

**European Conference on Quality in Official Statistics (Q2014)  
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# **Measuring “Total Net Household Income” in Interviews with an Emphasis on Comparative Social Surveys**

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Uwe Warner

**Harmonising  
Demographic and  
Socio-Economic  
Variables for  
Cross-National  
Comparative  
Survey Research**

**The ESS 2002 Survey Question**  
**Total Net Household Income**

# The income questions (ESS)

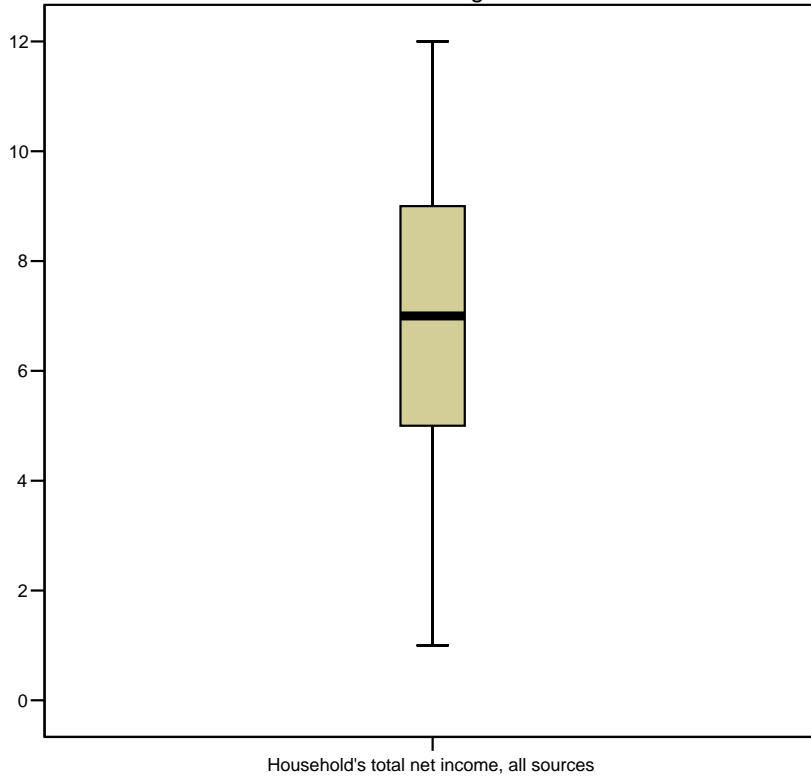
“... if you add up the income from all sources, which letter describes your household's total net income? If you don't know the exact figure, please give an estimate. Use the part of the card that you know best: weekly, monthly or annual income.” (ESS 01/08/2002: F30)

<b>CARD 56</b>				
<b>YOUR <u>HOUSEHOLD</u> INCOME</b>				
	<b>Approximate WEEKLY</b>	<b>Approximate MONTHLY</b>	<b>Approximate ANNUAL</b>	
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

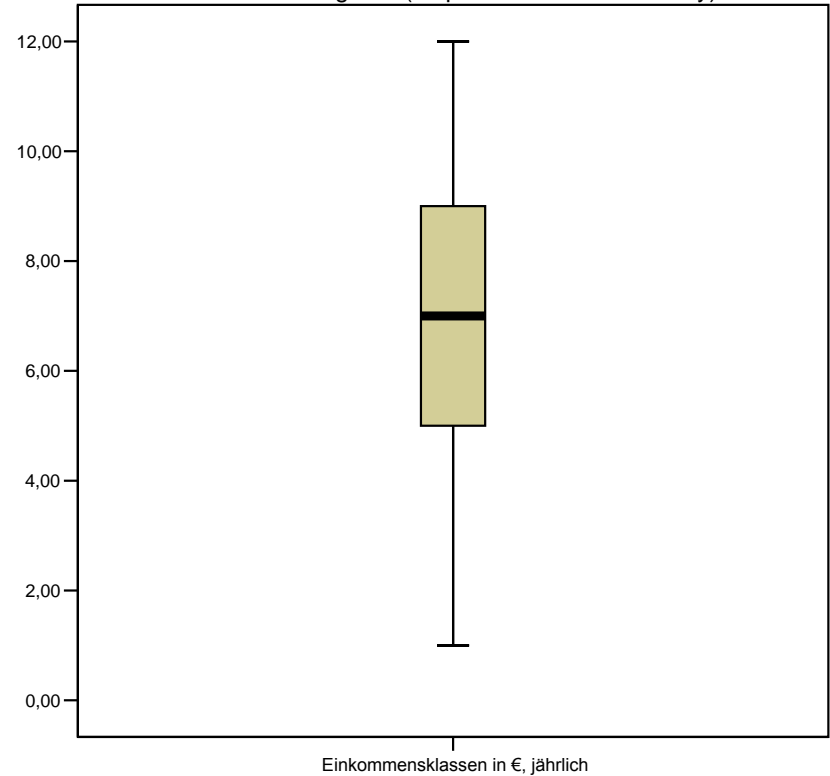
**Fig. 5.10** Household income showcard, European Social Survey, 2002b

# United Kingdom 2002

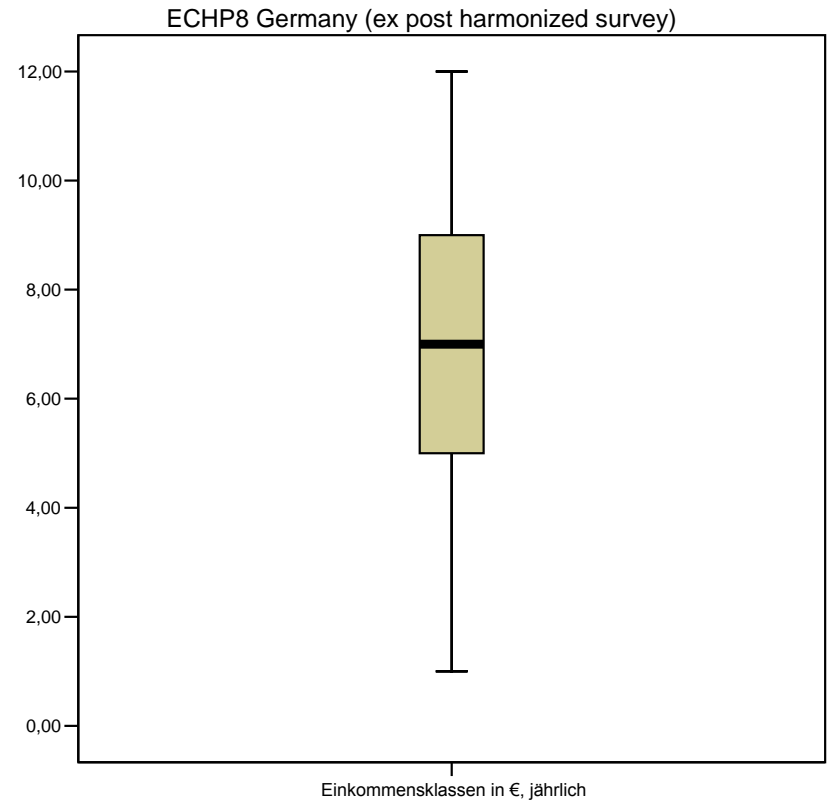
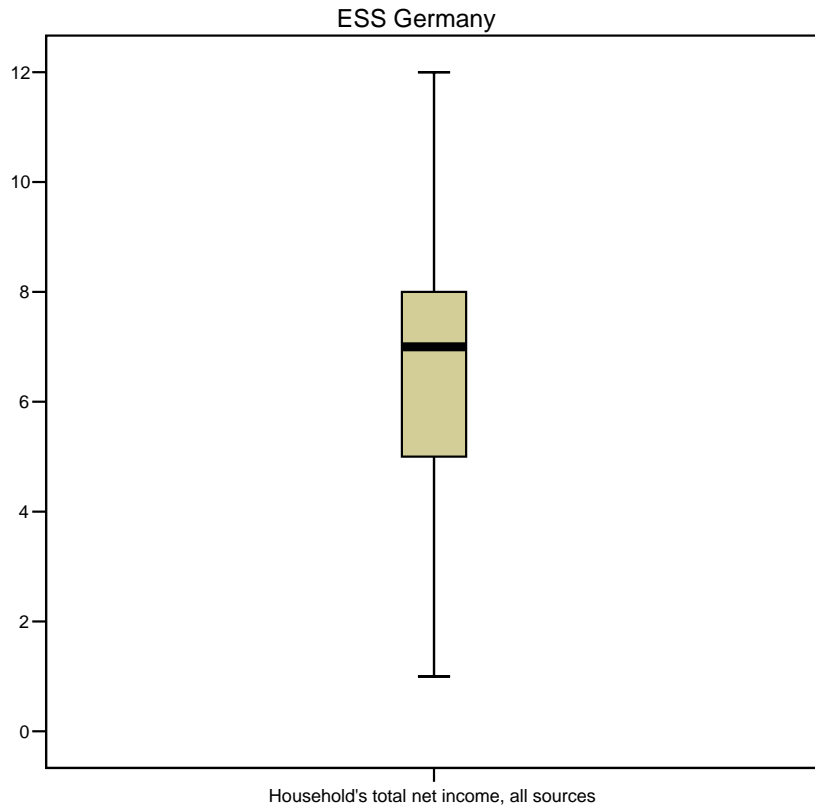
ESS United Kingdom



