Quality Report on EU-SILC 2008

- Final Report –
Germany

Table of Contents

1. Common cross-sectional European Union indicators

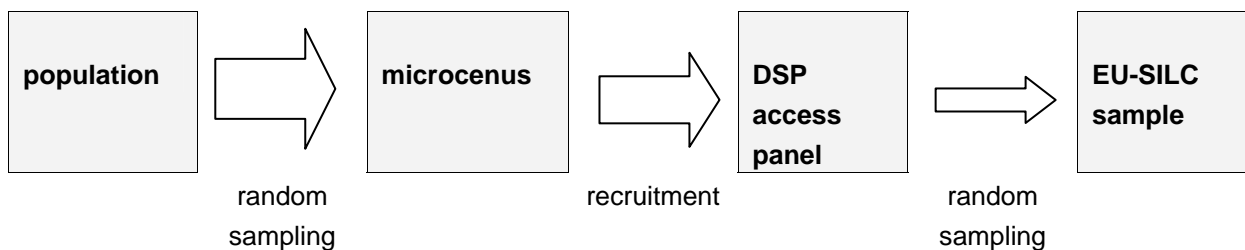| Tessi020 Persistent at-risk-of-poverty rate by gender and age in %	
Total	7,2
M	6,7
F	7,8
Tessi022 Persistent at-risk-of-poverty rate by age in %	
less than 18 years	4,6
from 18 to 24 years	5,3
65 years over	8

2. Accuracy

2.1. Sample design

The German SILC survey is designed as a rotational panel (4 sub samples). The longitudinal component of EU-SILC 2005-08 contains 3 rotational groups: (see table 2.1a).

Table 2.1a: Configuration of the German SILC Survey

		Configuration of the German SILC Survey in each survey year			
		Sub sample 1	Sub sample 2	Sub sample 3	Sub sample 4
2005		Quota	Quota	Quota	Random
2006		Quota	Quota	Random	Random
2007		Quota	Random	Random	Random
2008		Random	Random	Random	Random
			Longitudinal part 2007-2008	Longitudinal part 2006-2008	Longitudinal part 2005-2008
			Longitudinal component 2005-2008		

The sample frame for the yearly random sampling of a new sub sample is an access panel (DSP) – containing former participants of the micro census. Figure 2.1a summarises the source of the EU-SILC households in Germany.

Figure 2a: Structure of EU-SILC

Type of sampling design: The sample follows a stratified design.
Sampling units: The sampling population for the whole sample comprises private households in their main residences. All persons aged 14+ in households defined as sample persons (at the time point of the first wave of a sub sample). All sample persons of a household has to be followed-up over time.

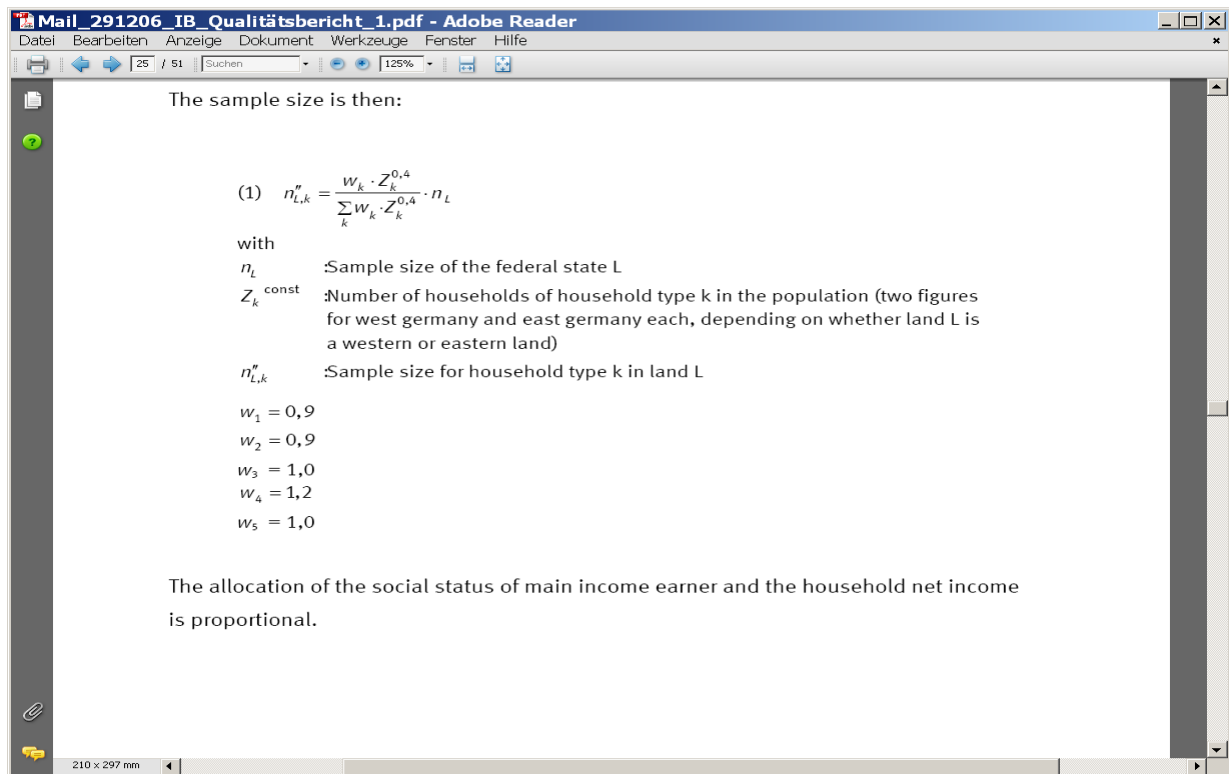Stratification and sub stratification criteria:

- Land (federal state)
    - Schleswig-Holstein
    - Hamburg
    - Niedersachsen
    - Bremen
    - Nord-Rhein-Westfalen
    - Hessen
    - Rheinland-Pfalz
    - Baden-Württemberg
    - Bayern
    - Saarland
    - Berlin – West
    - Brandenburg
    - Mecklenburg-Vorpommern
    - Sachsen
    - Sachsen-Anhalt
    - Thüringen
    - Berlin-Ost
- Household type
    - One person household
    - Couple with children
    - Single parent with at least one child under 18 years and without other persons
    - Couple with at least one child under 18 years and without other persons
    - Other households
- Social status of the main income earner
    - Self employed (except farmers)
    - Employee
    - Pensioner
    - Other not in labour force
- Household net income
    - EUR < 900
    - EUR 900 - 1300
    - EUR 1300 – 2600
    - EUR 2600 – 3600
    - EUR 3600 and more
- Farm household (separate stratum for each federal state)

Sample size and allocation criteria: Council Regulation No 1177/2003 specifies the effective sample size for simple random sampling as 8 250 households for the cross sectional component. Taking into account a design factor of 1.3 (that results from the clustered sampling design of the micro census which is the basis of the DSP) would make a net sample size of about 14 000 households. A panel mortality of 10 % per year is assumed.

Table 2.1.4a: Sample Size, addresses and household interviews

	2005		2006				2007				2008			
Longitudinal Sample 2005-08			Follow-up households (db110 = 1,2,11)		Split households (db110 = 8)		Follow-up households (db110 = 1,2,11)		Split households (db110 = 8)		Follow-up households (db110 = 1,2,11)		Split households (db110 = 8)	
	n	In %	n	In %	n	In %	n	In %	n	In %	n	In %	n	In %
Used addresses	6141	100	3983	100	60	100	7585	100	139	100	10990	100	137	100
addresses existent: DB120_F = 1	6080	99,0	3979	99,9	60	100	7241	95,5	139	100	10838	98,6	137	100
addresses not existent: DB120_F = -1	61	1,0	4	0,1	0	0	344	4,5	0	0	152	1,4	0	0
Gross Sample	6080	100	3983	100	60	100	7241	100	139	100	10838	100	137	100
DB120 = 11 addresses successfully contacted	5904	97,1	3979	99,9	60	100			82	59,0			70	51,1
DB120 >11 addresses not successfully contacted	176	2,9	4	0,1	0	0			57	41,0			67	48,9
Successfully contacted addresses	5904		3980	100	60	100	7567	100	82	100	10954	100	70	100
DB130_F = -1	27		0	0	0	0	0	0	0	0	0	0	0	0
DB130_F = 1	5877	100	3980	100	60	100	7567	100	82	100	10954	100	70	100
DB130 = 11 Household questionnaire completed	3988	67,9	3505	88,1	32	53,3	6815	90,1	65	79,3	9526	87,0	67	95,7
DB130 = 21,22 Refusal to co-operate	1675	28,5	363	9,2	28	46,7	412	5,4	16	19,5	866	7,9	3	4,3
DB130 = 23 Unable to respond	213	3,6	28	0,7	0	0	0	0	0	0	0	0	0	0
DB130 = 24 Other reasons	1	0,0	84	2,1	0	0	340	4,5	1	1,2	562	5,1	0	0
Household questionnaire completed	3988	100	3505	100	32	100	6815	100	65	100	9526	100	67	100
DB135 = 1 Interview accepted for database	3983	99,9	3505	100	32	100	6815	100	65	100	9526	100	67	100
DB135 = 2 Interview rejected	5	0,1	0	0	0	0	0	0	0	0	0	0	0	0

Table 2.1.4b: Households and persons in the longitudinal component

Longitudinal Sample 2005-08	2005	2006	2007	2008	Total
	n	n	n	n	n
Used addresses	6141	3983	7585	10990	28699
DB120 = 11 addresses successfully contacted	5904	3979	7241	10838	28138
DB135 = 1 Interview accepted for database	3983	3505	6815	9526	23829
Persons	8747	16808	24318	21227	71100
Personal interviews	7204	13905	20135	17664	58908

<u>Sample selection schemes</u>: The allocation by household type is disproportional. Those households with a higher probability of nonresponse will get a higher sampling fraction than household types with a lower probability of nonresponse. The allocation of the social status of main income earner and the household net income is proportional. For every type of household k (k=1…5) will be a weight w_k.

