EU-SILC UK 2007

Quality Report

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Preface

According to article 16 of the Regulation (EC) no. 1177/2003 of the European Parliament and of the Council of 16 June 2003 concerning Community statistics on income and living conditions (EU-SILC), Member States and the Commission (Eurostat) will produce the following reports:

Member states shall produce by the end of the year n+1 (2007+1) an intermediate quality report relating to the common cross-sectional EU indicators based on the cross-sectional component of 2007.

Note on UK Data and Intermediate Quality Report for the 2007 Cross-sectional Operation

Please note that the data associated with this Quality Report have been updated since the first release of this document, consequently some of the figures in this Report may be out-of-date. The UK will update this Quality Report to reflect these amendments at the earliest opportunity.

1. Common cross-sectional European Union indicators

In accordance with Eurostat regulation, only cross-sectional indicators have been provided within this report.

Table 1.1 Laeken-Indicators EU-SILC 2007

Indicator	Value	Achieved sample size	Total item non response
At-risk-of-poverty rate after social transfers – total	19.14	21,942	35%
At-risk-of-poverty rate after social transfers – men total	18.05	10,625	35%
At-risk-of-poverty rate after social transfers – women total	20.19	11,317	35%
At-risk-of-poverty rate after social transfers – 0–17 years	23.18	4,323	35%
At-risk-of-poverty rate after social transfers – 18-24 years	19.14	1,511	35%
At-risk-of-poverty rate after social transfers – 25-49 years	13.68	7,103	35%
At-risk-of-poverty rate after social transfers – 50-64 years	15.76	4,359	35%
At-risk-of-poverty rate after social transfers – 65+ years	29.98	4,042	35%
At-risk-of-poverty rate after social transfers – 18+ years	18.1	17,015	35%
At-risk-of-poverty rate after social transfers – 18-64 years	15.06	12,973	35%
At-risk-of-poverty rate after social transfers – 0-64 years	17.07	17,900	35%
At-risk-of-poverty rate after social transfers – men 18-24 years	18.33	729	35%
At-risk-of-poverty rate after social transfers – men 25-49 years	12.73	3,340	35%
At-risk-of-poverty rate after social transfers – men 50-64 years	15.47	2,128	35%
At-risk-of-poverty rate after social transfers – men 65+ years	27.02	1,894	35%
At-risk-of-poverty rate after social transfers – men 18+ years	16.69	8,091	35%
At-risk-of-poverty rate after social transfers – men 18-64 years	14.33	6,197	35%
At-risk-of-poverty rate after social transfers – men 0-64 years	16.54	8,731	35%
At-risk-of-poverty rate after social transfers – women 18-24 years	19.95	782	35%
At-risk-of-poverty rate after social transfers – women 25-49 years	14.61	3,763	35%
At-risk-of-poverty rate after social transfers – women 50-64 years	16.05	2,231	35%
At-risk-of-poverty rate after social transfers – women 65+ years	32.33	2,148	35%
At-risk-of-poverty rate after social transfers – women 18+ years	19.42	8,924	35%
At-risk-of-poverty rate after social transfers – women 18-64 years	15.77	6,776	35%
At-risk-of-poverty rate after social transfers – women 0-64 years	17.61	9,169	35%
At-risk-of-poverty rate after social transfers – employed	7.98	9,076	
At-risk-of-poverty rate after social transfers – unemployed	56.12	212	
At-risk-of-poverty rate after social transfers – retired	31.04	4,191	
At-risk-of-poverty rate after social transfers – other inactive	34.9	2,295	
At-risk-of-poverty rate after social transfers – men, employed	8.16	4,612	
At-risk-of-poverty rate after social transfers – men, unemployed	58.3	133	
At-risk-of-poverty rate after social transfers – men, retired	28.64	1,834	
At-risk-of-poverty rate after social transfers – men, other inactive	34.2	768	
At-risk-of-poverty rate after social transfers – women, employed	7.78	4,464	
At-risk-of-poverty rate after social transfers – women,	51.94	79	

unemployed			
At-risk-of-poverty rate after social transfers – women, retired	32.78	2,357	
At-risk-of-poverty rate after social transfers – women, other inactive	35.28	1,527	
At-risk-of-poverty rate after social transfers – single, <65 years	22.31	1,261	
At-risk-of-poverty rate after social transfers – single, 65+ years	38.99	1,316	
At-risk-of-poverty rate after social transfers – single, male	26.6	1,109	
At-risk-of-poverty rate after social transfers – single, female	32.66	1,468	
At-risk-of-poverty rate after social transfers – single, total	29.91	2,577	
At-risk-of-poverty rate after social transfers – 2 adults, no children, both <65	10.51	3,490	
At-risk-of-poverty rate after social transfers – 2 adults, no children, at least one 65+	25.8	2,814	
At-risk-of-poverty rate after social transfers – other households without children	11.35	1,797	
At-risk-of-poverty rate after social transfers – single parent, at least one child	43.86	1,493	
At-risk-of-poverty rate after social transfers – 2 adults, 1 child	10.64	2,109	
At-risk-of-poverty rate after social transfers – 2 adults, 2 children	12.96	3,664	
At-risk-of-poverty rate after social transfers – 2 adults, 3+ children	30.62	1,832	
At-risk-of-poverty rate after social transfers – other households with children	12.87	1,360	
At-risk-of-poverty rate after social transfers – households without children	19.11	10,678	
At-risk-of-poverty rate after social transfers – households with children	19.47	10,458	
At-risk-of-poverty rate after social transfers – owner or rent-free	13.96	16,830	
At-risk-of-poverty rate after social transfers – tenant	34.14	5,105	
At-risk-of-poverty rate after social transfers – households without children, w = 0[1]	37.85	1,372	
At-risk-of-poverty rate after social transfers – households without children, 0 < w < 1	18.16	1,539	
At-risk-of-poverty rate after social transfers – households without children, w = 1	5.42	4,649	
At-risk-of-poverty rate after social transfers – households with children, w = 0	60.6	1,372	
At-risk-of-poverty rate after social transfers – households with children, 0 < w <0.5	60.2	226	
At-risk-of-poverty rate after social transfers – households with children, w = 1	7.36	7,120	
Median of the equivalised disposable household income			
At-risk-of-poverty threshold – single (PPS)	11,153		35%
At-risk-of-poverty threshold – 2 adults, 2 children (PPS)	23,421		35%
Inequality of income distribution S80/S20 income quintile share ratio	5.456	21,942	35%
Relative median at-risk-of-poverty gap – total	22.75	4,124	35%
Relative median at-risk-of-poverty gap – men total	22.81	1,880	35%
Relative median at-risk-of-poverty gap – women total	22.67	2,244	35%
Relative median at-risk-of-poverty gap – 0-17 years	21.34	954	35%

