Measuring "Total Net Household Income" in Interviews with an Emphasis on Comparative Social Surveys

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1. "Total Net Household Income" as Socio Economic Variables in Social Surveys

In social surveys income is an indicator of the socio-economic status. It is used as an explanatory variable in mobility studies and as a social-demographic background item in inequality research. In most cases, information about the income brackets in which the net household income is located is usually enough for a comparative analysis of social structure. The respondent's socio-economic position is determined by the access to the monetary resources of the household.

This paper shows how the answer quality of the "total net household income" question depends on the data source about the national income distribution used to design the answer categories offered to the respondent.

2. Measurement Instrument Used in ESS 2002, 2004 and 2006

The questionnaire used in Round 1 of the European Social Survey [1] features two questions designed to measure household income. The first question (F29) asks the respondent to state the main source of income in his household; the second question (F30) aims to identify the income category to which the household's total net income belongs. To this end, the respondent is requested to 'add up the income from all sources'. However, in this pan-European survey, the randomly selected respondents are not given any detailed background information or explanations of the questions. Hence it is not clear to them which income – and whose income – they should add up. Nor are they given any help in recalling the various possible types of income accruing to the household.

Because the interviewees are randomly selected from among all the members of the household aged 16 or over, and only the target person is interviewed, respondents' knowledge of the financial situation of the household as a whole varies depending on the cohort to which he belongs and his position in the household or his relationship to the main earner/income recipient.

The ESS question about the main source of income in the household reads: "F29 CARD 55 Please consider the income of all household members and any income which may be received by the household as a whole. What is the main source of income in your household? Please use this card" [1: 49].

The showcard lists seven types of income: "Wages or salaries; Income from self-employment or farming; Pensions; Unemployment / redundancy benefit; Any other social benefits or grants; Income from investment, savings, insurance or property; Income from other sources" [2: CARD 55].

Then the respondent is asked about the total net income of the household: "F30 CARD 56 Using this card, if you add up the income from all sources, which letter describes your household's total net income? If you don't know the exact figure, please give an estimate. Use the part of the card that you know best: weekly, monthly or annual income" [1: 47].

CARD 56				
YOUR HOUSEHOLD INCOME				
	Approximate WEEKLY	**Approximate MONTHLY**	**Approximate ANNUAL**	
J	Less than €40	Less than €150	Less than €1800	J
R	€40 to under €70	€150 to under €300	€1800 to under €3600	R
C	€70 to under €120	€300 to under €500	€3600 to under €6000	C
M	€120 to under €230	€500 to under €1000	€6000 to under €12000	M
F	€230 to under €350	€1000 to under €1500	€12000 to under €18000	F
S	€350 to under €460	€1500 to under €2000	€18000 to under €24000	S
K	€460 to under €580	€2000 to under €2500	€24000 to under €30000	K
P	€580 to under €690	€2500 to under €3000	€30000 to under €36000	P
D	€690 to under €1150	€3000 to under €5000	€36000 to under €60000	D
H	€1150 to under €1730	€5000 to under €7500	€60000 to under €90000	H
U	€1730 to under €2310	€7500 to under €10000	€90000 to under €120000	U
N	€2310 or more	€10000 or more	€120000 or more	N

Figure 1: Household income showcard, ESS2002

The ESS Project Instructions features the following interviewer instruction regarding the definition of 'net income'. However, this information is not intended for the respondent. "At HINCTNT you should obtain the **total net income** of the household from all sources, that is, **after tax**. Income includes not only earnings but state benefits, occupational and other pensions, unearned income such as interest from savings, rent, etc. We want figures **after** deductions of income tax, national insurance, contributory pension payments and so on. The questions refer to **current level** of income or earnings or, if that is convenient, to the nearest **tax** or other period for which the respondent is able to answer. The respondent is given a showcard that enables them to choose between their weekly, monthly or annual income, whichever they find easiest. They will then give you the letter that corresponds to the appropriate amount. This system is designed to reassure the respondent about the confidentiality of the information they are giving" [3: 21].