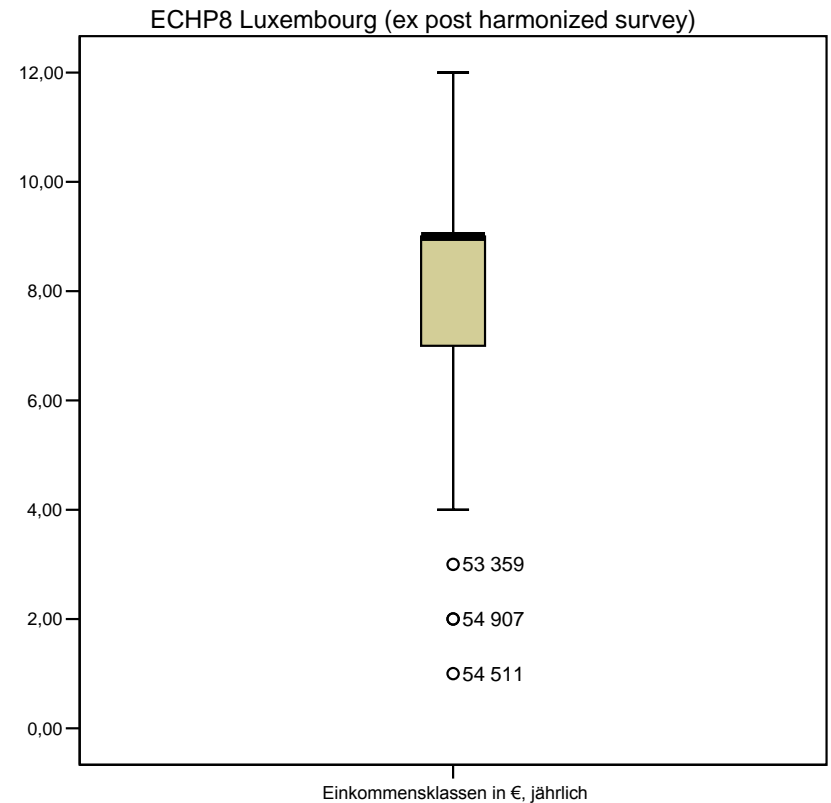
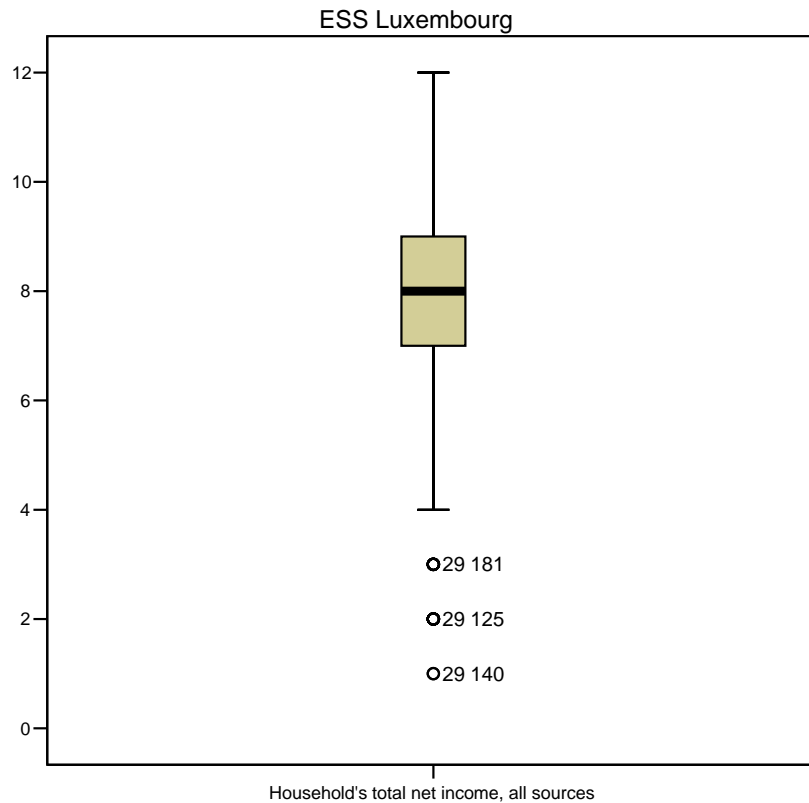
ECHP8 United-Kingdom (ex post harmonized survey)



# Germany 2002



# Luxembourg 2002



# National income distributions by ESS 2002 answer categories applied to ECHP8

	Germany	UK	Italy	Luxembourg	Portugal	Finland
<b>ESS2002 categories</b>	<b>No. of the ECHP8 5% percentile</b>					
<b>up to 1,800</b>	---	---	---	---	---	---
<b>1,800- 3,600</b>	---	---	---	---	<b>1-2</b>	---
<b>3,600- 6,000</b>	---	---	<b>1</b>	---	<b>3-5</b>	---
<b>6,000- 12,000</b>	<b>1-2</b>	<b>1-2</b>	<b>2-5</b>	---	<b>6-11</b>	<b>1-3</b>
<b>12,000- 18,000</b>	<b>3-5</b>	<b>3-5</b>	<b>6-10</b>	<b>1</b>	<b>12-15</b>	<b>4-7</b>
<b>18,000- 24,000</b>	<b>6-8</b>	<b>6-7</b>	<b>11-13</b>	<b>2-3</b>	<b>16-17</b>	<b>8-10</b>
<b>24,000- 30,000</b>	<b>9-12</b>	<b>8-10</b>	<b>14-16</b>	<b>4-6</b>	<b>18</b>	<b>11-12</b>
<b>30,000- 36,000</b>	<b>13-14</b>	<b>11-12</b>	<b>17</b>	<b>7-8</b>	<b>19</b>	<b>13-15</b>
<b>36,000- 60,000</b>	<b>15-19</b>	<b>13-17</b>	<b>18-19</b>	<b>9-15</b>	---	<b>16-19</b>
<b>60,000- 90,000</b>	---	<b>18-19</b>	---	<b>16-18</b>	---	---
<b>90,000-120,000</b>	---	---	---	<b>19</b>	---	---
<b>120,000 and more</b>	---	---	---	---	---	---



# **The ESS 2008 Modified Survey Question**

## **Total Net Household Income**

## ESS 2008

“... 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”

(ESS Source Questionnaire 08.08.2008, F32)

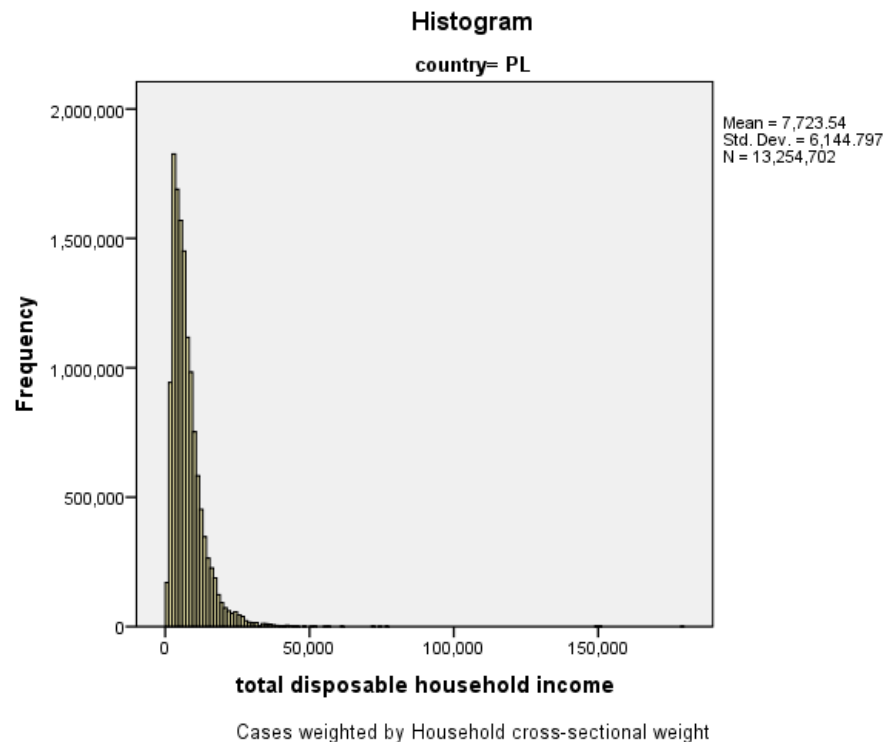
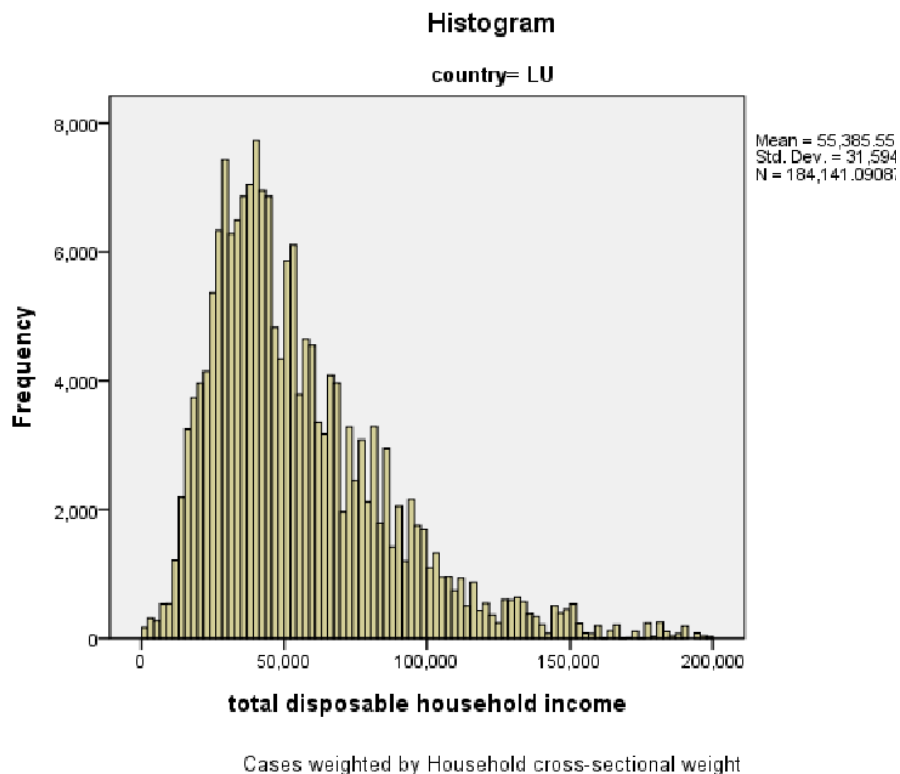
## Note on the framing of the decile income showcard

