# EU-SILC 2010 in Estonia: Intermediate Quality Report

Tallinn 2011

# CONTENTS

# 1. COMMON CROSS-SECTIONAL EUROPEAN UNION INDICATORS

*Table 1.1.* Common cross-sectional European Union indicators and their standard errors, 2010

| Subpopulation | Estimate | Standard error | Design effect | Nr of values |
|---|---|---|---|---|
| **At-risk-of-poverty rate, total** | 15,8 | 0,62 | 1,29 | 13474 |
| *At-risk-of-poverty rate by gender and age* | | | | |
| At-risk-of-poverty rate , after social transfers: Age 0-17 | 17,1 | 1,27 | 1,24 | 2729 |
| At-risk-of-poverty rate , after social transfers: Age 18-24 | 18,7 | 1,23 | 1,46 | 1809 |
| At-risk-of-poverty rate , after social transfers: Age 25-49 | 13 | 0,86 | 1,25 | 4178 |
| At-risk-of-poverty rate , after social transfers: Age 50-64 | 18,5 | 1,13 | 1,3 | 2469 |
| At-risk-of-poverty rate , after social transfers: Age 65+ | 15,1 | 1,09 | 1,26 | 2289 |
| At-risk-of-poverty rate , after social transfers: Age 18+ | 15,5 | 0,56 | 1,3 | 10745 |
| At-risk-of-poverty rate , after social transfers: Age 18-64 | 15,6 | 0,65 | 1,31 | 8456 |
| At-risk-of-poverty rate , after social transfers: Age 0-64 | 15,9 | 0,7 | 1,3 | 11185 |
| At-risk-of-poverty rate , after social transfers: Male | 15,4 | 0,73 | 1,32 | 6350 |
| At-risk-of-poverty rate , after social transfers: Female | 16,1 | 0,72 | 1,26 | 7124 |
| At-risk-of-poverty rate , after social transfers: Male Age 0-17 | 17,4 | 1,5 | 1,23 | 1398 |
| At-risk-of-poverty rate , after social transfers: Male Age 18-24 | 18,1 | 1,94 | 1,55 | 926 |
| At-risk-of-poverty rate , after social transfers: Male Age 25-49 | 13,1 | 1,05 | 1,25 | 2036 |
| At-risk-of-poverty rate , after social transfers: Male Age 50-64 | 21 | 1,69 | 1,37 | 1144 |
| At-risk-of-poverty rate , after social transfers: Male Age 65+ | 8 | 1,28 | 1,28 | 846 |
| At-risk-of-poverty rate , after social transfers: Female Age 0-17 | 16,9 | 2,24 | 1,25 | 1331 |
| At-risk-of-poverty rate , after social transfers: Female Age 18-24 | 19,4 | 1,71 | 1,37 | 883 |
| At-risk-of-poverty rate , after social transfers: Female Age 25-49 | 12,9 | 0,97 | 1,26 | 2142 |
| At-risk-of-poverty rate , after social transfers: Female Age 50-64 | 16,6 | 1,23 | 1,23 | 1325 |
| At-risk-of-poverty rate , after social transfers: Female Age 65+ | 18,6 | 1,44 | 1,23 | 1443 |

| Subpopulation | Estimate | Standard error | Design effect | Nr of values |
|---|---|---|---|---|
| At-risk-of-poverty rate , after social transfers: Male Age 18+ | 14,8 | 0,78 | 1,35 | 4952 |
| At-risk-of-poverty rate , after social transfers: Female Age 18+ | 16 | 0,61 | 1,26 | 5793 |
| At-risk-of-poverty rate , after social transfers: Male Age 18-64 | 16,1 | 0,84 | 1,35 | 4106 |
| At-risk-of-poverty rate , after social transfers: Female Age 18-64 | 15,1 | 0,71 | 1,27 | 4350 |
| At-risk-of-poverty rate , after social transfers: Male Age 0-64 | 16,4 | 0,79 | 1,32 | 5504 |
| At-risk-of-poverty rate , after social transfers: Female Age 0-64 | 15,5 | 0,84 | 1,27 | 5681 |
| *At-risk-of-poverty rate by household type* | | | | |
| At-risk-of-poverty rate , after social transfers: One person hh under 65 years | 28,4 | 2,32 | 1,17 | 499 |
| At-risk-of-poverty rate , after social transfers: One person hh 65years and over | 28,5 | 2,31 | 1,09 | 575 |
| At-risk-of-poverty rate , after social transfers: One person hh, male | 33,1 | 3,39 | 1,21 | 335 |
| At-risk-of-poverty rate , after social transfers: One person hh, female | 25,9 | 1,89 | 1,11 | 739 |
| At-risk-of-poverty rate , after social transfers: One person hh, total | 28,4 | 1,61 | 1,16 | 1074 |
| At-risk-of-poverty rate , after social transfers: 2 adults, nodependant children, both adults under 65 years | 12,6 | 1,39 | 1,21 | 1388 |
| At-risk-of-poverty rate , after social transfers: 2 adults, nodependant children, at least one adult 65 years or more | 8,4 | 1,11 | 1,14 | 1410 |
| At-risk-of-poverty rate , after social transfers: Other hh without dependant children | 9 | 1,27 | 1,18 | 1590 |
| At-risk-of-poverty rate , after social transfers: Single parent hh,one or more dependant children | 36,4 | 3,9 | 1,34 | 651 |
| At-risk-of-poverty rate , after social transfers: 2 adults, one dependant child | 14,1 | 1,46 | 1,09 | 1707 |
| At-risk-of-poverty rate , after social transfers: 2 adults, two dependant children | 10,1 | 2,78 | 1,07 | 1988 |
| At-risk-of-poverty rate , after social transfers: 2 adults, three or more dependant children | 18,3 | 2,37 | 1,1 | 1384 |
| At-risk-of-poverty rate , after social transfers: Other hh with dependant children | 12,7 | 1,78 | 1,17 | 2253 |
| At-risk-of-poverty rate , after social transfers: Hh without dependant children | 16 | 0,68 | 1,3 | 5462 |
| At-risk-of-poverty rate , after social transfers: Hh with dependant children | 15,6 | 1,03 | 1,23 | 7983 |
| *At-risk-of-poverty rate by accomodation tenure status* | | | | |

