

The direct and indirect energy requirement of households in the European Union in 1994

**A.H.M.E. Reinders
K. Vringer §
K. Blok**

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Department of Science, Technology and Society
Utrecht University
Padualaan 14
3584 CH Utrecht

§) Address at present:
Laboratory of Waste, Materials and Emissions
RIVM
PO Box 1
3720 BA Bilthoven

Preface

This report is the result of research carried out as part of the project '(Evaluation of) Options for Reduction of Greenhouse Gas Emissions by Changes in Household Consumption Patterns' termed 'Greenhouse'. This project is executed under the Dutch National Research Programme on Global Air Pollution and Climate Change, phase 2 (1995-2000) (NOP-II).

Several research groups collaborate in this project: the Department of Science, Technology and Society of Utrecht University (STS-UU), the Centre of Energy and Environmental Studies of the University of Groningen (IVEM-RUG, the coordinating institute) and the Department of Household and Consumer Studies of Wageningen Agricultural University (HCS-WAU).

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1 Introduction

Changes in consumer behaviour, often referred to as 'lifestyle' changes, are generally considered to be one of the powerful options to reduce energy consumption and the associated emissions of greenhouse gases¹. These changes not only include changes that affect the direct energy consumption of households (electricity, natural gas, gasoline, etc.), but also changes that affect the indirect energy consumption, i.e. the energy that is embodied in goods and services that are purchased by households.

The indirect energy requirement can be determined on the basis of consumer expenditures. This method combines (physical-chemical) process analysis and (economical) input-output analysis. It is called hybrid energy analysis². The method for analysing the energy requirement of consumer products has been firmly established^{3 4 5 6 7 8} and is used to determine the energy requirement in many consumption categories of Dutch households⁹. The influence of the main determining variables on total energy requirement, like income, was established^{9 10}. Furthermore, an analysis has been made of the historical trends in energy intensity and in budget spending in the Netherlands^{11 12 13}. Attempts have also been made to connect the differences in consumption patterns to lifestyle concepts^{14 15 16 17}. The latter results are used to test the practical capability of households to live more energy extensively in the project 'Perspectief'^{18 19}.

Summarizing, the energy requirement of Dutch household has been examined thoroughly. However, we do not know whether it is allowed to generalize the findings reported above for other countries. Specifically, we are interested in the contrasts between the energy requirements of households in different countries. Namely, by an investigation of the energy requirement of households in other countries we may distinguish characteristic 'lifestyles' which are related to a low energy requirement of households. We could learn from little energy demanding 'lifestyle' characteristics in other countries and, if possible, apply these findings to Dutch households. For this reason we determined the energy requirement of an average household in a number of EU member states by connecting the expenditure pattern in these countries with the data of energy requirement per consumption item in the Netherlands. For 11 EU member states expenditure data are available that will allow comparisons on an international level. The group consist of Belgium (B), Denmark (DK), Greece (EL), Spain (E), Italy (I), Luxemburg (L), The Netherlands (NL), Portugal (P), Finland (FIN), Sweden (S) and the United Kingdom (UK). We will analyse differences in the household energy requirement between these countries. Also, we endeavour to distinguish characteristic 'lifestyles'.

In Chapter 2 we present the data used for our analysis and we describe the method to determine the energy requirement of households on the basis of expenditure data.

Subsequently we will present general results considering the direct energy consumption and the indirect energy consumption in Section 3.1. Detailed results considering the indirect energy requirement are presented in Section 3.3. The method used and the results will be discussed in Chapter 4. To end with, we present our conclusions and recommendations in Chapter 5.

2 Method and data

For the investigation of the direct and indirect energy requirement of households in the European Union we will use data of yearly expenditures of average households in 1994 based on Household Budget Surveys, HBS. The data are supplied by the Statistical Office of the European Communities, named Eurostat. Expenditure data are available for the following countries: Belgium (B), Denmark (DK), Greece (EL), Spain (E), Italy (I), Luxemburg (L), The Netherlands (NL), Portugal (P), Finland (FIN), Sweden (S) and the United Kingdom (UK)*. Expenditure data from some EU member countries in 1994 were not yet available in April 1999. These countries are: Austria (A), Germany (D), France (F) and Ireland (IR). Therefore we did not include these countries in our sample**.

To determine the cumulative energy requirement of consumption by households (E) we use the hybrid energy analysis method developed by Engelenburg *et al.*². This method combines the best elements of two existing methods for determining the cumulative energy requirement of goods and services: process analysis²⁰ and input-output analysis²¹. Vringer and Blok⁹ applied this method to the case of the Dutch households using the following general formula:

$$E = \sum_{i=1}^n \epsilon_i \cdot S_i \quad (1)$$

where i is a consumption category,
 n is the total number of consumption categories,
 ϵ_i is the energy intensity of consumption category i (MJ/c), and
 S_i is the expenditure in consumption category i (c)
 (c is the currency)

Next, we will provide information about the data from Household Budget Surveys, the use of data and the determination of the energy intensities.

* The total population in this group of 11 countries amounts 221 million in 1994 which is 59 % of the total EU population of 372 million²².

** According to Eurostat³⁰ in 1988 the United Kingdom, France and Germany are the largest consumers of direct energy in the EU. For that reason it makes sense that data from France and Germany are missing in our analysis.

2.1 Data from Household Budget Surveys

To divide the total household expenditure in smaller sections Eurostat uses a classification called COICOP*-HBS. According to COICOP-HBS the total consumption expenditure can be broken down in 12 divisions, which are:

HE01	FOOD AND NON-ALCOHOLIC BEVERAGES
HE02	ALCOHOLIC BEVERAGES, TOBACCO AND NARCOTICS
HE03	CLOTHING AND FOOTWEAR
HE04	HOUSING, WATER, ELECTRICITY, GAS AND OTHER FUELS
HE05	FURNISHINGS, HOUSEHOLD EQUIPMENT AND ROUTINE MAINTENANCE OF THE HOUSE
HE06	HEALTH
HE07	TRANSPORT
HE08	COMMUNICATIONS
HE09	RECREATION AND CULTURE
HE10	EDUCATION
HE11	HOTELS, CAFES AND RESTAURANTS
HE12	MISCELLANEOUS GOODS AND SERVICES

Each division can be broken down in a certain number of groups, which in their turn can be broken down in classes and, finally, in categories.

Data at our disposal are provided to the level of classes. In Appendix A we present the full list of divisions, groups, classes and categories of household expenditures according to the COICOP-HBS classification.

2.1.1 Correction of expenditures for purchase power parities

Data of expenditures are provided by Eurostat in national currency and in ECU's. To allow an international comparison which is not affected by price level differences between countries ECU's should be corrected for differences in purchasing power parities, PPP. Average PPPs are obtained as the averages of the price ratios between the different countries in the EU for a basket of goods and services representing the whole of a well-defined classification. They can be used to convert the values of the countries' economic aggregates expressed in national currency into a common currency. These new values can then be used for a pure volume comparison since the component 'general level of prices' has been removed²². Table 1 presents the average PPP's and the average price level indices, PLI, of the household total expenditure for the 11 countries considered. We can see that consumer goods purchased in the Scandinavian countries are relatively 'expensive' and those in the Mediterranean countries rather 'cheap'.

To allow a 'fair' international comparison for each consumption category we preferably apply a PPP correction per individual category instead of an average PPP correction.

PLIs for each category in the COICOP-HBS classification are provided by the Eurostat

* Classification Of Individual Consumption by Purpose.

publication 'Comparison in real terms of the aggregates of ESA. Results for 1994'²². In Appendix D we present the PLIs which we used in our calculations*. The purchasing power corrected household expenditure $S_{C,PPP}$ in (ECU_PPP) is calculated by:

$$S_{C,PPP} = \sum_{i=1}^n \frac{S_{i,C}}{PLI_{i,C}} \quad (2)$$

where i is a consumption category,
 n is the total number of consumption categories,
 $S_{i,C}$ is the expenditure in consumption category i in country C (ECU), and
 $PLI_{i,C}$ is the price level index for consumption category i in country C (-).

In Appendix D we can see that PLIs in different countries may vary with a factor 4** within one consumption category. Also, considering one country, the variation of the PLI's of different consumption categories may be large***.

Table 1 ECU's in units of national currency, average Purchasing Power Parities, PPP, and average Price Level Indices, PLI, for 11 EU-member countries in the year 1994.

Source: Eurostat²²

Country	ECU (in units of national currency)	PPP (in units of national currency)	PLI (EUR15*=1)
B	39.67	41.65	1.05
DK	7.54	9.79	1.3
EL	288.0	233.8	0.78
E	158.9	133.1	0.84
I	1915	1640	0.86
L	39.66	39.79	1
NL	2.15	2.27	1.06
P	196.9	136.8	0.69
FIN	6.19	7.16	1.16
S	9.16	11.02	1.2
UK	0.77	0.70	0.9

*) EUR15 includes B, DK, D, EL, E, F, IR, I, L, NL, A, P, FIN, S and UK

* Due to slight differences between the COICOP-HBS and the ESA classification and due to a discrepancy between the classified basket of goods and the real purchase of goods, the average PPP (see Table 1) may deviate from a PPP which results from the use of a PPP correction for each consumption category. Depending on the country these two approaches may result in a difference between the total PPP corrected expenditure of about 2-3 %.

** This happens in the specific case of rentals for housing; PLI = 0.3 for Portugal and PLI=1.32 for Finland.

*** For instance, in Belgium the PLI for different consumer goods varies from 0.81 to 1.32.

2.1.2 Differences between household budget surveys in different countries

Eurostat processes and publishes data which are collected by the national statistical offices in the EU member states. It is known that differences exist between the EU member states considering the methods for collecting data in HBSs²³. Eurostat partly corrects for these differences²³. Below we will mention in which items differences exist*.

- The timing and frequency of the HBSs

In Table 2 we see that for the HBS data of 1994 a span of more than four years exist between the conduction of the first surveys, 1992 for Sweden, to the last survey taking place from 1995 to 1996 in Belgium. Eurostat uses national price indices to convert data into 1994 prices in order to give the the consumption expenditure items the same base for comparisons.

The span of time between the conduction of the HBSs is caused by the differences in the frequency of HBSs in the the EU member states. There are two distinct patterns: annual surveys and surveys carried out at five-yearly or longer intervals. All the annual surveys are also continuous in the sense that the field work takes place on a continuous basis throughout the year. In Table 2 we indicate in which countries annual surveys are carried out.

- The sample design, among which the sample size, see Table 3.

- The survey structure and content

Recording period, survey instruments (such as interviews, questionnaires and diaries) and reference periods of household budget surveys executed in different countries may differ.

- The definition of the household

Different surveys use different definitions of the members and the head of a household.

Also, the child-adult definition may vary per country. The average number of individuals in a household shown in Table 3 depends on these definitions.

- Expenditure and/or consumption approach

Eurostat²³ mentions that differences exist between the national household budget surveys in the registration of the next items: household's internal production, benefits in kind, imputed rent, insurances, gifts and transfers, health expenditure, education expenditure, recording of hire-purchases and other topics, such as games of chance, duties and taxes, purchase of housing and home improvements, purchase of second hand goods.

In order to allow an international comparison of energy requirement of households, we will indicate in the next sections of this report which items in the household budget surveys will be adjusted on the basis of the information given above.

* For more details on this item we refer to Eurostat²³.

Table 2 Name and measurement period of the national HBS used to determine the expenditure of an average household in 11 EU member states in the year 1994. In the countries indicated with a bold capital annual surveys take place. Source: Eurostat ²³.

Country	National HBS	Measurement period HBS
B	Enquête sur les Budgets des Ménages	June 1995 - May 1996
DK	Forbrugerundersøgelsen	1994 and 1995
EL	Family Budget Survey	October 1993 - September 1994
E	Encuesta Continua de Presupuestos Familiares	1994
	Encuesta Basica de Presupuestos Familiares	April 1990 - March 1991
I	Rilevazione sui consumi delle famiglie italiane	1994
L	Enquête Budgets Familiaux	1993
NL	Budgetonderzoek	1994
P	Inquérito aos orçamentos familiares	October 1994 - September 1995
FIN	Kulutustukimus	1994 and 1995
S	Hushållens utgifter	1992
UK	Family Expenditure Survey	1994

Table 3 Sample size, total number of households and the average number of members per household in 1994 in 11 EU member states. Source: Eurostat ²³.

Country	Sample size HBS	Number of private households in 1994	Average number of individuals per household
B	2,750	4,027,702	2.53
DK	2,800	2,274,000	2.11
EL	6,756	3,709,000	2.94
E	21,000	12,007,000	3.31
I	33,928	20,019,888	2.82
L	3,012	152,000	2.64
NL	2,050	6,421,000	2.33
P	8,633	3,243,000	3.02
FIN	4,493	2,280,650	2.21
S	6,000	3,628,316	2.16
UK	6,853	24,250,000	2.43

2.2 Handling of COICOP-HBS classes in the analysis

2.2.1 Exclusion of COICOP-HBS classes from further analysis

Due to structural differences between EU member states a comparison of the expenditure in certain classes for a number of countries is unacceptably inaccurate²³. For that reason, we consider the calculation of the energy requirement in these classes senseless and exclude these classes from further analysis.

The classes considered are:

- Health (HE.06),
- Social protection (HE.12.3),
- Insurance connected with health (HE.12.4.4),
- Financial services n.e.c. (HE.12.5), and
- Other services n.e.c. (HE.12.6).

Table 4 presents the total household expenditure as reported by Eurostat and the total household expenditure due to the exclusion of the classes above mentioned. We can see that the contribution of the expenditures in the removed classes to the total expenditure differs for the countries investigated and is in between 2 (UK) to 12 % (NL) of the total expenditure. In this report we will use the total expenditure corrected for excluded classes as if it were the total expenditure.

Table 4 For 11 EU member states in 1994: household total yearly expenditure in ECU's by Eurostat, expenditures in classes excluded from further analysis as a percentage of the total yearly expenditure, and total yearly expenditure corrected for excluded classes, the latter value is used for further analysis.

(NB: Values given here are not corrected for purchasing power parities)

Country	Total expenditure (ECU)	Expenditures in excluded classes* (%)	Total expenditure corrected for excluded classes* (ECU)
B	23,858	8.4	21,859
DK	24,899	4.9	23,669
EL	13,754	12	12,104
E	16,404	3.4	15,842
I	19,531	5.1	18,534
L	38,777	2.9	37,671
NL	21,451	11.8	18,926
P	11,333	6.9	10,554
FIN	18,585	8.8	16,958
S	21,236	5.6	20,046
UK	18,939	2.1	18,550

*) Excluded classes are: HE.06, HE.12.3, HE.12.4.4, HE.12.5, and HE.12.6, see also text.

2.2.2 Re-indexing of COICOP-HBS classes

To better distinguish between the direct and indirect energy requirement of households, and to combine certain classes, we re-indexed the COICOP-HBS classes.

The classification used in this report is presented in Table 5 and differs from the list shown in Section 2.1.

In our further analysis the direct energy requirement is the sum of the energy requirement of electricity, gas and other fuels for housing (class 4) and the energy requirement of fuels for transport (class 7)

Table 5 Classification of consumption categories used in this report

Class used in this report	COICOP-HBS classes	Description used in this report
1	HE01 + HE02	FOOD AND NON-ALCOHOLIC BEVERAGES, ALCOHOLIC BEVERAGES, TOBACCO AND NARCOTICS
2	HE03	CLOTHING AND FOOTWEAR
3	HE04.1 + HE04.2 + HE04.3 + HE04.3	HOUSING
4	HE04.5	ELECTRICITY, GAS AND OTHER FUELS FOR HOUSING
5	HE05	FURNISHINGS, HOUSEHOLD EQUIPMENT AND ROUTINE MAINTENANCE OF THE HOUSE
6	HE07 - HE07.2.2	TRANSPORT (excluding fuels)
7	HE07.2.2	FUELS FOR TRANSPORT (excluding those for public transport)
8	HE08	COMMUNICATIONS
9	HE09	RECREATION AND CULTURE
10	HE10	EDUCATION
11	HE11	HOTELS, CAFES AND RESTAURANTS
12	HE12 - HE12.3 - HE12.4.3 - HE12.5 - HE12.6	MISCELLANEOUS GOODS AND SERVICES (excluding social protection services, insurance connected with health, financial services n.e.c. and other services n.e.c.)

2.2.3 Replacement of data from HBS by data from the IEA

For class 4, electricity, gas and other fuels for housing, we use measured data of energy use in the residential sector provided by the IEA. The publication 'Energy Statistics of OECD countries in 1994-1995'²⁴ contains information about the use of direct energy sources in the residential sector of OECD countries in the year 1994. It comprises data on the use of solid and liquid fuels, gas and electricity and heat. The data are collected at the supplier of the energy and, hence, (1) neither include recording errors due to the manual registration of expenditures in individual households, (2) nor cause misunderstanding about the differences of the charge of fuels and energy services in different countries, (3) nor cause misunderstanding about the use of energy intensity based on the Dutch situation*. Therefore, we will use the data from the IEA for an international comparison of the residential direct energy consumption**.

In our discussion we will mention the difference between direct energy requirement calculated on the basis of expenditure and on the basis of IEA statistics.

* For instance, the energy intensity of natural gas (130 MJ/EUCU, see Appendix B) is rather high compared to the energy intensity of LPG and manufactured gas (76 MJ/EUCU, see Appendix B). Gas in the COICOP-HBS classification consist of a mixture of natural gas and LPG+manufactured gas. This mix differs between countries, so that the energy intensity of gas may differ also. For instance in Spain, the energy intensity of gas is estimated to be about 86 MJ/EUCU, in the Netherlands it is 130 MJ/EUCU.

** Notice that in this approach the direct energy consumption for fuels for transport is calculated on the basis of expenditures. This is based on the fact that the IEA does not provide data on the use of fuels for transport in households. For this reason the determination of the direct energy consumption for fuels for transport is subjected to underreportage of expenditures as mentioned by Vringer *et al.*¹². In the case of fuel underreportage could amount up to 10 %.

2.3 The energy intensities of the COICOP-HBS classes

Vringer and Blok⁹ provide a list of energy intensities of approximately 350 consumption categories for Dutch households in the year 1990. By Vringer *et al.*¹² the energy intensities given by Vringer and Blok⁹ are adapted to the year 1995. We will use the latter values in this report. The classification of consumption categories is defined by the Central Office of Statistics²⁵, CBS, of the Netherlands. The CBS-classification differs from the COICOP-HBS classification used by Eurostat^{23 26}. Therefore we transform the energy intensities, ϵ_{NL} , given by Vringer and Blok⁹ to energy intensities, ϵ_{EURO} , for the Eurostat classes. Notice that in this approach we assume that the expenditure pattern of a Dutch household and the energy intensities of the Dutch consumption categories are similar to those of other European households. Below we present the transformations which we applied to determine energy intensities of the COICOP-HBS categories. In Appendix B we present the energy intensity $\epsilon_{EURO,i}$ per category of COICOP-HBS and how we determined it.

1) Direct quote

If a consumption category, i , of the COICOP-HBS classification is similar to a category, j , of the CBS classification, we directly quote the energy intensity $\epsilon_{i,EURO}$ in MJ/ECU from the value given by Vringer and Blok $\epsilon_{j,NL}$ (MJ/Dfl)⁹:

$$\epsilon_{i,EURO} = \epsilon_{j,NL} \cdot er_{NL} \quad (3)$$

where er_{NL} is the exchange rate of the Dutch guilder to ECU (Dfl/ECU). We use a value of er_{NL} of 2.158 Dfl/ECU for the year 1994/1995.

2) Weighted average

If a consumption category, i , of the COICOP-HBS classification comprises a number of categories, j , of the CBS classification, we calculate the energy intensity $\epsilon_{i,EURO}$ (MJ/ECU) by:

$$\epsilon_{i,EURO} = \frac{\sum_j \epsilon_{j,NL} \cdot S_{j,NL}}{\sum_j S_{j,NL}} \cdot er_{NL} \quad (4)$$

where $S_{j,NL}$ is the expenditure by a Dutch household in consumption category j , and er_{NL} is the exchange rate of the Dutch guilder to ECU (Dfl/ECU).

We use a value of er_{NL} of 2.158 Dfl/ECU for the year 1994/1995.

3) Combination of classes

Certain classes of the COICOP-HBS classification do not individually correspond to a single (or a number of) category (/ies) of the CBS classification. Nevertheless, by combining a number of the COICOP-HBS classes we can determine an energy intensity on the basis of the Dutch energy intensities ϵ_{NL} . This is done in a manner presented at item 1 or 2.

2.4 The determination of the energy requirement of households

In this report the direct energy requirement of a household is defined by the sum of the primary energy required to obtain the energy carriers (such as petrols, electricity and natural gas) and their energy content. The indirect energy requirement of a household is defined by the total primary energy required to obtain all the other products and services included in this study.

To determine the energy requirement E_C^* of households in a country, C, for all classes except class 4 (in COICOP-HBS classification He04.5)*, we use the following formula:

$$E_C^* = \sum_{i=1}^n \epsilon_{i,EURO} \cdot \frac{PLI_{i,NL}}{PLI_{i,C}} \cdot S_{i,C} \quad (5)$$

where i is a consumption category,
 n is the total number of consumption categories,
 $\epsilon_{i,EURO}$ is the energy intensity of consumption category i as determined in Section 2.3 (MJ/ECU),
 $S_{i,C}$ is the expenditure in consumption category i in country C (ECU),
 $PLI_{i,NL}$ is the price level index in consumption category i in the Netherlands, and
 $PLI_{i,C}$ is the price level index in consumption category i in country C.

In this formula we correct for price level differences between consumer products in the Netherlands, on which the energy intensity $\epsilon_{i,EURO}$ is based, and consumer products in the country considered.

Values of $PLI_{i,C}$ are given in Appendix D. Values of $\epsilon_{i,EURO}$ are given in Appendix B.

To determine the energy requirement for an individual household in a country, C, for class 4, namely electricity, gas and other fuels for housing, $E_{C,dh}$, we use measured data of energy use in the residential sector provided by the IEA²⁴. Table 6 presents the types of fuel that are used by the household sector in at least one out of the 11 countries considered as reported by the IEA. $E_{C,dh}$ is determined by the following formula:

$$E_{C,dh} = \frac{\sum_{p=1}^y M_{C,p} \cdot N_p \cdot ERE_p + \sum_{q=1}^z E_{C,q} \cdot ERE_q}{H_C} \quad (6)$$

where p is a type of fuel which data are provided in units of mass,
 y is the number of fuels which data are provided in units of mass,
 C is the country considered,

* I.e. the indirect energy requirement and the direct energy requirement for fuels for transport.

$M_{C,p}$ is the mass of fuel p which is consumed by the residential sector of country C (kg),

N_p is the net caloric value of fuel p (MJ/kg), see Table 6,

ERE_p is the energy requirement for energy for fuel p (MJ/MJ), see Table 6,

q is a type of fuel which data are provided in units of energy,

z is the number of fuels which data are provided in units of energy, and

$E_{C,q}$ is the energy delivered to the residential sector of country C by fuel q (MJ),

H_C is the number of households in country C , see Table 3.

The **total energy requirement**, E_C , is the sum of E_C^* and $E_{C,dh}$.

$$E_C = E_C^* + E_{C,dh} \quad (7)$$

The **direct energy requirement**, $E_{C,d}$, is the sum of energy required for fuel for transport (based on expenditure) and the direct energy requirement for housing $E_{C,dh}$ (based on fuel consumption).

The **indirect energy requirement**, $E_{C,i}$, is the difference between the total and the direct energy requirement.

Table 6 Types of fuels which are consumed by the residential sector, the unit in which they are provided by the IEA ²⁴, their net calorific value and the value of the energy requirement for energy of these types of fuels.

Fuel	Unit	Net calorific value (MJ/kg)	Energy requirement for energy, ERE ^c (MJ/MJ)
Other bituminous coal and anthracite	1000 tonnes	33 ^a	1.097
Lignite	1000 tonnes	17 ^a	1.097
Peat	1000 tonnes	20 ^a	1.097
Coke oven gas and gas coke	1000 tonnes	28.5 ^b	1.097
Patent fuel and brown coal/peat briquettes	1000 tonnes	20 ^a	1.097
Liquefied petroleum gases and ethane	1000 tonnes	47.4 ^b	1.121
Kerosene	1000 tonnes	44.65 ^b	1.121
Gas/ Diesel oil	1000 tonnes	43.33 ^b	1.121
Heavy fuel oil	1000 tonnes	40.19 ^b	1.121
Petroleum coke	1000 tonnes	40.19 ^b	1.121
Natural gas	TJ		1.008
Gas works gas	TJ		1.008
Solid biomassa	TJ		1.097
Municipal waste	TJ		1.097
Electricity	GWh		2.868
Heat	TJ		0.619

a) Source: Poly-energie zakboekje, 1987 ²⁷

b) Source: IPCC Guidelines for National Greenhouse Gas Inventories, 1995 ²⁸

c) Source: Nieuwlaar, 1992 ²⁹. The values given here relate to the Dutch production structure, see also Discussion in Chapter 4.

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2.5 Other data

To explain our results considering the direct energy consumption of European households we will use findings drawn from the report 'Energy Consumption in households in 1988'³⁰. This report of Eurostat contains information on the following topics:

- structure of households and present state of dwellings with emphasis on parameters which influence energy consumption
- structure of energy consuming equipment by type and use. The type of use considered were space heating, water heating, cooking and 'electrical appliances'
- energy consumption by type of use and fuel type
- expenditure on energy consumed by household.

The report considers households in the EU member countries in 1988, which are Belgium, Denmark, Germany, Greece, Spain, France, Ireland, the Netherlands, Portugal and the United Kingdom. Unfortunately, this sample does not fully cover the sample in the HBSs at our disposal. The report is a one-off publication of Eurostat, i.e. for succeeding years this information is not available in such a comprehensive collection. By assuming that changes in the structure of households, the state of dwellings and the structure of energy consumption by type of use and fuel type happen at a slow rate, we may use the data for the year 1988 to explain our findings for the year 1994.

3 Results

In this chapter we will present the results of the analysis described in Chapter 2 considering household expenditure and energy requirement of households in 11 EU member states in 1994. Each country's general results per household and per capita are presented per consumption class in Appendix C.

Part of our findings will be discussed on the basis of a linear regression through data points of energy requirement versus total expenditure. This approach is based on the income and, hence, expenditure, dependency of energy requirement of households¹². For this reason energy requirement of households in different countries can only be compared if we correct for differences in household expenditure. We only observe data in a limited domain of expenditure. Because we do not have insight in the relation between energy requirement and expenditure outside this domain, for the domain considered we use a linear regression which does not cross the origin.

As a typical example of households with a high income¹², we include Luxembourg in graphs which present linear regression lines. But due to its small share in the total energy requirement of households in the 11 EU member countries (see Section 3.1) and because the Luxembourgian households obviously excel in energy demand we do not mention Luxembourgian households in quantitative comparisons of the indirect energy requirement.

3.1 General results

3.1.1 Household expenditure

About 82 million households live in the 11 EU member states. In 1994 their total expenditure amounts 1610 thousand million ECU. The share of household expenditure (PPP corrected) in the 11 countries is shown in Figure 1. The share of household expenditure in the United Kingdom is the largest (32 %), followed by Italy (27 %) and Spain (14 %). This is due mainly to these countries' big population. The remaining countries contribute each even or less than 7 % to the total expenditure in the 11 countries. Due to its small number of inhabitants the share of Luxembourg is just 0.3 % and, hence, can be neglected.

Yearly expenditures corrected for purchasing power parities in a number of consumption classes of an average household in 1994 for 11 EU member states are presented in Appendix C in Table C1. We can see that total household expenditures differ considerably between countries. The highest value of total household expenditure is found for Luxembourg (37,0 kECU/hh.year) and towers above all other values. Excluding Luxembourg from the sample results in a set of expenditures ranging from 14,7 kECU/hh.year (FIN) to 22,0 kECU/hh.year (I).

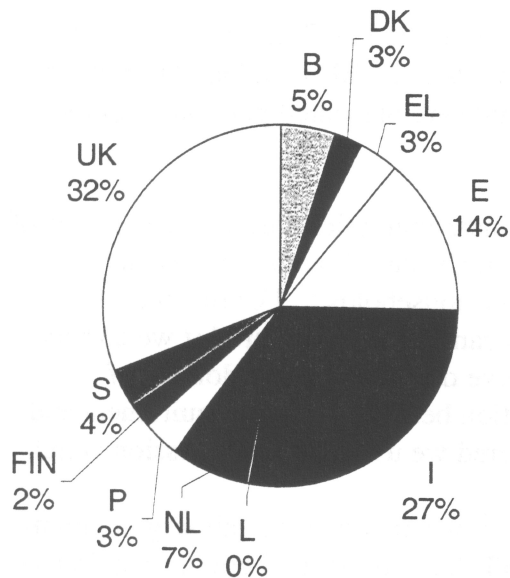


Figure 1 Share of yearly expenditure corrected for purchasing power parities in all households of 11 EU member states in 1994. Total yearly expenditure in these households amounts 1610 thousand million ECU.

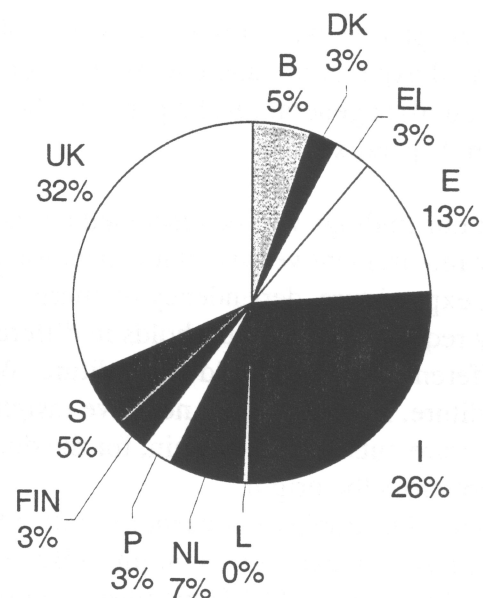


Figure 3 Share of yearly energy requirement in all the households in the EU member states in 1994. Total yearly energy requirement in these households amounts 22.5 EJ.

