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Household Budget Survey

2010 Wave

EU Quality report

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TABLE OF CONTENTS

1. INTRODUCTION

Household Budget Surveys (HBS) are among the most comprehensive household surveys, conducted in EU Member States (MS). Normally an HBS is a sample survey of thousands of households that are asked to keep records of their expenditures on different kinds of consumer goods and services over a specified period of time. The size of the sample obviously depends on the resources available, but also on the extent to which it is desired to break down the survey results by region or type of household. An HBS may be taken at specified intervals of time, such as every five years, or it may be taken each year on a continuing basis.

The main focus in this survey is Consumption Expenditure, which is the activity in which persons, acting either individually or collectively, use goods or services to satisfy their needs and wants. A household's economic well-being can be expressed in terms of its access to goods and services. The more that can be consumed, the higher the level of economic wellbeing, though the relationship between the two is not a linear one. Measuring consumption expenditure might therefore be a way of measuring economic well-being. Studies of consumption investigate how and why society and individuals consume goods and services, and how this affects society and human relationships.

Countries mainly carry out an HBS to provide the weights for the Consumer Price Indexes (CPI). The HBS falls under the responsibility of the National Statistical Institutes (NSI) in each MS and unlike some other European statistical domains, the HBS is voluntary and no EU regulation exists. There is thus considerable freedom for each MS to decide on the objectives, methodology, programming and resource assignment for their respective HBS. Even so, since 1989 MS have come together and tried to find a common framework by which this wealth of information can be combined for a more meaningful comparison between them. EUROSTAT has since then committed itself in assisting MS in fulfilling this objective. Obviously, this cannot be done without the contributions, patience and much hard work, which the national counterparts provide.

In co-operation with the National Statistical Offices of the Member States, Eurostat has for many years worked on the quality - mainly the comparability - of HBS statistics within the EU. In spite of the important progress already done, there is still great room for improvement as regards quality and harmonisation of HBS data.

This report deals with the quality attained in the collection and collation of household expenditure data for the 2010 wave. Users should be aware that while these statistics contain a wealth of information, caution must be exercised in their use for the reasons specified above.

Quality is taken as relative to user needs and is viewed as a multi-faceted concept, so Eurostat has for a number of years considered quality from six different dimensions, namely

Relevance

Accuracy

Timeliness and Punctuality

Accessibility and Clarity

Comparability

Coherence

2. RELEVANCE

Relevance is the degree to which statistics meet current and potential users' needs. It refers to whether all statistics that are needed are produced and the extent to which concepts used (definitions, classifications etc.) reflect user needs.

This section aims to describe the extent to which the HBS is useful to, and used by, users.

2.1. Relevance at National and EU level

As mentioned previously, the main goal of the HBS is to provide countries with the weights for their CPI. Besides this HBS is also used by other users, for example, ministries and public administrations use the data for economic and social policy planning purposes. Universities and research organisations use the data for research on living conditions of private households. Private firms and consultants use is often directed towards analyses of consumption patterns of households in relation to the marketing of private consumer products. The general public often gets the information via mass media in general or publications published by the statistical offices.

As regards the tables and information disseminated at EU level, the main users are: other Directorates General (DGs), Members of the European Parliament, the ECB, and international organisations such as the OECD.

2.2. Relevance by user

2.2.1. Consumer Price Index

The CPI measures the rate of price inflation as experienced and perceived by households in their role as consumers. (See: ILO CPI Manuals: Theory and Practice)*

The calculation of a CPI usually proceeds in two stages. First, elementary indices are estimated for each of the basic aggregates. Second, a weighted average is taken of the elementary indices using the expenditure shares of the elementary aggregates from the HBS as weights. The reliability of the CPI weights calculations will depend to a large extent on the reliability of the household expenditure data.

Being a sample survey, the HBS estimates are bound to be subject to sampling errors, which may be relatively large for small or infrequent expenditures. The quality of the estimates will also suffer from non-response and from the under-reporting of some types of consumption. For these reasons, to the extent possible, results from the HBS should be compared with statistics from other sources when constructing CPI weights, especially when the HBS sample is small.

Information from the HBS is normally supplemented with data from other sources like retail sales and National Accounts i.e. NA (see **Table 1**). Although this is logical, the CPI manual cautions that national accounts should not be viewed as if they were an alternative, independent data source to the HBS. **One has to remember that there may be differences in the scope and definition of consumption, and also a difference in the reference population** of households between the National Accounts and HBS.

*** http://www.ilo.org/public/english/bureau/stat/guides/cpi/**

Table 1: Main sources of HICP weights data

Country	Sources for weights
Austria	NA, HBS
Belgium	NA, HBS
Cyprus	HBS
Czech Republic	NA, HBS
Croatia	NA, HBS
Denmark	NA, HBS
Estonia	NA, HBS, Balance of Payments
Finland	NA, HBS and retail trade data
France	NA
Germany	HBS
Greece	NA, HBS
Hungary	NA, HBS
Ireland	HBS
Italy	NA, HSB
Latvia	HBS, NA
Lithuania	HBS
Luxembourg	NA
Malta	NA, HBS and Trade data
Nederland	NA
Poland	NA, HBS
Portugal	HBS
Slovenia	NA, HBS
Slovak Republic	NA, HBS
Spain	HBS, NA
Sweden	NA, HBS
United Kingdom	NA
Bulgaria	NA, HBS
Romania	HBS
Norway	NA
Turkey	HBS
Montenegro	NA, HBS
Former Yugoslav Republic of Macedonia	NA, HBS

Source: Harmonised indices of consumer prices (HICP) (prc_hicp) Eurostat Metadata

Please note: the order of the Sources in the last column is important. The primary source is listed first.

2.2.2. Other Users

Policy makers and strategic planners understand that their decisions need to be assessed according to their results. Policy and management are increasingly more evidence-based and outcome-oriented. Economic performance is no longer seen as a simple product of the supply-side efficiency of economic operators. Managers, public servants and politicians are being forced to move from an "operations" to a more "marketing" oriented type of decision making. To do this, however, one needs the adequate tools. The information that is collected in an HBS can serve to satisfy this need. Besides information about consumption expenditure, information about the households and income of these households is also collected. Moreover, there are a number of countries that also collect information about quantities and also about location and outlets. Technology is, as usual, facilitating this, as scanning of receipts is becoming more and more common and not only providing better results, but also reducing the burden and costs both for the households and the NSIs.

In view of this, the HBS is seen as a potentially rich source of information.

Requests from this group of users can be more challenging. For example, in the case of Policy Directorates-General they would like to see whether the policy decisions that are taken have any effect on consumption structures or patterns. To do this, one needs additional information on household members, regions, and income.

3. ACCURACY

The aim of this section is to assess the quality of the HBS data in relation to the sampling process. As noted in Section 3.2.1, countries are fully responsible for the sampling design of HBS. Although HBS surveys in most countries are based on probability sampling by design, there also are some exceptions. **This lack of uniformity in sampling methods and methodology has made the analysis of accuracy impossible at European level.** This chapter collects all available information at county level in order to give a picture about the overall reliability of the data, reflecting the combined effect of sampling, non-response and response errors.

Like in any sample survey, the statistics generated from the HBS data may be liable to errors which are inherent in the survey method used. All the HBSs for the reference year 2010 are sample surveys of private households. Most of the participating countries drew a sample of households in a way that the probability of a household being selected is known (technically known as a probability design). In this way, the results can be reliably projected from the sample to the household reference population with known levels of precision, i.e. standard errors and confidence intervals for survey estimates can be constructed (see 3.1).

On the other hand, non-probability schemes (e.g. Quota selection) were implemented in the Czech Republic and Germany. Although this type of sampling is generally quicker and cheaper, there is no assurance that the selection of households is not biased and is representative of the whole population. This error can be reduced if an alternative household with the same characteristics as the one that is not available, is chosen instead. Unfortunately, not enough information is available to guarantee that this has actually happened and to what degree.

When choosing the sample one has to decide whether one chooses addresses or persons[1]. The former implies that all the private households[2] currently residing at a selected address are eligible for inclusion in the HBS. If one targets the person, one normally includes all members of the household the sampled person belongs to. Moreover, many of the samples were stratified by geographical dimensions. This improves the representativity of the samples by ensuring a minimum adequate size by region. More technical details on the HBS sample designs that were implemented can be found in **Appendix 1**.

The HBS data are weighted. Sample weights are needed to correct for imperfections in the sample that might lead to bias and also to rectify other departures between the sample and the reference population. The design weights are calculated for each sampled household as the inverse of its probability of selection as part of the sample.

Another issue which one has to contend with in such surveys is total non-response because some households, which are initially chosen, do not take part in the survey. Non-response generally increases

[1] A sample of persons was selected in Norway, Sweden, Finland, Lithuania and Estonia

[2] It may happen in certain countries that at least 2 households are living at the same address

bias in sample estimates, particularly if the non-respondents have specific characteristics. In order to reduce this, the household design weights are inflated by applying correction factors which represent the inverse of the household response probabilities. Response probabilities are estimated by fitting a response model to the data.

Finally, most of the HBS countries also “calibrated” the design weights, corrected for non-response, to external data sources: this weight adjustment brought the sample estimates into agreement with known population characteristics (e.g. population totals by age group, gender, NUTS2 region…) and as a result helps to increase the accuracy of the overall results.

A classical typology of survey errors makes the distinction between sampling and non-sampling errors. Sampling errors arise from estimating a population characteristic by looking at only one portion of the population rather than the entire population, while non-sampling errors encompass all the other types of errors (e.g. coverage errors, measurement errors…). Unlike non-sampling errors, sampling errors for a sample estimate can be quantified by calculating the standard error and the confidence interval in which the sample estimate falls.

3.1. Sampling errors

The size of the sampling errors depends on the sample size: the higher the sample size, the higher the accuracy. As mentioned above, all the HBSs are sample surveys of private households and in comparison with other EU household surveys, e.g. Labour Force Survey (LFS) or Statistics on Income and Living Conditions (EU-SILC), the HBS sample sizes attained by some countries are rather low. Furthermore, the effective sample size can be even smaller as a result of the way the sample has been designed. The Design Effect (Deff) provides an indication of how much the actual sample size has effectively been increased or reduced as a result of implementing a sample design which is different from the basic simple random sample design. A value above 1.0 indicates a smaller effective sample size (for more details on the underlying methodology see **Appendix 1**).

Please note, that the detailed quality statistics reproduced in Tables 2, 3, 4, 5, 6, 7, 15 and 16 are not transmitted by the Countries, and are to be considered as Eurostat estimates.

Except for two EU countries (DE and PL) which have relatively large samples (higher than 30,000 households), the effective sample size falls below 4,000 in most of the remaining EU countries (except for IT, ES, RO, FR and HU) (see **Table 2**). Note also that for two countries, DK and TR, the sample covers a period of three years.

Table 2: Achieved sample sizes for the 2010 wave

	Country	Achieved Sample Size	Deff	Effective Sample Size
1	AT	6534	2.2	2962
2	BE	7177	2.1	3459
3	BG	2982	2.2	1343
4	CY	2707	1.4	1910
5	CZ	2932	0.9	3182
6	DE	53996	1.4	37606
7	DK	2484	1.5	1697
8	EE	3632	2.2	1619
9	EL	3512	2.3	1512
10	ES	22203	2.5	*8743*
11	FI	3551	1.4	2532
12	FR	15797	3.1	*5114*
13	HR	3461	1.4	2464
14	HU	9937	2.4	*4175*
15	IE	5891	2.3	2562
16	IT	22246	2.5	*8884*
17	LT	6103	4.9	1242
18	LU	3492	1.1	3068
19	LV	3798	2.3	1653
20	ME	1250	1.5	851
21	PL	37412	1.2	30228
22	PT*	9489	2.4	4022
23	RO	31336	5.0	*6328*
24	SE	2047	0.9	2157
25	SI	3924	1.5	2658
26	SK	6143	3.0	2076
27	UK	5263	1.4	3856
i	MK	3372	3.3	1021
ii	MT	3732	1.2	3157
iii	TR	28677	2.0	14189

***** Values are provided by the country

Table 3: Mean Expenditure and the Confidence Interval (+/-)

		CP00	CP01	CP02	CP03	CP04	CP05	CP06	CP07	CP08	CP09	CP10	CP11	CP12
AT	Mean.Exp.	34863	4222	853	1993	8287	2419	1221	5227	591	4457	334	2001	3258
	+/-	772	98	37	99	175	129	67	238	28	164	38	85	105
BE	Mean.Exp.	34406	4537	706	1546	9188	2156	1624	4481	891	3127	162	2212	3774
	+/-	721	93	27	66	155	130	74	295	24	126	28	113	124
BG	Mean.Exp.	4659	1366	186	116	1732	129	223	245	192	121	16	190	144
	+/-	140	34	13	9	63	9	12	17	8	9	4	16	9
CY	Mean.Exp.	39534	4856	520	2706	10498	2263	2113	5488	1399	2135	1348	3374	2833
	+/-	1153	127	32	134	313	134	153	380	49	110	112	177	109
CZ	Mean.Exp.	9805	1986	285	513	2223	642	280	1097	469	1046	70	515	677
	+/-	176	37	13	16	46	31	13	66	11	33	15	19	17
DE	Mean.Exp.	29330	3410	482	1281	8880	1373	1138	4116	791	3094	244	1364	3155
	+/-	204	22	7	14	57	37	27	90	6	37	9	18	35
DK	Mean.Exp.	39989	4701	1122	2063	12473	2238	1062	4937	941	4594	237	2006	3616
	+/-	1084	142	66	147	381	155	94	288	33	193	38	121	148
EE	Mean.Exp.	7784	1812	243	309	2287	424	252	755	401	650	87	201	362
	+/-	300	55	17	30	81	45	21	83	20	47	19	25	25
EL	Mean.Exp.	28283	4521	837	1693	7780	1588	1498	2978	952	1102	800	2723	1811
	+/-	985	128	48	100	247	102	108	218	37	87	85	127	108
ES	Mean.Exp.	29782	4279	627	1676	8935	1452	943	3680	926	1976	309	2716	2263
	+/-	381	54	16	42	115	45	46	96	15	48	18	61	53
FI	Mean.Exp.	32818	4259	745	1104	8756	1579	1060	5733	847	3411	55	1376	3892
	+/-	856	102	48	81	248	82	67	309	24	216	8	80	141
FR	Mean.Exp.	30379	4788	787	1215	8129	1497	468	4284	879	2345	157	1676	4155
	+/-	526	102	32	37	137	60	20	149	17	73	19	60	100
HR	Mean.Exp.	12965	3315	393	657	4189	507	335	1235	542	576	88	249	879
	+/-	279	74	20	32	86	25	24	67	16	25	13	17	40
HU	Mean.Exp.	8815	1648	232	286	3434	278	350	797	428	564	62	276	459
	+/-	143	28	8	9	49	9	10	31	9	18	6	14	15
IE	Mean.Exp.	39226	4766	1252	2129	10862	1433	1130	5026	1355	3499	779	3118	3879
	+/-	868	123	56	99	209	62	82	199	40	116	64	123	129
IT	Mean.Exp.	28702	5350	499	1826	9274	1459	1092	3329	578	1615	220	1412	2048
	+/-	407	69	13	48	130	58	42	140	10	60	22	57	41
LT	Mean.Exp.	9352	2661	300	650	2667	384	376	750	354	364	43	421	380
	+/-	326	74	16	52	104	34	26	74	15	38	11	34	30
LU	Mean.Exp.	55185	4837	783	3401	18637	3457	1363	7996	1186	4028	193	4182	5121
	+/-	1132	112	52	128	421	200	91	385	31	140	28	174	175
LV	Mean.Exp.	8021	2091	252	432	1885	308	433	879	367	523	134	296	422
	+/-	302	63	18	47	65	28	31	64	14	37	20	44	40
MT	Mean.Exp.	20562	4570	498	1450	1660	1804	1298	2846	818	1721	356	1434	2108
	+/-	536	86	32	81	124	166	113	155	23	117	39	72	103
PL	Mean.Exp.	9205	2089	229	445	3007	435	403	806	369	679	108	195	439
	+/-	69	12	4	8	22	11	7	27	3	13	6	8	8
PT*	Mean.Exp.	20391	2703	384	757	5958	864	1186	2957	680	1073	441	2111	1277
	+/-	462	66	22	37	142	47	56	152	14	52	43	104	64
RO	Mean.Exp.	5514	1736	324	229	1984	169	192	254	210	170	31	54	160
	+/-	79	23	8	7	30	7	8	14	4	8	4	4	5
SE	Mean.Exp.	28299	3595	578	1316	9366	1720	614	3472	822	4004	6	1076	1731
	+/-	707	93	44	108	248	168	85	221	31	208	4	83	67
SI	Mean.Exp.	21934	3187	426	1301	6540	1274	449	2901	906	1964	176	783	2027
	+/-	483	72	23	55	135	82	25	177	23	90	19	49	49
SK	Mean.Exp.	10555	2324	320	559	3568	424	320	757	552	756	39	510	427
	+/-	274	53	14	26	85	38	18	93	16	61	6	25	29
UK	Mean.Exp.	25507	3224	716	1417	4598	1905	305	3932	789	3457	608	2379	2176
	+/-	628	70	33	78	146	159	35	184	25	169	165	99	98
ME	Mean.Exp.	6760	2698	238	501	1037	267	226	592	347	248	121	158	328
	+/-	289	106	18	44	62	23	33	49	18	29	33	22	30
MK	Mean.Exp.	5302	2294	217	347	681	288	199	348	216	141	54	257	260
	+/-	304	100	14	35	81	64	39	42	20	33	41	28	38
TR	Mean.Exp.	10939	2463	452	571	3061	666	219	1560	463	287	214	546	438
	+/-	135	27	9	17	37	16	13	47	8	11	14	12	22

* Values are provided by the country

The mean expenditures for the different items and their Confidence Intervals (+/-), shown in **Table 3** can be considered as a good basis for policy decision-making.

