

Trends in food availability in Greece – the DAFNE III project

A. Trichopoulou, A. Naska, A. Antoniou and H. Economou

Department of Hygiene and Epidemiology, Medical School, University of Athens

Introduction

Documenting dietary habits are prerequisites in planning, implementing and monitoring national food and nutrition policies. In Greece, food consumption data mostly derive from small surveys undertaken at specific time points, with the objective to collect data on the food intake of individuals (Trichopoulou A, Toupadaki N, Tzonou A, et al 1993; Trichopoulou A, Katsouyanni K, Gnardellis C, 1993). The only exception is the dietary data collected in the context of the Greek segment of the European Prospective Investigation into Cancer and Nutrition (EPIC), which aims at investigating the relation of nutrition and other lifestyle and environmental factors to the incidence of and mortality from cancer and other diseases. Being expensive and labour intensive though, the collection of dietary data in the form and extension of the Greek EPIC study cannot be undertaken on a regular basis.

Because of the lack of routine information on the food consumption of the Greek population, two other sources of dietary data have traditionally been used. The Food and Agriculture Organisation assembled food balance sheets (FBS) and the national household budget surveys (HBS). The FBS describe the structure of food patterns at the population level, in terms of the major food commodities disappearing from the market (www.fao.org). Although the FBS data have been used in various occasions, their user should always bear in mind their constraints and interpret comparisons with due caution (Southgate DAT, 1991).

Household budget surveys collect information on food availability at household level. In Greece, HBS are conducted by the National Statistical Office every 4-5 years, using country representative samples of households. Like food balance sheets, the HBS allow following trends in food availability but, moving from the total population to the household level, HBS data can provide a more detailed description of the

dietary choices of the population, as well as of population sub-groups (Trichopoulou A, 1992).

The exploitation of HBS-derived data for nutritional purposes has been evaluated in the context of the DAta Food NEtworking (DAFNE) initiative (Trichopoulou A, Naska A (eds), 2001). The DAFNE project has been successful in developing the methodology for harmonising food, demographic and socio-economic data collected in the HBS of 13 European countries, including Greece. The project's outcome is a cost-effective food databank that allows, not only monitoring the food habits of the Greek population, but also comparing the observed trends with those of other European countries (www.nut.uoa.gr).

Using data retrieved from the DAFNE databank, the present report aims at presenting trends in food availability in Greece over the last years. Food availability values are further monitored in relation to three socio-demographic factors (*education* and *occupation* of the household head, and *household's composition*) affecting food choices.

Material and Methods

Material

Daily individual food availability was estimated using data collected in the following three Greek HBS (with sample size in parenthesis): 1981-82 (6,034 households), 1987-88 (6,489 households) and 1998-99 (6,258 households). Sample units were defined as “person or group of persons, related or not, sharing the same dwelling, the same cooking facilities, and having common financial interests”, and were asked to keep food accounts diary for either 7 days (HBS of 1981-82 and 1987-88) or for 14 days (HBS of 1998-99) (www.statistics.gr). In order to capture seasonal variation in food consumption, data were collected on a yearly basis.

Although the diary keepers were asked to record the quantities of food available in the household together with the related expenses, in some cases information on food quantities is limited. In the context of the DAFNE project, the methodology has been developed for converting food expenditure to quantity data, through the application of adjusted retail prices per unit weight (Friel, 2001). Retail prices can either be provided

by Governmental Authorities or be collected from sources ranging from small local shops to hypermarkets. Retail prices per unit weight are further adjusted to the survey year, using the Consumer Price Index provided by the National Statistical Office, and are finally applied to the expenditure data.

In the 1981-82 Greek HBS data, for 53 out of 128 food codes expenditure data were solely recorded. This information was converted to quantity data, after applying the above described methodology and results were validated by comparison with Publications of the Greek Statistical Office. The conversion of expenditure to quantity data was not feasible in food codes within the groups of seafood, vegetables, processed fruit and non-alcoholic beverages, because of lack of indices to convert current prices to 1981 ones, for the respective items. Hence, the above food groups were not considered in the present analysis of the 1981-82 data. Furthermore, only limited information was collected on the consumption of sugar products in the HBS of 1998-99. Since time comparisons on the availability of these food items could lead to erroneous conclusions, data on sugar and sugar products are not presented.

Data harmonisation

The methodology for harmonising food and socio-demographic HBS data has been developed in the context of the DAFNE project (Lagiou P et al, 2001). The process of harmonisation included the establishment of operational criteria for the classification of foods and socioeconomic variables, iterative cross-coding, as well as several working group meetings and bilateral visits to address specific problems.

Estimation of daily individual food availability

Individual availability was estimated without making allowances for the proportion of food that was edible and under the assumption of equal distribution of food within the household and during the survey period.

Food availability was further estimated according to the following socio-demographic characteristics:

- the educational status of the household head,
- the occupation of the household head and
- the household's composition.

The locality of the dwelling is also among the socio-demographic variables of interest to the DAFNE project. However, its effect cannot be studied using the Greek HBS data since, for anonymity reasons, the Statistical Office could not provide the variable information that would allow classifications under common groups.

To allow for comparisons between the different datasets, the DAFNE classification scheme for socio-demographic characteristics (Lagiou P et al, 2001) was applied. More specifically:

Education was classified under the following five categories, on the basis of the educational attainment of the household's head:

- Illiterate/ Elementary education not completed
- Elementary education completed
- Secondary education not completed
- Secondary education completed
- College/University

Occupation was classified under the four categories below, based on the occupational status and the profession, if employed, of the household head:

- Non-manual
- Manual
- Retired
- Other (students, housewives, unemployed and invalid persons).

Lastly, eight types of households are studied under the variable **household composition**. The classification scheme aims at reflecting the number and the age of household members, with children being defined as up to 18 years of age, adults from 19-65 years of age and elderly as more than 65 years old. It should be noted that the following household types do not correspond to all combinations possible, but they were selected in an attempt to focus on households of public health interest.

- Households with one adult member
- Households with two adult members
- Households with one adult member and children (lone parents)
- Households with two adult members and children

- Households with adult and elderly members
- Households with children, adult and elderly members
- Households with one elderly member
- Households with two elderly members

Results

Table 1 presents the mean availability of 14 food groups in Greece, by year of survey. According to the 1998-99 HBS data, Greeks consume considerable amounts of cereals, vegetables and fruits; but also milk and milk products (including cheese), meat and meat products. Their added lipid availability also remains high, due to the prevalent consumption of olive oil in the region. When following changes in food availability over time, one can note that pronounced changes mainly took place during the 12-year period of 1987-1999; an observation probably justified by the rapid changes and food crises occurring in the nutrition sector in the nineties. Focusing thus on this period, figures 1 and 2 present absolute and percent changes (on the basis of the 1987 values) in mean food availability. Increase can be observed in the availability of nuts, vegetables, fish and seafood, added lipids, alcoholic and non-alcoholic beverages. An increase is also observed in the availability of fruit and vegetable juices (Table 1), which can be attributed to the sharp growth of these products' market.

Mean availability of the 14 food groups, according to the educational attainment of the household head and the year of data collection is shown in table 2. In general, availability within the household reduces, as the educational level of the household head improves. However, the availability of fruits, milk and products, fruit and vegetable juices and non-alcoholic beverages is higher in households whose head is a college or a university graduate. Changes over time on the effect of educational level to the availability of eight food groups are presented in figures 3-8. In the case of meat and meat products (figure 3), total added lipids (figure 7), fish and seafood (figure 8), a change can be observed in the way educational level may affect people's food choices, during the 12-year period. Thus, the education's differential effect observed in the availability of meat and products in 1987-88 faded away 12 years later. Opposite is the case of fish and seafood, where variation recently emerged, and households of lower education recorded in 1998-9 an increased preference towards

sea products. In 1987-88, the availability of total added lipids (mainly in the form of olive oil) was decreasing as the educational level of the household head improved, probably reflecting the adherence of less educated people to traditional dietary patterns. Twelve years later however, households of lower education recorded a marginal reduction in their added lipid availability; while households of higher education recorded an increase, which is substantial especially among college/university graduates.

Table 3 presents food availability for the three survey years, according to the occupational status of the household head. With the exception of milk and milk products, fruit and vegetable juices, households of retired members reported higher daily food availability. The professional status of the household head (non manual vs. manual) seems to differentially affect the availability of milk and milk products, fish and seafood, fruits, and non-alcoholic beverages (including juices), with non-manual households recording larger quantities. Manual households record higher availability of added lipids, cereals and potatoes. In contrast to observations in Northern European countries, Greek manual and non-manual households record the same preference for vegetables, meat and meat products. Changes in the availability of four food groups by occupational status of household head and by time, are presented in figures 9-12.

Mean availability of the 14 food groups, along with the household composition and the year of data collection is shown in tables 4a and 4b. Figures 13-18 present overtime changes in the availability of five food groups for six household types, which were selected on the basis of their public health interest. Thus, emphasis is given on elderly living alone vs. households of two elderly members (Fig. 13-14), on adults living alone vs. two adult households (Fig. 15-16) and on lone parent households vs. households of two parents and children (Fig 17-18).

