

EU-SILC UK 2006

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# Final Quality Report

Office for National Statistics

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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 year N+2 (2008), final quality reports that cover both cross-sectional and longitudinal components in relation to the year of the survey N (2006).*

## **1. Common longitudinal European Union indicators**

Indicators will not be available until the 2008 longitudinal dataset is produced (in 2010). At which time, the longitudinal dataset will benefit from four years of data (2005 – 2008).

## **2. Accuracy**

Accuracy: denotes the closeness of computations or estimates to the exact or true population values.

### **2.1 *Sampling design***

#### **2.1.1 Type of sampling**

EU-SILC UK uses data from the General Household Survey (Great Britain) (GHS) and the Continuous Household Survey (Northern Ireland) (CHS). The Office for National Statistics (ONS) is responsible for the GHS and the Northern Ireland Statistics and Research Agency (NISRA) run the CHS. The EU-SILC component of the CHS is based on a sample of around 300 households, which represent the (approximately) two per cent of UK households that live in Northern Ireland. All of the data analysis and processing (for EU-SILC) from these two sources is undertaken by ONS.

EU-SILC UK aims to interview all adults aged 16 and over at every household at the sampled addresses. The sample is selected using a probability, stratified two-stage design.

In 2005, 13,856 addresses were sampled for the 2005 - 2006 longitudinal component.

#### **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. Postcode sectors are similar in size to UK electoral wards and are the Primary Sampling Units (PSUs) for EU-SILC. The Secondary Sampling Units are the addresses within those sectors.

#### **2.1.3 Stratification and sub-stratification criteria**

Initially, postcode sectors are allocated to 30 major strata. These are based on the 10 Government Office Regions in England (sub-divided between the former Metropolitan and non-Metropolitan counties). In addition London is subdivided into quadrants (Northwest, Northeast, Southwest and Southeast) with each quadrant divided into inner and outer areas (Annex 1). Using a finer division of London generally improves the precision

associated with the estimates. There are five subdivisions in Scotland, two in Wales and one in Northern Ireland.

Within each major stratum, postcode sectors are stratified according to selected indicators taken from the 2001 Census. Sectors are initially ranked according to the proportion of households with no car, and then divided into three bands containing approximately the same number of households. Within each band, sectors are 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 are then sub-divided into three further bands of approximately equal size. Finally, within each of these bands, sectors are re-ranked according to the proportion of people who are pensioners. In order to minimise the difference between one band and the next, the ranking by the pensioners and socio-economic group criteria are in the reverse order in consecutive bands.

Major strata are then divided into minor strata with equal numbers of addresses, the number of minor strata per major stratum is proportionate to the size of the major stratum. In 2005 the sampling 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 four strata that were replaced and an additional 96 strata added, giving 816 for 2006. Each PSU forms a quota of work for an interviewer. Within each PSU, 23 addresses are randomly selected.

#### 2.1.4 Sample size and allocation criteria

Regulation 1177/2003 states that member states have to achieve a minimum effective sample size. For the UK and for the cross sectional component this is 7,500 households and 13,750 persons aged 16 and above. For the longitudinal component this is 5,750 households and 10,500 persons aged 16 and above.

The sample design for UK EU-SILC was based on the assumption that a design effect of 1.25 would be achieved under the design. In 2006, 13,857 addresses were selected for survey, yielding an achieved sample of 9,902 eligible households. Within these households 23,365 people were residents of which 18,563 were interviewed and aged at least 16 years. Assuming the design effect of 1.25, these numbers correspond to effective sample sizes of 7,921 households, and 14,850 adults over the age of 16.

Standard errors for the UK EU-SILC indicators are not yet available, so it is not currently possible to provide an estimate of the design effect or the achieved effective sample size for the longitudinal component.

**Table 1: Sample size, addresses and household interviews**

	Longitudinal Sample 2005-2006							
	2005		2006					
			Total households (db110>0)		Follow-up households (db110=1,2,11)		Split households (db110=8)	
	n	%	n	%	n	%	n	%
Used addresses	13856	100.0%	9011	100.0%	8121	100.0%	173	100.0%
Addresses existent	12607	91.0%	9011	100.0%	8121	100.0%	173	100.0%

Addresses non-existent	1249	9.0%	0	0.0%	0	0.0%	0	0.0%
Gross sample	12607	100.0%	9011	100.0%	8121	100.0%	173	100.0%
Addresses successfully contacted	12591	99.9%	8237	91.4%	8121	100.0%	173	100.0%
Addresses not successfully contacted	16	.1%	774	8.6%	0	0.0%	0	0.0%
Successfully contacted addresses	12591	100.0%	8237	100.0%	8119	100.0%	118	100.0%
Household questionnaire completed DB130=11	8838	70.2%	6627	80.5%	6524	80.4%	103	87.3%
Refusal to co-operate DB130=21,22	3026	24.0%	1187	14.4%	1177	14.5%	10	8.5%
Unable to respond DB130=23	202	1.6%	81	1.0%	81	1.0%	0	.0%
Other reasons DB130=24	525	4.2%	342	4.2%	337	4.2%	5	4.2%
Household questionnaire completed	8838	100.0%	6627	100.0%	6524	100.0%	103	100.0%
Interview accepted for database DB135=1	8838	100.0%	6625	100.0%	6522	100.0%	103	100.0%
Interview rejected DB135=2	0	0.0%	2	.0%	2	.0%	0	.0%

**Table 2: Households and persons in the longitudinal component**

	Longitudinal Sample 2005-2006		
	2005	2006	Total
Used Addresses	13,856	9,011	22,867
Addresses successfully contacted	12,591	8,294	20,885
Interview accepted for database	8,838	6,625	15,463
Persons	20,892	21,724	42,616
Personal interviews	16,505	12,473	28,978

### 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, and selecting one PSU per stratum with a systematic selection procedure based on a random starting point.
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, however in the 2006 survey, due to a shortage of interviewers, a larger number of interviews and re-issues remained unallocated, and so the field period was extended until April 2007.

