Final Quality Report
Relating to the
EU-SILC Operation 2007-2010

Austria

Vienna, November 29th, 2012

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Introductory remark to the reader

The document at hand presents quality evaluation criteria for the EU-SILC 2010 operation as foreseen in Council Regulation No. 1177/2003 and follows the structure outlined in Commission Regulation No. 28/2004. To avoid redundancies with the Intermediate Quality Report for the EU-SILC operation 2010 this Final Quality Report has a clear focus on the EU-SILC longitudinal component, strictly following the structure specified in Annex III of the aforementioned Commission Regulation.

In Austria EU-SILC operations started in 2003. A rotational design was implemented to integrate the cross-sectional and longitudinal component from 2004 onwards. Thus in 2010 the EU-SILC operation contains a panel rotation that extends to four consecutive years. Rotation 3/07, which started in 2007 and has been traced until 2010 (and will not be followed up in 2011), represents a fully matured longitudinal component to calculate the longitudinal persistent-at-risk-of-poverty indicator (see chapter 1 for details).

To direct reader's attention in particular to the longitudinal component and illustrate its quality, Statistics Austria decided to concentrate on the part of the sample which was eligible to be traced between 2007 and 2010, i.e. the rotational group R3/07. Where necessary this is complemented by information on the full sample of the cross-sectional component 2010 (R3/07, R4/08, R1/09, R2/10).[1]

[1] For details on the full sample of the cross-sectional components of EU-SILC 2007-2010, see the respective intermediate quality reports of the EU-SILC operation for the years 2007-2010.

1. Common longitudinal European Union Indicators based on the longitudinal component of EU-SILC

The longitudinal dataset 2007-2010 of the EU-SILC operation comprises a panel of four years (2007-2010). The main objective of the four-year panel rotation is to deliver an adequate data basis for the calculation of the persistent-at-risk-of-poverty indicator.

As described in the EUROSTAT document Doc. LC-ILC/39/09/EN-rev.1 of the Working Group on Living Conditions the assessment of persistent poverty is one of the primary indicators on social inclusion.[2] For the estimation of the percentage of panel-persons living with at-risk-of-poverty, the at-risk-of-poverty threshold from the cross-section of each year of the four-year panel is used.[3] People who were missing in at least one of the four-year panel and therefore are not part of the balanced panel 2007-2010 are excluded from the analysis. The balanced panel consists of 2,620 persons living in 1,170 households in 2010.

The abovementioned strategy complies fully with the one described in document LC-ILC 39/09 (page 43 ff.). Persistent at-risk-of-poverty occurs if a panel person is at-risk-of-poverty (according to the cross-sectional threshold) in the last wave of the four-year panel (i.e. 2010) and has been at-risk-of-poverty at least two times during the preceding waves. Table 1 shows possible combinations of being at-risk-of-poverty which are contained in the longitudinal at-risk-of-poverty indicator:

Table 1: Types of persistent-at-risk-of-poverty

Duration of at-risk-of-poverty	T 2010	T-1 2009	T-2 2008	T-3 2007
4 years	at-risk-of-poverty	at-risk-of-poverty	at-risk-of-poverty	at-risk-of-poverty
3 years	at-risk-of-poverty	at-risk-of-poverty	at-risk-of-poverty	not at-risk-of-poverty
3 years	at-risk-of-poverty	at-risk-of-poverty	not at-risk-of-poverty	at-risk-of-poverty
3 years	at-risk-of-poverty	not at-risk-of-poverty	at-risk-of-poverty	at-risk-of-poverty

According to the EU-SILC longitudinal dataset 6.5% of all persons who are within the reference population from 2007-2010 are in persistent-risk-of-poverty.

Table 2: Persistent-at-risk-of-poverty rate by sex

At-persistent-risk-of-poverty		
Age	Sex	%
Total	T	6,5
	M	5,8
	F	7,1
0-17	T	5,7
18-64	T	6,1
	M	6,0
	F	6,3
65+	T	8,6
	M	5,9
	F	10,6

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

[2] See page 9 in the respective document.

[3] It should be mentioned that no correction for PY080 was made for the years 2007 and 2008. For these years py080 is not included in the household income. This inclusion was required from EU-SILC 2009 onwards by ISG decision of May 2010 for by the ISG decision of May 2010. From 2009 on py080 is included in the household income. However analysis shows that the impact of PY080 on the poverty threshold is negligible in Austria.

2. Accuracy

Accuracy refers to the closeness of calculations and estimates to the exact or true population values.

2.1. Sampling design

2.1.1. Type of sampling

The longitudinal dataset of EU-SILC 2007-2010 as transmitted to EUROSTAT by February 21st 2012 consists of the rotational group 3 of EU-SILC 2007, the rotational groups 3 and 4 of the cross-sectional sample in EU-SILC 2008 and the rotational groups 1, 3 and 4 of the cross-sectional samples of EU-SILC 2009 and 2010.

In 2007, the sample for the first wave of the four-year longitudinal component 2007-2010 was drawn from the central registration register ZMR (*Zentrales Melderegister*), a constantly updated population register based on the register of residence. The Ministry of the Interior administers this register. For the first wave sample of the four-year longitudinal component addresses were selected with a stratified simple random sampling procedure.

2.1.2. Sampling units

Sampling units are dwelling units registered in the ZMR. The sampling frame consisted of all accommodations with at least one person aged 16 or older who had her/his main residence (Hauptwohnsitzmeldung) in these accommodations. The following units were excluded: institutional housing facilities, dwelling units in which all persons with their main residence in this unit were younger than 16 years and units which had been selected for the prior samples of EU-SILC.

2.1.3. Stratification criteria

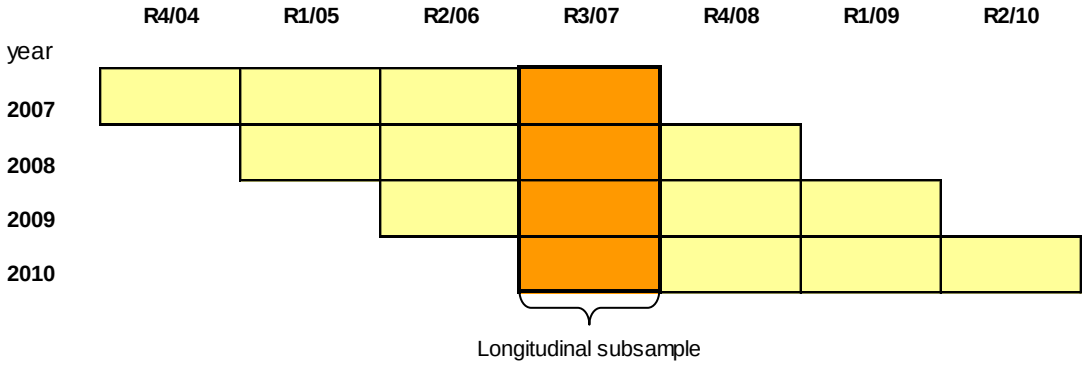
In the first wave of the four-year longitudinal component 2007-2010 (R3/07) a simple random sample with stratification was used. Stratification was carried out by geographical units (*Sprengel*). These units are used in the Austrian microcensus to distribute addresses among the pool of interviewers. Implicitly this procedure achieves both a regionally stratified sample and control of the number of addresses allocated to each interviewer.[4]

2.1.4. Sample size and allocation criteria

The necessary sample size for Austria was calculated according to the Commission regulation (EC) No 1177/2003 to guarantee 4,500 households cross-sectionally and 3,250 households longitudinally under simple random sampling.

The cross-sectional sample of EU-SILC 2007 therefore consists of 8,922 addresses which were used by the fieldwork institute. The four-year longitudinal component of EU-SILC 2010 consists of the rotational group 3 of 2007, 2008, 2009 and 2010. In 2007 3,380 addresses belonged to rotational group 3.

Figure 1: Rotational design - longitudinal design 2007 - 2010



The household register (d-file) of the four-year longitudinal component 2007-2010 consists overall of 8,148 addresses: the original addresses of the first wave 2007 (N = 3,380), the addresses of follow-up households 2008 (N = 1,878), the addresses of split households 2008 (N = 65), the addresses of follow-up households 2009 (N = 1,466), the addresses of split households 2009 (N = 54), the addresses of follow-up households 2010 (N = 1,257) and the split households 2010 (N = 48).

[4] For details on the stratification of the first wave sample of EU-SILC 2007 please refer to the EU-SILC Intermediate Quality Report 2007, ch. 2.1.3).

The total of 6,019 completed household interviews consists of 2,124 interviews in 2007, 1,442 interviews with followed-up households in 2008, 26 interviews with split households in 2008, 1,231 interviews with follow-up households in 2009, 26 interviews with split households in 2009, 1,160 interviews with follow-up households in 2010 and 10 interviews with split households in 2010.

In 2008 not all households of rotation R3/07 successfully interviewed in 2007 were followed up, because in 2008 it was decided to reduce the size of the follow-up sample.[5] Therefore, in rotational group R3/07, only 1,878 addresses from the 2,124 successfully interviewed households in 2007 were followed up. These households and 65 split households then constituted the 1,943 used addresses of 2008. These households provided 1,468 interviews in 2008 (1,442 follow-up and 26 split) which were followed up in 2009. Two split households from 2008 which were followed up in 2009 are not included in the dataset of 2009: one moved back to the original household (fusion) and one was not processed. Therefore, only 1,466 instead of 1,468 follow-up households appear as "used addresses" in the table below. 1,257 household interviews (including splits) could be successfully completed in 2009. The basis of 2010, the final year of the panel, consists of 1,305 addresses. 48 of these addresses belong to split-off households. The remaining 1,257 addresses consist of accepted household interviews of the preceding year. These households finally provided us with 1,170 accepted household interviews in 2010.

Table 3: Sample size, addresses and household interviews (R3/07)

	2007		2008				2009				2010			
			Follow-up households		Split households		Follow-up households		Split households		Follow-up households		Split households	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Longitudinal component														
Used addresses	3,380	100.0	1,878	100.0	65	100.0	1,466*	100.0	54	100.0	1,257	100.0	48	100.0
Addresses existent	3,274	96.9	1,878	100.0	65	100.0	1,466	100.0	54	100.0	1,257	100.0	47	97.9
Addresses not existent	106	3.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	2.1
Gross sample	3,274	100.0	1,878	100.0	65	100.0	1,466	100.0	54	100.0	1,257	100.0	47	100.0
Addresses successfully contacted	3,263	99.7	1,790	95.3	51	78.5	1,438	98.1	49	90.7	1,245	99.0	20	42.6
Addresses not successfully contacted	11	0.3	88	4.7	40	61.5	28	1.9	44	81.5	12	1.0	31	66.0
Successfully contacted addresses	3,263	100.0	1,790	100.0	51	100.0	1,438	100.0	49	100.0	1,245	100.0	20	100.0
Household questionnaire completed	2,124	65.1	1,442	80.6	26	51.0	1,231	85.6	26	53.1	1,160	93.2	10	50.0
Refusal to co-operate	925	28.3	222	12.4	13	25.5	133	9.2	11	22.4	61	4.9	4	20.0
Entire household away for the duration of fieldwork	145	4.4	105	5.9	11	21.6	64	4.5	10	20.4	13	1.0	6	30.0
household unable to respond	46	1.4	21	1.2	1	2.0	10	0.7	1	2.0	5	0.4	0	0.0
Other reasons	23	0.7	0	0.0	0	0.0	0	0.0	1	2.0	6	0.5	0	0.0
Successful household questionnaire	2,124	100.0	1,442	100.0	26	100.0	1,231	100.0	26	100.0	1,160	100.0	10	100.0
Interview accepted for database	2,124	100.0	1,442	100.0	26	100.0	1,231	100.0	26	100.0	1,160	100.0	10	100.0
Interview rejected	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

*Excluding two addresses which were lost during data editing.

2.1.5. Sample selection scheme

As described in the sections 2.1.1. and 2.1.3. the addresses of the first wave of the four-year longitudinal component (R3/07) were selected with a stratified simple random sampling design.

2.1.6. Sample distribution over time

In 2007 the fieldwork period of the operation of EU-SILC 2007 started in the middle of March, and was concluded during the second half of September. The fieldwork for the EU-SILC 2008 operation started in May and ended in September. The interview period for EU-SILC 2009 started in April and was finished in October. In 2010, the final year of the rotational group R3/07, the fieldwork commenced in March and ended in November.

[5] Compare: Intermediate quality report 2008 ch. 2.1.3

Table 4: Number of successful interviews by date of interview (R3/07)

	2007	2008	2009	2010	Total
March				236	236
April	161		73	185	419
May	486	155	266	238	1,145
June	729	578	274	259	1,840
July	603	361	330	120	1,414
August	136	232	167	75	610
September	9	142	129	42	322
October			18	12	30
November				3	3
Total	2,124	1,468	1,257	1,170	6,019

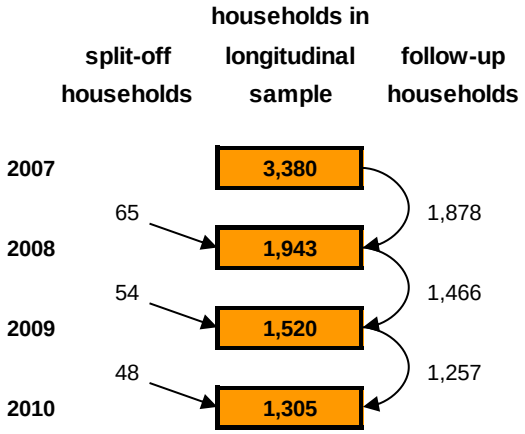
Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

2.1.7. Renewal of the sample: rotational groups

The year 2004 was the initial year of the rotational survey design. A new sample was drawn and the rotational groups were determined by a random selection process that ensured the required minimum size of the rotational groups during the following years.

During the years 2007 to 2010 the number of households belonging to the panel Rotation R3/07 changed considerably. On the one hand households left the panel due to reasons such as refusal of cooperation or absence during the fieldwork period. On the other hand new households joined the panel when a sample person moved out and formed a new household (split-household).

Figure 2: Development of the sample over the time (R3/07)[6]



2.1.8. Weighting[7]

The longitudinal data set for individuals in EU SILC 2010 contains information on the eligible individuals traced from original sample households in EU SILC 2007, EU-SILC 2008 or EU-SILC 2009.

This data structure allows for three analytic perspectives:

- A longitudinal population of individuals who were in the target population for all four years (2007 to 2010)
- A longitudinal population of individuals who were in the target population for the last three years (2008 to 2010).

[6] The first wave sample consists of addresses. The size of the first wave sample of 2007 shown in the figure refers to the gross sample (n=3,380) of rotational group 3/07, including some ineligible households.
[7] Weighting procedures for the EU-SILC cross-sectional component can be found in the intermediate quality reports.

- A longitudinal population of individuals who were in the target population for the last two years (2009 & 2010).

For each perspective different weights are required according to the EUROSTAT document EU-SILC 065 of the 2010 operation. Common starting point of the longitudinal weights RB062 for the two-year panel, RB063 for the three-year panel and RB064 for the four-year panel is the base weight RB060. The cross-sectional weight RB050 of 2010 has also been derived from RB060 (of 2010).