In the first three rounds of 2002, 2004 and 2004, the central coordinators of the European Social Survey prescribed a common and uniform system of income categories for all participating countries for use in the income answers.

The household questionnaire covers 19 types of income, for example, 'social assistance payment, non-cash assistance from the welfare office, income from renting property, inheritance of property or capital, a gift or lottery winnings' [4: 25-27]. Because this survey of the income situation of the household and its members is so comprehensive and detailed, the ECHP data can be used as a reference for the measurement of total net household income in the ESS.

3. Comparison of the Results for Total Net Household Income from the ESS 2002 and the ECHP

The European Community Household Panel (ECHP) collects all types of household income that can occur in the country in question; all household members aged 15 or over are interviewed. All respondents are asked in detail about their income. Hence, in the course of his involvement in the panel, respondents become experts on their personal monetary situation. The field instrument, which is designed as a person questionnaire, lists all possible sources of money income. Each member of the household is able to recall and state all individually applicable income types during the interview. The 34 types of income listed by the ECHP take up over 16 pages in the person questionnaire. In addition to the individual questionnaire for each member of the household aged 15 and older, a household questionnaire is administered to a reference person in the household who is assumed to be able to provide reliable information about income that cannot be assigned to individual members but rather accrues to the household as a whole. The ECHP income values have been recoded into the income categories used in the ESS. The images on the left of Figure 2 are graphic representations of the distribution of responses across income categories in the ESS for the respective countries. The images on the right of Figure 2 show the grouped income distribution in the ECHP.

In the case of the United Kingdom, both data sources yield the same income distribution. A slight deviation is apparent in the case of Germany. Marked differences between the two statistics are apparent in the case of Luxembourg.

The national income distributions from the 8th wave of the ECHP divided into groups each of which contains 5% of the population constitute the second step in the comparison of the total net household income data of the two surveys (see Table 1). They are sorted into the income categories used as response options by the ESS. This step highlights the need to adapt the response categories of the income question to the concrete national income situation.