Note: The CP00-CP12 columns in the table represent the following 2-digit COICOP Divisions:

COICOP groups
CP00: Total
CP01: Food and non-alcoholic beverages
CP02: Alcoholic beverages, tobacco and narcotics
CP03: Clothing and footwear
CP04: Housing, water, electricity, gas and other fuels
CP05: Furnishings, household equipment and routine maintenance of the house
CP06: Health
CP07: Transport
CP08: Communication
CP09: Recreation and culture
CP10: Education
CP11: Restaurants and hotels
CP12: Miscellaneous goods and services

The next table (**Table 4**) shows the estimated relative confidence intervals at 95% for the total mean household consumption expenditure, broken down by two-digit COICOP[3] Divisions.

For a technical and more detailed explanation of the methods used please see **Appendix 1**:

[3] The COICOP-HBS (Classification Of Individual Consumption by Purpose) is directly derived from the COICOP classification, developed in the framework of the United Nations' System of National Accounts, specifically adapted to the needs of the HBS

Table 4:

Mean Consumption Expenditure Relative Confidence Interval +/- % (Total & 2-digit COICOP)

Country	CP00	CP01	CP02	CP03	CP04	CP05	CP06	CP07	CP08	CP09	CP10	CP11	CP12
AT	2.2	2.3	4.4	5.0	2.1	5.3	5.5	4.5	4.7	3.7	11.3	4.2	3.2
BE	2.1	2.0	3.9	4.3	1.7	6.0	4.5	6.6	2.7	4.0	17.4	5.1	3.3
BG	3.0	2.5	6.8	7.9	3.6	6.9	5.2	6.7	4.3	7.7	27.5	8.2	6.4
CY	2.9	2.6	6.1	5.0	3.0	5.9	7.2	6.9	3.5	5.2	8.3	5.2	3.8
CZ	1.8	1.8	4.6	3.2	2.0	4.9	4.6	6.0	2.4	3.1	21.7	3.8	2.5
DE	0.7	0.6	1.4	1.1	0.6	2.7	2.4	2.2	0.8	1.2	3.8	1.3	1.1
DK	2.7	3.0	5.9	7.1	3.1	6.9	8.9	5.8	3.5	4.2	15.9	6.0	4.1
EE	3.8	3.0	7.2	9.6	3.5	10.7	8.5	11.0	4.9	7.2	22.0	12.6	7.0
EL	3.5	2.8	5.7	5.9	3.2	6.4	7.2	7.3	3.8	7.9	10.6	4.7	6.0
ES	1.3	1.3	2.5	2.5	1.3	3.1	4.9	2.6	1.6	2.4	5.7	2.3	2.3
FI	2.6	2.4	6.5	7.4	2.8	5.2	6.3	5.4	2.8	6.3	14.6	5.8	3.6
FR	1.7	2.1	4.0	3.0	1.7	4.0	4.2	3.5	1.9	3.1	12.0	3.6	2.4
HR	2.2	2.2	5.2	4.9	2.1	4.9	7.0	5.4	2.9	4.3	14.4	6.8	4.5
HU	1.6	1.7	3.3	3.3	1.4	3.3	3.0	3.8	2.1	3.3	9.2	5.2	3.3
IE	2.2	2.6	4.5	4.6	1.9	4.4	7.3	4.0	3.0	3.3	8.2	3.9	3.3
IT	1.4	1.3	2.7	2.6	1.4	4.0	3.8	4.2	1.7	3.7	9.8	4.0	2.0
LT	3.5	2.8	5.3	8.0	3.9	8.8	6.8	9.9	4.3	10.5	24.7	8.2	7.9
LU	2.1	2.3	6.6	3.8	2.3	5.8	6.7	4.8	2.6	3.5	14.4	4.2	3.4
LV	3.8	3.0	7.0	10.8	3.4	8.9	7.1	7.3	3.8	7.0	14.6	14.8	9.5
MT	2.6	1.9	6.3	5.6	7.4	9.2	8.7	5.5	2.8	6.8	10.9	5.0	4.9
PL	0.7	0.6	1.7	1.9	0.7	2.6	1.7	3.4	0.9	1.9	5.2	3.9	1.9
PT*	2.3	2.4	5.8	4.9	2.4	5.4	4.7	5.1	2.1	4.8	9.8	4.9	5.0
RO	1.4	1.3	2.4	3.0	1.5	3.9	4.4	5.6	1.9	4.6	12.5	7.8	3.4
SE	2.5	2.6	7.6	8.2	2.6	9.8	13.8	6.4	3.7	5.2	62.5	7.7	3.8
SI	2.2	2.3	5.3	4.2	2.1	6.4	5.6	6.1	2.6	4.6	10.6	6.2	2.4
SK	2.6	2.3	4.3	4.7	2.4	9.0	5.8	12.3	2.9	8.1	14.9	4.9	6.9
UK	2.5	2.2	4.7	5.5	3.2	8.3	11.6	4.7	3.1	4.9	27.2	4.1	4.5
ME	4.3	3.9	7.5	8.9	6.0	8.5	14.6	8.3	5.1	11.8	27.5	13.9	9.3
MK	5.7	4.4	6.3	10.2	11.9	22.1	19.6	12.2	9.4	23.6	76.2	11.0	14.6
TR	1.2	1.1	2.0	3.0	1.2	2.3	6.0	3.0	1.7	3.8	6.5	2.3	5.1

* Values are provided by the country

The relative confidence interval for total mean expenditure (CP00) appears to be acceptable in most of the countries, it lies below 4%.

However, it seems that the level of accuracy is going down when considering 2-digit COICOP-levels, especially those for which the expenditure distribution is strongly skewed, e.g. Health (CP06), Transport (CP07) or Education (CP10). In fact, the lowest level of accuracy was for Education.

Another key HBS indicator is the structure of household consumption expenditure: this is the distribution of the total mean expenditure between the different 2-digit COICOP groups. This indicator is essential to examine how households split their expenditures among the COICOP categories, and to monitor how the structure can be affected over time by price changes. See **Table 5** below.

Table 5: Structure (%) and confidence interval (+/- percentage points) for mean consumption expenditure

Country		CP01	CP02	CP03	CP04	CP05	CP06	CP07	CP08	CP09	CP10	CP11	CP12
AT	Exp.Share.	12.1	2.4	5.7	23.8	6.9	3.5	15	1.7	12.8	1.0	5.7	9.3
	+/-	0.02	0.04	0.05	0.02	0.05	0.05	0.05	0.05	0.04	0.11	0.04	0.03
BE	Exp.Share.	13.2	2.1	4.5	26.7	6.3	4.7	13	2.6	9.1	0.5	6.4	11
	+/-	0.02	0.04	0.04	0.02	0.06	0.05	0.07	0.03	0.04	0.17	0.05	0.03
BG	Exp.Share.	29.3	4	2.5	37.2	2.8	4.8	5.3	4.1	2.6	0.3	4.1	3.1
	+/-	0.02	0.07	0.08	0.04	0.07	0.05	0.07	0.04	0.08	0.28	0.08	0.06
CY	Exp.Share.	12.3	1.3	6.8	26.6	5.7	5.3	13.9	3.5	5.4	3.4	8.5	7.2
	+/-	0.03	0.06	0.05	0.03	0.06	0.07	0.07	0.04	0.05	0.08	0.05	0.04
CZ	Exp.Share.	20.3	2.9	5.2	22.7	6.6	2.9	11.2	4.8	10.7	0.7	5.3	6.9
	+/-	0.02	0.05	0.03	0.02	0.05	0.05	0.06	0.02	0.03	0.22	0.04	0.02
DE	Exp.Share.	11.6	1.6	4.4	30.3	4.7	3.9	14	2.7	10.5	0.8	4.7	10.8
	+/-	0.01	0.01	0.01	0.01	0.03	0.02	0.02	0.01	0.01	0.04	0.01	0.01
DK	Exp.Share.	11.8	2.8	5.2	31.2	5.6	2.7	12.3	2.4	11.5	0.6	5	9
	+/-	0.03	0.06	0.07	0.03	0.07	0.09	0.06	0.04	0.04	0.16	0.06	0.04
EE	Exp.Share.	23.3	3.1	4	29.4	5.5	3.2	9.7	5.2	8.4	1.1	2.6	4.6
	+/-	0.03	0.07	0.1	0.04	0.11	0.08	0.11	0.05	0.07	0.22	0.13	0.07
EL	Exp.Share.	16	3	6	27.5	5.6	5.3	10.5	3.4	3.9	2.8	9.6	6.4
	+/-	0.03	0.06	0.06	0.03	0.06	0.07	0.07	0.04	0.08	0.11	0.05	0.06
ES	Exp.Share.	14.4	2.1	5.6	30	4.9	3.2	12.4	3.1	6.6	1	9.1	7.6
	+/-	0.01	0.03	0.02	0.01	0.03	0.05	0.03	0.02	0.02	0.06	0.02	0.02
FI	Exp.Share.	13	2.3	3.4	26.7	4.8	3.2	17.5	2.6	10.4	0.2	4.2	11.9
	+/-	0.02	0.06	0.07	0.03	0.05	0.06	0.05	0.03	0.06	0.15	0.06	0.04
FR	Exp.Share.	15.8	2.6	4	26.8	4.9	1.5	14.1	2.9	7.7	0.5	5.5	13.7
	+/-	0.02	0.04	0.03	0.02	0.04	0.04	0.03	0.02	0.03	0.12	0.04	0.02
HR	Exp.Share.	25.6	3	5.1	32.3	3.9	2.6	9.5	4.2	4.4	0.7	1.9	6.8
	+/-	0.02	0.05	0.05	0.02	0.05	0.07	0.05	0.03	0.04	0.14	0.07	0.04
HU	Exp.Share.	18.7	2.6	3.2	39.0	3.2	4.0	9.0	4.9	6.4	0.7	3.1	5.2
	+/-	0.02	0.03	0.03	0.01	0.03	0.03	0.04	0.02	0.03	0.09	0.05	0.03
IE	Exp.Share.	12.2	3.2	5.4	27.7	3.7	2.9	12.8	3.5	8.9	2	7.9	9.9
	+/-	0.03	0.04	0.05	0.02	0.04	0.07	0.04	0.03	0.03	0.08	0.04	0.03
IT	Exp.Share.	18.6	1.7	6.4	32.3	5.1	3.8	11.6	2	5.6	0.8	4.9	7.1
	+/-	0.01	0.03	0.03	0.01	0.04	0.04	0.04	0.02	0.04	0.1	0.04	0.02
LT	Exp.Share.	28.5	3.2	7	28.5	4.1	4	8	3.8	3.9	0.5	4.5	4.1
	+/-	0.03	0.05	0.08	0.04	0.09	0.07	0.1	0.04	0.1	0.25	0.08	0.08
LU	Exp.Share.	8.8	1.4	6.2	33.8	6.3	2.5	14.5	2.1	7.3	0.4	7.6	9.3
	+/-	0.02	0.07	0.04	0.02	0.06	0.07	0.05	0.03	0.03	0.14	0.04	0.03
LV	Exp.Share.	26.1	3.1	5.4	23.5	3.8	5.4	11	4.6	6.5	1.7	3.7	5.3
	+/-	0.03	0.07	0.11	0.03	0.09	0.07	0.07	0.04	0.07	0.15	0.15	0.1
MT	Exp.Share.	22.2	2.4	7.1	8.1	8.8	6.3	13.8	4	8.4	1.7	7	10.3
	+/-	0.02	0.06	0.06	0.07	0.09	0.09	0.05	0.03	0.07	0.11	0.05	0.05
PL	Exp.Share.	22.7	2.5	4.8	32.7	4.7	4.4	8.8	4	7.4	1.2	2.1	4.8
	+/-	0.01	0.02	0.02	0.01	0.03	0.02	0.03	0.01	0.02	0.05	0.04	0.02
PT*	Exp.Share.	13.3	1.9	3.7	29.2	4.2	5.8	14.5	3.3	5.3	2.2	10.4	6.3
	+/-	0.3	0.1	0.2	0.7	0.2	0.3	0.7	0.1	0.3	0.2	0.5	0.3
RO	Exp.Share.	31.5	5.9	4.2	36	3.1	3.5	4.6	3.8	3.1	0.6	1	2.9
	+/-	0.01	0.02	0.03	0.02	0.04	0.04	0.06	0.02	0.05	0.13	0.08	0.03
SE	Exp.Share.	12.7	2	4.7	33.1	6.1	2.2	12.3	2.9	14.1	0	3.8	6.1
	+/-	0.03	0.08	0.08	0.03	0.1	0.14	0.06	0.04	0.05	0.63	0.08	0.04
SI	Exp.Share.	14.5	1.9	5.9	29.8	5.8	2	13.2	4.1	9	0.8	3.6	9.2
	+/-	0.02	0.05	0.04	0.02	0.06	0.06	0.06	0.03	0.05	0.11	0.06	0.02
SK	Exp.Share.	22	3	5.3	33.8	4	3	7.2	5.2	7.2	0.4	4.8	4
	+/-	0.02	0.04	0.05	0.02	0.09	0.06	0.12	0.03	0.08	0.15	0.05	0.07
UK	Exp.Share.	12.6	2.8	5.6	18	7.5	1.2	15.4	3.1	13.6	2.4	9.3	8.5
	+/-	0.02	0.05	0.06	0.03	0.08	0.12	0.05	0.03	0.05	0.27	0.04	0.05
ME	Exp.Share.	39.9	3.5	7.4	15.3	3.9	3.3	8.8	5.1	3.7	1.8	2.3	4.9
	+/-	0.04	0.08	0.09	0.06	0.08	0.15	0.08	0.05	0.12	0.27	0.14	0.09
MK	Exp.Share.	43.3	4.1	6.6	12.9	5.4	3.7	6.6	4.1	2.7	1	4.8	4.9
	+/-	0.04	0.06	0.1	0.12	0.22	0.2	0.12	0.09	0.24	0.76	0.11	0.15
TR	Exp.Share.	22.5	4.1	5.2	28	6.1	2	14.3	4.2	2.6	2	5	4
	+/-	0.01	0.02	0.03	0.01	0.02	0.06	0.03	0.02	0.04	0.06	0.02	0.05

***** Values are provided by the country

3.2. Non-sampling errors

3.2.1. Sampling frame and coverage errors

All the HBSs aim to measure private household expenditure. In this respect, collective households (elderly homes, military barracks, boarding schools, jails…) are excluded from the survey, since a distinction cannot be made between an individual's expenditure and the collective household expenditure. In addition, some countries did exclude certain households or households in remote geographical areas which are difficult to access:

- Belgium: German-speaking Community, i.e. 6 municipalities in BE3
- Denmark: small islands;
- United Kingdom: Scottish off-shore Islands and the Isles of Scilly;
- Germany: households with a monthly net income higher than 18,000€;
- Sweden: households in which all the members are 79 and over;

Excluding households with an income higher than 18,000€ will under-estimate the mean expenditure based on the assumption that the higher one earns, the more there is a tendency to consume, although this is not necessarily linear.

