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"Globalisation" of the Alimentary Consumption Patterns in Greece (1957 to 2005); An Economic Analysis

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Abstract

An attempt is made in this paper to describe the development of dietary consumption in Greece during the period 1957 to 2005. All dimensions of alimentary consumption patterns are examined here with a specific focus on: a) their natural characteristics (i.e. plant and animal components); b) technical features of the production process (primary, secondary and tertiary transformation processes); c) their biological and nutritious dimensions (as well as related health and safety issues); and d) socio-economic attributes of these patterns of consumption (i.e. consumption features of the different social, economic, demographic, geographic and professional layers of the population).

Keywords: Consumption, "Globalisation", Dietary models

Introduction

The present work is descriptive in nature and does not deal with the theorisation and justification of the development of alimentary consumption in Greece from 1957 to 2005. An exploratory attempt is rather made to analytically describe these consumption trends during the post-war period (Note 1); their development, changes incurred and re-developments. In that way a basis can be formed for comprehending, interpreting and justifying these social phenomena.

Our analysis is not limited to the description of statistical information of data presented in the National Statistical Service of Greece reports (E.S.Y.E. 1957 - 2005) (e.g. per category of products). Related data are broken down and re-synthesised again using new categorisation dimensions (e.g. rural/industrial, plant/animal features). It is our belief that this break down, re-synthesis and analysis bring into focus the particular qualitative characteristics of each of the categories examined. The existing differentiations and inversions identified are then used to provide a tentative answer on the features of alimentary consumption (Mediterranean dietary patterns as opposed to international/industrial patterns) in the period examined.

Theoretical Framework and Methodology

The postwar period in Greece was marked by a complete overturning of the alimentary patterns (Sotiropoulos and Demousis 2002). This was a development with ground breaking historical dimensions. An established thirty-five century old tradition (Renaud 1995) on food consumption (underlined by the Mediterranean alimentation – Note 2) has been gradually declining and it is disappearing (Galanos 2001). What has been prevailing instead is an international-industrial dietary consumption trend based on the secondary sector's food treating processes, and on tertiary sector's service provision mentality (Lazaridis 1999).

The development of alimentary consumption is examined within the wider frame of demand and supply. Demand for alimentary products is taking place within a fluid "alimentary environment" that rapidly changes (Deaton 1992). Supply relates to not simply offering food but complete "food-packages with specific attributes" (Lancaster 1966, Georgakopoulos and Thomson 2005, Georgakopoulos *et al.* 2006, Georgakopoulos *et al.* 2008).

The data used here have been drawn from a number of sources: statistical studies on "Household Budget Surveys (H.B.S.)" conducted in Greece (E.S.Y.E. 1957 - 2005) (Note 3); the "Statistical Study on the Natural Movement of the Greek Population" (E.S.Y.E. 2008); the Food and Agriculture Organisation of the United Nations (Faostat several years); the World Health Organisation (Health 2002); and the Offices of the Greek Army (2001).

Our analysis is based on a descriptive presentation of statistical information with the help of spreadsheets. In order to construct a basis for the qualitative description of Greek alimentation the qualitative formula from Sotiropoulos (2006b) was used:

$Q_{\text{alimentary pattern}} = (Q_{\text{natural characteristics}}, Q_{\text{technical characteristics}}, Q_{\text{biological characteristics}})$,

rewritten as:

$Q_{\text{alimentary pattern}} = (Q_{\text{plant components}}, Q_{\text{animal components}}, Q_{\text{agricultural components}}, Q_{\text{industrial components.}}, Q_{\text{biological components}})$

Natural Characteristics of Alimentary Consumption Patterns (plant and animal consumption)

Changes in the alimentary models of postwar Greece were rapid and radical. One can observe three different, succesive alimentary consumption patterns in the last fifty years (table 1.1).

During the 1950s and 1960s the basic features of the alimentary models were conforming to the so-called "Mediterranean diet". During these decades, cereal (bread), vegetables and legumes, fruits, olive oil, wine, lamb and goat meat dominated Greek alimentation. However these traditional food groupings had been characterised by a gradual reduction in consumers' demand up to 1974.

A large increase in meat consumption in general was recorded in H.B.S of 1974. This became a typical feature of the Greek alimentation until the end of the 90s. From the beginning of the 80s onwards a new trend emerged that also proved elemental in the formation of the contemporary dietary habits in Greece. There was a progressive and constant increase on food expenditure "away from home". This included expenditure on industrial/processed products (such as non-alcoholic beverages for example).

There was a reduction in consumers' demand for red meat (veal/beef) in the 1990s (up to 2005). A similar decreasing trend was also observed in the demand for the other basic food categories of the previous decades. All in favour of expenditure on processed-homogenised food products.