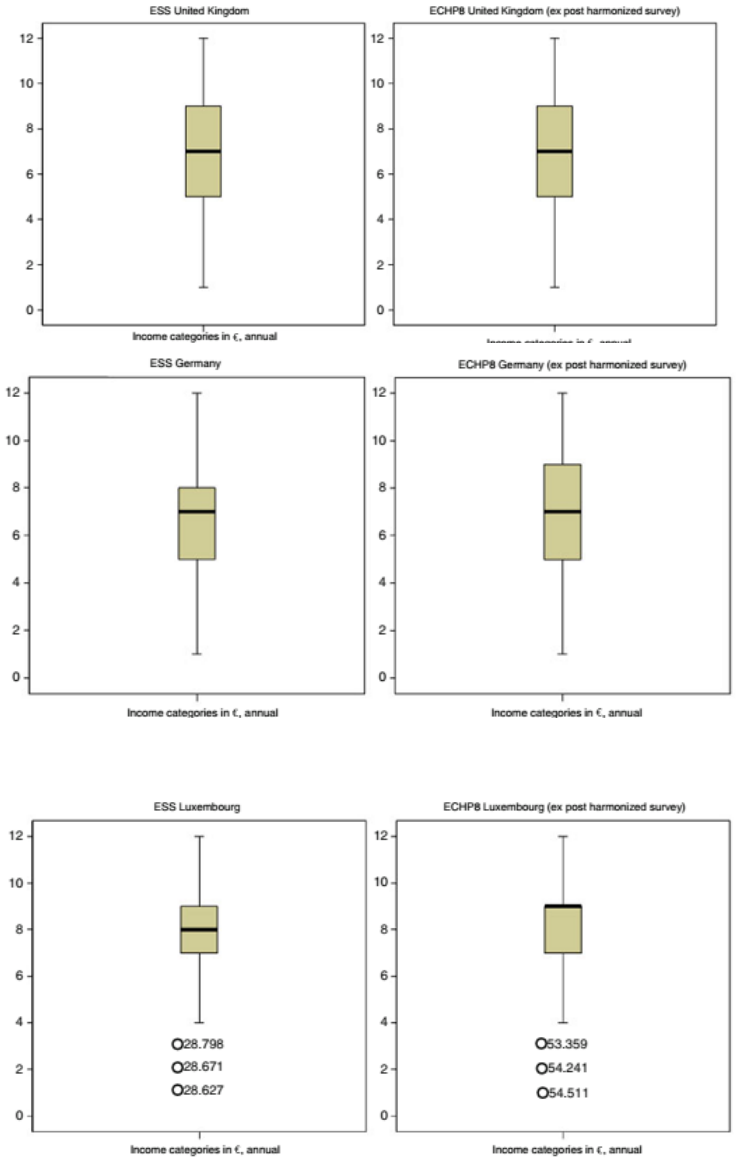

Figure 2: *Distribution of Total Net Household Income according to ESS 2002 Categories: Comparison of ESS and ECHP for the United Kingdom, Germany, and Luxembourg*

Source: [9: 147]

In Germany, the 15th to the 19th 5-percent percentile of the ECHP are to be found in the 9th ESS 2002 income category (36,000 – 60,000 euros); the 10th ECHP 5-percent percentile, whose upper threshold corresponds to the median of the income distribution is in the 7th ESS 2002 income category (24,000 – 30,000 euros).

According to the ECHP, only the wealthiest 5% of Portuguese households have a total net household income of over 36,000 euros. In Luxembourg, the 9th ESS 2002 income category (36,000 – 60,000 euros) covers the ECHP's income distribution from the 9th to the 15th 5-percent percentile. The bottom 5% of the population in the ECHP income distribution for Luxembourg have a net household income of between 12,000 and 18,000 euros (the 5th ESS 2002 category), whereas in Portugal the median (the 10th 5-percent percentile) is to be found in the 4th income category (6,000 – 12,000 euros).

Table 1: Distribution of the ECHP8 5-percent percentiles across the 12 ESS income categories (selected countries)

ESS Income Categories.	Germany	United Kingdom	Italy	Luxembourg	Portugal	Finland
	No. of the ECHP8 5% Percentile					
Up to 1,800	---	---	---	---	---	---
1,800-3,600	---	---	---	---	1-2	---
3,600-6,000	---	---	1	---	3-5	---
6,000-12,000	1-2	1-2	2-5	---	6-11	1-3
12,000-18,000	3-5	3-5	6-10	1	12-15	4-7
18,000-24,000	6-8	6-7	11-13	2-3	16-17	8-10
24,000-30,000	9-12	8-10	14-16	4-6	18	11-12
30,000-36,000	13-14	11-12	17	7-8	19	13-15
36,000-60,000	15-19	13-17	18-19	9-15	---	16-19
60,000-90,000	---	18-19	---	16-18	---	---
90,000-120,000	---	---	---	19	---	---
120,000 and more	---	---	---	---	---	---

Source: ESS 2002 Version Feb. 2004, ECHP UDB Version April 2004, own calculations

Overall, the household income of the respondents in Germany and Luxembourg is distributed across six or seven income categories. However, depending on the average national income, the distribution across income categories varies significantly across the countries.

4. Measurement of Income in ESS in 2008, 2010 and 2012

In 2006, Jürgen H.P. Hoffmeyer-Zlotnik and Uwe Warner [5: 318 ff.] published an initial critical assessment of the European Social Survey income measure on the basis of the results of the ESS 2002. To a certain extent, their suggestions for improvement were taken into account in the conception of the fourth round of European Social Survey fielded in 2008. The response categories have been based on deciles of the actual household income distribution in the country in question. The quality of this new income measure depends on the quality of the statistics from which the national household income range is derived.

