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In the field of income, poverty, social exclusion and living conditions, the EU Statistics on Income and Living Conditions (EU-SILC) is the main source for statistical data at European level.

Over the last years, important progress has been achieved in EU-SILC as a result of the coordinated work of Eurostat and NSIs.

In June 2010, the European Council adopted a social inclusion target as part of the Europe 2020 Strategy: to lift at least 20 million people in the EU from the risk of poverty and exclusion by 2020. To monitor progress towards this target, the 'Employment, Social Policy, Health and Consumer Affairs' (EPSCO) EU Council of Ministers agreed on an 'at risk of poverty or social exclusion' indicator. To reflect the multidimensional nature of poverty and social exclusion, this indicator consists of three sub-indicators: i) at-risk-of-poverty (i.e. low income); ii) severe material deprivation; and iii) living in very low work intensity households.

In this context, the Second Network for the Analysis of EU-SILC (Net-SILC2) is bringing together National Statistical Institutes (NSIs) and academic expertise at international level in order to carry out in-depth methodological work and socio-economic analysis, to develop common production tools for the whole European Statistical System (ESS) as well as to ensure the overall scientific organisation of the third and fourth EU-SILC conferences. The current working paper is one of the outputs of the work of Net-SILC2. It was presented at the third EU-SILC conference (Vienna, December 2012), which was jointly organised by Eurostat and Net-SILC2 and hosted by Statistics Austria.

It should be stressed that this methodological paper does not in any way represent the views of Eurostat, the European Commission or the European Union. This is independent research which the authors have contributed in a strictly personal capacity and not as representatives of any Government or official body. Thus they have been free to express their own views and to take full responsibility both for the judgments made about past and current policy and for the recommendations for future policy.

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Eurostat databases are also available at this address, as are tables with the most frequently used and requested short- and long-term indicators.

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Standard error estimation for the EU-SILC indicators of poverty and social exclusion

Guillaume OSIER, Yves BERGER and Tim GOEDEMÉ(1)

Abstract:

Since EU-SILC was launched, much attention has been paid to sampling errors. However, the computation of standard errors for estimates based on EU-SILC is confronted with several challenges. In this article, we propose a simple approach for standard error estimation based upon basic statistical techniques. The proposed estimator is simple and flexible, yet theoretically justified. It can accommodate nearly all the sampling designs and the target indicators used in EU-SILC, no matter their complexity. The proposed approach can be easily implemented with standard statistical software (SAS, SPSS, Stata, R…) and requires minimal computing power.

We illustrate the proposed approach by showing preliminary standard error estimates for key EU-SILC indicators of poverty and social exclusion: the new "Europe-2020" indicator of poverty or social exclusion (AROPE indicator) and the persistent at-risk-of-poverty rate, which is the core EU-SILC longitudinal indicator. The change in the AROPE between two years is also considered. It is necessary to estimate the standard error of changes to judge whether the observed differences are statistically significant.

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1. Introduction

Over the last years, EU-SILC has developed into a mature project covering all the EU-27 countries as well as Switzerland, Norway, Iceland, Croatia and Turkey. It is now the main data source for comparative analysis and indicators on income and living conditions in the EU. Since the launch of the "Europe 2020" Strategy for smart, sustainable and inclusive growth, the importance of EU-SILC has grown even further. One of the five "Europe 2020" headline targets is based on EU-SILC: the social inclusion EU target, which consists of lifting at least 20 million people in the EU from the risk of poverty or social exclusion by 2020.

Since EU-SILC was launched in 2003, much attention has been paid to sampling errors, mainly because the EU-SILC data are collected through sample surveys in each participating country. As the indicators based on EU-SILC are sample estimates, they should be reported along with standard errors estimates and confidence intervals, particularly if they are used for policy purposes. In addition, the Commission Regulation (EC) n°28/2004 of 5th January 2004 regarding the detailed content of intermediate and final EU-SILC Quality Reports requires that standard error estimates be provided by countries along with the EU-SILC main target indicators.

There exist many approaches for estimating standard errors and confidence intervals (e.g. Wolter (2007); Heeringa et al. (2010)). Estimation methods are usually split into 'direct' methods, which rely on analytic variance formulas, and 'resampling' methods, like Jackknife or Boostrap, which consist of drawing a high number of 'replications' from the original sample so to mimic the actual sampling process and then approximate the sampling distribution of the target statistic. Whichever approach is used, it is highly desirable that standard error estimates reflect as much as possible the sampling process and the estimation procedure. This means the sample design, the weighting procedure, the imputation schemes and the non-linear form of survey estimators should be reflected in the calculation of standard errors and confidence intervals (Eurostat, 2002; Heeringa et al., 2010; Goedemé, 2013a).

In this paper, we propose a simple approach for standard error estimation based upon basic statistical techniques (multivariate linear regression). Because of its simplicity, the proposed approach can be easily used with standard statistical software. Because of its flexibility, the proposed approach can handle the different types of designs used in EU-SILC. The structure of the paper is as follows. In Section 2, we explain the main challenges of variance estimation in the context of EU-SILC and show how these challenges can be dealt with using basic statistical techniques. In Section 3, we present some preliminary results on the basis of these techniques for cross-sectional indicators of poverty and social exclusion, longitudinal indicators, and estimates of change over time. Subsequently, in Section 4, we propose one common way of estimating design effects in the context of EU-SILC. Finally, in Section 5 we discuss how sample design information and the sample design variables in the EU-SILC database could be improved in order to achieve more accurate variance estimates. We conclude in Section 6.

2. Variance estimation approach

The computation of standard errors for EU-SILC estimates is confronted with several challenges:

- complex sample designs involving stratification, geographical clustering, unequal probabilities of selection for the sample units and post-survey weighting adjustments (re-weighting for unit non-response and calibration to external data sources)
- rotating samples
- problems with quality, documentation and availability of sample design variables
- complex non-linear indicators, longitudinal indicators and indicators of net changes
- different methods of imputation used across countries
- confidentiality issues
- limited resources in terms of budget, staff and time both at national and EU level

Over the past few years, several projects, working groups, task forces and individual authors have addressed one or more of these challenges. However, the knowledge remains rather scattered and is not very accessible for National Statistical Institutes (NSIs) and the wider research community, especially for the non-statistician researchers.

Standard error estimates should reflect as much as possible the sample design, weighting procedures, imputation and the characteristics of the indicators of interest. Otherwise they may be severely biased. On the other hand, the increased complexity of EU-SILC, the widening of the user community and the increased reliance on EU-SILC for policy targeting and evaluation have enhanced the need for comparable, accurate as well as workable solutions for the estimation of standard errors and confidence intervals for EU-SILC based indicators. Therefore, we need an approach making a trade-off between statistical accuracy and operational efficiency. The proposed approach is general enough to be valid under most of the EU-SILC sampling designs, which is actually a challenge considering the important differences in sampling design between countries. The approach is also simple and easy to implement using standard statistical software, such as SAS, SPSS or R, and should require minimal computing power.

Re-sampling methods like Bootstrap or Jackknife are flexible enough to be applicable to the sampling designs and the target indicators used in EU-SILC, no matter their complexity (Verma and Betti, 2011). On the other hand, the computational effort may be considerable, which is not desirable when standard error estimates need to be produced quickly for a large number of target indicators, including breakdowns. That is why we have proposed to use direct variance estimators (Berger, 2004). The main assumption underlying such estimators is that sample units have been selected with replacement, which considerably simplifies the estimation of the variance. If sample units are selected without replacement, then this approach will lead to conservative estimates. The overestimation is negligible as long as the sampling fraction is close to zero. Note that this is nearly always the case with the EU-SILC sampling designs. Furthermore, those direct estimators can be easily extended to cover multi-stage designs by using the well-known 'ultimate cluster' approximation (e.g. Särndal et al., 1992) and to deal with complex non-linear indicators on the basis of the linearisation procedure (e.g. Deville (1999); Wolter (2007); Osier (2009)). In what follows, we further explain this approach to variance estimation in some detail. We first discuss the case of linear indicators before elaborating on the case of non-linear indicators. Subsequently we explain how multivariate linear regression offers an easy tool for estimating the variance both of linear and non-linear indicators. Finally, we elaborate on calibration, imputation and measures of net changes over time.

2.1 Case of linear indicators

Linear indicators are means, totals or proportions. The estimation of the variance of linear indicators is rather straightforward, and is covered in most textbooks on Statistics (e.g., Särndal et al (1992)). Consider a population U composed of N identifiable units (households or individuals). Let s denote a sample of size n drawn from U using a probabilistic design so that every unit k is having its own, known inclusion probability π_k. For example, in case of simple random sampling without replacement, the inclusion probability is $\pi_k = n / N$ for each k.

Suppose we wish to estimate the total $\theta = \sum_{k \in U} y_k$, where y_k is the value of a study variable y for k. y can be a continuous variable (e.g., household income), or a dummy variable for a population category (e.g., 1 if the person is unemployed, 0 otherwise). If y is a dummy, then θ is a count (e.g., the total number of unemployed in the population). Let $\hat{\theta} = \sum_h \sum_i \sum_j \omega_{hij} y_{hij}$ be an estimator of θ, for which an estimate of the standard error is required. We propose the following variance estimator:

$$\hat{V}(\hat{\theta}) = \sum_{h=1}^{H} \frac{n_h}{n_h - 1} \sum (y_{hi\bullet} - \bar{y}_{h\bullet\bullet})^2, \quad (1)$$

where $y_{hi\bullet} = \sum_{j=1}^{m_{hi}} \omega_{hij} \bullet y_{hij}$ and $\bar{y}_{h\bullet\bullet} = \left(\sum_{i=1}^{n_h} y_{hi\bullet} \right) \Big/ n_h$

- h is the stratum label, with a total of H strata. If no stratification, the whole target population U can be regarded as one large stratum ($H = 1$)
- i is the label of the primary sampling unit (PSU) within stratum h, with a total of n_h PSUs
- j is the household label within PSU i of stratum h, with a total of m_{hi} households. In case of a one-stage sampling design, each household is regarded as a PSU
- ω_{hij} is the sampling weight for household j in PSU i of stratum h. The weights ω_{hij} are used to make inference about the population. They are usually adjusted for unit non-response and calibration
- y_{hij} is the value of the study variable y for household j in PSU i of stratum h

If $n_h = 1$ for some strata, the estimator (1) cannot be used. A solution is to collapse strata to create "pseudo-strata" so that each pseudo-stratum has at least two PSUs. Common practice is to collapse a stratum with another one that is similar with regard to the target variables of the survey (Rust and Kalton (1987); Ardilly and Osier (2007)).

2.2 Case of non-linear indicators

The estimator (1) is valid for linear indicators, i.e. means, totals and proportions. However, most of the EU-SILC indicators are non-linear (e.g., the at-risk-of-poverty threshold, the at-risk-of-poverty rate, the income quintile share ratio or the Gini coefficient). In order to estimate the variance of non-linear indicators, the linearisation approach may be used (Kovacevic and Binder 1997, Deville 1999, Demnati and Rao 2004, Wolter 2007, Osier 2009). The principle is to approximate a non-linear indicator by a linear form by retaining only the first-order term of a Taylor expansion. The variance of the linear approximation can be used as an approximation of the variance of the non-linear indicator considered. The linearisation procedure is justified on the basis of asymptotic properties of large samples and populations (Verma and Betti, 2005).

Suppose θ is a complex non-linear indicator. The variance of an estimator $\hat{\theta}$ of θ is estimated by:

$$\hat{V}(\hat{\theta}) = \sum_{h=1}^{H} \frac{n_h}{n_h - 1} \sum (z_{hi\bullet} - \bar{z}_{h\bullet\bullet})^2 \quad . \qquad (2)$$

This is exactly the same formula as (1), except that the study variable y is replaced by the "linearised" variable z. For example, if $\theta = \left(\sum_{k\in U} y_k\right)\left(\sum_{k\in U} x_k\right)^{-1} = Y\,X^{-1}$ is the ratio of two population totals, then the "linearised" variable is: $z_k = X^{-1}\left(y_k - \theta \cdot x_k\right)$ for all k. More examples can be found in Osier (2009).

2.3 Interpretation in terms of regression residuals

The differences $(y_{hi\bullet} - \bar{y}_{h\bullet\bullet})$ in (1) and $(z_{hi\bullet} - \bar{z}_{h\bullet\bullet})$ in (2) can be seen as the residuals of the linear regression of the PSU aggregates $y_{hi\bullet}$ and $z_{hi\bullet}$ on the dummy variables for each stratum category (Berger, 2004). These dummy variables are equal to 1 if the i-th PSU belongs to the stratum h, 0 otherwise. This provides a quick and easy way to compute the variance of both cross-sectional and longitudinal measures using basic statistical techniques (multivariate linear regression).

2.4 Calibration and imputation

The approach proposed here reflects survey design features such as stratification, multi-stage selection, unequal probabilities of inclusion for the sample units and post-survey weighting adjustments for unit non-response. On the other hand, a specific approach is needed to measure how calibration weighting (Deville and Särndal 1992) affects the variance. The effect of calibration on variance is expected to be significant in the "Nordic" countries like Denmark or Finland in which powerful auxiliary information from income registers is used for calibration. As shown by Deville and Särndal (1992), the effect of re-weighting for calibration on variance estimation can be allowed for by replacing the study variable by the residuals of the regression on the calibration variables, and by calculating the variance assuming no calibration. Such an approach is easy to implement as long as the calibration variables are available as well as the initial weights before calibration or, equivalently, the calibration adjustment factors (also called *g-weights*). Up to now, the EU-SILC database does not contain this information.

A major shortcoming of the proposed approach is that it does not take the imputation variance into account. Actually, the EU-SILC income variables have been heavily imputed, with different imputation methods used across countries, as well as across different income components. For the sake of simplicity, imputed values have been treated as true values. Such an assumption may lead to severely under-estimating the variance, particularly when the proportion of imputed values is important (Rao and Shao, 1992). However, variance estimation under imputation is not an easy task. Direct estimation formulas are very complex (Deville and Särndal, 1994) and method-specific. Thus, though significant, it does not seem realistic to try to estimate the imputation variance on a streamline basis, even more so that the imputation methods used in the EU-SILC vary greatly from one country to another. Nevertheless, the imputation variance might be estimated occasionally using for instance the SAS software SEVANI developed by Statistics Canada (Beaumont and Bissonnette, 2011). For hot-deck imputation, Berger and Escobar (2012) proposed an approach to estimate the variance of change in the presence of imputed values.

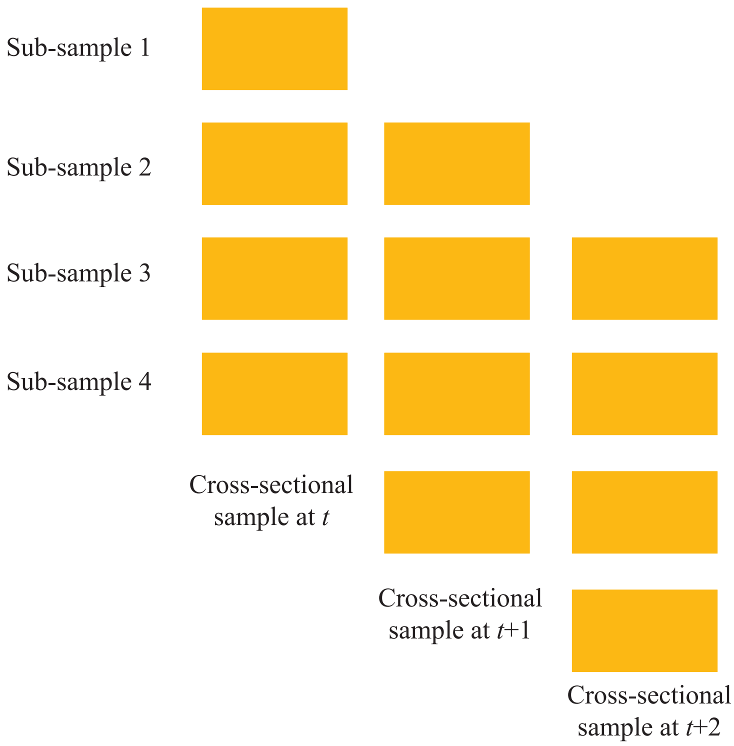
2.5 Extension to estimators of net changes between two waves

Monitoring changes or trends in indicators over time is of key importance in many areas of economic and social sciences. For example, since the launch of the "Europe 2020" Strategy for smart, sustainable and inclusive growth, EU-SILC has been increasingly used for policy targeting, as one of the five Europe 2020 headline targets is based on EU-SILC data. For example, the social inclusion EU target consists of lifting at least 20 million people in the EU from the risk of poverty and exclusion by 2020.

Interpreting differences between cross-sectional estimates calculated from different waves may be misleading however. It is therefore necessary to estimate the standard error for these differences in order to judge whether or not the observed differences are statistically significant. As the EU-SILC survey is time-dependent, temporal correlations between indicators have to be taken into account.

In order to meet both the cross-sectional and longitudinal requirements, Eurostat has recommended a rotational design based on four rotation groups. At the first wave of EU-SILC, four sub-samples of individuals are drawn. Each subsequent wave, one sub-sample (25% of the whole sample) is dropped out and a new one is substituted for. Nearly all the EU-SILC countries have adopted this rotating structure.

Figure 1: The EU-SILC four-year rotating structure



Let $\theta^{(l)} = \sum_{k \in U} y_{l;k}$ denote the total of a study variable y measured at wave l. Let $\hat{\theta}^{(l)}$ be an estimator of $\theta^{(l)}$ based on the cross-sectional sample at wave l. Suppose we wish to estimate the absolute difference $\Delta = \theta^{(2)} - \theta^{(1)}$ where $\theta^{(1)}$ and $\theta^{(2)}$ are calculated from wave 1 and 2, respectively. The difference Δ is estimated by $\hat{\Delta} = \hat{\theta}^{(2)} - \hat{\theta}^{(1)}$. Furthermore, the variance of $\hat{\Delta}$ is given by

$$\begin{aligned} V\left(\hat{\Delta}\right) &= V\left(\hat{\theta}^{(1)}\right) + V\left(\hat{\theta}^{(2)}\right) - 2 \times Cov\left(\hat{\theta}^{(1)}, \hat{\theta}^{(2)}\right) \\ &= V\left(\hat{\theta}^{(1)}\right) + V\left(\hat{\theta}^{(2)}\right) - 2 \times \sqrt{V\left(\hat{\theta}^{(1)}\right)} \sqrt{V\left(\hat{\theta}^{(2)}\right)} \rho\left(\hat{\theta}^{(1)}, \hat{\theta}^{(2)}\right) \end{aligned} , \quad (3)$$

where $\rho\left(\hat{\theta}^{(1)}, \hat{\theta}^{(2)}\right)$ is the correlation coefficient between $\hat{\theta}^{(1)}$ and $\hat{\theta}^{(2)}$. As these estimators are calculated from rotating samples, $\rho\left(\hat{\theta}^{(1)}, \hat{\theta}^{(2)}\right)$ is generally strictly positive. As a result, if confidence intervals of the estimate in wave 1 would be simply compared with the estimate in wave 2, one is overly conservative. However, $\rho\left(\hat{\theta}^{(1)}, \hat{\theta}^{(2)}\right)$ is also the most difficult part to estimate(2).

The regression-based approach introduced in the previous sections can be easily extended to cope with estimators of changes between two waves (Berger and Priam (2010, 2013); Berger and Oguz Alper (2013)). Berger and Priam (2013) proposed to use the residual variance matrix of a multivariate model. This residual variance matrix is used to produce estimates of correlation which are used in the variance of the net change between indicators. The multivariate model includes covariates which specify the stratification and interactions which specify the rotation of the sampling designs.

