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What Difference Does a Survey Make?
Comparing Incomes of the 65+ in Europe Between SILC and SHARE.

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PRELIMINARY, PLEASE DO NOT QUOTE

Abstract

 Currently, there are two important datasets which provide in-depth cross-nationally comparable information on the income and living conditions of Europe's elderly: SHARE and EU-SILC. Although a comparison of both data sources seems natural, to our knowledge EU-SILC and SHARE have not been systematically compared in terms of financial poverty and income inequality among the elderly. Given differences in sample and questionnaire design, results can be expected to differ between both datasets. Nevertheless, broadly results should converge. A comparison between a preliminary release of SHARE Wave 1 and ECHP 2001 done by Tinios and Lyberaki (2005) revealed substantial differences in poverty rates among elderly in some countries. However, since then the imputed income variables in SHARE have been revised thoroughly. As a result, a new comparison between SHARE and EU-SILC imposes itself. Therefore, we compare poverty and inequality among the elderly on the basis of net disposable household income and its main components and track reasons for deviating patterns. Starting point for this validation exercise will be the most recent SHARE dataset including income and wealth variables, namely SHARE wave 2 which found place in autumn 2006 and spring 2007. Using EU-SILC 2006/07 leaves us with 13 European countries which we can compare in terms of income distribution, poverty and income inequality.

1   INTRODUCTION

There has been a lot of attention for, and something like consensus on the definition of household income, as reflected in the reports of the Canberra group (Expert Group on Household Income Statistics, 2001; 2011). The Canberra group also has formulated some general recommendations for collecting income data in surveys (Expert Group on Household Income Statistics, 2011: 21-22). Nevertheless, different income surveys continue to ask for incomes in quite different ways, as we will see below. To our knowledge, there has been little systematic research on the effects of different ways to ask for household income components in surveys on the results in terms of the level and distribution of household income. This paper tries to fill some of this gap.

We use two important current European surveys that incorporate very different approaches to measuring income in a cross-country comparable way: the European Statistics of Income and Living Conditions (EU-SILC) and the Survey on Health, Ageing and Retirement in Europe (SHARE). SHARE strives for international comparability by asking, essentially, the same questions in each country. EU-SILC, on the other hand, does not rely on a common questionnaire, but on a 'framework', which defines variables and concepts and provides guidelines, but leaves the collection procedure to the individual countries, resulting (as will become clear below) in rather different questionnaires. For pragmatic reasons, we focus on older persons (aged 65 or more) and their incomes, which are mainly composed of pensions and property income. We use SHARE wave 2 data, as these are the last SHARE data publicly available where income information was collected.[1] For reasons of comparability we use EU-SILC 2007. In both cases, the income reference year is 2006.

In this paper we address the following questions:

- what is the impact of different ways to ask for income on the measured level and distribution of household income among older persons, focusing on pensions and property income?

- given the results, is it possible to give recommendations on the best way to ask for these incomes in income surveys?

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[1] SHARE wave 3 (SHARELIFE) was devoted to retrospective questions about respondents' life, while SHARE wave 4 data have not yet been released publicly.

2   DATA AND METHOD

2.1   EU-SILC

The EU-SILC survey was launched in 2003 in six EU Member States. Currently, 32 European countries participate in the survey, including the 27 EU Member States, Croatia, Iceland, Norway, Switzerland and Turkey [Marlier et al., 2007]. The reference population of EU-SILC consists of private households residing in the participating countries at the moment of selection, except for people living on small off-shore islands of France, Ireland, the Netherlands and the United Kingdom[2]. It is an international survey run by European national statistical offices and Eurostat, about income, living conditions and social exclusion. In order to maximise cross-national comparability, while leaving sufficient room for flexibility, EU-SILC combines characteristics of ex-ante and ex-post harmonisation (see for example Eurostat, 2010b). While basic rules on definitions, time reference, minimum effective sample sizes, etc. are legally binding, considerable differences remain between participating countries in terms of sample design, data collection and post-collection processing (e.g. Eurostat, 2011; Iacovou et al., 2012), with varying impact on the comparability of the results. Various types of complex sample designs are in use (cf. Goedemé, 2010), and in most countries EU-SILC has a 4-year rotational panel design[3]. It should be noted that the German EU-SILC 2007 sample consists for three quarters of a quota sample, which in contrast to the samples in other countries, cannot be considered to be a national, representative probability sample. Also with regard to data collection important differences exist between countries. Most countries collect all information on the basis of interviews (face-to-face or telephone), but some use administrative data rather than survey data for collecting information on income and demographic characteristics[4]. Unit non-response rates for EU-SILC vary substantially between countries, ranging from 5 per cent in Romania to 45 per cent in Denmark (Eurostat, 2010a). Each national statistical institute uses its own method and model to correct for unit non-response and calibration of the data, as well as for imputing values in the case of item non-response (Verma and Betti, 2010; Wolff et al., 2010).

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[2] People residing in collective households and institutions are excluded. This may cause some bias, especially when studying poverty among elderly (Peeters et al., 2011).

[3] Exceptions to this Eurostat recommendation are France and Norway, where the panel duration is nine, respectively eight, years, and Luxembourg, where a pure panel is supplemented annually with a new, additional sample (Wolff et al., 2010: 41).

[4] Lohmann (2011) showed that differences in the data collection methods used in EU-SILC may substantially affect the observed relation between employment, earnings and poverty.

2.2 SHARE

The Survey of Health, Ageing and Retirement in Europe (SHARE) was launched in 2004 in 11 European countries. At the moment 19 countries participate in SHARE: Denmark, Sweden, Austria, France, Germany, Switzerland, Belgium, the Netherlands, Spain, Portugal, Italy, Greece, the Czech Republic, Poland, Ireland, Estonia, Hungary, Slovenia and Israel. SHARE was designed in response to the growing interest of the European Commission in the determinants and consequences of ageing, on population as well as on individual level. Given this focus on ageing the target population of SHARE is the population aged 50 and over, speaking the official language of the country, not living abroad or in prison, plus their spouses/partners independent of age. Individuals living in collective households were not included in the first wave of SHARE. They were re-interviewed however if they moved from a private to a collective household between wave 1 and 2. From wave 2 on individuals in collective households were included in the sample where possible. SHARE is a multi-disciplinary survey and collects data about a wide range of topics. Given the diversity among the countries and over time, attention is needed to make the collected empirical data comparable. In SHARE the researchers opted for ex-ante harmonization. Ex-ante harmonization seeks to impose strict protocols and procedures from the beginning till the end of the data collection process to assure the highest degree of comparability possible. In concreto, this means that the questionnaire, mode of data collection, sampling design, field procedures, data editing and management and documentation are imposed by the SHARE consortium. To attain the highest level of comparability across countries and over time as possible SHARE has invested in the development of SHARE-specific survey instruments. The data, for example, were collected using a computer assisted personal interviewing (CAPI) program to keep survey instruments identical and to standardize the interview as much as possible. A sample management utility was designed to take care of the practical aspects of the fieldwork coordination. The questionnaire itself was translated using the Language Management Utility (LMU). Special attention was paid to interviewer training to minimize interviewer effects.

2.3 Some methodological notes

Top and bottom coding

When comparing income levels of different surveys, special care should be given to measurement error. To some extent, measurement errors are taken care of by the data

producers, either as part of the data collection process, or during the imputation process. Our approach has been to leave the income data unchanged in order to compare them in the form as they are most of the time used in the analysis of researchers. There is one exception, namely with regard to the treatment of 'extreme' values. In poverty and inequality research, it is quite common to apply a procedure of 'top-bottom coding'. Various approaches are in use and it has been found that in many cases the type of procedure does not fundamentally affect the results, especially in the case of poverty measures (Van Kerm, 2007). However, for some measures the effect is non-negligible if compared to estimates obtained without applying top-bottom coding. In these cases top-bottom coding could have a particularly strong effect on estimated standard errors and confidence intervals (Decancq et al., forthcoming). However, especially if income is used as a proxy of the standard of living or well-being, applying a procedure of top-bottom coding seems justified[5]. As a result, we have applied for all our estimates related to total net income values a procedure of top-bottom coding. We use the widely used Luxembourg Income Study top bottom coding procedure, which replaces values below one per cent of equivalised mean income with a value equal to that threshold and values above ten times the median unequivalised income with a value equal to that threshold, divided by the equivalence scale (for a precise definition of equivalence scale, see below). Please note that the threshold values are defined by all cases in the sample, which in EU-SILC refer to a broader population than in SHARE. It should be noted that top-bottom coding affects only a limited number of cases in EU-SILC, whereas for some countries a substantial number in SHARE are affected[6].

Measures of inequality and poverty

In order to compare EU-SILC and SHARE we estimate various commonly used poverty and inequality measures, in addition to basic statistics such as the mean, quantiles and totals. For doing so, we compute the 'equivalent net disposable household income'. This is equal to the total net disposable household income, divided by the modified OECD equivalence scale that aims to correct for differences in household size and composition[7]. Even though this income

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[5] Please note that some measures of poverty and inequality can only be estimated if all incomes are greater than zero.

[6] In the case of EU-SILC in all countries less than 0.8 per cent of all cases aged 65 or over are affected by bottom coding and only 7 cases by top coding. Whereas bottom coding affects less than 1 per cent of the cases aged 65 and over in SHARE in most countries, between 1 and 5 per cent of the cases are affected in the case of Greece, Italy, Spain and Poland. Also the number of cases affected by top coding is much higher in SHARE, nevertheless, except for the Netherlands, less than 1 per cent of the cases are affected.

[7] The first adult of each household receives a weight of 1, every other household member aged 14 years or over a weight of 0.5 and every household member aged less than 14 a weight of 0.3.

is measured at the household level, all analyses are performed at the individual level (with all household members being assigned the same equivalent net disposable household income). The measures of poverty we use all belong to the so-called Foster-Greer-Thorbecke (FGT(a)) class of poverty measures (Foster et al., 1984, 2010). FGT0 is equal to the percentage of the population with an income below the poverty line, or simply the incidence of poverty. FGT1 is equal to total sum of the relative distance between the income of the poor and the poverty line divided by the total population, which is a measure of the depth of poverty. FGT2 is similar to FGT1, but takes the square of the relative distance between the income of the poor and the poverty threshold. It is a measure of the severity of poverty. Whereas FGT0 is insensitive to top-bottom coding, FGT1 and particularly FGT2 are much more sensitive to top-bottom coding. We set the poverty thresholds equal to the official poverty thresholds used by the European Commission and as published by Eurostat, the statistical office of the European Union. These thresholds are defined as a percentage of the median equivalent net disposable household income of the Member State in which one lives. Similarly, we use a wide range of inequality measures. More in particular, the Gini index is particularly sensitive to income changes around the mode of the income distribution. For the class of measures of generalised entropy (GE(a)), the sensitivity of the measures to the tails of the distribution can be flexibly adapted. The lower the sensitivity parameter a below zero, the more sensitive the measure is to income differences at the bottom of the distribution and the higher the value a above zero is, the more sensitive the measure is to income differences at the top of the distribution. GE0 is the mean logarithmic deviation, GE1 is the Theil index, and GE2 is half the square of the coefficient of variation. Both for the Gini index and the indexes of generalised entropy holds that the higher the value, the larger inequality is. Apart from these measures, we estimate percentile ratios and quantile share ratios (Burgoon et al., 2011; Jenkins and Van Kerm, 2009).

Sampling design, weights, imputations and standard errors

It is well known that the sample design, weighting schemes, and imputation can strongly affect the standard error of sample estimates. Both EU-SILC and SHARE user databases struggle to some extent with the provision of proper sample design information in the data (Goedemé, 2012). In the case of EU-SILC, it is possible to take to some extent account of stratification and clustering, but not of calibration and imputation (Goedemé, 2011). SHARE provides sample design information in the data, but the variables are not well documented and without further information, are not suitable for estimation procedures. In contrast to EU-

SILC, SHARE provides multiply imputed datasets, which should allow for taking imputation into account. Unfortunately, for many indicators of poverty and inequality statistical software packages do not include programmes to take multiple imputation into account. For both datasets we use the ultimate cluster approach to variance estimation (Heeringa et al., 2010). In the case of EU-SILC, we follow the approach discussed in Goedemé (2011) to take as much as possible the sample design into account, whereas we simply control for clustering at the household level in the case of SHARE[8]. For both samples we use final weights as if they were probability weights and ignore the potential effect of imputation on estimated standard errors. However, in the case of SHARE, point estimates are based on the average of the multiply imputed variables. The variance estimation procedure is based on linearization[9].

2.4   Sample sizes and composition

From table 1 it is clear that the size of the SHARE sample is substantially smaller compared to the EU-SILC, which is on average three times bigger. Due to the smaller sample size, standard errors and confidence intervals are significantly larger in the estimates based on SHARE data.

In this paper we are interested in the impact of various ways to measure income on estimates of poverty and inequality, and for this purpose we compare results from SHARE and EU-SILC. In order to be able to attribute differences in results to differences in measurements, we have to assume that such differences are not due to divergent samples. In principle the populations of both surveys are the same: non-institutionalized persons, without any age limit. Differences may result from different non-response patterns, and from different weighting schemes that try to correct for this. In this section we look at a few key sample characteristics.

Table 2 shows that in terms of sex and broad age categories, the EU-SILC and SHARE samples are generally quite similar, with the exception of Germany for women. This is perhaps not very surprising, since the weighting schemes generally are calibrated unto such population aggregates. Table 3 shows that the same is true as regards living situation (single or living as married or unmarried couple), though the differences are larger here (and again largest in Germany). In SHARE the weighting scheme is calibrated to sex-age population totals only, while in EU-SILC it may be also calibrated to living situation information. For

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[8] Goedemé (2011) shows some evidence for EU-SILC 2008 that in many cases such an approach could result in relatively accurate estimates of the standard error in the case of several poverty indicators.

[9] Among others, see Davidson and Flachaire (2007) for a discussion of the suitability this approach for variance estimation in the case of poverty and inequality measures.

