

EU-SILC 2011 in Estonia: Intermediate Quality Report

Tallinn 2012

CONTENTS

1. COMMON CROSS-SECTIONAL EUROPEAN UNION INDICATORS.....	3
* age group 18-592. ACCURACY.....	3
2. ACCURACY.....	4
2.1. Sample design.....	4
2.1.1. Type of sampling design.....	4
2.1.2. Sampling units.....	4
2.1.3. Stratification and sub-stratification criteria.....	4
2.1.4. Sample size and allocation criteria.....	4
2.1.5. Sample selection schemes.....	5
2.1.6. Sample distribution over time.....	5
2.1.7. Renewal of sample: Rotational groups.....	5
2.1.8. Weighting.....	5
2.1.8. Substitution.....	7
2.2. Sampling errors.....	7
2.2.1. Standard error and effective sample size.....	7
2.3. Non-sampling errors.....	8
2.3.1. Sampling frame and coverage errors.....	8
2.3.2. Measurement and processing errors.....	9
2.3.2. Measurement and processing errors.....	9
2.3.3. Non-response errors.....	12
2.4. Mode of data collection.....	20
2.5. Interview duration.....	20
3. COMPARABILITY.....	20
3.1. Basic concepts and definitions.....	20
3.1.1. The reference population.....	20
3.1.2. The private household definition.....	20
3.1.3. The household membership.....	20
3.1.4. The income reference period used.....	20
3.1.5. The period for taxes on income and social insurance contributions.....	20
3.1.6. The reference period for taxes on wealth.....	21
3.1.7. The lag between the income reference period and current variables.....	21
3.1.8. The total duration of the data collection of the sample.....	21
3.1.9. Basic information on activity status during the income reference period.....	21
3.2. Components of income.....	21
3.2.1. Differences between the national definitions and standard EU-SILC definitions.....	21
3.2.2. The source or procedure used for the collection of income variables.....	22
3.2.3. The form in which income variables at component level have been obtained.....	22
3.2.4. The method used for obtaining income target variables in the required form.....	23
4. COHERENCE.....	23
4.1. Comparison of income target variables and number of persons who receive income from each 'income component', with external sources.....	23
4.2. Comparison of other target variables with external sources.....	26

1. COMMON CROSS-SECTIONAL EUROPEAN UNION INDICATORS

Table 1.1. Common cross-sectional European Union indicators and their standard errors, 2011

		Total	Males	Females	Age 0-17	Age 18-64	Age 65+
AROE	Indicator value	23,1	23,2	22,9	24,8	24,2	17,0
	Standard error	0,73	0,86	0,80	1,40	0,83	1,02
	Half of 95% CI	1,43	1,68	1,56	2,74	1,62	2,00
At-risk-of-poverty rate (60%)	Indicator value	17,5	17,6	17,4	19,5	18,0	13,1
	Standard error	0,65	0,77	0,72	1,27	0,73	0,90
	Half of 95% CI	1,27	1,51	1,40	2,48	1,44	1,76
Severe material deprivation	Indicator value	8,7	8,8	8,6	9,1	9,3	5,8
	Standard error	0,48	0,55	0,53	0,90	0,57	0,64
	Half of 95% CI	0,95	1,09	1,04	1,76	1,11	1,25
Very low work intensity	Indicator value	9,9	10,8	9,1	9,1	10,2*	-
	Standard error	0,57	0,69	0,65	0,96	0,56*	-
	Half of 95% CI	1,12	1,35	1,27	1,89	1,11*	-

* age group 18-59

2. ACCURACY

2.1. Sample design

The 2011 sample comprised of four parts:

1. The first part consists of households selected for the survey in 2008 and followed up in 2009, 2010 and 2011. (in total 1264 households including fresh split-off households).
2. The second part consists of households selected for the survey in 2009 and followed-up in 2010 and 2011 (in total 1200 household including fresh split-off households).
3. The third part consists of households selected for the survey in 2010 and followed-up in 2011 (in total 1486 household including fresh split-off households).
4. Sample of 2950 households introduced into the survey in 2011.

In what follows we call parts 1, 2 and 3 together replications or old part of the sample and part 4 a new part of the sample.

Sub-sections 2.1.1 – 2.1.5 describe the design of new sub-sample. Sampling design of 2008, 2009 and 2010 sub-samples can be found in quality reports of respective years. They were also originally selected by unequal probability design, similar to one used for selection of new sub-sample.

Unequal probability design is likely to have negative effect on sample efficiency, and research on the possibilities of improving the design has been carried out and will continue in the future. So far, however, no suitable frame for selecting addresses has been found.

2.1.1. Type of sampling design

The design used is one-stage stratified unequal probability sampling of households, with a household selected with probability proportional to the number of persons aged 14+ in it. It is because a sample of persons aged 14+ (so called address-persons) is selected first with equal probabilities within strata, and then the household of the selected person is identified, and all eligible persons in the household are interviewed. Stratification is done by geographical region (see 2.1.3).

2.1.2. Sampling units

One stage sampling design was used. Households are regarded as sampling units although selection was made using the sample of address-persons.

2.1.3. Stratification and sub-stratification criteria

Geographical stratification was used. The counties (and capital Tallinn) were grouped into three strata by the population size:

1. big counties: Tallinn, Harju (excluding Tallinn), Ida-Viru, Lääne-Viru, Pärnu, Tartu;
2. small counties: Jõgeva, Järva, Lääne, Põlva, Rapla, Saare, Valga, Viljandi, Võru;
3. Hiiu County formed a separate stratum as the smallest county with the population size times smaller of the next smallest.

2.1.4. Sample size and allocation criteria

Inclusion probabilities of address-persons in different strata are shown in Table 2.1. R_g stands for the number of persons aged 14 and over living in stratum g as at 01.01.2011, n_g is the sample size of the stratum g and n_g/R_g (%) is the sampling fraction in the corresponding stratum.

Table 2.1. Stratification of the new part of the sample by counties, Estonian EU-SILC 2011

Stratum h	Counties	R_g	n_g	n_g/R_g %
Large	Tallinn, Harju, Ida-Viru, Lääne-Viru, Pärnu, Tartu	858188	1790	0.21
Small	Jõgeva, Järva, Lääne, Põlva, Rapla, Saare, Valga, Viljandi, Võru	198405	1071	0.54
Hiiu	Hiiu	9003	89	0.99

Next table shows sample size by rotational group: the initial sample size, number of split-off households and final sample size.

Table 2.2. Sample size by rotational group, 2011

Year a rotation group started	Rotational group	Initial sample size in 2011	Nr of split-off households	Final sample size
2008	4	1240	24	1264
2009	1	1163	37	1200
2010	2	1445	41	1486
2011	3	2950	0	2950
Total		6798	102	6900

2.1.5. Sample selection schemes

Systematic sampling of address-persons with foregoing sample sizes in each stratum. For households this procedure results in unequal probability sampling with inclusion probabilities proportional to household size (number of persons aged 14+ in it).

