

**Statistics Iceland**  
**July 2009**

# **FINAL QUALITY REPORT**

**EU-SILC-2007**

**Iceland**

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# 1. COMMON LONGITUDINAL EUROPEAN UNION INDICATORS BASED ON THE LONGITUDINAL COMPONENT OF EU-SILC

Iceland does not have access to SAS software and has not been able to calculate the longitudinal indicators.

## 2. Accuracy

### 2.1. Sample design

#### 2.1.1 Type of sampling

There were four even one-stage simple random samples without stratification used for the 2007 EU-SILC in Iceland.

#### 2.1.2 Sampling units

The sampling units are persons aged 16 years or more living in private households, selected from the Icelandic population register.

#### 2.1.3 Stratification and sub-stratification criteria

The sample is post stratified, see 2.8.

#### 2.1.4 Sample size and allocation criteria

The gross sample size was 4,041 persons, set to meet demands for minimum effective sample size of both the cross-sectional and the longitudinal components.

#### 2.1.5 Sample selection schemes

The sample plan for EU-SILC is a simple random sample in one step, and no upper age limit.

#### 2.1.6 Sample distribution over time

The sample is a rotating panel sample of approximately 4,000 individuals selected by simple random sampling from the national register in the end of the year 2003. The sample is divided into four rotation groups of approximately 1,000 individuals, each of which is replaced by another 1,000 participants every successive year. Therefore 1,000 new individuals were added to the sample in the end of the year 2004 and another 1000 in the end of the year 2005 and the 1,000 belonging to rotational group 1 and the 1000 belonging to rotational group 2 were omitted from the sample.

#### 2.1.7 Renewal of sample: Rotational groups

The households of the selected respondents are the household units. Each person (and respective household) drawn remains in the sample for four years and rotates as shown in table 2.1.

**Table 2.1 Rotation of waves in the Icelandic SILC survey**

Year t		t+1		t+2		t+3	
Wave number	Number in sample						
1	1.000	1	1.000	1	1.000	1	1.000
2	1.000	2	1.000	2	1.000	2	1.000

3	1.000	3	1.000	3	1.000	3	1.000
4	1.000	4	1.000	4	1.000	4	1.000

Notes:

Those drawn new in sample year t
Those drawn new in sample year t-1
Those drawn new in sample year t-2
Those drawn new in sample year t-3
Those drawn new in sample year t+1
Those drawn new in sample year t+2
Those drawn new in sample year t+3

Persons 16 years of age are added to the sample every year in order to make up for the aging of the sample. Those who are 16 years old in 2003 will be 20 years old in 2007 and therefore there is need to add 16 year old persons to the sample every year. The gross number in the sample increases with those supplements.

## 2.1.8. Weighting

### 2.1.8.1 Design factor

The probability of a household being selected is equal to the number of persons aged 16 and older in the household. The weight for households and for all adult household members is the inverse of the number of adult household members as calculated in **DB080**, the household design weight:

$$DB080 = \frac{1}{n_{16+}}$$

Where

$n_{16+}$  = number of persons age 16+ in the respondents households

### 2.1.8.2 Nonresponse adjustments

Post stratification weights are used to adjust the data to the population. The information on the population comes from the national register. The weights both adjust for nonresponse and sampling error. The post stratification weights are based on age (14 groups total, 12 groups for 16 and older and 2 groups below 16), sex and residence (2 groups).

### 2.1.8.3 Adjustments to external data

Results are only calibrated with numbers from the national register as described above.

**PB060** is the personal cross-sectional weight for selected respondent:

$$PB060 = \frac{N(kba)}{n(kba)}$$

Where

$N$  = Population 16 years and older 31. December 2006 in private homes

$n$  = number of cases in the data base

$k$  = sex  $b$  = residence (capital area and other areas)

$a$  = age groups [16-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-66, 67-79, 80+]

Originally the household cross-sectional weight (**DB090**) was calculated as shown below:

$$DB090 = DB080 * PB060 = \frac{1}{n16+} * \frac{N(kba)}{n(kba)}$$

Where

N = Population 16 years and older 31. December 2006 in private homes

n = number of cases in the data base

k = sex b = residence (capital area and other areas)

a = age groups [16-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-66, 67-79, 80+]

Integrative calibration is applied using the software G-Calib (designed by Statistics Belgium). The original values of **DB090** are replaced by calibrated values. The calibrated values of **DB090** are also assigned to **RB050** in order to assign identical weight to all members of the same household. Integrative calibration takes into account the distribution of the population according to age, sex and residence as described above.

The personal cross-sectional weight **PB040** is equal to **RB050**.

The personal design weight for selected respondent **PB070** is calculated in a similar way as **PB060** except **PB070** applies to the selected sample while **PB060** applies to respondents only.

$$PB070 = \frac{N(kba)}{s(kba)}$$

Where

N = Population 16 years and older 31. December 2006 in private households

s = number of selected respondents

k = sex b = residence (capital area and other areas)

a = age groups [16-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-66, 67-79, 80+]

The children cross-sectional weight **RL070** is calculated with the number of children in each one-year group (0-12 years) in private households in the population divided by the number of children in one-year groups in the households interviewed:

$$RL070 = \frac{BA}{ba}$$

Where

BA = population 0-12 years of age 31. December 2006 in private households

b = number of children 0-12 years old in the respondents' households

a = age groups [0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12]

#### 2.1.8.4 Final longitudinal weights

Longitudinal weights are done using the same methods as cross sectional weights except the base is the wave of entrance into the survey and not the survey year as is the case in the cross sectional component. Since the base of the longitudinal weight is approximately ¼ of the cross sectional weight the average longitudinal weight produced was approximately 4 times larger than the cross sectional weight for the same individual.

### 2.1.8.5 Longitudinal nonresponse, wave attrition between 2004 and 2005

No measures were taken to counter attrition between waves in the 2004-2007 longitudinal data. The reason is failed attempts to do so for the 2004-2005 longitudinal surveys. Here is description of those attempts.

There were 2171 households who participated in the 2004 survey and should have continued in 2005. 289 dropped out for various reasons which is a drop out rate of 13%.

A binomial variable was produced describing attrition (dropping - continuing). This variable was run with variables from the 2004 survey in order to try to predict who would remain in the survey and who would drop out. Analysis was done at the household level or using individual information on the selected respondent since he or she is the one determining whether household participates or not.

Two methods were tried, logistic regression and tree analysis. The tree analysis software is not available to us now since we had it on trial period and we did not buy it.

Here is a description of the logistic regression analysis.

A matrix of correlations was run using the attrition variable and several survey variables. The only variables left out were those who had a great number of 0 values or were missing for majority of the households. A variable showing the number of household members was also produced as it was considered that it might be useful in explaining attrition. Categorical variables were coded into binomial variables.

A correlation matrix (Pearson's R) was run, correlating the following variables with attrition.

	attrition
Attrition	1
RB090 sex	,047(*)
RB080 birth_year	-,097(**)
DB100 Urbanization	,067(**)
Working	-0,024
unemployed unemployed	-0,038
retired retired	0,038
work_other work_other	0,010
HH010_detached HH010_detached	0,023
HH010_semi HH010_semi	0,038
HH010_apartment HH010_apartment	-,050(*)
HH010_apartment_house HH010_apartment_house	,051(*)
single_cohabiting	-,095(**)
own_rent own_rent	-,075(**)
HY020 HY020_disposable_inc	0,023
HY100G HY100	0,010
HY120G HY120	0,032
HY140G HY140	0,021
HS010 arrears_rent	0,031
HS020	0,026
HS030	0,035
HS040	0,025
HH020	-,083(**)
HH030	,048(*)
HH031	-,057(**)
HH040	-0,042

HH050	-0,009
HH060	-0,051
HH061	-0,021
HH070	-0,004
HS050	-0,025
HS060	-0,037
HS070	-0,033
HS080	-,057(**)
HS090	-0,005
HS100	-,048(*)
HS110	-0,034
HS120	0,022
HS130	0,022
HS140	-0,003
HS150	-0,010
HS160	0,015
HS170	0,005
HS180	-0,011
HS190	0,029
PB190	0,017
PB200	-,120(**)
PE010	,046(*)
PE020	-0,072
PE030	-,111(**)
PE040	0,034
PH010	0,024
PH020	-,048(*)
PH030	-0,030
PL035	0,025
PL060	0,032
PL150	-0,039
PY010G	0,031
PY200G	0,041
no_hh_members	0,007
HS070_teleph teleph	-0,033
HS080_tv tv	-,059(**)
HS090_computer computer	-0,005
HS100_washing washing	-,048(*)
HS110_car car	-,078(**)
HB100	.(a)

A logistic regression model was run on the same variables, producing the following results.