EU-SILC the weights are calculated by the national institutes who may have access to register information on sampled households or individuals. As far as sample differences regarding sex, age and living situation are concerned, it does not seem that these can account for large differences in poverty estimates between EU-SILC and SHARE, if such would be found.

Table 1: Sample sizes in EU-SILC and SHARE

	SHARE wave 2		EU-SILC 2007	
	individuals	households	individuals	households
AT	813	588	2.661	1.619
BE	1.533	1.012	2.228	1.384
CZ	1.242	845	4.116	2.677
DE	1.397	834	6.295	3.837
DK	1.158	776	1.784	1.093
ES	1.353	746	6.043	3.206
FR	1.440	996	3.888	2.522
GR	1.534	1.052	3.168	1.766
IT	1.700	981	10.551	6.196
NL	1.206	758	2.637	1.730
PL	1.306	756	5.961	3.220
SE	1.577	985	2.297	1.427
total	16.259	10.329	51.629	30.677

	SHARE wave 2		EU-SILC 2007	
	individuals	units*	individuals	units*
AT	813	586	2.661	1.951
BE	1.533	1.027	2.228	1.602
CZ	1.242	880	4.116	3.170
DE	1.397	870	6.295	4.262
DK	1.158	788	1.784	1.115
ES	1.353	873	6.043	4.373
FR	1.440	997	3.888	2.775
GR	1.534	1.080	3.168	2.321
IT	1.700	1.067	10.551	7.951
NL	1.206	761	2.637	1.822
PL	1.306	858	5.961	4.565
SE	1.577	989	2.297	1.470
total	16.259	10.776	51.629	37.377

* Units are defined as persons with an income of their own, their partners and dependent children living in the same households. See below for the relevance of this concept

Table 2: Composition of EU-SILC and SHARE samples in terms of sex and age.

Country	Survey	Man, 65-74	Man, 75+	Woman, 65-74	Woman, 75+	Total
AT	SILC	23,7	17,4	28,9	30,1	100,0
AT	SHARE	23,4	14,9	31,7	29,9	100,0
BE	SILC	23,9	18,4	28,0	29,7	100,0
BE	SHARE	23,1	18,0	27,0	31,9	100,0
CZ	SILC	25,5	16,1	31,2	27,2	100,0
CZ	SHARE	23,1	13,7	34,9	28,3	100,0
DE	SILC	29,2	13,3	38,3	19,3	100,0
DE	SHARE	27,3	13,7	31,2	27,7	100,0
DK	SILC	24,9	18,7	26,5	30,0	100,0
DK	SHARE	26,2	15,7	27,7	30,4	100,0
ES	SILC	22,7	20,0	26,2	31,2	100,0
ES	SHARE	23,9	17,6	29,2	29,3	100,0
FR	SILC	22,6	19,2	26,0	32,2	100,0
FR	SHARE	23,5	16,4	27,4	32,7	100,0
GR	SILC	26,3	18,7	30,8	24,2	100,0
GR	SHARE	26,1	17,5	32,0	24,5	100,0
IT	SILC	23,3	18,6	27,0	31,1	100,0
IT	SHARE	24,8	16,4	29,4	29,4	100,0
NL	SILC	25,6	17,7	28,3	28,3	100,0
NL	SHARE	23,5	17,3	29,1	30,2	100,0
PL	SILC	21,8	15,0	32,1	31,1	100,0
PL	SHARE	22,3	13,8	32,2	31,7	100,0
SE	SILC	23,7	19,5	25,1	31,7	100,0
SE	SHARE	23,1	18,7	27,5	30,7	100,0

Table 3: Composition of EU-SILC and SHARE samples in terms of living situation.

		living situation		
		single	couple	Total
AT	SILC	46,5	53,5	100,0
AT	SHARE	49,5	50,5	100,0
BE	SILC	43,7	56,3	100,0
BE	SHARE	37,1	62,9	100,0
CZ	SILC	46,6	53,4	100,0
CZ	SHARE	46,3	53,7	100,0
DE	SILC	29,8	70,2	100,0
DE	SHARE	40,2	59,8	100,0
DK	SILC	48,2	51,8	100,0
DK	SHARE	44,4	55,6	100,0
ES	SILC	39,1	60,9	100,0
ES	SHARE	38,3	61,7	100,0
FR	SILC	44,3	55,7	100,0
FR	SHARE	40,4	59,6	100,0
GR	SILC	34,8	65,2	100,0
GR	SHARE	40,8	59,2	100,0
IT	SILC	45,5	54,5	100,0
IT	SHARE	39,1	60,9	100,0
NL	SILC	40,2	59,8	100,0
NL	SHARE	45,5	54,5	100,0
PL	SILC	55,9	44,1	100,0
PL	SHARE	49,3	50,7	100,0
SE	SILC	46,0	54,0	100,0
SE	SHARE	46,2	53,8	100,0

3 THE ART OF ASKING QUESTIONS ABOUT INCOME IN CROSS-NATIONAL SURVEYS

3.1 A brief literature review

There is a substantial literature on translating survey questions; see Behling and Law (2000) and Harkness et al. (2003) for useful introductions. Most of this literature is concerned with questions about attitudes and opinions (while there is a large and separate body of work on translating educational and psychological tests). For those kind of questions, the usual approach taken is what Harkness et al. (2003) call the Ask-the-Same-Question method, where translators focus on the semantic meaning of questions. The obvious problem is that words with the same semantic meaning may have different connotations in different languages.

Also, respondents interpret questions within their own social context, which may differ across countries. Braun and Harkness (2005) give the example of a question about the possible bad effects of a mother working full-time on her children, where the answers may vary according to (assumptions the respondents are making about) the availability of adequate child care. Another approach is to look for a question that is 'functionally equivalent', but after giving up on semantic meaning it is often difficult or impossible to ascertain that questions are really indeed functionally equivalent. In general, there is no good solution to this problem, and survey question translators try to strike a balance between a translation that has the same semantic meaning and one that is functionally equivalent. A large part of the literature is devoted to finding and discussing procedures that ensure that translations are reasonably adequate.

In the case of income questions, the issues are somewhat different, however. Also in this context, the same word may not cover quite the same reality. While in Anglo-Saxon countries, the word 'pension' is mostly used for an income benefit after retirement, in other countries it may be more encompassing, and, e.g. bring also 'disability pensions' to mind. But when income questions are concerned, researchers generally do not try to formulate questions with the same semantic meaning, but strive for functional equivalence. This is not too difficult, as the researcher usually knows (or should know) exactly what information he wants to obtain[10]. . Given a good knowledge of the institutions in any country, it is often possible to formulate a question, or a series of questions, which is the exact functional equivalent of the original.

In this perspective, the issue is how to put the questions to the respondent to get her or him to report something which is as close to the 'objective truth' (the income concept that the researcher has in mind) as possible. The Canberra committee offers some general guidance, which is worthwhile to quote in full:

> "Income data should be collected directly from each relevant household member and separately for each income component. […] Household surveys are constrained by the information that respondents are able to provide with reasonable accuracy during the course of an interview. This means:
>
> - that people must have knowledge of the income they are being asked to report […]

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[10] This is why Moore et al. (2000) can write about "the objective truth concerning a respondent's income" – without inverted comma's, which would make little sense with reference to questions about attitudes or opinions

- they must be able to recall the information with a reasonable degree of accuracy, which may influence the accounting period used as well as the questions asked.

- the questions must appear relevant to the respondent […]" (Expert Group on Household Income Statistics, 2011: 22)

No reference is given to support these guidelines. They may well reflect the common sense and practical experience of the expert committee members. Actually, there are few studies of the impact of the way survey questions about income are asked on the resulting answers. The otherwise very useful review by Moore et al. (2000) of the literature on income measurement error in surveys does not mention this particular issue. Recently, there have been some contributions to the literature that confirm the jugdment of the Canberra group. Jansen et al. (2011) implemented an experimental design using a short and long version of income questions in a Hungarian survey, and find an overall positive difference between the long and short version. Hansen and Kneale (2012) find for the UK that using multiple questions about various sources of income generally results in a higher estimate of family income than using a single question. Using the latter generally produces a higher proportion of families who could be classified as living in poverty. However, there appears to be no attention to the impact of various ways to ask for income information on the level of income components in surveys. With this paper, we try to fill some of this gap.

3.2 Asking for income in SHARE and SILC

A distinctive and crucial characteristic of SHARE is that its questionnaire is harmonized across countries. Each national questionnaire was translated from a common generic questionnaire, using a 'Language Management Utility' (LMU). Guidelines were provided how to go about the translation process, although these were offered as recommendations, and each country decided on its own procedures. Countries received feedback through a professional review of a sample of question translations (Harkness, 2005).

The questions about incomes are rather detailed. Below the questions on pensions and property income are discussed in some detail. A limitation is that within any household only one person aged 50+ and his or her partner is interviewed. Income data for all other persons in the household are collected through two very general questions.

The approach taken in SILC is quite different. To quote from the Eurostat website: "EU-SILC does not rely on a common questionnaire or a survey but on the idea of a 'framework'. The

latter defines the harmonised lists of target primary (annual) and secondary (every four years or less frequently) variables to be transmitted to Eurostat; common guidelines and procedures; common concepts (household and income) and classifications aimed at maximising comparability of the information produced.[11] " We show more detail on how this is done in practice below. All persons aged 16 and more should answer an individual questionnaire, though sometimes this is done by proxy.

4 THE DISTRIBUTION OF NET DISPOSABLE INCOMES

In this section we compare basic statistics such as the mean, quantiles and totals and various poverty and inequality measures between EU-SILC 2007 and SHARE Wave 2. The first series of comparisons are based on equivalent net disposable household income. This is defined as the disposable income, thus net of taxes and social contributions, summed over all household members. In this case, we compare the standard household income variables in both datasets, as they are most of the time used by poverty and inequality researchers. In a next series of comparisons (section 4.1 of this paper), the comparisons are based on unit income. Units are defined as persons with an income of their own, their partners and dependent children living in the same households. In other words, there can be more than one independent unit in one household. By focusing on units we can estimate the impact of incomes of other household members on the total household income. We have tried to make the SHARE income definitions as similar as possible to those used in EU-SILC.

4.1 Equivalent net disposable income at household level

When SHARE and EU-SILC mean household incomes are compared important differences appear (cf. Figure 1). In Belgium, Germany, Denmark, France, the Netherlands and Sweden the mean net household income is significantly higher in SHARE, while in Austria, Greece and Poland it is significantly lower. Only in the Czech Republic, Spain and Italy the mean incomes are comparable.

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[11] http://epp.eurostat.ec.europa.eu/portal/page/portal/income_social_inclusion_living_conditions/introduction# (Last accessed in July 2012).

