



## GHS USER GROUP

### TRANSITION TO A LONGITUDINAL GENERAL HOUSEHOLD SURVEY – GHS(L)

#### 1. Introduction

All members of the European Community are now required to collect some cross sectional and longitudinal statistical information on income and living conditions (EU-SILC). The UK started data collection in April 2005. This paper gives relevant background to EU-SILC and looks at how its requirements are being met from the General Household Survey (GHS). The paper also describes what these changes will mean for users of the GHS and how, in the longer term, the GHS will be integrated into the Continuous Population Survey (CPS).

#### 2. Background

EU-SILC aims to provide comparable and timely statistics on income and living conditions for each EU member state. These will be used to help plan and monitor European social policy by comparing poverty indicators and changes over time across the European Community. The history of the development and coverage of EU-SILC are set out in **Appendix 1** to this paper.

As EU member states are expected to fund the major part of the survey costs, linkage to an existing survey was seen as beneficial. The GHS was identified as the best vehicle for this work because there are many overlaps in the topics covered. As the GHS covers Great Britain only, Northern Ireland will run the same survey to give the UK coverage required.

One of the main features of the EU-SILC requirement for the GHS is the provision of both cross-sectional and longitudinal data to investigate major issues of social concern. This requirement has resulted in a change to the GHS sample design to a four-yearly rotation, an increase in the sample size, and additional core questions. To reflect its longitudinal element, the GHS is now known as GHS(L). The changes to the sample design and implications for data analysis are described later in this paper.

#### 3. Main changes to 2005 GHS questionnaire content

To meet the EU-SILC requirement the GHS has been expanded in some areas and cut in a few others to accommodate new questions. Overall, much of the questionnaire remains the same with new modules on the financial situation, employment history, housing costs and child care. A pilot of the new

questionnaire in October 2004 showed that the interview length was similar to that of 2004-5 GHS, which contained a lengthy social capital trailer, and was somewhat longer than in previous years. The changes to the household and individual questionnaire are set out in more detail in **Appendix 2** to this paper.

EU-SILC has ad hoc modules similar to GHS trailers. This means that there is no room on the questionnaire for the usual GHS trailers, such as carers, the elderly and contraception. Instead the GHS will include EU-SILC modules. In 2005 it will cover social mobility (also known as intergenerational transmission of poverty), in 2006 social capital and in 2007 it is likely to cover housing inadequacies.

#### 4. Sample design

As explained earlier the GHS will adopt a new sample design to combine the cross-sectional and longitudinal EU-SILC requirements. The new sample design will follow a four-year 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, 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) the sample for any one year consists of four replications which have been in the survey for 1, 2, 3 or 4 years. Each year one of the four replications is dropped and a new one added, giving an overlap of 75% between successive years.

**Figure 1: Illustration of four-year sample rotation**

Sample replication	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	
1	1 <sup>st</sup>						
2	1 <sup>st</sup>	2 <sup>nd</sup>					
3	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>				
4	1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>			
5		1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>		
6			1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	4 <sup>th</sup>	
7				1 <sup>st</sup>	2 <sup>nd</sup>	3 <sup>rd</sup>	etc.
8					1 <sup>st</sup>	2 <sup>nd</sup>	etc.
9						1 <sup>st</sup>	etc.

	New sample
	Follow-up sample

To assess the sample size requirements we have assumed a reduced first wave response rate of 67% (to allow for the income-related subject matter and longer interview than in most recent years), a

household attrition rate of 15% each year and an initial design effect of 1.25 (to take into account the clustered sample design). The annual achieved (usable) sample size is 10,200 households, with two-year overlap samples of 7,000 households. The table below gives the achieved and effective (ratio of achieved sample to the initial design effect) household sample sizes for the following four years.