| Subpopulation | Estimate | Standard error | Design effect | Nr of values |
|---|---|---|---|---|
| At-risk-of-poverty rate , after social transfers: Owner or rent free | 15,1 | 0,63 | 1,29 | 12919 |
| At-risk-of-poverty rate , after social transfers: Tenant | 28,4 | 3,92 | 1,31 | 552 |
| *At-risk-of-poverty rate by main activity status* | | | | |
| At-risk-of-poverty rate , after social transfers: Employed | 6,4 | 0,59 | 1,23 | 5247 |
| At-risk-of-poverty rate , after social transfers: Unemployed | 46,7 | 2,46 | 1,33 | 793 |
| At-risk-of-poverty rate , after social transfers: Retired | 17,9 | 1,15 | 1,27 | 2410 |
| At-risk-of-poverty rate , after social transfers: Other inactive | 27 | 1,28 | 1,36 | 2411 |
| At-risk-of-poverty rate , after social transfers: Employed, Male | 4,9 | 0,63 | 1,22 | 2558 |
| At-risk-of-poverty rate , after social transfers: Unemployed, Male | 49,9 | 2,87 | 1,32 | 514 |
| At-risk-of-poverty rate , after social transfers: Retired, Male | 10,8 | 1,61 | 1,29 | 846 |
| At-risk-of-poverty rate , after social transfers: Other inactive, Male | 30,8 | 2,16 | 1,44 | 1073 |
| At-risk-of-poverty rate , after social transfers: Employed, Female | 7,8 | 0,71 | 1,23 | 2689 |
| At-risk-of-poverty rate , after social transfers: Unemployed, Female | 41 | 3,74 | 1,32 | 279 |
| At-risk-of-poverty rate , after social transfers: Retired, Female | 21,1 | 1,45 | 1,25 | 1564 |
| At-risk-of-poverty rate , after social transfers: Other inactive, Female | 24,1 | 1,56 | 1,29 | 1338 |
| At-risk-of-poverty rate , after social transfers: Not employed | 25,9 | 0,87 | 1,33 | 5614 |
| At-risk-of-poverty rate , after social transfers: Not employed, Male | 28,5 | 1,52 | 1,39 | 2433 |
| At-risk-of-poverty rate , after social transfers: Not employed, Female | 24,1 | 0,94 | 1,28 | 3181 |
| *At risk-of-poverty rate by work intensity* | | | | |
| At-risk-of-poverty rate , after social transfers: hh without dependent children, w=0 | 28,1 | 1,42 | 1,28 | 2238 |
| At-risk-of-poverty rate , after social transfers: hh without dependent children, 0<w<1 | 15,6 | 1,51 | 1,41 | 1723 |
| At-risk-of-poverty rate , after social transfers: hh without dependent children, w=1 | 3 | 0,51 | 1,26 | 1501 |
| At-risk-of-poverty rate , after social transfers: hh with dependent children, w=0 | 75,3 | 4,12 | 1,38 | 478 |
| At-risk-of-poverty rate , after social transfers: hh with dependent children, 0<w<0,5 | 41,9 | 4,2 | 1,29 | 790 |

| Subpopulation | Estimate | Standard error | Design effect | Nr of values |
|---|---|---|---|---|
| At-risk-of-poverty rate , after social transfers: hh with dependent children, 0,5<=w<1 | 11,7 | 1,15 | 1,17 | 3456 |
| At-risk-of-poverty rate , after social transfers: hh with dependent children, w=1 | 7,2 | 1,96 | 1,3 | 3259 |
| **At-risk-of-poverty rate , before social transfers including pensions, total** | 24,9 | 0,69 | 1,27 | 13474 |
| At-risk-of-poverty rate , before social transfers including pensions:Age 0-17 | 31,1 | 1,51 | 1,28 | 2729 |
| At-risk-of-poverty rate , before social transfers including pensions:Age 18-24 | 28 | 1,48 | 1,41 | 1809 |
| At-risk-of-poverty rate , before social transfers including pensions:Age 25-49 | 22,1 | 1,05 | 1,26 | 4178 |
| At-risk-of-poverty rate , before social transfers including pensions:Age 50-64 | 28,6 | 1,32 | 1,25 | 2469 |
| At-risk-of-poverty rate , before social transfers including pensions:Age 65+ | 17,7 | 1,08 | 1,23 | 2289 |
| At-risk-of-poverty rate , before social transfers including pensions:Age 18-64 | 25 | 0,75 | 1,29 | 8456 |
| At-risk-of-poverty rate , before social transfers including pensions:Male | 25,1 | 0,82 | 1,3 | 6350 |
| At-risk-of-poverty rate , before social transfers including pensions:Female | 24,8 | 0,78 | 1,25 | 7124 |
| At-risk-of-poverty rate , before social transfers including pensions:Male Age 0-17 | 31,6 | 1,91 | 1,27 | 1398 |
| At-risk-of-poverty rate , before social transfers including pensions:Male Age 18-24 | 26,9 | 2,33 | 1,45 | 926 |
| At-risk-of-poverty rate , before social transfers including pensions:Male Age 25-49 | 22,2 | 1,21 | 1,26 | 2036 |
| At-risk-of-poverty rate , before social transfers including pensions:Male Age 50-64 | 32,3 | 1,76 | 1,3 | 1144 |
| At-risk-of-poverty rate , before social transfers including pensions:Male Age 65+ | 10,1 | 1,34 | 1,24 | 846 |
| At-risk-of-poverty rate , before social transfers including pensions:Female Age 0-17 | 30,6 | 1,85 | 1,28 | 1331 |
| At-risk-of-poverty rate , before social transfers including pensions:Female Age 18-24 | 29,2 | 2,28 | 1,36 | 883 |
| At-risk-of-poverty rate , before social transfers including pensions:Female Age 25-49 | 22,1 | 1,17 | 1,25 | 2142 |
| At-risk-of-poverty rate , before social transfers including pensions:Female Age 50-64 | 25,7 | 1,6 | 1,2 | 1325 |
| At-risk-of-poverty rate , before social transfers including pensions:Female Age 65+ | 21,5 | 1,36 | 1,21 | 1443 |
| At-risk-of-poverty rate , before social transfers including pensions:Male Age 18+ | 23,4 | 0,79 | 1,32 | 4952 |
| At-risk-of-poverty rate , before social transfers including pensions:Female Age 18+ | 23,6 | 0,71 | 1,24 | 5793 |

