



Statistics Netherlands

Division of Social and Spatial Statistics
Statistical analysis department Heerlen

*Heerlen
The Netherlands*

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EU-SILC 2010

The Netherlands

Preface

In the Netherlands, EU-SILC was first conducted in 2005. Eurostat strongly encouraged the use of existing data sources, whether they were surveys or registers and the use of national sampling designs. Statistics Netherlands decided to make maximum use of registers and, because of the common labour variables, to integrate EU-SILC in the Labour Force Survey as an additional panel wave. The Dutch LFS is conducted according to a rotating panel design, in which respondents are interviewed five times at quarterly intervals. Households that have taken part in the fifth wave are recruited for the EU-SILC survey. If the household is willing to participate, it is contacted in the month following the final LFS interview. As a result, a relatively short telephone-interview (on average 15 minutes) is sufficient to collect the additional EU-SILC information

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1. Common Indicators

1.1 Common longitudinal European Union indicators

The 2010-longitudinal dataset 2010 comprises a panel of four years (2007-2010). The main objective of the four-year panel rotation is to provide data for the calculation of the persistent-at-risk-of-poverty indicator. Persistent-at-risk-of-poverty occurs if a respondent is at risk of poverty (income below 60 % of median income) in the last wave of the four-year panel and has been at risk of poverty at least two times during the three preceding waves.

Table 1.1: Persistent at-risk-poverty rate EU-SILC 2010

Indicator	Value
Persistent at-risk-of-poverty rate after social transfers - total	8,2
Male	6,8
Female	9,5
At-risk-of-poverty rate after social transfers - 0-17 years	15,9
Male	15,5
Female	16,5
At-risk-of-poverty rate after social transfers - 18-64 years	7,0
Male	4,9
Female	9,2
At-risk-of-poverty rate after social transfers – 65+ years	3,1
Male	2,9
Female	3,2

2. Accuracy

2.1 Sampling design

The EU-SILC survey is an annual survey with a four-year rotational panel and has been carried out as an integrated survey, covering both cross-sectional and longitudinal primary target variables by a single operation. The cross-sectional sample of SILC 2010, the sixth year of EU-SILC in the Netherlands, consists of four rotational groups. Group R2' has entered the survey in 2007. Group R1' consists of new sample persons who were drawn from the Labour Force Survey in 2010.

Figure 2.1									
EU-SILC 2005	R1	R2	R3	R4					
EU-SILC 2006		R2	R3	R4	R1 ¹				
EU-SILC 2007			R3	R4	R1 ¹	R2 ¹			
EU-SILC 2008				R4	R1 ¹	R2 ¹	R3 ¹		
EU-SILC 2009					R1 ¹	R2 ¹	R3 ¹	R4 ¹	
EU-SILC 2010						R2 ¹	R3 ¹	R4 ¹	R1 ¹

2.1.1 Type of sampling

The sampling design is partly based on the design for the Labour Force Survey (LFS), which has a panel structure with five rotational groups. In the first wave, interviews are conducted through face-to-face interviewing. Subsequent waves are conducted through telephone interviewing. The period between waves is three months. When the first wave of the LFS survey has been completed, addresses with all residents aged over 64 are removed from the sample. Households that have taken part in all five waves of the labour force survey are recruited for the EU-SILC survey. If a household is willing to participate, it is contacted in the month following the final LFS interview. As addresses with all residents aged over 64 are no longer present in the last wave of the LFS an extra sample for the EU-SILC survey is required. We therefore distinguish between two EU-SILC samples: the first sample represents the set of addresses with households that have participated in the LFS survey. At least one of the household members living on such an address is aged less than 65. The second sample is a set of addresses with all residents aged over 64. Both samples are based on the sample selection scheme of section 2.1.5.

The sampling design can be classified as a stratified two-stage sampling design, with municipalities as primary sampling units and addresses as secondary sampling units. The sampling of first stage elements is with probability proportional to size (number of addresses per municipality). Municipalities with 7,300 addresses or more are always in the sample. The second stage elements are selected with simple random sampling such that the total sampling design becomes self-weighting. From these addresses further sampling units are constructed: households. For the collection of detailed information on social variables one member of the household aged 16 or older is selected (the so-called selected respondent).

2.1.2 *Sampling units*

The sampling units are addresses that are registered in the sampling frame. All households on selected addresses are eligible for the survey, up to a maximum of three households per address.

2.1.3 *Stratification criteria*

Stratification involves the division of the population into sub-groups, or strata, from which independent samples are taken. The stratification variables are the 40 COROP-regions (NUTS3). These are regional areas within the Netherlands and are used for analytical purposes by, among others, Statistics Netherlands. Applying this type of stratification allows for representative samples on a regional level.

Figure 2.2. COROP regions in the Netherlands



2.1.4 Sample size and allocation criteria

Member states have to achieve a minimum effective sample size for the cross-sectional and longitudinal sample. For the Netherlands the net cross-sectional sample size is 6,500 households and 6,500 selected respondents. Correcting for estimated design effects, the minimum achieved sample size should be larger. Similar considerations apply to the longitudinal sample: in this case the net effective sample size for the Netherlands is 5,000 households and 5,000 selected respondents.

Figure 2.3. Rotational design EU-SILC

EU-SILC 2007	R3	R4	1,876	3,731		
EU-SILC 2008		R4	1,552	2,893	3,621	
EU-SILC 2009			1,286	2,449	2,914	3,079
EU-SILC 2010				2,071	2,340	2,431 R1 ¹

Combining the three longitudinal groups 6,842 households have accepted interviews in two consecutive years (2009 and 2010).

2.1.5 Sample selection scheme

Primary sampling units are selected with probability proportional to size. The secondary sampling units are selected with simple random sampling in order that the total sampling design becomes self-weighting.

Addresses corresponding to institutions, addresses that have been part of a survey sample in the previous year, and addresses in some small regions of the national territory (West Frisian Islands) are removed from the sample. These addresses are not part of the reference population.

2.1.6 Sample distribution over time

The following table provide for the 4-year longitudinal sample an overview of the cumulative sample development during each fieldwork period .