In Figure 2 we show the share of expenditure made in consumption categories in the total expenditure of 19.7 kECU/hh.year of an average household * in the EU member states considered. In decreasing order money is spent on housing (25%), food and beverages (20%), recreation and culture (9%), transport (excl. fuels) (8%), clothing and footwear (7%), furnishings (7%), hotels, cafes and restaurants (6%), electricity, gas and other fuels for housing (5%), miscellaneous goods and services (5%), fuels for transport (4%), communications (2%) and education (1%).

The share of the expenditure on direct energy requirement in different countries ranges from 5.4% (P) to 11.5% (I) of the total expenditure.

* Here, we averaged the results for the individual countries by weighting with the number of households per country.

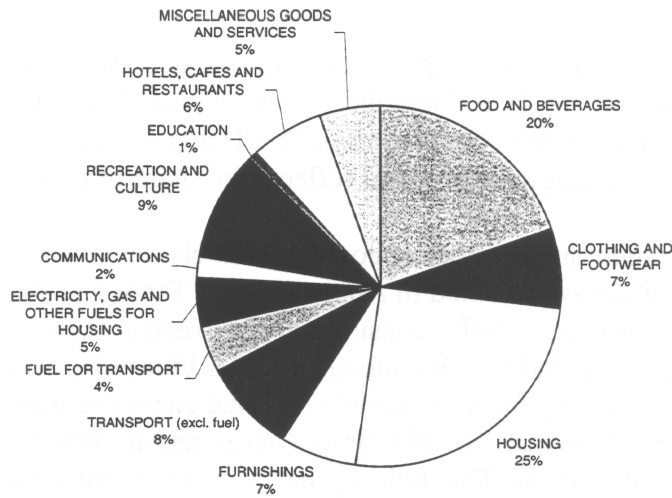


Figure 2 Share of expenditures (corrected for purchasing power parities) made in consumption classes in an average household in 11 EU member states in 1994. The yearly expenditure of an average household is 19.7 kECU/year.

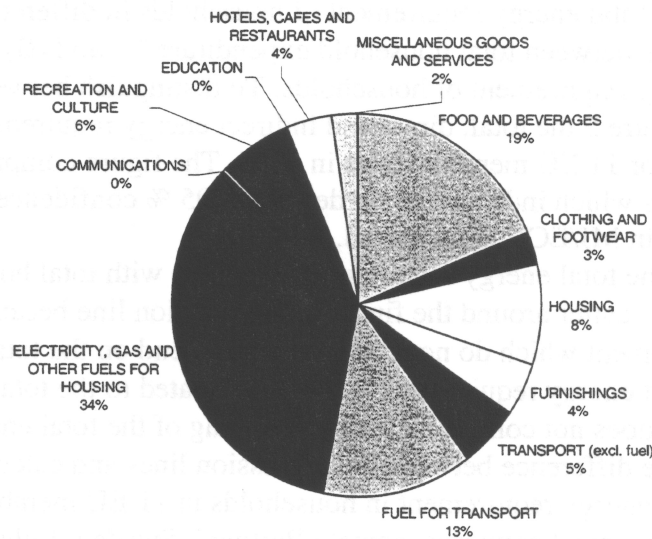


Figure 4 Share of energy required in consumption classes in an average household in 11 EU member states in 1994. An average household requires 274 GJ a year.

3.1.2 Household energy requirement

A total of 22.5 EJ of energy is annually required to fulfill the need for direct and indirect energy in all the households of the 11 EU member states*. Figure 3 presents the share of household energy requirement in the countries considered. By comparing Figure 3 with Figure 1 we notice that the share of energy requirement reflects the share of expenditures.

The yearly energy requirement in a number of consumption classes of an average household in 1994 for 11 EU member states is presented in Appendix C in Table C2. We can see that household total energy requirements differ considerably between countries. The highest value of total energy requirement is found for Luxembourg (508 GJ/hh.year) which exceeds all other values. If we exclude Luxembourg from the sample the total energy requirement ranges from 180 GJ/hh.year (P) to 328 GJ/hh.year (S). The direct energy requirement ranges from 60 GJ/hh.year (P) to 210 GJ/hh.year (S). The indirect energy requirement varies from 103 GJ/hh.year (FIN) to 162 GJ/hh.year (I). The share of direct energy requirement in different countries ranges from 34 % (P) to 64 % (FIN, S) of the total energy requirement.

In Figure 4 we show the share of energy consumed in consumption categories in the total energy requirement of 274 GJ/hh.year of an average household in the EU member states considered. In decreasing order energy is required for electricity, gas and other fuels for housing (34 %), food and beverages (19 %), fuels for transport (13 %), housing (8 %), recreation and culture (6 %), transport (excl. fuel) (5 %), furnishings (4 %), hotels, cafes and restaurants (4 %), clothing and footwear (3 %) and miscellaneous goods and services (2 %). The share of energy required for communications and education can be neglected.

Differences between the total energy requirement of households in different countries are due to mainly (A) differences between total household expenditure^{9 12} and (B) differences between the direct energy requirement of households. To distinguish between both effects (A and B) we present in Figure 5 the total, direct and indirect energy requirement versus total household expenditure for 11 EU member states in 1994. The figure comprises first order regression lines and lines which indicate the border of the 95 % confidence interval. Also, the regression coefficient α in MJ/ECU is presented.

In Figure 5 we see that the total energy requirement increases with total household expenditure. Data points scatter around the first order regression line because of variations of the direct energy requirement which do not significantly depend on the total household expenditure. The indirect energy requirement is linearly related to the total household expenditure and, hence, does not contribute to the scattering of the total energy requirement. In Table 7 we present the difference between the regression lines and calculated values of the total, direct and indirect energy requirement in households in 11 EU member states. In this table we distinguish four typical countries, namely Portugal, Sweden, Belgium and Spain. In Portugal the total energy consumption is 25 % (61 GJ) lower than expected on the basis of the dependence of energy requirement on the total expenditure with 12.4 MJ/ECU. This is particularly due to very low direct energy requirement (-51 %, -63 GJ); indirect energy requirement does not deviate from the trend.

* A rough extrapolation of this value to the complete population of the EU (see Chapter 2) results in a total energy requirement for all household in the EU of about 40 EJ.

In Sweden the total energy requirement exceeds the for expenditure corrected value with 34 % (84 GJ) which is caused by a very high direct energy requirement. Indirect energy requirement in Sweden does not deviate from the trend.

Table 7 The total, E_C , direct, $E_{C,d}$, and indirect, $E_{C,i}$, energy requirement in households in 11 EU member states in 1994, and the difference (Δ) with the regression line shown in Figure 5, given as an absolute value and as a percentage.

Country	E_C (GJ)	ΔE_C (GJ)	ΔE_C (%)	$E_{C,d}$ (GJ)	$\Delta E_{C,d}$ (GJ)	$\Delta E_{C,d}$ (%)	$E_{C,i}$ (GJ)	$\Delta E_{C,i}$ (GJ)	$\Delta E_{C,i}$ (%)
B	297	10.4	3.6	164	21.0	14.7	133	-10.6	-7.4
DK	254	-14.2	-5.3	127	-8.0	-5.9	127	-6.2	-4.6
EL	191	-32.6	-14.6	79	-36.6	-31.7	112	4.1	3.8
E	242	-34.1	-12.3	88	-50.3	-36.3	154	16.2	11.7
I	297	-13.6	-4.4	135	-18.8	-12.3	162	5.2	3.3
L	508	10.8	2.2	247	12.1	5.1	261	-1.3	-0.5
NL	241	-16.6	-6.4	121	-9.5	-7.3	120	-7.0	-5.5
P	180	-60.9	-25.3	60	-62.7	-51.0	119	1.8	1.5
FIN	285	65.2	29.6	183	68.7	60.3	103	-3.6	-3.4
S	328	84.0	34.4	210	85.9	69.0	118	-1.8	-1.5
UK	293	1.6	0.6	143	-1.8	-1.2	150	3.4	2.3

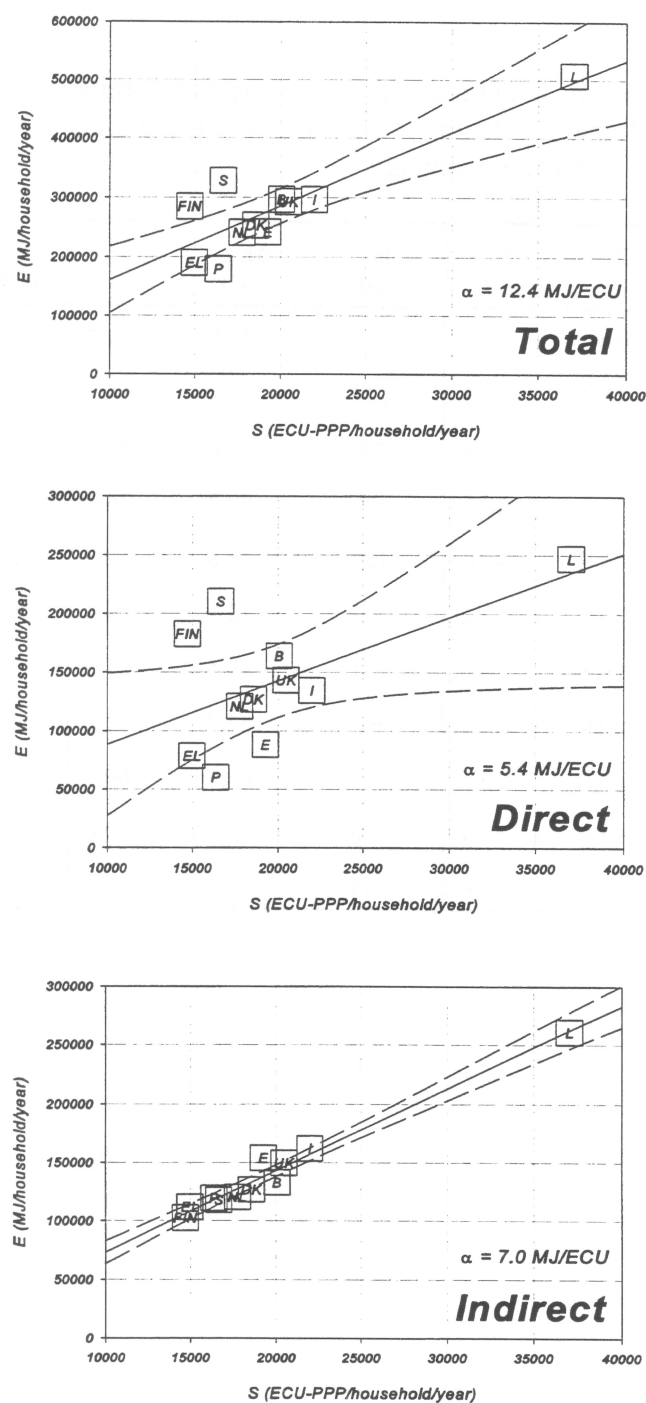


Figure 5 Total, direct and indirect requirement versus total expenditure in households in 11 EU member states in 1994. The solid line is a first order regression line with a fit coefficient α . The dashed lines indicate the borders of the 95 % confidence interval.

Belgium households do not consume significantly more than the expected total energy requirement. The direct energy requirement, however, exceeds the expenditure depended trend with 21 GJ (15 %). The indirect energy requirement is 11 GJ (7 %) lower than expected. In Spain households require a little direct energy (-50 GJ, -36 %). Furthermore, the indirect energy requirement exceeds the trend with 12 % which equals 16 GJ. The deviation of the indirect energy requirement of Spanish households from the expenditure depended trend of 7.0 MJ/EUCU is the biggest in the sample.

Climate influences the direct energy consumption for heating and cooling. Differences in climate can be expressed in number of degree-days³¹ *. The direct energy requirement can be corrected for the climate, using the finding of Eurostat³⁰ that in 1988 in an average European household the direct energy consumption for space heating amounted 72 % ** of the total direct energy consumption for housing ***. For a correction of climate effects on the direct energy requirement we use the next formula:

$$E_{c,d}(cor.) = (0.72 \cdot \frac{DD_{EU}}{DD_c} + 0.28) \cdot E_{c,d,h} + E_{c,d,f} \quad (8)$$

where $E_{c,d}(cor.)$ is the direct energy requirement corrected for climate effects (MJ/year),
 $E_{c,d,h}$ is the direct energy for housing (MJ/year),
 $E_{c,d,f}$ is the direct energy for fuels for transport (MJ/year),
 DD_{EU} the average number of degree-days in the European Union (°C), and
 DD_c the number of degree-days in the country considered (°C).

The effect of the degree-days correction of the direct energy requirement on the total energy requirement is shown for 11 EU member states in 1994 in Figure 6. In this case the indirect energy requirement is similar to the values shown in Figure 5. In Figure 6 we see that the degree-days correction does not fully reduce variations of the direct energy requirement and the effect of the variation of the degree-days corrected direct energy requirement on the total energy requirement is still significant, see Table 8. Hence, climate influences only partly cause the differences between the total energy requirement of households (if corrected for the difference between total household expenditure). Differences may be due to other aspects, such as age, size, construction and penetration degree of insulation of dwellings, the use of electric appliances, the type of space heating system used and average distances to be covered by car.

* Degree-days reflect the coldness of the weather. The number of degree-days is defined by the sum of the difference between the outdoor temperature and a certain reference temperature during each day at which the outdoor temperature is below the reference temperature.

** This is an average value based on a sample of countries. For each country we will give here the share of space heating in the total direct energy requirement for housing in 1988: Belgium (77 %), Denmark (66 %), Greece (73 %), Spain (74 %), Italy (71 %), the Netherlands (70 %), Portugal (79 %) and England (60 %) ³⁰. Data for the remaining countries which we investigate are not at our disposal.

*** Eurostat mentioned that in 1988 the European average household energy consumption for space heating amounted 72 %, for water heating 13 %, for cooking 6 %, and for electrical appliances 9 % ³⁰.

Table 8 The heating degree-days corrected total, E_C , and direct, $E_{C,d}$, energy requirement in households in 11 EU member states in 1994, and the difference (Δ) with the regression line shown in Figure 6, presented as an absolute value and as a percentage.

Country	E_C (GJ)	ΔE_C (GJ)	ΔE_C (%)	$E_{C,d}$ (GJ)	$\Delta E_{C,d}$ (GJ)	$\Delta E_{C,d}$ (%)
B	295	10.5	3.7	163	21.1	14.9
DK	242	-25.2	-9.4	115	-19.1	-14.2
EL	222	-3.5	-1.6	110	-7.6	-6.5
E	265	-10.2	-3.7	111	-26.4	-19.2
I	315	7.6	2.5	153	2.4	1.6
L	486	2.4	0.5	225	3.7	1.7
NL	238	-20.4	-7.9	117	-13.4	-10.3
P	205	-37.0	-15.3	85	-38.7	-31.2
FIN	252	29.2	13.1	149	32.8	28.2
S	289	43.5	17.8	171	45.4	36.2
UK	293	3.2	1.1	143	-0.2	-0.1

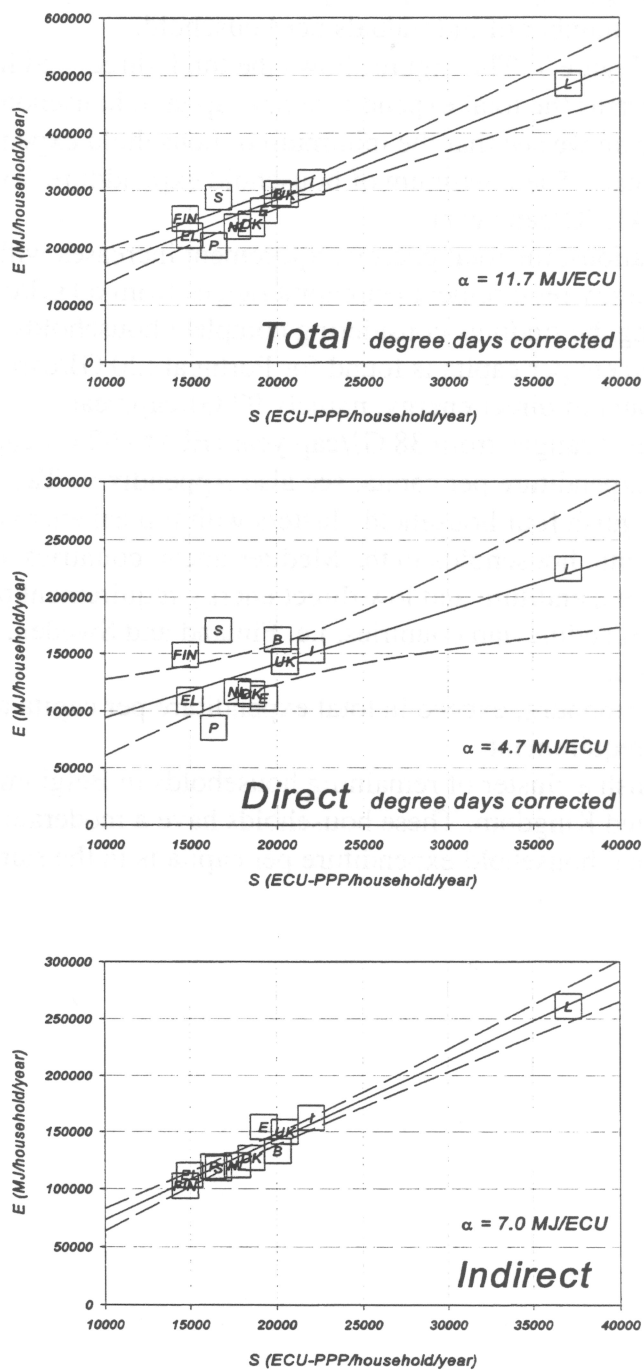


Figure 6 For climate effects corrected total, direct and indirect requirement versus total expenditure in households in 11 EU member states in 1994. The solid line is a first order regression line with a fit coefficient α . The dashed lines indicate the borders of the 95 % confidence interval.

3.1.3 Expenditure and energy requirement per capita

The expenditures and energy requirement per capita are calculated by dividing values for an average household by the number of individuals per household.

Results are presented in Figure 7. This figure shows the total, direct and indirect energy requirement per capita versus the total expenditure per capita in households in 11 EU member states in 1994. In this figure we see that the minimum of household expenditure is found for Greece (5,1 kECU/cap.year). The maximum of household expenditure (excl. Luxembourg) is found for Denmark (8,8 kECU/cap.year).

According to our expectations, the total energy requirement increases with increasing expenditure. The total energy requirement per capita ranges from 60 GJ/cap.year (P) to 152 GJ/cap.year (S), reflecting the findings considering complete households. The lowest value for the direct energy requirement per capita is found for Portugal (20 GJ/cap.year). The Swedish consume the largest amount of direct energy, namely 97 GJ/cap.year.

Indirect energy requirement ranges from 38 GJ/cap.year (EL) to 62 GJ/cap.year (UK) and depends linearly on the expenditure per capita, see also Appendix C, Table C3 and C4.

In Figure 7 we can distinguish four household clusters with typical energy consumption per capita. Namely, to start with, households in the Mediterranean countries, i.e. Spain, Greece and Portugal, have a low expenditure and low direct energy requirement per capita.

Next, households in the Scandinavian countries, i.e. Finland and Sweden, have a relatively high direct energy demand.

Then, households in Luxembourg, exceed in total expenditure per capita and hence, in indirect (and also direct) energy requirement.

To end with, we distinguish a cluster of remaining households in Belgium, Denmark, Italy, the Netherlands and the United Kingdom. These households have a moderate direct energy requirement. Also, the total household expenditure per capita is in the same order in these countries.

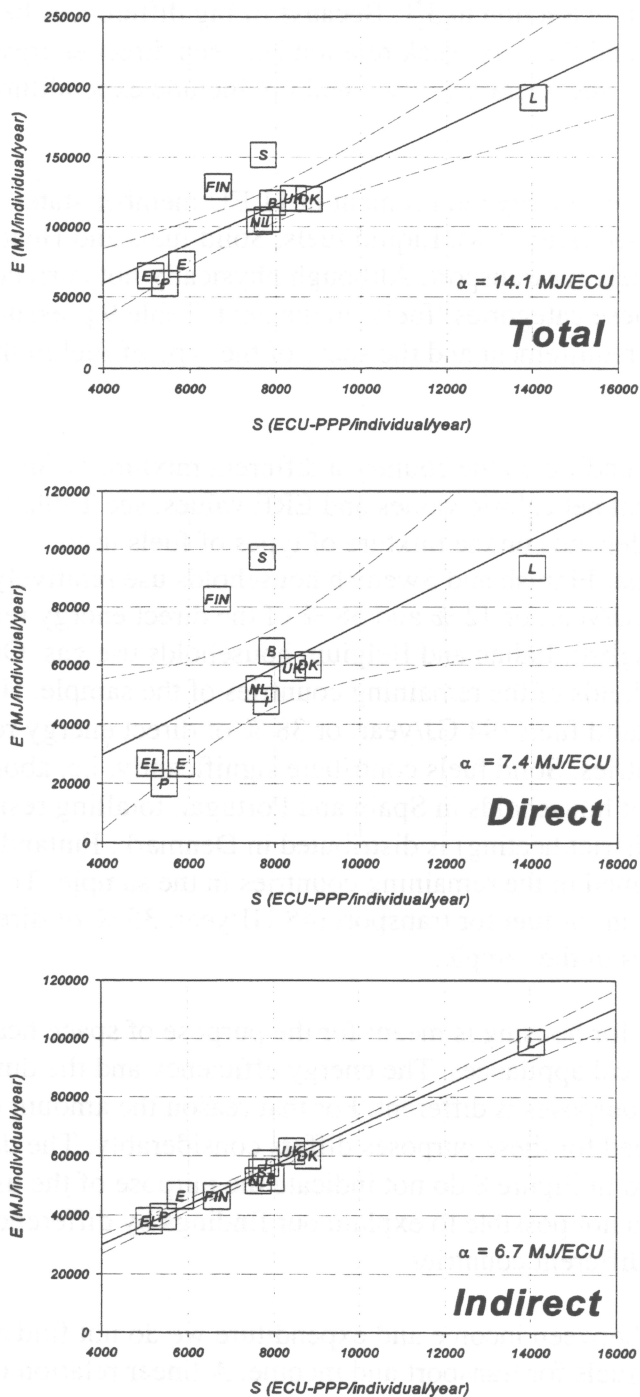


Figure 7 Total, direct and indirect requirement per capita versus total expenditure per capita in households in 11 EU member states in 1994. The solid line is a first order regression line with a fit coefficient α . The dashed lines indicate the borders of the 95 % confidence interval.

3.2 Details of the direct energy requirement

We will discuss the energy that is required directly for housing (class 4) and transport (class 7) at a more detailed level than in Section 3.1. Because of big differences between prices of fuels in different countries and the very weak relation between direct energy consumption and total household expenditure, see Section 3.1, we will not include expenditure data in the next presentation.

In Figure 8 we show the direct energy requirement in 11 EU member states in 1994 divided in the following categories: Electricity, Gas, Liquid fuels, Solid fuels and Heat (all for the purpose of housing) and Fuels for transport. Although physically not correct, for sake of convenience we will call these categories 'fuels' in the next. Table 9 presents the absolute values of the direct energy requirement and the share of the type of fuel in the direct energy requirement.

We see in Figure 8 that depending on the country a different mixture of fuels is used.

Different fuels have different net caloric values and ERE values, see Table 6. Therefore, the direct energy requirement depends on the mixture of types of fuels used.

In Figure 7 it can be seen that Finnish and Swedish households use relatively much electricity (resp. 78 GJ/year and 121 GJ/year, or 42 % and 58 % of the direct energy requirement).

Dutch, Luxembourgian, English, Italian and Belgium households use gas. On the other hand, gas is hardly used in households of the remaining countries of the sample. Households in Luxembourg use a lot of liquid fuels (94 GJ/year, or 38 % of direct energy requirement) compared to the other countries. Solid fuels contribute significantly, i.e. about 10 %, to the direct energy requirement of households in Spain and Portugal, totalling resp. 9 and 6 GJ/year. 14 to 16 GJ/year of heat (district heating) is distributed in Denmark, Finland and Sweden. Heat is hardly or not consumed in the remaining countries in the sample. To end with, the Italians use the largest amount of fuel for transport (48 GJ/year, 35 % of direct energy requirement) of all countries in the sample.

Direct energy consumption for housing is meant for the purpose of space heating, water heating, cooking and electrical appliances. The energy efficiency and the duration of utilization of each of these purposes is different. For that reason the amount of primary energy used to fulfill the energy need for these purposes differs considerably. The data provided by the IEA which are presented in Figure 8 do not indicate the purpose of the use of certain types of fuels. For that reason it is not possible to explain our findings by differences between lifestyles in households in different countries

Assuming a linear relation between income and expenditure we do not find a relation between the energy requirement for fuels for transport and income. A linear relation of 23.9 GJ/car is found between the average number of cars per household and the energy requirement for fuels for transport, see Figure 9. Italians excel in the number of cars per households and hence, in the use of fuels for transport.

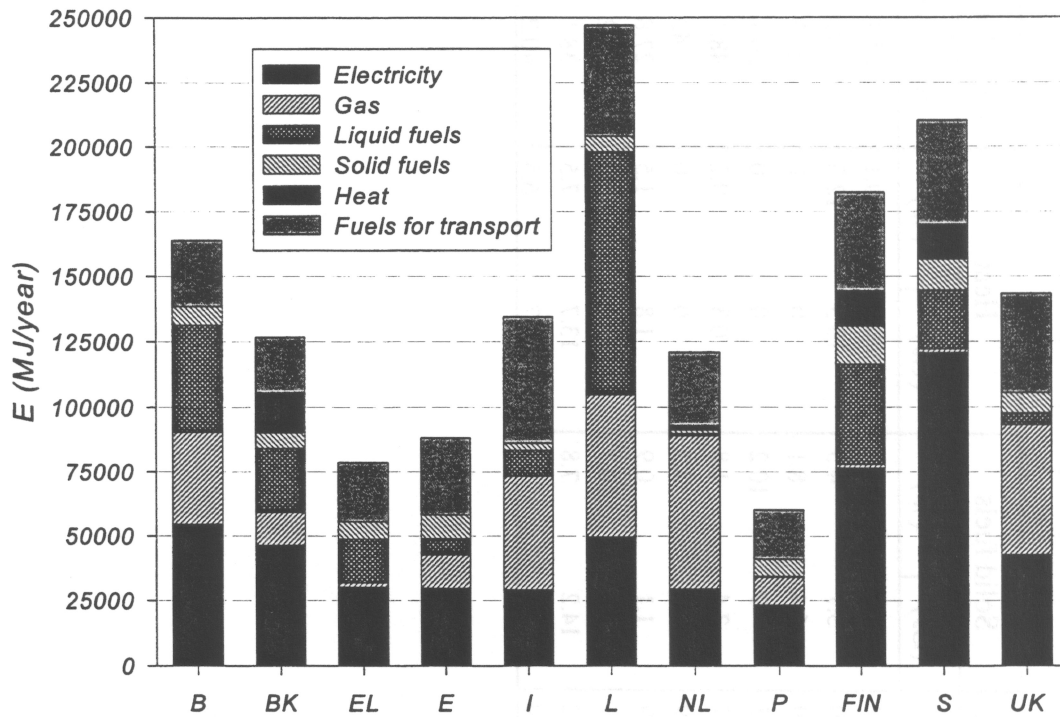


Figure 8 Direct energy requirement of households in 11 EU member states in 1994. Primary energy consumption by use of electricity, gas, liquid fuels, solid fuels and heat is based on data from the IEA and ERE values presented in Table 6. Energy requirement for fuels for transport is determined on the basis of expenditure data and the energy intensity for fuels for transport.

Table 9 Direct energy requirement for electricity, gas, liquid fuels for housing, solid fuels, heat and fuels for transport in 11 EU member states in 1994. Values are given absolute and as a percentage of the direct energy requirement.

Country	Electricity		Gas		Liquid fuels for housing		Solid fuels		Heat		Fuels for transport	
	(GJ)	(%)	(GJ)	(%)	(GJ)	(%)	(GJ)	(%)	(GJ)	(%)	(GJ)	(%)
B	54.8	33.4	35.7	21.8	41.3	25.2	6.8	4.1	0.1	0.1	25.4	15.5
DK	46.7	36.8	12.4	9.8	25.4	20	5.7	4.5	15.5	12.3	21	16.6
EL	30.4	38.6	1.4	1.8	17.2	21.9	6.4	8.1	0	0	23.3	29.6
E	29.9	33.8	12.9	14.6	6.5	7.3	9	10.2	0	0	30.1	34.1
I	29.4	21.9	44	32.7	10.4	7.7	2.4	1.8	0.3	0.2	48.1	35.7
L	49.9	20.2	54.9	22.2	93.6	37.9	5.7	2.3	0	0	43	17.4
NL	29.7	24.6	59.4	49.1	1.1	0.9	1.1	0.9	1.8	1.5	27.8	22.9
P	23.6	39.1	10.5	17.5	0.6	1	6.4	10.7	0	0	19.2	31.8
FIN	76.9	42.1	1.1	0.6	38.7	21.2	14.2	7.8	13.7	7.5	38.1	20.9
S	121	57.5	1	0.5	23	10.9	11.5	5.5	13.7	6.5	40.2	19.1

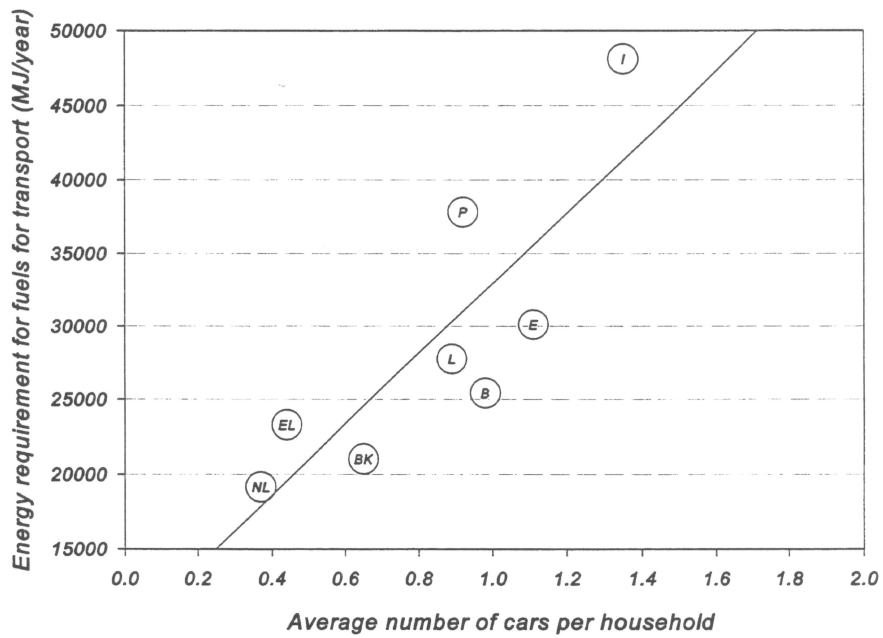


Figure 9 Energy requirement for fuels for transport in 1994 versus average number of cars per household in 1988 (source: Eurostat, 1993³⁰) for households in 8 EU member states.