| Subpopulation | Estimate | Standard error | Design effect | Nr of values |
|---|---|---|---|---|
| At-risk-of-poverty rate , before social transfers including pensions:Male Age 18-64 | 25,7 | 0,9 | 1,32 | 4106 |
| At-risk-of-poverty rate , before social transfers including pensions:Female Age 18-64 | 24,3 | 0,89 | 1,26 | 4350 |
| At-risk-of-poverty rate , before social transfers including pensions:Male Age 0-64 | 27,1 | 0,91 | 1,31 | 5504 |
| At-risk-of-poverty rate , before social transfers including pensions: Female Age 0-64 | 25,6 | 0,96 | 1,26 | 5681 |
| **At-risk-of-poverty rate , before social transfers excluding pensions, total** | 40,9 | 0,72 | 1,28 | 13474 |
| At-risk-of-poverty rate , before social transfers excluding pensions:Age 0-17 | 33,3 | 1,42 | 1,27 | 2729 |
| At-risk-of-poverty rate , before social transfers excluding pensions:Age 18-24 | 32,2 | 1,71 | 1,39 | 1809 |
| At-risk-of-poverty rate , before social transfers excluding pensions:Age 25-49 | 25,4 | 0,96 | 1,25 | 4178 |
| At-risk-of-poverty rate , before social transfers excluding pensions:Age 50-64 | 42 | 1,35 | 1,24 | 2469 |
| At-risk-of-poverty rate , before social transfers excluding pensions:Age 65+ | 85,7 | 1,03 | 1,12 | 2289 |
| At-risk-of-poverty rate , before social transfers excluding pensions:Age 18-64 | 31,3 | 0,75 | 1,28 | 8456 |
| At-risk-of-poverty rate , before social transfers excluding pensions:Male | 38 | 0,79 | 1,29 | 6350 |
| At-risk-of-poverty rate , before social transfers excluding pensions:Female | 43,3 | 0,85 | 1,27 | 7124 |
| At-risk-of-poverty rate , before social transfers excluding pensions:Male Age 0-17 | 33,8 | 1,88 | 1,26 | 1398 |
| At-risk-of-poverty rate , before social transfers excluding pensions:Male Age 18-24 | 31,2 | 2,89 | 1,43 | 926 |
| At-risk-of-poverty rate , before social transfers excluding pensions:Male Age 25-49 | 25,8 | 1,16 | 1,25 | 2036 |
| At-risk-of-poverty rate , before social transfers excluding pensions:Male Age 50-64 | 42,7 | 1,76 | 1,27 | 1144 |
| At-risk-of-poverty rate , before social transfers excluding pensions:Male Age 65+ | 83 | 1,64 | 1,17 | 846 |
| At-risk-of-poverty rate , before social transfers excluding pensions:Female Age 0-17 | 32,7 | 1,82 | 1,28 | 1331 |
| At-risk-of-poverty rate , before social transfers excluding pensions:Female Age 18-24 | 33,1 | 2,32 | 1,35 | 883 |
| At-risk-of-poverty rate , before social transfers excluding pensions: Female Age 25-49 | 24,9 | 1,25 | 1,25 | 2142 |
| At-risk-of-poverty rate , before social transfers excluding pensions: Female Age 50-64 | 41,5 | 1,61 | 1,21 | 1325 |
| At-risk-of-poverty rate , before social transfers excluding pensions: Female Age 65+ | 87,1 | 1,05 | 1,1 | 1443 |

| Subpopulation | Estimate | Standard error | Design effect | Nr of values |
|---|---|---|---|---|
| At-risk-of-poverty rate , before social transfers excluding pensions: Male Age 18+ | 39,1 | 0,8 | 1,29 | 4952 |
| At-risk-of-poverty rate , before social transfers excluding pensions: Female Age 18+ | 45,4 | 0,88 | 1,27 | 5793 |
| At-risk-of-poverty rate , before social transfers excluding pensions: Male Age 18-64 | 31,3 | 0,83 | 1,31 | 4106 |
| At-risk-of-poverty rate , before social transfers excluding pensions: Female Age 18-64 | 31,4 | 0,96 | 1,26 | 4350 |
| At-risk-of-poverty rate , before social transfers excluding pensions: Male Age 0-64 | 31,9 | 0,81 | 1,3 | 5504 |
| At-risk-of-poverty rate , before social transfers excluding pensions: Female Age 0-64 | 31,7 | 0,94 | 1,26 | 5681 |
| **Median equivalised disposable income** | 89595 | 89595 | 1,3 | 13474 |
| **At-risk-of-poverty threshold** | 53757 | 53757 | 1,3 | 13474 |
| **At-risk-of-poverty threshold, one person hh** | 53757 | 53757 | 1,3 | 13474 |
| **At-risk-of-poverty threshold, hh 2 adults 2 dependent children** | 53757 | 53757 | 1,3 | 13474 |
| **S80/S20** | 5 | 0,11 | 1,42 | 13474 |
| **Relative median at-risk-of-poverty gap** | 23,3 | 0,74 | 1,3 | 2303 |
| Relative median at-risk-of-poverty gap: Age 0-17 | 28,1 | 1,28 | 1,3 | 580 |
| Relative median at-risk-of-poverty gap: Age 18-24 | 25,1 | 2,09 | 1,39 | 361 |
| Relative median at-risk-of-poverty gap: Age 25-49 | 27,8 | 2,79 | 1,34 | 638 |
| Relative median at-risk-of-poverty gap: Age 50-64 | 25,6 | 0,67 | 1,24 | 434 |
| Relative median at-risk-of-poverty gap: Age 65+ | 9 | 0,75 | 1,19 | 290 |
| Relative median at-risk-of-poverty gap: Age 18-64 | 26,1 | 2,56 | 1,33 | 1433 |
| Relative median at-risk-of-poverty gap: Age 18+ | 22 | 1,05 | 1,3 | 1723 |
| Relative median at-risk-of-poverty gap: Male | 26,1 | 2,6 | 1,31 | 1058 |
| Relative median at-risk-of-poverty gap:Female | 20,3 | 2,83 | 1,29 | 1245 |
| Relative median at-risk-of-poverty gap: Male Age 0-17 | 25,9 | 4 | 1,28 | 296 |
| Relative median at-risk-of-poverty gap: Male Age 18-24 | 27 | 1,96 | 1,4 | 179 |
| Relative median at-risk-of-poverty gap: Male Age 25-49 | 28,3 | 0,79 | 1,34 | 308 |
| Relative median at-risk-of-poverty gap: Male Age 50-64 | 28,6 | 5,36 | 1,26 | 216 |
| Relative median at-risk-of-poverty gap: Male Age 65+ | 8,9 | 0,81 | 1,18 | 59 |