Figure 1: Mean equivalent net disposable household income of persons aged 65 and over in EU-SILC and SHARE, yearly amounts in euro (2006)
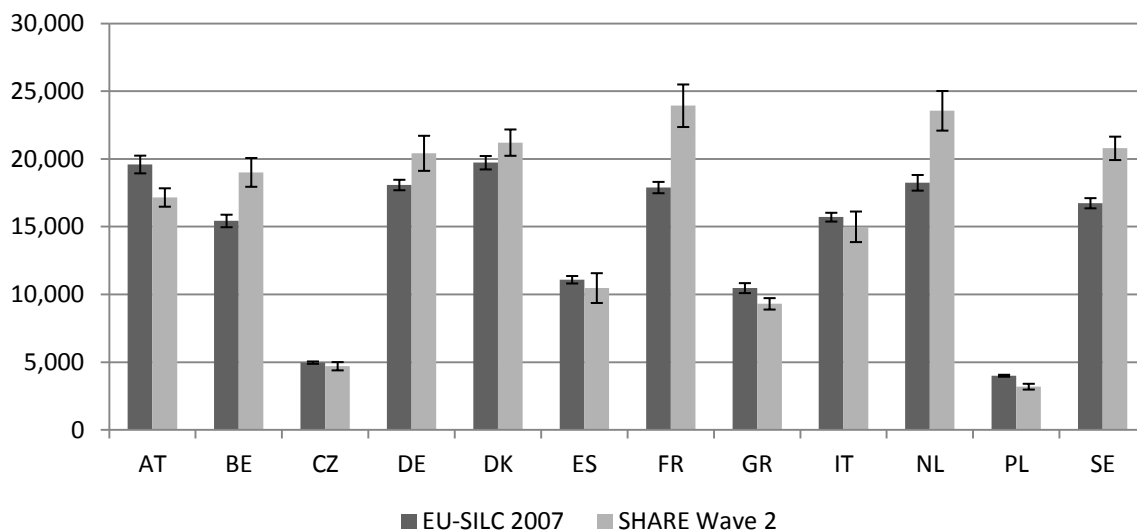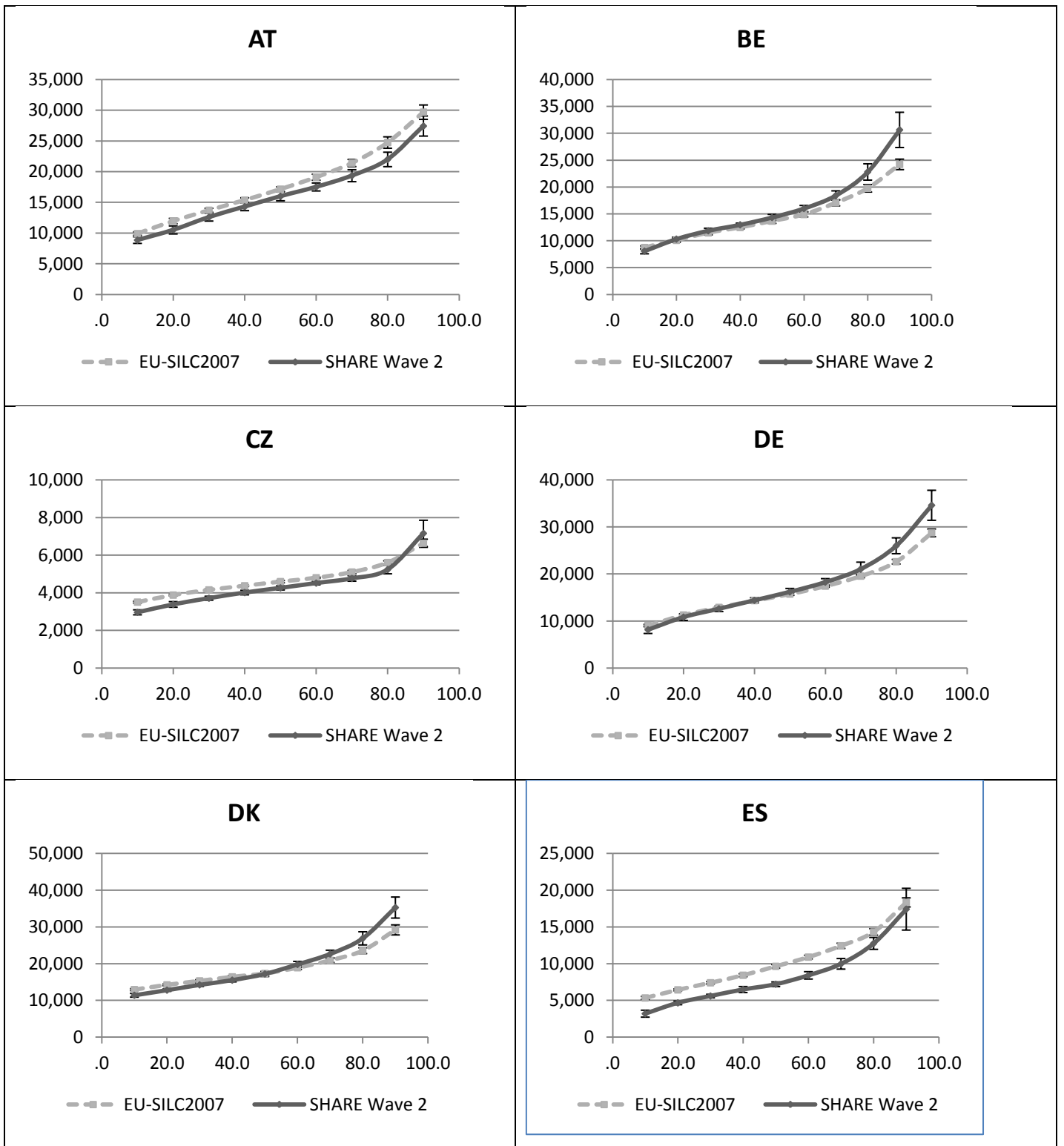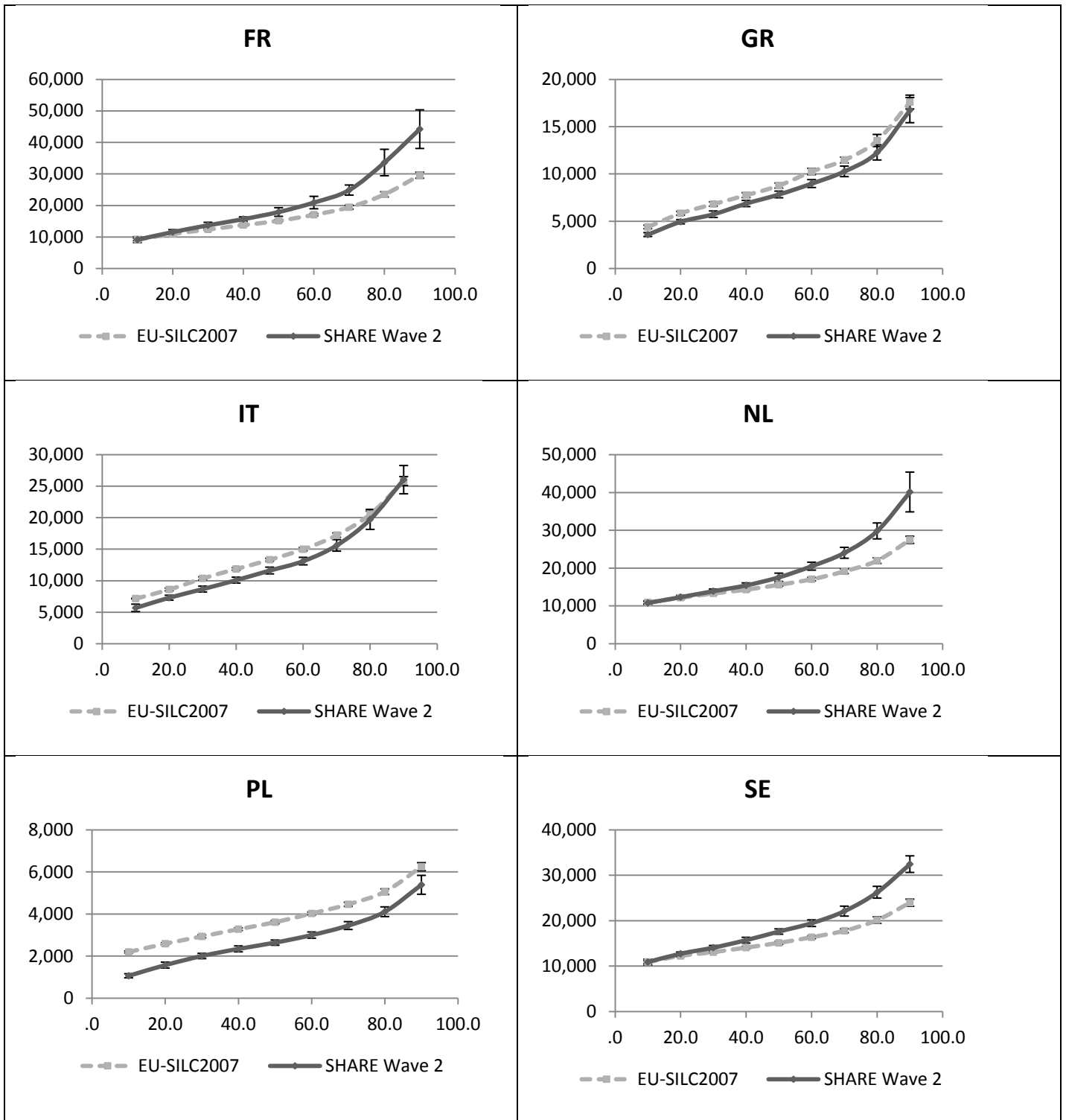

Note: 95% confidence intervals.

Source: EU-SILC 2007 UDB, version 6; SHARE Wave 2; own calculations.

A more complete picture of the income distribution according to both surveys can be observed from the Graphs presented in Figure 2. As is apparent from these graphs, there is no general trend across countries in the way EU-SILC and SHARE compare to each other. In Austria and Poland SHARE estimates all income deciles significantly lower (with 95% confidence) than EU-SILC. A very similar picture can be observed in the case of the Czech Republic, Greece, Spain and Italy, where SHARE under-estimates all income deciles, except for the highest income deciles, which are not significantly different between both surveys.

In contrast, in Belgium, Germany, France, the Netherlands and Sweden, the overall picture is that SHARE estimates incomes to be higher than EU-SILC, and especially so towards the upper end of the income distribution. Finally, in Denmark the lower half of the income distribution is estimated to be higher in EU-SILC than in SHARE, whereas the reverse is true for the upper half of the income distribution.

Figure 2: The distribution of persons aged 65 and over. Equivalent net disposable household income deciles, yearly amounts in euro (2006)

FR

GR
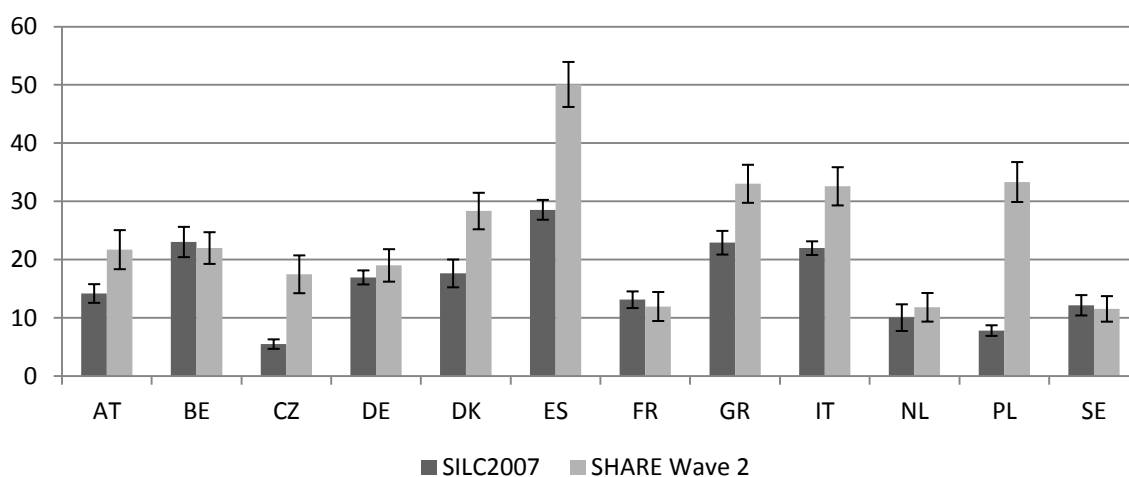
IT

NL

PL

SE

Note: 95% confidence intervals.

Source: EU-SILC 2007 UDB, version 6; SHARE Wave 2; own calculations.

Shifting our attention to the lower tail of the income distribution, poverty rates in almost all countries are higher in SHARE when putting the threshold at 60 percent of the national median equivalised household income (see Figure 3). Remarkably, the difference between both surveys is particularly large in Poland and Spain. According to EU-SILC 7,83 of the

Polish population aged 65 and over is at-risk-of-poverty when the threshold is set at 60% of the national median equivalised household income compared to 33,33 percent in SHARE. Similarly according to EU-SILC 28,65 percent of the elderly in Spain are at risk of poverty versus 50,08 percent in SHARE. Poverty rates in the Czech Republic, Denmark, Greece and Italy are all about 10 percent higher in SHARE than in EU-SILC. In contrast, in the case of Belgium and France the percentage of elderly at risk of poverty are about one percent lower in SHARE compared to EU-SILC. Broadly similar results are obtained when the poverty threshold is set to a 40, 50 or 70 per cent of the national median equivalent net disposable household income, or when we change our attention to the relative poverty gap (FGT1) and the severity of poverty (FGT2)[12].

Figure 3: At-risk-of-poverty rate (FGT0) among persons aged 65 and over, with the poverty threshold equal to 60 per cent of the national median equivalent net disposable household income, 2006
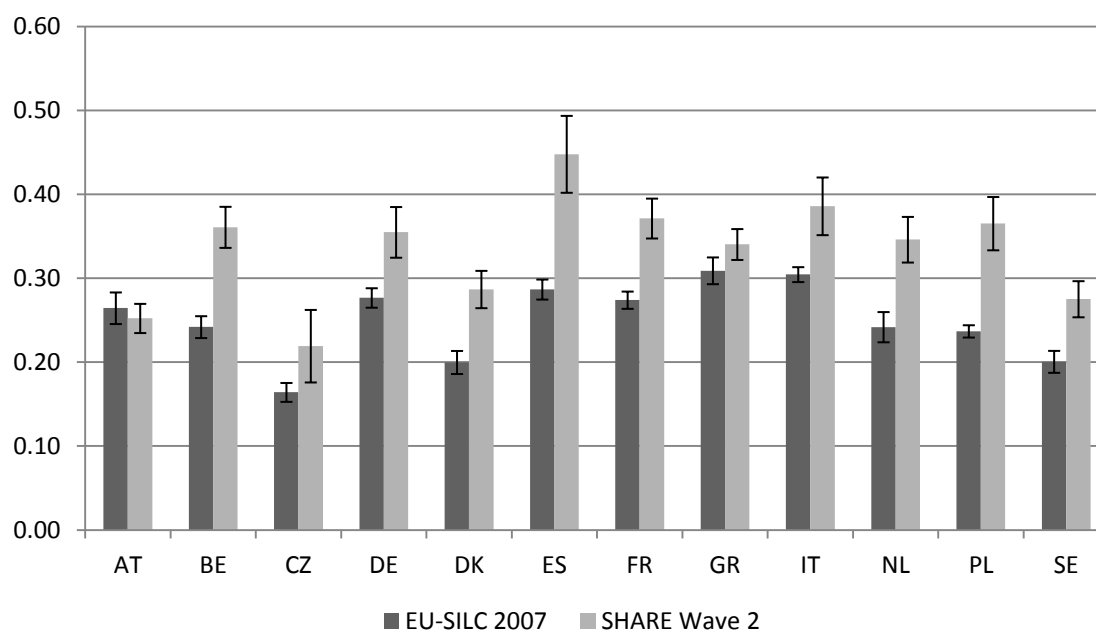

Note: 95% confidence intervals.

Source: EU-SILC 2007 UDB, version 6; SHARE Wave 2; own calculations.

If we turn our attention to measures of inequality, we can draw conclusions about the overall spread of incomes as measured by EU-SILC and SHARE. As can be observed from Figure 4, according to the Gini index, income inequality is estimated to be larger with SHARE than as is estimated with EU-SILC. Austria is an exception. Similar conclusions can be drawn on the basis of other inequality measures such as quantile ratios and quantile share ratios. In all cases, EU-SILC and SHARE estimates seem to diverge most for Spain and Poland, and to a less extent for France and the Netherlands. The differences in estimated inequality figures are largest for inequality indices which are most sensitive to the tails of the income distribution. A first analysis of estimates of generalised entropy measures shows that the differences between

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[12] Figures are available from the authors.

both surveys are largest in the case of GE-1 and GE2, and less so for measures more sensitive to differences in the middle of the income distribution[13].

Figure 4: Gini index of the equivalent net disposable household income of persons aged 65 and over, 2006

Note: 95% confidence intervals.

Source: EU-SILC 2007 UDB, version 6; SHARE Wave 2; own calculations.