**Table 1: Summary of achieved and effective household sample sizes by year and interview wave in the longitudinal GHS(L)**

	Wave 1	Wave 2	Wave 3	Wave 4	All Waves (Effective)	Two-year Matched Sample (Effective)
<b>Year 1 (2005)</b>	10200				10200 (8200)	-
<b>Year 2 (2006)</b>	3200	7000			10200 (8200)	7000 (5600)
<b>Year 3 (2007)</b>	3200	2700	4300		10200 (8200)	7000 (5600)
<b>Year 4 + (2008+)</b>	3200	2700	2300	2000	10200 (8200)	7000 (5600)

The four-year rotating panel design will be achieved by retaining approximately three quarters of the 2005 sample respondents in the sample for 2006, and so on in subsequent years. That is, three quarters of the initial sample in 2005 will be asked to take part in a follow-up interview in 2006 and one quarter of the total sample in 2006 will be made up of new sample households. Likewise in 2007 three quarters of the 2006 sample will be asked to take part again. Starting in 2008, we plan to integrate the new samples for this survey with a number of other household surveys into the Continuous Population Survey. This is described in Section 5.

An additional change which affects the sample design for the GHS(L) is that from January 2006 onwards the major ONS household surveys in ONS will change their timetable from a financial year (April – March) to a calendar year (January – December) timetable. This change means that for the rotational GHS(L) design the sample for the first year will be interviewed during the last nine months in 2005 (April – December). This then gives us the opportunity to start with the second wave of the data collection in January 2006.

There are a number of advantages to GHS users of the proposed design but also some disadvantages:

- i. The larger annual sample size would lead to some reduction in sampling errors for cross-sectional estimates. On the basis of the sample size calculations above, it is estimated that sampling errors should be reduced by around 6%.
- ii. In addition, because approximately three quarters of the total sample will have been interviewed the previous year, there will be a positive correlation between successive annual estimates from the survey. This in turn will reduce the sampling errors of estimates of annual change. The size of these improvements will depend on the type of variable. The gains will be greatest for variables with high annual correlations, i.e. variables that change slowly, for example variables for housing and chronic health problems. On the other hand, variables that change rapidly, such as those for recent health problems and some employment experience will show smaller gains. As a guide, standard errors of mean annual changes might be reduced by between 12% and 30% for a wide range of variables.
- iii. The design would allow scope for genuine longitudinal analysis of GHS data, albeit over a relatively short period of four years. The survey would allow the construction of measures of change, for example in household structure, residential mobility, income, employment history and health measures. This would allow investigation of the effects of change, for example the relationship between changes in employment status and income or health measures.
- iv. It is possible that the extended survey will have a lower initial response rate than previously on the GHS, allowing greater scope for non-response bias. The effects would, however, be reduced by using a weighting scheme similar to the current model.
- v. Combining data from different sample years, which is currently done to boost sample numbers for small population groups, will be less effective.
- vi. Users of GHS data who want to do longitudinal analysis will need to take account of attrition bias. It would be possible to apply additional weights, based on characteristics recorded during the last interview, in order to reduce the impact of this bias. Attrition weighting is a requirement on the EU-SILC data. It will be applied to the data following procedures that have been developed by Eurostat.

## **5. Inclusion of the GHS(L) in the Continuous Population Survey**

From January 2008 the GHS(L) will be one of five ONS continuous household surveys to be integrated into a single Continuous Population Survey (CPS). The other surveys are the Labour Force Survey, Annual Population Survey Boost, Expenditure and Food Survey, and the National Statistics Omnibus Survey. An integrated approach will deliver better value for money and increase the value of statistical outputs.

The proposed form of integration involves a single unclustered sample of addresses and a modular survey instrument comprising all the topics to meet the continuing information needs currently met in the separate surveys. A short core module, providing information on Census type socio-demographic variables, would be administered to the whole sample, while different topic modules would be administered to parts of the sample. Viable interview combinations would be composed of the core module and selected topic modules.

There are large potential gains in the precision of many GHS(L) estimates from an integrated survey. These result from four factors: i) a very large annual sample for core module variables with ii) improved regional and local area coverage, iii) the effects of 'declustering' and iv) the introduction of an improved weighting methodology. The modular design and the sample structure of the CPS will enable the production of more precise, coherent estimates at the national, regional and sub-regional levels.