The modifications to the income questions in the European Social Survey 2008 affected the framing of the questions, the response categories, and the showcards: "F31: Please consider the income of all household members and any income which may be received by the household as a whole. What is the main source of income in your household? Please use this card" [6: F31].

The modified showcard now features separate response options for 'income from self-employment (excluding farming)' and 'income from farming'. The new income types are:

- Wages or salaries
- Income from self-employment (excluding farming)
- Income from farming
- Pensions
- Unemployment/redundancy benefit
- Any other social benefits or grants
- Income from investment, savings, insurance or property
- Income from other sources' [6: Card 72].

The text of the 'net total household income question' gives the respondent an indication of what is meant by 'net' [6: F32] "Using this card, please tell me which letter describes your household's total income, after tax and compulsory deductions, from all sources? If you don't know the exact figure, please give an estimate. Use the part of the card that you know best: weekly, monthly or annual income."

From the fourth round of the European Social Survey onwards, each participating country frames its own showcard. As mentioned above, the response categories are based on the deciles of the actual household income range in the country in question. In a note on the framing of the decile income showcard, the European Social Survey coordinators gave the following instructions to those responsible for running the survey in each country: "An income showcard should be devised with approximate weekly, monthly and annual amounts. You should use ten income range categories, each corresponding broadly to DECILES OF THE ACTUAL HOUSEHOLD INCOME RANGE in your country. These figures should be derived from the best available source for your country. The data source used should match the requirement of the question i.e. deciles of household income for all households (not for example average households or just households with children). Using the median income as the reference point, 10 deciles should be calculated with the median itself at the top of the fifth decile (Category F). The figures should not appear to be too exact. Minor rounding can be employed to achieve this if necessary" [6: CARD 73; see also 7: 17).

Figure 3 shows the country-specific distributions of the responses across the 10 income categories. Of the 26 countries that participated in round 4 of the European Social Survey 2008, the mean of the income distribution in 14 countries lay in the fifth or sixth income category. In six countries the mean was in a

category higher than the sixth category, while in five countries the mean of the distribution was in a category lower than the fifth category.

CARD 73				
YOUR HOUSEHOLD INCOME				
	Approximate WEEKLY	Approximate MONTHLY	Approximate ANNUAL	
J	Weekly equivalent	Monthly equivalent	Income corresponding to that held by 10% of households with lowest income (0-10%)	J
R	Weekly equivalent	Monthly equivalent	Income corresponding to that held by next 10% of households (11-20%)	R
C	Weekly equivalent	Monthly equivalent	Income corresponding to that held by next 10% of households (21-30%)	C
M	Weekly equivalent	Monthly equivalent	Income corresponding to that held by next 10% of households (31-40%)	M
F	Weekly equivalent	Monthly equivalent	Income corresponding to that held by next 10% of households (41-50%)	F
S	Weekly equivalent	Monthly equivalent	Income corresponding to that held by next 10% of households (51-60%)	S
K	Weekly equivalent	Monthly equivalent	Income corresponding to that held by next 10% of households (61-70%)	K
P	Weekly equivalent	Monthly equivalent	Income corresponding to that held by next 10% of households (71-80%)	P
D	Weekly equivalent	Monthly equivalent	Income corresponding to that held by next 10% of households (81-90%)	D
H	Weekly equivalent	Monthly equivalent	Income corresponding to that held by next 10% of households (91-100%)	H

Figure 3: Household income showcard model, ESS 2008

Source: [6: CARD 73]