The sample size is then:

$$(1) \quad n''_{L,k} = \frac{w_k \cdot Z_k^{0,4}}{\sum_k w_k \cdot Z_k^{0,4}} \cdot n_L$$

with

n_L :Sample size of the federal state L

Z_k^{const} :Number of households of household type k in the population (two figures for west germany and east germany each, depending on whether land L is a western or eastern land)

$n''_{L,k}$:Sample size for household type k in land L

$w_1 = 0,9$
$w_2 = 0,9$
$w_3 = 1,0$
$w_4 = 1,2$
$w_5 = 1,0$

The allocation of the social status of main income earner and the household net income is proportional.

<u>Sample distribution over time:</u>

Year		2005	2006	2007	2008	2009
Random sample	Rotational group 4	4100	3690	3321	2989	-
	Replacement in 2006	-	4100	3690	3321	2989
	Replacement in 2007	-	-	4100	3690	3321
	Replacement in 2008	-	-	-	4100	3690
Quota sample	Rotational group 1	2989	-	-	-	-
	Rotational group 2	3321	2989	-	-	-
	Rotational group 3	3690	3321	2989	-	-
Total random net		4100	7790	11111	14100	14100
Total quota		10000	6310	2989	0	0
Total net		14100	14100	14100	14100	14100

<u>Renewal of sample (rotational groups)</u>: In 2005 the survey started with 3 quota samples and 1 random sample. In the survey year 2008 the last quota sample was replaced by another random sample (see Figure 2).
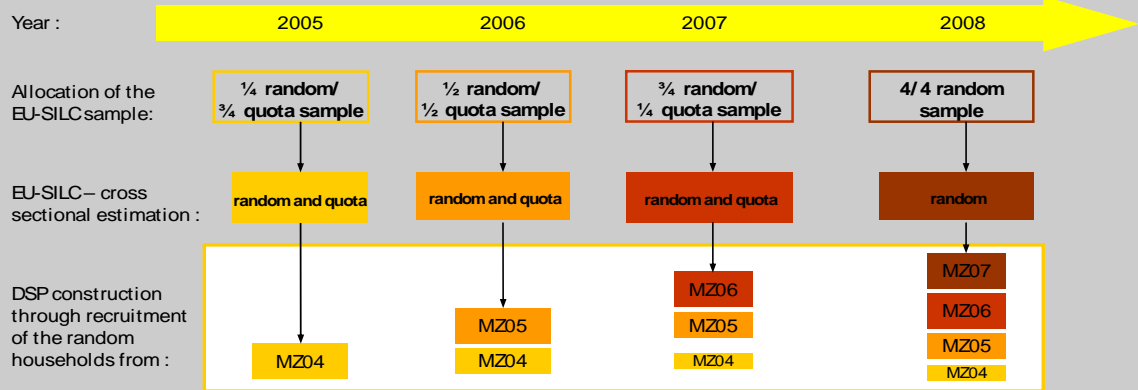
Figure 2.1.7a:

Statistisches Bundesamt

Structure of EU-SILC

	2005	2006	2007	2008
Year :				
Allocation of the EU-SILC sample:	¼ random/ ¾ quota sample	½ random/ ½ quota sample	¾ random/ ¼ quota sample	4/4 random sample
EU-SILC – cross sectional estimation :	random and quota	random and quota	random and quota	random
DSP construction through recruitment of the random households from :	MZ04	MZ05 MZ04	MZ06 MZ05 MZ04	MZ07 MZ06 MZ05 MZ04

© Statistisches Bundesamt, Gruppe II / A   01.02.2011   Folie 4

Table 2.1.7a: Addresses and completed interviews in 2005, 2006, 2007 and 2008 by rotational group (R1, R2, R3, R4)

Longitudinal Sample 2005-08	2005	2006	2007	2008	Total
	n	n	n	n	n
Used addresses	6080	10167	14010	11127	41384
R1	-	6160	4122	3657	13939
R2	-	-	6306	4166	10472
R3	-	-	-	-	-
R4	6080	4007	3582	3304	16973
DB135 = 1 Interview accepted for database	3983	7584	10990	9593	32150
R1	-	4055	3611	3181	10847
R2	-	-	4120	3534	7654
R3	-	-	-	-	-
R4	3983	3529	3259	2878	13649

Weightings:

The general goal of extrapolation is to estimate the parameters (total value, mean value, percentage value, and variance) of the population from the sample, using suitable estimators.

Estimation method: An unbiased estimate of the unknown total value of a specific variable Y is provided by a generalised regression estimator. The linear estimating function for a total value t_Y is:

$$\hat{t}_y = \hat{t}_{y,HT} + \hat{\mathbf{B}}' \cdot (\mathbf{t_x} - \hat{\mathbf{t}}_{\mathbf{x},HT})$$

Where

$$\hat{t}_{y,HT} = \sum_{k=1}^{n} \frac{y_k}{\pi_k \hat{\theta}_k} = \sum_{k=1}^{n} d_k y_k$$

is the expanded total value of the variable Y ("Horvitz-Thompson estimator"). The regression estimator is a linear estimating function and has the quality that the benchmarks are hit when they are extrapolated from the sample.

Taking account of the structure: The complex structure of the permanent sample was taken into account when extrapolating the random households (random sample), i.e. participation of households in the permanent sample and in EU-SILC (participation probabilities) and the fact that households remain in the permanent sample (probabilities of remaining) were included in the extrapolation. See in this context Körner, Nimmergut, Nökel, Rohloff: Die Dauerstichprobe befragungsbereiter Haushalte - Die neue Auswahlgrundlage für freiwillige Haushaltsbefragungen in the periodical *Wirtschaft und Statistik*. Software: The EU-SILC extrapolation was performed through an SAS implementation using the CLAN macro package.

Individual / household weights: Determining the individual / household weights required double calibration, i.e. an adjustment of benchmarks at both the individual level and the household level.

The longitudinal weighting factors were created in line with Eurostat's recommendations: Newborns were assigned their mother's base weight and other co-residents received a base weight of zero.

Design factor: The design factor is calculated as a combination of the following items

- probability to be in the 4th rotational quarter of the micro census
- participation probability to take part in the DSP (estimated by logistic regression)
- probability to remain in the DSP (product of the yearly probability to remain in the DSP that is estimated by logistic regression)
- selection probability for EU-SILC

Non response adjustments –first wave: The basis for the sampling of the random sub samples is the access panel DSP. The structure of the DSP was considered in the weighting the structure.

Adjustments to external data – first wave: The marginal distribution of the micro census was used for the adaptation process. As for the household weights (DB090), we have used the marginal distribution of the following characteristics:

- monthly household net income
- household type
- household size
- age
- sex

and for the personal weights PB040:

- sex
- nationality
- family status

- federal state (Land)
- age
- social status
- education level (not in 2005, but from 2006)
- household type.

Final longitudinal weights: The longitudinal weighting factors were created in line with Eurostat's recommendations: Newborns were assigned their mother's base weight and other co-residents received a base weight of zero.

Statistisches Bundesamt

DⅢ**STATIS**
wissen.nutzen.

EU-SILC
weighting concept of
cross-sectional files

Dipl. Math. Birgit Horneffer
Statistisches Bundesamt
Gruppe II A Mathematisch-statistische Methoden
birgit.horneffer@destatis.de

© Statistisches Bundesamt, Gruppe II / A   01.02.2011   Folie 1

Statistisches Bundesamt

DⅢ**STATIS**
wissen.nutzen.

Basis of the weighting procedure

- **weighting of each rotation group**
- **weighting of households and household members**
- **adjustment to results of the Microcensus**
- **generalized regression estimator**

- **general goal of weighting: to estimate the parameters (total value, mean value, percentage value, variance) of the population from the sample using suitable estimators**

© Statistisches Bundesamt, Gruppe II / A   01.02.2011   Folie 2

Statistisches Bundesamt

D STATIS
wissen.nutzen.

Method of the weighting procedure

- **Weighting factors are calculated as follow:**

$$w_k = \frac{g_k}{\pi_k \cdot \hat{\theta}_k}$$

w_k : weighting factor for household or household member k

g_k : correction factor for household or household member k

π_k : probability for household or household member k selected for EU-SILC

$\hat{\theta}_k$: estimated factor of the EU-SILC participation probability for household or household member k

Statistisches Bundesamt

D STATIS
wissen.nutzen.

Method of the weighting procedure

- π_k **= probability for household or household member k selected for EU-SILC**

  - **determination through the probability to be included in the DSP**
  - **product of**
    - **probability to be included in the rotation quarter of the microcensus**
    - **probability to take part in the DSP**
    - **probability to be in the DSP at the survey time**
    - **probability of being selected for EU-SILC**

Statistisches Bundesamt

DⅢSTATIS
wissen.nutzen.