| Subpopulation | Estimate | Standard error | Design effect | Nr of values |
|---|---|---|---|---|
| Relative median at-risk-of-poverty gap: Male, Age 18-64 | 28,1 | 1,32 | 1,34 | 703 |
| Relative median at-risk-of-poverty gap: Male, Age 18+ | 26,1 | 2,58 | 1,32 | 762 |
| Relative median at-risk-of-poverty gap: Female Age 0-17 | 28,2 | 1,57 | 1,31 | 284 |
| Relative median at-risk-of-poverty gap: Female Age 18-24 | 22,4 | 2,12 | 1,39 | 182 |
| Relative median at-risk-of-poverty gap: Female Age 25-49 | 25,9 | 2,51 | 1,33 | 330 |
| Relative median at-risk-of-poverty gap: Female Age 50-64 | 23,2 | 5,95 | 1,22 | 218 |
| Relative median at-risk-of-poverty gap: Female Age 65+ | 9 | 1 | 1,19 | 231 |
| Relative median at-risk-of-poverty gap: Female, Age 18-64 | 24,8 | 0,95 | 1,32 | 730 |
| Relative median at-risk-of-poverty gap: Female, Age 18+ | 17,8 | 1,38 | 1,28 | 961 |
| **Median income below the at-risk-of-poverty threshold** | 41261 | 481 | 1,3 | 2303 |
| **Dispersion around the risk-of-poverty threshold- 40%** | 5,4 | 0,36 | 1,3 | 13474 |
| **Dispersion around the risk-of-poverty threshold- 50%** | 9,4 | 0,46 | 1,26 | 13474 |
| **Dispersion around the risk-of-poverty threshold- 70%** | 25 | 0,61 | 1,31 | 13474 |
| **Gini coefficient** | 31,3 | 0,41 | 1,54 | 13474 |
| **Mean equivalised disposable income** | 106114 | 1248 | 1,49 | 13474 |

Notes:

In domains by tenure status, persons in household with unknown tenure status are excluded (3 persons).

In domains by main activity status, persons with personal questionnaire imputed and those for whom it was impossible to define main activity status were excluded (358 persons).

In domains by household type, persons in households where it was impossible to determine the type (29 persons) were excluded.

# 2. ACCURACY

## 2.1. Sample design

The 2010 sample comprised of four parts:

1. The first part consists of households selected for the survey in 2007 and followed up in 2008, 2009 and 2010. (in total 1296 households including fresh split-off households).

2. The second part consists of households selected for the survey in 2008 and followed-up in 2009 and 2010 (in total 1349 household including fresh split-off households).

3. The third part consists of households selected for the survey in 2009 and followed-up in 2010 (in total 1245 household including fresh split-off households).

4. Sample of 2422 households introduced into the survey in 2010.

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 2007, 2008 and 2009 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 01.01.2010, $n_g$ 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 2010

| Stratum h | Counties | $R_g$ | $n_g$ | $n_g/R_g$ % |
|---|---|---|---|---|
| Large | Tallinn, Harju, Ida-Viru, Lääne-Viru, Pärnu, Tartu | 859761 | 1461 | 0.17 |
| Small | Jõgeva, Järva, Lääne, Põlva, Rapla, Saare, Valga, Viljandi, Võru | 282339 | 882 | 0.31 |
| Hiiu | Hiiu | 9131 | 79 | 0.87 |

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, 2010

| Year a rotation group started | Rotational group | Initial sample size in 2010 | Nr of split-off households | Final sample size |
|---|---|---|---|---|
| 2007 | 3 | 1258 | 38 | 1296 |
| 2008 | 4 | 1288 | 61 | 1349 |
| 2009 | 1 | 1203 | 42 | 1245 |
| 2010 | 2 | 2422 | 0 | 2422 |
| **Total** | | 6171 | 141 | 6312 |

## 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 2010. 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 1% of households was interviewed after the official end of fieldwork period in June 2010.

## 2.1.7. Renewal of sample: Rotational groups

The sample consists of 4 rotational groups:
1. 1 rotational group from 2007 (DB075= 3);
2. 1 rotational group from 2008 (DB075= 4);
3. 1 rotational group from 2009 (DB075= 1);
4. new sub-sample (DB075=2).

## 2.1.8. Weighting

The sample of year 2010 consists of four sub-samples to be weighted independently and combined thereafter for final cross-sectional weight.

| | |
|---|---|
| $s_4$ | households started in 2007 and their split-offs, participate for the fourth time |
| $s_3$ | households started in 2008 and their split-offs, participate for the third time |
| $s_2$ | households started in 2009 and their split-offs, participate for the second time |
| $s_1$ | households started in 2010, 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 2010 are calculated from base weights of 2009 corrected for attrition between 2009 and 2010. Calculation of weights is done according to same procedure as in 2006-2009.

*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 that 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 2010 are corrected for attrition. Correction for attrition was done with the help of logistic regression model with tenure status, household equivalised income, urbanization status and county of place of residence, social status, age, ethnic nationality, household's assessment to its ability to make ends meet and number of children in household as auxiliary variables. Persons and households no longer in scope in 2010 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 2010, given he/she had responded in 2009, 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. Corrections were done according to same procedure as in 2006-2009.

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 Bascula module of Blaise.

*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:

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

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 2010 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.

## 2.1.9. Substitution
No substitution was used.

# 2.2. Sampling errors

## 2.2.1. Standard error and effective sample size
Variance estimation of the common cross-sectional EU indicators was done using Jacknife Repeated Replication method with programs provided by Eurostat (project director Giulio GHELLINI, Project 2008/s 105-140310, accessed in CIRCA).

Standard errors of the common cross-sectional indicators broken down by background variables are shown in Table 1.1.