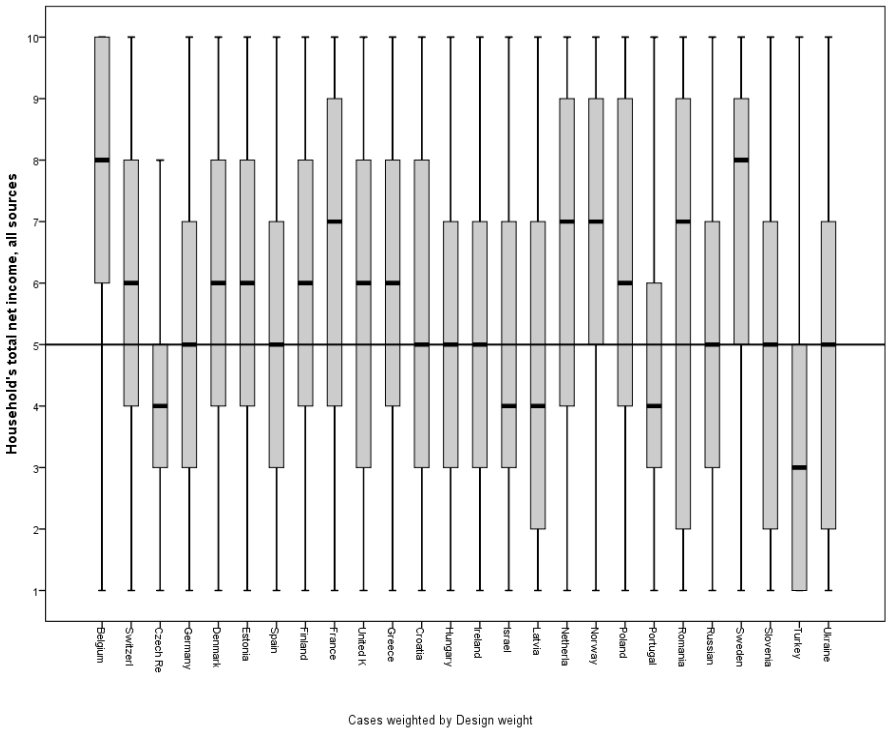

Figure 4: Country-specific distributions of responses across the ten income categories in ESS 2008

Source: ESS 2008, own calculations. The solid horizontal line shows the expected median

Because the survey population (here households) is divided into ten categories corresponding to deciles of the actual household income range, it is to be expected that in a representative survey with a probabilistic sample each response category will be selected by approximately 10% of the survey population.

5. Total Net Household Income in ESS 2008, 2010 and 2012

As can be seen from the countries presented by way of example in Figure 5, our expectation was fulfilled in some cases, but not in others.