**Table 3: Sample distribution over time**

	Year of Survey	
	2005	2006
January		475
February		534
March		624
April	819	534
May	1,018	563
June	1,006	561
July	926	557
August	1,007	598
September	1,021	524
October	1,026	547
November	1,118	573
December	741	407
January	98*	99 <sup>#</sup>
February	58*	24 <sup>#</sup>
April		5 <sup>#</sup>
<b>Total</b>	8,838	6,625

\* data collected in 2006

# data collected in 2007

### 2.1.7 Renewal of sample: rotational groups

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

The sample design follows a four-year sample rotation in which households remain in the sample for four years (waves) with one quarter of the sample being replaced each year. Each quarter of the sample is known as a replication, and each replication is representative of the target population. Figure 1 illustrates how the design operates.

Once the system is fully established (from year 4 onwards - 2008) the sample for any one year consists of four replications which have been in the survey for 1, 2, 3 or 4 years. As 2006 is the second year of this longitudinal design, this sample contains households being re-interviewed for the first time (approximately 67% of households were from sample replications 2, 3 and 4).

**Figure 1: 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

**Table 4: Addresses and completed interviews by rotational group**

	2005		2006	
	Used addresses	Completed and accepted interviews	Used addresses	Completed and accepted interviews
R2	5399	3399	3458	2542
R3	4525	2918	2987	2163
R4	3932	2521	2566	1920
Total	13856	8838	9011	6625

## 2.1.8 Weightings

This section describes the methods used to calculate weights for the UK EU-SILC 2006 survey. The methods are broadly consistent with those recommended by EUROSTAT.

### 2.1.8.1 Design factor

For the first wave, addresses are selected under the design outlined in the preceding sections of this report. The design weight for a household is calculated as the inverse of the inclusion probability for the sampled address.

### 2.1.8.2 Non-response adjustments (first wave)

Non-response to the surveys (GHS and CHS) used to produce EU-SILC can introduce bias. For the UK, an attempt is made to correct for this bias by weighting households based on their propensity to respond. For EU-SILC, non-response can occur at any given wave.

For the first wave for a given rotational group, information from the 2001 Census and GHS is used to weight for non-response. The Census is mandatory in the UK and so both responders and non-responders to the GHS can be matched to Census records. This was done using 2001 data and response classes were formed based on propensity to respond, given certain characteristics. For EU-SILC, households are given a different non-response weight depending on the response class to which they belong.

### 2.1.8.3 Adjustments to external data (first wave)

The UK produces population projections or totals (from the Census) using information on registered births, deaths and migration. These estimates are used in the estimators for EU-SILC.

The population totals of the number of people living in private households within the UK are broken down by 12 age by sex categories and seven regional categories to give 19 calibration groups as shown below. A generalised regression model is then used to produce a set of calibration weights at a household level, such that the sum of the weights across persons within each of the calibration groups equal the population totals. This procedure is carried out using Stats Canada's GES package. The calibration weight is applied to the product of the design weights and non-response weight.

#### ***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

### 2.1.8.4 Final longitudinal weight

The longitudinal weight (RB062) is only given for the last year (i.e. 2006). For the first wave for a given rotational group, the longitudinal base weight (RB060) is calculated as the design weight adjusted for non-response and calibrated to the UK population totals.

### 2.1.8.5 Non-response adjustments (attrition in subsequent waves)

For the UK, EU-SILC 2006 is only the second year under the longitudinal design; therefore households in 2006 will in practice only be in their second wave for the longitudinal dataset. For these households, non-response in wave 2 was adjusted for using an attrition model. Respondents and non-respondents were linked back to their corresponding wave 1 information. Logistic regression was then utilised to model the

likelihood of response to wave 2 against the characteristics of households at their wave 1 interview. A variety of household variables such as household type, socioeconomic class, region and car ownership were tested for inclusion. Characteristics determined as significant by the logistic regression (at the five per cent significance level) were used to weight for this attrition. The variables which were included in the attrition model are shown in Figure 3.

**Figure 3 Variables included in the logistic regression model of household attrition in 2006**

<b>Variable</b>	<b>p-value</b>
Accommodation type	0.000
Household composition	0.000
Socio-economic category of the household reference person	0.024
Education level of the household reference person	0.000
Year of arrival into the United Kingdom of the household reference person	0.000
The household reference person is in receipt of personal income benefits	0.000

#### **2.1.8.6 Adjustments to external data (longitudinal population)**

Reliable external data relating to the longitudinal population were not available, so the longitudinal weights did not undergo a further stage of calibration.

#### **2.1.8.7 Final longitudinal weight (subsequent waves)**

For the second wave of a given rotational group, the base weight (RB060) is the previous year's weight adjusted for attrition. Furthermore, co-residents joining the sample households receive a zero weight and newborns receive their mother's weight. The weights are also scaled to the longitudinal population in scope at each wave from the start of the panel.

The longitudinal weights (RB062) are produced from the base weights and are scaled so that the sum of the weights over those individuals in scope and sampled in both 2005 and 2006 equals the size of the longitudinal population for 2005 – 2006. Persons that have moved in from outside the sample, are newly born, have moved out or died are given a zero weight.