Similarly, the mean consumption expenditure of households in which all the members are 79 and over is likely to be lower than for younger households. Consequently, excluding those households from the HBS will tend to over-estimate the mean expenditure. Having said all this, the impact of such exclusions should be quite limited, given that they account for a very small proportion of the HBS target population.

Coverage errors also come up at the sample selection stage; except for the Czech Republic and Germany (which resort to quota sampling) all the HBS samples were selected according to a probability sampling scheme. Probability designs involve using sampling frames in order to draw the sample. There should be a one-to-one relation between the units which are recorded in a sampling frame and the units of the target population. However, such an ideal situation rarely happens: there are usually units in the sampling frame which do not belong to the target population (*over-coverage*) and units in the target population which are not listed in the frame (*under-coverage*). Under-coverage can cause bias in the estimates, especially if the units which are not covered have specific survey characteristics (e.g. specific consumption patterns). If non-eligible units are treated as non-respondents[4], over-coverage might create bias as well. It also entails a loss of accuracy because a part of the sample will be dropped. Contrary to under-coverage, the amount of over-coverage can be estimated by dividing the total number of non-eligible units by the gross sample size.

Two main kinds of sampling frames were used for sample selection:

- Austria, Belgium, Denmark, Estonia, Finland, Italy, Lithuania, Luxembourg, Malta, Poland, Spain, Sweden, Slovenia and Turkey have population registers which can provide up-to-date lists of households or individuals, with many relevant characteristics useful for stratification and efficient selection of the sample. Coverage errors in registers are generally kept to a minimum if well maintained.
- Other countries (Bulgaria, Croatia, Cyprus, France, Greece, Hungary, Norway, Portugal, Romania, Slovakia, Montenegro and the Former Yugoslav Republic of Macedonia) obtained a sample of area units from a suitable source such as a Census or a master sample of areas. In the areas selected, lists of addresses, households or persons were then prepared or updated from other sources in order to complete the process of sample selection.
- United Kingdom used a list of addresses (delivery points) provided by the Post Office and the Land and Property services agency list.

[4] e.g. if households are contacted by mail, one doesn't always know whether the households which do not send the contact letter back are eligible households who refuse to participate in or non-eligible ones

3.2.2. Non-response and substitutions

The common feature of all the HBSs is that households are asked to maintain detailed diaries of expenditure over a fixed time period (two weeks in most countries). This puts a heavy burden on the sampled households and as a result, higher non-response rates are generally reported for the HBS than for other surveys.

Overall, the reasons for a household not to participate are quite diverse: the household may happen to be temporarily absent or may refuse to provide such sensitive data; the interviewee may be unable to participate due to illness, language problems, etc. Non-response is a source of bias in sample estimates, particularly if the non-respondents have specific characteristics.

Besides, non-response makes the achieved sample size lower, thus making the data less accurate. The following **Table 6** presents the household response rates which were attained by the different countries:

Table 6: Household response rates

Country	**%**
Austria	38.1
Belgium	5.6
Bulgaria	52.6
Croatia	62.7
Cyprus	76.4
Czech Republic	Unknown (*)
Denmark	42.3
Estonia	49.0
Finland	43.1
France	68.7
Germany	Unknown (*)
Greece	**68.6**
Hungary	45.5
Ireland	39.7
Italy	80.9
Latvia	40.4
Lithuania	56.0
Luxembourg	57.9
Malta	57.1
The Netherlands	20.0 (**)
Poland	29.2
Portugal	66.8
Romania	87.6
Slovakia	49.8
Slovenia	64.7
Spain	71.0
Sweden	51.0
United Kingdom	51.0
Turkey	83.2
Norway	52.9
Montenegro	38.9
Former Yugoslav Republic of Macedonia	66.9

(*) In cases of quota sampling, the non-response rate is generally unknown
(**) Approximately, NL data are based on two separate samples

The mean response rate at EU level lies around 60%. There are however important variations between the countries: from 5.6% in Belgium to 87.6% in Romania. (The low figure for BE is explained by the fact that it is calculated taking in to account the total population of households initially contacted, to participate in the HBS.).

In order to reduce the burden on households when completing the detailed expenditure diaries, households have been increasingly encouraged to attach cash register receipts (scanner receipts) that contain the details of the purchases, to their diaries instead of directly recording such information. This should reduce errors in recording when completing the diaries. Moreover, Belgium, Czech Republic, Slovak Republic, Finland, Germany and Ireland reported they used monetary incentives to get people to co-operate.

In addition to the efforts which have been made to prevent non-response at the data collection stage, most of the countries actually adjusted their weights with the aim of reducing non-response bias: the lower the response rate of a household then the higher the re-weighting factor that was applied.

Bulgaria, Greece, Spain, Poland and Montenegro chose to allow substitution for non-responding households. This made their samples bigger and then the level of accuracy was expected to be better. Such substitution must be strictly controlled: non-responding households must be substituted with households having similar characteristics (size, geographical region, type of ownership, current activity status of the head of household…). All these countries described the preventive measures they applied in order to control their substitution procedures.

Table 7 shows the response rates which these countries achieved before and after substitution:

Table 7: Household response rates (%) – Before and after substitution

Country	% (Before substitution)	% (After substitution)
Bulgaria	52.6	97.5
Greece	68.6	98.5
Spain	71.0	97.1
Poland	29.2	61.9
Montenegro	38.9	50.1

3.2.3. Measurement and processing errors

Measurement errors arise while completing the expenditure diaries. Households have been encouraged to attach till receipts to their diaries. This way, recording errors should have been kept to a minimum. However there are still certain expenditures which many households tend to under-report. For example, many households either deliberately, or unconsciously, understate the amounts of their expenditures on certain “undesirable” products, such as gambling, alcoholic drinks, tobacco or drugs.

The HBS also includes household interviews which are generally conducted before and after the period of diary recording: they aim to collect basic information on the selected households and on their members. In addition, income information and certain regular expenditures (rents, energy bills…) are generally collected at this stage. Here some households may have experienced recall problems since the information actually refers to a longer time period (up to one year for income reference period)

The interviewer plays a key role in the HBS to motivate the households to complete their diaries. National Statistical Institutes organise training sessions prior to survey launch in order to have the interviewers familiar with the survey components. In this respect, the use of experienced interviewers by the countries is highly welcomed, given that the relative complexity of HBS demands experienced staff to carry it out.

Finally, computer-assisted interviewing (CAPI) is used by some countries in order to keep processing errors to a minimum. In this way:

- routing problems within the questionnaire are eliminated
- the interviewers do not miss questions or ask the wrong questions
- mathematical calculations are carried out within the program
- the computer checks for inadmissible or inconsistent responses

4. TIMELINESS AND PUNCTUALITY

4.1. Timeliness

A number of countries conduct continuous expenditure surveys and are able to revise and update their expenditure weights each year.

Table 8 shows the frequency and the year that the survey was carried out in the countries. Half of the countries carry out annual surveys, while the remainder have five-year or even longer intervals between surveys.

Table 8: Survey frequency and data collection years for the HBS 2010 wave

Country	Frequency	Reference year
Belgium	Annual (until 2010) and biennial (from 2012)	2010
Bulgaria	Annual	2010
Czech Republic	Annual	2010
Denmark	Annual	2008-2010
Germany	Every five years	2008
Estonia	Irregular	2010
Ireland	Every five years	2009-2010
Greece	Annual from 2008 onwards	2010
Spain	Annual	2010
France	Approximately every 5 years	2010-2011
Italy	Annual	2010
Cyprus	Every five years	2008-2009
Latvia	Annual	2010
Lithuania	Annual (until 2008) and approximately every 4 years (from 2009)	2008
Luxembourg	Annual	2010
Hungary	Annual	2010
Malta	Approximately every 5 years	2008
Netherlands	Annual, from 2015 onwards every 5 years	2010
Austria	Every five years	2010
Poland	Annual	2010
Portugal	Every five years	2010
Romania	Annual	2010
Slovenia	Annual (until 2011) and every 3 years (from 2012)	2009-2011
Slovakia	Annual	2010
Finland	Approximately every 5 years	2012
Sweden	Irregular	2009
United Kingdom	Every five years	2010
Croatia	Annual until 2011 and afterwards approximately every 2 years	2010
Norway	Annual until 2009 and periodical with not decided frequency after this	2010
Turkey	Annual	2008-2010
FYR Macedonia	Annual	2010
Montenegro	Annual	2010

For the countries which did not have the survey year matching the reference year of 2010, price coefficients were used to adjust the household expenditure in the reference year provided to the values for the year 2010.

Eurostat publishes individual countries', and European aggregates data every five years.

4.2. Punctuality

In the 2005 Quality Report, a suggestion was made to shorten the period from the survey reference year to the date of publication of the HBS data.

The case of HBS 2010, data was received by Eurostat between 23/12/2011 and 25/04/2014. In the case of a few countries, some datasets had to be re-transmitted because problems were discovered by Eurostat with certain variables.

Many countries did not follow the transmission format requirements issued by Eurostat and this led to considerable delays in processing and publishing the data.

The HBS 2010 data tables were disseminated on Eurostat's website during September 2014 and Eurostat observes that some improvement could clearly be made to shorten the period between the reference year and the publication date.

Eurostat has tried to collect all the information necessary to compile this Quality Report as early as possible and prior to issuing this Quality Report, requests for clarification of meta-data were sent to countries.

In future waves it is hoped that all the necessary information will be available so that the Quality Report can be published at the same time the data is disseminated.

5. ACCESSIBILITY AND CLARITY

5.1. Accessibility - Forms of dissemination

5.1.1. Reference database (the 'Production Data Base')

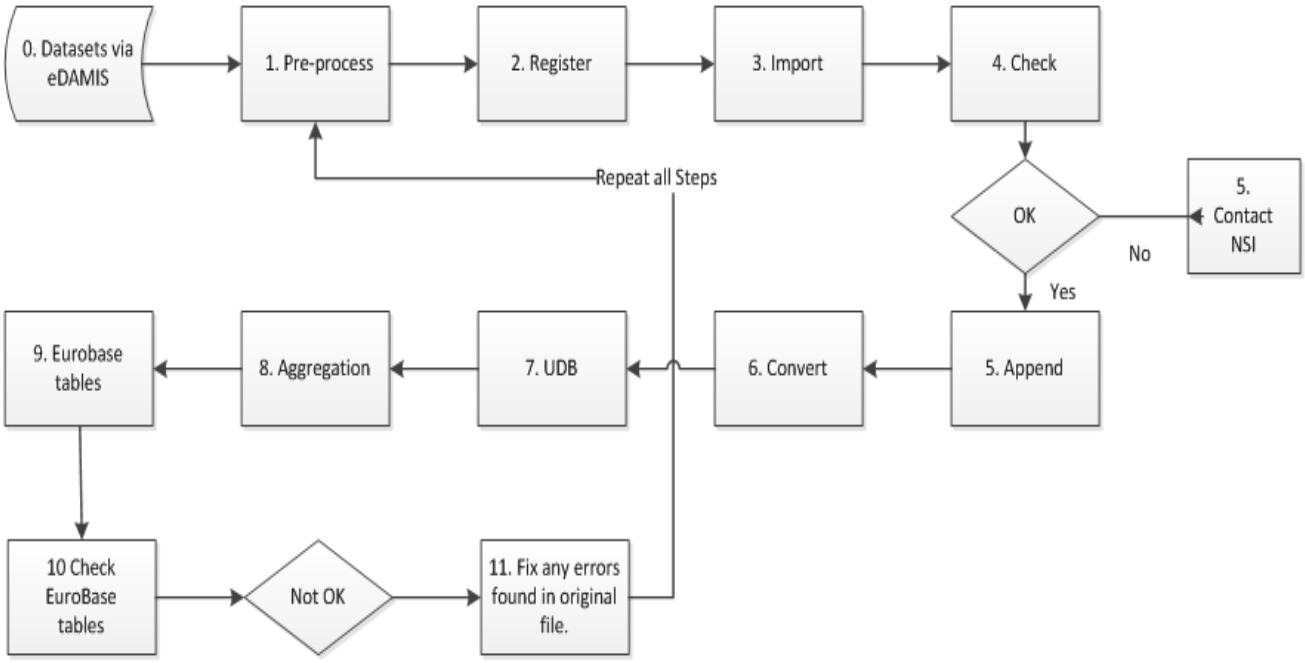
NSIs provided Eurostat with the results from their national HBSs, via eDamis, Eurostat's secure network for transmission of data. Validation tests were carried out and a validation report generated. Eurostat contacted individual countries, when serious problems were identified, either for an explanation or to ask for a re-transmission.

After being validated, the harmonised HBS 2010 micro-data is stored in a set of Oracle Tables within the GSAST-HBS IT Application and is the source used to build the Eurobase Tables, Anonymised Datasets for researchers and also for Ad-hoc requests.

For this wave, countries could choose to send in Aggregate Tables (*Tabular Data*). Two countries (NL and NO) have opted for this option and their tables have been directly stored with the GSAST-HBS harmonised tables without passing through the Validation Step applied to the micro-data.

