Using EU-SILC data for cross-national analysis: strengths, problems and recommendations

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Non-technical summary

The EU's Statistics on Income and Living Conditions (EU-SILC), launched in 2003, is the first longitudinal micro-level data set to provide comprehensive data on incomes and a large number of other social and economic domains, across all 27 member states of the enlarged EU (it also covers a number of other countries).

At the time of writing, Eurostat, the statistical office of the European Union, is consulting on the future development of the EU-SILC. This paper has been prepared as a submission to this process, making recommendations based on the experiences of two teams of researchers based at ISER. These researchers have worked primarily on two large projects: ALICE (Analysis of Life Chances in Europe, funded by the UK's Economic and Social Research Council) and EUROMOD (an EU-wide tax-benefit microsimulation programme funded by the European Commission).

The paper does not pretend to be a full analysis of the strengths and weaknesses of the EU-SILC data; rather, it focuses on three areas where our own research has been concentrated: sampling and design, household dynamics, and incomes. In each of these areas, we find that the EU-SILC forms a unique and useful resource, but we also find problems and shortcomings. These problems vary in terms of how easily they may be rectified, and it is clear that some of the problems would require long-term and relatively far-reaching changes, including changes to the legal basis for the EU-SILC, in order to be implemented.

However – and this forms a key part of the recommendations of this paper - we believe that many important changes could be made relatively easily, and without requiring any changes to the legal basis. Several of the changes we suggest require nothing more than a greater consistency and clarity in documentation.

Several of our other recommendations would require reforms to the legal basis in order to be implemented fully: they involve providing additional variables, or changes to personal or household identifiers. However, we believe that many countries' National Statistical Institutes would agree to making these changes to the data they provide. In this case, we believe that enhanced data should be made available for those countries whose NSIs consent to this; improved data for a subset of countries would be hugely welcome, even if it were not available for all countries.

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Abstract

The EU's Statistics on Income and Living Conditions (EU-SILC), launched in 2003, was the first micro-level data set to provide comprehensive data on incomes and other social and economic domains over the enlarged EU. This paper draws on two programmes of research to ask how well the EU-SILC has met the objectives with which it was designed. We focus on three areas: sampling and design, household dynamics, and incomes. In each domain the EU-SILC forms a unique and useful resource, but we also find problems and shortcomings, some of which could be rectified relatively easily, for the majority of countries.

1. Introduction

A brief history of longitudinal cross-European data sets

The exercise of gathering and disseminating comparable micro-level data across the countries of the European Union goes back almost three decades. 1983 saw the launch of the Labour Force Surveys, a set of repeated quarterly cross-sections, focusing on characteristics of employees and their jobs; the European Values Study was established two years earlier, in 1981, and has since been repeated at nine-year intervals. The two-yearly European Social Survey was established in 2001, and the four-yearly European Quality of Life Survey was conducted for the first time in 2003.

All these surveys are essentially repeated cross-sections[1]. In recognition of the fact that many questions relating to people's incomes, wellbeing and life-course trajectories cannot be answered with cross-sectional data, Europe's first cross-national longitudinal household survey – the European community Household Panel, or ECHP – was established in 1994. The ECHP contained data on household income and living conditions, and also included items on health, education, housing, migration, demographics and employment characteristics. It had the advantage of being input-harmonised: that is, of being based on standardised questionnaires common across almost all of the countries where it was implemented. Additionally, a substantial proportion of the data preparation, including imputation, weighting and the creation of derived variables, was done centrally under the auspices of Eurostat, the statistical office of the European Union.

The ECHP ran until 2001. After this date it was discontinued, partly on the grounds of cost: longitudinal surveys are rather more complex to administer than comparable cross-sectional surveys, and may be more expensive[2]; several existing member states had already expressed concerns about the costs; and there were doubts about the future feasibility of the ECHP upon the accession to the EU of twelve new member states, many of them with relatively low per capita incomes.

The successor to the ECHP came in the form of the European Union Statistics on Income and Living Conditions (EU-SILC). At its inception in 2003, it covered six Member States (Belgium, Denmark, Greece, Ireland, Luxembourg and Austria), plus Norway; since then, it has been extended to cover the remaining countries of the European Union, and several other non-member states. The EU-SILC differs markedly from its predecessor in several important ways. Perhaps most importantly, the EU-SILC is output-harmonised: that is, that instead of being based on harmonised questionnaires, the procedure involves the specification of a set of social and economic indicators which should be provided by the new data set, but it is up to each of the member states to decide how these are to be collected. The surveys also differ in their design: whereas the ECHP was a panel survey, in which the same individuals were re-interviewed year after year, the EU-SILC takes the form of a *rotating* panel, where individuals are interviewed usually for a maximum of four years[3], and the sample is regularly refreshed with new members.

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[1] In fact, the EU-LFS does have a rotational design, but individuals remain in the survey for only short periods of time, and it is not intended to be used as a longitudinal survey.

[2] It is not universally acknowledged that longitudinal surveys are more expensive than cross-sectional surveys of comparable quality, since what is spent on following existing respondents is saved by not having to identify new sample members; indeed, there is anecdotal evidence that web-based longitudinal surveys are extremely cost-effective.

[3] Some countries have longer rotations; for example, France has an eight-year rotation.

At the time of writing, Eurostat is consulting over the future of the EU-SILC. This paper has been produced primarily as a contribution to this process, and is reproduced in working paper form for the benefit of the research community. It is based on the experiences of a group of analysts working on two overlapping programmes of research based at the Institute for Social and Economic Research at the University of Essex: a three-year programme funded by the United Kingdom's Economic and Social Research Council, entitled Analysis of Life Chances in Europe (ALICE[4]) and an income microsimulation programme entitled EUROMOD[5], funded by the European Commission. These programmes are wide-ranging in their scope, including substantive research on incomes, household and family structure and labour markets, as well as research on methodological issues. However, they cover only a subset of the research domains made possible by EU-SILC, and this paper is not intended as an exhaustive commentary on the quality of the EU-SILC. Nor is it intended to replace the documentation produced by Eurostat[6].

The paper follows a fairly simple structure. Section 2 describes the structure of EU-SILC in more detail than we have done in this Introduction. Each of sections 3 to 6 is devoted to one issue, or group of issues, relating to the design, structure, content or implementation of EU-SILC. Finally, in Section 7, we summarise our recommendations, and reiterate what we see as priorities for the future of EU-SILC or its successors. It would be tempting to draw up an idealistic but impracticable wish-list for a "perfect" data set. However, we have tried to be practical, and to bear in mind that there are constraints; money is the obvious of these, but concerns around data confidentiality are also important.