Of total 6312 households in the sample, data of 4972 household were accepted for the final database. In these households, 11114 persons aged 16+ were interviewed. Effective sample size is thus 3852 households and 8615 persons. (According to Commission regulation we use here design effect of at-

risk-of-poverty rate, which was 1.29 according to the Table 1.1). 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 2010 was 104 households, which makes the proportion of the over-coverage in the new part of the sample 4,3% and of the whole sample 1,6% (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 2010 ca 2% of all records referring to persons aged 14+ were dropped before selecting the sample).

In the new part of the sample of 2010 there were 151 address-persons those 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 asses, 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, 2010

| Frame error | Number of households | Proportion in the frame error (%) |
|---|---|---|
| Total, of which | 104 | 100.0 |
| Address person was dead | 11 | 10.6 |
| Address person has left Estonia | 81 | 77.8 |
| Address person was staying in an institution | 9 | 8.7 |
| Address person was surveyed through one of his/her household members | 3 | 2.9 |

## 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.

Other notable modifications in 2010 concerned the following variables:

1) The  question about total housing cost (including electricity, water, gas and heating)  was reformulated to better meet Eurostat's guidelines.

2) The  question about capacity to face unexpected financial expenses was reformulated to better meet Eurostat's guidelines.

3) The  question about volunteer work for free last week was added.

4) The  question about type of work contract was added.

5) The  questions about pension from individual private plans were reformulated to better meet Eurostat's guidelines

6) The questions about intra-household sharing of resources were added

7) The questions about material deprivation were excluded

To reduce interviewer-induced measurement errors, the training programm 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, 63 interviewers were responsible for conducting the interviews. The household– interviewer ratio was 79 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 2010 operation was collected using CAPI. The data-entry program was written in Blaise and contained most of the consistency checks. In 2010, 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 tat 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 and in 2009 the number of errors was 1939. In 2010 the number had fallen to 1856.

Out of all the errors in 2010 41% (758 cases) required callback and clarification with the interviewer or interviewee. in 2009, 49% of cases had required callback.

As can be seen from table 2.5, the most common types of errors in 2010 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 3 thanks to the continuing development of primary logical checks in the data entry program.

*Table 2.5.* Interviewer errors and their processing, 2010

| Type of error | Number of errors detected | Share of errors requiring a call-back |
|---|---|---|
| No remark explaining unusual situation | 251 | 71.31% |
| Interviewer made an error, but did not correct it | 369 | 50.41% |
| Interviewer's remark does not explain unusual situation | 3 | 100.00% |
| Data not sufficient for coding | 48 | 43.75% |
| Starting and finishing times recorded incorrectly | 0 | 0,00% |
| Use of category Other, while a suitable category exists | 507 | 20.32% |
| In-office checks | 515 | 45.63% |
| Interviewer has misunderstood a question | 90 | 30.00% |
| Data entry mistake | 3 | 66.67% |
| Not interviewers error | 70 | 2.86% |
| Total | 1856 | 40.84% |

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 4972 households were accepted for database and used in analysis. This makes the overall share of complete household interviews accepted for the database 78,8%. On personal level, the share of complete personal interviews within the households accepted for the database was 99,1% – 11114 interviews of possible 11219. Income data for remaining 105 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*) | 0,92 | 0,84 |
| Proportion of complete household interviews accepted for the database (*Rh*) | 0,87 | 0,75 |
| Proportion of complete personal interviews within the households accepted for the database (*Rp*) | 0,99 | 0,99 |
| Household non-response rates (*NRh*) | 19,5 | 37,6 |
| Individual non-response rates (*NRp*) | 0,9 | 1,5 |
| Overall individual non-response rates (*\*NRp*) | 20,2 | 38,5 |

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><li>Address-person does not live at given address no information on new address available</li><li>Address-person has moved to another address, no information on new address available</li><li>Given address does not exist</li><li>Address can be located, but no contact can be made since nobody is at home</li></ul> | <ul><li>The house given is located but given address can not be accessed (due to locked doors or gates, etc)</li><li>Address of address-person can not be accesses due to poor weather conditions etc</li></ul> |

*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, 2010

| Record of contact at address | Rotation group 3 | | Rotation group 4 | | Rotation group 1 | | Rotation group 2 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % | N | % |
| **Total** (DB120=11 to 23) | 1296 | 100,0 | 1349 | 100,0 | 1245 | 100,0 | 2422 | 100,0 | 6312 | 100,0 |
| Address contacted (DB120=11) | 1247 | 96,2 | 1288 | 95,5 | 1214 | 97,5 | 1939 | 80,1 | 5688 | 90,1 |
| Address non-contacted (DB120=21 to 23) | 49 | 3,8 | 61 | 4,5 | 31 | 2,5 | 483 | 19,9 | 624 | 9,9 |
| **Total address non-contacted** (DB120=21 to 23) | 49 | 100,0 | 61 | 100,0 | 31 | 100,0 | 483 | 100,0 | 624 | 100,0 |
| Address cannot be located (DB120=21) | 17 | 34,7 | 21 | 34,4 | 7 | 22,6 | 151 | 31,3 | 196 | 31,4 |
| Address unable to access (DB120=22) | 20 | 40,8 | 26 | 42,6 | 17 | 54,8 | 228 | 47,2 | 291 | 46,6 |
| Address does not exist or is non-residential address or is unoccupied or not principal residence (DB120=23) | 12 | 24,5 | 14 | 23,0 | 7 | 22,6 | 104 | 21,5 | 137 | 22,0 |