“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 (ESS, 2008a , CARD 73; see also: ESS, 2008b , p. 17)

<b>CARD 73</b>				
<b>YOUR <u>HOUSEHOLD</u> INCOME</b>				
	<b>Approximate WEEKLY</b>	<b>Approximate MONTHLY</b>	<b>Approximate ANNUAL</b>	
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

**Fig. 5.12** Household income showcard, ESS 2008 (Source: European Social Survey, 2008a, CARD 73)

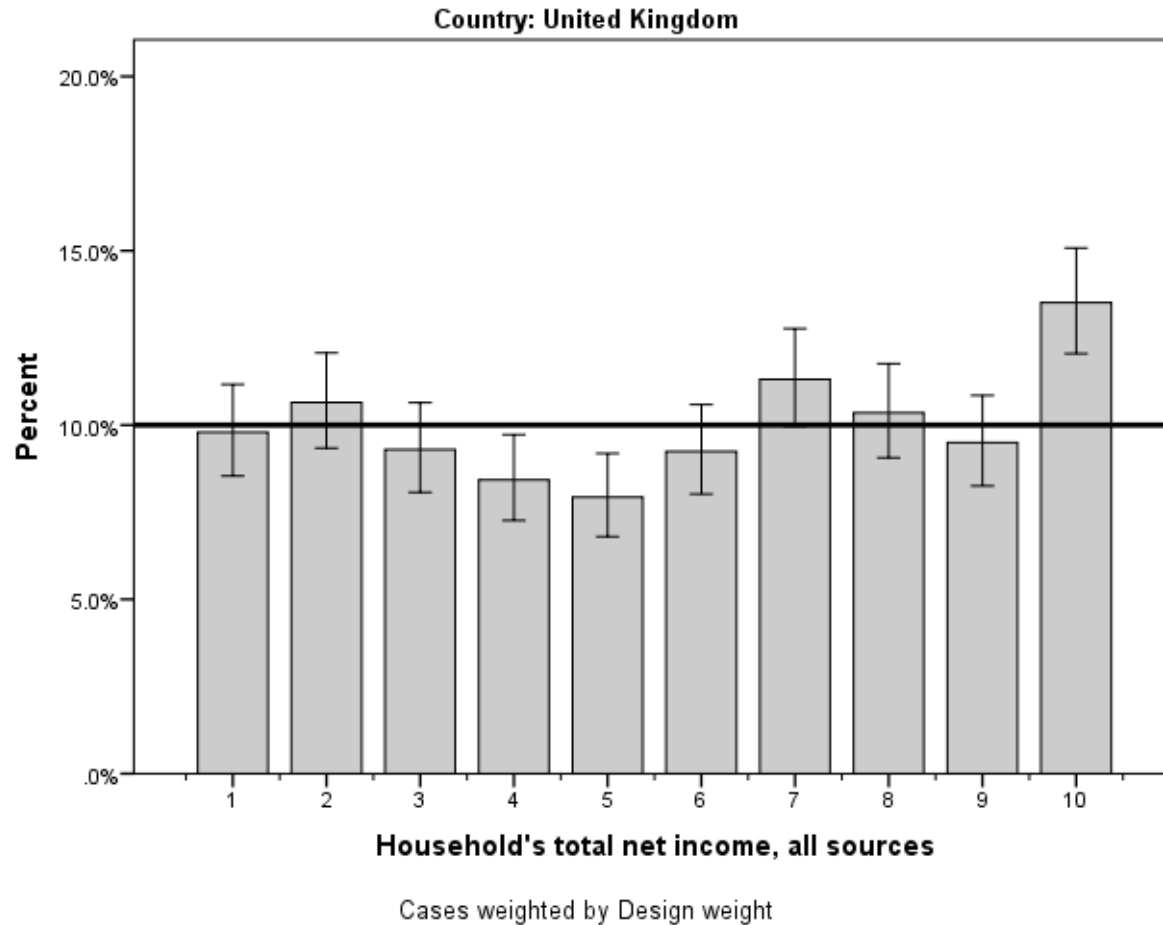
# Expected household income brackets for ESS 2008 based on EU-SILC “Total disposable household income (HY020)”, in Euro, annually for 2007



	Percentiles of HY020 total disposable household income								
	10	20	30	40	50	60	70	80	90
LU	23.165	29.725	35.820	41.519	47.870	55.599	66.001	79.584	99.322
PL	2.535	3.387	4.281	5.247	6.303	7.444	8.918	10.876	14.438
CZ	3.752	5.012	6.566	7.558	8.813	10.365	12.099	14.242	18.131

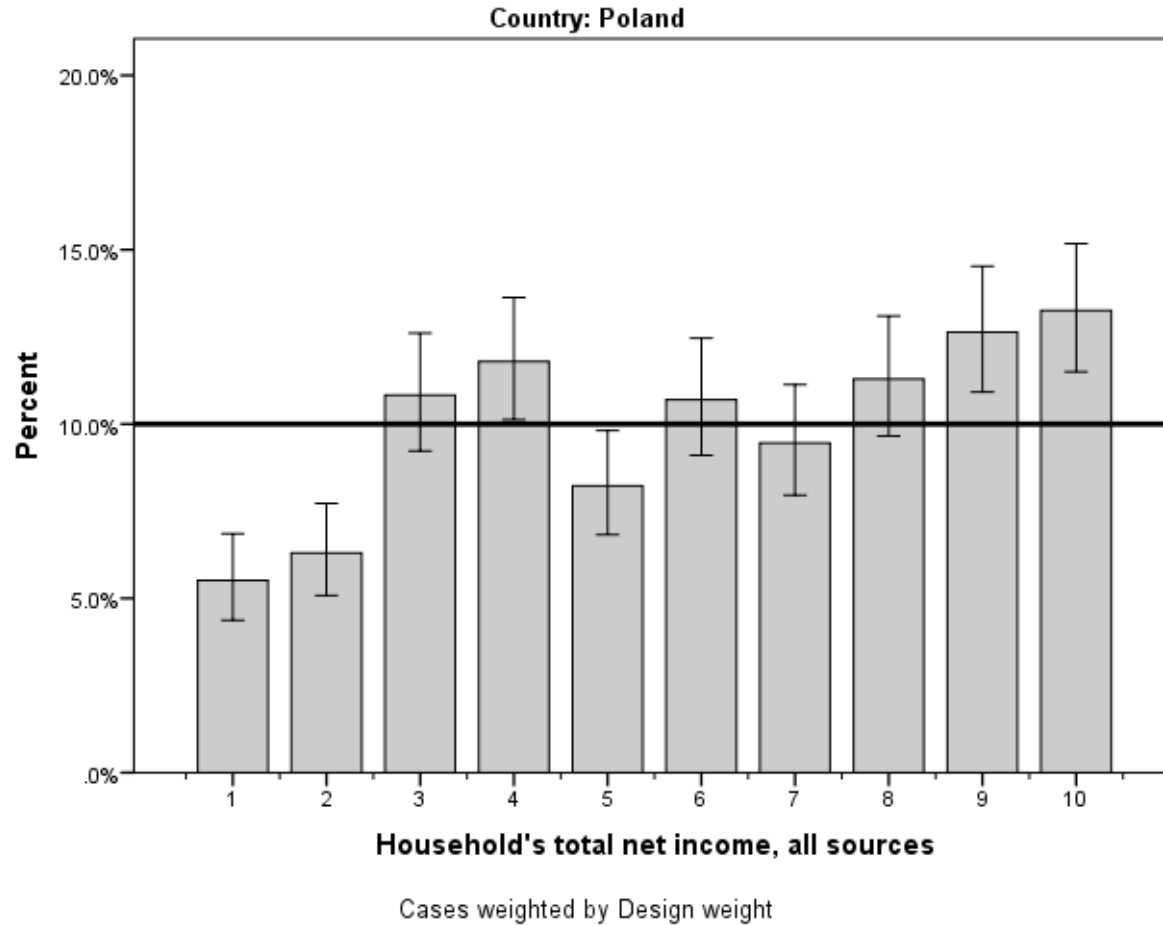
Data: SILC USER DATABASE Version 2007.1 from 01-03-09 weighted by cross-sectional weight