Relative median at-risk-of-poverty gap – 18-64 years	25.01	1,988	35%
Relative median at-risk-of-poverty gap – 65+ years	20.2	1,182	35%
Relative median at-risk-of-poverty gap – 18+ years	23.23	3,170	35%
Relative median at-risk-of-poverty gap – men, 18-64 years	26.24	898	35%
Relative median at-risk-of-poverty gap – men, 65+ years	18.06	501	35%
Relative median at-risk-of-poverty gap – men, 18+ years	23.44	1,399	35%
Relative median at-risk-of-poverty gap – women, 18-64 years	24.64	1,090	35%
Relative median at-risk-of-poverty gap – women, 65+ years	20.97	681	35%
Relative median at-risk-of-poverty gap – women, 18+ years	23.22	1,771	35%
Median income below the at-risk-of-poverty threshold – total			
Median income below the at-risk-of-poverty threshold – men total			
Median income below the at-risk-of-poverty threshold – women total			
Median income below the at-risk-of-poverty threshold – 0-17 years			
Median income below the at-risk-of-poverty threshold – 18-64 years			
Median income below the at-risk-of-poverty threshold – 65+ years			
Median income below the at-risk-of-poverty threshold – 18+ years			
Median income below the at-risk-of-poverty threshold – men, 18-64 years			
Median income below the at-risk-of-poverty threshold – men, 65+ years			
Median income below the at-risk-of-poverty threshold – men, 18+ years			
Median income below the at-risk-of-poverty threshold – women, 18-64 years			
Median income below the at-risk-of-poverty threshold – women, 65+ years			
Median income below the at-risk-of-poverty threshold – women, 18+ years			
Dispersion around the risk-of-poverty threshold – 40%	6.17	21,942	35%
Dispersion around the risk-of-poverty threshold – 50%	11.72	21,942	35%
Dispersion around the risk-of-poverty threshold – 70%	26.87	21,942	35%
Before social transfers except old-age and survivor's benefits			
At-risk-of-poverty rate before social transfers – total	41.75	21942	35%
At-risk-of-poverty rate before social transfers – men total	38.77	10625	35%
At-risk-of-poverty rate before social transfers – women total	44.62	11317	35%
At-risk-of-poverty rate before social transfers – 0-17 years	41.79	4323	35%
At-risk-of-poverty rate before social transfers – 18-64 years	29.87	13577	35%
At-risk-of-poverty rate before social transfers – 65+ years	90.27	4042	35%
At-risk-of-poverty rate before social transfers – 18+ years	41.74	17619	35%
At-risk-of-poverty rate before social transfers – men, 18-64 years	27.27	6527	35%
At-risk-of-poverty rate before social transfers – men, 65+ years	88.74	1894	35%
At-risk-of-poverty rate before social transfers – men, 18+ years	38.25	8421	35%
At-risk-of-poverty rate before social transfers – women, 18-64 years	32.44	7050	35%
At-risk-of-poverty rate before social transfers – women, 65+	91.48	2148	35%

years			
At-risk-of-poverty rate before social transfers – women, 18+ years	45.04	9198	35%
Before social transfers including old-age and survivors' benefits			
At-risk-of-poverty rate before social transfers – total	30.27	21942	35%
At-risk-of-poverty rate before social transfers – men total	28.24	10625	35%
At-risk-of-poverty rate before social transfers – women total	32.22	11317	35%
At-risk-of-poverty rate before social transfers – 0-17 years	40.91	4323	35%
At-risk-of-poverty rate before social transfers – 18-64 years	25.29	13577	35%
At-risk-of-poverty rate before social transfers – 65+ years	38.24	4042	35%
At-risk-of-poverty rate before social transfers – 18+ years	27.84	17619	35%
At-risk-of-poverty rate before social transfers – men, 18-64 years	23.54	6527	35%
At-risk-of-poverty rate before social transfers – men, 65+ years	34.21	1894	35%
At-risk-of-poverty rate before social transfers – men, 18+ years	25.45	8421	35%
At-risk-of-poverty rate before social transfers – women, 18-64 years	27.03	7050	35%
At-risk-of-poverty rate before social transfers – women, 65+ years	41.45	2148	35%
At-risk-of-poverty rate before social transfers – women, 18+ years	30.1	9198	35%
Gini coefficient	32.878	21,942	35%
Mean equivalised disposable income (PPS)	21,852	21,942	35%
Gender pay gap			

2. ACCURACY

Accuracy denotes the closeness of estimates to the true population values.

2.1 Sampling design

2.1.1 Type of sampling

Data for EU-SILC UK 2007 are collected from two sources. First, data are collected by the Office for National Statistics (ONS), using the General Household Survey. Second, to ensure that EU-SILC is representative of the UK, a sample of approximately 300 households is selected by NISRA (Northern Ireland Statistics and Research Agency) using the "Living conditions Survey (LCS). This small additional sample represents the (approximately) 2% of the UK population that live in Northern Ireland. All of the data analysis and processing is undertaken by ONS.

In 2007, 13,478 addresses were sampled. Each year approximately 70% of the sample is rolled forward from previous years and the remaining 30% is a new “Wave 1” sample. EU-SILC UK aims to interview all adults aged 16 or over at every household at the sampled address. EU-SILC UK uses a probability, stratified two-stage sample design.

2.1.2 Sampling units (one stage, two stages)

Households are sampled from the small users Postcode Address File (PAF). This is an up to date list of all addresses maintained by the UK Post Office. The Postcode address file is ordered by postcode sector, which are similar in size to a UK electoral ward area. The postcode sectors are the Primary Sampling Units (PSU-1) for EU-SILC and the Secondary Sampling Units (PSU-2) are addresses within those sectors.

2.1.3 Stratification and sub-stratification criteria

Stratification involves the division of the population into sub-groups, or strata, from which independent samples are taken. This ensures that a representative sample is drawn with respect to the stratifiers. Stratification of a sample can lead to substantial improvements in the precision of the survey estimators.

Initially, postcode sectors were allocated to 30 major strata. These were based on the 10 Government Office Regions in England (sub-divided between the former Metropolitan and non-Metropolitan counties. In addition London was subdivided into quadrants (Northwest, Northeast, Southwest and Southeast) with each quadrant being divided into inner and outer areas (Annex 1). Using a finer division of London significantly improves the precision of estimates), 5 subdivisions in Scotland, 2 in Wales and 1 in Northern Ireland.
Within each major stratum, postcode sectors were then stratified according to selected indicators taken from the 2001 Census. Sectors were initially ranked according to the proportion of households with no car, then divided into three bands containing approximately the same number of households. Within each band, sectors were re-ranked according to the proportion of households with a household reference person in socio-economic groups 1 to 5 and 13 (Annex 2), and these bands were then sub-divided into three further bands of

approximately equal size. Finally, within each of these bands, sectors were re-ranked according to the proportion of people who were pensioners.

Major strata were then divided into minor strata with equal numbers of addresses, the number of minor strata per major strata being proportionate to the size of the major stratum. In 2005 the frame was divided into 720 strata. In 2006, 588 of these were rolled forward to the next wave in the longitudinal design. There were 132 pseudo wave 4 strata which were replaced and an additional 96 strata added, giving 816 for 2006. In 2007, 588 of these were again rolled forward to the next wave in the longitudinal design. There were 132 pseudo wave 4 strata which were replaced and an additional 96 strata added, giving 816 for 2007. Each PSU formed a quota of work for an interviewer. Within the 228 new PSUs, 23 addresses were randomly selected.

2.1.4 Sample size and allocation criteria

Member states have to achieve a Minimum Effective Sample size which for the UK is 7,500 households and 13,750 persons aged 16 or older.

In 2007, 13,478 addresses were selected for survey, yielding a sample of 9,275 eligible households. Within these households 21,942 people were residents of whom 17,484 were eligible for a personal interview (aged at least 16 years of age).

The estimated design effect is not yet available, but will be added to this report along with the estimated effective sample size in due course.

2.1.5 Sample selection schemes

EU-SILC UK uses a two-stage sampling scheme:

1. Selection of a Primary Sampling Units (PSUs) utilising a probability proportional to size sampling scheme.
2. Systematic random sampling of 23 addresses within a PSU.

2.1.6 Sample distribution over time

Household interviews for EU-SILC UK are spread evenly throughout the calendar year. Typically a small number of interviews will be completed in January of the following year.

Table 2.1 Distribution of the EU-SILC UK sample over time[1]

Date of interview	Number of households
01/01/07 – 31/01/07	621
01/02/07 – 28/02/07	720
01/03/07 – 31/03/07	778
01/04/07 – 30/04/07	799
01/05/07 – 31/05/07	821
01/07/07 – 30/07/07	809
01/07/07 – 31/07/07	720
01/08/07 – 31/08/07	880
01/09/07 – 30/09/07	802
01/10/07 – 31/10/07	826
01/11/07 – 30/11/07	814
01/12/07 – 31/12/07	559
01/01/08 – 31/01/08	126
Total	9,275

1 Information based on data presented in the Household Data file.

The survey was carried out using Computer Assisted Personal Interviewing (CAPI) on laptop computers by face-to-face interviewers. In addition, some telephone interviewers were used to convert EU-SILC UK proxy interviews to full interviews.

2.1.7 Renewal of sample: rotational groups

In the UK, 2005 was the initial year for the EU-SILC survey. In 2005, the GHS adopted a new sample design in line with EU-SILC requirements, changing from a cross-sectional to a longitudinal design.

The new sample design follows a four-yearly sample rotation in which households remain in the sample for four years (waves) and one quarter of the sample is replaced each year. Each quarter of the sample is known as a replication.