Table 2.5. Distribution of addresses contacted by 'household questionnaire result' (DB130) and by household interview acceptance (DB135), 2010

| Household questionnaire result | Rotation group 3 | | Rotation group 4 | | Rotation group 1 | | Rotation group 2 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % | N | % |
| **Total** (DB130=11 to 24) | 1247 | 100,0 | 1288 | 100,0 | 1214 | 100,0 | 1939 | 100,0 | 5688 | 100,0 |
| Household questionnaire completed (DB130=11) | 1184 | 94,9 | 1204 | 93,5 | 1139 | 93,8 | 1448 | 74,7 | 4975 | 87,5 |
| Interview not completed (DB130= 21 to 24) | 63 | 5,1 | 84 | 6,5 | 75 | 6,2 | 491 | 25,3 | 713 | 12,5 |
| **Total interview not completed** (DB130=21 to 24) | 63 | 100,0 | 84 | 100,0 | 75 | 100,0 | 491 | 100,0 | 713 | 100,0 |
| Refusal to co-operate (DB130=21) | 57 | 90,5 | 60 | 71,4 | 64 | 85,3 | 426 | 86,8 | 607 | 85,1 |
| Entire household temporarily away for duration of fieldwork (DB130=22) | 1 | 1,6 | 4 | 4,8 | 4 | 5,3 | 26 | 5,3 | 35 | 4,9 |
| Household unable to respond (illness, incapacity, etc) (DB130=23) | 4 | 6,3 | 16 | 25,4 | 7 | 11,1 | 37 | 58,7 | 64 | 101,6 |
| Other (DB130=24) | 1 | 1,6 | 4 | 4,8 | 0 | 0,0 | 2 | 0,4 | 7 | 1,0 |
| **Household questionnaire completed** (DB135=1 to 2) | 1184 | 100,0 | 1204 | 100,0 | 1139 | 100,0 | 1448 | 100,0 | 4975 | 100,0 |
| Interview accepted to database (DB135=1) | 1183 | 99,9 | 1203 | 99,9 | 1139 | 100,0 | 1447 | 99,9 | 4972 | 99,9 |
| Interview rejected (DB135=2) | 1 | 0,1 | 1 | 0,1 | 0 | 0,0 | 1 | 0,1 | 3 | 0,1 |

*Table 2.6.* Distribution of household members by Respondent Status (RB245) and rotational group, 2010

| Responent Status | Rotation group 3 | | Rotation group 4 | | Rotation group 1 | | Rotation group 2 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % | N | % |
| **Total (RB245=1 to 4)** | 3193 | 100,0 | 3296 | 100,0 | 3014 | 100,0 | 3971 | 100,0 | 13474 | 100,0 |
| Current household members aged 16 and over (RB245 = 1) | 2690 | 84,2 | 2731 | 82,9 | 2519 | 83,6 | 3279 | 82,6 | 11219 | 83,3 |
| 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) | 503 | 15,8 | 565 | 17,1 | 495 | 16,4 | 692 | 17,4 | 2255 | 16,7 |

*Table 2.7.* Distribution of household members by Data Status (RB250) and rotational group, 2010

| Data Status | Rotation group 3 | | Rotation group 4 | | Rotation group 1 | | Rotation group 2 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % | N | % |
| **Total (RB250=11 to 33)** | 2690 | 100,0 | 2731 | 100,0 | 2519 | 100,0 | 3279 | 100,0 | 11219 | 100,0 |
| Information completed only from interview (RB250 = 11) | 2671 | 99,3 | 2711 | 99,3 | 2502 | 99,3 | 3230 | 98,5 | 11114 | 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 | 20 | 0,7 | 17 | 0,7 | 49 | 1,5 | 105 | 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, 2010

| Responent Status | Rotation group 3 | | Rotation group 4 | | Rotation group 1 | | Rotation group 2 | | Total | |
|---|---|---|---|---|---|---|---|---|---|---|
| | N | % | N | % | N | % | N | % | N | % |
| **Total (RB260=1 to 5)** | 2671 | 100,0 | 2711 | 100,0 | 2502 | 100,0 | 3230 | 100,0 | 11114 | 100,0 |
| Face to face interview - PAPI (RB260 = 1) | 38 | 1,4 | 27 | 1,0 | 20 | 0,8 | 57 | 1,8 | 142 | 1,3 |
| Face to face interview - CAPI (RB260 = 2) | 1934 | 72,4 | 1998 | 73,7 | 1901 | 76,0 | 2395 | 74,1 | 8228 | 74,0 |
| CATI, telephone interview (RB260=3) | 9 | 0,3 | 6 | 0,2 | 14 | 0,6 | 10 | 0,3 | 39 | 0,4 |
| Self-administered by respondent (RB260=4) | 0 | 0,0 | 0 | 0,0 | 0 | 0,0 | 1 | 0,0 | 1 | 0,0 |
| Proxy interview (RB260=5) | 690 | 25,7 | 680 | 24,9 | 567 | 22,5 | 767 | 23,4 | 2704 | 24,1 |

*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 acoording to biggest proportion in the resulting value.