	Beta		Exp (B)	sig	change*
	value	SE			
RB090(1) – sex	-0,5167	0,2455	0,5965	0,0353	<b>-12,6%</b>
HH010_apr_house(1)	-0,5607	0,2458	0,5708	0,0225	<b>-13,7%</b>
single_cohabiting(1)	0,6353	0,2480	1,8875	0,0104	<b>15,4%</b>
Constant	2,0429	0,2860	7,7126	0,0000	<b>38,5%</b>

\* Change in attrition given one unit change in the independent variable

The variables sex, type of housing and single-cohabiting are the most prominent in explaining attrition. However when looking at Cox & Snell R square and Nagelkerke R square it can be seen that the values are very low therefore it was decided that the model was not a useful adjustment tool for attrition.

### Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	481,096(a)	,011	,020
2	475,913(a)	,019	,035
3	471,375(a)	,026	,048

a Estimation terminated at iteration number 5 because parameter estimates changed by less than ,001.

As stated before tree analysis was also applied and as for the logistic regression model it only produced weak explanation for attrition. The tree analysis was done with the assistance of Guillaume Osier, a statistical analyst at Eurostat.

#### 2.1.8.6 Adjustments to external data

The national register is used to adjust the cross sectional weights taking into account the age, sex and area of residence. This process is described in sections 2.1.8.2 and 2.1.8.3. Considerable work was put into adjusting wave attrition to different variables in the survey as described in 2.1.8.5. These attempts produced no relation of attrition to survey variables, including variables received from the national register.

#### 2.1.8.7 Final longitudinal weights

See 2.1.8.4 and 2.1.8.5.

#### 2.1.8.8. Final cross sectional weight

See 2.1.8.3.

#### 2.1.9 Substitutions

No substitutions were applied.

## 2.2 Sampling errors

### 2.2.1. Standard errors and effective sample size

There were 4.041 households in the 2007 sample. During the field period, 139 of these proved to be non-eligible (either deceased, living in institutions or emigrated), thus giving a net sample of 3902 households. Interviews were completed for 2.872 of them.

**Table 2.2.1.A The mean, the total number of observations and the standard errors for the following income components (unweighted data) 2007**

	Mean	Before imp	After imp	SE mean
Total HH gross inc (HY010)	7.891.853	2.870	2.870	124.671
Total HH disp. Inc (HY020)	5.694.257	2.870	2.870	91.092
Total HH disp before (HY022)	5.353.636	2.870	2.870	92.219
Total HH disp. Including (HY023)	4.862.599	2.870	2.870	95.681
Imputed rent (HY030)	823.631	2.868	2.868	9.967
Gross Income from rental (HY040)	34.832	2.870	2.870	4.366
Gross income from investments (HY090)	675.812	2.870	2.870	72.334
Gross family allowances (HY050)	122.346	2.870	2.870	5.743
Gross social excl. (HY060)	6.796	2.870	2.870	1.180
Gross housing allowances (HY070)	47.828	2.870	2.870	1.668
Gross inter-HH cash received (HY080)	60.532	2.870	2.762	3.267

Alimonies Received (HY081)	51.827	2.870	2.762	2.921
Gross interest repayments (HY100)	378.515	2.870	2.870	7.551
Gross Income under 16 (HY110)	15.988	2.870	2.870	1.593
Gross taxes on wealth (HY120)	64.152	2.870	2.870	698
Gross inter-HH cash paid (HY130)	45.304	2.870	2.769	2.644
Alimonies Paid (HY131)	28.118	2.870	2.769	1.899
Gross tax on income (HY140)	2.088.798	2.870	2.870	42.686
Gross employee cash income (PY010)	2.575.898	6.567	6.567	36.380
Non-Cash employee income (PY020)	46.517	6.567	6.567	1.937
Company car (PY021)	41.653	6.567	6.567	2.273
Empl. Soc. insurance contribution (PY031)	326.948	6.567	6.567	4.555
Contrib. To ind.pens.plans (HY035G)	48.160	6.567	6.567	6.628
Gross self employment (PY050)	123.974	6.567	6.567	7.517
Gross unemployment benefits (PY090)	5.879	6.567	6.567	665
Gross old-age benefits (PY100)	179.127	6.567	6.567	7.113
Gross survivor benefits (PY110)	35.473	6.567	6.567	5.278
Gross sickness benefits (PY120)	647	6.567	6.567	319
Gross disability benefits (PY130)	61.348	6.567	6.567	4.717
Gross education allowances (PY140)	3.647	6.567	6.567	1.554

**Table 2.2.1.A The mean, the total number of observations and the standard errors for the following income components (unweighted data) by wave for the year 2007**

Wave	Variable	Mean	Before imp	After imp	SE mean
1	HY010_amount	8.736.499	1.636	1.636	139.321
1	HY020_amount	6.314.004	1.636	1.636	103.321
1	HY022_amount	6.002.369	1.636	1.636	105.724
1	HY023_amount	5.575.295	1.636	1.636	111.853
1	HY040G_amount	517.936	1.636	1.636	40.064
1	HY090G_amount	865.974	1.636	1.636	112.703
1	HY050G_amount	300.453	1.636	1.636	16.075
1	HY060G_amount	307.758	1.636	1.636	57.885
1	HY070G_amount	168.267	1.636	1.636	4.236
1	HY080G_amount	348.730	1.636	1.611	16.359
1	HY081G_amount	339.964	1.636	1.611	15.461
1	HY100G_amount	554.883	1.636	1.636	11.353
1	HY110G_amount	169.934	1.636	1.636	23.314
1	HY120G_amount	76.895	1.636	1.636	773
1	HY130G_amount	332.810	1.636	1.616	17.391
1	HY131G_amount	307.463	1.636	1.616	12.982
1	HY140G_amount	2.311.728	1.636	1.636	43.066
1	PY010G_amount	3.028.683	1.636	1.636	75.190
1	PY050G_amount	1.073.081	1.636	1.636	102.021
1	PY090G_amount	304.322	1.636	1.636	50.729
1	PY100G_amount	1.549.076	1.636	1.636	59.455
1	PY110G_amount	591.126	1.636	1.636	170.525
1	PY120G_amount	235.622	1.636	1.636	215.551
1	PY130G_amount	1.155.820	1.636	1.636	92.119
1	PY140G_amount	372.374	1.636	1.636	286.494
2	HY010_amount	9.170.553	1.600	1.600	168.857
2	HY020_amount	6.530.697	1.600	1.600	117.739
2	HY022_amount	6.216.753	1.600	1.600	119.414
2	HY023_amount	5.753.532	1.600	1.600	125.395