The procedure described below sets out from the design weights of the household sample in 2007 and their adjustments due to non-response in the initial sample. These weights were then adjusted for each individual by the inverse propensity to remain in the panel, whereby response probabilities were estimated using a logistic regression model. Individuals who entered the survey either as co-residents or as newborns had no base weight from a previous year. In line with EUROSTAT's recommendations newborns were assigned their mother's base weight or, if the mother was not part of the sample, the average of base weights in the household. Other co-residents received a base weight of zero. (cf. EU-SILC Intermediate Quality Report 2010, ch. 2.1.8.2.).

2.1.8.1. Design factor – first wave 2007

At the starting point of the EU-SILC 2007 survey households were selected by simple random sampling. Each household had the same inclusion probability and the design weight was given by the total number of households in the sampling frame divided by the number of selected addresses.

2.1.8.2. Non-response adjustment – first wave 2007

The aim of non-response weights is the reduction of potential bias caused by unit non-response on household level for the first wave and for attrition among individuals for the follow-up waves. The correction of this bias ideally requires knowledge on the response probability of each of the responding households. Each record in the dataset is then re-weighted by the inverse of this probability.

In 2007 the estimation strategy applied for the first wave households by Statistics Austria used all information available in the sampling frame. The following explanatory variables from the sampling frame were used in a logistic regression model in order to estimate the response probability of each household: Region (NUTS 2 level), degree of urbanisation and information on the number of household members and their distribution according to gender, age and citizenship.[8]

The design weights adjusted for non-response in the 2007 survey provided the basis for the further adjustments of the longitudinal component.

2.1.8.3. Adjustment to external data – first wave 2007

External adjustments are done to improve the consistency of estimations with reliable external sources. This step is also documented in the respective intermediate quality report for EU-SILC 2007.

The reference data source for calibration was the Microcensus, a quarterly household survey with a sample of more than 22,000 randomly selected households. As a reference data base the annual average of the Microcensus 2007 was chosen. The Microcensus operates with a rotational design like EU-SILC. It incorporates the Labour Force Survey, and due to the size of the sample it is also the most important reference for the socio-demographic structure of private households in Austria.

The adjustments were done on the basis of the product of the design weights and the non-response weights. A calibration was applied to all rotations together. The calibration was carried out simultaneously on household and on individual level and with reference to the following variables:

Household level:

- household size (four categories: 1, 2, 3 household members and households with 4 and more household members),
- tenure status (two categories: rented flat/house or owned),
- region (nine categories: Nuts 2 level).

Individual level:

- Sex
- age (younger than 15 yrs., 15 to 34 yrs., 35 to 64 yrs., 65 yrs. and older)

In addition to these variables adjustments were implemented to achieve coherence in

[8] See the Austrian intermediate quality report for EU-SILC 2007 for a more detailed description of the non-response adjustment for the first wave sample of 2007.

- the number of foreign citizens using microcensus data
- the number of recipients of unemployment benefits for a duration of at least 2 months, using data from administrative sources

The variables for calibration were chosen in conformity with the EUROSTAT proposal in doc EU-SILC 65/05. An "integrative" calibration design was applied that assigns on individual level every person of the household the same weight. The individual characteristics were aggregated on household level, and dummy variables were constructed for every parameter of the individual adjustment characteristics.

In 2007 the SAS macro "CALMAR" which was developed by INSEE was applied to calculate calibrated weights.

2.1.8.4. Final longitudinal weights – first wave 2007

A final correction of individual non-response within a household was not necessary because the small number of missing cases was completely imputed. In the first wave, the personal longitudinal base weights (RB60) are the weights resulting from the design-weights after non-response adjustment and calibration.

2.1.8.5. Non-response adjustments – subsequent waves

For the second, third and fourth wave households their base weights correspond to the design weights in 2007 adjusted for non-response and calibrated for external marginal distributions. Given that longitudinal households are difficult to define, weighting for attrition is based on individual attrition propensities.

In 2008 it was necessary to reduce the sample size of the follow-up households. Therefore, the base weights of the second wave (in the year 2008) had to compensate for the reduction of the number of follow-up households. The base weights of persons in households from 2007 that were followed-up in 2008 had to be rescaled. Especially the weights of persons in households that were never at-risk-of-poverty during the previous years had to be enlarged because these households were not followed-up completely. This strategy assured that the reduction of the follow-up sample did not reduce the sum of base weights.[9]

For the non-response adjustment carried out for respondents followed up in the second, third and fourth wave, more information is available from the household and personal interviews of the first wave. Therefore the response probability of each person was estimated on the basis of a logistic regression model. In the first step a set of significant variables ($\alpha<0.1$) discriminating between participation and non-participation in the second wave was selected. Significance was tested with t-test and Chi-Square. This non-response model is identical to the non-response model of the cross-sectional component and was described in detail in the relevant intermediate quality reports.[10]

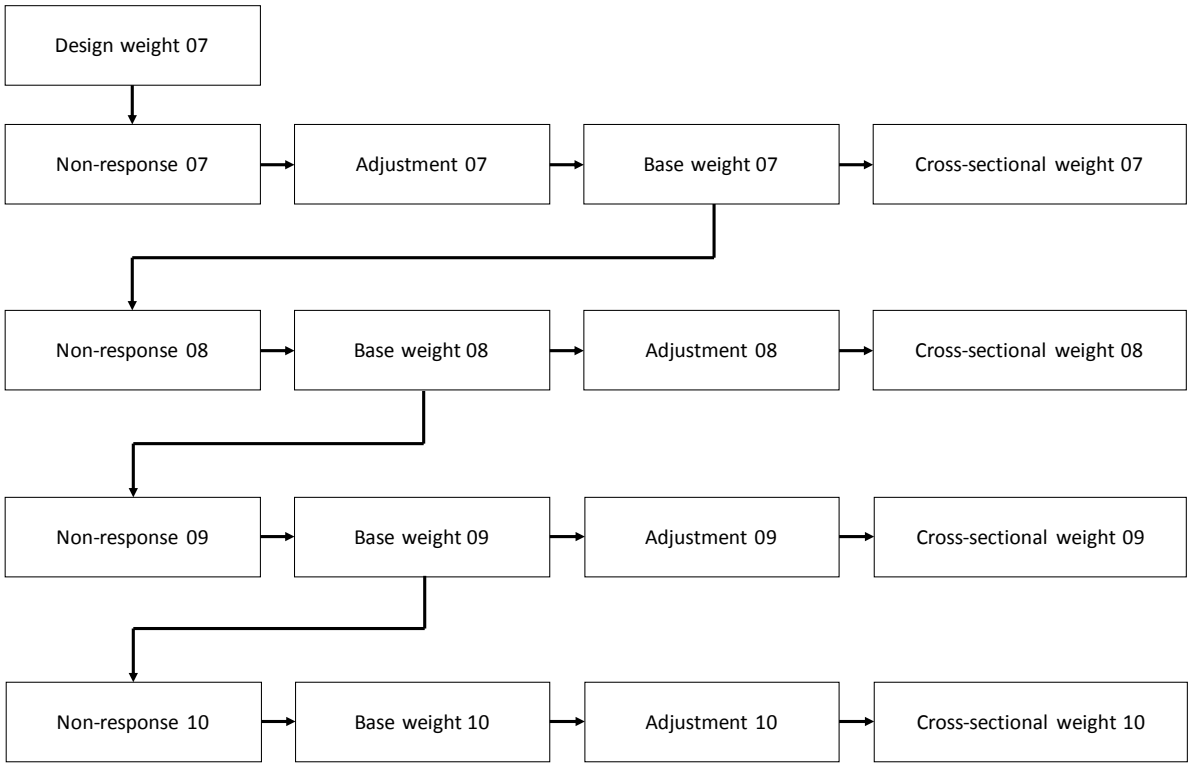
Design weights and non-response weights are multiplied to obtain the personal base weight (RB060) for the subsequent wave. This product is not defined for individuals who were newly born between 2007 and 2010. They receive their mother's weight or, alternatively the average weight of sample persons in the household. In principle new entrants from outside the target population should be treated in the same way. In absence of the required information of their former population status all other co-residents are assigned zero base weights.

Figure 3 gives an overview of the weighting procedure described so far.

[9] A more detailed description of the reduction of follow-up households in EU SILC 2008 can be found in the Austrian EU SILC Intermediate Quality Report 2008 (ch. 2.1.3 and ch. 2.18.).

[10] Compare intermediate quality report 2008 ch. 2.1.8., intermediate quality report 2009 ch. 2.1.8 and intermediate quality report 2010 ch. 2.1.8.

Figure 3: Weighting scheme EU-SILC, longitudinal perspective



2.1.8.6. Further adjustments to external data for the longitudinal component

The base weights described in section 2.1.8.5 were used to produce longitudinal weights for the two year panel 2009-2010 (RB062), for the three year panel 2008-2010 (RB063) and for the four-year panel 2007-2010 (RB064). In order to establish coherence between the cross-section of EU-SILC 2010 and the last year of the longitudinal panels, the longitudinal weights were calibrated with a procedure similar to the one described in section 2.1.8.3.

Longitudinal analysis of EU-SILC 2010 data disclosed inconsistencies between cross-sectional and longitudinal results.[11] Analysis of the first longitudinal datasets 2004-2007 and 2005-2008 showed remarkable inconsistencies between longitudinal and cross-sectional estimates indicating a bias due to attrition. In the 2006-2009 and 2007-2010 dataset the cross-section and the longitudinal component were much more consistent, with the exception of the four year panel 2007-2010, where inconsistencies were slightly higher than in the two-year and three-year panel: the at-risk-of-poverty rate estimated upon cross-sectional data 2010 was 12.1% whereas 10.9% for persons belonging to the four-year panel 2007-2010 in the year 2010.

The calibration technique utilized for the longitudinal datasets since EU-SILC 2004-2007 was also applied to EU-SILC 2007-2010. The calibration method aims to obtain weights which establish coherence between cross-sectional and longitudinal poverty estimates and population structure for 2010, the final year of the panel.

For each of the longitudinal weights RB06i ($i \in [2;3;4]$) a new sample was constructed comprising:

- Records from the longitudinal sample which have positive weights (i.e. where RB06i > 0, for a panel with a duration of i years)
- Newborns from the longitudinal sample (i.e. where RB06i = 0, for a panel with a duration of i years). Their weight is replaced by the base weight RB060.
- Records from the cross-sectional sample which entered the frame population in the period[12] after the first year of the respective panel with their cross-sectional weight (RB050).

If only records of 2010 were taken into account, this reconstructed cross-sectional dataset should be consistent with the cross-sectional dataset of EU-SILC 2010. It contains groups of people who have a chance to be present in the cross-section of 2010 and the longitudinal dataset 2007-2010 and also persons who can only be part of the cross-sectional dataset 2010, because they entered the population in 2010. However, there still remain the above described inconsistencies regarding the major social indicator of EU-SILC, namely the at-risk-of-poverty-rate.

[11] See the final quality reports of EU-SILC 2004-2007 and EU-SILC 2005-2008 for details.
[12] To identify these persons, the longitudinal variable RB031 “Year of immigration” was used.

These inconsistencies can occur because of:

- Sampling Errors
- Systematic panel attrition
- Measurement errors in a repeated survey

In order to establish coherence the base weights of the reconstructed cross-section were adjusted to distributions of the cross-sectional dataset of EU-SILC 2010.

The adjustments were applied on individual level on the basis of the variables listed under 2.1.8.3. Some additional variables on individual level were added to the adjustment process. Altogether, the following variables based on external data were used:

Household level:

- household size (four categories: 1, 2, 3 household members and households with 4 and more household members),
- tenure status (two categories: rented flat/house or owned),
- region (nine categories: Nuts 2 level).

Individual level:

- Sex
- age (younger than 15 yrs., 15 to 34 yrs., 35 to 64 yrs., 65 yrs. and older)
- Citizenship Austria or foreign country
- Income below the median equivalised income
- Income below 60% of median equivalised income (individuals at-risk-of-poverty)
- Individuals belonging to the population not covered in the panel (migrants and newborns)
- Beneficiaries of unemployment benefits for a duration of more than one month (data from the association of the national social-security insurances, "Hauptverband der österreichischen Sozialversicherungsträger" are used)

After the calibration using the SAS macro "CALMAR" people not part of the longitudinal panel were removed from the reconstructed cross-sectional dataset and newborns from the longitudinal sample received a longitudinal weight RB06i ($i \in [2;3;4]$) of zero. The new longitudinal dataset is only filled for persons belonging to the respective panels, but is also consistent with the cross-sectional data of 2010.

2.1.8.7. Final longitudinal weight

Individuals entering the population after the start of a panel study cannot be represented in the panel population. This part of the target population is called "IN-Population".[13]

The panel which started in 2007, i.e. R3/07 forms a four-year panel. The appropriate weight is RB064 which is defined for all individuals present throughout this period excluding newborns and co-residents. RB064 before calibration is identical to RB060 apart from a scaling factor. For RB062 and RB063 the longitudinal weights require some adjustment which is applied before the calibration.

The four-year panel incorporates also a three year panel and a two-year panel. When the three-year panel of Rotation R3/07 is combined with the three-year panel which was launched in the year 2008 (R4/08), a small part of the population is only represented in this latter part. This can be referred to as “IN-Population” and consists mostly of migrants of the year 2008. Their weights need to be inflated accordingly to give an unbiased representation of the population in scope during the years 2008-2010. In accordance with the EUROSTAT document 065[14] an inflation factor of 2 should be chosen for the longitudinal weights RB063 of the IN-Population, since these persons couldn't be represented in rotation R3/07 of the three year panel which consists of two rotations (R3/07 & R4/08). The same procedure was applied to the two-year panel 2009 to 2010 which consists of the rotation R3/07, R4/08 and R1/09. A small fraction of the persons of rotation R4/08 and R1/09 belong to the IN-Population described above. The weights of these persons should be inflated by the factor 3/2 (if they entered the target population in 2008) or a factor of 3 (if they entered the target population in 2009).[15]

[13] For details on this subject, please refer to EUROSTAT document EU-SILC 065, 2010 operation, p. 38ff.
[14] Cf. the description of longitudinal weights, section V in EUROSTAT document EU-SILC 065, 2010.
[15] To identify these persons, the longitudinal variable RB031 “Year of immigration” was used.

2.1.8.8. Final cross-sectional weight

Final cross-sectional weights of EU-SILC are obtained by a calibration of the joint cross-sectional and longitudinal sample following the procedure described in 2.1.8.3. The adjustments were carried out on household level and on individual level. A final correction of individual non-response within a household was not necessary because after imputing the missing cases, there was no individual non-response.

2.1.9. Substitutions

Substitutions were not necessary for any of the four years of the EU-SILC operations 2007-2010.

2.2. Sampling errors

The subsequent tables present means, number of observations and standard errors for each wave of the longitudinal component and the cross-sectional component in the year 2010.

