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Weighting for R1-R5 (DACE project, DACE WP12)

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1 Introduction

We present here results on post-stratification weighting, which was a task of the DACE project (Task 3 in WP12). Population weighting was carried out for 34 countries on every released round (R1-R5). In order to correct the data (margins) to some known population values we used post-stratification and/or raking method. The weighting procedure included four control variables: gender, age, education and region. All the details about strategy, procedure, data preparation, handling with missing data etc. are included in Methodological report post-stratification weighting of the ESS[1].

The latest version of computed weights is included in the document, which is also available on page http://mi.ris.org//c/781/ESS_Weighting/. For draft weighting guidelines please see Appendix A at the end of this document.

It should be mentioned that the weights and weighting results presented below are referred to weighting procedure that was applied in May 2013, before additional changes were made according to Task 3A. With the additional Task 3A we further receive country-specific comments, so additional recalculations and weight modifications were implemented in some countries. ***However, these changes were not yet incorporated in this document***, so final datasets may differ for some countries (see the list of countries changed in Report on Task 3a[2]). So this report here still illustrates well the *characteristics* and also effects of the weights on a selected set of target variables, where we can basically observe that effects of the weights on changes in estimates are very small.

In most of the cases the differences in *characteristics* between the weights in this report, and final weights (average, minimum, maximum, variance - before and after trimming) are also very small. Final weights after corrections are available on the following link http://mi.ris.org/uploadi/editor/DnD1398446211Weights.rar, as well as on official location of ESS Data Archive documentation.

[1] Updated version is available on http://mi.ris.org//c/781/ESS_Weighting/

[2] Updated version is available on http://mi.ris.org//c/781/ESS_Weighting/

2 Weighting results

2.1 Round 5

The fifth round was fielded in 2010/11, covering 27 countries (for more information about ESS Round 5, see page http://ess.nsd.uib.no/ess/round5/). As in previous rounds, raking with two tables, the post-stratified three-dimensional GAE table (gender, age, education) and the one-dimensional region, was carried out in most countries (Belgium, Bulgaria, Switzerland, Czech Republic, Germany, Denmark, Spain, Finland, France, Greece, Croatia, Hungary, Ireland, Netherlands, Norway, Poland, Portugal, Russia, Sweden, Slovenia, Slovakia, Ukraine and United Kingdom).

In Cyprus, Estonia and Israel there was only one category in region variable (either in sample data, or in the LFS control source). Therefore, only post-stratification on gender, age and education was performed, without raking it. Moreover, in case of Israel in control data the interaction is known only for gender and age, while education frequencies are given separately. Thus, a two-table raking was performed, where the first table was gender by age and the second education. As described and shown in methodological document (Table 2 in report Post-stratification weighting of the ESS) we used LFS data as controls. Exceptions were only Israel, Russia, Ukraine. In these cases we used data from ESS Appendix, reported by national coordinators. For Norway we used a combination of LFS data and the ESS Appendix[3].

Table 1 presents descriptive statistics (i.e. minimum and maximum value of weights, variance) for newly computed weights for each country. Next, Table 2 demonstrates the effects of weighting (i.e. the relative differences of estimates before and after weighting) for 9 selected variables[4]. Furthermore, relative and standardised biases are presented for i) each country and ii) in total, considering 9 selected variables (Table 3 and 4). More details about calculating the relative and standardized bias are presented in Appendix C.

As we can see in table below, we get the highest calculated weights for United Kingdom, where the highest weight is 12.6. Other countries with the highest weights are Ukraine (9.9), Slovakia (9.1), Cyprus (8.6) and Portugal (8.5). Countries where the highest weight is smaller are Finland (1.5), Estonia, Slovenia and Denmark (1.8). However, all weights above 4 were trimmed, therefore every country has got final weights that are not much higher than 4 (after cutting all the higher values, the weights are rescaled so that the average 1 is preserved, thus those weights which were preliminary trimmed at 4, basically have values slightly above 4). If we look at the variance of those weights

[3] Because of incomplete LFS data (no data for 75+ category) in case of Norway, we used a combination of LFS data and ESS Appendix data for control source. On LFS data we added population 75+ based on the ESS Appendix data. In this calculation normalization and simulation procedures were applied.

[4] Variables included in the analysis are shown in Table 52 in Appendix.

(trimmed at 4) we can find out that the smallest variance of weights have countries such as Finland (0.034), Poland (0.039), Slovenia (0.041) and Switzerland (0.052), whereas the largest variance of weights have countries such as Ukraine (1.073), Portugal (0.596), Slovakia (0.590) and Russia (0.451). This is not surprising because these countries already have the largest variance in design weights – weights which were also used in the process of production of population weights.

Table 1: A description of weights (min, max and variance) for Round 5

		Design weights (dweight)			Weights (uncut)				Weights (cut at 4)		
country	N	Min	Max	Variance	Mean	Min	Max	Variance	Min	Max	Variance
BE	1704	1,000	1,000	0,000	1	0,009	2,511	0,088	0,009	2,511	0,088
BG	2434	0,321	4,000	0,227	1	0,209	4,928	0,384	0,209	4,003	0,380
CH	1506	1,000	1,000	0,000	1	0,517	1,976	0,052	0,517	1,976	0,052
CY	1083	0,704	2,846	0,150	1	0,432	8,643	0,331	0,434	4,020	0,284
CZ	2386	0,377	2,540	0,201	1	0,037	5,139	0,247	0,037	4,004	0,241
DE	3031	0,418	1,324	0,122	1	0,206	4,648	0,243	0,206	4,002	0,240
DK**	1576	1,000	1,000	0,000	1	0,353	1,801	0,134	0,353	1,801	0,134
EE*	1793	1,000	1,000	0,000	1	0,611	1,770	0,055	0,611	1,770	0,055
ES*	1885	0,173	3,347	0,117	1	0,123	3,104	0,086	0,123	3,104	0,086
FI	1878	1,000	1,000	0,000	1	0,671	1,472	0,034	0,671	1,472	0,034
FR	1728	0,098	4,000	0,269	1	0,071	6,104	0,419	0,072	4,014	0,396
GR	2715	0,442	4,000	0,221	1	0,208	7,236	0,321	0,209	4,007	0,307
HR	1649	0,331	3,971	0,239	1	0,023	5,031	0,334	0,023	4,004	0,327
HU*	1561	0,941	1,023	0,001	1	0,592	1,937	0,054	0,592	1,937	0,054
IE**	2576	0,469	4,000	0,271	1	0,305	4,431	0,322	0,306	4,002	0,319
IL	2294	0,234	4,000	0,264	1	0,140	5,181	0,382	0,141	4,007	0,372
NL	1829	0,507	3,042	0,203	1	0,206	4,720	0,382	0,206	4,003	0,378
NO	1548	0,735	1,697	0,036	1	0,290	5,335	0,166	0,290	4,003	0,160
PL	1751	0,813	1,136	0,014	1	0,488	1,926	0,039	0,488	1,926	0,039
PT	2150	0,104	4,000	0,337	1	0,078	8,531	0,669	0,079	4,042	0,596
RU*	2595	0,219	4,000	0,311	1	0,132	6,900	0,479	0,133	4,017	0,451
SE	1497	1,000	1,000	0,000	1	0,220	4,597	0,162	0,220	4,002	0,160
SI	1403	1,000	1,000	0,000	1	0,681	1,776	0,041	0,681	1,776	0,041
SK	1856	0,100	4,000	0,850	1	0,036	9,137	0,689	0,037	4,049	0,590
UA	1931	0,052	4,000	0,970	1	0,017	9,986	1,447	0,018	4,234	1,073
UK**	2422	0,529	3,704	0,207	1	0,233	12,625	0,478	0,236	4,040	0,383