ESS 2008 *ESS 2010* *ESS 2012*

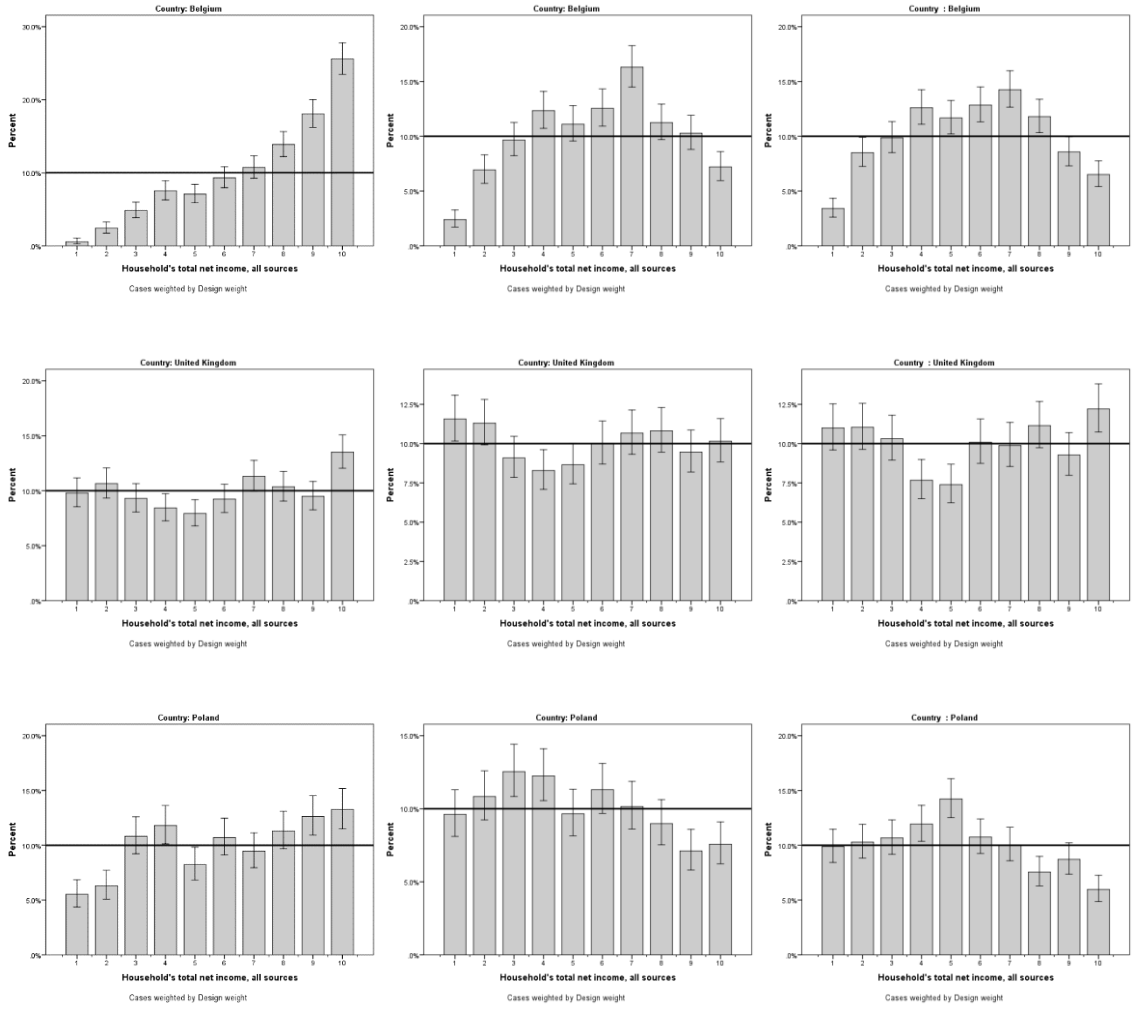

Figure 5: Distributions across the income categories in ESS 2008, ESS 2010 and ESS 2012

Source: ESS 2008, 2010, 2012, own calculations. The solid horizontal line shows the expected 10% responses

In Denmark, Estonia, Finland, France, the United Kingdom, Croatia, Poland and Slovenia, for example the year 2008, each income category was chosen by almost 10% of respondents [8]. However, medium deviations from the expected decile distribution were observed in the case of Switzerland, Germany, Spain, Greece, Hungary, the Netherlands, Norway, the Ukraine and Ireland, where the middle income categories were more strongly represented than expected. In 2008, large deviations from the decile distribution were observed in Belgium, the Czech Republic, Latvia, Portugal, Romania, Russia, Sweden and Turkey.

In *Belgium2008*, the two highest deciles show large deviations from the expected 10% mark in both datasets. The highest response category starts at 35.000 Euro. But 33.731 Euro is the upper threshold of the

60% decile of EU-SILC in Belgium. Therefore considerable more than the expected 10% of the respondents in Belgium choose the ninth and tenth answer categories during the ESS interview. The lower income categories are not used in the expected extent by the respondents of the ESS 2008. The EU-SILC reports the upper threshold of the lowest decile at 12.012 Euro, this corresponds to the fourth answer category from the Belgium showcard used in the European Social Survey 2008 (see table 2).