Table 5: Mean, total number of observations (before and after imputation) and standard error for income components 2007 (households & persons, weighted mean, R3/07)

	Mean	Number of observations		Standard error
		Before imputation	After imputation	
Total household gross income	44,060	821	2,124	861
Total disposable household income	32,527	1,444	2,124	557
Total disposable household income before social transfers other than old-age and survivors' benefits	30,020	1,432	2,084	567
Total disposable household income before social transfers including old-age and survivors' benefits	24,730	1,281	1,883	631
Net income components at household level				
Income from rental of a property or land	7,940	107	109	1,427
Family/child related allowances	4,680	791	793	112
Social exclusion not elsewhere classified	2,111	87	88	413
Housing allowances	1,382	97	98	102
Regular inter-household cash transfer received	4,347	170	177	370
Interest, dividends, profit from capital investments	619	885	1,132	87
Income received by people aged under 16	3,577	27	29	823
Regular inter-household cash transfer paid	3,620	152	160	291
Repayments/receipts for tax adjustment	-322	903	915	46
Value of goods produced for own consumption	732	79	83	127
Gross income components at household level				
Income from rental of a property or land	9,931	0	109	1,945
Family/child related allowances	4,680	767	793	112
Social exclusion not elsewhere classified	2,111	87	88	413
Housing allowances	1,382	97	98	102
Regular inter-household cash transfer received	4,347	170	177	370
Interest repayments on mortgage	774	885	1,132	108
Income received by people aged under 16	4,582	25	29	1,172
Regular inter-household cash transfer paid	3,620	152	160	291
Tax on Income and Social Contributions	11,610	896	2,073	389
Value of goods produced for own consumption	732	79	83	127
Net income components at personal level				
Employee cash or near cash income	17,304	1,886	2,174	336
Contributions to individual private pension plans	1,113	868	919	52
Cash benefits or losses from self-employment	15,792	398	436	1,220
Pension from individual private plans	10,331	18	19	2,745
Unemployment benefits	4,297	262	289	256
Old-age benefits	16,027	883	968	348
Survivors' benefits	5,636	44	47	563
Sickness benefits	3,260	87	92	599
Disability benefits	10,895	104	105	549
Education-related allowances	3,458	58	63	655
Gross income components at personal level				
Employee cash or near cash income	25,038	1,528	2,174	548
Contributions to individual private pension plans	1,113	868	919	52
Cash benefits or losses from self-employment	22,527	11	436	1,858
Pension from individual private plans	11,968	18	19	2,992
Unemployment benefits	4,442	261	289	326
Old-age benefits	20,009	562	968	521
Survivors' benefits	6,480	15	47	663
Sickness benefits	3,777	49	92	634
Disability benefits	12,584	79	105	712
Education-related allowances	3,458	58	63	655

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Weighted by db090 at household level and pb050 at personal level

Table 6: Mean, total number of observations (before and after imputation) and standard error for income components 2008 (households & persons, weighted mean, R3/07)

	Mean	Number of observations		Standard error
		Before imputation	After imputation	
Total household gross income	46,466	527	1,468	1,276
Total disposable household income	33,818	997	1,468	787
Total disposable household income before social transfers other than old-age and survivors' benefits	30,928	1,000	1,451	790
Total disposable household income before social transfers including old-age and survivors' benefits	24,340	966	1,372	862
Net income components at household level				
Income from rental of a property or land	9,619	75	76	1,952
Family/child related allowances	4,874	582	585	139
Social exclusion not elsewhere classified	2,551	60	60	579
Housing allowances	1,705	76	78	115
Regular inter-household cash transfer received	4,252	128	132	546
Interest, dividends, profit from capital investments	658	978	1,117	52
Income received by people aged under 16	2,084	28	32	637
Regular inter-household cash transfer paid	3,832	153	154	397
Repayments/receipts for tax adjustment	-407	727	739	53
Value of goods produced for own consumption	531	100	106	80
Gross income components at household level				
Income from rental of a property or land	11,170	0	76	2,146
Family/child related allowances	4,874	582	585	139
Social exclusion not elsewhere classified	2,551	60	60	579
Housing allowances	1,705	76	78	115
Regular inter-household cash transfer received	4,252	128	132	546
Interest repayments on mortgage	823	978	1,117	65
Income received by people aged under 16	2,550	25	32	928
Regular inter-household cash transfer paid	3,832	153	154	397
Tax on Income and Social Contributions	12,471	590	1,450	529
Value of goods produced for own consumption	531	100	106	80
Net income components at personal level				
Employee cash or near cash income	18,653	1,231	1,503	590
Contributions to individual private pension plans	1,163	658	712	59
Cash benefits or losses from self-employment	13,230	273	294	849
Pension from individual private plans	11,848	11	14	3,819
Unemployment benefits	4,159	151	160	353
Old-age benefits	16,352	600	677	386
Survivors' benefits	6,886	29	30	685
Sickness benefits	2,473	70	84	316
Disability benefits	11,327	78	85	691
Education-related allowances	2,064	45	50	415
Gross income components at personal level				
Employee cash or near cash income	27,322	898	1,503	1,024
Contributions to individual private pension plans	1,163	658	712	59
Cash benefits or losses from self-employment	18,326	5	294	1,207
Pension from individual private plans	11,848	6	14	3,819
Unemployment benefits	4,260	149	160	398
Old-age benefits	21,289	332	677	588
Survivors' benefits	8,961	12	30	906
Sickness benefits	3,173	36	84	404
Disability benefits	13,785	58	85	925
Education-related allowances	2,064	45	50	415

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Weighted by db090 at household level and pb050 at personal level

Table 7: Mean, total number of observations (before and after imputation) and standard error for income components 2009 (households & persons, weighted mean, R3/07)

	Mean	Number of observations		Standard error
		Before imputation	After imputation	
Total household gross income	47,407	455	1,257	1,028
Total disposable household income	34,904	851	1,257	704
Total disposable household income before social transfers other than old-age and survivors' benefits	31,663	858	1,247	691
Total disposable household income before social transfers including old-age and survivors' benefits	24,461	838	1,190	746
Net income components at household level				
Income from rental of a property or land	8,032	70	75	1,273
Family/child related allowances	5,422	477	481	84
Social exclusion not elsewhere classified	2,533	65	69	581
Housing allowances	1,678	64	66	111
Regular inter-household cash transfer received	4,014	114	116	399
Interest, dividends, profit from capital investments	676	753	922	181
Income received by people aged under 16	2,241	19	19	528
Regular inter-household cash transfer paid	3,916	132	136	278
Repayments/receipts for tax adjustment	-372	673	690	48
Value of goods produced for own consumption	708	59	64	136
Gross income components at household level				
Income from rental of a property or land	9,938	0	75	1,512
Family/child related allowances	5,422	477	481	97
Social exclusion not elsewhere classified	2,533	65	69	581
Housing allowances	1,678	64	66	111
Regular inter-household cash transfer received	4,014	114	116	399
Interest repayments on mortgage	845	753	922	105
Income received by people aged under 16	2,499	13	19	612
Regular inter-household cash transfer paid	3,916	132	136	278
Tax on Income and Social Contributions	12,223	491	1,245	372
Value of goods produced for own consumption	708	59	64	136
Net income components at personal level				
Employee cash or near cash income	18,845	1,051	1,310	388
Contributions to individual private pension plans	1,194	625	684	81
Cash benefits or losses from self-employment	14,054	221	259	1,080
Pension from individual private plans	3,946	10	11	1,145
Unemployment benefits	3,868	141	156	293
Old-age benefits	17,029	540	608	459
Survivors' benefits	7,632	21	21	893
Sickness benefits	2,780	66	85	490
Disability benefits	11,220	64	68	893
Education-related allowances	1,873	54	58	321
Gross income components at personal level				
Employee cash or near cash income	27,303	773	1,310	659
Contributions to individual private pension plans	1,194	625	684	81
Cash benefits or losses from self-employment	18,824	1	259	1,377
Pension from individual private plans	4,488	9	11	1,289
Unemployment benefits	3,908	141	156	304
Old-age benefits	21,980	298	608	701
Survivors' benefits	9,650	9	21	1,186
Sickness benefits	3,437	25	85	565
Disability benefits	13,886	40	68	1,191
Education-related allowances	1,873	54	58	321

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Weighted by db090 at household level and pb050 at personal level

Table 8: Mean, total number of observations (before and after imputation) and standard error for income components 2010 (households & persons, weighted mean, R3/07)

	Mean	Number of observations		Standard error
		Before imputation	After imputation	
Total household gross income	48,437	352	1,170	1,218
Total disposable household income	35,717	828	1,170	811
Total disposable household income before social transfers other than old-age and survivors' benefits	32,405	831	1,159	811
Total disposable household income before social transfers including old-age and survivors' benefits	25,111	829	1,115	882
Net income components at household level				
Income from rental of a property or land	12,179	72	74	3,286
Family/child related allowances	5,296	441	444	186
Social exclusion not elsewhere classified	2,382	74	78	493
Housing allowances	1,515	65	70	141
Regular inter-household cash transfer received	4,331	101	110	499
Interest, dividends, profit from capital investments	698	785	942	97
Income received by people aged under 16	1,115	18	18	213
Regular inter-household cash transfer paid	3,875	140	146	342
Repayments/receipts for tax adjustment	702	619	638	63
Value of goods produced for own consumption	-334	56	59	127
Gross income components at household level				
Income from rental of a property or land	13,834	0	74	3,490
Family/child related allowances	5,296	441	444	186
Social exclusion not elsewhere classified	2,382	74	78	493
Housing allowances	1,515	65	70	141
Regular inter-household cash transfer received	4,331	101	110	499
Interest repayments on mortgage	872	785	942	121
Income received by people aged under 16	1,253	0	18	279
Regular inter-household cash transfer paid	3,875	140	146	342
Tax on Income and Social Contributions	12,411	352	1,155	448
Value of goods produced for own consumption	702	56	59	127
Net income components at personal level				
Employee cash or near cash income	19,007	1,070	1,233	432
Contributions to individual private pension plans	1,173	568	603	58
Cash benefits or losses from self-employment	13,202	217	247	1,290
Pension from individual private plans	7,862	11	12	1,995
Unemployment benefits	3,861	157	164	287
Old-age benefits	17,173	502	569	415
Survivors' benefits	6,765	19	21	763
Sickness benefits	2,276	56	70	338
Disability benefits	12,352	73	74	795
Education-related allowances	2,066	41	44	470
Gross income components at personal level				
Employee cash or near cash income	27,211	658	1,233	715
Contributions to individual private pension plans	1,173	568	603	58
Cash benefits or losses from self-employment	18,663	3	247	1,837
Pension from individual private plans	8,833	4	12	2,202
Unemployment benefits	3,880	156	164	290
Old-age benefits	22,152	197	569	623
Survivors' benefits	8,429	9	21	1,025
Sickness benefits	2,645	17	70	373
Disability benefits	14,840	36	74	1,049
Education-related allowances	2,066	41	44	470

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Weighted by db090 at household level and pb050 at personal level

Table 9: Mean, total number of observations (before and after imputation) and standard error for income components of the cross-sectional component 2010 (households & persons, weighted)

	Mean	Number of observations		Standard error
		Before imputation	After imputation	
Total household gross income	50,204	2,152	6,188	614
Total disposable household income	36,554	4,685	6,188	381
Total disposable household income before social transfers other than old-age and survivors' benefits	33,668	4,666	6,097	382
Total disposable household income including old-age and survivors' benefits	26,448	4,561	5,807	420
Net income components at household level				
Income from rental of a property or land	9,710	368	384	1,024
Family/child related allowances	5,344	2,081	2,089	85
Social exclusion not elsewhere classified	1,760	323	332	196
Housing allowances	1,551	303	324	64
Regular inter-household cash transfer received	4,447	526	548	228
Interest, dividends, profit from capital investments	647	4,031	4,702	57
Income received by people aged under 16	2,752	68	71	456
Regular inter-household cash transfer paid	3,877	664	695	159
Repayments/receipts for tax adjustment	-349	3,029	3,078	34
Value of goods produced for own consumption	644	276	288	74
Gross income components at household level				
Income from rental of a property or land	11,601	0	384	1,175
Family/child related allowances	5,344	2,081	2,089	85
Social exclusion not elsewhere classified	1,760	323	332	196
Housing allowances	1,551	303	324	64
Regular inter-household cash transfer received	4,447	526	548	228
Interest repayments on mortgage	808	4,031	4,702	72
Income received by people aged under 16	2,925	0	71	515
Regular inter-household cash transfer paid	3,877	664	695	159
Tax on Income and Social Contributions	13,477	2,128	6,089	282
Value of goods produced for own consumption	644	276	288	74
Net income components at personal level				
Employee cash or near cash income	19,130	5,669	6,385	233
Contributions to individual private pension plans	1,104	2,930	3,117	25
Cash benefits or losses from self-employment	14,181	1,176	1,355	523
Pension from individual private plans	5,583	46	50	913
Unemployment benefits	4,125	834	876	126
Old-age benefits	17,027	2,740	3,013	184
Survivors' benefits	7,588	134	145	434
Sickness benefits	2,072	305	361	140
Disability benefits	12,247	299	310	421
Education-related allowances	2,257	190	206	205
Gross income components at personal level				
Employee cash or near cash income	27,529	3,638	6,385	396
Contributions to individual private pension plans	1,104	2,930	3,117	25
Cash benefits or losses from self-employment	21,630	21	1,355	998
Pension from individual private plans	5,963	21	50	948
Unemployment benefits	4,146	830	876	128
Old-age benefits	21,812	1,283	3,013	268
Survivors' benefits	9,797	44	145	619
Sickness benefits	2,588	137	361	179
Disability benefits	14,805	163	310	565
Education-related allowances	2,257	190	206	205

Source: Statistics Austria, EU-SILC cross-sectional sample 2010.