2	HY040G_amount	652.895	1.600	1.600	48.236
2	HY090G_amount	1.005.012	1.600	1.600	100.369
2	HY050G_amount	334.812	1.600	1.600	19.887
2	HY060G_amount	236.810	1.600	1.600	41.360
2	HY070G_amount	162.938	1.600	1.600	4.465
2	HY080G_amount	334.472	1.600	1.575	12.892
2	HY081G_amount	322.441	1.600	1.575	13.182
2	HY100G_amount	559.440	1.600	1.600	11.213
2	HY110G_amount	121.605	1.600	1.600	15.673
2	HY120G_amount	78.314	1.600	1.600	788
2	HY130G_amount	331.857	1.600	1.572	16.420
2	HY131G_amount	331.176	1.600	1.572	16.364
2	HY140G_amount	2.524.767	1.600	1.600	57.491
2	PY010G_amount	3.193.914	1.600	1.600	94.183
2	PY050G_amount	1.186.324	1.600	1.600	109.593
2	PY090G_amount	227.066	1.600	1.600	45.406
2	PY100G_amount	1.667.494	1.600	1.600	70.606
2	PY110G_amount	728.577	1.600	1.600	171.237
2	PY120G_amount	141.605	1.600	1.600	60.396
2	PY130G_amount	1.299.191	1.600	1.600	150.649
2	PY140G_amount	212.375	1.600	1.600	121.580
3	HY010_amount	9.149.161	1.630	1.630	198.552
3	HY020_amount	6.733.600	1.630	1.630	168.196
3	HY022_amount	6.356.114	1.630	1.630	170.146
3	HY023_amount	5.921.847	1.630	1.630	172.121
3	HY040G_amount	685.133	1.630	1.630	100.404
3	HY090G_amount	1.482.642	1.630	1.630	210.057
3	HY050G_amount	319.438	1.630	1.630	15.764
3	HY060G_amount	330.868	1.630	1.630	57.140
3	HY070G_amount	170.645	1.630	1.630	4.407
3	HY080G_amount	383.561	1.630	1.605	15.770
3	HY081G_amount	373.186	1.630	1.605	14.579
3	HY100G_amount	567.377	1.630	1.630	12.302
3	HY110G_amount	122.616	1.630	1.630	8.620
3	HY120G_amount	77.305	1.630	1.630	761
3	HY130G_amount	325.360	1.630	1.604	12.206
3	HY131G_amount	312.354	1.630	1.604	11.176
3	HY140G_amount	2.297.377	1.630	1.630	43.470
3	PY010G_amount	2.970.882	1.630	1.630	70.480
3	PY050G_amount	1.255.873	1.630	1.630	130.636
3	PY090G_amount	232.679	1.630	1.630	34.773
3	PY100G_amount	1.584.206	1.630	1.630	64.133
3	PY110G_amount	969.322	1.630	1.630	304.746
3	PY120G_amount	392.121	1.630	1.630	302.628
3	PY130G_amount	1.424.897	1.630	1.630	105.859
3	PY140G_amount	82.207	1.630	1.630	13.398
4	HY010_amount	8.916.768	1.701	1.701	193.814
4	HY020_amount	6.406.321	1.701	1.701	124.463
4	HY022_amount	6.036.433	1.701	1.701	124.893
4	HY023_amount	5.620.036	1.701	1.701	129.327
4	HY040G_amount	946.350	1.701	1.701	123.829
4	HY090G_amount	1.152.511	1.701	1.701	145.429
4	HY050G_amount	282.626	1.701	1.701	14.215
4	HY060G_amount	275.414	1.701	1.701	35.257
4	HY070G_amount	160.807	1.701	1.701	4.130
4	HY080G_amount	345.594	1.701	1.668	15.845
4	HY081G_amount	325.860	1.701	1.668	14.313

4	HY100G_amount	537.917	1.701	1.701	11.434
4	HY110G_amount	98.267	1.701	1.701	8.281
4	HY120G_amount	78.405	1.701	1.701	831
4	HY130G_amount	325.649	1.701	1.674	14.806
4	HY131G_amount	311.427	1.701	1.674	11.508
4	HY140G_amount	2.407.189	1.701	1.701	85.550
4	PY010G_amount	3.058.276	1.701	1.701	78.830
4	PY050G_amount	1.070.638	1.701	1.701	105.607
4	PY090G_amount	263.704	1.701	1.701	36.950
4	PY100G_amount	1.486.486	1.701	1.701	54.589
4	PY110G_amount	715.371	1.701	1.701	122.726
4	PY120G_amount	124.733	1.701	1.701	58.000
4	PY130G_amount	1.586.989	1.701	1.701	200.978
4	PY140G_amount	381.737	1.701	1.701	267.815

**Table 2.2.1.B The mean, the number of observations and the standard error for the equivalised disposable income breakdown by sex, age groups and household size (unweighted data)**

	2007	2007	2007	2007
Equivalised disposable income	Mean	Before imp	After imp	Standard error
1 household member	2.430.623	384	384	100.531
2 household members	3.031.151	1.708	1.704	50.998
3 household members	3.279.249	1.785	1.785	72.807
4+ household members	2.965.696	4.778	4.778	28.413
<25 years	2.877.241	3.459	3.458	36.668
25-34 years	2.766.879	1.062	1.062	45.432
35-44 years	3.128.886	1.228	1.228	78.889
45-54 years	3.428.786	1.260	1.260	71.596
55-64 years	3.601.811	826	825	91.012
65+ years	2.574.416	802	800	59.251
Male	3.032.203	4.377	4.374	32.243
Female	3.006.580	4.278	4.277	36.766

**Table 2.2.1.B The mean, the number of observations and the standard error for the equivalised disposable income breakdown by sex, age groups and household size (unweighted data) in 2007 by wave**

Wave	Variable	Mean	Before imp	After imp	SE
1	1 household member	2.443.040	84	84	167.232
1	2 household members	3.158.483	416	416	116.861
1	3 household members	3.097.312	480	480	76.485
	4+ household members	2.847.486	1.152	1.152	50.214
1	<25 years	2.774.004	826	826	58.023
1	25-34 years	2.711.110	276	276	68.382
1	35-44 years	2.951.904	298	298	98.991
1	45-54 years	3.368.069	304	304	120.011
1	55-64 years	3.704.501	210	210	195.393
1	65+ years	2.606.047	214	214	108.847
1	Male	2.958.029	1.115	1.115	53.194
1	Female	2.938.010	1.017	1.017	60.550
2	1 household member	2.462.186	98	98	280.427
2	2 household members	3.223.171	454	454	130.515

2	3 household members	3.137.769	429	429	85.935
	4+ household				
2	members	3.025.630	1.087	1.087	55.904
2	<25 years	2.859.697	795	795	58.726
2	25-34 years	3.008.403	251	251	132.322
2	35-44 years	3.139.080	284	284	193.396
2	45-54 years	3.331.340	340	340	83.656
2	55-64 years	3.764.935	204	204	166.644
2	65+ years	2.681.667	190	190	159.446
2	Male	3.086.850	1.031	1.031	64.205
2	Female	3.044.392	1.037	1.037	68.005
3	1 household member	2.556.702	106	106	184.567
3	2 household members	2.897.947	396	394	71.573
3	3 household members	3.664.252	387	387	268.635
	4+ household				
3	members	2.964.771	1.302	1.302	56.671
3	<25 years	2.935.909	908	908	90.317
3	25-34 years	2.659.577	277	277	77.736
3	35-44 years	3.164.556	325	325	172.565
3	45-54 years	3.549.800	298	298	219.740
3	55-64 years	3.648.719	196	196	245.392
3	65+ years	2.621.580	185	183	116.796
3	Male	3.058.919	1.098	1.097	78.921
3	Female	3.054.364	1.093	1.092	92.048
4	1 household member	2.248.324	96	96	132.336
4	2 household members	2.831.914	442	440	66.144
4	3 household members	3.277.261	489	489	117.906
	4+ household				
4	members	3.024.090	1.237	1.237	62.276
4	<25 years	2.926.704	930	929	75.154
4	25-34 years	2.706.772	258	258	76.744
4	35-44 years	3.248.053	321	321	151.377
4	45-54 years	3.477.614	318	318	130.438
4	55-64 years	3.303.969	216	215	101.775
4	65+ years	2.406.447	213	213	85.211
4	Male	3.029.599	1.133	1.131	59.304
4	Female	2.987.431	1.131	1.131	67.719

As we do not have resources take the design of the survey and the calibration into account in the calculation of standard error, simple random sample is assumed

## 2.3 Nonsampling errors

Errors other than sampling errors can be placed in three categories: coverage errors, nonresponse errors and measurement errors.

### 2.3.1 Sampling frame and coverage errors

The sampling frame is the population register of Iceland in the end of the year 2006. Eligible for the sample were all persons 16 and older who were living in Iceland according to the register. Those registered at institutions were excluded from the sample.

The national register is updated continuously. However, it does not always contain correct information on changing of residence. People may move abroad or to an institution without giving that information to the national register. Therefore the national register over represents

young people who tend to go abroad for their studies and older people who sometimes maintain a private address in spite of living in an institution.

This is adjusted for with information received during the data collection process. For instance if it turns out that 5% of 25-29 years old females from the capital area are living abroad in spite of being in the register then the population frame is adjusted to these information and the relevant group is decreased by 5%. These adjustments are made before calculating the post stratification weights.

Under coverage of foreign citizens who live in Iceland is possible but it can be hard to assess. However it is likely that most foreign citizens who live here are working legally and are therefore in the national register. The fact that Iceland is an island makes it hard for foreigners to enter and stay in the country without being registered.

### **2.3.2 Measurement and processing errors**

Errors of this kind can be classified into three categories: Design errors, interviewer errors and processing errors.

#### **2.3.2.1 Design errors**

The questionnaire may be the cause of measurement errors. The phrasing of questions can cause misunderstanding as can the ordering of questions affect responses. The work of designing the survey electronically in Blaise also leaves room for errors.