3.3 Results considering indirect energy requirement

In this section we will present at a detailed level the expenditures and the resulting indirect energy requirement for a number of classes of goods and services to be purchased by households. The classes considered are 1-3, 5, 6, 9, 11-12 as indicated in Table 5. The overall results for a number of consumption classes are presented in Appendix C.

In Section 3.1.2 we found that the indirect energy requirement is linearly related to the total expenditure of households. Corrected for the dependency on the total expenditure the difference between indirect energy requirement between countries is small. Belgium and Spain are the most prominent outliers of the linear tendency with resp. -11 and 16 GJ. In the next sections we will evaluate which differences exist between the countries considered in each consumption class. Notice the remark made about Luxembourg in the introduction of Chapter 3.

3.3.1 Class 1: Food, beverages and tobacco

In Figure 10 we present the expenditure on food, beverages and tobacco and the indirect energy requirement on these items versus the total household expenditure for households in the 11 EU member states in 1994. Expenditure on food is in the range of 2.42 kECU/year (FIN) to 5.04 kECU/year (E). Energy requirement ranges from 33,1 GJ/year (FIN) to 68,3 GJ/year (E). In Figure 10 we also present the energy requirement for food per household member. We can see that scattering of data points per capita is small with respect to data points per household, hence, differences between energy requirement for food per household are due to mainly a different average family size in the countries considered. Individual energy requirement for food varies from 15.0 GJ/cap.year (FIN) to 23.2 GJ/cap.year (I).

In Table 10 we present the difference between the calculated energy requirement for food and the value expected according to the linear relation between energy requirement and the total expenditure. It is shown that given their total expenditure, Italians and Spanish require relatively much energy for food. In Table 10 it can be seen that this is due to a relatively high expenditure on food, i.e. Italians and Spanish purchase more food or food from more expensive categories than other Europeans. Households in the Netherlands, Belgium, Finland and the United Kingdom require relatively little energy. This finding reflects the small expenditure on food in these countries.

Next, we determined the PPP corrected expenditures and the indirect energy requirement for food per individual household member for the following categories: Bread and cereals, Meat, Fish, Milk, cheese and eggs, Fruit, Vegetables, Sugar etc., Food n.e.c., Non-alcoholic beverages, Alcoholic beverages and Tobacco. The results are shown in Figure 11 and Figure 12. We did not include Sweden in this analysis, because data at a detailed level of categories were not available*.

* To calculate the indirect energy requirement for food in the case of Sweden we multiplied the expenditure on food with the energy intensity of this class in the Dutch case, 12.1 MJ/ECU.

Table 10 Difference between regression line and the purchasing power parities corrected expenditure $S_{C,d}$ on food, beverages and tobacco in 11 EU member states in 1994. Difference between regression line and calculated values of the indirect requirement $E_{C,d}$ for food, beverages and tobacco per household and per capita.

Food, beverages and tobacco						
Country	Expenditure per household		Energy per household		Energy per capita	
	$\Delta S_{C,d}$ (ECU)	$\Delta S_{C,d}$ (%)	$\Delta E_{C,d}$ (GJ)	$\Delta E_{C,d}$ (%)	$\Delta E_{C,d}$ (GJ)	$\Delta E_{C,d}$ (%)
B	-391.7	-10.4	-5.2	-10.4	-1.5	-7.7
DK	-379.2	-10.6	-8.7	-18.4	0.1	0.5
EL	319.5	10.2	6.1	14.5	0.0	0.2
E	1366.4	37.2	19.8	40.8	2.0	10.8
I	833.4	20.7	12.9	24.6	3.2	15.7
L	-194.8	-3.3	-2.8	-3.8	-0.7	-2.5
NL	-402.3	-11.5	-8.2	-17.7	-1.5	-8.4
P	165.2	5.0	5.4	12.3	-0.7	-3.9
FIN	-672.2	-21.7	-8.5	-20.4	-1.2	-7.4
S	-52.8	-1.6	-4.5	-10.2	1.3	7.5
UK	-591.9	-15.5	-6.4	-12.7	-1.2	-6.2

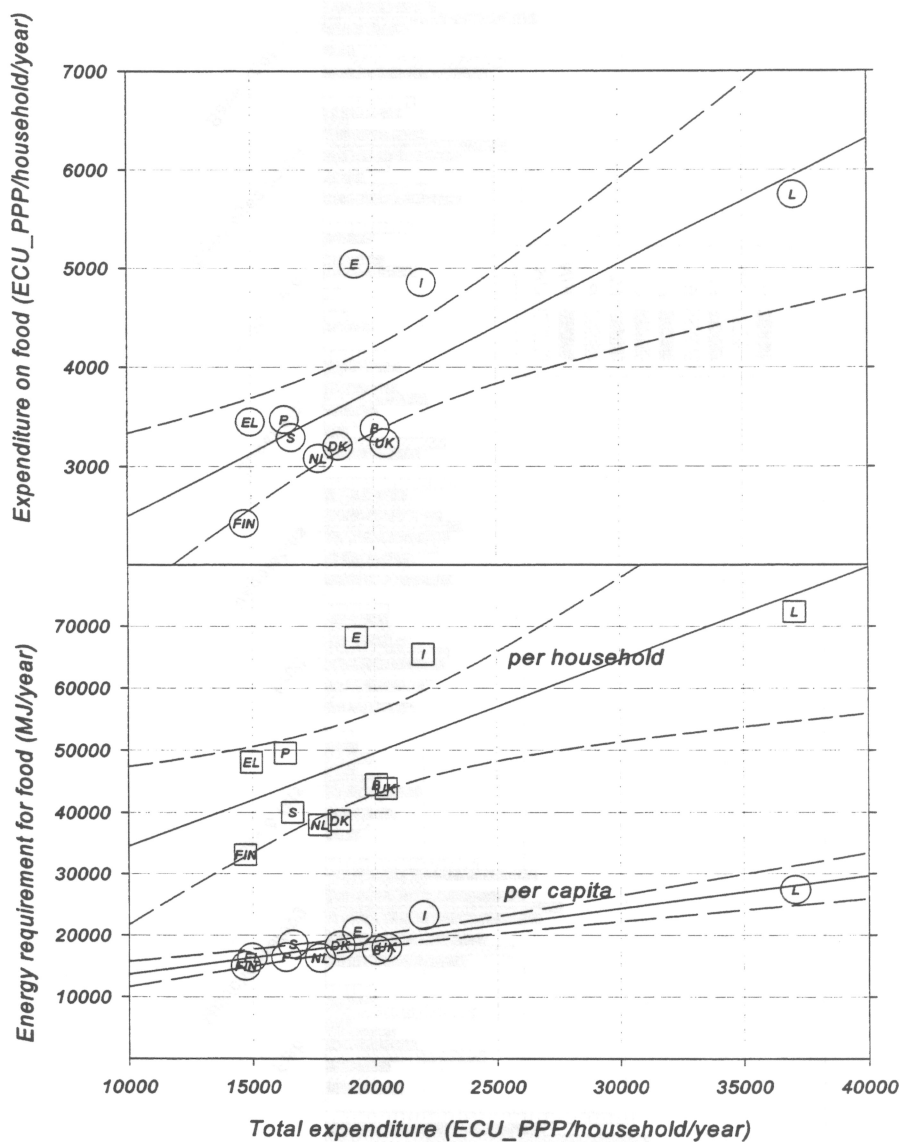


Figure 10 Expenditure and energy requirement for food, beverages and tobacco per household and per capita versus total household expenditure in 11 EU member states in 1994. Solid lines indicate first order regression lines; dashed lines mark the border of the 95 % confidence interval.

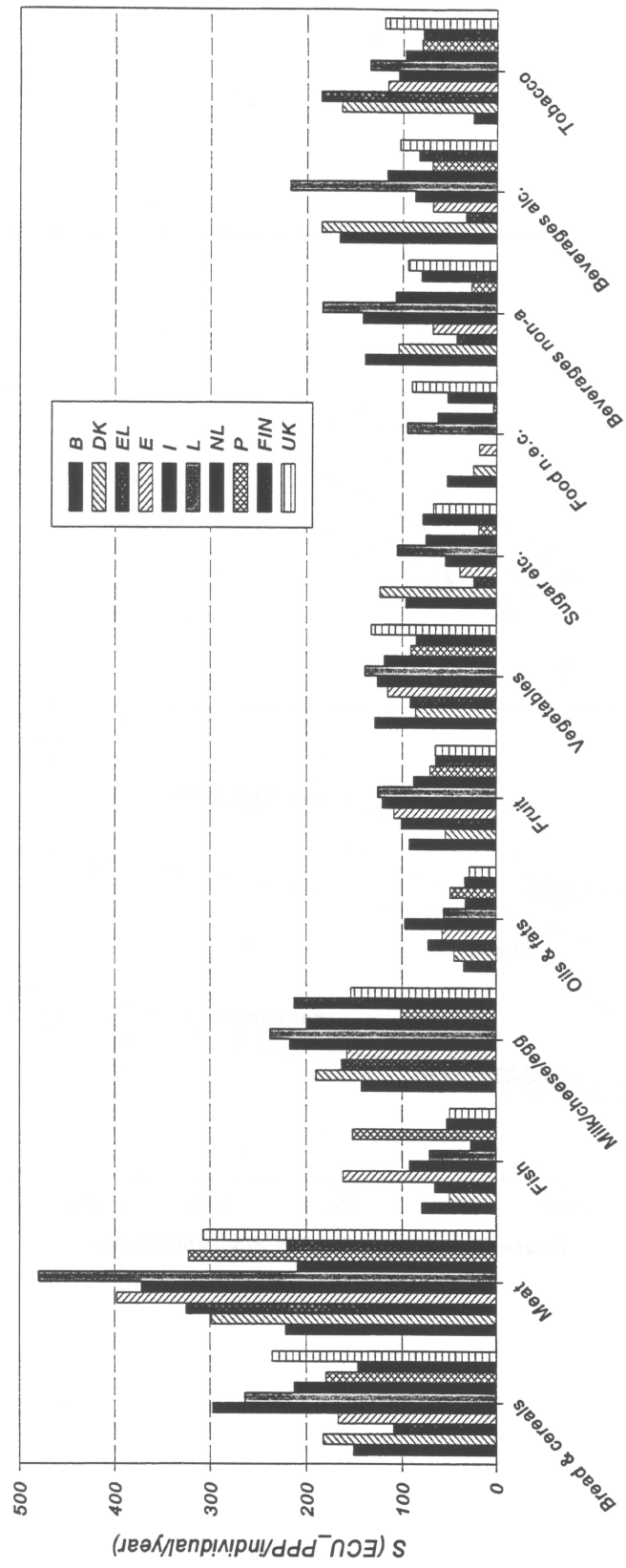


Figure 11 Household expenditures on food, beverages and tobacco in 10 EU member states. Values are corrected for purchasing power parities.

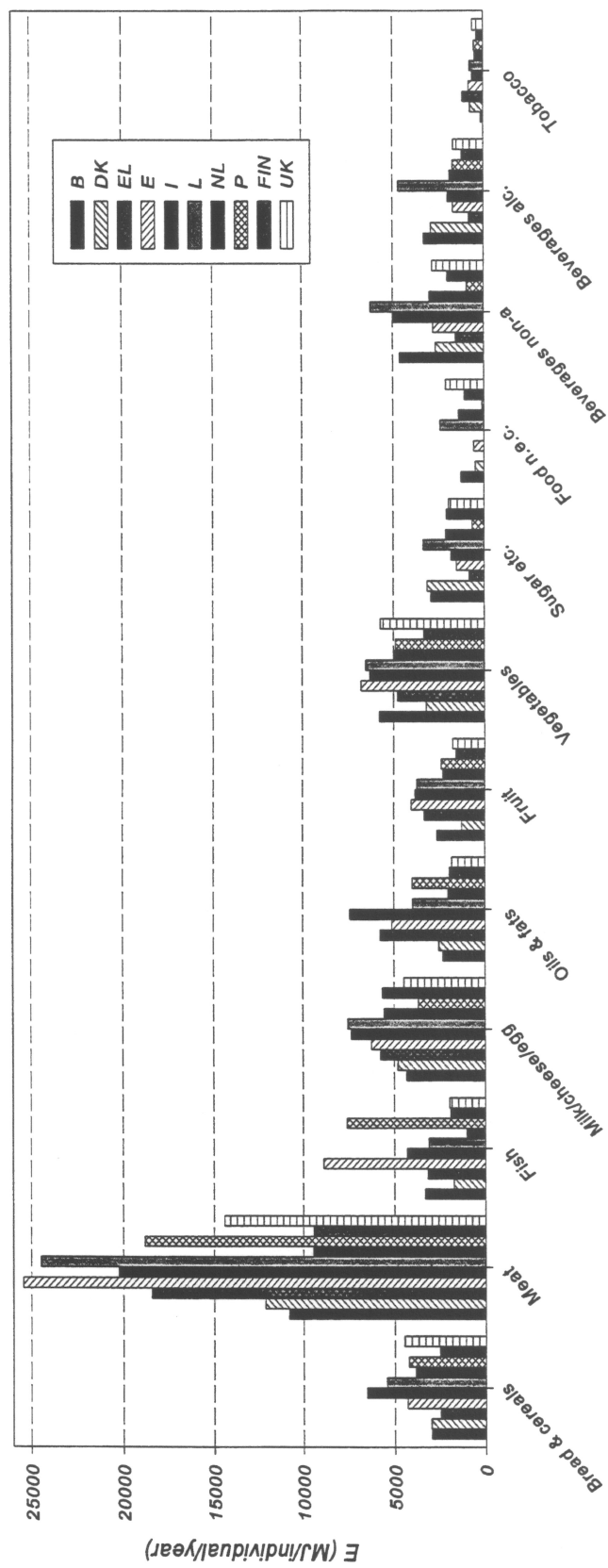


Figure 12 Indirect energy requirement per capita for food, beverages and tobacco in households in 10 EU member states in 1994.

3.3.2 Class 2: Clothing and footwear

In Figure 13 we present the expenditure on clothing and footwear and the indirect energy requirement on these items versus the total household expenditure for households in the 11 EU member states in 1994. Expenditure on clothing and footwear is in the range of 0.7 kECU/year (P and FIN) to 1.7 kECU/year (EL). Energy requirement per household ranges from 4.0 GJ/year (P) to 9.6 GJ/year (E). Energy requirement per capita varies from 1.3 GJ/year (P) to 3.5 GJ/year (DK).

In Table 11 we present the difference between the calculated energy requirement for food and the value expected according to the linear relation between energy requirement and the total expenditure. It is shown that given their total expenditure, Greek require relatively much energy for clothing and footwear. In Table 11 it can be seen that this is due to a relatively high expenditure on this item. Households in Portugal require a relatively small amount of energy. This finding reflects the small expenditure on clothing and footwear. Except for the case of Finland, differences between expenditure on clothing can explain differences between energy requirement for clothing.

Next, we determined the PPP corrected expenditures and the indirect energy requirement for clothing and footwear per individual household member for both categories.

The results are shown in Figure 14.

Due to missing expenditure data on footwear we remark that Greek household budget surveys probably combine clothing and footwear under the term clothing. Because the energy intensity of clothing (see Appendix B) is twice that of footwear, the energy requirement for clothing and footwear may be overestimated by this methodological aspect.

Table 11 Difference between regression line and the purchasing power parities corrected expenditure $S_{C,d}$ on clothing and footwear in 11 EU member states in 1994. Difference between regression line and calculated values of the indirect requirement $E_{C,d}$ for clothing and footwear per household.

Clothing and footwear				
Country	Expenditure per household		Energy per household	
	$\Delta S_{C,d}$ (ECU)	$\Delta S_{C,d}$ (%)	$\Delta E_{C,d}$ (GJ)	$\Delta E_{C,d}$ (%)
B	-113.6	-8.1	-0.7	-9.3
DK	10.5	0.8	-0.1	-0.8
EL	619.5	57.8	3.4	54.6
E	97.7	7.2	0.3	3.9
I	69.9	4.6	0.1	1.8
L	22.9	0.9	0.4	3.1
NL	42.4	3.4	0.0	-0.5
P	-416.6	-35.8	-2.7	-40.0
FIN	-304.9	-28.9	-0.3	-5.5
S	86.0	7.3	0.4	5.8
UK	-109.4	-7.7	-0.8	-10.1

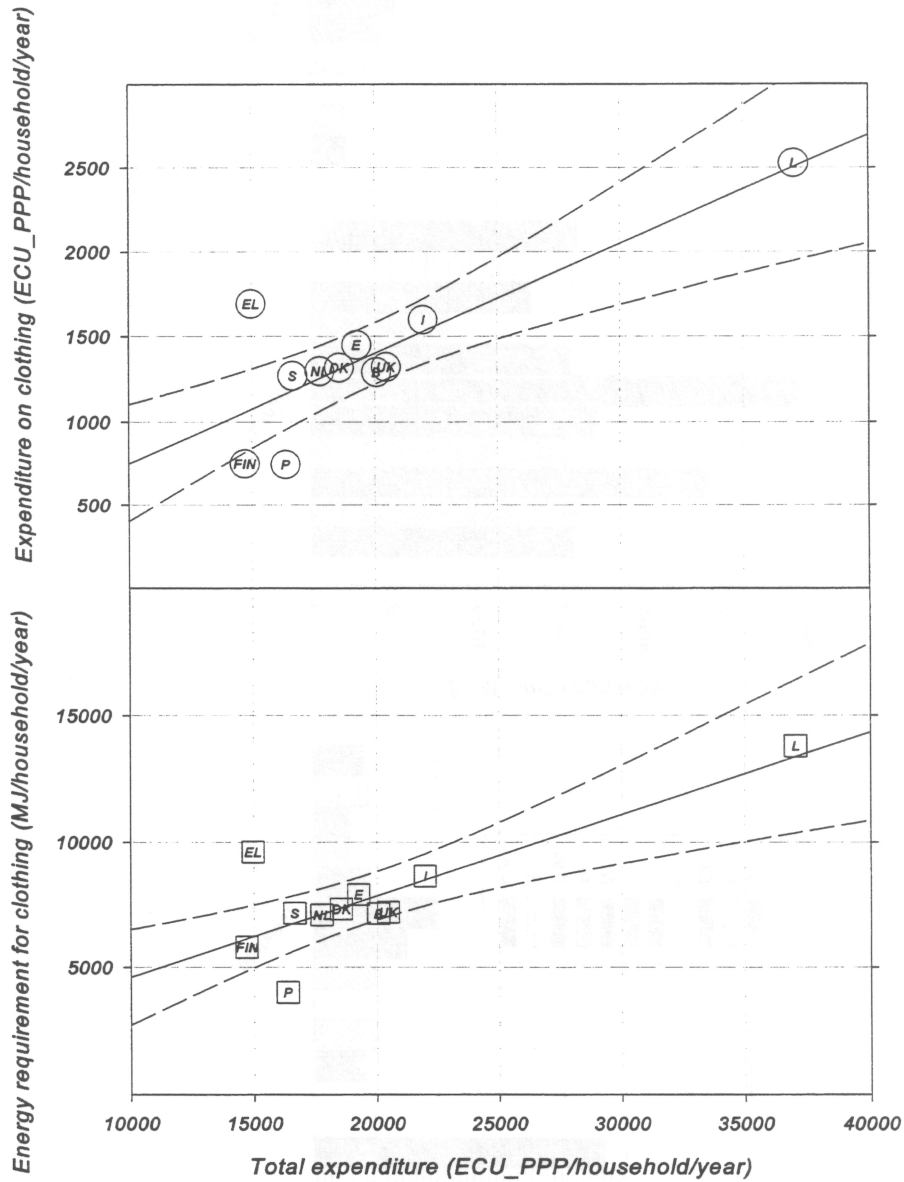


Figure 13 Expenditure and energy requirement for clothing and footwear per household in 11 EU member states in 1994. Solid lines indicate first order regression lines; dashed lines mark the border of the 95 % confidence interval.

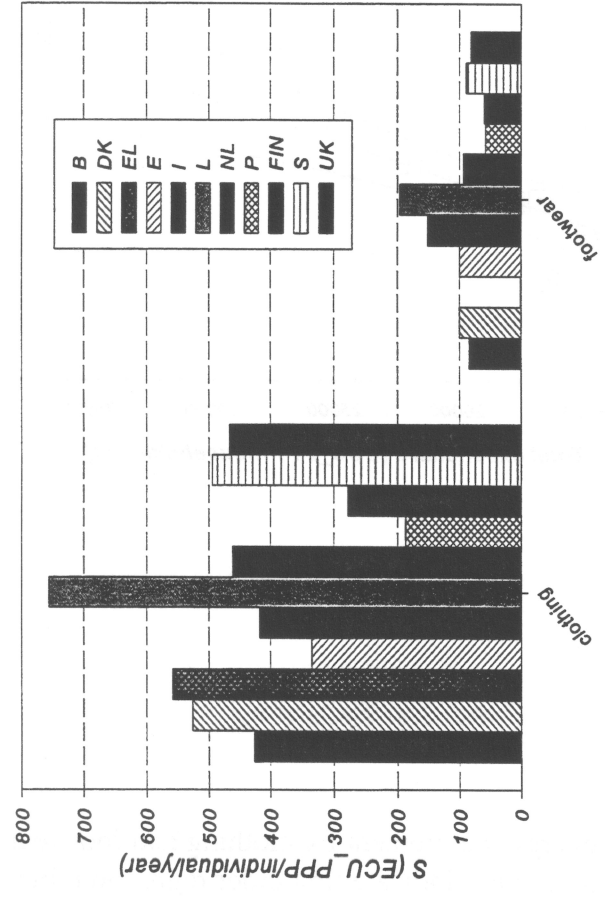
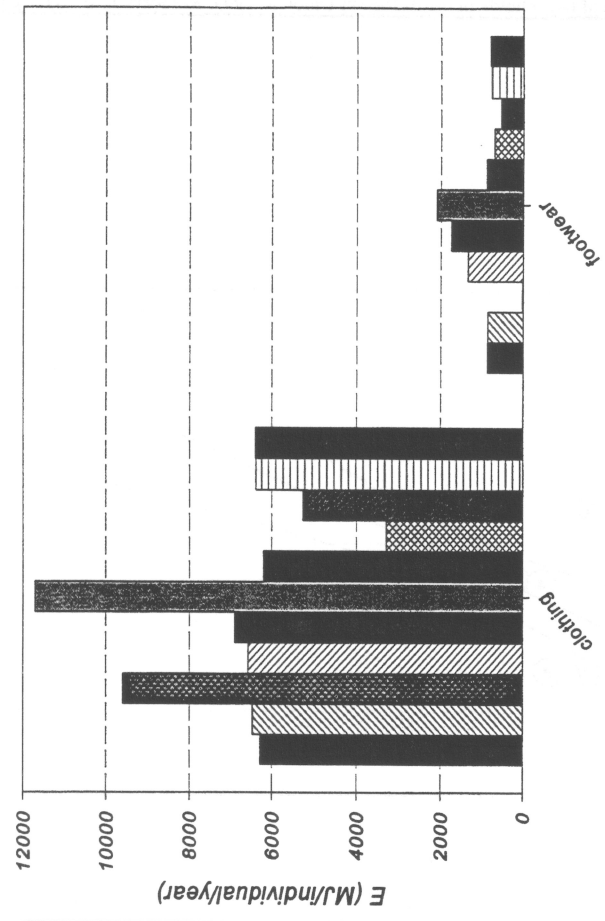


Figure 14 Expenditure and indirect energy requirement per capita for clothing and footwear in households 11 EU member countries in 1994.

3.3.3 Class 3: Housing

In Figure 15 we present the expenditure on housing and the indirect energy requirement on these items versus the total household expenditure for households in the 11 EU member states in 1994. Expenditure on housing is in the range of 3.4 kECU/year (S) to 5.8 kECU/year (I). Energy requirement per household ranges from 13.9 GJ/year (S) to 29.1 GJ/year (I). Energy requirement per capita varies from 6.0 GJ/year (P) to 10.3 GJ/year (I).

In Table 12 we present the difference between the calculated energy requirement for housing and the value expected according to the linear relation between energy requirement and the total expenditure. It is shown that given their total expenditure, Italians and Spanish require relatively much energy for housing. This is not reflected by household expenditures on housing in Italy and Spain. Housing in Sweden and the Netherlands requires relatively little energy.

The price level index corrects for price differences of rental for housing in different countries assuming a uniform product. Because furniture (and fresh wallpaper), appliances (refrigerator, oven, washing machine) and services (maintenance, heating, cleaning of the house) included in the standard rent may vary considerably among countries, the costs of renting a house and the energy intensity may vary as well. For these differences we did not correct.

We determined the PPP corrected expenditures and the indirect energy requirement for housing per household for the following categories: Actual rentals for housing, Imputed rentals for housing, Maintenance and repair of the dwelling and Other services relating to the dwelling. The results are shown in Figure 16 and Figure 17.

Table 12 Difference between regression line and the purchasing power parities corrected expenditure $S_{C,d}$ on housing in 11 EU member states in 1994. Difference between regression line and calculated values of the indirect requirement $E_{C,d}$ for housing per household.

Housing				
Country	Expenditure per household		Energy per household	
	$\Delta S_{C,d}$ (ECU)	$\Delta S_{C,d}$ (%)	$\Delta E_{C,d}$ (GJ)	$\Delta E_{C,d}$ (%)
B	-316.5	-6.5	-3.1	-15.0
DK	-212.3	-4.6	-2.7	-13.7
EL	-291.7	-7.4	0.5	2.6
E	48.0	1.0	5.2	25.6
I	511.2	9.7	7.0	31.4
L	-62.1	-0.8	-1.5	-4.8
NL	-410.8	-9.2	-3.6	-18.6
P	714.1	16.9	-0.3	-1.8
FIN	598.2	15.3	2.0	11.7
S	-900.8	-21.1	-4.7	-25.4
UK	328.1	6.6	1.4	6.7

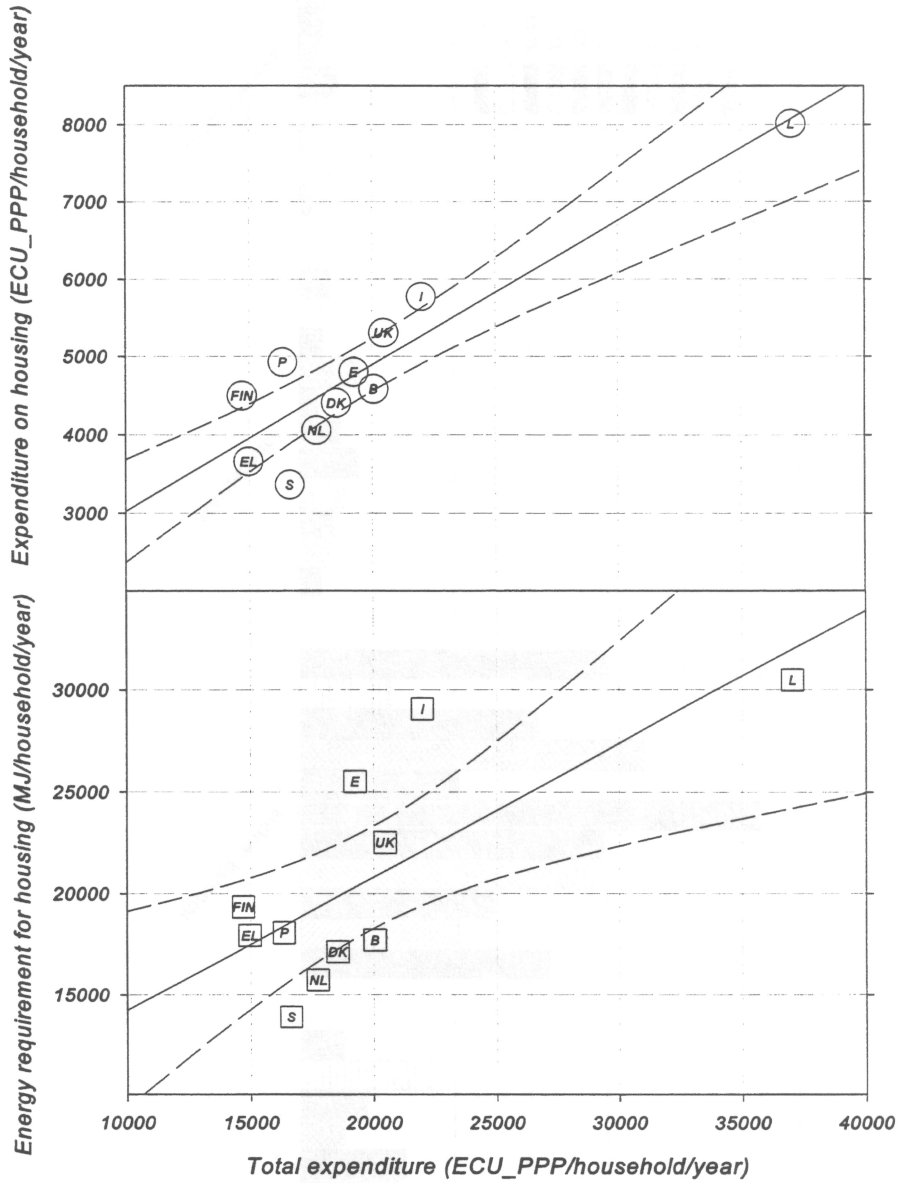


Figure 15 Expenditure and energy requirement for housing versus total household expenditure in 11 EU member states in 1994. Solid lines indicate first order regression lines; dashed lines mark the border of the 95 % confidence interval.