Weighted by db090 at household level and pb040 at personal level

Table 10: Mean, number of observations (before and after imputations) and standard error for the equivalised disposable income 2007 (weighted, R3/07)

Equivalised disposable income	Mean	Number of observations		Standard error	S.E. / Mean
		Before imputation	After imputation		%
By household size					
1 household member	19,547	499	655	704	3.6
2 household members	22,398	880	1,248	647	2.9
3 household members	21,517	645	1,077	649	3.0
4 and more household members	18,776	1,285	2,189	502	2.7
By age groups					
< 25 years	18,243	999	1,647	372	2.0
25 - 34 years	20,221	364	615	650	3.2
35 - 44 years	21,195	513	867	665	3.1
45 - 54 years	22,696	473	723	767	3.4
55 - 64 years	21,737	380	555	699	3.2
65 + years	20,232	580	762	582	2.9
By sex					
Male	20,963	1,571	2,479	383	1.8
Female	19,770	1,738	2,690	299	1.5
Total	20,352	3,309	5,169	310	1.5

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Weighted by rb060

Table 11: Mean, number of observations (before and after imputations) and standard error for the equivalised disposable income 2008 (weighted, R3/07)

Equivalised disposable income	Mean	Number of observations		Standard error	S.E. / Mean
		Before imputation	After imputation		%
By household size					
1 household member	19,888	329	439	549	2.8
2 household members	23,115	585	836	688	3.0
3 household members	22,083	480	738	676	3.1
4 and more household members	21,286	891	1,536	1,284	6.0
By age groups					
< 25 years	20,392	704	1,141	871	4.3
25 - 34 years	20,504	248	372	705	3.4
35 - 44 years	21,808	393	616	898	4.1
45 - 54 years	25,225	299	518	1,010	4.0
55 - 64 years	22,318	252	364	703	3.2
65 + years	20,876	389	538	610	2.9
By sex					
Male	22,079	1,089	1,705	606	2.7
Female	21,328	1,196	1,844	523	2.5
Total	21,694	2,285	3,549	546	2.5

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Weighted by rb060

Table 12: Mean, number of observations (before and after imputations) and standard error for the equivalised disposable income 2009 (weighted, R3/07)

Equivalised disposable income	Mean	Number of observations		Standard error	S.E. / Mean
		Before imputation	After imputation		%
By household size					
1 household member	20,435	294	386	646	3.2
2 household members	23,748	522	729	663	2.8
3 household members	23,999	368	593	828	3.5
4 and more household members	20,901	681	1,243	613	2.9
By age groups					
< 25 years	20,669	548	933	465	2.2
25 - 34 years	21,345	193	279	729	3.4
35 - 44 years	22,389	323	503	631	2.8
45 - 54 years	25,095	257	445	748	3.0
55 - 64 years	23,651	203	308	882	3.7
65 + years	21,513	341	483	683	3.2
By sex					
Male	22,785	902	1,409	426	1.9
Female	21,684	963	1,542	347	1.6
Total	22,216	1,865	2,951	350	1.6

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Weighted by rb060

Table 13: Mean, number of observations (before and after imputations) and standard error for the equivalised disposable income 2010 (weighted, R3/07)

Equivalised disposable income	Mean	Number of observations		Standard error	S.E. / Mean
		Before imputation	After imputation		%
By household size					
1 household member	20,599	270	360	588	2.9
2 household members	24,639	527	695	786	3.2
3 household members	25,152	313	489	1,010	4.0
4 and more household members	21,423	714	1,158	703	3.3
By age groups					
< 25 years	21,450	535	843	571	2.7
25 - 34 years	21,823	166	235	802	3.7
35 - 44 years	23,264	304	446	721	3.1
45 - 54 years	25,860	277	424	984	3.8
55 - 64 years	24,904	216	294	961	3.9
65 + years	21,311	326	460	661	3.1
By sex					
Male	23,223	878	1,294	463	2.0
Female	22,575	946	1,408	434	1.9
Total	22,889	1,824	2,702	406	1.8

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Weighted by rb060

Table 14: Mean, number of observations (before and after imputations) and standard error for the equivalised disposable income for the cross-sectional component 2010 (weighted)

Equivalised disposable income	Mean	Number of observations		Standard error	S.E. / Mean
		Before imputation	After imputation		%
By household size					
1 household member	20,676	1,653	2,054	280	1.4
2 household members	25,213	3,194	4,154	340	1.3
3 household members	24,076	1,965	2,673	404	1.7
4 and more household members	22,334	3,456	5,204	440	2.0
By age groups					
< 25 years	21,691	2,841	4,024	360	1.7
25 - 34 years	22,438	1,160	1,545	390	1.7
35 - 44 years	23,721	1,696	2,283	339	1.4
45 - 54 years	25,970	1,619	2,214	412	1.6
55 - 64 years	24,839	1,207	1,665	404	1.6
65 + years	21,746	1,745	2,354	322	1.5
By sex					
Male	23,570	4,916	6,777	221	0.9
Female	22,764	5,352	7,308	238	1.0
Total	23,158	10,268	14,085	211	0.9

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Weighted by rb060

2.3. Non-sampling errors

2.3.1. Sampling frame and coverage errors

The sampling frame for the first wave of the longitudinal component (2007) was the ZMR. The ZMR is a continuously updated population register based on the registration of residence. The register is administered by the federal ministry of the Interior BMI (*Bundesministerium für Inneres*). Data from the ZMR are delivered quarterly to Statistics Austria. For the sampling procedure of EU-SILC 2007 the reference date of the ZMR was December 31st 2006. Addresses already selected for the EU-SILC 2004, EU-SILC 2005 or EU-SILC 2006 survey were excluded from the sampling frame.

The ZMR can be expected to provide the most up-to-date representation of the resident population of Austria. Nonetheless the sample contained obsolete units at the time of fieldwork, mainly due to changes that occurred after the sample had been drawn. These changes were for example persons who emigrated or died or persons who did not report changes of their main residence in time. Other units, such as newly built accommodations could not be included in the sampling frame.

The sampling frame was constructed from the ZMR data in quarterly intervals by aggregation of individuals to dwelling units. The entries of the ZMR comprise information on individuals and there is no key or link to identify all persons that are living in the same dwelling. So the connection of dwelling units had to be constructed by the individual address characteristics. The households constructed in this way are not always correct, mainly because of spelling errors or differences of the spelling of the addresses. However, the ZMR is regarded as the most reliable source for drawing representative samples and is also used in other surveys in Austria like the microcensus (labour force survey).

2.3.2. Measurement and processing errors

2.3.2.1. Measurement errors

Measurement errors are defined as the difference between the value of a variable (provided by the respondent) and the true but unknown value of a variable. These errors originate from four basic sources:

- the questionnaire (effects of the design, content and wording)
- the data collection method (effects of the modes of interviewing)
- the interviewer (effects of the interviewer on the response to a question including errors of the interviewer)
- the respondents (effects of the respondent on processing the question and retrieving a response)

The occurrence of these errors and their effects is almost unavoidable. However, Statistics Austria implemented various methods and procedures to reduce such effects and errors.

The original questionnaires were developed on the basis of the EU-SILC regulations and the EU-SILC doc 65 (Description of Target Variables: Cross-sectional and Longitudinal). They are annually adopted and revised according to changes of EUROSTATs requirements and feedback from interviewers or data checking procedures which indicated misinterpretations of particular items.

In 2007 the data collection was conducted mainly using the CAPI technique (Computer Assisted Personal Interviewing). A small sample of follow-up interviews (i.e. no interviews from rotational group R3/07) was interviewed using the CATI technique to assess the suitability of this technique for long and complex interviews as in EU-SILC. In EU-SILC 2008 the entire fieldwork was taken over by Statistics Austria. Hence the CAPI programming had to be done anew by Statistics Austria. The CATI programming was adapted from previous years' testing of the CATI-technique. In 2008 in rotational group R3/07 688 persons were interviewed with CATI, 1,322 persons with CAPI and 783 personal interviews were carried out with a proxy[16]. In 2009 1,160 CATI interviews, 642 CAPI interviews and 564 Proxy interviews[17] were conducted and in 2010 1,125 CATI interviews and 719 CAPI interviews were carried out, where the number of personal proxy interviews could be reduced to 368[18].

The questionnaire was up to 2007 only provided in German. To achieve higher response rates and understanding of migrant households, translations of the questionnaire in Turkish and Bosnian, Serbian and Croatian have been implemented since 2008. Native speaking CATI interviewers were available to conduct these interviews. Also CAPI interviewers could, e.g. by switching to the translation when needed, use the translation to solve problems

[16] 452 of these proxy interviews used CAPI and 331 used CATI.
[17] 167 of these proxy interviews were conducted with CAPI and 397 with CATI.
[18] Of these proxy interviews, 93 applied CAPI and 275 used CATI.

in understanding specific questions for those respondents that had in general sufficient German language abilities.

To reduce interviewer effects it was necessary to provide the interviewers with sufficient training and support. This helped to ensure that all respondents were interviewed under similar conditions as far as the interviewer behaviour was concerned. During 2007 the responsible fieldwork institute conducted the interviewer training in cooperation with the EU-SILC project team of Statistics Austria. At Statistics Austria 137 CAPI interviewers and 13 CATI interviewers participated in the training sessions. Given that in 2008 Statistics Austria conducted the whole fieldwork, all interviews were carried out by Statistics Austria. Statistics Austria conducted one day long training sessions for CAPI interviewers that had not yet worked for the EU-SILC survey and half day training sessions for experienced EU-SILC CAPI interviewers. The short session concentrated on changes compared to the previous survey and the module. Half day training sessions were also conducted with CATI interviewers.
Using the CAPI mode 158 interviewers collected information for the EU-SILC 2008 survey all over Austria. 46 telephone interviewers conducted follow-up CATI interviews. In EU-SILC 2009 162 interviewers were engaged in CAPI interviews and 45 interviewers carried out surveys with the CATI technique and in 2010 161 CAPI interviewers and 13 CATI interviewers were involved in the fieldwork of EU-SILC.

Table 15 below refers only to those persons interviewed in all four waves. In 2008 the rate of proxy interviews rose considerably to 24.2% and decreased slightly in 2009 to 21.6%. The higher proxy rates are connected to the usage of CATI interviews since 2008. In 2008 42.3% and in 2009 70.4% of the proxy interviews were carried out with the CATI technique. In 2010 the proxy rate could be reduced to 16.1% which was mainly due to better instructions of the interviewers in which cases proxy interviews are allowed and encouraging interviewers to make appointments with respondents in paid employment, since persons working have a higher probability for a proxy interview.

As in the last years, the ratio of proxy interviews varied considerably with the basic activity status of the respondent for whom a proxy interview had to be conducted. Retired and unemployed persons were more likely to give a personal interview (and/or were more accessible for interviews), than people in employment or self-employment. However, in 2010 the proxy rate for persons working could be reduced notably, because of the abovementioned better instructions of interviewers.

Table 15: Distribution of proxy interviews by activity status and year (persons interviewed in all four waves of R3/07)

	CAPI		CATI		Proxy Interview		Total	
2007								
	N	%	N	%	N	%	N	%
Working	900	84	0	0.0	177	16.4	1,077	100.0
Unemployed	55	87	0	0.0	8	12.7	63	100.0
Retired	464	90	0	0.0	53	10.3	517	100.0
Other	277	81	0	0.0	66	19.2	343	100.0
TOTAL	1,696	85	0	0.0	304	15.2	2,000	100.0
2008								
	N	%	N	%	N	%	N	%
Working	508	47.0	311	28.8	262	24.2	1,081	100.0
Unemployed	32	65.3	8	16.3	9	18.4	49	100.0
Retired	284	51.2	182	32.8	89	16.0	555	100.0
Other	141	41.3	70	20.5	130	38.1	341	100.0
TOTAL	965	47.6	571	28.2	490	24.2	2,026	100.0
2009								
	N	%	N	%	N	%	N	%
Working	266	24.5	583	53.6	238	21.9	1,087	100.0
Unemployed	28	37.3	31	41.3	16	21.3	75	100.0
Retired	201	34.8	289	50.1	87	15.1	577	100.0
Other	83	24.7	146	43.5	107	31.8	336	100.0
TOTAL	578	27.9	1,049	50.6	448	21.6	2,075	100.0
2010								
	N	%	N	%	N	%	N	%
Working	343	31.4	581	53.2	169	15.5	1,093	100.0
Unemployed	26	44.1	24	40.7	9	15.3	59	100.0
Retired	215	36.0	302	50.6	80	13.4	597	100.0
Other	101	27.2	186	50.1	84	22.6	371	100.0
TOTAL	685	32.3	1,093	51.6	342	16.1	2,120	100.0

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Activity status = recoded variable pl031

2.3.2.2. Processing errors

As already during the fieldwork, checking of data quality is an important part of the post-data-collection editing process. Basic principles of this process are standardisation and transparency. Hence, all relevant tasks are included in a predefined process and data editing rules are generalized for subgroups to avoid single case solutions. Transparency of data changes is ensured by documentation such as programme code, copies of data files at various stages, flag variables for the collected variables and written documentations and descriptions.

Flags used internally for collected Austrian income variables are:

-2	not applicable
-1	no answer and not (yet) imputed
1	value according to survey
2	value from category imputation
3	value from net-gross or gross-net conversion
4	value logically deduced
5	value statistically imputed with longitudinal method
6	value statistically imputed with cross-sectional method
7	value from survey was corrected
8	value computed from a monthly income (this code applies only to variables of yearly income)

The data editing process consists of several checking procedures and the respective solutions:

- Assessment of unit and item non-response on household level: Households with too much lacking information are not included in the final database.
- Formal data checks (e.g. checking of completeness of data copies, correctness of routings, ranges of entered values): If required new data copies are made. Formal errors in the dataset are either corrected according to the formal requirements or in case of missing data labelled to be imputed later.
- Cross-sectional and longitudinal plausibility checks: Detected implausible values are either recoded, imputed or – for income variables – corrected through net-gross or gross-net conversion.

Imputation and weighting complete the data editing process.

With the final datasets on the macro-level the distribution of income variables and indicators are checked with various data sources (previous EU-SILC waves, ECHP, Microcensus, LFS, HBS, tax statistics and national accounts) to identify implausible distributions due to errors in the data editing process.

Before transmitting the longitudinal datasets to EUROSTAT the EUROSTAT SAS checking programmes were run to detect errors in the computation and coding of target variables. Those required mostly formal corrections as at that point all checking and editing regarding content has already been implemented earlier in the editing process. Cases which were identified by the checking programme as probably implausible but were considered correct were commented and sent to EUROSTAT with the first data transmission.

2.3.3. Non-response errors

2.3.3.1. Achieved sample size

Table 16: Sample size and accepted interviews (R3/07)

	2007	2008	2009	2010
Accepted household interviews	2,124	1,468	1,257	2,010
Personal Interview accepted				
Number of persons 16 years and older	4,058	2,852	2,399	2,224
Sample Persons	4,058	2,788	2,327	2,093
Co-residents	0	64	72	131

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

2.3.3.2. Unit non-response

Table 17: Indicators of unit non-response (R3/07)

	2007
Address successfully contacted	3,263
Valid addresses selected	3,274
Ra - address contact rate %	99.7%
Number of household interviews completed and accepted for the database	2,124
Number of households at contacted address	3,263
Rh - proportion of completed interviews %	65.1%
NRh - HH non-response rate %	34.9%
Personal interviews completed	4,017
number of eligible individuals	4,058
Rp - individual response rate %	99.0%
NRp - individual non-response rate %	1.0%
Overall individual non-response rate *NRp %	35.8%

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Ra is the ratio of the number of addresses successfully completed to the number of valid addresses selected.

Rh is the ratio of the number of household interviews completed and accepted for the database to the number of eligible households at the contacted address.

Rp is the ratio of the number of personal interviews completed to the number of eligible individuals in the households whose interviews where completed and accepted.