Now, we describe briefly the approach proposed by Berger & Priam (2010, 2013) in the case when $\hat{\theta}^{(1)}$ and $\hat{\theta}^{(2)}$ are two estimator of totals; that is, when $\hat{\theta}^{(l)} = \sum_i \check{y}_{l;i}$, where

$$\check{y}_{l;i} = \begin{cases} \sum_{j=1}^{m_{hi}} \omega_{hij} \, y_{l;hij} & \text{if } i \in s_{lh} \\ 0 \; otherwise \end{cases} , \quad (4)$$

where s_{lh} is the wave l sample of PSUs of stratum h. The stratum h is such that the i-th PSU belongs to the stratum h. Berger and Priam (2013) proposed to use the residual covariance of the following multivariate (or general) linear regression model

$$\begin{pmatrix} \check{y}_{1;i} \\ \check{y}_{2;i} \end{pmatrix} = \sum_{h=1}^{H} \begin{pmatrix} \beta_{1h}^{(1)} \bullet z_{1h;i} + \beta_{2h}^{(1)} \bullet z_{2h;i} + \beta_{12h}^{(1)} \bullet z_{1h;i} \bullet z_{2h;i} \\ \beta_{1h}^{(2)} \bullet z_{1h;i} + \beta_{2h}^{(2)} \bullet z_{2h;i} + \beta_{12h}^{(2)} \bullet z_{1h;i} \bullet z_{2h;i} \end{pmatrix} + \varepsilon_i , \quad (5)$$

where $i \in s = s_1 \cup s_2 = \left(\cup_h s_{1h}\right) \cup \left(\cup_h s_{2h}\right)$. The covariates $z_{1h;i}$ and $z_{2h;i}$ are a set of (dummy) design variables which specifies the stratification. These variables are defined by

$$z_{1h;i} = \begin{cases} 1 \quad \text{if } i \in s_{lh} \\ 0 \; otherwise \end{cases} . \quad (6)$$

(2) Please note that for most countries the correlation is zero if two estimates are compared with more than 4 years difference (the two samples do not contain the same respondents in this case and can be considered independent). However, in some countries (e.g. Belgium) the primary sampling units have been selected for the entire duration of EU-SILC and rotation is implemented only at the within PSU level. As a consequence, also when all households are rotated out, there still remains some correlation that has to be estimated.

The parameters $\beta^{(1)}_{1h}, \beta^{(1)}_{2h}, \beta^{(1)}_{12h}, \beta^{(2)}_{1h}, \beta^{(2)}_{2h}$ and $\beta^{(2)}_{12h}$ are regression parameters that need to be included into the model.

Let $\hat{V}$ be the ordinary least squares estimate of the covariance matrix of the model (5). The correlation can be estimated by

$$\rho\,(\hat{\theta}^{(1)},\ \hat{\theta}^{(2)}) = \hat{V}_{12}\,(\hat{V}_{11}\hat{V}_{22})^{-1/2} \quad , \tag{7}$$

Where $\hat{V}_{kl}$ is the component (k,l) of the ordinary least squares residual matrix $\hat{V}$ of the model (5).

Suppose that $\hat{\theta}^{(1)}$ and $\hat{\theta}^{(2)}$ are two functions of totals. For example, this is the case for the EU-SILC indicators. In this case, $\hat{\Delta}$ is a also a function of totals; that is, $\hat{\Delta} = f(\hat{\tau})$ where $\hat{\tau} = (\hat{\tau}_1, \hat{\tau}_2 \cdots, \hat{\tau}_p, \cdots \hat{\tau}_P)'$ and P is the number of totals. The quantity $\hat{\tau}_p$ is the the estimator of the p-th (PSU level) variable $\check{y}_{pl:i}$; where $p = 1,\ldots Q, Q+1,\ldots P$, $l = 1$ if $p \le Q$ and $l = 2$ if $p > Q$. The constant Q is the number of totals calculated from the first wave.

Using the delta method (Taylor linearisation), we have that an approximation of $\hat{\Delta}$ in the neighbourhood of τ is given by $\hat{\Delta} - \Delta \cong \nabla(\tau)'(\hat{\tau} - \tau)$; where $\nabla(\tau)$ is the gradient of $f(\tau)$ at τ. Therefore, the linearisation estimator for the variance is

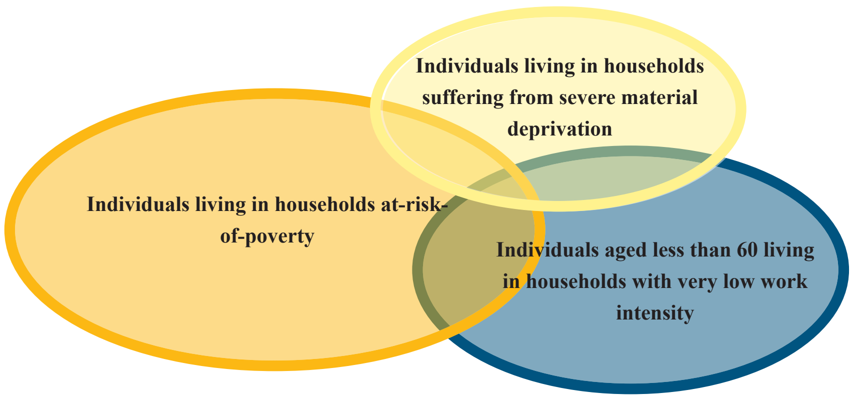
$$\hat{\mathrm{var}}(\hat{\Delta}) = \nabla(\hat{\tau})'\ \hat{\mathrm{var}}(\hat{\tau})\nabla(\hat{\tau})'. \tag{8}$$

Berger and Priam (2013) showed how a multivariate model similar to (5) and including more dependent variables can be used to estimate the covariance matrix $\hat{\mathrm{var}}(\hat{\tau})$. In Section 3.3, we used this generalised approach for the estimation of change between the EU-SILC indicators.

3. Preliminary results

In this section, we use the proposed variance estimation approach to produce standard error estimates for cross-sectional measures, longitudinal measures and measures of change based on EU-SILC. The reference cross-sectional measure is the AROPE (*At-risk-of-poverty or social exclusion*) indicator, which is the "Europe 2020" headline indicator on poverty and social exclusion. It counts the number of individuals living in households which are at-risk-of-poverty, severely materially deprived or with very low work intensity; the individuals present in several sub-indicators being counted only once. In what follows we first present standard errors of the cross-sectional AROPE estimates. Subsequently we discuss preliminary variance estimates of the persistent at-risk-of-poverty rate, which is the core EU-SILC longitudinal indicator. The persistent risk of poverty is defined as '*having an equivalised disposable income below the at-risk-of-poverty threshold in the current year and in at least two of the preceding three years*'. In the last subsection, the change in the AROPE between two years is considered.

Figure 2: The 'Europe 2020' headline indicator on poverty or social exclusion (at-risk-of-poverty or social exclusion - AROPE)



The calculations rely on the anonymised EU-SILC micro-data files that are provided by Eurostat for statistical/research purposes only. Since the research files do not include any stratum label or any calibration information, we had to use NUTS2 region as a proxy for the stratum label and ignore the impact of calibration on variance. These assumptions will incur higher variance estimates, as it is well-known that stratification usually reduces variance, and so does calibration.

All the results shown in this section are still preliminary. Given the lack of sampling design information in the EU-SILC user data files and potential quality problems with the current sample design variables, the variance figures should be read with caution. Eurostat, in collaboration with Net-SILC2, is currently working to improve this situation.

3.1 Cross-sectional measures

In the Annex 1 (tables 1a-1d), we have standard error estimates for the at-risk-of-poverty rate (POV), the severe material deprivation rate (DEP), the share of individuals aged less than 60 living in households with very low work intensity (LWI) and the AROPE. We also calculate confidence intervals and relative margins of error([3]) based upon the normality assumption. In 2011, the standard error estimates for the AROPE lies between 0.5 and 1 percentage point in most of the countries, which means that the length of a confidence interval (at 95% confidence) for the indicator lies between ±1 and ±2 percentage points. The standard error is greater than 1 point in Bulgaria, Lithuania and Romania; while it is lower than 0.5 point in Germany, Finland, Sweden and Slovenia. For Finland and Sweden, it seems that the impact of weight calibration on variance has been taken into account somehow. Standard error estimates for the male/female populations appear to be higher than for the total population. The reason is that the number of sample units which fall into each subpopulation is lower than the number of sample units in the total population.

As far as the AROPE's three sub-indicators are concerned (POV, DEP, LWI), the standard error estimates appear lower than those calculated for the AROPE. These results make sense because, by definition, the AROPE indicator reaches higher values than its three components. For example, the estimated standard error for the severe material deprivation rate is relatively low for some countries (0.2 percentage point for Luxembourg).

3.2 Longitudinal measures

In the Annex 1 (tables 2a-2c), we have standard error estimates for the persistent risk of poverty. For the four-year period 2007-2010, the relative margin of error of the persistent at-risk-of-poverty rate ranges from 13% in France and 15% in Spain to 54% in Hungary and 63% in Iceland. The precision of the persistent at-risk-of-poverty rate appears to be lower than the precision of the AROPE. There are several possible reasons for this. For the longitudinal component of EU-SILC, the achieved sample size is lower than for the cross-sectional component: the longitudinal sample sizes range from about 1000 individuals in Iceland to more than 12000 in France. This is caused mainly by the rotating design used in most of the countries (25% of the sample is refreshed every year with new individuals), but also by losses to follow-up and attrition. Another explanation is that the persistent at-risk-of-poverty rate generally takes lower value than the cross-sectional at-risk-of poverty rate (POV) or the AROPE indicator. Finally, the higher dispersion of the longitudinal sampling weights, which are adjusted at each wave for attrition and calibration to external data sources, is likely to reduce the precision of the persistent risk of poverty.

3.3 Measures of change

In the Annex 1 (tables 3a-3d), we have the standard error estimates and confidence intervals (based on normality assumption) for changes in the AROPE between 2007 and 2011, 2008 and 2011, 2009 and 2011 and between 2010 and 2011. The computations were made within Eurostat premises using the EU-SILC Production Data Base([4]). If a confidence interval does not include 0, we can say the difference is statistically significant (at a given level of confidence).

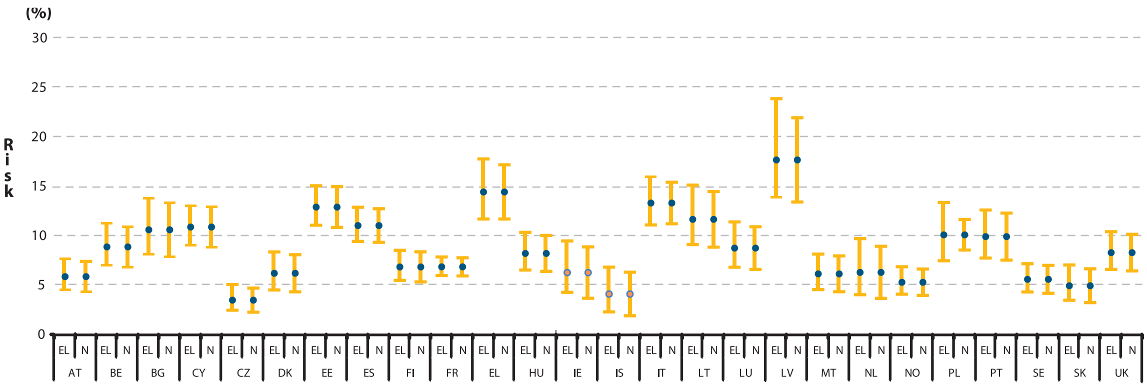
Remark: Standard confidence intervals based upon the normality assumption can perform poorly when the sampling distribution is skewed (e.g., domain estimation). For example, the lower bounds of a confidence interval can be negative even when the parameter of interest is positive. The coverage and the tail errors

(3) By definition, the relative margin of error is the half-length of the confidence interval ('absolute' margin of error) expressed as a percentage of the indicator value. Like confidence intervals, the relative margin of error can be defined for any desired confidence level, but usually a level of 90 %, 95 %, 99 % or 99.9 % is chosen (typically 95 %).

(4) We would like to thank Emilio Di Meglio and Emanuela Di Falco (Eurostat – Unit F4 "Quality of Life") for running our programs on the EU-SILC Production database, which contributed significantly to this paper. However, the results published in this paper are still provisional.

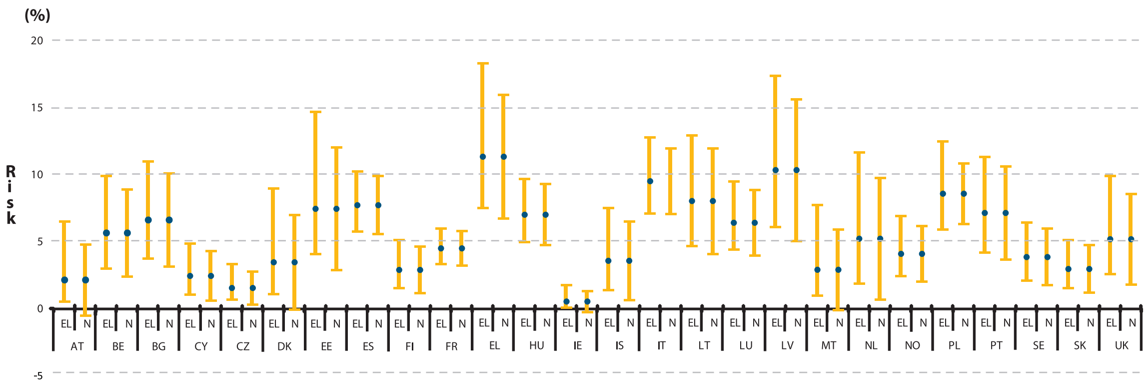
can be also lower than their intended levels. On the other hand, empirical likelihood confidence intervals (Berger and De La Riva Torres, 2012) may be better in this situation, as empirical likelihood confidence intervals are determined by the distribution of the data and the range of the parameter space is preserved.

Figure 3: Confidence Intervals for the persistent at-risk-of-poverty rate based upon the normality assumption (N) and the empirical likelihood approach (EL)



Source: authors' calculations based on the anonymised EU-SILC micro-data files provided by Eurostat for statistical/research purposes only (Version 01-03-12)

Figure 4: Confidence Intervals for the persistent at-risk-of-poverty rate based upon the normality assumption (N) and the empirical likelihood approach (EL), males born between 1965 and 1984



Source: authors' calculations based on the anonymised EU-SILC micro-data files provided by Eurostat for statistical/research purposes only (Version 01-03-12)

4. Design effect estimation

The EU-SILC Framework Regulation has formulated precision requirements in terms of minimum effective sample sizes to be achieved by the participating countries([5]). The effective sample size is calculated as the achieved sample size divided by the design effect. Therefore, it is important to apply a common definition of the design effect across EU-SILC countries.

By definition, the design effect factor *Deff* of an estimator $\hat{\theta}$ of θ is the ratio of the variance of $\hat{\theta}$ under the actual sampling design (*P*) to the variance that would be obtained from a hypothetical simple random sample (*SRS*) of the same size, without replacement:

$$Deff = \frac{V_P\left(\hat{\theta}\right)}{V_{SRS}\left(\hat{\theta}_{SRS}\right)} \quad , \tag{9}$$

where $\hat{\theta}_{SRS}$ is the estimator of θ under simple random sampling without replacement.

Calculating the design effect is important in EU-SILC:

1. The complex structure of the EU-SILC samples suggests not to use the naive variance formula running under the assumption that sample observations are independently and identically (*iid*) distributed random variables, but rather to go beyond this elemental variability by taking into account complex design features such as stratification, clustering, unequal selection probabilities, re-weighting for unit non-response and calibration to external data sources. If we do not take account of these features, the standard errors will be under-estimated, thus resulting in over-optimistic interpretations of differences calculated between two estimators (see above)..
2. The design effects are needed to determine the effective sample sizes for each country. Given that the effective sample size is defined as the achieved sample size divided by the design effect, it can be interpreted as an indicator of the loss of precision due to the use of a complex design, as compared to using simple random sampling: the stronger the design effect, the smaller the effective sample size. The EU-SILC Framework Regulation has set out minimum effective sample sizes to be achieved by the countries. Thus, correct estimation of the design effect is a very important business in the planning stage of EU-SILC, which must be taken with utmost seriousness. Over-estimating the design effect leads to selecting more units than necessary and, as a result, will incur increased survey costs. On the other hand, under-estimating it results in a lower effective sample size, which can make the survey non-compliant with the minimum requirements (cf. Osier, 2012).

Design-based estimation of the *Deff* consists of individually estimating each variance term and then making the ratio between the two estimators. The numerator of *Deff*, that is, the variance under the actual sampling design, can be estimated using the proposed variance estimation approach. As regards the variance that would be obtained under simple random sampling without replacement and of the same size, we propose to use the following estimator (Ardilly and Tillé (2005); Ardilly and Osier (2007)):

$$\hat{V}_{SRS}\left(\hat{\theta}_{SRS}\right) = N^2(1-f)\frac{s_\omega^2}{n} = N^2\frac{1-f}{n}\cdot\frac{\sum_{i\in s}\omega_i\left(y_i-\bar{y}_s\right)^2}{\left(\sum_{i\in s}\omega_i\right)-1} \quad , \tag{10}$$

where

[5] EP and Council Regulation N°1177/2003 of 16 June 2003. In the Framework Regulation, the design effect refers to the at-risk-of-poverty rate.

- $\omega_i = \omega_i(s)$ is the sampling weight for household i in the sample s

- $s_\omega^2 = \frac{\sum_{i \in s} \omega_i (y_i - \bar{y}_\omega)^2}{\left(\sum_{i \in s} \omega_i\right) - 1}$ is the weighted dispersion of the study variable y (6) in the sample

- $\bar{y}_\omega = \frac{\sum_{i \in s} \omega_i y_i}{\sum_{i \in s} \omega_i}$ is the weighted sample mean of y

- $f = n / N$ is the sampling fraction

The estimator (10) provides a nearly unbiased variance estimator under simple random sampling. On the other hand, (10) may not be stable, especially if the distribution of the sampling weights is skewed. An alternative is to use a non-weighted formula.

(6) If θ is non-linear, y is the "linearized" variable

5. The importance of quality design variables

As the sample design often has a strong effect on the sampling variance, it cannot be ignored when estimating the sampling variance. As a result, accurate variables for identifying strata and sampling clusters in the dataset are necessary for estimating standard errors, confidence intervals, design effects and effective sample sizes. As documented by Goedemé (2010, 2013a, 2013b), currently, for many countries, sample design variables are (partially) lacking, inaccurate and/or not very well documented – even though the situation has improved somewhat with the latest releases of EU-SILC.

If we assume that the ultimate cluster method can be applied in the case of EU-SILC, only variables for identifying the first stage of the sample design are needed. Three different steps in the recording of sample design variables can be identified: (1) the construction of the 'original' sample design variables, (2) the construction of 'computational' sample design variables and (3) the construction of 'public' sample design variables. It is important to stress that if a mistake is made in an earlier step, this mistake will be carried on to the other steps. Here we summarize the main recommendations as formulated in Goedemé (2013b). We limit the discussion to the identification of strata and sampling clusters. As stressed above, also other sample design variables may be important, such as variables referring to the sampling fraction and calibration. In terms of EU-SILC variables, we limit the discussion to variables DB050 (primary strata), DB060 (PSUs), DB062 (Secondary Sampling Units, SSUs) and DB070 (order of selection at the first stage of the sample design) in the EU-SILC data files.