In general, single households recorded the higher food availability. Living together seems to have an effect on the food preferences of Greek adults, since adults living alone reported purchasing larger quantities of fruits, milk and milk products and smaller quantities of vegetables, meat and meat products, fish and seafood. Households with children reported lower availabilities for almost all food items, with the exception of milk and milk products. In contrast to what has been observed in

other European countries, Greek households of lone parents, when compared to two-parent households, reported larger food purchases for the majority of the food groups.

With respect to changes over time during the 12-year period of 1987-1999, the availability of fruits, milk and milk products decreased in elderly households; while the availability of vegetables, fish and seafood increased. It should however be noted that the increase in fish and seafood availability is only marginal in households of two elderly members, who, at the same period, increased their preference towards meat consumption. Adult households, with or without children, recorded a decrease in the availability of fruit, cereal and cereal products; marginal changes in their preference towards milk and milk products, vegetables, meat and meat products; while the availability of total added lipids almost remained unchanged. Increase was observed in the availability of fish and seafood, nuts, fruit and vegetable juices and non-alcoholic beverages.

Discussion

Multipurpose household budget surveys are conducted in most European countries. Although not primarily designed for nutritional purposes, information is collected on the food commodities available in the household, and can therefore constitute a source of nutritional data at both national and international level. The alternative widely used source of data on availability, as approximated by disappearance on the country level is that of FBS. The two sources are not always comparable because procedures for data collection have different sources of errors. Nevertheless, it is remarkable that FBS data of 1988 and 1999 for ten food groups (cereals, starchy roots, pulses, added lipids, vegetables, fruits, meat, eggs, alcoholic beverages, fish and seafood) show relatively high Spearman's correlation coefficients with the corresponding HBS data (coefficients +0.92 for 1988 and +0.91 for 1999).

Although not substantial, some changes were observed in household food availability in Greece, during the period of 1987-1999. An increase was noted in the availability of vegetables, nuts, fish and seafood. The increase in fish and seafood availability is evident when results are presented for the whole population, as well as for population sub-groups. The second half of the nineties has been marked by food crises seriously

challenging consumers' confidence towards meat consumption. The increase in fish and seafood availability may thus be attributed to consumers' response to recent crises, to higher availability of frozen and convenience sea products in the Greek market, and lastly to consumers' raised awareness on the beneficial effect of their consumption.

A sharp increase has also been noted in the availability of alcoholic drinks within the household, pointing towards either a general increase in alcohol consumption among Greeks, or towards a change in their drinking occasions. Studies specifically addressing the issue are however required to be able to draw safe conclusions.

In spite of the fact that the daily fruit availability is more than twice the minimum of the 150g recommended by WHO, it has substantially reduced during the 12-year period of 1987-99. Given the Greek eating habits, it is rather unlikely that this decrease in the household availability is compensated by an increase in the outdoors fruit consumption. We could hence fairly argue that the estimated values clearly point towards a reduction in fruit availability. During the same period however, the daily availability of fruit juices increased.

Comparisons of food availability over time however, require attention when the recording period varies among the surveys that are compared, as is the case between the 1987-88 Greek HBS (recording period: 7 days) and the 1998-99 Greek HBS (recording period: 14 days). For foods rarely consumed or purchased in bulk, short-duration surveys may generate a high proportion of zero values, which can imply either that the household members are inclined to purchase certain foods in bulk quantities at intervals exceeding the recording period, or that, being irregular or non-consumers, members happened not to buy these specific foods during the survey period. Whatever the cause, a high proportion of zero values may result in underestimated mean availability values, especially when foods not regularly purchased are studied. There is however, no substantial effect in the estimation of mean availability in the overall population, but the problem may become evident when population sub-groups are studied. It should finally be noted that the frequency of zero values substantially declines when aggregated food groups, instead of specific food items, are studied, as is the case in the present comparisons.

Socioeconomic differences in eating practices are often studied in terms of the level of education achieved, which has been reported to be the strongest and most consistent indicator in assessing socioeconomic differences (Liberatos et al 1988). Education expresses not only the individual's attainment and years of schooling, but it might also reflect occupation, income and, even more importantly when it comes to healthy dietary practice, the way an individual perceives and applies current nutritional information (Johansson et al. 1999).

Our findings on how education affects food availability show good agreement with other recent observations that low educational level, and by extension low socioeconomic status, is generally associated with lower consumption of fruit and increased consumption of potatoes and cereals (including bread) (Johansson et al. 1999; Irala-Estevéz et al. 2000). Interestingly, we did not observe any substantial differentiation in the way educational level shapes meat availability in Greece. The observation that fruit availability increased with the educational level of the household, whereas the opposite trend was observed with respect to the availability of vegetables and pulses probably reflects the traditional dietary habits of low educated Greeks.

In support to the significance of education as a socio-economic indicator, the professional status of the household head (non-manual vs. manual) has not been identified as a factor substantially differentiating the households' dietary choices. With the exception of fruit and vegetable juices, households of retired members recorded the highest daily food availability, a finding also supported by previous publications (Chesher A, 1997).

With respect to how the composition of the household affects food availability within it, it was generally observed that an increase in the number of household members (irrespective of their age) results in a decrease in the quantity of food available to each member. It should however be noted, that not considering age differences when estimating individual availability might result in underestimations in households where children are present.

In conclusion, the Greek data retrieved from the DAFNE databank may serve as a tool for identifying and quantifying trends in the dietary choices of a nationally representative sample of Greek households and for depicting variations in their diet. An additional asset of the DAFNE data is their comparability, allowing cross-country comparisons of food availability at periodic time intervals. In Europe of the various cultural heritages and norms, tools that allow the identification of the existing dietary patterns may prove useful in the consolidation of a European Union that promotes the public well being, showing consideration for the unique characteristics of its Members.

References

- Chesher A (1997). Diet revealed? Semiparametric estimation of nutrient intake-age relationships. *J. R. Statist.Soc A* 160: 389-428.
- Irala-Estevez JD, Groth M, Johansson L, Oltersdorf U, Prattala R & Martinez-Gonzalez MA (2000). A systematic review of socio-economic differences in food habits in Europe: consumption of fruit and vegetables. *Eur J Clin Nutr* 54, 706-714.
- Johansson L, Thelle DS, Solvoll K, Bjørneboe GEA & Drevon CA (1999). Healthy dietary habits in relation to social determinants and lifestyle factors. *Brit J. Nutr.* 81, 211-220.
- Lagiou P, Trichopoulou A and the DAFNE contributors (2001). The DAFNE initiative: The methodology for assessing dietary patterns across Europe using household budget survey data. *Public Health Nutr.*; 4(5B):1135-1141
- Liberatos P, Link BG & Kelsey JL (1988). The measurement of social class in epidemiology. *Epidemiology Review* 10, 87-121.
- Southgate DAT (1991) 'Database requirements for calculations from food balance sheet data and household budget surveys' in WHO Regional Publications, Food and Health data, their use in nutrition policy-making, European Series No34, Denmark
- Trichopoulou A (1992). Monitoring food intake in Europe: a food data bank based on household budget surveys. *Eur. J Clin. Nutr.*46; Suppl 5: S3-S8.
- Trichopoulou A, Katsouyanni K, Gnardellis C. (1993) The traditional Greek diet. *Eur J Clin Nutr*; 47 Suppl 1: S76-S81.
- Trichopoulou A, Naska A (eds) (2001). The DAFNE Initiative. Assessment of dietary patterns across Europe using household budget survey data A European Commission supported project. *Public Health Nutr*: 4(5B). pp. 71.
- Trichopoulou A, Toupadaki N, Tzonou A, Katsouyanni K, Manousos O, Kada E et al. (1993) The macronutrient composition of the Greek diet: estimates derived from six case-control studies. *Eur J Clin Nutr*; 47: 549-558.

Acknowledgement

The authors gratefully acknowledge the Hellenic Statistical Office, responsible for the undertaking of the national Household Budget Survey.

The present study was conducted in the context of the DAFNE III project entitled "European food availability databank based on Household Budget Surveys", supported by DG-SANCO of the European Union.

Table 1: Overall mean food availability in Greece, by year (quantity/person/day).

Food Group	Mean availability		
	1981/82	1987/88	1998/99
Eggs (pieces)	0.40	0.51	0.25
Potatoes and other starchy roots (g)	158	154	137
Pulses (g)	17	16	14
Nuts (g)	2.0	3.7	4.7
Cereals and cereal products (g)	294	323	253
Milk and milk products (g)	273	317	298
Meat and meat products (g)	150	174	149
Vegetables (fresh and processed) (g)	N/A	264	271
Fish and seafood (g)	36†	40	45
Fruits (fresh and processed) (g)	332‡	350	306
Total added lipids (g)	79	82	84
Olive oil (g)	68	63	67
Alcoholic beverages (ml)	36	36	48
Non alcoholic beverages (ml)	N/A	316	328
Juices (fruit and vegetable) (ml)	1.8	4	23

† Data refer to fish availability only.

‡ Data refer to fresh fruit availability only.

N/A: Not available

Source: the DAFNE databank.

Table 2: Mean food availability in Greece, by survey year and by educational level of the household head (quantity/person/day).