*NRp is the overall individual non-response rate which is computed as follows: *NRp% = (1 – Ra*Rh*Rp) * 100

Table 18: Household response rate: Comparison of result codes between wave 2 and wave 1 (R3/07)

			Sample outcome in wave 2 - 2008											Total
			DB130 = 11											
			DB135 = 1	DB135 = 2	DB120 = 22	DB130 = 22	DB130 = 23	DB130 = 24	DB130 = 21	DB120=21	NC	DB110 = 10	DB120 = 23	
Sample outcome in wave 1 - 2007														
2007	DB130 = 11	DB135 = 1	1,442	0	0	105	21	0	222	26	62	0	0	1,878*
		DB135 = 2	0	0	0	0	0	0	0	0	0	0	0	0
	DB120 = 21													0
	DB120 = 22													0
	DB120 = 23													0
	DB130 = 21													0
	DB130 = 22													0
	DB130 = 23													0
	DB130 = 24													0
	Total		1,442	0	0	105	21	0	222	26	62	0	0	1,878*
New Households in wave 2 - 2008														
2008		DB110 = 8	26	0	0	11	1	0	13	26	NA	NA	0	77
		DB110 = 9	0	0	0	0	0	0	0	0	NA	NA	0	0
Total			1,468	0	0	116	22	0	235	52	62	0	0	1,955

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

NC: Not contacted; db110 in (3,4,5,6,7,11)

*In 2008 the number of follow-up households was reduced to 1,878 households. Compare: Intermediate quality report 2008 ch. 2.1.3

Response rates for households wave 2 and wave 1 (R3/07):

wave response rate	0.751	Ratio of successfully interviewed households which were followed up from wave 2 to wave 3 to all followed up housholds in wave 3.
long. follow up rate	0.835	Percentage of contacted households within the households received into wave 3 from wave 2, excluding those out of scope or non-existent.
follow-up ratio	0.855	Number of contacted households in comparison to the number of households received for follow-up at wave 3 from wave 2.
achieved sample size ratio	0.782	Ratio of the number of households accepted for the database in wave 3 to the number of households accepted for the database in wave 2.

Table 19: Household response rate: Comparison of result codes between wave 3 and wave 2 (R3/07)

			Sample outcome in wave 3 - 2009											
			DB130 = 11											
			DB135 = 1	DB135 = 2	DB120 = 22	DB130 = 22	DB130 = 23	DB130 = 24	DB130 = 21	DB120=21	NC	DB110 = 10	DB120 = 23	
Sample outcome in wave 2 - 2008														
2008	DB130 = 11	DB135 = 1	1,231	0	0	64	10	0	133	8	20	0	0	1,466*
		DB135 = 2	0	0	0	0	0	0	0	0	0	0	0	0
	DB120 = 22													0
	DB130 = 22													0
	DB130 = 23													0
	DB130 = 24													0
	Total		1,231	0	0	64	10	0	133	8	20	0	0	1,466
New Households in wave 3 - 2009														
2009		DB110 = 8	26	0	0	10	1	1	11	5	NA	NA	0	54
		DB110 = 9	0	0	0	0	0	0	0	0	NA	NA	0	0
Total			1,257	0	0	74	11	1	144	13	20	0	0	1,520

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

NC: Not contacted; db110 in (3,4,5,6,7,11)

*Excluding two addresses which were lost during data editing.

Response rates for households wave 3 and wave 2 (R3/07):

wave response rate	0.827	Ratio of successfully interviewed households which were followed up from wave 2 to wave 3 to all followed up housholds in wave 3.
long follow up rate	0.890	Percentage of contacted households within the households received into wave 3 from wave 2, excluding those out of scope or non-existent.
follow-up ratio	0.916	Number of contacted households in comparison to the number of households received for follow-up at wave 3 from wave 2.
achieved sample size ratio	0.787	Ratio of the number of households accepted for the database in wave 3 to the number of households accepted for the database in wave 2.

Table 20: Household response rate: Comparison of result codes between wave 4 and wave 3 (R3/07)

			Sample outcome in wave 4 - 2010											Total
			DB130 = 11											
			DB135 = 1	DB135 = 2	DB120 = 22	DB130 = 22	DB130 = 23	DB130 = 24	DB130 = 21	DB120=21	NC	DB110 = 10	DB120 = 23	
Sample outcome in wave 3 - 2009														
2009	DB130 = 11	DB135 = 1	1,160	0	1	13	5	6	61	4	7	0	0	1,257
		DB135 = 2	0	0	0	0	0	0	0	0	0	0	0	0
	DB120 = 22													0
	DB130 = 22													0
	DB130 = 23													0
	DB130 = 24													0
	Total		1,160	0	1	13	5	6	61	4	7	0	0	1,257
New Households in wave 4 - 2010														
2010		DB110 = 8	10	0	1	6	0	0	4	27	NA	NA	0	48
		DB110 = 9	0	0	0	0	0	0	0	0	NA	NA	0	0
Total			1,170	0	2	19	5	6	65	31	7	0	0	1,305

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

NC: Not contacted; db110 in (3,4,5,6,7,11)

Response rates for households wave 4 and wave 3 (R3/07):

wave response rate	0.897	Ratio of successfully interviewed households which were followed up from wave 2 to wave 3 to all followed up housholds in wave 3.
long follow up rate	0.943	Percentage of contacted households within the households received into wave 3 from wave 2, excluding those out of scope or non-existent.
follow-up ratio	0.956	Number of contacted households in comparison to the number of households received for follow-up at wave 3 from wave 2.
achieved sample size ratio	0.787	Ratio of the number of households accepted for the database in wave 3 to the number of households accepted for the database in wave 2.

Table 21: Personal Interview outcome in wave 2 (R3/07)

		2008												
				Not completed because of										
		RB250 = 11,12,13	RB250=14 *	RB250 = 21	RB250 = 22	RB250 = 23	RB250 = 31	RB250 = 32	RB250 = 33	HHnc HHnc1	HHnc2	Pn	Pl	TOTAL
Row	*Sample persons forwarded from last wave*													
1	RB110 = 1-2	2659	52	0	0	0	0	0	0					2711
2	RB110 = 6													14
3	RB110 = -1													0
4	RB120 = 2													3
5	RB120 = 3													8
6	RB120 = 4													2
7	DB135 = 2 or -1, or DB110 = 7, or DB120 = 21-23 or -1, or DB130 == 21-24 or -1													0
8	DB110 = 3-6													0
	New Sample Persons													
9	Reached age 16	46	2	0	0	0	0	0	0	0	0	0	0	48
10	Sample additions	0	0	0	0	0	0	0	0					0
	Non-Sample persons 16+													
11	From wave 1 - 2007	0	0	0	0	0	0	0	0	0	0	0	0	0
	From wave 2 - 2008	59	5	0	0	0	0	0	0	0	0	0	0	64
	Sample persons not forwarded from last wave (excluded died or not eligible according to tracing rules)													
13	From 2007													32
Sum of Rows														
1+3+6+7+9+10		2705	54	0	0	0	0	0	0	0	0	0	0	2761
1+3+6+7+9+10+13		2705	54	0	0	0	0	0	0	0	0	0	0	2793
1+3+6+7+9+10+11		2764	59	0	0	0	0	0	0	0	0	0	0	2825

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

* Interviews not completed, though contact was made, data completed by imputation

Response rates for persons wave 2 and wave 1 (R3/07):

wave response rate of sample persons	0.980	achieved sample size ratio for sample persons	0.743
wave response rate of co-residents	n.a.	achieved sample size ratio for sample persons and co-residents	0.760
longitudinal follow-up rate	0.968	achieved sample size ratio for co-residents selected in previous wave	n.a.
R(RB250=14)	0.019	response rate for non-sample persons	0.922

Table 22: Personal Interview outcome in wave 3 (R3/07)

		2009												
				Not completed because of										
		RB250 = 11,12,13	RB250=14 *	RB250 = 21	RB250 = 22	RB250 = 23	RB250 = 31	RB250 = 32	RB250 = 33	HHnc HHnc1	HHnc HHnc2	Pn	Pl	TOTAL
Row	*Sample persons forwarded from last wave*													
1	RB110 = 1-2	2231	27	0	0	0	0	0	0					2258
2	RB110 = 6													11
3	RB110 = -1													0
4	RB120 = 2													5
5	RB120 = 3													0
6	RB120 = 4													0
7	DB135 = 2 or -1, or DB110 = 7, or DB120 = 21-23 or -1, or DB130 == 21-24 or -1													5
8	DB110 = 3-6													0
	New Sample Persons													
9	Reached age 16	37	1	0	0	0	0	0	0	0	0	0	0	38
10	Sample additions	0	0	0	0	0	0	0	0					0
	Non-Sample persons 16+													
11	From wave 2 - 2008	35	2	0	0	0	0	0	0	0	0	0	0	37
	From wave 3 - 2009	32	3	0	0	0	0	0	0	0	0	0	0	35
	Sample persons not forwarded from last wave (excluded died or not eligible according to tracing rules)													
13	From 2008													18
Sum of Rows														
1+3+6+7+9+10		2268	28	0	0	0	0	0	0	0	0	0	0	2301
1+3+6+7+9+10+13		2268	28	0	0	0	0	0	0	0	0	0	0	2319
1+3+6+7+9+10+11		2300	31	0	0	0	0	0	0	0	0	0	0	2336

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

* Interviews not completed, though contact was made, data completed by imputation

Response rates for persons wave 3 and wave 2 (R3/07):

wave response rate of sample persons	0.986	achieved sample size ratio for sample persons	0.758
wave response rate of co-residents	0.986	achieved sample size ratio for sample persons and co-residents	0.768
longitudinal follow-up rate	0.978	achieved sample size ratio for co-residents selected in previous wave	0.593
R(RB250=14)	0.012	response rate for non-sample persons	0.931

Table 23: Personal Interview outcome in wave 4 (R3/07)

		2010												
			Not completed because of											
		RB250 = 11,12,13	RB250=14 *	RB250 = 21	RB250 = 22	RB250 = 23	RB250 = 31	RB250 = 32	RB250 = 33	HHnc HHnc1	HHnc HHnc2	Pn	Pl	TOTAL
Row	*Sample persons forwarded from last wave*													
1	RB110 = 1-2	2071	9	0	0	0	0	0	0					2080
2	RB110 = 6													4
3	RB110 = -1													0
4	RB120 = 2													3
5	RB120 = 3													3
6	RB120 = 4													2
7	DB135 = 2 or -1, or DB110 = 7, or DB120 = 21-23 or -1, or DB130 == 21-24 or -1													2
8	DB110 = 3-6													0
	New Sample Persons													
9	Reached age 16	40	0	0	0	0	0	0	0	0	0	0	0	40
10	Sample additions	0	0	0	0	0	0	0	0					0
	Non-Sample persons 16+													
11	From wave 3 - 2009	52	3	0	0	0	0	0	0	0	0	0	0	55
	From wave 4 - 2010	76	0	0	0	0	0	0	0	0	0	0	0	76
	Sample persons not forwarded from last wave (excluded died or not eligible according to tracing rules)													
13	From 2009													17
Sum of Rows														
1+3+6+7+9+10		2111	9	0	0	0	0	0	0	0	0	0	0	2124
1+3+6+7+9+10+13		2111	9	0	0	0	0	0	0	0	0	0	0	2141
1+3+6+7+9+10+11		2187	9	0	0	0	0	0	0	0	0	0	0	2200

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

* Interviews not completed, though contact was made, data completed by imputation

Response rates for persons wave 4 and wave 3 (R3/07):

wave response rate of sample persons	0.994	achieved sample size ratio for sample persons	0.758
wave response rate of co-residents	0.994	achieved sample size ratio for sample persons and co-residents	0.785
longitudinal follow-up rate	0.986	achieved sample size ratio for co-residents selected in previous wave	0.881
R(RB250=14)	0.004	response rate for non-sample persons	0.977

2.3.3.3. Distribution of households by household status (DB110), by record of contact at the address (DB120), by household questionnaire result (DB130) and by household interview acceptance (DB135)

Table 24: Distribution of households by household status (R3/07)

		db110										
	Total	1	2	3	4	5	6	7	8	9	10	11
2007												
Total	3,380	0	0	0	0	0	0	0	0	3,380	0	0
%	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0
2008												
Total	1,943	1735	81	4	2	12	0	0	65	0	0	44
%	100.0	89.3	4.2	0.2	0.1	0.6	0.0	0.0	3.3	0.0	0.0	2.3
2009												
Total	1,520	1365	81	3	2	8	2	0	54	0	0	5
%	100.0	89.8	5.3	0.2	0.1	0.5	0.1	0.0	3.6	0.0	0.0	0.3
2010												
Total	1,305	1202	48	1	2	1	3	0	48	0	0	0
%	100.0	92.1	3.7	0.1	0.2	0.1	0.2	0.0	3.7	0.0	0.0	0.0

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Table 25: Distribution of households by contact at address (R3/07)

		db120					
	Total	11	21	22	23	24	Missing
2007							
Total	3,380	3263	9	2	106	0	0
%	100.0	96.5	0.3	0.1	3.1	0.0	0.0
2008							
Total	1,943	106	40	0	0	0	1,797
%	100.0	5.5	2.1	0.0	0.0	0.0	92.5
2009							
Total	1,520	122	13	0	0	0	1,385
%	100.0	8.0	0.9	0.0	0.0	0.0	91.1
2010							
Total	1,305	63	31	2	0	0	1,209
%	100.0	4.8	2.4	0.2	0.0	0.0	92.6

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Table 26: Distribution of households by household questionnaire result (R3/07)

		db130					
	Total	11	21	22	23	24	Missing
2007							
Total	3,380	2,124	925	145	46	23	117
%	100.0	62.8	27.4	4.3	1.4	0.7	3.5
2008							
Total	1,943	1,468	235	116	22	0	102
%	100.0	75.6	12.1	6.0	1.1	0.0	5.2
2009							
Total	1,520	1,257	144	74	11	1	33
%	100.0	82.7	9.5	4.9	0.7	0.1	2.2
2010							
Total	1,305	1170	65	19	5	6	40
%	100.0	89.7	5.0	1.5	0.4	0.5	3.1

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Table 27: Distribution of households by household interview acceptance (R3/07)

		db135		
	Total	1	2	Missing
2007				
Total	3,380	2,124	0	1,256
%	100.0	62.8	0.0	37.2
2008				
Total	1,943	1,468	0	475
%	100.0	75.6	0.0	24.4
2009				
Total	1,520	1,257	0	263
%	100.0	82.7	0.0	17.3
2010				
Total	1,305	1,170	0	135
%	100.0	89.7	0.0	10.3

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

2.3.3.4. Distribution of persons for membership status

The following tables are provided for the second, third and fourth wave of the EU-SILC longitudinal component.

Table 28: Distribution of persons by membership status (R3/07)

	Total	Current household members				Not current household members		
		RB110 = 1	RB110 = 2	RB110 = 3	RB110 = 4	RB110 = 5	RB110 = 6	RB110 = 7
2008	3,737	3,481	32	69	38	98	14	5
%	100.0	93.1	0.9	1.8	1.0	2.6	0.4	0.1
2009	3,147	2,939	36	41	27	84	12	8
%	100.0	93.4	1.1	1.3	0.9	2.7	0.4	0.3
2010	2,904	2,737	10	46	30	73	4	4
%	100.0	94.2	0.3	1.6	1.0	2.5	0.1	0.1

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Table 29: Distribution of persons moving out by variable RB120 (R3/07)

	RB110 = 5					
	RB120 = 1			Not current household members		
	Total	This person is a current household member of another household this w ave	This person is not a current household member	RB120 = 2	RB120 = 3	RB120 = 4
2008	98	32	48	3	12	3
%	100	32.7	49.0	3.1	12.2	3.1
2009	84	29	49	5	0	1
%	100	34.5	58.3	6.0	0.0	1.2
2010	73	8	52	6	3	4
%	100	11.0	71.2	8.2	4.1	5.5

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

2.3.3.5. Item non-response

The following tables provide an overview of non-response on household and individual level. For every income component the total number of households/persons having received the component is given and a breakdown with regard to the completeness of the information is shown. The percentages next to the totals in the first column refer to the ratio of the number of households/persons having received an amount of the respective income component compared to the number of all completed household or personal interviews (i.e. DB135=1 or RB245 in [11;12;13;14]). The tables cover the dataset for each wave and for each wave the fraction interviewed in all four waves.