As far as the 'original' sample design variables are concerned:

1. It is highly recommended that the sample design variables are accurate, also for earlier waves of EU-SILC. There are still countries for which no information, or only partial information on the sample design is available in the data files available to Eurostat and/or the EU-SILC UDB. This is especially the case for earlier waves of EU-SILC.
2. All sample design variables should reflect the situation at the time of selection. In other words, when households move from one region to another, DB060 should remain the same. In addition, for these households DB040 (region at moment of interview) cannot be used as a stratification variable. With DB050 it should be possible to identify *all* strata at the first stage of the sample design.
3. Each selected PSU should receive a unique identifier, also in the case of multiple hits (a separate code for every 'hit'). In addition, sample design variable codes (DB050, DB060, DB062 and DB070, as well as household identifiers if households are the PSUs) should remain consistent across (rotational) panels and waves, for the entire duration of EU-SILC. Otherwise, it is impossible to estimate the variance of changes from one EU-SILC wave to another (cf. Section 2.5).
4. Self-representing PSUs should be clearly identifiable and in the case of these PSUs information on the second stage of the sample design (stratification, clustering, order of selection) should be included in the dataset. Special care is needed in the case of unequal probability systematic samples.
5. Strata which contain only one PSU should be clearly identifiable, and an indication of similar strata on the basis of information on the sampling frame should be included in the flag variable. In addition, national quality reports should contain detailed information on the nature of strata which contain only one PSU.

There are three other recommendations, which are of a somewhat different nature, but are equally important to take into account:

6. It is necessary that the coding of sample design variables is clearly documented in the national quality reports, in relation to a description of the implemented sample design.
7. Further research is necessary with regard to the necessity of taking account of the order of selection in the case of systematic samples with unequal probabilities of selection.
8. Sample designs should be as simple as possible and changes in the sample design over time should

be avoided. If (changes in) sample designs are so complex that the variance of point estimates cannot be accurately estimated, the usefulness of the sample is strongly reduced.

In many cases, original sample design variables cannot be directly used for the estimation of the sampling variance. Special care is needed in the case of strata which contain only one PSU and in the case of systematic samples. On the basis of the original sample design variables, 'computational strata and PSU variables' should be constructed. For doing so, primary strata should be carefully grouped in the case of non-self-representing single PSUs and systematic samples and secondary strata and secondary sampling units should be integrated in the Primary Stratum and PSU variables in the case of self-representing PSUs.

It is strongly recommended that NSIs and Eurostat agree on a concrete list of specifications about how the sample design variables should be recorded in the EU-SILC data files and about how sample design variables should be described in the national quality reports. There should be a clear link between the sampling variables in the dataset and the description of the EU-SILC sample design in the national quality report. Special attention should be paid to who is responsible for constructing the 'computational strata and PSU variables', which should be kept distinct from the task of accurately recording the 'original' sample design variables. We formulate a concrete proposal in Annex 2.

Apart from the problems related to the sample design variables available to Eurostat (i.e. the 'original' sample design variables), there are currently three problems which the EU-SILC UDB users have to face. First, the stratification variable is missing (i.e. DB050). Consequently, standard errors are likely to be over-estimated. Second, the lack of DB050 in the UDB is an issue for some countries. That is, in some cases DB070 (the order of selection) and DB060 (PSUs) are not uniquely defined across strata. This is especially the case for DB060. This leads to problems, as PSUs with a similar code are collapsed across strata. This problem is worsened by the fact that UDB users have no idea about the direction and degree of bias in the variance estimates obtained by using the available information in the UDB. Third, UDB users are not able to merge various waves of EU-SILC. Therefore, they cannot accurately estimate changes over time using the EU-SILC UDB.

Given the importance of sample design effects on estimated standard errors and the additional burden on Eurostat and/or NSIs to make alternatives available, any deviation from providing the original or computational strata and PSUs in the EU-SILC UDB should be based on a scientific analysis of the real disclosure risk which would be associated with the provision of the complete original computational strata and PSU variables in the UDB.

Alternative strategies consist in collapsing strata and PSUs or in constructing replicate weights as public sample design variables. Each of these two approaches has its strengths and weaknesses. In any case, they presuppose sufficient time and resources available to Eurostat and NSIs as the implementation of these approaches requires sufficient knowledge, care and time to test and check the accuracy of the newly created variables. In any case, it is crucial that the quality of the current sample design variables available to both Eurostat and the EU-SILC user community is improved such that the variance of EU-SILC estimates can be estimated with a sufficient degree of accuracy.

6. Conclusion and way forward

The proposed variance estimator is simple and flexible, yet theoretically sound. It can accommodate a wide class of sampling designs and estimators using standard statistical techniques. The approach does not rely on any specialised computer package and can be implemented with standard statistical software such as SAS, SPSS, Stata or R. It can also be extended to complex estimators through linearisation. However, as the latter procedure is justified on the basis of asymptotic properties, variance estimates may not be reliable if the sample size is not sufficiently large.

The numerical results obtained using this approach are sound, although they still be read with caution given the lack of sampling design information in the EU-SILC user data files and potential quality problems with the current design variables. Eurostat is currently working with Net-SILC2 to improve the situation. In this paper, we propose several concrete recommendations for better recording sample design variables in EU-SILC.

Finally, computer programs for standard error estimation under the proposed approach (for cross-sectional, longitudinal and measures of change between two years) are currently being developed by Net-SILC2.

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8. Annexes

Annex 1: Numerical Results

Table 1a: Standard error estimates for the at-risk-of-poverty or social exclusion indicator (AROPE) and its three sub-indicators, 2008

		At-risk-of-poverty rate (POV)					Severe material deprivation rate (DEP)					% of individuals aged less than 60 living in households with very low work intensity (LWI)					At-risk-of-poverty or social exclusion (AROPE)				
		Indicator value (%)	Estimated standard error (% points)	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points)	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points)	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points)	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)
Austria	Total	12,4	0,58	11,3	13,5	9,2	6,4	0,52	5,4	7,4	15,9	7,8	0,50	6,8	8,8	12,6	18,6	0,71	17,2	20,0	7,5
	Males	11,2	0,63	10,0	12,4	11,0	6,0	0,53	5,0	7,0	17,3	6,6	0,53	5,6	7,6	15,7	16,8	0,76	15,3	18,3	8,9
	Females	13,5	0,66	12,2	14,8	9,6	6,7	0,60	5,5	7,9	17,6	9,0	0,62	7,8	10,2	13,5	20,3	0,80	18,7	21,9	7,7
Belgium	Total	14,7	0,71	13,3	16,1	9,5	5,6	0,58	4,5	6,7	20,3	11,7	0,69	10,3	13,1	11,6	20,8	0,84	19,2	22,4	7,9
	Males	13,6	0,73	12,2	15,0	10,5	5,2	0,65	3,9	6,5	24,5	10,2	0,69	8,8	11,6	13,3	19,1	0,89	17,4	20,8	9,1
	Females	15,9	0,79	14,4	17,4	9,7	6,0	0,58	4,9	7,1	18,9	13,2	0,79	11,7	14,7	11,7	22,4	0,90	20,6	24,2	7,9
Bulgaria	Total	21,3	1,10	19,1	23,5	10,1	41,2	1,22	38,8	43,6	5,8	8,1	0,79	6,6	9,6	19,1	44,7	1,24	42,3	47,1	5,4
	Males	19,7	1,15	17,4	22,0	11,4	39,6	1,26	37,1	42,1	6,2	7,8	0,86	6,1	9,5	21,6	43,0	1,30	40,5	45,5	5,9
	Females	22,8	1,12	20,6	25,0	9,6	42,7	1,27	40,2	45,2	5,8	8,3	0,81	6,7	9,9	19,1	46,4	1,28	43,9	48,9	5,4
Cyprus	Total	16,2	0,73	14,8	17,6	8,8	8,2	0,58	7,1	9,3	13,9	4,1	0,41	3,3	4,9	19,6	22,2	0,84	20,6	23,8	7,4
	Males	14,0	0,76	12,5	15,5	10,6	8,0	0,64	6,7	9,3	15,7	3,5	0,46	2,6	4,4	25,8	19,7	0,89	18,0	21,4	8,9
	Females	18,3	0,81	16,7	19,9	8,7	8,4	0,62	7,2	9,6	14,5	4,7	0,47	3,8	5,6	19,6	24,6	0,93	22,8	26,4	7,4
Czech Republic	Total	9,0	0,46	8,1	9,9	10,0	6,8	0,39	6,0	7,6	11,2	7,2	0,43	6,4	8,0	11,7	15,3	0,53	14,3	16,3	6,8
	Males	8,0	0,49	7,0	9,0	12,0	6,3	0,42	5,5	7,1	13,1	6,2	0,46	5,3	7,1	14,5	13,3	0,55	12,2	14,4	8,1
	Females	10,1	0,51	9,1	11,1	9,9	7,3	0,42	6,5	8,1	11,3	8,2	0,49	7,2	9,2	11,7	17,2	0,58	16,1	18,3	6,6
Germany	Total	15,2	0,37	14,5	15,9	4,8	5,5	0,24	5,0	6,0	8,6	11,6	0,36	10,9	12,3	6,1	20,1	0,40	19,3	20,9	3,9
	Males	14,2	0,43	13,4	15,0	5,9	5,3	0,30	4,7	5,9	11,1	10,8	0,44	9,9	11,7	8,0	18,5	0,47	17,6	19,4	5,0
	Females	16,2	0,42	15,4	17,0	5,1	5,6	0,26	5,1	6,1	9,1	12,3	0,41	11,5	13,1	6,5	21,6	0,46	20,7	22,5	4,2
Denmark	Total	11,8	0,63	10,6	13,0	10,5	2,0	0,28	1,5	2,5	27,4	8,3	0,57	7,2	9,4	13,5	16,3	0,68	15,0	17,6	8,2
	Males	11,7	0,78	10,2	13,2	13,1	1,5	0,30	0,9	2,1	39,2	8,2	0,73	6,8	9,6	17,4	15,7	0,84	14,1	17,3	10,5
	Females	12,0	0,73	10,6	13,4	11,9	2,4	0,40	1,6	3,2	32,7	8,3	0,71	6,9	9,7	16,8	17,0	0,82	15,4	18,6	9,5
Estonia	Total	19,5	0,63	18,3	20,7	6,3	4,9	0,35	4,2	5,6	14,0	5,3	0,39	4,5	6,1	14,4	21,8	0,67	20,5	23,1	6,0
	Males	16,5	0,73	15,1	17,9	8,7	4,8	0,41	4,0	5,6	16,7	5,9	0,51	4,9	6,9	16,9	18,9	0,77	17,4	20,4	8,0
	Females	22,0	0,75	20,5	23,5	6,7	4,9	0,39	4,1	5,7	15,6	4,7	0,44	3,8	5,6	18,3	24,3	0,78	22,8	25,8	6,3
Greece	Total	20,1	0,72	18,7	21,5	7,0	11,2	0,61	10,0	12,4	10,7	7,4	0,43	6,6	8,2	11,4	28,1	0,78	26,6	29,6	5,4
	Males	19,6	0,77	18,1	21,1	7,7	10,1	0,62	8,9	11,3	12,0	6,0	0,46	5,1	6,9	15,0	26,3	0,83	24,7	27,9	6,2
	Females	20,7	0,76	19,2	22,2	7,2	12,2	0,66	10,9	13,5	10,6	8,8	0,53	7,8	9,8	11,8	29,8	0,84	28,2	31,4	5,5
Spain	Total	19,6	0,55	18,5	20,7	5,5	2,5	0,23	2,0	3,0	18,0	6,2	0,32	5,6	6,8	10,1	22,9	0,58	21,8	24,0	5,0
	Males	18,3	0,57	17,2	19,4	6,1	2,6	0,25	2,1	3,1	18,8	5,7	0,34	5,0	6,4	11,7	21,6	0,61	20,4	22,8	5,5
	Females	21,0	0,58	19,9	22,1	5,4	2,5	0,24	2,0	3,0	18,8	6,7	0,37	6,0	7,4	10,8	24,2	0,61	23,0	25,4	4,9

		At-risk-of-poverty rate (POV)					Severe material deprivation rate (DEP)					% of individuals aged less than 60 living in households with very low work intensity (LWI)					At-risk-of-poverty or social exclusion (AROPE)				
		Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)
Finland	Total	13,6	0,44	12,7	14,5	6,3	3,5	0,25	3,0	4,0	14,0	7,3	0,36	6,6	8,0	9,7	17,4	0,49	16,4	18,4	5,5
	Males	12,7	0,50	11,7	13,7	7,7	3,2	0,28	2,7	3,7	17,2	7,2	0,43	6,4	8,0	11,7	15,9	0,55	14,8	17,0	6,8
	Females	14,5	0,54	13,4	15,6	7,3	3,8	0,31	3,2	4,4	16,0	7,5	0,45	6,6	8,4	11,8	18,9	0,59	17,7	20,1	6,1
France	Total	12,7	0,49	11,7	13,7	7,6	5,4	0,41	4,6	6,2	14,9	8,8	0,41	8,0	9,6	9,1	18,6	0,55	17,5	19,7	5,8
	Males	11,9	0,52	10,9	12,9	8,6	5,1	0,45	4,2	6,0	17,3	8,0	0,48	7,1	8,9	11,8	17,5	0,58	16,4	18,6	6,5
	Females	13,4	0,54	12,3	14,5	7,9	5,7	0,43	4,9	6,5	14,8	9,5	0,44	8,6	10,4	9,1	19,7	0,60	18,5	20,9	6,0
Hungary	Total	12,4	0,59	11,2	13,6	9,3	17,9	0,65	16,6	19,2	7,1	12,0	0,58	10,9	13,1	9,5	28,2	0,76	26,7	29,7	5,3
	Males	12,4	0,65	11,1	13,7	10,3	17,3	0,69	15,9	18,7	7,8	11,1	0,61	9,9	12,3	10,8	27,3	0,84	25,7	28,9	6,0
	Females	12,4	0,60	11,2	13,6	9,5	18,4	0,68	17,1	19,7	7,2	12,8	0,62	11,6	14,0	9,5	29,0	0,78	27,5	30,5	5,3
Ireland	Total	15,5	0,87	13,8	17,2	11,0	5,5	0,65	4,2	6,8	23,2	13,6	1,10	11,4	15,8	15,9	23,7	1,18	21,4	26,0	9,8
	Males	14,5	0,94	12,7	16,3	12,7	5,3	0,70	3,9	6,7	25,9	13,0	1,24	10,6	15,4	18,7	22,7	1,32	20,1	25,3	11,4
	Females	16,4	0,97	14,5	18,3	11,6	5,8	0,74	4,3	7,3	25,0	14,3	1,16	12,0	16,6	15,9	24,7	1,24	22,3	27,1	9,8
Iceland	Total	10,1	0,62	8,9	11,3	12,0	0,8	0,20	0,4	1,2	49,0	2,6	0,35	1,9	3,3	26,4	11,8	0,66	10,5	13,1	11,0
	Males	9,5	0,68	8,2	10,8	14,0	0,7	0,20	0,3	1,1	56,0	2,3	0,39	1,5	3,1	33,2	11,0	0,73	9,6	12,4	13,0
	Females	10,7	0,75	9,2	12,2	13,7	0,9	0,26	0,4	1,4	56,6	3,0	0,48	2,1	3,9	31,4	12,6	0,80	11,0	14,2	12,4
Italy	Total	18,7	0,69	17,3	20,1	7,2	7,5	0,56	6,4	8,6	14,6	9,8	0,35	9,1	10,5	7,0	25,3	0,79	23,8	26,8	6,1
	Males	17,1	0,69	15,7	18,5	7,9	7,2	0,57	6,1	8,3	15,5	8,3	0,35	7,6	9,0	8,3	23,2	0,82	21,6	24,8	6,9
	Females	20,1	0,74	18,6	21,6	7,2	7,8	0,56	6,7	8,9	14,1	11,3	0,41	10,5	12,1	7,1	27,2	0,81	25,6	28,8	5,8
Lithuania	Total	20,0	1,00	18,0	22,0	9,8	12,3	1,07	10,2	14,4	17,1	5,1	0,45	4,2	6,0	17,3	27,6	1,25	25,2	30,1	8,9
	Males	17,6	1,11	15,4	19,8	12,4	11,7	1,23	9,3	14,1	20,6	5,1	0,54	4,0	6,2	20,8	25,3	1,45	22,5	28,1	11,2
	Females	22,0	1,07	19,9	24,1	9,5	12,9	1,16	10,6	15,2	17,6	5,0	0,49	4,0	6,0	19,2	29,7	1,32	27,1	32,3	8,7
Luxembourg	Total	13,4	0,96	11,5	15,3	14,0	0,7	0,13	0,4	1,0	36,4	4,7	0,52	3,7	5,7	21,7	15,5	0,99	13,6	17,4	12,5
	Males	12,5	1,02	10,5	14,5	16,0	0,6	0,15	0,3	0,9	49,0	3,8	0,50	2,8	4,8	25,8	14,2	1,05	12,1	16,3	14,5
	Females	14,3	1,08	12,2	16,4	14,8	0,7	0,15	0,4	1,0	42,0	5,5	0,70	4,1	6,9	24,9	16,7	1,13	14,5	18,9	13,3
Latvia	Total	25,6	0,96	23,7	27,5	7,4	19,0	0,81	17,4	20,6	8,4	5,1	0,39	4,3	5,9	15,0	33,8	1,01	31,8	35,8	5,9
	Males	23,1	1,05	21,0	25,2	8,9	17,3	0,87	15,6	19,0	9,9	5,5	0,50	4,5	6,5	17,8	31,0	1,11	28,8	33,2	7,0
	Females	27,7	0,98	25,8	29,6	6,9	20,4	0,85	18,7	22,1	8,2	4,8	0,40	4,0	5,6	16,3	36,2	1,03	34,2	38,2	5,6
Netherlands	Total	10,5	0,76	9,0	12,0	14,2	1,5	0,23	1,0	2,0	30,1	8,1	0,59	6,9	9,3	14,3	14,9	0,81	13,3	16,5	10,7
	Males	10,5	0,90	8,7	12,3	16,8	1,5	0,24	1,0	2,0	31,4	6,9	0,65	5,6	8,2	18,5	14,3	0,99	12,4	16,2	13,6
	Females	10,4	0,76	8,9	11,9	14,3	1,6	0,27	1,1	2,1	33,1	9,3	0,62	8,1	10,5	13,1	15,5	0,80	13,9	17,1	10,1
Norway	Total	11,6	0,48	10,7	12,5	8,1	2,0	0,22	1,6	2,4	21,6	6,3	0,40	5,5	7,1	12,4	15,1	0,53	14,1	16,1	6,9
	Males	10,0	0,52	9,0	11,0	10,2	2,0	0,24	1,5	2,5	23,5	5,4	0,42	4,6	6,2	15,2	13,2	0,58	12,1	14,3	8,6
	Females	13,0	0,63	11,8	14,2	9,5	1,9	0,28	1,4	2,4	28,9	7,3	0,56	6,2	8,4	15,0	16,8	0,69	15,4	18,2	8,1