5.1.2. HBS 2010 Workflow

GSAST-HBS IT system workflow



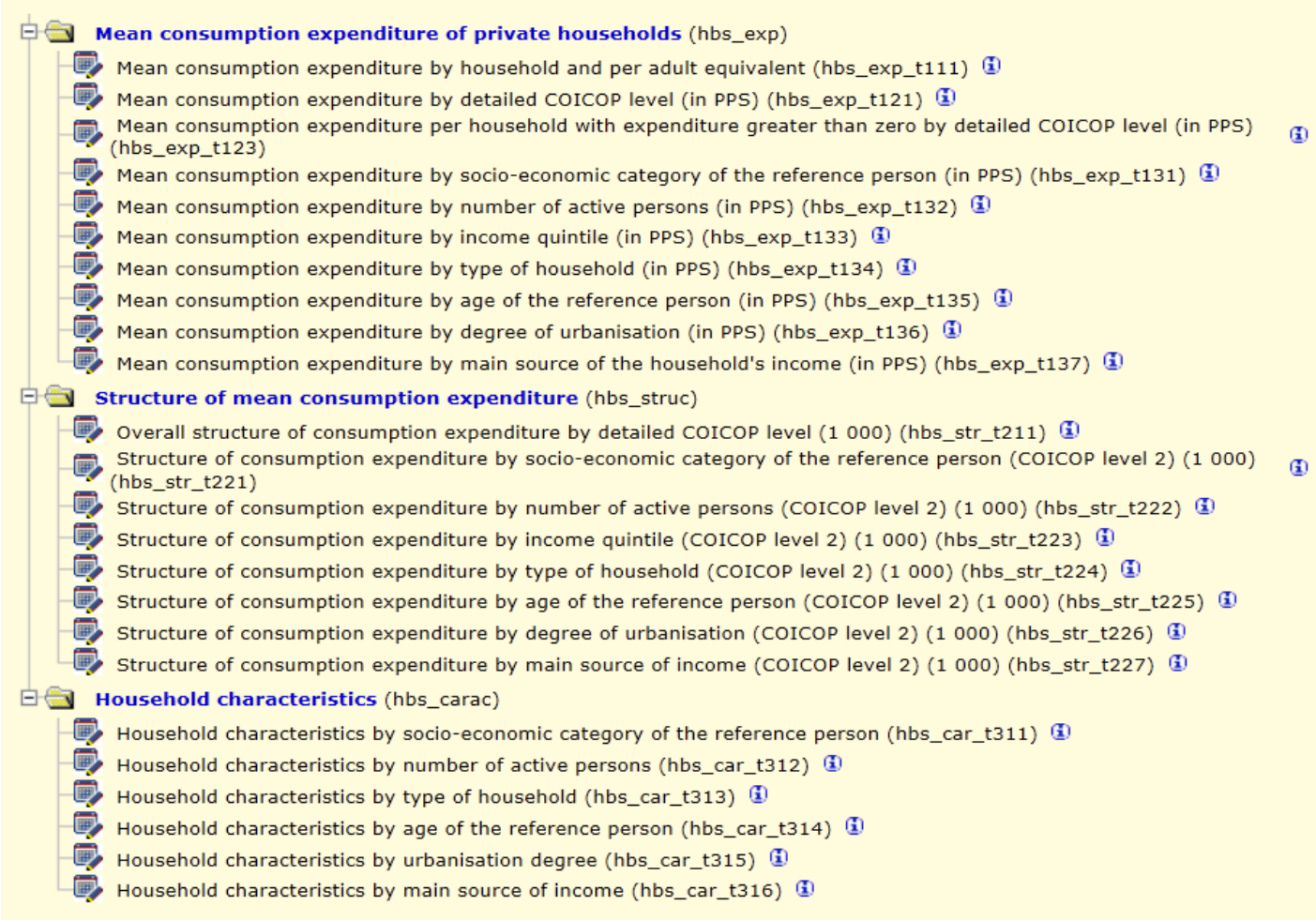
1. Pre-process Micro-data so that they respect the variable names/types in the HBS 2010 Transmission Document
2. Register 4 HH datasets in the eDAMIS input folder in GSAST-HBS
3. Import and validate micro-data
4. Check Validation Report
5. Append each Dataset type (HHbasic, HHderived, HHquantities, HHmember) together for all countries
6. Convert to Euro/PPS/Reference Year
7. Create User DataBase (UDB)
8. Generate EU/EA Aggregates
9. Generate EuroBase tables & Upload them to EuroBase
10. Download and check each Eurobase table for a specific Country
11. Write ad-hoc SAS program to 'fix' identified problem in delivered files and then Repeat from Step 1

The complete description of the workflow for the 2010 HBS wave, from the definition of the variables required to the data dissemination in Eurobase is as follows:

- The Income and Living Conditions working group approves the list of variables to be transmitted in the next HBS wave.
- The transmission document which indicates the Format & Type of the variables and the Code Lists, is sent out to each National Statistical institute (NSI).
- Each NSI transcodes the results of their national HBS, for the specified reference year, into the format described in the transmission document.
- **Micro-data** is transmitted via eDamis directly to the Server in the Secure Environment.
    - A GSAST-HBS Pre-processing Step is first run to try to make the variable Names, Type & Code Lists used, consistent with the Transmission Document.
    - An Initial Data Validation Report is produced and possible problems identified and an ad-hoc SAS program written to fix these problems in the initial transmitted datasets. Then the Pre-processing Step and Validation Step are repeated.
    - If there are serious problems identified, then an E-mail is prepared asking for an explanation, and is sent to the NSI. The NSI will provide feedback which enables problems to be resolved, or a new version of the data will be transmitted. These step(s) will be repeated until the data has no serious errors.
    - Micro-data is appended together for all the countries into a collection of Oracle Tables in GSAST-HBS. These are converted to EUR/PPS Units after being mapped to 2010 year prices.
- **Tabular data** delivered by an NSI is merged with the harmonised micro-data in the Aggregation Step. This step computes the required indicators for EuroBase HBS tables.
- Finally the Eurobase tables are exported to text files in a format required by the Eurobase load program, in the Dissemination Step. These files are uploaded to Eurobase.

5.2. Dissemination of HBS Data

5.2.1. The structure of the EuroBase HBS Domain



http://ec.europa.eu/eurostat/web/household-budget-surveys/database

5.2.2. Publications by Eurostat based on HBS 2010 data:

Some Ad-hoc requests based on HBS 2010 data, from other Eurostat units have already been processed and queries from other Commission DGs and external users are also received. The Eurostat Statistical book entitled "Living conditions in Europe" contains HBS data and was released at the end of 2014 and a Statistics in Focus based on HBS 2010 data is planned for publication in 2015.

Methodological documents:

Eurostat: “Household Budget Surveys in the EU: Methodology and Recommendations for Harmonisation”; Luxembourg, 2003. http://ec.europa.eu/eurostat/cache/metadata/Annexes/hbs_esms_an1.pdf

Eurostat: "Description of the data transmission for HBS (Reference Year) 2010"; Luxembourg, 2012.

http://ec.europa.eu/eurostat/documents/54431/1966394/Description-data-transmission-2010-EN-1.pdf/8719743c-8f5d-4d12-bd32-854fee378def

6. COMPARABILITY

By comparability we mean the extent to which differences between statistics can be attributed to differences between the true values of the statistical characteristics. This can only be carried out under a premise of common concepts, definitions and classifications.

Comparability between different data sets implies that the data measure the “same thing”. Comparability as a dimension of quality is distinct from data accuracy. An ‘adequate’ level of accuracy is essential for comparability.

Given that an HBS is voluntary and has no legal basis, the survey structure and implementation arrangements are different; this has implications for comparability. However, since the first HBS round (1988), all the participating countries and Eurostat have made great efforts to harmonize their HBS and to improve data comparability. **Even so, there is still some room for improvement**.

6.1. Definitions and basic concepts

6.1.1. Household, household membership & reference person

The basic unit of data collection and analysis in an HBS is the household. The definition used in an HBS is more complex than a group of people who are living together “under the same roof”: a household is a social unit which meets one or more conditions of “living together” in addition to sharing a common accommodation.

Increasingly restrictive definitions of what constitutes a household can be achieved by adding criteria from (1) to (4) below:

(1) Co-residence (living together in the same dwelling unit)
(2) Sharing of expenditures including joint provision of living essentials
(3) Pooling of income and resources
(4) The existence of family or emotional ties

See **Table 9** for an overview of the different definitions used by the Countries.

Table 9: Definition of household

Country	Household defined as persons sharing:			
	accommodation	expenditure	income	family or emotional ties
Belgium	X	X	X	
Bulgaria	X	X		
Czech Republic	X	X	X	
Denmark	X	X	X	
Germany	X	X	X	
Estonia	X	X	X	
Ireland	X			
Greece	X	X	X	
Spain	X	X	X	
France	X	X	X	
Italy	X	X	X	X
Cyprus	X	X		
Latvia	X	X		
Lithuania	X	X	X	
Luxembourg	X	X	X	
Hungary	X	X	X	
Malta	X	X		
Netherlands	X	X	X	
Austria	X	X	X	
Poland	X	X	X	
Portugal	X	X		
Romania	X	X	X	
Slovenia	X	X	X	
Slovakia	X	X	X	
Finland	X	X	X	
Sweden	X	X	X	
United Kingdom	X			X
Croatia	X	X	X	
Norway	X	X		
Turkey	X	X		
Montenegro	X	X	X	X
Former Yugoslav Republic of Macedonia	X	X	X	

In all the HBSs, sharing common accommodation and expenditure is a prerequisite for a group of persons to be considered a household. In addition, many countries include the sharing of a common budget in their definition of household. Finally, in Italy, Romania, United Kingdom and Montenegro it is necessary for household members to have family or emotional ties, which is rather a restrictive household definition.

In practice, these definitions need to be elaborated to specify exactly what categories of persons are included or excluded from the definition. The definition adopted has a bearing, for instance, on whether or not resident employees, lodgers, boarders and other unrelated persons living at the sample address are included in the same or a different household. Furthermore, the definition is often extended to include certain categories of persons who are absent from the household for some specified reason, such as full-time education or military service. Countries differ in the exact rules applied for this purpose as well as the operational meaning given to the four criteria noted above. Many countries mention, though, as general criteria, that a potential member is included in the household if there are economic links between the person and the household. See **Table 10**.

Table 10: Household membership

Country	Usually resident, related to other members	Usually resident, not related to other members	Resident border, tenant	Visitor	Live-in domestic servant, au pair	Resident, absent from dwelling in the short-term	Children in household in education away from home	Long-term absence with household ties: working away from home	Temporary absence with household ties: in hospital, nursing home or other institution
BE	X	X	X		X	X	X	X	X
BG	X	X	X		X	X	X	X	X
CZ	X	X	X		X	X	X	X	X
DK	X	X				X	X	X	X
DE	X	X	X			X	X		X
EE	X	X	X	X	X	X	X	X	X
IE	X	X	X		X	X	X		X
EL	X	X	X	X	X	X	X	X	X
ES	X		X	X	X	X	X	X	X
FR	X	X				X	X		X
IT	X	X				X	X		X
CY	X	X			X	X	X	X	X
LV	X	X	X		X	X	X	X	X
LT	X	X				X		X	X
LU	X	X		X	X	X	X		X
HU	X	X				X	X	X	X
MT	X	X	X		X	X			X
NL	X	X				X	X[5]	X	X
AT	X	X	X		X	X	X	X	X
PL	X	X				X	X	X	X
PT	X	X				X	X		X
RO	X	X	X		X	X	X	X	X
SI	X	X			X	X	X		X
SK	X	X	X	X	X	X	X	X	X
FI	X	X				X	X	X	X
SE	X	X				X	X		X
UK	X	X	X		X	X			X
HR	X	X	X		X	X	X	X	X
NO	X	X	X		X	X	X	X	X
TR	X	X			X	X	X	X	X
MK	X	X	X		X	X	X		X
ME	X	X				X	X		X

[5] If registered at parent's address

The concept of the "*household reference person"* is central in the EU HBS in the sense that it constitutes a socio-economic classification of households according to the profile of a member who is supposed to be "representative". **Table 11** shows the definitions of the household's reference person used by the countries:

Table 11: Household's reference person

Country	Household's reference person
Belgium	A household reference person is identified on the basis of two criteria: 1) the contribution to the household income 2) the socioeconomic status of the reference person for couples and families with several generations. The reference person is normally defined as the member who contributes the most to the household income. However, for couples, we give priority to the active person. If it is a household with several generations, we will give priority to the owner or the tenant of the dwelling.
Bulgaria	The adult (16+) contributing most to the household income or person chosen by the household members.
Czech Republic	The reference person in two-parent families is always the man, in one-parent families mostly the parent (if he/she is economically active; if not, the head of household can be an economically active child). In non-family households the head is the person with the highest income.
Denmark	The person contributing most to the income of the household
Germany	The person contributing most to the net income of the household
Estonia	The person contributing most to the income of the household
Ireland	The household member in whose name the accommodation is owned/rented. If jointly owned then it is the person with the highest income. If two or more household members have equal income then it is the eldest of these
Greece	As reference person was considered: • The head of the household, if he/she was economically active (having or searching for a job). When the head of the household was neither working nor searching for a job, in order him/her to be considered as reference person, there shouldn't be any other economically active person in the household. • The spouse of partner of the head if he/she was working or searching for a job, if the person declared as head was not economically active. •The oldest member of the household, being economically active, if the head/s spouse/partner was not economically active. The head of the household if no one else in the household was economically active.
Spain	The person contributing most to the income of the household.
France	Person with the highest income
Italy	The name referred to in the municipality population registers as the head of household.
Cyprus	As reference person of the household was considered as the member of the household, who according to the opinion of the other household members, is responsible for all the main decisions of the household and/or is the person contributing most to the household income.
Latvia	The reference person is the member of the household which is considered as such by the members of the household, having decisive rights when solving common issues of the household.
Lithuania	The person with the highest income in the course of the year in the household
Luxembourg	Main income earner
Hungary	The person contributing most to the income of the household.

Malta	The person contributing most to the income of the household.. When more than one person within the same household had equal claim, it was left to the household members to determine the reference person.
Netherlands	The reference person is the main income earner in the household
Austria	The person contributing most to the income of the household.
Poland	Person aged 16 and over with the highest permanent income use for household needs
Portugal	The reference person is the person aged 16 or more and with the highest income
Romania	The person from the household aged 16 years and more, who realised in the reference month the highest income.
Slovenia	The person with the highest income
Slovakia	Household head is person, which defined household itself (all relations between household members in national survey were obtained to household head).
Finland	The person contributing most to the income of the household (according to interview)
Sweden	The person contributing most to the income of the household.
United Kingdom	The Household Reference Person is the householder, that is, the person who: • owns the household accommodation, or • is legally responsible for the rent of the accommodation, or • has the household accommodation as an emolument or prerequisite, or • has the household accommodation by virtue of some relationship to the owner, who is not a member of the household If there are joint householders, the HRP is deemed to be the one with the highest income. If the income is the same, then the eldest householder is taken.
Croatia	The person who contributes most to the household budget.
Norway	The person contributing most to the income of the household.
Turkey	The person with the highest income
Montenegro	The reference person is household member recognisable to other household members. The reference person is a person in household selected by the other household members, makes important decisions and responsible for finances and wealth of household members.
Former Yugoslav Republic of Macedonia	Person who most contributing to the income of the household or the older person

Although there have been suggestions to use an objective definition for the household reference person, that is, the person aged 16 or more who most contributes to the household income, some countries continue to use subjective criteria such as:

- The person who is designated as such by the other members (Greece, Cyprus, Slovakia and Montenegro)
- The husband or the male partner (Czech Republic)
- The householder (United Kingdom)

From the EU comparability point of view, it is important to identify and apply a consistent definition of a reference person which can be used in the classification and analysis of information on the household. Leaving the choice of the reference person to the household itself gives too much space for arbitrary decisions that will damage the comparability of data afterwards. By assigning the person who contributes most to the household income, there should be a clear connection between the income of the household and its expenditure patterns.

6.1.2. Consumption expenditure

For the purpose of measuring living conditions the essential reference for the HBS is the concept of household final consumption expenditure, that is, the expenditure incurred by households on individual consumption goods and services. In particular, services for collective consumption (such as national defence, the usage of public infrastructures or public broadcasting) are not considered as household consumption.

Household final consumption expenditure has a monetary and a non-monetary part. The monetary part covers all payments, whereas the non-monetary part includes:

- Services of owner-occupied dwellings, measured as an imputed rent.
- Income-in-kind, such as goods and services received as income in kind by employees or goods or services produced as outputs of incorporated enterprises owned by households that are retained for consumption by members of the household. Cases in point are food and other agricultural goods, housing services by owner-occupiers and household services produced by employing paid staff (servants, cooks, gardeners, chauffeurs, etc.).

The actual final consumption of households is derived from their final consumption expenditure by adding the value of social transfers-in-kind received from the government (such as expenditures on Health & Education) and non-profit institutions serving households (NPISH).

Table 12 shows the different consumption expenditure approaches adopted by the countries for the HBS 2010 wave.

Table 12: Consumption expenditure approach – HBS 2010

Country	Consumption expenditure approach			Other
	Actual final consumption	Final consumption	Monetary final consumption	
Belgium		X	X	Business expenses (for example, for a self-employed activity), tax, transfers (to people or organizations), investments (properties, securities and other types of savings), loans and other financial operations.
Bulgaria		X	X	
Czech Republic		X	X	Imputed rent
Denmark	X	X	X	
Germany		X	X	
Estonia		X	X	
Ireland	X	X		
Greece	X	X	X	
Spain		X	X	
France			X	
Italy	X		X	
Cyprus	X	X	X	
Latvia		X	X	
Lithuania		X	X	
Luxembourg		X		
Hungary		X		
Malta		X	X	
Netherlands			x	Imputed rent
Austria		X		
Poland	X	X	X	Non-monetary expenditures
Portugal		X	X	
Romania		X	X	
Slovenia		X	X	
Slovakia			X	
Finland	X	X	X	
Sweden			X	
United Kingdom	_	_	_	
Croatia		X	X	
Norway		X		
Turkey		X	X	
Montenegro		X		
Former Yugoslav Republic of Macedonia		X	X	

6.1.3. Imputed rent

According to the European System of Accounts, which is the reference for the HBS, the purchase of a dwelling as such is regarded primarily as capital formation (investment) and not consumption expenditure. However, the ownership of a dwelling is considered to produce a service – a shelter, which is actually consumed over time by the households. As a consequence, ESA requires the estimation of the price of the shelter, by imputation of a rent, since no monetary transaction is involved. This imputed rent is part of household consumption expenditure. So, for the HBS to be consistent with the ESA principles, it has been recommended to exclude the acquisition of dwellings, whereas the consumption of the service of the dwelling should be included.