2. EU-SILC data

The EU-SILC is an annual survey which provides micro data on a wide range of social indicators including income, poverty, social exclusion and living conditions. The first release of data (relating to the year 2004) includes information on 13 Member States (Austria, Belgium, Denmark, Estonia, Finland, France, Greece, Ireland, Italy, Luxembourg, Portugal, Spain and Sweden), plus Norway and Iceland. From 2005, Germany, the Netherlands and the United Kingdom joined, along with the rest of the new member states (Cyprus, Czech Republic, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia). Finally, from 2007 onwards, the EU-SILC represents all 27 Member States, and includes Turkey and Switzerland as non-members alongside Norway and Iceland.

We have already referred, in the Introduction, to the fact that EU-SILC is output- rather than input-harmonised. This means that rather than data from all countries being collected via a single standard survey instrument, member states were given a list of variables which must be present in the data, but allowed a great deal of freedom as to how those may be collected. This is manifested in many ways, many of which we discuss later in this paper. For example, some countries have recorded income data as net amounts, while other countries have recorded gross amounts. In most countries, the reference period for income data is the calendar year preceding the year of data collection, but in Ireland it is the 12 months prior to the interview, and in the United Kingdom it refers to the period around the date of interview, with income totals subsequently converted to annual equivalents.[7]

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[4] http://www.iser.essex.ac.uk/projects/alice
[5] http://www.iser.essex.ac.uk/euromod
[6] http://circa.europa.eu/Public/irc/dsis/eusilc/library
[7] These differences in income reference period are unlikely to be a major source of non-comparability. Böheim and Jenkins (2006) argue using British Household Panel Survey data that current income and annual income definitions lead to very similar estimates of income distribution statistics.

Differences are also apparent in the structure of the surveys themselves. Most countries have based data collection on household surveys, while a few (Finland, the Netherlands, Norway, Slovenia, and Sweden) have based data collection on administrative registers, using registers to collect several variables, and obtaining other information via interviews with a "representative person" in the household[8]. Even among countries which use household surveys, there is some variation in sample design. In most countries the sample takes the form of a rotational panel: the sample is divided into sub-panels, each sub-panel is retained in the sample for a maximum of four years, and each year one sub-panel is dropped, to be replaced by a new replication. However, the number of rotational groups varies: the standard is four, but exceptions are France (nine-year panel); Norway (eight-year panel) and Luxembourg (a "pure" panel).

In contrast to most other longitudinal surveys, cross-sectional and longitudinal data are released separately in the EU-SILC. Member states are allowed to use different survey instruments to collect cross-sectional and longitudinal data, and there is no requirement that these data sets be linkable (indeed, even when these are supplied to Eurostat as linkable files, the identifiers are changed so the two files are not linkable). We discuss the implications of this in Section 5.

As with most household-based studies, the data relate to private households only, and the sample of respondents is drawn from members of these households currently resident at the time of data collection. Those living in institutional settings (hospitals, residential homes for the elderly, and student accommodation) are not included as part of the sample.

Documentation on the EU-SILC data is provided on Eurostat's website[4], as well as by GESIS[9]

3. Data quality relating to sampling and complex sample estimation

Most of our work on issues relating to sampling and complex sample estimation, and the findings we discuss here, are based on an analysis of the 2007 data (version 2007-1, of the 2009 release of EU-SILC cross-sectional and longitudinal data). However, many of the points we raise are identical for all releases of the data. Several of these points have already been raised by Verma et al (2010).

3.1 Sampling and Data Collection

One of the main aims of the EU-SILC is to enable researchers to describe and compare population characteristics across the countries and regions of the EU. In order to do this, it is necessary to collect data using probability sampling – that is, under a system which ensures that all units in the population (here, households and individuals) have a known nonzero chance of being selected. Appropriate procedures are followed in the majority of countries; however, in a few countries, different procedures were followed.

In Germany, data were collected using a mix of quota and random samples[10]. This led to problems, since, strictly speaking, quota samples should not be used to infer information about the population (Smith, 1983), and due to lack of an indicator of sample type, it was not possible for the analyst to separate out the quota and random samples.

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[8] For more extensive discussion of SILC register and survey data collection methods, see Lohmann (2011).
[9] http://www.gesis.org/en/services/data-analysis/official-microdata/european-microdata/eu-silc/about-the-eu-silc/
[10] Starting in 2008, the German data have been collected using only a random sample.

Spain and Ireland use substitutes for non-respondents. This means that if one household (or person) refuses to respond or cannot be contacted, a substitute household (or person) is approached with a request to respond. Non-response substitution undermines the probability nature of the sample. Ideally, substitutes would not be used – but alternatively, as a minimum, the data set should contain an indicator with which non-response substitutes may be identified. This would enable the analyst to delete substitutes, and to implement appropriate statistical analyses.

Until these problems with data from Germany, Spain and Ireland are rectified, data from these countries should not be used in statistical analyses with the aim of inferring information about national populations.

An additional problem with EU-SILC is that it does not report the year in which each unit was selected. According to the documentation, all members of each rotational group enter the sample in the same year. However, this is not reflected in the dataset: some members of the same rotational group were first interviewed in a different year than other members.

3.2 Complex Sample Design Indicators

In order for an analyst to obtain correct estimates from a data set, s/he must take complex sample design into account. Three pieces of information are important for correct estimation: stratum indicator, cluster indicator and weights. We describe the issues with each in EU-SILC below.

3.2.1 The Stratum Indicator

Stratification involves splitting a population into a number of mutually exclusive and exhaustive subgroups prior to selecting a sample, and is a key means by which the sampling process is made more efficient. A sample of a given size provides more precision under a stratified design than in a design without stratification, which means that the standard errors of estimates tend to be lower with stratified designs (Kish, 1965).

However, in order to benefit from the efficiency of a stratified design, the stratification must be taken into account during analysis; failing to do this means that estimates of confidence intervals will be too large, and that differences between groups which could be found statistically significant with the current design, may appear not to be significant. Not accounting for stratification does not lead to bias (that is, the value of estimates are not affected) but the associated overestimates of confidence intervals means the analyst may not be able to detect significant between-group differences and other significant relationships in the data.