Table 2.1: cumulative sample size over time

Fieldwork in:	2007	2008	2009	2010
June	999	790	666	575
July	977	748	619	525
August	979	729	603	512
September	550	626	561	459
October	226			
Total	3,731	2,893	2,449	2,071

2.1.7 Renewal of samples: rotational groups

In the Netherlands, 2005 was the initial year of EU-SILC. A new sample was constructed and divided into four rotational groups. One of the subsamples was purely cross-sectional and was not followed up in 2006. Respondents in the second subsample participated two years, in the third subsample three years, and in the fourth subsample four years. Because accurate panel attrition rates were not available at the start in 2005, the subsample sizes were chosen to be of quite different sizes in order to guarantee a longitudinal sample of sufficient size.

2.1.8 Weighting

The longitudinal data set contains information on eligible individuals in the period 2007-2010. Three sets of longitudinal weights have been calculated for the persons in the participating panels. These weights are RB062 (two years), RB063 (three years) and RB064 (four years). Common starting point of these longitudinal weights is the base weight RB060.

2.1.8.1 Design factor

The design factor (or design effect) expresses the loss in precision due to the actual sampling design, as compared to a single random sampling (SRS) design. As such, it plays an important role in determining the required sample size. The design factor can be calculated as the ratio of the variance (of a particular estimator), obtained under the actual design, to the variance obtained by SRS. Here, the design factor for the total at-risk-of-poverty rate is presented. The calculation of the design factor proceeds as follows. The variance obtained under the actual design is found by squaring the corresponding standard error listed in table 2.6 (see section 2.2.1). Next, in order to compute the variance that would have been obtained from a single random sample, a resampling method is used to simulate such a sample from the actual sample file. The simulated single random sample is subsequently used to infer the SRS variance, following the same strategy as outlined in section 2.2.1. With the thus found variance, the resulting design factor for the at-risk-of-poverty rate was 1.24 (based on EU-SILC 2006 data).

The design factor calculated here is in reasonable agreement with a preliminary estimate of the design factor, on the basis of which the total sample size was chosen. Calculating backwards, the effective longitudinal sample size is $6,842/1.24 = 5,518$ households for the total at-risk-of-poverty rate. This figure meets the requirement by the EU-SILC Regulation, which stipulates a longitudinal effective sample size of 5,000 persons for the Netherlands.

2.1.8.2 Non-response Adjustments-first wave

Non-response adjustments are necessary because of the bias introduced by selective non-response on the household level. Selective non response affects the inclusion probabilities of the sampling units. Ideally the inclusion probability can be calculated by multiplying the inclusion probabilities of the sampling design with the exact response probabilities. Unfortunately, in practice these response probabilities are unknown and some kind of approximation has to be made. The method of logistic regression was adopted to approximate the response probabilities for the new rotational group. The response probabilities were modelled by the explanatory variables age, degree of urbanisation, type of household, and labour force status.

2.1.8.3 Adjustments to external data- first wave 2007

For the new rotational group adjustments to external data were made to calculate the base weights. The calibration was performed on household and personal level using linear consistent weighting, so that individuals within the household have identical weights.

The following variables were included in the calibration scheme:

- Household size : 1 household member, 2 household members 3 household members, 4 or more household members
- Sex:
- Age class : 0 – 15 , 16 – 19, 20 – 24 , 25 – 29, 30 – 34 , 35 – 39, 40 – 44, 45 – 49, 50 – 54, 55 – 59 , 60 – 64 , 65 – 69 , 70 – 74 , 75 years or older.

2.1.8.4. Final longitudinal weights –first wave 2007

In the first wave, the personal longitudinal base weights (RB060) are the weights resulting from the design-weights after non-response adjustment and the calibration.

2.1.8.5 Non-response adjustments – subsequent waves

For the second, third and fourth wave the initial base weights of year $t+1$ are based on the cross-sectional weights (RB050) of year t . These initial weights have been adjusted for non-response and scaled to the population in scope. For the subsequent waves a proper model to determine the response probabilities could not be fitted using logistic regression. Therefore the response probabilities were considered equal for all persons in the response.

2.1.8.6 Adjustments to external data- subsequent waves

For each separate rotational group and each wave, the sum of the weights RB060 should be equal to the size of the longitudinal population in scope.

The following variables were included in the calibration scheme:

- Household size : 1 household member, 2 household members 3 household members, 4 or more household members
- Sex:
- Age class : 0 – 15 , 16 – 19, 20 – 24 , 25 – 29, 30 – 34 , 35 – 39, 40 – 44, 45 – 49, 50 – 54, 55 – 59 , 60 – 64 , 65 – 69 , 70 – 74 , 75 years or older.

Concerning group R4' (first wave in 2007) the sum of the base weights in 2010 is equal to the size of the longitudinal population in scope from 2007 to 2010. Household Members with RB110 = 3, 5, 6 or 7 (moved into from outside sample, moved out, died or not in register) have a zero weight and members with RB110=4 (newly born) received the weight of their mother.

2.1.8.7. Final longitudinal weights- subsequent waves

For the longitudinal operation, three sets of longitudinal weights have been calculated for the panel persons in the relevant period. These weights are rb062 (two years), rb063 (three years) and rb064 (four years). These personal weights have only values for 2010 as this year corresponds to the last wave in the longitudinal file. With respect to RB062, the sum of the weights, all rotational groups together, is equal to the size of the longitudinal population of individuals in scope in 2009 and 2010. For RB064 this sum is equal to the size of the longitudinal population 2007-2010. Individuals in scope are the ones with RB110 = 1 or 2. Members with RB110 = 3, 4, 5, 6 or 7 (moved into from outside sample, newly born, moved out, died or not in register) have a zero weight.

The basis for the weight DB090 in the longitudinal files is the weight DB090 from the cross-sectional files. However, these weights are summing to a total less than the household population, because the longitudinal file consists of only three rotational groups. Therefore, variable DB090 had to be expanded with a scale factor. With this factor the sum of the weights for the three rotational groups together is equal to the cross-sectional household population size.