# United Kingdom ESS 2008



Error Bars: 95% Confidence Interval

# Poland ESS 2008



Error Bars: 95% Confidence Interval

# Belgium ESS 2008

**F32 MONTREZ CARTE 73** En utilisant cette carte, si vous cumulez toutes les sources de revenu de votre ménage, quelle lettre décrit le mieux le revenu net total de votre ménage ? Si vous ne connaissez pas le chiffre exact, veuillez donner une approximation. Utilisez la partie de la carte que vous connaissez le mieux : revenu hebdomadaire, mensuel ou annuel?

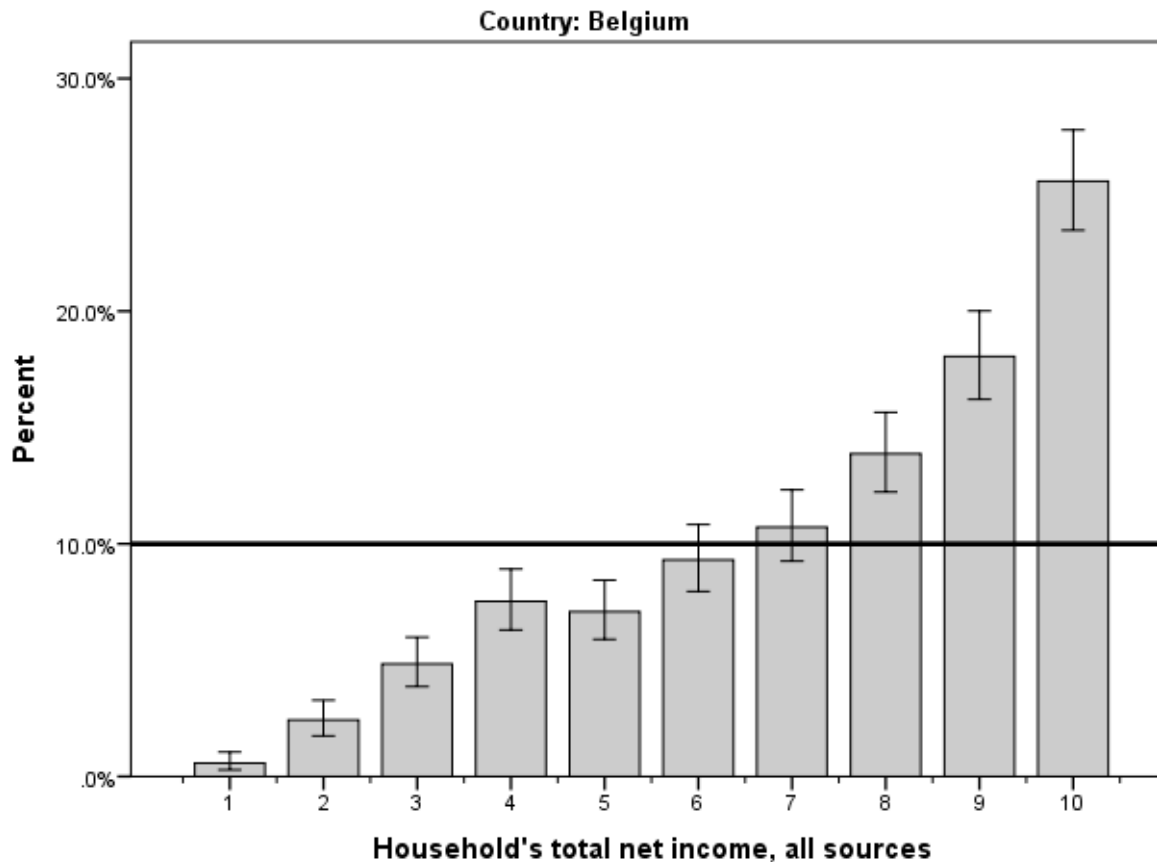
		HEBDOMADAIRE	MENSUEL	ANNUEL		
1: J	J	Moins de 100 €	Moins de 410 €	Moins de 5000 €	J	SILC
2: R	R	100 € à moins de 200 €	410 € à moins de 800 €	5000 € à moins de 10000 €	R	
3: C	C	200 € à moins de 225 €	800 € à moins de 1000 €	10000 € à moins de 12000 €	C	10.637
4: M	M	225 € à moins de 260 €	1000 € à moins de 1150 €	12000 € à moins de 14000 €	M	
5: F	F	260 € à moins de 300 €	1150 € à moins de 1350 €	14000 € à moins de 16000 €	F	13.716
6: S	S	300 € à moins de 350 €	1350 € à moins de 1500 €	16000 € à moins de 18000 €	S	
7: K	K	350 € à moins de 400 €	1500 € à moins de 1750 €	18000 € à moins de 21000 €	K	17.374
8: P	P	400 € à moins de 500 €	1750 € à moins de 2150 €	21000 € à moins de 26000 €	P	
9: D	D	500 € à moins de 650 €	2150 € à moins de 2900 €	26000 € à moins de 35000 €	D	20.791
10: H	H	650 € ou plus	2900 € ou plus	35000 € ou plus	H	25.123
77: Refus						30.288
88: Ne sait pas						36.545

**F32^ TOON KAART 73** Als u het inkomen uit alle bronnen optelt, welke letter op deze kaart komt overeen met het totale netto-inkomen<sup>32</sup> van uw huishouden? Indien u het precieze inkomen niet weet, geef dan een schatting. Gebruik het deel van de kaart dat voor u het gemakkelijkst is: wekelijkse of jaarinkomen. Welke letter op deze kaart komt overeen met het totale netto-inkomen van uw huishouden?



# Belgium ESS 2008

With **tax register**  
as source for the  
answer categories



Cases weighted by Design weight

Error Bars: 95% Confidence Interval

Solid line = expected 10% response per category

II - Gezamenlijk belastbaar inkomen

Componenten van het gezamenlijk belastbaar inkomen in % van het totaal

België:

Aantal aangiften : 5.991.864

Decie- len	Per- cen- tielen	Globaal belastbaar inkomen	Beroepsinkomsten Income from work				Inkom- sten uit kapitalen en roerende goederen	Inkomsten uit on- roerende goederen	Diverse inkomsten	
			van zelfs- tandigen	Lonen en wedden	Pensioenen	Werkloos- heidsuitke- ringen				Ziekte- en invaliditeits- uitkeringen
<b>Totaal</b>		<b>147.130.975.784</b>	<b>9,64</b>	<b>59,32</b>	<b>11,43</b>	<b>8,88</b>	<b>2,61</b>	<b>0,02</b>	<b>2,46</b>	<b>0,14</b>
01		939.456.077	4,40	59,57	10,67	11,24	1,26	0,35	3,38	6,13
02		4.837.341.765	6,62	22,36	17,12	21,85	7,77	0,16	1,98	1,12
03		6.718.719.001	4,02	14,51	14,02	21,52	8,87	0,06	1,72	0,29
04		8.295.157.631	4,93	25,03	12,36	11,26	5,94	0,04	2,19	0,25
05		10.320.866.403	5,23	40,35	14,32	13,78	3,98	0,03	2,17	0,14
06		12.490.919.368	5,35	56,09	10,29	13,69	3,37	0,01	2,11	0,08
07		14.997.405.187	6,18	60,76	15,84	13,28	2,55	0,01	2,33	0,05
08		18.792.865.493	8,09	65,23	19,80	13,97	2,21	0,01	2,64	0,04
09		25.333.506.479	8,94	72,24	13,19	11,24	1,70	0,00	2,66	0,02