Almost all producers of survey data sets, where the design includes stratification, release stratum indicators to users. All EU-SILC countries with the exception of Denmark, Sweden and Iceland implement stratification as part of their sample design, but no stratum indicator is available as part of the EU-SILC data set. We enquired about the reasons for this omission, and were told that it is related to concerns about potential disclosure. However, we believe releasing the stratum indicator is in practice unlikely to pose serious problems. Several countries use fewer than 20 strata (e.g. Belgium Cyprus, Estonia and Lithuania), and this is unlikely to lead to problems. For the small number of countries which use larger numbers of strata, many of these strata are based on economic and social status, as well as geographical information. In these cases, we suggest providing an indicator which does not follow the sequence of the initial stratification – an anonymised indicator which differentiates strata would be sufficient for analysis.

3.2.2 The Cluster Indicator

Clustering is often used in sample design to decrease the cost and effort involved in data collection. It is especially important in face-to-face studies, in areas where populations are more spread out, where an interviewer would have to travel long distances if no clustering were implemented. These gains in cost-effectiveness do incur a penalty – namely, that clustering decreases the precision of estimates. If clustering is not taken into account at the analysis stage, standard errors will be underestimated, and relationships which are not statistically significant may appear to be significant.

The EU-SILC does provide information on clustering (PSU as primary sampling units), but in a form which makes it impossible to use in the majority of analyses.

The cross-sectional data set for 2007 does not contain complete information on PSUs for at least seven countries. For these countries, information on PSUs was provided only for cases which entered the sample in 2007 (the new rotational group), while PSU information on other cases was provided in earlier cross-sectional data sets. Unfortunately, because personal and household IDs cannot be matched across cross-sectional data sets from different years, it is not possible for the analyst to infer PSU information for around three-quarters of the sample in these seven countries. This means that clustering can be taken into account for only a fraction of the sample, which will result in underestimation of standard errors; this underestimation will be particularly serious for variables relating to geographical location.

In the case of longitudinal data, PSU information may, for the majority of the sample, be inferred from data supplied in earlier years (usually, the year of selection into a sample). However, several problems remain.

- For young people who are below 16 at the time of selection, but later turn 16, PSU information is missing for all years.
- Even after inferring PSU in the longitudinal data, there remain a number of households with no such information. This is a particular problem in France and Poland (over a third of respondents) and also occurs in Italy, Belgium, Latvia and Spain. This presumably reflects processing error: there is no occasion on which PSU information can properly be "missing", because it is available at sampling stage (from the sampling frame).
- In Norway, the value of the PSU indicator changes between waves for some respondents. This suggests that the indicator may in fact indicate current geographic location rather than PSU. For correct estimation of standard errors it is important that the PSU value should remain unchanged over the time that a unit spends in the sample. It should equal the PSU value at the time of sample selection.
- Some households have different PSUs for their members, even at the selection stage. This is not possible, as PSU reflects the location for the household and therefore should be the same for its members.
- In some countries (e.g. Norway and Portugal) PSU information in the dataset does not correspond to PSU information in the sample design description. Specifically, Norway should have a two-domain design according to description, in which the sample is not clustered in one domain. However, PSU information is present in the data for all the cases. Portugal has clustering in the whole sample, but has no PSU information in the longitudinal dataset, although it has PSU information in the cross-sectional dataset.

These examples illustrate that there are problems with the PSU indicators in the EU-SILC, which must be addressed in order to enable the analyst to compute the correct confidence intervals for estimates. The PSU indicator should be present for each respondent, for each year in which he or she appears in the data set, and should represent the PSU of the household where the person lived at the time of selection.

3.2.3 *Weighting and full-record imputation*

Weights are provided with the EU-SILC data. However, the accompanying documentation (Eurostat 2008 and 2008c) is unclear on whether these are only design weights (i.e., whether they correct only for the probability of selection into the sample), or whether they also adjust for non-response – and if so, in what countries. It is also our understanding that adjustment for non-response, where it has been implemented, has not been carried out in a consistent fashion across countries. Different treatment of non-response, and especially correcting for it in some countries but not others, may lead to biased cross-country comparisons.

We suggest that design weighting should be implemented at a national level, and non-response weighting should be implemented at a cross-national level, or by national institutions, following specifications that ensure comparability.

- For register countries, two sets of weights are required: one for use with data from the register and the other for data from survey questions asked only to one member in a household. No such weighting or documentation on this is present in EU-SILC.

- In some countries (e.g. Poland) both responding and non-responding households are in the data set, while in all other countries, only responding households are included. It would help the user if all countries were consistent in this respect.

We turn now to the issue of full-record imputation. The data set contains an indicator for full-record imputation, but a careful check of the documentation provided no explanation of how full-record imputation is carried out. From the variable label 'information completed from full-record imputation', it appears that these imputations might come from unit imputation for non-response. This gives rise to a number of issues. First, using imputed cases in a statistical analysis leads to underestimates of confidence intervals, and will therefore show results as significant in some situations where they are not. Second, imputation nearly always biases relationships between variables. Third, if such unit-level imputation is not performed similarly in all countries, estimates of cross-country differences may be biased.

An advanced user could theoretically find this indicator and take the imputed cases out of an analysis to avoid a number of problems; but our understanding is that many users are unaware of such unit-level imputation.

4. Relationships between household members

4.1 The need for a household grid

One of our first tasks in the ALICE programme was to map household structure over the countries of the EU-27 (Iacovou and Skew, 2010 and 2011). For this type of project, the EU-SILC is potentially an enormously useful resource, providing, as it does, large representative samples of households in each of the EU member states. However, in the course of the research, it became clear that a few rather minor modifications to the EU-SILC could mean the difference between a data set which is just about adequate for the investigation of household structure, and one which is much more useful.

Table 1: The prevalence of non-standard households (i.e., of households where not all members are related as parents and children, or as partners), by country

	% of households containing non-standard relationships	% of individuals living in households where there are non-standard relationships
Sweden	0.9	1.2
Finland	0.9	1.3
Luxembourg	1.3	1.6
Germany	1.3	1.8
Czech Republic	1.8	2.1
Denmark	1.4	2.2
Estonia	1.9	2.6
Slovenia	2.5	2.9
France	2.1	3.0
Poland	2.3	3.0
Netherlands	2.8	3.0
Italy	2.8	3.5
Austria	2.6	3.7
Greece	3.6	3.7
Slovakia	3.5	4.3
UK	3.3	4.3
Hungary	3.7	4.3
Lithuania	3.4	4.4
Cyprus	4.2	4.5
Bulgaria	3.8	4.6
Belgium	2.9	4.7
Portugal	4.4	5.5
Spain	5.1	5.9
Romania	5.7	6.8
Ireland	6.5	7.0
Latvia	6.1	8.0
EU-27	2.8	3.6

Source: EU-SILC cross-sectional file, release 2008-2, except France, which is based on release 2007-2; weighted using cross-sectional weights supplied with EU-SILC

The major problem with the EU-SILC is that, unlike almost all other large-scale household-based surveys, it does not provide a household grid – that is, a series of variables documenting the relationship between each member of the household and each of the other members. In place of this detailed information, the EU-SILC provides only three variables: the personal identifiers of each individual's spouse or partner, and of his or her mother and father, where these are resident in the same household. This enables us to identify which people are living as part of a couple, and/or with their children or parents; we are also sometimes able to identify sibling and grandparent relationships, in cases where a third person to whom both are related is also present. However, the nature of many relationships cannot be established – for example, we are often unable to distinguish a co-resident sibling or cousin from a friend or lodger.