Table 2: EU-SILC 2008 "Total Disposable Household Income" Decile Thresholds in Euro

	lowest 10%	20%	30%	40%	50%	60%	70%	80%	highest 90%
Belgium	12.012	15.191	18.741	22.837	27.683	33.731	40.012	47.386	59.951
Portugal	5.395	7.602	9.730	12.078	14.412	16.818	20.504	25.117	34.560
United Kingdom	9.561	13.217	16.684	20.314	24.839	29.821	35.911	44.057	58.544
Poland	3.417	4.672	6.041	7.511	9.054	10.872	13.024	15.897	20.571

Source: EU-SILC USER DATABASE Version from 01-08-11, own calculations

The European Social Survey 2008 Survey Documentation [8] reports that the income range categories for Belgium were calculated on the basis of total taxable net income data from the tax register (see Table 3). The responses in this country gave rise to major deviations from the expected 10% mark in all ten response categories. In Belgium, taxable income is made up of wages and salaries, income form self-employment, pensions, unemployment benefit, sickness and disability benefit, income from the rental of property and land, income from investments, income from property and other sources. However, because the ESS measures total net household income, and many components of household income are not subject to tax (for example public and private transfers), it is obvious that the lower response categories in Belgium are either not used at all or are hardly used.

Based on this information from the tax register, the Belgium national ESS teams designed the showcard used during the interviews of the European Social Survey 2008 (see table 3, column 5).

The respondents of the European Social Survey 2008 fulfil the expectation in the *United Kingdom*, only the highest decile is overrepresented and less than 10% of the population respondents choose the middle income categories.

Table 3: Income distribution in Belgium according to tax register

1	2	3	4	5
Deciles	Total taxable net income from register	Average tax paid in %	(Total taxable net income from register)-(Average tax paid)	Rounded net income as appeared on showcard 72
1	4,909	0	4,909.000	Less then 5,000 €
2	9,677	1.5	9,531,845	5,000 € to 10,000 €
3	12,001	2.3	11,724,977	10,000 € to 12,000 €
4	14,860	7.9	13,686,060	12,000 € to 14,000 €
5	18.139	12.5	15,871,625	14,000 € to 16,000 €
6	21.816	17.9	17,910,936	16,000 € to 18,000 €
7	26.457	21.2	20,848,116	18,000 € to 21,000 €
8	34.146	24,3	25,848,522	21,000 € to 26,000 €
9	47.834	27.5	34,679,650	26,000 € to 35,000 €
10	>47.834	>27.5	>34,679,650	35,000 € or more

Source: [8: 3]

The *Polish* showcard for the income question in the ESS 2008 is built on the income distribution of the Polish Household Budget Survey. In ESS 2008 the two lower income categories are underrepresented and reach not the 10% mark; the two highest income deciles are more often used as expected. The participating countries derive the household income categories from different data sources. As the European Social Survey stresses, the figures for the household income range 'should be derived from the best available source' for the given country [6: CARD 73]. In 2008, four countries use the EU-SILC as the basis for calculating the household income deciles; fourteen countries calculate the household income range on the basis of other survey data; and eight countries derive the income deciles from population registers or census data.

6. Conclusion and Requirements for Social Survey Questions

Because the average income levels and income distributions differ in the various types of European countries, the response categories must be adapted to the national income situation.

The quality of the responses to the survey question about total net household income depends on the quality of the reference statistics from which the household income range is derived. These data must cover all types of income and optimally represent the national distribution of household income across the survey universe. That means that in the case of total net household income, all possible payments accruing to a household and all its members in a given country must be reported in these statistics and that all households in the survey universe must be represented in the reference statistics. Then the income groups for the response categories can be calculated using the 10% percentiles from the income distribution in the reference data. This is the only way to ensure that – with the exception of minor deviations – the respondent population uses the whole range of response categories as expected.

The Belgium example shows the increase in the data quality of ESS by changing the reference statistics about income. In 2008, they used the tax register with limited income information to design the answer categories; they obtained large deviations from the expected 10% answers in the income categories. In 2010 and 2012, they used the income information provided by EU-SILC; they decreased the deviations of the responses.

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