Table 2.2: Household weights in longitudinal file 2007-2010

	2007	2008	2009	2010
Accepted household interviews (R2', R3', R4')	3,731	6,514	8,442	6,842
Sum of cross-sectional weights	4,045,711	5,588,674	8,197,099	4,940,289
Number of households in population	7,190,543	7,242,202	7,312,579	7,386,144
Scale factor	1.78	1.30	0.89	1,5

2.1.8.8. Final household cross-sectional weight

Several registrations provide auxiliary information from which variables can be selected to be used for weighting and estimation. In general, adjustments made by calibration improve the accuracy of the data. Three good reasons for using calibration schemes are: 1) the estimates of variables that are used in the calibration scheme are made consistent with those of more reliable sources; 2) the standard error of the estimates is reduced if the calibration variables correlate with target variables; 3) non-response bias is reduced if the calibration variables correlate with both target variables and response probabilities. Calibration improves coherence and consistency of the estimates with other statistics. Basic demographic distributions, e.g. distribution of population by age and sex, are commonly used as calibration variables in surveys. Statistics Netherlands uses an elaborated calibration model with register-based proxies of the EU-SILC target variables to be estimated, such as distributions of equivalized incomes in deciles or the at-risk-of-poverty rate.

Two external data sources are used in the EU-SILC calibration procedure: the Population Register (GBA), and the Income Panel Survey (IPS) (see paragraph 2.3). The set of variables used for calibration includes the smaller subset suggested by Eurostat. Additional calibration variables that correlate strongly with the target variables are added: income data, data on tenure status and ethnic background. The following variables are included in the calibration scheme:

- sex,
- age in years, 0,1,2,3,4.....85 and 85 years and over,
- household size: 1, 2, 3, 4 or more household members,
- region: 12 categories, one for each of the provinces (nuts 2),
- tenure status: owner, tenant
- equivalised disposable income in deciles
- main source of income: employee, self-employed, unemployed, social assistance, disabled, retired aged under 65, retired aged 65 years or older, student, no income,
- low income: non target population, low income and other income,
- at-risk-of-poverty rate,
- ethnic background: native, western immigrant, non-western immigrant,

The calibration makes use of deciles based on the IPS data file. The income concept used is the disposable income according to the national definition. This means that income is based solely on registry variables and that interest repayments on mortgage (HY100G) and imputed rent (HY030G) are included in the equivalised income. The classification based on these deciles shows an underrepresentation of the lower income groups. After calibration the groups are equal in size. Another advantage of the calibration to decile groups is that the median income (the fifth decile) in SILC is about as high as it is in the Income Panel Survey. The poverty threshold is actually based on the median.

The calibration was performed on household and personal level using linear consistent weighting, so that individuals within the household have identical weights equal to the household weight. The set of variables used for calibration includes the smaller subset suggested by Eurostat in document EU-SILC 065/04.

The household cross-sectional weight DB090 and the personal cross-sectional weight RB050 are the direct result of the linear consistent weighting procedure. PB040 equals this weight for persons of 16 years and older. PB040 equals 0 for people younger than 16 years.

Finally, the cross-sectional weights for the selected respondent are determined by adjusting the weight PB040 for the probability with which this respondent is selected within the household. This probability is equal for all persons that are older than 16. This probability is four times as large for persons that are exactly 16 years.

2.1.8.9 Substitutions

Not applicable.

2.2 Sampling errors

2.2.1. Standard errors and effective sample size

The subsequent tables present means, number of observations and standard errors for the cross sectional component 2009 and for each wave of the longitudinal component. The standard errors have been calculated with the use of the software package Bascula which has been developed by the methodology department at Statistics Netherlands. Using Bascula one can calculate (weighted) totals, means, ratios and the standard errors of target variables for a variety of sampling designs and weighting models.

Table 2.3: Mean, number of Observations, and standard errors for household income components EU-SILC cross-sectional 2010

<i>Gross income components at household level</i>	Mean (euro)	N	Standard Error
Total household gross income (HY010)	52,570	10,134	202
Total disposable household income (HY020)	34,686	10,134	117
Total disposable household income before social transfers other than old age and survivors' benefits (HY022)	31,542	10,134	122
Total disposable household income before social transfers including old age and survivors' benefits (HY023)	24,957	10,134	129
<i>Gross income components at household level</i>			
Imputed Rent (HY030G)	2,538	7,211	76
Income from rental of property or land (HY040G)	5,852	407	362
Family/child related allowances (HY050G)	2,124	3,341	18
Social exclusion not elsewhere classified (HY060G)	9,283	5,50	303
Housing allowances (HY070G)	1,810	1,038	38
Regular inter-household cash transfer received (HY080G)	3,769	656	258
Interest, dividends, profit from capital investments (HY090G)	1,759	9,197	81
Interest repayments on mortgage (HY100G)	8,218	6,332	87
Income received by people aged under 16 (HY110G)	751	173	84
Regular taxes on wealth (HY120G)	-	-	-
Regular inter-household cash transfer paid (HY130G)	3,917	1,154	249
Tax on income and social contributions (HY140G)	17,423	10,134	105

Table 2.4: Mean, number of observations, and standard errors for personal income components, EU-SILC cross-sectional 2010

<i>Gross income components at personal level</i>	Mean (euro)	N	Standard Error
Employee cash or near cash income (PY010G)	29,928	12,838	205
Non-cash employee income (PY020G)	5,517	1,029	130
Company Car (PY021G)			
Contributions to individual private pension plans (PY035G)	2,538	2,604	135
Cash benefits or losses from self-employment (PY050G)	17,474	2,117	822
Value of goods produced for own-consumption (PY070G)	-	-	-
Pension from individual private plans (PY080G)	10,525	121	2,009
Unemployment benefits (PY090G)	8,142	745	302
Old-age benefits (PY100G)	18,230	4,740	243
Survivor's benefits (PY110G)	10,329	145	606
Sickness benefits (PY120G)	5,212	235	515
Disability benefits (PY130G)	14,695	794	338
Education-related allowances (PY140G)	3,172	1,109	100

Table 2.5: Mean, number of observations, and standard error for the equivalised disposable income, cross-sectional 2010).

Equivalised disposable income	Mean	Number of Observations	Standard Error
<i>Population by household size</i>			
1 household member	19,022	2,785	231
2 household members	25,536	7,180	254
3 household members	23,774	3,768	339
4 and more household members	21,296	10,906	213
<i>Population by age groups</i>			
<25	20,557	7,763	153
25-34	23,285	2,283	291
35-44	23,089	3,770	262
45-54	24,906	4,071	296
55-64	25,158	3,674	379
65+	21,030	3,078	252
<i>Population by sex</i>			
Male	22,826	12,124	98
Female	22,323	12,515	100
Total	22,590	24,639	73

Table 2.6: Mean, number of observations, and standard errors for income components and equivalised disposable income, 2010, R2', R3' and R4'.