Because most households consist of a single person or a group of people all related by partnership and/or parenthood, it is only in a minority of households that we cannot identify all the relationships properly: Table 1 shows that across the EU as a whole, it is in only 2.8% of

households where household members are related in ways other than as partners or as parents and children (although the percentage of individuals living in these households is slightly higher, at 3.6%). Nevertheless, in a handful of countries (Spain, Romania, Latvia and Ireland) over 5% of households are related in non-standard ways, and in Ireland and Latvia, 7% and 8% of the population respectively live in such households.

This defect in the data would be relatively easy to rectify. In practical terms it would not add significantly to respondent burden. According to the EU-SILC questionnaires, some countries already collect a household grid. And for those countries where a household grid is not currently collected, the additional burden is not large: most intra-household relationships are those which are already reported in the data, so any extra burden would come in the form of respondents having to be more specific about the nature of relationships, rather than (in most cases) having to answer more questions. Table 2 provides an example of good practice in this area, listing the relationship categories used to compile the household grid of the United Kingdom's British Household Panel Survey (BHPS).

Table 2: Categories used in compiling the household grid, in the UK's British Household Panel Survey (BHPS)

Lawful spouse	
Live-in partner	
Natural child	Natural parent
Step/partner's-child	Step parent
Adopted child	
Foster child	
Other child	Other parent
Daughter/son-in-law	Mother/father-in-law
Natural brother/sister	
Half-sibling	
Other brother/sister	
Brother/sister-in-law	
Any grand child	Any grand parent
Any nephew/niece	Any aunt/uncle
Any cousin	Any other relative
Employee	Employer
Lodger/border	Landlady/lord
Unrelated sharer	Other/missing

4.2 The parent/child relationship

An additional problem with the data on family relationships potentially affects a much larger pool of families. For each individual with one or more parents living in the same household, the mother's and/or father's household identifier is supplied. However, no distinction is made between biological parents, adoptive parents, foster parents, and step-parents; in other words, it is not possible, using the data, to distinguish between children living with both of their natural parents, and those living with one biological parent and a step-parent.

This is a crucial and rather important limitation, given the increase in the number of stepfamilies over recent decades, and the particular interest of policy-makers in step-families, in terms of fertility, child wellbeing, and so on.

If a full household grid were to be collected, as we have advised above, making the proper distinctions between biological, foster, adoptive and step-parents, this problem would

instantly be solved – thus, there are at least two reasons why the collection of a full household grid should be a priority in the EU-SILC, and a relatively simple way to address the problem.

5. Issues with the longitudinal SILC

The longitudinal component of the EU-SILC was conceived as a rolling panel: that is, each household selected into the sample remains in the sample for four years, after which time it is replaced by a new household. There are some exceptions to this: for example, France is based on nine and Norway on eight rotational groups, while Luxembourg is based on a pure panel. But the design of EU-SILC for the majority of countries is a four-year panel. This section begins by commenting on the implementation of the procedures by which individuals are supposed to be followed from year to year, and moves on to discuss links between the cross-sectional and longitudinal files, and the structure of the four-year rolling panel.

5.1 Implementation of following rules

In a four-year rolling panel, approximately one quarter of individuals in the longitudinal panel are not eligible to be followed in any one year. Of those who are eligible to be followed, EU-SILC has assumed a 92% response rate for follow-up (Eurostat 2008, page 10). Table 3 shows the percentages of eligible households and individuals who were in fact followed. These figures are based on the longitudinal sample containing data from 2005 to 2008, and therefore represent averages between three two-year periods. In some countries the figures do change between years – so, for example, in Austria, the percentage of households followed falls from 85% in 2005/06 to 70% in 2007/08, while in Spain it increases from 80% in 2005/06 to 90% in 2007/08. Nevertheless, the averages give a good indication of how successful countries have been in re-interviewing respondents.

The first column in Table 3 shows the percentages of *households* eligible for follow-up where *at least one member* was traced. These figures range from 97.5% in Romania, to only 76% in the United Kingdom, and are in many countries are likely to form a slight over-estimate of the true percentages, since a small number of households where no follow-up interview actually took place have been left in the data set. The figures are broadly similar in the second column, which shows the percentage of eligible *individuals* in the sample who were followed from one year to the next. These figures in most cases fall well short of the target response rate of 92% (only five of the 21 countries shown in the table achieve this target figure for households, and only four achieve it for individuals). Nevertheless, in many cases the re-interview figures are not too far away from the target response rates, and samples of reasonable sizes remain.

However, the picture is distinctly less rosy for certain subgroups within the population – namely, for individuals who move out of sample households while some members of the household remain at the original address. The terms of reference of the survey state clearly (with exceptions for those who die, move overseas, or move to an institution) that sample members aged 14 and over should be traced, and those aged 16 or over should be re-interviewed, if they leave the original household and start living somewhere else. However, it is clear that the implementation of this rule has varied widely from country to country, and has not been particularly comprehensive anywhere. There are two groups of people who may be particularly affected by this: young adults (who typically, at some time during their late teens and twenties, move out of their parents' home) and people who divorce and separate.