2.1.6. Sample distribution over time

Fixed income reference period was used and therefore the sample was not principally divided into months or weeks. The fieldwork period was from February to May 2011. For the convenience of fieldwork administration, the old part of the sample was allocated into the four months with proportions approx. 2:2:1:1, while the new part with proportions 1:1:1:0. When allocating households into the months of fieldwork period, uniform workload of interviewers was targeted. Due to lack of interviewers in some areas, ca 3.8% of households were interviewed after the official end of fieldwork period in June 2011.

2.1.7. Renewal of sample: Rotational groups

The sample consists of 4 rotational groups:

1. 1 rotational group from 2008 (DB075= 4);
2. 1 rotational group from 2009 (DB075= 1);
3. 1 rotational group from 2010 (DB075= 2);
4. new sub-sample (DB075=3).

2.1.8. Weighting

The sample of year 2011 consists of four sub-samples to be weighted independently and combined thereafter for final cross-sectional weight.

s_4	households started in 2008 and their split-offs, participate for the fourth time
s_3	households started in 2009 and their split-offs, participate for the third time
s_2	households started in 2010 and their split-offs, participate for the second time
s_1	households started in 2011, participate for the first time

For a new sub-sample s_1 the base weights are calculated from the beginning. For other sub-samples, base weights for year 2011 are calculated from base weights of 2010 corrected for attrition between 2010 and 2011. Calculation of weights is done according to same procedure as in 2008-2010.

2.1.8.1. Design factor

Design weights DB080 were calculated to all households of the new part of the sample (subsample s_1). Computation of design weights draws on following considerations resulting from the sampling

design: Inclusion probabilities for a household depend on how many possibilities are there to reach this household. As address persons are used and inclusion probabilities are equal for all members aged 14+ of the household, the inclusion probability of a household is proportional to selection probability of an address-person in his stratum and to the number of members aged 14+ in the household. Accordingly, design weights for households are calculated as

$$d_h = \frac{N_g}{n_g p_h}$$

where n_g is the number of address-persons selected in stratum g , N_g is the number of persons aged 14+ in stratum g as stated in the Population Register (PR) at the moment of sample selection and p_h is household size, i.e. number of persons aged 14+ in the household. Design weights were calculated for all households of the new sample (both responded and non-responded). For non-responders, p_h is the number of persons aged 14+ registered to the address of address-person according to the Population Register. If it was greater than 8, household size was stochastically imputed (with county as an auxiliary variable).

2.1.8.2. Non-response adjustments

The weights are corrected for non-response as follows: For s_1 (new subsample) personal base weights are calculated as household design weights corrected for non-response. Correction for non-response was done with logistic regression model predicting the response probability of the household. Auxiliary variables were: sex and age of address-person, county group and urbanization status (rural/urban). County and urbanization status were defined with respect to the real place of residence where possible and according to PR otherwise. With this model, the response probability r_h was estimated for each household (responding and non-responding). Non-response corrected weights are thus $d_h^* = d_h / r_h$.

For replications (sub-samples s_2, s_3, s_4) personal base weights of 2011 are corrected for attrition. Correction for attrition was done with the help of logistic regression model with tenure status, poverty status, urbanization status and county of place of residence, social status, age, ethnic nationality and number of children in household as auxiliary variables. Persons and households no longer in scope in 2011 were excluded prior to the correction as they are not considered as non-response. With the logistic model the response probability r_i of person i for year 2011, given he/she had responded in 2010, was estimated. Correction for non-response for replications is done on person-level, i.e. corrected weights of persons within one household no longer need to be constant. For sub-samples s_3 and s_4 also a correction for returnees was made.

The obtained base weights were extended on the new members of the household as follows:

- children born to sample women get the base weight of the mother;
- persons moving into sample household from outside the survey population receive the average of base weights of existing household members;
- persons moving into sample households from other non-sample households in the population receive zero base weight.

2.1.8.3. Adjustments to external data

Non-response corrected weights were calibrated to reproduce known population totals. Calibration totals originated from demographic statistics published by Statistics Estonia with institutionalized persons deducted. Calibration was made on the following auxiliaries:

- County (with capital Tallinn forming separate stratum);
- Sex (male/female) x age group (0-12, 13-14, 15, 16-19, 20-24, 25-29, 30-34, ..., 65-69, 70-74, 75+);
- Urbanization status (rural/urban).

After calibration we get correction factor g_h for weight. $w_h = d_h^* g_h$. Calibration was done using the Calmar macro written by INSEE.

2.1.8.4. Final cross-sectional weight

To calculate household cross sectional weight DB090 different sub-samples were combined together. At first individual base weights within a household were averaged. As a result we get a base weight for each household in the sample (denoted by w_{1h} , w_{2h} , w_{3h} , and w_{4h} for the first, second, third and fourth sub-sample respectively). To get preliminary household cross-sectional weight we combine household base weight according to the following scheme:

$$w_h^{together} = \begin{cases} w_{1h} \cdot n_1 / (n_1 + n_2 + n_3 + n_4), & h \in s_1 \\ w_{2h} \cdot n_2 / (n_1 + n_2 + n_3 + n_4), & h \in s_2 \\ w_{3h} \cdot n_3 / (n_1 + n_2 + n_3 + n_4), & h \in s_3 \\ w_{4h} \cdot n_4 / (n_1 + n_2 + n_3 + n_4), & h \in s_4 \end{cases}$$

where n_i is number of responding households in sub-sample s_i , $i=1,2,3,4$. Thus, base weight of each sub-sample is reduced according to the share of corresponding sub-sample in the overall sample size. The preliminary household cross-sectional weights $w_h^{together}$ were calibrated to population totals (as personal weights of household members).

Personal cross-sectional weight of a person (RB050) is equal to the cross-sectional weight DB090 of its household.

Personal cross-sectional weights for all household members aged 16 and over (PB040) coincide in 2011 with weights RB050, as within-household non-response is imputed.

To get cross-sectional weights for child care (RL070), weights RB050 are adjusted in one-year age groups to reproduce number of children in the population.

Weights were not scaled at any step; the amount of correction at each step of weight computation procedure was carefully checked (no extreme correction factors appeared); at each calibration step, calibration factor was bounded at most 0.5 to 1.8.

2.1.8. Substitution

No substitution was used.

2.2. Sampling errors

2.2.1. Standard error and effective sample size

Standard errors of the common cross-sectional EU indicators were computed by Eurostat.

Of total 6900 households in the sample, data of 4993 household were accepted for the final database. In these households, 11076 persons aged 16+ were interviewed. Effective sample size is thus 3901 households and 8653 persons. (According to Commission regulation we use here design effect of at-risk-of-poverty rate, which was 1.28). Minimum requirements are thus satisfied (3500 households and 7750 persons).

2.3. Non-sampling errors

2.3.1. Sampling frame and coverage errors

Sampling frame for selection of the new part of the sample was the Population Register of Estonia. This is the document-based register of Estonian citizens and those having a living permission. Records of the register are updated both in real-time and regularly from administrative sources. The register data originates from local governments, civilian registry offices, county councils, courts, Citizenship and Migration Board and other governmental organisations.

Frame error is considered to be an over-coverage error if address-person did not actually belong to target population, i.e.