Method of the weighting procedure

- $\hat{\theta}_k$ = estimated factor of the EU-SILC participation probability for household or household member k

  - through logistics regression estimated participation probability

- $\pi_k \cdot \hat{\theta}_k$ = probability for household or household member k to be included in the survey EU-SILC

© Statistisches Bundesamt, Gruppe II / A   01.02.2011   Folie 5

Statistisches Bundesamt

DⅢSTATIS
wissen.nutzen.

Method of the weighting procedure

- g_k = correction factor for household or household member k

  - calculation through the adjustment to corner values of the population
  - generalized regression estimation

© Statistisches Bundesamt, Gruppe II / A   01.02.2011   Folie 6

Statistisches Bundesamt

STATIS
wissen.nutzen.

Method of the weighting procedure

- g_k **= correction factor for household or household member k**

  - **generalized regression estimation**

$$g_k = 1 + (t_x - \hat{t}_{x,HT})'(\sum_{k=1}^{n} \frac{x_k x_k'}{\pi_k \hat{\theta}_k})^{-1} x_k$$

where

x_k : vector of all possibilities of the help characteristics of the household or household member k

t_x : vector of the total values of the help characteristics

Statistisches Bundesamt

STATIS
wissen.nutzen.

Method of the weighting procedure

- $\hat{t}_{x,HT}$ **= Horvitz-Thomson estimator**

$$\hat{t}_{x,HT} = \sum_{k=1}^{n} \frac{x_k}{\pi_k \hat{\theta}_k}$$

Statistisches Bundesamt

D STATIS
wissen. nutzen.

Method of the weighting procedure

- **The Generalized Regression Estimator (GREG estimator) is the linear estimating function for the total value** t_Y:

$$\hat{t}_y = \hat{t}_{y,HT} + \hat{\mathbf{B}}' \cdot (\mathbf{t_x} - \hat{\mathbf{t}}_{\mathbf{x},HT})$$

$$= \sum_{k=1}^{n} \left(1 + (\mathbf{t_x} - \hat{\mathbf{t}}_{\mathbf{x},HT})' \left(\sum_{k=1}^{n} d_k \mathbf{x}_k \mathbf{x}'_k \right)^{-1} \mathbf{x}_k \right) d_k y_k$$

$$= \sum_{k=1}^{n} g_k d_k y_k = \sum_{k=1}^{n} w_k y_k$$

© Statistisches Bundesamt, Gruppe II / A   01.02.2011   Folie 9

Statistisches Bundesamt

D STATIS
wissen. nutzen.

Weighting, EU-SILC 2005 and 2006

Software: SAS macro package CLAN from Statistics Sweden

4 different weighting factors are produced:

- **DB090 (household)**
- **RB050 (all current household members of any age)**
- **PB040 (all current household members aged 16 and over)**
- **RL070 (children born in year N or person aged more than 12 years at 31/12/N-1)**

© Statistisches Bundesamt, Gruppe II / A   01.02.2011   Folie 10

Statistisches Bundesamt

DᴵᴵSTATIS
wissen.nutzen.

Calibration model
of the cross-sectional file

DB090 (household)/
RB050 (all current household members of any age)

regional level	estimation term
federation	household type (5) household size (5) monthly household net income (6) age (7) sex (2)

© Statistisches Bundesamt, Gruppe II / A   01.02.2011   Folie 11

Statistisches Bundesamt

DᴵᴵSTATIS
wissen.nutzen.

Calibration model
of the cross-sectional file

PB040 (all current household members aged 16 and over)

regional level	estimation term
Federation	federal state (17) family status (4) education level (3) social status (4) household type (5)
'old' Land/ 'new' Land	age (7) sex (2) nationality (2)

© Statistisches Bundesamt, Gruppe II / A   01.02.2011   Folie 12

Statistisches Bundesamt

Summary

- **every year weighting of the cross-sectional files**
- **calibration must be checked**
- **all requirements of Eurostat must be meet**

2.2. Sampling errors

See discussion about the calculation program for the calculation of the standard errors (WG Living Condition Meeting May 2010).

Table 2.2a: Mean, total number of observations (before and after imputation) and standard error for income components (households and persons, weighted, cross-sectional 2008)

Income components		Mean weighted	No. of observations		Standard error	
			Before imputations	After imputations	Observations	Standard error
Total income component (weighted by db090)						
HY010	Total gross household income	41633	13089	13306	13306	
HY020	Total disposable household income	30727	12263	13308	13308	
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	28659	12244	13021	13021	
HY023	Total disposable household income before social transfers including old-age and survivors benefits	21053	10715	12926	12926	
Gross income components at household level (weighted by db090)						
HY040	Income from rental of property or land	6968	1288	1326	1326	
HY050	Family related allowance	3312	4184	4184	4184	
HY060	Social exclusion nor elsewhere classified	5461	572	631	631	
HY070	Housing allowance	1139	223	228	228	
HY080	Regular inter household cash transfer received	4432	980	988	988	
HY090	Interests, dividends etc	1195	6724	11091	11091	
HY100	Interests repayment on mortgage					
HY110	Income received by people under 16 years	1480	76	92	92	
HY120	Regular taxes on wealth	355	6498	6807	6807	
HY130	Regular inter household cash transfers paid	3567	1521	1525	1525	
HY140	Tax on income and social contributions	11732	11183	12071	12071	
Gross income components at personal level (weighted by pb040)						
PY010	Employee cash or near cash income	25474	11860	12363	12363	
PY020	Non-cash employee income	3701	599	1014	1014	
PY035	Contributions to individual private pensions plans	1144	7196	7308	7308	
PY050	Cash benefits or losses from self-employment	34024	1235	1329	1329	
PY070	Value of goods produced for own-consumptions	145	1835	2984	2984	
PY080	Pensions from individual private plans	4495	293	305	305	

PY090	Unemployment benefits	6406	1808	1884	1884	
PY100	Old age benefits	14543	7084	7222	7222	
PY110	Survivor's benefits	6293	332	340	340	
PY120	Sickness benefits	3952	288	290	290	
PY130	Disability benefits	8174	669	690	690	
PY140	Education-related allowances	3178	335	343	343	
Equivalised Disposable Income (weighted by RB050)						
Household Size						
1 person		18168	3887	4015	4015	
2 persons		22419	10218	11052	11052	
3 persons		22544	4833	5508	5508	
4 or more persons		20492	7126	8329	8329	
Age classes						
<25		19347	6212	7035	7035	
25-34		21074	2289	2545	2545	
35-44		23225	3955	4521	4521	
45-54		23464	3873	4435	4435	
55-64		22096	3787	4203	4203	
65 or older		19177	5948	6165	6165	
Sex						
Male		21603	12481	13940	13940	
Female		20598	13583	14964	14964	
Total		21092	26064	28904	28904	

Table 2.2b: Mean, total number of observations (before and after imputation) and standard error for income components (households and persons, weighted, longitudinal part 2005 of the longitudinal sample 2005-08)

Income components		Mean weighted	No. of observations		Standard error	
			Before imputations	After imputations	Observations	Standard error
Total income component (weighted by db090)						
HY010	Total gross household income	37782	3970	3979	3979	
HY020	Total disposable household income	27783	3967	3980	3980	
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	25842	3850	3868	3868	
HY023	Total disposable household income before social transfers including old-age and survivors benefits	20492	3503	3559	3559	
Gross income components at household level (weighted by db090)						
HY040	Income from rental of property or land	5003	353	391	391	
HY050	Family related allowance	3377	1205	1208	1208	
HY060	Social exclusion nor elsewhere classified	4535	114	117	117	
HY070	Housing allowance	1384	216	223	223	
HY080	Regular inter household cash transfer received	4160	351	354	354	
HY090	Interests, dividends etc	1502	1973	2033	2033	
HY100	Interests repayment on mortgage	317	835	925	925	
HY110	Income received by people under 16 years	2415	34	35	35	
HY120	Regular taxes on wealth	298	1400	1506	1506	
HY130	Regular inter household cash transfers paid	3657	554	563	563	
HY140	Tax on income and social contributions	10351	3533	3650	3650	
Gross income components at personal level (weighted by pb050)						
PY010	Employee cash or near cash income	26339	3531	3577	3577	
PY020	Non-cash employee income					
PY035	Contributions to individual private pensions plans	1468	1419	1429	1429	
PY050	Cash benefits or losses from self-employment	28891	417	433	433	
PY070	Value of goods produced for own-consumptions	177	1181	1201	1201	
PY080	Pensions from individual private plans	6714	113	118	118	
PY090	Unemployment benefits	6967	586	596	596	
PY100	Old age benefits	15751	2039	2055	2055	
PY110	Survivor's benefits	7446	145	149	149	

PY120	Sickness benefits	3493	113	118	118	
PY130	Disability benefits	7760	160	161	161	
PY140	Education-related allowances	2842	117	120	120	
Equivalised Disposable Income (weighted by rb060).						
Household Size						
1 person		17753	1224	1231	1231	
2 persons		19427	3108	3122	3122	
3 persons		18624	1668	1674	1674	
4 or more persons		17970	2720	2720	2720	
Age classes						
<25		16947	2244	2246	2246	
25-34		18515	861	861	861	
35-44		20023	1481	1488	1488	
45-54		20530	1203	1211	1211	
55-64		18576	1365	1368	1368	
65 or older		17878	1566	1573	1573	
Sex						
Male		18975	4196	4211	4211	
Female		18104	4524	4536	4536	
Total		18531	8720	8747	8747	

Table 2.2c: Mean, total number of observations (before and after imputation) and standard error for income components (households and persons, weighted, longitudinal part 2006 of the longitudinal sample 2005-08)