Table 3: Percentages of (a) households, and (b) individuals re-interviewed the following year in EU-SILC

	% of eligible households in which at least one member was interviewed the next year	% of eligible individuals in the sample who were interviewed the next year
UK	75.5	74.8
Austria	77.6	77.8
Slovenia	78.8	77.6
Belgium	80.7	79.8
Netherlands	80.8	81.0
Latvia	83.2	83.3
Denmark	83.4	80.6
Bulgaria	83.8	84.8
Ireland	84.3	82.4
Luxembourg	85.7	84.5
Spain	86.2	86.2
Italy	86.3	86.5
Hungary	87.4	87.4
Norway	88.1	84.1
Greece	88.1	88.5
Lithuania	88.7	87.2
France	88.9	88.5
Sweden	89.0	87.2
Portugal	89.4	89.3
Estonia	89.9	89.4
Poland	90.4	90.7
Iceland	90.8	85.5
Finland	92.0	90.3
Czech Republic	92.4	92.1
Cyprus	93.0	92.7
Slovakia	94.8	94.6
Romania	97.5	98.1
Source: EU-SILC longitudinal files, release 2008-4, unweighted		

Table 4 uses the example of young adults. The figures are based on young people in the longitudinal file, who were aged 16-25 in one wave, and were living with their parents; Table 4 tabulates the situation in the following year of those who were eligible for re-interview, and the percentages who were actually followed and re-interviewed on leaving their family home.

Columns (a) to (f) distinguish between young people who remained living with their parents; who were followed upon leaving home; who were not followed because they were ineligible (ie, they moved abroad or to an institution; who moved to a private address but were not re-interviewed there; for whom no information on their whereabouts is available, although their families of origin are still present in the survey; and whose entire households disappeared from the survey.

In eight countries (Denmark, Finland, Ireland, Iceland, the Netherlands, Norway, Sweden and Slovenia), *no* young people were followed upon departure from the parental home. Of these, all but Ireland are "register" countries; that is, they follow a design whereby most information is taken from administrative registers and a single individual is selected for interview; in these countries, therefore, we would not expect young adults to be followed on moving house. In other countries, where young people were supposed to be followed on leaving

home, the percentages actually followed are highly variable. The final column (g) reports the percentages of young people who left home and who were (or were probably) eligible to be followed, who actually *were* followed. Only in four countries – Romania, Italy, Portugal and Cyprus – are these percentages higher than half, and in only seven of the remaining 23 countries are over one third of young people followed on leaving home.

Table 4: Percentages of young people aged 16-25 who…

	(a)	(b)	(c)	(d)	(e)	(f)	(g)
	Remained in parental home	Moved out and re-interviewed	Moved to private address, not followed	Moved abroad or to institution	Young person lost from sample	Whole-household attrition	Those followed, as % of those eligible (b)/(b+c+e)
Denmark	64.2	0.0	0.0	0.0	16.2	19.6	0.0
Finland	73.4	0.0	17.0	0.3	0.0	9.4	0.0
Ireland	68.0	0.0	9.3	3.5	0.1	19.0	0.0
Iceland	72.0	0.0	6.0	0.9	7.8	13.2	0.0
Netherlands	71.8	0.0	8.0	0.1	0.0	20.1	0.0
Norway	65.4	0.0	13.3	1.5	2.1	17.7	0.0
Sweden	72.4	0.0	14.4	0.7	0.0	12.6	0.0
Slovenia	77.9	0.0	1.4	0.2	0.5	20.0	0.0
Slovakia	94.2	0.2	0.8	0.2	0.4	4.2	10.9
Romania	96.4	0.2	0.0	1.8	0.1	1.5	74.1
Czech Republic	90.1	0.6	1.5	0.7	0.2	6.8	24.7
Latvia	79.1	0.6	2.9	2.3	0.1	15.0	17.5
Bulgaria	79.9	0.8	2.3	2.4	0.3	14.3	23.3
Poland	86.0	0.9	2.2	3.5	0.0	7.4	28.9
Lithuania	78.5	1.0	1.5	3.7	0.7	14.5	30.2
Hungary	86.3	1.2	1.7	0.4	0.1	10.3	39.3
Italy	84.8	1.3	1.2	0.2	0.1	12.6	51.4
Luxembourg	80.6	1.6	2.3	2.4	0.0	13.1	40.4
Spain	83.3	1.7	2.8	0.4	0.0	11.8	37.7
Greece	81.3	1.8	3.5	1.3	0.0	12.0	33.7
Estonia	85.2	1.9	2.5	0.8	0.0	9.6	42.3
Portugal	95.3	1.9	0.9	0.0	0.0	1.9	66.8
Belgium	75.4	2.3	3.7	0.2	0.8	17.7	34.1
Cyprus	91.0	2.4	0.8	0.3	0.0	5.5	76.3
UK	62.3	2.6	7.4	1.7	0.1	26.0	25.4
Austria	70.4	3.0	4.0	0.8	0.1	21.8	42.0
France	79.7	4.3	4.6	0.8	0.1	10.5	47.6

Source: EU-SILC longitudinal files, release 2008-4, unweighted. Based on a sample of individuals aged 16-25 years old and living with their parents in one year, and who were eligible to be re-interviewed the next year. A small number of young people who remained in the parental home and whose parents left the family home are included in (a); small numbers who died are included in (e).

This means that, although the percentage of individuals and households followed from year to year in the longitudinal sample is not bad, the percentage of individuals followed on leaving their family home is in several countries extremely low, making the EU-SILC in its current form unsuitable for analysing transitions for some of the groups of most interest to social scientists: young adults and separating couples.

5.2 Links between cross-sectional and longitudinal files

Unusually for a panel survey, the EU-SILC is released in two versions: a cross-sectional file and a longitudinal file. Some variables are required to be present in both files, but a number of variables are present only in one or the other. A researcher wanting to use a variable present only in the cross-sectional file has at present no means of using this variable in longitudinal analysis, as there is no means of linking the two data sets[11]. This does pose real problems for the analyst in certain fields. In addition, a much more serious problem, which potentially affects all areas of research, arises from the associated fact that individuals and households cannot be linked across years in the cross-sectional files. Researchers often base analysis on more than one year of data, in order to benefit from the increased sample sizes that this affords. However, using pooled data from the EU-SILC cross-sectional files, some individuals and/or households will be present in the data for only one year, while for others there will be repeated observations. In order to obtain the correct standard errors for estimates, this clustering must be taken into account – which at present cannot be done, because there is no means of determining which observations are repeated and which are not.

The fact that cross-sectional and longitudinal data sets may not be linked, and that cross-sectional data may not be linked across waves, even where they are based on the same samples, is ostensibly for reasons of confidentiality. However, we are of the opinion that allowing the data sets to be linked would not pose significant additional threats to confidentiality (after all, this is not a step which any of the other leading micro-level panel surveys across the world have seen fit to take). Allowing the data to be linked in this way would result in a greatly improved resource, for almost no additional cost. It should therefore form a priority for future releases of EU-SILC; even if some National Statistical Institutes do not consent to this, it should be done for those countries which do consent.