#### **2.1.8.8 Final household cross-sectional weight**

The final cross sectional weight (DB090) is calculated from the base weights.

#### **2.1.9 Substitutions**

In 2006, no substitutions were made.

## 2.2 Sampling errors

The following tables present the means, number of observations and standard errors for the key income variables for the cross-sectional component in 2006 and for each wave of the longitudinal component 2005 – 2006. The means are calculated across all households, including those who have not recorded any income against the component.

**Table 5: Mean, Total Number of Observations and Standard Errors for Income Components (weighted) - 2006 Cross-Sectional**

Income Component	Mean	Number of Observations		Standard Error
		Before Imputation	After Imputation	
<b>Total household income variables</b>				
Total household gross income	32,695	6,066	9,902	356.19
Total disposable household income	24,559	6,427	9,902	229.58
Total disposable household income before social transfers other than old-age and survivor benefits	22,240	6,821	9,902	240.17
Total disposable household income before social transfers including old-age and survivors' benefits	17,965	7,319	9,902	224.04
<b>Net income components at household level</b>				
Income from rental of a property or land	179	9,749	9,902	16.74
Family/child related allowances	784	9,566	9,902	13.21
Social exclusion not elsewhere classified	448	9,610	9,902	15.99
Housing allowances	447	9,806	9,902	18.06
Regular inter-household cash transfer received	114	9,886	9,902	10.91
Interest, dividends, etc.	670	8,350	9,902	28.98
Interest repayments on mortgage	Not supplied	Not supplied	Not supplied	Not supplied
Income received by people aged under 16	Not supplied	Not supplied	Not supplied	Not supplied
Regular taxes on wealth	Not supplied	Not supplied	Not supplied	Not supplied
Regular inter-household cash transfer paid	Not supplied	Not supplied	Not supplied	Not supplied
Tax on income and social contributions	Not supplied	Not supplied	Not supplied	Not supplied
Repayments/receipts for tax adjustment	Not supplied	Not supplied	Not supplied	Not supplied
<b>Gross income components at household level</b>				
Income from rental of a property or land	220	9,497	9,902	20.8
Family/child related allowances	652	6,979	9,902	11.79
Social exclusion not elsewhere classified	387	8,821	9,902	15.14

Housing allowances	447	8,691	9,902	18.06
Regular inter-household cash transfer received	114	9,584	9,902	10.91
Interest, dividends, etc.	838	5,020	9,902	37.11
Interest repayments on mortgage	1,664	9,812	9,902	44.6
Income received by people aged under 16	10	9,805	9,902	1.42
Regular taxes on wealth	893	9,375	9,902	6.7
Regular inter-household cash transfer paid	144	9,876	9,902	14.57
Tax on income and social contributions	7,100	7,208	9,902	129.61
<b>Net income components at personal level</b>				
Employee cash or near cash income	8,339	16,429	18,563	96.99
Non-cash employee income	132	18,555	18,563	5.7
Contributions to individual private pension plans	Not supplied	Not supplied	Not supplied	Not supplied
Cash benefits or losses from self-employment	1,070	18,253	18,563	52.84
Value of goods produced for own-consumption	0	18,563	18,563	0
Pension from individual private plans	11	18,493	18,563	1.76
Unemployment benefits	43	18,523	18,563	3.84
Old-age benefits	2,237	17,601	18,563	33.61
Survivor's benefits	24	18,550	18,563	3.34
Sickness benefits	152	18,404	18,563	6.79
Disability benefits	97	18,420	18,563	5.33
Education-related allowances	46	18,545	18,563	7.78
<b>Gross income components at personal level</b>				
Employee cash or near cash income	11,486	16,496	18,563	149.23
Non-cash employee income	192	18,563	18,563	8.55
Contributions to individual private pension plans	144	18,181	18,563	9.67
Cash benefits or losses from self-employment	1,399	18,309	18,563	76.97
Value of goods produced for own consumption	0	18,563	18,563	0
Pension from individual private plans	15	18,330	18,563	2.28
Unemployment benefits	44	18,522	18,563	4.14
Old-age benefits	2,447	16,872	18,563	40.88
Survivor's benefits	27	18,529	18,563	3.78
Sickness benefits	152	18,404	18,563	6.79
Disability benefits	97	18,420	18,563	5.33
Education-related allowances	46	18,545	18,563	7.78
Gross monthly earnings for employees	1,555	8,359	18,563	19.43

**Table 6: Mean, Total Number of Observations (before and after imputation) and Standard Errors for Income Components 2005 part of longitudinal (weighted)**

Income Component	Mean	Number of Observations		Standard Error
		Before Imputation	After Imputation	
Total household income variables				