* missings re-allocated instead of ignored

** missings in control data decreased to the sample value and equally re-allocated among other values assuming missing at random (MAR)

In Table 2 below we can observe estimates for 9 selected variables for each country in different variations – when data are unweighted (uw), weighted by design weight (dw) or weighted by final weights with three versions (uncut weights – w; weights, trimmed at 2 – w2; weights, trimmed at 4 – w4). All these data enable us to get insight into differences in estimates before and after weighting.

The analysis for Round 5 shows that for 9 specific but standard ESS variables the relative change in estimated mean after weighting (for interpretation weights, trimmed at 4 were used, which are final recommended weights) is predominantly negligible, and typically much below relative change of 5%. For example, in Belgium the average trust in people after weighting is 4.95 and 5.04 when final weight are not applied, which means that the relative change in estimate before and after weighting is 1.96%. In Germany the relative change of estimate for average trust in the European Parliament is 1.35%. Before population weighting the estimate for average trust in the European Parliament is 4.02, while after weighting the estimate is 3.97. For example, in Sweden the average satisfaction with whole life after weighting is 7.89 and 7.91, when final weights are not applied, which is also negligible difference (relative change is 0.22%). However, there are still examples with the relative change after weighting to approach or even surpass 5%. In case of Slovakia we can find the relative change 8.26%. Also in Portugal relative change surpass 5%. In case of variable, which measures satisfaction with the present state of economy in country, the estimate of average satisfaction before weighting is 2.38, and 2.51 after weighting.

In accordance with that results, also the average relative change (or bias) for these variables is in general small (around 1%). The highest average relative bias is noticed for variable *ppltrst* ('trust into people'), which counts 1.31%, and variable *lrscale* ('placement on left right scale') has the lowest average relative bias (0.58%). Meanwhile, the variable with the highest average standardised bias is also variable *ppltrst* (average standardised bias is 1.10), while variable with the lowest average standardised bias is variable *trstep* ('trust in the European Parliament'), with value 0.48.

In Table 4 below we can see, that countries with the highest average relative bias are Slovakia (2.6%), Portugal (2.4%), Ukraine (1.6%) and Cyprus (1.6%). On the contrary, Hungary (0.26%) Spain (0.34%), Finland (0.43%) and Slovenia (0.43%) are among countries with the lowest average relative bias. But in general, all countries in ESS round 5 have small average relative bias.

At the same time, it should be mentioned that weighted estimates move towards the characteristics of the less educated segment, which is expected, because with weighting procedure in the majority of countries we have increased percentage of less educated people (for details see document on page http://mi.ris.org//c/781/ESS_Weighting/). Therefore, it is not surprising that after weighting, estimates show smaller trust in people and their fairness, and also more negative opinion, that people are helpful. Moreover, after weighting, people have less trust in the European Parliament, and are in general less satisfied with their lives, economy, government and democracy in their country.

Cyprus, Estonia, Ireland, Netherlands and Portugal are among countries, where the weighting has decreased the segment of the less educated and increased the segment of the higher educated (exception is Netherlands, where weighting decreased also the percentage of the higher educated people), thus it is not surprising that after weighting in many cases estimates moved rather in opposite

direction, i.e. toward the characteristics of the more educated segment. Of course, there are also some exceptions, which in case of small, predominantly negligible differences in estimates before and after weighting, even more likely to arise. Besides that, we should take into account that also other control variables (age, region and gender) have their own impact on final estimates.

Table 2: Effects of the weights in Round 5 - estimates for the means for 9 selected variables