5.3 A four-year rolling panel

The issue of whether high-quality longitudinal research is possible with a data set containing a maximum of four waves of data for any household or individual is one which has been vigorously debated in many forums and user groups. Opinions on this matter vary greatly, and depend partly on the researcher's area of interest.

Our own view is that other things being equal, more waves of data are preferable to fewer waves. Household panel data sets from around the world have proved their worth time and time again (Rose, 2000; Berthoud and Burton 2008); they permit the use of a wide range of analytical techniques, and there is clear evidence that questions which require analysis over longer time spans are both worth asking, and worth answering.

However, there is more or less a consensus among the researchers on the ALICE project that longer runs of data would be of little use to researchers in the absence of tighter quality controls which were actually adhered to in practice. Given the choice between

    (a) a larger number of waves, in a data set where representativeness is questionable, weighting and imputation procedures inconsistent, and following rules implemented patchily, and
    (b) the current four waves, in a data set where these issues are addressed to the highest standards,

we would view (b)as preferable.

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[11] There is no requirement for the cross-sectional and longitudinal files to be based on the same sample of households although as far as we know, they have in practice been based on the same samples.

In the limit, if it is not possible to ensure data quality in the context of a longitudinal data set, then good-quality cross-sectional data with retrospective questions may be an option worth considering.

6. Incomes

The measurement of incomes is one of the primary raisons d'être of the EU-SILC, and it does indeed form a unique, and in many respects, an extremely valuable, resource for the analysis of incomes across the EU. However, our experience indicates that a range of problems arise in using the EU-SILC data to analyse incomes. Some of these relate to issues already dealt with in this paper, such as sample design; others relate specifically to the collection and reporting of income variables.

This paper adds to existing discussions of data quality surrounding income measurement by Frick et al (2010) and Goedemé (2010). These existing discussions are based on the types of analyses of income and poverty with which most readers will be familiar; part of our findings in this section are also based on this type of "classical" income analysis. However, members of our group are also involved in an extensive programme of research using the tax-benefit microsimulation model for the European Union (EUROMOD). Many of the issues discussed below relate to microsimulation analysis, so it is worth starting by outlining how the model is constructed.

EUROMOD simulates tax liabilities and benefit entitlements for the household populations of EU Member States, using the EU-SILC as the underlying input data. EUROMOD simulates non-contributory cash benefit entitlements and direct personal taxes and social insurance contribution liabilities on the basis of the tax-benefit rules in place and information available in the underlying datasets. Market incomes and the taxes and benefits which are not simulated (e.g. benefits such as state pensions, which depend on contribution history) are taken directly from the data, along with information on other personal/household characteristics (e.g. age and marital status).[12]

Although EU-SILC is clearly a natural data source for a model like EUROMOD, some characteristics – related to the way the survey was designed and, especially, how data are released – make the derivation of the necessary information difficult (sometimes impossible), arbitrary and potentially inaccurate.

In a pilot study, before the EU-SILC was adopted to build the input datasets of EUROMOD countries, Figari et al (2007) assessed the advantages and drawbacks of using EU-SILC for tax-benefit simulation. Here, after having used EU-SILC to build the EUROMOD input datasets of the EU-27 countries, we readdress the issues related to the use of EU-SILC income variables for microsimulation.

6.1 Income aggregation

The survey questionnaires used by National Statistical Institutes (NSIs) in the collection of EU-SILC data contain questions about incomes from a very large number of sources. However, in the data released by EU-SILC, these incomes are aggregated into a much smaller number of variables. On the one hand, this aggregation is a good thing, in that it provides harmonised information that is comparable across countries. On the other hand, it is clear that aggregation greatly decreases the level of detail in the data, and this has disadvantages. Because benefit systems vary between countries, the income sources contained in each of

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[12] See Sutherland (2007) and www.iser.essex.ac.uk/euromod for further information.

these aggregate variables differ between countries, and it is not always clear from the documentation what the components of the aggregate variables are. Moreover, the aggregation criteria are based on premises and objectives that are more suitable for some analyses than others.

One example is the aggregation of social benefits. These are reported in the EU-SILC following the eight functions of social protection defined by the European system of integrated social protection statistics (ESSPROS).[13] Therefore, disaggregated analysis of the social benefits which compose each of these social protection functions is not possible using the EU-SILC. For example, one could not disentangle the impact of contributory retirement pensions from other old-age benefits, or of maternity from child benefits.

Furthermore, some income components are reported at the household level, not allowing the analyst to distinguish which individuals receive them and how much each receives. This is the case, for example, for income from rental of property (HY040), from investment (HY090), family benefits (HY050) and inter-household transfers received and paid (HY080 and HY130).

These aggregations may give rise to problems under all analytical approaches, but they produce particular, and considerable, difficulties for tax-benefit microsimulation. Household surveys (EU-SILC included) do not provide all the information necessary to simulate all benefits[14]. As a result, disposable income computed by microsimulation models normally includes simulated benefits (i.e., calculated by the model) and "non simulated" benefits whose amount is taken as reported in the data. Now, consider a situation where two or more benefits have been combined into a single aggregate amount. If one of the benefits is to be simulated while the others are to be included as a reported amount, this causes serious problems, as we have no way of knowing which part to replace by the simulated benefit and which to retain.

In the case of EUROMOD, two approaches are followed in order to deal with this shortcoming. The first approach consists of merging into the EU-SILC UDB additional variables collected by NSIs. After obtaining permission from Eurostat, NSIs were contacted and requested to provide additional income (and other) variables not released in the UDB. Responses to such requests differed across countries, leading to various arrangements. Some NSIs provided all or some of the variables requested, others provided alternative information (e.g. dummy variables reporting whether a particular income was received instead of the amount), and others refused to provide additional data. Furthermore, as part of the randomisation process, in some countries the UDB household and personal identifiers are different from the data collected and held by NSIs. Hence, in countries where correspondence between identifiers is not available and the sample of national dataset is the same as the UDB, the NSI dataset was used instead.

The second approach consists of splitting each relevant aggregate EU-SILC variable into its components by imputations based on the EU-SILC data and documentation. Besides being quite demanding both in time and effort, these imputations are subject to some degree of

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[13] The ESSPROS functions of social protection are: Sickness/Health care, Disability, Old age, Survivors, Family/children, Unemployment, Housing and Social exclusion. For further information see Eurostat (2008b).

[14] This is particularly the case with contributory state pensions. In order to simulate this kind of benefit, considerable information on employment history (usually not available in household surveys) is required.

arbitrariness and inaccuracy. Therefore, whenever possible the first approach is preferred to the second.