Total household gross income	33989	5138	8838	
Total disposable household income	25294	5488	8838	
Total disposable household income before social transfers other than old-age and survivor benefits	23018	5861	8838	
Total disposable household income before social transfers including old-age and survivors' benefits	18814	6382	8838	
Net income components at household level				
Income from rental of a property or land	227	8705	8838	
Family/child related allowances	809	8411	8838	
Social exclusion not elsewhere classified	443	8562	8838	
Housing allowances	433	8699	8838	
Regular inter-household cash transfer received	242	8786	8838	
Interest, dividends, etc.	701	7394	8838	
Interest repayments on mortgage	Not supplied	Not supplied		Not supplied
Income received by people aged under 16	Not supplied	Not supplied		Not supplied
Regular taxes on wealth	Not supplied	Not supplied		Not supplied
Regular inter-household cash transfer paid	Not supplied	Not supplied		Not supplied
Tax on income and social contributions	Not supplied	Not supplied		Not supplied
Repayments/receipts for tax adjustment	Not supplied	Not supplied		Not supplied
Gross income components at household level				
Income from rental of a property or land	280	8744	8838	
Family/child related allowances	705	8411	8838	
Social exclusion not elsewhere classified	400	8588	8838	
Housing allowances	433	8699	8838	
Regular inter-household cash transfer received	242	8786	8838	
Interest, dividends, etc.	906	7399	8838	
Interest repayments on mortgage	1560	8694	8694	
Income received by people aged under 16	11	8838	8838	
Regular taxes on wealth	897	8198	8838	
Regular inter-household cash transfer paid	156	8788	8838	
Tax on income and social contributions	7642	6387	8838	
Net income components at personal level				
Employee cash or near cash income	8125	14493	16505	
Non-cash employee income	138	16403	16505	
Contributions to individual private pension plans	Not supplied	Not supplied		Not supplied
Cash benefits or losses from self-employment	1527	16202	16505	

Value of goods produced for own-consumption	0	16505	16505	0
Pension from individual private plans	8	16429	16505	
Unemployment benefits	37	16462	16505	
Old-age benefits	2134	15661	16505	
Survivor's benefits	21	16483	16505	
Sickness benefits	131	16372	16505	
Disability benefits	109	16335	16505	
Education-related allowances	32	16471	16505	
<b>Gross income components at personal level</b>				
Employee cash or near cash income	11189	14569	16505	
Non-cash employee income	201	16401	16505	
Contributions to individual private pension plans	98	16417	16505	
Cash benefits or losses from self-employment	2169	16211	16505	
Value of goods produced for own consumption	0	16505	16505	
Pension from individual private plans	10	16286	16505	
Unemployment benefits	37	16462	16505	
Old-age benefits	2306	15084	16505	
Survivor's benefits	22	16471	16505	
Sickness benefits	131	16372	16505	
Disability benefits	109	16335	16505	
Education-related allowances	32	16471	16505	

**Table 7: Mean, Total Number of Observations (before and after imputation) and Standard Errors for Income Components 2006 part of longitudinal (weighted)**

Income Component	Mean	Number of Observations		Standard Error
		Before Imputation	After Imputation	
Total household income variables				
Total household gross income	33320	4134	6625	
Total disposable household income	24997	4425	6625	
Total disposable household income before social transfers other than old-age and survivor benefits	22716	4711	6625	
Total disposable household income before social transfers including old-age and survivors' benefits	18276	5043	6625	
Net income components at household level				
Income from rental of a property or land	189	6521	6625	
Family/child related allowances	799	6408	6625	
Social exclusion not elsewhere classified	438	6425	6625	
Housing allowances	420	6560	6625	
Regular inter-household cash transfer received	125	6615	6625	
Interest, dividends, etc.	743	5679	6625	
Interest repayments on mortgage	Not supplied	Not supplied		Not supplied
Income received by people aged under 16	Not supplied	Not supplied		Not supplied
Regular taxes on wealth	Not supplied	Not supplied		Not supplied
Regular inter-household cash transfer paid	Not supplied	Not supplied		Not supplied
Tax on income and social contributions	Not supplied	Not supplied		Not supplied
Repayments/receipts for tax adjustment	Not supplied	Not supplied		Not supplied
Gross income components at household level				
Income from rental of a property or land	235	6580	6625	
Family/child related allowances	658	6429	6625	
Social exclusion not elsewhere classified	376	6459	6625	
Housing allowances	420	6560	6625	
Regular inter-household cash transfer received	125	6615	6625	
Interest, dividends, etc.	936	5691	6625	
Interest repayments on mortgage	1685	6570	6570	
Income received by people aged under 16	10	6625	6625	
Regular taxes on wealth	911	6340	6624	
Regular inter-household cash transfer paid	127	6610	6625	

Tax on income and social contributions	7286	4892	6624	
<b>Net income components at personal level</b>				
Employee cash or near cash income	8300	11173	12473	
Non-cash employee income	135	12469	12473	
Contributions to individual private pension plans	Not supplied	Not supplied		Not supplied
Cash benefits or losses from self-employment	1090	12290	12473	
Value of goods produced for own-consumption	0	12473	12473	0
Pension from individual private plans	13	12432	12473	
Unemployment benefits	34	12449	12473	
Old-age benefits	2335	11863	12473	
Survivor's benefits	20	12467	12473	
Sickness benefits	153	12374	12473	
Disability benefits	99	12373	12473	
Education-related allowances	40	12463	12473	
<b>Gross income components at personal level</b>				
Employee cash or near cash income	11481	11222	12473	
Non-cash employee income	195	12473	12473	
Contributions to individual private pension plans	148	12228	12473	
Cash benefits or losses from self-employment	1433	12324	12473	
Value of goods produced for own consumption	0	12473	12473	
Pension from individual private plans	16	12298	12473	
Unemployment benefits	35	12448	12473	
Old-age benefits	2554	11324	12473	
Survivor's benefits	21	12452	12473	
Sickness benefits	153	12374	12473	
Disability benefits	99	12373	12473	
Education-related allowances	40	12463	12473	

**Table 8: The mean, the number of observations (before and after imputations) and the standard error for the equivalised disposable income 2005 (weighted R2, R3 & R4)**