- was dead;
- had moved to another county;
- stayed in an institution permanently (had been there over half a year);
- was surveyed through one of his/her household members;

All households classified under DB120=23 are considered to constitute over coverage error. The amount of this error in the new part of the sample in 2011 was 116 households, which makes the proportion of the over-coverage in the new part of the sample 3,9% and of the whole sample 1,7% (Table 2.3).

Since there is no registration law in Estonia, people do not need to show their actual addresses in the Population Register. For that reason the register contains some amount of records without any address and for some part of records the address shown is not correct. Records without an address or incomplete address were dropped out of the register before selecting the sample (for example, in 2011 ca 2% of all records referring to persons aged 14+ were dropped before selecting the sample).

In the new part of the sample of 2011 there were 221 address-persons whose address in the population register was definitely wrong and no information on new address could be obtained from neighbours. According to national classification, this includes the following reasons for non-contact:

- Address-person does not live at given address, no information on new address available;
- Address-person has moved to another address, no information on new address available;
- Given address does not exist.

It does not seem reasonable to assume that these persons do not belong to target population nor constitute frame over-coverage. Above mentioned reasons for non-contact are currently classified under non-response reason DB120=21.

Due to absence of registration law in Estonia, there is also some under-coverage of persons and households present in the population register. Investigations made by the Sampling Working Group of HBS in 1999 showed that on average under-coverage of addresses in the population register may reach 5-6%. Degree of under-coverage of households is much more difficult to assess, since even if a person is missing from Population Register or his/her address is incorrect or not precise enough, a household could be reached through another household member. Assuming that all persons living permanently in Estonia are registered in the Population Register and considering the amount of imprecise addresses in PR, the under-coverage of households may be at most 1-1.5%.

Table 2.3. Reasons for over-coverage in the new part of the sample, 2011

Frame error	Number of households	Proportion in the frame error (%)
Total, of which	116	100.0
Address person was dead	9	7.8
Address person has left Estonia	88	75.9
Address person was staying in an institution	18	15.5
Address person was surveyed through one of his/her household members	1	0.8

2.3.2. Measurement and processing errors

2.3.2.1. Measurement errors

The measurement errors can stem from the questionnaire (its wording, design etc), the interviewees, the interviewers and the data collection method. While it is impossible to avoid this type of errors completely, steps were taken to reduce them as much as possible.

The ESS questionnaire has been drafted following international experience in collecting income data. Where possible questions and wordings from Statistics Estonia's previous surveys, the reliability and validity of which had been checked in practise, were used. In 2007 the questionnaire was supplemented using the experience from the past three waves. The main corrections in the household questionnaire were adding in questions about production of foodstuffs for own consumption and questions allowing the calculation of savings from imputed rent. In the personal questionnaire the main developments in 2007 were adding questions about education obtained since the previous interview for the longitudinal panel, allowing the choice to report wage income as yearly or monthly and net or gross, adding questions about non-monetary income from wage labour and a separate block of income questions for entrepreneurs. The social benefit questions were also updated and additional checkpoints created to ask respondents the questions that concern their situation specifically. The questions on child-care, family benefits and unemployment benefits were also improved. In 2008 questions about managerial duties for current and last job were added and socio-economic statuses were prefilled for respondents who had answered the personal questionnaire the previous year for the months they had already provided answers for. An additional question was added regarding pensions paid by the local government and the conscript allowance paid to young men serving time in the armed forces.

2.3.2. Measurement and processing errors

2.3.2.1. Measurement errors

The measurement errors can stem from the questionnaire (its wording, design etc), the interviewees, the interviewers and the data collection method. While it is impossible to avoid this type of errors completely, steps were taken to reduce them as much as possible.

The ESS questionnaire has been drafted following international experience in collecting income data. Where possible questions and wordings from Statistics Estonia's previous surveys, the reliability and validity of which had been checked in practise, were used. In 2007 the questionnaire was supplemented using the experience from the past three waves. The main corrections in the household questionnaire were adding in questions about production of foodstuffs for own consumption and questions allowing the calculation of savings from imputed rent. In the personal questionnaire the main developments in 2007 were adding questions about education obtained since the previous interview for the longitudinal panel, allowing the choice to report wage income as yearly or monthly and net or gross, adding questions about non-monetary income from wage labour and a separate block of income questions for entrepreneurs. The social benefit questions were also updated and additional checkpoints created to ask respondents the questions that concern their situation specifically. The questions on child-care, family benefits and unemployment benefits were also improved. In 2008 questions about managerial duties for current and last job were added and socio-economic statuses were prefilled for respondents who had answered the personal questionnaire the previous year for the months they had already provided answers for. An additional question was added regarding pensions paid by the local government and the conscript allowance paid to young men serving time in the armed forces.

In 2009, the questions used to determine a respondent's level of education were improved. Previously a person had to choose their level of education from a long list of official names, resulting in considerable errors. In 2009 these questions were redesigned for more accuracy and less respondent-induced errors.

In 2010, the questions used to determine using child care services reformulated to better meet Eurostat's guidelines.

In 2011 during the first month questions about current costs were asked in two currencies (euros, kroons). Respondent was asked to choose which currency he would like to answer.

Other notable modifications in 2011 concerned the following variables.

- 1) The question about the number of rooms available to the household was reformulated according to the Eurostat's guidelines.
- 2) The questions about intra-household sharing of resources were excluded
- 3) The questions about intergenerational transmission of disadvantages were added

To reduce interviewer-induced measurement errors, the training programme was conducted in 4 smaller groups of about 15 people, with emphasis on practical work and discussion of mistakes from previous years. All returning interviewers attended a day long training session. During the training, the EU-SILC survey manager briefed the interviewers on all updates in the questionnaires, discussed previous years' errors, tracing rules and specifics of assigning household and person numbers in the longitudinal survey. Practical work sessions were conducted in groups of five and each interviewer had to conduct a model interview in a simulated situation using their laptop. At the end of the training session, each interviewer received personal feedback about their mistakes in the previous wave.

Interviewers new to EU-SILC attended a 2 day training session, which included a thorough overview of questionnaires and practical exercises as well as all the topics covered with returning interviewers.

Overall, 59 interviewers were responsible for conducting the interviews. The household– interviewer ratio was 85 households per interviewer.

2.3.2.2. Processing errors

Checking the data was done in three stages: data-entry checks during the interview, additional in-office checks during fieldwork and lastly data cleaning.

The data for 2011 operation was collected using CAPI. The data-entry program was written in Blaise and contained most of the consistency checks. In 2011, the Blaise consistency checks underwent further development, with many new logical checks creating error messages in described situations put in place. In Statistics Estonia, interviewers are required to react in some form to all error messages that occur during interviewing. The solution is either to correct an erroneous situation or if the situation is unusual but correct, add a remark to the data entry-program explaining this error. When assessing the quality of an interviewer's work, not adding a remark to an actually correct situation that prompts an error message is also counted as an error. These logical checks allow to correct most of the errors already during an interview.