4.2   Equivalent net disposable income at the level of the nuclear family

What can explain the differences in poverty rates and inequality measures between SHARE and EU-SILC? One of the possible explanations is that the incomes of other persons in the households are not measured adequately in SHARE, especially in the lowest income deciles. To check whether or not that is the case we use unit income to estimate poverty rates and measure inequality. A unit is defined as a person and his or her partner and the dependent children within a household.

Figure 5 shows the ratio of the income deciles estimated by EU-SILC relative to the income deciles estimated by SHARE. From these graphs, it can be observed that in most countries the ratios are larger for equivalent net disposable household income than is the case for equivalent net disposable unit income. In other words, EU-SILC seems to pick up relatively more


[13] Figures available from the authors.

incomes of other household members which do not belong to the nuclear family of elderly persons than SHARE does.

Except for Denmark, Sweden and the Netherlands, it turns out that when the income unit is limited to the nuclear family of persons aged 65 and over, relative to total household income, SHARE estimates are higher than EU-SILC estimates. In some countries, like the Czech Republic, Spain and Greece, this has the consequence that incomes in SHARE are now estimated to be higher than in EU-SILC. However, in France, the Netherlands, Denmark and Sweden, the reverse seems to be the case: relative to EU-SILC, SHARE seems to measure more income among other household members than EU-SILC does, but relative to the other countries, the difference between the EU-SILC – SHARE income ratios of household income and 'unit' income seems much less pronounced.

Figure 5: The ratio of estimated income deciles in EU-SILC and SHARE, equivalent net disposable household income and equivalent net disposable 'unit' income, 2006
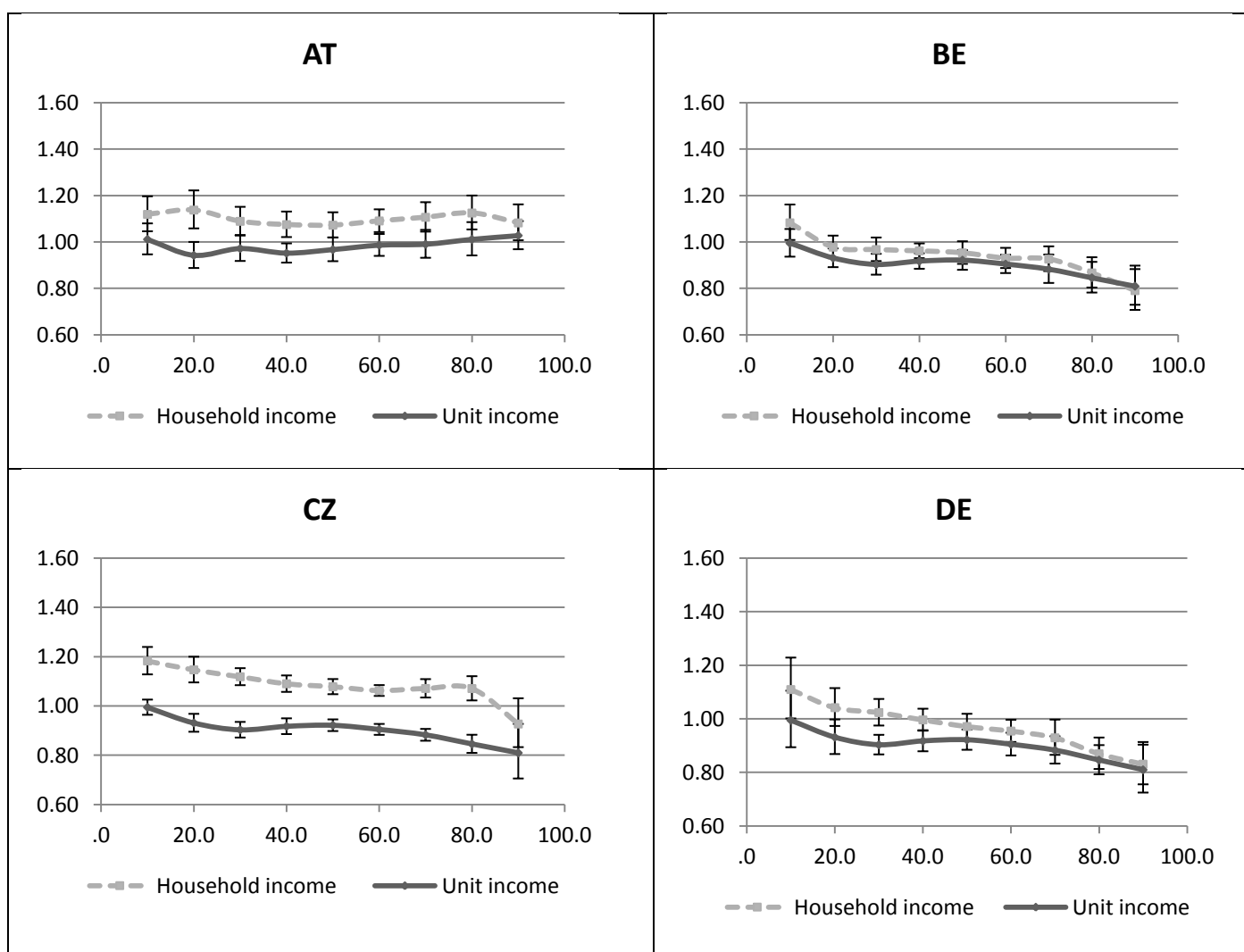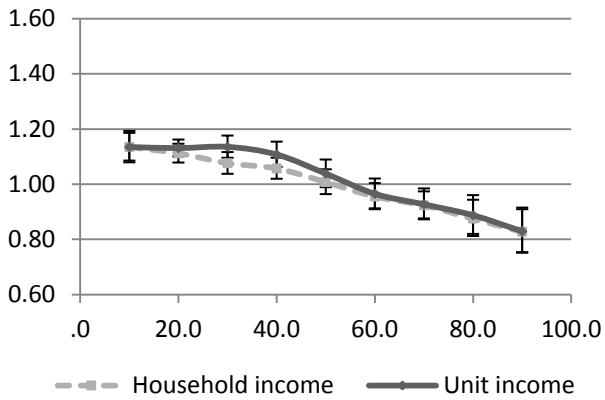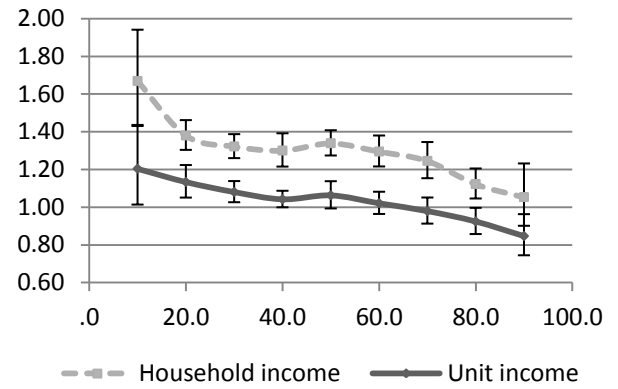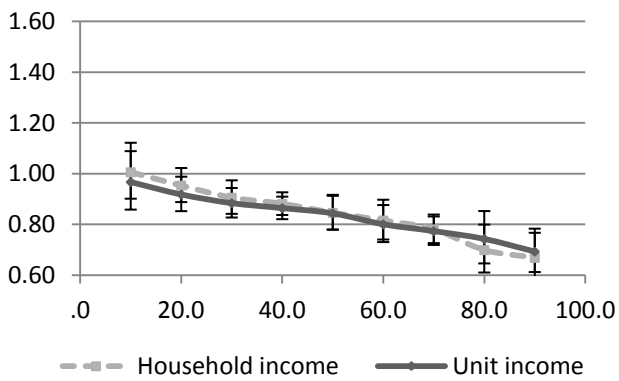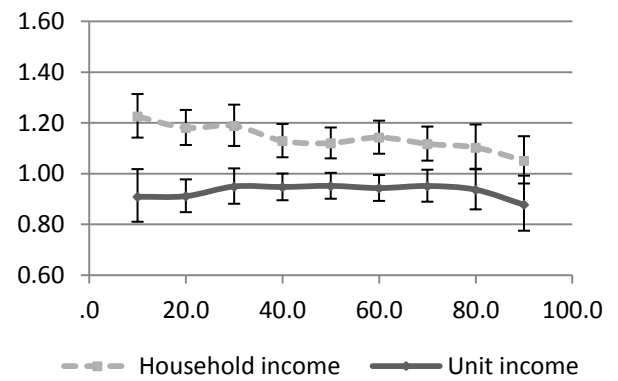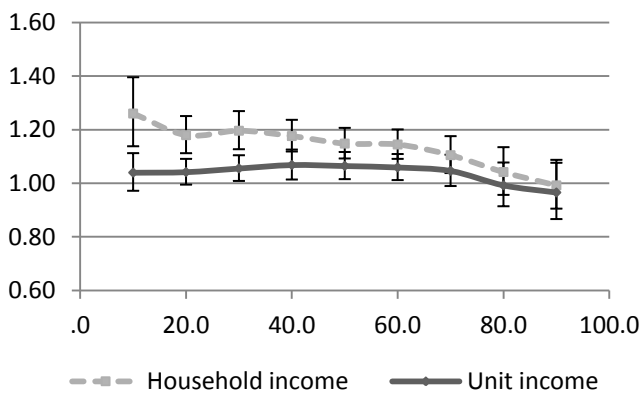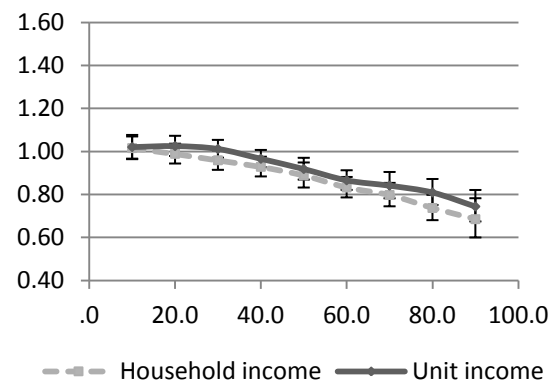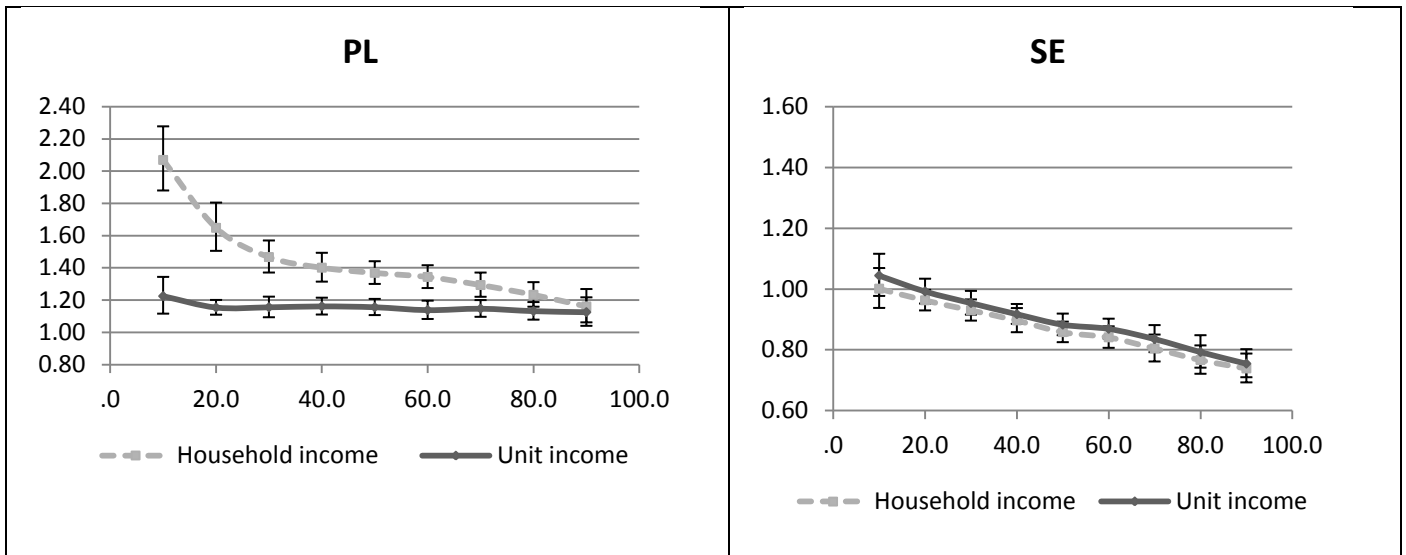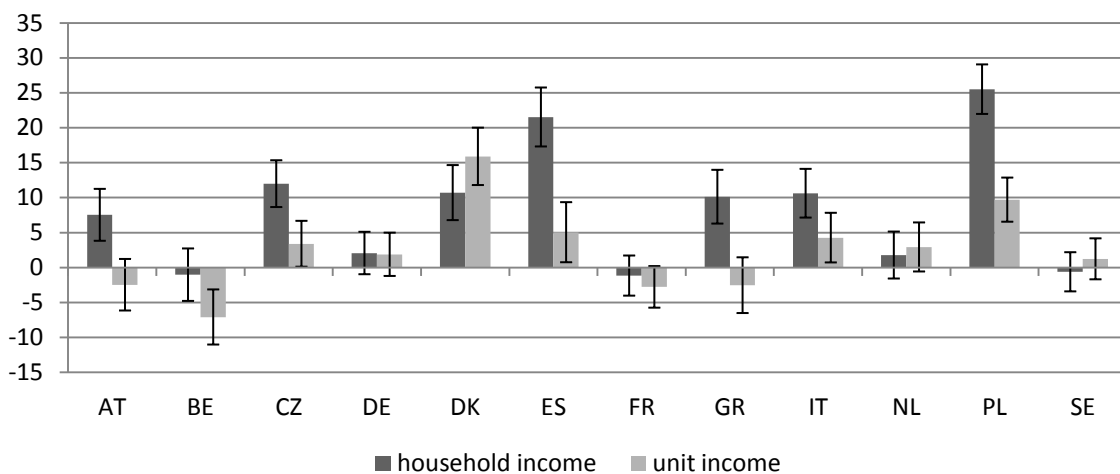
Note: 95% confidence intervals.