Once the system is fully established (from year 4 onwards - 2008) the sample for any one year consists of 4 replications which have been in the survey for 1, 2, 3 or 4 years.

Table 2.2 Renewal of sample: Rotational groups

Sample replication	Year 1 (2005)	Year 2 (2006)	Year 3 (2007)	Year 4 (2008)	Year 5 (2009)	Year 6 (2010)
1	1st					
2	1st	2nd				
3	1st	2nd	3rd			
4	1st	2nd	3rd	4th		
5		1st	2nd	3rd	4th	
6			1st	2nd	3rd	4th
7				1st	2nd	3rd
8					1st	2nd
9						1st

2.1.8 Weightings

This section describes the methods used to calculate weights for the UK EU-SILC 2007 survey. The methods are broadly consistent with those recommended by EUROSTAT.

2.1.8.1 Design factor

The design factor, or deft, of an estimate *p* is the ratio of the standard error of *p* compared to that, that would have resulted had the survey design been a simple random sample of the same size.

The design weight is calculated with reference to the design of the sample to take into account the inclusion probability of the selection unit. Within the UK, direct sampling of addresses is used, but no extra weighting is applied to account for sampling households within addresses. The design weight, is defined as the inverse of the probability of selection.

2.1.8.2 Non-response adjustments

All surveys accept that there will be some degree of non-response, although great efforts are made to keep it to a minimum.

The aim of non-response weights is the reduction of bias caused by unit non-response at a household level. The correction of this bias requires knowledge of the response probability of each of the responding households. The households can then be re-weighted by the inverse of this probability.

Weighting for unit non-response involves giving each respondent a weight so that they represent the non-respondents who are similar to them in terms of survey characteristics. To be able to use this method, information about non-respondents is needed. By their very nature, however, non-responding households yield very little information.

Within-household non-response inflation factor, which is related to Eurostat's recommendation in PB040 (i.e. spreading the original weight a non-responder receives across responding members of their household), has not been supplied. However, a household non-response inflation factor has been provided based on household non-response weights.

The decennial Census was found to be the most appropriate source of information about non-responding addresses on EU-SILC UK. Unlike EU-SILC UK, which relies upon voluntary co-operation from respondents, the Census is mandatory, therefore non-response is kept to an absolute minimum. By matching Census addresses with the sampled addresses of EU-SILC UK it was possible to match the address details of the EU-SILC UK respondents as well as the non-respondents with corresponding information gathered from the Census for the same address. It was then possible to identify any types of household that were being under-represented in the survey.

Attrition is a form of non-response found on longitudinal surveys between waves. The 2007 EU-SILC is the survey's third year in the UK; this meant that approximately three-quarters of sampled households had been surveyed in 2006. As these sampled households had previously participated in the survey, details of respondents and non-respondents were

linked back to their corresponding information at the previous wave. Logistic regression was used to model the likelihood of response in the current wave against the characteristics of households at their interview in the previous wave. A variety of household variables such as household composition, tenure, region and car ownership were tested for inclusion. Characteristics determined as significant by the logistic regression model (at the five per cent significance level) were used to weight for this attrition. The variables reaching significance are listed in Table 2.3 below.

Table 2.3 Variables included in the logistic regression model of household attrition in 2007

Variable
Current wave
Government Office Region
Accommodation type
Household composition
Age of household reference person
Ethnicity of household reference person
Year of arrival into the United Kingdom of the household reference person
ILO employment status of household reference person
Employment contract of household reference person
Total number of hours worked by household reference person
Personal income benefits received by the household reference person
Total number of residents in the household who smoke
Total number of residents in the household who consume alcohol

2.1.8.3 Adjustments to external data (level, variables used and sources)

Adjustments, in general, are made to improve the accuracy of data, meaning the closeness of survey-based estimations or computations to the “true” values.

The EU-SILC sample is based on private households, which means that the population totals used in the weighting need to relate to people in private households. These totals are consistent with those used on the British Labour Force Survey (LFS). The LFS derives household population estimates by excluding residents of institutions from population projections based on mid-year estimates.

The population information and EU-SILC UK data were grouped into twenty-eight age by sex categories within six regional categories to form weighting classes. The weighting consists of adjusting the existing weights (including factors for design and non-response) so that the final weights ensure that the weighted totals for the above demographic categories match the population totals.

Age-group by sex

0-4	Males and Females		
5-15	Males and Females		
16-24	Males	16-24	Females
25-44	Males	25-44	Females
45-64	Males	45-64	Females
65-74	Males	65-74	Females
75+	Males	75+	Females

Regions

Metropolitan
Non-metropolitan
London
South East
Wales
Scotland
Northern Ireland

This procedure, also known as population based weighting or grossing, was carried out using the GES SAS macro. This method ensures that all individuals within a household are given the same final weights.

2.1.8.4 Final cross-sectional weight

The final cross-sectional weight was obtained after “integrative” calibration. Integrative calibration can use calibration variables defined at the individual and household level (only individual variables were used in this instance).

Eurostat recommend using NUTSII. EU-SILC UK has not used NUTSII, instead, a Region variable used on the British General Household Survey (GHS) has been utilised. A detailed classification like NUTSII poses the problem of small cells (when there are not enough respondents within a calibration group).

2.1.9 Substitutions

In 2007, no substitutions were made.

2.2 Sampling errors

Sampling errors: refers to the variability that occurs at random because of the use of a sample rather than a census.

2.2.1 Standard errors and effective sample size

Table 2.4 Mean, Total Number of Observations and Standard Errors for Income Components (unweighted)

Income Component	Mean	Number of Observations	Standard Error
Total household income variables			
Total household gross income	35,988	9,275	435.6
Total disposable household income	27,171	9,275	291.0
Total disposable household income before social transfers other than old-age and survivor benefits	24,885	9,275	306.4
Total disposable household income before social transfers including old-age and survivors' benefits	19,475	9,275	285.5
Gross income components at household level			
Imputed rent	5,572	9,275	37.8
Income from rental of a property or land	337	9,275	28.5
Family/child related allowances	730	9,275	18.3
Social exclusion not elsewhere classified	366	9,275	16.3
Housing allowances	404	9,275	16.4
Regular inter-household cash transfer received	117	9,275	12.3
Interest, dividends, etc.	1,304	9,275	84.7
Interest repayments on mortgage	2,001	9,275	45.4
Income received by people aged under 16	12	9,275	1.9
Regular taxes on wealth	1,033	9,275	7.6
Regular inter-household cash transfer paid	155	9,275	13.0
Tax on income and social contributions	7,629	9,275	150.9
Gross income components at personal level			
Employee cash or near cash income	11,952	17,484	196.5
Non-cash employee income	202	17,484	10.4
Employer's social insurance contribution	814	17,484	37.9
Contributions to individual private pension plans	167	17,484	9
Cash benefits or losses from self-employment	1,606	17,484	86.8
Value of goods produced for own consumption	0	17,484	0
Pension from individual private plans	165	17,484	17
Unemployment benefits	33	17,484	3
Old-age benefits	3,081	17,484	119.1
Survivor's benefits	39	17,484	5.9
Sickness benefits	125	17,484	5.9
Disability benefits	119	17,484	6.3
Education-related allowances	35	17,484	4.7
Gross monthly earnings for employees	1,679	17,484	22.9

Table 2.5 Mean, Total Number of Observations and Standard Errors for Income Components (weighted)

Income Component	Mean	Number of Observations (000's)	Standard Error
Total household income variables			
Total household gross income	36,041	25,416	479.1
Total disposable household income	27,145	25,416	323.2
Total disposable household income before social transfers other than old-age and survivor benefits	24,746	25,416	341.4
Total disposable household income before social transfers including old-age and survivors' benefits	20,059	25,416	288.7
Gross income components at household level			
Income from rental of a property or land	337	25,416	32.1
Family/child related allowances	722	25,416	14.5
Social exclusion not elsewhere classified	398	25,416	18.0
Housing allowances	453	25,416	21.0
Regular inter-household cash transfer received	107	25,416	10.9
Interest, dividends, etc.	1,129	25,416	72.3
Interest repayments on mortgage	2,065	25,416	44.5
Income received by people aged under 16	11	25,416	1.9
Regular taxes on wealth	1,002	25,416	7.2
Regular inter-household cash transfer paid	162	25,416	16.4
Tax on income and social contributions	7,732	25,416	161.2
Gross income components at personal level			
Employee cash or near cash income	12,280	48,387	198.7
Non-cash employee income	197	48,387	10.6
Employer's social insurance contribution	791		38.3
Contributions to individual private pension plans	164	48,387	9.3
Cash benefits or losses from self-employment	1,658	48,387	98.4
Value of goods produced for own consumption	0	48,387	0
Pension from individual private plans	135	48,387	14.9
Unemployment benefits	42	48,387	5
Old-age benefits	2,638	48,387	121.4
Survivor's benefits	37	48,387	6.1
Sickness benefits	127	48,387	6.3
Disability benefits	120	48,387	6.7
Education-related allowances	40	48,387	5.5
Gross monthly earnings for employees	1,661	48,387	23.5

2.3 Non-sampling errors

Survey results are subject to various sources of error. The total error in a survey estimate is the difference between the estimate derived from the sample data collected and the true value for the population.