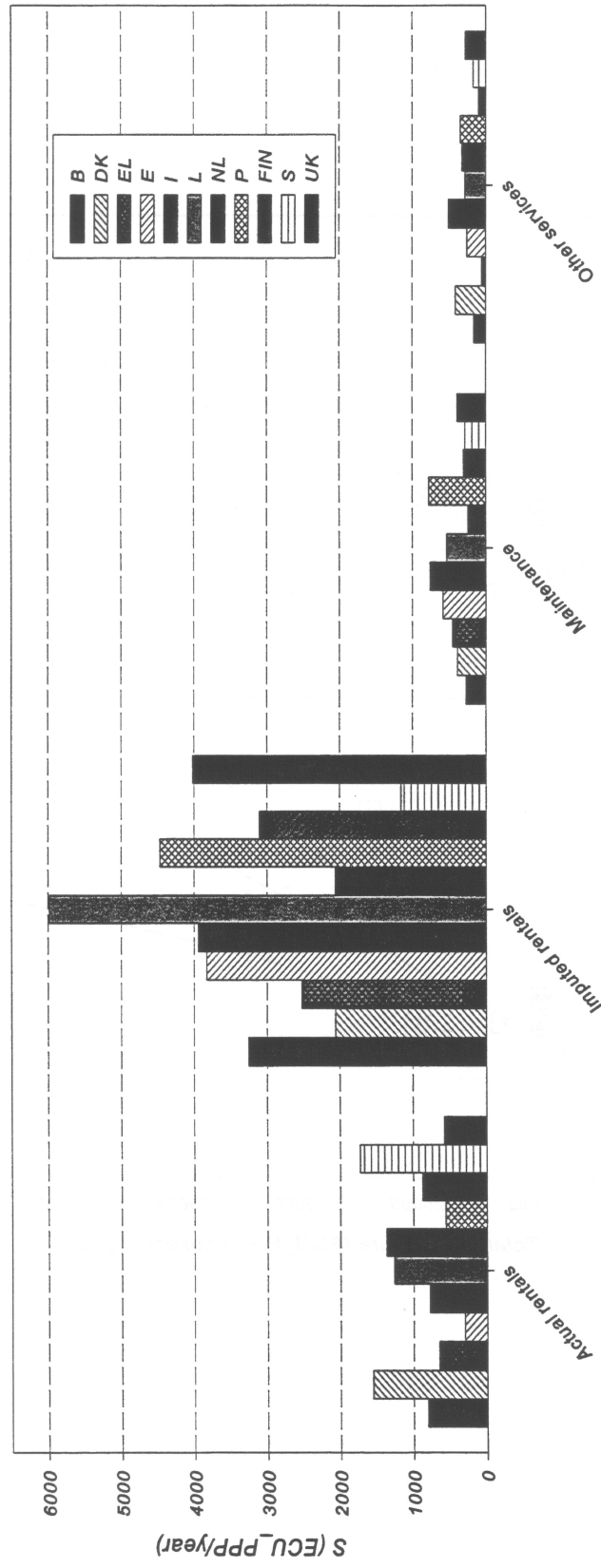


Figure 16 Household expenditures on housing for 11 EU member countries. Values are corrected for purchasing power parities.

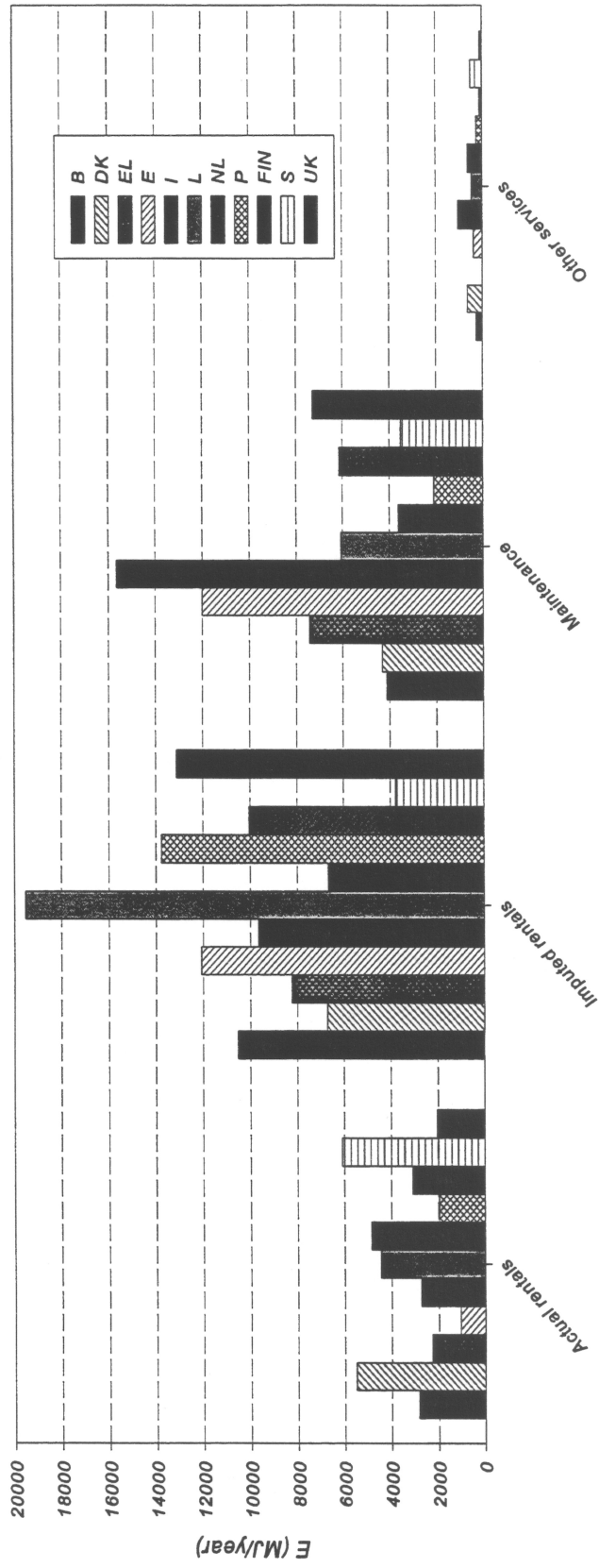


Figure 17 Indirect energy requirement for housing in households in 11 EU member states in 1994.

3.3.4 Class 5: Furnishings, household equipment and routine maintenance of the house

In Figure 18 we present the expenditure on furnishings, household equipment and routine maintenance of the house (abbreviated to furnishings (etc.)) and the indirect energy requirement on these items versus the total household expenditure for households in the 11 EU member states in 1994. Expenditure on housing is in the range of 0.8 kECU/year (FIN) to 1.5 kECU/year (B, NL and UK). Energy requirement per household ranges from 6.7 GJ/year (FIN) to 14.5 GJ/year (UK). Energy requirement per capita varies from 2.9 GJ/year (P) to 6.0 GJ/year (UK).

In Table 13 we present the difference between the calculated energy requirement for furnishings (etc.) and the value expected according to the linear relation between energy requirement and the total expenditure. It is shown that given their total expenditure, Greek, Dutch and English households require relatively much energy for furnishings (etc.). Households in Finland, Spain and Italy require a relatively small amount of energy for furnishings (etc.).

We determined the PPP corrected expenditures and the indirect energy requirement for furnishings, household equipment and routine maintenance of the house per household for the following categories: Furniture*, Household textiles, Household appliances**, Glassware, tableware and household utensils, Tools and equipment for house and garden and goods and services for routine household maintenance.

The results are shown in Figure 19 and Figure 20.

* Furniture, furnishings and decorations, carpets and other floor coverings and repairs

** Heating and cooking appliances, refrigerators, washing machines and similar major household appliances, including fittings and repairs.

Table 13 Difference between regression line and the purchasing power parities corrected expenditure $S_{C,d}$ on furnishings (etc.) in 11 EU member states in 1994. Difference between regression line and calculated values of the indirect requirement $E_{C,d}$ for furnishings (etc.) per household.

Furnishings (etc.)				
Country	Expenditure per household		Energy per household	
	$\Delta S_{C,d}$ (ECU)	$\Delta S_{C,d}$ (%)	$\Delta E_{C,d}$ (GJ)	$\Delta E_{C,d}$ (%)
B	83.1	5.7	0.4	2.8
DK	65.2	5.0	1.0	9.1
EL	226.2	24.1	1.9	22.0
E	-213.3	-15.6	-1.8	-14.7
I	-293.7	-17.9	-1.9	-13.7
L	80.8	2.6	0.1	0.5
NL	282.2	23.2	1.9	17.8
P	-34.2	-3.2	-1.2	-12.0
FIN	-146.2	-16.0	-1.9	-21.8
S	-13.5	-1.2	-0.3	-3.0
UK	-21.7	-1.5	1.6	12.8

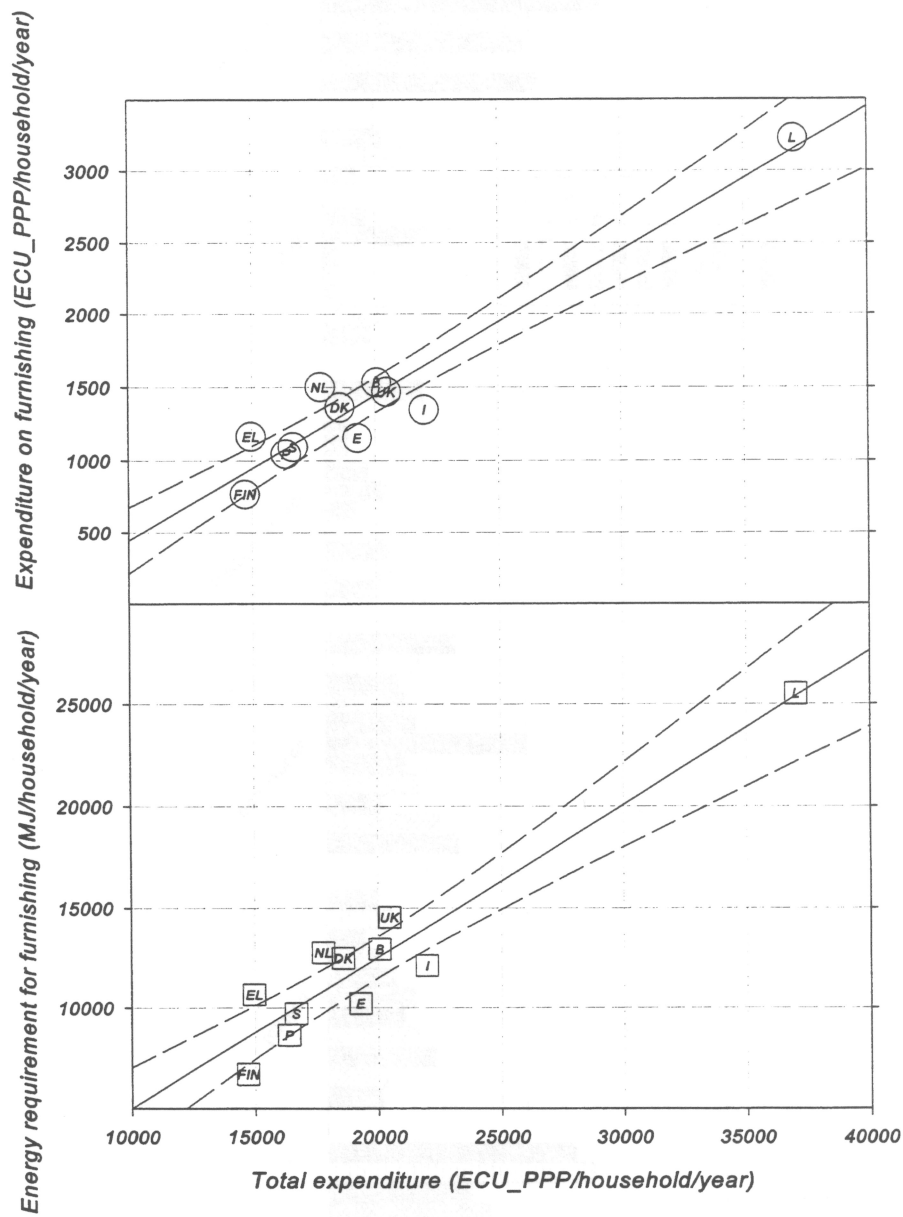


Figure 18 Expenditure and energy requirement for furnishings (etc.) versus household expenditure in 11 EU member states in 1994. Solid lines indicate first order regression lines; dashed lines mark the border of the 95 % confidence interval.

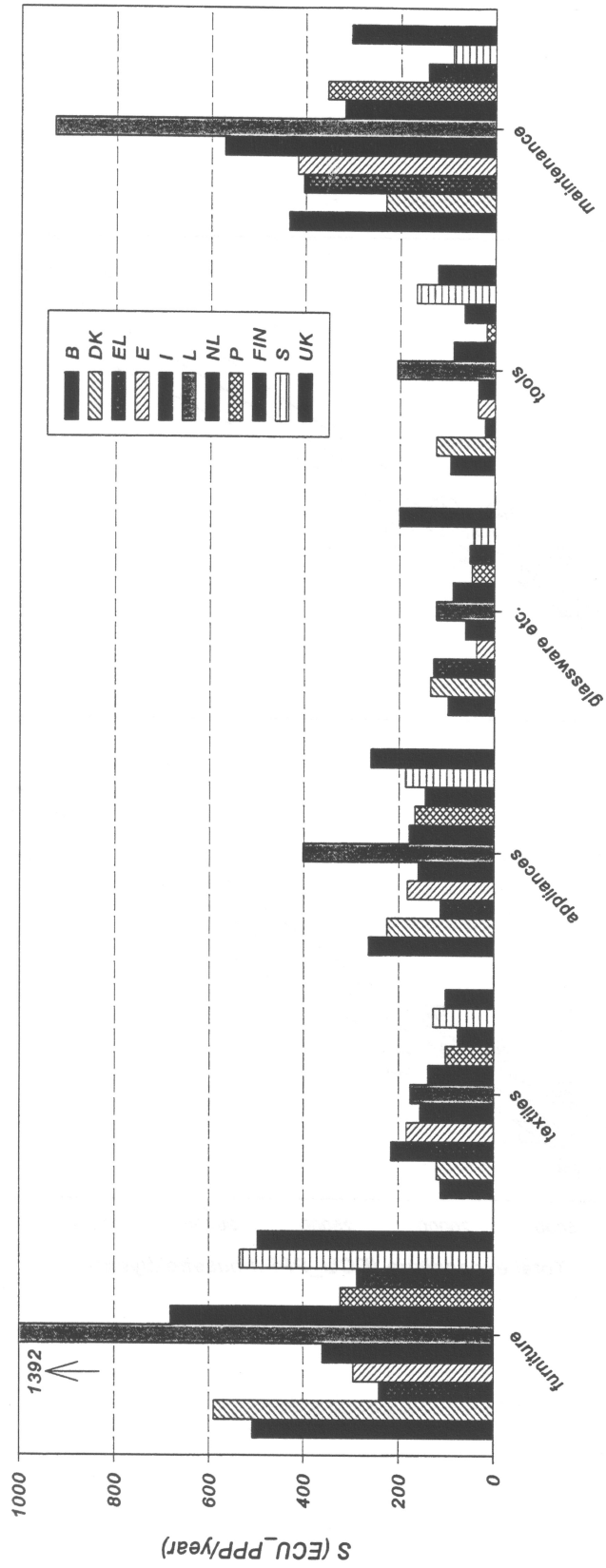


Figure 19 Household expenditure on furnishings (etc.) in 11 EU member states in 1994. Values are corrected for purchasing power parities.

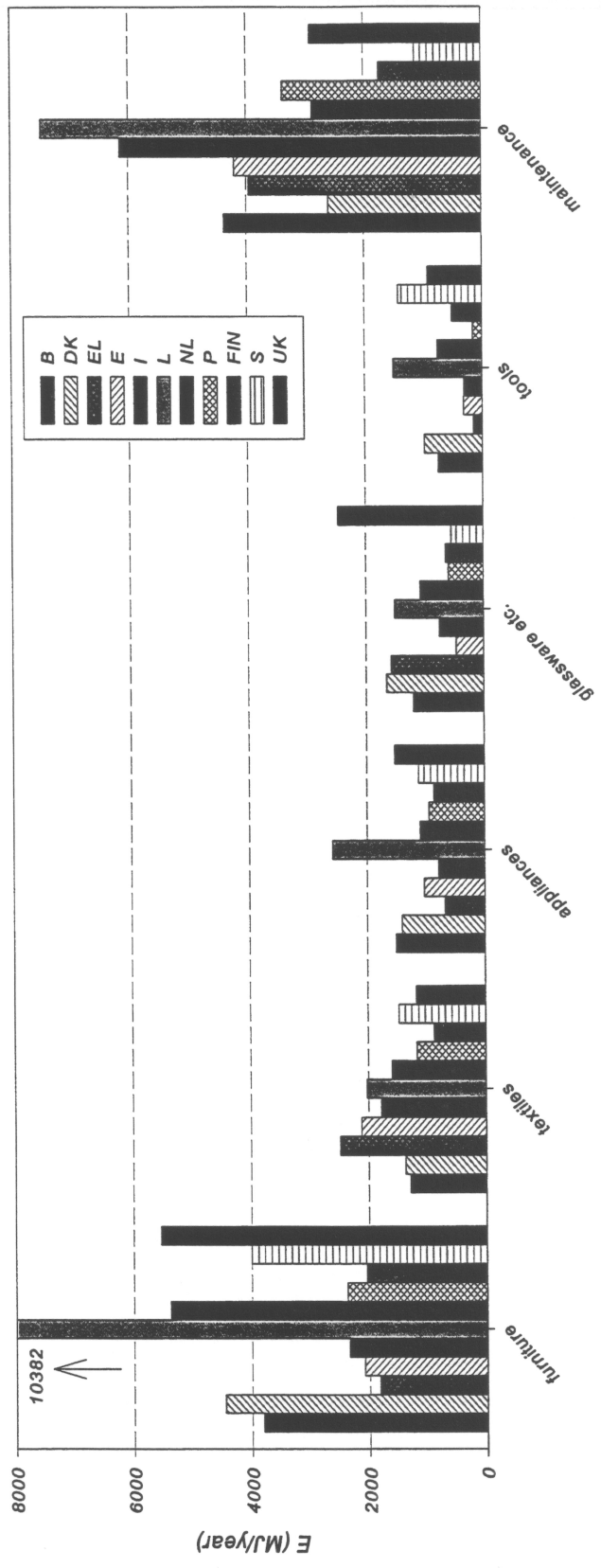


Figure 20 Indirect energy requirement for furnishings (etc.) in 11 EU member states in 1994.

[The following text is extremely faint and illegible due to low contrast and scan quality. It appears to be a list of items or a table of data.]

3.3.5 Class 6: Transport (excl. fuels)

In Figure 21 we present the expenditure on transport (excl. fuels) and the indirect energy requirement on these items versus the total household expenditure for households in the 11 EU member states in 1994. Expenditure on transport is in the range of 1.3 kECU/year (EL, NL and UK) to 2.4 kECU/year (DK). Energy requirement per household ranges from 10.9 GJ/year (EL) to 20.2 GJ/year (DK). Energy requirement per capita varies from 3.7 GJ/year (EL) to 9.6 GJ/year (DK).

In Table 14 we present the difference between the calculated energy requirement for transport and the value expected according to the linear relation between energy requirement and the total expenditure. It is shown that given their total expenditure, Danish and Finnish households require relatively much energy for transport. Households in Italy and the United Kingdom require relatively little energy for transport.

We determined the PPP corrected expenditures and the indirect energy requirement for transport per household for the following categories: Purchase of vehicles, Operation of personal transport equipment (excl. fuels) and Public transport.

The results are shown in Figure 22 and Figure 23.

Table 14 Difference between regression line and the purchasing power parities corrected expenditure $S_{C,d}$ on transport in 11 EU member states in 1994. Difference between regression line and calculated values of the indirect requirement $E_{C,d}$ for transport per household.

Transport (excl. fuels)				
Country	Expenditure per household		Energy per household	
	$\Delta S_{C,d}$ (ECU)	$\Delta S_{C,d}$ (%)	$\Delta E_{C,d}$ (GJ)	$\Delta E_{C,d}$ (%)
B	5.3	0.3	-0.7	-3.9
DK	638.0	35.7	5.0	32.7
EL	163.2	13.8	-0.4	-3.6
E	-423.9	-22.3	-2.4	-15.2
I	-524.1	-22.2	-4.0	-21.4
L	332.0	6.8	1.9	5.4
NL	-340.1	-20.6	-1.6	-11.0
P	371.5	26.2	1.6	12.1
FIN	228.4	20.1	2.6	23.7
S	310.8	21.2	1.2	8.8
UK	-761.8	-36.1	-3.1	-17.9

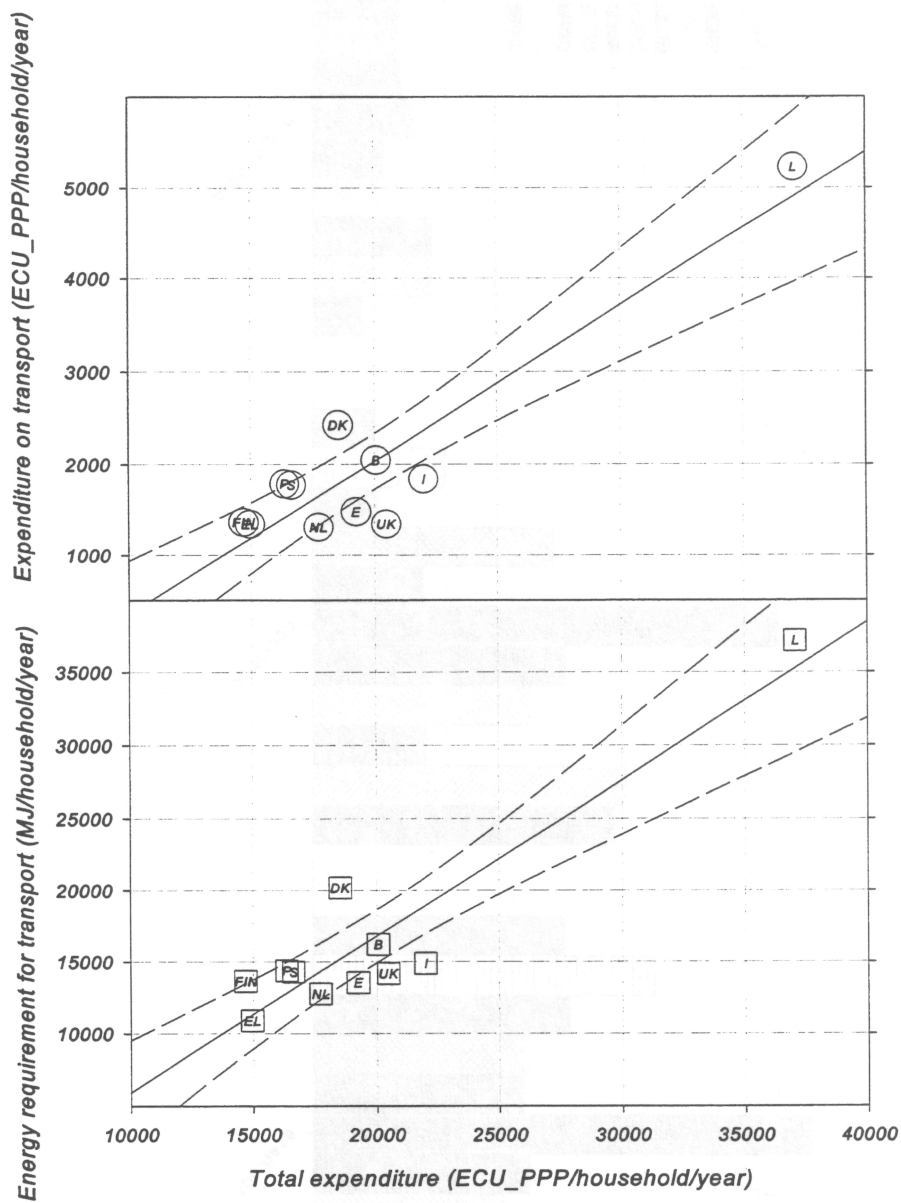


Figure 21 Expenditure and energy requirement for transport (excl. fuels) versus total household expenditure in 11 EU member states in 1994. Solid lines indicate first order regression lines; dashed lines mark the border of the 95 % confidence interval.

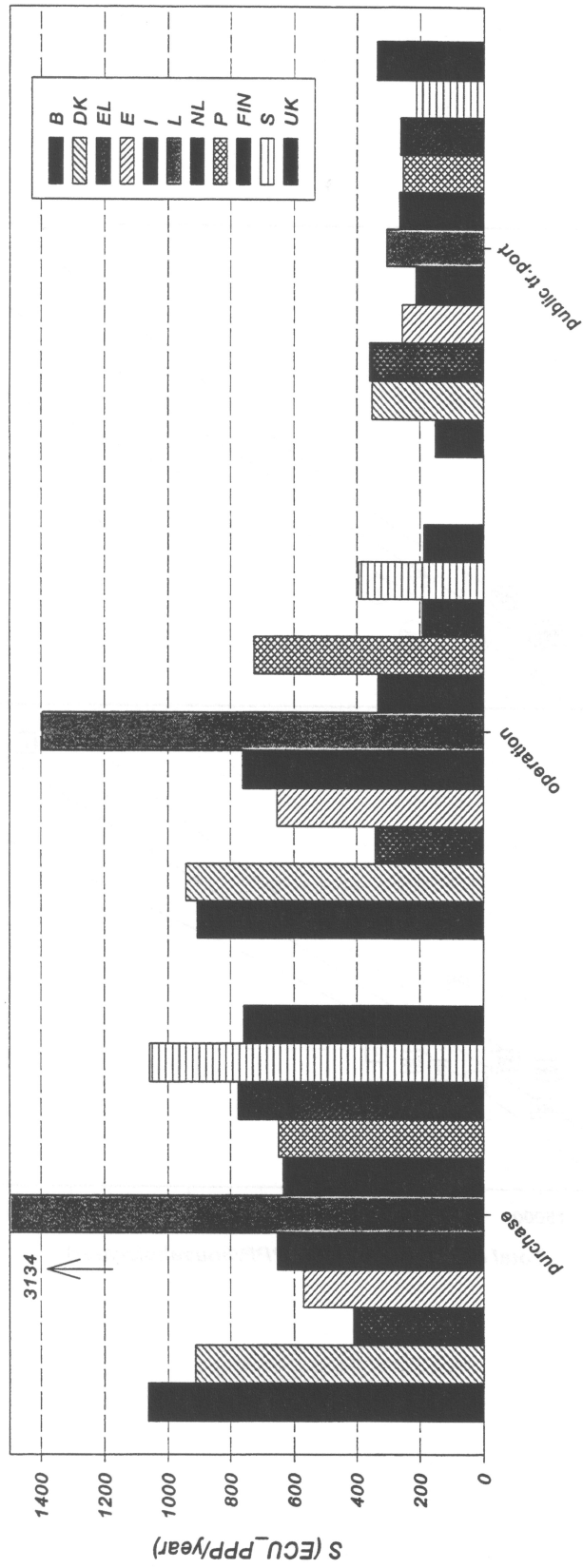


Figure 22 Expenditure on transport (excl. fuels) in 11 EU member states in 1994.

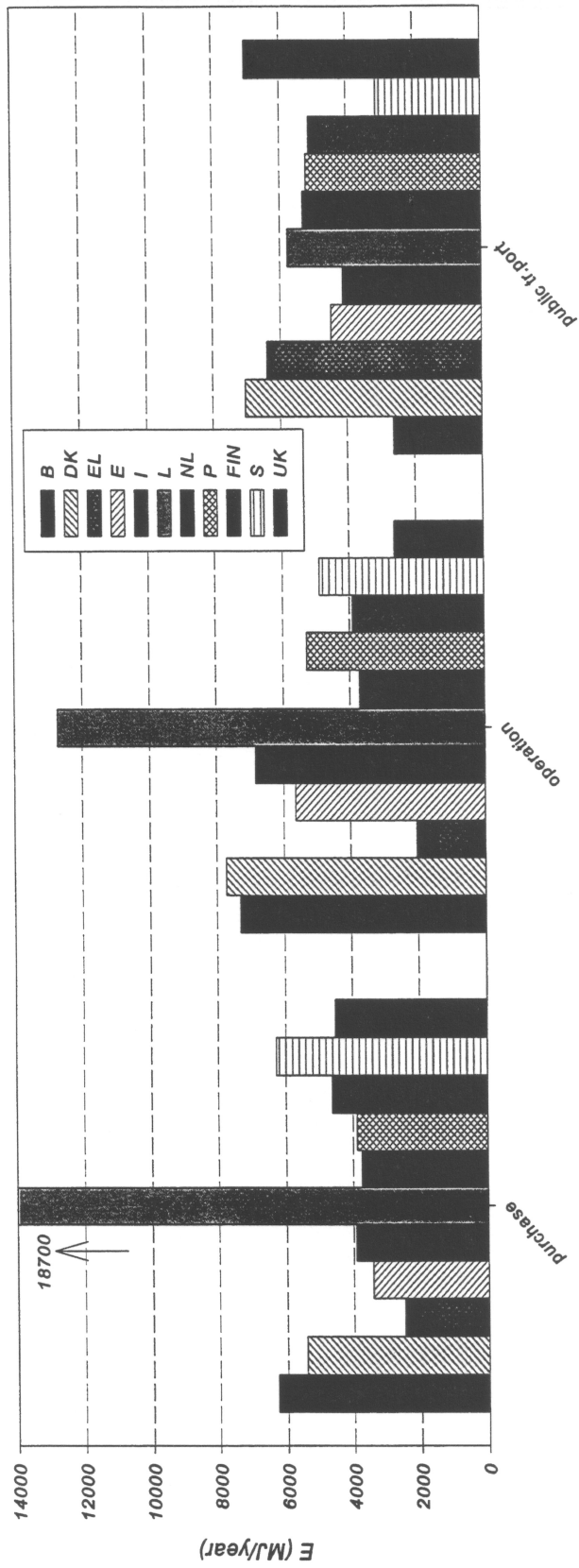


Figure 23 Indirect energy requirement for transport (excl. fuels) in 11 EU member states in 1994.