Different methods can be used in order to estimate imputed rent. The choice of method generally depends on the size and the structure of the national rental housing market:

- Self-assessment: this approach is based on information provided by the home-owners on the market rent they would pay if they were to rent their accommodation.
- Stratification: the sample of dwellings is divided into uniform groups. The mean of the rent values actually paid within each group is then given to the owned dwellings.
- Regression approaches: Heckman regression, Log-linear regression.
- User Cost method.

Table 13 shows the different approaches which were adopted by the countries to calculate the imputed rent for the HBS 2010 wave:

Table 13: Estimation of imputed rent – HBS 2010

Country	Self-assessment	Strati-fication	Log-linear regression	Heckman regression	User Cost	Variables
Belgium				X		NA
Bulgaria		X				Location (district centre with university, other district centre, smaller town, rural area); Size of the dwelling - Number of rooms (1, 2, 3, 4+); Amenities - Availability of central heating.
Czech Republic	Imputed rent not provided					
Denmark		X				Location, size, age, amenities.
Germany		X				Size of municipality, region, construction year of dwelling
Estonia					X	
Ireland		X				
Greece	X					
Spain	X					
France			X			The size of urban unit; the living area of the dwelling; the status of the city: suburbs, downtown, isolated town, rural; the detailed climatic zone for the city; the period of completion of housing; the number of habitable rooms; regional zoning; age of the reference person; household type
Italy	X					
Cyprus	X					
Latvia			X			Form of renting, year of construction, living area in m², years living in the same dwelling, location: urban or rural area, region of Latvia, presence of two utilities: town gas and separate WC
Lithuania		X	X			Geographical area, type of dwelling, having a bath, toilet, kitchen, garage, cable TV, phone, heating, hot water, gas, cold water, sewerage and total area of the dwelling, current rent related to occupied dwelling, subjective rent
Luxembourg						Imputation by hot-deck
Hungary			X			Market price of the dwelling, complex indicator of settlement facilities, dwelling size , settlement type, degree of urbanisation, cost of housing maintenance, more than 1 bathrooms, number of rooms, district heating, detached house, wet walls /dump floors
Malta						

Netherlands			X			A regression model was applied on the estimates of market rents of owner-occupiers by real estate agents. This model includes the market value of the dwelling, region, level of urbanisation and household type
Austria		X				NUTS2, dwelling type, useful living area, number of rooms, period of construction, central heating, garage, toilet, bathroom
Poland			X			City/town/village, classified by size [6 classes], region [16 classes], area of dwelling [logarithm], one household in the dwelling or more, house or block, building age [4 classes], water (and hot water) supply system [4 classes], heating type [4 classes], bad housing conditions, e.g. dampness, specific advantages, e.g. prestige district, balcony or garden, conditioning, separate kitchen in the dwelling
Portugal	X					
Romania	X					
Slovenia		X				Location (Ljubljana, outside Ljubljana); availability of central heating (yes, no); size of the dwelling and number of rooms (a bed sit, 1, 2, 3, 4 +); profit rent.
Slovakia		X	X	X		Average prices of dwellings by size in regions
Finland		X				Municipality, square area, type of building, construction year (classified)
Sweden		X				Population density, useful living area in m2 and disposable income.
United Kingdom(*)	Imputed rent not provided					
Croatia	X					
Norway			X			The model consists of the two independent variables “Region” and “Living area of the dwelling in m2”
Turkey	X					
Montenegro	X					
Former Yugoslav Republic of Macedonia	Imputed rent not provided					

Experience has shown that imputed rent is very sensitive to the estimation method and it has a large impact on the consumption expenditure structure. Consequently, the ability of the countries to calculate the imputed rent for the HBS 2010 wave using different estimation methods is likely to have seriously reduced comparability across the countries. **The following countries have not imputed any rent for the use of owner-occupied dwellings as household main residence: United Kingdom, the Czech Republic and the Former Yugoslav Republic of Macedonia**.

6.2. Other potential sources of non-comparability

There are two other specific aspects in the HBS where problems of comparability are likely to arise, or where at least a close examination is called for:

- Different HBS reference years
- Different survey instruments

6.2.1. Different HBS reference years

As was shown in Table 8 above, approximately 22 Countries carried out the survey in the reference year. For the remaining countries, household level price coefficients were used to adjust expenditure and income. This has evident implications for comparability.

6.2.2. Different survey instruments

A common feature of all the HBSs is that households are asked to maintain detailed diaries of expenditure over a fixed time period. The recording period varies between the countries from one week to one month, two weeks being the most common. Furthermore, there are some variations in the survey instruments: many countries use household diaries, while others complement household diaries with individual ones in order to get more accurate information. **Table 14** presents the different survey instruments which were used by the countries:

Table 14: Survey instruments

	Diaries	Recording unit	Recording period
Belgium	Diary	Household	One month
Bulgaria	Diary	Household	15 days
Czech Republic	Diary	Household	One month
Denmark	Diary	Household	Two weeks
Germany	Diary	Household	Three months
Estonia	Diary	Household	Two weeks
Ireland	Diary	Household	Two weeks
Greece	Diary	Household	Two weeks
Spain	Diary	Household	Two weeks
France	Diary	Household	One week
Italy	Diary	Household	One week
Cyprus	Daily Diaries to be filled in by all household members (minimum 15-years)	Household members	Two weeks
Latvia	Household diary and Individual diary for household member temporally absent or for pupil.	Household and individual	Two weeks
Lithuania	Diary	Household	15 days
Luxembourg	Diary	Household	Two weeks
Hungary	Diary	Household	One month
Malta	Diary	Household	Two weeks
Netherlands	Diary, Questionnaires (fixed costs, durables)	Household	2 weeks (All expenditures
Austria	Household diary and individual diary	Household and Individual	Two weeks
Poland	Diary	Household	One month
Portugal	Diary	Household and Individuals	Two weeks
Romania	Diary	Household	One month
Slovenia	Two kinds of diaries: 1) main purchaser, 2) other members of the household	Household	Two weeks
Slovakia	Two-month forms: one with gross estimation of expenditure and income; one for more detailed records of expenditure	Household	One month
Finland	Diary	Household	Two weeks
Sweden	Diary	Household	Two weeks
United Kingdom	Diary	Adult individuals for main diary, basic diary for children.	Two weeks
Croatia	Diary	Household	Two weeks
Norway	Diary	Household	Two weeks
Turkey	Diary	Household	One month
Montenegro	Diary	Household	One month
Former Yugoslav Republic of Macedonia	Diary	Household	15 days

7. COHERENCE

Coherence is an attribute of statistics measuring the adequacy of the data to be reliably combined in different ways and for various uses.

Consistency does not necessary mean being identical: often there are genuine and inherent differences in the information coming from sources of different types. What it means is whether different sources together lead to a consistent picture, with each making a contribution towards the development of the picture. In the case of the HBS, the most relevant sources for external comparison include the Weights used in the Harmonised Index of Consumer Prices (HICP), the EU Statistics on Income and Living Conditions (EU-SILC), Labour Force Surveys (LFS), National Accounts (NA) and various administrative and other sources depending on the country.

7.1. Comparison with EU-SILC

EU-SILC is the main source for the compilation of comparable indicators on social cohesion used for policy monitoring at EU level. It is collecting annually multidimensional micro-data on income, poverty, social exclusion and living conditions. Every year, both cross-sectional data (pertaining to a given time or a certain time period) and longitudinal data (pertaining to individual-level changes over time, observed periodically, typically over a four year period) are collected. Below are examples of EU-SILC key indicators:

- *At-risk-of-poverty threshold:* This is 60% of the national median income. The threshold is calculated by ranking persons by income from smallest to largest and the median value is extracted. Anyone with an income of less than 60% of the median is considered at-risk-of-poverty at a 60% level.
- *At-risk-of-poverty rate:* This is the share of persons with an income below a given percentage (usually 60%) of the national median income. It is also calculated at 40%, 50% and 70% for comparison.
- *Relative at-risk-of-poverty gap:* This is the difference between the median income of persons below the at-risk-of-poverty threshold and the at-risk-of-poverty threshold, expressed as a percentage of the at-risk-of-poverty threshold.
- *Inequality of income distribution (S80/S20 quintile share ratio):* This is the ratio of total income received by the 20% of persons with the highest income (top income quintile) to that received by the 20% of persons with the lowest income (lowest income quintile)
- *Gini coefficient:* This is the relationship between cumulative shares of the population arranged according to the level of income and the cumulative share of total income received by them. If there was perfect equality (i.e. each person receives the same income) the Gini coefficient would be 0%. A Gini coefficient of 100% would indicate there was total inequality and the entire income was in the hands of one person:

$$1 + Gini = \frac{2\sum_i R_i \cdot INC_i - \sum_i INC_i}{\left(\sum_i 1\right) \cdot \left(\sum_i INC_i\right)}$$

Where R_i is the rank of i in the population arranged according to the level of income. If income data are collected from a sample s of the reference population, the Gini coefficient can be estimated by:

$$1 + \hat{Gini} = \frac{2 \cdot \sum_{i \in s} \left[\left(W_i - \frac{\omega_i - 1}{2}\right) - 1\right] \cdot \omega_i \cdot INC_i}{\left(\sum_{i \in s} \omega_i\right) \cdot \left(\sum_{i \in s} \omega_i \cdot INC_i\right)}$$

Where ω_i is the sample weight of household i and W_i is the cumulated weight of i (in the population arranged according to the level of income)

Table 15 shows the values which were obtained for the five indicators mentioned above, from the HBS 2010 micro-data[6] and compares them with EU-SILC 2010[7]. In order to increase comparability, the EU-SILC methodology was used:

- The HBS database was turned into an individual one by replicating the household records according to the household size (per capita)
- For each household, the household net monetary income was divided by the "equivalised" household size[8] and the result was given to each household member as an estimate of the "personal" income.
- The indicators were calculated at individual level using this "personal" income as well as the household sample weights.

Eurostat reminds the reader that these two surveys are from different samples with different sample sizes. There are inherent methodological differences between the two instruments: EU-SILC has been designed to be the reference source of income data at EU level, while HBS rather focuses on household consumption expenditures and provides less information on income, mainly for categorical purposes. Even though efforts have been made by countries to increase income comparability between HBS and EU-SILC, one cannot expect the household income collected from HBS to be as accurate as with EU-SILC. For instance, seasonal income components or small amounts can be under-represented in the HBS. Besides, divergences could also be explained by a difference in the definition of income. Finally, in some countries there are differences in the income reference period between HBS 2010 and EU-SILC 2010.

[6] The countries which did not send micro-data (The Netherlands and Norway) are not covered by the exercise

[7] Source: EuroBase

[8] The "equivalised" household size is calculated according to the modified OECD scale: it gives a weight 1 to the first adult of the household, 0.5 to any other adult above 14 years old and 0.3 to any child under 14

Table 15: Comparison HBS 2010 / EU-SILC 2010

Country	At-risk-of-poverty threshold (EUR)		At-risk-of-poverty rate (%)		Relative at-risk-of-poverty gap		Income quintile share ratio S80/S20		Gini coefficient	
	EU-SILC	HBS	EU-SILC	HBS	EU-SILC	HBS	EU-SILC	HBS	EU-SILC	HBS
Austria	12635	12213	14.7	13.5	21.8	17.9	4.3	3.5	28.3	24.5
Belgium	11678	12129	14.5	14.8	18.0	19.2	3.9	4.0	26.6	27.2
Bulgaria	1810	1326	20.7	15.9	29.6	19.6	5.9	4.0	33.2	26.8
Cyprus	9708	9881	15.6	14.3	18.0	18.0	4.5	4.2	30.1	28.7
Germany	11278	11211	15.7	14.5	20.7	16.9	4.5	4.3	29.3	29.2
Denmark	15401	18836	13.3	16.4	21.6	14.2	4.4	3.9	26.9	26.6
Czech Republic	4235	4626	9.0	6.0	21.1	14.9	3.5	2.8	24.9	20.6
Estonia	3436	2914	15.9	15.6	23.2	24.8	5.0	4.7	31.3	30.6
Spain	7600	6732	21.4	18.1	32.3	22.2	7.2	4.9	34.4	30.6
Finland	12809	13305	13.1	13.1	13.8	15.9	3.6	3.6	25.4	25.1
France	11976	11395	13.2	16.5	19.5	22.5	4.4	5.0	29.8	31.3
Greece	7178	7486	20.1	20.5	23.4	19.8	5.6	5.5	32.9	32.8
Croatia	3486	3358	20.6	17.7	27.6	27.2	5.5	4.7	31.6	29.3
Hungary	2544	2678	12.3	12.6	16.5	17.2	3.4	3.8	24.1	26.3
Ireland	12307	12836	15.2	16.7	15.5	16.7	4.7	4.9	30.7	31.4
Lithuania	2418	2698	20.5	19.0	32.6	22.9	7.3	5.1	37.0	30.8
Latvia	2682	1486	20.9	19.0	28.9	27.8	6.8	6.4	35.9	35.4
Malta	6261	6299	15.5	15.8	17.3	18.4	4.3	4.0	28.6	27.2
Poland	2643	2623	17.7	17.8	22.2	24.1	5.0	5.4	31.1	32.6
Portugal	5207	5132	17.9	17.3	22.7	21.9	5.6	6.1	33.7	36.2
Romania	1222	1254	21.0	22.3	30.6	27.3	6.0	5.9	33.3	33.4
Sweden	11825	12303	12.9	12.0	19.7	19.9	3.5	3.7	24.1	25.3
Slovenia	7042	6412	12.7	16.3	20.2	22.3	3.4	4.1	23.8	26.1
Slovakia	3670	3586	12.0	9.0	25.7	16.1	3.8	3.1	25.9	22.3
United Kingdom	10263	10875	17.1	19.9	21.4	26.0	5.4	6.1	32.9	35.1

7.2. Comparison with National Accounts (NA) and HICP weights

The sets of households covered by the HBS, NA and HICP are not intended to be the same: HBS is typically covering a smaller set of households, while household consumption expenditure in NA covers the expenditures made by all households, including institutional households resident in the country or region, whether those expenditures are made inside or outside the country or region of residence. On the other hand the HICP does not include imputed rent and it includes the expenditure of tourists in the country, with an obvious effect on the structure. Table 16 compares for each country the structures of final household consumption expenditure which have been obtained from HBS 2010, the NA and the HICP:

Table 16: Consumption Expenditure Structure (%): Comparison 2010 HBS / National Accounts / HICP