Income components		No. of observations			Standard error	
		No. of observations			Standard error	
		Mean weighted	Before imputations	After imputations	Observations	Standard error
Total income component (weighted by db090)						
HY010	Total gross household income	40455	7465	7580	7580	
HY020	Total disposable household income	29424	7348	7582	7582	
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	27182	6928	7415	7415	
HY023	Total disposable household income before social transfers including old-age and survivors benefits	19791	6512	7334	7334	
Gross income components at household level (weighted by db090)						
HY040	Income from rental of property or land	7656	753	770	770	
HY050	Family related allowance	3304	2419	2419	2419	
HY060	Social exclusion nor elsewhere classified	6146	322	385	385	
HY070	Housing allowance	1404	198	212	212	
HY080	Regular inter household cash transfer received	4872	573	581	581	
HY090	Interests, dividends etc	1174	3671	6318	6318	
HY100	Interests repayment on mortgage					
HY110	Income received by people	2608	50	65	65	

	under 16 years					
HY120	Regular taxes on wealth	360	3426	3643	3643	
HY130	Regular inter household cash transfers paid	3864	887	896	896	
HY140	Tax on income and social contributions	11702	6355	6831	6831	
Gross income components at personal level (weighted by pb050)						
PY010	Employee cash or near cash income	25105	6495	6861	6861	
PY020	Non-cash employee income					
PY035	Contributions to individual private pensions plans	1084	3394	3446	3446	
PY050	Cash benefits or losses from self-employment	30899	713	797	797	
PY070	Value of goods produced for own-consumptions	166	1078	1755	1755	
PY080	Pensions from individual private plans	4678	179	183	183	
PY090	Unemployment benefits	6182	1211	1260	1260	
PY100	Old age benefits	14548	3883	4013	4013	
PY110	Survivor's benefits	6420	212	228	228	
PY120	Sickness benefits	5460	149	153	153	
PY130	Disability benefits	8564	397	412	412	
PY140	Education-related allowances	3033	211	217	217	
Equivalised Disposable Income (weighted by rb060).						
Household Size						
1 person		18168	2130	2247	2247	
2 persons		21006	6056	6188	6188	
3 persons		20966	3144	3234	3234	
4 or more persons		19943	4908	5006	5006	
Age classes						
<25		18733	4050	4139	4139	
25-34		19278	1544	1588	1588	
35-44		21602	2645	2733	2733	
45-54		22834	2352	2418	2418	
55-64		21280	2478	2553	2553	
65 or older		18623	3169	3244	3244	
Sex						
Male		20685	7829	8035	8035	
Female		19674	8409	8640	8640	
Total		20175	16238	16675	16675	

Table 2.2d: Mean, total number of observations (before and after imputation) and standard error for income components (households and persons, weighted, longitudinal part 2007 of the longitudinal sample 2005-08)

Income components		No. of observations			Standard error	
		No. of observations			Standard error	
		Mean weighted	Before imputations	After imputations	Observations	Standard error
Total income component (weighted by db090)						
HY010	Total gross household income	40731	10826	10985	10985	
HY020	Total disposable household income	29931	10625	10986	10986	

HY022	Total disposable household income before social transfers other than old-age and survivors benefits	27831	10046	10740	10740	
HY023	Total disposable household income before social transfers including old-age and survivors benefits	20906	9397	10628	10628	
Gross income components at household level (weighted by db090)						
HY040	Income from rental of property or land	6689	1049	1103	1103	
HY050	Family related allowance	3269	3556	3556	3556	
HY060	Social exclusion nor elsewhere classified	5601	468	523	523	
HY070	Housing allowance	1283	216	225	225	
HY080	Regular inter household cash transfer received	4735	821	828	828	
HY090	Interests, dividends etc	1338	5549	9263	9263	
HY100	Interests repayment on mortgage					
HY110	Income received by people under 16 years	2192	63	71	71	
HY120	Regular taxes on wealth	341	5161	5474	5474	
HY130	Regular inter household cash transfers paid	3550	1267	1276	1276	
HY140	Tax on income and social contributions	11668	9077	9846	9846	
Gross income components at personal level (weighted by pb050)						
PY010	Employee cash or near cash income	25316	9442	10069	10069	
PY020	Non-cash employee income	3407	527	867	867	
PY035	Contributions to individual private pensions plans	1160	5736	5822	5822	
PY050	Cash benefits or losses from self-employment	33273	1011	1120	1120	
PY070	Value of goods produced for own-consumptions	169	1504	2671	2671	
PY080	Pensions from individual private plans	4697	253	257	257	
PY090	Unemployment benefits	5554	1591	1649	1649	
PY100	Old age benefits	14623	5696	5868	5868	
PY110	Survivor's benefits	6437	265	275	275	
PY120	Sickness benefits	4295	202	209	209	
PY130	Disability benefits	8499	571	587	587	
PY140	Education-related allowances	3501	271	282	282	
Equivalised Disposable Income (weighted by rb060).						
Household Size						
1 person		18154	3085	3246	3246	
2 persons		21535	8842	9066	9066	
3 persons		21510	4503	4635	4635	
4 or more persons		19448	6970	7173	7173	
Age classes						

<25	18642	5866	6028	6028	
25-34	19812	2081	2148	2148	
35-44	22073	3798	3921	3921	
45-54	22830	3425	3571	3571	
55-64	21574	3323	3442	3442	
65 or older	18504	4907	5010	5010	
Sex					
Male	20829	11275	11607	11607	
Female	19766	12125	12513	12513	
Total	20288	23400	24120	24120	

Table 2.2e: Mean, total number of observations (before and after imputation) and standard error for income components (households and persons, weighted, longitudinal part 2008 of the longitudinal sample 2005-08)

Income components		No. of observations		Standard error	
		No. of observations		Standard error	
		Mean weighted	Before imputations	After imputations	Observations	Standard error
Total income component (weighted by db090)						
HY010	Total gross household income	41618	9458	9588	9588	
HY020	Total disposable household income	30741	8856	9589	9589	
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	28678	8876	9400	9400	
HY023	Total disposable household income before social transfers including old-age and survivors benefits	21091	7725	9331	9331	
Gross income components at household level (weighted by db090)						
HY040	Income from rental of property or land	7065	965	996	996	
HY050	Family related allowance	3317	2990	2990	2990	
HY060	Social exclusion nor elsewhere classified	5563	392	433	433	
HY070	Housing allowance	1069	161	164	164	
HY080	Regular inter household cash transfer received	4440	699	706	706	
HY090	Interests, dividends etc	1172	5000	8053	8053	
HY100	Interests repayment on mortgage					
HY110	Income received by people under 16 years	1368	56	70	70	
HY120	Regular taxes on wealth	352	4776	4959	4959	
HY130	Regular inter household cash transfers paid	3569	1078	1080	1080	
HY140	Tax on income and social contributions	11697	8109	8730	8730	
Gross income components at personal level (weighted by pb050)						
PY010	Employee cash or near cash income	27511	8522	8856	8856	
PY020	Non-cash employee income	3781	431	724	724	

PY035	Contributions to individual private pensions plans	1248	5219	5294	5294	
PY050	Cash benefits or losses from self-employment	36293	869	936	936	
PY070	Value of goods produced for own-consumptions	145	1473	2315	2315	
PY080	Pensions from individual private plans	3665	218	223	223	
PY090	Unemployment benefits	6484	1258	1306	1306	
PY100	Old age benefits	14954	5370	5463	5463	
PY110	Survivor's benefits	6514	218	221	221	
PY120	Sickness benefits	3795	216	218	218	
PY130	Disability benefits	8463	489	503	503	
PY140	Education-related allowances	3138	220	226	226	
Equivalised Disposable Income (weighted by rb060).						
Household Size						
1 person		18095	2738	2821	2821	
2 persons		22376	7510	8090	8090	
3 persons		22551	3420	3897	3897	
4 or more persons		20458	5270	6147	6147	
Age classes						
<25		19499	4474	5066	5066	
25-34		21279	1594	1773	1773	
35-44		23149	2846	3270	3270	
45-54		23387	2764	3152	3152	
55-64		21703	2713	2995	2995	
65 or older		18915	4547	4699	4699	
Sex						
Male		21608	9066	10095	10095	
Female		20485	9872	10860	10860	
Total		21035	18938	20955	20955	

2.3. Non-sampling errors

Sampling frame and coverage errors: According to Regulation No 1177/2003, Article 8, 25% of the German EU-SILC sample 2005 was a random sample and 75% was a quota sample. The sampling frame for the random sample is an access panel, the so called permanent sample of households ready to co-operate with official statistics (DSP) that was established in German official statistics in 2004. The households in the DSP are recruited from the German micro census, a highly reliable random sample. The micro census interviewers ask the households of the withdrawn micro census sub sample whether they are interested in further household surveys such as the German SILC survey. Thus, the DSP as a sampling frame is continuously enlarged. In addition, detailed socio-demographic information is available on the DSP participants. The socio-demographic information on all DSP participants is updated yearly (based either on survey participation or on a short DSP questionnaire update). For the quota sample, household addresses from other surveys (i.e. Household Budget Surveys) were asked for a participation in the EU-SILC survey. For both random and quota sample, the sampling population are private households in their main residence.