Food Group	1981/82					1987/88					1998/99				
	EI	EC	SI	SC	C/U	EI	EC	SI	SC	C/U	EI	EC	SI	SC	C/U
Eggs (pieces)	0.44	0.42	N/R	0.34	0.36	0.53	0.54	0.50	0.41	0.54	0.28	0.26	0.24	0.24	0.22
Potatoes and other starchy roots (g)	171	163	N/R	142	127	160	163	151	150	132	156	143	136	134	117
Pulses (g)	26	18	N/R	10	9	22	18	14	11	9	22	17	12	11	10
Nuts (g)	1.4	1.7	N/R	3.2	3.2	2.8	3.3	3.8	4.6	4.8	6.6	4.6	3.4	4.2	5.5
Cereals and cereal products (g)	373	302	N/R	226	206	398	340	307	280	260	327	285	234	219	206
Milk and milk products (g)	252	265	N/R	287	342	269	305	336	344	361	262	269	275	320	360
Meat and meat products (g)	146	149	N/R	153	154	167	175	181	174	172	154	155	144	144	144
Vegetables (g)	N/A	N/A	N/A	N/A	N/A	288	269	247	252	248	309	281	251	256	259
Fish and seafood (g)	40†	35†	N/R	33†	32†	39	42	42	36	37	53	47	40	41	45
Fruits (g)	308‡	315‡	N/R	372‡	405‡	350	329	309	379	408	297	289	274	309	357
Total added lipids (g)	98	75	N/R	81	58	95	87	84	72	62	93	94	69	76	80
Olive oil (g)	88	65	N/R	68	47	76	68	66	54	47	72	76	52	60	64
Alcoholic beverages (ml)	36	34	N/R	37	41	31	37	36	33	43	47	51	48	45	44
Non alcoholic beverages (ml)	N/A	N/A	N/A	N/A	N/A	282	287	300	440	299	337	318	307	326	360
Juices (fruit and vegetable) (ml)	0.6	1.7	N/R	2.9	2.5	1.8	3.1	5.2	5.1	4.1	12	16	22	27	37

EI: Illiterate/Elementary education incomplete
 SC: Secondary education completed

EC: Elementary education completed
 C/U: College /University

SI: Secondary education incomplete

† Data refer to fish availability only.

‡ Data refer to the availability of fresh fruit only.

N/R: Not recorded

N/A: Not available.

Source: the DAFNE databank.

Table 3: Mean food availability in Greece, by survey year and by occupation of the household head (quantity/person/day).

Food Group	1981/82				1987/88				1998/99			
	Non-Manual	Manual	Retired	Other*	Non-Manual	Manual	Retired	Other*	Non-Manual	Manual	Retired	Other*
Eggs (pieces)	0.37	0.41	0.42	0.39	0.50	0.58	0.41	0.49	0.22	0.26	0.27	0.26
Potatoes and other starchy roots (g)	139	168	153	156	136	163	166	156	120	135	155	143
Pulses (g)	11	19	22	12	11	18	19	13	10	13	20	13
Nuts (g)	3.1	1.8	1.4	1.8	4.6	3.6	2.8	3.2	5.2	3.7	5.8	5.1
Cereals and cereal products (g)	245	305	342	269	281	342	351	319	202	261	287	267
Milk and milk products (g)	301	263	269	268	329	303	329	311	340	271	292	314
Meat and meat products (g)	156	144	163	146	172	178	174	156	144	144	162	150
Vegetables (g)	N/A	N/A	N/A	N/A	240	250	323	264	247	246	335	276
Fish and seafood (g)	33†	34†	48†	31†	36	38	51	32	43	39	59	42
Fruits (g)	360‡	297‡	401‡	340‡	352	310	424	349	320	265	360	299
Total added lipids (g)	74	78	99	62	70	86	94	74	78	81	95	85
Olive oil (g)	62	68	89	49	53	68	74	50	62	63	77	65
Alcoholic beverages (ml)	43	35	34	21	42	36	32	23	44	49	57	27
Non alcoholic beverages (ml)	N/A	N/A	N/A	N/A	291	342	308	297	333	300	363	347
Juices (fruit and vegetable) (ml)	2.8	1.2	2.0	2.2	4.2	3.5	2.8	3.7	33	21	16	23

* **Other:** Housewives, Students, Unemployed and Invalid Persons

† Data refer to fish availability only.

‡ Data refer to the availability of fresh fruit only.

N/A: Not available.

Source: the DAFNE databank

Table 4a: Mean food availability in Greece, by survey year and by household type (quantity/person/day).

Food Group	1981/82				1987/88				1998/99			
	One adult	Two adults	One adult and children	Two adults and children	One adult	Two adults	One adult and children	Two adults and children	One adult	Two adults	One adult and children	Two adults and children
Eggs (pieces)	0.44	0.52	0.46	0.38	0.41	0.72	0.41	0.51	0.32	0.32	0.25	0.22
Potatoes and other starchy roots (g)	139	194	200	156	155	175	160	144	148	163	145	122
Pulses (g)	13	21	11	15	15	23	14	13	10	19	6	10
Nuts (g)	4.3	2.1	2.2	2.2	5.1	4.6	4.8	4.0	5.9	6.8	3.4	4.1
Cereals and cereal products (g)	275	368	273	266	363	394	328	289	279	303	217	217
Milk and milk products (g)	302	272	361	284	353	323	376	330	356	290	331	321
Meat and meat products (g)	172	202	169	141	209	215	167	165	167	192	150	132
Vegetables (g)	N/A	N/A	N/A	N/A	346	359	230	222	329	354	228	213
Fish and seafood (g)	27†	53†	34†	31†	32	54	26	32	50	56	35	35
Fruits (g)	467‡	463‡	365‡	304‡	579	473	363	302	458	358	287	268
Total added lipids (g)	107	126	56	66	97	98	87	70	104	99	56	70
Olive oil (g)	91	110	39	56	73	77	68	53	82	77	39	55
Alcoholic beverages (ml)	51	61	14	33	44	60	23	31	66	63	27	37
Non alcoholic beverages (ml)	N/A	N/A	N/A	N/A	536	437	304	303	614	452	323	276
Juices (fruit and vegetable) (ml)	1.3	3.3	2.7	1.9	3.8	3.9	3.3	4.1	54	24	33	26

† Data refer to fish availability only.

‡ Data refer to the availability of fresh fruit only.

N/A: Not available.

Source: the DAFNE databank

Table 4b: Mean food availability in Greece, by survey year and by household type (quantity/person/day).

Food Group	1981/82				1987/88				1998/99			
	Adults and elderly	Adults, elderly and children	One elderly	Two elderly	Adults and elderly	Adults, elderly and children	One elderly	Two elderly	Adults and elderly	Adults, elderly and children	One elderly	Two elderly
Eggs (pieces)	0.43	0.38	0.41	0.49	0.50	0.57	0.40	0.46	0.27	0.23	0.31	0.26
Potatoes and other starchy roots (g)	163	136	130	144	166	133	154	179	148	112	159	159
Pulses (g)	24	16	18	24	20	14	25	22	19	13	22	22
Nuts (g)	1.4	1.5	0.8	1.0	2.9	2.9	2.1	1.4	5.9	3.2	7.2	5.3
Cereals and cereal products (g)	364	286	388	353	364	313	430	377	277	241	350	318
Milk and milk products (g)	247	264	358	299	301	278	388	347	271	257	378	325
Meat and meat products (g)	158	125	160	172	185	137	186	160	158	114	172	171
Vegetables (g)	N/A	N/A	N/A	N/A	321	200	361	336	321	190	381	358
Fish and seafood (g)	46†	30†	37†	59†	54	36	51	63	57	34	65	66
Fruits (g)	394‡	255‡	511‡	394‡	394	240	556	450	338	206	456	382
Total added lipids (g)	85	79	124	153	98	70	108	120	94	65	125	104
Olive oil (g)	75	69	110	147	79	57	81	99	76	48	103	83
Alcoholic beverages (ml)	36	31	20	34	42	24	21	37	60	42	37	67
Non alcoholic beverages (ml)	N/A	N/A	N/A	N/A	312	212	319	323	330	241	485	346
Juices (fruit and vegetable) (ml)	2.0	0.6	2.2	0.2	2.8	2.7	3.4	3.5	19	20	20	10

† Data refer to fish availability only.

‡ Data refer to the availability of fresh fruit only.

N/A: Not available.

Source: the DAFNE databank.