Equivalised disposable income	Mean	Number of observations		Standard error	S.E./Mean
		Before Imputation	After imputation		%
<i>By household size</i>					
1 household member	13,030	1,823	2,510		
2 household members	16,254	4,056	6,456		
3 household members	16,721	2,106	3,918		
4 and more household members	15,956	4,126	8,008		
<i>By age groups</i>					
< 25	14,984	3,595	6,380		
25 - 34	17,801	1,564	2,598		
35 - 44	16,950	1,827	3,094		
45 - 54	19,478	1,466	2,657		
55 - 64	15,995	1,527	2,684		
65 +	11,745	2,132	3,479		
<i>By sex</i>					
Male	16,105	5,859	10,119		
Female	15,573	6,252	10,773		
Total					

Source: EU-SILC longitudinal sample 2005 and 2006

**Table 9: The mean, the number of observations (before and after imputations) and the standard error for the equivalised disposable income 2006 (weighted R2, R3 & R4)**

Equivalised disposable income	Mean	Number of observations		Standard error	S.E./Mean
		Before Imputation	After imputation		%
<i>By household size</i>					
1 household member	13,092	1,272	1,727		
2 household members	16,496	3,458	4,783		
3 household members	16,638	1,770	2,782		
4 and more household members	14,488	3,691	5,910		
<i>By age groups</i>					
< 25	13,915	2,951	4,423		
25 - 34	17,462	1,189	1,619		
35 - 44	16,608	1,578	2,324		
45 - 54	17,752	1,284	1,986		
55 - 64	16,653	1,355	2,112		
65 +	12,153	1,834	2,738		
<i>By sex</i>					
Male	15,768	4,947	7,302		
Female	14,910	5,244	7,900		

Source: EU-SILC longitudinal sample 2005 and 2006

**Table 10: The mean, the number of observations (before and after imputations) and the standard error for the equivalised disposable income for the cross-sectional component of 2006 (weighted)**

Equivalised disposable income	Mean	Number of observations		Standard error	S.E./Mean %
		Before Imputation	After imputation		
<i>By household size</i>					
1 household member	13,194	2021	2768		
2 household members	16,784	4896	7344		
3 household members	16,174	2559	4479		
4 and more household members	14,569	4862	8774		
<i>By age groups</i>					
< 25	13,867	4106	6923		
25 - 34	17,671	1697	2651		
35 - 44	16,769	2170	3476		
45 - 54	17,747	1825	3075		
55 - 64	16,570	1921	3140		
65 +	12,068	2619	4100		
<i>By sex</i>					
Male	15,789	6925	11255		
Female	14,948	7413	12110		

Source: EU-SILC cross-sectional sample 2006

## 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.

The sampling frame for the first wave is the Small Users file of the Postcode Address File (PAF). This is an up to date list of all addresses maintained by the UK Post Office. For the GHS (and therefore EU-SILC) all Scottish offshore islands and the Isles of Scilly are excluded from the frame because of excessive interview travel costs. The impact of such coverage error on UK EU-SILC is minimal.

## **2.3.2 Measurement and processing errors**

### **2.3.2.1 Measurement errors**

Substantial efforts have been made to avoid measurement errors, for example, through extensive interviewer training and thorough questionnaire testing. 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, income data are “checked” at the point of collection to make sure that Net values are not greater than Gross values for an individual. Data are also rotated forward from the previous wave for certain questions, including qualifications and family information. This allows the interviewer to query and correct any inconsistencies between waves.

Data are converted from Blaise to SPSS and are edited using this software. At this stage there is further checking for the consistency and plausibility of data. For example, comparisons are made with the income data recorded at the previous wave to check for consistency.

### **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, respondents were allowed to refuse to answer all income questions (this option was removed from the questionnaire in January 2007). As such, information for these respondents is missing (approximately 300 individuals). 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 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%. These rates of personal non-response should reduce to some extent in 2007, and reduce significantly from 2008 onwards.

### 2.3.3.1 Achieved sample size

**Table 11: Sample size and accepted interviews by year and rotational group**

		2005	2006	Total
Accepted household interviews	R2	3,399	2,542	5,941
	R3	2,918	2,163	5,081
	R4	2,521	1,920	4,441
<i>Personal interview accepted</i>				
Number of persons aged 16 and above	R2	6,377	4,805	11,182
	R3	5,457	4,078	9,535
	R4	4,671	3,590	8,261
Sample persons	R2	6,377	4,627	11,004
	R3	5,457	3,950	9,407
	R4	4,671	3,461	8,132
Co-residents	R2	-	178	178
	R3	-	128	128
	R4	-	129	129

### 2.3.3.2 Unit non-response

**Table 12: Indicators on unit non-response by rotational group (2005)**

	<b>R2</b>	<b>R3</b>	<b>R4</b>	<b>Total</b>
Addresses successfully contacted	4,888	4,106	3,597	12,591
Valid addresses selected	4,893	4,112	3,602	12,607
Ra - address contact rate	99.9%	99.9%	99.9%	99.9%
Household interviews completed	3,399	2,918	2,521	8,838
Eligible households	4,888	4,106	3,597	12,591
Rh - proportion of completed interviews	69.5%	71.1%	70.1%	70.2%
NRh - household non-response rate	30.5%	29.0%	30.0%	29.9%
Person interviews completed	6,377	5,457	4,671	16,505
Number of eligible individuals	6,377	5,457	4,674	16,508
Rp - proportion of completed interviews	100.0%	100.0%	99.9%	100.0%
NRp - individual non-response rates	30.5%	29.0%	30.1%	29.9%