		At-risk-of-poverty rate (POV)					Severe material deprivation rate (DEP)					% of individuals aged less than 60 living in households with very low work intensity (LWI)					At-risk-of-poverty or social exclusion (AROPE)				
		Indicator value (%)	Estimated standard error (% points)	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points)	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points)	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points)	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)
Poland	Total	16,9	0,50	15,9	17,9	5,8	17,7	0,44	16,8	18,6	4,9	7,9	0,28	7,4	8,4	6,9	30,5	0,54	29,4	31,6	3,5
	Males	17,0	0,53	16,0	18,0	6,1	17,6	0,50	16,6	18,6	5,6	7,3	0,30	6,7	7,9	8,1	29,9	0,59	28,7	31,1	3,9
	Females	16,7	0,52	15,7	17,7	6,1	17,9	0,45	17,0	18,8	4,9	8,6	0,31	8,0	9,2	7,1	31,2	0,56	30,1	32,3	3,5
Portugal	Total	18,5	0,94	16,7	20,3	10,0	9,7	0,81	8,1	11,3	16,4	6,3	0,55	5,2	7,4	17,1	26,0	1,10	23,8	28,2	8,3
	Males	17,9	1,02	15,9	19,9	11,2	9,5	0,87	7,8	11,2	17,9	5,8	0,63	4,6	7,0	21,3	25,0	1,19	22,7	27,3	9,3
	Females	19,1	0,96	17,2	21,0	9,9	9,9	0,85	8,2	11,6	16,8	6,8	0,60	5,6	8,0	17,3	26,8	1,14	24,6	29,0	8,3
Romania	Total	23,3	1,12	21,1	25,5	9,4	32,8	1,21	30,4	35,2	7,2	8,2	0,65	6,9	9,5	15,5	44,0	1,27	41,5	46,5	5,7
	Males	22,3	1,15	20,0	24,6	10,1	32,3	1,25	29,9	34,8	7,6	7,2	0,69	5,8	8,6	18,8	42,8	1,32	40,2	45,4	6,0
	Females	24,2	1,17	21,9	26,5	9,5	33,3	1,25	30,9	35,8	7,4	9,2	0,68	7,9	10,5	14,5	45,1	1,30	42,6	47,6	5,6
Sweden	Total	12,2	0,42	11,4	13,0	6,7	1,4	0,16	1,1	1,7	22,4	5,4	0,32	4,8	6,0	11,6	14,9	0,45	14,0	15,8	5,9
	Males	11,3	0,48	10,4	12,2	8,3	1,3	0,16	1,0	1,6	24,1	5,0	0,36	4,3	5,7	14,1	13,7	0,51	12,7	14,7	7,3
	Females	13,0	0,51	12,0	14,0	7,7	1,6	0,20	1,2	2,0	24,5	5,8	0,40	5,0	6,6	13,5	16,1	0,55	15,0	17,2	6,7
Slovenia	Total	12,3	0,42	11,5	13,1	6,7	6,7	0,34	6,0	7,4	9,9	6,7	0,33	6,1	7,3	9,7	18,5	0,49	17,5	19,5	5,2
	Males	11,0	0,45	10,1	11,9	8,0	6,4	0,37	5,7	7,1	11,3	6,2	0,38	5,5	6,9	12,0	16,6	0,53	15,6	17,6	6,3
	Females	13,6	0,48	12,7	14,5	6,9	6,9	0,37	6,2	7,6	10,5	7,3	0,40	6,5	8,1	10,7	20,3	0,56	19,2	21,4	5,4
Slovakia	Total	10,9	0,49	9,9	11,9	8,8	11,8	0,48	10,9	12,7	8,0	5,2	0,35	4,5	5,9	13,2	20,6	0,61	19,4	21,8	5,8
	Males	10,1	0,54	9,0	11,2	10,5	11,1	0,54	10,0	12,2	9,5	4,5	0,38	3,8	5,2	16,6	18,9	0,67	17,6	20,2	6,9
	Females	11,5	0,52	10,5	12,5	8,9	12,3	0,51	11,3	13,3	8,1	5,9	0,39	5,1	6,7	13,0	22,0	0,65	20,7	23,3	5,8
United Kingdom	Total	18,7	0,59	17,5	19,9	6,2	4,5	0,41	3,7	5,3	17,9	10,4	0,58	9,3	11,5	10,9	23,2	0,67	21,9	24,5	5,7
	Males	17,4	0,62	16,2	18,6	7,0	4,3	0,48	3,4	5,2	21,9	9,7	0,67	8,4	11,0	13,5	21,7	0,72	20,3	23,1	6,5
	Females	19,9	0,63	18,7	21,1	6,2	4,8	0,41	4,0	5,6	16,7	11,1	0,60	9,9	12,3	10,6	24,7	0,71	23,3	26,1	5,6

Source: authors' calculations based on the anonymised EU-SILC micro-data files provided by Eurostat for statistical/research purposes only (Version 01-03-13)

Table 1b: Standard error estimates for the at-risk-of-poverty or social exclusion indicator (AROPE) and its three sub-indicators, 2009

		At-risk-of-poverty rate (POV)					Severe material deprivation rate (DEP)				
		Indicator value (%)	Estimated standard error (% points)	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points)	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)
Austria	Total	12,0	0,54	10,9	13,1	8,8	4,8	0,39	4,0	5,6	15,9
	Males	10,7	0,59	9,5	11,9	10,8	4,4	0,42	3,6	5,2	18,7
	Females	13,2	0,63	12,0	14,4	9,4	5,1	0,47	4,2	6,0	18,1
Belgium	Total	14,6	0,77	13,1	16,1	10,3	5,2	0,50	4,2	6,2	18,8
	Males	13,4	0,78	11,9	14,9	11,4	4,9	0,52	3,9	5,9	20,8
	Females	15,7	0,85	14,0	17,4	10,6	5,5	0,53	4,5	6,5	18,9
Bulgaria	Total	21,7	0,88	20,0	23,4	7,9	41,7	1,08	39,6	43,8	5,1
	Males	19,7	0,92	17,9	21,5	9,2	39,9	1,14	37,7	42,1	5,6
	Females	23,6	0,91	21,8	25,4	7,6	43,3	1,12	41,1	45,5	5,1
Cyprus	Total	15,3	0,78	13,8	16,8	10,0	9,5	0,84	7,9	11,1	17,3
	Males	13,4	0,84	11,8	15,0	12,3	9,3	0,93	7,5	11,1	19,6
	Females	17,1	0,83	15,5	18,7	9,5	9,6	0,90	7,8	11,4	18,4
Czech Republic	Total	8,6	0,46	7,7	9,5	10,5	6,1	0,41	5,3	6,9	13,2
	Males	7,5	0,51	6,5	8,5	13,3	5,8	0,45	4,9	6,7	15,2
	Females	9,5	0,49	8,5	10,5	10,1	6,5	0,44	5,6	7,4	13,3
Germany	Total	15,5	0,38	14,8	16,2	4,8	5,4	0,25	4,9	5,9	9,1
	Males	14,7	0,44	13,8	15,6	5,9	5,3	0,30	4,7	5,9	11,1
	Females	16,3	0,43	15,5	17,1	5,2	5,4	0,28	4,9	5,9	10,2
Denmark	Total	13,1	0,63	11,9	14,3	9,4	2,3	0,28	1,8	2,8	23,9
	Males	12,8	0,78	11,3	14,3	11,9	2,2	0,35	1,5	2,9	31,2
	Females	13,4	0,76	11,9	14,9	11,1	2,4	0,33	1,8	3,0	27,0
Estonia	Total	19,7	0,68	18,4	21,0	6,8	6,2	0,41	5,4	7,0	13,0
	Males	17,5	0,80	15,9	19,1	9,0	6,2	0,48	5,3	7,1	15,2
	Females	21,6	0,77	20,1	23,1	7,0	6,3	0,47	5,4	7,2	14,6
Greece	Total	19,7	0,79	18,2	21,2	7,9	11,0	0,64	9,7	12,3	11,4
	Males	19,1	0,83	17,5	20,7	8,5	10,2	0,68	8,9	11,5	13,1
	Females	20,2	0,85	18,5	21,9	8,2	11,7	0,70	10,3	13,1	11,7
Spain	Total	19,5	0,52	18,5	20,5	5,2	3,5	0,26	3,0	4,0	14,6
	Males	18,3	0,56	17,2	19,4	6,0	3,5	0,30	2,9	4,1	16,8
	Females	20,6	0,55	19,5	21,7	5,2	3,4	0,25	2,9	3,9	14,4

		% of individuals aged less than 60 living in households with very low work intensity (LWI)					At-risk-of-poverty or social exclusion (AROPE)				
		Indicator value (%)	Estimated standard error (% points)	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points)	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)
Austria	Total	7,2	0,47	6,3	8,1	12,8	17,0	0,62	15,8	18,2	7,1
	Males	5,6	0,44	4,7	6,5	15,4	15,0	0,68	13,7	16,3	8,9
	Females	8,7	0,64	7,4	10,0	14,4	18,9	0,71	17,5	20,3	7,4
Belgium	Total	12,3	0,71	10,9	13,7	11,3	20,2	0,87	18,5	21,9	8,4
	Males	11,0	0,71	9,6	12,4	12,7	18,5	0,88	16,8	20,2	9,3
	Females	13,6	0,82	12,0	15,2	11,8	21,8	0,94	20,0	23,6	8,5
Bulgaria	Total	6,9	0,61	5,7	8,1	17,3	46,0	1,08	43,9	48,1	4,6
	Males	7,0	0,67	5,7	8,3	18,8	43,9	1,14	41,7	46,1	5,1
	Females	6,8	0,63	5,6	8,0	18,2	47,9	1,11	45,7	50,1	4,5
Cyprus	Total	3,8	0,40	3,0	4,6	20,6	22,9	1,03	20,9	24,9	8,8
	Males	3,1	0,43	2,3	3,9	27,2	20,9	1,12	18,7	23,1	10,5
	Females	4,5	0,48	3,6	5,4	20,9	25,0	1,09	22,9	27,1	8,5
Czech Republic	Total	6,0	0,37	5,3	6,7	12,1	14,0	0,54	12,9	15,1	7,6
	Males	4,8	0,38	4,1	5,5	15,5	12,3	0,59	11,1	13,5	9,4
	Females	7,1	0,44	6,2	8,0	12,1	15,7	0,58	14,6	16,8	7,2
Germany	Total	10,8	0,36	10,1	11,5	6,5	20,0	0,42	19,2	20,8	4,1
	Males	10,4	0,44	9,5	11,3	8,3	18,8	0,49	17,8	19,8	5,1
	Females	11,2	0,40	10,4	12,0	7,0	21,2	0,47	20,3	22,1	4,3
Denmark	Total	8,5	0,60	7,3	9,7	13,8	17,6	0,68	16,3	18,9	7,6
	Males	8,0	0,71	6,6	9,4	17,4	17,0	0,84	15,4	18,6	9,7
	Females	9,1	0,74	7,6	10,6	15,9	18,2	0,81	16,6	19,8	8,7
Estonia	Total	5,6	0,43	4,8	6,4	15,1	23,4	0,73	22,0	24,8	6,1
	Males	6,4	0,54	5,3	7,5	16,5	21,1	0,85	19,4	22,8	7,9
	Females	4,7	0,48	3,8	5,6	20,0	25,5	0,83	23,9	27,1	6,4
Greece	Total	6,5	0,42	5,7	7,3	12,7	27,6	0,87	25,9	29,3	6,2
	Males	5,2	0,43	4,4	6,0	16,2	26,1	0,93	24,3	27,9	7,0
	Females	7,8	0,57	6,7	8,9	14,3	29,0	0,95	27,1	30,9	6,4
Spain	Total	7,0	0,35	6,3	7,7	9,8	23,4	0,54	22,3	24,5	4,5
	Males	6,5	0,38	5,8	7,2	11,5	22,3	0,58	21,2	23,4	5,1
	Females	7,5	0,40	6,7	8,3	10,5	24,4	0,57	23,3	25,5	4,6

		At-risk-of-poverty rate (POV)					Severe material deprivation rate (DEP)					% of individuals aged less than 60 living in households with very low work intensity (LWI)					At-risk-of-poverty or social exclusion (AROPE)				
		Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)
Finland	Total	13,8	0,46	12,9	14,7	6,5	2,8	0,25	2,3	3,3	17,5	8,2	0,42	7,4	9,0	10,0	(%)	0,48	16,0	17,8	5,6
	Males	12,9	0,54	11,8	14,0	8,2	2,9	0,35	2,2	3,6	23,7	8,5	0,52	7,5	9,5	12,0	15,8	0,56	14,7	16,9	6,9
	Females	14,7	0,53	13,7	15,7	7,1	2,7	0,24	2,2	3,2	17,4	7,9	0,45	7,0	8,8	11,2	17,9	0,56	16,8	19,0	6,1
France	Total	12,9	0,51	11,9	13,9	7,7	5,6	0,34	4,9	6,3	11,9	8,3	0,51	7,3	9,3	12,0	18,5	0,55	17,4	19,6	5,8
	Males	11,9	0,54	10,8	13,0	8,9	5,2	0,40	4,4	6,0	15,1	7,6	0,53	6,6	8,6	13,7	17,1	0,59	15,9	18,3	6,8
	Females	13,8	0,53	12,8	14,8	7,5	5,9	0,35	5,2	6,6	11,6	9,1	0,55	8,0	10,2	11,8	19,7	0,58	18,6	20,8	5,8
Hungary	Total	12,4	0,53	11,4	13,4	8,4	20,3	0,64	19,0	21,6	6,2	11,3	0,52	10,3	12,3	9,0	29,6	0,69	28,2	31,0	4,6
	Males	12,8	0,59	11,6	14,0	9,0	20,2	0,69	18,8	21,6	6,7	10,6	0,55	9,5	11,7	10,2	29,1	0,76	27,6	30,6	5,1
	Females	12,1	0,53	11,1	13,1	8,6	20,4	0,65	19,1	21,7	6,2	11,9	0,56	10,8	13,0	9,2	30,0	0,71	28,6	31,4	4,6
Ireland	Total	15,0	0,98	13,1	16,9	12,8	6,1	0,66	4,8	7,4	21,2	19,8	1,29	17,3	22,3	12,8	25,7	1,23	23,3	28,1	9,4
	Males	14,9	1,15	12,6	17,2	15,1	5,5	0,69	4,1	6,9	24,6	18,6	1,35	16,0	21,2	14,2	25,0	1,35	22,4	27,6	10,6
	Females	15,1	1,02	13,1	17,1	13,2	6,8	0,83	5,2	8,4	23,9	21,0	1,48	18,1	23,9	13,8	26,4	1,36	23,7	29,1	10,1
Iceland	Total	10,1	0,59	8,9	11,3	11,4	0,8	0,17	0,5	1,1	41,7	2,1	0,29	1,5	2,7	27,1	11,6	0,63	10,4	12,8	10,6
	Males	9,2	0,66	7,9	10,5	14,1	1,0	0,24	0,5	1,5	47,0	2,2	0,36	1,5	2,9	32,1	10,7	0,69	9,3	12,1	12,6
	Females	11,0	0,74	9,5	12,5	13,2	0,6	0,19	0,2	1,0	62,1	2,0	0,36	1,3	2,7	35,3	12,6	0,78	11,1	14,1	12,1
Italy	Total	18,4	0,66	17,1	19,7	7,0	7,0	0,46	6,1	7,9	12,9	8,8	0,38	8,1	9,5	8,5	24,7	0,77	23,2	26,2	6,1
	Males	17,0	0,70	15,6	18,4	8,1	6,7	0,46	5,8	7,6	13,5	7,4	0,38	6,7	8,1	10,1	22,8	0,80	21,2	24,4	6,9
	Females	19,8	0,67	18,5	21,1	6,6	7,3	0,48	6,4	8,2	12,9	10,3	0,45	9,4	11,2	8,6	26,4	0,80	24,8	28,0	5,9
Lithuania	Total	20,6	0,94	18,8	22,4	8,9	15,1	0,85	13,4	16,8	11,0	6,9	0,60	5,7	8,1	17,0	29,5	1,07	27,4	31,6	7,1
	Males	19,1	1,08	17,0	21,2	11,1	14,3	0,96	12,4	16,2	13,2	7,3	0,74	5,8	8,8	19,9	27,3	1,21	24,9	29,7	8,7
	Females	21,9	1,00	19,9	23,9	8,9	15,7	0,92	13,9	17,5	11,5	6,6	0,62	5,4	7,8	18,4	31,4	1,14	29,2	33,6	7,1
Luxembourg	Total	14,9	0,93	13,1	16,7	12,2	1,1	0,21	0,7	1,5	37,4	6,3	0,58	5,2	7,4	18,0	17,8	0,97	15,9	19,7	10,7
	Males	13,8	0,98	11,9	15,7	13,9	0,9	0,22	0,5	1,3	47,9	4,9	0,58	3,8	6,0	23,2	16,0	1,02	14,0	18,0	12,5
	Females	16,0	1,05	13,9	18,1	12,9	1,3	0,26	0,8	1,8	39,2	7,8	0,76	6,3	9,3	19,1	19,6	1,11	17,4	21,8	11,1
Latvia	Total	25,7	0,89	24,0	27,4	6,8	21,9	0,87	20,2	23,6	7,8	6,7	0,42	5,9	7,5	12,3	37,4	1,01	35,4	39,4	5,3
	Males	24,2	1,01	22,2	26,2	8,2	21,3	0,97	19,4	23,2	8,9	7,2	0,52	6,2	8,2	14,2	35,9	1,15	33,6	38,2	6,3
	Females	27,0	0,88	25,3	28,7	6,4	22,5	0,88	20,8	24,2	7,7	6,2	0,45	5,3	7,1	14,2	38,7	1,01	36,7	40,7	5,1
Malta	Total	15,3	0,67	14,0	16,6	8,6	4,7	0,43	3,9	5,5	17,9	8,3	0,53	7,3	9,3	12,5	20,2	0,76	18,7	21,7	7,4
	Males	14,7	0,71	13,3	16,1	9,5	4,5	0,50	3,5	5,5	21,8	6,4	0,53	5,4	7,4	16,2	19,0	0,82	17,4	20,6	8,5
	Females	15,9	0,72	14,5	17,3	8,9	4,9	0,45	4,0	5,8	18,0	10,2	0,66	8,9	11,5	12,7	21,4	0,83	19,8	23,0	7,6
Netherlands	Total	11,1	0,74	9,6	12,6	13,1	1,4	0,20	1,0	1,8	28,0	8,3	0,68	7,0	9,6	16,1	15,1	0,83	13,5	16,7	10,8
	Males	10,8	0,82	9,2	12,4	14,9	1,4	0,25	0,9	1,9	35,0	7,5	0,75	6,0	9,0	19,6	14,3	0,92	12,5	16,1	12,6
	Females	11,3	0,81	9,7	12,9	14,0	1,5	0,21	1,1	1,9	27,4	9,2	0,74	7,7	10,7	15,8	15,9	0,88	14,2	17,6	10,8