	R2' (2010-2009-2008-2007)			R3' (2010-2009-2008)			R4' (2010-2009)			
	Mean	N	standard error	Mean	N	standard error	Mean	N	standard error	
HY010	54,761	2,071	695	55,780	2,340	758	52,209	2,431	792	
HY020	36,054	2,071	394	36,576	2,340	438	34,534	2,431	451	
HY022	33,379	2,071	423	33,618	2,340	481	31,522	2,431	524	
HY023	23,330	2,071	401	26,357	2,340	453	24,956	2,431	505	
HY030G	2,448	1,522	25	2,534	1,680	35	2,598	1,733	165	
HY040G	7,136	88	1,370	5,650	95	588	4,903	93	582	
HY050G	2,093	709	31	2,073	755	39	2,118	816	58	
HY060G	6,515	91	631	9,520	134	774	10,677	121	1,086	
HY070G	1,792	183	67	1,860	242	81	1,604	249	94	
HY080G	3,957	99	346	3,526	161	381	3,971	193	583	
HY090G	1,890	1,911	154	1,921	2,123	176	1,482	2,208	121	
HY100G	8,070	1,349	154	8,404	1,485	197	8,066	1,526	198	
HY110G	814	33	126	955	38	292	612	49	163	
HY130G	4,234	284	387	4,137	301	446	3,844	271	297	
HY140G	18,261	2,071	318	18,671	2,340	339	17,250	2,431	365	
PY010G	30,458	2,642	419	30,753	2,809	473	30,395	3,124	577	
PY021G	5,670	218	207	5,568	235	300	5,523	235	307	
PY030G	5,357	2,650	84	5,386	2,851	95	5,305	3,161	110	
PY035G	2,333	545	190	2,779	633	248	2,202	624	155	
PY050G	18,310	440	1,963	21,095	512	1,910	17,138	516	1,638	
PY080G	9,557	33	2,453	11,763	30	3,947	7,032	23	1,640	
PY090G	7,323	134	643	8,918	176	826	8,049	179	837	
PY100G	18,848	1,023	481	19,856	1,114	593	17,770	1,116	536	
PY110G	10,219	31	871	9,984	37	998	12,137	38	877	
PY120G	5,829	29	1,023	5,990	52	1,365	3,982	51	1,228	
PY130G	14,006	166	578	15,228	171	775	15,188	199	801	
PY140G	3,119	196	147	2,780	195	237	2,963	273	254	
<i>Equivalized disposable income</i>										
<i>Population by household size</i>										
1 household member	19,938	530	382	20,032	686	526	18,907	663	512	
2 household members	26,693	1,487	567	27,301	1,683	606	24,697	1,659	487	
3 household members	24,593	637	632	23,740	756	708	23,729	958	781	
4 and more members	21,913	2,548	464	22,433	2,367	513	21,505	2,548	653	
<i>Population by age groups</i>										
<25	21,267	1,553	378	21,308	1,628	393	20,891	1,821	528	
25-34	23,491	410	455	24,220	506	822	23,371	572	650	
35-44	24,155	827	467	24,647	865	633	22,906	923	573	
45-54	25,857	852	595	26,522	846	606	23,904	967	693	
55-64	26,376	781	945	25,954	880	860	25,355	843	684	
65+	21,975	669	494	22,198	722	595	20,000	702	423	
<i>Population by sex</i>										
Male	23,666	2,509	312	23,816	2,676	313	22,821	2,867	341	
Female	23,238	2,583	263	23,597	2,771	326	22,008	2,961	341	
Total	23,450	5,092	265	23,705	5,447	289	22,409	5,828	311	

Table 2.7: Mean, number of observations, and standard errors for income components and equivalized disposable income, rotational group R2', 2010-2008

	R2', 2010			R2', 2009			R2', 2008		
	Mean	N	standard error	Mean	N	standard error	Mean	N	standard error
HY010	52,209	2,071	792	52,845	2,449	732	52,891	2,893	688
HY020	34,534	2,071	451	34,740	2,449	427	35,190	2,893	404
HY022	31,522	2,071	524	31,885	2,449	470	32,619	2,893	427
HY023	24,956	2,071	505	25,384	2,449	453	26,156	2,893	417
HY030G	2,598	1,522	165	2,417	1,742	29	2,398	2,004	25
HY040G	4,903	88	582	5,668	101	630	5,692	110	660
HY050G	2,188	709	58	2,004	838	36	1,728	993	21
HY060G	10,677	91	1,086	5,773	384	566	8,218	187	512
HY070G	1,604	183	94	1,747	225	63	1,790	261	55
HY080G	3,971	99	583	3,929	135	603	5,161	165	810
HY090G	1,482	1,911	121	2,495	2,185	327	2,535	2,560	349
HY100G	8,066	1,349	198	7,796	1,525	165	7,445	1,838	133
HY110G	612	33	163	773	37	224	698	60	175
HY130G	3,844	284	297	4,507	296	654	5,055	327	540
HY140G	17,250	2,071	365	17,623	2,449	329	17,185	2,893	304
PY010G	30,395	2,642	577	30,331	3,083	442	29,530	3,645	357
PY021G	5,523	218	307	5,515	257	274	5,301	301	224
PY030G	5,305	2,650	110	5,091	3,130	85	5,012	3,710	69
PY035G	2,202	545	155	2,408	664	231	2,579	823	323
PY050G	17,138	440	1,638	18,394	471	1,925	19,921	580	2,102
PY080G	7,032	33	1,640	10,583	24	2,289	10,295	32	2,681
PY090G	8,049	134	837	7,859	120	820	7,994	139	653
PY100G	17,770	1,023	536	18,039	1,108	461	18,209	1,200	364
PY110G	12,137	31	877	11,872	36	705	10,932	43	592
PY120G	3,982	29	1,228	2,683	47	737	3,126	76	498
PY130G	15,188	166	801	13,590	212	833	14,013	244	592
PY140G	2,963	196	254	2,464	231	161	2,756	276	127
<i>Equivalized disposable income</i>									
<i>Population by household size</i>									
1 household member	18,907	530	512	19,216	635	478	19,486	753	396
2 household members	24,697	1,487	487	25,190	1,759	583	25,322	2,074	570
3 household members	23,729	637	781	23,141	810	598	22,668	1,095	621
4 and more members	21,505	2,548	653	21,390	2,764	528	22,361	3,199	491
<i>Population by age groups</i>									
<25	20,891	1,553	528	20,497	1,831	409	21,338	2,270	398
25-34	23,371	410	650	23,021	547	699	22,894	734	426
35-44	22,906	827	573	23,106	979	519	23,569	1,203	440
45-54	23,904	852	693	24,576	963	564	24,965	1,131	671
55-64	25,355	781	684	26,129	887	758	26,563	988	959
65+	20,000	669	423	19,826	733	641	19,417	795	504
<i>Population by sex</i>									
Male	22,821	2,509	341	22,974	2,929	327	23,344	3,510	304
Female	22,008	2,583	341	21,952	3,011	289	22,311	3,611	282
Total	22,409	5,092	265	22,459	5,940	284	22,823	7,121	274