From self-employment

Wages and salaries

Pensions

Unemployment benefits

Sickness and invalidity

From capital and property

From rental or land

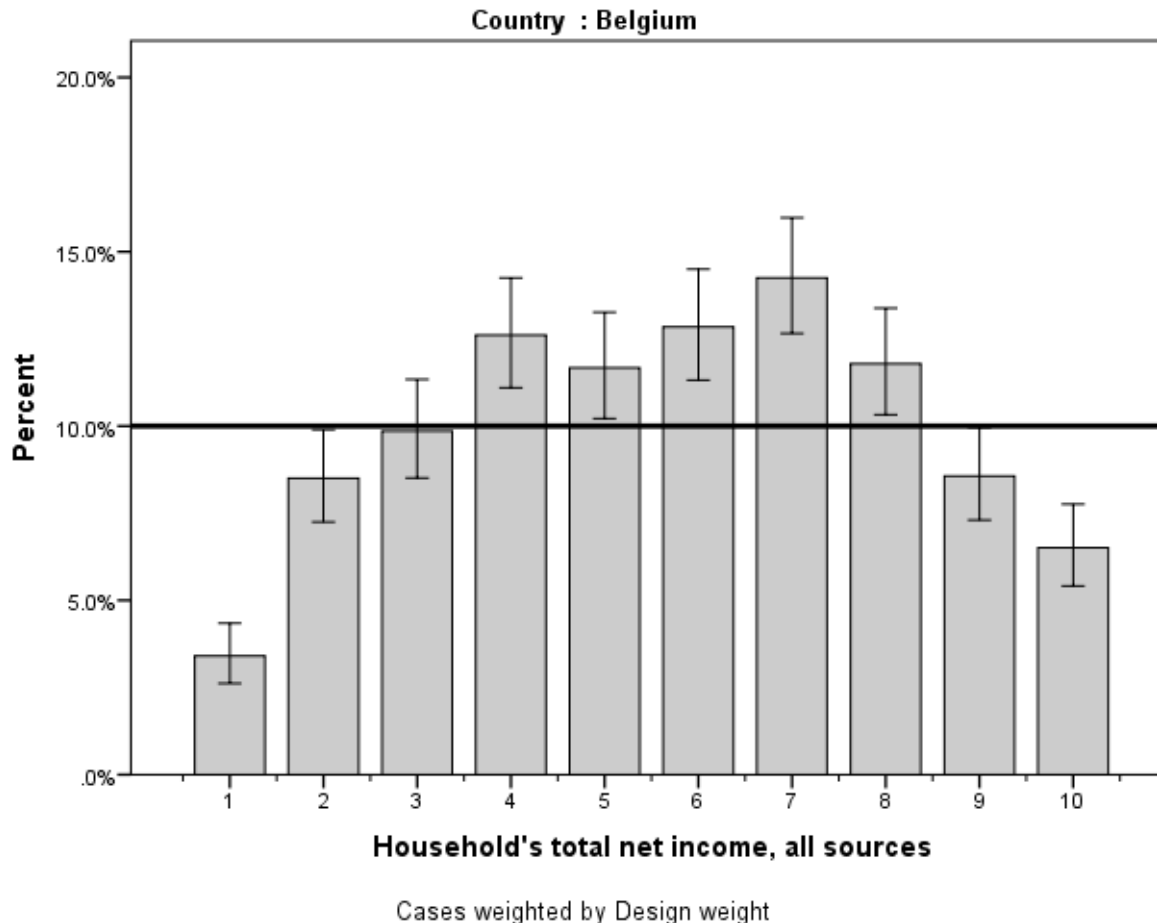
others

- **Problems with Belgium ESS 2008:**

- Limited number of income sources for the calculation of income brackets:  
“from all sources” (ESS) <-> “total TAXABLE” (BE):  
wages and salaries, unemployment benefits, profits from self-employment, old-age pensions, sickness and invalidity benefits, profits from capital and property
- Not included in the calculation are  
social benefits, public and private transfers, grants, other not taxed incomes
- EU-SILC lists 23 income sources to calculate the total disposable household income, BE used 9 sources  
➔ National tax register as a weak reference statistic

# Belgium ESS 2012

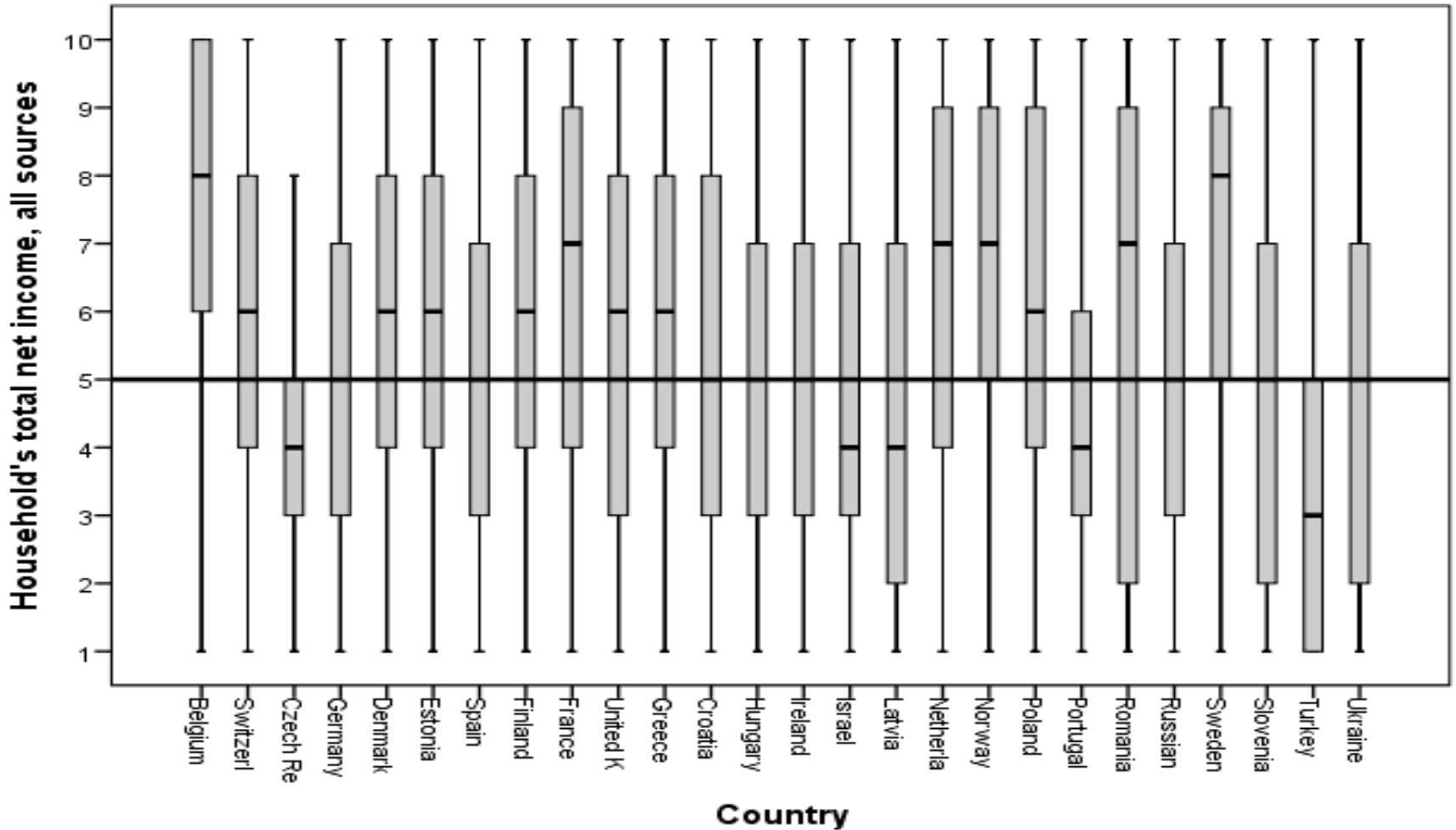
With **EU-SILC** as source for the answer categories