Source: EU-SILC 2007 UDB, version 6; SHARE Wave 2; own calculations.

Except for Belgium, France, Germany, the Netherlands and Sweden, poverty among the elderly was estimated to be (much) higher in SHARE than in EU-SILC. From Figure 6 it is clear that in most countries, the difference in the estimated poverty rates between EU-SILC and SHARE is much smaller if we do not calculate income on a household basis but on a nuclear family basis. Exceptions are Denmark and Belgium. Overall, especially at the bottom of the income distribution it seems that EU-SILC overall picks up more income of other household members than SHARE does.

Figure 6: The difference in the at-risk-of-poverty rate of persons aged 65 and over between SHARE and EU-SILC, 2006

Note: 95% confidence intervals.

Source: EU-SILC 2007 UDB, version 6; SHARE Wave 2; own calculations.

5 PUBLIC PENSIONS IN EU-SILC AND SHARE

In this section we look more closely at the pension incomes, as measured in SHARE and EU-SILC.

5.1 Questions about pensions in EU-SILC and SHARE

The questions about pensions follow the format that is generally used in SHARE for asking about incomes. First, respondents are presented with a card, and are asked, "Have you received income from any of these sources in the year ...", where the previous year is mentioned. If respondents say 'yes' to any of these sources, a number of follow-up questions are asked about how large was a typical payment was, what period that payment did cover, for how many months it was received, the year it was first received, and whether there were any "additional, or extra or lump sum payments". Separate cards and separate questions were used for public pensions (EP071_), occupational pensions (EP324_) and any other regular payments received, including life insurance payments and private annuity or private personal pension payments.[14] In each country, the list of income sources was adapted to the institutional context, and if necessary extended ,using the names of pension schemes commonly used in that country.

In SILC the format of pension questions varies across countries, but most employ one that is fairly similar to the SHARE sequence, in the sense that respondents are asked whether they receive a particular type of pension, and if the answer is yes, information is collected about the amount of the periodical payment and the number of payments (mostly, number of months) in the previous year.[15] This is the case in Austria, Belgium, the Czech Republic, Greece, Italy, Spain and Poland. In Germany and France, after the yes/no filter question, persons are asked about the total gross amount in the previous year. Apparently, respondents are supposed to consult tax declarations or other documents. (In Denmark, the Netherlands and Sweden, pension data are taken from registers.) There is also variation in the extent of subdivision of pensions and degree of detail in the descriptions of pension incomes. In Austria and Spain, the labels presented to the respondent seem rather general, and similar to the

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[14] All SHARE questionnaires can be found on the SHARE website, www.share-project.org
[15] This discussion is limited to the EU-SILC questionnaires of countries that participated in SHARE wave 2.

somewhat abstract names used by Eurostat.[16] In France, answers from the previous SILC wave are pre-loaded, and respondents who do not mention a kind of pension which they reported receiving in the previous wave, are asked to confirm that they really do not get it any more.

5.2 Comparison of aggregate amounts of public pensions in EU-SILC, SHARE and ESSPROS

In this section we compare the aggregate amounts in EU-SILC and SHARE, weighted up to population levels of pension incomes. We also compare the former with administrative totals, as registered in the European database ESSPROS (The European System of integrated Social Protection Statistics; Eurostat, 2008)[17] Unfortunately, this comparison is only possible for EU-SILC, since the aggregates in ESSPROSS are gross of taxes and social contributions, while SHARE asks for net amounts. Therefore we compare the gross aggregates of EU-SILC to those of ESSPROS, and the net aggregates of EU-SILC to those of SHARE. Even apart from the gross-net problem, it is difficult to find a common pension concept across the databases. This is mostly due to constraints imposed by EU-SILC, which contains essentially only two public pension variables: 'old age benefits' (PY100) and 'survivors benefits' (PY110). The first one is very encompassing, covering the "provision of social protection against the risk linked to old age, loss of income, inadequate income, lack of independence in carrying out daily tasks, reduced participation in social life, and so on." (Eurostat 2010b: 226). It contains not only old age pensions *sensu strictu*, but also anticipated old age pensions, partial retirement pensions, care allowances, survivor's benefits paid after the standard retirement age, disability benefits paid after the standard retirement age, lump-sum payments at the normal retirement age and other cash benefits paid upon retirement or on account of old age. Excluded are early retirement benefits "paid for labour market reasons or in case of reduced capacity to work". Furthermore, it is important to note that social benefits are defined as cash benefits "made through collectively organised schemes, or outside such schemes by government units" (Eurostat 2010b: 222). This implies (as is stated more explicitly elsewhere) that it includes both first-tier and second-tier pensions. See appendix 1 for a more detailed description.

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[16] E.g. in Austria: "Pension aufgrund eigener Erwerbstätigkeit / Hinterbliebenenpension (Witwen-, Witwer-, Waisenpension) / Betriebs-/Firmenpension / Privatpension / Sonstige pension (zB Pensions vorschuss, NICHT Pflegegeld, NICHT Unfallrente.

[17] http://ec.europa.eu/eurostat/ramon/statmanuals/files/KS-RA-07-027-EN.pdf

Since the EU-SILC classification of social benefits is in fact derived from ESSPROS (p. 223), the comparison with ESSPROS is fairly straightforward. A problem nevertheless is that in ESSPROS no distinction is made between survivor's benefits and disability benefits paid before or after retirement age. Somewhat arbitrarily, we have included survivor's benefits, where most of the beneficiaries are likely to be old, and excluded disability benefits, where persons over 65 are likely to be a minority. So our pension variable is the sum of : 'old age benefits' (PY100) and 'survivors benefits' (PY110). From the ESSPROSS database we have extracted the aggregate amounts of cash benefits for the 'functions' old age and survivors.

SHARE contains many more disaggregated pension variables. We have tried to construct a pension variable that is as close as possible to the EU-SILC 'old age benefits' variable. Details are given in appendix 1. The main problem is that in SHARE the pre-retirement pensions variables do not distinguish between 'anticipated old age pensions' and early retirement benefits paid for labour market or disability reaons. We have decided to include them. Disability benefits are included when the beneficiary is aged 65 or over.

Table 4a-b show the results. While the difference between ESSPROS and EU-SILC is statistically significant in most countries, it is substantial (> 10%) only in Belgium, Denmark and Greece (Table Aa). One reason for an underestimation of the administrative totals is the fact that EU-SILC (and SHARE) covers only the population in private households. Older persons in homes are not included. This is especially important for the Scandinavian countries, the Netherlands and Belgium, where up to 6 percent of older persons are institutionalised. The poor match for Denmark is difficult to understand, as the pension data for that country come from administrative records. Overall, the match between EU-SILC and ESSPROS seems rather good.

Comparing SHARE net aggregate pensions with EU-SILC net aggregates (Table Ab), the differences are not statistically significant in most countries. The exceptions are Belgium (but EU-SILC aggregates are biased downwards in this country), France (where SHARE totals are too high) and Poland. The comparison is not possible for Denmark and the Netherlands, as net amounts are not available in EU-SILC for those countries. These results are somewhat in contradiction to those of Moore et al. (2000), who conclude after a review of the literature on income measurement error in surveys, that "response bias estimates […] for transfer income amounts, are consistently negative, indicating that underreporting is the predominant error form". The reason could be that pensions are usually received continuously and for a long

time, in contrast to welfare programs (like AFDC) which are the subject of most studies reviewed by Moore et al.

Table 4a: Comparison of aggregate pensions in EU-SILC and ESSPROS (year: 2006).

country	ESSPROSS M€	SILC (gross) Total M€	St. Error M€	SILC as % of ESSPROS	t-value of difference	sig. of difference
AT	33.039	34.264	892	103,7%	1,37	n.s.
BE	33.116	26.399	643	79,7%	-10,45	***
CZ	8.490	7.669	105	90,3%	-7,82	***
DE	273.955	263.432	4.070	96,2%	-2,59	*
DK	19.541	15.765	477	80,7%	-7,92	***
ES	76.432	75.371	1.470	98,6%	-0,72	n.s.
FR	219.075	212.366	4.330	96,9%	-1,55	n.s.
GR	25.264	22.363	620	88,5%	-4,68	***
IT	227.992	213.086	2.810	93,5%	-5,30	***
NL	54.640	53.205	1.190	97,4%	-1,21	n.s.
PL	31.184	29.834	394	95,7%	-3,43	***
SE	29.910	29.202	671	97,6%	-1,05	n.s.

Table 4b: Comparison of aggregate pensions in EU-SILC and SHARE (year: 2006).

country	SILC (net) Total M€	St. Error M€	SHARE (net) Total M€	St. Error M€	SHARE as % of SILC	t-value of difference	sig. of difference
AT	27.655	644	28.953	804	104,7%	1,26	n.s.
BE	23.321	539	30.848	953	132,3%	6,87	***
CZ	7.615	104	8.113	471	106,5%	1,03	n.s.
DE	248.162	3.760	257.794	8.320	103,9%	1,05	n.s.
ES	71.374	1.330	74.718	3.940	104,7%	0,80	n.s.
FR	201.009	4.080	237.950	10.800	118,4%	3,20	**
GR	20.551	544	19.511	581	94,9%	-1,31	n.s.
IT	181.090	2.210	169.979	5.770	93,9%	-1,80	n.s.
PL	25.586	336	20.998	644	82,1%	-6,32	***
SE	21.130	478	21.015	567	99,5%	-0,15	n.s.

5.3 Comparison of reception rates in EU-SILC and SHARE

Table 5 shows that the reception rate of public pensions by persons aged 65 and over varied between 81,24% in Spain and 99,24 in Denmark according to EU-SILC 2007. In SHARE less people in Spain claimed to receive a public pensions (74,87% compared to 81,24%). Other statistically significant differences between the reception rates in both surveys are found in Germany, Greece, Italy, the Netherlands, Poland and Sweden. In these countries SHARE

seems to underestimate the number of pension recipients. In the Czech Republic on the other hand SHARE registers more recipients.

Table 5. Reception rate and total amounts of net public pensions (aged 65 and over)

	reception rate			
	EU-SILC 2007		SHARE Wave 2	
	Estimate	SE	Estimate	SE
AT	93,01	0,47	92,21	0,93
BE	85,69	0,76	85,06	0,93
CZ	96,38	0,32	98,29	0,63
DE	96,83	0,27	92,73	0,77
DK	99,24	0,20	97,86	0,44
ES	81,24	0,55	74,87	1,23
FR	95,78	0,34	96,47	
GR	87,92	0,71	82,38	1,16
IT	93,81	0,30	88,19	0,94
NL	99,94	0,04	98,52	0,33
PL	97,99	0,21	96,30	0,60
SE	99,02	0,22	97,35	0,44

6 PROPERTY INCOME

The Canberra group defines property income as "receipts that arise from the ownership of assets (return of use of assets) provided to others for their use" (Expert committee, 2011: 13) Note that this does not include the income that (in economic terms) is in fact the return of the capital invested by self-employed persons in their own businesses; this is part of income from self-employment. It includes interest receipts, dividends, rents and royalties. The definition of property income in EU-SILC is by and large similar. However, royalties are not included in EU-SILC property income, and interest paid is not subtracted from interest received. We refer to Törmälehto (2007) for an extensive discussion of the EU-SILC, the Canberra group and the National Accounts definitions of property income. In SHARE, the definition of property income is similar to that of EU-SILC, although profits from capital invested in an unincorporated enterprise in which the person does not work is not explicitly asked for.

There is a a consensus that property income is difficult to measure in surveys, both because respondent's may not have the needed knowledge, or because they may be unwilling to answer questions about property income. Moore et al. (2000: 356), after a review of previous studies, conclude "tentatively that asset income sources may suffer more than either of the

other income types [wage/salary and tranfer program] from severe underreporting, while indicators of consistent bias are less clear for asset income." Studies comparing respondent's reports of the value of their financial assets with data from financial institutions indicate that the former contain "substantial levels of random error" (Moore et al., 2000: 348)

6.1   Questions in SHARE and EU-SILC about income from financial assets

In comparison to most surveys, SHARE has a rather extensive module on financial assets and the incomes from that source. For four kinds of financial assets, respondents are asked whether they own that kind of asset, and if yes, what the total value is, and how much income they derived from it in the previous calendar year. The four kinds distinguished are: bank and savings accounts, bonds, stocks and shares, and mutual funds. If respondents are unable or unwilling to given an exact amount, they are subjected to unfolding brackets, so as to get an indication of the magnitude of the income.

Measurement of financial asset income in EU-SILC varies considerably across countries. In Denmark, the Netherlands and Sweden, tax records are the source of data. In the countries that rely on survey, one can, somewhat simplifying, distinguish three models. In Austria, Belgium, Germany and Italy these questions are part of the household questionnaire, which is to be answered by a person knowledgeable of the household's finances. These persons are presented with a list of possible assets (which varies by country), and are asked whether they owned this during the previous year, or not. (In Italy respondents also have to indicate what percentage of total savings is in each of these kinds of assets.) The next question is about the total income from these assets during the previous calendar year, first as an exact amount, and if that is not possible, in brackets. (The number of brackets also varies considerably, from 5 in Belgium to 26 in Italy.) The method used in France is a variation on this model. After the yes/no questions about kinds of assets owned, respondents are asked to estimate the total value of each of those assets, using brackets. Presumably, the income received from these assets is imputed using the estimated value.

In Spain and Greece, the financial asset questions are in the individual questionnaire. A single question is asked whether the respondent received any income from interests, dividends or from capital invested in a business, etc. Respondents then have to indicate whether they were the sole receivers of that income, or whether it was shared with other household members. If the latter is the case, respondents have to mention the names of the joint receivers, in addition to the amount (several rows are provided to distinguish between various sources). This

procedure seems designed to prevent double-counting of asset income, but also produces a seemingly rather complicated series of questions. Finally, in the Czech Republic and Poland, a single general yes/no question is asked whether the respondent has any income from financial assets, and if yes, what the amount is.