The primary data-entry consistency controls were of 6 major types:

- 1) Checks of consistency between different answers. These included, but were not limited to following instances:
 - a. whether a household or a person who according to other data should/should not have received a certain type of income reported it or not (e.g. whether households with children received family benefits, retired people (or people below retirement age) received pensions, employed persons received wages and so on);
 - b. whether benefits reported to have been received were logical in the age and gender dimensions. For instance student benefits for over 50 year-olds, income taxes for under 15 year-olds, maternity leave and childbirth allowances for men etc;
 - c. Whether an educational level attained was possible below a certain age, or educational levels were possible in said combinations for given years;
 - d. whether answers provided to different non-monetary deprivation items agreed with each other;
 - e. whether the relationships in the household matrix were consistent with each other as well as with the age and sex of the household members;
 - f. whether the difference between the starting and finishing time of the interview was too short or too long and so on.
 - g. whether reported taxes or medical benefits received were consistent with income
 - h. membership in pension plans checked by year of birth to see if legally bound to have joined pension pillar.

- i. checks for correct survey area, interviewer code and personal numbers matching household numbers.
- 2) Lower and upper bounds of income variables (incl. benefits). These checks were developed with regard to data collected in the previous wave as well as administrative information.
- 3) Tracing checks. These controls were implemented to ensure that all split-off households and new household members were assigned correct split numbers and person numbers respectively.
- 4) Checks not allowing for occupations to be written on too general a scale for coding. (e.g. salesperson, cleaner)
- 5) Checks for goods produced for own consumption, for instance quantities;
- 6) Checks with information from the previous year. These controls concerned demographic data, information on educational level and labour status as well as the calendar of activities.

The in-office staff promptly checked the questionnaires that were electronically transmitted to the central office. This stage included the following controls:

- 1) All the errors suppressed by interviewers were activated and checked;
- 2) All remarks made by interviewers in the data entry-program were read through and where necessary, relevant corrections were made.
- 3) All split-off households as well as all households from which at least one member had left were scrutinized one by one.
- 4) All category 'other' answers were gone through to see if they could be classified under one of the given options.
- 5) Additionally paid income tax was checked in-household to check for double-reporting.
- 6) Errors in coding were gone through.
- 7) Study benefits were checked by possibility of obtaining them in the school the respondent attended and legally set amounts.
- 8) Consistency between time reported working under socio-economic status and months that salary was received.
- 9) Reported amounts of family benefits were checked compared with eligibility based on the structure of the family and benefit levels set out in legislation.
- 10) Demographic information in the interviewers' reports was compared to the data recorded in the electronic questionnaires.

All mistakes found during the secondary in-office data editing were put up in a shared excel table, and had to be clarified with the interviewer or interviewee by the end of the fieldwork period. This was done in co-operation of the EU-SILC team and the interviewers' supervisors.

The number of primary consistency errors increased slightly after a dramatic drop in 2007. In 2006 there had been a total of 5654 errors, in 2007 the number had fallen to 1677. In 2008 the total number of errors was 1779, in 2009 – 1939, in 2010 - 1856. In 2011 the number of errors increased to 2102

Out of all the errors in 2011 40% (844 cases) required callback and clarification with the interviewer or interviewee. in 2010, 41% of cases had required callback.

As can be seen from table 2.5, the most common types of errors in 2011 were those discovered during concurrent in-office checks and the use of category 'other', while a suitable category existed.

Data entry mistakes have decreased to 1 thanks to the continuing development of primary logical checks in the data entry program.

Table 2.5. Interviewer errors and their processing, 2011

Type of error	Number of errors detected	Share of errors requiring a call-back
No remark explaining unusual situation	264	80,30%
Interviewer made an error, but did not correct it	341	51,61%
Interviewer's remark does not explain unusual situation	1	100,00%
Data not sufficient for coding	106	54,72%
Starting and finishing times recorded incorrectly	0	0,00%
Use of category Other, while a suitable category exists	563	27,35%
In-office checks	757	30,25%
Interviewer has misunderstood a question	45	31,11%
Data entry mistake	1	0,00%
Not interviewers error	24	0,00%
Total	2102	40,15%

The third and final stage of data checks involved later in-office data cleaning. The controls implemented at this stage involved further checks of data consistency, consistency across time, and of extreme income values and as a final step the Eurostat data-checks. Extreme values for all income components as well as total income were checked and handled on a case-by-case basis.

2.3.3. Non-response errors

2.3.3.1. Achieved sample size

Data for 4993 households were accepted for database and used in analysis. This makes the overall share of complete household interviews accepted for the database 72,4%. On personal level, the share of complete personal interviews within the households accepted for the database was 99,1% – 11076 interviews of possible 11171. Income data for remaining 95 persons who didn't completed personal interview was imputed by closest neighbour full record imputation (RB250=14).

For rotational group breakdown see 2.3.3.3.

2.3.3.2. Unit non-response

Indicator	Total sample	New part
Address contact rate (Ra)	0,90	0,81
Proportion of complete household interviews accepted for the database (Rh)	0,82	0,66
Proportion of complete personal interviews within the households accepted for the database (Rp)	0,99	0,99
Household non-response rates (NRh)	26,0	46,5
Individual non-response rates (NRp)	0,9	1,4
Overall individual non-response rates ($*NRp$)	26,7	47,3

In reporting these non-response rates we assume that all non-contacted households other than those coded as DB120=23 are in fact existing. This seems to be a reasonable assumption since codes DB120=21 and DB120=22 include the following non-contact reasons according to national classification (see the meaning of the term "address-person" in 2.1.1):

DB120=21	DB120=22
<ul style="list-style-type: none"> ▪ Address-person does not live at given address no information on new address available ▪ Address-person has moved to another address, no information on new address available ▪ Given address does not exist ▪ Address can be located, but no contact can be made since nobody is at home 	<ul style="list-style-type: none"> ▪ The house given is located but given address can not be accessed (due to locked doors or gates, etc) ▪ Address of address-person can not be accesses due to poor weather conditions etc

2.3.3.3. Distribution of households by 'record of contact at address' (DB120), by 'household questionnaire result' (DB130) and by 'household interview acceptance' (DB135) for each rotational group and for the total

Table 2.4. Distribution of households by 'record of contact at address' (DB120) for each rotational group and in total, 2011

Record of contact at address	Rotation group 4		Rotation group 1		Rotation group 2		Rotation group 3		Total	
	N	%	N	%	N	%	N	%	N	%
Total (DB120=11 to 23)	1264	100,0	1200	100,0	1486	100,0	2950	100,0	6900	100,0
Address contacted (DB120=11)	1208	95,6	1149	95,8	1421	95,6	2299	77,9	6077	88,1
Address non-contacted (DB120=21 to 23)	56	4,4	51	4,3	65	4,4	651	22,1	823	11,9
Total address non-contacted (DB120=21 to 23)	56	100,0	51	100,0	65	100,0	651	100,0	823	100,0
Address cannot be located (DB120=21)	7	12,5	14	27,5	13	20,0	221	33,9	255	31,0
Address unable to access (DB120=22)	38	67,9	27	52,9	40	61,5	314	48,2	419	50,9
Address does not exist or is non-residential address or is unoccupied or not principal residence (DB120=23)	11	19,6	10	19,6	12	18,5	116	17,8	149	18,1

Table 2.5. Distribution of addresses contacted by 'household questionnaire result' (DB130) and by household interview acceptance (DB135), 2011