2.3.1 Sampling frame and coverage errors

The target population of EU-SILC UK is all private households and their current members at the time of data collection. Persons living in collective households and in institutions are excluded from the target population. There are no known coverage errors associated with EU-SILC UK.

Table 2.6 Contact at address

	Frequency	Percent	Cumulative percent
Address contacted (11)	12273	91.1	91.1
Address cannot be located (21)	309	2.3	93.4
Address unable to access (22)	4	.0	93.4
Address does not exist or is non-residential or is unoccupied or not principal address (23)	458	3.4	96.8
Missing	434	3.2	100.0
Total	13478	100.0	

2.3.2 Measurement and processing errors

2.3.2.1 Measurement errors

Measurement error occurs when data are consistently biased in a certain way, such that the variation from the true values for the population will not average to zero over repeats of the survey. For example, if a certain section of the population is excluded from the sampling frame, estimates may be biased because non-respondents to the survey have different characteristics to respondents. Another cause of bias may be that interviewers systematically influence responses in one way or another. Substantial efforts have been made to avoid measurement errors, for example, through extensive interviewer training and by weighting the collected data for non-response. With regards interviewer training, face-to-face and telephone interviewers who work on EU-SILC UK are recruited only after careful selection procedures after which they take part in an initial training course. Before working on EU-SILC they attend a briefing and new recruits are always supervised either by being accompanied in the field by a Field Manager or monitored by a Telephone Interviewing Unit supervisor (TIUs). All interviewers who continue to work on EU-SILC are observed regularly in their work.

2.3.2.2 Processing errors

Data collection is carried out by face-to-face interviewers using Computer Assisted Personal Interviewing (CAPI) on laptop computers. Blaise software (developed by Statistics Netherlands) is used, which is an integrated system for survey processing. The use of Blaise enables a reduction in processing-errors as data can be "checked" as it is entered by interviewers. For example, all income data is "checked" at the point of collection to make sure that Net values are not greater than Gross values for an individual.

Data is converted from Blaise to SPSS and is edited using this software. At this stage there is further checking for the consistency and plausibility of data.

2.3.3 Non-response errors

There are two main types of non-response errors - unit non-response and item non-response.

In strictly controlled circumstances, interviewers are allowed to conduct a proxy interview with a close household member to reduce unit non-response errors. Proxy interviews are only used where it has proved impossible, despite repeated calls, to contact a particular member of a household in person. In these cases, some questions are omitted, for example those which are more subjective such as those relating to health.

Further effort is directed towards reducing item non-response by converting these proxy interviews to full interviews. Attempts are made to contact the household member, who was unavailable during the initial face-to-face interview, and ask them the questions that were omitted from the proxy interview. It was established through extensive research that the most efficient way of re-contacting these respondents was by employing Telephone Unit (TIU) interviewers who could contact a widely dispersed population more efficiently than would be possible by conducting face-to-face interviews.

A problem specific to the UK concerns missing income data for some respondents. In the 2005 and 2006 surveys and for the first 3 months of the 2007 survey, respondents were allowed to refuse to answer all income questions. As such, information for these respondents is missing (approximately 60 individuals in 2007). In addition, proxy respondents are not asked any income questions, apart from one question relating to 'total personal disposable income' (this has also been rectified, since November 2007 proxy respondents have been asked to provide full-income information).

As a consequence of this, for the survey years 2005, 2006 & 2007 there are a relatively large number of individuals for whom income information has been wholly imputed. In 2005, income information was wholly imputed for 11% of individual respondents, and in 2006 the corresponding rate was 13%.

2.3.3.1 Achieved sample size

Table 2.7 Sample size and accepted interviews

	Total
Persons 16 years and older	17,484
Number of accepted personal questionnaires	17,484
Accepted household interviews	9,275

2.3.3.2 Unit non-response

Household non-response rates (NRh):

NRh = (1-(Ra*Rh))*100

Ra = Number of addresses successfully contacted / Number of valid addresses selected.
Rh = Number of household interviews completed and accepted for data base / number of eligible households at contacted addresses.

Ra = 12273 (DB120 = 11) /13478 (DB120 = all) – 458 (DB120 = 23).
Ra = 0.94

Rh = 9275 (DB135 = 1) / 13478 (DB130 = all).
Rh = 0.69

NRh = (1-(0.94*0. 69))*100

NRh = 35%

Individual non-response rates (NRp):

NRp = (1-(Rp))*100

Rp = Number of personal interviews completed / number of eligible individuals in the household whose interviews were completed and accepted for the database.

Rp = 17484 (RB250 = 11 + 12 + 13) / 17484 (RB245 = 1 + 2 + 3)
Rp = 1

Overall individual non-response rates (NRp):

NRp = (1-(0.94*0. 69*1)*100

NRp = 35%

2.3.3.3 Distribution of households

Table 2.8 Distribution of original units by 'record of contact at address'

	Number	Percentage
Total (DB120 = 11to23)	**13044**	**100**
Address contacted (DB120 = 11)	12273	94.1
Address non-contacted (DB120 = 21 to 23)	771	5.9
Total address non-contacted (DB120 = 21 to 23)	**771**	**100**
Address cannot be located (DB120 = 21)	309	40.1
Address unable to access (DB120 = 22)	4	0.5
Address does not exist or is non-residential or is unoccupied or not principal residence (DB120 = 23)	458	59.4

Table 2.9 Distribution of address contacted by 'household questionnaire result' and by household interview acceptance

	Number	Percentage
Total	**12273**	**100**
Household questionnaire completed (DB130 = 11)	9275	75.6
Interview not completed (DB130 = 21 to 24)	2998	24.4
Total interview not completed (DB130 = 21 to 24)	**2998**	**100**
Refusal to co-operate (DB130 = 21)	2105	70.2
Entire household temporarily away for duration of fieldwork (DB130 = 22)	0	0
Household unable to respond (illness, incapacity) (DB130 = 23)	292	9.7
Other reasons (DB130 =24)	601	20.0
Household questionnaire completed (DB135 = 1+2)	**9275**	**100**
Interview accepted for database (DB135 = 1)	9275	100
Interview rejected (DB135 = 2)	0	0

2.3.3.4 Distribution of substituted units

No substituted units were used as part of EU-SILC 2007.

2.3.3.5 Item non-response

All income variables provided for EU-SILC 2007 (UK) have been fully imputed.