The CPS will provide a rich and powerful dataset for analysts of GHS(L) and other survey data to exploit. It will be possible to use CPS core and topic outputs separately or in combination to paint accessible and comprehensive pictures of society in general and to explore specific topics in detail. While the CPS will continue to produce the full range of outputs currently delivered by the existing household surveys, including those to be produced by GHS(L), the survey provides opportunities for a range of new outputs too. For example, the CPS will be able to report for the first time on new topics contained in the core module on a quarterly basis. For more information about the CPS follow the link below:

[http://www.statistics.gov.uk/about/consultations/ons\\_consultations/downloads/CPS\\_Consultation.pdf](http://www.statistics.gov.uk/about/consultations/ons_consultations/downloads/CPS_Consultation.pdf)

An extensive programme of testing, development and validation of the CPS's design is on-going, informed by results from a formal consultation exercise held in 2004. Decisions about content, quality, and outputs will be the product of comprehensive stakeholder consultation throughout the life of the project. Final decisions about the content and nature of the survey will be taken nearer the survey's launch date, following a further round of consultation, and upon satisfaction of a range of agreed quality measures and performance metrics.

**6. For further information, please contact:**

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## Appendix 1

### EU-SILC

#### OVERVIEW OF DEVELOPMENT AND COVERAGE

##### Introduction

Following concerns about the comparability and timeliness of data across the European Community, the European Directors of Social Statistics (DSS) decided in June 1999 to replace the European Community Household Panel (ECHP) after 2002 with European Union statistics on income and living conditions (EU-SILC). In June 2000, DSS introduced a legal act for EU-SILC reflecting the high priority given by the Council and the Commission to the fight against poverty and social exclusion in the EU. In particular, core monetary indicators were defined at the Laeken summit as the 'at risk of poverty' rate, 'at persistent risk of poverty' rate and income inequality. Up to then the Commission had provided statistics on income and living conditions mainly based on the ECHP. NSIs had only contractual obligations to co-operate in this exercise and in some cases had either delegated the work to research institutes or incorporated national panels in the exercise or both.

Setting up the Framework and the Commission's Regulations for SILC was intended to place clear responsibilities with the member states and Eurostat, so improving the overall quality of the data and allowing a better integration of these statistics into national systems.

##### Main features of EU-SILC

The main features of EU-SILC are:

- the use of harmonised methods and definitions in order to establish reliable comparisons between member states;
- the provision of both **cross-sectional** and **longitudinal** micro-data at the household and person level in order to investigate major issues of social concern; persons to be followed up within the UK;
- statistics to be updated annually to reflect changes in income distribution and levels of social exclusion;
- flexibility of data sources. The use of existing national data sources, whether surveys or registers, and national sample designs should be encouraged, and the integration of the new source(s) into established national statistical systems should be promoted;
- cross-sectional and longitudinal micro-data sets to be updated on a yearly basis;

- from 2005, ad-hoc modules will be added to EU-SILC to investigate particular areas of policy interest in more detail if and when required.

For the first four years of data collection member states will receive a financial contribution towards the cost of additional work. There is an assumption that data will continue to be provided beyond these four years, although there is no promise of additional funding from Eurostat.

The EU Survey of Income and Living Conditions (EU-SILC) was developed jointly by Eurostat and a task force was set up in which all EU Member States together with Norway and Iceland participated. EU-SILC was launched in seven countries in 2003. Under the Framework Regulation most other EU countries plus Norway and Iceland started data collection in 2004. The UK, Denmark and the Netherlands will begin in 2005. The ten countries which joined the EU in May 2004 will start in 2005 or 2006.

The Framework Regulation refers to the six implementing measures:

1. The definition of the lists of target primary variables to be included for the cross-sectional component and the longitudinal component.
2. The detailed content of the intermediate and final quality reports.
3. The definitions and the updating of the definitions, including household members and former household members, total gross and disposable income definitions, gross/net income components.
4. The sampling and tracing rules.
5. The fieldwork aspects and the imputation procedures.
6. The list of target secondary areas and variables.