Measurement and processing errors: The content of the questionnaires is based on the SILC065 document. The survey was carried out as a mail survey. Fieldwork (mailing, checking, data capture) was done by the competent statistical offices of the federal states. The respondents had to complete the questionnaire on their own, with the option to get help from a telephone hotline in the statistical offices. Moreover, the statistical offices of the federal states checked the returned questionnaires concerning item and unit-nonresponse or understanding problems. We check, for example, whether the personal data such as year of

birth, gender et cetera, which are contained in the different datasets, are consistent with each other. Particular problems are caused by incorrect data concerning the relationship between persons constituting a household. Very often it emerges that children, for example, have been registered as partners. The registration of deceased persons is a problem, too. Quite often, deceased persons are still registered as household members alive.

Schedule of the checking procedures (non-monetary variables):

- a) checking the content of the variables in the raw data
- b) identifying duplicates in the raw data due to moves between federal states
- c) checking household composition and respondent status of removed households
- d) checking sex and age information
- e) identifying new/new born household members and members who had moved out or died
- f) identifying 'children' in the household
- g) checking relationships between household members
- h) checking the age difference between household members, particularly between children and parents
- i) identifying the partner

The following variables deviate from the EU-SILC target variable definition due to several reasons:

- PB090, HB040: Day of interview is not measured.
- PB120, HB120: Time to complete the questionnaire was top coded and should be understood only as a rough estimation by the respondents, because in mail surveys the respondents can make a break during the fillings- in process.
  - PL015, Pl035: Persons in military or civil services are treated as employees in Germany. They get the code (-1) in the majority of employment variables.

Table 2.3.2a: Distribution of proxy interviews by activity status and year (persons interviewed in all three waves)

	Longitudinal Sample 2005-08					
Activity status	Personal Interview		Proxy Interview		Total	
(PL030)	n	In %	n	In %	n	In %
2005						
(1) working	3023	91,1	297	8,9	3320	100
(2) unemployed	440	90,9	44	9,1	484	100
(3) retired	1863	89,0	231	11,0	2094	100
(4) other	1117	85,5	189	14,5	1306	100
Total	6443	89,4	761	10,6	7204	100
2006						
(1) working	5866	82,1	1278	17,9	7144	100
(2) unemployed	623	83,5	123	16,5	746	100
(3) retired	3253	81,8	723	18,2	3976	100
(4) other	1502	73,7	537	26,3	2039	100
Total	11244	80,9	2661	19,1	13905	100
2007						
(1) working	7942	81,1	1848	18,9	9790	100
(2) unemployed	953	83,8	184	16,2	1137	100
(3) retired	4856	81,0	1140	19,0	5996	100
(4) other	2303	71,7	909	28,3	3212	100

Total	16054	79,7	4081	20,3	20135	100
2008						
(1) working	6658	78,4	1833	21,6	8491	100
(2) unemployed	705	83,3	141	16,7	846	100
(3) retired	4395	79,0	1169	21,0	5564	100
(4) other	1914	69,3	849	30,7	2763	100
Total	13672	77,4	3992	22,6	17664	100

Non-response errors:

Table 2.3.3.1a: Sample size and accepted interviews

Longitudinal Sample 2005-08	2005	2006	2007	2008	Total
	n	n	n	n	n
DB135 = 1 Interview accepted for database	3983	7584	10990	9593	32150
R3	-	-	-	-	-
R2	-	-	4120	3534	7654
R1	-	4055	3611	3181	10847
R4	3983	3529	3259	2878	13649
Personal Interview accepted	7204	13905	20135	17664	58908
R3	-	-	-	-	-
R2	-	-	7474	6445	13919
R1	-	7484	6701	5925	20110
R4	7204	6421	5960	5294	24879
Number of persons 16 years or older	7266	13992	20224	17732	59214
R3	-	-	-	-	-
R2	-	-	7513	6475	13988
R1	-	7537	6724	5940	20201
R4	7266	6455	5987	5317	25025
Sample persons	7266	13920	20068	17529	58783
R3	-	-	-	-	-
R2	-	-	7509	6398	13907
R1	-	7536	6648	5871	20055
R4	7266	6384	5911	5260	24821
CO-residents	-	72	156	203	431
R3	-	-	-	-	-
R2	-	-	4	77	81
R1	-	1	76	69	146
R4	-	71	76	57	204

Table 2.3.3.2a: Indicators on unit non-response

Longitudinal Sample 2005-08	2005	2006	2007	2008	Total
	n	n	n	n	n
addresses successfully contacted	5904	10139	13547	10838	40428
R3	-	-	-	-	-
R2	-	-	6306	4064	10370
R1	-	6160	3823	3577	13560
R4	5904	3979	3418	3197	16498
Used addresses	6080	10167	14010	11127	41384
R3	-	-	-	-	-
R2	-	-	6306	4166	10472
R1	-	6160	4122	3657	13939
R4	6080	4007	3582	3304	16973
Ra address contact rate %	97,1	99,7	96,7	97,7	97,7
R3	-	-	-	-	-
R2	-	-	100	97,5	99,6
R1	-	100	92,7	97,6	97,3
R4	97,1	99,3	95,4	96,8	97,2
DB135 = 1 Interview accepted for database	3983	7584	10990	9593	32150
R3	-	-	-	-	-
R2	-	-	4120	3534	7654
R1	-	4055	3611	3181	10847
R4	3983	3529	3259	2878	13649
Rh proportion of completed interviews %	67,8	74,8	81,1	88,5	79,5
R3	-	-	-	-	-
R2	-	-	65,3	87,0	73,8
R1	-	65,8	94,5	88,9	80,0
R4	67,8	88,7	95,3	90,0	82,7
NRh HH non-response rate %	32,2	25,2	18,9	11,5	20,5
R3	-	-	-	-	-
R2	-	-	34,7	13,0	26,2
R1	-	34,2	5,5	11,1	20,0
R4	32,2	11,3	4,7	10,0	17,3
Personal Interview accepted	7204	13905	20135	17664	58908
R3	-	-	-	-	-
R2	-	-	7474	6445	13919
R1	-	7484	6701	5925	20110
R4	7204	6421	5960	5294	24879
Number of persons 16 years or older	7266	13992	20224	17732	59214
R3	-	-	-	-	-
R2	-	-	7513	6475	13988
R1	-	7537	6724	5940	20201
R4	7266	6455	5987	5317	25025
Rp Individual Response rate %	99,1	99,4	99,6	99,6	99,5
R3	-	-	-	-	-
R2	-	-	99,5	99,5	99,5
R1	-	99,3	99,7	99,7	99,5
R4	99,1	99,5	99,5	99,6	99,4

NRp Overall Individual Non-Response rate %	0,9	0,6	0,4	0,4	0,5
R3	-	-	-	-	-
R2	-	-	0,5	0,5	0,5
R1	-	0,7	0,3	0,3	0,5
R4	0,9	0,5	0,5	0,4	0,6

Table 2.3.3.2b: Household response rate

Households with an successful interview in 2005	Longitudinal Sample 2005-08: Wave 2006: DB110 =1,2,11	
	n	In %
"Contact ratio": DB120 = 11 (n = 5904)	3983	67,5
"Follow-up ratio": (DB135 = 1)	3505	59,4
"Refusal ratio"	2399	40,6
DB130 = 11 Household questionnaire completed	3505	59,4
DB130 = 21,22 Refusal to co-operate	363	6,1
DB130 = 23 Unable to respond	28	0,5
DB130 = 24 Other reasons	84	1,4
Households with an successful interview in 2006	Longitudinal Sample 2005-08: Wave 2007: DB110 =1,2	
	n	In %
"Contact ratio": DB120 = 11 (n = 7584)	7240	95,5
"Follow-up ratio": (DB135 = 1)	6815	89,9
"Refusal ratio"	769	10,1
DB130 = 11 Household questionnaire completed	6815	89,9
DB130 = 21,22 Refusal to co-operate	412	5,4
DB130 = 23 Unable to respond	-	-
DB130 = 24 Other reasons	339	4,5
Households with an successful interview in 2007	Longitudinal Sample 2005-08: Wave 2008: DB110 =1,2	
	n	In %
"Contact ratio": DB120 = 11 (n =10990)	10838	98,6
"Follow-up ratio": (DB135 = 1)	9526	86,7
"Refusal ratio"	1464	13,3
DB130 = 11 Household questionnaire completed	9526	86,7
DB130 = 21,22 Refusal to co-operate	866	7,9
DB130 = 23 Unable to respond	-	-
DB130 = 24 Other reasons	562	5,1

Table 2.3.3.3a: Distribution of households by DB110

Longitudinal sample 2005-08	DB135			
	1	2	-2	Total
2005				
Households	3983	5	2153	6141
In %	64,9	0,08	35,1	100
DB110 = 9	3983	5	2153	
2006				
Households	7584	-	2583	10167
In %	75,0	-	25,4	100
DB110 = 1	3503	-	473	3976
DB110 = 2	2	-	2	4
DB110 = 8	32	-	28	60
DB110 = 9	4047	-	2077	6124
DB110 = 11	0	-	3	3
2007				
Households	10990	-	3020	14010
In %	78,4	-	21,6	100
DB110 = 1	6518	-	723	7241
DB110 = 2	297	-	47	344
DB110 = 8	65	-	74	139
DB110 = 9	4110	-	2176	6286
DB110 = 11	-	-	-	-
2008				
Households	9593	-	1534	11127
In %	86,2	-	13,8	100
DB110 = 1	9421	-	1417	10838
DB110 = 2	105	-	47	152
DB110 = 8	67	-	70	137
DB110 = 9	-	-	-	-
DB110 = 11	-	-	-	-