Variable		BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IL	NL	NO	PL	PT	RU	SE	SI	SK	UA	UK
ppltrst - Most people can be trusted or you can't be too careful (*0 - You can't be too careful; 10 - Most people can be trusted*)	uw	5,04	3,50	5,64	3,91	4,51	4,65	6,84	5,67	5,14	6,50	4,33	4,02	4,57	4,48	5,12	5,17	6,00	6,68	4,39	3,72	4,16	6,34	3,94	4,00	4,17	5,36
	dw	5,04	3,51	5,64	3,79	4,59	4,73	6,84	5,67	5,08	6,50	4,31	4,02	4,64	4,48	5,25	5,13	6,02	6,66	4,36	3,73	4,19	6,34	3,94	4,51	4,22	5,35
	w	4,95	3,52	5,62	3,90	4,57	4,69	6,73	5,66	5,08	6,48	4,25	4,02	4,56	4,48	5,28	5,07	6,03	6,62	4,30	3,87	4,19	6,31	3,96	4,17	4,10	5,28
	w2	4,95	3,52	5,62	3,90	4,57	4,70	6,73	5,66	5,09	6,48	4,25	4,02	4,56	4,48	5,26	5,09	6,03	6,63	4,30	3,83	4,19	6,32	3,96	4,14	4,06	5,30
	w4	4,95	3,52	5,62	3,90	4,57	4,69	6,73	5,66	5,08	6,48	4,25	4,02	4,56	4,48	5,28	5,07	6,03	6,62	4,30	3,86	4,19	6,31	3,96	4,17	4,08	5,28
	RD	1,96	0,17	0,49	2,86	0,46	0,85	1,61	0,18	0,05	0,43	1,44	0,03	1,73	0,11	0,56	1,27	0,13	0,58	1,57	3,43	0,03	0,53	0,49	8,26	3,46	1,31
pplfair - Most people try to take advantage of you, or try to be fair (*0 - Most people would try to take advantage of me; 10 - Most people would try to be fair*)	uw	5,87	4,33	6,41	4,20	5,09	5,87	7,18	6,13	5,29	6,76	5,81	3,92	4,79	4,84	5,72	5,22	6,48	6,95	5,05	4,95	5,02	6,70	4,49	4,47	4,45	5,62
	dw	5,87	4,38	6,41	4,09	5,13	5,89	7,18	6,13	5,27	6,76	5,80	3,93	4,89	4,84	5,84	5,23	6,49	6,95	5,04	4,97	5,08	6,70	4,49	4,89	4,56	5,60
	w	5,81	4,37	6,37	4,16	5,11	5,86	7,06	6,10	5,25	6,74	5,77	3,92	4,80	4,83	5,88	5,16	6,51	6,92	4,99	5,02	5,13	6,64	4,52	4,57	4,48	5,55
	w2	5,81	4,36	6,37	4,17	5,11	5,88	7,06	6,10	5,25	6,74	5,78	3,92	4,79	4,83	5,87	5,17	6,51	6,94	4,99	5,01	5,10	6,65	4,52	4,56	4,43	5,56
	w4	5,81	4,37	6,37	4,15	5,11	5,87	7,06	6,10	5,25	6,74	5,77	3,92	4,80	4,83	5,88	5,16	6,51	6,92	4,99	5,02	5,13	6,64	4,52	4,57	4,45	5,55
	RD	1,18	0,27	0,67	1,54	0,29	0,49	1,60	0,52	0,37	0,41	0,53	0,28	1,86	0,38	0,73	1,35	0,31	0,45	0,90	0,98	0,88	0,88	0,57	6,88	2,45	0,90
pplhlp - Most of the time people helpful or mostly looking out for themselves (*0 - People mostly look out for themselves; 10 - People mostly try to be helpful*)	uw	4,76	3,30	5,58	3,84	4,35	5,01	6,17	5,23	4,83	5,82	4,46	3,25	3,89	4,71	5,61	4,90	5,64	6,09	3,86	3,92	4,24	6,15	4,41	4,11	3,89	5,79
	dw	4,76	3,30	5,58	3,74	4,42	5,02	6,17	5,23	4,83	5,82	4,39	3,25	3,95	4,71	5,72	4,91	5,60	6,10	3,86	3,95	4,29	6,15	4,41	4,44	3,91	5,75
	w	4,72	3,31	5,53	3,72	4,40	5,00	6,11	5,21	4,75	5,80	4,44	3,25	3,84	4,71	5,74	4,86	5,60	6,09	3,82	3,99	4,33	6,06	4,42	4,25	3,79	5,71
	w2	4,72	3,30	5,53	3,75	4,40	5,01	6,11	5,21	4,75	5,80	4,44	3,26	3,84	4,71	5,73	4,86	5,62	6,10	3,82	3,98	4,29	6,07	4,42	4,21	3,76	5,71
	w4	4,72	3,31	5,53	3,72	4,40	5,00	6,11	5,21	4,75	5,80	4,45	3,25	3,84	4,71	5,74	4,86	5,60	6,09	3,82	3,99	4,32	6,06	4,42	4,24	3,76	5,70
	RD	0,74	0,20	0,90	0,59	0,42	0,26	0,94	0,46	1,57	0,48	1,21	0,00	2,77	0,14	0,48	1,02	0,00	0,16	1,01	0,85	0,90	1,49	0,25	4,85	4,01	0,81
trstep - Trust in the European Parliament (*0 - No trust at all; 10 - Complete trust*)	uw	5,03	4,73	4,56	5,15	4,00	3,93	4,97	5,17	4,48	5,09	4,24	2,56	3,30	4,75	4,00	3,36	4,93	4,98	4,72	3,66	3,98	4,96	3,74	4,42	3,94	3,27
	dw	5,03	4,83	4,56	5,04	4,05	4,02	4,97	5,17	4,46	5,09	4,27	2,57	3,31	4,75	4,08	3,36	4,94	4,99	4,71	3,68	3,97	4,96	3,74	4,43	3,97	3,36
	w	5,00	4,79	4,60	5,05	4,05	3,97	4,96	5,17	4,46	5,08	4,26	2,58	3,31	4,73	4,11	3,32	5,02	4,99	4,67	3,74	3,94	5,02	3,76	4,44	3,87	3,36
	w2	5,00	4,77	4,60	5,06	4,05	3,98	4,96	5,17	4,47	5,08	4,24	2,59	3,31	4,73	4,09	3,33	5,01	4,99	4,67	3,74	3,96	5,02	3,76	4,42	3,96	3,33
	w4	5,00	4,79	4,60	5,04	4,05	3,97	4,96	5,17	4,46	5,08	4,26	2,59	3,31	4,73	4,11	3,32	5,02	4,99	4,67	3,74	3,95	5,02	3,76	4,43	3,91	3,35
	RD	0,68	0,81	0,98	0,06	0,04	1,35	0,15	0,13	0,03	0,09	0,25	0,74	0,20	0,26	0,62	1,09	1,58	0,08	0,90	1,63	0,53	1,18	0,34	0,04	1,42	0,44
lrscale - Placement on left right scale (*0 -*	uw	4,98	5,38	5,12	5,14	5,30	4,54	5,20	5,43	4,64	5,71	4,70	5,11	4,87	5,97	4,96	5,68	5,30	5,49	5,63	4,97	5,19	5,54	4,85	4,77	5,14	5,07
	dw	4,98	5,51	5,12	5,09	5,43	4,65	5,20	5,43	4,67	5,71	4,71	5,14	4,89	5,98	4,97	5,74	5,34	5,49	5,62	4,97	5,25	5,54	4,85	4,97	5,20	5,03