From a natural characteristics' perspective, the rapid decline of the "Mediterranean diet" appeared to begin with a progressive increase in meat intake in the 1960s. It continued with the "food away from home" expenditure from the beginning of the 1980s onwards. However, a separate examination of each of the alimentary categories of table 1.1 indicates the existence of particular features in each of the respective groupings. Their associated attributes (based on legumes, lamb and goat meat, olive oil, wine, ouzo) were very important for the Greek dietary tradition and they provide the new alimentary patterns developed after the 60s with additional features. These are examined subsequently. The basic food categories influenced were meat (in general), cereals, vegetables, and alcoholic drinks.

The importance of meat participation in the Greek alimentation (with the resulting overturning of the traditional Mediterranean diet) was not limited only in its increased consumption (Note 4). It was also extended in its characteristics (table 1.2). Lamb to veal intake (Note 5) was 1:1 proportionately in H.B.S of 1957/58. This became 1: 3.1 in H.B.S of 2004/05. The alimentary pattern of Mediterranean meat consumption was completely overturned, if one also considers the: eight-time increase (on a percentage basis) of pork eating; doubling of poultry consumption; tripling of other processed meat product intake (Note 6); and the significant decrease of beef and lamb and goat meat at levels at about or below one percent of total meat consumption. Consumption of frozen food initially increased (1960 to 1980) and it then drastically decreased at very low and continuously reducing levels. Greeks transformed from *"...a bread-eating population into meat-eaters"* (Montanari 1993: 30) with western typologies of meat alimentation in their diet. Participation of Mediterranean type of food decreased, whereas Northern and Western-origin processed (industrial) products increased.

Processed vegetable intake also increased, while participation of fresh vegetables, potatoes, and especially legumes decreased (table 1.3). Processed vegetables first appeared in the Greek market in 1969. In 2005 in the form of frozen vegetables, packaged vegetables (with additives), tomato paste/juice, etc. covered 15.2% of total vegetable consumption. Fresh vegetable participation on the other hand has stabilised at levels below those of the 1950s with legume eating being at half of the corresponding levels of that same decade. Legumes have a symbolic significance in the so-called "Mediterranean" - Greek diet. This is due to their high nutritious value (calories, vitamins, etc.) and widespread intake (bean soup for example has been traditionally viewed as the "Greek National Dish").

We found similar trends in alcoholic drink consumption (table 1.4). "Western origin" beer had stabilised at high levels after the 70s with decreasing trends in the last H.B.S (2004/05). Wine consumption on the other hand has risen during the last five years. The rest of the alcoholic drinks appear at stable high levels with whisky holding 17,2% of total consumption of this category (this seems to be the highest level per capita worldwide (Note 7)).

We also found similar patterns in the categories of: plant and animal oils; sweets and pastries; non-alcoholic drinks; other food expenditure away from home, etc. (Sotiropoulos and Mygdakos 2004a).

In summation plant-based food products were dominating dietary patterns during the period of the Mediterranean "model". After a short period in the 1980s of smaller participation they seem to have returned into the contemporary Greek alimentary habits (table 1.5). However the radical decrease of many traditional food categories (legumes, fresh vegetables and fruits, olive oil and cereals) together with the rising of processed food participation (processed vegetables, oils, sweets and pastries, and especially cereals), have removed contemporary dietary patterns from their traditional Mediterranean features. They have brought them closer to processed/industrial (Western-European, North-American) typologies.

Technical Features of the Production Process (Agricultural / Industrial Processes)

One can see the shifting of alimentation to industrial food through the consumption trends in some typical processed products (such as flour, bread, and cereals). Traditional food product participation in the Greek dietary habits decreased, whereas processed food's increased over time. Bread consumption for example had stabilised in 2005 (table 2.1) at the half of total cereal consumption with a slightly decreasing trend. Other processed cereals substituted traditional agricultural food products and captured the other half of total cereal consumption. This is in sharp contrast to the situation at the beginnng of the examined period where processed cereal consumption was reflecting levels lower than $^1/_5$ of total household expenditure on cereals.

Before continuing with the economic analysis of the alimentary patterns using technical criteria it is important to account for the degree of processing food products have undergone. This takes place here by initially categorising food groupings into traditional agricultural and processed products. Then we examine the extent of their industrial treatment through "processing levels". In relation to the latter issue and for simplicity purposes two arbitrary levels are used in this paper: level a′; and level b′. These processing levels were chosen in accordance to the level of food product treatment specific food categories go through.

Flour, cheese, yoghurt, butter, olive oil, other traditionally processed food (such as smoked, drained and salted products), sugar and jams were all considered as level a′ processed food products. Cereal foodstuff, pastas, bread and dried bread (rusks), biscuits and related products, processed meat foodstuff and meat byproducts, frozen food, ready food and tinned food, vegetable or other plant based oil, pastry making products, ice creams, chocolate bars, expenditure on café restaurants, non alcoholic beverages, and other products (such as salt, mustard, soups, etc.) represented level b′ processed food products (Note 8). Finally fresh meat, fish, vegetables, fruits, milk, and eggs were classified as traditional agricultural food products.