Here are some comments on those variables and other cases where there might be deviations from Eurostat standards.

#### **HB100 and PB120**

Timestamps were not included in the Blaise instrument of the survey for 2004, 2005 and 2006 and therefore it could not be seen how long each of the personal- and the household section took. Only information on the total length of the interview was available. This was improved before the 2007 survey.

#### **HS040**

The Icelandic question differs because of the uniqueness of Iceland as an island. We asked if the respondent and his family could afford to go on a vacation abroad for one week. We also asked if the household could go on one week vacation in Iceland for one week.

#### **PH030**

In 2004, 2005 and 2006 it was assumed that all those with long standing illness or condition were limited in their activities. This was fixed in 2007 when all respondents received questions about limitation in activities.

#### **PL030**

In 2004 and 2005 the labour marked definition of economic status was used for PL030 instead of the requested self defined economic status. This was fixed before the 2006 survey.

#### **PL130**

For those who were self employed a question was not asked in 2004, 2005 and 2006 on the number of people working at the local unit. This was fixed before the 2007 survey.

#### **PL140**

For those who were retired the question on the type of contract was not asked in 2004, 2005 and 2006 but was included in the 2007 survey.

PL190

A question on the year of beginning first regular job was not in the survey for 2004, 2005 and 2006 but was included before the 2007 survey.

PL200

A question on the number of years in paid work was not in the survey for 2004, 2005 and 2006 but was included before the 2007 survey.

### **Longitudinal variables**

Some variables which are only longitudinal (and not cross sectional) were, by mistake not collected in Iceland in the 2005 and 2006 surveys. This was improved before the 2007 survey.

PL210A-PL210L

In 2004, 2005 and 2006, there was only received information on the number of months for each type of economic status but not for which month each status applied. This error was fixed in the 2007 survey.

The following longitudinal variables were not collected in the years 2005 and 2006. They were included in the survey for 2007.

RB120 Moved to, we know who moved and coded all of them = 4 after having consulted with Eurostat

RB140 Month moved out or died

RB160 Number of months in household during the income reference period

RB180 Month moved in

The fact that income variables are mostly collected from registers should reduce the risk of measurement errors in the income variables. Wrong estimation from respondents or error in data entering from interviewer should not be a problem.

#### **2.3.2.2. Interviewer and processing errors**

The data collection mode in the Iceland EU-SILC is CATI, using the software Blaise. Data entry controls are built into the electronic questionnaire.

Once the data has been collected all processing is done in the SQL data management software, except for imputations which are done in SPSS.

Registers are used quite extensively in the EU SILC in Iceland. The result should be a decrease in measurement error from respondents or interviewers. However there still room for human error in data process as complexities are added to the data processing with linking between survey data and public records or other outside data. The following sources of data are used: the national register, tax register, real estate register, HBS (Household budgeted survey) data, municipality tax data and list of people living in institutions.

Often a combination of sources or questions is used to fill in the EU-SILC variables. Data processing for 2004 and 2005 in Iceland was done under a great time pressure and some problems arose in the process.

For the 2006 survey there has been some room for improvements. All collected data and outside sources have been compiled into a data base which includes all the years the SILC has been conducted in Iceland. The idea is to be able to process all years simultaneously and adding a year

to the data base should be easy. Running comparison of years is quick and easy and filtering out individual years is easy to do as well. Extensive programming work was done in order to achieve this.

### 2.3.3. Nonresponse errors

In general, males are more difficult to reach than females and young people are harder to reach than older people. People living in the capital region are more often absent from home than people elsewhere in Iceland.

Refusals to participate in the survey are more prevalent among inhabitants of the capital city region and older persons. In contrast, women, people outside the capital city region and young people are less likely to refuse to participate.

To counter bias, the results were weighted by sex, age and residence.

#### 2.3.3.1 Achieved sample size

		Households	Persons 16+	HH members
2004	Wave 1	708	1668	2219
2004	Wave 2	740	1666	2203
2004	Wave 3	723	1606	2144
2004	Wave 4	711	1661	2227
2004	Total	2882	6601	8793
2005	Wave 1	719	1645	2216
2005	Wave 2	719	1679	2216
2005	Wave 3	739	1671	2202
2005	Wave 4	751	1675	2206
2005	Total	2928	6670	8840
2006	Wave 1	685	1590	2061
2006	Wave 2	705	1610	2152
2006	Wave 3	713	1645	2176
2006	Wave 4	742	1676	2209
2006	Total	2845	6521	8598
2007	Wave 1	705	1636	2132
2007	Wave 2	704	1600	2068
2007	Wave 3	715	1630	2191
2007	Wave 4	748	1701	2264
2007	Total	2872	6567	8655

This table is based on the cross sectional files, including all the sample for each wave.

Table 2.4.A shows a table broken down by RB250 and RB100 (selected, not selected), by rotational group.

#### 2.3.3.2.A. Unit nonresponse

##### Household nonresponse rates (NRh)

$$NRh = (1 - Ra * Rh) * 100$$

Where

$$Ra = \frac{\text{Number of addresses successfully contacted}}{\text{Number of valid addresses selected}}$$

$$Ra = \frac{\sum (DB120 = 11)}{\sum (DB120 = all) - \sum (DB120 = 23)} = \frac{3902}{4041 - 139} = 1$$

$$Rh = \frac{\text{Number of household interviews completed and accepted for database}}{\text{Number of valid addresses selected}}$$

$$Rh = \frac{\sum (DB130 = 1)}{\sum (DB130 = all)} = \frac{2872}{3902} = 0.7360$$

$$NRh = (1 - 0.7331) * 100 = 26.40$$

### Individual nonresponse rates (NRp)

$$NRp = (1 - (Rp)) * 100$$

#### Where

$$Rp = \frac{\text{Number of personal interviews completed}}{\text{Number of eligible individuals in households where interviews were completed and accepted for database}}$$

$$Rp = \frac{6567}{6567} = 1$$

$$NRp = 1 - (1 - (Rp)) * 100 = 1 - (0) * 100 = 100$$

### Overall individual nonresponse rates (\*NRp)

$$*NRp = (1 - (Ra * Rh * Rp)) * 100 = (1 - (1 * 0.2640 * 1)) * 100 = 73.60$$

#### 2.3.3.2.B Unit nonresponse by rotational group

	Group 1	Group 2	Group 4
Ra	1,00	1,00	1,00
Rh	0,79	0,73	0,79
NRh	0,21	0,27	0,21
Rp	1,00	1,00	1,00
NRp	0,21	0,27	0,21

**Ra- Proportion of addresses contacted**

**Rh – Proportion of complete household interviews accepted for database**

**NRh – Household nonresponse rate**

**Rp-Proportion of complete personal interview within the households accepted for data base**

**NRp – Individual nonresponse rate**

For the longitudinal tables it should be noted that there are no split off households (no DB110 = 8) since only selected respondents are followed and whoever are living with them are surveyed. Given the Icelandic design, the only way for a new household to enter the survey in a wave other than the first wave is with a selected respondent who is younger than 16 years in the first wave he or she enters the survey.

### 2.3.3.2.C Longitudinal tables for calculation of nonresponse

#### Household response rates: Comparison of result codes between wave 2 and wave 1

##### 2.3.3.2.C Wave 1 and 2 Group 4

Group 4	DB135 = 1	DB130 = 21	DB130=22	DB130=23	DB120=23	DB110=3, 4, 5, 6, 7	Total
1: Wave 1, DB135 =							
1	629	132	33	7	4	0	805
2: Wave 1, DB135 =							
2	0	0	0	0	0	0	0
3: Wave 2, DB110 =							
8	0	0	0	0	0	0	0
4: Wave 2, DB110 =							
9	16	0	1	0	0	0	17
	645	132	34	7	4	0	822

##### 2.3.3.2.C Wave 1 and 2 Group 2.

Group 2	DB135 = 1	DB130 = 21	DB130=22	DB130=23	DB120=23	DB110=3, 4, 5, 6, 7	Total
1: Wave 1, DB135 =							
1	673	157	87	8	29	0	954
2: Wave 1, DB135 =							
2	0	0	0	0	0	0	0
3: Wave 2, DB110 =							
8	0	0	0	0	0	0	0
4: Wave 2, DB110 =							
9	12	2	1	0	0	0	15
	685	159	88	8	29	0	969