Left; 10 - Right)	w	4,93	5,58	5,09	5,12	5,37	4,65	5,20	5,48	4,64	5,66	4,72	5,16	4,95	5,98	4,97	5,79	5,32	5,51	5,62	4,91	5,23	5,54	4,87	4,93	5,27	5,03
	w2	4,94	5,56	5,09	5,14	5,38	4,64	5,20	5,48	4,64	5,66	4,74	5,16	4,94	5,98	4,97	5,77	5,31	5,51	5,62	4,93	5,22	5,53	4,87	4,89	5,24	5,03
	w4	4,93	5,58	5,09	5,12	5,38	4,65	5,20	5,48	4,64	5,66	4,73	5,16	4,95	5,98	4,97	5,79	5,32	5,51	5,62	4,91	5,23	5,54	4,87	4,92	5,28	5,03
	RD	0,96	-1,16	0,66	-0,59	0,93	-0,09	0,02	-0,80	0,57	0,82	-0,38	0,51	-1,15	0,09	0,04	-0,73	-0,45	-0,27	0,10	-1,17	0,48	0,06	-0,42	1,01	-1,36	0,03
stflife - How satisfied with life as a whole (*0 - Extremely dissatisfied; 10 - Extremely satisfied*)	uw	7,51	4,74	8,14	7,16	6,30	7,11	8,35	6,52	7,32	7,94	6,21	5,65	6,15	5,84	6,46	7,41	7,69	7,93	7,01	5,87	5,60	7,91	6,97	6,41	4,66	7,10
	dw	7,51	4,88	8,14	7,14	6,41	7,25	8,35	6,52	7,30	7,94	6,34	5,71	6,33	5,83	6,59	7,49	7,77	7,93	7,00	5,93	5,70	7,91	6,97	6,56	4,82	7,17
	w	7,45	4,97	8,11	7,21	6,38	7,24	8,29	6,57	7,31	7,92	6,34	5,64	6,21	5,83	6,61	7,51	7,77	7,91	6,95	6,10	5,77	7,89	6,97	6,51	4,83	7,11
	w2	7,45	4,94	8,11	7,20	6,39	7,24	8,29	6,57	7,32	7,92	6,30	5,64	6,19	5,83	6,61	7,52	7,77	7,92	6,95	6,07	5,73	7,89	6,97	6,49	4,74	7,12
	w4	7,45	4,97	8,11	7,21	6,38	7,24	8,29	6,57	7,31	7,92	6,33	5,64	6,20	5,83	6,61	7,51	7,77	7,91	6,95	6,09	5,76	7,89	6,97	6,50	4,79	7,11
	RD	0,78	-1,86	0,28	-0,95	0,35	0,21	0,67	-0,77	-0,16	0,19	0,11	1,17	1,98	0,01	-0,34	-0,31	-0,01	0,32	0,78	-2,72	-1,10	0,22	0,03	0,89	0,81	0,92
stfeco - How satisfied with present state of economy in country (*0 - Extremely dissatisfied; 10 - Extremely satisfied*)	uw	5,04	2,35	6,60	4,25	3,47	5,23	5,40	4,17	2,72	6,04	3,30	1,34	2,55	3,16	2,49	4,69	5,70	7,51	4,45	2,36	3,67	6,49	2,87	3,55	2,27	3,46
	dw	5,04	2,38	6,60	4,18	3,48	5,34	5,40	4,17	2,74	6,04	3,36	1,34	2,55	3,16	2,52	4,73	5,72	7,47	4,45	2,38	3,66	6,49	2,87	3,62	2,28	3,49
	w	5,01	2,39	6,56	4,11	3,48	5,31	5,38	4,21	2,73	6,03	3,40	1,37	2,56	3,19	2,51	4,66	5,73	7,46	4,41	2,52	3,70	6,46	2,91	3,72	2,28	3,50
	w2	5,01	2,38	6,56	4,13	3,48	5,32	5,38	4,21	2,73	6,03	3,36	1,37	2,55	3,19	2,51	4,67	5,72	7,47	4,41	2,48	3,70	6,47	2,91	3,68	2,24	3,47
	w4	5,01	2,39	6,56	4,11	3,48	5,31	5,38	4,21	2,73	6,03	3,39	1,37	2,56	3,19	2,51	4,67	5,72	7,46	4,41	2,51	3,70	6,46	2,91	3,71	2,26	3,49
	RD	0,49	-0,20	0,62	-1,79	0,21	0,49	0,31	-0,85	0,34	0,15	-0,94	-2,23	0,36	0,91	-0,27	-1,44	-0,05	0,22	-1,02	-5,39	-1,24	0,41	-1,39	-2,41	-0,71	0,12
stfgov - How satisfied with the national government (*0 - Extremely dissatisfied; 10 - Extremely satisfied*)	uw	3,65	3,40	5,94	4,87	3,39	3,70	4,61	4,33	2,96	5,44	3,51	1,84	2,48	4,38	3,53	3,87	5,27	5,30	3,91	2,41	4,52	6,11	2,65	3,56	2,34	4,27
	dw	3,65	3,45	5,94	4,91	3,43	3,79	4,61	4,33	2,96	5,44	3,53	1,82	2,43	4,39	3,56	3,88	5,30	5,30	3,91	2,40	4,50	6,11	2,65	3,63	2,25	4,29
	w	3,67	3,44	5,95	4,77	3,42	3,78	4,62	4,36	2,96	5,41	3,53	1,84	2,47	4,38	3,56	3,86	5,32	5,31	3,86	2,48	4,55	6,08	2,64	3,67	2,29	4,26
	w2	3,67	3,44	5,95	4,77	3,43	3,77	4,62	4,36	2,96	5,41	3,53	1,85	2,48	4,38	3,56	3,86	5,31	5,31	3,86	2,46	4,55	6,09	2,64	3,66	2,24	4,27
	w4	3,67	3,44	5,95	4,76	3,42	3,78	4,62	4,36	2,96	5,41	3,54	1,84	2,47	4,38	3,56	3,86	5,32	5,31	3,86	2,47	4,55	6,08	2,64	3,69	2,27	4,26
	RD	-0,49	-0,32	-0,09	-3,18	0,20	-0,42	-0,30	-0,82	-0,09	-0,47	-0,13	-1,01	-1,65	-0,13	-0,21	-0,53	-0,44	-0,18	-1,09	-3,03	-1,04	-0,55	-0,25	-1,53	-0,89	-0,71
stfdem - How satisfied with the way democracy works in country (*0 - Extremely dissatisfied; 10 - Extremely satisfied*)	uw	5,20	3,08	7,07	5,75	4,80	5,10	6,94	5,09	5,09	6,26	4,21	2,98	3,79	4,42	4,86	5,17	6,16	6,93	5,04	3,56	3,88	6,75	3,20	4,05	3,07	4,95
	dw	5,20	3,14	7,07	5,78	4,85	5,31	6,94	5,09	5,10	6,26	4,24	2,98	3,77	4,42	4,94	5,22	6,18	6,93	5,04	3,54	3,85	6,75	3,20	4,17	3,17	4,97
	w	5,20	3,16	7,07	5,71	4,83	5,27	6,89	5,13	5,08	6,23	4,27	3,02	3,75	4,42	4,97	5,20	6,22	6,94	4,98	3,57	3,88	6,79	3,21	4,24	3,21	4,95
	w2	5,20	3,15	7,07	5,70	4,84	5,28	6,89	5,13	5,08	6,23	4,24	3,03	3,77	4,42	4,96	5,21	6,22	6,94	4,98	3,58	3,89	6,79	3,21	4,19	3,15	4,95
	w4	5,20	3,16	7,07	5,71	4,83	5,28	6,89	5,13	5,08	6,23	4,27	3,02	3,76	4,42	4,97	5,21	6,22	6,94	4,98	3,57	3,88	6,79	3,21	4,24	3,19	4,95
	RD	0,03	-0,67	-0,06	-1,38	0,30	0,64	0,85	-0,93	0,38	0,40	-0,63	-1,43	0,49	0,05	-0,61	-0,21	-0,66	-0,12	-1,11	-0,85	-0,86	-0,58	-0,29	-1,55	-0,64	0,54

