different classifications of those attributes or characteristics. Our classification utilizes and adds to those listed by several authors such as Fischer (2005) and Mitchell (2004).



**Figure 1.2** Maslow's Hierarchy of needs and food (Belonax, 1997 cited Senauer, 2001)

### 1.5.1 Energy content

People need a certain minimum level of calories for sustainability. This level will depend on gender, age and the intensity of physical activity. People will demand at least that amount of energy they need for their survival. In developed countries there is also an upper level of calories that weight-conscious consumers will not want to exceed. That is what justifies the plethora of low calorie food products in European and US markets.

### 1.5.2 Nutrient content/Health properties

Food is not just energy since it contains a mixture of nutrients (e.g. carbohydrates, proteins, fat, vitamins etc.) which are necessary for all people, in different amounts. US and EU consumers are trying to improve their diets in ways that will improve their health. Consumption of low fat food and the falling consumption of eggs (due to cholesterol concerns) are evidence of this new trend. However, improvements in diet are not adequate and obesity is now a global epidemic. This is why nutritional content and nutritional labels of

foods have emerged as an important aspect of the food purchasing decision that can help consumers make informed and healthy purchases. Studies in the USA have found that food labelling can significantly affect consumer behaviour (Teisl et al., 2001) or even positively affect the quality of consumers' diets (Kim et al., 2000, 2001).

Food labels have some important implications for food marketers and the profitability of food industry. Recent studies that outline the profile of label users (Drichoutis et al., 2005) can help in selectively targeting segments of the consumer population that would react more favorably to healthier products. Some companies are now voluntarily providing nutritional info as part of their strategy in switching to a more consumer friendly profile. The UK retailer Tesco, for example, has recently changed labels on hundreds of its own-labeled products to make nutritional information more transparent to consumers. The race for better and informed purchases is also being helped by technology, as mobile phones with cameras transformed into barcode readers can give consumers better nutritional information. This new software technology embedded on mobile phones allows consumers to more easily compare the benefits of different products on the same shelf with serious implications for low nutritional quality food products.

Never before has the focus on the health benefits of food or food components been so strong. The recent trends for healthy and nutritious products create increasing demand for health enhancing foods. This demand plays a major role in reshaping food supply and in the growing development of functional foods; foods that provide health benefits beyond basic nutrition (e.g. fortified foods, whole oat products, eggs with omega-3 fatty acids etc.). Factors contributing in the continuous development of functional foods are (Hasler et al., 2004) (a) the aging population (b) increased health care costs (c) self-efficacy, autonomy in health care, and an awareness and desire to enhance personal health (d) advancing scientific evidence that diet can alter disease prevalence and progression and (e) changes in food regulation.

However, nutritional content is not the only health property of foods that consumers want to be informed of. They are also concerned about food safety, a factor that can have a major impact on reshaping consumer preferences and tastes. It is not a coincidence that vegetarianism in many countries in Europe radically increased just after the 'mad cow' panic. Other crises, like dioxin in chicken feed in 1999 have led to sudden changes in consumption patterns, as manufacturers remove some foods, or consumers reject them,



while consumers stock up on substitutes (Mitchell, 2004). However, consumers usually take food safety for granted and this is why this aspect of the food choice process emerges only when a food crisis is involved.

### **1.5.3 Taste**

Taste and flavor are dominant food choice factors that are usually ranked first on most consumer surveys. Taste guides the preference of foods and a food that does not taste or smell good is doomed to fail. Usually consumers have to balance the taste factor and the health factor on their food choices since many nutritious products are considered of inferior taste when compared to 'unhealthy' foods. This generally observed fact constitutes the continuous struggle of the food sector on new product development. Food companies need to develop new tasty and health enhancing products to satisfy even the coolest customers and increase their market shares.

### **1.5.4 Status/Prestige properties**

While status and prestige properties of foods can influence food choice process, these are not important for everyone. Usually there is a correlation with income (Fischer, 2005) in the sense that higher income consumers have a stronger preference over these product characteristics. In general consumers' interest in premium products is being spurred by rising incomes. The consumption of champagne or caviar, origin specific foods and ethnic foods, food away from home and especially dining out in expensive restaurants can all be seen as carriers of status and prestige characteristics that people want to acquire by food consumption. For manufacturers, consumers' growing desire for status and prestige means concentrating on new product development and marketing the luxurious aspects of products. Even not so affluent people may try to put value on the content of a meal by formalizing its preparation and consumption procedure (e.g. a typical dinner in some Greek families).

### **1.5.5 Environmental, political and ethical properties**

These properties might be seen as rather new issues which affect the food choice process but are gaining growing importance. People may be using these products in order to express a certain self-image and world vision,

an image of the world they want to live in (Senauer, 2001). Some evidence indicates that US and EU consumers are willing to pay more for products that they perceive to provide greater animal welfare (Mitchell, 2004). Consumers may buy organic food not only to improve their diet quality but also because they believe that organic production improves the environment and reduces pollution. These consumers are even willing to pay premium prices for organic products in order to support their belief. Many consumers are also paying attention to production processes of genetically modified (GM) foods. While there are no scientific facts now that GM products carry environmental risks, consumers across the Atlantic have different views. In the EU most supermarket chains have attempted to eliminate GM ingredients in food products (Mitchell, 2004). Demand for 'GM free' products will continue to rise in EU as long as suspicion of GM products grows due to the lack of any scientific proof that GMO's are safe.

#### **1.5.6 Time/Convenience attributes**

The demographic trends that appeared during the last few decades contributed to the increasing demand for time saving and convenience attributes of food. A household must nowadays decide whether to spend time on all aspects of the activity of eating a meal (e.g. preparation of food, cleaning up etc.) or outsource some of these aspects. Women that used to be the main meal planners of households are now dynamically participating in the workforce and household managers work longer hours outside home. It is no wonder then why the Food Away From Home (FAFH) sector shows a phenomenal growth. Even though FAFH has been accused for contributing to a less healthy diet, it seems that the demand for convenience overrides health attributes. However, the need for informed purchases even away-from-home has increased the debate on nutrition labeling in the FAFH sector of USA (Variyam, 2005), since Americans have increased their spending up to 46% of their food budget, unfortunately along with the obesity rates.

FAFH is the one side of the demand for convenience and time saving attributes. The other side is that of the pre-cooked and ready made foods that are increasingly being offered in the global market. These products have managed to supplement much of the Mediterranean diet in Greece and probably also in other Mediterranean countries.

## **1.6 CONCLUSION**

While prices are not yet unimportant in explaining demand for food, as people become more affluent, income and prices play a smaller role in food purchasing decisions. Consumers, their diets and preferences and tastes differ. The complexity of the modern food choice process, influenced mainly by the demand for product characteristics has put more weight on food sector's shoulders. The vast majority of new food products (72%-88%) continue to fail mainly because of low consumer satisfaction. Trends like increasing obesity, large percentage of food budget spent outside of home, aging populations, increases in households with all adults working out of home, concerns about GM foods and the consumption of functional and organic foods are reshaping the demand for food in and away from home. All these must be accounted for by food companies in order to increase the chances of product success.

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