		At-risk-of-poverty rate (POV)					Severe material deprivation rate (DEP)					% of individuals aged less than 60 living in households with very low work intensity (LWI)					At-risk-of-poverty or social exclusion (AROPE)				
		Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)
Norway	Total	11,7	0,51	10,7	12,7	8,5	2,2	0,24	1,7	2,7	21,4	6,8	0,43	6,0	7,6	12,4	15,2	0,56	14,1	16,3	7,2
	Males	10,1	0,55	9,0	11,2	10,7	2,4	0,29	1,8	3,0	23,7	6,5	0,48	5,6	7,4	14,5	13,7	0,62	12,5	14,9	8,9
	Females	13,2	0,67	11,9	14,5	9,9	2,0	0,28	1,5	2,5	27,4	7,0	0,56	5,9	8,1	15,7	16,8	0,72	15,4	18,2	8,4
Poland	Total	17,1	0,48	16,2	18,0	5,5	15,0	0,45	14,1	15,9	5,9	6,9	0,27	6,4	7,4	7,7	27,8	0,57	26,7	28,9	4,0
	Males	16,9	0,53	15,9	17,9	6,1	14,6	0,49	13,6	15,6	6,6	6,4	0,30	5,8	7,0	9,2	27,0	0,62	25,8	28,2	4,5
	Females	17,4	0,49	16,4	18,4	5,5	15,3	0,48	14,4	16,2	6,1	7,4	0,29	6,8	8,0	7,7	28,6	0,59	27,4	29,8	4,0
Portugal	Total	17,9	0,91	16,1	19,7	10,0	9,1	0,80	7,5	10,7	17,2	6,9	0,54	5,8	8,0	15,3	24,9	1,04	22,9	26,9	8,2
	Males	17,3	1,01	15,3	19,3	11,4	8,9	0,83	7,3	10,5	18,3	6,6	0,59	5,4	7,8	17,5	24,0	1,11	21,8	26,2	9,1
	Females	18,4	0,91	16,6	20,2	9,7	9,2	0,83	7,6	10,8	17,7	7,3	0,60	6,1	8,5	16,1	25,8	1,08	23,7	27,9	8,2
Romania	Total	22,4	1,17	20,1	24,7	10,2	32,1	1,27	29,6	34,6	7,8	7,7	0,59	6,5	8,9	15,0	42,9	1,30	40,4	45,4	5,9
	Males	21,4	1,18	19,1	23,7	10,8	31,7	1,32	29,1	34,3	8,2	6,5	0,57	5,4	7,6	17,2	41,7	1,34	39,1	44,3	6,3
	Females	23,3	1,23	20,9	25,7	10,3	32,5	1,29	30,0	35,0	7,8	8,9	0,66	7,6	10,2	14,5	44,1	1,34	41,5	46,7	6,0
Sweden	Total	13,3	0,48	12,4	14,2	7,1	1,6	0,16	1,3	1,9	19,6	6,2	0,37	5,5	6,9	11,7	15,9	0,50	14,9	16,9	6,2
	Males	12,0	0,56	10,9	13,1	9,1	1,5	0,19	1,1	1,9	24,8	5,9	0,41	5,1	6,7	13,6	14,4	0,58	13,3	15,5	7,9
	Females	14,5	0,57	13,4	15,6	7,7	1,6	0,20	1,2	2,0	24,5	6,6	0,48	5,7	7,5	14,3	17,5	0,60	16,3	18,7	6,7
Slovenia	Total	11,3	0,39	10,5	12,1	6,8	6,1	0,29	5,5	6,7	9,3	5,6	0,29	5,0	6,2	10,2	17,1	0,45	16,2	18,0	5,2
	Males	9,8	0,42	9,0	10,6	8,4	5,9	0,32	5,3	6,5	10,6	4,8	0,32	4,2	5,4	13,1	15,1	0,50	14,1	16,1	6,5
	Females	12,8	0,45	11,9	13,7	6,9	6,3	0,31	5,7	6,9	9,6	6,5	0,34	5,8	7,2	10,3	19,1	0,51	18,1	20,1	5,2
Slovakia	Total	11,0	0,50	10,0	12,0	8,9	11,1	0,49	10,1	12,1	8,7	5,6	0,38	4,9	6,3	13,3	19,6	0,60	18,4	20,8	6,0
	Males	10,1	0,56	9,0	11,2	10,9	10,5	0,54	9,4	11,6	10,1	5,1	0,42	4,3	5,9	16,1	18,0	0,68	16,7	19,3	7,4
	Females	11,8	0,52	10,8	12,8	8,6	11,6	0,51	10,6	12,6	8,6	6,0	0,41	5,2	6,8	13,4	21,1	0,63	19,9	22,3	5,9
United Kingdom	Total	17,3	0,66	16,0	18,6	7,5	3,3	0,29	2,7	3,9	17,2	12,6	0,62	11,4	13,8	9,6	22,0	0,70	20,6	23,4	6,2
	Males	16,7	0,73	15,3	18,1	8,6	3,4	0,33	2,8	4,0	19,0	12,0	0,66	10,7	13,3	10,8	21,1	0,77	19,6	22,6	7,2
	Females	17,8	0,68	16,5	19,1	7,5	3,3	0,30	2,7	3,9	17,8	13,3	0,69	11,9	14,7	10,2	22,9	0,73	21,5	24,3	6,2

Source: authors' calculations based on the anonymised EU-SILC micro-data files provided by Eurostat for statistical/research purposes only (Version 01-03-13)

Table 1c: Standard error estimates for the at-risk-of-poverty or social exclusion indicator (AROPE) and its three sub-indicators, 2010

		At-risk-of-poverty rate (POV)					Severe material deprivation rate (DEP)					% of individuals aged less than 60 living in households with very low work intensity (LWI)					At-risk-of-poverty or social exclusion (AROPE)				
		Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)
Austria	Total	12,1	0,55	11,0	13,2	8,9	4,3	0,36	3,6	5,0	16,4	7,7	0,47	6,8	8,6	12,0	16,6	0,62	15,4	17,8	7,3
	Males	10,7	0,59	9,5	11,9	10,8	3,9	0,41	3,1	4,7	20,6	6,7	0,54	5,6	7,8	15,8	14,7	0,69	13,3	16,1	9,2
	Females	13,5	0,63	12,3	14,7	9,1	4,6	0,38	3,9	5,3	16,2	8,8	0,56	7,7	9,9	12,5	18,4	0,69	17,0	19,8	7,4
Belgium	Total	14,6	0,75	13,1	16,1	10,1	5,9	0,57	4,8	7,0	18,9	12,6	0,73	11,2	14,0	11,4	20,8	0,94	19,0	22,6	8,9
	Males	13,9	0,79	12,4	15,4	11,1	5,7	0,60	4,5	6,9	20,6	11,8	0,75	10,3	13,3	12,5	20,0	1,00	18,0	22,0	9,8
	Females	15,2	0,80	13,6	16,8	10,3	6,0	0,58	4,9	7,1	18,9	13,5	0,85	11,8	15,2	12,3	21,7	0,98	19,8	23,6	8,9
Bulgaria	Total	20,6	0,88	18,9	22,3	8,4	45,6	1,06	43,5	47,7	4,6	7,9	0,63	6,7	9,1	15,6	49,0	1,05	46,9	51,1	4,2
	Males	18,9	0,90	17,1	20,7	9,3	44,1	1,12	41,9	46,3	5,0	7,7	0,64	6,4	9,0	16,3	47,1	1,12	44,9	49,3	4,7
	Females	22,2	0,93	20,4	24,0	8,2	47,1	1,08	45,0	49,2	4,5	8,1	0,68	6,8	9,4	16,5	50,8	1,08	48,7	52,9	4,2
Cyprus	Total	15,3	0,68	14,0	16,6	8,7	9,6	0,60	8,4	10,8	12,3	4,4	0,38	3,7	5,1	16,9	22,9	0,82	21,3	24,5	7,0
	Males	13,8	0,74	12,3	15,3	10,5	9,8	0,68	8,5	11,1	13,6	4,0	0,48	3,1	4,9	23,5	21,5	0,90	19,7	23,3	8,2
	Females	16,8	0,73	15,4	18,2	8,5	9,5	0,61	8,3	10,7	12,6	4,8	0,42	4,0	5,6	17,2	24,4	0,88	22,7	26,1	7,1
Czech Republic	Total	9,0	0,44	8,1	9,9	9,6	6,2	0,42	5,4	7,0	13,3	6,4	0,40	5,6	7,2	12,3	14,4	0,53	13,4	15,4	7,2
	Males	8,0	0,50	7,0	9,0	12,3	5,8	0,46	4,9	6,7	15,5	5,2	0,42	4,4	6,0	15,8	12,7	0,58	11,6	13,8	9,0
	Females	10,0	0,47	9,1	10,9	9,2	6,5	0,43	5,7	7,3	13,0	7,6	0,47	6,7	8,5	12,1	16,0	0,57	14,9	17,1	7,0
Germany	Total	15,6	0,38	14,9	16,3	4,8	4,5	0,23	4,0	5,0	10,0	11,1	0,36	10,4	11,8	6,4	19,7	0,41	18,9	20,5	4,1
	Males	14,9	0,43	14,1	15,7	5,7	4,4	0,27	3,9	4,9	12,0	10,7	0,43	9,9	11,5	7,9	18,6	0,47	17,7	19,5	5,0
	Females	16,4	0,43	15,6	17,2	5,1	4,7	0,26	4,2	5,2	10,8	11,6	0,43	10,8	12,4	7,3	20,9	0,46	20,0	21,8	4,3
Denmark	Total	13,3	0,68	12,0	14,6	10,0	2,7	0,33	2,1	3,3	24,0	10,3	0,68	9,0	11,6	12,9	18,3	0,72	16,9	19,7	7,7
	Males	13,1	0,83	11,5	14,7	12,4	2,8	0,43	2,0	3,6	30,1	9,4	0,83	7,8	11,0	17,3	17,7	0,88	16,0	19,4	9,7
	Females	13,4	0,82	11,8	15,0	12,0	2,5	0,38	1,8	3,2	29,8	11,1	0,84	9,5	12,7	14,8	19,0	0,88	17,3	20,7	9,1
Estonia	Total	15,8	0,61	14,6	17,0	7,6	9,0	0,53	8,0	10,0	11,5	8,9	0,55	7,8	10,0	12,1	21,7	0,71	20,3	23,1	6,4
	Males	15,4	0,71	14,0	16,8	9,0	9,3	0,64	8,0	10,6	13,5	9,6	0,67	8,3	10,9	13,7	21,5	0,84	19,9	23,1	7,7
	Females	16,2	0,69	14,8	17,6	8,3	8,7	0,55	7,6	9,8	12,4	8,2	0,62	7,0	9,4	14,8	22,0	0,78	20,5	23,5	6,9
Greece	Total	20,1	0,92	18,3	21,9	9,0	11,6	0,73	10,2	13,0	12,3	7,5	0,58	6,4	8,6	15,2	27,7	1,02	25,7	29,7	7,2
	Males	19,3	0,97	17,4	21,2	9,9	10,9	0,80	9,3	12,5	14,4	6,4	0,58	5,3	7,5	17,8	26,0	1,07	23,9	28,1	8,1
	Females	20,9	0,99	19,0	22,8	9,3	12,2	0,77	10,7	13,7	12,4	8,5	0,72	7,1	9,9	16,6	29,3	1,11	27,1	31,5	7,4
Spain	Total	20,7	0,51	19,7	21,7	4,8	4,0	0,25	3,5	4,5	12,3	9,8	0,38	9,1	10,5	7,6	25,5	0,54	24,4	26,6	4,2
	Males	20,1	0,53	19,1	21,1	5,2	3,8	0,25	3,3	4,3	12,9	9,5	0,41	8,7	10,3	8,5	24,9	0,57	23,8	26,0	4,5
	Females	21,3	0,54	20,2	22,4	5,0	4,1	0,28	3,6	4,6	13,4	10,1	0,43	9,3	10,9	8,3	26,1	0,58	25,0	27,2	4,4

		At-risk-of-poverty rate (POV)					Severe material deprivation rate (DEP)					% of individuals aged less than 60 living in households with very low work intensity (LWI)					At-risk-of-poverty or social exclusion (AROPE)				
		Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)
Finland	Total	13,1	0,42	12,3	13,9	6,3	2,8	0,21	2,4	3,2	14,7	9,1	0,40	8,3	9,9	8,6	16,9	0,47	16,0	17,8	5,5
	Males	12,4	0,48	11,5	13,3	7,6	2,6	0,25	2,1	3,1	18,8	9,4	0,46	8,5	10,3	9,6	16,0	0,53	15,0	17,0	6,5
	Females	13,8	0,51	12,8	14,8	7,2	3,1	0,27	2,6	3,6	17,1	8,8	0,49	7,8	9,8	10,9	17,7	0,56	16,6	18,8	6,2
France	Total	13,3	0,56	12,2	14,4	8,3	5,8	0,40	5,0	6,6	13,5	9,8	0,43	9,0	10,6	8,6	19,2	0,58	18,1	20,3	5,9
	Males	12,6	0,62	11,4	13,8	9,6	5,7	0,39	4,9	6,5	13,4	9,2	0,46	8,3	10,1	9,8	18,3	0,67	17,0	19,6	7,2
	Females	13,9	0,57	12,8	15,0	8,0	5,8	0,50	4,8	6,8	16,9	10,5	0,50	9,5	11,5	9,3	20,0	0,59	18,8	21,2	5,8
Hungary	Total	12,3	0,64	11,0	13,6	10,2	21,6	0,75	20,1	23,1	6,8	11,8	0,57	10,7	12,9	9,5	29,9	0,80	28,3	31,5	5,2
	Males	12,6	0,70	11,2	14,0	10,9	21,5	0,79	20,0	23,0	7,2	11,2	0,62	10,0	12,4	10,9	29,4	0,85	27,7	31,1	5,7
	Females	12,0	0,64	10,7	13,3	10,5	21,6	0,77	20,1	23,1	7,0	12,5	0,59	11,3	13,7	9,3	30,3	0,82	28,7	31,9	5,3
Ireland	Total	16,1	0,98	14,2	18,0	11,9	7,5	0,67	6,2	8,8	17,5	22,9	1,20	20,5	25,3	10,3	29,9	1,17	27,6	32,2	7,7
	Males	15,9	1,03	13,9	17,9	12,7	7,1	0,68	5,8	8,4	18,8	21,5	1,29	19,0	24,0	11,8	29,3	1,27	26,8	31,8	8,5
	Females	16,2	1,14	14,0	18,4	13,8	8,0	0,81	6,4	9,6	19,8	24,4	1,38	21,7	27,1	11,1	30,5	1,33	27,9	33,1	8,5
Iceland	Total	9,8	0,61	8,6	11,0	12,2	1,8	0,28	1,3	2,3	30,5	5,6	0,51	4,6	6,6	17,9	13,7	0,69	12,3	15,1	9,9
	Males	9,8	0,68	8,5	11,1	13,6	1,6	0,29	1,0	2,2	35,5	5,5	0,59	4,3	6,7	21,0	13,4	0,78	11,9	14,9	11,4
	Females	9,8	0,72	8,4	11,2	14,4	2,0	0,38	1,3	2,7	37,2	5,7	0,63	4,5	6,9	21,7	14,0	0,83	12,4	15,6	11,6
Italy	Total	18,2	0,70	16,8	19,6	7,5	6,9	0,54	5,8	8,0	15,3	10,2	0,40	9,4	11,0	7,7	24,5	0,81	22,9	26,1	6,5
	Males	16,8	0,74	15,3	18,3	8,6	6,7	0,55	5,6	7,8	16,1	8,8	0,42	8,0	9,6	9,4	22,6	0,85	20,9	24,3	7,4
	Females	19,5	0,71	18,1	20,9	7,1	7,1	0,56	6,0	8,2	15,5	11,6	0,46	10,7	12,5	7,8	26,3	0,82	24,7	27,9	6,1
Lithuania	Total	20,2	1,03	18,2	22,2	10,0	19,5	1,07	17,4	21,6	10,8	9,2	0,66	7,9	10,5	14,1	33,4	1,21	31,0	35,8	7,1
	Males	20,7	1,21	18,3	23,1	11,5	19,5	1,30	17,0	22,0	13,1	9,6	0,77	8,1	11,1	15,7	32,9	1,42	30,1	35,7	8,5
	Females	19,8	1,07	17,7	21,9	10,6	19,5	1,04	17,5	21,5	10,5	8,7	0,84	7,1	10,3	18,9	33,8	1,24	31,4	36,2	7,2
Luxembourg	Total	14,5	0,83	12,9	16,1	11,2	0,5	0,13	0,2	0,8	51,0	5,5	0,42	4,7	6,3	15,0	17,1	0,86	15,4	18,8	9,9
	Males	14,6	0,90	12,8	16,4	12,1	0,4	0,13	0,1	0,7	63,7	4,8	0,46	3,9	5,7	18,8	16,5	0,92	14,7	18,3	10,9
	Females	14,4	0,91	12,6	16,2	12,4	0,7	0,19	0,3	1,1	53,2	6,3	0,51	5,3	7,3	15,9	17,7	0,94	15,9	19,5	10,4
Latvia	Total	21,3	0,82	19,7	22,9	7,5	27,4	0,89	25,7	29,1	6,4	12,2	0,73	10,8	13,6	11,7	38,1	0,96	36,2	40,0	4,9
	Males	21,7	0,96	19,8	23,6	8,7	26,8	1,02	24,8	28,8	7,5	13,4	0,87	11,7	15,1	12,7	37,6	1,11	35,4	39,8	5,8
	Females	21,0	0,79	19,5	22,5	7,4	27,9	0,89	26,2	29,6	6,3	11,0	0,69	9,6	12,4	12,3	38,5	0,95	36,6	40,4	4,8
Malta	Total	15,0	0,72	13,6	16,4	9,4	5,7	0,47	4,8	6,6	16,2	8,3	0,51	7,3	9,3	12,0	20,3	0,79	18,8	21,8	7,6
	Males	14,5	0,77	13,0	16,0	10,4	5,6	0,52	4,6	6,6	18,2	6,6	0,52	5,6	7,6	15,4	19,4	0,85	17,7	21,1	8,6
	Females	15,5	0,77	14,0	17,0	9,7	5,8	0,51	4,8	6,8	17,2	10,0	0,65	8,7	11,3	12,7	21,2	0,85	19,5	22,9	7,9