2.3 Non-sampling errors

2.3.1 Sampling frame and coverage errors

As mentioned in paragraph 2.1.1, the sampling frame of addresses is constructed from the Population Register. First a complete list of addresses is made and then divided into 10 disjoint groups: A0, A1, A2 ..., A9. Each of these subsets contains 10% of all the addresses in the Population Register. Subset A0 is used as an address sampling frame for the years 2000, 2010, 2020, ..., subset A1 is used as an address sampling frame for the years 2001, 2011, and so on. With this kind of approach the sampling frames of ten subsequent years are disjoint and addresses that are contacted within one particular year will not be part of another address survey sample for the next nine years. This approach is in compliancy with the policy of Statistics Netherlands to reduce respondent burden in all surveys. Finally, additional information on the type of address and number of postal delivery points is added to the sampling frame using data from the Geographical Municipal Registration (in Dutch: Geografisch BasisRegister – GBR). The result is a set of disjoint sampling frames (one for each year) with address information and personal information of all individuals that are registered in a Dutch municipality.

Each year in September the sampling frames for the next year are constructed. The sampling frame of addresses is updated monthly for changes related to births, deaths, migration, new addresses, and vacancies. Also taken into account are changes in municipality boundaries and postal codes. At the date of sample drawing the entries of the sampling frame are therefore practically equal to those in the Population Register (GBA). As the fieldwork period starts six weeks later, coverage errors may occur: during the six weeks between drawing and application of the sample new addresses will be established and some addresses have become vacant or have been demolished.

Institutional addresses are removed after drawing the sample by comparing the sample addresses with entries in the register of institutional addresses. This register is updated once a year, so a small number of over-coverage errors are to be expected.

2.3.2 Measurement and processing errors

Measurement errors originate from four basic sources:

- (a) the questionnaire (effects of the design, content and wording);
- (b) the data collection method (effects of the modes of interviewing);
- (c) the interviewer (effects of the interviewer on the response to a question including errors of the interviewer);
- (d) the respondents (effects of the respondent on the interpretation of items).

Statistics Netherlands implemented a number of measures to reduce such errors.

- put in specialised expertise in developing questionnaires;
- routings in the questionnaires to provoke only the relevant questions for the respondent;
- cognitive laboratory experiments with focus groups and depth interviewing.
- there is an opportunity to make remarks in the questionnaire;
- evaluations of the questionnaire
- a stable automation system of data communication and production;
- monitoring system;
- each record contains interview accounts as well as interview data;

- extended interviewer instructions and regularly refreshing courses on basic skills and on EU-SILC;
- Interviewer manual;

The CATI-questionnaires were programmed in Blaise with several data entry and coding controls to reduce processing errors. Finally the EU-SILC files were transformed into Eurostats' standard format and tested using the checking programs developed by Eurostat.

2.3.3 Non-response errors

2.3.3.1 Achieved sample size

Statistics Netherlands implemented the integrated four-year rotational design which means that the cross-sectional en longitudinal EU-SILC data are based on the same set of sample observations. Rotational design refers to the sample selection based on a number of subsamples or replications. Once the system is fully established (from EU-SILC 2008 onwards) the sample for any one year consists of four replications which have been in the survey for 1, 2, 3 or 4 years. Each year one of the four replications is dropped and replaced by a new one

Table 2.8a: Sample Size and accepted Interviews EU-SILC 2007

	Total	R1'	R2'	R3	R4
Persons 16 years and older	19,623	3,555	6,979	3,736	5,353
Number of sample persons	10,219	1,876	3,731	1,909	2,703
Number of accepted personal questionnaires	19,623	3,555	6,979	3,736	5,353
Accepted household interviews	10,219	1,876	3,731	1,909	2,703

Table 2.8b: Sample Size and accepted Interviews EU-SILC 2008

	Total	R1'	R2'	R3'	R4
Persons 16 years and older	19,519	2,957	5,437	6,614	4,511
Number of sample persons	10,337	1,552	2,893	3,621	2,271
Number of accepted personal questionnaires	19,519	2,957	5,437	6,614	4,511
Accepted household interviews	10,337	1,552	2,893	3,621	2,271

Table 2.8c: Sample Size and accepted Interviews EU-SILC 2009

	Total	R1'	R2'	R3'	R4'
Persons 16 years and older	18,254	2,467	4,622	5,339	5,826
Number of sample persons	9,728	1,286	2,449	2,914	3,079
Number of accepted personal questionnaires	18,254	2,467	4,622	5,339	5,826
Accepted household interviews	9,728	1,286	2,449	2,914	3,079

Table 2.8d: Sample Size and accepted Interviews, EU-SILC 2010

	Total	R1'	R2'	R3'	R4'
Persons 16 years and older	19,134	6,295	3,963	4,291	4,585
Number of sample persons	10,134	3,292	2,071	2,340	2,431
Number of accepted personal questionnaires	19,134	6,295	3,963	4,291	4,585
Accepted household interviews	10,134	3,292	2,071	2,340	2,431

Table 2.9: accepted interviews , longitudinal sample EU-SILC 2007-2010

Longitudinal sample 2007-2010	2007	2008	2009	2010	Total
	n	n	n	n	n
DB135=1: Interview accepted for database	3,731	6,514	8,442	6,842	25,529
R2'	3,731	2,893	2,449	2,071	11,144
R3'	-	3,621	2,914	2,340	8,875
R4'	-	-	3,079	2,341	5,510
Personal interviews accepted	6,979	12,051	15,787	12,839	47,656
R2'	6,979	5,437	4,622	3,963	21,001
R3'	-	6,614	5,339	4,291	16,244
R4'	-	-	5,826	4,585	10,411

2.3.3.2 Unit non-response

Indicators of unit non-response in the first wave are included in table 2.9. The overall household non response rate was 22% in 2007 (group R2').