Figure 1: Change in mean food availability, during the period of 1987-1999 (g-ml/person/day)

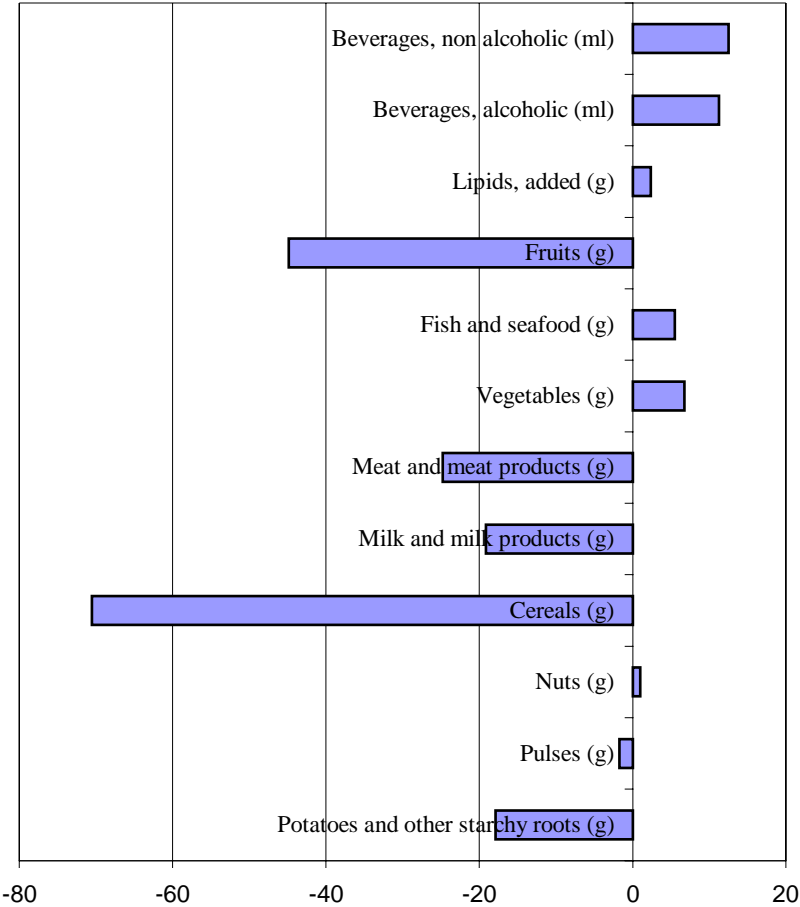


Figure 2: Percent change in mean food availability, during the period of 1987-1999 (g-ml/person/day)

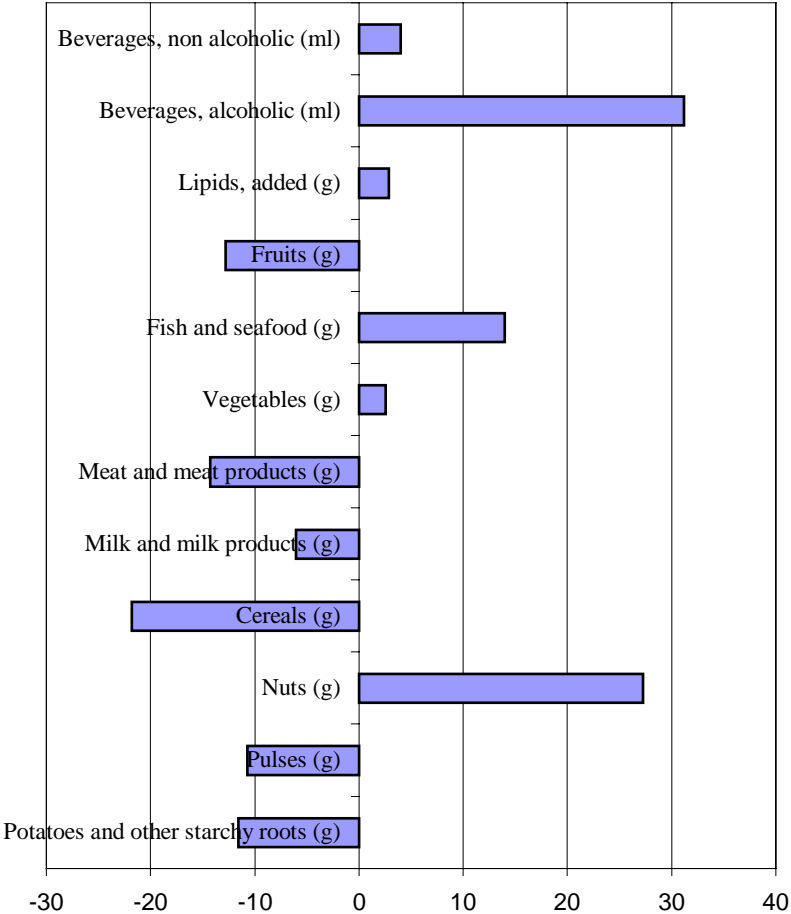


Figure 3: Mean availability of meat and meat products, by year and educational level of the household head (g/person/day)

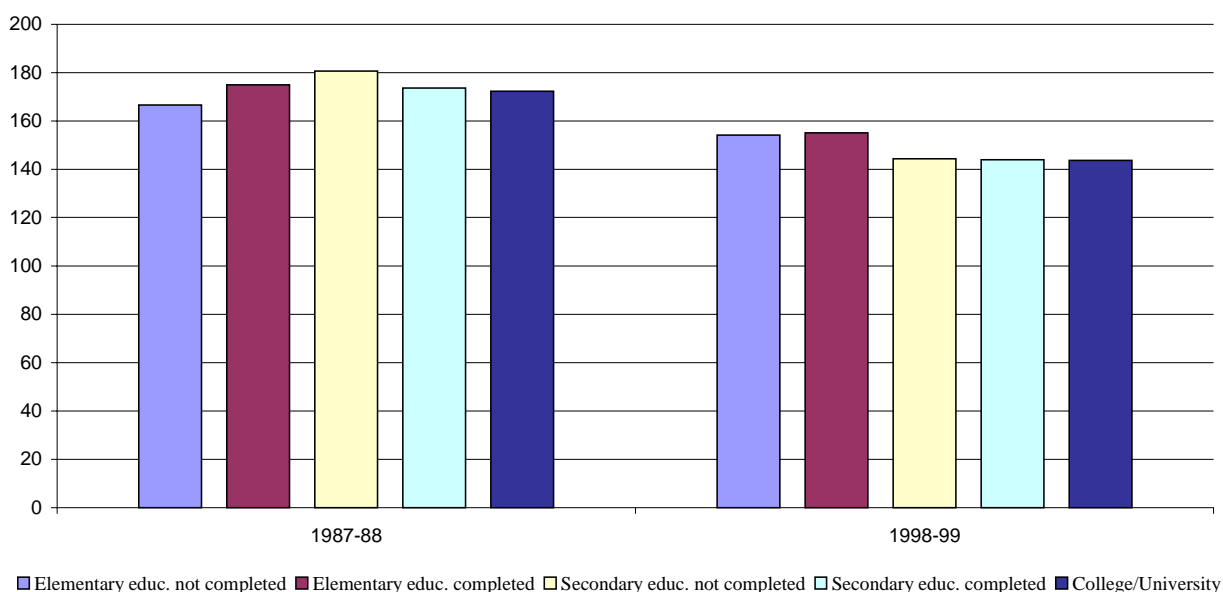


Figure 4: Mean availability of milk and milk products, by year and educational level of the household head (g/person/day)

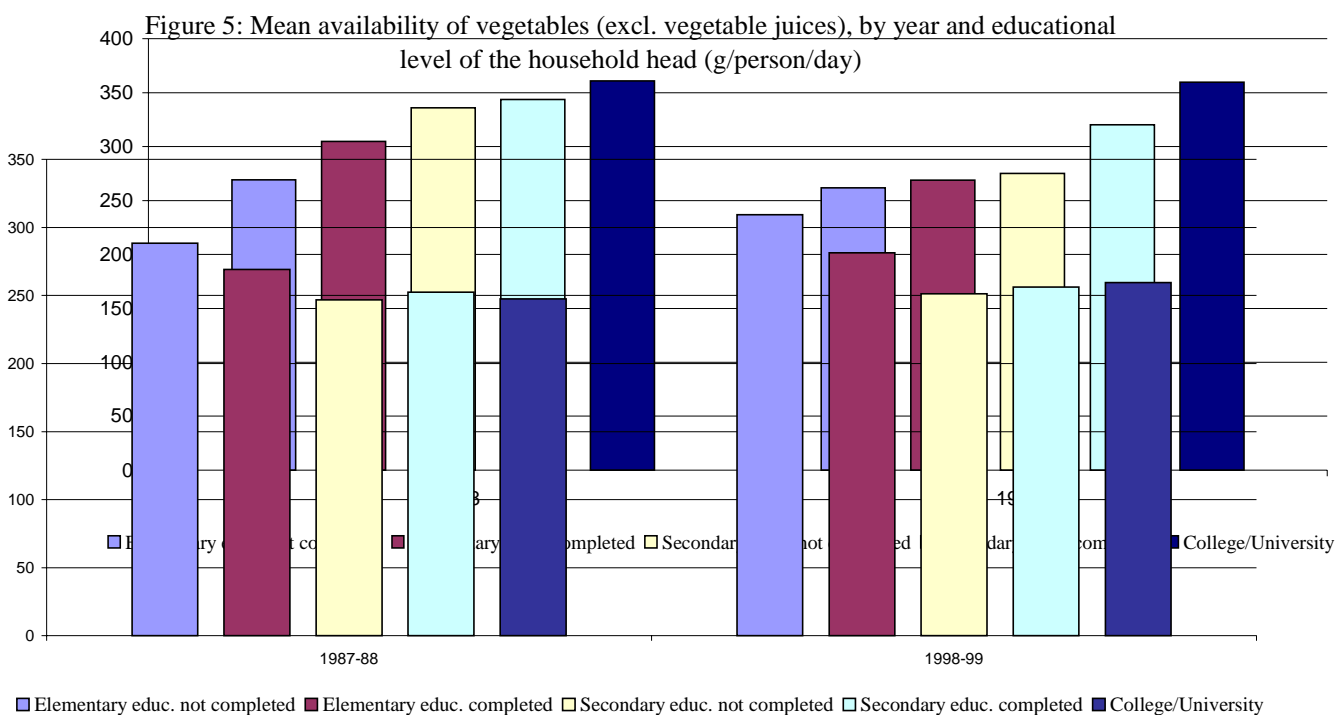


Figure 6: Mean availability of fruit (excl. fruit juices), by year and educational level of the household head (g/person/day)