During the period examined consumption of traditional agricultural, and level a′ processed food products gradually decreased (Note 9). On the other hand participation of level b′ processed food products increased in the dietary patterns from 36,6% in 1957/58, to 56,0% in 2004/05. The traditonal agricultural features of early postwar dietary habits lost their significance over time and were substituted by industrialised products.

One can identify two distinct periods in the progressive predominance of industrial food products in contemporary diets. The first period extends until the end of the 1980s. During this period consumption was dominated by expenditure on industrial products within the household. During the second era however (beginning of the 1990s to date), expenditure was mostly focused on food consumption away from home (café – restaurants, cantinas). Thus during the first period value was added on food products through the processing activities of the secondary sector. During the second period value addition takes place through the services of the tertiary sector and alimentation has become part of the service provision mentality (table 2.2β).

Industrialisation/tertiarisation of alimentary consumption did not develop in the same manner for all food categories. For each dietary category particularities and partial developments were observed. As a result the associated to these food groupings' (e.g. cereals, meat, vegetables, etc.) alimentation had specific configurations that changed overtime.

The symbolic for the Mediterranean diet category of cereals was slowly industrialising in the first two decades (cereal, biscuit, dried bread). At the same time it was rapidly losing its traditional agricultural/cottage-industrial features (flour, bread, rice, wheat, maize). After the 1980s this industrialisation accelerated. New cereal-based processed products appeared (such as corn flakes, savoury snacks - crisps, crackers, pancakes, tarts, pop-corn, porridge, homogenised children food, diet products, etc.). All these products had western origins and complied with the international alimentary patterns.

However these patterns also had social and biomedical repercussions. Associated physical appearance trends promoted now the slim/thin body type (as opposed to the heavier body type of previous periods in Western Europe). This in turn promoted new lifestyles and values (e.g. tourism growth and the male/female physical appearance on the beach). Cereals containing sugar and pastas decreased their participation in the related food consumption expenditure. The extent of this change became even more evident during the "sugar/fat-scare" period (after the 1960s - Malassis 1986, Fischler 1990) and it was also based on medical suggestions, work related/professional demands, sovereignty of picture (and physical appearance issues) in the digital era, etc. Similar observations could also be made for fat based food products (seed-oil substitutes butter), sugar based products (traditional Mediterranean desserts such as baklava for example lose ground against "western" milk based products such as pastries, cakes and ice creams), and others.

In dairy, western alimentary typologies prevailed in two ways. Directly through the importation of western type processed food (Roquefort, Gouda, and Emmental cheese, processed yoghourts, other light dairy food, etc). Indirectly with food preservation methods. These were brought into the country after electrification and general refrigerator usage (substituted salting as a preservation method as in the case of cheese). Electric refrigerator usage affected at a large extent consumption of meat, fish, dairy, desserts, frozen meat, frozen fish, vegetables, and others. In addition new preservation methods (chemical-based techniques) greatly contributed to increasing consumption of intensely produced fruit, vegetable (such as bananas and/or other exotic and basic species like potatoes) and other food products.

The features of the industrial alimentary patterns differ. However characterisation of the associated food remains unchanged as "industrial products". During the 1950s and the 60s tinned food was dominating. During the 70s freezing preservation techniques, food chemistry, biotechnology and other preserving innovations (treatment, transformation, packing and standardisation of food) gradually prevailed. The associated products were of international origins and preservation know-how. The same could be said for the agricultural production inputs used (pesticides, chemical fertilisers, hormones, antibiotics, meat-based and/or poultry-based flour, genetically engineered products and/or by-products, and others).

Post 1980 health safety issues (food scares) appeared. These relate to biochemicals used, flesh or other pigmentation substances, and other preservation additives (whose usage and health safety is disputed by the medical science and consumer organisations) (Note 10). Examples of these alimentary-related scandals were the existence of toxins (in cooking oil in Spain in 1981 with 400 deceased, and in Ukraine in 2008 with worldwide impacts), dioxins (in Belgian poultry in 1999), salmonella (in poultry and eggs), mad cow disease (BSE) in the 1980s and 90s in Western Europe and Britain, Listeria (in French dairy products with 20 deaths in 1992 – 1995), E.Coli in Scotland (20 deceased in 1996 – 97), to name but few.

Service provision also affected the predominance of contemporary alimentary patterns. Communication, transportation, financial services, commercial services (both domestic and international) and food services offered away from home (on or off vacation periods) had a significant impact (Note 11). Marketing and advertising services have been the focus of daily debates in the media and scientific discussions on the manner the former affect change in alimentary trends.