--uw - unweighted data; dw - dweighted data; w - weighted data; w2 - weighted data, trimmed at 2; w4 - weighted data, trimmed at 4. Last row (RD) presents relative difference of estimates before and after weighting ((dw – w4)/w4*100)

Table 3: Relative and standardised bias in Round 5, considering 9 selected variables

	Weights (uncut)						Weights (cut at 2)						Weights (cut at 4)					
	Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias		
Variable	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max
ppltrst	1,303	-3,729	8,229	1,100	-2,984	5,531	1,260	-3,012	8,889	1,034	-2,085	5,938	1,308	-3,425	8,262	1,100	-2,733	5,551
pplfair	1,046	-1,640	7,022	1,067	-1,056	5,504	1,063	-1,948	7,261	1,049	-1,257	5,678	1,063	-1,542	6,878	1,083	-1,076	5,398
pplhlp	0,975	-1,120	4,551	0,859	-0,955	3,397	0,965	-1,011	5,500	0,833	-0,862	4,069	1,020	-1,206	4,846	0,892	-1,030	3,607
trstep	0,660	-1,582	2,677	0,478	-1,688	1,438	0,575	-1,455	1,140	0,431	-1,440	0,881	0,601	-1,627	1,419	0,447	-1,683	1,186
lrscale	0,556	-1,317	1,266	0,523	-1,168	1,135	0,564	-1,004	1,589	0,521	-0,866	1,183	0,572	-1,359	1,174	0,536	-1,173	1,053
stflife	0,664	-2,826	1,935	0,891	-3,562	2,088	0,685	-2,302	2,192	0,884	-2,887	2,358	0,690	-2,725	1,976	0,912	-3,431	2,130
stfeco	0,944	-5,626	1,692	0,695	-3,658	1,411	0,842	-4,199	1,815	0,607	-2,689	1,212	0,945	-5,392	1,790	0,691	-3,496	1,317
stfgov	0,782	-3,359	3,063	0,536	-1,976	1,924	0,697	-2,617	2,901	0,477	-1,527	1,825	0,760	-3,032	3,183	0,525	-1,777	1,997
stfdem	0,648	-1,542	1,335	0,581	-1,251	1,125	0,559	-1,776	1,492	0,519	-1,144	1,227	0,626	-1,547	1,376	0,568	-1,255	1,133

Legend	
ppltrst	Most people can be trusted or you can't be too careful (0 - You can't be too careful; 10 - Most people can be trusted)
pplfair	Most people try to take advantage of you, or try to be fair (0 - Most people would try to take advantage of me; 10 - Most people would try to be fair)
pplhlp	Most of the time people helpful or mostly looking out for themselves (0 - People mostly look out for themselves; 10 - People mostly try to be helpful)
trstep	Trust in the European Parliament (0 - No trust at all; 10 - Complete trust)
lrscale	Placement on left right scale (0 - Left; 10 - Right)
stflife	How satisfied with life as a whole (0 - Extremely dissatisfied; 10 - Extremely satisfied)
stfeco	How satisfied with present state of economy in country (0 - Extremely dissatisfied; 10 - Extremely satisfied)
stfgov	How satisfied with the national government (0 - Extremely dissatisfied; 10 - Extremely satisfied)
stfdem	How satisfied with the way democracy works in country (0 - Extremely dissatisfied; 10 - Extremely satisfied)

Table 4: Relative and standardised bias for each country in Round 5 (average, minimum and maximum values, considering 9 selected variables)