*Table 2.9.* Distribution of item non-response, household-level variables, 2010

| 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) | 4965 | 99.9 | 61 | 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) | 4709 | 94.7 | 0 | 0 | 0 | 0 | 4709 | 100.0 |
| Income from rental of a property or land (HY040N) | 150 | 3 | 10 | 6.7 | 0 | 0 | 13 | 8.7 |
| Family/ children related allowances (HY050N) | 1882 | 37.9 | 1 | 0.1 | 30 | 1.6 | 1845 | 98 |
| Social inclusion not elsewhere classified (HY060N) | 86 | 1.7 | 0 | 0 | 0 | 0 | 86 | 100 |
| Housing allowances (HY070N) | 120 | 2.4 | 0 | 0 | 0 | 0 | 120 | 100 |
| Regular inter-household cash transfers received (HY080N) | 233 | 4.7 | 0 | 0 | 0 | 0 | 233 | 100 |
| Alimonies received, compulsory and voluntary (HY081N) | 100 | 2 | 0 | 0 | 0 | 0 | 100 | 100 |
| Interest, dividends, profit from capital investments in | 2207 | 44.4 | 1 | 0 | 2 | 0.1 | 2196 | 99.5 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| incorporated business (HY090N) | | | | | | | | |
| Interest repayments on mortgage (HY100N) | 512 | 10.3 | 261 | 51 | 0 | 0 | 0 | 0 |
| Income received by people aged under 16 (HY110N) | 80 | 1.6 | 23 | 28.8 | 1 | 1.3 | 11 | 13.8 |
| Regular taxes on wealth (HY120N) | 3572 | 71.8 | 0 | 0 | 0 | 0 | 3572 | 100 |
| Regular inter-household cash transfers paid (HY130N) | 250 | 5 | 0 | 0 | 0 | 0 | 250 | 100 |
| Alimonies paid, compulsory and voluntary (HY131N) | 69 | 1.4 | 0 | 0 | 0 | 0 | 69 | 100 |
| Repayments/ receipts for tax adjustment (HY145N) | 2401 | 48.3 | 249 | 10.4 | 121 | 5 | 0 | 0 |
| Value of goods produced for own consumption (HY170N) | 2332 | 46.9 | 2332 | 100.0 | 0 | 0 | 0 | 0 |
| **Gross income components on household level** | | | | | | | | |
| Imputed rent (HY030G) | 4780 | 96.1 | 4780 | 100.0 | 0 | 0 | 0 | 0 |
| Income from rental of a property or land (HY040G) | 150 | 3 | 0 | 0 | 0 | 0 | 137 | 91.3 |
| Family/ children related allowances (HY050G) | 1882 | 37.9 | 5 | 0.3 | 21 | 1.1 | 341 | 18.1 |
| Social inclusion not elsewhere classified (HY060G) | 86 | 1.7 | 10 | 11.6 | 0 | 0 | 0 | 0 |
| Housing allowances (HY070G) | 120 | 2.4 | 18 | 15 | 0 | 0 | 0 | 0 |
| Regular inter-household cash transfers received (HY080G) | 233 | 4.7 | 18 | 7.7 | 0 | 0 | 0 | 0 |
| Alimonies received, compulsory and voluntary (HY081G) | 100 | 2 | 12 | 12 | 0 | 0 | 0 | 0 |
| Interest, dividends, profit from capital investments in incorporated business (HY090G) | 2207 | 44.4 | 2059 | 93.3 | 25 | 1.1 | 90 | 4.1 |
| Interest repayments on mortgage (HY100G) | 512 | 10.3 | 0 | 0 | 0 | 0 | 512 | 100 |
| Income received by people aged under 16 (HY110G) | 80 | 1.6 | 0 | 0 | 0 | 0 | 80 | 100 |
| Regular taxes on wealth (HY120G) | 3572 | 71.8 | 148 | 4.1 | 0 | 0 | 0 | 0 |
| Regular inter-household cash transfers paid (HY130G) | 250 | 5 | 5 | 2 | 0 | 0 | 0 | 0 |
| Alimonies paid, compulsory and voluntary (HY131G) | 69 | 1.4 | 3 | 4.3 | 0 | 0 | 0 | 0 |
| Tax on income and social contributions, gross (HY140G) | 3885 | 78.1 | 0 | 0 | 0 | 0 | 0 | 0 |
| Value of goods produced for own consumption (HY170G) | 2332 | 46.9 | 0 | 0 | 0 | 0 | 2332 | 100.0 |

*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) | 5948 | 53 | 573 | 9.6 | 29 | 0.5 | 254 | 4.3 |
| Non-cash employee income (PY020N) | 1364 | 12.2 | 466 | 34.2 | 172 | 12.6 | 0 | 0 |
| Company car (PY021N)[1] | 226 | 2 | 226 | 100 | 0 | 0 | 0 | 0 |
| Contributions to individual private pension plans (PY035N) | 738 | 6.6 | 106 | 14.4 | 4 | 0.5 | 0 | 0 |
| Cash benefits or losses from self employment (PY050N) | 814 | 7.3 | 43 | 5.3 | 2 | 0.2 | 626 | 76.9 |
| Pension from individual private plans (PY080N) | 28 | 0.2 | 1 | 3.6 | 0 | 0 | 0 | 0 |
| Unemployment benefits (PY090N) | 702 | 6.3 | 48 | 6.8 | 18 | 2.6 | 294 | 41.9 |
| Old-age benefits (PY100N) | 2883 | 25.7 | 70 | 2.4 | 12 | 0.4 | 804 | 27.9 |
| Survivor's benefits (PY110N) | 118 | 1.1 | 3 | 2.5 | 0 | 0 | 0 | 0 |
| Sickness benefits (PY120N) | 1097 | 9.8 | 457 | 41.7 | 0 | 0 | 0 | 0 |
| Disability benefits (PY130N) | 898 | 8 | 0 | 0 | 0 | 0 | 898 | 100 |
| Education-related benefits (PY140N) | 467 | 4.2 | 5 | 1.1 | 0 | 0 | 462 | 98.9 |
| Employee cash or near cash income (PY010G) | 5948 | 53 | 78 | 1.3 | 0 | 0 | 5637 | 94.8 |
| Non-cash employee income (PY020G) | 1364 | 12.2 | 26 | 1.9 | 0 | 0 | 1338 | 98.1 |
| Company car (PY021G) | 226 | 2 | 3 | 1.3 | 0 | 0 | 223 | 98.7 |
| Employer's social insurance contributions (PY030G) | 5851 | 52.2 | 5851 | 100.0 | 0 | 0 | 0 | 0 |
| Contributions to individual private pension plans (PY035G) | 738 | 6.6 | 0 | 0 | 0 | 0 | 738 | 100.0 |
| Cash benefits or losses from self employment (PY050G) | 877 | 7.8 | 71 | 8.1 | 3 | 0.3 | 261 | 29.8 |
| Pension from individual private plans (PY080G) | 28 | 0.2 | 0 | 0 | 0 | 0 | 28 | 100 |
| Unemployment benefits (PY090G) | 702 | 6.3 | 31 | 4.4 | 0 | 0 | 483 | 68.8 |
| Old-age benefits (PY100G) | 2883 | 25.7 | 16 | 0.6 | 0 | 0 | 2867 | 99.4 |
| Survivor's benefits (PY110G) | 118 | 1.1 | 1 | 0.8 | 0 | 0 | 117 | 99.2 |
| Sickness benefits (PY120G) | 1097 | 9.8 | 11 | 1 | 0 | 0 | 1086 | 99 |
| Disability benefits (PY130G) | 898 | 8 | 11 | 1.2 | 0 | 0 | 0 | 0 |
| Education-related benefits (PY140G) | 467 | 4.2 | 35 | 7.5 | 4 | 0.9 | 0 | 0 |

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[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 2010 since income information in missing questionnaires is imputed

Non-response on household level is 1203 households = interview not competed, DB130=21 to 24 (713) + interview rejected, DB135=2 (3) + address cannot be located, DB120=21 (196) + address unable to access, DB120=22 (291).

## 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: 44 minutes and 19 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 (2009).