3.3.6 Class 10: Recreation and culture

In Figure 24 we present the expenditure on recreation and culture and the indirect energy requirement on these items versus the total household expenditure for households in the 11 EU member states in 1994. Expenditure on recreation and culture is in the range of 0.5 kECU/year (P) to 2.7 kECU/year (UK). Energy requirement per household ranges from 3.4 GJ/year (P) to 26.5 GJ/year (UK). Energy requirement per capita varies from 1.1 GJ/year (P) to 10.9 GJ/year (UK).

In Table 15 we present the difference between the calculated energy requirement for recreation and culture and the value expected according to the linear relation between energy requirement and the total expenditure. It is shown that given their total expenditure, Swedish, Finnish and English households require relatively much energy for recreation and culture. Households in the southern European countries, Portugal, Italy, Spain and Greece require a relatively smaller amount of energy for recreation and culture.

We determined the PPP corrected expenditures and the indirect energy requirement for recreation and culture per household for the following categories: Electronic equipment*, Other major durables, Games, toys and hobbies, Flowers and gardens, Pets, Services (recreational and cultural), Newspapers, books and stationary (mentioned Books in the figure) and Package holidays. The results are shown in Figure 25 and Figure 26.

Notice that Belgium and Greek households did not register expenditures in the category Package holidays and, therefore, apparently do not require energy for this item. For these households the energy required for Package holidays may be integrated in the classes Transport (class 6) and Hotels, cafes and restaurants (class 11).

* i.e. audio-visual, photographic and data processing equipment and accessories, including repairs.

Table 15 Difference between regression line and the purchasing power parities corrected expenditure $S_{C,d}$ on recreation and culture in 11 EU member states in 1994. Difference between regression line and calculated values of the indirect requirement $E_{C,d}$ for recreation and culture per household.

Recreation and culture				
Country	Expenditure per household		Energy per household	
	$\Delta S_{C,d}$ (ECU)	$\Delta S_{C,d}$ (%)	$\Delta E_{C,d}$ (GJ)	$\Delta E_{C,d}$ (%)
B	436.5	22.0	-3.2	-17.3
DK	441.7	25.2	3.3	21.5
EL	-589.9	-49.3	-3.2	-36.9
E	-806.6	-43.3	-8.2	-48.7
I	-698.8	-30.6	-7.3	-33.3
L	12.7	0.3	1.7	3.4
NL	374.7	23.0	3.3	23.8
P	-896.5	-63.4	-8.0	-70.2
FIN	390.8	33.8	5.1	61.4
S	723.6	49.6	8.9	74.5
UK	605.8	29.6	7.5	39.6

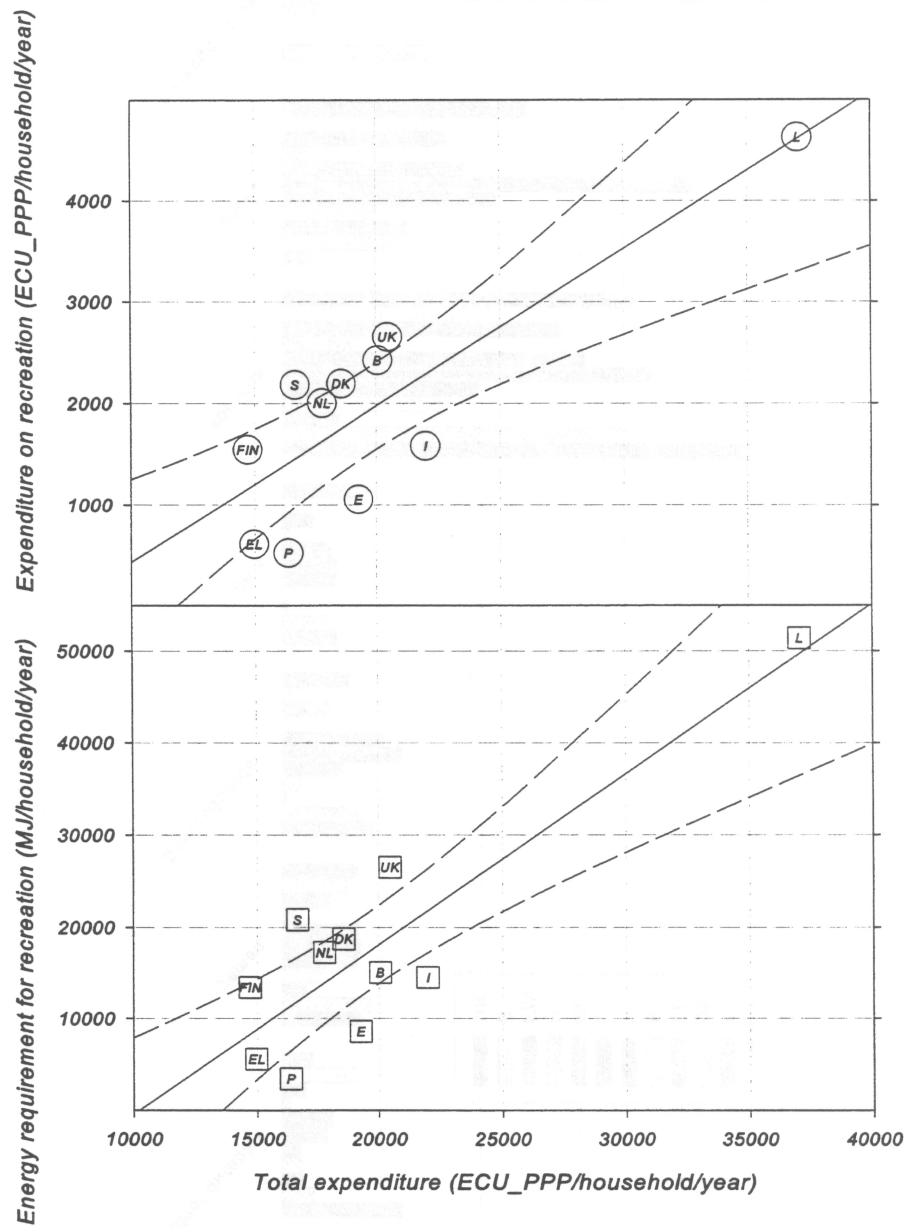


Figure 24 Expenditure and energy requirement for recreation and culture versus total household expenditure in 11 EU member states in 1994. Solid lines indicate first order regression lines; dashed lines mark the border of the 95 % confidence interval.

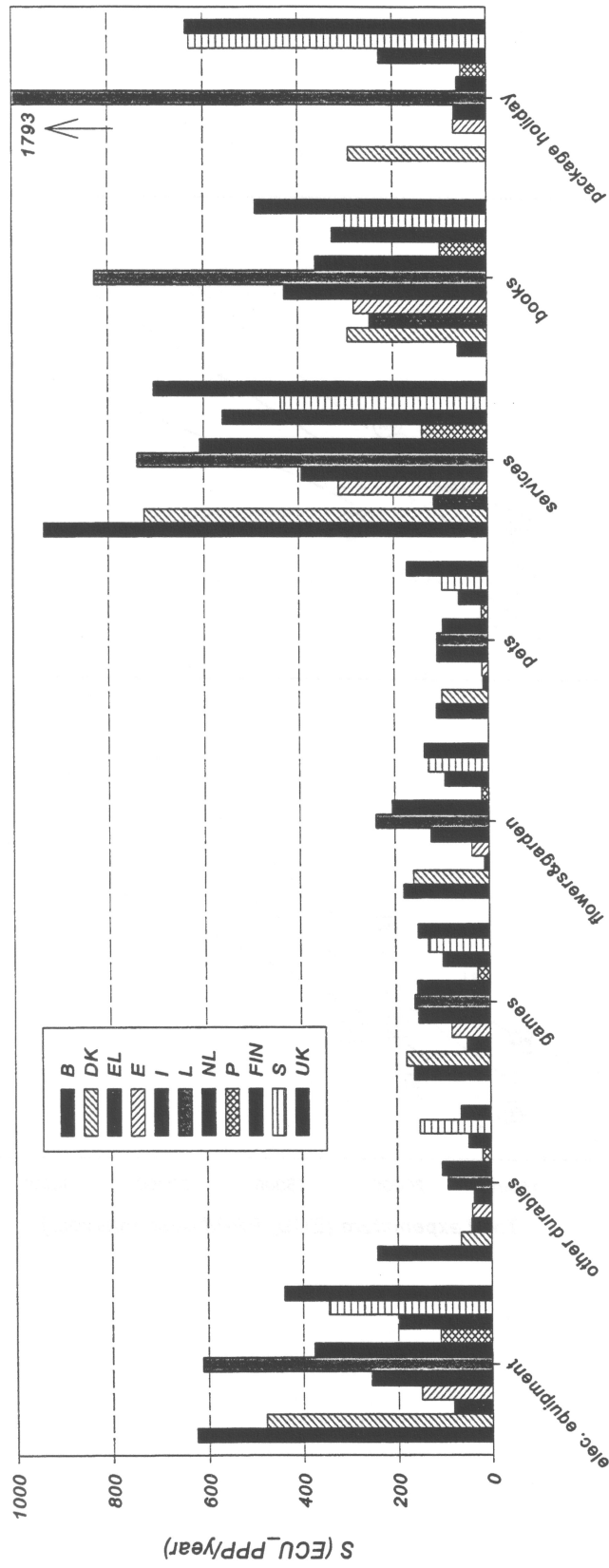


Figure 25 Household expenditure on recreation and culture in 11 EU member countries. Values are corrected for purchasing power parities.

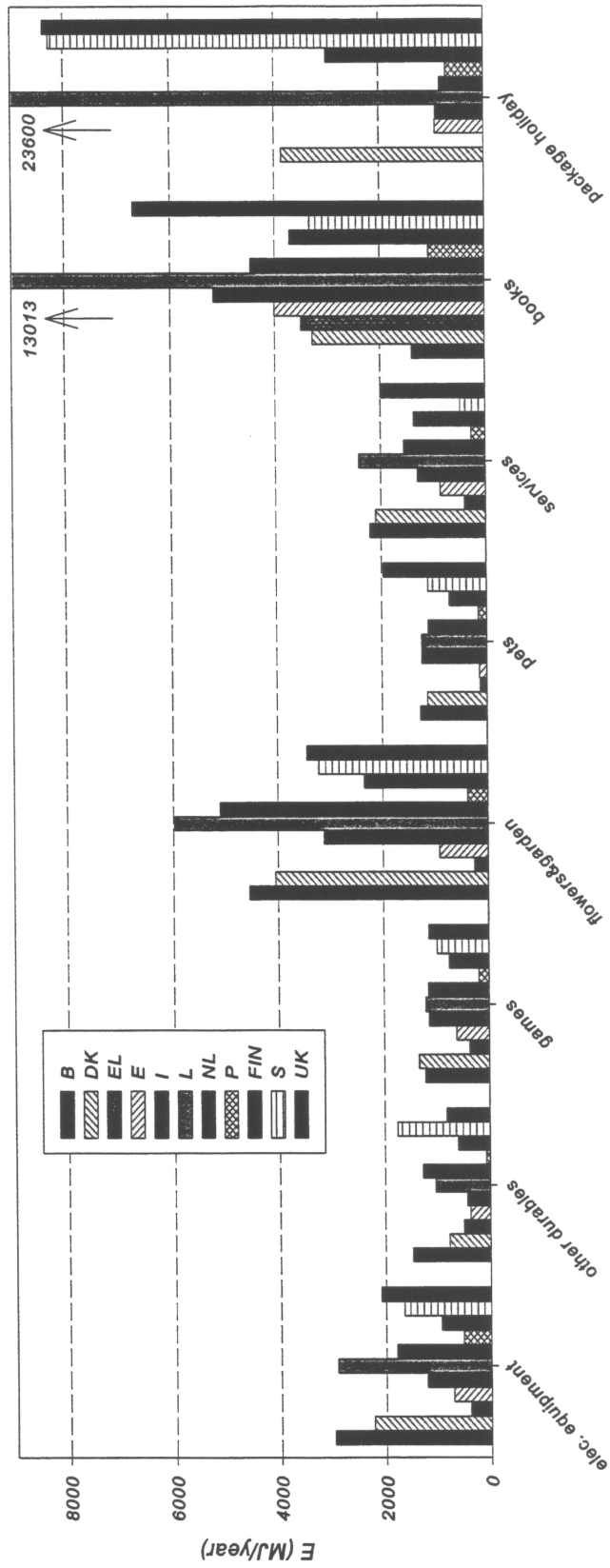


Figure 26 Indirect energy requirement for recreation and culture in 11 EU member states in 1994.



3.3.7 Class 11: Hotels, cafes and restaurants

In Figure 27 we present the expenditure on hotels, cafes and restaurants and the indirect energy requirement on these items versus the total household expenditure for households in the 11 EU member states in 1994. Expenditure on hotels, cafes and restaurants is in the range of 0.6 kECU/year (S) to 1.9 kECU/year (P). Energy requirement per household ranges from 5.3 GJ/year (FIN and S) to 17.2 GJ/year (P). Energy requirement per capita varies from 2.4 GJ/year (S) to 5.7 GJ/year (P).

In Table 16 we present the difference between the calculated energy requirement for hotels, cafes and restaurants and the value expected according to the linear relation between energy requirement and the total expenditure. It is shown that given their total expenditure, Portuguese and Spanish households require relatively much energy for hotels, cafes and restaurants. Households in Scandinavian countries, i.e. Denmark, Sweden and Finland, require relatively little energy for hotels, cafes and restaurants.

We determined the PPP corrected expenditures and the indirect energy requirement in hotels, cafes and restaurants per household for the following categories: Restaurants and cafes, Canteens and Accommodation services.

The results are shown in Figure 28 and Figure 29.

Table 16 Difference between regression line and the purchasing power parities corrected expenditure $S_{C,d}$ on hotels, cafes and restaurants in 11 EU member states in 1994. Difference between regression line and calculated values of the indirect requirement $E_{C,d}$ for hotels, cafes and restaurants per household.

Hotels, cafes and restaurants				
Country	Expenditure per household		Energy per household	
	$\Delta S_{C,d}$ (ECU)	$\Delta S_{C,d}$ (%)	$\Delta E_{C,d}$ (GJ)	$\Delta E_{C,d}$ (%)
B	167.8	14.3	1.2	11.7
DK	-523.8	-46.3	-4.5	-46.0
EL	-212.4	-20.6	-1.3	-15.0
E	492.9	42.8	4.5	44.4
I	-204.8	-16.7	-2.2	-20.3
L	-85.3	-5.2	-0.5	-3.4
NL	125.1	11.3	-0.7	-7.3
P	821.1	76.6	7.9	85.2
FIN	-359.4	-35.0	-2.9	-33.2
S	-482.7	-44.7	-4.0	-42.8
UK	251.9	21.3	2.6	25.4

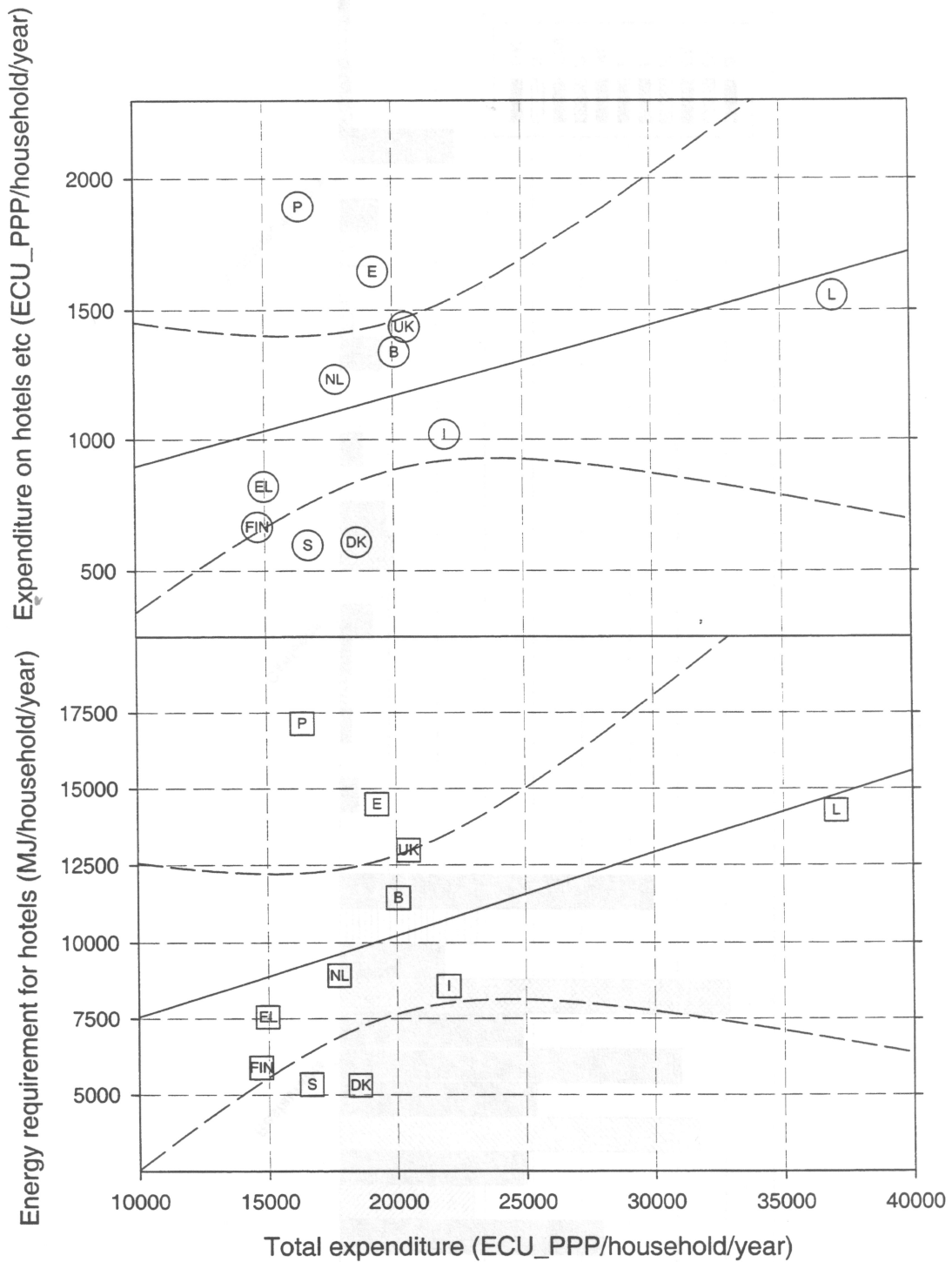


Figure 27 Expenditure and energy requirement for hotels, cafes and restaurants (mentioned hotel in y-axis) versus total household expenditure in 11 EU member states in 1994. Solid lines indicate first order regression lines; dashed lines mark the border of the 95 % confidence interval.

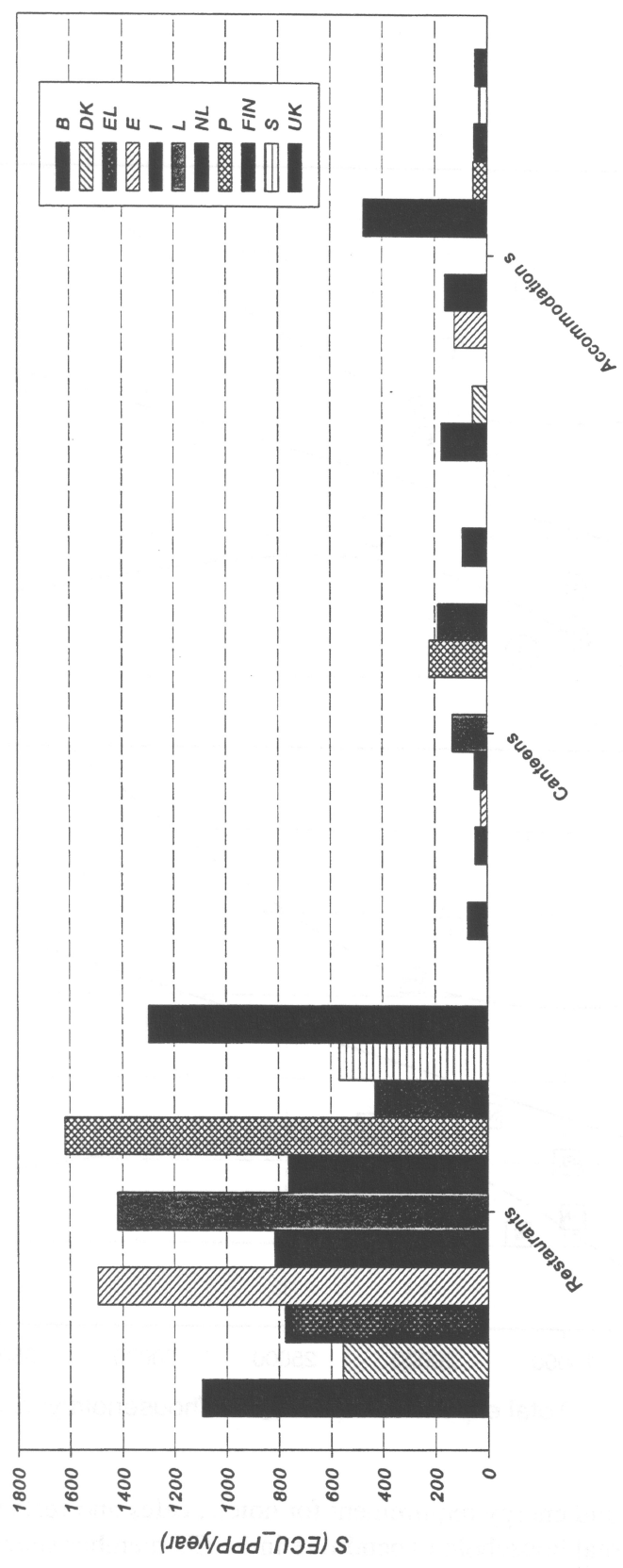


Figure 28 Household expenditure in hotels,cafes and restaurants in 11 EU member states. Values are corrected for purchasing power parities.

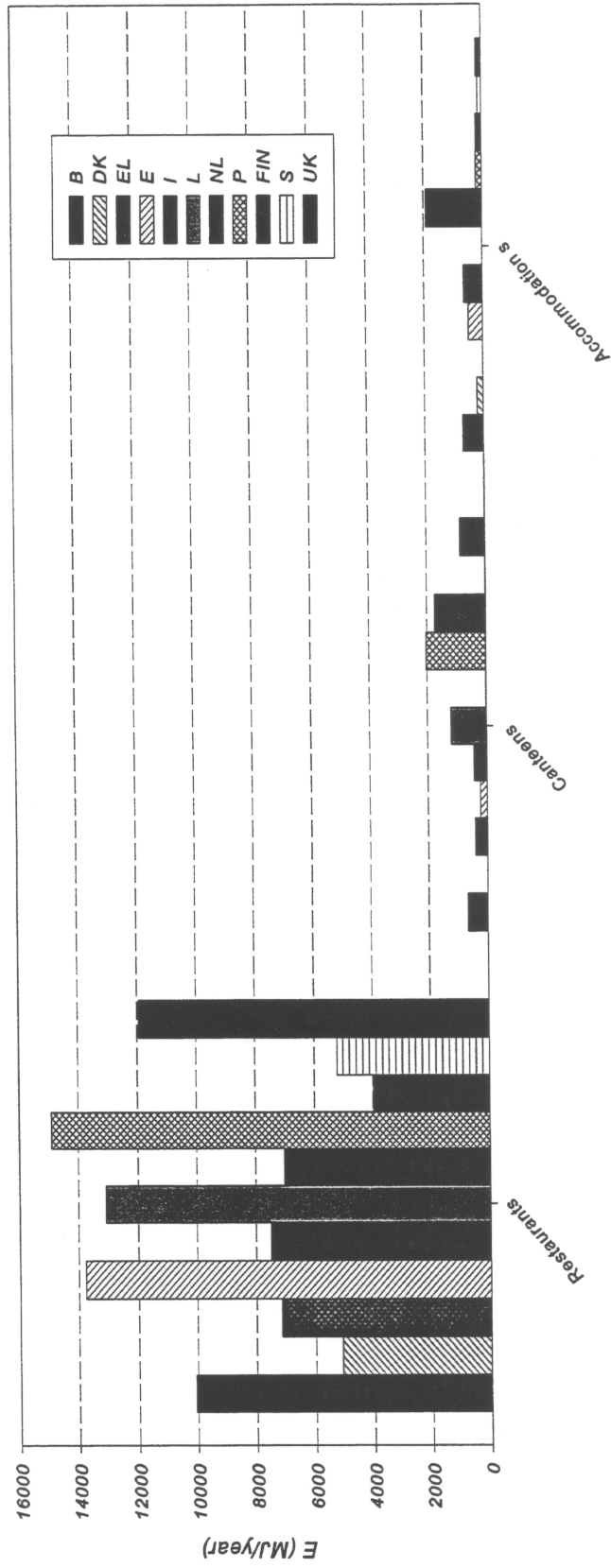


Figure 29 Indirect energy requirement for hotels, cafes and restaurants in 11 EU member states in 1994.

3.3.8 Class 12: Miscellaneous goods and services

In Figure 30 we present the indirect energy requirement on miscellaneous goods and services versus the total household expenditure for households in the 11 EU member states in 1994. Energy requirement per household ranges from 0.2 GJ/year (EL) to 2.6 GJ/year (P).

In Table 17 we present the difference between the calculated energy requirement for miscellaneous goods and services and the value expected according to the linear relation between energy requirement and the total expenditure. Dutch and Belgium households require relatively much energy for miscellaneous goods and services. Households in Greece require relatively little energy for this item.

We determined the PPP corrected expenditures and the indirect energy requirement for miscellaneous goods and services per household for the following categories: Personal care, Personal effects n.e.c. *, Insurance ** connected with the dwelling, and Insurance connected with transport.

The results are shown in Figure 31 and Figure 32. Notice that for Greek households expenditures on the category Personal care and Insurance connected with the dwelling are not registered.

* Personal effects n.e.c. comprise jewellery, clocks, watches, travel goods and other carriers, etc.

** This category excludes insurance connected with health and includes insurance connected with the dwelling, transport and other purposes.

Table 17 Difference between regression line and calculated values of the indirect requirement $E_{C,d}$ for miscellaneous goods and services per household in 11 EU member states in 1994.

Miscellaneous goods and services		
Energy per household		
Country	$\Delta E_{C,d}$ (GJ)	$\Delta E_{C,d}$ (%)
B	1.1	19.0
DK	0.3	5.1
EL	-2.7	-78.6
E	-0.6	-10.6
I	0.7	9.8
L	-0.7	-4.7
NL	1.6	32.2
P	-0.4	-9.7
FIN	0.3	8.5
S	0.1	2.9
UK	0.4	6.0

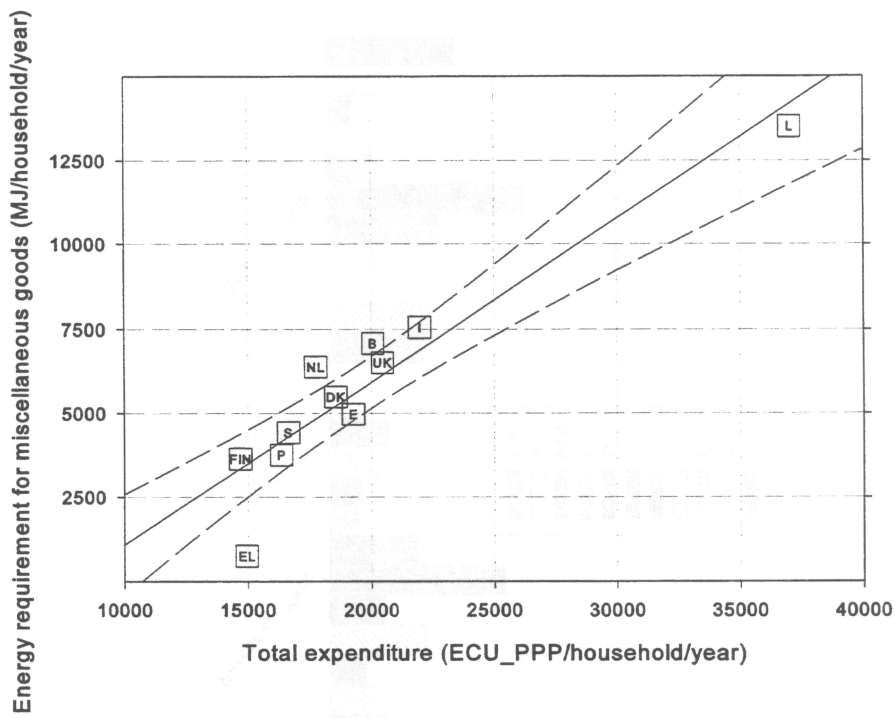


Figure 30 Energy requirement for miscellaneous goods and services versus total household expenditure for households in 11 EU member states in 1994. Solid lines indicate first order regression lines; dashed lines mark the border of the 95 % confidence interval.