Household questionnaire result	Rotation group 4		Rotation group 1		Rotation group 2		Rotation group 3		Total	
	N	%	N	%	N	%	N	%	N	%
Total (DB130=11 to 24)	1208	100,0	1149	100,0	1421	100,0	2299	100,0	6077	100,0
Household questionnaire completed (DB130=11)	1138	94,2	1074	93,5	1265	89,0	1516	65,9	4993	82,2
Interview not completed (DB130= 21 to 24)	70	5,8	75	6,5	156	11,0	783	34,1	1084	17,8
Total interview not completed (DB130=21 to 24)	70	100,0	75	100,0	156	100,0	783	100,0	1084	100,0
Refusal to co-operate (DB130=21)	53	75,7	58	77,3	133	85,3	657	83,9	901	83,1
Entire household temporarily away for duration of fieldwork (DB130=22)	7	10,0	10	13,3	10	6,4	49	6,3	76	7,0
Household unable to respond (illness, incapacity, etc) (DB130=23)	5	7,1	3	4,0	12	7,7	64	8,2	84	7,7
Other (DB130=24)	5	7,1	4	5,3	1	0,6	13	1,7	23	2,1
Household questionnaire completed (DB135=1 to 2)	1138	100,0	1074	100,0	1265	100,0	1516	100,0	4993	100,0
Interview accepted to database (DB135=1)	1138	100,0	1074	100,0	1265	100,0	1516	100,0	4993	100,0
Interview rejected (DB135=2)	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0

Table 2.6. Distribution of household members by Respondent Status (RB245) and rotational group, 2011

Respondent Status	Rotation group 4		Rotation group 1		Rotation group 2		Rotation group 3		Total	
	N	%	N	%	N	%	N	%	N	%
Total (RB245=1 to 4)	3126	100,0	2841	100,0	3433	100,0	4026	100,0	13426	100,0
Current household members aged 16 and over (RB245 = 1)	2592	82,9	2385	83,9	2867	83,5	3327	82,6	11171	83,2
Selected respondent (RB245=2)	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0
Not selected respondent (RB245=3)	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0
Not eligible person (RB245=4)	534	17,1	456	16,1	566	16,5	699	17,4	2255	16,8

Table 2.7. Distribution of household members by Data Status (RB250) and rotational group, 2011

Data Status	Rotation group 4		Rotation group 1		Rotation group 2		Rotation group 3		Total	
	N	%	N	%	N	%	N	%	N	%
Total (RB250=11 to 33)	2592	100,0	2385	100,0	2867	100,0	3327	100,0	11171	100,0
Information completed only from interview (RB250 = 11)	2573	99,3	2377	99,7	2846	99,3	3280	98,6	11076	99,1
Information completed only from registers (RB250 = 12)	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0
Information completed from both (RB250 = 13)	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0
Information completed from full-record imputation (RB250=14)	19	0,7	8	0,3	21	0,7	47	1,4	95	0,9
Individual unable to respond (RB250=21)	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0
Individual failed to return self-completed questionnaire (RB250=22)	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0
Refusal to cooperate (RB250=23)	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0
Person temporarily away and no proxy available (RB250=31)	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0
No contact for other reasons (RB250=32)	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0
Information not completed, reason unknown (RB250=33)	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0

Table 2.8. Distribution of household members by Type of Interview (RB260) and rotational group, 2011

Responent Status	Rotation group 4		Rotation group 1		Rotation group 2		Rotation group 3		Total	
	N	%	N	%	N	%	N	%	N	%
Total (RB260=1 to 5)	2573	100,0	2377	100,0	2846	100,0	3280	100,0	11076	100,0
Face to face interview - PAPI (RB260 = 1)	21	0,8	19	0,8	22	0,8	18	0,5	80	0,7
Face to face interview - CAPI (RB260 = 2)	1947	75,7	1806	76,0	2120	74,5	2637	80,4	8510	76,8
CATI, telephone interview (RB260=3)	2	0,1	9	0,4	1	0,0	1	0,0	13	0,1
Self-administered by respondent (RB260=4)	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0
Proxy interview (RB260=5)	603	23,4	543	22,8	703	24,7	624	19,0	2473	22,3

2.3.3.4. Distribution of substituted units

Substitution was not used.

2.3.3.5. Item non-response

The following table shows the amount of item non-response for income variables (among households whose interview was accepted for the database):

- percentage of persons/households having received an amount (other than 0),
- percentage of households for which no information for appropriate income variable was obtained from the questionnaire (missing values) and
- percentage of households for which partial information (not all the questions required) for appropriate income variable was obtained from the questionnaire.

Income values imputed by full-record imputation are included.

Cases with both partial imputed and net/gross conversion were classified according to biggest proportion in the resulting value.

Table 2.9. Distribution of item non-response, household-level variables, 2011

Income variable	Hhs having received an amount		Hhs with missing values		Hhs with partial missing		Hhs with gross/net conversion	
	Count	%	Count	%	Count	%	Count	%
Total household gross income (HY010)	4985	99.8		1.2	836	16.8	3983	80.2
Total disposable household income (HY020)	4968	99.9	47	0.9	2641	53.2	1547	31.1
Total disposable household income before social transfer other than old-age and survivors' benefits (HY022)	4926	99.1	93	1.9	2408	48.9	873	17.7
Total disposable household income before social transfers including old-age and survivors' benefits (HY023)	4634	93.2	227	4.9	2259	48.7	577	12.5
Net income components on household level								
Imputed rent (HY030N)	4671	93.6	0	0	0	0	4671	100
Income from rental of a property or land (HY040N)	135	2.7	7	5.2	2	1.5	10	7.4
Family/ children related allowances (HY050N)	1778	35.6	0	0	32	1.8	1742	98
Social inclusion not elsewhere classified (HY060N)	105	2.1	0	0	0	0	105	100
Housing allowances (HY070N)	135	2.7	0	0	0	0	135	100
Regular inter-household cash transfers received (HY080N)	181	3.6	0	0	0	0	181	100
Alimonies received, compulsory and voluntary (HY081N)	93	1.9	0	0	0	0	93	100
Interest, dividends, profit from capital investments in	1858	37.2	4	0.2	1	0.1	1842	99.1