### 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 2010 data to various external sources, including EU-SILC 2009, 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 2009. 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 2009

| Income component | EU-SILC | Other sources* |
|---|---|---|
| Net cash or near-cash employee income (PY010N) | 66,099,253 | 58,374,890 |
| Gross old-age benefits (PY100G) | 16,221,551 | 16,948,500 |
| Gross sickness benefits (PY120G)[2] | 722,833 | 1,761,480 |
| Gross disability benefits (PY130G) | 2,202,905 | 3,345,940 |
| Gross survivor's benefits (PY110G) | 199,740 | 238,970 |

* 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 almost 8 billion kroons lower than its EU-SILC equivalent. The difference was the same with 2008 incomes. When comparing the number of people receiving wages and salaries, it appears that there are almost 163,000 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 2008. 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). These can offer some explanation for the somewhat higher total figure received from the survey. 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 2009

| Income component | EU-SILC | Other sources* |
|---|---|---|
| *Person-level components* | | |
| Net cash or near-cash employee income (PY010N) | 651,463 | 488,166 |
| Old-age benefits (PY100) | 285,281 | 297,273 |
| Disability benefits (PY130) | 74,504 | 79,480 |
| Survivor's benefits (PY110G) | 10,025 | 12,510 |

* 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 2010 to the estimates from the 2009 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 2010 data actually refers to the incomes of 2009. EU-SILC in Estonia collects the respondent's annual income from the previous calendar year. Within a year the average salary decreased by 7%, while the number of wage receivers decreased 7%. Administrative data confirms the survey results.

At the same time, the number of people receiving unemployment benefits increased by 225%.The reason is that in Estonia the economic crisis started from 2008. Administrative data confirms the survey results. The increase in the mean of PY090N was 21%.

Most income components show a decrease from 2009 to 2010 in line with the decreasing salaries. Benefits from self-employment deceased considerably but the number of entrepreneurs increased. This has to do with sample fluctuations- there are very few self-employed people in the sample and fluctuations in their business dealings have a big effect on variable PY050. 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 2009 and 2010

| | Mean | | Number of recipients | |
| --- | --- | --- | --- | --- |
| | 2009 | 2010 | 2009 | 2010 |
| *Individual components* | *level* | | | |
| PY010N | 108254 | 101463 | 698938 | 651463 |
| PY020N | 10251 | 12173 | 182429 | 176378 |
| PY035N | 6004 | 6057 | 95614 | 84317 |
| PY050N | 20493 | 17594 | 54448 | 65553 |
| PY090N | 19649 | 23802 | 23436 | 76162 |
| PY100N | 52599 | 55316 | 284371 | 285281 |
| PY110N | 18601 | 19668 | 7060 | 10025 |
| PY120N | 4177 | 4469 | 165250 | 127791 |
| PY130N | 28242 | 29568 | 73554 | 74504 |
| PY140N | 10352 | 9646 | 30703 | 45441 |
| *Household components* | *level* | | | |
| HY040N | 20868 | 13983 | 11937 | 13203 |
| HY050N | 20655 | 22161 | 180377 | 176746 |
| HY070N | 5332 | 8731 | 10422 | 12240 |
| HY080N | 22664 | 23165 | 25563 | 31350 |
| HY090N | 3483 | 2497 | 255340 | 283952 |
| HY110N | 4686 | 2598 | 5251 | 5795 |
| HY120N | 598 | 668 | 397103 | 400789 |
| HY130N | 21197 | 19902 | 27661 | 32572 |
| HY145N | -4342 | -5638 | 266545 | 270067 |
| HY010 | 208150 | 193679 | | |
| HY020 | 175302 | 164679 | | |
| HY022 | 165382 | 152483 | | |
| HY023 | 172048 | 153506 | | |

Household level variables reflect changes in line with personal level variables.
HY040N decreased, despite the fact that more people are receiving income from renting your property or land. Rents were low in 2009 (which includes benefits), so it is logical that the amount of income earned from renting a property is reduced.
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.
More 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 increase 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 8% in 2009. The decreases stem from the lower wages and other income components, most of 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, 2010

| ISCED level | EU-SILC | LFS |
|---|---|---|
| 0 Pre-primary education | ,2* | ,4 |
| 1 Primary education | 2,1 | 1,6 |
| 2 Lower secondary education | 15,7 | 16,7 |
| 3 (Upper) secondary education | 49,0 | 46,0 |
| 4 Post-secondary non tertiary education | 3,2 | 5,6 |
| 5 First stage of tertiary education | 29,4 | 29,5 |
| 6 Second stage of tertiary education | ,4 | ,2* |
| 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 2010 the differences between data from the two surveys were small, less than 1%. The differences that can be observed between the two data sources may be due to misclassification to 'other inactive' category in LFS.

*Table 4.5.* Distribution of population aged 16-74 by self-defined activity status, based on EU-SILC and the LFS, 2010

| Activity status | EU-SILC | LFS |
|---|---|---|
| Working full-time | 49,6 | 49,5 |
| Working part-time | 5,6 | 5,3 |
| Unemployed | 11,5 | 10,8 |
| Pupil, student | 9,5 | 10,2 |
| In retirement | 14,7 | 14,5 |
| Permanently disabled | 4,4 | 4,5 |
| Fulfilling domestic tasks and care responsibilities | 4,5 | 4,9 |
| Conscript | ,2* | 0,2 |
| Other inactive | (0.0)* | (0.1)* |
| 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 2010 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, 2010

| Consumer durable | EU-SILC | HBS |
|---|---|---|
| Telephone, including mobile phone | 98,3 | 98,2 |
| TV | 97,8 | 98,6 |
| Washing machine | 90,5 | 89,7 |
| Car | 53,1 | 52,7 |
| Personal computer | 66,9 | 65,9 |

Table 4.7. presents the distribution of households by dwelling type in EU-SILC and the HBS. In 2010, the differences between the two surveys were small, less than 1%.

*Table 4.7.* Households by the type of dwelling, based on EU-SILC and the HBS, 2010

| Type of dwelling | EU-SILC | HBS |
|---|---|---|
| Detached house | 27,7 | 27,3 |
| Semi-detached or terraced house | 4,6 | 4,7 |
| Apartment or flat | 67,0 | 67,3 |
| Some other kind of accommodation | 0,6 | 0,8 |
| Total | 100.0 | 100.0 |