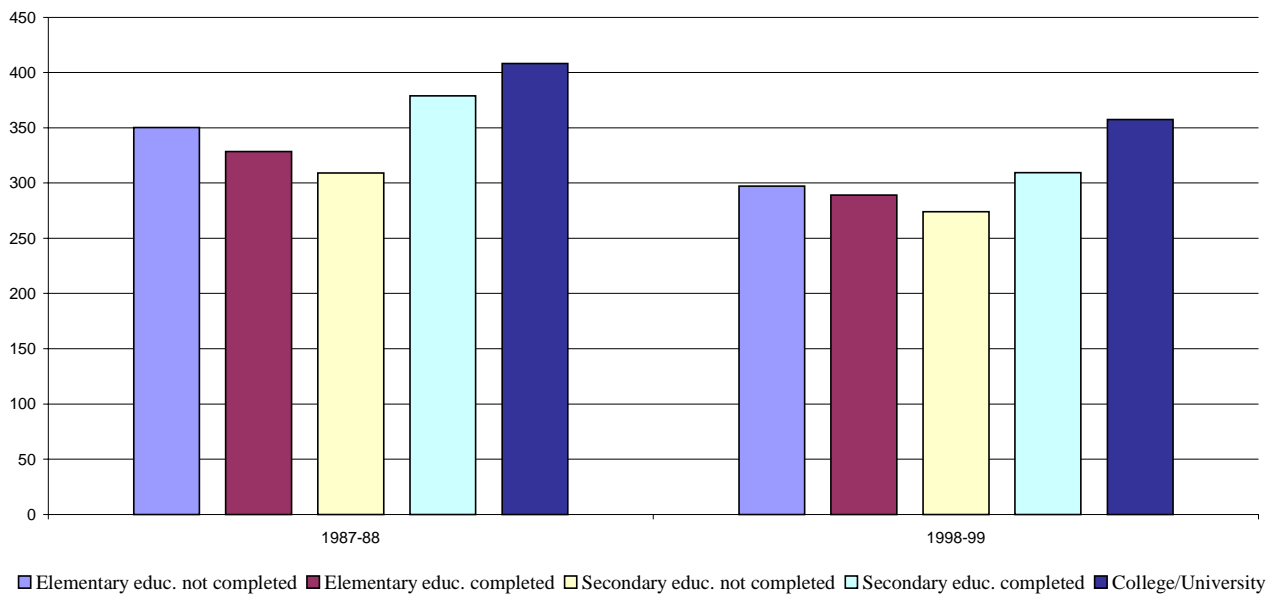


Figure 7: Mean availability of total added lipids, by year and educational level of the household head (g/person/day)

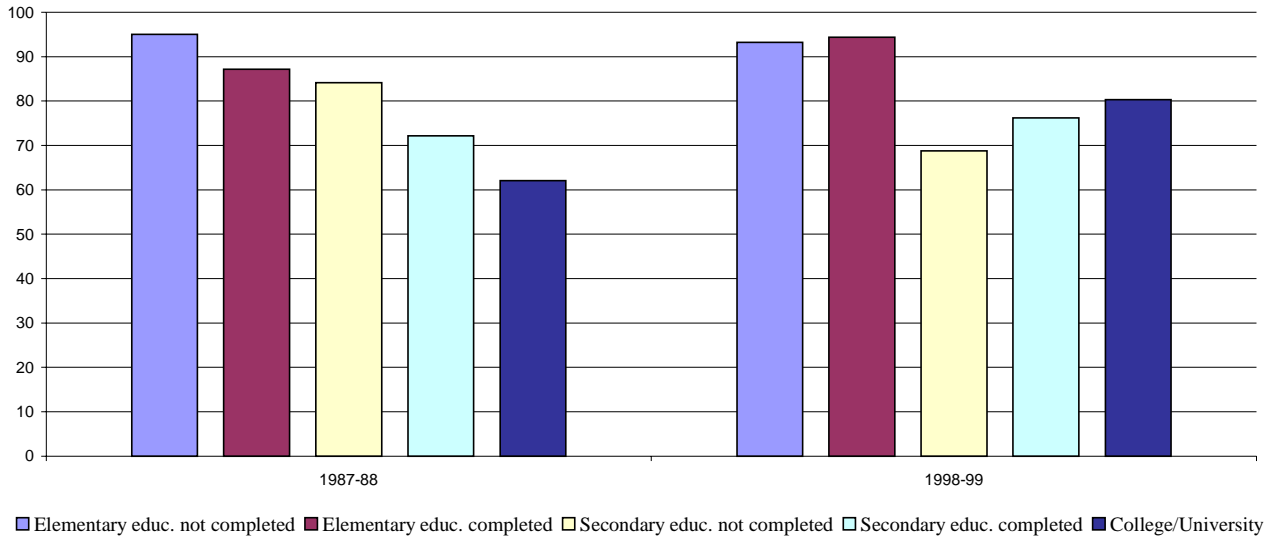


Figure 8: Mean availability of fish and seafood, by year and educational level of the household head (g/person/day)

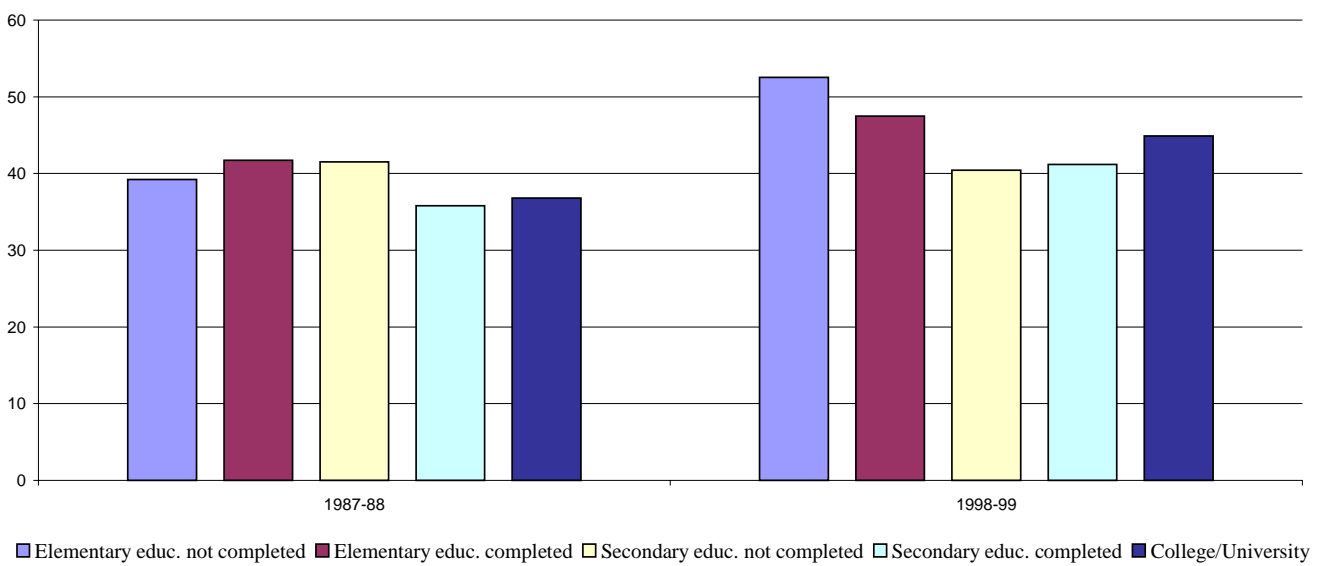


Figure 9: Mean availability of meat and meat products, by year and occupation of the household head (g/person/day)