**Table 13: Household response rates - Comparison of results codes between wave 2 and wave 1 (R2, R3 & R4)**

Sample outcome in wave 1 - 2005		Sample outcome in wave 2 - 2006											
		DB130=11		DB120=22	DB130=22	DB130=23	DB130=24	DB130=21	DB120=21	NC	DB110=10	DB120=23	Total
		DB135 = 1	DB135 = 2										
DB130=11	DB135 = 1	6,522	2	0	0	81	337	1,177	2	717	0	0	8,838
	DB135 = 2	0	0	0	0	0	0	0	0	0	0	0	0
	Total	6,522	2	0	0	81	337	1,177	2	717	0	0	8,838
New household in wave 2													
2006	DB110=8	103	0	0	0	0	5	10	55	NA	NA	0	173
	DB110=9	0	0	0	0	0	0	0	0	NA	NA	0	0
Total		6,625	2	0	0	81	342	1,187	57	NA	NA	0	9,011

Wave response rate = 0.735  
 Refusal rate = 0.132  
 No-contacted and others = 0.045  
 Longitudinal follow-up rate = 0.785  
 Follow-up ratio = 0.798  
 Achieved sample size ratio = 0.750

**Table 14: Person Interview outcome in wave 2 (R2, R3 & R4)**

RB250=11,12,13	RB250=21	RB250=22	RB250=23	RB250=31	RB250=32	RB250=33	HHinc1	HHinc2	Pn	P1	Total
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Sample persons from previous wave

Row

1	RB110=1-2	11861	144	0	1848	343	0	626					14,822
2	RB110=6												24
3	RB110=-1												0
4	RB120=2												3
5	RB120=3												3
6	RB120=4												1,656
7	DB135=2,-1 or DB110=7 or DB120=21-23,- 1 or DB130=21- 24,-1												
8	DB110=3-6												

New sample persons

9	Reached age 16	175	0	0	0	0	0	2	0	2	0	0	179
10	Sample additions	0	0	0	0	0	0	0					0

Non-sample persons 16+

11	From Wave 1	0	0	0	0	0	0	0	0	0	0	0	0
	Not from Wave 1	437	0	0	0	0	0	0	0	0	0	0	437

Sample persons from sample not forwarded from last wave (excluding died or not eligible according to tracing rules)

13													21
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Sum of rows:

1,3,6,7,9,10	12,036	144	0	1,848	343	0	628	0	2	0	0	16,870
1,3,6,7,9,10,13	12,036	144	0	1,848	343	0	628	0	2	0	0	16,891
1,3,6,7,9,10,11	12,473	144	0	1,848	343	0	628	0	2	0	0	17,328

Wave response rate of sample persons =	0.713	Achieved sample size ratio for sample persons =	0.721
Wave response rate of co-residents =	0.000	Achieved sample size ratio for sample persons and co-residents =	0.747
Longitudinal follow-up rate =	0.713	Achieved sample size ratio for co-residents selected the first wave =	0.000
Rate (RB250=21) =	0.009	Response rate for non-sample persons =	1.000
Rate (RB250=22) =	0.000		
Rate (RB250=23) =	0.109		
Rate (RB250=31) =	0.020		
Rate (RB250=32) =	0.000		
Rate (RB250=33) =	0.037		

### 2.3.3.3 Distribution of households

**Table 15: Distribution of households by DB110**

		DB110					
		Total	1	2	7	8	9
2005		13856.0	0.0	0.0	0.0	0.0	13856.0
	%	100.0	0.0	0.0	0.0	0.0	100.0
2006		9011.0	7994.0	127.0	717.0	173.0	0.0
	%	100.0	88.7	1.4	8.0	1.9	0.0

**Table 16: Distribution of households by DB120**

		DB120				
		Total	11	21	22	23
2005		13758	12591	15	1	1151
	%	100.0	91.5	0.1	0.0	8.4
2006		300	243	57	0	0
	%	100.0	81.0	19.0	0.0	0.0

**Table 17: Distribution of households by DB130**

		DB130				
		Total	11	21	22	23
2005		12591	8838	3026	202	525
	%	100.0	70.2	24.0	1.6	4.2
2006		8237	6627	1187	81	342
	%	100.0	80.5	14.4	1.0	4.2

**Table 18: Distribution of households by DB135**

		DB135		
		Total	1	2
2005		8838.0	8838	0.0
	%	100.0	100.0	0.0
2006		6627.0	6625	2.0
	%	100.0	100.0	0.0

### 2.3.3.4 Distribution of persons

**Table 19: Distribution of persons by membership status**

		RB110						
			Current household members				Not current household members	
		Total	1	2	3	4	5	6
2005		20892.0	20892	0	0	0	0	0
	%	100.0	100.0	0.0	0.0	0.0	0.0	0.0
2006		21724.0	18634	199	493	138	2236	24
	%	100.0	85.8	0.9	2.3	0.6	10.3	0.1

**Table 20: Distribution of persons by RB120**

		Total	RB120					
			1			2	3	4
			RB250=11-13	RB250=33	total			
2006		2236	108	79	199	4	4	2029
	%	100.0	4.8	3.5	8.9	0.2	0.2	90.7

**2.3.3.5 Item non-response**

All income variables provided for EU-SILC 2006 (UK) have been fully imputed.