	Weights (uncut)						Weights (cut at 2)						Weights (cut at 4)					
	Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias		
Country	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max
Belgium	0,804	-1,249	1,964	0,864	-0,781	1,915	0,767	-1,063	1,942	0,831	-0,664	1,894	0,804	-1,249	1,964	0,864	-0,781	1,915
Bulgaria	0,794	-2,209	0,878	0,729	-2,501	0,658	0,650	-1,476	1,140	0,580	-1,659	0,847	0,788	-2,166	0,839	0,721	-2,452	0,683
Croatia	1,304	-1,589	2,800	1,047	-0,804	2,088	1,304	-2,007	2,649	1,076	-0,927	2,358	1,310	-1,653	2,769	1,055	-0,851	2,130
Cyprus	1,556	-3,011	3,063	1,168	-1,632	2,943	1,526	-3,012	2,901	1,135	-1,632	2,696	1,554	-2,855	3,183	1,170	-1,545	2,921
Czech Rep.	0,596	-3,072	0,961	0,462	-1,367	0,987	0,497	-2,489	0,858	0,389	-1,101	0,882	0,587	-2,961	0,935	0,458	-1,316	0,961
Denmark**	0,768	-0,299	1,613	1,022	-0,235	2,446	0,768	-0,299	1,613	1,022	-0,235	2,446	0,768	-0,299	1,613	1,022	-0,235	2,446
Estonia*	0,843	-0,933	3,081	0,711	-1,089	1,491	0,843	-0,933	3,081	0,711	-1,089	1,491	0,843	-0,933	3,081	0,711	-1,089	1,491
Finland	0,425	0,091	1,125	0,535	0,090	0,978	0,425	0,091	1,125	0,535	0,090	0,978	0,425	0,091	1,125	0,535	0,090	0,978
France	0,586	-1,120	1,427	0,479	-0,955	1,163	0,543	-1,011	1,411	0,510	-0,862	1,150	0,576	-1,206	1,437	0,490	-1,030	1,171
Germany	0,582	-1,146	1,379	0,664	-0,911	1,207	0,439	-0,744	1,002	0,506	-0,589	0,881	0,573	-1,125	1,355	0,653	-0,894	1,186
Greece	0,858	-2,159	1,345	0,752	-1,271	1,936	0,943	-2,230	1,142	0,755	-1,144	1,643	0,870	-2,228	1,270	0,740	-1,188	1,830
Hungary*	0,257	-0,908	0,592	0,177	-0,569	0,311	0,257	-0,908	0,592	0,177	-0,569	0,311	0,257	-0,908	0,592	0,177	-0,569	0,311
Ireland**	0,473	-0,729	0,814	0,552	-1,043	0,767	0,323	-0,498	0,750	0,372	-0,749	0,708	0,474	-0,730	0,828	0,554	-1,044	0,780
Israel	1,019	-2,598	1,540	0,897	-1,905	1,495	0,827	-1,904	1,321	0,771	-1,386	1,399	0,966	-2,578	1,437	0,870	-1,890	1,468
Netherlands	0,472	-1,582	1,400	0,533	-1,688	0,895	0,481	-1,353	1,226	0,562	-1,440	0,785	0,471	-1,577	1,412	0,531	-1,683	0,902
Norway**	0,267	-0,237	0,574	0,375	-0,242	0,786	0,199	-0,310	0,444	0,267	-0,314	0,609	0,265	-0,272	0,579	0,373	-0,276	0,793
Poland	0,851	-0,239	1,572	0,756	-0,253	1,172	0,851	-0,239	1,572	0,756	-0,253	1,172	0,851	-0,239	1,572	0,756	-0,253	1,172
Portugal	2,469	-5,626	4,789	2,195	-3,658	4,938	1,966	-4,199	3,720	1,759	-2,887	3,876	2,377	-5,392	4,570	2,119	-3,496	4,723
Russia*	0,787	-1,217	1,083	0,716	-1,477	0,939	0,667	-1,185	1,289	0,617	-0,961	1,115	0,752	-1,236	1,077	0,690	-1,335	0,934
Slovakia	2,540	-2,474	8,229	1,906	-1,815	5,531	2,586	-1,494	8,889	1,976	-1,086	5,938	2,583	-2,414	8,262	1,937	-1,770	5,551
Slovenia	0,429	-1,394	0,555	0,260	-0,726	0,318	0,429	-1,394	0,555	0,260	-0,726	0,318	0,429	-1,394	0,555	0,260	-0,726	0,318
Spain*	0,339	-0,156	1,571	0,354	-0,316	1,562	0,386	-0,215	1,601	0,407	-0,401	1,592	0,339	-0,156	1,571	0,354	-0,316	1,562
Sweden	0,764	-1,182	2,531	0,742	-0,982	1,821	0,834	-1,228	3,534	0,756	-1,020	1,654	0,772	-1,182	2,563	0,749	-0,982	1,821
Switzerland	0,482	-0,983	0,903	0,530	-0,732	0,934	0,482	-0,983	0,903	0,530	-0,732	0,934	0,482	-0,983	0,903	0,530	-0,732	0,934
Ukraine	1,473	-1,787	3,124	1,010	-1,136	2,134	1,688	-0,698	4,157	1,257	-0,598	2,811	1,558	-1,359	4,014	1,125	-1,173	2,718
United Kingdom**	0,567	-0,336	1,370	0,749	-0,282	1,670	0,657	-0,074	1,000	0,750	-0,089	1,240	0,653	0,034	1,311	0,825	0,041	1,600

* missings re-allocated instead of ignored

** missings in control data decreased to the sample value and equally re-allocated among other values assuming missing at random (MAR)

2.2 Round 4

The fourth round was fielded in 2008/09, covering 30 countries (for more information about ESS Round 4, see page http://ess.nsd.uib.no/ess/round4/). As in all other rounds, raking with two tables, the post-stratified three-dimensional GAE table (gender, age, education) and the one-dimensional region, was carried out in most countries (Belgium, Bulgaria, Switzerland, Czech Republic, Germany, Denmark, Spain, Finland, France, Greece, Croatia, Hungary, Ireland, Netherlands, Norway, Poland, Portugal, Romania, Russia, Sweden, Slovenia, Slovakia, Turkey, Ukraine and United Kingdom).

In Cyprus, Estonia, Latvia and Lithuania there was only one category in region variable (either in sample data, or in the LFS control source). Therefore, only post-stratification on gender, age and education was performed, without raking it. Moreover, in case of Israel in control data the interaction is known only for gender and age, while education frequencies are given separately. Thus, a three-table raking was performed, where the first table was gender by age, the second was education and the third region. As described and shown in methodological document (Table 2 in report Post-stratification weighting of the ESS) we used LFS data as controls. Exceptions were only Israel, Russia and Ukraine. In these cases we used data from ESS Appendix, reported by national coordinators. For Norway we used a combination of LFS data and the ESS Appendix.

As in previous chapter 5 a Table 5 below presents descriptive statistics (i.e. minimum and maximum value of weights, variance) for newly computed weights for each country in ESS round 4. Next, Table 6 demonstrates the effects of weighting (i.e. the relative differences of estimates before and after weighting) for 9 selected variables. Furthermore, relative and standardised biases are presented for i) each country and ii) in total, considering 9 selected variables (Table 7 and 8).

As we can see in table below, we get the highest calculated weights for Spain, where the highest weight is 15.1. Other countries with the highest weights are Croatia (11.9), Slovakia (11.0), Ukraine (11.0) and United Kingdom (10.3). Countries where the highest weight is smaller are Estonia (1.4), Finland (1.5), Lithuania (1.6), Poland (1.6) and Slovenia (1.9). However, all weights above 4 were trimmed, therefore every country has got final weights that are not much higher than 4 (after cutting all the higher values, the weights are rescaled so that the average 1 is preserved, thus those weights which were preliminary trimmed at 4, basically have values slightly above 4). If we look at the variance of those weights (trimmed at 4) we can find out that the smallest variance of weights have countries such as Finland (0.022), Poland (0.039), Slovenia (0.043) Belgium (0.063), Estonia (0.066), Lithuania (0.073) and Sweden (0.083), whereas the largest variance of weights have countries such as Ukraine (0.95), Turkey (0.91), Slovakia (0.74) and Portugal (0.55). This is not surprising because these countries already have the largest variance in design weights – weights which were also used in the process of production of population weights.