##### 2.3.3.2.C Wave 1 and 2 Group 1.

Group 1	DB135 = 1	DB130 = 21	DB130=22	DB130=23	DB120=23	DB110=3, 4, 5, 6, 7	Total
1: Wave 1, DB135 =							
1	683	117	62	3	2	0	867
2: Wave 1, DB135 =							
2	0	0	0	0	0	0	0
3: Wave 2, DB110 =							
8	0	0	0	0	0	0	0

4: Wave 2, DB110 =								
9	15	1	0	0	0	0	0	16
Total	698	118	62	3	2	0		883

### Wave response rates. Percentages

	Wave resp.rate	Refusal Rate	No Contact	Total
Group 4	78,47	16,06	5,47	100,00
Group 2	70,69	16,41	12,90	100,00
Group 1	79,05	13,36	7,59	100,00

### Longitudinal follow-up rates, follow-up ratio and achieved sample size. Percentages

Wave 1 – 2	Longitudinal follow-up rate	Follow-up ratio	Achieved sample size ratio
Group 4	78,47	83,11	80,12
Group 2	70,69	80,50	71,80
Group 1	79,05	86,27	80,51

### Household response rates: Comparison of results codes between wave t and wave t-1

#### 2.3.3.2.D: Other waves

##### Group 4

Group 4							822	
Wave 2 – 3	DB135 =	DB110=3, 4, 5, 6,				Total		
1	DB130 = 21	DB130=22	DB130=23	DB120=23	7			
1: DB135 = 1	577	41	0	0	0	0	618	
2: DB135 = 2	0	0	0	0	0	0	0	
4: DB120 = 22	0	0	0	0	0	0	0	
6: DB130 = 22	0	0	11	0	0	0	11	
8: DB130 = 23	0	0	0	0	0	0	0	
10: DB130 =								
24	0	0	0	0	0	0	0	
11: DB110 = 8	0	0	0	0	0	0	0	
12: DB110 = 9	12	1	1	1	0	0	15	
	577	41	11	0	0	0	629	

#### 2.3.3.2.D Other waves

##### Group 4

Group 4								
Wave 3 – 4	DB135 =	DB110=3, 4, 5, 6,				Total		
1	DB130 = 21	DB130=22	DB130=23	DB120=23	7			
1: DB135 = 1	550	42	0	0	0	0	592	
2: DB135 = 2	0	0	0	0	0	0	0	
4: DB120 = 22	0	0	0	0	0	0	0	
6: DB130 = 22	0	0	12	0	0	0	12	

8: DB130 = 23	0	0	0	1	0	0	1
10: DB130 = 24	0	0	0	0	0	0	0
11: DB110 = 8	0	0	0	0	0	0	0
12: DB110 = 9	9	5	1	1	0	0	16
	550	42	12	1	0	0	605

### 2.3.3.2.D Other waves

#### Group 1

Group 1

Wave 2 – 3	DB135 = 1	DB130 = 21	DB130=22	DB130=23	DB120=23	DB110=3, 4, 5, 6, 7	Total
1: DB135 = 1	683	117	0	0	0	0	800
2: DB135 = 2	0	0	0	0	0	0	0
4: DB120 = 22	0	0	0	0	0	0	0
6: DB130 = 22	0	0	62	0	0	0	62
8: DB130 = 23	0	0	0	3	0	0	3
10: DB130 = 24	0	0	0	0	0	0	0
11: DB110 = 8	0	0	0	0	0	0	0
12: DB110 = 9	12	1	3	0	0	0	16
	683	117	62	3	0	0	865

#### Wave response rates.

Group 4	Wave resp.rate	Refusal rate	No contact	Total
Wave 2 – 3	91,73	6,52	1,75	100,00
Wave 3 – 4	90,91	6,94	2,15	100,00

Group 1	Wave resp.rate	Refusal rate	No contact	Total
Wave 2 – 3	89,72	7,05	3,23	100

#### Longitudinal follow-up rates, follow-up ratio and achieved sample size ratio.. Percentages

Group 4	Longitudinal follow-up rate	Follow-up ratio	Achieved sample size ratio
Wave 2 – 3		91,73	93,64
Wave 3 – 4		90,91	92,40

Group 1	Longitudinal follow-up rate	Follow-up ratio	Achieved sample size ratio
Wave 2 – 3	89,72	91,48	92,72

# Longitudinal response rate for persons

## 2.3.3.2.E Personal interview outcome.

### Sample persons, Group 4

		Sample persons (RB100=1 and RB245 in ('1', '2', '3) forwarded from last wave						
		RB250	RB250	RB250	RB250	RB250	RB250	
Group 4		11, 12, 13	21	23	31	32	33	Total
RB110 = 1-2	Wave 1	629	0	0	0	0	0	629
RB110 = 1-2	Wave 1 to wave 2	593	0	0	0	0	0	593
RB110 = 1-2	Wave 2 to wave 3	562	0	0	0	0	0	562
RB110 = 1-2	Wave 3 to wave 4	549	0	0	0	0	0	549

## 2.3.3.2.E Personal interview outcome.

### Nonsample persons, Group 4

		Non sample persons						
		RB250	RB250	RB250	RB250	RB250	RB250	
Group 4		11, 12, 13	21	23	31	32	33	Total
RB110 = 1-2	Wave 1	854	0	0	0	0	0	854
RB110 = 1-2	Wave 1 to wave 2	731	0	0	0	0	0	731
RB110 = 1-2	Wave 2 to wave 3	655	0	0	0	0	0	655
RB110 = 1-2	Wave 3 to wave 4	613	0	0	0	0	0	613

## 2.3.3.2.E Personal interview outcome.

### Sample and nonsample persons, Group 4

		Sample and nonsample persons						
		RB250	RB250	RB250	RB250	RB250	RB250	
Group 4		11, 12, 13	21	23	31	32	33	Total
RB110 = 1-2	Wave 1	1483	0	0	0	0	0	1483
RB110 = 1-2	Wave 1 to wave 2	1324	0	0	0	0	0	1324
RB110 = 1-2	Wave 2 to wave 3	1217	0	0	0	0	0	1217
RB110 = 1-2	Wave 3 to wave 4	1162	0	0	0	0	0	1162

## 2.3.3.2.E Personal interview outcome.

### Sample persons, Group 1

		Sample persons (RB100=1 and RB245 in ('1', '2', '3) forwarded from last wave						
		RB250	RB250	RB250	RB250	RB250	RB250	
Group 1		11, 12, 13	21	23	31	32	33	Total
RB110 = 1-2	Wave 1	683	0	0	0	0	0	683
RB110 = 1-2	Wave 1 to wave 2	626	0	0	0	0	0	626
RB110 = 1-2	Wave 2 to wave 3	595	0	0	0	0	0	595

**2.3.3.2.E Personal interview outcome.****Nonsample persons, Group 1**

		Non sample persons						
		RB250	RB250	RB250	RB250	RB250	RB250	
		11, 12,						
Group 1		13	21	23	31	32	33	Total
RB110 = 1- 2	Wave 1	874	0	0	0	0	0	874
RB110 = 1- 2	Wave 1 to wave 2	725	0	0	0	0	0	725
RB110 = 1- 2	Wave 2 to wave 3	694	0	0	0	0	0	694

**2.3.3.2.E Personal interview outcome.****Sample and nonsample persons, Group 1**

		Sample and nonsample persons						
		RB250	RB250	RB250	RB250	RB250	RB250	
		11, 12, 13	21	23	31	32	33	Total
Group 1		11, 12, 13	21	23	31	32	33	Total
RB110 = 1- 2	Wave 1	1557	0	0	0	0	0	1557
RB110 = 1- 2	Wave 1 to wave 2	1351	0	0	0	0	0	1351
RB110 = 1- 2	Wave 2 to wave 3	1289	0	0	0	0	0	1289

**2.3.3.2.E Personal interview outcome.****Group 2, sample persons**

		Sample persons (RB100=1 and RB245 in ('1', '2', '3) forwarded from last wave						
		RB250	RB250	RB250	RB250	RB250	RB250	
		11, 12, 13	21	23	31	32	33	Total
Group 2		11, 12, 13	21	23	31	32	33	Total
RB110 = 1- 2	Wave 1	673	0	0	0	0	0	673
RB110 = 1- 2	Wave 1 to wave 2	592	0	0	0	0	0	592

**2.3.3.2.E Personal interview outcome.****Group 2, nonsample persons**

		Non sample persons						
		RB250	RB250	RB250	RB250	RB250	RB250	
		11, 12,						
Group 2		13	21	23	31	32	33	Total
RB110 = 1- 2	Wave 1	885	0	0	0	0	0	885
RB110 = 1- 2	Wave 1 to wave 2	716	0	0	0	0	0	716