**Table 21: Item non-response at household and personal level 2005**

		Longitudinal sample 2005-2006: 2005 part							
		Households having received an amount		Full information		Partial information		Missing information	
		Total	%	Total	%	Total	%	Total	%
Total income component									
HY010	Total gross household income	8807	99.6	5107	58.0	3358	38.1	342	3.9
HY020	Total disposable household income	8823	99.8	5473	62.0	3266	37.0	84	1.0
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	8581	97.1	5604	65.3	2818	32.8	159	1.9
HY023	Total disposable household income before social transfers including old-age and survivors benefits	8260	93.5	5805	70.3	2165	26.2	290	3.5
Gross income components at household level									
HY040	Income from rental of property or land	392	4.4	298	76.0	6	1.5	88	22.4
HY050	Family related allowance	2814	31.8	2387	84.8	212	7.5	215	7.6
HY060	Social exclusion not elsewhere classified	1081	12.2	831	76.9	61	5.6	189	17.5
HY070	Housing allowance	1169	13.2	1030	88.1	7	0.6	132	11.3
HY080	Regular inter household cash transfer received	361	4.1	309	85.6	3	0.8	49	13.6
HY090	Interest, dividends etc	4119	46.6	2680	65.1	284	6.9	1155	28.0
HY100	Interest repayments on mortgage	3288	37.2	3288	100.0				
HY110	Income received by people aged under 16	97	1.1	97	100.0				
HY120	Regular taxes on wealth	7920	89.6	7280	91.9			640	8.1
HY130	Regular inter	373	4.2	323	86.6	2	0.5	48	12.9

	household cash transfer paid								
HY140	Tax on income and social contributions	7302	82.6	4851	66.4	1617	22.1	834	11.4
Gross income components at personal level									
PY010	Employee cash or near cash income	8439	51.1	6503	77.1	542	6.4	1394	16.5
PY020	Non-Cash employee income	724	4.4	620	85.6	71	9.8	33	4.6
PY035	Contribution to individual private pension plans	1085	6.6	1085	100.0				
PY050	Cash benefits or losses from self-employment	1235	7.5	941	76.2	4	0.3	290	23.5
PY070	Value of goods produced by own-consumption	-	-	-	-	-	-	-	-
PY080	Pension from individual private plans	522	3.2	303	58.0			219	42.0
PY090	Unemployment benefits	215	1.3	172	80.0			43	20.0
PY100	Old-age benefits	4764	28.9	3343	70.2	1016	21.3	405	8.5
PY110	Survivor benefits	89	0.5	55	61.8	15	16.9	19	21.3
PY120	Sickness benefits	536	3.2	403	75.2	1	0.2	132	24.6
PY130	Disability benefits	529	3.2	359	67.9	49	9.3	121	22.9
PY140	Education-related allowances	159	1.0	125	78.6			34	21.4

**Table 22: Item non-response at household and personal level 2006**

		Longitudinal sample 2005-2006: 2006 part							
		Households having received an amount		Full information		Partial information		Missing information	
		Total	%	Total	%	Total	%	Total	%
Total income component									
HY010	Total gross household income	6608	99.7	4117	62.3	2354	35.6	137	2.1
HY020	Total disposable household income	6612	99.8	4412	66.7	2151	32.5	49	0.7
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	6438	97.2	4524	70.3	1836	28.5	78	1.2
HY023	Total disposable household income before social transfers including old-age and survivors benefits	6191	93.4	4609	74.4	1418	22.9	164	2.6
Gross income components at household level									
HY040	Income from rental of property or land	274	4.1	229	83.6	5	1.8	40	14.6
HY050	Family related allowance	2002	30.2	1806	90.2	160	8.0	36	1.8

HY060	Social exclusion not elsewhere classified	725	10.9	559	77.1	81	11.2	85	11.7
HY070	Housing allowance	786	11.9	721	91.7			65	8.3
HY080	Regular inter household cash transfer received	232	3.5	222	95.7	1	0.4	9	3.9
HY090	Interest, dividends etc	3320	50.1	2386	71.9	229	6.9	705	21.2
HY100	Interest repayments on mortgage	2590	39.1	2590	100.0				
HY110	Income received by people aged under 16	66	1.0	66	100.0				
HY120	Regular taxes on wealth	5860	88.5	5576	95.2			284	4.8
HY130	Regular inter household cash transfer paid	249	3.8	234	94.0			15	6.0
HY140	Tax on income and social contributions	5651	85.3	3919	69.4	1302	23.0	430	7.6
Gross income components at personal level									
PY010	Employee cash or near cash income	6484	52.0	5233	80.7	335	5.2	916	14.1
PY020	Non-Cash employee income	520	4.2	520	100.0				
PY035	Contribution to individual private pension plans	1142	9.2	1141	99.9	1	0.1		
PY050	Cash benefits or losses from self-employment	905	7.3	756	83.5	2	0.2	147	16.2
PY070	Value of goods produced by own-consumption	-	-	-	-	-	-	-	-
PY080	Pension from individual private plans	456	3.7	282	61.8			174	38.2
PY090	Unemployment benefits	133	1.1	108	81.2			25	18.8
PY100	Old-age benefits	3784	30.3	2635	69.6	886	23.4	263	7.0
PY110	Survivor benefits	64	0.5	43	67.2	5	7.8	16	25.0
PY120	Sickness benefits	421	3.4	322	76.5			99	23.5
PY130	Disability benefits	403	3.2	303	75.2	19	4.7	81	20.1
PY140	Education-related allowances	114	0.9	104	91.2			10	8.8

## 2.4 Mode of data collection

**Table 23: Distribution of household members by data status – all household members (16+)**

	Total	RB250=11	RB250=12	RB250=14	RB250=21	RB250=23	RB250=31	RB250=32	RB250=33
<b>2005</b>									
Total	16508	16505	0	0	0	2	0	0	1
%	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>2006</b>									
Total	15436	12473	0	0	144	1848	343	0	628
%	100.0	80.8	0.0	0.0	.9	12.0	2.2	0.0	4.1