Table 2.3.3.3b: Distribution of households by DB130

DB130	Longitudinal Sample 2005-08									
	2005		2006		2007		2008		Total	
	n	%	n	%	n		%	n	n	%
DB130 = 11	3988	67,9	7584	74,6	10990	78,9	9593	87,0	32155	78,4
DB130 = 21	1675	28,5	2462	24,2	2604	18,7	869	7,9	7610	18,6
DB130 = 22	-	-	6	0,1	-	-	-	-	6	0,01
DB130 = 23	213	3,6	28	0,3	-	-	-	-	241	0,6
DB130 = 24	1	0,0	84	0,8	341	2,4	562	5,1	988	2,4
Total	5877	100	10164	100	13935	100	11024	100	41000	100
(-2)	237		3		75		103		418	
(-1)	27		-		-		-		27	
Total	6141		10167		14010		11127		41445	

Table 2.3.3.4a Distribution of persons by membership status

RB110	Longitudinal Sample 2005-08							
	1	2	3	4	5	6	-1	Total
2005								
Persons	8747	-	-	-	-	-	-	8747
In %	100.0	-	-	-	-	-	-	100
2006								
Persons	16515	24	97	39	104	29	-	16808
In %	98,3	0,1	0,6	0,2	0,6	0,2	-	100
2007								
Persons	23821	52	176	71	179	19	-	24318
In %	98,0	0,2	0,7	0,3	0,7	0,1	-	100
2008								
Persons	20524	78	222	131	262	10	-	21227
In %	96,7	0,4	1,0	0,6	1,2	0,0	-	100

<u>Item-non-response:</u>

Table 2.3.3.5a: Information on item non-response on household level and on individual level

Income components:		Longitudinal sample 2005-08; Part 2005							
		Households having received an amount		Full information		Partial information		Missing information	
		Total	%	Total	%	Total	%	Total	%
Total income component:									
HY010	Total gross household income	3979	99,9	3577	89,9	393	9,9	9	0,2
HY020	Total disposable household income	3980	99,9	3563	89,5	404	10,2	13	0,3
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	3868	97,1	3457	89,4	393	10,2	18	0,5
HY023	Total disposable household income before social transfers including old-age and survivors benefits	3559	89,4	3053	85,8	450	12,6	56	1,6
Gross income components on household level:									
HY040	Income from rental of property or land	391	9,8	353	90,3	0	0,0	38	9,7
HY050	Family related allowance	1208	30,3	1192	98,7	13	1,1	3	0,2
HY060	Social exclusion nor elsewhere classified	117	2,9	113	96,6	1	0,9	3	2,6
HY070	Housing allowance	223	5,6	216	96,9	0	0,0	7	3,1
HY080	Regular inter household cash transfer received	354	8,9	351	99,2	0	0,0	3	0,8
HY090	Interests. dividends etc	2033	51,0	1973	97,0	0	0,0	60	3,0
HY100	Interests repayment on mortgage	925	23,2	835	90,3	0	0,0	90	9,7
HY110	Income received by people under 16 years	35	0,9	34	97,1	0	0,0	1	2,9
HY120	Regular taxes on wealth	1506	37,8	1400	93,0	0	0,0	106	7,0
HY130	Regular inter household cash transfers paid	563	14,1	554	98,4	0	0,0	9	1,6
HY140	Tax on income and social contributions	3650	91,6	2526	69,2	1007	27,6	117	3,2
Gross income components on personal level:									
PY010	Employee cash or near cash income	3577	49,7	3474	97,1	57	1,6	46	1,3
PY020	Non-cash employee income	0	0,0	0		0		0	
PY035	Contributions to individual private pensions plans	1429	19,8	1418	99,2	1	0,1	10	0,7
PY050	Cash benefits or losses from self-employment	433	6,0	411	94,9	6	1,4	16	3,7
PY070	Value of goods produced for own-consumptions	1201	16,7	1181	98,3	0	0,0	20	1,7

PY080	Pensions from individual private plans	118	1,6	113	95,8	0	0,0	5	4,2
PY090	Unemployment benefits	596	8,3	585	98,2	1	0,2	10	1,7
PY100	Old age benefits	2055	28,5	2028	98,7	11	0,5	16	0,8
PY110	Survivor's benefits	149	2,1	144	96,6	1	0,7	4	2,7
PY120	Sickness benefits	118	1,6	113	95,8	0	0,0	5	4,2
PY130	Disability benefits	161	2,2	159	98,8	1	0,6	1	0,6
PY140	Education-related allowances	120	1,7	115	95,8	2	1,7	3	2,5

Table 2.3.3.5b: Information on item non-response on household level and on individual level

Income components:		Longitudinal sample 2005-08; Part 2006							
		Households having received an amount		Full information		Partial information		Missing information	
		Total	%	Total	%	Total	%	Total	%
Total income component:									
HY010	Total gross household income	7580	99,9	2256	29,8	5209	68,7	115	1,5
HY020	Total disposable household income	7582	100,0	3275	43,2	4073	53,7	234	3,1
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	7415	97,8	3074	41,5	3854	52,0	487	6,6
HY023	Total disposable household income before social transfers including old-age and survivors benefits	7334	96,7	2775	37,8	3737	51,0	822	11,2
Gross income components on household level:									
HY040	Income from rental of property or land	770	10,2	753	97,8	0	0,0	17	2,2
HY050	Family related allowance	2419	31,9	2403	99,3	16	0,7	0	0,0
HY060	Social exclusion nor elsewhere classified	385	5,1	309	80,3	13	3,4	63	16,4
HY070	Housing allowance	212	2,8	190	89,6	8	3,8	14	6,6
HY080	Regular inter household cash transfer received	581	7,7	567	97,6	6	1,0	8	1,4
HY090	Interests. dividends etc	6318	83,3	1428	22,6	2243	35,5	2647	41,9
HY100	Interests repayment on mortgage	0	0,0	0		0		0	
HY110	Income received by people under 16 years	65	0,9	50	76,9	0	0,0	15	23,1
HY120	Regular taxes on wealth	3643	48,0	3426	94,0	0	0,0	217	6,0
HY130	Regular inter household cash transfers paid	896	11,8	864	96,4	23	2,6	9	1,0
HY140	Tax on income and social contributions	6831	90,1	4836	70,8	1519	22,2	476	7,0
Gross income components on personal level:									
PY010	Employee cash or near cash income	6861	49,3	6254	91,2	241	3,5	366	5,3

		Total	%	Total	%	Total	%	Total	%
PY020	Non-cash employee income	0	0,0	0		0		0	
PY035	Contributions to individual private pensions plans	3446	24,8	3390	98,4	4	0,1	52	1,5
PY050	Cash benefits or losses from self-employment	797	5,7	654	82,1	59	7,4	84	10,5
PY070	Value of goods produced for own-consumptions	1755	12,6	594	33,8	484	27,6	677	38,6
PY080	Pensions from individual private plans	183	1,3	179	97,8	0	0,0	4	2,2
PY090	Unemployment benefits	1260	9,1	1196	94,9	15	1,2	49	3,9
PY100	Old age benefits	4013	28,9	3819	95,2	64	1,6	130	3,2
PY110	Survivor's benefits	228	1,6	212	93,0	0	0,0	16	7,0
PY120	Sickness benefits	153	1,1	0	0,0	149	97,4	4	2,6
PY130	Disability benefits	412	3,0	396	96,1	1	0,2	15	3,6
PY140	Education-related allowances	217	1,6	211	97,2	0	0,0	6	2,8

Table 2.3.3.5c: Information on item non-response on household level and on individual level

		Longitudinal sample 2005-08; Part 2007							
Income components:		Households having received an amount		Full information		Partial information		Missing information	
		Total	%	Total	%	Total	%	Total	%
Total income component:									
HY010	Total gross household income	10985	100,0	3198	29,1	7628	69,4	159	1,4
HY020	Total disposable household income	10986	100,0	4595	41,8	6030	54,9	361	3,3
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	10740	97,7	4289	39,9	5757	53,6	694	6,5
HY023	Total disposable household income before social transfers including old-age and survivors benefits	10628	96,7	3999	37,6	5398	50,8	1231	11,6
Gross income components on household level:									
HY040	Income from rental of property or land	1103	10,0	1049	95,1	0	0,0	54	4,9
HY050	Family related allowance	3556	32,4	3533	99,4	23	0,6	0	0,0
HY060	Social exclusion nor elsewhere classified	523	4,8	454	86,8	14	2,7	55	10,5
HY070	Housing allowance	225	2,0	214	95,1	2	0,9	9	4,0
HY080	Regular inter household cash transfer received	828	7,5	813	98,2	8	1,0	7	0,8
HY090	Interests. dividends etc	9263	84,3	2026	21,9	3523	38,0	3714	40,1
HY100	Interests repayment on mortgage	0	0,0	0		0		0	
HY110	Income received by people under 16 years	71	0,6	63	88,7	0	0,0	8	11,3
HY120	Regular taxes on wealth	5474	49,8	5161	94,3	0	0,0	313	5,7