**2.3.3.2.E Personal interview outcome.****Group 2, sample and nonsample persons**

		Nonsample persons and sample persons						
		RB250	RB250	RB250	RB250	RB250	RB250	
		11, 12,						
Group 2		13	21	23	31	32	33	Total
RB110 = 1-2	Wave 1	1558	0	0	0	0	0	1558
RB110 = 1-2	Wave 1 to wave 2	1308	0	0	0	0	0	1308

**Wave response rate**

**Group 4**

Wave response rate of sample persons =1

Wave response rate of nonsample persons =1

Longitudinal follow up rate =1

RB250 takes only values of 12 and 13 so Rate (RB250=21) = 0

**Group 4**

Achieved sample size ratio for sample persons

Wave 1 to wave 2            0,94

Wave 2 to wave 3            0,95

Wave 3 to wave 4            0,98

**Group 4**

Achieved sample size ratio for sample and non sample persons

Wave 1 to wave 2            0,89

Wave 2 to wave 3            0,92

Wave 3 to wave 4            0,95

**Group 4**

Achieved sample size ratio for non sample persons

Wave 1 to wave 2            0,86

Wave 2 to wave 3            0,90

Wave 3 to wave 4            0,94

**Group 1**

Wave response rate of sample persons =1

Wave response rate of nonsample persons =1

Longitudinal follow up rate =1

RB250 takes only values of 12 and 13 so Rate (RB250=21) = 0

**Group 1**

Achieved sample size ratio for sample persons

Wave 2 to wave 3            0,92

Wave 3 to wave 4            0,95

**Group 1**

Achieved sample size ratio for

sample and non sample  
persons

Wave 2 to wave 3 0,87

Wave 3 to wave 4 0,95

### Group 1

Achieved sample size ratio for  
non sample persons

Wave 2 to wave 3 0,83

Wave 3 to wave 4 0,96

### Group 2

Wave response rate of sample persons =1

Wave response rate of nonsample persons =1

Longitudinal follow up rate =1

RB250 takes only values of 12 and 13 so Rate (RB250=21) =

0

### Group 2

Achieved sample size ratio for  
sample persons

Wave 1 to wave 2 0,88

### Group 2

Achieved sample size ratio for  
sample and non sample persons

Wave 1 to wave 2 0,81

### Group 2

Achieved sample size ratio for non  
sample persons

Wave 1 to wave 2 0,84

### Household status

		DB110 = 1	DB110 = 2	DB110 = 3	DB110 = 4	DB110 = 5	DB110 = 7	DB110 = 9		
Group 1	Wave 1	0	0	0	0	0	0	0	2299	2299
		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	100,00%	100,00%
	Wave 2	1667	382	0	0	0	0	0	70	2119
		78,67%	18,03%	0,00%	0,00%	0,00%	0,00%	0,00%	3,30%	100,00%
Group 1	Wave 3	1554	325	1	7	1	11	61	1960	1960
		79,29%	16,58%	0,05%	0,36%	0,05%	0,56%	3,11%	100,00%	100,00%
Group 2	Wave 1	0	0	0	0	0	0	0	2302	2302
		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	100,00%	100,00%
	Wave 2	1540	294	0	10	7	12	60	1923	1923
		80,08%	15,29%	0,00%	0,52%	0,36%	0,62%	3,12%	100,00%	100,00%
Group 4	Wave 1	0	0	0	0	0	0	0	2162	2162
		0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	100,00%	100,00%
	Wave 2	1614	356	0	0	0	0	66	2036	2036
		79,27%	17,49%	0,00%	0,00%	0,00%	0,00%	3,24%	100,00%	100,00%

Wave 3	1479	378	0	0	0	0	59	1916
	77,19%	19,73%	0,00%	0,00%	0,00%	0,00%	3,08%	100,00%
Wave 4	1467	226	0	3	2	6	49	1753
	83,69%	12,89%	0,00%	0,17%	0,11%	0,34%	2,80%	100,00%

### Record of contact at address

		DB120 =
		11
Group 1	Wave 2	382
		100,00%
	Wave 3	325
		100,00%
Group 2	Wave 2	294
		100,00%
Group 4	Wave 2	356
		100,00%
	Wave 3	378
		100,00%
	Wave 4	226
		100,00%

### Household questionnaire result

		DB130 =	DB130 =	DB130 =	DB130 =
		11	21	22	23
Group 1	Wave 1	2115	117	62	3
		92,08%	5,09%	2,70%	0,13%
	Wave 2	2046	49	19	5
		96,55%	2,31%	0,90%	0,24%
	Wave 3	1889	27	18	6
		97,37%	1,39%	0,93%	0,31%
Group 2	Wave 1	2021	157	87	8
		88,91%	6,91%	3,83%	0,35%
	Wave 2	1827	46	19	2
		96,46%	2,43%	1,00%	0,11%
Group 4	Wave 1	1986	132	33	7
		92,03%	6,12%	1,53%	0,32%
	Wave 2	1983	41	12	0
		97,40%	2,01%	0,59%	0,00%
	Wave 3	1859	43	13	1
		97,03%	2,24%	0,68%	0,05%
	Wave 4	1712	17	11	2
		98,28%	0,98%	0,63%	0,11%

### Household interview acceptance

		DB135 =
		1
Group 1	Wave 1	2115

		100,00%
	Wave 2	2046
		100,00%
	Wave 3	1889
		100,00%
Group 2	Wave 1	2021
		100,00%
	Wave 2	1827
		100,00%
Goup 4	Wave 1	1986
		100,00%
	Wave 2	1983
		100,00%
	Wave 3	1859
		100,00%
	Wave 4	1712

### 2.3.3.3 Distribution of households

**Table 2.3.3.3.A Distribution of households by ‘record of contact address’ (DB120)**

	Rot 1	Rot 2	Rot 3	Rot 4	Total
Contacted	978	974	971	979	3902
Does not exist	21	30	41	47	139
Total	999	1004	1012	1026	4041

**Table 2.3.3.3.B Distribution of households by ‘household questionnaire result’ (DB130)**

	Rot 1	Rot 2	Rot 3	Rot 4	Total
Completed	705	704	715	748	2872
Refusal	159	141	153	130	583
Temporarily away	97	105	83	76	361
Unable to respond	13	7	10	14	44
Other reasons	4	17	10	11	42
Total	978	974	971	979	3902

**Table 2.3.3.3.C Distribution of households by ‘household interview acceptance’ (DB135)**

	Rot 1	Rot 2	Rot 3	Rot 4	Total
Accepted	705	704	715	748	2872
Rejected	0	0	0	0	0
Total	705	704	715	748	2872

A change was made when processing the 2006 data that caused a minor increase in nonresponse. Households which included individuals for whom we were not able to retrieve social ID numbers were categorized as nonresponse. In 2004 and 2005 they would have been in the data base with zero income. Absence of social ID number means that it is impossible to connect the survey data to the tax register which means that all the income variables will be empty (or 0) for these individuals which can greatly affect the equivalised disposable income of the households. This was further justified by the fact that only about 1% of the households was taken out, all of which

had underestimated equivalised disposable income since an “income less” person was living there.

**Table 2.3.3.4.A. Distribution of persons for membership status (RB110)**

		RB110 = 1	RB110 = 2	RB110 = 3	RB110 = 4	RB110 = 5	RB110 = 6	RB120 = 4	
Group 3	Wave 2	2040	0	0	0	0	0	0	2040
		100,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	100,00%
	Wave 3	1785	88	22	140	3	140	0	2178
		81,96%	4,04%	1,01%	6,43%	0,14%	6,43%	0,00%	100,00%
	Wave 4	1677	72	25	106	2	106	0	1988
		84,36%	3,62%	1,26%	5,33%	0,10%	5,33%	0,00%	100,00%
Group 4	Wave 1	2069	0	0	0	0	0	0	2069
		100,00%	0,00%	0,00%	0,00%	0,00%	0,00%	0,00%	100,00%
	Wave 2	1801	84	25	142	0	142	0	2194
		82,09%	3,83%	1,14%	6,47%	0,00%	6,47%	0,00%	100,00%
	Wave 3	1619	86	20	121	1	121	0	1968
		82,27%	4,37%	1,02%	6,15%	0,05%	6,15%	0,00%	100,00%

**Table 2.3.3.4.B. Distribution of persons moving out by variable RB120**

		RB110 = 5
Group 3	Wave 3	140
		100,00%
	Wave 4	106
		100,00%
Group 4	Wave 2	142
		100,00%
	Wave 3	121
		100,00%

**2.3.3.5. Item nonresponse**

For cost or income related variables imputation was used to treat item nonresponse.