In this paragraph we describe the strategy for linking household sample surveys, like EU-SILC, to administrative registers. First, both surveys and registers are linked to the so-called “persons’ backbone”. The backbone is a longitudinal file starting in 1995 of all persons who have ever lived in the Netherlands. The longitudinal nature of the file means that multiple records exist for one person if changes have occurred in personal characteristics, such as marital status. The backbone is maintained by the central record linking unit at Statistics Netherlands and is mainly fed by the Population Register. The file contains a number of personal identifiers. First of all the Citizen Service Number (formerly sofi-number). This Citizen Service Number is an unique personal identifier for every (registered) Dutch inhabitant and for those living abroad who receive an income from activities in the Netherlands and consequently have to pay tax over their earnings to the Dutch fiscal authorities. This number is used in many government registers to identify persons. We assume that the quality of the Citizen Service Number is high, as this number is used for administrative and fiscal purposes. Tax departments and employee insurance administration in particular require a high quality for their own tasks and duties.

However, Statistics Netherlands does not collect personal identifiers, like the Citizen Service Number, in household surveys. Asking persons for their personal identifier is sometimes pointless, because people simply do not know their identifier, or it is not advisable because it may cause non-response. Sample persons are linked to the backbone through a combination of their address, sex and date of birth. In this linking process a distinction is made between *primary* and *secondary* matching variables. Primary variables have to be identical in both files, while secondary may differ to a certain extent (e.g. to allow for misspellings or figure inversions). The matching criterion used specifies which differences are allowed to decide on a successful match. EU-SILC records are matched with the persons’ backbone using address

(postal code and house number) as a primary key and day, month and year of birth and sex as secondary matching variables.

It turns out that 99 per cent of EU-SILC respondents can be linked to the persons' backbone when a difference between survey and backbone is tolerated in one (and no more than one) of the secondary keys. This is a very good result, though some selectivity may occur in this micro-linking process. The percentage of non-matched records is higher among young people (between 15 and 24) than among other age groups. Young people (e.g. students) move more frequently and therefore they are often registered at the wrong address. However, bias that could result from this can be adjusted with an appropriate weighting model including age.

Households containing a person that could not be linked to the backbone result in partial unit non-response, because the household income is calculated by summing the incomes of *all* household members. Given the fact that the total number of non-matched records is very small these records are rejected from the EU-SILC data files.

Table 2.10: Indicators on Unit Non-response, first wave of the longitudinal component (rotational group R2', 2007)

R2': 2007	
Addresses successfully contacted	4,515
Valid addresses selected	4,762
RA address contact rate	0,95
Number of household interviews accepted	3,731
RH (proportion of completed household interviews accepted)	0,83
NRh (Household non-response rate) %	21.7
Personal interviews completed	6,979
Number of eligible individuals	6,979
Rp 1)	1
Individual non response rate (%)	0
Overall individual non-response (%)	21.7

1) proportion of complete interviews within the households accepted for the database

Table 2.11: Household response rate: Comparison of result codes between wave 2 (2008) and wave 1 (2007), R2'

	Sample outcome in 2008								
	DB135=1	DB135=2	DB120=22	DB130=23	DB130=24	DB130=21	NC	DB120=23	Total
Sample outcome 2007									
R2'									
DB135=1	2.893	5	6	38	95	311	382	1	3.731
DB135=2		47		3	2	4	39		95
Total	2.893	52	6	41	97	315	421	1	3.826

Table 2.12: Response rates for households between wave 2 (2008) and wave 1 (2007), (R2')

	R2'
Wave response rate (%) (A/T-K)	75.6
Refusal rate (%) (G/T-K)	8.2
No contacted and others (%)	15.1
Longitudinal follow-up rate (%)	79.5
Achieved sample size ratio (%)	77,5

Table 2.13 : Household response rate: Comparison of result codes between wave 3 (2009) and wave 2 (2008), R2'

	Sample outcome in 2009								
	DB135=1	DB135=2	DB120=22	DB130=23	DB130=24	DB130=21	NC	DB120=23	Total
Sample outcome 2008									
R2'									
DB135=1	2.449	5	3	21	50	149	209	7	2.893
DB135=2		3			1		1		5
DB120=22								6	6
DB130=22								41	41
DB130=23							6	79	1
DB130=24		7		1	3		155	336	97
Total	2.449	15	3	22	54	155	336	8	3.042

Table 2.14: Response rates for households between wave 3 (2009) and wave 2 (2008), R2'

	R2'
Wave response rate (%) (A/T-K)	80.7
Refusal rate (%) (G/T-K)	5.1
No contacted and others (%)	13.4
Longitudinal follow-up rate (%)	83.1
Achieved sample size ratio (%)	84.7

Table 2.15 : Household response rate: Comparison of result codes between wave 4 (2010) and wave 3 (2009), R2'

		Sample outcome in 2010								
		DB135=1	DB135=2	DB120=22	DB130=23	DB130=24	DB130=21	NC	DB120=23	Total
Sample outcome 2009										
DB135=1	2.071	6	3	23	57		184	2	2.346	
DB135=2		6			2		2		10	
DB120=22							3		3	
DB130=22									0	
DB130=23							22		22	
DB130=24		1			1		52		54	
Total	2.071	13	3	23	60	0	263	2	2.435	

Table 2.16: Response rates for households between wave 4 (2010) and wave 3 (2009), R2'

	R2'
Wave response rate (%) (A/T-K)	85.1
Refusal rate (%) (G/T-K)	0
No contacted and others (%)	14
Longitudinal follow-up rate (%)	88.7
Achieved sample size ratio (%)	88.3