HY130	Regular inter household cash transfers paid	1276	11,6	1247	97,7	20	1,6	9	0,7
HY140	Tax on income and social contributions	9846	89,6	7074	71,8	2003	20,3	769	7,8
Gross income components on personal level:									
PY010	Employee cash or near cash income	10069	50,0	9150	90,9	292	2,9	627	6,2
PY020	Non-cash employee income	867	4,3	144	16,6	383	44,2	340	39,2
PY035	Contributions to individual private pensions plans	5822	28,9	5724	98,3	12	0,2	86	1,5
PY050	Cash benefits or losses from self-employment	1120	5,6	925	82,6	86	7,7	109	9,7
PY070	Value of goods produced for own-consumptions	2671	13,3	812	30,4	692	25,9	1167	43,7
PY080	Pensions from individual private plans	257	1,3	252	98,1	1	0,4	4	1,6
PY090	Unemployment benefits	1649	8,2	1586	96,2	5	0,3	58	3,5
PY100	Old age benefits	5868	29,1	5657	96,4	39	0,7	172	2,9
PY110	Survivor's benefits	275	1,4	265	96,4	0	0,0	10	3,6
PY120	Sickness benefits	209	1,0	0	0,0	202	96,7	7	3,3
PY130	Disability benefits	587	2,9	570	97,1	1	0,2	16	2,7
PY140	Education-related allowances	282	1,4	271	96,1	0	0,0	11	3,9

Table 2.3.3.5d: Information on item non-response on household level and on individual level

Income components:		Longitudinal sample 2005-08; Part 2008							
		Households having received an amount		Full information		Partial information		Missing information	
		Total	%	Total	%	Total	%	Total	%
Total income component:									
HY010	Total gross household income	9588	99,9	2107	22,0	7351	76,7	130	1,4
HY020	Total disposable household income	9589	100,0	2429	25,3	6427	67,0	733	7,6
HY022	Total disposable household income before social transfers other than old-age and survivors benefits	9400	98,0	3298	35,1	5578	59,3	524	5,6
HY023	Total disposable household income before social transfers including old-age and survivors benefits	9331	97,3	3163	33,9	4562	48,9	1606	17,2
Gross income components on household level:									
HY040	Income from rental of property or land	996	10,4	965	96,9	0	0,0	31	3,1
HY050	Family related allowance	2990	31,2	2981	99,7	9	0,3	0	0,0
HY060	Social exclusion nor elsewhere classified	433	4,5	388	89,6	4	0,9	41	9,5
HY070	Housing allowance	164	1,7	160	97,6	1	0,6	3	1,8
HY080	Regular inter household cash transfer received	706	7,4	693	98,2	6	0,8	7	1,0

HY090	Interests. dividends etc	8053	83,9	1873	23,3	3127	38,8	3053	37,9
HY100	Interests repayment on mortgage	0	0,0	0		0		0	
HY110	Income received by people under 16 years	70	0,7	56	80,0	0	0,0	14	20,0
HY120	Regular taxes on wealth	4959	51,7	4776	96,3	0	0,0	183	3,7
HY130	Regular inter household cash transfers paid	1080	11,3	1066	98,7	12	1,1	2	0,2
HY140	Tax on income and social contributions	8730	91,0	6588	75,5	1398	16,0	621	7,1
Gross income components on personal level:									
PY010	Employee cash or near cash income	8856	50,1	8329	94,0	193	2,2	334	3,8
PY020	Non-cash employee income	724	4,1	262	36,2	169	23,3	293	40,5
PY035	Contributions to individual private pensions plans	5294	30,0	5208	98,4	10	0,2	75	1,4
PY050	Cash benefits or losses from self-employment	936	5,3	809	86,4	60	6,4	67	7,2
PY070	Value of goods produced for own-consumptions	2315	13,1	862	37,2	611	26,4	842	36,4
PY080	Pensions from individual private plans	223	1,3	218	97,8	0	0,0	5	2,2
PY090	Unemployment benefits	1306	7,4	1251	95,8	7	0,5	48	3,7
PY100	Old age benefits	5463	30,9	5284	96,7	86	1,6	93	1,7
PY110	Survivor's benefits	221	1,3	218	98,6	0	0,0	3	1,4
PY120	Sickness benefits	218	1,2	0	0,0	216	99,1	2	0,9
PY130	Disability benefits	503	2,8	488	97,0	1	0,2	14	2,8
PY140	Education-related allowances	226	1,3	220	97,3	0	0,0	6	2,7

2.4.   Mode of data collection

Table 2.4a Distribution of household members by RB250 and by RB260

Distribution of household members (16+) by …	Longitudinal sample 2005-08									
	2005		2006		2007		2008		Total	
	n	%	n	%	n	%	n	%	n	%
…by RB250 – all household members (16+)										
RB250 = 11	7204	99,1	13905	99,4	20135	99,6	17664	99,6	58908	99,5
RB250 = 21	6	0,1	5	0,0	6	0,0	4	0,0	21	0,04
RB250 = 22	29	0,3	-	-	77	0,4	55	0,3	229	0,39
RB250 = 23	-	-	68	0,5	-	-	-	-	-	-
RB250 = 31	26	0,3	10	0,1	6	0,0	9	0,1	51	0,09
RB250 = 32	1	0,0	4	0,0	-	-	-	-	5	0,01
Total	7266	100	13992	100	20224	100	17732	100	59214	100
…by RB250 – sample persons (16+)										
RB250 = 11	7204	99,1	13846	99,5	19958	99,7	17302	99,8	58310	99,6
RB250 = 21	6	0,1	4	0,03	5	0,02	3	0,02	18	0,03
RB250 = 22	29	0,3	-	-	59	0,3	29	0,2	117	-
RB250 = 23	-	-	59	0,4	-	-	-	-	59	0,1
RB250 = 31	26	0,3	7	0,05	4	0,02	5	0,03	42	0,07
RB250 = 32	1	0,0	4	0,03	-	-	-	-	5	0,0
Total	7266	100	13920	100	20026	100	17339	100	58551	100
…by RB250 – co-residents (16+)										
RB250 = 11	-	-	59	81,9	177	89,4	362	92,1	598	90,2
RB250 = 21	-	-	1	1,4	1	0,5	1	0,3	3	0,5
RB250 = 22	-	-	-	-	18	9,1	26	6,6	44	6,6
RB250 = 23	-	-	9	12,5	-	-	-	-	9	1,4
RB250 = 31	-	-	3	4,2	2	1,0	4	1,0	9	1,4
RB250 = 32	-	-	-	-	-	-	-	-	-	-
Total	-	-	72	100	198	100	393	100	663	100
…by RB260 – all household members (16+)										
RB260 = 4	6443	73,7	11244	80,9	16054	79,7	13672	77,4	47413	80,5
RB260 = 5	761	8,7	2661	19,1	4081	20,3	3992	22,6	11495	19,5
Total	7204	100	13905	100	20135	100	17664	100	58908	100
…by RB260 – sample persons (16+)										
RB260 = 4	6443	73,7	11207	80,9	15937	79,9	13468	77,8	47055	80,7
RB260 = 5	761	8,7	2639	19,1	4021	20,1	3834	22,2	11255	19,3
Total	7204	100	13846	100	19958	100	17302	100	58310	100
…by RB260 – co-residents (16+)										
RB260 = 4	-	-	37	62,7	117	66,1	204	56,4	358	59,9
RB260 = 5	-	-	22	37,3	60	33,9	158	43,6	240	40,1
Total	-	-	59	100	177	100	362	100	598	100

2.5.   Imputation procedure

The aim of imputing survey data is utilising existing information in order to generate data in such a way like it was available having completely non-missing values. For this purpose we have to exploit existing information overlaps, i.e. we have to assume that the information additionally needed in order to impute missing values can be found elsewhere.

In general three fundamental dimensions of panel data can be identified. These three dimensions of data are also useful to systemise the occurrence of information overlaps within a panel study. In every dimension potentially redundant information does exist and can be exploited for imputation of missing values.

In the first dimension, extraction of information is based on redundancy of items. This means that information is overlapping across a group of correlated variables. In such a case values for a certain variable can be exploited from a set of some other variables which, as a whole, ideally fully explain the variable of interest and its missing values. At second an information overlap can be caused by similarity of cases. In contrast to the redundancy of items, not variables are redundant but elements of population. This means that within the sample there are elements whose characteristics are very similar or even pretty much the same.

The third dimension is considering the role of time within a panel survey. For every single element of the population sample variables are available in the form of time series covering a number of waves. Depending on the persistency of a variable in general there will exist an overlap of information within such a time series. Corresponding to these three dimensions and types of information overlaps the imputation methods used can be described within three main groups.

The first group of deductive methods refers to household and person specific redundancy of items and imputation models are based on logical coherences between auxiliary variables and target variable also considering some external information (e.g. about tax and social protection systems). Method of first choice was net-gross-conversion using regulations for taxes and social contributions. This was applicable for cash employee and self-employed income or pensions with existing data about income related amounts.

There were three types of converting derived income related amounts back to (gross) income. At first net to gross conversion in case that the net amount was available. This was the conversion method most preferable. Social contributions to gross conversion as the second best solution for small incomes since small incomes are tax free. And at third tax to gross 38 conversions as the second best solution for high incomes since social contributions are limited by a maximum amount.

If both, social contributions and tax were available; the maximum amount of both conversions was taken. Besides conversion methods deductive imputation was applied by using regulations for social transfers. This was possible for most types of social transfers like family or housing allowances and often joined by data editing using the same rules.

The second main group of imputation methods used were statistical methods which refer to household or person spanning information due to similarity of cases. Regressions within such groups of similar cases were reflecting statistical coherences between auxiliary variables and target variable specific for different homogenous groups of sample units. Complexity of modelling for this method of imputation was depending on the importance of the imputed values. Therefore several types of statistical imputation were used: Mean ratio imputation was applied to subcomponents proportional to other significant income components, e. g. for additional employee income like thirteenth month.