Country	Domain	CP01	CP02	CP03	CP04	CP05	CP06	CP07	CP08	CP09	CP10	CP11	CP12
Austria	HBS2010	12.10	2.40	5.70	23.80	6.90	3.50	15.00	1.70	12.80	1.00	5.70	9.30
	HICP	12.75	2.99	5.64	14.55	8.10	5.38	14.16	2.13	11.37	0.86	15.06	7.02
	NA	10.10	3.40	6.00	21.60	6.60	3.60	12.70	2.10	10.70	0.70	11.80	10.80
Belgium	HBS2010	13.20	2.10	4.50	26.70	6.30	4.70	13.00	2.60	9.10	0.50	6.40	11.00
	HICP	16.51	4.35	6.54	13.65	7.57	3.70	14.83	3.26	11.73	0.67	8.95	8.24
	NA	13.70	3.70	5.00	23.70	5.80	5.70	12.00	2.20	9.00	0.50	6.00	12.70
Bulgaria	HBS2010	29.30	4.00	2.50	37.20	2.80	4.80	5.30	4.10	2.60	0.90	6.20	5.10
	HICP	20.12	5.46	3.74	9.16	5.23	5.11	19.95	5.40	5.90	1.12	14.63	4.17
	NA	18.80	7.00	3.00	16.90	7.50	4.20	16.80	5.70	7.90	0.30	4.10	3.10
Croatia	HBS2010	25.60	3.00	5.10	32.30	3.90	2.60	9.50	4.20	4.40	0.70	1.90	6.80
	HICP	27.85	6.58	7.18	13.14	5.99	3.29	12.20	3.02	6.84	1.18	6.86	5.86
	NA	-	-	-	-	-	-	-	-	-	-	-	-
Cyprus	HBS2010	12.30	1.30	6.80	26.60	5.70	5.30	13.90	3.50	5.40	3.40	8.50	7.20
	HICP	18.24	2.88	8.35	8.37	6.46	5.73	14.12	4.06	6.97	3.08	12.54	9.20
	NA	12.50	4.10	6.40	18.60	5.10	5,00	12.30	3.30	7.80	2.60	14.30	8,00
Czech Republic	HBS2010	20.30	2.90	5.20	22.70	6.60	2.90	11.20	4.80	10.70	0.70	5.30	6.90
	HICP	18.10	9.20	5.04	15.09	6.05	3.33	13.04	4.15	10.71	0.89	7.68	6.71
	NA	14.20	8.90	3.10	27.50	5.40	2.50	8.90	3.20	9.60	0.60	7.60	8.40
Denmark	HBS2010	11.80	2.80	5.20	31.20	5.60	2.70	12.30	2.40	11.50	0.60	5.00	9.00
	HICP	12.67	4.21	5.70	17.69	7.00	3.20	16.57	2.37	13.05	0.86	5.71	10.96
	NA	11.30	3.50	4.80	29.50	5.20	2.90	11.70	1.70	11.10	0.80	5.00	12.60
Estonia	HBS2010	23.30	3.10	4.00	29.40	5.50	3.20	9.70	5.20	8.40	1.10	2.60	4.60
	HICP	21.53	7.88	7.75	14.44	4.14	4.22	13.15	4.36	7.14	1.58	7.47	6.35
	NA	19.30	8.80	6.30	20.90	3.80	2.70	12.00	3.90	7.10	0.80	6.70	7.60
Finland	HBS2010	13.00	2.30	3.40	26.70	4.80	3.20	17.50	2.60	10.40	0.20	4.20	11.90
	HICP	15.50	6.51	5.33	15.56	6.20	5.35	15.37	3.39	10.88	0.62	8.48	6.81
	NA	12.30	5.10	5.00	27.00	5.40	4.70	10.90	2.20	11.50	0.40	6.30	9.20
France	HBS2010	15.80	2.60	4.00	26.80	4.90	1.50	14.10	2.90	7.70	0.50	5.50	13.70
	HICP	16.03	3.58	5.30	15.04	6.70	4.46	17.52	3.30	9.96	0.57	7.09	10.45
	NA	13.50	3.10	4.40	25.40	5.80	3.80	13.90	2.80	8.50	0.80	7.00	11.00
Germany	HBS2010	11.60	1.60	4.40	30.30	4.70	3.90	14.00	2.70	10.50	0.80	4.70	10.80
	HICP	11.89	4.59	5.36	23.04	6.10	4.38	15.09	2.88	12.04	1.02	5.20	8.42
	NA	11.40	3.20	4.90	24.80	6.20	5.10	13.20	2.70	9.00	1.00	5.80	12.70
Greece	HBS2010	16.00	3.00	6.00	27.50	5.60	5.30	10.50	3.40	3.90	2.80	9.60	6.40
	HICP	17.27	4.59	8.69	9.24	6.53	7.43	13.20	4.00	5.27	2.89	14.02	6.89
	NA	15.80	4.10	4.40	22.20	4.30	6.40	12.70	3.10	5.50	2.40	11.70	7.40
Hungary	HBS2010	18.70	2.60	3.20	39.00	3.20	4.00	9.00	4.90	6.40	0.70	3.10	5.20
	HICP	20.51	8.38	4.41	14.96	5.80	4.77	14.18	4.58	8.39	1.10	8.07	4.86
	NA	16.90	7.20	2.80	22.30	4.60	4.40	12.30	3.80	7.80	1.50	6.90	9.50
Ireland	HBS2010	12.20	3.20	5.40	27.70	3.70	2.90	12.80	3.50	8.90	2.00	7.90	9.90
	HICP	13.00	7.43	4.45	9.89	4.46	3.87	14.07	3.83	11.23	2.80	17.77	7.21
	NA	9.70	5.50	4.50	22.20	4.80	4.70	12.60	3.10	7.60	3.50	13.10	8.70

Country	Domain	CP01	CP02	CP03	CP04	CP05	CP06	CP07	CP08	CP09	CP10	CP11	CP12
Italy	HBS2010	18.60	1.70	6.40	32.30	5.10	3.80	11.60	2.00	5.60	0.80	4.90	7.10
	HICP	17.41	3.06	9.58	10.21	9.16	3.78	15.07	2.99	6.89	1.14	12.00	8.73
	NA	14.50	2.70	7.50	22.10	7.20	2.80	12.60	2.50	7.40	1.00	10.00	9.70
Latvia	HBS2010	26.10	3.10	5.40	23.50	3.80	5.40	11.00	4.60	6.50	1.70	3.70	5.30
	HICP	23.70	7.06	5.75	14.13	4.45	5.91	13.25	4.87	7.00	1.79	6.67	5.41
	NA	18.90	7.80	5.10	25.10	3.70	3.70	13.40	3.40	7.70	2.00	4.20	4.90
Lithuania	HBS2010	28.50	3.20	7.00	28.50	4.10	4.00	8.00	3.80	3.90	0.50	4.50	4.10
	HICP	25.04	8.63	6.84	11.66	6.21	6.38	11.51	3.81	6.01	1.68	7.14	5.09
	NA	-	-	-	-	-	-	-	-	-	-	-	-
Luxembourg	HBS2010	8.80	1.40	6.20	33.80	6.30	2.50	14.50	2.10	7.30	0.40	7.60	9.30
	HICP	10.51	11.56	4.18	10.12	8.20	1.94	21.27	1.99	9.10	0.59	8.84	11.70
	NA	8.50	8.50	4.70	24.30	6.50	2.10	18.30	1.70	7.10	0.80	6.80	10.90
Malta	HBS2010	22.20	2.40	7.10	8.10	8.80	6.30	13.80	4.00	8.40	1.70	7.00	10.30
	HICP	17.21	3.32	6.41	8.45	8.10	3.95	14.36	4.95	9.90	1.56	14.96	6.84
	NA	15.20	3.00	4.50	12.30	7.10	4.10	12.00	3.70	10.50	1.40	16.10	10.00
Netherlands	HBS2010	10.00	1.80	5.10	28.60	5.70	1.40	11.50	3.00	10.50	1.10	6.10	15.10
	HICP	13.82	3.70	6.12	17.03	7.97	2.72	14.06	4.50	12.43	0.71	6.49	10.46
	NA	11.70	3.20	5.40	23.90	6.10	2.80	12.50	4.10	10.10	0.60	4.90	14.70
Norway	HBS2010	11.80	2.60	5.30	31.20	5.90	2.60	16.30	1.90	12.50	0.20	3.50	6.30
	HICP	13.80	3.08	6.79	17.72	7.45	3.15	20.76	2.74	14.54	0.29	4.26	5.44
	NA	13.20	4.30	5.50	22.10	5.80	2.80	14.60	2.70	12.40	0.40	5.80	10.50
Poland	HBS2010	22.70	2.50	4.80	32.70	4.70	4.40	8.80	4.00	7.40	1.20	2.10	4.80
	HICP	21.48	8.19	4.07	20.33	4.93	4.57	9.72	3.38	7.60	1.37	3.29	11.07
	NA	19.60	6.80	4.10	24.10	4.50	4.10	9.30	3.10	7.80	1.30	2.80	12.50
Portugal	HBS2010	13.30	1.90	3.70	29.20	4.20	5.80	14.50	3.30	5.30	2.20	10.40	6.30
	HICP	17.53	3.06	4.95	10.33	5.97	8.02	16.81	3.19	6.05	2.22	13.69	8.16
	NA	16.40	3.30	5.80	15.60	6.00	5.70	13.70	3.00	7.00	1.30	11.10	11.00
Romania	HBS2010	31.50	5.90	4.20	36.00	3.10	3.50	4.60	3.80	3.10	0.60	1.00	2.90
	HICP	34.96	8.03	7.44	17.20	5.06	3.23	7.00	5.79	5.12	0.89	1.80	3.50
	NA	27.50	5.00	3.80	22.30	4.90	6.00	11.00	4.90	5.80	1.20	3.30	4.40
Slovakia	HBS2010	22.00	3.00	5.30	33.80	4.00	3.00	7.20	5.20	7.20	0.40	4.80	4.00
	HICP	17.97	5.18	5.41	19.28	7.92	4.30	9.39	4.06	9.43	1.67	7.82	7.57
	NA	14.60	5.30	5.50	19.80	6.60	3.60	14.90	3.20	9.20	1.20	6.70	9.40
Slovenia	HBS2010	14.50	1.90	5.90	29.80	5.80	2.00	13.20	4.10	9.00	0.80	3.60	9.20
	HICP	16.30	5.35	6.78	9.69	6.86	4.12	18.48	3.43	8.99	1.54	9.80	8.65
	NA	17.30	5.00	4.10	25.20	6.30	4.00	7.20	3.80	9.70	1.50	5.70	10.20
Spain	HBS2010	14.40	2.10	5.60	30.00	4.90	3.20	12.40	3.10	6.60	1.00	9.10	7.60
	HICP	18.46	2.77	8.75	11.48	6.93	3.25	13.89	3.84	7.93	1.36	14.39	6.96
	NA	13.90	3.00	5.30	20.30	4.80	3.50	11.50	2.80	8.30	1.40	17.10	8.00
Sweden	HBS2010	12.70	2.00	4.70	33.10	6.10	2.20	12.30	2.90	14.10	0.00	3.80	6.10
	HICP	15.48	4.35	6.59	16.72	6.19	3.86	15.30	3.63	11.72	0.48	7.52	8.17
	NA	12.20	3.60	4.90	27.10	5.20	3.20	12.90	3.30	11.20	0.30	5.50	10.50
United Kingdom	HBS2010	12.60	2.80	5.60	18.00	7.50	1.20	15.40	3.10	13.60	2.40	9.30	8.50
	HICP	10.80	4.00	5.60	12.90	6.40	2.20	16.40	2.50	15.00	1.90	12.60	9.70
	NA	9.10	3.50	5.60	25.00	5.20	1.70	13.90	2.20	11.10	1.40	9.60	11.80
Former Yugoslav Republic of Macedonia	HBS2010	43.30	4.10	6.60	12.90	5.40	3.70	6.60	4.10	2.70	1.00	4.80	4.90
	HICP	-	-	-	-	-	-	-	-	-	-	-	-
	NA	33.50	3.50	5.10	19.70	4.30	2.60	10.50	5.80	2.50	1.70	3.90	7.00
Turkey	HBS2010	22.50	4.10	5.20	28.00	6.10	2.00	14.30	4.20	2.60	2.00	5.00	4.00
	HICP	27.60	5.31	7.30	16.83	6.78	2.55	13.90	4.94	2.84	2.48	5.51	3.97
	NA	-	-	-	-	-	-	-	-	-	-	-	-

In most of countries, HBS appears to collect more expenditure on Food and non-alcoholic beverages (CP01) than the National Accounts: this makes sense, given the mode of data collection in the HBS (diaries). [9] On the other hand, the share of expenditure HBS reports on Alcoholic beverages, tobacco and narcotics (CP02) is generally lower than the value estimated by the NA: people seem to understate the amounts of their expenditures on these "sensitive" products. Finally, in most of the countries, the share of housing, water, electricity, gas and other fuels (CP04) is higher in the HBS: the instrument seems to over-estimate the imputed rent for owner-occupier dwellings in comparison to the National Accounts. The HICP shows differences in CP04, CP01 and CP11 (especially in those countries which have a large tourism industry).

9 For a detailed discussion as to why this is the case, please see the Eurostat publication:
"Household Budget Surveys in the EU: Methodology and Recommendations for Harmonisation"; Luxembourg, 2003.
http://ec.europa.eu/eurostat/cache/metadata/Annexes/hbs_esms_an1.pdf

8. COST AND BURDEN

8.1. Cost for the Household

Taking part in the HBS places a significant burden on the household. Normally, when a household accepts to take part in this survey, it endeavours to comply with the instructions given by the organisation carrying out the survey. A household has to keep track of all the items consumed by all the household members during the recording period (See Appendix 4 and 5). Encouraging households to keep receipts instead of writing down all the items bought helps, however some countries record the quantities consumed as well. Not all receipts have this, even those from large supermarkets. Moreover, one may have difficulty to recall items bought infrequently even if they are for substantial amounts of money. The small incentive payment that these households are given in some countries for taking part in the survey is not normally enough to compensate fully for the effort involved. This may explain in part the low response rate associated with this survey.

8.2. Cost for the NSI

NSI costs relate to:

- Interviewing: whether a small sum of money is given to the household
- How the enumerator is paid, either by the hour or per household
- Coding and checking of questionnaires
- Data entry
- Supervision
- Other costs (e.g. purchase of PCs; consultants)
- Overtime (related to data collection)
- Any extra back up staff like clerks, etc.

8.3. Cost for Eurostat and other commission services

For the 2010 wave the cost for Eurostat mainly comprised:

- a full-time Assistant-grade staff member for 4 years
- part of the time of a supervisory Administrator-grade staff member during this time,
- development of an IT System to process the data, which is usually contracted out.

APPENDIX 1: VARIANCE ESTIMATION

Introduction

We seek to work out accuracy measures, namely standard errors and confidence intervals, for the main statistics which are derived from the HBS micro-data, that is, the mean consumption expenditure (total and by COICOP groups) and the structure of consumption expenditure.

The basic assumption here is the HBS indicators are liable to sampling errors only. Sampling errors arise from estimating a population characteristic by looking at one portion of the population rather than the entire population. The other types of errors (e.g., coverage errors, measurement errors, processing errors…) will not be taken into account in our calculations.

The standard error of a survey estimate measures the variation of the statistic over all the possible samples that can be selected under the sampling design. Standard errors are actually used to calculate confidence intervals in which the target parameter falls with a high probability (usually set at 95%). The dissemination of confidence intervals together with survey estimates is a key step to assess survey data quality.

Mean Consumption Expenditure – Variance Estimation

Introduction

Let y_i denote the consumption expenditure of household *i*. The mean consumption expenditure is given by:

$$\overline{Y} = \frac{\sum_{i \in U} y_i}{N}$$

Where *N* is the size of the household population *U*

Since HBS data are collected over a sample *s* of the household population, the mean consumption expenditure is estimated by:

$$\hat{\overline{Y}} = \frac{\sum_{i \in S} \omega_i \cdot y_i}{\sum_{i \in S} \omega_i}$$

Where $\{\omega_i, i \in s\}$ are the sample weights[10]

[10] HBS variable HA10

Estimation formulae for standard errors and confidence intervals

Under the above notations, the (absolute) standard error of the mean consumption expenditure $\hat{\bar{Y}}$ is estimated by the square root of the estimated variance $V\hat{a}r\left(\hat{\bar{Y}}\right)$, the latter being given by:

$$V\hat{a}r\left(\hat{\bar{Y}}\right) = \frac{1}{\hat{N}^2}\frac{1}{n(n-1)}\sum_{i\in s}\left(n\omega_i y_i - \sum_{k\in s}\omega_k y_k\right)^2 \qquad (1)$$

Where n is the achieved household sample size and $\hat{N}$ is the estimated size of the household population ($\hat{N} = \sum_{i\in s}\omega_i$)

The relative standard error (or Coefficient of Variation - CV) is estimated by:

$$C\hat{V}\left(\hat{\bar{Y}}\right) = 100 \times \frac{\sqrt{V\hat{a}r\left(\hat{\bar{Y}}\right)}}{\hat{\bar{Y}}} \qquad (2)$$

In order to obtain a confidence interval for the mean consumption expenditure, it is assumed the statistic follows a normal distribution. Under the same notations as above, a 95% confidence interval is given by:

$$CI\left(\bar{Y}\right) = \left[\hat{\bar{Y}} - 1.96 \cdot \sqrt{V\hat{a}r\left(\hat{\bar{Y}}\right)}\,;\, \hat{\bar{Y}} + 1.96 \cdot \sqrt{V\hat{a}r\left(\hat{\bar{Y}}\right)}\right] \qquad (3)$$

The main assumption underlying (1) is the sample households were drawn with replacement. Even though this assumption is not actually true, it is reasonable for most of the HBS countries given the sampling rates (i.e. ratio between the sample size and the population size) are pretty low.