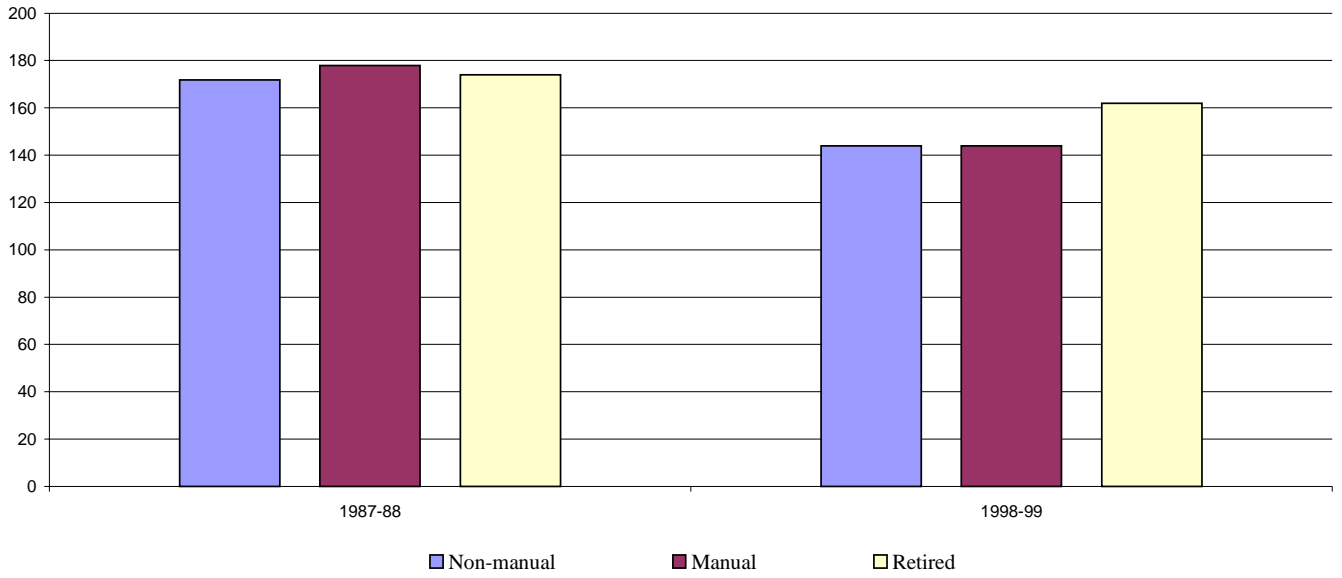


Figure 10: Mean availability of fish and seafood, by year and occupation of the household head (g/person/day)

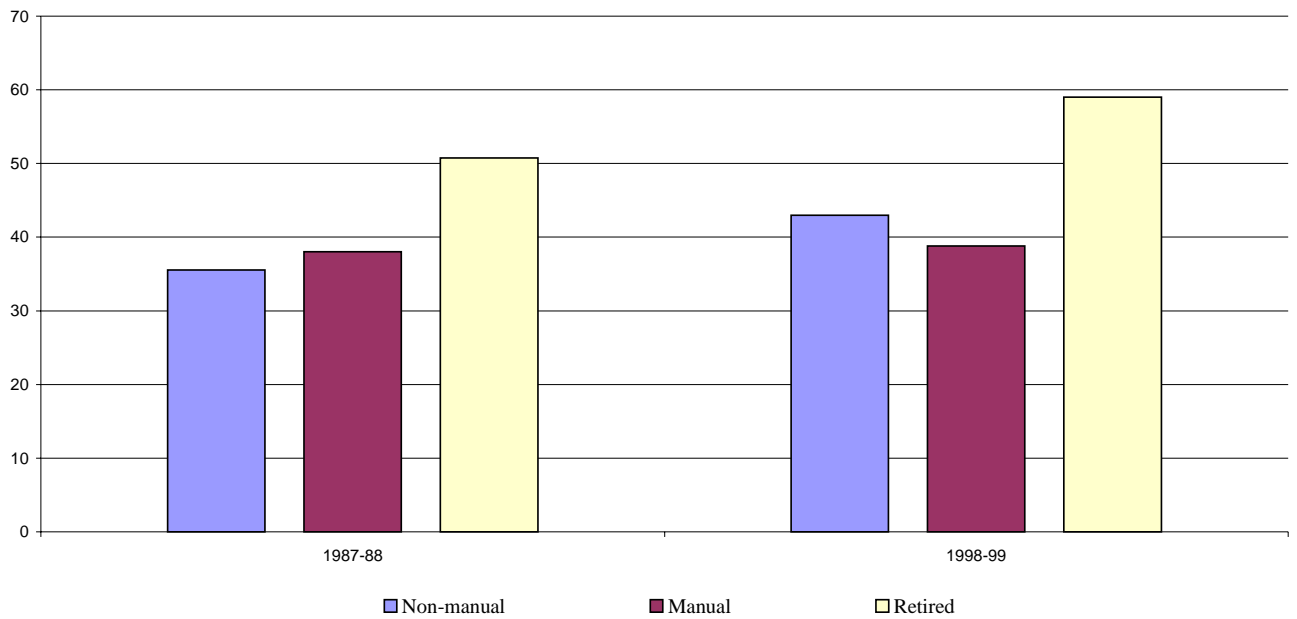


Figure 11: Mean availability of vegetables (excl. vegetable juices), by year and occupation of the household head (g/person/day)

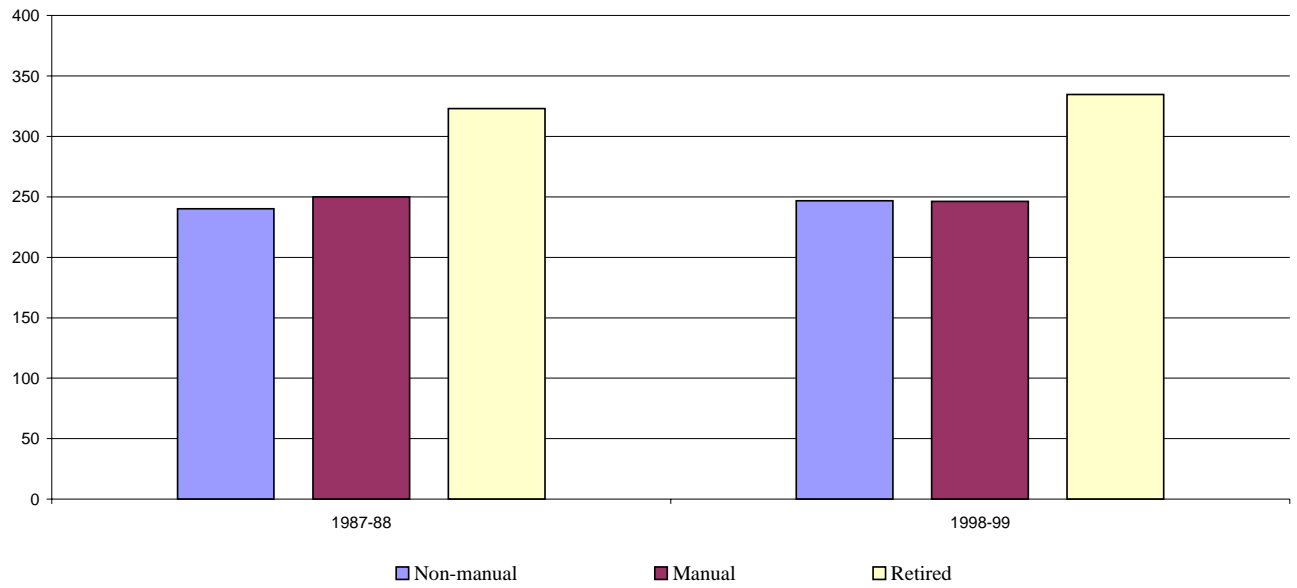


Figure 12: Mean availability of total added lipids, by year and occupation of the household head (g/person/day)

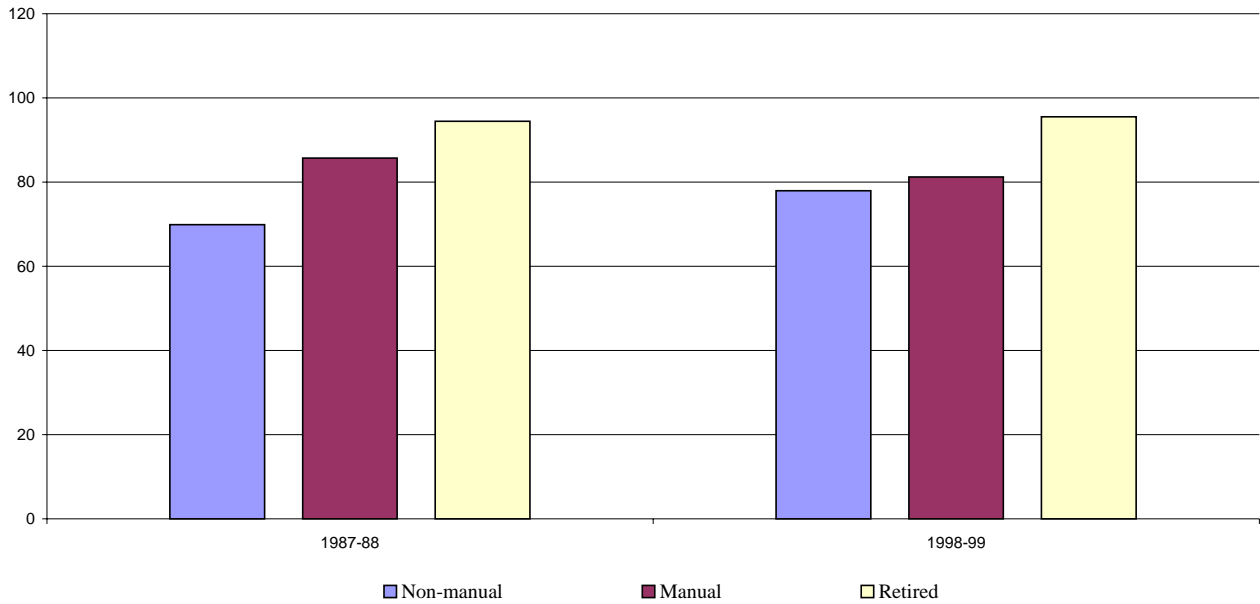


Figure 13: Mean food availability (g/person/day) in households of one elderly member, by year