Table 5: A description of weights (min, max and variance) for Round 4

		Design weights (dweight)			Weights (uncut)				Weights (cut at 4)		
country	N	Min	Max	Variance	Mean	Min	Max	Variance	Min	Max	Variance
BE	1760	0,981	1,029	0,000	1	0,559	2,020	0,063	0,559	2,020	0,063
BG	2230	0,310	3,114	0,227	1	0,245	5,298	0,338	0,245	4,003	0,334
CH	1819	0,541	3,804	0,240	1	0,208	3,662	0,250	0,208	3,662	0,250
CY	1215	0,722	2,920	0,196	1	0,505	7,864	0,360	0,507	4,021	0,313
CZ	2018	0,156	4,000	0,311	1	0,023	5,991	0,352	0,023	4,005	0,343
DE	2751	0,539	1,252	0,116	1	0,275	3,518	0,275	0,275	3,518	0,275
DK**	1610	1,000	1,000	0,000	1	0,333	4,602	0,318	0,344	4,007	0,308
EE**	1661	1,000	1,000	0,000	1	0,464	1,421	0,066	0,464	1,421	0,066
ES	2576	0,163	2,896	0,215	1	0,126	15,078	0,355	0,126	4,017	0,284
FI	2195	1,000	1,000	0,000	1	0,562	1,453	0,022	0,562	1,453	0,022
FR	2073	0,327	3,638	0,196	1	0,215	4,502	0,286	0,215	4,001	0,285
GR	2072	0,239	3,567	0,251	1	0,111	4,210	0,338	0,111	4,000	0,337
HR	1484	0,275	4,000	0,274	1	0,074	11,939	0,719	0,075	4,077	0,557
HU*	1544	0,025	1,140	0,137	1	0,046	4,166	0,494	0,047	4,001	0,493
IE*	1764	0,279	3,657	0,264	1	0,138	6,754	0,650	0,142	4,039	0,587
IL	2490	0,148	4,000	0,406	1	0,086	9,280	0,620	0,087	4,048	0,521
LT	2002	1,000	1,000	0,000	1	0,460	1,556	0,073	0,460	1,556	0,073
LV*	1980	0,157	4,000	0,158	1	0,109	5,729	0,258	0,109	4,013	0,236
NL	1778	0,505	3,535	0,223	1	0,290	3,824	0,273	0,290	3,824	0,273
NO	1549	1,000	1,000	0,000	1	0,480	8,176	0,286	0,482	4,011	0,260
PL	1619	0,809	1,139	0,014	1	0,554	1,583	0,039	0,554	1,583	0,039
PT	2367	0,139	4,000	0,303	1	0,078	6,045	0,580	0,079	4,018	0,554
RO	2146	0,265	3,618	0,242	1	0,158	4,523	0,301	0,158	4,001	0,299
RU*	2512	0,193	4,000	0,332	1	0,120	5,316	0,443	0,121	4,009	0,430
SE**	1830	1,000	1,000	0,000	1	0,368	3,324	0,083	0,371	3,324	0,083
SI	1286	1,000	1,000	0,000	1	0,595	1,941	0,043	0,595	1,941	0,043
SK	1810	0,068	4,000	0,901	1	0,028	10,985	0,975	0,029	4,125	0,736
TR	2416	0,012	4,000	1,794	1	0,005	9,398	1,040	0,005	4,083	0,914
UA	1845	0,040	4,000	0,942	1	0,014	10,985	1,280	0,015	4,197	0,948
UK**	2352	0,507	4,000	0,243	1	0,182	10,317	0,674	0,199	4,071	0,528

* missings re-allocated instead of ignored

** missings in control data decreased to the sample value and equally re-allocated among other values assuming missing at random (MAR)

In Table 6 below we can observe estimates for 9 selected variables for each country in different variations – when data are unweighted (uw), weighted by design weight (dw) or weighted by final weights with three versions (uncut weights – w; weights, trimmed at 2 – w2; weights, trimmed at 4 – w4). All these data enable us to get insight into differences in estimates before and after weighting. The analysis for Round 4 shows that for 9 specific but standard ESS variables the relative change in estimated mean after weighting (for interpretation weights, trimmed at 4 were used, which are final

recommended weights) is predominantly negligible, and typically much below relative change of 5%. For example, in case of France the average trust in people after weighting is 4.36 and 4.46 when final weight are not applied, which means that the relative change in estimate before and after weighting is 2.42%. In Germany the relative change of estimate for average trust in the European Parliament is 1.66%. Before population weighting the estimate for average trust in the European Parliament is 4.43, while after weighting the estimate is 4.36. For example, in case of Bulgaria the average satisfaction with whole life after weighting is 4.41 and 4.48, when final weights are not applied, which is also negligible difference (relative change is 1.47%). However, there are still examples with the relative change after weighting to approach or even surpass 5%. In case of Turkey we can even find the relative change 11.82%. This change appears for variable that measures trust in the European parliament, where the estimate of average trust before weighting is 3.58, and 3.20 after weighting.

In accordance with that results, also the average relative change (or bias) for these variables is in general small (around 1%). The highest average relative bias is noticed for variable *stfeco* (‘satisfaction with present state of economy in country’), which counts 1.29%, and variable *lrscale* (‘placement on left right scale’) has the lowest average relative bias (0.67%). Meanwhile, the variable with the highest average standardised bias is variable *ppltrst* (‘trust into people’), where average standardised bias is 1.09, while variable with the lowest average standardised bias is variable *stfdem* (‘satisfaction with the way democracy works in country), with value 0.59.

In Table 8 below we can see, that countries with the highest average relative bias are Turkey (4.3%), Ukraine (2.2%) and Hungary (2.1%). On the contrary, Poland (0.1%), Finland (0.25%), Sweden (0.27%) and Switzerland (0.29%) are among countries with the lowest average relative bias. But in general, all countries in ESS round 4 have small average relative bias, except Turkey has somewhat larger average relative (4.3%) and standardised bias (2.3).