From the 1980s these new dietary models in Western Europe were seen as "homogenising" and "internationalising" processes accompanied by "deregulation" (Malassis 1986). Indicative of this situation is the estimation of the inflation index for example in Greece. This is based on the "General Consumer Price Index". Associated additions/deductions are made on the prices of certain homogenised - international products (such as coca cola in 1982, seven up, toasts, fast food restaurant products, pizzas served in restaurants in 1988, filtered coffee, mayonnaise, ready soups in 1994, premade pizza, tea in 1999, ketchup, corn flakes, mash potato, potato crisps, and others).

Biological Characteristics of Alimentary Consumption Patterns

From a biological (and health) perspective two completely different dietary trends are identified. These relate to issues of food deprival, and food abundance (Karapostolis, 1983, p. 82).

The former condition does not convey only a lack of food and related services on the supply side. It also relays to deficiencies of nutritious components (see tables 3.1a and 3.1b). Contemporary alimentary patterns have a high nutritious value per capita in calories, proteins, and fat. The Greek population as a result is not classified anymore as being at malnutrition levels. It is grouped together with those of Western/North European and North American countries instead.

This development was already apparent since the 1960s (table 3.1α) when the alimentary trends in Greece were rapidly changing. Relaying to this consumption of fat nutrients (animal-based in relation to plant-based) worsened. A 3:7 animal to plant-based fat participation in the dietary patterns in the 60s changed in 1999 to 3.8:6.2 respectively. This when in the U.S. for example there has been a significant improvement in this rate (even though the latter continues lagging the corresponding Greek levels due to the former's later starting point). Contemporary "biological" alimentary trends in Greece also brought changes into the characteristics of health, physical appearance, and body-type models.

In the contemporary health patterns in Greece food deprival related diseases (malnutrition, lack of vitamins, anaemia, back pains, scurvy) are very rare. The same applies for extreme cases (Note 12). In contemporary health alimentary patterns there is a predominance of the so-called "Civilisation problems/diseases" (cardiovascular diseases, cancer, diabetes, senility etc). At the same time a downward trend in life expectancy is identified. However there is an improvement in body-type characteristics with an increase in the average body height level.

In greater detail, there has been a rapid increase of cardiovascular disease cases in the past fifteen years (this is the period in which meat and fat component participation in the Greek diet had increased). The frequency of those cases surpassed the corresponding levels of other Western European countries (whose starting point was much higher) in 2001 (table 3.2a and 3.2b).

Contemporary health trends in Greece further align with Western European and North American patterns if high mortality rates from cancerous incidents are taken into consideration. According to medical figures (see table 3.3) at least a quarter of the fatalities from cancer were caused by alimentation habits (especially in the case of bowel, stomach and oesophagus cancer). Bowel cancer incidents in specific have increased dramatically (Trichopoulou and Lagiou 1997, Trichopoulou *et al.* 2000). This relatively steady increase has been documented since 1966. Similar conclusions with lower rates in the increase of fatalities are also associated with stomach cancer, oesophagus cancer and diabetes (Trichopoulou and Efstathiades 1989, Trichopoulou and Lagiou 1997, Trichopoulou *et al.* 2000).

The Greek population has lost the premium position they were commanding until the 70s in life expectancy (at a global level at the time following the Japanese). In 2006 Swedish men have the longest life expectancy at pan-European level with an average age of 79.5 years. Greek men are in the 12th position with 77.2 years. The Greek women have fallen from the sixth place they had in the 70s in life expectancy down to the 18th place in the 90s. Life expectancy for Greek women was 81.9 years in 2006 on average when for example French were expected to live for 84.4 (Eurostat 2009).

A positive impact of the contemporary alimentary patterns was in the improvement of the body-type indices (such as body height – see table 3.4) of the younger population. In the 90s certain statistical categories (such as "Short" body-types) disappeared, or decreased ("Average" body-types). The "Tall" category increased. These are typical body-type characteristics of the Northern and Western European populations. .

A significantly negative impact was in the increase of the body-volume levels (obesity). Data from Eurostat (2008) show that 53,2% of men (aged 25-64) and 35,4% of women (aged 25-64) were overweight, whereas 11,8% of men and 10,1% of women were obese.

Socio-Economic Characteristics of Alimentary Consumption Patterns

Alimentary consumption trends appear to have some seasonality features. These significantly vary among the different layers of the population (financial, professional, geographic, demographic, age – see Sotiropoulos and Mygdakos, 2004b, c, 2005, 2006a,b). The higher financially professional layers of the population (directors, self employed, and employers in general), younger people, households with few members, and urban area residents, were the early adopters of the contemporary industrial dietary habits. Lower level financial professional layers (unemployed, workers), old people, large households, and rural area residents (see table 4.1) were later adopters or they did not change at all many of the traditional features of their alimentation.