2.3.3.3 Distribution of households by household status (DB110), by record contact at address (DB120), by household questionnaire result (DB130) and by household interview acceptance (DB135), R2', 2007-2010

Table 2.17: Distribution by household status, by record at address, by household questionnaire result and by interview acceptance, 2007-2010, rotational group R2'

	2007	2008	2009	2010
<i>DB110 –Household status</i>				
<i>Household from previous wave</i>				
At the same address at last interview		3,286	2,587	2,215
Entire household moved to a private household within the country		137	119	62
<i>Household no longer in-scope</i>				
Entire household moved to a collective household or institution		2	2	4
Household moved outside the country		4	2	
Entire household died		7	4	
Household does not contain sample person				
<i>Non-contacted</i>				
Unable to access				
Lost		408	328	252
<i>New household for this wave</i>				
Split-off household				
New address added to the sample this wave or first wave fusion		4,770		
Total	4,770	3,826	3,042	2,540
<i>DB120 –Contact at address</i>				
Address contacted	4,515	130	108	57
Address unable to access	247	6	3	3
Address does not exist	8	1	8	2
Total	4,770	137	119	62
<i>DB130- Household questionnaire result</i>				
Household questionnaire completed	3,826	2,945	2,464	2,084
Refusal to cooperate	456	315	155	105
Entire household temporary away				
Household unable to respond	123	41	22	23
Other reasons	110	97	54	60
Total	4,515	3,398	2,695	2,272
<i>DB135- Household interview acceptance</i>				
Interview accepted for database	3,731	2,893	2,449	2,071
Interview rejected	95	52	15	13

2.3.3.4 Distribution of persons by membership status (RB110)

Table: 2.18 Distribution of persons by membership status, 2007-2010, R2'

	Current household members					
	RB110=1	RB110=2	RB110=3	RB110=4	RB110=5	RB110=6
2007	9,903	0	0	0	0	0
2008	6,977	0	63	81	97	8
2009	5,940	0	55	59	101	5
2010	5,092	0	35	49	72	3

Because of the EU-SILC sampling design with the selected respondent in the Netherlands the table for personal interview response rates is not provided. Only the selected respondents, one sample person per household, are followed from wave t to t+1. The co-residents are not followed from wave to wave. The table for personal interview response rates for the sample persons will be quite similar to the table with the household response rates.

2.3.3.5 Item non-response

As income data are based on register information, the income variables do not consist item non-response. However, some income components are not available in the tax registers because they are not taxable. This concerns some inter-household transfers and the income from rental of a property or land. These amounts are collected in the EU-SILC questionnaire.

Table: 2.19 Item non-response household income components, EU-SILC 2010

	households having received an amount		With full information		With non or partial information	
	count	%	count	%	count	%
HY010 Total household gross income	10,134	100	9,590	99	138	1
HY020 Total disposable household income	10,134	100	9,461	97	267	3
HY022 HY020 before transfers (except pensions)	10,134	100	9,461	97	267	3
HY023 HY020 before transfers including pensions	10,134	100	9,461	97	267	3
HY030G Imputed rent	7,211	71	7,211	71	-	-
HY040G Income from rental of a property or land	407	4	353	3	54	1
HY050G Family/Children related allowances	3,341	33	3,341	33	-	-
HY060G Social exclusion not elsewhere classified	550	5	550	5	-	-
HY070G Housing allowances	1,038	10	1,038	10	-	-
HY080G Regular inter-household cash transfer received	726	7	656	6	70	1
HY090G Interest, dividends, profit from capital gain	9,197	91	9,197	91	-	-
HY100G Interest repayments on mortgage	6,332	62	6,332	62	-	-
HY110G Income received by people under 16	173	2	173	2	-	-
HY130G Regular inter-household cash transfer paid	1,267	12	1,154	11	113	1
HY140G Tax on income and social contributions	10,134	100	10,134	100	-	-

Table: 2.20 Item non-response personal income components, EU-SILC 2010

	Persons (16+) having received an amount		With full information		With non or partial information	
	count	%	count	%	count	%
PY010G Employee cash or near cash income	12,838	67	12,838	67	-	-
PY020G Non-Cash employee income	-	-	-	-	-	-
PY021G Company car	1,029	5	1,029	5	-	-
PY030G Employer's social insurance contribution	12,968	68	12,968	68	-	-
PY035G Contributions to individual private pension plans	2,604	14	2,604	14	-	-
PY050G Cash benefits/losses from self- employment	2,117	11	2,117	11	-	-
PY080G Pension from individual private plans	121	1	121	1	-	-
PY090G Unemployment benefits	745	4	745	4	-	-
PY100G Old-age benefits	4,740	25	4,740	25	-	-
PY110G Survivor' benefits	145	1	145	1	-	-
PY120G Sickness benefits	235	1	235	1	-	-
PY130G Disability benefits	794	4	794	4	-	-
PY140G Education-related allowances	1,109	6	1,109	6	-	-

2.4 Mode of data collection

The response part of Labour Force Survey has been used as the sampling frame for EU-SILC. The income target variables have been derived from Registers. As a result, a substantial reduction of the questionnaire has been achieved. This enabled Statistics Netherlands to use Computer Assisted Telephone Interview (CATI) as interview mode.

Table 2.21: Distribution of RB245, RB250 and RB260, 2007-2010, R2'

	2007	2008	2009	2010
<i>RB245-Respondent Status</i>				
Household member aged 16 and over				
- selected respondent	3,731	2,893	2,449	2,071
- not selected respondent	3,248	2,544	2,173	1,892
<i>RB250- data Status</i>				
Information completed only from registers (11)	19	14	9	6
Information completed from both interview and registers (13)	6,960	5,423	4,613	3,957
Total	6,979	5,437	4,622	3,963
<i>RB260 – Type of interview (selected respondent)</i>				
CATI (3)	3,175	2,866	2,419	2,049
Proxy interview (5)	556	27	30	22

2.5 Imputation procedure

As income data are based on register information – except for the questions concerning some inter-household transfers (paid and received) and the income from rental of a property or land– the income variables do not consist of partial unit non-response or item non-response. If the household respondent refused to answer or did not know the amount of the inter-household transfers or the income from rental mean value imputation was used..