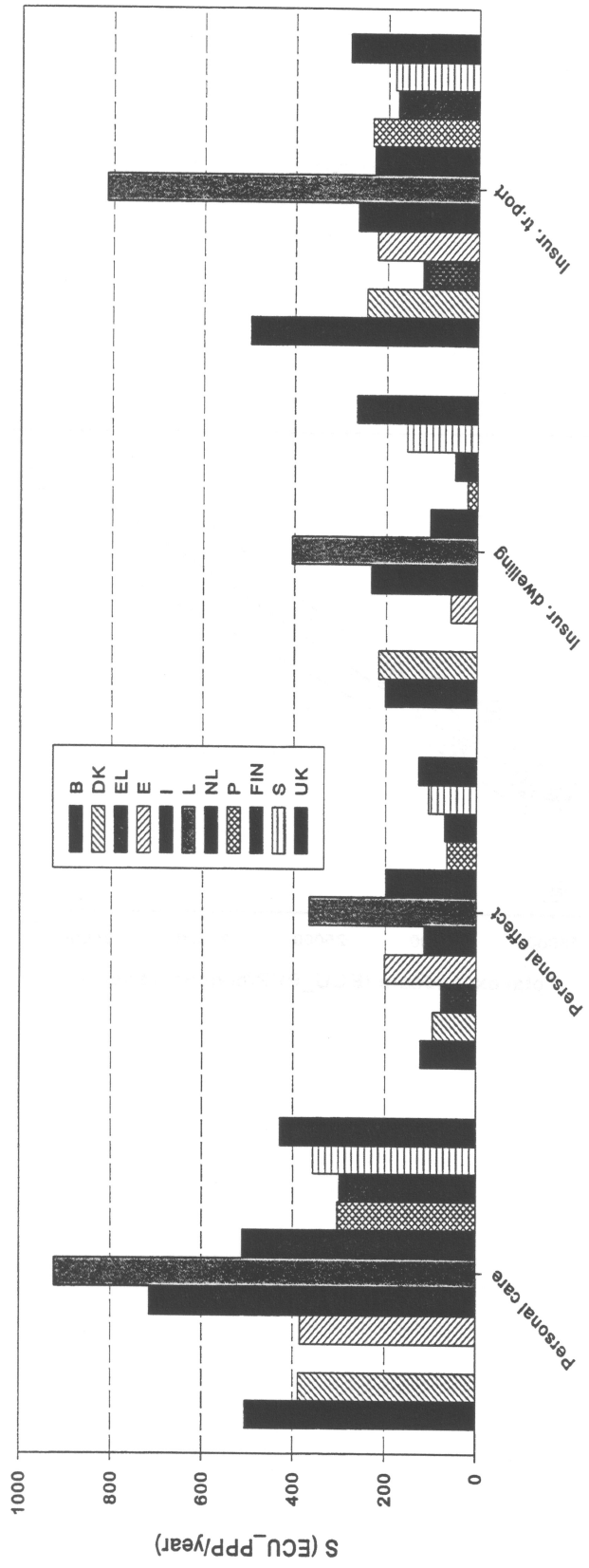


Figure 31 Expenditure on miscellaneous goods and services in households in 11 EU member states. Values are corrected for purchasing power parities.

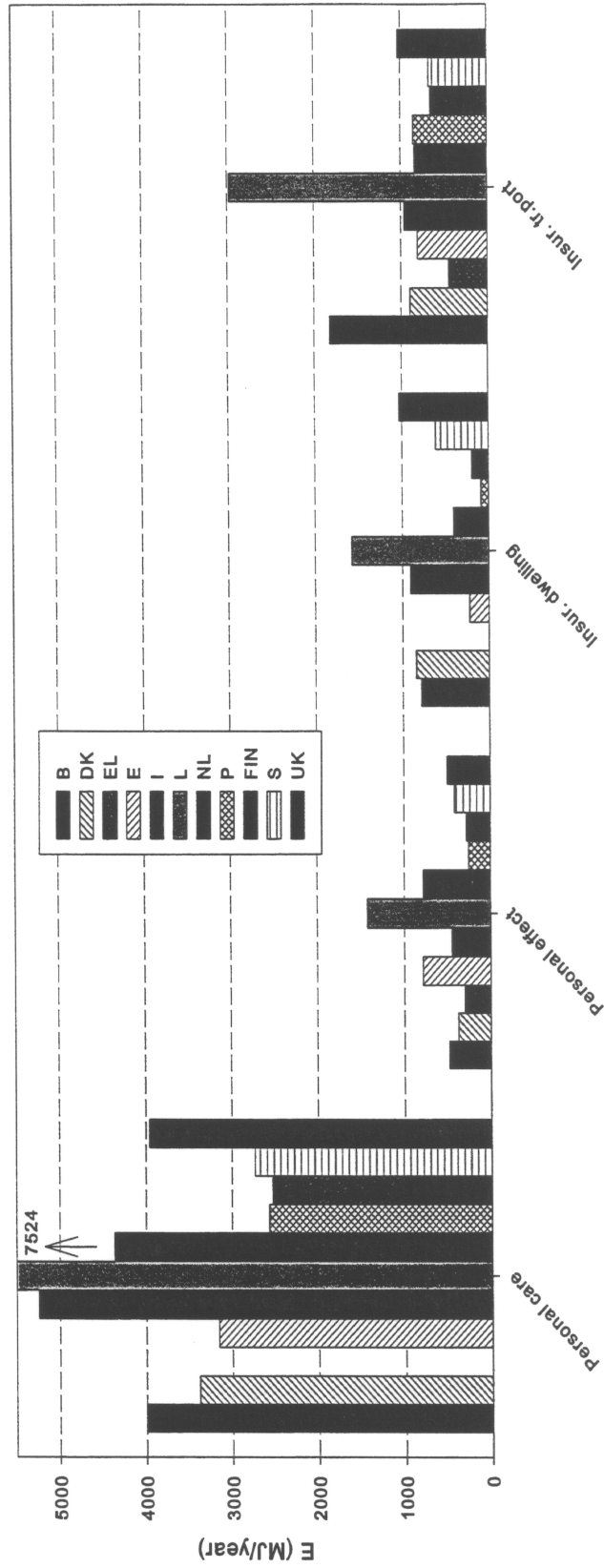


Figure 32 Indirect energy requirement for miscellaneous goods and services in 11 EU member states in 1994.



4 Discussion

While interpreting results we should be aware of the following facts.

A) Underreportage in household budget surveys (HBSs).

Household budget surveys do have some constraints¹². Expenditures in certain consumption categories are not fully reported by the participants of the HBS. For the Dutch case it is known that expenditures in the categories hotels, cafes and restaurants, tobacco, alcoholic beverages and fuels for transport may lead to an underestimation of the total household energy requirement of 4 GJ/year (mainly due to fuel for transport). Underreportage may also happen in HBSs in other countries. However, information about the categories to which underreportage applies and about the amount of expenditure not reported is not available, so that we can not estimate the effect on the energy requirement of households.

B) Differences between HBSs in different countries.

In Section 2.1.2 we discussed differences between HBSs which have been organized by different statistical institutions in the EU member states. Timing and frequency of the HBS, sample design, the survey structure and content and the definition of a household may differ between national surveys. Also, different approaches exist in the registration of expenditure and consumption of households. There is no sufficient information at our disposal to estimate the effect of these differences on the calculation of the energy requirement. Therefore, the occurrence of unknown failures in the calculation of the household energy requirement is prevented by excluding a part of the original COICOP-HBS categories from further investigations, see Section 2.2.1.

Probably due to the difference between HBSs in different countries for some categories and countries expenditure data are missing. That is to say, expenditures in the category Footwear in Greece, Package holidays in Belgium and Greece, Canteens in Denmark, the Netherlands and Sweden, Accommodation in Greece and Luxembourg, Personal care in Greece, and Insurance connected with the dwelling in Greece are not registered. As well as that detailed categories in the class Food are not given for Swedish households.

C) 'Dutch' energy intensities

In the hybrid energy analysis of 11 EU member states we use energy intensities of consumer goods and services which have been calculated on the basis of Dutch energy intensities and Dutch expenditure patterns, see Section 2.3. For this reason the energy intensities used in this report are due to the production structure of the Dutch economy. In the end this may affect the calculation of the indirect energy requirement and the direct energy requirement for fuels for transport for the 11 countries, except the Netherlands. The use of price level indices in our calculations partly, but not fully, correct for differences between the Dutch and the other countries production structure. Due to missing information we are not able to estimate the effect of the use of 'Dutch' energy intensities on the value of the energy requirement of households in other countries.

D) Income dependency of the household energy intensity: the case of Luxembourg

It is conceivable that households with an higher income systematically buy products that cost more per physical unit. These products may have a lower energy intensity than products with lower prices. The consequence of this possible price-income effect is that the a calculation of

the energy requirement of high income households on the basis of energy intensities which apply to all households may overestimate the real energy requirement of the rich households. Vringer and Blok¹⁰ showed that for Dutch households the price-income relation is not significant for the determination of the total energy requirement. For this reason we assume that the results found for households in Luxembourg are significant. A comparison of total household energy requirement in of an average household in Luxembourg with that of Dutch households with a similar total expenditure in 1994¹² demonstrates that values are in the same order. Hence, results for Luxembourg are useful.

E) Dutch ERE values

In the calculation of the direct energy requirement for housing, we use ERE values which apply to the Dutch situation. In particular, the ERE value of electricity strongly depends on the fuel mix used in the national electricity generating units. For some countries the deviation between the national and Dutch ERE value may result a considerable inaccuracy in the calculation of energy requirement. For instance for Denmark, we estimate an ERE value of 3.9 and for the United Kingdom a value of 3.7³². In the case of Denmark the use of a Dutch ERE value results in an error of -17 GJ. This error progresses as an error of resp. -13 % and -7 % in the calculation of resp. the direct and total energy requirement. For the United Kingdom an error of -12 GJ is estimated and an inaccuracy of resp. -8 and -4 % in the calculation of resp. the direct and total energy requirement of households is found.

ERE values for Italy and Spain are almost similar to the Dutch value³².

ERE values of the remaining countries in our sample were not at our disposal, so that a possible relation between the deviant direct energy requirement and the use of a Dutch ERE value could not be investigated for Sweden and Finland

F) Direct energy requirement based on IEA statistics instead of expenditure data.

The determination of the direct energy requirement for housing on the basis of IEA statistics (see Section 2.4) and the calculation of direct requirement for fuels for transport on the basis of expenditure leads to another value of direct energy requirement based on expenditure data and energy intensities. The following differences were found for Belgium 18 % (direct energy on the basis of IEA data with respect to direct energy on the basis of expenditure data), Denmark -3 %, Greece -21 %, Spain 2 %, Italy -10 %, Luxembourg 23 %, the Netherlands -2 %, Portugal -5 %, Finland 55 %, Sweden 73 % and the United Kingdom -4 %.

Notice that the deviations mentioned include the error due to the use of Dutch ERE values (see issue E).

5 Conclusions

In 1994 an average household in the following EU member countries, Belgium (B), Denmark (DK), Greece (EL), Spain (E), Italy (I), Luxemburg (L), The Netherlands (NL), Portugal (P), Finland (FIN), Sweden (S) and the United Kingdom (UK), required 274 GJ a year.

A part of this total energy requirement 93 GJ/year is needed for electricity, gas and other fuels for housing (34 % of total), 52 GJ/year is needed for food and beverages (19 % of total), 36 GJ/year for fuels for transport (13 % of total), 22 GJ/year for housing (8 % of total), 16 GJ/year for recreation and culture (6 % of total), 14 GJ/year for transport (excl. fuel) (5 % of total), 11 GJ/year for furnishings (4 % of total), 11 GJ/year for hotels, cafes and restaurants (4 % of total), 8 GJ/year for clothing and footwear (3 % of total) and 5 GJ/year for miscellaneous goods and services (2 % of total). The share of energy required for communications and education can be neglected.

The variation of the energy requirement in the different countries with respect to the mean is considerable. Namely, the lowest energy requirement is found in Portuguese households, 180 GJ/year (-34 % with respect to average value), and the highest values are found for Swedish households, 328 GJ/year (+20 % with respect to average value), and Luxembourgian households, 508 GJ/year (+85 % with respect to average value).

Dutch households consume 241 GJ/year (-12 % with respect to average value of 274 GJ/year) of which 93 GJ/year is needed for electricity, gas and other fuels for housing (39 % of total), 38 GJ/year is needed for food and beverages (16 % of total), 28 GJ/year for fuels for transport (11 % of total), 16 GJ/year for housing (7 % of total), 17 GJ/year for recreation and culture (7 % of total), 14 GJ/year for transport (excl. fuel) (5 % of total), 13 GJ/year for furnishings (5 % of total), 9 GJ/year for hotels, cafes and restaurants (4 % of total), 7 GJ/year for clothing and footwear (3 %) and 6 GJ/year for miscellaneous goods and services (3 % of total).

Hence, both in an absolute sense and in the share of the consumption classes the total energy requirement, the Dutch households (like the others) require energy in a different way than the average.

In decreasing order of significance differences between the total energy requirement of households in different countries are due to:

A) differences between the total household expenditure

Household expenditure relates to the total energy requirement of households by 12.4 MJ/EUC.

B) differences between the direct energy requirement of households

The share of direct energy in the total energy requirement in the countries considered ranges from 34 % (P) to 64 % (FIN). Assuming a linear relation between household expenditure and the direct energy requirement, variations with respect to this trend are large. The deviation from the trend amounts from -63 GJ/year for Portuguese households up to 67 GJ/year for Finnish and 86 GJ/year for Swedish households.

Differences between the direct energy requirement of households in the 11 countries considered result partly from climate influences. Due to climate the direct energy requirement of households is raised by 39 GJ/year in Sweden and lowered 25 GJ/year in Portugal.

The energy requirement for fuels for transport and the number of cars per household are related by 24 GJ/car.

C) differences between the indirect energy requirement of households

Household expenditure linearity relates to the indirect energy requirement of households by 7.0 MJ/EUC. Deviations from this trend are small. Namely, the maximum negative deviation occurs for Belgium households, -11 GJ/year, and the maximum positive deviation for Spanish households, +16 GJ. The deviation from the trend of indirect energy requirement is the sum of the deviation from the expenditure depended trend in each class of consumption goods and services.

In decreasing order, deviations occur in the following classes:

- C1) food, beverages and tobacco,
deviations from -8.7 GJ/year (DK) to 19.8 GJ/year (E)
- C2) recreation and culture,
deviations from -8.0 GJ/year (P) to 8.9 GJ/year (S)
- C3) housing,
deviations from -4.7 GJ/year (S) to 7.0 GJ/year (I)
- C4) hotels, cafes and restaurants,
deviations from -4.5 GJ/year (DK) to 7.9 GJ/year (P)
- C5) transport,
deviations from -4.0 GJ/year (I) to 5.0 (DK)
- C6) clothing and footwear,
deviations from -2.7 GJ/year (P) to 3.4 GJ/year (EL)
- C7) furnishings etc.,
deviations from -1.9 GJ/year (I, FIN) to 1.9 GJ/year (EL, NL)
- C8) miscellaneous goods and services,
deviations from -2.7 GJ/year (EL) to 1.6 GJ/year (NL)

The deviation of the indirect energy requirement of Belgium and Spanish households can not be attributed to the deviation in a single consumption class. For instance, the deviation of the Belgium households results from in particular the classes food, beverages and tobacco, -5.2 GJ/year, recreation and culture, -3.2 GJ/year, housing, -3.1 GJ/year, and hotels, cafes and restaurants, 1.2 GJ/year. Furthermore, the deviation of the Spanish households chiefly originates from the classes food, beverages and tobacco, 19.8 GJ/year, recreation and culture, -8.2 GJ/year, housing, 5.2 GJ/year, hotels, cafes and restaurants, 4.5 GJ/year, transport, 2.4 GJ/year, and furnishings etc., -1.8 GJ/year.

The deviation from the expenditure related trend in the class food, beverages and tobacco depends on the average family size. If we calculate the indirect energy requirement in this class per capita, the Italians (above the Spanish) appear to consume relatively a lot of energy given their total expenditure, namely +3.2 GJ/capita.year.

The data and results at our disposal do not allow comprehensive explanations considering lifestyles of households. However, in the sample indirect energy requirement may vary strongly in the consumption classes food, beverages and tobacco, recreation and culture, housing, and hotels, cafes and restaurants. Therefore, in order to distinguish lifestyles, it would be useful to investigate the indirect energy requirement in these classes in more detail.

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Appendix A

Classification of individual consumption by purpose (COICOP-HBS)

BREAKDOWN BY DIVISION (TWO-DIGIT LEVEL), GROUP (THREE-DIGIT LEVEL), CLASS (FOUR-DIGIT LEVEL) AND CATEGORY (FIVE-DIGIT LEVEL).

Explanation of codes : ND - non-durable, S - services, SD - semi-durable, D - durable

HE 00.	TOTAL CONSUMPTION EXPENDITURE
HE 01.	FOOD AND NON-ALCOHOLIC BEVERAGES
HE 01.1	Food
HE 01.1.1	Bread and cereals (ND)
HE 01.1.1.1	Rice
HE 01.1.1.2	Bread
HE 01.1.1.3	Pasta products
HE 01.1.1.4	Pastry-cook products
HE 01.1.1.5	Other products
HE 01.1.2	Meat (ND)
HE 01.1.2.1	Fresh, chilled or frozen meat of bovine animals
HE 01.1.2.2	Fresh, chilled or frozen meat of swine
HE 01.1.2.3	Fresh, chilled or frozen meat of sheep and goat
HE 01.1.2.4	Fresh, chilled or frozen meat of poultry
HE 01.1.2.5	Dried, salted or smoked meat and edible meat offal
HE 01.1.2.6	Other preserved or processed meat and meat preparations
HE 01.1.2.7	Other fresh, chilled or frozen edible meat
HE 01.1.3	Fish (ND)
HE 01.1.3.1	Fresh, chilled or frozen fish
HE 01.1.3.2	Fresh, chilled or frozen seafood
HE 01.1.3.3	Dried, smoked or salted fish and seafood
HE 01.1.3.4	Other preserved or processed fish and seafood and fish and seafood preparations
HE 01.1.4	Milk, cheese and eggs (ND)
HE 01.1.4.1	Whole milk
HE 01.1.4.2	Low fat milk
HE 01.1.4.3	Preserved milk
HE 01.1.4.4	Yoghurt
HE 01.1.4.5	Cheese and curd
HE 01.1.4.6	Other milk products
HE 01.1.4.7	Eggs
HE 01.1.5	Oils and fats (ND)
HE 01.1.5.1	Butter
HE 01.1.5.2	Margarine and other vegetable fats
HE 01.1.5.3	Olive oil
HE 01.1.5.4	Edible oils
HE 01.1.5.5	Other edible animal fats

- HE 01.1.6 Fruit (ND)**
- HE 01.1.6.1 Citrus fruits (fresh or chilled)
 - HE 01.1.6.2 Bananas (fresh or chilled)
 - HE 01.1.6.3 Apples (fresh or chilled)
 - HE 01.1.6.4 Pears (fresh or chilled)
 - HE 01.1.6.5 Stone fruits (fresh or chilled)
 - HE 01.1.6.6 Berries (fresh or chilled)
 - HE 01.1.6.7 Other fresh or chilled fruits
 - HE 01.1.6.8 Dried fruit
 - HE 01.1.6.9 preserved fruit and fruit-based products
- HE 01.1.7 Vegetables including potatoes and other tubers (ND)**
- HE 01.1.7.1 Leaf and stem vegetables and culinary herbs (fresh or chilled)
 - HE 01.1.7.2 Cabbages (fresh or chilled)
 - HE 01.1.7.3 Vegetable grown for their fruit (fresh or chilled)
 - HE 01.1.7.4 Root crops, non-starchy bulbs and mushrooms (fresh or chilled)
 - HE 01.1.7.5 Dried vegetables
 - HE 01.1.7.6 Other preserved or processed vegetables
 - HE 01.1.7.7 Potatoes
 - HE 01.1.7.8 Other tubers and products of tuber vegetables
- HE 01.1.8 Sugar, jam, honey, syrups, chocolate and confectionery (ND)**
- HE 01.1.8.1 Sugar
 - HE 01.1.8.2 Jams, marmalades
 - HE 01.1.8.3 Chocolate
 - HE 01.1.8.4 Confectionery products
 - HE 01.1.8.5 Edible ices and ice cream
 - HE 01.1.8.6 Other sugar products
- HE 01.1.9 Food products n.e.c. (ND)**
- HE 01.1.9.1 Sauces, condiments
 - HE 01.1.9.2 Salt, spices
 - HE 01.1.9.3 Baker's yeast, dessert preparations, soups
 - HE 01.1.9.4 Other food products n.e.c.
- HE 01.2 Non-alcoholic beverages**
- HE 01.2.1 Coffee, tea and cocoa (ND)**
- HE 01.2.1.1 Coffee
 - HE 01.2.1.2 Tea
 - HE 01.2.1.3 Cocoa and powdered chocolate
- HE 01.2.2 Mineral waters, soft drinks and juices (ND)**
- HE 01.2.2.1 Mineral waters
 - HE 01.2.2.2 Soft drinks
 - HE 01.2.2.3 Fruit juices
 - HE 01.2.2.4 Vegetable juices
- HE 02. ALCOHOLIC BEVERAGES, TOBACCO AND NARCOTICS**
- HE 02.1 Alcoholic beverages**
- HE 02.1.1 Spirits (ND)**
- HE 02.1.1.1 Spirits and liqueurs.
- HE 02.1.2 Wine (ND)**
- HE 02.1.2.1 Wine from grape or other fruit
 - HE 02.1.2.2 Other

HE 02.1.3	Beer (ND)
HE 02.1.3.1	Beer
HE 02.2	Tobacco
HE 02.2.1	Tobacco (ND)
HE 02.2.1.1	Cigarettes
HE 02.2.1.2	Cigars
HE 02.2.1.3	Other tobacco
HE 02.3	Narcotics
HE 02.3.1	Narcotics (ND)
HE 02.3.1.1	Narcotics
HE.03.	CLOTHING AND FOOTWEAR
HE 03.1	Clothing
HE 03.1.1	Clothing materials (SD)
HE 03.1.1.1	Clothing materials
HE 03.1.2	Garments (SD)
HE 03.1.2.1	Garments for men
HE 03.1.2.2	Garments for women
HE 03.1.2.3	Garments for children (3 to 13 years) and infants (0 to 2 years)
HE 03.1.3	Other articles of clothing and clothing accessories (SD)
HE 03.1.3.1	Other articles of clothing and clothing accessories
HE 03.1.4	Repair and hire of clothing (S)
HE 03.1.4.1	Repair and hire of clothing
HE 03.2	Footwear
HE 03.2.1	Shoes and other footwear (SD)
HE 03.2.1.1	Footwear for men
HE 03.2.1.2	Footwear for women
HE 03.2.1.3	Footwear for children (3 to 13 years) and infants (0 to 2 years)
HE 03.2.2	Repair and hire of footwear (S)
HE 03.2.2.1	Repair and hire of footwear
HE 04.	HOUSING, WATER, ELECTRICITY, GAS AND OTHER FUELS
HE 04.1	Actual rentals for housing
HE 04.1.1	Actual rentals paid by tenants (S)
HE 04.1.1.1	Actual rentals paid by tenants
HE 04.1.2	Other actual rentals (S)
HE 04.1.2.1	Other actual rentals
HE 04.2	Imputed rentals for housing
HE 04.2.1	Imputed rentals of owner-occupiers (S)
HE 04.2.1.1	Imputed rentals of owner-occupiers

HE 04.2.2	Other imputed rentals (S)*
HE 04.2.2.1	Imputed rentals of households housed free.
HE 04.3	Regular maintenance and repair of the dwelling
HE 04.3.1	Products for the regular maintenance and repair of the dwelling (ND)
HE 04.3.1.1	Products for the regular maintenance and repair of the dwelling
HE 04.3.2	Services for the regular maintenance and repair of the dwelling (S)
HE 04.3.2.1	Services for the regular maintenance and repair of the dwelling
HE 04.4	Other services relating to the dwelling
HE 04.4.1	Refuse collection (S)
HE 04.4.1.1	Refuse collection
HE 04.4.2	Sewerage services (S)
HE 04.4.2.1	Sewerage services
HE 04.4.3	Water supply (S)
HE 04.4.3.1	Water supply
HE 04.4.4	Other services relating to the dwelling n.e.c. (S)
HE 04.4.4.1	Other services relating to the dwelling n.e.c.
HE 04.5	Electricity, gas and other fuels
HE 04.5.1	Electricity (ND)
HE 04.5.1.1	Electricity
HE 04.5.2	Gas (ND)
HE 04.5.2.1	Town gas and natural gas
HE 04.5.2.2	Liquefied hydrocarbons (butane, propane, etc.).
HE 04.5.3	Liquid fuels (ND)
HE 04.5.3.1	Liquid fuels
HE 04.5.4	Solid fuels (ND)
HE 04.5.4.1	Solid fuels
HE 04.5.5	Hot water, steam and ice (ND)
HE 04.5.5.1	Hot water, steam and ice
HE 05.	FURNISHINGS, HOUSEHOLD EQUIPMENT AND ROUTINE MAINTENANCE OF THE HOUSE
HE 05.1	Furniture, furnishings and decorations, carpets and other floor coverings and repairs
HE 05.1.1	Furniture and furnishings (D)
HE 05.1.1.1	Furniture and furnishings
HE 05.1.2.	Carpets and other floor coverings (D)
HE 05.1.2.1	Carpets and other floor coverings
HE 05.1.3	Repair of furniture, furnishings and floor coverings (S)
HE 05.1.3.1	Repair of furniture, furnishings and floor coverings
HE 05.2	Household textiles
HE 05.2.1	Household textiles (SD)
HE 05.2.1.1	Household textiles

* The imputed rentals for secondary residences is not applicable for the HBS.