Table 2.10 Distribution of item non-response (before imputation)

Variable	Full Information		Missing Value	
	Count	Per cent	Count	Per cent
Household gross income	5645	60.9	3630	39.1
Total disposable household income	5876	63.4	3399	36.6
Total disposable household income before social transfers other than old-age and survivor's benefits	6299	67.9	2976	32.1
Total disposable household income before social transfers including old-age and survivors' benefits	6881	74.2	2394	25.8
Gross income components at household level				
Income from rental of a property or land	9197	99.2	78	0.8
Family/child related allowances	8843	95.3	432	4.7
Social exclusion not elsewhere classified	9064	97.7	211	2.3
Housing allowances	9111	98.2	164	1.8
Regular inter-household cash transfer received	9256	99.8	19	0.2
Interest, dividends etc	7933	85.5	1342	14.5
Interest repayments on mortgage	9193	99.1	82	0.9
Income received by people aged under 16	9273	100	2	0
Regular inter-household cash transfer paid	9240	99.6	35	0.4
Tax on income and social contributions	6762	72.9	2513	27.1
Gross income components at personal level				
Employee cash or near cash income	15733	90.0	1751	10.0
Non-cash employee income	17484	100	0	0
Contributions to individual private pension plans	17022	97.4	462	2.6
Cash benefits or losses from self-employment	17205	98.4	279	1.6
Value of goods produced for own-consumption	17484	100	0	0
Pension from individual private plans	17248	98.7	236	1.3
Unemployment benefits	17452	99.8	32	0.2
Old-age benefits	16018	91.6	1466	8.4
Survivor's benefits	17463	99.9	21	0.1
Sickness benefits	17367	99.3	117	0.7
Disability benefits	17325	99.1	159	0.9
Education-related allowances	17453	99.8	31	0.2
Gross monthly earnings for employees	16043	91.8	1441	8.2

Table 2.11 Distribution of item non-response (after imputation)

Variable	Full Information		Missing Value	
	Count	Per cent	Count	Per cent
Household gross income	9275	100	0	0
Total disposable household income	9275	100	0	0
Total disposable household income before social transfers other than old-age and survivor's benefits	9275	100	0	0
Total disposable household income before social transfers including old-age and survivors' benefits	9275	100	0	0
Gross income components at household level				
Income from rental of a property or land	9275	100	0	0
Family/child related allowances	9275	100	0	0
Social exclusion not elsewhere classified	9275	100	0	0
Housing allowances	9275	100	0	0
Regular inter-household cash transfer received	9275	100	0	0
Interest, dividends etc	9275	100	0	0
Interest repayments on mortgage	9275	100	0	0
Income received by people aged under 16	9275	100	0	0
Regular inter-household cash transfer paid	9275	100	0	0
Tax on income and social contributions	9275	100	0	0
Gross income components at personal level				
Employee cash or near cash income	17484	100	0	0
Non-cash employee income	17484	100	0	0
Contributions to individual private pension plans	17484	100	0	0
Cash benefits or losses from self-employment	17484	100	0	0
Value of goods produced for own-consumption	17484	100	0	0
Pension from individual private plans	17484	100	0	0
Unemployment benefits	17484	100	0	0
Old-age benefits	17484	100	0	0
Survivor's benefits	17484	100	0	0
Sickness benefits	17484	100	0	0
Disability benefits	17484	100	0	0
Education-related allowances	17484	100	0	0
Gross monthly earnings for employees	17484	100	0	0

2.3.3.6 Total item non-response

Table 2.12 Number of observations and total item non-response

	Number of sample observations	Number of sample observations not taken into account due to item non-response	Non-response at individual level (if applicable)	Non-response at household level
At-risk-of-poverty after social transfers – total	21,942	0	0%	35%
At-risk-of-poverty after social transfers – men total	10,625	0	0%	35%
At-risk-of-poverty after social transfers – women total	11,317	0	0%	35%
At-risk-of-poverty after social transfers – 0-17 years	4,323	0	0%	35%
At-risk-of-poverty after social transfers – 18-24 years	1,511	0	0%	35%
At-risk-of-poverty after social transfers – 25-49 years	7,103	0	0%	35%
At-risk-of-poverty after social transfers – 50-64 years	4,359	0	0%	35%
At-risk-of-poverty after social transfers – 65+ years	4,042	0	0%	35%
At-risk-of-poverty after social transfers – 18+ years	17,015	0	0%	35%
At-risk-of-poverty after social transfers – 18-64 years	12,973	0	0%	35%
At-risk-of-poverty after social transfers – 0-64 years	17,900	0	0%	35%
At-risk-of-poverty after social transfers – men 18-24 years	729	0	0%	35%
At-risk-of-poverty after social transfers – men 25-49 years	3,340	0	0%	35%
At-risk-of-poverty after social transfers – men 50-64 years	2,128	0	0%	35%
At-risk-of-poverty after social transfers – men 65+ years	1,894	0	0%	35%
At-risk-of-poverty after social transfers – men 18+ years	8,091	0	0%	35%
At-risk-of-poverty after social transfers – men 18-64 years	6,197	0	0%	35%
At-risk-of-poverty after social transfers – men 0-64 years	8,731	0	0%	35%
At-risk-of-poverty after social transfers – women 18-24 years	782	0	0%	35%
At-risk-of-poverty after social transfers – women 25-49 years	3,763	0	0%	35%
At-risk-of-poverty after social transfers – women 50-64 years	2,231	0	0%	35%
At-risk-of-poverty after social transfers – women 65+ years	2,148	0	0%	35%
At-risk-of-poverty after social transfers – women 18+ years	8,924	0	0%	35%
At-risk-of-poverty after social transfers – women 18-64 years	6,776	0	0%	35%

At-risk-of-poverty after social transfers – women 0-64 years	9,169	0	0%	35%
At-risk-of-poverty after social transfers – employed	9,076			
At-risk-of-poverty after social transfers – unemployed	212			
At-risk-of-poverty after social transfers – retired	4,191			
At-risk-of-poverty after social transfers – other inactive	2,295			
At-risk-of-poverty after social transfers – men, employed	4,612			
At-risk-of-poverty after social transfers – men, unemployed	133			
At-risk-of-poverty after social transfers – men, retired	1,834			
At-risk-of-poverty after social transfers – men, other inactive	768			
At-risk-of-poverty after social transfers – women, employed	4,464			
At-risk-of-poverty after social transfers – women, unemployed	79			
At-risk-of-poverty after social transfers – women, retired	2,357			
At-risk-of-poverty after social transfers – women, other inactive	1,527			
At-risk-of-poverty after social transfers – single, <65 years	1,261			
At-risk-of-poverty after social transfers – single, 65+ years	1,316			
At-risk-of-poverty after social transfers – single, male	1,109			
At-risk-of-poverty after social transfers – single, female	1,468			
At-risk-of-poverty after social transfers – single, total	2,577			
At-risk-of-poverty after social transfers – 2 adults, no children, both <65	3,490			
At-risk-of-poverty after social transfers – 2 adults, no children, at least one 65+	2,814			
At-risk-of-poverty after social transfers – other households without children	1,797			
At-risk-of-poverty after social transfers – single parent, at least one child	1,493			
At-risk-of-poverty after social transfers – 2 adults, 1 child	2,109			
At-risk-of-poverty after social transfers – 2 adults, 2 children	3,664			
At-risk-of-poverty after social transfers – 2 adults, 3+ children	1,832			
At-risk-of-poverty after social transfers – other households with children	1,360			
At-risk-of-poverty after social transfers – households without children	10,678			
At-risk-of-poverty after social transfers – single, <65 years	1,261			

At-risk-of-poverty after social transfers – owner or rent-free	16,830			
At-risk-of-poverty after social transfers – tenant	5,105			
At-risk-of-poverty after social transfers – households without children, w=0[1]	1,372			
At-risk-of-poverty rate after social transfers – households without children, 0<w<1	1,539			
At-risk-of-poverty after social transfers – households without children, w=1	4,649			
At-risk-of-poverty after social transfers – households with children, w=0	1,372			
At-risk-of-poverty after social transfers – households with children 0<w<0.5	226			
At-risk-of-poverty after social transfers – households with children, w=1	7,120			
Median of the equivalised disposable household income				
At-risk-of-poverty threshold – single (PPS)	21,942		0%	35%
At-risk-of-poverty threshold – 2 adults, 2 children (PPS)	21,942		0%	35%
Inequality of income distribution S80/S20 income quintile share ratio	21,942	0	0%	35%
Relative median at-risk-of-poverty gap – total	4,124	0	0%	35%
Relative median at-risk-of-poverty gap – men total	1,880	0	0%	35%
Relative median at-risk-of-poverty gap – women total	2,244	0	0%	35%
Relative median at-risk-of-poverty gap – 0-17 years	954	0	0%	35%
Relative median at-risk-of-poverty gap – 18-64 years	1,988	0	0%	35%
Relative median at-risk-of-poverty gap – 65+ years	1,182	0	0%	35%
Relative median at-risk-of-poverty gap – 18+ years	3,170	0	0%	35%
Relative median at-risk-of-poverty gap – men, 18-64 years	898	0	0%	35%
Relative median at-risk-of-poverty gap – men, 65+ years	501	0	0%	35%
Relative median at-risk-of-poverty gap – men, 18+ years	1,399	0	0%	35%
Relative median at-risk-of-poverty gap – women, 18-64 years	1,090	0	0%	35%
Relative median at-risk-of-poverty gap – women, 65+ years	681	0	0%	35%
Relative median at-risk-of-poverty gap – women, 18+ years	1,771	0	0%	35%
Median income below the at-risk-of-poverty threshold – total				