Error Bars: 95% Confidence Interval

Solid line = expected 10% response per category

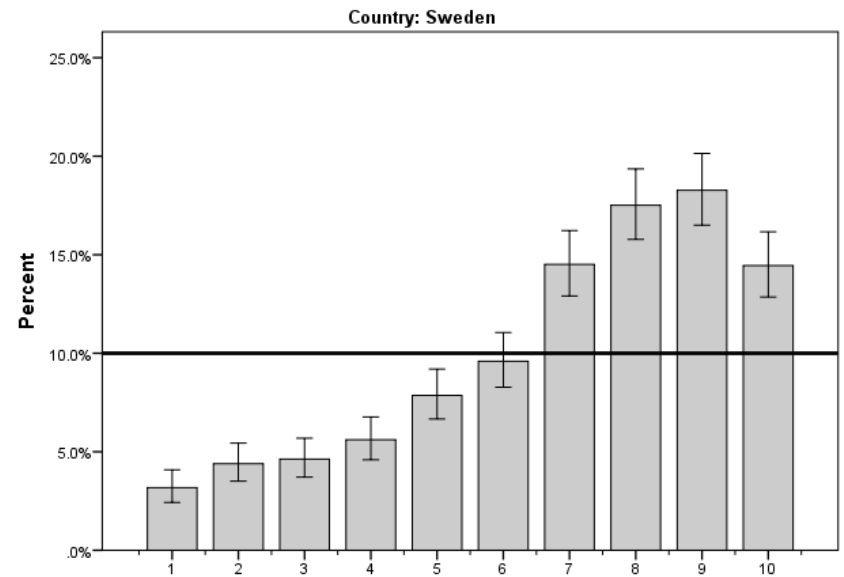
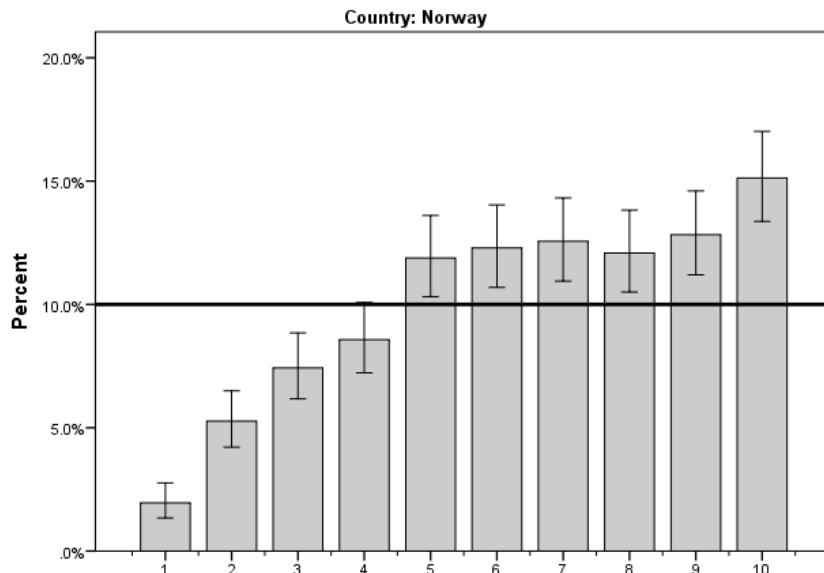
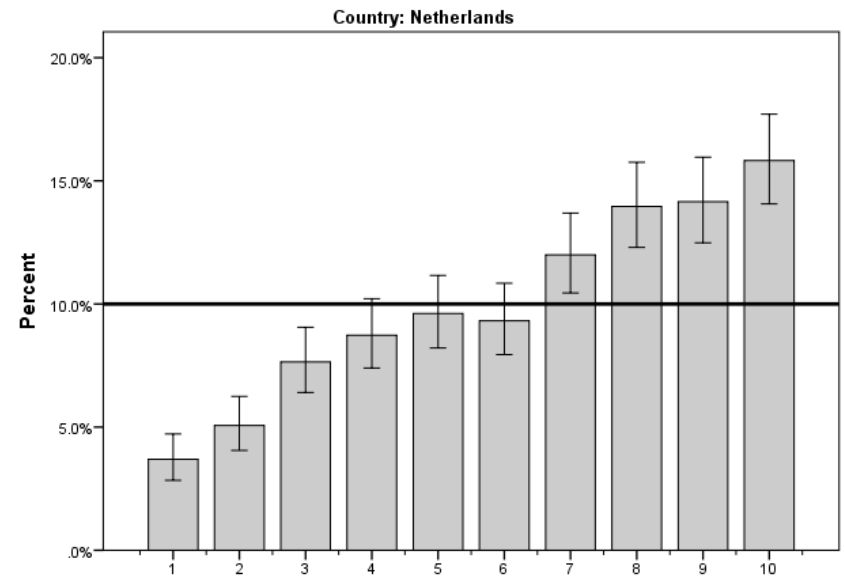
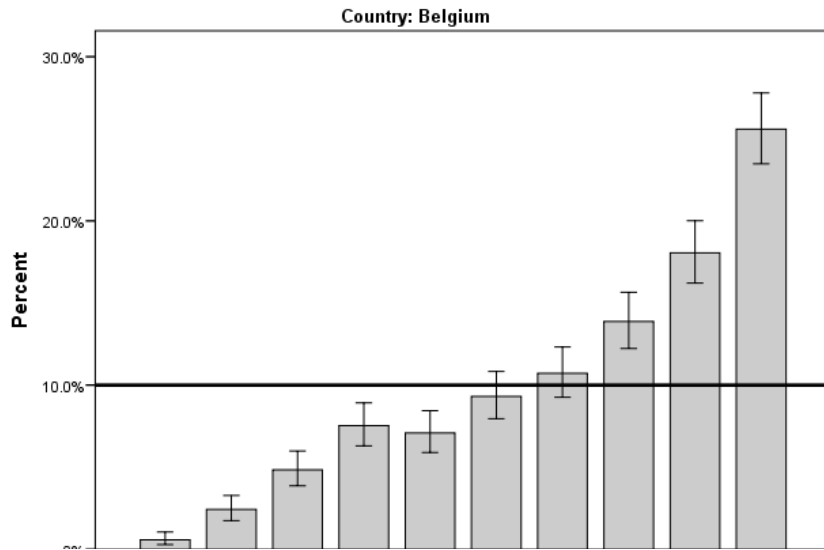
# ESS 2008



Cases weighted by Design weight

Solid line = expected mean of response = median of income distribution

# 2008 Countries with **register** data as reference



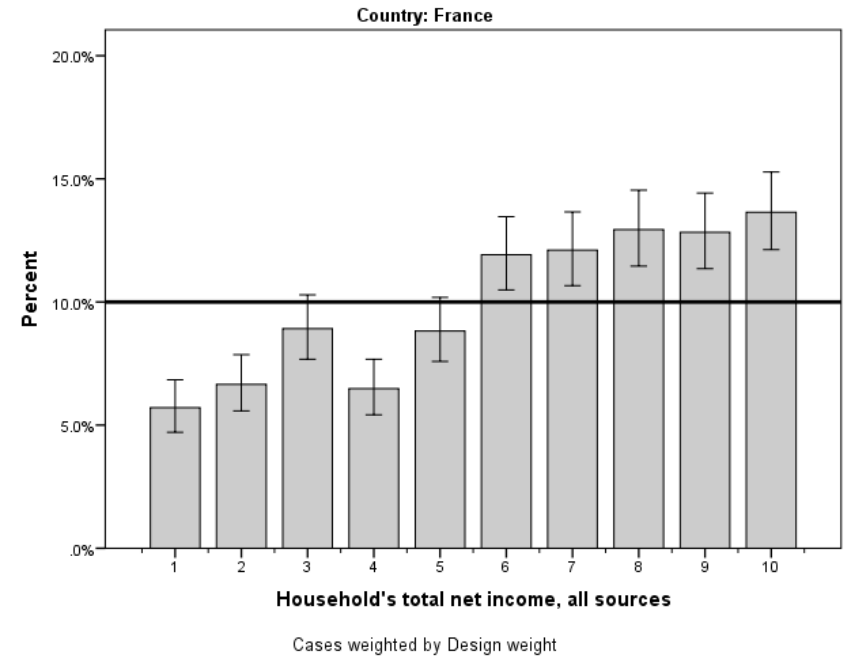
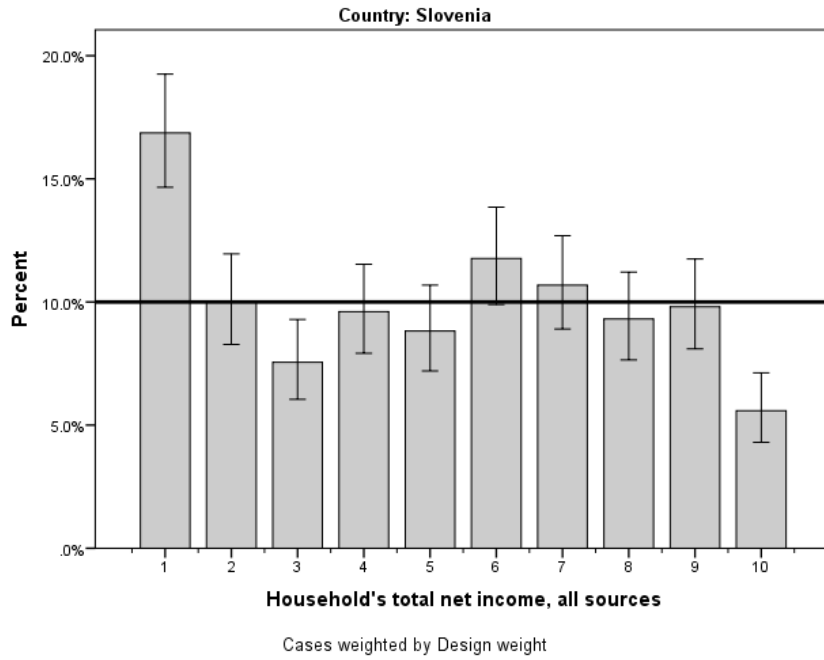
Household's total net income, all sources