HE 05.3 Heating and cooking appliances, refrigerators, washing machines and similar major household appliances, including fittings and repairs**HE 05.3.1 Major household appliances whether electric or not (D)**

- HE 05.3.1.1 Refrigerators, freezers and fridge-freezers
- HE 05.3.1.2 Clothes washing machines, clothes drying machines and dish washing machines
- HE 05.3.1.3 Cookers
- HE 05.3.1.4 Heaters, air conditioners
- HE 05.3.1.5 Cleaning equipment
- HE 05.3.1.6 Sewing and knitting machines
- HE 05.3.1.7 Other major household appliances

HE 05.3.2 Small electric household appliances (SD)

- HE 05.3.2.1 Small electric household appliances

HE 05.3.3 Repair of household appliances (S)

- HE 05.3.3.1 Repair of household appliances

HE 05.4 Glassware, tableware and household utensils**HE 05.4.1 Glassware, tableware and household utensils (SD)**

- HE 05.4.1.1 Glass and crystal-ware, tableware
- HE 05.4.1.2 Cutlery, flatware and silverware
- HE 05.4.1.3 Kitchen and domestic utensils
- HE 05.4.1.4 Repair of glassware, tableware and household utensils

HE 05.5 Tools and equipment for house and garden**HE 05.5.1 Major tools and equipment (D)**

- HE 05.5.1.1 Major tools and equipment

HE 05.5.2 Small tools and miscellaneous accessories (SD)

- HE 05.5.2.1 Small tools and miscellaneous accessories

HE 05.6 Goods and services for routine household maintenance**HE 05.6.1 Non-durable household goods (ND)**

- HE 05.6.1.1 Cleaning and maintenance products
- HE 05.6.1.2 Other non-durable household articles

HE 05.6.2 Domestic services and home care services (S)

- HE 05.6.2.1 Domestic services
- HE 05.6.2.2 Home care services

HE 06. HEALTH**HE 06.1 Medical products, appliances and equipment****HE 06.1.1 Medical products, appliances and equipment (ND)**

- HE 06.1.1.1 Pharmaceutical products
- HE 06.1.1.2 Other medical products
- HE 06.1.1.3 Therapeutic appliances and equipment

HE 06.2 Out-patient services**HE 06.2.1 Medical Services (S)**

- HE 06.2.1.1 Medical Services

HE 06.2.2 Dental services (S)

- HE 06.2.2.1 Dental services

HE 06.2.3	Paramedical services (S)
HE 06.2.3.1	Services of medical analysis laboratories and X-ray centres
HE 06.2.3.2	Services of medical auxiliaries
HE 06.2.3.3	Other non-hospital services
HE 06.3	Hospital services
HE 06.3.1	Hospital services (S)
HE 06.3.1.1	Hospital services
HE 07.	TRANSPORT
HE 07.1	Purchase of vehicles
HE 07.1.1	Motor cars (D)
HE 07.1.1.1	Purchase of new motor cars
HE 07.1.1.2	Purchase of second hand motor cars
HE 07.1.2	Motor cycles (D)
HE 07.1.2.1	Motor cycles
HE 07.1.3	Bicycles (D)
HE 07.1.3.1	Bicycles
HE 07.2	Operation of personal transport equipment
HE 07.2.1	Spare parts and accessories (SD)
HE 07.2.1.1	Spare parts and accessories
HE 07.2.2	Fuels and lubricants (ND)
HE 07.2.2.1	Fuels and lubricants
HE 07.2.3	Maintenance and repairs (S)
HE 07.2.3.1	Maintenance and repairs
HE 07.2.4	Other services in respect of personal transport equipment (S)
HE 07.2.4.1	Other services in respect of personal transport equipment
HE 07.3	Transport services
HE 07.3.1	Passenger transport by railway (S)
HE 07.3.1.1	Passenger transport by railway
HE 07.3.2	Passenger transport by road (S)
HE 07.3.2.1	Passenger transport by road
HE 07.3.3	Passenger transport by air (S)
HE 07.3.3.1	Passenger transport by air
HE 07.3.4	Passenger transport by sea and inland waterway (S)
HE 07.3.4.1	Passenger transport by sea and inland waterway
HE 07.3.5	Other purchased transport services (S)
HE 07.3.5.1	Other purchased transport services
HE 08.	COMMUNICATIONS
HE 08.1	Communications
HE 08.1.1	Postal services (S)
HE 08.1.1.1	Postal services
HE 08.1.2	Telephone and telefax equipment (D)
HE 08.1.2.1	Telephone and telefax equipment

- HE 08.1.3 Telephone, telegraph and telefax services (S)**
- HE 08.1.3.1 Telephone, telegraph and telefax services
- HE 09. RECREATION AND CULTURE**
- HE 09.1 Audio-visual, photographic and data processing equipment and accessories, including repairs**
- HE 09.1.1 Equipment for the reception, recording and reproduction of sound and pictures (D)**
- HE 09.1.1.1 Equipment for the reception, recording and reproduction of sound
- HE 09.1.1.2 Television sets, video-cassette players and recorders
- HE 09.1.2 Photographic and cinematographic equipment and optical instruments (D)**
- HE 09.1.2.1 Photographic and cinematographic equipment
- HE 09.1.2.2 Optical instruments
- HE 09.1.3 Data processing equipment (D)**
- HE 09.1.3.1 Data processing equipment
- HE 09.1.4 Recording media for pictures and sound (SD)**
- HE 09.1.4.1 Recording media for pictures and sound
- HE 09.1.5 Repair of audio-visual, photographic and data processing equipment and accessories (S)**
- HE 09.1.5.1 Repair of audio-visual, photographic and data processing equipment and accessories
- HE 09.2 Other major durables for recreation and culture, including repairs**
- HE 09.2.1 Other major durables for recreation and culture (D)**
- HE 09.2.1.1 Musical instruments
- HE 09.2.1.2 Sports and leisure related equipment
- HE 09.2.2 Repair of other major durables for recreation and culture (S)**
- HE 09.2.2.1 Repair of other major durables for recreation and culture
- HE 09.3 Other recreational items and equipment; flowers, gardens and pets**
- HE 09.3.1 Games, toys and hobbies, equipment for sport, camping and open-air recreation (SD)**
- HE 09.3.1.1 Games, toys hobbies and small musical instruments
- HE 09.3.1.2 Equipment for sport, camping and open-air recreation
- HE 09.3.2 Flowers and gardens (ND)**
- HE 09.3.2.1 Flowers and gardens
- HE 09.3.3 Pets (ND)**
- HE 09.3.3.1 Pets
- HE 09.4 Recreational and cultural services**
- HE 09.4.1 Sporting and recreational services (S)**
- HE 09.4.1.1 Sporting and recreational services
- HE 09.4.2 Cultural services (S)**
- HE 09.4.2.1 Cinemas, theatres, concerts
- HE 09.4.2.2 Museums, zoological gardens and the like
- HE 09.4.2.3 Television and radio taxes and hire of equipment
- HE 09.4.2.4 Other services
- HE 09.4.3 Games of chance (S)**
- HE 09.4.3.1 Games of chance
- HE 09.5. Newspapers, books and stationery**
- HE 09.5.1 Books (SD)**
- HE 09.5.1.1 Books

HE 09.5.2	Newspapers and periodicals (ND)
HE 09.5.2.1	Newspapers and periodicals
HE 09.5.3	Miscellaneous printed matter (ND)
HE 09.5.3.1	Miscellaneous printed matter
HE 09.5.4	Stationery and drawing materials (ND)
HE 09.5.4.1	Stationery and drawing materials
HE 09.6	Package holidays
HE 09.6.1	Package holidays (S)
HE 09.6.1.1	Package holidays
HE 10.	EDUCATION
HE 10.1	Educational services
HE 10.1.1	Pre-primary and primary education (S)
HE 10.1.1.1	Pre-primary and primary education
HE 10.1.2	Secondary education (S)
HE 10.1.2.1	Secondary education
HE 10.1.3	Tertiary education (S)
HE 10.1.3.1	Tertiary education
HE 10.1.4	Education not definable by level (S)
HE 10.1.4.1	Education not definable by level
HE 11.	HOTELS, CAFES AND RESTAURANTS
HE 11.1	Catering
HE 11.1.1	Restaurants and cafés (S)
HE 11.1.1.1	Restaurants
HE 11.1.1.2	Cafés, bars and the like
HE 11.1.2	Canteens (S)
HE 11.1.2.1	Canteens
HE 11.2	Accommodation services
HE 11.2.1	Accommodation services (S)
HE 11.2.1.1	Accommodation services
HE 12.	MISCELLANEOUS GOODS AND SERVICES
HE 12.1	Personal care
HE 12.1.1	Hairdressing salons and personal grooming establishments (S)
HE 12.1.1.1	Hairdressing salons and personal grooming establishments
HE 12.1.2	Appliances, articles and products for personal care (ND)
HE 12.1.2.1	Electrical appliances for personal care
HE 12.1.2.2	Other articles and products for personal care
HE 12.1.3	Personal care services n.e.c. (S)
HE 12.1.3.1	Personal care services n.e.c.
HE 12.2	Personal effects n.e.c.
HE 12.2.1	Jewellery, clocks and watches (D)
HE 12.2.1.1	Jewellery, clocks and watches

HE 12.2.2	Other personal effects (SD)
HE 12.2.2.1	Travel goods and other carriers
HE 12.2.2.2	Other personal effects
HE 12.3	Social protection
HE 12.3.1	Social protection services (S)
HE 12.3.1.1	Social protection services
HE 12.3.1.2	Crèches, nurseries
HE 12.4	Insurance*
HE 12.4.2	Insurance connected with the dwelling (S)
HE 12.4.2.1	Insurance connected with the dwelling
HE 12.4.3	Insurance connected with health (S)
HE 12.4.3.1	Insurance connected with health
HE 12.4.4	Insurance connected with transport (S)
HE 12.4.4.1	Insurance connected with transport
HE 12.4.5	Other insurance (S)
HE 12.4.5.1	Other insurance
HE 12.5	Financial services n.e.c.**
HE 12.5.1	Financial services n.e.c. (S)
HE 12.5.1.1	Financial services n.e.c.
HE 12.6	Other services n.e.c.
HE 12.6.1	Other services n.e.c. (S)
HE 12.6.1.1	Other services n.e.c.

* Life insurance (12.4.1 of COICOP) is not applicable for the HBS.

** Financial intermediation services indirectly measured (12.5.2 of COICOP) is not applicable for the HBS

(The following table content is extremely faint and largely illegible due to low contrast and scan quality. It appears to be a multi-column table with several rows of data.)

Appendix B

Energy intensities for consumer goods and services of the COICOP-HBS classification.

COICOP	Description	Unit	Energy Intensity (MJ/unit)
HE050	Food	kg	100
HE051	Alcohol	l	100
HE052	Tobacco	kg	100
HE053	Textiles	kg	100
HE054	Shoes	kg	100
HE055	Leather goods	kg	100
HE056	Woolen goods	kg	100
HE057	Woolen goods	kg	100
HE058	Woolen goods	kg	100
HE059	Woolen goods	kg	100
HE060	Woolen goods	kg	100
HE061	Woolen goods	kg	100
HE062	Woolen goods	kg	100
HE063	Woolen goods	kg	100
HE064	Woolen goods	kg	100
HE065	Woolen goods	kg	100
HE066	Woolen goods	kg	100
HE067	Woolen goods	kg	100
HE068	Woolen goods	kg	100
HE069	Woolen goods	kg	100
HE070	Woolen goods	kg	100
HE071	Woolen goods	kg	100
HE072	Woolen goods	kg	100
HE073	Woolen goods	kg	100
HE074	Woolen goods	kg	100
HE075	Woolen goods	kg	100
HE076	Woolen goods	kg	100
HE077	Woolen goods	kg	100
HE078	Woolen goods	kg	100
HE079	Woolen goods	kg	100
HE080	Woolen goods	kg	100
HE081	Woolen goods	kg	100
HE082	Woolen goods	kg	100
HE083	Woolen goods	kg	100
HE084	Woolen goods	kg	100
HE085	Woolen goods	kg	100
HE086	Woolen goods	kg	100
HE087	Woolen goods	kg	100
HE088	Woolen goods	kg	100
HE089	Woolen goods	kg	100
HE090	Woolen goods	kg	100
HE091	Woolen goods	kg	100
HE092	Woolen goods	kg	100
HE093	Woolen goods	kg	100
HE094	Woolen goods	kg	100
HE095	Woolen goods	kg	100
HE096	Woolen goods	kg	100
HE097	Woolen goods	kg	100
HE098	Woolen goods	kg	100
HE099	Woolen goods	kg	100
HE100	Woolen goods	kg	100

Table B Energy intensities of the COICOP-HBS classification, $\epsilon_{i,EURO}$ in MJ/Dfl, as determined in Section 2.3.

COICOP-HBS code	Description of COICOP-HBS	Energy intensity (MJ/Dfl)	CBS code	Description of CBS code	Remarks and comments
HE0	TOTAL CONSUMPTION EXPENDITURE	6.5	v1	Total net income	
HE01	FOOD AND NON-ALCOHOLIC BEVERAGES				
HE011	Food				
HE0111	Bread and cereals	4.1	v110	Bread pastry and flour products	
HE0112	Meat	7.6	v1160	Meat	
HE0113	Fish	8.5	v1171	Fish	
HE0114	Milk, cheese and eggs	6.1	v118	Dairy products	CBS: includes butter 6.7 MJ/Dfl
HE0115	Oils and fats	13.8	v115	Oils and fats	
HE0116	Fruit	5.2	v1120	Fruit	
HE0117	Vegetables including potatoes and other tubers	8.25	v1111 + v1110	Vegetables and potatoes	average of resp. 9.0 and 4.4 MJ/Dfl weighed at expenditure of resp. 429 and 84 Dfl
HE0118	Sugar, jam, honey, syrups, chocolate and confectionery	5.7	v1130 + v112500 + v1133	Sugar and confectionary + Jams and marmelades + Chocolate	average of resp. 6.8, 6.5 and 4.3 MJ/Dfl at expenditure of resp. 164, 20 and 142 Dfl
HE0119	Food products n.e.c.	4.6	v119	Other food products	
HE012	Non-alcoholic beverages				
HE0121	Coffee, tea and cocoa	3.5	v1135	Coffee, tea and cocoa	
HE0122	Mineral waters, soft drinks and juices	7.2	v11400	Non-alcoholic beverages	
HE02	ALCOHOLIC BEVERAGES, TOBACCO AND NARCOTICS				
HE021	Alcoholic beverages				
HE0211	Spirits	1.3	v114200	Spirits and liquors	
HE0212	Wine	4.0	v114120	Wine	
HE0213	Beer	3.1	v114110	Beer	
HE022	Tobacco				
HE0221	Tobacco	1.1	v556	Smoking	
HE023	Narcotics				

HE0231	Narcotics					Does not exist in the CBS classification. Nobody (in Eurostat files) filled in this category during the household budget survey.
HE03	CLOTHING AND FOOTWEAR					
HE031	Clothing					
HE0311	Clothing materials	5.9	v333100		Materials for clothes	average of resp. 3.1, 2.5 and 3.3 MJ/Dfl at expenditure of resp. 619, 1100 and 341 Dfl
HE0312	Garments	2.8	v3300 + v3306 + v3310		Men's + Ladies + Boy's and girl's clothes	
HE0313	Other articles of clothing and clothing accessories	2.65	v3327 + v3328 + v3329 + v338200 + v338400		Colthes unspecified + Clothing accessoires men + woman + Leather-goods etc. + Other finery	average of resp. 3.0, 2.4, 2.4, 2.8 and 1.9 MJ/Dfl at expenditure of resp. 50, 27, 23, 69 and 21 Dfl
HE0314	Repair and hire of clothing	1.1	v333200		Hire and charge for making clothes	
HE032	Footwear					
HE0321	Shoes and other footwear	1.7	v3350 + v3360 + v3370		Men's + Ladies + Children's footwear	average of resp 1.7, 1.7 and 1.7 MJ/Dfl at expenditure of resp. 132, 216 and 114 Dfl
HE0322	Repair and hire of footwear	1.95	v3380 + v3376		Shoe repairs and material + Hire of footwear	average of resp 2.1 and 1.3 MJ/Dfl at expenditure of resp. 22 and 5 Dfl
HE04	HOUSING, WATER, ELECTRICITY, GAS AND OTHER FUELS					
HE041	Actual rentals for housing	1.3	v220010		Rent	
HE0411	Actual rentals paid by tenants	1.3	v220010		Rent	assumed to be similar to v220010
HE0412	Other actual rentals	1.3	v220010		Rent	assumed to be similar to v220010
HE042	Imputed rentals for housing	1.2	v220020		Rental value	
HE0421	Imputed rentals of owner-occupiers	1.2	v220020		Rental value	assumed to be similar to v220020
HE0422	Other imputed rentals	1.2	v220020		Rental value	assumed to be similar to v220020
HE043	Regular maintenance and repair of the dwelling					
HE0431	Products for the regular maintenance and repair of the dwelling	7.6	v221110 + v221120		Materials/maintenance central heating system + other fixed equipment	average of resp 2.2 and 8.0 MJ/Dfl at resp. 7 and 100 Dfl
HE0432	Services for the regular maintenance and repair of the dwelling	1	v221140+ v221150		Service for maintenance central heating system + other fixed equipment	average of resp 1.0 and 1.0 MJ/Dfl at resp. 68 and 84 Dfl
HE044	Other services relating to the dwelling					
HE0441	Refuse collection	1	-		-	Estimation based on service, because CBS-code v220156 'pollution tax' level 9: energy intensity is not available.

HE0442	Sewerage services	1	-	-		Estimation based on service, because CBS-code v220154 'sewer tax' level 9: energy intensity is not available.
HE0443	Water supply	0.02	v441000	Water		
HE0444	Other services relating to the dwelling n.e.c.	1.1	various	Service		Eurostat category comprises services like caretaking, gardening, stairwell cleaning and lighting etc. as well as snow removal and chimney sweeping
HE045	Electricity, gas and other fuels	47.6	v229110	Electricity		value given here excludes batteries and aggregates (=v229120 , 3.2 MJ/Dfl)
HE0451	Electricity					is the Dutch average of 'City- and natural gas' and 'Butane- en propane gas' resp. 60.2 and 35.1 MJ/Dfl.
HE0452	Gas	60.1	v2290	Gas		
HE0453	Liquid fuels	61	v2295	Liquid fuels		
HE0454	Solid fuels	38.5	v2292	Solid fuels		
HE0455	Hot water, steam and ice	59.1	v229620	Collective energy costs central heating		excludes ice-making, includes hot water and steam purchased from district heating plants, and local central heating systems
HE05	FURNISHINGS, HOUSEHOLD EQUIPMENT AND ROUTINE MAINTENANCE OF THE HOUSE					
HE051	Furniture, furnishings and decorations, carpets and other floor coverings and repairs					
HE0511	Furniture and furnishings	3.3	v2240	Furniture		
HE0512	Carpets and other floor coverings	5.1	v224410 + v224500	Floorcloth + Carpets etc.		average of 4.2 and 5.3 MJ/Dfl at 49 and 199 Dfl. Eurostat excludes bathroom mats, rush mats and door mats, which are included in the CBS category 'Carpets etc.'. Nevertheless their contribution may be small and is neglected here.
HE0513	Repair of furniture, furnishings and floor coverings	1	v221140+ v221150	Service for maintenance central heating system + other fixed equipment		average of resp 1.0 and 1.0 MJ/Dfl at resp. 68 and 84 Dfl
HE052	Household textiles					
HE0521	Household textiles	4.6	v224310 + v224320 + v2249	Vitrage cloth + Material for curtains, draw-curtains + Bedding and household linen		average of 4.8, 4.5 and 4.7 MJ/Dfl at 15, 98 and 173 Dfl.
HE053	Heating and cooking appliances, refrigerators, washing machines and similar majorhousehold appliances, including fittings and repairs					

HE0531	Major household appliances whether electric or not	3.1	v226100 + v227100 + v2265 + v2267 + v227010 + v227610 + v227710	Refrigerators and deepfreezers + Washing and drying machines (electric)+ Cookers + Heating appliance (excl. central heating) + Vacuum cleaner + Electric sewing machine + Other electric apparatus	average of resp. 4.1, 3.1, 2.7, 2.4, 3.1, 2.2 and 2.2 MJ/Dfl at 67, 107, 75, 0 26, 0 and 53 Dfl. Air conditioners (mentioned by Eurostat) not a part of CBS categories. Their energy intensity may be important for the southern countries of the EU.
HE0532	Small electric household appliances	2.8	v226010 + v227210	Electric food processors and utensils + Electric ironers	average of resp. 2.9 and 2.3 MJ/Dfl at 53 and 6 Dfl.
HE0533	Repair of household appliances	1.1	v227800	Repair and maintenance of household appliances	
HE054	Glassware, tableware and household utensils				
HE0541	Glassware, tableware and household utensils	5.8	v226300 + v226330+ v226050	Pottery and glassware + Other cutlery and kitchen utensils + Other food processors and utensils	average of resp. 3.0, 6.8 and 4.3 MJ/Dfl at 50, 141 and 0 Dfl.
HE055	Tools and equipment for house and garden				
HE0551	Tools and equipment for house and garden	2.2	v227710	Other electric apparatus	
HE0552	Small tools and miscellaneous accessories	4.5	v227730 + v2268	Other household appliances and tools + Lighting appliances	average of resp. 6.0 and 3.7 MJ/Dfl at 63 and 124 Dfl.
HE056	Goods and services for routine household maintenance				
HE0561	Non-durable household goods	6.4	v441100 + v441300 + v227310+ v229700	Washing powders, detergents etc. + Other cleaning articles and insecticide + Brushes, brooms, sponges etc. + Matches and candles	average of resp. 6.8, 7.2, 2.6 and 5.4 MJ/Dfl MJ/Dfl at resp. 151, 67, 24 and 27 Dfl.
HE0562	Domestic services and home care services	2.1	v440	Domestic services and cleaning	
HE06	HEALTH				
HE061	Medical products, appliances and equipment				
HE0611	Medical products, appliances and equipment				
HE062	Out-patient services				
HE0621	Medical Services				

HE0622	Dental services								
HE0623	Paramedical services								
HE063	Hospital services								
HE0631	Hospital services								
HE07	TRANSPORT								
HE071	Purchase of vehicles								
HE0711	Motor cars	2.4	v5576				Cars	Eurostat: purchase of cars, CBS: purchase, maintenance, repair and hire of cars, no data of subcategories available	
HE0712	Motor cycles	2.1	v557400				Mopeds, motor-cycles and scooters	Both Eurostat and CBS: purchase	
HE0713	Bicycles	1.9	v557200				Purchase bikes	Both Eurostat and CBS: purchase	
HE072	Operation of personal transport equipment								
HE0721	Spare parts and accessories	4.1	v557500 + v557910				Repair Mopeds, motor-cycles and scooters + Storage car, motor-cycle and bike	average of 2.8 and 5.5 MJ/Dfl at 32 and 31 Dfl. Hire of cars without driver is included in v5576, according to Eurostat it should be included here. Eurostat H07.2.1, H07.2.3 and H07.2.4 are taken together here.	
HE0722	Fuels and lubricants	22.4	v558100				Petrol and motor oils	average of 2.8 and 5.5 MJ/Dfl at 32 and 31 Dfl. Hire of cars without driver is included in v5576, according to Eurostat it should be included here. Eurostat H07.2.1, H07.2.3 and H07.2.4 are taken together here.	
HE0723	Maintenance and repairs	4.1	v557500 + v557910				Repair Mopeds, motor-cycles and scooters + Storage car, motor-cycle and bike	average of 2.8 and 5.5 MJ/Dfl at 32 and 31 Dfl. Hire of cars without driver is included in v5576, according to Eurostat it should be included here. Eurostat H07.2.1, H07.2.3 and H07.2.4 are taken together here.	
HE0724	Other services in respect of personal transport equipment	4.1	v557500 + v557910				Repair Mopeds, motor-cycles and scooters + Storage car, motor-cycle and bike	average of 2.8 and 5.5 MJ/Dfl at 32 and 31 Dfl. Hire of cars without driver is included in v5576, according to Eurostat it should be included here. Eurostat H07.2.1, H07.2.3 and H07.2.4 are taken together here.	
HE073	Transport services	7.6	v5570				Public transport	Notice: this figure refers to the Dutch public transport system (train, taxi, bus & tram & subway, and ferry/boat) Hence, passenger transport by air is excluded	
HE0731	Passenger transport by railway	7.4	v557000				Train	Because class He0961 'Package holidays' exists we assume that this class includes journeys for holidays by oneself (CBS excludes holidays in this category). Doubts about in/exclusion international transport.	
HE0732	Passenger transport by road	7.9	v557100				Other expenditures public transport (taxi, bus, tram, subway, ferry, boat)	Transport by road and by sea are combined by CBS. Because class He0961 'Package holidays' exist we assume that this class includes journeys for holidays by oneself (CBS excludes holidays in this category). Doubts about in/exclusion international transport	

HE0733	Passenger transport by air	12	-	-	Based on Van den Berg ³³ energy requirement 2.0 MJ/pkm (pkm=a person's km) and flight Amsterdam-Tenerife : 6.000 km at 1000 Dfl. Energy intensities of flights depend on the ratio of price and distance. Normally: distance >, ratio < thus e >.
HE0734	Passenger transport by sea and inland waterway	7.9	v557100	Other expenditures public transport (taxi, bus, tram, subway, ferry, boat)	Transport by road and by sea are combined by CBS. Because class He0961 'Package holidays' exists we assume that this class includes journeys for holidays by oneself (CBS excludes holidays in this category). Doubts about in/exclusion international transport.
HE0735	Other purchased transport services	3.2	v558400	Other transport	
HE08	COMMUNICATIONS				
HE081	Communications	8	v558300	Postal expenses	
HE0811	Postal services	2.1	v5535	Radio, television and gramophones	Assumption: the energy intensity of a lot of electronic equipment is similar
HE0812	Telephone and telefax equipment			Telephone	
HE0813	Telephone, telegraph and telefax services	1	v558200		
HE09	RECREATION AND CULTURE				
HE091	Audio-visual, photographic and data processing equipment and accessories, including repairs	2.1	v550420 + v5535 + v554500	Computer and accessoires + Radio, television and gramophones + Other costs photography and films	average of 2.0, 2.1 and 2.7 MJ/Dfl at 212, 967 and 126 Dfl. Same value for all sub-categories.
HE0911	Equipment for the reception, recording and reproduction of sound and pictures	2.1	v550420 + v5535 + v554500	Computer and accessoires + Radio, television and gramophones + Other costs photography and films	average of 2.0, 2.1 and 2.7 MJ/Dfl at 0.4, 2.0 and 0.3 G.J. Same value for all sub-categories
HE0912	Photographic and cinematographic equipment and optical instruments	2.1	v550420 + v5535 + v554500	Computer and accessoires + Radio, television and gramophones + Other costs photography and films	average of 2.0, 2.1 and 2.7 MJ/Dfl at 0.4, 2.0 and 0.3 G.J. Same value for all sub-categories
HE0913	Data processing equipment	2.1	v550420 + v5535 + v554500	Computer and accessoires + Radio, television and gramophones + Other costs photography and films	average of 2.0, 2.1 and 2.7 MJ/Dfl at 0.4, 2.0 and 0.3 G.J. Same value for all sub-categories
HE0914	Recording media for pictures and sound	2.1	v550420 + v5535 + v554500	Computer and accessoires + Radio, television and gramophones + Other costs photography and films	average of 2.0, 2.1 and 2.7 MJ/Dfl at 0.4, 2.0 and 0.3 G.J. Same value for all sub-categories

HE0915	Repair of audio-visual, photographic and data processing equipment and accessories	2.1	v550420 + v5535 + v554500	Computer and accessoires + Radio, television and gramophones + Other costs photography and films	average of 2.0, 2.1 and 2.7 MJ/Dfl at 0.4, 2.0 and 0.3 GJ. Same value for all sub-categories
HE092	Other major durables for recreation and culture, including repairs	5.7	v551210 + v55160	Sailing- and motorboats + Caravans etc.	average of 7.6 and 3.7 MJ/Dfl at 0 and 0 GJ
HE0921	Other major durables for recreation and culture	1	v221140+ v221150	Service for maintenance central heating system + other fixed equipment	average of resp 1.0 and 1.0 MJ/Dfl at resp. 68 and 84 Dfl
HE0922	Repair of other major durables for recreation and culture	3.3	v551250 + v551620 + v551640 + v5551	Sports goods + Other camping equipment + Hire and maintenance camping equipment + Toys	average of 1.7, 6.2, 1.3 and 2.8 MJ/Dfl at 0.1, 0.2, 0.1 and 0.4 GJ
HE093	Other recreational items and equipment; flowers, gardens and pets	11	v2220	Garden and flowers	
HE0931	Games, toys and hobbies, equipment for sport, camping and open-air recreation	5	v554600	Pets	
HE0932	Flowers and gardens	0.9	v551100	Hire sports accomodation	The energy intensity of the CBS-category v551580 'Contribution sports club' is not known, but should be included here.
HE0933	Pets	1.95	v553100 + v554100 + v554200	Entrance fees concert, theatre, etc + Other costs radio and TV + entrance fee cinema	average of resp. 2.0, 1.6 and 5.8 MJ/Dfl at resp. 61, 216 and 19 Dfl.
HE094	Recreational and cultural services	2.4	v550610	Books	
HE0941	Sporting and recreational services	5.7	v550500	Newspapers and weekly papers	assumed to be similar to 'Books'
HE0942	Cultural services	2.4	v550610	Books	
HE0943	Games of chance	9.6	v550430	Other stationairy	
HE095	Newspapers, books and stationery	6.1	v552100	Provided holiday trips	according to CBS this value is given for holidays abroad 4.8 GJ (home holidays 4.6 MJ/Dfl, 0.4 GJ), Eurostat does not discriminate between home holidays and holidays abroad.
HE0951	Books				
HE0952	Newspapers and periodicals				
HE0953	Miscellaneous printed matter				
HE0954	Stationery and drawing materials				
HE096	Package holidays				
HE0961	Package holidays				
HE10	EDUCATION				

HE1212	Appliances, articles and products for personal care	4.65	v442000 + v442100 + v442200 + v443100 + v443110 + v443120 + v444100	Toilet articles + Toilet paper + Sanitary towels + Articles for hair care + Cosmetics and perfumery	average of resp. 4.8, 12.3, 4.8, 3.5, 1.8, 3.7 and 2.9 MJ/Dfl at resp. 167, 58, 28, 114, 13, 100 and 120 Dfl.
HE1213	Personal care services n.e.c.	2	v554800	Other entree fees	Eurostat: services provided by prostitutes and the like, CBS: v554816 (level 9) 'Entrance fees erotic amusement' energy intensity not available. Nobody filled in this category during the household budget survey
HE122	Personal effects n.e.c.	1.6	v227500 + v338300	(Alarm) clocks + Jewellery and watches	average of resp. 2.9 and 1.6 MJ/Dfl at resp. 0 and 150 Dfl
HE1221	Jewellery, clocks and watches	1.6	v227500 + v338300	(Alarm) clocks + Jewellery and watches	Eurostat: articles for smokers and babies, miscellaneous personal articles and funerary articles. Assumed to have an energy intensity similar to jewellery, clocks and watches.
HE1222	Other personal effects	1.6	v227500 + v338300	(Alarm) clocks + Jewellery and watches	
HE123	Social protection				
HE1231	Social protection services				
HE124	Insurance				
HE1242	Insurance connected with the dwelling	1.6	v2280	Fire and burglary insurance	assumed to have an energy intensity similar to the insurance connected to the dwelling
HE1243	Insurance connected with health	1.6	v2280	Fire and burglary insurance	
HE1244	Insurance connected with transport	1.5	v558000	Insurance cars etc.	
HE1245	Other insurance				
HE125	Financial services n.e.c.				
HE1251	Financial services n.e.c.				
HE126	Other services n.e.c.				
HE1261	Other services n.e.c.				

Appendix C

Results of an analysis of expenditure and energy requirements of households

Category	1990	1991	1992	1993	1994
Electricity	1000	1000	1000	1000	1000
Gas	1000	1000	1000	1000	1000
Oil	1000	1000	1000	1000	1000
Coal	1000	1000	1000	1000	1000
Wood	1000	1000	1000	1000	1000
Other	1000	1000	1000	1000	1000
Transport	1000	1000	1000	1000	1000
Industry	1000	1000	1000	1000	1000
Commercial	1000	1000	1000	1000	1000
Government	1000	1000	1000	1000	1000
International	1000	1000	1000	1000	1000
Other	1000	1000	1000	1000	1000
Total	1000	1000	1000	1000	1000

Table C1 Yearly expenditures of an average household in 1994 for 11 EU member states. Expenditures are corrected for purchasing power parities and presented in ECU/year.

Country	B	DK	EL	E	I	L	NL	P	FIN	S	UK
<i>Total expenditure</i>	20066	18555	14965	19260	21984	37039	17755	16369	14709	16652	20464
1.Food	3387	3206	3447	5042	4856	5749	3081	3472	2423	3290	3237
2.Clothing and footwear	1290	1316	1692	1449	1598	2528	1296	747	751	1268	1320
3.Housing	4587	4409	3659	4801	5773	8012	4061	4927	4501	3365	5306
4.Electricity, gas and other fuels for housing	1092	1025	733	559	942	1486	879	454	829	820	1063
5.Furnishing etc.	1533	1364	1166	1156	1348	3228	1501	1046	768	1095	1468
6.Transport (excl. fuels)	2046	2424	1344	1481	1840	5234	1311	1789	1366	1776	1346
7.Fuels for transport	578	478	529	685	1094	978	631	436	867	913	860
8.Communications	325	524	374	254	481	847	452	253	375	526	446
9.Recreation and culture	2424	2195	607	1056	1586	4631	2004	518	1548	2182	2655
10.Education	135	61	395	269	119	284	263	214	20	19	225
11.Hotels, cafes and restaurants	1341	608	821	1644	1021	1553	1235	1893	667	597	1436
12.Miscellaneous goods and services	1329	944	199	864	1325	2508	1043	622	595	801	1102
<i>Expenditure on direct energy</i>	1670	1503	1263	1244	2035	2465	1510	889	1695	1733	1923
<i>Expenditure on indirect energy</i>	18396	17051	13702	18016	19949	34574	16244	15480	13014	14919	18541

Table C2 Yearly energy requirement of an average household in 1994 for 11 EU member states. Values are presented in MJ/year.