2.6 Imputed rent

For estimating the equivalent market rents in EU-SILC, the parameter estimates have been calculated based on another survey, the Survey on Household Expenditures. A regression model was applied on the estimates of market rents of owner-occupiers by real estate agents. This model includes the market value of the dwelling, region, level of urbanisation and household type. The total market rent is calculated by the National Account Statistics. Next the distribution of the market rent over the households is based on the results of the regression model.

2.7 Company car

The estimation of the value of ‘company car’ has been specified by the amount of benefit for which the recipient is assessed for tax purposes. The calculation of the employee income component ‘company car’ follows the rules of the tax authorities. The additional wages or additional income is a percentage of the car’s (original) value. The percentage is in principle 25%, but can be lower for fuel efficient cars.

3. Comparability

This chapter reports on the differences between Eurostat definitions and the definitions Statistics Netherlands applied in EU-SILC 2009. It also reports in the impact of these differences on the comparability.

3.1 Basic concepts and definitions

(a) Reference population

The reference population of EU-SILC is all private households and their current members residing in the Netherlands at the time of data collection. The West Frisian Islands with the exception of Texel were excluded from the target population. This is also true for persons living in collective households and in institutions.

(b) Private household

No difference to the common definition.

(c) Household membership

There are some minor differences in the treatment of special categories like lodgers or people temporarily away (e.g. students). These people are only included as a household member if they are registered at the households' address. According to the EU-definitions resident boarders, lodgers and tenants should be included if they share expenses, have no private address elsewhere or their actual/intended duration of stay must be six months or more. Statistics Netherlands does not apply this limit of six months.

(d) Income reference period(s)

The income data of EU-SILC refer to the previous calendar. The income data were mainly collected from registers.

(e) The period for taxes on income and social insurance contributions

Taxes on income and social contributions are based on the 'income received' in the income reference year (accrual basis) and do not refer to the amounts actually paid in the income reference year.

(f) The reference period for taxes on wealth

There are no taxes on wealth in the Netherlands.

(g) The lag between the income reference period and current variables

The EU-SILC fieldwork period starts in June and ends at 30 September. Therefore the lag is at minimum 5 months and at maximum 9 months.

(h) The total duration of the data collection of the sample

The total duration of the data collection was approximately 4 months.

(i) Basic information on activity status during the income reference period

The monthly activity status during the income reference period is mainly based on register data on the main income source. The distinction between full-time and part-time work is based on the survey part of EU-SILC and the LFS.

3.2 Components of income

There are some differences in the definition of total gross income and disposable income based on the national definition and the SILC definition.

According to the Commission Regulation:

- *Interest paid on consumer debts is not considered as part of income definition in EU-SILC. In Statistics Netherlands' statistics on disposable household income interest payments on consumer debts are deducted to calculate the disposable income.*
- *Contributions to individual private pension plans (PY035) are classified under items which are not to be considered as income. In Statistics Netherlands' statistics on disposable household income, regular contributions to and benefits from private insurance schemes covering the risk of income loss are treated similarly as regular contributions to and benefits from (mandatory) social insurance and pension insurance schemes. This implies that contributions are deducted from and benefits are added to disposable income.*

3.2.1 Differences in definitions of the income target variables

Income variables with no differences from standard EU-SILC definitions are not mentioned.

Total household gross income and disposable income (HY010 and HY020);

The total household income (gross/disposable) has been computed without taking account the interest paid on mortgage, the imputed rent, the contributions to and benefits from individual private pension plans. Subsequently the payable tax on income and social insurance contributions have been corrected to get the fictitious amounts that should have been paid if these components were not received/paid.

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

In order to calculate HY022 Statistics Netherlands calculated the taxable income without the income components:

PY090G + PY120G +PY130G + PY140G + HY050G +HY060G +HY070G.

Subsequently the payable tax on income and social insurance contributions have been corrected. The reason for this adaptation – the exclusion of these income components – is to calculate the fictitious amounts that should have been paid if such social transfers were not received.

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

Like HY022, but the income components PY100G and PY110G were also excluded.

Family/children-related allowances (HY050):

Maternity and parental leave benefits are not included in HY050 as those benefits cannot be separated from wages. These components are included in variable PY010.

Regular inter-household cash transfers received - (HY080):

Alimonies received from former spouse are available in the Tax Administration. Other transfers like payments received from parents living in a separate household (e.g. students) and child alimony are collected in the EU-SILC- interview.

Regular taxes on wealth (HY120):

There are no taxes on wealth in the Netherlands.

Regular inter-household cash transfers paid (HY130):

Maintenance allowances to former spouse were collected form the Tax Administration. Other transfers like child alimony are collected in the EU-SILC interview.

Total tax on income and social contribution (HY140):

When calculating disposable income some components were excluded (interest repayments on mortgage, imputed rent). Therefore, this variable refers to the fictitious amounts that have to be paid as if there were no (tax deductible) interest repayments on mortgage.

Gross employee cash income (PY010G):

Allowances for transport to or from work are not included in PY010. Severance and termination payments to compensate employees and redundancy payments (including lump-sum payments) are also included in PY010G. They are not included in PY090G (unemployment benefits).

Unemployment benefits (PY090G):

PY090 includes the vocational training allowance, i.e. payment by social security funds or public agencies to targeted groups of persons in the labour force who take part in training schemes intended to develop their potential for employment. Statistics Netherlands has no information available on benefit (in-kind) related to vocational training.

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

The variables concerning income, wealth and taxes were almost entirely collected from registers. The most important source is the Tax Administration. Student grants were obtained from the student loan company. Some components were imputed on the basis of information given in the questionnaire. For example, child benefits were calculated on the basis of the information about the number and age of children in the household.

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

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.

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

Not applicable

3.3 Tracing rules

Statistics Netherlands followed the standard EU-SILC tracing rules.

4. Coherence

Coherence refers to the comparison of target variables with external sources. However, external data for the four-year longitudinal sample are not available. However, cross-sectional data were compared to the Dutch Income Panel survey (IPS). The main aim of the Income Panel Survey (IPS) is to provide a detailed description of the composition and distribution of income of persons and households in the Netherlands. These comparisons can be found in the intermediate quality reports.