We recommend that Eurostat should take steps to make disaggregated income variables available to users. It is probably true that a UDB including all income variables collected by national surveys would be unwieldy and unattractive to most users, but we recommend that access to further income information is made possible for those users who want it. We envisage three possibilities that we think could be easily adopted.

The best solution would be for Eurostat to provide supplementary files containing disaggregated income components for those countries whose NSIs permit it. Alternatively (or additionally, in the case of countries whose NSIs do not want to release disaggregated data via Eurostat), a second option would be for Eurostat to facilitate matching between national databases and the UDB by (a) permitting this without requiring prior approval from Eurostat, (b) using the same household and personal identifiers as the NSIs, and (c) encouraging the NSIs to provide access to this data.

A third alternative would be to increase the number of income variables in the UDB (e.g., to disaggregate variables further using ESSPROS classifications for type and means-testing[15]). Finally, a fourth possibility – and one which we see as an absolute minimum requirement - would be for the national components in each aggregate to be properly and extensively documented in the UDB documentation for all countries.

6.2 Reference period mismatch between income and non-income information

A central objective of EU-SILC is the collection of definitive data about household income. SILC implements this by asking about the total income of household members during the calendar year prior to the survey interview[16].

There are strong theoretical arguments, and empirical evidence, for the view that income accumulated over a year should ideally provide a more meaningful indicator of households' underlying living standards, than could be obtained by a short-term measure, such as "this week's income", or "this month's income". However, there are also serious problems inherent in this approach.

The first problem is one of recall. It is far from clear that survey respondents are able to remember all components of their incomes accurately over an arbitrary historical period; this is likely to lead to a degree of error in the measurement of incomes, in particular, for components which are prone to fluctuation over time.

The second problem is one of timeliness. At present, income data in the EU-SILC are on average around one year out of date at the time when they are collected; by the time the data has been processed, cleaned and released, the income data may be almost three years out of date. This has profound implications for the usefulness of the EU-SILC for policy purposes, especially at times of rapid economic change.

A third problem arises from the temporal mismatch between the "income reference period" – the time frame to which the income data refers – and the "current reference period" – the time frame to which almost all the other data in the survey refers, namely the moment of interview. This compromises the reliability of the results of any analysis which attempts to analyse the

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[15] See Eurostat (2008b), pp. 32.
[16] In the UK, the income reference period is the current year; in Ireland, it is the previous twelve months.

relationship between income and any other variable. For example, an analysis of the ways in which income is affected by (say) working on a fixed-term contract should compare the incomes of people on fixed-term contracts with the incomes of people on permanent contracts. However, the mismatch between the two reference periods means that unless the analyst makes substantial adjustments to the data, he or she is in fact comparing how much people who are currently working on fixed-term contracts earned in the previous calendar year (on average, in the period between 18 months and 6 months previously, during which period they may or may not have been working on fixed-term contracts) with the amounts which people who are currently working on permanent contracts earned in the previous calendar year (during which time they may or may not have been working on permanent contracts).

This reference period mismatch is not unique to the EU-SILC; in fact, it is a problem with many large-scale data sets, particularly those providing longitudinal data. This issue was highlighted by Heuberger (2003) in the context of the European Community Household Panel; following his work, some researchers adapt their analyses to circumvent this problem (although many others do not). This is done by matching the income variables recorded in year *t* with all the other variables for the same individual recorded in year *t-1*, producing a data set which contains income variables measured at approximately the same time as all the other variables. This exercise is feasible in the context of the ECHP, because the ECHP is an eight-year panel data set, and thus only one wave of data is lost from the end of the survey in performing the matching[17]. However, it is much less satisfactory in the case of the EU-SILC, because the EU-SILC is a four-year rolling panel, so one quarter of observations are lost, even if there is no attrition or intermittent non-response[18]. Additionally, because it is not currently possible to link the longitudinal with the cross-sectional EU-SILC files, this exercise cannot even be attempted with the cross-sectional component of EU-SILC.

In the case of EUROMOD, the reference period mismatch is dealt with in a slightly different way, by reconciling and imputing non-income information to the "income reference period". For example, working hours in the "income reference period" are assumed equal to "current" working hours whenever this is realistic; otherwise these are imputed based on individual employment income and population average hourly wage. Individuals with positive working hours and without employment income are assumed not to work during the "income reference period".

Although a range of partial "fixes" are available to the analyst, these are not fully effective, and we believe that more should be done at the point of data production to alleviate or overcome these problems. We propose three courses of action which would address this problem. The first would be for the EU-SILC to add a subset of variables from the "income reference period". This would involve costs in terms of data collection, and would only solve the mismatch problem for those variables which had been included in the exercise. Nevertheless, from the perspective of many types of analysis, this would be the ideal solution.

A second solution would be for the EU-SILC to ask individuals to report their "normal" income at the time of their interview[19]. This could either be implemented for all income

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[17] Also lost under this procedure are any other individuals who are interviewed in year *t* but not interviewed in year *t+1*, for any other reason.

[18] Given current levels of attrition and non-response, the proportion of observations lost may approach one half.

[19] (In fact, this is what the UK survey does. We believe that this would be a better approach if adopted by all countries, though this should not be taken to mean that we support the UK ONS's decision to implement its own preferred measure in contradiction to the agreed common practice.)

components, effectively replacing the "calendar year" reference period with the "current" reference period; alternatively, it could be implemented as a supplement to the measures of income as currently collected, for a smaller set of income variables – perhaps even just one measure of current total monthly income. In addition to providing a usable useable measure of income relating to the current reference period, this would also improve the timeliness of income data.

Finally, as already suggested in section 5.2, Eurostat could make it possible to link cross-sectional and longitudinal datasets, thus allowing the user to merge income data from the next wave, or non-income data from the previous wave, to the "current" cross-sectional dataset. This would be extremely cost-effective solution, although it would not address the problem of timeliness, and (as referred to previously) the rotating panel design would mean that many observations could not be used for subsequent analysis.

6.3 Net versus gross incomes

In order to simulate taxes and social insurance contributions, EUROMOD requires input data which include information on primary gross income. Information on gross incomes for all components has been recorded in the EU-SILC since 2007.

However, the quality of information is not uniform across countries, primarily because data on income components may be collected either gross or net of taxes (and/or of social contributions). Adding to the lack of uniformity is the fact that when income values are not collected in their gross form, different countries apply different approaches to convert net values into gross: i) microsimulation models taking into account either withholding or final taxes, ii) statistical methods, and iii) matching survey data with administrative (fiscal) data.