Country	B	DK	EL	E	I	L	NL	P	FIN	S	UK
<i>Total energy requirement</i>	297001	253678	190721	242473	296807	508150	241362	179774	285285	328284	293182
1.Food	44505	38695	48107	68261	65512	72348	38019	49557	33147	40025	43896
2.Clothing and footwear	7141	7322	9611	7907	8647	13807	7091	4004	5796	7159	7197
3.Housing	17724	17145	17951	25522	29070	30486	15738	18086	19348	13875	22526
4.Electricity, gas and other fuels for housing	138616	105784	55467	58239	86484	204098	93191	41113	144584	170254	105585
5.Furnishing etc.	12944	12489	10664	10221	12119	25512	12777	8625	6689	9713	14536
6.Transport (excl. fuels)	16191	20174	10893	13546	14878	37190	12763	14383	13645	14295	14180
7.Fuels for transport	25423	21034	23282	30111	48105	43037	27756	19164	38131	40153	37829
8.Communications	778	1425	734	504	1263	2356	1307	452	965	2219	1412
9.Recreation and culture	15090	18777	5554	8597	14549	51405	17295	3398	13437	20822	26523
10.Education	55	27	160	103	48	115	107	83	8	0	0
11.Hotels, cafes and restaurants	11447	5314	7553	14490	8576	14286	8929	17148	5892	5344	12983
12.Miscellaneous goods and services	7088	5491	746	4972	7558	13510	6389	3760	3643	4426	6514
<i>Direct energy requirement</i>	164039	126819	78749	88351	134588	247135	120948	60277	182716	210407	143414
<i>Indirect energy requirement</i>	132962	126859	111972	154122	162219	261016	120414	119497	102569	117878	149768

Table C3 Yearly household's expenditures per capita in 1994 for 11 EU member states. Expenditures are corrected for purchasing power parities and presented in ECU/capita.year.

Country	B	DK	EL	E	I	L	NL	P	FIN	S	UK
<i>Total expenditure</i>	7931	8794	5090	5819	7796	14030	7620	5420	6656	7709	8421
1.Food	1339	1520	1172	1523	1722	2178	1322	1150	1096	1523	1332
2.Clothing and footwear	510	624	575	438	567	958	556	247	340	587	543
3.Housing	1813	2089	1245	1450	2047	3035	1743	1631	2037	1558	2184
4.Electricity, gas and other fuels for housing	1133	431	486	249	169	334	563	377	150	375	380437
5.Furnishing etc.	606	646	396	349	478	1223	644	346	348	507	604
6.Transport (excl. fuels)	809	1149	457	448	653	1983	563	592	618	822	554
7.Fuels for transport	228	227	180	207	388	371	271	144	392	423	354
8.Communications	129	249	127	77	171	321	194	84	170	244	183
9.Recreation and culture	958	1040	206	319	563	1754	860	171	700	1010	1093
10.Education	53	29	134	81	42	108	113	71	9	9	93
11.Hotels, cafes and restaurants	530	288	279	497	362	588	530	627	302	277	591
12.Miscellaneous goods and services	525	447	68	261	470	950	447	206	269	371	454
<i>Expenditure on direct energy</i>	660	712	429	376	722	934	648	294	767	802	791
<i>Expenditure on indirect energy</i>	7271	8081	4661	5443	7074	13096	6972	5126	5888	6907	7630

Table C4 Yearly household's energy requirement per capita in 1994 for 11 EU member states. Values are presented in MJ/capita.year.

Country	B	DK	EL	E	I	L	NL	P	FIN	S	UK
<i>Total energy requirement</i>	117392	120227	64871	73255	105251	192481	103589	59528	129088	151984	120651
1.Food	17591	18339	16363	20623	23231	27404	16317	16410	14998	18530	18064
2.Clothing and footwear	2823	3470	3269	2389	3066	5230	3043	1326	2623	3314	2962
3.Housing	7006	8125	6106	7711	10309	11548	6755	5989	8755	6424	9270
4.Electricity, gas and other fuels for housing	54789	50135	18866	17595	30668	77310	39996	13614	65423	78821	43451
5.Furnishing etc.	5116	5919	3627	3088	4298	9664	5484	2856	3027	4497	5982
6.Transport (excl. fuels)	6400	9561	3705	4092	5276	14087	5478	4763	6174	6618	5835
7.Fuels for transport	10049	9969	7919	9097	17058	16302	11913	6346	17254	18589	15568
8.Communications	308	675	250	152	448	893	561	150	437	1028	581
9.Recreation and culture	5964	8899	1889	2597	5159	19472	7423	1125	6080	9640	10915
10.Education	22	13	54	31	17	44	46	27	4	0	0
11.Hotels, cafes and restaurants	4524	2518	2569	4378	3041	5411	3832	5678	2666	2474	5343
12.Miscellaneous goods and services	2802	2602	254	1502	2680	5118	2742	1245	1648	2049	2681
<i>Direct energy requirement</i>	64838	60104	26785	26692	47726	93612	51909	19959	82677	97411	59018
<i>Indirect energy requirement</i>	52554	60123	38086	46563	57525	98870	51680	39569	46411	54573	61633

Appendix D

Price level indices for 11 EU member states.

Price level indices, PLI's, for the COICOP-HBS classification are taken from the Eurostat publication 'Comparison in real terms of the aggregates of ESA. Results for 1994' ²². In this document the precise definition of uses are given in the European System of Integrated Economic Accounts (ESA). The countries' expenditure data are collected in accordance with the SNA (United Nations' System of National Accounts). For that reason, slight differences exist between the COICOP-HBS and the ESA classification. This appendix presents the price level indices which we used in our calculations.

Table D Price level indices, PLI, for the COICOP-HBS classification for 11 EU member states.

Code	B	DK	EL	E	I	L	NL	P	FIN	S	UK
HE0	1.05	1.3	0.78	0.84	0.86	1	1.06	0.69	1.16	1.2	0.9
HE01	0.99	1.39	0.83	0.84	0.95	0.98	0.99	0.79	1.4	1.32	0.91
HE011	0.99	1.36	0.83	0.88	0.97	1.04	0.99	0.81	1.32	1.25	0.82
HE0111	0.96	1.38	0.91	0.95	0.97	1	0.88	0.67	1.52	1.24	0.71
HE0112	0.96	1.3	0.71	0.8	1.02	1.16	1.17	0.72	1.33	1.32	0.76
HE0113	1.08	1.23	0.91	0.87	1.13	1.02	0.9	0.8	0.93	1.03	0.83
HE0114	1.09	1.15	1.04	0.95	0.99	0.97	0.91	0.92	1.11	1.12	0.94
HE0115	1.14	1.13	1.02	0.9	0.81	1.1	0.91	0.92	1.73	1.34	0.9
HE0116	0.99	1.63	0.72	0.87	0.92	0.97	1	0.83	1.31	1.3	0.99
HE0117	0.99	1.63	0.72	0.87	0.92	0.97	1	0.83	1.31	1.3	0.99
HE0118	0.95	1.53	1.07	0.99	1.01	1.02	0.98	1.1	1.44	1.33	0.73
HE0119	0.95	1.53	1.07	0.99	1.01	1.02	0.98	1.1	1.44	1.33	0.73
HE012	0.99	1.65	0.9	0.91	0.82	0.89	0.97	0.99	1.33	1.4	0.94
HE0121	0.99	1.65	0.9	0.91	0.82	0.89	0.97	0.99	1.33	1.4	0.94
HE0122	0.99	1.65	0.9	0.91	0.82	0.89	0.97	0.99	1.33	1.4	0.94
HE02	0.94	1.35	0.95	0.68	0.9	0.96	1.07	0.75	2.06	1.84	1.25
HE021	0.94	1.35	0.95	0.68	0.9	0.96	1.07	0.75	2.06	1.84	1.25
HE0211	0.94	1.35	0.95	0.68	0.9	0.96	1.07	0.75	2.06	1.84	1.25
HE0212	0.94	1.35	0.95	0.68	0.9	0.96	1.07	0.75	2.06	1.84	1.25
HE0213	0.94	1.35	0.95	0.68	0.9	0.96	1.07	0.75	2.06	1.84	1.25
HE022	1	1.55	0.7	0.64	0.82	0.8	0.91	0.69	1.34	1.35	1.26
HE0221	1	1.55	0.7	0.64	0.82	0.8	0.91	0.69	1.34	1.35	1.26
HE023	0	0	0	0	0	0	0	0	0	0	0
HE0231	0	0	0	0	0	0	0	0	0	0	0
HE03	1.15	1.08	1.05	0.91	0.89	1.3	0.99	0.96	1.13	1.04	0.88
HE031	1.13	1.06	1.08	0.93	0.89	1.31	0.97	0.97	1.13	1.02	0.84
HE0311	1.13	1.06	1.08	0.93	0.89	1.31	0.97	0.97	1.13	1.02	0.84
HE0312	1.13	1.06	1.08	0.93	0.89	1.31	0.97	0.97	1.13	1.02	0.84
HE0313	1.13	1.06	1.08	0.93	0.89	1.31	0.97	0.97	1.13	1.02	0.84
HE0314	1.13	1.06	1.08	0.93	0.89	1.31	0.97	0.97	1.13	1.02	0.84
HE032	1.25	1.15	0.92	0.87	0.88	1.3	1.1	0.96	1.17	1.2	1.06

Table D Price level indices, PLI, for the COICOP-HBS classification for 11 EU member states.

Code	B	DK	EL	E	I	L	NL	P	FIN	S	UK
HE00											
HE00	1.05	1.3	0.78	0.84	0.86	1	1.06	0.69	1.16	1.2	0.9
HE01	0.99	1.39	0.83	0.84	0.95	0.98	0.99	0.79	1.4	1.32	0.91
HE011	0.99	1.36	0.83	0.88	0.97	1.04	0.99	0.81	1.32	1.25	0.82
HE0111	0.96	1.38	0.91	0.95	0.97	1	0.88	0.67	1.52	1.24	0.71
HE0112	0.96	1.3	0.71	0.8	1.02	1.16	1.17	0.72	1.33	1.32	0.76
HE0113	1.08	1.23	0.91	0.87	1.13	1.02	0.9	0.8	0.93	1.03	0.83
HE0114	1.09	1.15	1.04	0.95	0.99	0.97	0.91	0.92	1.11	1.12	0.94
HE0115	1.14	1.13	1.02	0.9	0.81	1.1	0.91	0.92	1.73	1.34	0.9
HE0116	0.99	1.63	0.72	0.87	0.92	0.97	1	0.83	1.31	1.3	0.99
HE0117	0.99	1.63	0.72	0.87	0.92	0.97	1	0.83	1.31	1.3	0.99
HE0118	0.95	1.53	1.07	0.99	1.01	1.02	0.98	1.1	1.44	1.33	0.73
HE0119	0.95	1.53	1.07	0.99	1.01	1.02	0.98	1.1	1.44	1.33	0.73
HE012	0.99	1.65	0.9	0.91	0.82	0.89	0.97	0.99	1.33	1.4	0.94
HE0121	0.99	1.65	0.9	0.91	0.82	0.89	0.97	0.99	1.33	1.4	0.94
HE0122	0.99	1.65	0.9	0.91	0.82	0.89	0.97	0.99	1.33	1.4	0.94
HE02	0.94	1.35	0.95	0.68	0.9	0.96	1.07	0.75	2.06	1.84	1.25
HE021	0.94	1.35	0.95	0.68	0.9	0.96	1.07	0.75	2.06	1.84	1.25
HE0211	0.94	1.35	0.95	0.68	0.9	0.96	1.07	0.75	2.06	1.84	1.25
HE0212	0.94	1.35	0.95	0.68	0.9	0.96	1.07	0.75	2.06	1.84	1.25
HE0213	0.94	1.35	0.95	0.68	0.9	0.96	1.07	0.75	2.06	1.84	1.25
HE022	1	1.55	0.7	0.64	0.82	0.8	0.91	0.69	1.34	1.35	1.26
HE0221	1	1.55	0.7	0.64	0.82	0.8	0.91	0.69	1.34	1.35	1.26
HE023	0	0	0	0	0	0	0	0	0	0	0
HE0231	0	0	0	0	0	0	0	0	0	0	0
HE03	1.15	1.08	1.05	0.91	0.89	1.3	0.99	0.96	1.13	1.04	0.88
HE031	1.13	1.06	1.08	0.93	0.89	1.31	0.97	0.97	1.13	1.02	0.84
HE0311	1.13	1.06	1.08	0.93	0.89	1.31	0.97	0.97	1.13	1.02	0.84
HE0312	1.13	1.06	1.08	0.93	0.89	1.31	0.97	0.97	1.13	1.02	0.84
HE0313	1.13	1.06	1.08	0.93	0.89	1.31	0.97	0.97	1.13	1.02	0.84
HE0314	1.13	1.06	1.08	0.93	0.89	1.31	0.97	0.97	1.13	1.02	0.84
HE032	1.25	1.15	0.92	0.87	0.88	1.3	1.1	0.96	1.17	1.2	1.06

HE0321	Shoes and other footwear	1.25	1.15	0.92	0.87	0.88	1.3	1.1	0.96	1.17	1.2	1.06
HE0322	Repair and hire of footwear	1.25	1.15	0.92	0.87	0.88	1.3	1.1	0.96	1.17	1.2	1.06
HE04	HOUSING, WATER, ELECTRICITY, GAS AND OTHER FUELS	1.22	1.28	0.75	0.72	0.7	1.12	1.18	0.42	1.01	1.25	0.83
HE041	Actual rentals for housing	1.28	1.23	0.72	0.68	0.63	1.16	1.26	0.3	1.08	1.32	0.84
HE0411	Actual rentals paid by tenants	1.28	1.23	0.72	0.68	0.63	1.16	1.26	0.3	1.08	1.32	0.84
HE0412	Other actual rentals	1.28	1.23	0.72	0.68	0.63	1.16	1.26	0.3	1.08	1.32	0.84
HE042	Imputed rentals for housing	1.28	1.23	0.72	0.68	0.63	1.16	1.26	0.3	1.08	1.32	0.84
HE0421	Imputed rentals of owner-occupiers	1.28	1.23	0.72	0.68	0.63	1.16	1.26	0.3	1.08	1.32	0.84
HE0422	Other imputed rentals	1.28	1.23	0.72	0.68	0.63	1.16	1.26	0.3	1.08	1.32	0.84
HE043	Regular maintenance and repair of the dwelling	1.28	1.23	0.72	0.68	0.63	1.16	1.26	0.3	1.08	1.32	0.84
HE0431	Products for the regular maintenance and repair of the dwelling	1.28	1.23	0.72	0.68	0.63	1.16	1.26	0.3	1.08	1.32	0.84
HE0432	Services for the regular maintenance and repair of the dwelling	1.28	1.23	0.72	0.68	0.63	1.16	1.26	0.3	1.08	1.32	0.84
HE044	Other services relating to the dwelling	1.28	1.23	0.72	0.68	0.63	1.16	1.26	0.3	1.08	1.32	0.84
HE0441	Refuse collection	1.28	1.23	0.72	0.68	0.63	1.16	1.26	0.3	1.08	1.32	0.84
HE0442	Sewerage services	1.28	1.23	0.72	0.68	0.63	1.16	1.26	0.3	1.08	1.32	0.84
HE0443	Water supply	1.28	1.23	0.72	0.68	0.63	1.16	1.26	0.3	1.08	1.32	0.84
HE0444	Other services relating to the dwelling n.e.c.	1.28	1.23	0.72	0.68	0.63	1.16	1.26	0.3	1.08	1.32	0.84
HE045	Electricity, gas and other fuels	1.09	1.49	0.88	0.87	0.99	0.87	0.91	0.92	0.8	1.02	0.82
HE0451	Electricity	1.09	1.49	0.88	0.87	0.99	0.87	0.91	0.92	0.8	1.02	0.82
HE0452	Gas	1.09	1.49	0.88	0.87	0.99	0.87	0.91	0.92	0.8	1.02	0.82
HE0453	Liquid fuels	1.09	1.49	0.88	0.87	0.99	0.87	0.91	0.92	0.8	1.02	0.82
HE0454	Solid fuels	1.09	1.49	0.88	0.87	0.99	0.87	0.91	0.92	0.8	1.02	0.82
HE0455	Hot water, steam and ice	1.09	1.49	0.88	0.87	0.99	0.87	0.91	0.92	0.8	1.02	0.82
HE05	FURNISHINGS, HOUSEHOLD EQUIPMENT AND ROUTINE MAINTENANCE OF THE HOUSE	1.05	1.15	0.79	0.88	0.9	1.12	1.01	0.73	1.1	1.05	0.99
HE051	Furniture, furnishings and decorations, carpets and other floor coverings and repairs	1.04	1.04	0.83	0.89	0.88	1.16	1.01	0.9	1.11	0.92	1.01
HE0511	Furniture and furnishings	1.04	1.04	0.83	0.89	0.88	1.16	1.01	0.9	1.11	0.92	1.01
HE0512	Carpets and other floor coverings	1.04	1.04	0.83	0.89	0.88	1.16	1.01	0.9	1.11	0.92	1.01
HE0513	Repair of furniture, furnishings and floor coverings	1.04	1.04	0.83	0.89	0.88	1.16	1.01	0.9	1.11	0.92	1.01
HE052	Household textiles	1.35	1.12	0.85	0.84	0.88	1.29	1.16	0.79	0.91	0.89	0.93
HE0521	Household textiles	1.35	1.12	0.85	0.84	0.88	1.29	1.16	0.79	0.91	0.89	0.93
HE053	Heating and cooking appliances, refrigerators, washing machines and similar major household appliances, including fittings and repairs	1.09	1.08	0.91	0.88	0.87	1.03	0.98	0.76	1.11	1.09	0.93
HE0531	Major household appliances whether electric or not	1.09	1.08	0.91	0.88	0.87	1.03	0.98	0.76	1.11	1.09	0.93
HE0532	Small electric household appliances	1.09	1.08	0.91	0.88	0.87	1.03	0.98	0.76	1.11	1.09	0.93

HE0533	Repair of household appliances	1.09	1.08	0.91	0.88	0.87	1.03	0.98	0.76	1.11	1.09	0.93
HE054	Glassware, tableware and household utensils	1.09	1.08	0.91	0.88	0.87	1.03	0.98	0.76	1.11	1.09	0.93
HE0541	Glassware, tableware and household utensils	1.09	1.08	0.91	0.88	0.87	1.03	0.98	0.76	1.11	1.09	0.93
HE055	Tools and equipment for house and garden	1.09	1.08	0.91	0.88	0.87	1.03	0.98	0.76	1.11	1.09	0.93
HE0551	Tools and equipment for house and garden	1.09	1.08	0.91	0.88	0.87	1.03	0.98	0.76	1.11	1.09	0.93
HE0552	Small tools and miscellaneous accessories	1.09	1.08	0.91	0.88	0.87	1.03	0.98	0.76	1.11	1.09	0.93
HE056	Goods and services for routine household maintenance	0.99	1.29	0.74	0.9	0.94	1.1	1	0.61	1.16	1.22	1.04
HE0561	Non-durable household goods	0.99	1.29	0.74	0.9	0.94	1.1	1	0.61	1.16	1.22	1.04
HE0562	Domestic services and home care services	0.99	1.29	0.74	0.9	0.94	1.1	1	0.61	1.16	1.22	1.04
HE06	HEALTH											
HE061	Medical products, appliances and equipment	0.96	1.34	0.58	0.88	0.84	1.04	0.99	0.84	1.11	1.2	0.72
HE0611	Medical products, appliances and equipment	0.96	1.34	0.58	0.88	0.84	1.04	0.99	0.84	1.11	1.2	0.72
HE062	Out-patient services	0.96	1.34	0.58	0.88	0.84	1.04	0.99	0.84	1.11	1.2	0.72
HE0621	Medical Services	0.96	1.34	0.58	0.88	0.84	1.04	0.99	0.84	1.11	1.2	0.72
HE0622	Dental services	0.96	1.34	0.58	0.88	0.84	1.04	0.99	0.84	1.11	1.2	0.72
HE0623	Paramedical services	0.96	1.34	0.58	0.88	0.84	1.04	0.99	0.84	1.11	1.2	0.72
HE063	Hospital services	0.96	1.34	0.58	0.88	0.84	1.04	0.99	0.84	1.11	1.2	0.72
HE0631	Hospital services	0.96	1.34	0.58	0.88	0.84	1.04	0.99	0.84	1.11	1.2	0.72
HE07	TRANSPORT											
HE071	Purchase of vehicles	0.98	1.77	1.21	1.02	0.9	0.96	1.16	1.29	1.37	0.99	1.03
HE0711	Motor cars	0.98	1.77	1.21	1.02	0.9	0.96	1.16	1.29	1.37	0.99	1.03
HE0712	Motor cycles	0.98	1.77	1.21	1.02	0.9	0.96	1.16	1.29	1.37	0.99	1.03
HE0713	Bicycles	0.98	1.77	1.21	1.02	0.9	0.96	1.16	1.29	1.37	0.99	1.03
HE072	Operation of personal transport equipment	0.92	1.24	0.72	0.83	0.98	0.87	1.03	0.69	1.1	1.21	0.93
HE0721	Spare parts and accessories	0.92	1.24	0.72	0.83	0.98	0.87	1.03	0.69	1.1	1.21	0.93
HE0722	Fuels and lubricants	1.09	1.49	0.88	0.87	0.99	0.87	0.91	0.92	0.8	1.02	0.82
HE0723	Maintenance and repairs	0.92	1.24	0.72	0.83	0.98	0.87	1.03	0.69	1.1	1.21	0.93
HE0724	Other services in respect of personal transport equipment	0.92	1.24	0.72	0.83	0.98	0.87	1.03	0.69	1.1	1.21	0.93
HE073	Transport services	1.24	1.37	0.42	0.75	0.69	0.88	1.17	0.56	1.05	1.29	1.08
HE0731	Passenger transport by railway	1.24	1.37	0.42	0.75	0.69	0.88	1.17	0.56	1.05	1.29	1.08
HE0732	Passenger transport by road	1.24	1.37	0.42	0.75	0.69	0.88	1.17	0.56	1.05	1.29	1.08
HE0733	Passenger transport by air	1.24	1.37	0.42	0.75	0.69	0.88	1.17	0.56	1.05	1.29	1.08
HE0734	Passenger transport by sea and inland waterway	1.24	1.37	0.42	0.75	0.69	0.88	1.17	0.56	1.05	1.29	1.08
HE0735	Other purchased transport services	1.24	1.37	0.42	0.75	0.69	0.88	1.17	0.56	1.05	1.29	1.08
HE08	COMMUNICATIONS	1.29	0.95	0.6	0.97	0.78	0.63	0.8	0.88	0.98	0.7	0.85
HE081	Communications	1.29	0.95	0.6	0.97	0.78	0.63	0.8	0.88	0.98	0.7	0.85

HE0811	Postal services	1.29	0.95	0.6	0.97	0.78	0.63	0.8	0.88	0.98	0.7	0.85
HE0812	Telephone and telefax equipment	1.29	0.95	0.6	0.97	0.78	0.63	0.8	0.88	0.98	0.7	0.85
HE0813	Telephone, telegraph and telefax services	1.29	0.95	0.6	0.97	0.78	0.63	0.8	0.88	0.98	0.7	0.85
HE09	RECREATION AND CULTURE	1.08	1.22	0.88	1.04	0.98	0.96	1.02	0.81	1.17	1.25	0.83
HE091	Audio-visual, photographic and data processing equipment and accessories, including repairs	1.14	1.14	1.03	0.97	0.98	1.05	1.05	1.04	1.38	1.26	0.85
HE0911	Equipment for the reception, recording and reproduction of sound and pictures	1.14	1.14	1.03	0.97	0.98	1.05	1.05	1.04	1.38	1.26	0.85
HE0912	Photographic and cinematographic equipment and optical instruments	1.14	1.14	1.03	0.97	0.98	1.05	1.05	1.04	1.38	1.26	0.85
HE0913	Data processing equipment	1.14	1.14	1.03	0.97	0.98	1.05	1.05	1.04	1.38	1.26	0.85
HE0914	Recording media for pictures and sound	1.14	1.14	1.03	0.97	0.98	1.05	1.05	1.04	1.38	1.26	0.85
HE0915	Repair of audio-visual, photographic and data processing equipment and accessories	1.14	1.14	1.03	0.97	0.98	1.05	1.05	1.04	1.38	1.26	0.85
HE092	Other major durables for recreation and culture, including repairs	1.14	1.14	1.03	0.97	0.98	1.05	1.05	1.04	1.38	1.26	0.85
HE0921	Other major durables for recreation and culture	1.14	1.14	1.03	0.97	0.98	1.05	1.05	1.04	1.38	1.26	0.85
HE0922	Repair of other major durables for recreation and culture	1.14	1.14	1.03	0.97	0.98	1.05	1.05	1.04	1.38	1.26	0.85
HE093	Other recreational items and equipment; flowers, gardens and pets	1.14	1.14	1.03	0.97	0.98	1.05	1.05	1.04	1.38	1.26	0.85
HE0931	Games, toys and hobbies, equipment for sport, camping and open-air recreation	1.14	1.14	1.03	0.97	0.98	1.05	1.05	1.04	1.38	1.26	0.85
HE0932	Flowers and gardens	1.14	1.14	1.03	0.97	0.98	1.05	1.05	1.04	1.38	1.26	0.85
HE0933	Pets	1.14	1.14	1.03	0.97	0.98	1.05	1.05	1.04	1.38	1.26	0.85
HE094	Recreational and cultural services	1.11	1.1	0.77	1.25	0.99	0.93	1	0.64	0.89	1.2	0.76
HE0941	Sporting and recreational services	1.11	1.1	0.77	1.25	0.99	0.93	1	0.64	0.89	1.2	0.76
HE0942	Cultural services	1.11	1.1	0.77	1.25	0.99	0.93	1	0.64	0.89	1.2	0.76
HE0943	Games of chance	1.11	1.1	0.77	1.25	0.99	0.93	1	0.64	0.89	1.2	0.76
HE095	Newspapers, books and stationery	1.06	1.46	0.96	1.06	1	0.98	1.06	1.02	1.26	1.22	0.74
HE0951	Books	1.06	1.46	0.96	1.06	1	0.98	1.06	1.02	1.26	1.22	0.74
HE0952	Newspapers and periodicals	1.06	1.46	0.96	1.06	1	0.98	1.06	1.02	1.26	1.22	0.74
HE0953	Miscellaneous printed matter	1.06	1.46	0.96	1.06	1	0.98	1.06	1.02	1.26	1.22	0.74
HE0954	Stationery and drawing materials	1.06	1.46	0.96	1.06	1	0.98	1.06	1.02	1.26	1.22	0.74
HE096	Package holidays	1.06	1.46	0.96	1.06	1	0.98	1.06	1.02	1.26	1.22	0.74
HE0961	Package holidays	1.11	1.1	0.77	1.25	0.99	0.93	1	0.64	0.89	1.2	0.76
HE10	EDUCATION	1.11	1.1	0.77	1.25	0.99	0.93	1	0.64	0.89	1.2	0.76
HE101	Educational services	0.81	1.6	0.78	0.73	0.98	0.93	0.94	0.67	1.54	1.67	1.12
HE1011	Pre-primary and primary education	0.81	1.6	0.78	0.73	0.98	0.93	0.94	0.67	1.54	1.67	1.12
HE1012	Secondary education	0.81	1.6	0.78	0.73	0.98	0.93	0.94	0.67	1.54	1.67	1.12
HE1013	Tertiary education	0.81	1.6	0.78	0.73	0.98	0.93	0.94	0.67	1.54	1.67	1.12
HE1014	Education not definable by level	0.81	1.6	0.78	0.73	0.98	0.93	0.94	0.67	1.54	1.67	1.12

HE11	HOTELS, CAFES AND RESTAURANTS	1.02	1.36	0.86	0.86	0.97	1.06	1.04	0.55	1.17	1.21	1.02
HE111	Catering	1.02	1.36	0.86	0.86	0.97	1.06	1.04	0.55	1.17	1.21	1.02
HE1111	Restaurants and cafés	1.02	1.36	0.86	0.86	0.97	1.06	1.04	0.55	1.17	1.21	1.02
HE1112	Canteens	1.02	1.36	0.86	0.86	0.97	1.06	1.04	0.55	1.17	1.21	1.02
HE112	Accommodation services	1.02	1.36	0.86	0.86	0.97	1.06	1.04	0.55	1.17	1.21	1.02
HE1121	Accommodation services	1.02	1.36	0.86	0.86	0.97	1.06	1.04	0.55	1.17	1.21	1.02
HE12	MISCELLANEOUS GOODS AND SERVICES	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1.02
HE121	Personal care	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1
HE1211	Hairdressing salons and personal grooming establishments	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1
HE1212	Appliances, articles and products for personal care	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1
HE1213	Personal care services n.e.c.	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1
HE122	Personal effects n.e.c.	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1
HE1221	Jewellery, clocks and watches	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1
HE1222	Other personal effects	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1
HE123	Social protection	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1
HE1231	Social protection services	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1
HE124	Insurance	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1
HE1242	Insurance connected with the dwelling	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1
HE1243	Insurance connected with health	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1
HE1244	Insurance connected with transport	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1
HE1245	Other insurance	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1
HE125	Financial services n.e.c.	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1
HE1251	Financial services n.e.c.	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1
HE126	Other services n.e.c.	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1
HE1261	Other services n.e.c.	0.98	1.4	0.74	0.77	0.77	0.91	1.13	0.73	1.21	1.16	1

