

Portuguese household food availability in 1990 and 1995

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Abstract

Objective: To examine the changes in Portuguese household food availability from 1990 to 1995.

Design: Using the DATA Food NETWORKING (DAFNE) classification scheme for nutritional and socio-economic variables, data from the Portuguese Household Budget Surveys collected in 1989/90 and 1994/95 were analysed. The mean availability (quantity person⁻¹ day⁻¹) for the total population, by locality and by level of education of the household head, was computed for each of the main food and beverage groups.

Setting: Portugal, 1989 to 1995.

Results: Although still among one of the countries with high availability of cereals, pulses, fish and seafood and olive oil, Portugal is gradually moving away from the traditional 'Mediterranean diet'. Between 1989 and 1995, the availability of complex carbohydrates and olive oil was reduced, while the availability of protein-supplying food groups increased. Considerable disparities can be observed by locality and by the level of education of the household head. Households in urban areas and of higher socio-economic status are the main actors of the changes in 'traditional' food habits.

Conclusion: Although these findings are based on household food availability rather than consumption, they indicate the direction of the changes taking place in the Portuguese diet and can be used effectively by agriculture specialists, nutrition experts and policy makers.

Keywords
Household budget survey
Food availability
DAFNE

The aim of the DATA Food NETWORKING (DAFNE) initiative is the creation of a European, regularly updated databank of comparable food and socio-economic information, collected through the nationally representative household budget surveys (HBSs)^{1,2}. Several European countries are participating in the DAFNE project, under the co-ordination of the World Health Organization (WHO) Collaborating Centre at the University of Athens. Portugal joined the working team at the beginning of 2000 and this paper represents a contribution to the joint effort.

The use of HBS data for nutritional purposes is highly cost-effective. This information, which is regularly collected and updated, allows a low-cost assessment of trends in food habits and the identification of population subgroups whose dietary habits are not favourable to health. In the case of Portugal, the use of HBS data for nutritional purposes is particularly important. The only Portuguese national dietary survey was held in 1980 and its results are out of date. Apart from regional dietary surveys of limited scope, undertaken in the context of scientific investigation, Portugal has no data on the dietary habits of the general population. Food balance sheets, collected yearly by the National Statistics Institute (INE), have been used for nutrition education and policy

purposes. However, food balance sheets are of limited use as they only provide crude data on food availability at the country level. The participation of Portugal in the DAFNE project will contribute to a better knowledge of food habits both at the national level as well as by important socio-economic variables. Furthermore, integration into a European database under the rules of a standard protocol will improve the comparability of the Portuguese dietary habits with those of other European countries.

A Portuguese Household Budget Survey is carried out by INE every 5 years. Data for the 2000/01 HBS are still being processed, so that the two most recent HBSs with complete information are those of 1989/90 and 1994/95. Although the quantities of food purchased by each household have always been recorded in the Portuguese HBS, these data have never been processed for purposes other than economic ones.

This paper provides national household food availability in Portugal in 1990 and 1995, using the DAFNE classification system^{1,2}. This information provides an insight into time trends of food availability in Portugal and facilitates international comparisons among European countries participating in the DAFNE initiative.

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Methodology

DAFNE rules and procedures were applied to data collected by INE in the context of the 1989/90 and 1994/95 Portuguese Household Budget Surveys. Details about the DAFNE project and the Portuguese HBS can be found elsewhere¹⁻⁴.

We have excluded households who had zero values for all food/beverage purchases (63 and 97 in 1989/90 and 1994/95, respectively). Data from the remaining 12 340 households of the 1989/90 HBS and 10 457 households of the 1994/95 HBS were analysed with the Statistical Program for Social Sciences (SPSS 10.0). The mean availability (quantity person⁻¹ day⁻¹) of the general population and of population groups with different socio-demographic characteristics were estimated for the main DAFNE food/beverages groups: Cereal and cereal products (g), Potatoes (g), Pulses (g), Vegetables (g), Fruits (g), Nuts (g), Meat (g), Fish and seafood (g), Eggs (pieces), Added lipids (g) (whether of animal or vegetable origin (olive oil and other seed oils)), Milk and dairy products (ml), Cheese (g), Sugar and sugar products (g), Alcoholic beverages (ml) and Non-alcoholic beverages (ml). From the socio-economic variables that are evaluated in the context of the DAFNE project, we have focused in this paper on locality (rural, semi-urban and urban) and education (illiterate/elementary education not completed, elementary education completed, secondary education not completed, secondary education completed, college or university completed).