Although every income variable is accompanied by a flag indicating the collection method, which in theory allows the user to use each variable properly taking into account the collection method, it has been established that the quality of flag information is not uniformly good across countries and it is necessary to assess the comparability of the different net-to-gross conversion procedures applied (Verma and Betti, 2010).

However, the descriptions of the conversion procedures currently contained in the National Quality Reports are very brief and not adequate for the analyst to take account properly of the different methods used.

Ideally, there would be a great deal more consistency between countries: a requirement for more income components to be collected from respondents in their gross form, and where this is not possible, more consistency in the methods used for converting net to gross incomes. If this higher level of consistency is not feasible, then at least the net-to-gross procedures applied in each country should be documented more transparently and in far more detail than is currently the case.

7. Synthesis and Conclusions

It is important to begin this synthesis by reiterating a point which we made in the Introduction, namely that this is a report on the issues which we and our colleagues have experienced in the course of our own research; as such, it is not intended as, and could never be, a comprehensive analysis of all that is good, bad, desirable and undesirable in the EU-SILC. In particular, there are entire domains which our own research has not covered: we have not looked at health, for example, or education, or any of the one-off supplementary modules.

In addition, we want to make it absolutely clear that any criticisms we make of the design and implementation of the EU-SILC (and there are a good many) come from a starting point of the EU-SILC being a unique and valuable resource for research. Of the research we have done, or plan to do over the coming year or two, some would be feasible using sources of data other than the EU-SILC. However, it is unequivocally the case that many other projects for cross-national comparative research would not be possible without the EU-SILC: research on income dynamics, family formation, changing fortunes in the labour market, and all other analysis of life course trajectories, depend absolutely on the existence of comparable longitudinal micro-level data.

All the suggestions we have made would mean real, and useful, improvements to the EU-SILC. However, our suggestions are actually extremely heterogeneous in terms of how easily they may be implemented. In order for some of our suggestions to be implemented fully, a change to the legal basis for the EU-SILC would be necessary, which may potentially take years. This would be the case for the suggestions we make involving new or different questionnaire content, the linking of the cross-sectional with the longitudinal components, and the linking of cross-sectional files across years.

We think the data would be substantially improved if these changes were implemented for all countries. However – and this is a very important point – it would be possible to implement *some* of these changes for a subset of countries very quickly, and we argue that this should be done as soon as possible. In particular:

1. The full household grid should be released in the UDB, for those countries which already collect this data, and where NSIs consent to this.
2. The personal and household identifiers should be changed to allow linkage of the cross-sectional and longitudinal components, and of cross-sectional files across years, where NSIs consent.
3. Detailed, disaggregated components of income should be released, either in the UDB, or in supplementary files for those users who request them, where NSIs consent.

Clearly, this would mean that differences would emerge between countries, in terms of the data which they were releasing. However, there is no sense in which this would compromise comparability: for countries which did not consent to one or more of these enhancements, the data would be available exactly as before; for countries which did consent, additional variables would be available (1 and 3), or files would be linkable (2). Research depending on these enhancements would be available only for a subset of countries, but we believe we speak for the vast majority of scholars in this area, when we assert that we would prefer for these enhancements to be available for some countries than for none at all.

Even in cases where we have suggested that additional variables be collected, it would be possible for Eurostat to recommend to NSIs that a new variable – for example, current monthly income - be added to questionnaires. Some countries would do this, and some would not - but again, it would be far better for this timely and analytically robust measure to be available at an early opportunity for some countries, rather than unavailable for all countries, pending lengthy negotiations and changes to the legal basis.

Of course, some of the recommendations we make have nothing at all to do with changes to the statutory basis for the EU-SILC, and are a matter of compliance with the existing legal basis. This is the case with the sampling and data collection issues referred to in Section 3.1, and with the implementation of following rules referred to in Section 5.1; enforcement in these cases lies with Eurostat, and we hope that they will continue to encourage NSIs to

comply with requirements. We would also urge Eurostat to encourage National Statistical Institutes to issue more consistent and more transparent documentation: in this paper, we have highlighted difficulties arising from a lack of clarity in the documentation relating to the procedures followed for weighting, full-record imputation, aggregation, and net-to-gross conversions. These improvements to documentation would not be costly, but they would make the EU-SILC data far more valuable to researchers.

Examples of "best practice" in this area are not very numerous, because there are simply not many large micro-level longitudinal surveys around, and there are even fewer cross-national surveys of this type. However, examples of best practice do exist. In the case of longitudinal surveys, we may point to the GSOEP (Germany), the PSID (United States) and the British Household Panel Survey and *Understanding Society* (United Kingdom) as examples of surveys where documentation is of the highest quality, where weighting and imputation procedures are rigorous and transparent, and where concerted efforts have been made to implement following rules correctly and to retain respondents in the survey year after year. Clearly, a survey involving many countries involves a far higher degree of complexity, particularly in relation to cross-country comparability. Here, too, there are examples of best practice: the European Social Survey (ESS), the Survey of Health, Aging and Retirement in Europe (SHARE), and the Gender and Generations Survey (GGS) have all adopted an extremely rigorous approach towards comparability and the co-ordination of instruments.

This brings us to one final issue on which we have not yet commented, namely the fact that the EU-SILC is an output-harmonised data set, while the ESS, SHARE, and the EU-SILC's predecessor, the ECHP, are all input-harmonised, being based on questionnaires which were, as far as possible, designed to be comparable across countries at the outset. In the course of our research using the EU-SILC, we have not directly examined the implications of the output-harmonised nature of the EU-SILC, although some of the issues we raise, particularly those relating to variations in sampling and weighting procedures and documentation, do very likely have their origins in this. Nevertheless, we believe that it is the view of the research community generally that the EU-SILC, as a direct result of being output- harmonised, is less reliable as a resource for making cross-national comparisons than a similar input-harmonised data set would be. Clearly, any change to the means of harmonisation would have wide-ranging implications and is to be taken at the highest level. But we hope that the Task Force on the legal basis for the EU-SILC will at least give this matter some consideration.

To summarise, we acknowledge the EU-SILC as an unparalleled resource for social and economic research across the post-2005 European Union. We have made a number of recommendations as to how the data may be improved, ranging from some which would be achievable quickly at very low cost, to others which are more far-reaching, potentially more expensive, and for consideration in the longer term. We believe that even these more resource-intensive modifications are worthy of attention; they may involve spending money, but the EU-SILC already represents a considerable commitment on the part of member states. We believe that relatively modest additional expenditures could increase the quality of the data, and its value to research, right across Europe, enormously; and we believe that these would be steps well worth taking.

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