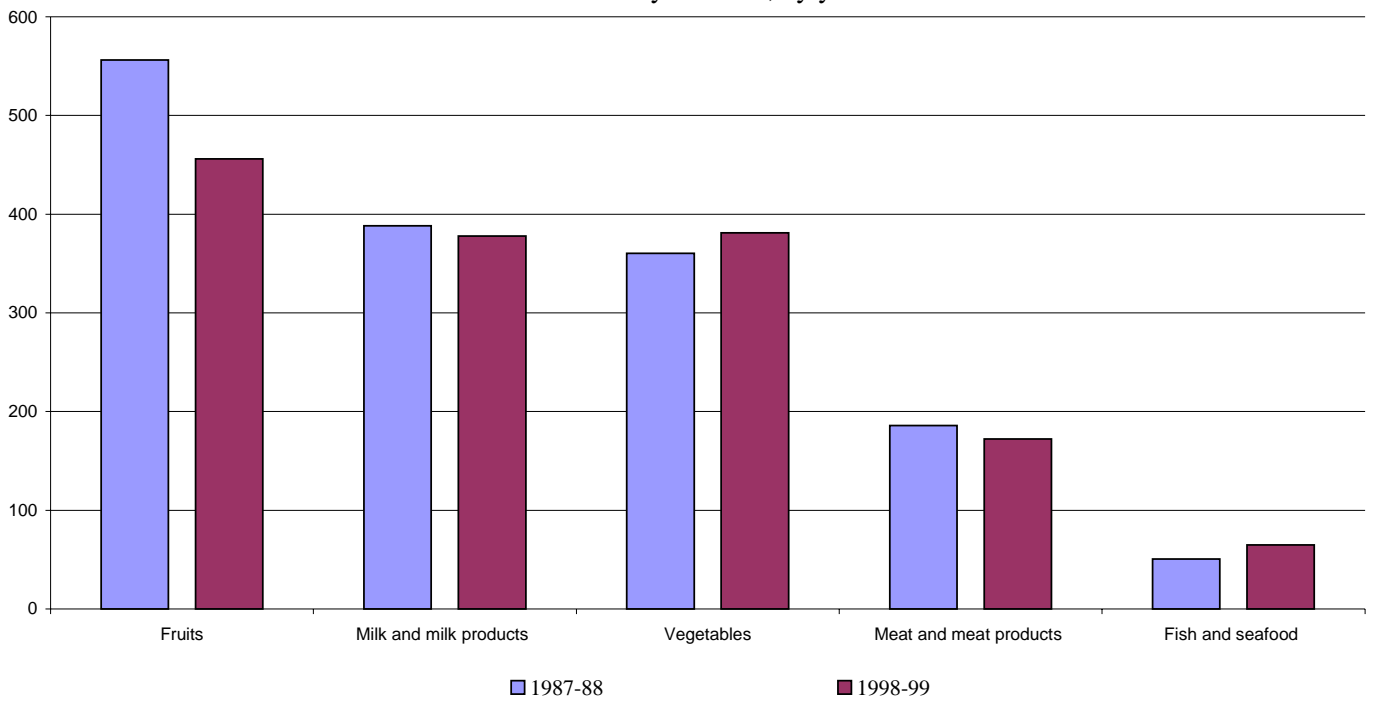


Figure 14: Mean food availability (g/person/day) in households of two elderly members, by year

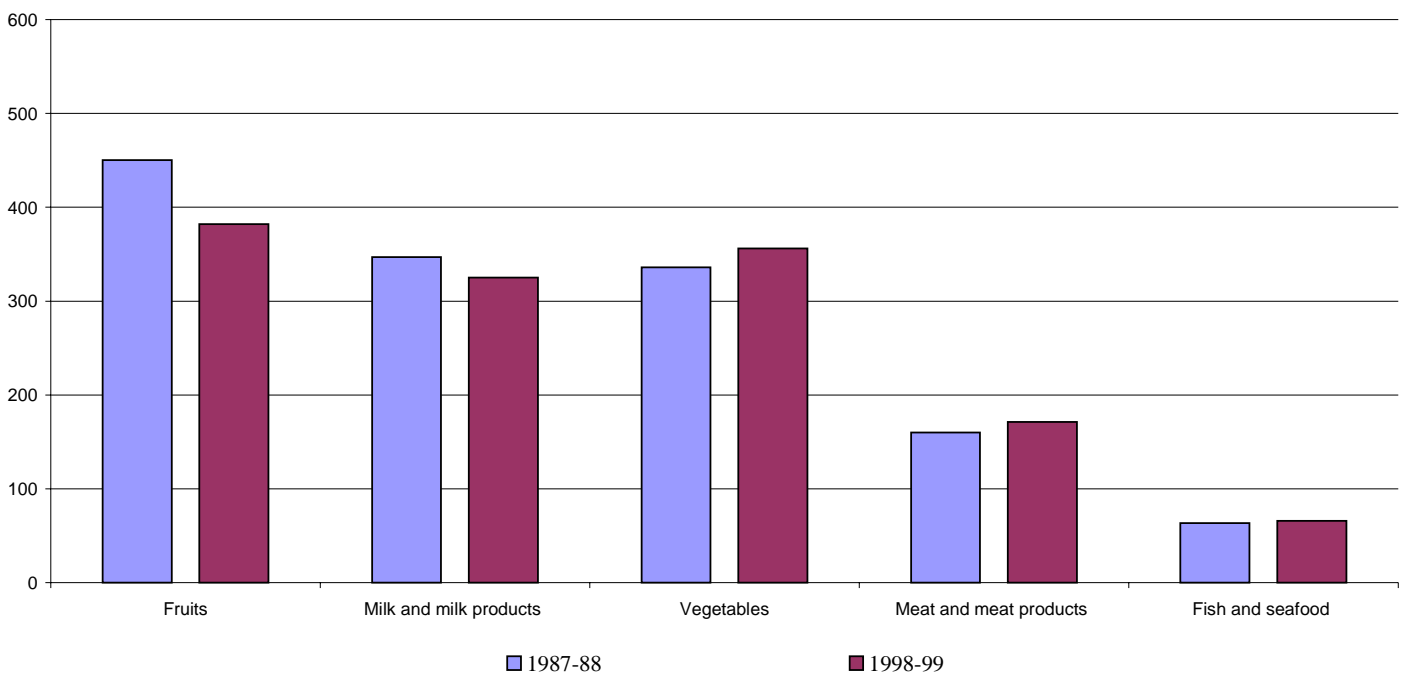


Figure 15: Mean food availability (g/person/day) in households of one adult member, by year

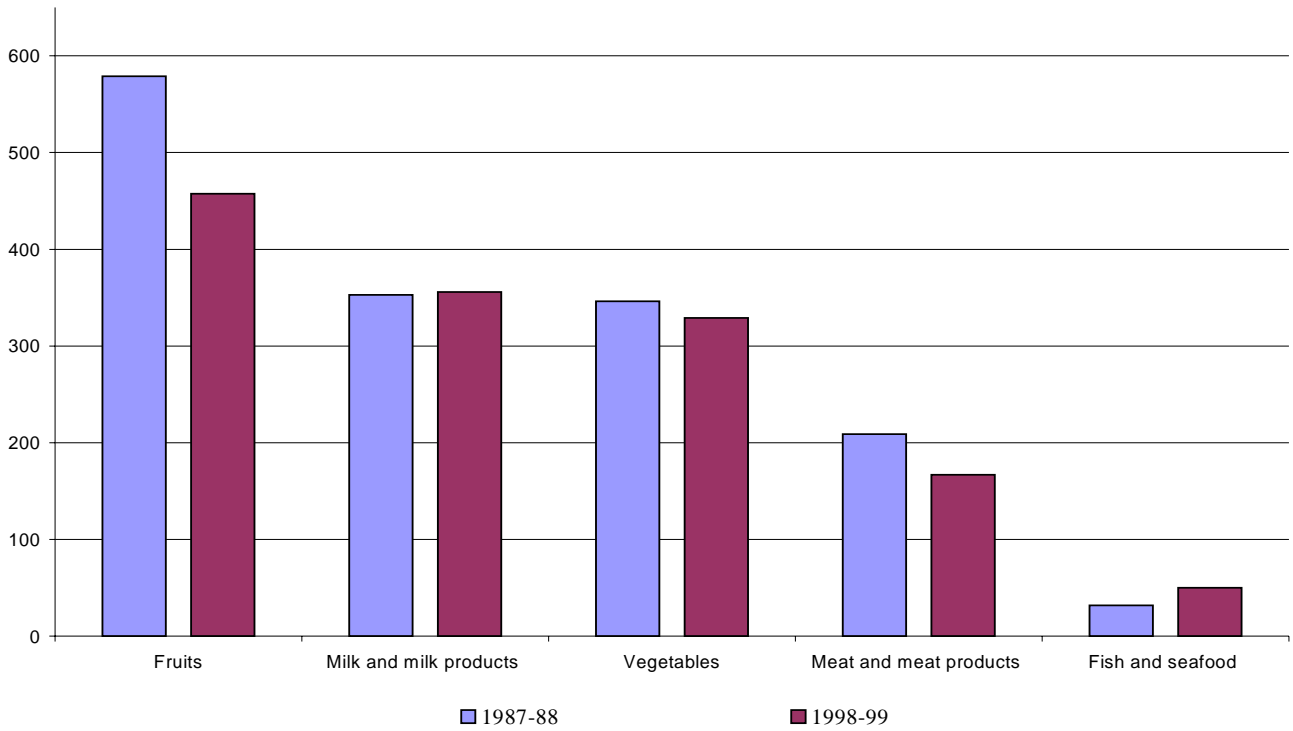


Figure 16: Mean food availability (g/person/day) in households of two adult members, by year