Results

General sample characteristics

The total number of persons included in the study samples and their distribution according to three main age groups are shown in Table 1. In both surveys, women slightly outnumbered men (in 1989/90, women 52.5% and men 47.5%; in 1994/95, women 52.1% and men 47.9%). The mean number of household members was 3.1 in 1989/90 and 3.0 in 1994/95 (varying from 1 to 14).

Patterns of food/beverages expenditure

For the 1989/90 and 1994/95 samples, respectively, the average total expenditure for food and beverages represented 38.9% and 31.3% of the total household expenses, of which 76.9% and 72.3% were expenses for

home consumption and 23.1% and 27.7% for consumption outside the household.

Food/beverage availability

With the exception of meat, fish and seafood, milk and dairy products, cheese and non-alcoholic beverages, the average per capita availability for Portugal decreased between 1989/90 and 1994/95 (Table 2). In analyses by locality, in both surveys, urban households tended to have a higher consumption of meat, added lipids of animal origin and milk and dairy products, as well as of fruits and fish and seafood. With respect to the remaining food groups, availability was either higher in rural areas or stable across type of locality. The locality patterns are similar in the two HBSs, except that in the most recent HBS there was a marked increase in availability of non-alcoholic beverages from rural to urban areas.

The level of education of the household head may also be a factor affecting food availability (Table 3). Higher availability of cereal and cereal products, potatoes, pulses, vegetables, added lipids from vegetable origin, sugar and sugar products and alcoholic beverages was recorded in households of lower education. The contrary applies to the availability of fruits, added lipids from animal origin, milk and dairy products, cheese and non-alcoholic beverages, which were more available in the more educated households.

Discussion

A 5-year period may be too short to reveal, in a convincing way, long-term trends. However, some indications may be apparent. For a better understanding of the Portuguese data, results will be discussed in comparison to those of other countries that are participating in the DAFNE project. Greece is the only country with data from two HBSs conducted during roughly the same period (1987/88 and 1993/94) and was thus chosen for time evolution comparisons^{1,2}. The latest Portuguese results (1994/95) will also be compared with those of countries that have undertaken an HBS during a similar period: Luxembourg (1993), United Kingdom (1993) and Norway (1992/93/94)².

Between 1989/90 and 1994/95, the availability of the principal protein-supplying groups has increased (+15% for meat and fish/seafood; +5% for milk/dairy products; +20% for cheese) whereas the availability of the other food groups has decreased. The latter finding is intriguing in view of the Portuguese Food Balance Sheets records for the past 10 years⁵, but the decrease is similar to that found in HBS data for other European countries. In Greece, from 1987/88 to 1993/94, the availability of several food groups decreased^{1,2}. The increasing habit of eating out is certainly an important factor that has to be considered. Indeed, within a 5-year period, the proportion of total household food expenditure outside the home increased

Table 1 Total number of persons, *n* (percentage in parentheses)

	1989/90	1994/95
Children (less than 20 years)	12 226 (30.5)	7338 (23)
Adults (20–64 years)	21 879 (55)	18 491 (58)
Elderly (more than 65 years)	5819 (14.5)	6119 (19)
Total	39 924 (100)	31 948 (100)

Table 2 Average availability of the main foods and beverages, by locality* (quantity person⁻¹ day⁻¹)