Cases weighted by Design weight

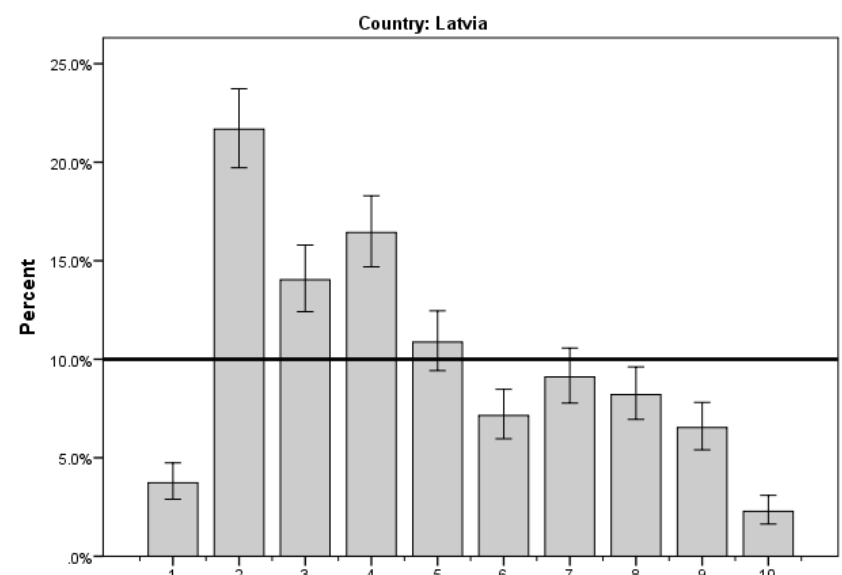
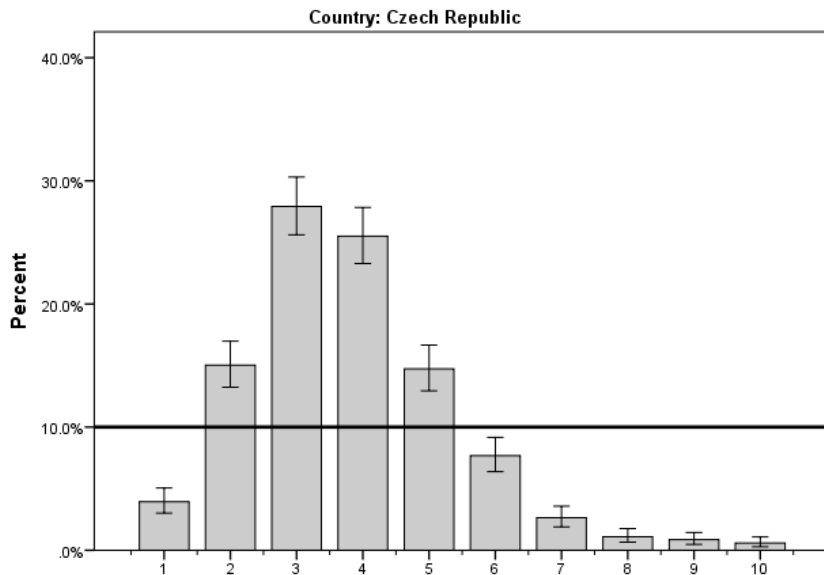
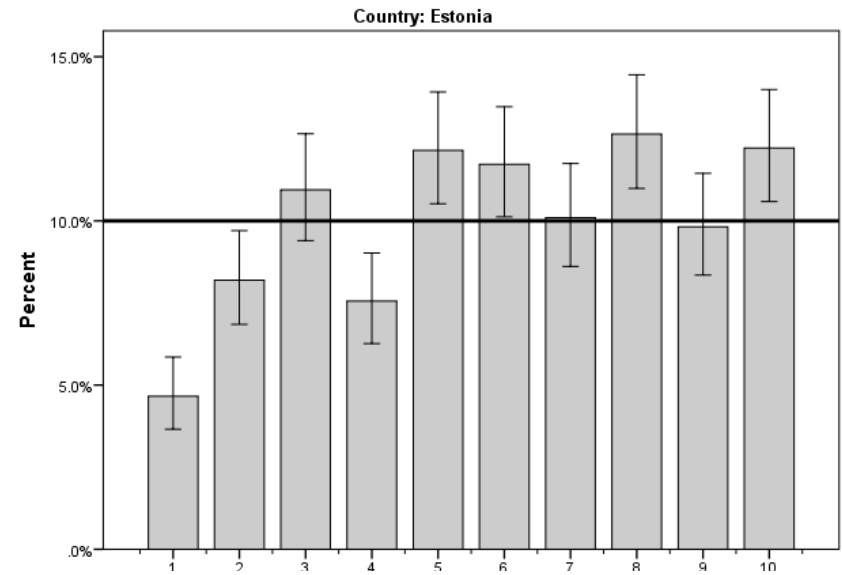
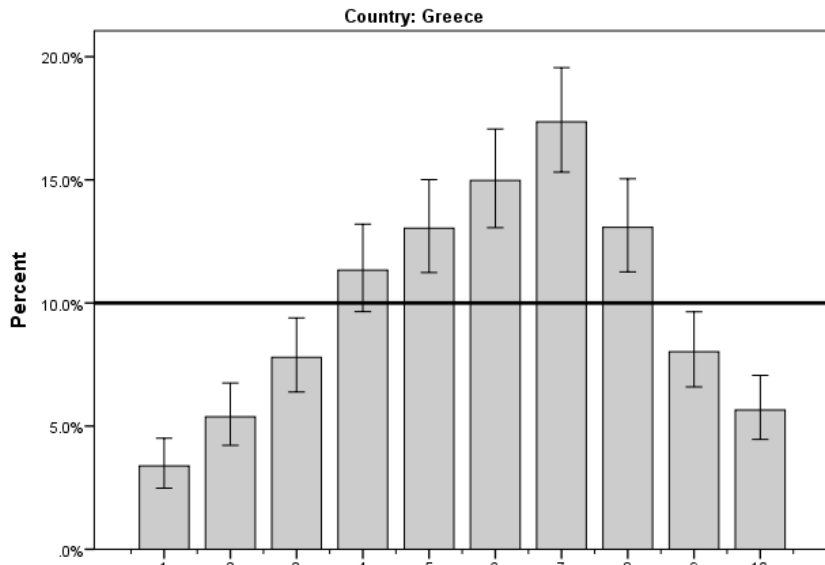
Household's total net income, all sources

Cases weighted by Design weight

# 2008 Countries with **census** data as reference



# 2008 Countries with EU-SILC data as reference



Household's total net income, all sources

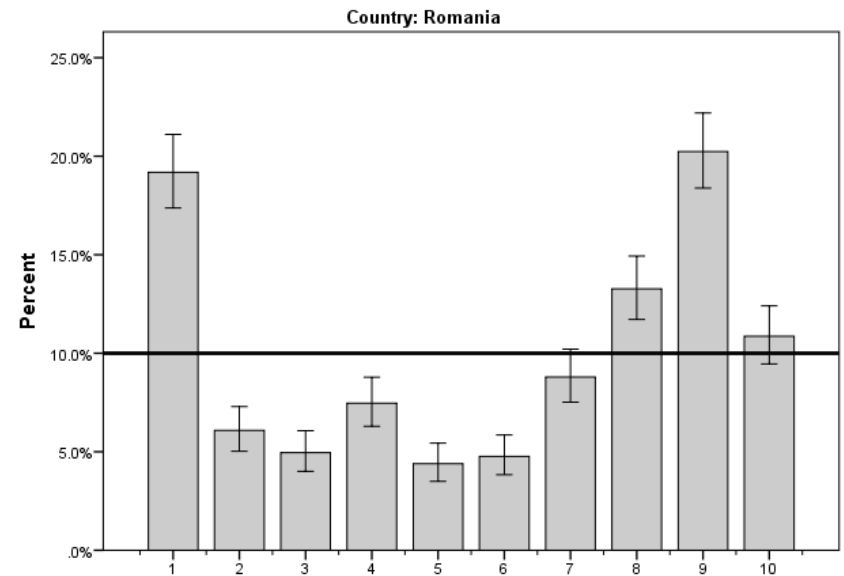
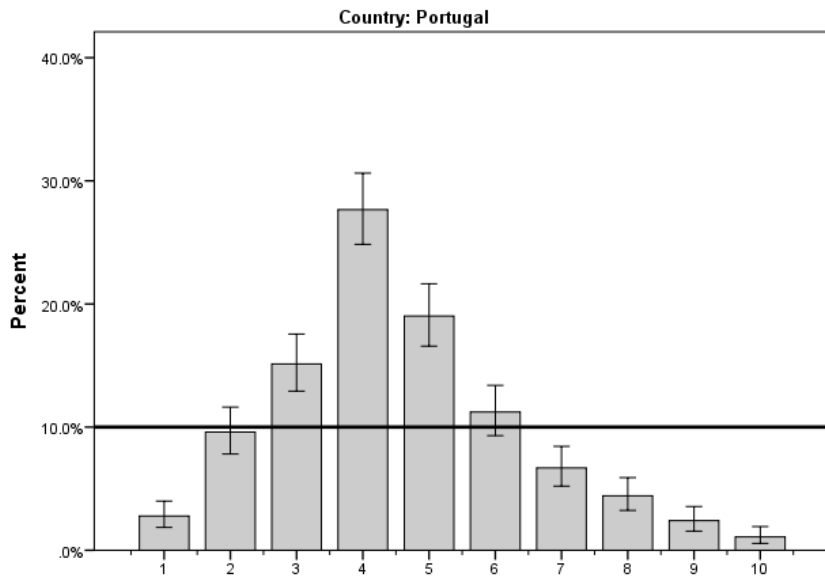
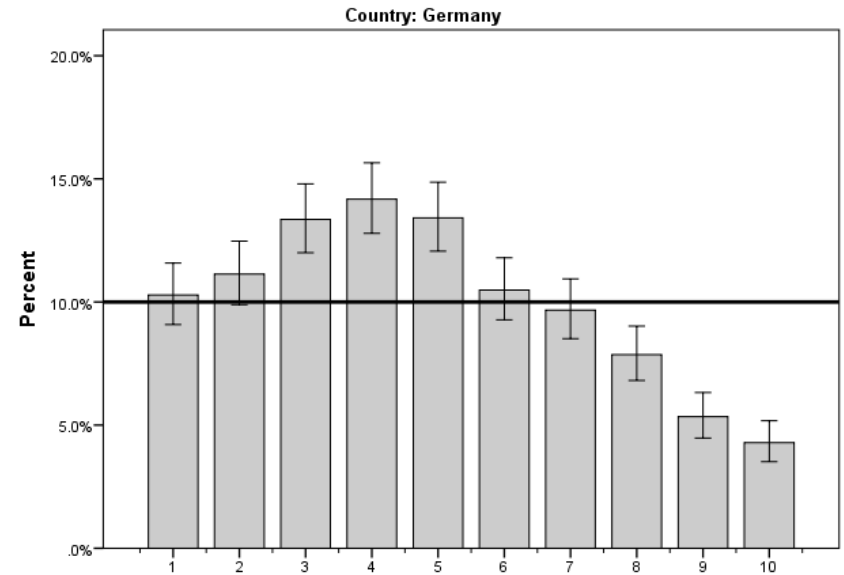
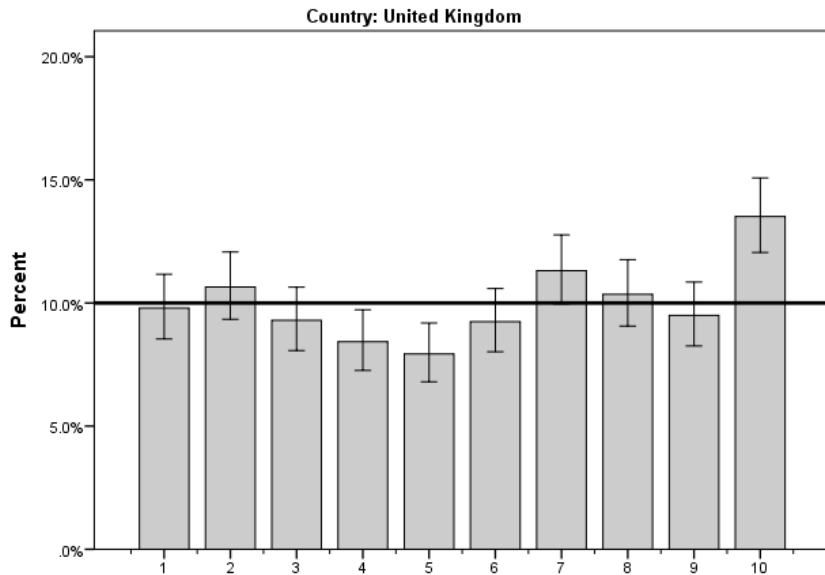
Household's total net income, all sources