Regardless of their specific features all the different socio-economic layers of the population adopted at a greater or lesser extent the contemporary alimentary consumption patterns in postwar Greece. Old people and the financially-weaker layers of the population still maintain some of the traditional alimentary features in their dietary habits. However these reflect exceptions rather than general trends.

Finally, another worth noticing feature on the socio-economic dimensions examined here involves seasonal alimentary consumption. This seems to maintain its main features, even though the latter might have slightly changed over the past two decades. During summer periods "food away from home" alimentary consumption and plant-based food products dominate. In wintertime this trend reverses into inside the household food consumption and animal-based food products.

In summation all different socio-economic aspects are important in formulating the contemporary alimentary consumption patterns since they have implications for the timing of their adoption.

Conclusions

The examination of the postwar fifty year period has a historical value in describing the alimentary consumption trends in Greece. The traditional "Mediterranean" dietary patterns based on the ancient Greek culture have been declining and disappearing. This in favour of contemporary industrial/global (Western-origin) trends.

The features of this gradual change were described here by qualitatively examining the natural, technical, and biological variables of dietary consumption (see Sotiropoulos 2006).

In the Mediterranean patterns, food consumption was based on cereal, vegetables – legumes, olive oil, wine and lamb or goat meat. Food products were produced in a rural setting. Their treatment was done through simple cottage-industry processing techniques (olive presses, flour-mills, cheese dairies, etc.). From a biological perspective traditional alimentary patterns were based on a low content of calories, proteins, and fat. Related health issues (lack of vitamins, anaemia, etc.) were the outcome of deprival from certain food nutrients. However life expectancy was long.

In the incorporated with high added value industrial/international alimentary patterns, consumption is based on: foodstuff and other food products that are the outcome of treating processes (tinned food, frozen food, mixes, ready food, pre-cooked food, diet food, etc.); and especially on "food away from home" expenditure. Red meat (veal/beef) played a significant role in the new dietary habits at least in the first decades of the examined period. However its participation in "within the household" food expenditure decreased after the 90s. There was a decrease in the consumption of cereal, legumes (food with a symbolic meaning for the Mediterranean diet), fresh vegetables, fruit, wine, traditional desserts/sweets. The consumption of international western-origin alcoholic drinks, beer and whisky increased. From a biological features' perspective alimentation was characterised by a food-abundance model. This is underlined by a saturation of calories, proteins and fat. Many health issues (such as cardiovascular diseases, types of cancer, obesity, diabetes, a decrease in life expectancy) and some positive impacts on body-type indices are perceived as also being related to this alimentation model.

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Notes

Note 1. Referring to the post World War 2 and Civil War era (1940 to 1950)

Note 2. Its health benefits have been accepted internationally. The development of this alimentation has been associated with several socio-economic dimensions (i.e. the local economy, production issues, health and life expectancy, culture, religious and other symbolic representational aspects to name but few).

Note 3. Data omission for specific years is due to non-availability of the corresponding annual surveys from the National Statistical Service of Greece.

Note 4. According to Eksarhos (1977) *"…the average consumption of meat reached thirteen kilograms per capita per annum…" during the pre - second world war period and "…until 1940…". In 1997 it reached 88,4 kgr per capita per annum* (ibid.: 532).

Note5. Lamb meat is characterised as a typical Mediterranean product with economic and religious and/or other symbolic representations. Red meat (veal/beef) in contrast is a typical North-American/North-European product (e.g. the picturesque paintings of the green fields of Central and Northern Europe with flocks of cows).

Note 6. Processed meat products (such as sausage, salami, ham, bacon etc.), is the first food category in which substitutions (past the 1960s and more specificaly past 1974) do not only happen between Mediterranean and "Western-origin" processed products. They also take place (and mainly) between and within products of the latter grouping.

Note 7. See annual special edition of economic newspaper "Express" (2002).

Note 8. Until the 1950s the a΄ level processed food products were treated through cottage and/or traditional manufacturing production units (e.g. windmills or watermills, olive presses, cheese-dairies, etc.). In time through technological progress and the increased concentration of productive resources (land, capital, labour, etc.), a΄ level processed products developed more intense (industrial) features. These resulted to higher added values (in addition to this they also developed other tertiary service sector characteristics such as commercial, marketing and financing aspects). Thess conditions in conjunction with the increased consumption of b΄ level processed food intensified the participation of industrial food products in the post war Greek diet.

Note 9. With the exception of data appearing in the latest H.B.S 2004/05, where a small increase in level a΄ processed food product consumption was observed. More information can be found on Table 2.2a.

Note 10. See for example Georgakopoulos and Thomson 2005, 2008), Georgakopoulos et al. (2006, 2008).

Note 11. In food away from home alimentation, especially after the 1970s, (see for example Mihalopoulos and Demoussis 2001) the respective areas where food is offered have changed in accordance to the international trends. Traditional taverns and restaurants disappear gradually.