incorporated business (HY090N)								
Interest repayments on mortgage (HY100N)	498	10	286	57.4	0	0	0	0
Income received by people aged under 16 (HY110N)	59	1.2	15	25.4	3	5.1	10	16.9
Regular taxes on wealth (HY120N)	3281	65.7	0	0	0	0	3281	100
Regular inter-household cash transfers paid (HY130N)	208	4.2	0	0	0	0	208	100
Alimonies paid, compulsory and voluntary (HY131N)	74	1.5	0	0	0	0	74	100
Repayments/ receipts for tax adjustment (HY145N)	2169	43.4	348	16	92	4.2	0	0
Value of goods produced for own consumption (HY170N)	2346	47	0	0	0	0	2346	100
Gross income components on household level								
Imputed rent (HY030G)	4812	96.4	4812	100	0	0	0	0
Income from rental of a property or land (HY040G)	135	2.7	0	0	0	0	125	92.6
Family/ children related allowances (HY050G)	1778	35.6	1	0.1	5	0.3	330	18.6
Social inclusion not elsewhere classified (HY060G)	105	2.1	11	10.5	0	0	0	0
Housing allowances (HY070G)	135	2.7	15	11.1	1	0.7	0	0
Regular inter-household cash transfers received (HY080G)	181	3.6	10	5.5	0	0	0	0
Alimonies received, compulsory and voluntary (HY081G)	93	1.9	6	6.5	0	0	0	0
Interest, dividends, profit from capital investments in incorporated business (HY090G)	1858	37.2	1732	93.2	8	0.4	77	4.1
Interest repayments on mortgage (HY100G)	498	10	0	0	0	0	498	100
Income received by people aged under 16 (HY110G)	59	1.2	0	0	0	0	59	100
Regular taxes on wealth (HY120G)	3281	65.7	221	6.7	4	0.1	0	0
Regular inter-household cash transfers paid (HY130G)	208	4.2	8	3.8	1	0.5	0	0
Alimonies paid, compulsory and voluntary (HY131G)	74	1.5	4	5.4	1	1.4	0	0
Tax on income and social contributions, gross (HY140G)	3809	76.3	0	0	0	0	0	0
Value of goods produced for own consumption (HY170G)	2346	47	2346	100	0	0	0	0

Table 2.10. Distribution of item non-response, person-level variables, 2010

	Persons having received an amount		Persons with missing values		Persons with partial missing		Persons with gross/net conversion	
	Count	%	Count	%	Count	%	Count	%
Employee cash or near cash income (PY010N)	5649	50.6	601	10.6	97	1.7	211	3.7
Non-cash employee income (PY020N)	1123	10.1	443	39.4	156	13.9	0	0
Company car (PY021N) ¹	189	1.7	189	100	0	0	0	0
Contributions to individual private pension plans (PY035N)	630	5.6	0	0	100	15.9	0	0
Cash benefits or losses from self employment (PY050N)	818	7.3	65	7.9	5	0.6	602	73.6
Pension from individual private plans (PY080N)	25	0.2	1	4	0	0	0	0
Unemployment benefits (PY090N)	514	4.6	38	7.4	8	1.6	241	46.9
Old-age benefits (PY100N)	3018	27	74	2.5	7	0.2	857	28.4
Survivor's benefits (PY110N)	92	0.8	5	5.4	0	0	0	0
Sickness benefits (PY120N)	849	7.6	464	54.7	0	0	0	0
Disability benefits (PY130N)	976	8.7	9	0.9	0	0	967	99.1
Education-related benefits (PY140N)	405	3.6	7	1.7	0	0	398	98.3
Employee cash or near cash income (PY010G)	5649	50.6	55	1	0	0	5405	95.7
Non-cash employee income (PY020G)	1123	10.1	11	1	0	0	1112	99
Company car (PY021G)	189	1.7	5	2.6	0	0	184	97.4
Employer's social insurance contributions (PY030G)	5580	50	5580	100	0	0	0	0
Contributions to individual private pension plans (PY035G)	630	5.6	0	0	0	0	100	15.9
Cash benefits or losses from self employment (PY050G)	869	7.8	85	9.8	9	1	266	30.6
Pension from individual private plans (PY080G)	25	0.2	0	0	0	0	25	100
Unemployment benefits (PY090G)	514	4.6	24	4.7	0	0	329	64
Old-age benefits (PY100G)	3018	27	13	0.4	0	0	3005	99.6
Survivor's benefits (PY110G)	92	0.8	0	0	0	0	92	100
Sickness benefits (PY120G)	849	7.6	7	0.8	0	0	842	99.2
Disability benefits (PY130G)	976	8.7	24	2.5	1	0.1	0	0
Education-related benefits (PY140G)	405	3.6	53	13.1	2	0.5	0	0

¹ Non-cash income from company car is not collected from respondent, but imputed as the number of months a company car was used multiplied by 4000.

2.3.3.6. Item non-response and number of observations at unit level of the common cross-sectional EU indicators

Number of observations for each subpopulation is indicated in Table 1.1.

Item non-response – see notes to Table 1.1

Non-response on individual level: not present in 2011 since income information in missing questionnaires is imputed

Non-response on household level is 1758 households = interview not completed, DB130=21 to 24 (1084) + interview rejected, DB135=2 (0) + address cannot be located, DB120=21 (255) + address unable to access, DB120=22 (419).

2.4. Mode of data collection

Distribution of household members aged 16 and over by Data Status and by Type of Interview can be found in Tables 2.7 and 2.8 in Section 2.3.3.3.

2.5. Interview duration

Mean interview duration per household: 47 minutes and 37 seconds (household and personal interviews together) . Thus, mean interview duration per household is lower than the one-hour limit set in Regulation 1177/2003.

3. COMPARABILITY

3.1. Basic concepts and definitions

3.1.1. The reference population

Persons living in collective households are included in the reference population. The share of persons who are living in collective households and who are not at the same time members of some other private household is likely to be very low. Additionally, there is no feasible way to estimate their share in the total population. Thus, the exclusion of these persons is unlikely to affect the comparability and reliability of the estimates.

3.1.2. The private household definition

There were no divergences from the common definition.

3.1.3. The household membership

There were no divergences from the common definition.

3.1.4. The income reference period used

There were no divergences from the common definition. The income reference period was the previous calendar year (2010).

3.1.5. The period for taxes on income and social insurance contributions

There were no divergences from the common definition. Tax on income and social insurance contributions, as well as tax repayments and receipts refer to the income received during the income reference period (previous calendar year).

3.1.6. The reference period for taxes on wealth

There were no divergences from the common definition. Taxes on wealth paid during the income reference period (previous calendar year) were recorded.

3.1.7. The lag between the income reference period and current variables

The lag between the income reference period and current variables ranges from 3 to 7 months, thus not exceeding 8 months stipulated in the regulation.

3.1.8. The total duration of the data collection of the sample

Data collection was planned to last from February till June, but had to be extended by a month due to shortage of interviewers and low response rates. Thus, data was collected during a 6 month period, although the extension of the fieldwork period did not provide an improvement in the overall response rates by more than a few percentage points.

3.1.9. Basic information on activity status during the income reference period

There were no divergences from the common definition.

3.2. Components of income

3.2.1. Differences between the national definitions and standard EU-SILC definitions

3.2.1.1. Total household gross income

There were no divergences from the common definition.

3.2.1.2. Total disposable household income

There were no divergences from the common definition.

3.2.1.3. Total disposable household income, before social transfers other than old-age and survivors' benefits

There were no divergences from the common definition.

3.2.1.4. Total disposable household income, before social transfers including old-age and survivors' benefits

There were no divergences from the common definition.

3.2.1.5. Imputed rent

There were no divergences from the common definition. User cost method was employed, as the share of market rents is very small. External data used for modelling refers to survey year and not income year. As sale prices have been rising quickly, imputed rent value may consequently be overestimated compared to other income variables.

3.2.1.6. Interest, dividends, profit from capital investments in unincorporated business

There were no divergences from the common definition.

3.2.1.7. Interest paid on mortgages

There were no divergences from the common definition.