	1989/90				1994/95			
	Overall	R	SU	U	Overall	R	SU	U
Cereal, cereal products (g)	294	331	276	225	261	296	287	237
Potatoes (g)	324	370	262	258	231	296	283	186
Pulses (g)	15	19	11	9	12	20	15	9
Vegetables (g)	150	155	137	148	147	144	160	141
Fruit (g)	214	194	227	248	178	134	156	202
Nuts (g)	2.8	3.2	2.1	2.4	2.8	3.0	2.5	3.0
Meat (g)	144	141	142	151	165	147	180	162
Fish and seafood (g)	75	69	75	86	86	73	89	88
Eggs (pieces)	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2
Added lipids (g)	63	65	61	59	57	62	60	53
From animal origin (g)	2.3	1.9	2.8	3.1	2.4	1.8	1.7	2.9
From vegetable origin (g)	61	63	58	56	54	60	58	51
Olive oil (g)	23	26	22	17	20	30	19	17
Other seed oils (g)	31	31	29	30	29	25	33	27
Milk, dairy products (ml)	241	216	267	281	254	208	230	280
Cheese (g)	10	10	10	10	12	12	10	12
Sugar, sugar products (g)	43	49	39	33	34	37	37	32
Alcoholic beverages (ml)	190	235	139	122	140	154	180	116
Non-alcoholic beverages (ml)	60	63	53	58	76	64	75	81

* R – rural; SU – semi-urban; U – urban.

by around 5% (from 23% in 1990 to 28% in 1995) in Portugal and around 3% in Greece (from 21% in 1988 to 24% in 1994)^{1,2}.

An overview of the Portuguese data of food availability by locality shows a pattern distinguishing rural and urban areas. In rural areas, the availability is lower for those food groups that are essentially protein suppliers and in urban areas this happens with foods that are essentially carbohydrate suppliers. Fruits are an exception, because they are reported as more frequently preferred in urban areas. Rural households, in comparison to urban ones, have higher availability of total added lipids, mostly on account of vegetable lipids, as well as of alcoholic

beverages. In most instances, the semi-urban availability values are in-between those in urban and rural areas.

The average per capita availability by educational level of the household head shows patterns clearly reminiscent of those by locality. Thus the availability of fruits, meat, fish and seafood, added lipids of animal origin, milk and dairy products and cheese tends to increase with educational level, whereas the availability of the remaining food groups is fairly stable or tends to decline with education. There is apparently some element of confounding, with respect to food availability, between locality and educational level since urban localities are characterised by higher average levels of education.

Table 3 Average availability of the main foods and beverages, by education* (quantity person⁻¹ day⁻¹)

	1989/90					1994/95				
	I/EEnc	EEc	SEnc	SEc	C/Uc	I/EEnc	EEc	SEnc	SEc	C/Uc
Cereal, cereal products (g)	362	293	215	200	190	312	263	206	215	192
Potatoes (g)	402	328	223	183	186	298	233	173	160	142
Pulses (g)	17	16	7	9	5	17	13	8	7	5
Vegetables (g)	162	148	146	139	142	164	145	134	122	151
Fruit (g)	208	204	254	265	262	143	176	204	205	247
Nuts (g)	3.4	2.7	2.9	1.0	3.5	2.9	2.6	2.4	3.1	5.5
Meat (g)	126	148	153	154	147	154	169	164	158	163
Fish and seafood (g)	66	77	81	77	77	83	86	92	77	91
Eggs (pieces)	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.3	0.3
Added lipids (g)	71	63	49	53	48	62	57	50	48	55
From animal origin (g)	1.5	2.1	3.6	3.8	5.8	1.6	2.0	3.5	4.3	5.5
From vegetable origin (g)	70	61	45	49	42	61	55	47	44	49
Olive oil (g)	30	22	15	17	14	25	19	15	15	22
Other seed oils (g)	33	32	23	24	20	30	30	24	24	21
Milk, dairy products (ml)	190	243	295	291	338	210	246	313	314	341
Cheese (g)	7	10	11	14	15	8	11	17	14	21
Sugar, sugar products (g)	55	42	34	25	27	42	34	26	30	30
Alcoholic beverages (ml)	216	195	160	146	95	187	142	100	80	76
Non-alcoholic beverages (ml)	65	59	56	65	56	69	74	90	80	106

* I/EEnc – illiterate/elementary education not completed; EEc – elementary education completed; SEnc – secondary education not completed; SEc – secondary education completed; C/Uc – college/university completed.