Actually, (1) does not allow for the improvements which should be achieved in sample accuracy by stratifying the household population or by calibrating the sample weights to external sources. However, since these two techniques are designed to make the accuracy better, not taking them into account in variance calculations should only lead to conservative estimates.

Most of the HBS samples are clustered samples which were drawn using multistage sampling schemes. The level of accuracy of clustered samples is generally lower because units from the same cluster tend to be “similar” as regards certain survey characteristics. A major shortcoming of (1) is it does not take this factor into account, thereby downwardly biasing the variance estimates.

Concerning Germany, which implemented a non-probability sampling, since there is no way to estimate the probability of any one household being included in the sample, sampling variability cannot be estimated unless assumptions are made about the underlying design. It was assumed the HBS sample selection for Germany was random, so the variance formula (1) could fit in with the German situation as well.

Structure of Consumption Expenditure – Variance Estimation

Another key HBS indicator is the structure of household consumption expenditure: this is the distribution of the total mean expenditure between the different COICOP divisions, expressed in thousands of the total mean expenditure. This indicator is essential to examine how households split their expenditures among the different COICOP categories, and to monitor how the structure can be affected over time by price changes.

In order to estimate the accuracy of such non-linear statistics, the latter have to be "linearized". The linearization technique approximates a non-linear statistic by a linear one (using a Taylor-like expansion). Then, a variance estimate for the linear statistic is given to the initial non-linear statistic as an estimate for its variance.

Let $\hat{\bar{Y}}$ be the estimated mean expenditure in a given COICOP group and let $\hat{\bar{X}}$ be the total mean expenditure. Using the same notations as for the previous section, the variance of the estimated ratio $\frac{\hat{\bar{Y}}}{\hat{\bar{X}}}$ is estimated by:

$$\hat{Var}\left(\frac{\hat{\bar{Y}}}{\hat{\bar{X}}}\right) = \hat{Var}\left(\hat{\bar{Z}}\right) = \frac{1}{\hat{N}^2}\frac{1}{n(n-1)}\sum_i\left(n\omega_i z_i - \sum_k \omega_k z_k\right)^2 \quad (4)$$

Where for all household *i*: $z_i = \frac{1}{\hat{\bar{X}}}\left(y_i - \frac{\hat{\bar{Y}}}{\hat{\bar{X}}}x_i\right)$ *("linearized" variable)*

Design Effect (Deff)

By definition, the Design Effect factor (Deff) for a given statistic is the ratio between the estimated variance of that statistic under the actual sampling design to the variance that would be obtained under Simple Random Sampling (SRS) of same size n.

A Deff value greater than 1 indicates the sampling design has deteriorated the accuracy (because of clustering, unequal weighting…). On the other hand, a Deff value lower than 1 means the sampling design has had a positive impact on the accuracy.

Under the same notations, the variance that would be obtained under Simple Random Sampling of same size n is estimated by:

$$\hat{Var}_{SRS}\left(\hat{\bar{Y}}\right) \approx \frac{\frac{1}{\hat{N}-1}\sum_{k\in S}\omega_k\left(y_k - \hat{\bar{Y}}\right)^2}{n}$$

APPENDIX 2: MAIN SAMPLING CHARACTERISTICS

Country	Ultimate sampling unit	Probability sampling (Y/N)	Number of sampling stages	Description	Stratification criteria and allocation of the sample	Sampling frame
Austria	Household	Y	2	The sample of the HBS is a one-stage stratified probability sample with proportional allocation. Sampling frame is the Central Residence Register (Zentrales Melderegister – ZMR). The sample is stratified according to geographical units (Sprengel) which are created to distribute addresses among the pool of interviewers.	The sample units are proportionally allocated to the nine Austrian regions (NUTS2)	Central Register of Residence
Belgium	Household	Y	2	A two-stage random sampling design is used for the HBS. The sampling units are defined as households. In the first stage communities are selected within the regions (Brussels Capital Region, Flemish Region, Walloon Region). In a second stage, the households are selected at random within different strata according to household size.	Two levels of area stratification Stage 1: BE1 (Brussels-Capital Region); Stage 2: 1-person HHs	Belgian National Register
Bulgaria	Household	Y	2	Stratified two-stage probability sampling: Selection units in the first stage are enumeration areas. In the second stage, a systematic sample of households is selected within each Primary Sampling Unit (PSU) according to household size. District – stratification based on the partition of the total country area into 28 standard administrative regions corresponding to the European NUTS 3 level. Type of area – district town, other urban area, rural area.	Smaller administrative regions are over-sampled. Non-proportional selection is applied in 2010 in order to produce more accurate sample data in the small regions.	Census 2001
Croatia	Dwelling	Y	2	Two-stage sample selection: First, a sample of geographical areas is selected with probabilities proportional to size. The second stage consists of the simple random selection of 10 dwellings, within each sample area.	The sample was stratified by regions (NUTS2) and implicit stratification was by counties	Census 2001
Cyprus	Household	Y	1 (for urban areas) and 2 (for rural areas)	The households were stratified by district and urban/rural region. In total 9 strata were used. The five rural strata were formed by using two-stage sampling. Firstly, probability proportionate to size was used for selecting the rural areas and then systematic random sampling was used for selecting the households. For the four urban strata, systematic random sampling was used for selecting the households.	-	2001 Census and a list of all the housing units that were built after 2001
Czech Republic	Household	N	1	Households are selected by quota sampling technique. Quotas are set for segments of population defined by certain variables. The group of household derived from the economic activity of the household's head and his/her economic status are the basic sampling attributes. For three most important groups of household the following variables are also used for construction of quotas: 1) net money income per household member and number of dependent children - for household of employees and household of the self-employed; 2) pensions per household member and number of members (in one-member households also the sex of the person) - for households without economically active members. 3) municipality size and type of house - applies to all groups of household.	The households are recruited by regional units of the Czech Statistical Office according to a quota plan designed by the headquarters (HBS Department). In 2010 the sample was built by carrying out the detailed quota scheme	-
Denmark	Address	Y	1	The sample is drawn randomly within specific geographic areas, defined by the address of the interviewer as well as the consideration of a reasonable geographic coverage.	–	Register of Inhabited Addresses

Estonia	Individual (15 and over)	Y	1	The sampling is carried through among the records of Population Register by one-stage stratified systematic sampling procedure. Only record belonging to persons aged 15 and over are used. In this way, a sample of address-persons is obtained. Every address-persons brings his/her household into the sample	Smaller counties were over-sampled. The inhabitants of the smallest Hiiu county have, on average, a nearly three times bigger probability of being included in the sample than those who live in other smaller counties. This peculiarity is needed in order to obtain a sufficient sample size for Hiiu county which would ensure sufficiently accurate estimates to be gained from the survey on this sparsely populated county.	Population Register
Finland	Individual (15 and over)	Y	1	The Finnish HBS selects non-institutionalised persons aged 15 or over from the Population Register, i.e. a single-stage selection is used.	The population is stratified into ten groups, taking into account the region and the type of municipality. The allocation is proportional as far as possible with the exception of the region of Åland, which has a proportionally larger sample size than the other groups, because otherwise it would end up including an insufficient number of respondents for analysis.	Population Register
France	Household	Y	2	The sample is selected from a list based on the 2009 Census and updated with the new constructions.	_	Population Census (2009) updated with the new constructions
Germany	Household	N	1	In this stage from each primary sampling unit the sample of ultimate units (households) is selected.	Type of household, income, main status of person with highest income in household	Households recruited by common and special advertising in all areas of Germany
Greece	Household	Y	2	The two-stage area sampling was applied for the HBS 2010. The sample of private households was selected in two stages. The primary units are the areas (one or more unified building blocks) and the ultimate sampling units selected in each sampling area are the households. .	There are two levels of area stratification in the sampling design. The first level is the geographical stratification based on the partition of the total country area into thirteen (13) Regions corresponding to the European NUTS 2 level while plus to these there are also the two former major city agglomerations (Athens and Thessaloniki).	Population Census 2001
Hungary	Household	Y	2	Two stage, first stage is a stratified sample of settlements, second consists of households, with selected unequal probability.	Over-sampling: households with higher educated members	Population Census 2001
Ireland	Household	Y	2	A two-stage sample design was used. This comprised of a first stage sample of almost 2,600 blocks (or survey areas) randomly selected at county level to proportionately represent the following eight strata relating to population density: 1. County Borough 2. Suburbs of County Boroughs 3. Environs of County Boroughs 4. Towns 10,000 + 5. Towns 5,001 - 10,000 6. Towns 1,000 - 5,000 7. Mixed Urban/Rural Areas 8. Rural Areas The second sampling stage involved the random selection of two independent samples of 3 original households and 3 substitute households for each survey area. The number of original sample households constituted the quota of co-operating households to be realised in each survey area and the interviewer systematically approached as many substitute households as was necessary subject to a maximum of 3 to realise this quota. In this fashion, variations in response by region and town size were controlled.	_	_

Italy	Household	Y	2	Two-stage selection: first, a sample of geographical areas (municipalities) is selected, typically with probabilities proportional to size; second stage consists of the simple random selection, within each sample area, of households.	-	Municipality population registers
Latvia	Address	Y	2	Stratified two-stage random sample was used. Stratified systematic sampling with inclusion probabilities proportional to unit size had been carried out at the first stage and simple random sampling had been carried out at the second stage. The annual address sample is evenly distributed over time (the same number of addresses is sampled within each of the 52 weeks of the year) and space.	-	Census
Lithuania	Person aged 16 and over	Y	1	The entire territory is broken down into 113 non-overlapping parts – strata; the strata are comprised of the inhabitants of county centres, a city/town of each municipality (except inhabitants of county centres), a village of each municipality.	The sample is not distributed proportionately across different areas. The sample size in the cities is bigger due to a higher number of refusals.	Population Register
Luxembourg	Household	Y	1	Region (3 categories: Luxembourg-city and surroundings, the two cantons of Esch and Remich, the rest of the country) and household size (4 categories: 1, 2, 3 and 4 or more)	–	Population Register
Malta	Household	Y	1	–	–	Population and Dwellings Register
Netherlands	Household	Y	2	The sample for the HBS consists of two separate samples. Households in the first sample fill in all their expenditures during a two-week period and a questionnaire on their fixed costs. . Households in the second sample fill in all their expenditures > 20 euro during a 3-month period and a questionnaire about durables.	The HBS-sampling design can be classified as a stratified two-stage sampling design, with municipalities as primary sampling units and addresses as secondary sampling units	Population register
Norway	Person	Y	2	_	Region	Area Frame
Turkey		Y	2	Two stage, stratified cluster sampling is used. In the first stage the blocks defined as primary sampling units (PSU) are selected from the sampling frame. Quarterly 18 households are selected from the selected blocks. The selection procedure of PSU is probability proportional to block size and the households are determined by the systematic selection from the blocks. In the selection of blocks, each locality that has not municipality (i.e. village) is defined as one block in the selection procedure. 36 households are selected at once form each selected block then separated into two sets named A and B. In order to reduce response burden, only one of these sets are interviewed in each quarter. However, the case in the villages is different. Every quarter 18 households are selected and interviewed from each village.	There are 2 subsamples in each quarter with %50 overlap of blocks between two subsequent quarters.	Address Based Population Register System and National Address Database
Montenegro	Household	Y	2	First sample stage was taken as a stratified πps sample (probability proportional to size, without replacement) of enumeration areas - unequal probability. Second sample stage was taken as a SRS and second stage component is the inverted inclusion probability of each household in the selected EAs, w2i=Mi/5, where Mi is the number of households in selected EA number i and 5 is selected household primarily selected. Also, in addition 3 households in every EA's were selected as substitutions.	-	Census 2003
Former Yugoslav Republic of Macedonia	Dwelling	Y	2	Primary sampling units are selected proportional to the number of households in strata. In first stage randomly are selected 210 enumeration districts (ED) using stratification criteria The second stage quarterly consists of the simple random selection of 6 households/dwellings within each sampled ED.	_	Census 2002
Poland	Household	Y	2	The adopted sampling scheme was a geographically stratified and two-stage one with different selection probability at the first stage. The sampling units for the first stage were the area survey points (asp) and those for the second stage were dwellings. The first stage sampling frame was based on the records of statistical areas (sets of areas) designed for the National Census purposes and updated annually by the changes resulting from the administrative division of the country as well as construction of new and dismantle of old houses. The sampling frame keeps in record information about every statistical area concerning address characteristics as well as the estimated numbers of inhabitants and dwellings.	Additionally the sample of 108 rural asp was drawn and divided in proportion to the number of dwellings in rural strata.	Records of statistical areas (sets of areas) designed for the National Census purposes

Portugal	Dwelling	Y	2	First stage corresponds to census enumeration areas of the Master Sample 2001. In the second stage of sampling design, for each area of the MS (primary sampling units), a set of dwellings (second sampling units) were picked. All persons were selected in each selected dwelling. Usually the relation one dwelling-one household holds, but in a few dwellings, it was reported the existence of more than on household.	-	Census 2001
Romania	Dwelling	Y	2	The first stage consisted in selecting 780 research centres (Primary Sampling Units) from the Population and Housing Census –2002 using the method of stratified and balanced sampling of PUs (Primary Units) within each layer, thus forming the Multifunctional Sample of Territorial Areas (the EMZOT'2002 master sample) as a sampling frame for household sample surveys conducted in the inter-census period. The stratification criteria were the county and the residence area, 88 layers resulting from their intersection (in Bucharest Municipality, the selection was made separately for each of the 6 administrative sectors). EMZOT is a sample of 780 research centres distributed in all counties and in the sectors of Bucharest Municipality (427 in urban areas and 353 in rural areas). The second stage consisted in selecting 9360 permanent dwellings per quarter, in 3 monthly waves of 3120 dwellings each, based on a systematic selection algorithm. The dwellings selected during the second stage are considered as secondary sampling units. Of each research centre, 12 dwellings per quarter, that is 4 dwellings per month, were included in the sample.	-	Population Census 2002
Slovakia	Dwelling	Y	2	2 stages: In the each region (8) and in the each size of municipality (7): 1. Municipality (total 272 municipalities; some small-size municipalities were grouped and the greatest cities were divided into smaller areas for the selection of units – there was used probability sampling; 2. Dwellings – by random walk.	National statistical office realised with the survey Household types whose household structure and lower income were in high correlation. Correction of this oversampling was taken into account in weighting.	Population and Housing Census 2001
Slovenia	Address	Y	1 in bigger settlements, 2 in smaller settlements	The sample stratification was made with regard to 12 statistical regions and 6 types of settlement. In bigger settlements (with over 10 000 inhabitants) we used systematic random sampling. In smaller settlements, at the first level selection was made of sampling units of the first stage by the type of settlement. Sampling units of the first stage were selected with regard to their size (number of inhabitants), and then in each selected unit the sampling of clusters with four persons which define the households was used.	Strata with lower survey rate in previous years than other strata (settlements with 10000 to 100000 inhabitants and Ljubljana, the capitol of Slovenia).	Central Population Register
Spain	Dwelling	Y	2	A two stage sample has been used with stratification of the primary sampling units. The Primary sampling units (PSUs) are the census sections in which the whole country is divided at the moment of the survey. The second stage units (SSUs) are main family dwellings. No subsample has been carried out at all and all households who reside in the dwelling are investigated. Sections were selected, within each stratum, with probability proportional to its population size and dwellings with equal probability in each section of the sample by means of systematic sample with random start. An independent sample has been selected within each autonomous community (region). Strata are defined according to size of municipality of residence and substrata according to socio-economic status and other variables related to the activity situation and the age.	In the scope of País Vasco and Comunidad Foral de Navarra, the survey has been conducted in partnership with the Basque Statistics Institute (Eustat) and the Statistics Institute of Navarra (IEN) respectively, so in both regions the sample size has been duplicated.	Use of an area frame and Register
Sweden	Individual (0-79)	Y	1	Probability sampling of individual ,no stratification	_	Total Population Register

United Kingdom	Household	Y	2	**<u>Great Britain sample</u>:** The LCF employs a two-stage sample design. Postcode sectors are used as the Primary Sampling Units (PSUs), with 18 addresses selected from each PSU to form the monthly interviewer quota. Until 2006, 672 PSUs were drawn before the reporting year using probability proportional to size (PPS). 56 PSUs were then assigned to each month to ensure a nationally representative sample in each quarter of the year. For 2007, a decision was made late in 2006 to reduce the LCF sample by 5 per cent. A decision was taken to remove 34 PSUs (i.e. 5 per cent of the originally selected PSUs) from the sample rather than reduce the size of each quota and/or re-draw the sample with a reduced number of PSUs. In removing PSUs care was taken to retain an even monthly pattern with a balanced sample in each month and quarter with respect to the stratum variables. This reduced the size of the initial sample to 11,484 households. **<u>Northern Ireland sample</u>:** Sampling and fieldwork in Northern Ireland are carried out by the Central Survey Unit of NISRA. In Northern Ireland 300 addresses are sampled using the Land and Property Services Agency's (LPSA) property database. This database contrails all residential addresses, therefore each household has an equal chance of selection. A systematic random sample of residential addresses is drawn from the LPSA's database. The database is sorted by district council and ward. Therefore the systematic sample drawn from the database is stratified geographically.	–	Small user file of the post code address file (GB) and the Land and Property services agency list (NI).