3.2.1.8. Income received by people aged under 16

Survivors' benefits received by people aged 15 or less are recorded under variable PY110 (see below).

3.2.1.9. Cash or near-cash employee income

There were no divergences from the common definition.

3.2.1.10. Cash profits or losses from self-employment (including royalties)

There were no divergences from the common definitions. Profits or losses reported in annual accounts for tax purposes were recorded. In the case of unregistered self-employment, the respondents were asked to estimate the income received this way.

3.2.1.11. Value of goods produced for own consumption

There were no divergences from the common definition. Most quantities were imputed from answers provided by respondents and unit costs were taken from the Household Budget Survey. Production costs were deducted from the total price thus obtained for own-consumption goods, and the profits were transferred to the personal level. The transfer was done by dividing the household aggregate characteristic by all members of the household aged 16 or over who answered the personal questionnaire. This value was added to their record as variable PY070N.

3.2.1.12. Unemployment benefits

There were no divergences from the common definition.

3.2.1.13. Survivors' benefits

If more than one household member is eligible for survivors' benefits, the individual benefits are, by default, combined and paid as a single sum to one household member. Due to infeasibility of dividing the survivors' benefit received between household members, the whole benefit is recorded only for the household member to whose account it was transferred. This can marginally affect variable HY110 (income received by those under 16), but has no effect on total household income.

3.2.1.14. Gross monthly earnings for employees

Variable was not recorded, as EU-SILC is not used to calculate the gender pay gap.

3.1.1.15. All other variables not listed above

There were no additional divergences.

3.2.2. The source or procedure used for the collection of income variables

Income variables were collected via face-to-face interviews at component or where applicable at sub-component level.

3.2.3. The form in which income variables at component level have been obtained

Table 3.1 summarizes mode in which different income variables were collected. It should be noted that where collection of only gross values is indicated designate in fact income components, which are not taxable (HY060, HY070, HY080, HY100, HY120, HY130, PY035, PY130, PY140), i.e. where gross equals net. Variables HY040, HY110, PY010 and PY050 were collected as either net or gross, depending on which was easier for the respondent to report. The remaining variables were collected only in net.

Table 3.1. Mode of collection for gross income variables in Estonian EU-SILC 2010 operation

Income component	Collected gross	Collected net of tax and social contributions	Mixed mode net/gross
HY040			X
HY050		X	
HY060	X		
HY070	X		
HY080	X		
HY090		X	
HY100	X		
HY110			X
HY120	X		
HY130	X		
HY140		X	
HY145		X	
PY010			X
PY020		X	
PY035	X		
PY050			X
PY080		X	
PY090		X	
PY100		X	
PY110		X	
PY120		X	
PY130	X		
PY140	X		

3.2.4. The method used for obtaining income target variables in the required form

Where only net values were collected or only net or gross value was recorded, the corresponding net and gross values were calculated on the basis of recorded values. Conversion algorithms were created on the basis of the local tax system. Information as to which taxes were paid on income components were also collected and taken into account in conversions.

4. COHERENCE

This section will compare the EU-SILC 2011 data to various external sources, including EU-SILC 2010, National Accounts (NA), the Labour Force Survey (LFS), the Household Budget Survey (HBS), wage statistics and social protection statistics.

HBS is a continuous survey of households, which has been carried since 1996. Annual sample size is approximately 3600 households. HBS is designed to collect information on income and expenditure of households. Data is gathered using a diary, where households record all expenses during two weeks. Questionnaires are administered using CAPI. HBS was the source of Laeken indicators up until EU-SILC.

The LFS is a continuous survey, which is carried out according to the common EU methodology since 1995. The yearly sample size is about 12,000 working aged persons. From 2006, LFS is carried out using CAPI. LFS is the main source for labour market information.

Wage statistics have in their current form been continuously calculated since 1992. All enterprises employing 50 persons or more are obliged to provide data. A sample is drawn from smaller enterprises. Wage data is used to calculate hourly and monthly wages, both gross and net, as well as labour costs. All figures have been converted into full-time units.

4.1. Comparison of income target variables and number of persons who receive income from each 'income component', with external sources

In Table 4.1 EU-SILC income data is compared component by component to income data from administrative sources for income year 2010. Table 4.1 presents the comparisons by total amounts and Table 4.2 by number of recipients. Only the income components where definitions are similar enough to warrant comparisons are presented here.

Table 4.1. Total amounts (in kroons) of income components by source of information, income year 2010

Income component	EU-SILC	Other sources*
Net cash or near-cash employee income (PY010N)	64 233 089 266	54 813 673 277
Gross old-age benefits (PY100G)	16 353 028 054	17 229 253 590
Gross sickness benefits (PY120G) ²	503 390 988	902 965 286
Gross disability benefits (PY130G)	2 515 720 556	3 614 364 600
Gross survivor's benefits (PY110G)	159 751 324	236 733 058

* Wage statistics in the case of PY010 and administrative sources for other variables.

² Monthly in EU-SILC, per leave in administrative sources.

Turning to the cash employee income first, the figure from wage statistics is 9,4 billion kroons lower than its EU-SILC equivalent. The difference was the same with 2009 incomes. When comparing the number of people receiving wages and salaries, it appears that there are almost 167,000 persons more in EU-SILC who report this type of income than in wage statistics. Again, the difference is very close to what it was in 2009. This difference with wage statistics is to be expected, given that wage statistics use full-time equivalents and not actual people as their units and that unlike EU-SILC unofficial work relationships are not included. That is to say, EU-SILC also catches part-time employment and unofficial earnings, making the amounts received higher and the number of recipients larger. In wage statistics, PY020G

is included in PY010G and could not be separated from it for individual analysis. The data concerning wage statistics comes from in-house sources, not administrative registers.

Variable PY100G demonstrates a good overlap of survey data and administrative data. EU-SILC also includes pension benefits received from abroad (although there are very few such cases in the sample), which tend to be higher than national benefits. The survey also includes other old-age benefits that are not taken into account in the national administrative sources (such as local benefits provided by the local government to pensioners residing in their municipality). On the other hand, the Estonian state pays old age benefits to its citizens residing abroad while the EU-SILC survey does not have people currently living abroad in its sample. This should in turn make the figure from national accounts comparatively higher.

Neither the number of recipients nor the average amounts paid as sickness benefits are available from administrative sources. The only information that can be used is the number of leaves taken and the total amount of benefits paid, which are both times higher than the respective figures from EU-SILC. This suggests that sickness benefits are underreported by more than two times in EU-SILC and PY120 does not reflect the actual situation in the population. It is likely that respondents do not separate smaller amounts from wages and salaries and the variable has a very big measurement error.

Disability benefits too are underreported in EU-SILC, and the number of recipients is smaller than administrative accounts indicate. To a small extent this is related to the fact that disability benefits paid to people in retirement age have been added to the old-age benefits. But for the most part disability benefits, often small amounts, are not sufficiently captured by the survey. This is further indicated by the fact that the administrative records number should be somewhat lower than the survey's result since administrative information includes only disability and early retirement benefits. The numbers of recipients for care allowances and economic integration of the handicapped are not included for administrative records in Table 4.2, whereas the amounts received by them are included in Table 4.1.