From 1989/90 to 1994/95, cereal and cereal products, potato and pulses availability has decreased in Portuguese households but is still among the highest in the DAFNE participating countries, with the possible exception of Greece. In the countries with relatively high availability, there is also a gradient between rural–urban areas and among households of different educational level, whereas no such patterns are evident in the countries with low availability. It appears that cereals and pulses that once dominated the diet of Southern Europeans have tended to decline in importance, reflecting the abandonment of the traditional Mediterranean diet at the very time when its health-promoting effects are generally recognised⁶.

When compared with other DAFNE countries, which are not dissimilar to a cross-section of the European countries, Portugal has an intermediate vegetable and fruit availability, with Greece leading in availability. Availability in Portugal is higher than in Northern European countries like Norway and the United Kingdom. It is of interest that in Portugal fruit availability is higher in the households with high educational level, whereas the opposite is true for vegetable availability. The relative role of price, health education, taste and convenience in the differential consumption of fruits or vegetables by socio-demographic variables has only recently received due attention⁷.

Portugal has become one of the countries with high meat availability but, on the positive side, it continues to be among the DAFNE countries with the highest availability of fish and seafood. To the extent that meat is preferred more in urban than in rural areas but shows no gradient with education level, whereas fish and seafood are more available among the trend-leading educated households, the pattern of consumption of these particular foods is more conducive to health among the Portuguese than among Central Europeans.

Availability of added lipids is high in Portugal, mostly on account of vegetable lipids, to some extent because of the high availability of olive oil. Indeed, among DAFNE countries, only Spain and Greece are in the same group as Portugal in this context. Other European countries also have high availability of added lipids, but these high values mostly reflect high availability of animal lipids or hydrogenated ones. As also shown in other Mediterranean countries, rural areas have higher availability of vegetable lipids and in particular olive oil, and in the most recent Portuguese HBS there is some evidence that the highly educated show a tendency to switch to a higher consumption of olive oil.

Availability of milk and dairy products, as well as cheese, is intermediate in Portugal in comparison to other DAFNE countries, among which the highest availability is found in Norway (400 ml person⁻¹ day⁻¹) and the lowest in Luxembourg (180 ml person⁻¹ day⁻¹). There is no evident trend in the availability of these food groups between the two HBSs, but the higher availability of milk

and dairy products in the urban populations and among the more educated in Portugal suggests that future trends may be upwards.

Portugal is a wine country and the availability of alcoholic beverages is quite high. As in other wine countries, availability is higher in rural than in urban areas, higher among the lower educated households and tends to decline between the two household budget surveys. Availability of non-alcoholic beverages is much lower in Portugal and other Southern European countries than in Central and Northern Europe. Indeed, availability in Portugal is less than 20% that in Luxembourg and less than 30% that in Norway or the United Kingdom. However, availability of non-alcoholic beverages increases from rural to urban and with the educational level of the household, and it is considerably higher in the most recent HBS.

Global factors, such as economic development, the abolishment of commercial borders, increase in the variety of commodities available and increased purchasing power, have clearly changed the food availability situation among European countries. On the other hand, socio-cultural constraints and particular lifestyles keep alive some food habits and patterns, which in part can explain the still substantial differences across Europe.

Portugal is one of the Southern European countries whose dietary habits are commonly referred to as belonging to the 'Mediterranean diet'. Although still within the countries with higher availability of cereal/cereal products, pulses, fish/seafood and olive oil, Portugal is clearly moving away from the main characteristics of this traditional food pattern. The decrease in availability of the principal carbohydrate-supplying groups and of olive oil, together with the increase in the main protein-supplying groups, clearly shows this changing pattern. Substantial disparities can be observed by locality and by the level of education of the household head. Those from urban areas and those with high education level seem to be the main actors of the changes in 'traditional' food habits.

In the case of Portugal, the HBS records are the nationally representative data most close to consumption. Nevertheless, they do not provide an adequate substitute for national food and nutrition surveys that should be implemented and held regularly. Using data from HBSs for nutritional purposes is, however, very important for time evolution analyses within countries and for international comparisons. The valuable databank that is being constructed by the DAFNE project represents an important tool for scientific valid analyses, projections and eventually policy formulations.

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