### **Coverage of EU-SILC**

The requirements of EU-SILC fall into five core areas. These are:

1. Basic data
  - Including degree of urbanisation
  - Education - highest ISCED level obtained

## 2. Income

- Gross and net income in more detail
- Children's income, if significant

## 3. Social exclusion

- Arrears on housing and other payments
- Difficulty in making ends meet
- Consumer durables – affordability
- Physical and social environment
- Health status – summary definition
- Access to health and dental care

## 4. Labour market data

- Employment
- Hours worked
- Type of contract
- Reason part-timers are not in full-time employment
- Changes of job
- Child care breakdown by provider

## 5. Housing

- Dwelling type, tenure status and housing conditions
- Amenities in the dwelling
- Housing costs

## Appendix 2

### OVERVIEW OF MAIN CHANGES TO THE CONTENT OF THE GENERAL HOUSEHOLD SURVEY QUESTIONNAIRE

#### HOUSEHOLD QUESTIONNAIRE

The main changes to the household questionnaire are summarised below.

- **Accommodation type**

There are new questions about housing conditions. These include problems with the accommodation (for example, are there leaks or is the property too dark?) and the amenities available to the household in the dwelling (such as an indoor flushing toilet). There are some slight amendments to the count of the types of room in the household to meet the EU-SILC requirements. There is a new question about the dwelling's council tax band that is used as an indicator of standard of housing.

- **Consumer durables**

The list of consumer durables has been reduced. For those that remain, there are new questions about the affordability of consumer durables. For example, if a household does not have a TV they are asked why they do not have one (e.g. is it because they cannot afford one or because they do not want one).

- **Tenure**

There is a new question on the year the accommodation was bought or the year it was first rented/contract signed.

- **Housing costs**

This is a completely new module of questions for EU-SILC. For those renting, it covers the cost of the rent, housing benefits, the cost of services in rent, and the market rent. For those who own the accommodation with a mortgage, it covers the type of mortgage and the cost of the last repayment. All households are asked about the affordability of their total housing costs (i.e. the bills to do with running a house).

- **Migration/ethnicity**

There are new questions on 'citizenship'.

## INDIVIDUAL QUESTIONNAIRE

The main changes to the individual questionnaire are summarised below.

- **Employment**

For EU-SILC, there are new questions on the type of contract, 2nd and 3rd jobs, the reason why those who work 30-hours or less per week are not working full time, change of job and self-reported economic status. Self-reported economic status is an opinion question seeking the respondent's perception of their main activity status over a course of a year.

- **Pensions**

There is a new question on the amount contributed to a personal pension for employees and the self-employed.

- **Education**

There are new questions on the age the highest qualification was attained and any qualification(s) that are being studied for now. The question on attendance at leisure classes has been dropped.

- **Adult health**

There is a new question on 'health in general' (5-point scale) for EU-SILC. This is asked after the usual GHS question on 'health in the past 12-months' (3-point scale).

There are also new questions on unmet medical and dental needs because of an inability to afford treatment rather than through lack of NHS services.

- **Child health**

There is no change to this module, except for the additional question on 'health in general' (5-point scale) for EU-SILC.

- **Childcare**

This is a new module for EU-SILC on the number of hours of childcare per week broken down by provider for each child aged 0 to 12 in the household.

- **Smoking**

There is no change to the smoking module.

- **Drinking**

The additional GHS questions on drinking in the last 12-months have been included this year.

- **Family information**

There is no change to the family information module.

- **Financial situation**

This is a new module of questions for EU-SILC. It covers the ability to afford certain items, arrears on housing and other payments, and the lowest income needed to 'make ends meet'.

- **Income**

There are new/expanded questions on self-employed (gross and net) income, income from 2nd/3rd jobs (gross/net), lump sum from pension/redundancy or a tax refund/payment, and children's income (if £30 or more per month).

- **Social mobility (2005 EU-SILC ad hoc module)**

This is an EU-SILC trailer asked only of adults aged 25 to 65 about their situation as a young teenager. It covers the economic status of their mother/father, the occupation of their mother/father, the educational level of their mother/father and whether the family had financial problems. It aims to see how the respondent's standard of living compares with that of their parents or whether inequalities/poverty have passed from parent to child.

- **Social capital**

The social capital trailer has been dropped. A shorter version will be asked in 2006 as an EU-SILC trailer.