Survivors' benefits are usually paid to a household as a whole. The administrative figure indicates underestimation in EU-SILC both in total amounts and number of recipients. The extent of the underestimation is similar to the case of disability benefits.

The old age benefits paid to the institutionalized population are not included in the administrative data sources' total amounts presented in Table 4.1 but they are included in the number of recipients in Table 4.2. The latter explains the higher number of recipients according to national records. Underestimation of number of recipients is probably also related to some below retirement age persons failing to report superannuated pensions in the case of EU-SILC.

Table 4.2. Number of recipients of income components by source of information, income year 2010

Income component	EU-SILC	Other sources*
<i>Person-level components</i>		
Net cash or near-cash employee income (PY010N)	625 257	458 523
Old-age benefits (PY100)	287 206	300 926
Disability benefits (PY130)	84 958	85 714
Survivor's benefits (PY110G)	6 979	11 784
* Wage statistics in the case of PY010 and administrative sources for other variables.		

Table 4.3 compares the mean and number of recipients of most income components in EU-SILC 2011 to the estimates from the 2010 operation. Changes that emerge are, in general, in line with what could be expected. It should be noted that the fieldwork period ended in June and the 2011 data actually refers to the incomes of 2010. EU-SILC in Estonia collects the respondent's annual income from the previous calendar year. Within a year the average salary increased by 1,3%, while the number of wage receivers decreased 4,1%. Administrative data confirms the survey results.

At the same time, the number of people receiving unemployment benefits decreased by 26%. Administrative data confirms the survey results. The decrease in the mean of PY090N was 31%.

Benefits from self-employment increased and the number of entrepreneurs increased. The number of entrepreneurs seems to fluctuate between survey years, which also hint to a relatively big pool of short-lived businesses.

Table 4.3. Mean (EEK-s) and number of recipients of income components in EU-SILC 2010 and 2011

	Mean		Number of recipients	
	2010	2011	2010	2011
<i>Individual level components</i>				
PY010N	101 463	102 731	651 463	625 257
PY020N	12 173	11 214	176 378	152 907
PY035N	6 057	5 997	84 317	75 133
PY050N	17 594	19 128	65 553	67 039
PY090N	23 802	16 444	76 162	56 710
PY100N	55 316	55 265	285 281	287 206
PY110N	19 668	22 510	10 025	6 979
PY120N	4 469	3 856	127 791	103 141
PY130N	29 568	29 611	74 504	84 958
PY140N	9 646	10 293	45 441	38 308
<i>Household level components</i>				
HY040N	13 983	14 219	13 203	12 158
HY050N	22 161	23 099	176 746	172 383
HY070N	8 731	12 209	12 240	12 759
HY080N	23 165	26 627	31 350	29 914
HY090N	2 497	1 716	283 952	249 702
HY110N	2 598	4 066	5 795	4 283
HY120N	668	708	400 789	367 658
HY130N	19 902	19 442	32 572	31 042
HY145N	-5 638	-4 488	270 067	253 031
HY010	193 679	189 098		
HY020	164 679	159 307		
HY022	152 483	148 679		
HY023	153 506	150 054		

Household level variables reflect changes in line with personal level variables.

HY040N increased, despite the fact that more people are receiving income from renting your property or land. The small decrease in the number of households receiving income from rental of a property or land probably has to do with sample fluctuations.

Family allowances have increased, in compliance with increases of national benefit levels, most notably the parental benefit which is tied to incomes. Larger parental benefits and more people becoming eligible for larger sums along with rising incomes amounted for a noticeable increase in the overall amount despite the fall in numbers of recipients (which may well be due to sample fluctuations).

The average amount of housing allowances has decreased and the amount of recipient households has decreased. This must have been due to a small decrease in the local level benefit in some local municipalities.

The number of households receiving and paying transfers from other households has decreased and the sums paid have increased. This might have something to do with people having greater financial possibilities for helping their relatives with larger sums than before.

Less people had to pay taxes on wealth but the amount went up only a bit and has not changed substantially.

The drop in incomes earned by people aged under 16, despite the small decrease in overall recipients, is difficult to explain. Perhaps children worked for a smaller period of time, for instance one month during the summer vacation instead of two, because they could rely on more money from their

households thanks to increased household incomes. Since the questionnaire does not specify how long the child worked and doing what, it is not possible to venture more than a guess.

Total household income decreased by approximately 3% in 2011. The decreases stem from the lower benefits and other income components which have gone down.

4.2. Comparison of other target variables with external sources

In Table 4.4 the distribution of population aged 16-74 derived from EU-SILC and LFS is compared. The differences are not great but the LFS indicates a slightly better educated populace than EU-SILC. There are more people with post secondary education and less people with secondary or lower education. Given that the questions used in the two surveys are identical, this must be due to sample fluctuations.

Table 4.4. Distribution of population aged 16-74 by ISCED level, based on the EU-SILC and the LFS, 2011

ISCED level	EU-SILC	LFS
0 Pre-primary education	0,2	0,3
1 Primary education	2,8	1,5
2 Lower secondary education	14,9	16,4
3 (Upper) secondary education	48,3	44,8
4 Post-secondary non tertiary education	2,9	6,0
5 First stage of tertiary education	30,6	30,7
6 Second stage of tertiary education	0,3	0,4
Total	100,0	100,0

*Unreliable estimate, based on 35-44 sample observations

Table 4.5 presents the comparison of population aged 16-74 by current activity status in EU-SILC and the LFS. In 2011 the differences between data from the two surveys were small, mostly less than 1%. The differences that can be observed between the two data sources may be due to misclassification to 'other inactive' category in EU-SILC.

Table 4.5. Distribution of population aged 16-74 by self-defined activity status, based on EU-SILC and the LFS, 2011

Activity status	EU-SILC	LFS
Working full-time	54,0	53,0
Working part-time	5,4	5,7
Unemployed	6,8	8,0
Pupil, student	8,7	9,7
In retirement	14,7	13,9
Permanently disabled	5,3	4,5
Fulfilling domestic tasks and care responsibilities	4,8	5,0
Conscript	0,3	0,3
Other inactive	0,1	(0.0)*
Total	100,0	100,0

* Unreliable estimate, based on less than 20 sample observations.

Table 4.6 presents the share of households in possession of various consumer durables in EU-SILC and the HBS. In 2011 the differences between data from the two surveys were small, mostly less than 1%.

Table 4.6. Share of households in possession of various consumer durables, based on EU-SILC and the HBS, 2011

Consumer durable	EU-SILC	HBS
Telephone, including mobile phone	98,4	98,8
TV	97,7	97,4
Washing machine	91,5	90,7
Car	53,8	54,9
Personal computer	69,5	70,1

Table 4.7. presents the distribution of households by dwelling type in EU-SILC and the HBS. In 2011, the differences between the two surveys were small, mostly less than 1%.

Table 4.7. Households by the type of dwelling, based on EU-SILC and the HBS, 2011

Type of dwelling	EU-SILC	HBS
Detached house	26,7	27,3
Semi-detached or terraced house	4	4,8
Apartment or flat	69,1	67,9
Some other kind of accommodation	0,2	0
Total	100	100.0