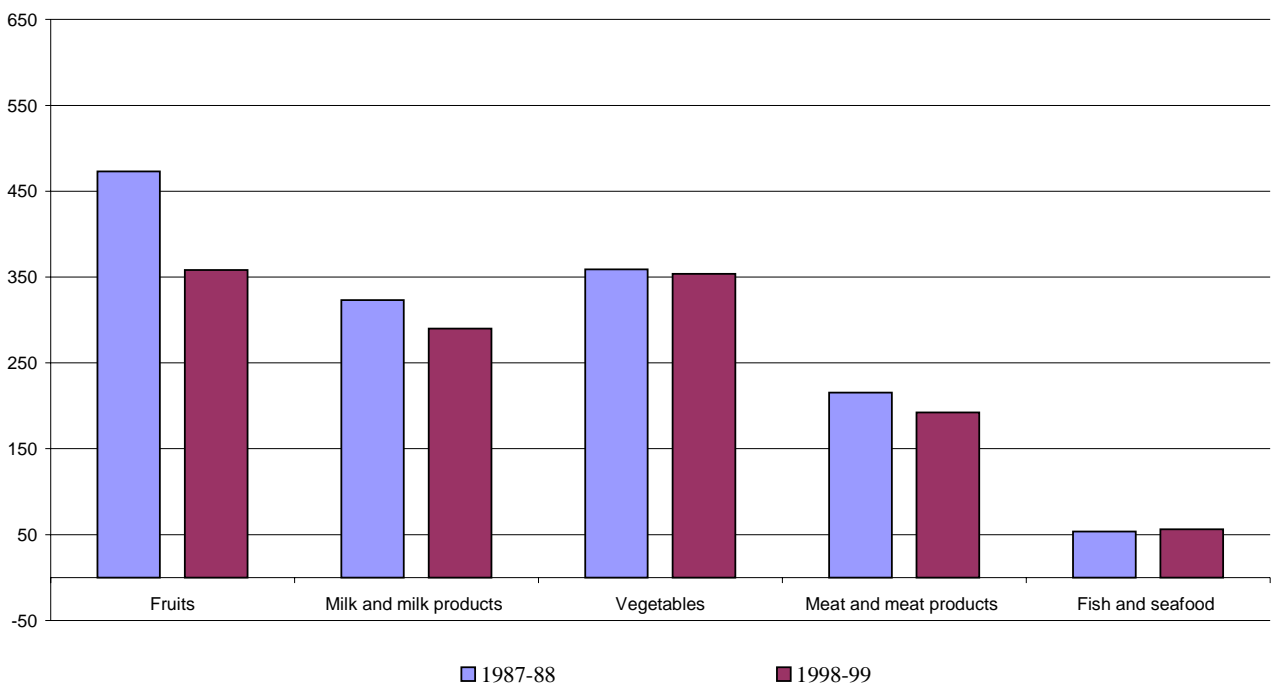


Figure 17: Mean food availability (g/person/day) in single parent households, by year

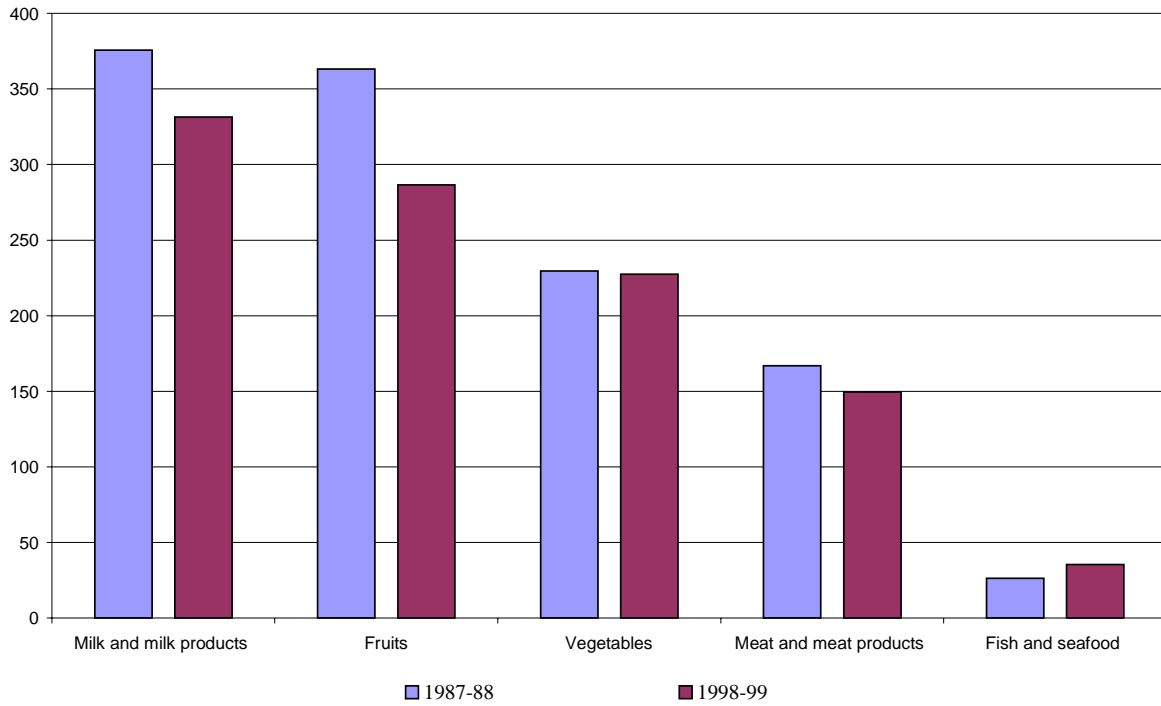
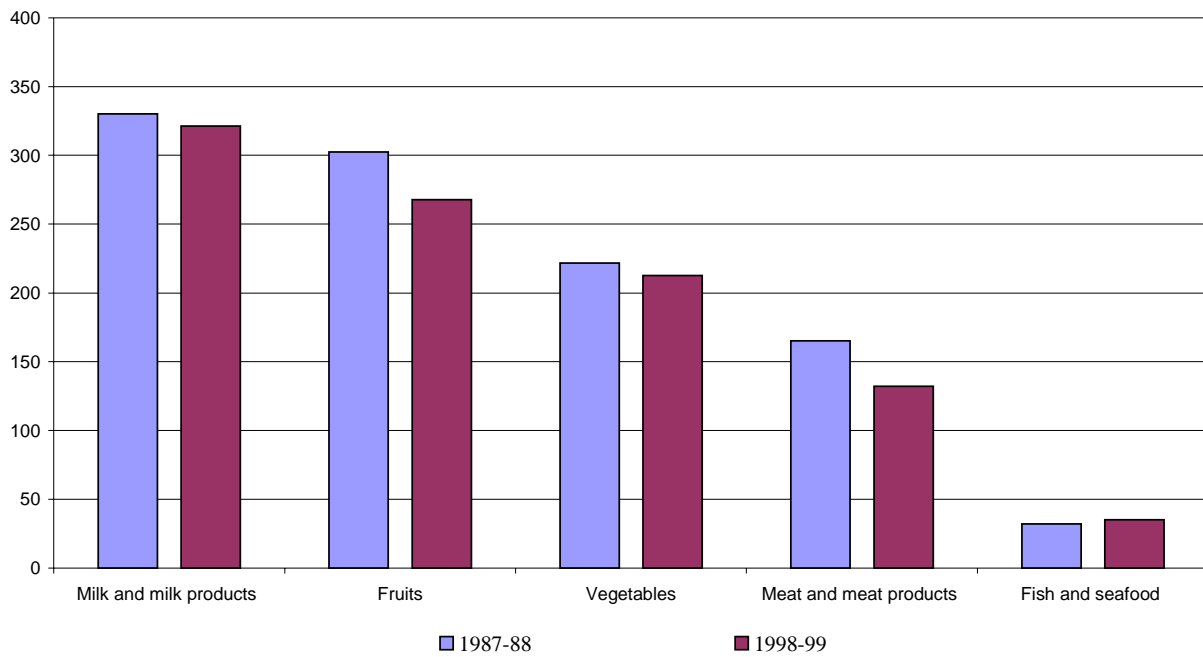


Figure 18: Mean food availability (g/person/day) in households of two adults and children, by year



This report was produced by a contractor for Health & Consumer Protection Directorate General and represents the views of the contractor or author. These views have not been adopted or in any way approved by the Commission and do not necessarily represent the view of the Commission or the Directorate General for Health and Consumer Protection. The European Commission does not guarantee the accuracy of the data included in this study, nor does it accept responsibility for any use made thereof.