6.2   Results

In both the SHARE and EU-SILC databases, the asset income information collected is nicely processed into, respectively, five and two variables, which implies, among other steps, imputation of bracket responses and non-response. Two problems remain, however. First, in several EU-SILC countries the asset income information is collected only gross, while in SHARE it is given only in net terms. In order to convert EU-SILC gross amounts into net amounts, we assumed that total household taxes and social contributions are distributed over income components in proportion to their share in total gross household income. This is likely to be an overestimate of the actual taxes and social contributions levied on asset incomes in several countries, as these incomes are often taxed at source only, or taxed at a different rate than other incomes. For this reason, we show results for both gross and net asset incomes from EU-SILC. The true net asset income is likely to lie somewhere between those two.

The other problem is that we need to assign the household's asset income to particular individuals or couples within the household. In SHARE this is easy, as the survey unit in SHARE is essentially an individual and her or his partner. In EU-SILC, we have assigned the asset income to the individual who is responsible for the household's accommodation (the person who legally owns or rents the accommodation). Within couples, the asset income is divided in two equal parts among the partners. Note also that in this section we have performed no top and bottom coding. Very low and high incomes from assets are quite realistic, and to exclude them from the analysis might give a misleading picture.

In tables 6 and 7 we present the results, for income from financial assets, rental income and total asset income separately. Across all persons aged 65 and more, including those reporting no such income (unconditionally), mean income from financial assets as reported in SHARE is significantly larger than it is in EU-SILC in Belgium only. In France, Italy and the Netherlands, the unconditional mean amounts are larger in EU-SILC than in SHARE. In the other countries, there is no statistically significant difference, although it must be kept in mind that standard errors are rather large, presumably due, on the one hand, to the large proportion of zero or very small amounts, and on the other to the presence of extremely high amounts in

some countries. For rental income, we find that in SHARE reported unconditional mean amounts are lower than they are in EU-SILC in Austria, Belgium, Spain, Italy and Poland. In the other countries there is no significant difference. Standard errors are again inflated by the extremely skewed distribution.

Total asset income is of course the sum of incomes from financial assets and from immovable properties. In aggregate value the latter are more important than financial asset income in the southern European countries (especially in Greece), and also in Austria. In the Scandinavian countries, on the other hand, rental incomes account for only a small proportion of total asset income. (Törmälehto (2007) reports similar results.) Differences sometimes cancel out, and for total asset income significantly different mean amounts between SHARE and EU-SILC are found only in Spain, Italy and the Netherlands; in each case the mean from SHARE is lower than that from EU-SILC.

The impact of extreme amounts makes it difficult to compare these unconditional means and this is also true for the means, conditional upon an amount greater than zero (not reported here). For this reason it is arguably more useful to look at the distribution of these incomes, as shown in Tables 7a-c.[18] Looking at financial asset income, the most striking result is that in most countries, much fewer respondents report having no such income in SHARE than in EU-SILC; the exceptions are Germany, the Netherlands and Sweden. In the Czech republic and especially in Poland, very few older persons in EU-SILC report receiving any of this kind of income. By contrast, the proportion with very small incomes (more than 0, but below 100€) is often higher in SHARE than in EU-SILC. If we concentrate on the proportions with moderate incomes from this source (300 – 3000€s per year) we observe that SHARE is more successful in capturing these incomes in Austria, Belgium, Denmark and Greece. The opposite is true in Germany and Italy. We can also observe that very high financial asset incomes (> 10000€) are more frequently observed in EU-SILC than in SHARE in Denmark, the Netherlands and Sweden, where registers are the source of the EU-SILC data.

The results are rather different for rental income. Only a small proportion of persons have this kind of income, but if there is any, it is likely to be substantial. In all countries, except the Czech Republic, Denmark and Sweden, the proportion reporting any such income is higher in EU-SILC than it is in SHARE (though sometimes by only a small margin). For the rest, the percentages are too small to make a meaningful comparison.

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[18] We tried to produce kernel density graphs, but these were not useful, probably due to the extremely skewed distribution of these variables.

The distribution of total asset income is of course the result of the aggregation of the distributions just discussed. Here, the most striking result is that these distribution as observed in EU-SILC and in SHARE are quite similar in the Netherlands and Sweden. This is an important result, as both in the Netherlands and Sweden administrative records are the source of the EU-SILC data. In Denmark, the third 'register country', the SHARE distribution is to the right of the EU-SILC one, except for high amounts (> 10000€). However, this may be due to a divergent definition of financial asset income in the Danish EU-SILC data (Törmälehto, 2007). Interest paid has been deducted from interest received, resulting in a lot of negative values (in the population as a whole). As regards the 'questionnaire countries', we venture that SHARE may be better capturing small or moderate amounts of asset income than EU-SILC. Further conclusions must await more extensive analysis, looking at the whole population, not just those aged 65 and over, and not ignoring the impact of imputations.

The differences between EU-SILC and SHARE noted are important for the results on income equality. Figure 7 shows the proportions of aggregate asset income which are received by quintiles based on net income minus asset income. (The EU-SILC results are for net asset income, as defined above.) Again, we have to be careful, as extreme values can easily have a large influence on the results. Nevertheless, we may observe that the distributions are rather similar or not very different in Denmark, the Netherlands and Sweden, the 'register countries' (and also in Belgium and France). A larger concentration of financial asset income in the highest quintile (implying a greater inequality-enhancing effect, *ceteris paribus*) in SHARE compared with EU-SILC is found in Austria, the Czech republic, Germany, Spain and Italy. The opposite phenomenon occurs in Greece and Poland. The distribution if incomes from immovable properties seems more erratic, probably due to the low frequency of this kind of income. The distribution of total asset income is again the combination of its two components.

Table 6: Mean values of property incomes (including zero values), EU-SILC and SHARE, 2006

		Income from financial assets			Rental income			Total asset income		
		Mean (uncond.)	st. error	sig. diff*	Mean (uncond.)	st. error	sig. diff*	Mean (uncond.)	st. error	sig. diff*
AT	SILC-gross	195	17	0,840	320	79	0,001	515	82	0,011
AT	SILC-net	152	13	0,272	267	67	0,003	418	69	0,075
AT	SHARE-net	205	47	-	55	22	-	260	57	-
BE	SILC-gross	673	66	0,000	530	68	0,004	1203	98	0,331
BE	SILC-net	606	63	0,000	476	63	0,018	1082	92	0,052
BE	SHARE-net	1046	72	-	287	49	-	1333	91	-
CZ	SILC-gross	36	13	0,427	35	11	0,345	71	17	0,225
CZ	SILC-net	35	12	0,487	29	8	0,511	64	15	0,350
CZ	SHARE-net	26	3	-	19	13	-	45	14	-
DE	SILC-gross	812	39	0,356	443	51	0,944	1255	70	0,510
DE	SILC-net	672	35	0,990	372	48	0,497	1044	64	0,677
DE	SHARE-net	674	144	-	451	106	-	1125	184	-
DK	SILC-gross	1559	223	0,012	12	4	0,037	1571	223	0,032
DK	SILC-net	947	135	0,852	9	3	0,028	956	135	0,486
DK	SHARE-net	975	65	-	89	37	-	1064	77	-
ES	SILC-gross	174	31	0,908	326	53	0,000	500	63	0,001
ES	SILC-net	151	26	0,594	276	40	0,000	427	49	0,005
ES	SHARE-net	181	51	-	38	13	-	219	54	-
FR	SILC-gross	748	34	0,000	499	55	0,592	1247	66	0,052
FR	SILC-net	638	28	0,000	401	41	0,203	1039	52	0,512
FR	SHARE-net	364	31	-	575	130	-	939	143	-
GR	SILC-gross	51	24	0,783	615	79	0,271	666	83	0,293
GR	SILC-net	42	21	0,445	504	62	0,600	546	66	0,668
GR	SHARE-net	58	5	-	409	169	-	468	170	-
IT	SILC-gross	358	15	0,001	396	39	0,000	754	45	0,000
IT	SILC-net	291	12	0,037	310	31	0,024	601	36	0,004
IT	SHARE-net	187	49	-	181	47	-	368	72	-
NL	SILC-gross	1644	234	0,000	173	37	0,286	1817	238	0,000
NL	SILC-net	1342	219	0,008	137	31	0,633	1479	222	0,007
NL	SHARE-net	698	104	-	111	45	-	809	114	-
PL	SILC-gross	13	5	0,640	12	3	0,011	25	7	0,099
PL	SILC-net	10	5	0,897	10	2	0,027	20	5	0,238
PL	SHARE-net	10	3	-	3	2	-	12	4	-
SE	SILC-gross	1106	158	0,062	7	3	0,101	1113	158	0,234
SE	SILC-net	673	91	0,434	5	2	0,093	678	91	0,143
SE	SHARE-net	770	86	-	115	65	-	885	109	-

* Statistical significance of difference between amounts of EU-SILC gross and EU-SILC net on the one hand, and SHARE-net on the other hand. (Probability of 0-hypothesis that difference is zero in the population)

Table 7a: Distribution of income from financial assets, EU-SILC and SHARE, 2006

		Income bracket *									Total
		<=0	(0-100]	(100-300]	(300-1000]	(1000-3000]	(3000-10000]	(10000-30,000]	(30,000-100,000]	(100,000+	
AT	SILC-gross	41,7%	31,3%	15,7%	7,2%	2,9%	1,2%	0,1%	0,0%	0,0%	100,0%
AT	SILC-net	41,7%	33,8%	15,2%	6,1%	2,5%	0,7%	0,1%	0,0%	0,0%	100,0%
AT	SHARE-net	27,9%	43,6%	14,9%	11,0%	2,2%	0,4%	0,0%	0,1%	0,0%	100,0%
BE	SILC-gross	27,4%	26,6%	16,1%	16,2%	9,5%	3,3%	0,7%	0,1%	0,0%	100,0%
BE	SILC-net	27,6%	27,9%	16,8%	15,9%	8,2%	2,8%	0,6%	0,2%	0,0%	100,0%
BE	SHARE-net	10,0%	21,5%	21,4%	21,2%	17,2%	7,9%	0,8%	0,1%	0,0%	100,0%
CZ	SILC-gross	91,0%	6,6%	0,9%	1,0%	0,4%	0,1%	0,0%	0,0%	0,0%	100,0%
CZ	SILC-net	91,0%	6,7%	0,8%	1,0%	0,4%	0,1%	0,0%	0,0%	0,0%	100,0%
CZ	SHARE-net	57,3%	38,2%	3,3%	1,1%	0,1%	0,0%	0,0%	0,0%	0,0%	100,0%
DE	SILC-gross	19,1%	11,5%	22,1%	27,1%	15,1%	4,3%	0,7%	0,0%	0,0%	100,0%
DE	SILC-net	19,6%	14,3%	21,4%	27,8%	13,1%	3,4%	0,5%	0,0%	0,0%	100,0%
DE	SHARE-net	20,3%	26,4%	20,1%	18,6%	11,9%	2,2%	0,3%	0,3%	0,0%	100,0%
DK	SILC-gross	25,6%	18,3%	11,9%	17,8%	15,1%	7,2%	3,5%	0,5%	0,1%	100,0%
DK	SILC-net	25,7%	21,5%	13,2%	18,4%	12,8%	6,2%	1,9%	0,4%	0,0%	100,0%
DK	SHARE-net	14,2%	19,4%	16,6%	22,8%	18,8%	7,5%	0,8%	0,0%	0,0%	100,0%
ES	SILC-gross	72,4%	15,2%	5,8%	3,4%	2,2%	0,7%	0,3%	0,1%	0,0%	100,0%
ES	SILC-net	72,4%	15,6%	5,9%	3,0%	2,2%	0,5%	0,3%	0,0%	0,0%	100,0%
ES	SHARE-net	46,6%	38,9%	8,9%	3,4%	1,0%	0,6%	0,6%	0,0%	0,0%	100,0%
FR	SILC-gross	31,1%	14,1%	17,2%	18,3%	12,2%	6,8%	0,4%	0,0%	0,0%	100,0%
FR	SILC-net	31,1%	16,8%	15,5%	18,6%	12,3%	5,5%	0,2%	0,0%	0,0%	100,0%
FR	SHARE-net	23,9%	27,1%	21,4%	17,8%	8,5%	1,2%	0,1%	0,0%	0,0%	100,0%
GR	SILC-gross	96,4%	0,9%	1,3%	0,5%	0,4%	0,3%	0,2%	0,0%	0,0%	100,0%
GR	SILC-net	96,4%	1,3%	1,1%	0,3%	0,6%	0,3%	0,0%	0,0%	0,0%	100,0%
GR	SHARE-net	62,9%	20,6%	12,1%	4,1%	0,3%	0,0%	0,0%	0,0%	0,0%	100,0%
IT	SILC-gross	57,8%	3,2%	6,7%	24,3%	5,9%	1,9%	0,2%	0,0%	0,0%	100,0%
IT	SILC-net	57,9%	3,4%	9,1%	23,0%	5,3%	1,1%	0,1%	0,0%	0,0%	100,0%
IT	SHARE-net	47,1%	28,4%	14,7%	7,4%	1,7%	0,6%	0,0%	0,1%	0,0%	100,0%
NL	SILC-gross	13,0%	20,5%	22,0%	24,9%	11,9%	5,4%	1,6%	0,4%	0,3%	100,0%
NL	SILC-net	13,0%	22,9%	23,9%	24,4%	10,3%	4,2%	0,8%	0,3%	0,3%	100,0%
NL	SHARE-net	19,3%	23,3%	21,0%	21,7%	11,4%	2,9%	0,1%	0,3%	0,0%	100,0%
PL	SILC-gross	98,7%	0,3%	0,4%	0,4%	0,2%	0,0%	0,0%	0,0%	0,0%	100,0%
PL	SILC-net	98,7%	0,3%	0,5%	0,3%	0,2%	0,0%	0,0%	0,0%	0,0%	100,0%
PL	SHARE-net	89,9%	8,6%	1,0%	0,3%	0,2%	0,0%	0,0%	0,0%	0,0%	100,0%
SE	SILC-gross	17,7%	25,2%	17,5%	21,7%	12,3%	4,4%	0,8%	0,4%	0,1%	100,0%
SE	SILC-net	17,8%	29,2%	19,7%	20,7%	9,0%	3,0%	0,3%	0,2%	0,0%	100,0%
SE	SHARE-net	19,9%	21,8%	21,7%	21,8%	10,1%	4,1%	0,5%	0,3%	0,0%	100,0%