For major income components where extensive modelling was justified and possible (e.g. for cash employee income without any income data) deterministic regressions were applied using a lot of different models, each based on a different set of similarity variables and, as its whole, guaranteeing preservation of variation based on the differences between the models. For every respondent to be imputed the most homogenous model was chosen by using that one with the highest coefficient of determination. In case of difficulties in finding well fitting models, stochastic regressions with error components were applied (e.g. for inter household transfers).

If necessary, e. g. to avoid unreasonable values due to outliers, also some bounds was added to the regression models in order to introduce minimum or maximum values. The third main kind of imputation methods refers to household and person specific persistency of items. Modelling was based on some household and person specific information from data collected previously and was very similar to the second

group of imputation methods described above. In this first wave this was only applicable for the "household inflation factor" using self-assessed total disposable household income from a previous questionnaire. For further information please see final quality report 2005. The imputation methods for the several income components were in 2005, 2006 and 2007 the same.

2.6. Imputed rent
The variable is delivered from 2007 onwards.

2.7. Company cars
For valuation of a company car several figures were used. Respondents were asked in the questionnaire to state the age of the car (year of first registration) and the original market price of the car. For computation of the related non-cash income the average loss in value of cars in Germany was considered as external market information. According to an internal study of the department for consumer prices at the FSO this average loss in value is 16% p.a., whereas mileage is of minor importance (0.1 % p.a.). Therefore mileage, although also available from the questionnaire, was neglected. It may be assumed that such an average loss in value reflects the surplus of wealth in a better way than a car specific loss in value. For example some very expensive cars tend to have very stable market values over time with low losses in value. In these cases computed non-cash income may be lower than by usage of a less expensive car with higher yearly losses in value. For the saved fixed costs in addition a lump sum of 1500 EUR (car insurance, maintenance) was considered. Thus non-cash income due to company car provided for private use is equal to the market value at the beginning of the income reference period minus the market value at the end of income reference period plus 1500 EUR.

[Original market price * 0.84 age of the car - original market price * 0.84 (age of the car + 1) + 1500 EUR]

3. Comparability
3.1. Basic concepts and definitions – for all waves of the longitudinal sample
The reference population is all private households and their current members at their main residence in Germany.
A private household is a person or group of persons living together and sharing their expenditures. Household members are all persons who live at the address of the household for a period of at least 6 months per year or have their main residence there. Household members are persons who work away from home, children in education or children in military or civil service who live in the household only on weekends and have their main residence at the household's address. Subtenants, guests and servants are not considered as household members unless they share all their expenses with the household.

The income reference period is the previous calendar year. The same applies to taxes and social insurance contributions paid on this income. Tax repayments received in 2007 are considered as a tax reduction in the income year, they are part of hy140. In Germany, taxes on wealth (hy120) are taxes on real estate, as no other taxes on wealth exist in Germany at present. The reference period for the taxes on real estate is 2007.

The lag between the income reference period and current variables is between 4 and 8 months. The total duration of the data collection of the sample covered the period from April 2008 to August 2008.

Basic information on the activity status during the income period was not collected exactly according to Doc. SILC 065/04, but only with minor deviations. An activity calendar was used in our questionnaire. The activity status in our questionnaire was to be based completely on the respondent's self assessment of the main or most important activity in the respective month. Because of the self-administered questionnaire, it was not feasible to give the respondent the complex assessment rules (e.g. when to give priority to work etc.) that are given in Doc. SILC 065/04.

3.2. Components of income

<u>Differences between the national definitions and standard EU-SILC definitions:</u>

Total household gross income: - No difference between national definition and standard EU-SILC definition.

Total household disposable income: - No difference between national definition and standard EU-SILC definition.

Total household disposable income, before social transfers other than old-age and survivors' benefits: - No difference between national definition and standard EU-SILC definition.

Total household disposable income, before social transfers including old-age and survivors' benefits: - No difference between national definition and standard EU-SILC definition.

Imputed rent: In 2007, 2008 and 2009, DE applied the stratification method as used in the household budget surveys. Calculation basis: Average value of (cold) net rent/qm derived from comparable tenant microcensus households. These average values were calculated – where the three stratification criteria are applied:

1. Region: western Germany, eastern Germany

2. Municipal size: 1 = below 5,000 inhabitants; 2 = 5,000 – 20,000; 3 = 20,000 – 100,000; 4 = 100,000 – 500,000; 5 = 500,000+

3. Year of construction (building): 1 = before 1948; 2, 3 = 1948 – 1990; 4 = after 1990

Income from rental of property or land: - No difference between national definition and standard EU-SILC definition.

Family/children-related allowances: - No difference between national definition and standard EU-SILC definition.

Social exclusion payments not elsewhere classified: - No difference between national definition and standard EU-SILC definition.

Housing allowances: The variable does not include neither housing allowance ('Kosten der Unterkunft') of households which receive (a) unemployment allowance 'Arbeitslosengeld II' (HARTZ VI) nor housing allowance ('Kosten der Unterkunft') of households which receive (b) the so-called basic social care allowance 'Grundsicherung bei Erwerbsminderung und im Alter'. Households which receive (a) or (b) receive an official notification, in which the allowance is divided into several parts: the individual standard benefits of the household members and the housing benefit for the whole household. Unfortunately, the questionnaire did ask only for the total amount of the allowance, instead of the several parts of allowance. For that reason the target variable housing allowance underestimates the count of households which receive any kind of household benefit. This problem will be solved in 2010.
Nevertheless we know from some towns/ local communities that the official notification on (b) informs households only about the total amount of allowance. This means that in 2010 some households can report about the amount of housing benefit within the scope of (b) and that there will be some households which know only the total amount of allowance (b).

Regular inter-household cash transfers received: -No difference between national definition and standard EU-SILC definition.

Interest, dividends, and profit from capital investments in unincorporated businesses: - As regards capital income due to necessary simplification for the respondent and unlike the standard EU-SILC definition there was no restriction made to business in which the person does not work. This difference is of minor relevance since, in 2004, only about 2% of the employees in the German sample received profit-sharing payments or stocks from the employer.

Interest paid on mortgages: - Variable was not recorded.

Income received by people aged under 16: - No difference between national definition and standard EU-SILC definition.

Regular taxes on wealth: - No difference between national definition and standard EU-SILC definition.

Regular inter-household transfers paid: - No difference between national definition and standard EU-SILC definition.

Tax on income and social insurance contributions: - No difference between national definition and standard EU-SILC definition.

Repayments/receipts for tax adjustments: - No difference between national definition and standard EU-SILC definition.

Cash or near-cash employee income: - No difference between national definition and standard EU-SILC definition.

Non-cash employee income: - No difference between national definition and standard EU-SILC definition.

Employers' social insurance contributions: - Variable was not recorded.
Cash profits or losses from self-employment (including royalties): Both methods measuring self-employment income that are recommended by the standard EU-SILC definitions were used in the German questionnaire. Respondents were asked about benefits/losses according to annual accounts and additionally about the yearly amount of money drawn out of their business. Unlike in the standard EU-SILC recommendations the largest amount of the two was taken for calculation of German self-employment income. We think that, given the German tax system, this may in a better way reflect the possibilities of the self-employed to smooth mid-term fluctuations in account benefits contrasting with their more stable potential of wealth. Both amounts were available for all respondents who reported some figures for self-employment income.

Value of goods produced for own consumption: - The value of goods produced for own consumption was, contrary to the preceding year, collected on the household level since for many households, a differentiation between household members was not possible. Where it was possible, the collected value was split according to the persons' share on the household level in the preceding year. If no data was available of the preceding year, the amount was just evenly spread to all household members with a personal questionnaire. Since, in general, it may be assumed that expenses incurred in the production of these goods are of minor relevance compared to their market value and in order to simplify answering, in difference to the standard EU-SILC definitions respondents were not asked to deduct such costs.

Unemployment benefits: - Unemployment benefits include, depending on the duration of unemployment, up to 7% of the former net employee income as a family allowance for dependent children. As these amounts are not transparent for the respondents, they cannot be split up by them. Therefore all reported amounts were considered as unemployment benefits in difference to the standard EU-SILC definition.

Old-age benefits: -No difference between national definition and standard EU-SILC definition.

Survivor's benefits: -No difference between national definition and standard EU-SILC definition.

Sickness benefits: -No difference between national definition and standard EU-SILC definition.
Disability benefits: -No difference between national definition and standard EU-SILC definition.

Education-related allowances: -No difference between national definition and standard EU-SILC definition.

Gross monthly earnings for employees: -Variable was not recorded.

<u>The source or procedure used for the collection of income variables</u>: All income variables were collected by means of household and personal self-administered questionnaires. In cases of substantial incompleteness or implausibility the respondents were phoned by the fieldwork team in order to collect more detailed information.

<u>The form in which income variables at component level have been obtained:</u> Regarding all income variables, respondents were asked for gross values. Only sickness benefits were supposed to be reported as an amount net of taxes and social contributions*.*

<u>The method used for obtaining income target variables in the required form</u>: In general, the obtained gross income variables were identical with the components and subcomponents of the target variables. In few cases where only net income amounts were available these had to be converted to gross values using all necessary information about the German tax system and social contributions for a recursive algorithm. The non-cash employee income was modelled on the basis of the reported original price of the company car, its age and mileage.

3.3. Tracing rules

For the first survey year (2005) of the longitudinal component of EU-SILC no tracing rules were to be applied. For the second year of the longitudinal component, the tracing rules as laid down in the document EU-SILC 065 were applied.

4. Coherence

Comparison with other longitudinal data is not possible.