Table 30: Information on item non-response on household level – households 2007 (R3/07)

		Households having received an amount		Full information		Partial information		Missing information	
		Total	% of all interviewed households	Total	%	Total	%	Total	%
Household incomes									
HY010	Total household gross income	2,124	100.0	821	38.7	1,158	54.5	145	6.8
HY020	Total disposable household income	2,124	100.0	1,444	68.0	658	31.0	22	1.0
HY022	Total disposable household income before social transfers other than old-age and survivors' benefits	2,084	98.1	1,432	68.7	618	29.7	34	1.6
HY023	Total disposable household income including old-age and survivors' benefits	1,883	88.7	1,281	68.0	542	28.8	60	3.2
Net income components at household level									
HY040N	Income from rental of a property or land	109	5.1	107	98.2	0	0.0	2	1.8
HY050N	Family/child related allowances	793	37.3	791	99.7	2	0.3	0	0.0
HY060N	Social exclusion not elsewhere classified	88	4.1	87	98.9	0	0.0	1	1.1
HY070N	Housing allowances	98	4.6	97	99.0	1	1.0	0	0.0
HY080N	Regular inter-household cash transfer received	177	8.3	170	96.0	1	0.6	6	3.4
HY090N	Interest, dividends, profit from capital investments	1,132	53.3	885	78.2	42	3.7	205	18.1
HY110N	Income received by people aged under 16	29	1.4	27	93.1	0	0.0	2	6.9
HY130N	Regular inter-household cash transfer paid	160	7.5	152	95.0	5	3.1	3	1.9
HY145N	Repayments/receipts for tax adjustment	915	43.1	903	98.7	7	0.8	5	0.5
HY170N	Value of goods produced for own consumption	83	3.9	79	95.2	0	0.0	4	4.8
Gross income components at household level									
HY040G	Income from rental of a property or land	109	5.1	0	0.0	0	0.0	109	100.0
HY050G	Family/child related allowances	793	37.3	767	96.7	25	3.2	1	0.1
HY060G	Social exclusion not elsewhere classified	88	4.1	87	98.9	0	0.0	1	1.1
HY070G	Housing allowances	98	4.6	97	99.0	1	1.0	0	0.0
HY080G	Regular inter-household cash transfer received	177	8.3	170	96.0	1	0.6	6	3.4
HY090G	Interest, dividends, profit from capital investments	1,132	53.3	885	78.2	42	3.7	205	18.1
HY110G	Income received by people aged under 16	29	1.4	25	86.2	0	0.0	4	13.8
HY130G	Regular inter-household cash transfer paid	160	7.5	152	95.0	5	3.1	3	1.9
HY140G	Tax on Income and Social Contributions	2,073	97.6	896	43.2	1,110	53.5	67	3.2
HY170g	Value of goods produced for own consumption	83	3.9	79	95.2	0	0.0	4	4.8

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Table 31: Information on item non-response on household level – households 2008 (R3/07)

		Households having received an amount		Full information		Partial information		Missing information	
		Total	% of all interviewed households	Total	%	Total	%	Total	%
Household incomes									
HY010	Total household gross income	1,468	100.0	527	35.9	879	59.9	62	4.2
HY020	Total disposable household income	1,468	100.0	997	67.9	464	31.6	7	0.5
HY022	Total disposable household income before social transfers other than old-age and survivors' benefits	1,451	98.8	1,000	68.9	440	30.3	11	0.8
HY023	Total disposable household income including old-age and survivors' benefits	1,372	93.5	966	70.4	369	26.9	37	2.7
Net income components at household level									
HY040N	Income from rental of a property or land	76	5.2	75	98.7	0	0.0	1	1.3
HY050N	Family/child related allowances	585	39.9	582	99.5	2	0.3	1	0.2
HY060N	Social exclusion not elsewhere classified	60	4.1	60	100.0	0	0.0	0	0.0
HY070N	Housing allowances	78	5.3	76	97.4	0	0.0	2	2.6
HY080N	Regular inter-household cash transfer received	132	9.0	128	97.0	0	0.0	4	3.0
HY090N	Interest, dividends, profit from capital investments	1,117	76.1	978	87.6	47	4.2	92	8.2
HY110N	Income received by people aged under 16	32	2.2	28	87.5	0	0.0	4	12.5
HY130N	Regular inter-household cash transfer paid	154	10.5	153	99.4	1	0.6	0	0.0
HY145N	Repayments/receipts for tax adjustment	739	50.3	727	98.4	8	1.1	4	0.5
HY170N	Value of goods produced for own consumption	106	7.2	100	94.3	0	0.0	6	5.7
Gross income components at household level									
HY040G	Income from rental of a property or land	76	5.2	0	0.0	0	0.0	76	100.0
HY050G	Family/child related allowances	585	39.9	582	99.5	2	0.3	1	0.2
HY060G	Social exclusion not elsewhere classified	60	4.1	60	100.0	0	0.0	0	0.0
HY070G	Housing allowances	78	5.3	76	97.4	0	0.0	2	2.6
HY080G	Regular inter-household cash transfer received	132	9.0	128	97.0	0	0.0	4	3.0
HY090G	Interest, dividends, profit from capital investments	1,117	76.1	978	87.6	47	4.2	92	8.2
HY110G	Income received by people aged under 16	32	2.2	25	78.1	0	0.0	7	21.9
HY130G	Regular inter-household cash transfer paid	154	10.5	153	99.4	1	0.6	0	0.0
HY140G	Tax on Income and Social Contributions	1,450	98.8	590	40.7	845	58.3	15	1.0
HY170g	Value of goods produced for own consumption	106	7.2	100	94.3	0	0.0	6	5.7

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Table 32: Information on item non-response on household level – households 2009 (R3/07)

		Households having received an amount		Full information		Partial information		Missing information	
		Total	% of all interviewed households	Total	%	Total	%	Total	%
Household incomes									
HY010	Total household gross income	1,257	100.0	455	36.2	731	58.2	71	5.6
HY020	Total disposable household income	1,257	100.0	851	67.7	396	31.5	10	0.8
HY022	Total disposable household income before social transfers other than old-age and survivors' benefits	1,247	99.2	858	68.8	373	29.9	16	1.3
HY023	Total disposable household income including old-age and survivors' benefits	1,190	94.7	838	70.4	313	26.3	39	3.3
Net income components at household level									
HY040N	Income from rental of a property or land	75	6.0	70	93.3	1	1.3	4	5.3
HY050N	Family/child related allowances	481	38.3	477	99.2	4	0.8	0	0.0
HY060N	Social exclusion not elsewhere classified	69	5.5	65	94.2	2	2.9	2	2.9
HY070N	Housing allowances	66	5.3	64	97.0	1	1.5	1	1.5
HY080N	Regular inter-household cash transfer received	116	9.2	114	98.3	1	0.9	1	0.9
HY090N	Interest, dividends, profit from capital investments	922	73.3	753	81.7	71	7.7	98	10.6
HY110N	Income received by people aged under 16	19	1.5	19	100.0	0	0.0	0	0.0
HY130N	Regular inter-household cash transfer paid	136	10.8	132	97.1	2	1.5	2	1.5
HY145N	Repayments/receipts for tax adjustment	690	54.9	673	97.5	6	0.9	11	1.6
HY170N	Value of goods produced for own consumption	64	5.1	59	92.2	0	0.0	5	7.8
Gross income components at household level									
HY040G	Income from rental of a property or land	75	6.0	0	0.0	0	0.0	75	100.0
HY050G	Family/child related allowances	481	38.3	477	99.2	4	0.8	0	0.0
HY060G	Social exclusion not elsewhere classified	69	5.5	65	94.2	2	2.9	2	2.9
HY070G	Housing allowances	66	5.3	64	97.0	1	1.5	1	1.5
HY080G	Regular inter-household cash transfer received	116	9.2	114	98.3	1	0.9	1	0.9
HY090G	Interest, dividends, profit from capital investments	922	73.3	753	81.7	71	7.7	98	10.6
HY110G	Income received by people aged under 16	19	1.5	13	68.4	0	0.0	6	31.6
HY130G	Regular inter-household cash transfer paid	136	10.8	132	97.1	2	1.5	2	1.5
HY140G	Tax on Income and Social Contributions	1,245	99.0	491	39.4	734	59.0	20	1.6
HY170g	Value of goods produced for own consumption	64	5.1	59	92.2	0	0.0	5	7.8

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Table 33: Information on item non-response on household level – households 2010 (R3/07)

		Households having received an amount		Full information		Partial information		Missing information	
		Total	% of all interviewed households	Total	%	Total	%	Total	%
Household incomes									
HY010	Total household gross income	1,170	100.0	352	30.1	759	64.9	59	5.0
HY020	Total disposable household income	1,170	100.0	828	70.8	338	28.9	4	0.3
HY022	Total disposable household income before social transfers other than old-age and survivors' benefits	1,159	99.1	831	71.7	321	27.7	7	0.6
HY023	Total disposable household income including old-age and survivors' benefits	1,115	95.3	829	74.3	260	23.3	26	2.3
Net income components at household level									
HY040N	Income from rental of a property or land	74	6.3	72	97.3	0	0.0	2	2.7
HY050N	Family/child related allowances	444	37.9	441	99.3	3	0.7	0	0.0
HY060N	Social exclusion not elsewhere classified	78	6.7	74	94.9	2	2.6	2	2.6
HY070N	Housing allowances	70	6.0	65	92.9	3	4.3	2	2.9
HY080N	Regular inter-household cash transfer received	110	9.4	101	91.8	8	7.3	1	0.9
HY090N	Interest, dividends, profit from capital investments	942	80.5	785	83.3	72	7.6	85	9.0
HY110N	Income received by people aged under 16	18	1.5	18	100.0	0	0.0	0	0.0
HY130N	Regular inter-household cash transfer paid	146	12.5	140	95.9	4	2.7	2	1.4
HY145N	Repayments/receipts for tax adjustment	638	54.5	619	97.0	9	1.4	10	1.6
HY170N	Value of goods produced for own consumption	59	5.0	56	94.9	0	0.0	3	5.1
Gross income components at household level									
HY040G	Income from rental of a property or land	74	6.3	0	0.0	0	0.0	74	100.0
HY050G	Family/child related allowances	444	37.9	441	99.3	3	0.7	0	0.0
HY060G	Social exclusion not elsewhere classified	78	6.7	74	94.9	2	2.6	2	2.6
HY070G	Housing allowances	70	6.0	65	92.9	3	4.3	2	2.9
HY080G	Regular inter-household cash transfer received	110	9.4	101	91.8	8	7.3	1	0.9
HY090G	Interest, dividends, profit from capital investments	942	80.5	785	83.3	72	7.6	85	9.0
HY110G	Income received by people aged under 16	18	1.5	0	0.0	0	0.0	18	100.0
HY130G	Regular inter-household cash transfer paid	146	12.5	140	95.9	4	2.7	2	1.4
HY140G	Tax on Income and Social Contributions	1,155	98.7	352	30.5	794	68.7	9	0.8
HY170g	Value of goods produced for own consumption	59	5.0	56	94.9	0	0.0	3	5.1

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Table 34: Information on item non-response on individual level – persons 2007 (R3/07)

		Persons having received an amount		Full information		Partial information		Missing information	
		Total	%	Total	%	Total	%	Total	%
Net income components at personal level									
PY010N	Employee cash or near cash income	2,174	53.6	1,886	86.8	133	6.1	155	7.1
PY035N	Contributions to individual private pension plans	919	22.6	868	94.5	1	0.1	50	5.4
PY050N	Cash benefits or losses from self-employment	436	10.7	398	91.3	4	0.9	34	7.8
PY080N	Pension from individual private plans	19	0.5	18	94.7	0	0.0	1	5.3
PY090N	Unemployment benefits	289	7.1	262	90.7	22	7.6	5	1.7
PY100N	Old-age benefits	968	23.9	883	91.2	30	3.1	55	5.7
PY110N	Survivors' benefits	47	1.2	44	93.6	1	2.1	2	4.3
PY120N	Sickness benefits	92	2.3	87	94.6	0	0.0	5	5.4
PY130N	Disability benefits	105	2.6	104	99.0	1	1.0	0	0.0
PY140N	Education-related allowances	63	1.6	58	92.1	2	3.2	3	4.8
Gross income components at personal level									
PY010G	Employee cash or near cash income	2,174	53.6	1,528	70.3	150	6.9	496	22.8
PY035G	Contributions to individual private pension plans	919	22.6	868	94.5	1	0.1	50	5.4
PY050G	Cash benefits or losses from self-employment	436	10.7	11	2.5	22	5.0	403	92.4
PY080G	Pension from individual private plans	19	0.5	18	94.7	0	0.0	1	5.3
PY090G	Unemployment benefits	289	7.1	261	90.3	23	8.0	5	1.7
PY100G	Old-age benefits	968	23.9	562	58.1	176	18.2	230	23.8
PY110G	Survivor's benefits	47	1.2	15	31.9	16	34.0	16	34.0
PY120G	Sickness benefits	92	2.3	49	53.3	20	21.7	23	25.0
PY130G	Disability benefits	105	2.6	79	75.2	7	6.7	19	18.1
PY140G	Education-related allowances	63	1.6	58	92.1	2	3.2	3	4.8

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Table 35: Information on item non-response on individual level – persons 2008 (R3/07)

		Persons having received an amount		Full information		Partial information		Missing information	
		Total	%	Total	%	Total	%	Total	%
Net income components at personal level									
PY010N	Employee cash or near cash income	1,546	54.2	1,271	82.2	190	12.3	85	5.5
PY035N	Contributions to individual private pension plans	723	25.4	667	92.3	0	0.0	56	7.7
PY050N	Cash benefits or losses from self-employment	297	10.4	275	92.6	0	0.0	22	7.4
PY080N	Pension from individual private plans	14	0.5	11	78.6	0	0.0	3	21.4
PY090N	Unemployment benefits	171	6.0	161	94.2	5	2.9	5	2.9
PY100N	Old-age benefits	685	24.0	608	88.8	43	6.3	34	5.0
PY110N	Survivors' benefits	31	1.1	30	96.8	0	0.0	1	3.2
PY120N	Sickness benefits	84	2.9	70	83.3	6	7.1	8	9.5
PY130N	Disability benefits	86	3.0	79	91.9	5	5.8	2	2.3
PY140N	Education-related allowances	52	1.8	46	88.5	2	3.8	4	7.7
Gross income components at personal level									
PY010G	Employee cash or near cash income	1,546	54.2	925	59.8	156	10.1	465	30.1
PY035G	Contributions to individual private pension plans	723	25.4	667	92.3	0	0.0	56	7.7
PY050G	Cash benefits or losses from self-employment	297	10.4	5	1.7	9	3.0	283	95.3
PY080G	Pension from individual private plans	14	0.5	6	42.9	0	0.0	8	57.1
PY090G	Unemployment benefits	171	6.0	159	93.0	6	3.5	6	3.5
PY100G	Old-age benefits	685	24.0	335	48.9	110	16.1	240	35.0
PY110G	Survivor's benefits	31	1.1	13	41.9	6	19.4	12	38.7
PY120G	Sickness benefits	84	2.9	36	42.9	7	8.3	41	48.8
PY130G	Disability benefits	86	3.0	59	68.6	8	9.3	19	22.1
PY140G	Education-related allowances	52	1.8	46	88.5	2	3.8	4	7.7