		At-risk-of-poverty rate (POV)					Severe material deprivation rate (DEP)					% of individuals aged less than 60 living in households with very low work intensity (LWI)					At-risk-of-poverty or social exclusion (AROPE)				
		Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)
Netherlands	Total	10,3	0,67	9,0	11,6	12,7	2,2	0,47	1,3	3,1	41,9	8,2	0,73	6,8	9,6	17,4	15,1	0,88	13,4	16,8	11,4
	Males	9,7	0,65	8,4	11,0	13,1	2,3	0,52	1,3	3,3	44,3	7,3	0,76	5,8	8,8	20,4	14,1	0,90	12,3	15,9	12,5
	Females	10,8	0,78	9,3	12,3	14,2	2,2	0,47	1,3	3,1	41,9	9,1	0,88	7,4	10,8	19,0	16,0	0,99	14,1	17,9	12,1
Norway	Total	11,2	0,52	10,2	12,2	9,1	2,0	0,25	1,5	2,5	24,5	7,3	0,45	6,4	8,2	12,1	14,9	0,57	13,8	16,0	7,5
	Males	10,1	0,58	9,0	11,2	11,3	2,2	0,30	1,6	2,8	26,7	7,2	0,53	6,2	8,2	14,4	13,8	0,64	12,5	15,1	9,1
	Females	12,2	0,66	10,9	13,5	10,6	1,9	0,29	1,3	2,5	29,9	7,3	0,57	6,2	8,4	15,3	15,9	0,72	14,5	17,3	8,9
Poland	Total	17,6	0,47	16,7	18,5	5,2	14,2	0,45	13,3	15,1	6,2	7,3	0,29	6,7	7,9	7,8	27,8	0,53	26,8	28,8	3,7
	Males	17,4	0,53	16,4	18,4	6,0	14,1	0,49	13,1	15,1	6,8	6,7	0,34	6,0	7,4	9,9	27,0	0,59	25,8	28,2	4,3
	Females	17,7	0,48	16,8	18,6	5,3	14,4	0,48	13,5	15,3	6,5	8,0	0,30	7,4	8,6	7,4	28,5	0,55	27,4	29,6	3,8
Portugal	Total	17,9	0,94	16,1	19,7	10,3	9,0	0,69	7,6	10,4	15,0	8,6	0,66	7,3	9,9	15,0	25,3	1,00	23,3	27,3	7,7
	Males	17,3	0,99	15,4	19,2	11,2	9,2	0,77	7,7	10,7	16,4	8,4	0,75	6,9	9,9	17,5	24,8	1,09	22,7	26,9	8,6
	Females	18,4	0,96	16,5	20,3	10,2	8,8	0,68	7,5	10,1	15,1	8,8	0,69	7,4	10,2	15,4	25,8	1,03	23,8	27,8	7,8
Romania	Total	21,0	1,08	18,9	23,1	10,1	30,9	1,25	28,5	33,4	7,9	6,8	0,53	5,8	7,8	15,3	41,4	1,28	38,9	43,9	6,1
	Males	20,7	1,12	18,5	22,9	10,6	30,6	1,28	28,1	33,1	8,2	6,0	0,54	4,9	7,1	17,6	40,7	1,32	38,1	43,3	6,4
	Females	21,4	1,10	19,2	23,6	10,1	31,2	1,30	28,7	33,7	8,2	7,7	0,57	6,6	8,8	14,5	42,0	1,32	39,4	44,6	6,2
Sweden	Total	12,9	0,44	12,0	13,8	6,7	1,3	0,14	1,0	1,6	21,1	5,9	0,36	5,2	6,6	12,0	15,0	0,46	14,1	15,9	6,0
	Males	11,4	0,49	10,4	12,4	8,4	1,2	0,16	0,9	1,5	26,1	5,7	0,42	4,9	6,5	14,4	13,4	0,52	12,4	14,4	7,6
	Females	14,3	0,55	13,2	15,4	7,5	1,4	0,18	1,0	1,8	25,2	6,1	0,43	5,3	6,9	13,8	16,6	0,58	15,5	17,7	6,8
Slovenia	Total	**12,7**	**0,43**	**11,9**	**13,5**	**6,6**	**5,9**	**0,30**	**5,3**	**6,5**	**10,0**	**6,9**	**0,34**	**6,2**	**7,6**	**9,7**	**18,3**	**0,48**	**17,4**	**19,2**	**5,1**
	Males	**11,3**	**0,49**	**10,3**	**12,3**	**8,5**	**5,6**	**0,34**	**4,9**	**6,3**	**11,9**	**6,0**	**0,41**	**5,2**	**6,8**	**13,4**	**16,5**	**0,56**	**15,4**	**17,6**	**6,7**
	Females	**14,1**	**0,49**	**13,1**	**15,1**	**6,8**	**6,3**	**0,36**	**5,6**	**7,0**	**11,2**	**8,0**	**0,42**	**7,2**	**8,8**	**10,3**	**20,1**	**0,55**	**19,0**	**21,2**	**5,4**
Slovakia	Total	**12,0**	**0,57**	**10,9**	**13,1**	**9,3**	**11,4**	**0,55**	**10,3**	**12,5**	**9,5**	**7,9**	**0,52**	**6,9**	**8,9**	**12,9**	**20,6**	**0,67**	**19,3**	**21,9**	**6,4**
	Males	**11,7**	**0,65**	**10,4**	**13,0**	**10,9**	**11,1**	**0,61**	**9,9**	**12,3**	**10,8**	**7,4**	**0,57**	**6,3**	**8,5**	**15,1**	**19,6**	**0,76**	**18,1**	**21,1**	**7,6**
	Females	**12,2**	**0,58**	**11,1**	**13,3**	**9,3**	**11,8**	**0,56**	**10,7**	**12,9**	**9,3**	**8,4**	**0,55**	**7,3**	**9,5**	**12,8**	**21,6**	**0,69**	**20,2**	**23,0**	**6,3**
United Kingdom	Total	**17,1**	**0,59**	**15,9**	**18,3**	**6,8**	**4,8**	**0,36**	**4,1**	**5,5**	**14,7**	**13,1**	**0,63**	**11,9**	**14,3**	**9,4**	**23,1**	**0,67**	**21,8**	**24,4**	**5,7**
	Males	**16,4**	**0,68**	**15,1**	**17,7**	**8,1**	**4,8**	**0,40**	**4,0**	**5,6**	**16,3**	**12,4**	**0,70**	**11,0**	**13,8**	**11,1**	**22,1**	**0,77**	**20,6**	**23,6**	**6,8**
	Females	**17,8**	**0,61**	**16,6**	**19,0**	**6,7**	**4,9**	**0,40**	**4,1**	**5,7**	**16,0**	**13,9**	**0,70**	**12,5**	**15,3**	**9,9**	**24,2**	**0,71**	**22,8**	**25,6**	**5,8**

Source: authors' calculations based on the anonymised EU-SILC micro-data files provided by Eurostat for statistical/research purposes only (Version 01-03-13)

Table 1d: Standard error estimates for the at-risk-of-poverty or social exclusion indicator (AROPE) and its three sub-indicators, 2011

		At-risk-of-poverty rate (POV)					Severe material deprivation rate (DEP)					% of individuals aged less than 60 living in households with very low work intensity (LWI)					At-risk-of-poverty or social exclusion (AROPE)				
		Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)
Austria	Total	12,6	0,58	11,5	13,7	9,0	3,9	0,35	3,2	4,6	17,6	8,0	0,51	7,0	9,0	12,5	16,9	0,63	15,7	18,1	7,3
	Males	11,7	0,68	10,4	13,0	11,4	3,5	0,38	2,8	4,2	21,3	7,0	0,56	5,9	8,1	15,7	15,2	0,73	13,8	16,6	9,4
	Females	13,5	0,62	12,3	14,7	9,0	4,3	0,40	3,5	5,1	18,2	9,1	0,61	7,9	10,3	13,1	18,5	0,68	17,2	19,8	7,2
Belgium	Total	15,3	0,86	13,6	17,0	11,0	5,7	0,53	4,7	6,7	18,2	13,7	0,87	12,0	15,4	12,4	21,0	0,98	19,1	22,9	9,1
	Males	14,6	0,93	12,8	16,4	12,5	5,9	0,63	4,7	7,1	20,9	13,2	0,93	11,4	15,0	13,8	20,4	1,07	18,3	22,5	10,3
	Females	16,0	0,89	14,3	17,7	10,9	5,4	0,51	4,4	6,4	18,5	14,3	0,96	12,4	16,2	13,2	21,5	1,00	19,5	23,5	9,1
Bulgaria	Total	22,2	0,97	20,3	24,1	8,6	43,5	1,07	41,4	45,6	4,8	11,0	0,75	9,5	12,5	13,4	49,0	1,07	46,9	51,1	4,3
	Males	20,8	1,00	18,8	22,8	9,4	42,4	1,13	40,2	44,6	5,2	11,1	0,78	9,6	12,6	13,8	47,6	1,14	45,4	49,8	4,7
	Females	23,5	0,99	21,6	25,4	8,3	44,6	1,10	42,4	46,8	4,8	10,9	0,79	9,4	12,4	14,2	50,4	1,10	48,2	52,6	4,3
Switzerland	Total	15,0	0,57	13,9	16,1	7,4	1,0	0,26	0,5	1,5	51,0	4,7	0,41	3,9	5,5	17,1	17,2	0,61	16,0	18,4	7,0
	Males	13,7	0,63	12,5	14,9	9,0	1,1	0,40	0,3	1,9	71,3	4,1	0,44	3,2	5,0	21,0	15,6	0,72	14,2	17,0	9,0
	Females	16,3	0,60	15,1	17,5	7,2	0,9	0,18	0,5	1,3	39,2	5,2	0,47	4,3	6,1	17,7	18,7	0,63	17,5	19,9	6,6
Cyprus	Total	14,5	0,66	13,2	15,8	8,9	10,7	0,70	9,3	12,1	12,8	4,5	0,36	3,8	5,2	15,7	23,5	0,85	21,8	25,2	7,1
	Males	12,6	0,71	11,2	14,0	11,0	10,6	0,77	9,1	12,1	14,2	4,0	0,43	3,2	4,8	21,1	21,5	0,92	19,7	23,3	8,4
	Females	16,3	0,72	14,9	17,7	8,7	10,7	0,74	9,2	12,2	13,6	5,0	0,40	4,2	5,8	15,7	25,4	0,92	23,6	27,2	7,1
Czech Republic	Total	9,8	0,49	8,8	10,8	9,8	6,1	0,41	5,3	6,9	13,2	6,6	0,43	5,8	7,4	12,8	15,3	0,57	14,2	16,4	7,3
	Males	8,9	0,55	7,8	10,0	12,1	5,6	0,42	4,8	6,4	14,7	5,8	0,48	4,9	6,7	16,2	13,7	0,62	12,5	14,9	8,9
	Females	10,6	0,52	9,6	11,6	9,6	6,7	0,45	5,8	7,6	13,2	7,4	0,47	6,5	8,3	12,4	16,9	0,60	15,7	18,1	7,0
Germany	Total	15,8	0,38	15,1	16,5	4,7	5,3	0,23	4,8	5,8	8,5	11,1	0,38	10,4	11,8	6,7	19,9	0,41	19,1	20,7	4,0
	Males	14,9	0,43	14,1	15,7	5,7	5,0	0,26	4,5	5,5	10,2	10,4	0,43	9,6	11,2	8,1	18,5	0,46	17,6	19,4	4,9
	Females	16,8	0,44	15,9	17,7	5,1	5,7	0,27	5,2	6,2	9,3	11,8	0,45	10,9	12,7	7,5	21,3	0,47	20,4	22,2	4,3
Denmark	Total	13,0	0,71	11,6	14,4	10,7	2,6	0,35	1,9	3,3	26,4	11,4	0,76	9,9	12,9	13,1	18,9	0,77	17,4	20,4	8,0
	Males	13,0	0,88	11,3	14,7	13,3	2,0	0,35	1,3	2,7	34,3	10,7	0,90	8,9	12,5	16,5	18,2	0,94	16,4	20,0	10,1
	Females	13,0	0,86	11,3	14,7	13,0	3,3	0,49	2,3	4,3	29,1	12,0	0,93	10,2	13,8	15,2	19,5	0,95	17,6	21,4	9,5
Estonia	Total	17,5	0,65	16,2	18,8	7,3	8,7	0,48	7,8	9,6	10,8	9,9	0,57	8,8	11,0	11,3	23,1	0,73	21,7	24,5	6,2
	Males	17,6	0,77	16,1	19,1	8,6	8,8	0,55	7,7	9,9	12,3	10,8	0,69	9,4	12,2	12,5	23,2	0,86	21,5	24,9	7,3
	Females	17,4	0,72	16,0	18,8	8,1	8,6	0,53	7,6	9,6	12,1	9,1	0,65	7,8	10,4	14,0	22,9	0,80	21,3	24,5	6,8
Greece	Total	21,4	0,78	19,9	22,9	7,1	15,2	0,77	13,7	16,7	9,9	11,8	0,69	10,4	13,2	11,5	31,0	0,94	29,2	32,8	5,9
	Males	20,9	0,84	19,3	22,5	7,9	14,9	0,81	13,3	16,5	10,7	10,9	0,75	9,4	12,4	13,5	29,6	1,00	27,6	31,6	6,6
	Females	21,9	0,82	20,3	23,5	7,3	15,4	0,81	13,8	17,0	10,3	12,8	0,76	11,3	14,3	11,6	32,3	0,99	30,4	34,2	6,0
Spain	Total	21,8	0,55	20,7	22,9	4,9	3,9	0,27	3,4	4,4	13,6	12,2	0,45	11,3	13,1	7,2	27,0	0,58	25,9	28,1	4,2
	Males	21,1	0,57	20,0	22,2	5,3	3,7	0,26	3,2	4,2	13,8	11,8	0,49	10,8	12,8	8,1	26,6	0,63	25,4	27,8	4,6
	Females	22,4	0,58	21,3	23,5	5,1	4,0	0,31	3,4	4,6	15,2	12,6	0,52	11,6	13,6	8,1	27,3	0,61	26,1	28,5	4,4

		At-risk-of-poverty rate (POV)					Severe material deprivation rate (DEP)					% of individuals aged less than 60 living in households with very low work intensity (LWI)					At-risk-of-poverty or social exclusion (AROPE)				
		Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)
Finland	Total	13,7	0,45	12,8	14,6	6,4	3,2	0,24	2,7	3,7	14,7	9,8	0,45	8,9	10,7	9,0	17,9	0,50	16,9	18,9	5,5
	Males	13,2	0,52	12,2	14,2	7,7	3,2	0,29	2,6	3,8	17,8	10,2	0,53	9,2	11,2	10,2	17,3	0,58	16,2	18,4	6,6
	Females	14,2	0,53	13,2	15,2	7,3	3,2	0,28	2,7	3,7	17,2	9,3	0,52	8,3	10,3	11,0	18,5	0,59	17,3	19,7	6,3
France	Total	14,0	0,49	13,0	15,0	6,9	5,2	0,32	4,6	5,8	12,1	9,3	0,41	8,5	10,1	8,6	19,3	0,54	18,2	20,4	5,5
	Males	13,5	0,53	12,5	14,5	7,7	5,1	0,34	4,4	5,8	13,1	9,0	0,46	8,1	9,9	10,0	18,6	0,61	17,4	19,8	6,4
	Females	14,5	0,51	13,5	15,5	6,9	5,4	0,35	4,7	6,1	12,7	9,7	0,45	8,8	10,6	9,1	19,9	0,57	18,8	21,0	5,6
Hungary	Total	13,8	0,61	12,6	15,0	8,7	23,1	0,75	21,6	24,6	6,4	12,1	0,58	11,0	13,2	9,4	31,0	0,79	29,5	32,5	5,0
	Males	14,1	0,67	12,8	15,4	9,3	22,7	0,80	21,1	24,3	6,9	11,8	0,63	10,6	13,0	10,5	30,5	0,85	28,8	32,2	5,5
	Females	13,6	0,61	12,4	14,8	8,8	23,5	0,75	22,0	25,0	6,3	12,4	0,59	11,2	13,6	9,3	31,4	0,78	29,9	32,9	4,9
Iceland	Total	9,2	0,60	8,0	10,4	12,8	2,1	0,27	1,6	2,6	25,2	6,2	0,56	5,1	7,3	17,7	13,7	0,70	12,3	15,1	10,0
	Males	9,0	0,65	7,7	10,3	14,2	2,0	0,30	1,4	2,6	29,4	6,0	0,61	4,8	7,2	19,9	13,3	0,77	11,8	14,8	11,3
	Females	9,4	0,75	7,9	10,9	15,6	2,1	0,35	1,4	2,8	32,7	6,4	0,70	5,0	7,8	21,4	14,1	0,87	12,4	15,8	12,1
Italy	Total	19,6	0,73	18,2	21,0	7,3	11,2	0,59	10,0	12,4	10,3	10,4	0,51	9,4	11,4	9,6	28,2	0,89	26,5	29,9	6,2
	Males	18,3	0,75	16,8	19,8	8,0	10,9	0,60	9,7	12,1	10,8	9,2	0,53	8,2	10,2	11,3	26,4	0,91	24,6	28,2	6,8
	Females	20,8	0,75	19,3	22,3	7,1	11,5	0,61	10,3	12,7	10,4	11,6	0,55	10,5	12,7	9,3	29,9	0,91	28,1	31,7	6,0
Lithuania	Total	20,0	1,07	17,9	22,1	10,5	18,5	0,93	16,7	20,3	9,9	12,3	0,93	10,5	14,1	14,8	33,4	1,22	31,0	35,8	7,2
	Males	19,8	1,25	17,4	22,3	12,4	18,1	1,08	16,0	20,2	11,7	12,5	1,08	10,4	14,6	16,9	33,2	1,44	30,4	36,0	8,5
	Females	20,1	1,11	17,9	22,3	10,8	18,8	0,98	16,9	20,7	10,2	12,2	1,05	10,1	14,3	16,9	33,6	1,23	31,2	36,0	7,2
Luxembourg	Total	13,6	0,81	12,0	15,2	11,7	1,2	0,22	0,8	1,6	35,9	5,8	0,41	5,0	6,6	13,9	16,8	0,83	15,2	18,4	9,7
	Males	12,7	0,78	11,2	14,2	12,0	1,3	0,25	0,8	1,8	37,7	5,1	0,47	4,2	6,0	18,1	15,6	0,83	14,0	17,2	10,4
	Females	14,5	0,96	12,6	16,4	13,0	1,1	0,25	0,6	1,6	44,5	6,6	0,52	5,6	7,6	15,4	18,0	0,98	16,1	19,9	10,7
Latvia	Total	19,3	0,71	17,9	20,7	7,2	30,9	0,89	29,2	32,6	5,6	12,2	0,58	11,1	13,3	9,3	40,1	0,91	38,3	41,9	4,4
	Males	20,0	0,81	18,4	21,6	7,9	30,4	0,98	28,5	32,3	6,3	12,8	0,66	11,5	14,1	10,1	39,8	1,02	37,8	41,8	5,0
	Females	18,7	0,71	17,3	20,1	7,4	31,4	0,91	29,6	33,2	5,7	11,5	0,63	10,3	12,7	10,7	40,4	0,93	38,6	42,2	4,5
Malta	Total	15,4	0,69	14,0	16,8	8,8	6,3	0,46	5,4	7,2	14,3	8,1	0,51	7,1	9,1	12,3	21,4	0,77	19,9	22,9	7,1
	Males	15,0	0,76	13,5	16,5	9,9	6,2	0,54	5,1	7,3	17,1	6,6	0,56	5,5	7,7	16,6	20,6	0,86	18,9	22,3	8,2
	Females	15,8	0,73	14,4	17,2	9,1	6,4	0,48	5,5	7,3	14,7	9,7	0,62	8,5	10,9	12,5	22,2	0,82	20,6	23,8	7,2