Cases weighted by Design weight

Cases weighted by Design weight



# 2008 Countries with **other surveys** as reference



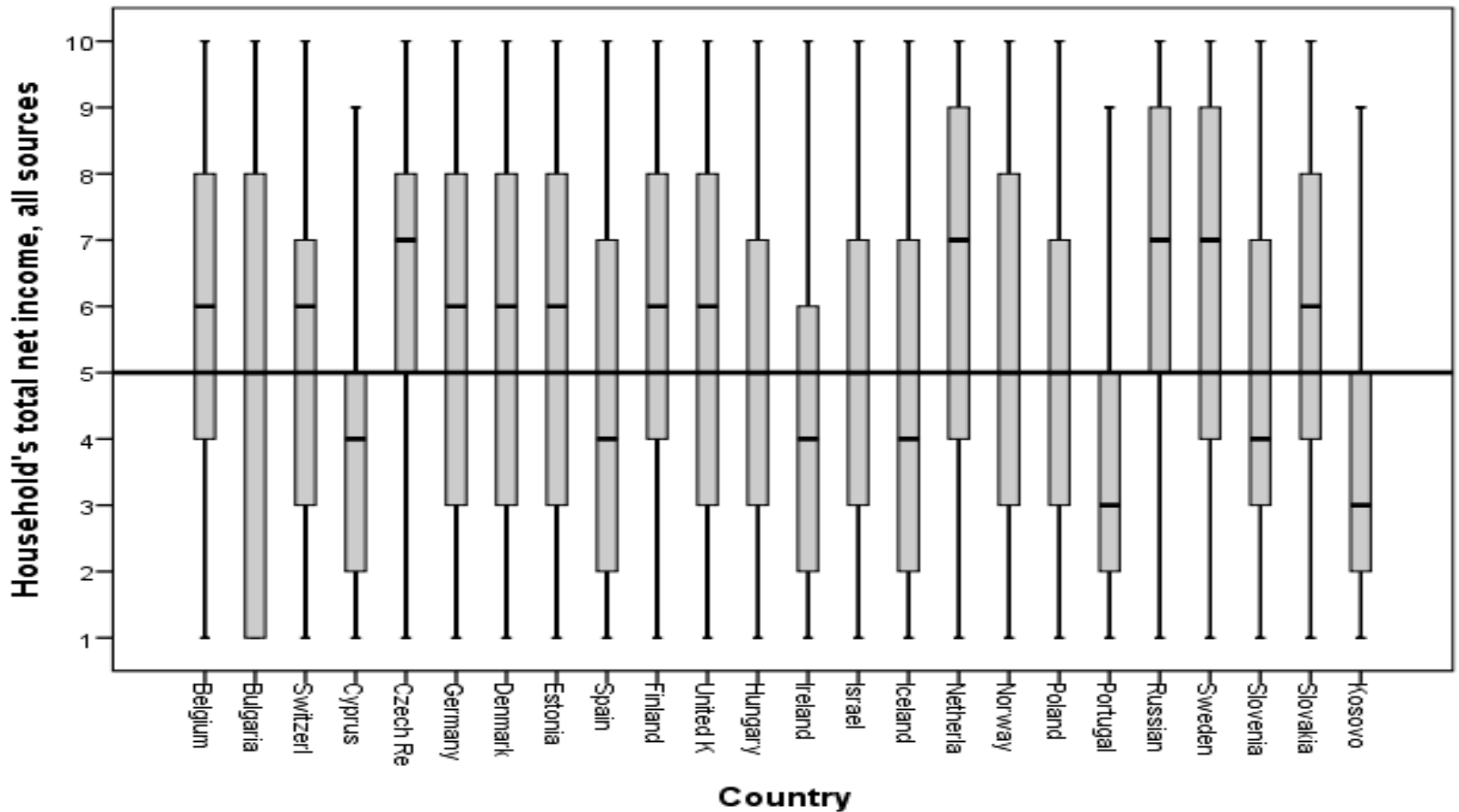
Household's total net income, all sources

Cases weighted by Design weight

Household's total net income, all sources

Cases weighted by Design weight

# ESS 2012



Cases weighted by Design weight

Solid line = expected mean in response = median of income distribution

# Summary:

source

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1,00 SILC	19	24.7	24.7	24.7
2,00 survey	41	53.2	53.2	77.9
3,00 register	13	16.9	16.9	94.8
4,00 census	4	5.2	5.2	100.0
Total	77	100.0	100.0	

deviation

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1 large	22	28.6	28.6	28.6
2 medium	26	33.8	33.8	62.3
3 small	29	37.7	37.7	100.0
Total	77	100.0	100.0	

source \* deviation Crosstabulation

Count

		dev			Total
		1 large	2 medium	3 small	
source	1,00 SILC	7	9	3	19
	2,00 survey	11	13	17	41
	3,00 register	4	4	5	13
	4,00 census	0	0	4	4
Total		22	26	29	77

Out of 29 countries with small deviations 20 countries used national surveys or SILC about the income distributions

There are no statistical relations between the used data sources and the response frequencies about the “total net household income” in the surveys

			Value	Asymp. Std. Error <sup>a</sup>	Approx. T <sup>b</sup>	Approx. Sig.
Nominal by Nominal	Lambda	Symmetric	.071	.039	1.767	.077
		source	.000	.000	.c	.c
		dev Dependent	.125	.068	1.767	.077
			Value	Asymp. Std. Error <sup>a</sup>	Approx. T <sup>b</sup>	Approx. Sig.
Nominal by Nominal	Phi		.375			.093
	Cramer's V		.265			.093
	Contingency Coefficient		.351			.093

## **Conclusion on construct and face validity:**

- shows that the new income variable reflects national income distributions better than the old question
- income categories built on the national deciles eliminates the appearance of empty answer categories in the countries
- census information on income is the most reliable base to calculate the income deciles used for the national answer categories
- (tax-) registers do not cover all household income sources; e.g. private transfers, not taxed income sources, etc
- (tax-) registers are difficult to aggregate incomes on the household level , because of incomplete memberships in housekeeping units
- surveys and EU-SILC introduce biases because of systematic non-response and non-contact to particular populations; e.g low income households