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Table 36: Information on item non-response on individual level – persons 2009 (R3/07)

		Persons having received an amount		Full information		Partial information		Missing information	
		Total	%	Total	%	Total	%	Total	%
Net income components at personal level									
PY010N	Employee cash or near cash income	1,310	54.6	1,051	80.2	182	13.9	77	5.9
PY035N	Contributions to individual private pension plans	684	28.5	625	91.4	0	0.0	59	8.6
PY050N	Cash benefits or losses from self-employment	259	10.8	221	85.3	7	2.7	31	12.0
PY080N	Pension from individual private plans	11	0.5	10	90.9	0	0.0	1	9.1
PY090N	Unemployment benefits	156	6.5	141	90.4	5	3.2	10	6.4
PY100N	Old-age benefits	608	25.3	540	88.8	34	5.6	34	5.6
PY110N	Survivors' benefits	21	0.9	21	100.0	0	0.0	0	0.0
PY120N	Sickness benefits	85	3.5	66	77.6	3	3.5	16	18.8
PY130N	Disability benefits	68	2.8	64	94.1	2	2.9	2	2.9
PY140N	Education-related allowances	58	2.4	54	93.1	0	0.0	4	6.9
Gross income components at personal level									
PY010G	Employee cash or near cash income	1,310	54.6	773	59.0	172	13.1	365	27.9
PY035G	Contributions to individual private pension plans	684	28.5	625	91.4	0	0.0	59	8.6
PY050G	Cash benefits or losses from self-employment	259	10.8	1	0.4	6	2.3	252	97.3
PY080G	Pension from individual private plans	11	0.5	9	81.8	0	0.0	2	18.2
PY090G	Unemployment benefits	156	6.5	141	90.4	6	3.8	9	5.8
PY100G	Old-age benefits	608	25.3	298	49.0	89	14.6	221	36.3
PY110G	Survivor's benefits	21	0.9	9	42.9	4	19.0	8	38.1
PY120G	Sickness benefits	85	3.5	25	29.4	16	18.8	44	51.8
PY130G	Disability benefits	68	2.8	40	58.8	7	10.3	21	30.9
PY140G	Education-related allowances	58	2.4	54	93.1	0	0.0	4	6.9

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Table 37: Information on item non-response on individual level – persons 2010 (R3/07)

		Persons having received an amount		Full information		Partial information		Missing information	
		Total	%	Total	%	Total	%	Total	%
Net income components at personal level									
PY010N	Employee cash or near cash income	1,233	55.4	1,070	86.8	99	8.0	64	5.2
PY035N	Contributions to individual private pension plans	603	27.1	568	94.2	0	0.0	35	5.8
PY050N	Cash benefits or losses from self-employment	247	11.1	217	87.9	10	4.0	20	8.1
PY080N	Pension from individual private plans	12	0.5	11	91.7	1	8.3	0	0.0
PY090N	Unemployment benefits	164	7.4	157	95.7	3	1.8	4	2.4
PY100N	Old-age benefits	569	25.6	502	88.2	39	6.9	28	4.9
PY110N	Survivors' benefits	21	0.9	19	90.5	0	0.0	2	9.5
PY120N	Sickness benefits	70	3.1	56	80.0	0	0.0	14	20.0
PY130N	Disability benefits	74	3.3	73	98.6	0	0.0	1	1.4
PY140N	Education-related allowances	44	2.0	41	93.2	0	0.0	3	6.8
Gross income components at personal level									
PY010G	Employee cash or near cash income	1,233	55.4	658	53.4	91	7.4	484	39.3
PY035G	Contributions to individual private pension plans	603	27.1	568	94.2	0	0.0	35	5.8
PY050G	Cash benefits or losses from self-employment	247	11.1	3	1.2	4	1.6	240	97.2
PY080G	Pension from individual private plans	12	0.5	4	33.3	0	0.0	8	66.7
PY090G	Unemployment benefits	164	7.4	156	95.1	4	2.4	4	2.4
PY100G	Old-age benefits	569	25.6	197	34.6	104	18.3	268	47.1
PY110G	Survivor's benefits	21	0.9	9	42.9	2	9.5	10	47.6
PY120G	Sickness benefits	70	3.1	17	24.3	4	5.7	49	70.0
PY130G	Disability benefits	74	3.3	36	48.6	8	10.8	30	40.5
PY140G	Education-related allowances	44	2.0	41	93.2	0	0.0	3	6.8

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

2.4. Mode of data collection

Table 38: Distribution of household members by data status – all household members (16+) (R3/07)

	Total	RB250 = 11	RB250 = 12	RB250 = 14	RB250 = 21	RB250 = 23
2007						
Total	4,058	4,017	0	41	0	0
%	100.0	99.0	0.0	1.0	0.0	0.0
2008						
Total	2,852	2,793	0	59	0	0
%	100.0	97.9	0.0	2.1	0.0	0.0
2009						
Total	2,399	2,366	0	33	0	0
%	100.0	98.6	0.0	1.4	0.0	0.0
2010						
Total	2,224	2,212	0	12	0	0
%	100.0	99.5	0.0	0.5	0.0	0.0
2007-2010						
Total	11,533	11,388	0	145	0	0
%	100.0	98.7	0.0	1.3	0.0	0.0

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Table 39: Distribution of household members by data status – sample persons (16+) (R3/07)

	Total	RB250 = 11	RB250 = 12	RB250 = 14	RB250 = 21	RB250 = 23
2007						
Total	4,058	4,017	0	41	0	0
%	100.0	99.0	0.0	1.0	0.0	0.0
2008						
Total	2,788	2,734	0	54	0	0
%	100.0	98.1	0.0	1.9	0.0	0.0
2009						
Total	2,327	2,299	0	28	0	0
%	100.0	98.8	0.0	1.2	0.0	0.0
2010						
Total	2,093	2,084	0	9	0	0
%	100.0	99.6	0.0	0.4	0.0	0.0
2007-2010						
Total	11,266	11,134	0	132	0	0
%	100.0	98.8	0.0	1.2	0.0	0.0

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Table 40: Distribution of household members by data status – co-residents (16+) (R3/07)

	Total	RB250 = 11	RB250 = 12	RB250 = 14	RB250 = 21	RB250 = 23
2007						
Total	0	0	0	0	0	0
%	0.0	0.0	0.0	0.0	0.0	0.0
2008						
Total	64	59	0	5	0	0
%	100.0	92.2	0.0	7.8	0.0	0.0
2009						
Total	72	67	0	5	0	0
%	100.0	93.1	0.0	6.9	0.0	0.0
2010						
Total	131	128	0	3	0	0
%	100.0	97.7	0.0	2.3	0.0	0.0
2007-2010						
Total	267	254	0	13	0	0
%	100.0	95.1	0.0	4.9	0.0	0.0

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Table 41: Distribution of household members by type of interview– all household members (16+) (R3/07))

	Total	RB260 = 1	RB260 = 2	RB260 = 3	RB260 = 4	RB260 = 5
2007						
Total	4,017	0	3,275	0	0	742
%	100.0	0.0	81.5	0.0	0.0	18.5
2008						
Total	2,793	0	1,322	688	0	783
%	100.0	0.0	47.3	24.6	0.0	28.0
2009						
Total	2,366	0	642	1,160	0	564
%	100.0	0.0	27.1	49.0	0.0	23.8
2010						
Total	2,212	0	719	1,125	0	368
%	100.0	0.0	32.5	50.9	0.0	16.6
2007-2010						
Total	11,388	0	5,958	2,973	0	2,457
%	100.0	0.0	52.3	26.1	0.0	21.6

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Table 42: Distribution of household members by type of interview– sample persons (16+) (R3/07)

	Total	RB260 = 1	RB260 = 2	RB260 = 3	RB260 = 4	RB260 = 5
2007						
Total	4,017	0	3,275	0	0	742
%	100.0	0.0	81.5	0.0	0.0	18.5
2008						
Total	2,734	0	1,306	682	0	746
%	100.0	0.0	47.8	24.9	0.0	27.3
2009						
Total	2,299	0	626	1,140	0	533
%	100.0	0.0	27.2	49.6	0.0	23.2
2010						
Total	2,084	0	676	1,079	0	329
%	100.0	0.0	32.4	51.8	0.0	15.8
2007-2010						
Total	11,134	0	5,883	2,901	0	2,350
%	100.0	0.0	52.8	26.1	0.0	21.1

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

Table 43: Distribution of household members by type of interview– co-residents (16+) (R3/07)

	Total	RB260 = 1	RB260 = 2	RB260 = 3	RB260 = 4	RB260 = 5
2007						
Total	0	0	0	0	0	0
%	0.0	0.0	0.0	0.0	0.0	0.0
2008						
Total	59	0	16	6	0	37
%	100.0	0.0	27.1	10.2	0.0	62.7
2009						
Total	67	0	16	20	0	31
%	100.0	0.0	23.9	29.9	0.0	46.3
2010						
Total	128	0	43	46	0	39
%	100.0	0.0	33.6	35.9	0.0	30.5
2007-2010						
Total	254	0	75	72	0	107
%	100.0	0.0	29.5	28.3	0.0	42.1

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

2.5. Imputation procedure

The following chapter describes the imputation procedures in EU-SILC 2007, EU-SILC 2008, EU-SILC 2009 and EU-SILC 2010.

General remarks

The imputation procedures in EU-SILC 2007, EU-SILC 2008, EU-SILC 2009 and EU-SILC 2010 were the same. Imputation refers to all procedures to estimate and insert variable values that were missing due to item non-response.[19]

These procedures comprises of

- deductive methods
- deterministic methods
- stochastic methods

Deductive methods refer to imputation procedures in which the true value of a missing item is logically deduced. This means that the value is either deduced from other variables of the survey or is derived from legal regulations. An example for the first mode of deductions is the net-gross-net conversion, when either the gross value or the net value is given and the corresponding missing value is calculated by applying general rules. An example for the latter mode is when the value of the childcare benefit (*Kinderbetreuungsgeld*) is missing and the effectual value can be inserted.

The difference between deterministic and stochastic methods is whether the procedure to calculate the missing item includes a residual term or not. Deterministic methods were primarily used in cases when the integration of a residual term seemed unreasonable. Stochastic methods were mainly used to estimate missing income variables. Imputation procedures were both applied to complete missing information because of unit-non-response and item-non-response.

Missing personal interviews

Statistics Austria imputed missing personal interviews of persons that could not be interviewed because of temporary absence, refusal of cooperation or other reasons. To do so, a distance function to determine an appropriate donor case to complete the information for the missing interview was applied. The distance function used a given set of variables to compute the similarity of interviews and ranked the interviews accordingly. Then the nearest neighbour was determined as a donor, given that a set of minimum requirements was fulfilled:

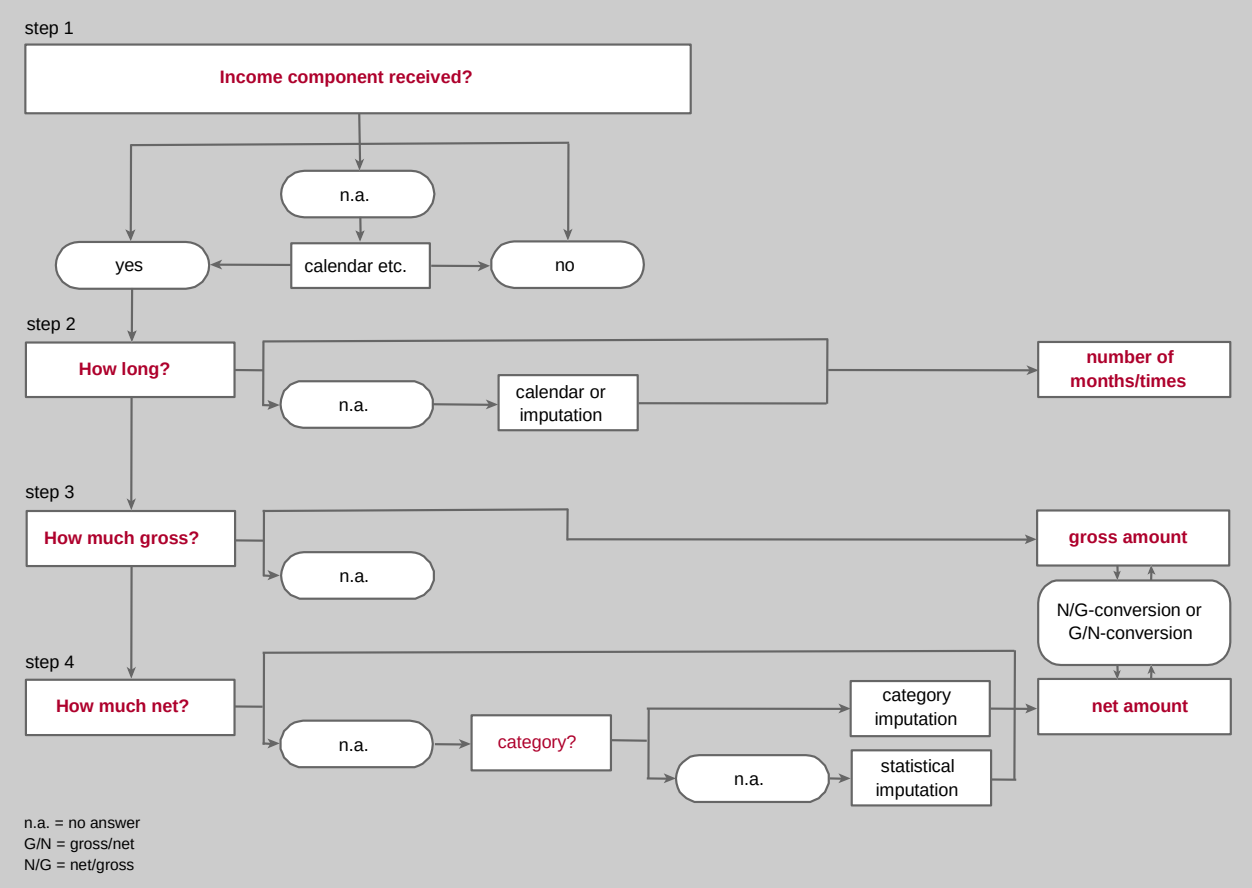
- The donor case and the case with the missing personal interview shared the same sex.
- The interview was not a proxy interview.
- The donor case should share the same employment status[20]

Two procedures of imputing missing personal interviews were possible: the person was interviewed for the first time or the person was interviewed the previous year. When the person was interviewed in the preceding survey, the information of the last years' interview was used to calculate the distance function. The interviews of the previous year were ranked and the nearest neighbour was identified as the donor for the missing interview. The information of the donor was then used to impute the required information.[21]

As far as item non-response is concerned, Statistics Austria in general only imputes net income variables, missing gross variables are calculated by the net-gross conversion. The following figure describes the procedure for missing information for income questions.