Note 12. The case of the famine in the "German occupation period" during World War II, with deaths from starvation, existence of poor quality and poor nutritious value of food such as maize-based bread known as "Bobota".

Table 1.1 Alimentary Pattern Structure: 1957-2005, (%).

	H.B.S :	***΄57/58***	***΄63/64***	***1974***	***΄81/82***	***΄87/88***	***΄93/94***	***΄98/99***	***΄04/05***
1	*Cereal*	*15,6*	*16,9*	*9,7*	*8,6*	*8,8*	*10,0*	*8,7*	*8,6*
2	*Meat*	*16,1*	*14,6*	*25,9*	*26,7*	*23,2*	*20,2*	*15,1*	*14,4*
3	*Fish*	*5,3*	*6,5*	*4,5*	*5,0*	*4,7*	*5,0*	*5,1*	*5,4*
4	*Vegetable/Olive Oil*	*11,1*	*10,2*	*8,5*	*6,6*	*4,8*	*4,2*	*3,5*	*3,6*
5	*Dairy Products*	*12,1*	*8,1*	*11,6*	*11,9*	*12,6*	*13,0*	*12,0*	*12,0*
6	*Vegetables*	*10,0*	*8,8*	*9,9*	*8,8*	*8,2*	*8,4*	*8,1*	*7,5*
7	*Fruits*	*8,0*	*5,1*	*7,9*	*7,1*	*7,6*	*6,3*	*5,4*	*4,9*
8	*Sugar and pastry making products*	*6,4*	*8,3*	*6,8*	*4,8*	*5,3*	*4,7*	*4,0*	*4,2*
9	*Other food categories*	*0,9*	*1,1*	*1,3*	*0,6*	*0,9*	*0,9*	*0,6*	*0,9*
10	*Expenditure on food away from home*	*12,3*	*12,8*	*8,9*	*17,4*	*21,1*	*24,4*	*33,7*	*34,7*
11	*Non alcoholic drinks**	*2,1*	*7,6*	*5,0*	*2,3*	*2,8*	*3,0*	*3,7*	*3,7*
	Total of Dietary Expenditure	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*

** Non alcoholic drinks and ice-creams in H.B.S 1957/58.*

Data Source: E.S.Y.E. (1957 - 2005).

Table. 1.2 Alimentary Pattern Structure of Meat Consumption 1957-2005, (%).

	H.B.S:	΄57/58	΄63/64	1974	΄81/82	΄87/88	΄93/94	΄98/99	΄04/05
1	Veal	34,8	17,0	43,5	46,2	43,9	43,9	46,5	39,5
2	Lamb	32,0	29,5	13,9	17,3	13,3	12,0	13,6	12,6
3	Pork	2,1	22,1	5,1	11,1	11,0	9,7	13,0	16,6
4	Poultry	6,7	3,5	13,5	8,0	10,7	14,0	14,3	15,3
5	Beef	8,3	8,1	1,0	0,6	1,2	0,4	0,4	0,7
6	Sheep	5,5	5,6	6,9	2,7	1,7	1,4	1,3	1,1
7	Frozen	3,9	5,3	8,4	5,3	4,0	2,9	1,6	1,2
8	Processed Meat Products	3,6	3,8	4,8	6,4	12,5	13,7	7,7	12,6
9	Other Meat	3,0	5,1	2,9	2,4	1,8	1,9	1,6	0,6
	Total Meat	100	100	100	100	100	100	100	100

Data source: E.S.Y.E. (1957 - 2005).

Table. 1.3. Alimentary Pattern Structure of Vegetable Consumption 1957-2005, (%).

H.B.S:	΄57/58	΄63/64	1974	΄81/82	΄87/88	΄93/94	΄98/99	΄04/05
Legumes	13,5	20,1	12,1	9,1	7,6	7,7	6,9	6,7
Potatoes	16,0	23,6	19,7	24,0	20,7	23,2	20,9	16,2
FreshVegetables	70,5	56,3	63,8	61,8	65,5	62,0	63,8	62,0
Frozen Vegetables			1,8	3,2	3,8	3,7	4,8	11,5
Tomato Paste, tomato Juice			2,4	2,0	2,5	3,4	3,5	3,7
Total Vegetables	100	100	100	100	100	100	100	100

Data source: E.S.Y.E. (1957 - 2005).

Table. 1.4. Alimentary Pattern Structure of Alcoholic Drink Consumption 1957-2005, (%).

H.B.S.:	΄57/58	΄81/82	΄98/99	΄04/05
Wine	42,6	26,2	26,1	34,3
Beer	18,0	35,3	35,1	28,6
Other Alcoholic Drinks	39,3	38,6	38,8	37,2
Total Alcoholic Drinks	100,0	100,0	100,0	100,0

Data source: E.S.Y.E. (1957 - 2005).