		At-risk-of-poverty rate (POV)					Severe material deprivation rate (DEP)					% of individuals aged less than 60 living in house-holds with very low work intensity (LWI)					At-risk-of-poverty or social exclusion (AROPE)				
		Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)	Indicator value (%)	Estimated standard error (% points	Confidence interval at 95% - lower bound	Confidence interval at 95% - upper bound	Relative margin of error (%)
Netherlands	Total	11,0	0,81	9,4	12,6	14,4	2,5	0,47	1,6	3,4	36,8	8,7	0,71	7,3	10,1	16,0	15,7	0,89	14,0	17,4	11,1
	Males	10,8	1,00	8,8	12,8	18,1	2,4	0,59	1,2	3,6	48,2	7,9	0,87	6,2	9,6	21,6	14,9	1,09	12,8	17,0	14,3
	Females	11,1	0,73	9,7	12,5	12,9	2,6	0,41	1,8	3,4	30,9	9,5	0,72	8,1	10,9	14,9	16,6	0,82	15,0	18,2	9,7
Norway	Total	10,6	0,53	9,6	11,6	9,8	2,3	0,29	1,7	2,9	24,7	7,1	0,50	6,1	8,1	13,8	14,6	0,61	13,4	15,8	8,2
	Males	10,0	0,62	8,8	11,2	12,2	2,1	0,29	1,5	2,7	27,1	7,1	0,58	6,0	8,2	16,0	13,7	0,70	12,3	15,1	10,0
	Females	11,1	0,66	9,8	12,4	11,7	2,5	0,39	1,7	3,3	30,6	7,1	0,62	5,9	8,3	17,1	15,6	0,76	14,1	17,1	9,5
Poland	Total	17,7	0,52	16,7	18,7	5,8	13,0	0,46	12,1	13,9	6,9	6,9	0,27	6,4	7,4	7,7	27,2	0,63	26,0	28,4	4,5
	Males	17,8	0,55	16,7	18,9	6,1	12,9	0,49	11,9	13,9	7,4	6,4	0,32	5,8	7,0	9,8	26,6	0,67	25,3	27,9	4,9
	Females	17,6	0,54	16,5	18,7	6,0	13,2	0,46	12,3	14,1	6,8	7,4	0,30	6,8	8,0	7,9	27,7	0,65	26,4	29,0	4,6
Portugal	Total	18,0	0,84	16,4	19,6	9,1	8,3	0,64	7,0	9,6	15,1	8,2	0,62	7,0	9,4	14,8	24,4	0,94	22,6	26,2	7,6
	Males	17,6	0,89	15,9	19,3	9,9	7,8	0,66	6,5	9,1	16,6	7,9	0,62	6,7	9,1	15,4	23,8	1,00	21,8	25,8	8,2
	Females	18,4	0,88	16,7	20,1	9,4	8,7	0,68	7,4	10,0	15,3	8,6	0,72	7,2	10,0	16,4	25,1	0,99	23,2	27,0	7,7
Romania	Total	22,1	1,08	20,0	24,2	9,6	29,2	1,19	26,9	31,5	8,0	6,7	0,57	5,6	7,8	16,7	40,1	1,24	37,7	42,5	6,1
	Males	21,7	1,15	19,4	24,0	10,4	29,0	1,26	26,5	31,5	8,5	5,7	0,59	4,5	6,9	20,3	39,2	1,30	36,7	41,7	6,5
	Females	22,4	1,09	20,3	24,5	9,5	29,4	1,21	27,0	31,8	8,1	7,6	0,59	6,4	8,8	15,2	40,9	1,25	38,5	43,4	6,0
Sweden	Total	14,0	0,47	13,1	14,9	6,6	1,2	0,14	0,9	1,5	22,9	6,8	0,40	6,0	7,6	11,5	16,1	0,49	15,1	17,1	6,0
	Males	12,2	0,53	11,2	13,2	8,5	1,1	0,17	0,8	1,4	30,3	6,6	0,47	5,7	7,5	14,0	14,2	0,56	13,1	15,3	7,7
	Females	15,7	0,59	14,5	16,9	7,4	1,2	0,18	0,8	1,6	29,4	6,9	0,48	6,0	7,8	13,6	18,0	0,61	16,8	19,2	6,6
Slovenia	Total	13,6	0,44	12,7	14,5	6,3	6,1	0,30	5,5	6,7	9,6	7,6	0,38	6,9	8,3	9,8	19,3	0,50	18,3	20,3	5,1
	Males	12,2	0,51	11,2	13,2	8,2	5,7	0,34	5,0	6,4	11,7	6,7	0,44	5,8	7,6	12,9	17,3	0,58	16,2	18,4	6,6
	Females	15,0	0,50	14,0	16,0	6,5	6,4	0,35	5,7	7,1	10,7	8,6	0,44	7,7	9,5	10,0	21,1	0,56	20,0	22,2	5,2
Slovakia	Total	13,0	0,62	11,8	14,2	9,3	10,6	0,56	9,5	11,7	10,4	7,6	0,52	6,6	8,6	13,4	20,6	0,70	19,2	22,0	6,7
	Males	12,8	0,71	11,4	14,2	10,9	10,1	0,64	8,8	11,4	12,4	7,5	0,61	6,3	8,7	15,9	19,5	0,80	17,9	21,1	8,0
	Females	13,1	0,61	11,9	14,3	9,1	11,0	0,57	9,9	12,1	10,2	7,8	0,53	6,8	8,8	13,3	21,7	0,71	20,3	23,1	6,4
United Kingdom	Total	16,2	0,58	15,1	17,3	7,0	5,1	0,38	4,4	5,8	14,6	11,5	0,56	10,4	12,6	9,5	22,7	0,68	21,4	24,0	5,9
	Males	14,8	0,64	13,5	16,1	8,5	5,0	0,39	4,2	5,8	15,3	10,7	0,62	9,5	11,9	11,4	21,4	0,76	19,9	22,9	7,0
	Females	17,6	0,63	16,4	18,8	7,0	5,1	0,43	4,3	5,9	16,5	12,2	0,64	10,9	13,5	10,3	24,1	0,74	22,6	25,6	6,0

Source: authors' calculations based on the anonymised EU-SILC micro-data files provided by Eurostat for statistical/research purposes only (Version 01-03-13)

Table 2a: Standard error estimates and confidence intervals for the persistent at-risk-of-poverty rate, 2005-2008

		Persistent poverty rate (%)	Sample size (number of individuals)	Standard error (% points)	Confidence Interval at 95% - Lower bound	Confidence Interval at 95% - Upper bound	Relative margin of error (%)
Austria	Total	4,2	2511	0,64	2,9	5,5	29,9
	Males	3,8	1216	0,69	2,4	5,2	35,6
	Females	4,6	1295	0,77	3,1	6,1	32,8
Belgium	Total	9,0	2785	1,03	7,0	11,0	22,4
	Males	8,3	1367	1,21	5,9	10,7	28,6
	Females	9,7	1418	1,09	7,6	11,8	22,0
Czech Republic	Total	3,9	7937	0,53	2,9	4,9	26,6
	Males	3,5	3760	0,55	2,4	4,6	30,8
	Females	4,3	4177	0,58	3,2	5,4	26,4
Denmark	Total	4,7	2176	1,08	2,6	6,8	45,0
	Males	4,7	1090	1,57	1,6	7,8	65,5
	Females	4,6	1086	1,17	2,3	6,9	49,9
Estonia	Total	13,6	1205	1,68	10,3	16,9	24,2
	Males	10,1	564	1,79	6,6	13,6	34,7
	Females	16,5	641	2,27	12,1	20,9	27,0
Spain	Total	11,7	6527	1,38	9,0	14,4	23,1
	Males	10,8	3166	1,47	7,9	13,7	26,7
	Females	14,0	3361	1,39	11,3	16,7	19,5
Finland	Total	6,8	3581	0,85	5,1	8,5	24,5
	Males	6,1	1836	0,88	4,4	7,8	28,3
	Females	7,4	1745	1,07	5,3	9,5	28,3
France	Total	6,2	11265	0,42	5,4	7,0	13,3
	Males	5,3	5434	0,43	4,5	6,1	15,9
	Females	7,0	5831	0,49	6,0	8,0	13,7
Greece	Total	13,1	2768	1,59	10,0	16,2	23,8
	Males	11,3	1343	1,49	8,4	14,2	25,8
	Females	14,8	1425	1,94	11,0	18,6	25,7
Hungary	Total	7,7	3918	0,84	6,1	9,3	21,4
	Males	7,8	1808	0,95	5,9	9,7	23,9
	Females	7,5	2110	0,89	5,8	9,2	23,3
Ireland	Total	10,6	1174	2,87	5,0	16,2	53,1
	Males	10,7	584	3,77	3,3	18,1	69,1
	Females	10,5	590	2,52	5,6	15,4	47,0
Iceland	Total	2,7	1300	0,72	1,3	4,1	52,3
	Males	2,4	648	0,77	0,9	3,9	62,9
	Females	3,0	652	0,90	1,2	4,8	58,8
Italy	Total	12,7	10148	1,14	10,5	14,9	17,6
	Males	11,5	4914	1,17	9,2	13,8	19,9
	Females	13,7	5234	1,19	11,4	16,0	17,0
Lithuania	Total	10,9	1890	1,47	8,0	13,8	26,4
	Males	10,2	860	1,79	6,7	13,7	34,4
	Females	11,5	1030	1,48	8,6	14,4	25,2
Luxembourg	Total	8,4	6077	1,02	6,4	10,4	23,8
	Males	7,7	2999	1,10	5,5	9,9	28,0
	Females	9,2	3078	1,19	6,9	11,5	25,4

		Persistent poverty rate (%)	Sample size (number of individuals)	Standard error (% points)	Confidence Interval at 95% - Lower bound	Confidence Interval at 95% - Upper bound	Relative margin of error (%)
Latvia	**Total**	12,7	1972	1,62	9,5	15,9	25,0
	Males	10,7	835	1,94	6,9	14,5	35,5
	Females	14,3	1137	1,67	11,0	17,6	22,9
Netherlands	**Total**	6,4	5726	1,11	4,2	8,6	34,0
	Males	6,9	2826	1,28	4,4	9,4	36,4
	Females	5,8	2900	1,16	3,5	8,1	39,2
Norway	**Total**	5,6	6076	0,61	4,4	6,8	21,4
	Males	4,0	3135	0,60	2,8	5,2	29,4
	Females	7,2	2941	1,00	5,2	9,2	27,2
Poland	**Total**	10,4	8845	0,75	8,9	11,9	14,1
	Males	10,7	4210	0,83	9,1	12,3	15,2
	Females	10,2	4635	0,82	8,6	11,8	15,8
Sweden	**Total**	2,5	2876	0,51	1,5	3,5	40,0
	Males	2,4	1469	0,59	1,2	3,6	48,2
	Females	2,5	1407	0,56	1,4	3,6	43,9
Slovenia	**Total**	7,7	4553	0,87	6,0	9,4	22,1
	Males	6,3	2266	0,91	4,5	8,1	28,3
	Females	9,0	2281	1,05	6,9	11,1	22,9
United Kingdom	**Total**	8,3	3731	0,76	6,8	9,8	17,9
	Males	7,6	1755	0,84	6,0	9,2	21,7
	Females	8,9	1976	0,83	7,3	10,5	18,3

Source: authors' calculations based on the anonymised EU-SILC micro-data files provided by Eurostat for statistical/research purposes only (Version 01-03-13)

Table 2b: Standard error estimates and confidence intervals for the persistent at-risk-of-poverty rate, 2006-2009

		Persistent poverty rate (%)	Sample size (number of individuals)	Standard error (% points)	Confidence Interval at 95% - Lower bound	Confidence Interval at 95% - Upper bound	Relative margin of error (%)
Austria	Total	6,1	2494	0,78	4,6	7,6	25,1
	Males	4,4	1173	0,79	2,9	5,9	35,2
	Females	7,7	1321	1,05	5,6	9,8	26,7
Belgium	Total	9,2	2663	1,08	7,1	11,3	23,0
	Males	7,8	1264	1,10	5,6	10,0	27,6
	Females	10,4	1399	1,31	7,8	13,0	24,7
Bulgaria	Total	10,7	2028	1,44	7,9	13,5	26,4
	Males	9,8	973	1,51	6,8	12,8	30,2
	Females	11,5	1055	1,53	8,5	14,5	26,1
Cyprus	Total	10,1	2227	1,01	8,1	12,1	19,6
	Males	7,4	1078	0,92	5,6	9,2	24,4
	Females	12,6	1149	1,23	10,2	15,0	19,1
Czech Republic	Total	3,7	7048	0,63	2,5	4,9	33,4
	Males	3,1	3290	0,77	1,6	4,6	48,7
	Females	4,2	3758	0,61	3,0	5,4	28,5
Denmark	Total	2,3	2096	0,53	1,3	3,3	45,2
	Males	2,8	1015	0,78	1,3	4,3	54,6
	Females	1,9	1081	0,59	0,7	3,1	60,9
Estonia	Total	12,9	3208	1,04	10,9	14,9	15,8
	Males	11,5	1492	1,29	9,0	14,0	22,0
	Females	13,9	1716	1,20	11,5	16,3	16,9
Spain	Total	11,4	6772	0,87	9,7	13,1	15,0
	Males	10,7	3275	0,91	8,9	12,5	16,7
	Females	13,1	3497	0,95	11,2	15,0	14,2
Finland	Total	6,5	3369	0,76	5,0	8,0	22,9
	Males	5,1	1721	0,81	3,5	6,7	31,1
	Females	7,7	1648	1,02	5,7	9,7	26,0
France	Total	6,4	11533	0,45	5,5	7,3	13,8
	Males	5,7	5564	0,48	4,8	6,6	16,5
	Females	7,0	5969	0,50	6,0	8,0	14,0
Hungary	Total	8,6	4441	1,52	5,6	11,6	34,6
	Males	9,2	2042	1,56	6,1	12,3	33,2
	Females	8,2	2399	1,52	5,2	11,2	36,3
Ireland	Total	7,7	1059	1,49	4,8	10,6	37,9
	Males	6,7	504	1,40	4,0	9,4	41,0
	Females	8,6	555	1,81	5,1	12,1	41,3
Iceland	Total	4,2	1184	1,12	2,0	6,4	52,3
	Males	3,3	591	1,09	1,2	5,4	64,7
	Females	5,1	593	1,44	2,3	7,9	55,3
Italy	Total	13,0	9822	1,07	10,9	15,1	16,1
	Males	11,8	4671	1,14	9,6	14,0	18,9
	Females	14,1	5151	1,10	11,9	16,3	15,3
Lithuania	Total	11,7	3008	1,42	8,9	14,5	23,8
	Males	9,2	1360	1,46	6,3	12,1	31,1
	Females	13,8	1648	1,62	10,6	17,0	23,0
Luxembourg	Total	8,8	6091	1,08	6,7	10,9	24,1
	Males	7,7	3019	1,08	5,6	9,8	27,5
	Females	9,9	3072	1,27	7,4	12,4	25,1

		Persistent poverty rate (%)	Sample size (number of individuals)	Standard error (% points)	Confidence Interval at 95% - Lower bound	Confidence Interval at 95% - Upper bound	Relative margin of error (%)
Latvia	Total	17,1	2213	2,06	13,1	21,1	23,6
	Males	14,6	932	2,24	10,2	19,0	30,1
	Females	19,2	1281	2,23	14,8	23,6	22,8
Malta	Total	7,5	1912	1,02	5,5	9,5	26,7
	Males	6,0	917	1,07	3,9	8,1	35,0
	Females	8,9	995	1,23	6,5	11,3	27,1
Netherlands	Total	4,7	2978	1,26	2,2	7,2	52,5
	Males	5,4	1474	1,78	1,9	8,9	64,6
	Females	4,1	1504	1,22	1,7	6,5	58,3
Norway	Total	5,7	5528	0,69	4,3	7,1	23,7
	Males	4,0	2798	0,65	2,7	5,3	31,9
	Females	7,3	2730	1,12	5,1	9,5	30,1
Poland	Total	10,2	8998	0,80	8,6	11,8	15,4
	Males	10,4	4280	0,89	8,7	12,1	16,8
	Females	10,1	4718	0,80	8,5	11,7	15,5
Portugal	Total	9,8	2255	1,16	7,5	12,1	23,2
	Males	9,2	1102	1,28	6,7	11,7	27,3
	Females	10,4	1153	1,26	7,9	12,9	23,7
Sweden	Total	3,7	2757	0,60	2,5	4,9	31,8
	Males	3,1	1347	0,55	2,0	4,2	34,8
	Females	4,3	1410	0,79	2,8	5,8	36,0
Slovenia	Total	7,0	4608	0,73	5,6	8,4	20,4
	Males	5,8	2254	0,77	4,3	7,3	26,0
	Females	8,2	2354	0,90	6,4	10,0	21,5
Slovakia	Total	5,4	3167	0,89	3,7	7,1	32,3
	Males	5,0	1473	1,11	2,8	7,2	43,5
	Females	5,7	1694	0,84	4,1	7,3	28,9
United Kingdom	Total	8,0	3213	0,94	6,2	9,8	23,0
	Males	7,6	1545	1,00	5,6	9,6	25,8
	Females	8,3	1668	1,06	6,2	10,4	25,0

Source: authors' calculations based on the anonymised EU-SILC micro-data files provided by Eurostat for statistical/research purposes only (Version 01-03-13)

Table 2c: Standard error estimates and confidence intervals for the persistent at-risk-of-poverty rate, 2007-2010

		Persistent poverty rate (%)	Sample size (number of individuals)	Standard error (% points)	Confidence Interval at 95% - Lower bound	Confidence Interval at 95% - Upper bound	Relative margin of error (%)
Austria	Total	5,8	2623	0,78	4,3	7,3	26,4
	Males	5,3	1254	0,87	3,6	7,0	32,2
	Females	6,3	1369	0,95	4,4	8,2	29,6
Belgium	Total	9,3	2729	1,15	7,0	11,6	24,2
	Males	8,5	1338	1,22	6,1	10,9	28,1
	Females	10,0	1391	1,29	7,5	12,5	25,3
Bulgaria	Total	16,4	2207	2,04	12,4	20,4	24,4
	Males	13,7	1070	2,04	9,7	17,7	29,2
	Females	18,9	1137	2,19	14,6	23,2	22,7
Cyprus	Total	9,4	2138	0,97	7,5	11,3	20,2
	Males	7,5	1006	1,03	5,5	9,5	26,9
	Females	11,0	1132	1,10	8,8	13,2	19,6
Czech Republic	Total	5,5	5227	0,95	3,6	7,4	33,9
	Males	5,1	2543	1,07	3,0	7,2	41,1
	Females	5,9	2684	0,92	4,1	7,7	30,6
Denmark	Total	4,0	2320	0,81	2,4	5,6	39,7
	Males	3,7	1139	0,91	1,9	5,5	48,2
	Females	4,3	1181	1,01	2,3	6,3	46,0
Estonia	Total	9,9	2874	0,99	8,0	11,8	19,6
	Males	7,8	1344	1,01	5,8	9,8	25,4
	Females	11,7	1530	1,24	9,3	14,1	20,8
Spain	Total	11,0	7361	0,86	9,3	12,7	15,3
	Males	10,6	3533	0,92	8,8	12,4	17,0
	Females	12,2	3828	0,89	10,5	13,9	14,3
Finland	Total	7,7	3123	1,27	5,2	10,2	32,3
	Males	7,4	1584	1,37	4,7	10,1	36,3
	Females	8,1	1539	1,48	5,2	11,0	35,8
France	Total	7,0	12222	0,46	6,1	7,9	12,9
	Males	6,4	5860	0,50	5,4	7,4	15,3
	Females	7,6	6362	0,53	6,6	8,6	13,7
Hungary	Total	5,8	4554	1,59	2,7	8,9	53,7
	Males	6,2	2032	1,71	2,8	9,6	54,1
	Females	5,5	2522	1,52	2,5	8,5	54,2
Iceland	Total	3,4	1309	1,09	1,3	5,5	62,8
	Males	3,5	665	1,27	1,0	6,0	71,1
	Females	3,3	644	1,11	1,1	5,5	65,9
Italy	Total	11,6	9903	0,97	9,7	13,5	16,4
	Males	9,9	4733	1,00	7,9	11,9	19,8
	Females	13,3	5170	1,03	11,3	15,3	15,2
Lithuania	Total	7,6	2958	0,94	5,8	9,4	24,2
	Males	6,8	1416	1,05	4,7	8,9	30,3
	Females	8,4	1542	1,14	6,2	10,6	26,6
Luxembourg	Total	6,0	6152	0,79	4,5	7,5	25,8
	Males	5,2	3049	0,73	3,8	6,6	27,5
	Females	6,9	3103	1,02	4,9	8,9	29,0

		Persistent poverty rate (%)	Sample size (number of individuals)	Standard error (% points)	Confidence Interval at 95% - Lower bound	Confidence Interval at 95% - Upper bound	Relative margin of error (%)
Latvia	Total	11,0	2634	1,43	8,2	13,8	25,5
	Males	10,8	1161	1,65	7,6	14,0	29,9
	Females	11,1	1473	1,43	8,3	13,9	25,3
Malta	Total	9,9	1879	1,29	7,4	12,4	25,5
	Males	9,0	940	1,29	6,5	11,5	28,1
	Females	10,8	939	1,47	7,9	13,7	26,7
Netherlands	Total	8,2	4908	1,53	5,2	11,2	36,6
	Males	6,8	2420	1,37	4,1	9,5	39,5
	Females	9,5	2488	2,03	5,5	13,5	41,9
Norway	Total	5,3	5344	0,52	4,3	6,3	19,2
	Males	4,5	2675	0,61	3,3	5,7	26,6
	Females	6,1	2669	0,73	4,7	7,5	23,5
Poland	Total	10,5	8352	0,88	8,8	12,2	16,4
	Males	10,2	3955	0,91	8,4	12,0	17,5
	Females	10,7	4397	0,93	8,9	12,5	17,0
Portugal	Total	13,2	2543	1,56	10,1	16,3	23,2
	Males	13,0	1187	1,87	9,3	16,7	28,2
	Females	13,5	1356	1,50	10,6	16,4	21,8
Romania	Total	18,2	4588	1,57	15,1	21,3	16,9
	Males	17,8	2197	1,64	14,6	21,0	18,1
	Females	18,5	2391	1,66	15,2	21,8	17,6
Sweden	Total	4,8	3485	0,60	3,6	6,0	24,5
	Males	4,4	1750	0,66	3,1	5,7	29,4
	Females	5,2	1735	0,72	3,8	6,6	27,1
Slovenia	Total	6,8	4769	0,74	5,3	8,3	21,3
	Males	5,5	2348	0,83	3,9	7,1	29,6
	Females	8,0	2415	0,86	6,3	9,7	21,1
Slovakia	Total	6,4	3465	1,05	4,3	8,5	32,2
	Males	5,0	1660	1,00	3,0	7,0	39,2
	Females	7,7	1805	1,19	5,4	10,0	30,3
United Kingdom	Total	7,4	3229	0,84	5,8	9,0	22,2
	Males	7,0	1535	1,01	5,0	9,0	28,3
	Females	7,7	1694	0,90	5,9	9,5	22,9