* income bracket does not include lower border, and does include upper border

Table 7b: Distribution of income from immovable properties, EU-SILC and SHARE, 2006

		Income bracket *									Total
		<=0	(0-100]	(100-300]	(300-1000]	(1000-3000]	(3000-10000]	(10000-30,000]	(30,000-100,000]	(100,000+	
AT	SILC-gross	95,9%	0,3%	0,3%	0,6%	0,8%	1,5%	0,4%	0,2%	0,1%	100,0%
AT	SILC-net	95,9%	0,4%	0,3%	0,8%	0,9%	1,3%	0,4%	0,2%	0,0%	100,0%
AT	SHARE-net	97,9%	0,0%	0,1%	0,2%	1,1%	0,5%	0,1%	0,0%	0,0%	100,0%
BE	SILC-gross	89,8%	0,7%	0,6%	1,0%	2,9%	3,8%	1,1%	0,1%	0,0%	100,0%
BE	SILC-net	89,8%	0,7%	0,7%	0,9%	3,4%	3,5%	1,0%	0,1%	0,0%	100,0%
BE	SHARE-net	92,3%	0,0%	1,1%	1,2%	2,0%	3,0%	0,4%	0,0%	0,0%	100,0%
CZ	SILC-gross	96,6%	1,5%	0,6%	0,7%	0,5%	0,1%	0,1%	0,0%	0,0%	100,0%
CZ	SILC-net	96,6%	1,5%	0,6%	0,8%	0,4%	0,0%	0,1%	0,0%	0,0%	100,0%
CZ	SHARE-net	97,4%	1,0%	0,4%	0,9%	0,1%	0,3%	0,0%	0,0%	0,0%	100,0%
DE	SILC-gross	89,7%	0,6%	0,6%	1,9%	3,2%	2,9%	0,9%	0,1%	0,0%	100,0%
DE	SILC-net	89,7%	0,6%	0,8%	2,1%	3,3%	2,9%	0,5%	0,1%	0,0%	100,0%
DE	SHARE-net	93,6%	0,0%	0,2%	0,4%	2,0%	2,3%	1,3%	0,2%	0,0%	100,0%
DK	SILC-gross	98,9%	0,0%	0,3%	0,3%	0,4%	0,1%	0,0%	0,0%	0,0%	100,0%
DK	SILC-net	98,9%	0,2%	0,3%	0,3%	0,4%	0,0%	0,0%	0,0%	0,0%	100,0%
DK	SHARE-net	97,4%	0,0%	0,1%	0,9%	0,9%	0,6%	0,2%	0,0%	0,0%	100,0%
ES	SILC-gross	92,4%	0,2%	0,7%	0,9%	3,0%	2,2%	0,5%	0,1%	0,0%	100,0%
ES	SILC-net	92,4%	0,2%	0,7%	1,4%	2,7%	2,1%	0,3%	0,1%	0,0%	100,0%
ES	SHARE-net	98,3%	0,2%	0,2%	0,0%	0,7%	0,6%	0,0%	0,0%	0,0%	100,0%
FR	SILC-gross	88,2%	0,8%	0,8%	1,8%	3,6%	3,8%	0,8%	0,2%	0,0%	100,0%
FR	SILC-net	88,2%	0,8%	1,0%	1,8%	3,9%	3,6%	0,5%	0,1%	0,0%	100,0%
FR	SHARE-net	90,4%	0,2%	0,3%	1,2%	3,7%	2,8%	1,3%	0,1%	0,1%	100,0%
GR	SILC-gross	82,2%	0,5%	2,1%	2,9%	6,8%	4,3%	0,7%	0,3%	0,0%	100,0%
GR	SILC-net	82,2%	0,8%	2,2%	3,5%	6,9%	3,6%	0,7%	0,2%	0,0%	100,0%
GR	SHARE-net	91,2%	0,3%	1,1%	1,0%	4,2%	1,9%	0,2%	0,1%	0,0%	100,0%
IT	SILC-gross	93,4%	0,2%	0,4%	1,2%	1,6%	2,1%	1,0%	0,2%	0,0%	100,0%
IT	SILC-net	93,4%	0,3%	0,5%	1,3%	1,8%	2,0%	0,7%	0,1%	0,0%	100,0%
IT	SHARE-net	95,7%	0,1%	0,0%	0,6%	2,3%	0,8%	0,5%	0,0%	0,0%	100,0%
NL	SILC-gross	96,0%	0,1%	0,3%	0,7%	1,4%	1,2%	0,4%	0,0%	0,0%	100,0%
NL	SILC-net	96,0%	0,2%	0,2%	0,7%	1,8%	0,9%	0,3%	0,0%	0,0%	100,0%
NL	SHARE-net	98,1%	0,2%	0,0%	0,4%	0,3%	0,5%	0,4%	0,0%	0,0%	100,0%
PL	SILC-gross	99,1%	0,1%	0,1%	0,5%	0,2%	0,1%	0,0%	0,0%	0,0%	100,0%
PL	SILC-net	99,1%	0,1%	0,1%	0,5%	0,2%	0,1%	0,0%	0,0%	0,0%	100,0%
PL	SHARE-net	99,4%	0,2%	0,0%	0,4%	0,0%	0,0%	0,0%	0,0%	0,0%	100,0%
SE	SILC-gross	99,1%	0,1%	0,1%	0,3%	0,3%	0,1%	0,0%	0,0%	0,0%	100,0%
SE	SILC-net	99,1%	0,1%	0,3%	0,5%	0,1%	0,0%	0,0%	0,0%	0,0%	100,0%
SE	SHARE-net	97,8%	0,1%	0,3%	0,3%	0,7%	0,6%	0,1%	0,1%	0,0%	100,0%

Table 7c: Distribution of total income from assets, EU-SILC and SHARE, 2006

		\<=0	(0-100]	(100-300]	(300-1000]	(1000-3000]	(3000-10000]	(10000-30,000]	(30,000-100,000]	(100,000 +	Total
AT	SILC-gross	40,6%	30,7%	14,7%	7,3%	3,3%	2,7%	0,5%	0,2%	0,1%	100,0%
AT	SILC-net	40,6%	32,9%	14,3%	6,5%	2,9%	2,1%	0,4%	0,2%	0,0%	100,0%
AT	SHARE-net	27,4%	43,5%	14,4%	10,8%	2,4%	1,2%	0,1%	0,1%	0,0%	100,0%
BE	SILC-gross	25,9%	24,7%	14,9%	15,3%	10,1%	6,5%	2,3%	0,3%	0,0%	100,0%
BE	SILC-net	26,0%	25,8%	15,6%	14,8%	9,5%	6,0%	2,0%	0,4%	0,0%	100,0%
BE	SHARE-net	9,8%	20,7%	20,3%	20,1%	16,7%	10,7%	1,6%	0,1%	0,0%	100,0%
CZ	SILC-gross	88,4%	7,5%	1,4%	1,6%	0,6%	0,3%	0,1%	0,0%	0,0%	100,0%
CZ	SILC-net	88,4%	7,6%	1,3%	1,7%	0,7%	0,1%	0,1%	0,0%	0,0%	100,0%
CZ	SHARE-net	56,2%	38,6%	2,9%	1,8%	0,3%	0,3%	0,0%	0,0%	0,0%	100,0%
DE	SILC-gross	18,7%	11,1%	20,5%	25,3%	15,5%	6,9%	1,8%	0,2%	0,1%	100,0%
DE	SILC-net	19,2%	13,6%	19,9%	26,0%	13,7%	6,3%	1,2%	0,1%	0,1%	100,0%
DE	SHARE-net	19,5%	26,1%	19,5%	17,4%	10,2%	5,0%	1,8%	0,6%	0,0%	100,0%
DK	SILC-gross	25,4%	18,2%	11,9%	17,7%	15,4%	7,3%	3,5%	0,5%	0,1%	100,0%
DK	SILC-net	25,5%	21,4%	13,1%	18,4%	13,1%	6,2%	1,9%	0,4%	0,0%	100,0%
DK	SHARE-net	13,8%	18,6%	16,0%	23,6%	19,1%	7,8%	0,9%	0,1%	0,0%	100,0%
ES	SILC-gross	68,9%	14,0%	5,4%	3,6%	4,3%	2,7%	0,9%	0,2%	0,0%	100,0%
ES	SILC-net	68,9%	14,4%	5,3%	3,6%	4,4%	2,6%	0,6%	0,2%	0,0%	100,0%
ES	SHARE-net	46,0%	38,9%	8,5%	3,4%	1,3%	1,3%	0,6%	0,0%	0,0%	100,0%
FR	SILC-gross	29,2%	13,3%	15,4%	16,7%	13,6%	10,1%	1,6%	0,2%	0,0%	100,0%
FR	SILC-net	29,2%	15,4%	14,1%	17,2%	14,0%	9,0%	0,9%	0,1%	0,0%	100,0%
FR	SHARE-net	22,9%	25,9%	20,0%	15,5%	10,3%	3,7%	1,5%	0,1%	0,1%	100,0%
GR	SILC-gross	79,9%	1,3%	2,9%	3,2%	6,9%	4,5%	1,0%	0,3%	0,0%	100,0%
GR	SILC-net	79,9%	1,9%	2,6%	3,7%	7,1%	3,8%	0,7%	0,2%	0,0%	100,0%
GR	SHARE-net	58,6%	18,7%	11,6%	4,2%	4,4%	2,2%	0,2%	0,1%	0,0%	100,0%
IT	SILC-gross	55,7%	3,1%	6,4%	22,9%	6,9%	3,7%	1,2%	0,2%	0,0%	100,0%
IT	SILC-net	55,7%	3,4%	8,5%	21,8%	6,6%	3,1%	0,8%	0,1%	0,0%	100,0%
IT	SHARE-net	45,9%	27,3%	14,0%	7,1%	3,4%	1,6%	0,7%	0,1%	0,0%	100,0%
NL	SILC-gross	12,6%	20,4%	21,8%	23,8%	12,3%	6,1%	2,3%	0,5%	0,3%	100,0%
NL	SILC-net	12,6%	22,7%	23,3%	23,5%	10,7%	5,3%	1,2%	0,3%	0,3%	100,0%
NL	SHARE-net	19,2%	23,2%	20,7%	21,3%	11,5%	3,2%	0,7%	0,3%	0,0%	100,0%
PL	SILC-gross	97,8%	0,3%	0,5%	0,8%	0,4%	0,1%	0,0%	0,0%	0,0%	100,0%
PL	SILC-net	97,8%	0,3%	0,6%	0,7%	0,5%	0,1%	0,0%	0,0%	0,0%	100,0%
PL	SHARE-net	89,7%	8,4%	1,0%	0,7%	0,2%	0,0%	0,0%	0,0%	0,0%	100,0%
SE	SILC-gross	17,7%	25,1%	17,5%	21,6%	12,5%	4,5%	0,8%	0,4%	0,1%	100,0%
SE	SILC-net	17,8%	29,1%	19,7%	20,6%	9,2%	3,0%	0,3%	0,2%	0,0%	100,0%
SE	SHARE-net	19,5%	21,5%	21,7%	21,6%	10,0%	4,7%	0,6%	0,4%	0,0%	100,0%

*Income bracket

Figure 7: Distribution of income from assets across quintiles of household income less income from assets
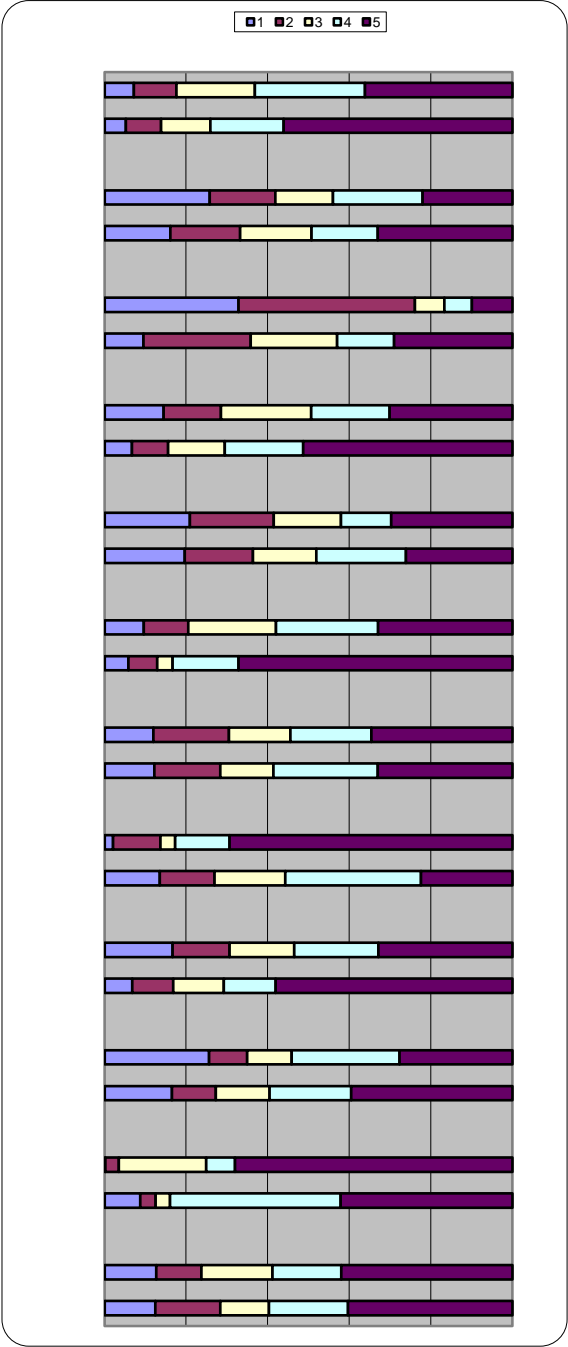
Figure 7a: income from financial assets