Item nonresponse is not assumed to be in the income variables that come from registers. The only income variables where imputation was applied were the ones not received from registers, “regular inter-household cash transfer received” and “regular inter-household cash transfer paid” (HY080G and HY130G). Imputations were used for those variables based on survey data.

For HY080G and HY130G a question was added in 2007 for those not knowing the amount paid for alimony asking for the number of children for whom alimony was paid or received. This was done in order to help with imputation.

HH060: When indicating that the household was paying a non-zero amount for rent but not giving the amount imputation was applied. Variables used were area of residence, number of household members, number of rooms in the dwelling and the type of owner of the dwelling (profit – non-profit).

A follow up question was added before the 2007 survey in case of “don’t know” to decrease item nonresponse for HH060.

HH061: There has always been high item nonresponse for the question of imputed rent in Iceland. One reason is the small rental market in Iceland. This becomes especially difficult in smaller towns where it might be hard to say whether certain houses could be rented at all no matter how low the rent would be. To treat this problem we added a follow up question for the 2007 survey encouraging respondents to give their best estimate if they said “don’t know”.

HS130: The question on the lowest monthly income to make ends meet has had high levels of item nonresponse and a follow up question was added to the questionnaire before the 2007 survey to try to reduce that.

PE030: In some cases people had difficulties giving an answer about the year of highest level of education on other household members. We added a follow up question asking to give their best guess.

PL060: Number of working hours was imputed for. If the respondent had reported working hours on earlier waves and was holding the same job the last value given was used. Otherwise when respondent was working but did not give number of hours, regression analysis was used with the variables: personal income, sex, age and whether the respondent claimed to work full time or part time.

**Table 2.3.3.5.A Number receiving an amount and item nonresponse for the following income components**

	%		
	received	%missing	% partial
Total HH gross inc (HY010)	99,94	0,06	0,00
Total HH disp. Inc (HY020)	99,94	0,06	0,00
Total HH disp before (HY022)	99,94	0,06	0,00
Total HH disp. Including (HY023)	99,92	0,06	0,00
Gross imputed rent (HY030)	90,28	0,06	0,00
Gross Income from rental (HY040)	5,89	0,06	0,00
Gross income from investments (HY090)	71,71	0,06	0,00
Gross family allowances (HY050)	38,82	0,06	0,00
Gross social excl. (HY060)	2,65	0,06	0,00
Gross housing allowances (HY070)	27,96	0,06	0,00
Gross inter-HH cash received (HY080)	17,04	1,64	0,00
Alemonies received (HY081)	15,33	1,64	0,00
Gross interest repayments (HY100)	73,60	0,06	0,00
Gross Income under 16 (HY110)	14,41	0,06	0,00
Gross taxes on wealth (HY120)	88,96	0,06	0,00
Gross inter-HH cash paid (HY130)	13,80	1,10	0,00
Alemonies paid (HY131)	8,86	1,10	0,00
Gross tax on income (HY140)	99,85	0,06	0,00
Gross employee cash income (PY010)	84,12	0,00	0,00
Gross non-cash income (PY020)	26,95	0,00	0,00
Gross company car (HY021)	8,39	0,00	0,00
Gross employer's social insurance contrib. (PY030)	83,30	0,00	0,00
Gross contrib. to individual private pension plans (PY035)	2,82	0,00	0,00
Gross self employment (PY050)	10,86	0,00	0,00
Gross unemployment benefits (HY090)	2,31	0,00	0,00
Gross old-age benefits (PY100)	11,41	0,00	0,00

Gross survivor benefits (PY110)	4,66	0,00	0,00
Gross sickness benefits (PY120)	0,27	0,00	0,00
Gross disability benefits (PY130)	4,49	0,00	0,00
Gross education allowances (PY140)	1,37	0,00	0,00

**Table 2.3.3.5.B Total item nonresponse and number of observations**

	Valid N	nonresp
Males	4374	3
Females	4277	1
Employed	4908	4
Unemployed	40	0
Inactive	1430	0
Under 25	3476	1
25-34	1062	0
35-44	1228	0
45-54	1260	0
55-64	825	1
65+	800	2
Owner	7794	4
Tenant	843	0
Male under 25	1802	1
Male 25-34	530	0
Male 35-44	596	0
Male 45-54	616	0
Male 55-64	421	1
Male 65+	409	1
Female under 25	1674	0
Female 25-34	532	0
Female 35-44	632	0
Female 45-54	644	0
Female 55-64	404	0
Female 65+	391	1
Male employed	2584	3
Male unemployed	15	0
Male inactive	625	0
Female employed	2324	1
Female unemployed	25	0
Female inactive	805	0
One person under 64 years	246	0
One person, 65 years or older	138	0
One person male	194	0
One person female	190	0
One person total	384	0
Two adults under 65 no dependent children	882	2
Two adults, no dependent children	660	2
Other, no dependent children	577	0
Single parent, one or more dependent child	397	0
Two adults , 1 dependent child	1230	0
Two adults, 2 dependent children	1680	0
Two adults, 3 or more dependent children	1509	0
Other households with dependent children	1301	0
Households without dependent children	2503	4
Households with dependent children	6117	0

### Equivalized disposable income

Item nonresponse for Equivalized disposable income. The information for the income variables were mainly collected through registers. Only information for HY080 and HY130 was received from the tax register. Nonresponse for each income variable is shown in table 2.3.3.5.A.

If the social ID number was not received for a household member in the interview the household was not included in the data. Therefore we were able to link all household members of all the households to the tax register. Item nonresponse for the equivalized disposable income is therefore only partial where the information were missing for HY080 and HY130 as shown in table 2.3.3.5.A.

### 2.4. Mode of data collection

All interviews were done through telephone with the aid of the Blaise software. One week before the start of data collection Statistics Iceland sent a letter to the sampled individuals explaining the purpose of the survey and requesting their cooperation.

Instead of asking about the amounts paid for electricity and heat (which are a part of variable HH070, Total Housing cost) imputations are used based on the HBS (Household Budget Survey). The reason is that it is our belief that people often do not know the amounts they pay for heating and electricity. These bills are often paid automatically through credit cards or automatically taken out of peoples' bank accounts. Some people hardly ever see the bills. Length of the intervals the amounts apply to have also sometimes been hard to establish (1 month, 3 months ect). The HBS (Household budget survey) on the other hand is a face to face survey where the respondents are asked in advance to prepare by keeping bills or bank transcripts handy.

The distribution of the selected respondents, household members aged 16 or over, and non-selected household members by data status (RB250) and by type of interview (RB260) is shown in the tables below.

**Table 2.4 A Distribution of household members age 16 or over by data status (RB250)**

Rot. Group	Data status	Sel_resp	Non_sel	All hhmembers 16+
1	Only registers (12)	0	24	24
	Registers and interview (13)	705	907	1612
2	Only registers (12)	0	7	7
	Registers and interview (13)	704	889	1593
3	Only registers (12)	0	5	5
	Registers and interview (13)	715	910	1625
4	Only registers (12)	0	16	16
	Registers and interview (13)	748	937	1685
Total		2872	3695	6567

**Table 2.4 B Distribution of household members age 16 or over by type of interview (RB260)**

Rot. Group	Type of interview	Sel_resp	Non_sel	All hhmembers 16+
1	CATI (3)	705	907	1612
2	CATI (3)	704	889	1593
3	CATI (3)	715	910	1625
4	CATI (3)	748	937	1685
Total		2.872	3.643	6.515

## 2.5. Imputation procedure

Variables where imputation was applied	2004 Imputed	2004 total	2005 imputed	2005 total	2006 imputed	2006 total	2007 imputed	2007 total
Utility bills in Total housing cost (HH070)	2850	2850	2923	2923	2856	2856	2886	2886
Working hours (PL060)	0	4651	0	4738	106	4698	1	4803
Rent (HH060)	1	401	30	368	33	374	14	354
Money from other households (HY080)	77	410	59	387	74	390	92	484
Alemoney from other households (HY081)							71	429
Money to other households (HY130)	59	401	67	434	86	472	71	399
Alemoney to other households (HY131)							43	259
Non cash employee income (PY020G)							110	8655
Company car (PY021G)							92	8655
Social insurance contribution (PY030G)							5470	5470

Imputation was applied when dealing with amounts or working hours and we knew that these amounts were paid or received but did not have the amount or the number. Not imputing would systematically underestimate the amount.