Table 1.5. Post War Distribution of Plant/Animal Components in the Alimentary Patterns of Consumption in Greece, 1957-2005, (%).

Components	H.B.S. ΄57/58	H.B.S. ΄63/64	H.B.S. 1974	H.B.S. ΄81/82	H.B.S. ΄87/88	H.B.S. ΄93/94	H.B.S. ΄98/99	H.B.S. ΄04/05
Plant Based	60,2	65,8	52,1	47,9	49,3	50,4	53,1	53,0
Animal Based	39,8	34,2	47,9	52,1	50,7	49,6	46,9	47,0
Total	100	100	100	100	100	100	100	100

Data Source: E.S.Y.E. (1957 - 2005).

Table 2.1. Alimentary Pattern Structure of Cereal Consumption, 1957-2005, (%).

H.B.S.:	΄57/58	΄63/64	1974	΄81/82	΄87/88	΄93/94	΄98/99	΄04/05
Bread	67,0	31,3	55,3	55,1	49,9	55,6	50,5	50,7
Flour	6,4	24,1	8,7	8,2	5,2	3,9	4,1	3,9
Rice	7,5	11,1	13,2	7,9	8,1	6,5	6,3	6,0
Processed Cereal	18,9	17,5	20,4	23,1	31,1	31,2	39,1	39,4
Wheat, maize, other types		16,0	2,1	5,6	5,7	2,8		
Total Cereal	100	100	100	100	100	100	100	100

Data Source: E.S.Y.E. (1957 - 2005).

Table 2.2a. Participation of Traditional Agricultural and Processed Food Products (level a′ and level b′ of processing) in Alimentary Expenditure, 1957-2005, (%).

H.B.S.:	***′57/58***	***′63/64***	***1974***	***′81/82***	***′87/88***	***′93/94***	***′98/99***	***′04/05***
Traditional Agricultural Food Products	*43,5*	*34,0*	*47,3*	*45,3*	*40,8*	*38,1*	*32,7*	*29,9*
Level a′ Processed Food Products	*19,9*	*24,6*	*16,9*	*15,6*	*13,8*	*13,2*	*11,6*	*14,1*
Level b′ Processed Food Products	*36,6*	*41,3*	*35,8*	*39,1*	*45,4*	*48,6*	*55,7*	*56,0*
Total of Alimentary Expenditure	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*

Data Source: E.S.Y.E. (1957 - 2005).

Table 2.2b. Participation of Traditional Agricultural and Processed Food Products (level a′ and level b′ of processing) and Expenditure on Food Away from Home in Total Alimentary Expenditure, 1957 – 2005 (%).

H.B.S.:	***′57/58***	***′63/64***	***1974***	***′81/82***	***′87/88***	***′93/94***	***′98/99***	***′04/05***
Traditional Agricultural Food Products	*43,5*	*34*	*47,3*	*45,3*	*40,8*	*38,1*	*32,7*	*29,9*
Level a′ Processed Food Products	*19,9*	*24,6*	*16,9*	*15,6*	*13,8*	*13,2*	*11,6*	*14,1*
Level b.a.′ Processed Food Products	*24,3*	*28,5*	*18,4*	*21,7*	*24,3*	*24,2*	*22,0*	*21,3*
Level b.b.′ Processed Food Products ("Expenditure on Food away from home")	*12,3*	*12,8*	*8,9*	*17,4*	*21,1*	*24,4*	*33,7*	*34,7*
Total of Alimentary Expenditure	*100*	*100*	*100*	*100*	*100*	*100*	*100*	*100*

Data Source: E.S.Y.E. (1957 - 2005).

Table 3.1a. Daily Consumption of Nutritious Components per Capita (1961)

1961	***Greece***						***U.S.***					
	Calories		*Proteins*		*Fat*		*Calories*		*Proteins*		*Fat*	
Food	*kcal*	*%*	*kcal*	*%*	*kcal*	*%*	*kcal*	*%*	*Kcal*	*%*	*kcal*	*%*
A)Plant based	*2447*	*86*	*56.2*	*67*	*61.1*	*70*	*1872*	*64*	*32.3*	*51*	*40.8*	*36*
B)Animal Based	*373*	*14*	*27.2*	*33*	*26.1*	*30*	*1011*	*36*	*63.1*	*49*	*69.5*	*64*
Total	*2820*	*100*	*83.4*	*100*	*87.2*	*100*	*2883*	*100*	*95.4*	*100*	*110.3*	*100*

According to Lalanne (1958)

A′= Less than 2.400 (men) and 2.200 (women) calories (insufficient nutrition)

B ′= more than 3.200 calories (supernutrition)