Median income below the at-risk-of-poverty threshold – men total				
Median income below the at-risk-of-poverty threshold – women total				
Median income below the at-risk-of-poverty threshold – 0-17 years				
Median income below the at-risk-of-poverty threshold – 18-64 years				
Median income below the at-risk-of-poverty threshold – 65+ years				
Median income below the at-risk-of-poverty threshold – men, 18-64 years				
Median income below the at-risk-of-poverty threshold – men, 65+ years				
Median income below the at-risk-of-poverty threshold – women, 18-64 years				
Median income below the at-risk-of-poverty threshold – women, 65+ years				
Median income below the at-risk-of-poverty threshold – women, 18+ years				
Dispersion around the risk-of-poverty threshold – 40%	21,942		0%	35%
Dispersion around the risk-of-poverty threshold – 50%	21,942		0%	35%
Dispersion around the risk-of-poverty threshold – 70%	21,942		0%	35%
At-risk-of-poverty rate before social transfers – total	21,942	0	0%	35%
At-risk-of-poverty rate before social transfers – men total	10,625	0	0%	35%
At-risk-of-poverty rate before social transfers – women total	11,317	0	0%	35%
At-risk-of-poverty rate before social transfers – 0-17 years	4,323	0	0%	35%
At-risk-of-poverty rate before social transfers – 18-64 years	13,577	0	0%	35%
At-risk-of-poverty rate before social transfers – 65+ years	4,042	0	0%	35%
At-risk-of-poverty rate before social transfers – 18+ years	17,619	0	0%	35%
At-risk-of-poverty rate before social transfers – men, 18-64 years	6,527	0	0%	35%
At-risk-of-poverty rate before social transfers – men, 65+ years	1,894	0	0%	35%
At-risk-of-poverty rate before social transfers – men, 18+ years	8,421	0	0%	35%
At-risk-of-poverty rate before social transfers – women, 18-64 years	7,050	0	0%	35%
At-risk-of-poverty rate before social transfers – women, 65+ years	2,148	0	0%	35%
At-risk-of-poverty rate before social transfers – women, 18+ years	9,198	0	0%	35%
Before social transfers including old-age and survivors' benefits				
At-risk-of-poverty rate before social	21,942	0	0%	35%

transfers – total				
At-risk-of-poverty rate before social transfers – men total	10,625	0	0%	35%
At-risk-of-poverty rate before social transfers – women total	11,317	0	0%	35%
At-risk-of-poverty rate before social transfers – 0-17 years	4,323	0	0%	35%
At-risk-of-poverty rate before social transfers – 18-64 years	13,577	0	0%	35%
At-risk-of-poverty rate before social transfers – 65+ years	4,042	0	0%	35%
At-risk-of-poverty rate before social transfers – 18+ years	17,619	0	0%	35%
At-risk-of-poverty rate before social transfers – men, 18-64 years	6,527	0	0%	35%
At-risk-of-poverty rate before social transfers – men, 65+ years	1,894	0	0%	35%
At-risk-of-poverty rate before social transfers – men, 18+ years	8,421	0	0%	35%
At-risk-of-poverty rate before social transfers – women, 18-64 years	7,050	0	0%	35%
At-risk-of-poverty rate before social transfers – women, 65+ years	2,148	0	0%	35%
At-risk-of-poverty rate before social transfers – women, 18+ years	9,198	0	0%	35%
Gini coefficient	21,942	0	0%	35%
Mean equivalised disposable income	21,942	0	0%	35%
Gender pay gap				

2.4 Mode of data collection

Table 2.13 Distribution of RB250 and RB260

	Total
RB250 – Data Status	
Information completed only from interview (11)	17484
Interview completed only from registers (12)	0
Total	17484
RB260 – Type of interview	
Face-to-face CAPI (2)	15593
Proxy interview (5)	1606
Missing	285
Total	17484

Household Members 16+ (RB245 = 1 to 3)

Table 2.14 Distribution of household members aged 16 and over by 'RB250'

	Total	RB250 = 11	RB250 = 12	RB250 = 13	RB250 = 21	RB250 = 22	RB250 = 23	RB250 = 31	RB250 = 32	RB250 = 33
Total	17484	17484	0	0	0	0	0	0	0	0
%	100	100	0	0	0	0	0	0	0	0

Household Members 16+ (RB245 = 2)
EU-SILC 2007 (UK) did not use substituted respondents.

Household Members 16+ (RB245 = 3)
EU-SILC 2007 (UK) did not use substituted respondents.

Household Members 16+ (RB245 = 1 to 3) and RB250 = 11 or 13

Table 2.15 Distribution of household members aged 16 and over by 'RB260'

	Total	RB260 = 1	RB260 = 2	RB260 = 3	RB260 = 4	RB260 = 5	Missing
Total	17484	0	15593	0	0	1606	285
%	100	0	89.2	0	0	9.2	1.6

Household Members 16+ (RB245 = 2) and RB250 = 11 or 13
EU-SILC 2007 (UK) did not use substituted respondents.

Household Members 16+ (RB245 = 3)
EU-SILC 2007 (UK) did not use substituted respondents.

2.5 Interview duration

Table 2.16 Interview duration in minutes (mean)

Questionnaire	Frequency	Mean (minutes)
Household Questionnaire	9275	14.6
Individual Questionnaire	17484	46.7
Total (Household + Individual)	9275	61.3

The EU-SILC questions are included as part of the General Household Survey questionnaire. The total interview time for the GHS and EU-SILC questions is shown in the table above.

2.6 Imputation procedure

The strategy used to impute UK EU-SILC was consistent with the options proposed in the following Eurostat task-force documents associated with donor-based imputation methodology:

EU-SILC 74/02
EU-SILC 136/04
EU-SILC 154/05

The UK EUSILC Imputation Strategy was developed with the primary aims of imputing for all item level missingness, resolving inconsistencies, and preserving both cross-sectional and longitudinal relationships in the responses for the households and persons affected. The strategy was also designed to preserve the maximum amount of observed data.

Meeting the aims of the strategy was not trivial as the cross-sectional and longitudinal correlations were both nested and complex. In any one year, the UK EUSILC dataset contained over 400 routing and income variables: routing variables indicated whether or not the respondent received an amount, whilst the amount itself was specified by one or more consecutive variables. Missing values were present in both the routing and the amounts collected.

Further complications included:

- legal constraints which make some combinations of the routing variables invalid;
- highly correlated relationships amongst subsets of the variables, for example: earnings before and after taxation followed by an associated time period for which the payment relates;
- panel aspects of the survey that introduced further correlations between years in addition to those within year.

To meet the aims of the imputation strategy an iterative, three-stage imputation process was used. Stage 1 focused on the imputation of important categorical variables for use as explanatory variables in the imputation models (employment, work status, and others); Stage 2 focused on the routing variables and other categorical variables; Stage 3 focused on missing amounts for continuous variables and time periods. Logical inconsistencies and edit failures were also corrected throughout the process.

Standard statistical techniques for imputation of panel data were used. The following is a brief description of the imputation processes.

Stochastic imputation ensures minimum distortion to estimates of variance and preserves the observed relationships and distributions in the data. It was carried out separately for individuals for which there was and was not information from the previous wave.