## 2.6. Imputed rent

Imputed rent was first delivered with the 2007 data. The method used was the same as for the Icelandic HBS (Household budget survey). Market value of dwellings are received from housing registers: This market value is used to produce imputed rent with the formula:  $PH * [r(1+r)^N] / [$

$(1+r)^{N-1}$ ]. Where PH is the market value of the dwelling,  $r$  = real interest = 4%,  $N$  = lasting time of property = 80 years.

## **2.7 Company cars**

In 2007, a question asking for company car was included in the questionnaire. Data on income are received from tax register. The information from the tax register do not distinguish between company car and other income.

# **3. Comparability**

## **3.1. Basic concepts and definitions**

### The reference population

The reference population is persons aged 16 years or more at December 31st in the year 2006, living in private households.

### The private household definition

A private household is defined as individuals that share food, meaning that they either do not pay for their food or that they share expenses for food. The definition does not require that they eat at the same times or that they are related.

### The household membership

Persons are considered as household members if they spend most of their nights at the address of the household.

Individuals that are temporarily away (not having a private address elsewhere) and will return to the household are considered as household members. As example of this are children in boarding schools, fishermen, individuals admitted to hospitals or imprisoned and those that are working for longer periods away from home.

### The income reference period

The income reference period is the calendar year 2006.

### The period for taxes on income and social insurance contributions

The period for taxes on income and social insurance contributions is the calendar year 2006.

### The reference period for taxes on wealth

The reference period for taxes on wealth is the calendar year 2006.

### The lag between the income reference period and current variables

The income variables are collected from registers and the interval between the end of the income reference period and the time of interview for current variables is maximum four and a half months.

### The total duration of the data collection of the sample

The interviews were carried out between 25<sup>th</sup> of February and 8<sup>th</sup> of June 2007.

### Basic information on activity status during the income reference period

## **Table 3.1 Activity status of persons 18 years or older**

N            %

1 Working	4740	76,45
2 Unemployed	38	0,61
3 Retired	735	11,85
4 Other inactive	522	8,42
9 Not responded	165	2,66
Total	6200	100,00

## 3.2. Components of income

**3.2.1 Differences between the national definitions and standard EU-SILC definitions, and an assessment of the consequences of the differences mentioned will be reported for the following target variables.**

This section gives an overview of how income data from registers have been organised in order to be comparable to the income concepts outlined in the SILC guidelines. In addition references are made to any departures from these guidelines.

All income data derived from registers are recorded gross at component level. All income data are collected at the individual level (i.e. the person registered as the receiver of the income). This also concerns typically “household” related incomes such as housing benefits and social assistance.

### Total household gross income (HY010)

The sum of all income components:

HY040G+HY050G+HY060G+HY070G+HY080G+HY090G

Plus the sum for all household members of:

PY010G+PY020G+PY050G+PY090G+PY100G+PY110G+PY120G+PY130G+PY140G.

### Total disposable household income (HY020)

Defined as total gross income (HY100G+HY130G+HY140G) minus (HY120G+HY130+HY140G)

### Imputed rent (HY030)

The method used was the same as for the Icelandic HBS (Household budget survey). Market value of dwellings are received from housing registers: This market value is used to produce imputed rent with the formula:  $PH * [r(1+r)^N] / [(1+r)^N - 1]$ . Where PH is the market value of the dwelling, r = real interest = 4%, N = lasting time of property = 80 years.

### Total disposable household income before social transfers except old-age and survivor's benefits (HY022)

Defined as HY020 minus the sum for all household members of:

(PY090N+PY120N+PY130N+PY140N) + HY050N+HY060N+HY070N

### Total disposable household income before social transfers including old-age and survivor's benefits (HY023)

Defined as HY020 minus the sum for all household members of:

(PY090N+PY100N+PY110N+PY120N+PY130N+PY140N) + HY050N+HY060N+HY070N

### Income from rental of property or land (HY040)

Income from hiring out property not contacted to business activity. Deviates from SILC definitions in that no information is available in the register on interest repayments, maintenance, insurance and other charges.

Family/children-related allowances (HY050)

Includes the following income components:

- Family allowance
- Maternity allowance (birth grant)
- Single parent's allowance

Social assistance (HY060)

Includes the total amount received in social assistance.

Housing allowances (HY070)

Includes rent benefits granted to tenants and owners.

Regular inter-household cash transfers received - (HY080)

Includes alimonies received. Information on regular private cash support received by children from parents living in a separate household is included from interview. The same goes for other inter household cash transfers received.

Interest, dividends, profit from capital investment in unincorporated business (HY090);

Interest and dividends are taxable income.

Income received by people aged under 16 (HY110)

Includes the following income components:

- Interests and dividends.

Those are registered in one sum on parent's tax return. If more than one child is in the household it is divided equally between the children.

- Children with income.

Interest repayments on mortgage (HY100)

As interest repayments on mortgage are used for calculating fiscal benefits to owner-occupiers are to be found in registers.

Regular taxes on wealth (HY120)

As the taxes are paid in the following year information is sought in registers from the year before.

Regular inter-household cash transfers paid (HY130)

Information on alimonies paid and regular private cash support to children from parents living in a separate household is included from interview. The same goes for other inter household cash transfers received.

Total Tax on income and social contribution (HY140)

It includes assessed income, wealth taxes and social contributions.

Repayment/receipts for tax adjustment (HY145)

It is included in HY140.

Employee cash or near cash income (PY010)

Deviation from the SILC concept:

It is not possible to separate from employee cash income redundancy compensations that should be included under unemployment benefits. The same goes for wages and salaries during sickness, which is a major part of sickness benefits paid in Iceland.

#### Non-Cash employee income (PY020G)

The information was retrieved through the questionnaire.

#### Company car (PY021G)

The information was retrieved through the questionnaire.

#### Employer's social insurance contribution (PY030G)

The employer's social insurance contribution was calculated based on the income received from the tax register.

#### Contribution to individual private pension plans (PY035G)

The contribution is usually a percentage of person's income. We have the income amount from the tax register and ask the percentage in the questionnaire.

#### Cash benefits or losses from self-employment (PY050)

Entrepreneurial income is collected *net* in register data. Royalties are registered as "other income" and not possible to separate and not include here.

#### Unemployment benefits (PY090)

Deviation from the SILC concept:

It is not possible to separate from employee cash income (PY010) redundancy compensations that should be included here or in PY100.

#### Old-age function (PY100)

Includes the following income components:

- Old age pension from social security scheme (basic pension).
- Old age pension from compulsory private pension funds (employment pension).

#### Survivors' function (PY110)

Includes the following income components:

- Survivors' pension from social security scheme.
- Survivors' pension from compulsory private pension funds.
- Death grants.

#### Social benefits in the sickness (PY120)

All sickness benefits that are included in wages and salaries cannot be specified in registers and are included in PY010.

#### Disability benefits (PY130):

Includes the following income components:

- Disability benefits and pension from social security scheme (basic pension).
- Disability benefits and pension from compulsory private pension funds (employment pension).

#### Education related allowance (PY140)

It includes scholarship of various kinds and "educational alimony" received by children at the age of 18 to 20 years living with single parent (e.g. students).

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

Tax register is use for all income variables except for HY080 and HY130 (Regular inter-household cash transfer received and paid). For those two variables information are collected through the interview. Those are also the only income variables where imputation was used.

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

The register data only report gross income at component level. Total assessed taxes and contributions to social security are collected separately from tax registers.

### **3.2.4. The method used for obtaining income target variables in the required form (i.e. as gross values)**

All income data are recorded gross at component level.

## **3.3 Tracing rules**

In Iceland a respondent is selected from the national register. Whoever lives with the selected respondent is also included in the survey. If the composition of the households of the selected respondent changes between waves we do not trace other household members. We only trace the selected respondent and if he or she has new household-partners they will be included in the survey. The information used for tracing are received from the national register, information on phone numbers are received from the largest phone company in Iceland. Information from former household members are also used to help locate selected respondents if the selected respondent has moved. All data are collected through telephone.

## **4. Coherence**

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

With the exception of inter-household transfers all the income data in SILC are from register. Hence, in our opinion, there is no point in comparing the results with external sources since the source we would compare with is the source used in SILC.

## **5. Index**

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