Table 3.1b. Daily Consumption of Nutritious Components per Capita (1999)*

1999	***Greece***						***U.S.***					
	Calories		*Proteins*		*Fat*		*Proteins*		*Calories*		*Fat*	
Food	*kcal*	*%*	*kcal*	*%*	*kcal*	*%*	*kcal*	*%*	*Kcal*	*%*	*kcal*	*%*
A)Plant based	*2860*	*77*	*54.6*	*45*	*94.1*	*62*	*2704*	*72*	*41.8*	*36,4*	*76.6*	*51,6*
B)Animal Based	*829*	*23*	*64.2*	*55*	*57.1*	*38*	*1050*	*28*	*73.1*	*63,6*	*71.9*	*48,4*
Total	*3689*	*100*	*118.8*	*100*	*151.2*	*100*	*3754*	*100*	*114.9*	*100*	*148.5*	*100*

* *Greece, 2001-03: Calories: 3680 , Proteins: 117, Fat: 145*

U.S., 2001-03: Calories: 3770, Proteins: 114, Fat: 156, but:

Tajikistan, 2001-03: Calories: 1840, Proteins: 48, Fat: 40

Zambia, 2001-03: Calories: 1930, Proteins: 48, Fat: 29

Data Source: Faostat (several years)

Table. 3.2a. Ischemic Cardiac Cases in Greece After the Predominance of the Contemporary Dietary Trends.

Cardiac Cases per 100.000 people				
Year	*1980*	*1985*	*1990*	*1995*
Ischemic Cardiac Cases	*296,15*	*412,24*	*521*	*670*

Data Source: Health (2002).

Table 3.2b. Ischemic Cardiac Cases in Western Europe (per 100.000 people).

	Netherlands	*Sweden*	*Austria*	*Denmark*	*Finland*
1980s	*498,61*	*597,43*	*757,66*	*721,1*	*259,7*
1990s	*558,04*	*623,85*	*776,97*	*738,36*	*335*

Data Source: Health (2002).

Table 3.3. Disease Related Deaths in Greece by case, in the Whole Population.

Cause of Death	***1956***	***2006***
Oesophagus Cancer	*80*	*181*
Stomach Cancer	*924*	*1328*
Bowel Cancer	*353*	*2115*
Diabetes	*510*	*700*

Data Source: E.S.Y.E. (2008)

Table 3.4. Height Figures per Category (1989/1992 and 1997/2000)

Categories	*"Short" (≤1,61m.)*	*"Average" (1,61-1,73 m.)*	*"Normal" (1,73-1,79 m.)*	*"Tall" (1,79-≥1,97 m.)*
1989/1992	*1,50%*	*29,30%*	*30,10%*	*39,10%*
1997/2000	-	*16,10%*	*30,72%*	*53,18%*

Data Source: The Offices of the Greek Army (2001)

Table 4.1. Socio-Economic Features of the Alimentary Patterns (1957-2005).

Adoption of Contemporary Alimentary Behaviour	***Traditional Alimentary Behaviour***
Financially Stronger Layers	*Fiancially Weaker Layers*
Younger Ages	*Third Age*
One/Few Member Households	*Large Households*
Directors and Sole Traders/Contractors	*Unemployed/Voluntary Workers*
Employers	*Workers*
Urban Areas	*Rural Areas*

Data Source: E.S.Y.E. (1957 - 2005).

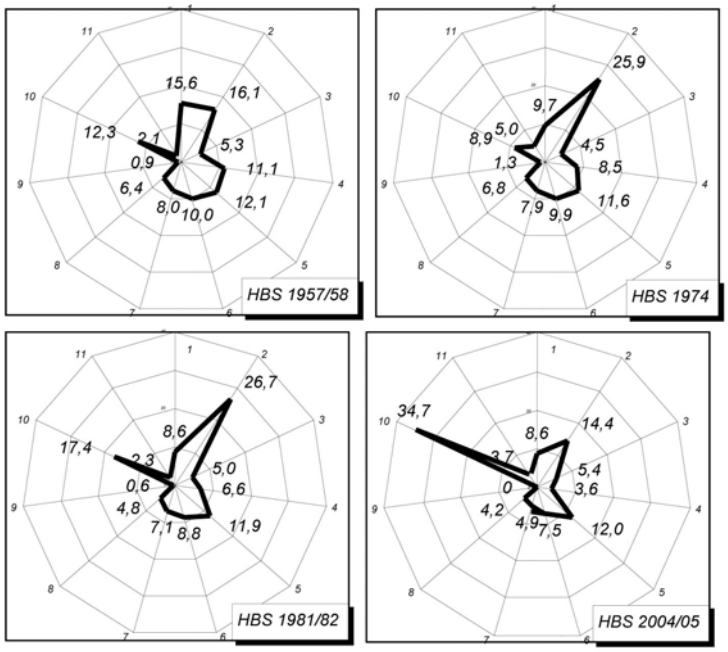

Figure 1.1. Alimentary Pattern Structure: 1957-2005, (%).

Data Source: E.S.Y.E. (1957 - 2005).