**Table 24: of household members by data status – sample persons (16+)**

	Total	RB250=11	RB250=12	RB250=14	RB250=21	RB250=23	RB250=31	RB250=32	RB250=33
<b>2005</b>									
Total	16508	16505	0	0	0	2	0	0	1
%	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>2006</b>									
Total	15001	12038	0	0	144	1848	343	0	628
%	100.0	80.2	0.0	0.0	1.0	12.3	2.3	0.0	4.2

**Table 25: Distribution of household members by data status – co-residents (16+)**

	Total	RB250=11	RB250=12	RB250=14	RB250=21	RB250=23	RB250=31	RB250=32	RB250=33
<b>2005</b>									
Total	0	0	0	0	0	0	0	0	0
%	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
<b>2006</b>									
Total	435	435	0	0	0	0	0	0	0
%	100.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

**Table 26: Distribution of household members by type of interview – all household members (16+)**

	Total	RB260=1	RB260=2	RB260=3	RB260=4	RB260=5
<b>2005</b>						
Total	16501	0	14751	0	0	1750
%	100.0	0	89.4	0	0	10.6
<b>2006</b>						
Total	12469	0	11353	0	0	1116
%	100.0	0	91.0	0	0	9.0

**Table 27: Distribution of household members by type of interview – sample persons (16+)**

	Total	RB260=1	RB260=2	RB260=3	RB260=4	RB260=5
<b>2005</b>						
Total	16501	0	14751	0	0	1750
%	100.0	0	89.4	0	0	10.6
<b>2006</b>						
Total	12034	0	11035	0	0	999
%	100.0	0	91.7	0	0	8.3

**Table 28: Distribution of household members by type of interview – co-residents (16+)**

	Total	RB260=1	RB260=2	RB260=3	RB260=4	RB260=5
<b>2005</b>						
Total	0	0	0	0	0	0
%	0	0	0	0	0	0
<b>2006</b>						
Total	435	0	318	0	0	117
%	100.0	0	73.1	0	0	26.9

## 2.5 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 the ONS implemented an iterative, two-stage imputation process: Stage 1 focused on the imputation of missing routing; Stage 2 focused on the imputation of missing amounts and time periods.

The imputation process was supported by statistical tools and used standard statistical techniques for panel data, including:

- SAS (Statistical Analysis System) – to facilitate deductive imputation. This was applied to correct for missing values by implementing propositional relationships in the data based on logical rules and legal constraints. Methods included the application of growth factors (ratio imputation) formed from each variable by calculating ratios for both the current year and previous year which were then weighted together. Asymmetric trimming was also applied as a refinement to remove outlying values which might have otherwise caused excessive influence on the ratio. Trimming was applied using a robust method, based on the median and the inter-quartile range.
- SPSS AnswerTree - to identify key predictors to partition the data into homogeneous classes for subsequent imputation.

- CANCEIS (**CAN**adian **C**ensus **E**dit and **I**mputation **S**ystem) - for stochastic imputation. CANCEIS implements a highly efficient nearest neighbour imputation method that preserves the shape of the distribution whilst also estimates and maintains observed relationships and distributional parameters. Stochastic imputation ensures less distortion in the estimates of variance.

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

## 2.6 Imputed rent

Imputed rent was not calculated as part of EU-SILC 2006.

## 2.7 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 29: 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 2005/06 is shown in Table 30.

**Table 30: 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 Table 31 are 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 31: Tax rate based on C02 emission rates (per cent)**

2005/2006	C02 tax emission rate (percentage rate)
155	17
200	26
245	35

These percentage rates are the factor that is applied to the car price to produce a monetary benefit for each company car in a household..

$$\text{Car benefit} = (\text{car price}) * \text{CO}_2 \text{ tax emission rate}$$

### 3. Comparability

This section reports on the differences between EUROSTAT definitions and the definitions the UK applied in EU-SILC 2006. 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 2005 & 2006).

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 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 2006, we can regard their income as being measured for the period July 2005 to June 2006, and similarly for a household interviewed in December 2006, the income estimate can be regarded as referring to the period July 2006 to June 2007. 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 2006 survey, measures current annual income in 2006.

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<sup>1</sup>.

### ***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 2005–March 2006 and April 2006–March 2007. All interviewing for EU-SILC UK took place between January 2006 and April 2007.

### ***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 2006, 98.5% of interviews took place between 1<sup>st</sup> January 2006 and 31<sup>st</sup> December 2006, with the remaining interviews completed between 1<sup>st</sup> January 2007 and 10<sup>th</sup> April 2007.

### ***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.

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<sup>1</sup> 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 not provided as part of the 2006 EU-SILC data delivery as it is only mandatory from 2007 onwards.

#### ***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. However in the national definition, income from private

pensions is included whereas in EU-SILC, income from private pensions will only be included in the definition of income from 2007 onwards. 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.

## **3.3 Tracing rules**

For UK EU-SILC 2006, persons aged 14 and above who could not be contacted in 2005 were not always re-contacted in 2006. Furthermore, information on *former residents* was not collected.

## **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 2005-2006 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, Gwynedd, Dyfed, Powys
26. Highlands, Grampian, Tayside
27. Fife, Central, Lothian
28. Glasgow Metropolitan
29. Strathclyde (excluding Glasgow)
30. Borders, Dumfries, Galloway

## Annex 2

### 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.