APPENDIX 3: Items covered in the diaries

Country	Items covered in the diary
BE	For expenditures: quantity, quantity measurement unit, type of expenditure, information on the product, amount paid (euro), amount remaining to pay, location of the purchase, and country of the purchase. For self-employed persons: percentage of the expenditure for professional use. For a secondary business activity: the expenditure related to the purchase of raw materials. For business expenses (except for self-employed persons): refundable or not by the employer. For incomes: date of income, household member, description of income, amount (euro). For some households (including self-employed persons): part kept by the household member. For benefits in kind: estimated amount and origin of benefits.
BG	All monetary expenditures in detail; monetary income from all sources; receipts, savings and debts; benefits in kind and own production; use of food products and non-food goods; manufactured raw materials and products, obtained from the processing.
CZ	The diary consists of Parts I to Parts V listed in the quality report and consists of detailed income and expenditure forms. The household records their incomes and expenditures daily. The HBS collects information referring to the whole household.
DK	The households write down every single expense in this period. The diary keeping is conducted in different households throughout the calendar year, so seasonally changes are taken into account.
DE	Income (on a very detailed level according to a national classification), consumption (predominately COICOP-4-digits) and non-consumption expenditures (on a detailed level according to a national classification)
EE	Expenditure on food products and consumer goods, taxes paid and payments made; the consumption of self-produced food products, food products received as payment in kind and free food products
IE	Expenditure on all items/services purchased during two week period, including detailed description, weight/volume, where item purchased. Monetary winnings collected during two-week period. Home-grown and wild food brought into the home during the record keeping period. Expenditure on trips abroad. Business expenditure bought within two weeks that will be refunded
EL	All types of expenditure
ES	Households registers every kind of expenditure along two weeks (14 days) except receipts (electricity, school, etc.) and other regular expenditures that are collected in a specific questionnaire ("last receipt") with complementary information (how often has been paid in last twelve months, etc.)
FR	Mainly food and beverages
IT	Food and beverages, tobaccos, pharmaceutical products , newspapers and other almost daily expenditures
CY	Everything that was purchased or produced by the household, during the fourteen day period, and is included in COICOP.
LV	Expenditure on food products, tobacco products and alcoholic beverages; outdoor meals; expenditure on non-food products and services; food products obtained for the household consumption from the personal farm plot or received free of charge
LT	This diary aims at the collection of household expenditure on food and non-food products and services. Two pages of the diary are meant for everyday records in tables for food, clothing and other non-food goods. For the rest days of the month only expenditure on non- food products and services is registered. Half of the surveyed households record expenditure on food in the first half of the month, while the other – in the second. Expenditure and income related to agricultural production of the household is recorded by respondents for the previous 12 months.
LU	All expenditures on food, beverages, tobacco and restaurants
HU	All types of expenditure
MT	Food and beverages, meals and drinks consumed away from home, clothing and footwear, personal or house maintenance, medicines, medical products and equipment, own consumption and other regular expenditure.
NL	The households write down every single expense in the two-week period and every single expense > 20 euro in the 3 months period. In addition, households fill in a questionnaire concerning all their fixed costs
AT	All types of expenditure
PL	Expenditures connected with routine maintenance of the household: purchase of goods and services, repayment of loans and credits (except for mortgage loans), cash remittances connected with purchase of goods on credit, deposits made, purchase of securities, gifts and alimonies, insurance premiums (except for dwelling insurance), paid taxes, granted loans, value of goods (services) received for free (gifts), incomes.
PT	All current private expenditures on goods and services are considered, namely food and beverages, tobacco, home equipment non-durable, fuel or gas, gambling, restaurants and cafeterias. Any good or service likely to be consumed with a frequency of at least once in a fortnight, is assumed as current.

RO	Expenditures, household members' revenue and other cash income; incoming and outgoing agricultural products and foods;
SI	In diaries, members of the household enter all daily expenses for products or services purchased for private consumption (type of expenditure, quantity, price), regardless of the mode of payment. Food and drink consumed outside the household and purchases in a foreign country are also included.
SK	Diary was divided in many tables according to type of expenditure. There were used before all open tables with columns for description and recording of payments of goods. Data on expenditure of food and beverages were supplemented by quantitative data (kilograms, litre, and pieces).
FI	Households keep a diary or collect cash register receipts of all their daily consumer goods expenses and expenditure at restaurants, cafes and canteens for two weeks. Moreover, the diary has a space for recording own and received gardening and collected products, game and fish during the last 12 months.
SE	Households kept an accounting book during a two-week period. The expenditures were then multiplied by 26 to get figures corresponding to a 12-month period. These measurements mean that expenditures do not reflect exactly the same measurement period during the year, something which can cause measurement problems. Small expenditures, such as money to buy a litre of milk, can easily be forgotten in the accounting.
UK	All food and drink items, and non-food items not included in the diary
HR	Food, beverages, tobacco, products for personal hygiene, newspapers, consumption of agricultural food products from own production
NO	
TR	Name and description of good and service, unit of measure, quantity, total value, place of purchase,
ME	The diary contains identification of household, 30 pages from the first day to the end of 31th day, columns type of products/services; Quantity; Measurement unit; Paid in EUR, Purchased (supermarket, retailer shop, at counter, other abroad); Transaction (purchased, own production, own business, gifts/received/transfers, gifts/given/transfers, revenue); Purpose (personal, agriculture, business) and codes of products.
MK	All types of expenditure

APPENDIX 4: COLLECTION OF SUBSTANTIVE INFORMATION

Country	Collection of substantive information		
	Collection of substantive information: instrument	**Recording unit**	**Items covered**
BE	Household questionnaire and individual questionnaire	Household and Individual	For the individual questionnaire : employment, main business activity, search for a job, education and formation, level of study, health, marital status and children, income, absence from the dwelling. For the household questionnaire: composition of the household, accommodation, durable goods, recurring expenses.
BG	Introductory interview at the beginning of the recording year; Interview at the end of each surveyed month; Retrospective questionnaire.	Household and Individual	Introductory interview (household and individual): household characteristics, age, education, marital status of household members, housing, possession of durables. Interview at the end of each month (individual): activity status, occupation, status in employment, hours worked. Retrospective questionnaire (household): some irregular income and expenditure on durable goods during the previous two months.
CZ	Household reports all substantive information on entering the survey, subsequently only changes are reported.	Household	The required information about household as a whole and about its members (household composition and data on individual members, durables, property).
DK	Interview	Household	They have been asked about regular outlays a year back, major expenses, the stock of durable kept by the households, the use of service within the health system, education and child care, and some incomes.
DE	Paper questionnaire, CAWI	Households or member of households	Composition of household, sex, year of birth, marital status, educational attainment, activity status, housing, capital goods, insurances, fortune, debts.
EE	Household Questionnaire	Household	Core variables (general data on the household and its members, relations in household, demographic data of household members, education of household members, working life of household members, health of household members, living conditions of household); income; goods and services; participation in tourism.
IE	Household and individual questionnaire	Household and individual	Recall period of 12 months. Data collected on all regular expenditures eg mortgages, rent, utility bills, insurance premiums and large infrequent purchases, eg vehicle purchase. Demographic, education, activity status and income details collected of all household members, housing characteristics, tenure, possession/availability of certain household durables and facilities.
EL	Household and individual questionnaire	Household and individual	Background characteristics are covered in the first interview and income questions in the second.
ES	Questionnaires	Household and Individual	In the first interview before the recording period information about the household and its members (except income, asked in the final interview) and also monthly expenditures are collected. Following interviews collect last receipt, annual and quarterly information (in this order, a questionnaire for each reference period).
FR	2 questionnaires	Household	All except food and beverages.
IT	Questionnaire	Household	Background characteristics at individual level; expenditure on clothing and footwear, housing, medical services, transport, communication, recreation and culture and other goods and services not included in the diary at household level.
CY	Questionnaire	Household	The reference person gave all the information for the main part of the questionnaire. Usually two interviews were held around the recording period. In the first interview mostly background characteristics were covered, while in the second interview income questions were covered.
LV	The Household Questionnaire.	Household and Individual	Preliminary interview consists of questions related to background characteristics of household composition, employment of household members, households' living conditions, disposable land area, while the final interview involves questions regarding household cash income (from household respondent or each household member), income in kind received from employer or social aid, cultural and household facilities. Reference period for consumption expenditure on durable goods and more rarely made purchases and payments is last 12 months, for consumption expenditure for the rent, water, electricity, gas and other fuels – last payment.

LT	Main Household Questionnaire	Household and Individual	The first interview consists of general questions related to household composition, its living conditions, employment of household members, land area used, while the second involves questions regarding household cash income (from a household respondent or each household member), income in kind received from the employer or social aid, cultural and household facilities, self-assessment of the economic situation, recall questions (last 2 month) about goods and services more expensive than LTL 200.
LU	Questionnaire	Household	All the expenditures not covered in the diary socio-economic characteristics of the household members: age, gender, marital status, citizenship, occupation, education ... ; information related to the dwelling: type, occupation status, year of construction, surface …
HU	Questionnaire	Household	Housing conditions, personal characteristics, incomes, debts, durables.
MT	Questionnaire	Household	Demographic details of household members, income variables.
NL	Questionnaire	Household and individual	Household characteristics, age, sex,, marital status of household members, education, labour status.
AT	2 interviews	Household and Individual	Information about the household and members; periodic expenditures for housing, insurance, education; expenditures for bigger purchases (retrospective 12 month) e.g. car, furniture, TV
PL	"Household Statistical Sheet" Questionnaire	Household	"Household Statistical Sheet" questionnaire, in which recorded were income and expenditures connected with use of house (dwelling) and selected regular payments. "Income in kind from hired work" (quarterly) and "Additional information about household" for durable goods and rare outgoings in household (quarterly).
PT	CAPI	Household and individual	1st visit: Demographic and economic (labour, income) information on households and individuals (Type of dwelling, living area, number of rooms, year of construction, sex, age, education, activity status, income by sources of income, possession of durables and access to facilities. 2nd visit (household interview): collection of expenditures on goods and services which are likely to be consumed monthly, quarterly or annually.
RO	Questionnaire	Household	Household composition, activity, agricultural products and foods and alcoholic beverages, non-food purchases, expenditures for services, revenues and other cash incomes, living conditions, endowment with durable goods.
SI	Questionnaires	Household and Individual	In the questionnaire, some basic data are entered for all members of the household (e.g. name, gender, data of birth, relation to the head); then the survey is completed for members younger than 15 years. The survey is continued by posing questions to members of at least 15 years of age which refer to data on their marital status, education, their work habits, activity status, and also travel and personal income. Questions intended for the household as a whole concern the dwelling and any other accommodations of the household (e.g. characteristics, equipment with installations, tenure status, expenses, availability of consumer durables), expenses for motor vehicles, furnishing, household equipment and maintenance, clothing and footwear, costs related to children, education, transport and home help, other costs (e.g. taxes, insurance, hospital care), money transfers and gifts, the financial situation of the household, income of the household, and own production consumed in the household.
SK	Household questionnaire and individual questionnaire, registers	Household and Individual	Background characteristics are covered in the first interview and income questions in the second. However, other instruments may be used for the collection of substantive information, mostly registers and/or questionnaires (household/individual).
FI	CATI (two telephone interviews) + Administrative Register	Household	During the interview, the structure of the household is verified against register data (number of household members, names and family connection), and information is collected about the members of the household (occupations and activity on the labour market). Information is collected on durable goods, housing expenditure, insurance, education, health care, day care, social services, travel expenses etc. Administrative registers are exploited for the collection of background information. Data on the incomes, taxes and education of household members are obtained from registers.
SE	Computer-assisted telephone interviews + Administrative Register.	Household	The survey has two Computer-assisted telephone interviews per household arranged around the recording period. Background characteristics are covered in the first interview and in the second interview we collect information about larger expenditures (housing, cars, travels and so on). Information about incomes, taxes and education are collected from administrative registers. The telephone interview helped to outline the household type and the expenditures for usual housing, secondary/holiday housing, fuel for cars, telephone, insurance, travel, some charges and the purchase of some furniture, electrical appliances and capital goods. All expenditures discussed in the telephone interview corresponded to the preceding 12-month period. All expenditures discussed in the telephone interview corresponded to the preceding 12-month period, which means that those answering at the beginning of the year also gave responses referring to the previous year.
UK	Questionnaires	Household and Individual	All regular expenditures (e.g. utilities; mortgage expenses); large, one-off expenditures (e.g. vehicles); income and basic demographic data are collected using the questionnaire.

HR	Household questionnaire and individual questionnaire	Household and Individual	Questionnaire for household members: demographic characteristics, education, activity status, income. Household questionnaire: housing characteristics, housing status, possession of consumer durables, consumption expenditures with different periods depend on the consumption functions.
NO	Interview and register	Household	
TR	CAPI and diary keeping	Household and Individual	The information about the socio-economic status of the households, ,the survey month, consumption expenditures of the sample household on food, clothing, health, transportation, communication, education, culture, entertainment, housing, furniture etc. are obtained through the books of record and interviewing method. Information about employment status, economic activities, occupations, performance in jobs and income of the household members in the survey month and during the last year was compiled in the last interview at the end of the survey month.
ME	Questionnaires	Household	Information for demographic and economic characteristics of the household members (name and surname, age, marital status, activity status, etc.); information for dwelling and possession of durable and semi-durable goods, land and farm assets, expenditure of household for previous three month COICOP group 03- 12; information for income- previous month and expenditure of durable goods- previous twelve month;
MK	2 questionnaires	Household and Individual	In the Household questionnaire: individual data for demographic characteristics, education, activity status, income and housing data that referring to housing characteristics, housing status, possession of consumer durables, etc.