Source: authors' calculations based on the anonymised EU-SILC micro-data files provided by Eurostat for statistical/research purposes only (Version 01-03-13)

Table 3a: Estimated standard errors for estimators of net change in the AROPE between 2007 and 2011

	AROPE (%) - 2007	AROPE (%) - 2011	(2011) - (2007) (% points)	Estimated standard error (% points)	Confidence interval at 95% - Lower bound	Confidence interval at 95% - Upper bound	Is the difference significant (Y/N)?
Austria	16,7	16,9	0,17	0,42	-0,65	1,00	N
Belgium	21,6	21,0	-0,59	0,12	-0,81	-0,36	Y
Bulgaria	60,7	49,1	-11,60	0,96	-13,48	-9,72	Y
Switzerland	18,0	17,2	-0,84	0,43	-1,68	0,00	Y
Cyprus	25,2	23,7	-1,47	0,59	-2,63	-0,31	Y
Czech republic	15,8	15,3	-0,51	0,48	-1,45	0,43	N
Germany	20,6	19,9	-0,69	0,23	-1,15	-0,23	Y
Denmark	16,8	18,9	2,03	0,50	1,06	3,01	Y
Estonia	22,0	23,1	1,06	0,50	0,08	2,04	Y
Greece	28,3	31,0	2,61	0,63	1,37	3,86	Y
Spain	23,1	27,0	3,82	0,35	3,14	4,50	Y
Finland	17,4	17,9	0,49	0,33	-0,15	1,13	N
France	19,0	19,3	0,30	0,42	-0,52	1,12	N
Hungary	29,4	31,0	1,56	0,57	0,44	2,68	Y
Iceland	13,0	13,7	0,74	0,52	-0,27	1,75	N
Italy	26,0	28,2	2,18	0,74	0,73	3,62	Y
Lithuania	28,7	33,4	4,68	0,67	3,37	5,99	Y
Luxembourg	15,9	16,8	0,85	0,53	-0,19	1,89	N
Latvia	36,0	40,4	4,42	1,03	2,41	6,43	Y
Malta	19,4	21,4	1,97	0,54	0,92	3,02	Y
Netherlands	15,7	15,7	-0,02	0,68	-1,35	1,31	N
Norway	16,6	14,6	-1,94	0,39	-2,71	-1,17	Y
Poland	34,4	27,2	-7,14	0,41	-7,96	-6,33	Y
Portugal	25,0	24,4	-0,58	0,16	-0,89	-0,27	Y
Romania	45,9	40,3	-5,63	0,10	-5,82	-5,44	Y
Sweden	13,9	16,1	2,24	0,33	1,59	2,89	Y
Slovenia	17,1	19,3	2,13	0,35	1,44	2,82	Y
Slovakia	21,3	20,6	-0,71	0,21	-1,12	-0,31	Y
United Kingdom	22,6	22,7	0,13	0,45	-0,75	1,00	N

Source: EU-SILC Production Database (PDB)

Note:
(i) No data for Ireland (2011 wave not finalized yet)
(ii) For UK, Belgium, Netherlands, Cyprus, Estonia, Luxembourg, Spain, Italy, Lithuania, Hungary and Slovakia: stratification was not taken into account
(iii) Results still provisional

Table 3b: Estimated standard errors for estimators of net change in the AROPE between 2008 and 2011

	AROPE (%) - 2008	AROPE (%) - 2011	(2011) - (2008) (% points)	Estimated standard error (% points)	Confidence interval at 95% - Lower bound	Confidence interval at 95% - Upper bound	Is the difference significant (Y/N)?
Austria	18,6	16,9	-1,67	0,57	-2,78	-0,56	Y
Belgium	20,8	21,0	0,18	0,63	-1,06	1,42	N
Bulgaria	44,8	49,1	4,35	0,89	2,60	6,10	Y
Switzerland	18,6	17,2	-1,45	0,48	-2,38	-0,51	Y
Cyprus	23,3	23,7	0,44	0,69	-0,91	1,79	N
Czech republic	15,3	15,3	0,00	0,38	-0,74	0,75	N
Germany	20,1	19,9	-0,21	0,24	-0,67	0,26	N
Denmark	16,3	18,9	2,51	0,48	1,56	3,46	Y
Estonia	21,8	23,1	1,23	0,50	0,25	2,22	Y
Greece	28,1	31,0	2,91	0,39	2,15	3,67	Y
Spain	22,9	27,0	4,03	0,44	3,16	4,90	Y
Finland	17,4	17,9	0,50	0,33	-0,15	1,14	N
France	18,6	19,3	0,72	0,44	-0,14	1,58	N
Hungary	28,2	31,0	2,75	0,57	1,64	3,86	Y
Iceland	11,8	13,7	1,88	0,48	0,95	2,82	Y
Italy	25,3	28,2	2,92	0,82	1,31	4,52	Y
Lithuania	27,6	33,4	5,75	0,99	3,80	7,70	Y
Luxembourg	15,5	16,8	1,32	0,48	0,37	2,26	Y
Latvia	33,8	40,4	6,64	0,64	5,39	7,89	Y
Malta	19,6	21,4	1,82	0,54	0,76	2,89	Y
Netherlands	14,9	15,7	0,82	0,58	-0,32	1,95	N
Norway	15,1	14,6	-0,48	0,34	-1,14	0,19	N
Poland	30,5	27,2	-3,32	0,40	-4,11	-2,53	Y
Portugal	26,0	24,4	-1,52	0,19	-1,90	-1,14	Y
Romania	44,2	40,3	-3,86	0,11	-4,08	-3,64	Y
Sweden	14,9	16,1	1,26	0,32	0,64	1,88	Y
Slovenia	18,5	19,3	0,78	0,35	0,09	1,46	Y
Slovakia	20,6	20,6	0,07	0,46	-0,83	0,97	N
United Kingdom	23,2	22,7	-0,49	0,47	-1,40	0,43	N

Source: EU-SILC Production Database (PDB)

Note:
(i) No data for Ireland (2011 wave not finalized yet)
(ii) For Luxembourg and Austria: stratification was not taken into account
(iii) Results still provisional

Table 3c: Estimated standard errors for estimators of net change in the AROPE between 2009 and 2011

	AROPE (%) - 2009	AROPE (%) - 2011	(2011) - (2009) (% points)	Estimated standard error (% points)	Confidence interval at 95% - Lower bound	Confidence interval at 95% - Upper bound	Is the difference significant (Y/N)?
Austria	17,0	16,9	-0,10	0,48	-1,04	0,84	N
Belgium	20,2	21,0	0,80	0,65	-0,47	2,07	N
Bulgaria	46,2	49,1	2,96	0,77	1,45	4,48	Y
Switzerland	17,2	17,2	-0,06	0,38	-0,80	0,67	N
Cyprus	23,5	23,7	0,17	0,88	-1,56	1,89	N
Czech republic	14,0	15,3	1,31	0,35	0,63	1,99	Y
Germany	20,0	19,9	-0,12	0,25	-0,61	0,38	N
Denmark	17,6	18,9	1,25	0,46	0,34	2,15	Y
Estonia	23,4	23,1	-0,36	0,56	-1,45	0,73	N
Greece	27,6	31,0	3,40	0,38	2,64	4,15	Y
Spain	23,4	27,0	3,60	0,42	2,77	4,43	Y
Finland	16,9	17,9	1,04	0,33	0,39	1,68	Y
France	18,5	19,3	0,83	0,44	-0,03	1,70	N
Hungary	29,6	31,0	1,41	0,54	0,35	2,46	Y
Iceland	11,6	13,7	2,06	0,41	1,25	2,87	Y
Italy	24,7	28,2	3,52	0,83	1,90	5,14	Y
Lithuania	29,5	33,4	3,89	0,83	2,25	5,52	Y
Luxembourg	17,8	16,8	-1,01	0,51	-2,01	-0,01	Y
Latvia	37,4	40,4	3,01	0,52	1,99	4,04	Y
Malta	20,2	21,4	1,22	0,50	0,24	2,20	Y
Netherlands	15,1	15,7	0,58	0,59	-0,58	1,74	N
Norway	15,2	14,6	-0,61	0,33	-1,26	0,03	N
Poland	27,8	27,2	-0,64	0,34	-1,31	0,03	N
Portugal	24,9	24,4	-0,46	0,13	-0,73	-0,20	Y
Romania	43,1	40,3	-2,78	0,17	-3,11	-2,45	Y
Sweden	15,9	16,1	0,20	0,33	-0,45	0,85	N
Slovenia	17,1	19,3	2,13	0,29	1,56	2,70	Y
Slovakia	19,6	20,6	1,03	0,21	0,61	1,44	Y
United Kingdom	22,0	22,7	0,77	0,48	-0,17	1,72	N

Source: EU-SILC Production Database (PDB)

Note:
(i) No data for Ireland (2011 wave not finalized yet)
(ii) For Luxembourg, Austria and Slovakia: stratification was not taken into account
(iii) Results still provisional

Table 3d: Estimated standard errors for estimators of net change in the AROPE between 2010 and 2011

	AROPE (%) - 2010	AROPE (%) - 2011	(2011) - (2010) (% points)	Estimated standard error (% points)	Confidence interval at 95% - Lower bound	Confidence interval at 95% - Upper bound	Is the difference significant (Y/N)?
Austria	16,6	16,9	0,34	0,47	-0,58	1,26	N
Belgium	20,8	21,0	0,14	0,70	-1,23	1,51	N
Bulgaria	49,2	49,1	-0,04	0,76	-1,53	1,44	N
Switzerland	17,2	17,2	0,02	0,37	-0,71	0,74	N
Cyprus	23,5	23,7	0,24	0,65	-1,05	1,52	N
Czech republic	14,4	15,3	0,94	0,26	0,44	1,45	Y
Germany	19,7	19,9	0,14	0,22	-0,29	0,57	N
Denmark	18,3	18,9	0,51	0,45	-0,37	1,38	N
Estonia	21,7	23,1	1,34	0,54	0,27	2,40	Y
Greece	27,7	31,0	3,29	0,50	2,30	4,27	Y
Spain	25,5	27,0	1,44	0,42	0,61	2,26	Y
Finland	16,9	17,9	1,05	0,33	0,41	1,68	Y
France	19,2	19,3	0,12	0,39	-0,65	0,89	N
Hungary	29,9	31,0	1,09	0,50	0,10	2,08	Y
Iceland	13,7	13,7	-0,03	0,38	-0,79	0,72	N
Italy	24,5	28,2	3,68	0,81	2,10	5,26	Y
Lithuania	33,4	33,4	-0,01	0,96	-1,88	1,87	N
Luxembourg	17,1	16,8	-0,29	0,35	-0,98	0,40	N
Latvia	38,1	40,4	2,37	0,39	1,61	3,13	Y
Malta	20,3	21,4	1,13	0,43	0,29	1,97	Y
Netherlands	15,1	15,7	0,64	0,64	-0,62	1,91	N
Norway	14,9	14,6	-0,28	0,32	-0,90	0,34	N
Poland	27,8	27,2	-0,57	0,28	-1,12	-0,02	Y
Portugal	25,3	24,4	-0,86	0,09	-1,05	-0,68	Y
Romania	41,4	40,3	-1,12	0,08	-1,28	-0,96	Y
Sweden	15,0	16,1	1,10	0,26	0,60	1,60	Y
Slovenia	18,3	19,3	0,96	0,26	0,46	1,46	Y
Slovakia	20,6	20,6	0,02	0,51	-0,97	1,01	N
United Kingdom	23,1	22,7	-0,41	0,48	-1,36	0,53	N

Source: EU-SILC Production Database (PDB)

Note:
(i) No data for Ireland (2011 wave not finalized yet)
(ii) For Luxembourg: stratification was not taken into account
(iii) Results still provisional

Annex 2: Proposed changes to 'Doc065' which describes the EU-SILC target variables

The text that follows is based on the EU-SILC 065 document of the 2013 operation (version of September 2012). The proposed changes are highlighted.

DB050: Primary strata	
	[Primary strata as used in the selection of the sample] *BASIC DATA (Basic household data including degree of urbanisation)* *Cross-sectional and longitudinal* *Reference period: at selection* *Unit: household* *Mode of collection: frame, register or sample design*

Values		
	1- 99999	
Flags		
	1	Primary stratum
	2	Self-representing PSU
	3	Collapsed stratum due to single PSU (only for stratum with single PSU)
	-2	not applicable (no stratification)

DB050 provides an identification code for the strata in case the target population (or a part thereof) is stratified at the first stage of the sample design. Stratifying a population means dividing it into non-overlapping subpopulations, called strata. Independent samples are then selected within each stratum. DB050 refers only to explicit strata, in the case of systematic sampling of PSUs, implicit stratification will be accounted for through the use of DB070.

In order to facilitate the computation of the standard errors for the common EU indicators, for the equivalised disposable income, for the unadjusted gender pay gap and for a list of income components, countries should(7) fill in this variable (in the case of stratification) for ALL panels and waves in the file, and not only the first one of the sub-sample (being the year of the selection of the concerned household). The recorded information, however, always refers to the situation at the time of the selection of the concerned household.

The above definition applies also to the new-entries from the second wave onwards.

All primary strata receive a unique value which remains the same for the entire duration of EU-SILC (make sure the value is consistent for all EU-SILC waves). The information in DB050 should enable the identification of ALL explicit primary strata, a combination with other variables (such as DB040) may not be necessary to identify all strata, given that DB040 should refer to the moment if interview rather than the moment of selection.

In the case of self-representing PSUs (that is, PSUs that are selected with a probability of 1), a separate, unique, value is assigned to DB050 for its identification and the flag variable receives code 2. If strata consist of only 1 PSU selected among a larger number of PSUs in the population, or if it consists of only one PSU (among a larger number of PSUs) with respondents, primary strata have to be collapsed such that

(7) Agreement during the Living Conditions Working Group meeting in June 2009.

every stratum consists of at least two PSUs. For doing so, strata should be grouped with strata that are most similar in terms of the variables of interest for the analysis of EU-SILC. The decision of which strata are collapsed should be based on information that is available on the sampling frame. Preferably, strata similar in terms of average income are collapsed. If this information is not available, the following information is used, ordered from most preferred to least preferred: [average income, rate of employment, unemployment rate, degree of urbanisation, average age of the population].

DB060: PSU-1 (first stage) **DB062: PSU-2 (second stage)**	
	[PSU-1 (first stage) as used in the selection of the sample] **[PSU-2 (second stage) as used in the selection of the sample]** *BASIC DATA (Basic household data including degree of urbanisation)* *Cross-sectional and longitudinal* *Reference period: at selection* *Unit: household* *Mode of collection: frame, register or sample design*

Values		
	1- 99999 PSU (see below the required format)	
Flags		
	1	Fixed across time
	2	Rotates in and out of the sample
	-2	not applicable

If direct-element sampling is either impossible (lack of sampling frame) or its implementation too expensive (the population is widely distributed geographically), multi-stage selections can be done. Firstly, the population is divided into disjoint sub-populations, called **primary sampling units (PSUs)**. A sample of PSUs is then selected (first–stage sampling). Secondly, each sampled PSU is divided itself into disjoint sub-populations, called **secondary sampling units (SSUs).** SSUs are then independently drawn from each PSU (second-stage sampling) and so on….

DB060 (DB062) provides identification codes for the selected PSUs (SSUs). Every selected PSU (SSU) should receive a value that is unique across all PSUs (SSUs) that have ever been selected in EU-SILC, and which remains the same for the entire duration of EU-SILC. In the case that the same PSU (SSU) is selected several times ('multiple hits'), the PSU (SSU) receives a unique value for every hit. The flag variable indicates whether PSUs rotate in and out of the sample, or whether they are fixed for the entire duration of EU-SILC.

In case there is at least a third stage of selection, additional variables DB06i (i^{3}3) shall be transmitted as identification numbers for the units sampled at stage i.(except for households, which are identified by the variable DB030, and for strata, identified by DB050). In the particular situation where more than one household can share the same dwelling, dwellings must be regarded as clusters of households and then coded accordingly, as the units that are selected at the ultimate stage. In order to facilitate the computation of the standard errors for the common EU indicators, for the equivalised disposable income, for the unadjusted gender pay gap and for a list of income components, countries should([8]) fill in this (these) variable(s) (in the case of clustering) for ALL waves in the file, and not only the first one of the sub-sample (being the year of the selection of the concerned household). The recorded information, however, **always refers to the situation at the time of the selection** of the concerned household.

(8) Agreement during the Living Conditions Working Group meeting in June 2009.

The above definition applies also to the new-entries from the second wave onwards.

In the case of self-representing PSUs, secondary sampling units should be treated as if they were primary sampling units and receive a unique code in variable DB060. The identification of the self-representing units themselves is implemented in variable DB050.

DB070: Order of selection of PSU	
	[Order of selection of PSU as used in the selection of the sample] *BASIC DATA (Basic household data including degree of urbanisation)* *Cross-sectional and longitudinal* *Reference period: at selection* *Unit: household* *Mode of collection: frame, register or sample design*

Values	
	1- 99999 order of selection of PSU (see below the required format)
Flags	
	-2 not applicable Or a combination of two digits: <u>First digit: fixed or changing order of selection</u> 1 order on sampling frame is fixed for all EU-SILC survey years 2 order on sampling frame may change over time <u>Second digit: probability of selection of PSUs</u> 1 PSUs have an equal probability of selection (within explicit strata) 2 PSUs have an unequal probability of selection (within explicit strata) e.g. the order of PSUs on the sampling frame remains fixed for the entire duration of EU-SILC and PSUs are selected with a probability equal to their size: the flag is equal to 12

If primary sampling units (or households in case of direct-element sampling) are selected systematically, DB070 contains the rank of selection of those units. This information is important for variance estimation purposes as a systematic drawing from a judiciously ordered sampling frame may substantially decrease sampling errors. If systematic selections have been performed at other sampling stages, additional variables DB07(i-1), that is the order of the selection of the units of stage i (i>1), shall be transmitted too.

In order to facilitate the computation of the standard errors for the common EU indicators, for the equivalised disposable income, for the unadjusted gender pay gap and for a list of income components, countries should([9]) fill in this (these) variable(s) (in the case of systematic selection) for ALL waves in the file, and not only the first one of the sub-sample (being the year of the selection of the concerned household). The recorded information, however, always refers to the situation at the time of the selection of the concerned household.

The above definition applies also to the new-entries from the second wave onwards.

(9) Agreement during the Living Conditions Working Group meeting in June 2009.

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