[19] A full description of the imputation procedure can be found in the annual intermediate quality reports.
[20] This was done by determining the number of ranks up until that constraint was fulfilled.
[21] Because of a higher number of missing personal interviews in 2008 (cf. table 38 – table 40) after the fieldwork for EU-SILC 2008 a short questionnaire was sent to persons whose households had successfully completed the survey but personal interviews of single household members were missing. The questionnaire gathered additional information to the register information to provide a better basis for the imputation of these personal interviews.

Figure 4: Editing procedure for income data



Item non-response for the collected income components are presented table 30 – table 37 on household and personal level and for both net and gross values. Table 44 shows the percentage of imputation over the total number of observations per target variable. The components imputed rent (HY030) and interest repayments on mortgages (HY100) are not directly collected from the respondents and therefore excluded. The corresponding gross values of the net-income values in table 44 are not included because these variables are calculated on the base of the net value, adding tax and social security payments.

Table 44: Percentage of imputation over the total number of observations (R3/07)

	2007 %	2008 %	2009 %	2010 %
Total household gross income	61.3	64.1	63.8	69.9
Total disposable household income	32.0	32.1	32.3	29.2
Total disposable household income before social transfers other than old-age and survivors' benefits	31.3	31.1	31.2	28.3
Total disposable household income before social transfers including old-age and survivors' benefits	32.0	29.6	29.6	25.7
Net income components at household level				
Income from rental of a property or land	1.8	1.3	6.7	2.7
Family/child related allowances	0.3	0.5	0.8	0.7
Social exclusion not elsewhere classified	1.1	0.0	5.8	5.1
Housing allowances	1.0	2.6	3.0	7.1
Regular inter-household cash transfer received	4.0	3.0	1.7	8.2
Interest, dividends, profit from capital investments	21.8	12.4	18.3	16.7
Income received by people aged under 16	6.9	12.5	0.0	0.0
Regular inter-household cash transfer paid	5.0	0.6	2.9	4.1
Repayments/receipts for tax adjustment	1.3	1.6	2.5	3.0
Value of goods produced for own consumption	4.8	5.7	7.8	5.1
Net income components at personal level				
Employee cash or near cash income	13.2	18.1	19.8	13.2
Contributions to individual private pension plans	5.5	7.6	8.6	5.8
Cash benefits or losses from self-employment	8.7	7.1	14.7	12.1
Pension from individual private plans	5.3	21.4	9.1	8.3
Unemployment benefits	9.3	5.6	9.6	4.3
Old-age benefits	8.8	11.4	11.2	11.8
Survivors' benefits	6.4	3.3	0.0	9.5
Sickness benefits	5.4	16.7	22.4	20.0
Disability benefits	1.0	8.2	5.9	1.4
Education-related allowances	7.9	10.0	6.9	6.8

Source: Statistics Austria, EU-SILC longitudinal sample 2007-2010.

2.6. Imputed rent

The calculation of imputed rents (HY030G/N) is obligatory from 2007 onwards and hence was carried out for every year of the four-year panel 2007-2010.

Households living in a self-owned or rent-free dwelling or in a dwelling that is rented at a reduced rate enjoy a financial advantage compared to households living in a rented dwelling. The idea of imputed rents is, then, to quantify and estimate that financial advantage for the computation of household incomes. The aim is to estimate the virtual rent for self-owned dwellings (and rent-free dwellings as well as dwellings rented at a reduced rate), that a household would have to pay on the free market for its dwelling. This virtual rent, then, is used as a proxy for the financial advantage and is calculated as the imputed rent.

The imputed rent is in short calculated on the basis of the data of the Austrian Microcensus. Based on this data linear regression models are used to estimate the rent for those dwellings, for which no rent information is available (including those dwellings that are rented at a reduced price). This estimate is then used as imputed rent. For dwellings that are rented at a reduced rate, the imputed rent equals the difference between the actually paid rent and the estimated virtual rent for the dwelling.[22]

[22] For details on the computation of the imputed rents see the final report of the EU-SILC Study on Comparability of National Implementation, Part 2, Computation of imputed rents.

2.7. Company cars

The private use of a company car was recorded in the questionnaire of all four years. The value of this use was deduced according to the relevant tax regulations. The value is included in the variable PY010.

3. Comparability

This chapter reports on the differences between EUROSTAT definitions and the definitions applied in EU-SILC 2007, EU-SILC 2008, EU-SILC 2009 and EU-SILC 2010. The impact of differences on the comparability is also described.

Moreover, this chapter also reports on the application of definitions in EU-SILC 2007, EU-SILC 2008, EU-SILC 2009 and EU-SILC 2010. It is important to note that these descriptions do not necessarily affect the comparability of the variables concerned. The EUROSTAT definitions are specified in EU-SILC Doc 65 (2007-2010 operations).

As requested, the first part of the chapter reports on the basic concepts and definitions applied in EU-SILC and the second part reports on the income components in particular.

3.1. Basic concepts and definitions

(a) Reference population

No difference to the common definition in all four waves.

(b) Private household

The following definition refers to EU-SILC 2007, EU-SILC 2008, EU-SILC 2009 and EU-SILC 2010 similarly.
Private households are generally defined as a person living alone or a group of persons living in the same dwelling. All persons at the dwelling form the household as shared expenses are assumed.
Household members thus are:

- All persons who are actually living in the dwelling unit. Whether these residents have their main residence in this particular dwelling, is not relevant. Only those dwellings are included in the sampling frame in which at least one person aged 16 years or older has his or her main residence.
- Lodgers, visitors, au-pairs and guests are considered members of the household if they stay or intend to stay 6 months or longer in the household, or if they do not have any other home address.
- Persons who are temporarily away for less than 6 months and are not members of other private households.
- Household members who are absent for 6 months or longer who are not members of other private households and/or are children or partners of actual household members.
- Under the assumption of sharing expenses only one household per dwelling was counted.
- From 2007 onwards the definition is applied more precisely to fully comply with the EUROSTAT definition: If there is more than one household living in one dwelling and not sharing expenses, they are collected as different households. If the persons living at the particular address clearly do not share their expenses (meaning for example a lodger is paying for his or her rent and does not share utility costs or food with the rest of the household), a separate additional household is registered at the same address. Flat-sharing communities are in most of the cases considered as one household because in the majority of cases the members of such communities are sharing their living costs. If the expenses of the flat-sharing community are not shared, meaning that the payments for rent, operating costs and daily expenses are paid individually, the members would constitute individual households.

The following groups of persons connected to the household are not considered as household members:

- Persons 6 months or longer away from the household and not parents or children of actual household members
- Persons less than 6 months away from the household but living in or constituting another private household.

(c) Household membership

Analogous to the definition of private household 2007-2010.

(d) Income period(s) used

No difference to the common definition. The income reference year for EU-SILC 2007 was the year 2006, for EU-SILC 2008 the year 2007, for EU-SILC 2009 the year 2008 and for EU-SILC 2010 the year 2009.

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

No difference to the common definition. Income reference years again were 2006, 2007, 2008 and 2009, meaning that repayments and receipts of tax adjustments are measured if the money was paid or received in the respective year.

(f) The reference period for taxes on wealth

There are no taxes on wealth in Austria.

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

In 2007 the fieldwork was conducted from the 16th of March to the 23rd of September. Therefore, in EU-SILC 2007 the gap between the income reference period and the current period exceeded the prescribed gap of 8 month by 3 weeks. In 2008 the fieldwork period started on the 5th of May and ended on September 15th. The gap between the income reference period and the time of the interview exceeded the required eight months by two weeks. For EU-SILC 2009 the fieldwork started on the 9th of April and was finished on October 15th, exceeding the gap of eight months between the income reference period and the time of the interview by six weeks. In EU-SILC 2010 the fieldwork lasted from 1st March to 8th November, meaning that the lag between the income reference period and the interview date exceeded the required eight months by ten weeks.

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

In 2007 data were collected for 27 weeks, the final files all arrived until 25th of October 2007. The final files of the 19 week long fieldwork period of EU-SILC 2008 were transmitted from the fieldwork organisation on the 5th of December. The data collection period for EU-SILC 2009 lasted 27 weeks and the last files were received on the 30th of October 2009 and in 2010 the data collection lasted 36 weeks.

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

In all waves the information was collected with the questionnaire by an activity calendar covering each month of the income reference period.

3.2. Components of income

In the following sections we describe the collection of income components in EU-SILC 2007-2010 in Austria and the application of definitions for income components. Please note that the description of the application of definitions, the description of the data collection procedure and the computation procedure do not necessarily indicate a difference from EUROSTAT definitions and the variable definitions in the relevant documents (mainly EU-SILC Doc 65 for the 2007-2010 operations).

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

(a) Total household gross income (HY010)

The Austrian questionnaire comprised questions on two income components that are not target variables of EU-SILC. These components were, first, the income received by persons doing their military service or civilian service, and, second, "other income, not elsewhere classified". The latter question was integrated to avoid under-recording caused by misunderstandings. The total disposable household (gross) income contains these two income components. On individual level, the income from military/civilian service was integrated with the income for employees and the "other income" was merged either with the employee income, the income from self-employment or old-age benefits, depending on plausibility. This application of the definitions of target variables in the document EU-SILC 065 is consistent with the guidelines of EUROSTAT.

(b) Total disposable household income (HY020)

See above (HY010).

(c) Total disposable household income, before social transfers other than old-age and survivors' benefits (HY022)

See above (HY010).

(d) Total disposable household income, before social transfers including old-age and survivors' benefits (HY023)

See above (HY010).

(e) Cash-or near-cash employee income (PY010)

This variable additionally includes payments in kind for the private use of company cars, income from compulsory military or civilian service, other income not elsewhere classified (if plausible) and proportional lump-sum payments if the person is employed for more than one month. According to the document EU-SILC 065 the fully taxable value for the private use of the company car as near cash income can be included in PY010 because PY021 (company car) foresees a value which indicates the including of the company car in another variable ("-4 – amount included in another component"). Income from civilian/military service and lump sum payments are also added to PY010. If plausible, "other incomes not elsewhere classified" have been added to PY010 as well. This approach is consistent with EUROSTAT's definitions of target variables.

(f) Non-cash employee income (PY020)

Payments in kind for the private use of a company car are included in PY010. Other payments in kind were recorded and included in PY020 since EU-SILC 2007. According to EU-SILC Doc 65 (2010 operation) non-cash employee income includes among others the following subcomponents: Free or subsidised meals, free or subsidised housing, other goods and services. PY020 is not included in the household income.

(g) Cash profits or losses from self-employment (PY050)

This income component includes additionally other income not elsewhere classified, if plausible (see above HY010) and negative incomes. From 2007 onwards no gross variables were surveyed, but the respondents were asked to give the amount paid for social security and income tax for their self-employment. These payments were added to the net amounts to obtain the gross amounts. The questions on privately sold goods were asked on the household level to avoid double reporting. The whole amount is attributed to the person with the highest income from self-employment or, in case that there is no self-employed person within the household, to the person with the lowest personal income. In order to gather information for this variable the net amounts from self-employment and the amounts paid for social security and income tax for self-employment were asked. Based on this information the gross amount is calculated. The definitions and calculations for this variable are consistent with EUROSTAT's definition of the target variable.

(h) Value of goods produced for own consumption (HY170)

This component is mandatory since 2007 and until 2009 it was captured in the variable PY070. The question appears in the household questionnaire to avoid double reporting. Sales revenues from privately sold goods are not included (see PY050). PY070 was not included in the household income.

(i) Unemployment benefits (PY090)

If the person is unemployed (for at least 2 months), this income component includes proportional lump-sum payments. This refers to severance payments which are to be included according to the document EU-SILC 065.

(j) Old-age benefits (PY100)

Since the standard retirement age in Austria is 65 years for men and 60 years for women, it contains all pension benefits paid to persons aged 65/60 or over, including other incomes not elsewhere included if the person is retired. This approach is consistent with EUROSTAT's definitions of target variables.

(k) Employer's social contributions (PY030)

PY030 that has been calculated since EU-SILC 2007 as a percentage of employee cash or near cash income (PY010G/N). PY030 is not included in the household income and complies fully with the EUROSTAT guidelines.

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

All income data have been collected with questionnaires, no register information was used to obtain income information. The EU-SILC income target variables were split into more differentiated sub-components. These sub-components were defined according to the Austrian tax regulations and benefit system. Some components of the EU-SILC income target variables were calculated on the basis of auxiliary information given in the questionnaire. For example the amount of family allowances was calculated upon the number and age of children receiving this benefit.

Between the four waves from EU-SILC 2007 to EU-SILC 2010 the questionnaire was partly revised for some income variables.

2007 was the first year of the Austrian EU-SILC operation where computer assisted telephone interviews were conducted (CATI technique) However the majority of personal interviews (93.8%) were still carried out with computer assisted personal interviewing (CAPI). The CATI method was tested on a small subsample of follow-up households In all three follow-up rotations of 2007 (but not in the first wave of 2007, i.e. R3/07) 21 CATI interviews were done by the fieldwork institute and 553 CATI interviews were conducted by Statistics Austria. CATI was used more widely from EU-SILC 2008 onwards and. In 2008 a total of 2,223 personal CATI interviews were conducted in all rotations, i.e. including R3/07. In 2009 the number of personal CATI interviews increased to 3,561 and reached 3,788 in 2010 (cf. table 41 – table 43).

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

Respondents were asked for all income components that are subject to taxation and/or social security contribution, to give the net and gross amount. Gross in this context means that if a component is subject to taxes and social security contributions both amounts were included. Employer's contributions were not taken into account and calculated afterwards (see above ch. 3.2.1 (k))

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

The procedure to obtain the income target variables for EU-SILC was the same for the years 2007 to 2010. Gross and net income variables were asked separately, if applicable. If the respondents were not willing or not able to provide one of these amounts (net or gross) Statistics Austria calculated the missing value on the basis of the information given, e.g. if the net value was given and the gross value was missing, the gross value was calculated on the basis of the net value. If both values were missing (and the respondent refused or was not able to give an income class), Statistics Austria first imputed the net value and then calculated the gross value on the basis of the imputed net value (see chapter 2.6).
The conversion between net and gross values for employees' income and pensions was carried out on the basis of wage tax statistics for the income reference year. For income from self-employment only the net amount was asked and gross values were calculated using the amounts paid for social security and income tax for self-employment (which were asked).

3.3. Tracing rules

For all four waves of the longitudinal component of EU-SILC, the tracing rules as laid down in the document EU-SILC 065 were applied. To identify the residence of persons moving from one address to another address, Statistics Austria made use of the ZMR if other household member did not disclose all relevant information.

4. Coherence

Coherence refers to the comparison of target variables with external sources. At present there are no reliable external data for the four-year longitudinal sample of 2007-2010. However, for EU-SILC 2007, EU-SILC 2008, EU-SILC 2009 and EU-SILC 2010, cross-sectional data were compared to the Wage Tax Statistics, the National Accounts and the Microcensus (only from EU-SILC 2008 to EU-SILC 2010 for the latter comparison). These comparisons can be found in the Austrian intermediate quality reports of the years 2007-2010.