Where individuals had information from the previous wave categorical variables were imputing using a hot-deck, i.e., a random draw within imputation classes built specifically for a particular set of variables and based on information from the current and previous waves. Routing variables were imputed using a stochastic draw based on the proportion of known individuals remaining or changing their routing from the previous year. Income from earnings was imputed using a regression model with explanatory variables based on current and previous years depending on the outcome of the routing variables. Other income variables, such as benefits and pensions, were carried forward using growth factors trimmed from outliers.

Where individuals had no previous information categorical and routing variables were imputed using a random hot-deck within imputation classes based on relevant explanatory variables. Income from earnings was imputed using a regression model with current year's explanatory variables and depending on the outcome of the routing variables. Other income variables were imputed using a nearest-neighbour hot-deck within imputation classes after sorting by income from earnings.

Deductive imputation was also applied by implementing propositional relationships in the data, based on logical rules and legal constraints. All code to implement the imputations was written in the SAS computing package.

The quality of the final data was validated in two ways: by calculating expected values; and comparing pre and post-imputation distributions.

2.7 Imputed rent

A UK EU-SILC imputed rent variable was supplied for the first time in 2007. Estimates of imputed rent were generated through the use of hedonic regression modelling, incorporating Mill's correction (based on the Heckman method). The explanatory variables used in the regression were *region*, *type of dwelling* (flat, semidetached/terraced house, detached house), *size* (number of rooms), *value of dwelling* (Council Tax band, except Northern Ireland), *thermal comfort* (ability to keep home adequately warm) and *seniority* (Year of contract).

2.8 Company cars

EU-SILC UK asks several questions about company cars. First, the survey establishes whether the household has any company cars. Second, it establishes what the manufacturer's list price for the vehicle was when it was new. If the respondent is unable to provide an answer, they are asked which price band they think the company car sits in. If the respondent gives a band price the answer is translated into a mid-point price. For example, a Mazda saloon with a band price between £10001 – 13000 would be given a 'list' price of £11,500. Third, the make, model and engine size are established for each vehicle.

The estimation of the value of using a company car for private purposes (excluding payment of fuel) is done using the following elements:

1. Type of fuel used
2. Data from VCA (Vehicle Certification Agency, UK).
3. Price of the car.

Once the price of the car is known (using one of the methods described above) a factor based on fuel type and emissions of the engine is applied to that list price. However, this is problematic as EU-SILC UK has no way of identifying what the cylinder capacity (cc) of the car in question is and therefore no real idea about what the car emissions would be. Although data on the make and model of each car is collected, the quality of answers given by respondents is extremely variable, for instance, answers such as 'a red ford' offer little value to a calculation.

Nevertheless cylinder capacity and emissions information is obtained by using data from the VCA. The VCA provide data on approximately 770 car types registered in the UK.

The 770 car types are banded together into three cylinder capacity engine group sizes in an attempt to get an average emission for each band.

Table 2.17 Average C02 emission by Cylinder Capacity

Cylinder Capacity	Average C02 emission
Up to 1400	155
1401 to 2000	197
2001 to 4000	252

Once this process is completed an assumption is made that the cylinder capacity of a car is linked to the price of the car.

The data for 2006/07 is shown in table 2.18.

Table 2.18 Band price of a motor vehicle based on CC and average C02 emissions

Cylinder Capacity	Average C02 emissions	Car price (£)
Up to 1400cc	155	0 – 11,999
1401 to 2000cc	197	12,000 – 24,999
2001 to 4000cc	252	25,000 – 99,999

Cars that fall into a price band are given the appropriate cylinder capacity and the data in the table 2.19 is used to apply an appropriate tax rate (the tax rate used by Her Majesties Revenue and Customs to value the benefit for tax purposes.

Table 2.19 Tax rate based on C02 emission rates (per cent)

2006/2007	C02 tax emission rate (percentage rate)
155	16
200	25
245	35

These percentage rates are the factors that are applied to the car prices to produce a monetary benefit for each company car in a household..

Car benefit = (car price)*CO2 tax emission rate

3. Comparability

This section reports on the differences between EUROSTAT definitions and the definitions the UK applied in EU-SILC 2007. It also reports on the impact of these differences with regards to comparability.

3.1 Basic concepts and definitions

Reference population
No difference to the common definition.

Private household
A household is defined as:

> "a single person or a group of people who have the address as their only or main residence and who either share one meal a day or share the living accommodation" (General Household Survey 2007).

A group of people is not counted as a household solely on the basis of a shared kitchen or bathroom.

The household membership
A person is in general regarded as living at an address if he or she (or the informant) considers the address to be his or her main residence. There are however, certain rules which take precedent over this criterion.

Children aged 16 or over who live away from home for the purposes of either work or study and come home only for holidays are not included at the parental address under any circumstances.

Children of any age away from the home in a temporary job and children under 16 at boarding school are always included in the parental household.

Anyone who has been away from the address continuously for 6 months or longer is excluded.

Anyone who has been living continuously at the address for 6 months or longer is included even if she has his or her main residence elsewhere.

Addresses used only as second homes are never counted as a main residence.

Income reference period
EU-SILC UK, like all other official income surveys in the UK, uses continuous interviewing with interviews spread evenly throughout the year. The survey measures current income. So for example, for income from earnings and benefits, respondents will provide figures which relate most commonly to the last week, two weeks, or month. With earnings in particular, respondents are asked for usual earnings. These figures, which represent current (and usual) incomes are then annualised (weekly estimates multiplied by 52, monthly by 12 etc). Income from self-employment can be reported for a variety of periods, but it is always uprated (using the UK's average earnings index) to the interview date. For income from investment and employee non-cash income respondents are most likely provide their most

recent annual or half-yearly income that they received from this source. This income would be annualised, although there is no uprating.

This approach is adopted in the UK because it is much easier for respondents to provide estimates of current income, than income for a specific reference period, say the most recent financial year. In the UK only a relatively small proportion of the adult population fill in tax returns, and the rest of the population probably never actually calculate what their annual income is. For this reason, it would be very difficult to collect an estimate of annual income corresponding to a fixed reference year.

So the estimates of income do not correspond strictly to an income reference year. However we can regard each household's estimate of annualised current income, as corresponding to a 12 month period centred around the interview date. So for a household interviewed in early January 2007, we can regard their income as being measured for the period July 2006 to June 2007, and similarly for a household interviewed in December 2007, the income estimate can be regarded as referring to the period July 2007 to June 2008. Since interviews are spread evenly throughout the year, for any one survey year, the interview reference periods collectively, are centred around the calendar year. And therefore it is reasonable to regard aggregate statistics produced from the full annual datasets, as measuring annual income in the current survey year. So the EU-SILC UK 2007 survey, measures current annual income in 2007.

In the UK, household income statistics, and especially aggregate statistics such as those that are produced from EU-SILC, are generally used and interpreted on the assumption that this distinction between annualised current income, and what might be called a 'true' annual income, is small[1].

The period for taxes on income and social insurance contributions
As above.

The reference period for taxes on wealth
The reference period for taxes on wealth is based on data provided for the financial years April 2006–March 2007 and April 2007–March 2008. All interviewing for EU-SILC UK took place between January 2007 and 31 January 2008.

The lag between income reference period and current variables
Since the survey measures current income, there is no lag between the income variables and the other variables.

The total duration of the data collection of the sample
EU-SILC UK makes use of continuous interviewing with data collection being evenly spread over complete calendar years. In practice a small number of interviews are not completed until early the following year. In 2007, 98.6% of interviews took place between 1st January 2007 and 31st December 2007, with the remaining interviews completed between 1st January 2008 and 31st January 2008.

Basic information on activity status during the income reference period
Basic information on activity status is collected using a rolling (moving) 12-month period. Therefore, respondents are asked to provide their current activity status and their activity status for the 12-month period preceding this interview.

[1] A Comparison of Current and Annual Measures of Income in the British Household Panel Survey; Journal of Official Statistics, Vol. 22, No. 4, 2006, pp. 733–758

3.2 Components of income

3.2.1 Differences between the national definitions and standard EU-SILC definitions, and an assessment, if available, of the consequences of the differences mentioned

This section describes the major differences between the national definitions and standard EU-SILC definitions. The 'national definition' of household income is taken to be the Before Housing Costs (BHC) measure of income used in the Department for Work and Pensions (DWP) publication Household's Below Average Income (HBAI), the source for national poverty statistics.