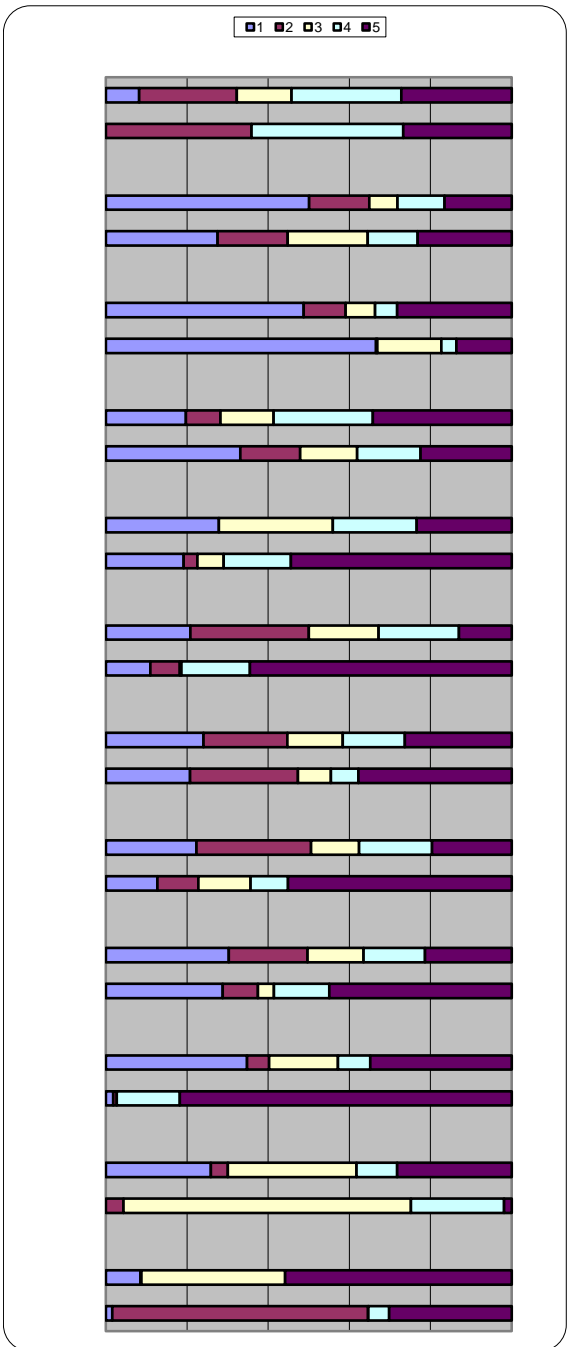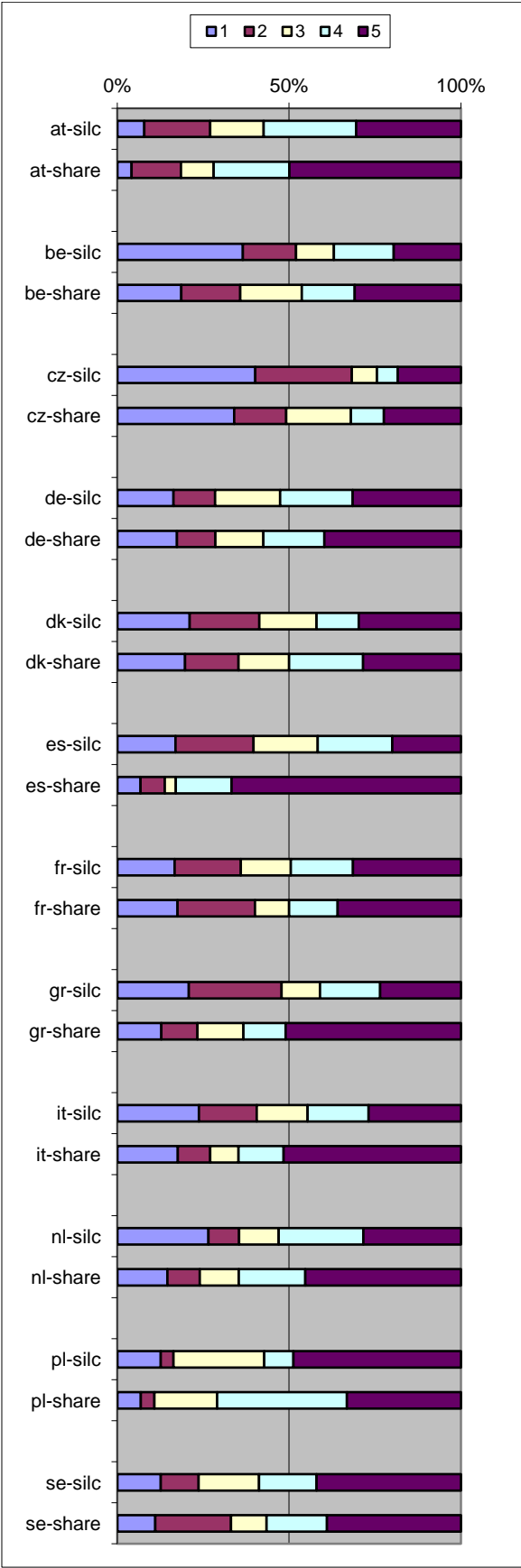**Figure 7b: income from immovable property**

Figure 7c: income from all assets

7   CONCLUSIONS

The motivation for this paper was that two prominent cross-nation surveys in Europe, EU-SILC and SHARE, produce quite different results as regards income poverty and inequality among persons aged 65 and over. The aim of the paper was to try to relate these differences to the divergent ways in which income is measured in SHARE and EU-SILC. In both surveys, income is captured through a range of rather detailed questions. But, while the income questions in SHARE are standardized across countries, EU-SILC provides only a common framework for the various national data collections, and as we have seen, questionnaire design varies substantially across countries.

Although the analysis presented here is preliminary, some tentative conclusions can be drawn.

- The main reason that poverty rates for persons aged 65 and more in SHARE are much larger than in EU-SILC in many countries, is that incomes of other household members than the respondent and her or his partner are relatively badly captured in SHARE through a single catch-all question. In EU-SILC this is no problem, as all individuals aged 16 and more are individually interviewed.

- In general, the match in aggregate amounts of public pensions between EU-SILC and administrative data from ESSPROS is quite reasonable. The same is true for the comparison between EU-SILC and SHARE. Pensions seem particularly underestimated in Belgium in EU-SILC and in Poland in SHARE.

- The distributions of property income as they appear from EU-SILC and SHARE are quite similar in the Netherlands and Sweden. This is remarkable, as in those countries registers are the source of the EU-SILC income data, whereas this is not the case for SHARE. Apparently, property income can be measured adequately in surveys, provided the questions are detailed. Very large amounts of property income seem to be often missed, though.

- Otherwise, it is not clear that the more detailed questions on property in SHARE are very superior to the less intensive approach in most EU-SILC questionnaires. SHARE seems to be better at capturing very small and modest amounts, but this is not clearly the case for larger amounts. Arguably, other factors, such as interviewer training, and the use of documents by respondents could be also important here.

REFERENCES

Biancotti, Claudia, Giovanni D'Alessio, en Andrea Neri. 2008. 'Measurement Error in the Bank of Italy's Survey of Household Income and Wealth'. *Review of Income and Wealth* 54(3): 466–493.

Braun, M. and Harkness, J. (2005), 'Text and Context: Challenges to Comparability in Survey Questions', in: Hoffmeyer-Zlotnik, J. and Harkness, J. (2005) (eds.) *Methodological Aspects in Cross-National Research*, Mannheim: Zentrum für Umfragen, Methoden und Analysen (ZUMA) pp. 95-108

Burgoon, B., Cantillon, B., Corneo, G., Graaf-zijl, M., Fahey, T., Horn, D., . . . et al. (2011), *Inequalities' Impacts. State of the Art Review*, GINI State of the Art Review, Amsterdam: AIAS, 194p.

Davidson, R., and Flachaire, E. (2007), 'Asymptotic and Bootstrap Inference for Inequality and Poverty Measures' in *Journal of Econometrics,* 141(1): 141-166.

Decancq, K., Goedemé, T., Van den Bosch, K., and Vanhille, J. (forthcoming), 'The evolution of poverty in the European Union: concepts, measurement and data', in Cantillon, B. and Vandenbroucke, F. (eds.), *The Social Investment State, Poverty and Inequality*, Oxford: Oxford University Press.

Eurostat (2008), *ESSPROS Manual 2008 edition. The European System of integrated Social Protection Statistics. (ESSPROS)*, Luxembourg: Eurostat, 59p

Eurostat (2010a), *2008 Comparative EU Intermediate Quality Report. Version 2 - June 2010*, Luxembourg: Eurostat, 59p.

Eurostat (2010b), *Description of Target Variables: Cross-sectional and Longitudinal 2008 operation (Version January 2010)*, Brussels: European Commission, 391p.

Eurostat (2011), *2009 Comparative EU Intermediate Quality Report, version 3*, Luxembourg: European Commission, 93p.

Expert Group on Household Income Statistics (2001), *Handbook on Household Income Statistics*, Geneva: United Nations.

Expert Group on Household Income Statistics (2011), *Handbook on Household Income Statistics, Second Edition*, Geneva: United Nations.

Foster, J., Greer, J., and Thorbecke, E. (1984), 'A Class of Decomposable Poverty Measures' in *Econometrica,* 52(3): 761-766.

Foster, J., Greer, J., and Thorbecke, E. (2010), 'The Foster–Greer–Thorbecke (FGT) poverty measures: 25 years later' in *Journal of Economic Inequality,* 8(4): 491-524. doi: 10.1007/s10888-010-9136-1.

Goedemé, T. (2010), *The standard error of estimates based on EU-SILC. An exploration through the Europe 2020 poverty indicators*, CSB Working Paper Series, WP 10/09, Antwerp: Herman Deleeck Centre for Social Policy, University of Antwerp, 36p.

Goedemé, T. (2011), 'How much Confidence can we have in EU-SILC? Complex Sample Designs and the Standard Error of the Europe 2020 Poverty Indicators' in *Social Indicators Research*: forthcoming, DOI: 10.1007/s11205-11011-19918-11202. doi: 10.1007/s11205-011-9918-2.

Goedemé, T. (2012), *The EU-SILC sample design variables: critical review and recommendations*, Paper presented at the Workshop on standard error estimation and other related sampling issues in EU-SILC, organized in the context of the EU-funded "Net-SILC2" project, Luxembourg, Eurostat, 29-30 March 2012, 28p.

Hansen, Kirstine, en Dylan Kneale. 'Does How You Measure Income Make a Difference to Measuring Poverty? Evidence from the UK'. *Social Indicators Research*: 1–22.

Harkness, J. Van de Vijver, F. and Johnson, T. (2003), 'Questionnaire Design in Comparative Research', in: Harkness, Van de Vijver and Mohler (2003), pp. 19-34

Harkness J., Van de Vijver, F. and Mohler P. (2003) (eds.) *Cross-Cultural Survey Methods*, Hoboken (N.J.): Wiley-Interscience

Harkness, J. (2005), 'Translation Process', in: Börsch-Supan et al. (2005), pp. 352.

Heeringa, S. G., West, B. T., and Berglund, P. A. (2010), *Applied Survey Data Analysis*, Boca Raton: Chapman & Hall/CRC, 467p.

Iacovou, M., Kaminska, O., and Levy, H. (2012), *Using EU-SILC data for cross-national analysis: strengths, problems and recommendations*, ISER Working Paper No. 2012-03, Essex: ISER, 21p.

Jansen, Wim e.a. 2011. 'The long and short of asking questions about income: a comparison using data from Hungary'. *Quality and Quantity*: 1–13.

Jenkins, S. P., and Van Kerm, P. (2009), 'The Measurement of Economic Inequality', in Salverda, W., Nolan, B. and Smeeding, T. M. (eds.), *The Oxford Handbook of Economic Inequality*, Oxford: Oxford University Press, pp. 40-67.

Lohmann, H. (2011), 'Comparability of EU-SILC survey and register data: The relationship among employment, earnings and poverty' in *Journal of European Social Policy,* 21(1): 37-54. doi: 10.1177/0958928710385734.

Moore, Jeffrey, Linda Stinson, en Edward Welniak. 2000. 'Income Measurement Error in Surveys: A Review'. *Journal of Official Statistics* 16(4): 331–361.

Peeters, H., Debels, A., and Verpoorten, R. (2011), 'Excluding Institutionalized Elderly from Surveys: Consequences for Income and Poverty Statistics' in *Social Indicators Research,* online first: 1-19. doi: 10.1007/s11205-011-9957-8.

Törmälehto, Veli-Matti (2007), 'Measurement of property incomes in EU-SILC", in: Eurostat, *Comparative EU statistics on Income and Living Conditions: Issues and Challenges Proceedings of the EU-SILC conference (Helsinki, 6-8 November 2006)*, Luxembourg: Office for Official Publications of the European Communities, pp. 97-116

Van Kerm, P. (2007), *Extreme Incomes and the Estimation of Poverty and Inequality Indicators from EU-SILC*, IRISS Working Paper Series, Luxembourg: CEPS-Instead, 51p.

Verma, V., and Betti, G. (2010), 'Data Accuracy in EU-SILC', in Atkinson, A. B. and Marlier, E. (eds.), *Income and Living Conditions in Europe*, Luxembourg: Publications Office of the European Union, pp. 57-78.

Wolff, P., Montaigne, F., and Gonzáles, G. R. (2010), 'Investing in Statistics: EU-SILC', in Atkinson, A. B. and Marlier, E. (eds.), *Income and Living Conditions in Europe*, Luxembourg: Publications Office of the European Union, pp. 37-56.