Total disposable household gross income (HY010)
Total disposable household income (HY020)
Total disposable household income before social transfers other than old-age and survivor's benefits (HY022)
Total disposable household income before social transfers including old-age and survivor's benefits
Differences between the national definition and the EU-SILC definition of income have been described below, for each of the components of EU-SILC income.

Imputed rent (HY030G/N)
Imputed rent is not included in the national definition of household income. This variable was provided as part of the 2007 EU-SILC data delivery for the first time.

Income from rental of a property or land (HY040G/N)
No major differences between the national and EU-SILC definition.

Family/children related allowances (HY050G/N)
The national definition of income includes the cash value of free school meals provided to children from disadvantaged homes. This is not included in the EU-SILC definition of income.

Social exclusion not elsewhere classified (HY060G/N)
No major differences between the national and EU-SILC definitions.

Housing allowances (HY070G/N)
No major differences between the national and EU-SILC definitions.

Regular inter-household cash transfer received (HY080G/N)
No major differences between the national and EU-SILC definitions.

Interest, dividends, profit from capital investments in unincorporated business (HY090G/N)
No major differences between national and EU-SILC definitions.

Interest repayments on mortgage (HY100G/N)
Interest repayments on mortgages are not included as deductions within either the national or EU-SILC definitions of income, because neither includes imputed rent.

Income received people aged under 16 (HY110G)
The national definition of income includes income received by people aged under 16, as does the EU-SILC definition of income.

Regular taxes on wealth (HY120G)
No difference between the national and EU-SILC definitions.

Regular inter-household cash transfer paid (HY130G/N)
No major differences between the national and EU-SILC definitions.

Tax on income and social contributions (HY140G)
In the national definition of income, contributions to private pensions are deducted from income. In the EU-SILC definition of income, contributions to private pensions are not deducted, rather they are considered as a use of disposable income.

Repayments/receipts for tax adjustments (HY145N)
This component of income is included in the national definition of income. In EU-SILC, this component is not measured directly. For most components of income, gross and net incomes are collected separately, with taxes computed as the difference between gross and net incomes. Repayments/receipts for tax adjustments are assumed to be captured as part of this difference between gross and net incomes, and hence recorded under HY140G.

Cash or near-cash employee income (PY010G/N)
No major differences between the national and EU-SILC definitions.

Non-cash employee income (PY020G/N)
The national definition does not include non-cash employee income, whereas EU-SILC includes an estimate for company cars (although not any fuel provided by the employer).

Cash profits or losses from self-employment (including royalties) (PY050G/N)
No conceptual differences between the national and EU-SILC definitions.

Value of goods produced for own consumption(PY070G/N)
This component of income is assumed to be zero in the UK in both the national definition, and in UK EU-SILC.

Unemployment benefits (PY090G/N)
No major differences between the national and EU-SILC definitions.
Old-age benefits (PY100G/N)
All benefits included as old-age benefits are also included in the national definition of income. Income from private pensions is included in the EU-SILC definition of income, as in the national definition; however it is not included for the calculation of EU-SILC indicators. In addition, the national definition also includes the value free television licences provided to those over the age of 75.

Survivors' benefits (PY110G/N)
No major differences between the national and EU-SILC definitions.

Sickness benefits (PY120G/N)
No major differences between the national and EU-SILC definitions.

Disability benefits (PY130G/N)
No major differences between the national and EU-SILC definitions.

Education-related allowances (PY140G/N)
In the national definition of income, student loans are included as income, and student loan repayments are deducted from income. However in EU-SILC, student loans are not treated as income, and loan repayments are not deducted from income.

Gross monthly earnings for employees (PY200G/N)
No major differences between the national and EU-SILC definitions.

3.2.2 The source or procedure for the collection of income variables

All income variables are collected at the point of interview. Respondents are not asked to provide any documentation to support their answers. Increasingly interviewers are being encouraged to ask respondents whether it is possible to consult their payslip (if they are working), however this is not mandatory.

No information is collected from registers.

3.2.3 The form in which income variables at component level have been obtained

For most income components which are subject to taxation and/or social security contributions, respondents are asked to provide net and gross amounts. The only exception to this is income from interest, dividends, and capital investments, which is collected either gross or net, and for which tax paid is then estimated.

Total income for an individual/household refers to income at the time of the interview. If the last pay packet/cheque was unusual, for example it included holiday pay in advance or a tax refund, the respondent is asked for usual pay. No account is taken of whether a job is temporary or permanent.

3.2.4 The method used for obtaining income target variables in the required form

Gross and net income variables were asked separately, if applicable.

See section 2.6 for more detail.

4. Coherence

Coherence refers to the comparison of target variables with external sources. The target variables in EU-SILC UK are a set of compulsory variables, defined by EUROSTAT.

4.1 Comparison of income target variables and the number of persons who receive income from each 'income component', with external sources

Results from two other survey sources have been used to validate EU-SILC results – the Family Resources Survey, and the Expenditure and Food Survey.

Family Resources Survey

The Family Resources Survey (FRS) collects information on the incomes and circumstances of private households in the United Kingdom (or Great Britain before 2002-03).

The survey is sponsored by the Department for Work and Pensions.

The FRS is used primarily to validate the indicators of poverty and social exclusion. Before the introduction of EU-SILC, the Laeken and Pensions indicators were produced using data from the FRS. Comparisons between EU-SILC and FRS-based indicators continue so that any apparent differences between national poverty estimates and EU-SILC estimates can be explained. This work will be ongoing, and in the first two years of EU-SILC, has served as a useful way of validating the new EU-SILC data, and highlighting any possible problems that there might be with the EU-SILC data.

Expenditure Food Survey

The Expenditure and Food Survey is a comprehensive overview of all aspects of household expenditure and income for the year 2007 derived from a survey of around 7,000 households in the UK. It contains analyses of household expenditure on goods and services by household income, composition, size, type and location. The results are widely seen as providing one of the most accurate pictures available of what households in the UK spend their money on today.

EU-SILC income variables have been compared with the detailed income information collected through the EFS, particularly that which is published in the ONS report 'The Effects of Taxes and Benefits on Household Income'. This validation takes place at a relatively disaggregated level – below the level of EU-SILC income components.

Annexes

Annex 1

Government Office Region regional stratifier

The Government Office Region regional stratifier:

1. North East Metropolitan
2. North East Non-Metropolitan
3. North West Metropolitan
4. North West Non-Metropolitan
5. Merseyside
6. Yorkshire and Humberside Metropolitan
7. Yorkshire and Humberside Non-Metropolitan
8. East Midlands
9. West Midlands Metropolitan
10. West Midlands Non-Metropolitan
11. Eastern Outer Metropolitan
12. Eastern Other
13. Inner London North-East
14. Inner London North-West
15. Inner London South-East
16. Inner London South-West
17. Outer London North-East
18. Outer London North-West
19. Outer London South-East
20. Outer London South-West
21. South East Outer Metropolitan
22. South East Other
23. South West
24. Wales 1 – Glamorgan, Gwent
25. Wales 2 – Clwydd, Gwenneyd, Dyfed, Powys
26. Highlands, Grampian, Tayside
27. Fife, Central, Lothian
28. Glasgow Metropolitan
29. Strathclyde (excluding Glasgow)
30. Borders, Dumfries, Galloway

Annex 2

Annex A 1 Socio-economic groups (Operational categories and sub-categories of NS-SEC)

Group	Operational categories and sub-categories
1	Employers in large organisations
2	Higher managerial occupations
3	Higher professional occupations
4	Lower professional and higher technical occupations
5	Lower managerial occupations
6	Higher supervisory occupations
7	Intermediate occupations
8	Employers in small organisations
9	Own account workers
10	Lower supervisory occupations
11	Lower technical occupations
12	Semi-routine occupations
13	Routine occupations
14	Never worked and long-term unemployed
15	Full-time students
16	Occupations not stated or inadequately described
17	Not classifiable for other reasons

The category names used for NS-SEC (National Statistics – Socio-Economic Classification) do not refer to 'skill'. This is quite deliberate since the classification is not based on skill levels.