Table 6: of the weights in Round 4 - estimates for the means for 9 selected variables

Variable		BE	BG	CH	CY	CZ	DE	DK	EE	ES	FI	FR	GR	HR	HU	IE	IL	LV	LT	NL	NO	PL	PT	RO	RU	SE	SI	SK	TR	UA	UK
ppltrst - Most people can be trusted (10) or you can't be too careful (*0)*	uw	5,13	3,43	5,70	4,58	4,67	4,84	6,92	5,44	4,90	6,45	4,45	3,92	4,17	4,15	5,45	5,25	4,12	4,41	5,89	6,62	4,17	3,65	3,79	3,94	6,35	4,32	3,99	2,29	3,98	5,27
	dw	5,13	3,45	5,72	4,48	4,80	4,94	6,92	5,44	4,94	6,45	4,46	3,92	4,29	4,09	5,49	5,29	4,10	4,41	5,96	6,62	4,13	3,65	3,82	3,98	6,35	4,32	4,14	2,34	4,11	5,29
	w	5,06	3,46	5,73	4,47	4,77	4,85	6,70	5,45	4,98	6,43	4,36	3,91	4,16	4,10	5,41	5,24	4,13	4,38	5,96	6,50	4,13	3,69	3,86	3,98	6,32	4,29	4,13	2,20	3,97	5,15
	w2	5,06	3,46	5,75	4,49	4,78	4,86	6,73	5,45	4,98	6,43	4,37	3,90	4,15	4,09	5,40	5,20	4,16	4,38	5,95	6,52	4,13	3,69	3,85	3,97	6,33	4,29	4,04	2,28	3,99	5,16
	w4	5,06	3,46	5,73	4,48	4,77	4,85	6,70	5,45	4,99	6,43	4,36	3,91	4,15	4,10	5,40	5,23	4,14	4,38	5,96	6,50	4,13	3,69	3,86	3,98	6,32	4,29	4,11	2,23	3,97	5,14
	RD	1,44	-0,28	-0,26	0,08	0,64	1,85	3,20	-0,08	-0,92	0,25	2,42	0,27	3,58	-0,35	1,76	1,14	-1,06	0,62	0,01	1,86	-0,02	-0,98	-1,19	-0,07	0,45	0,59	0,66	4,91	3,39	2,86
pplfair - Most people try to take advantage of you (0), or try to be fair (*10*	uw	5,91	4,28	6,37	4,86	5,28	5,92	7,27	5,80	5,29	6,78	5,80	3,68	4,44	4,62	5,98	5,50	5,27	4,73	6,33	6,89	4,90	4,96	3,67	5,03	6,66	4,99	4,58	3,18	4,33	5,68
	dw	5,91	4,31	6,39	4,81	5,33	5,94	7,27	5,80	5,32	6,78	5,80	3,69	4,55	4,58	6,05	5,49	5,31	4,73	6,40	6,89	4,88	5,01	3,71	4,99	6,66	4,99	4,67	3,06	4,46	5,69
	w	5,86	4,29	6,41	4,80	5,30	5,89	7,14	5,79	5,35	6,76	5,76	3,67	4,50	4,49	5,93	5,43	5,29	4,70	6,40	6,82	4,88	5,01	3,71	4,97	6,65	4,94	4,75	2,97	4,31	5,56
	w2	5,86	4,29	6,41	4,83	5,32	5,89	7,16	5,79	5,35	6,76	5,76	3,66	4,48	4,51	5,95	5,42	5,29	4,70	6,40	6,84	4,88	5,02	3,71	4,98	6,65	4,94	4,65	3,08	4,35	5,58
	w4	5,86	4,29	6,41	4,82	5,31	5,89	7,14	5,79	5,36	6,76	5,76	3,67	4,49	4,49	5,93	5,43	5,30	4,70	6,40	6,82	4,88	5,01	3,71	4,97	6,65	4,94	4,72	3,01	4,33	5,56
	RD	0,89	0,47	-0,24	-0,05	0,43	0,81	1,71	0,22	-0,62	0,34	0,75	0,73	1,34	2,11	1,93	1,09	0,19	0,59	-0,05	1,09	-0,07	-0,08	-0,13	0,26	0,14	1,01	-1,05	1,66	3,04	2,25
pplhlp - Most of the time people helpful (10) or mostly looking out for themselves (*0)*	uw	4,77	3,13	5,58	4,39	4,29	5,01	6,20	4,89	4,44	5,74	4,50	3,32	3,52	4,31	6,05	4,87	4,98	3,91	5,45	6,04	3,67	3,81	3,36	4,03	6,10	4,82	4,07	2,98	3,63	5,62
	dw	4,77	3,13	5,60	4,32	4,33	5,02	6,20	4,89	4,53	5,74	4,48	3,32	3,60	4,28	6,09	4,86	5,01	3,91	5,44	6,04	3,66	3,84	3,40	4,05	6,10	4,82	4,12	2,86	3,72	5,58
	w	4,73	3,15	5,57	4,32	4,32	4,98	6,08	4,88	4,53	5,73	4,47	3,35	3,56	4,22	6,07	4,83	5,00	3,91	5,47	6,03	3,67	3,89	3,42	4,02	6,08	4,79	4,17	2,76	3,58	5,50
	w2	4,73	3,15	5,57	4,34	4,32	4,99	6,09	4,88	4,53	5,73	4,48	3,34	3,56	4,24	6,04	4,86	5,00	3,91	5,47	6,03	3,67	3,89	3,41	4,00	6,08	4,79	4,14	2,85	3,58	5,52
	w4	4,73	3,15	5,57	4,33	4,32	4,98	6,09	4,88	4,53	5,73	4,47	3,35	3,56	4,22	6,07	4,85	5,00	3,91	5,47	6,03	3,67	3,89	3,42	4,02	6,08	4,79	4,17	2,80	3,58	5,50
	RD	0,73	-0,55	0,52	-0,12	0,13	0,81	1,87	0,20	0,00	0,20	0,31	-0,77	0,93	1,35	0,35	0,32	0,26	-0,13	-0,58	0,15	-0,23	-1,17	-0,44	0,73	0,28	0,57	-1,10	2,13	3,92	1,44
trstep - Trust in the European Parliament (*0 - No trust at all; 10 - Complete trust*)	uw	5,14	4,56	4,73	5,96	3,87	4,27	5,05	5,01	4,93	5,15	4,53	4,40	3,59	4,12	4,70	3,96	3,89	4,90	5,03	4,97	4,55	4,36	5,43	4,09	4,66	4,83	5,24	3,15	3,42	3,48
	dw	5,14	4,63	4,83	5,99	3,94	4,30	5,05	5,01	4,95	5,15	4,62	4,43	3,59	4,04	4,73	3,93	3,93	4,90	5,07	4,97	4,52	4,33	5,42	4,04	4,66	4,83	5,20	3,58	3,58	3,60
	w	5,09	4,62	4,84	5,95	3,93	4,34	5,08	5,03	4,98	5,18	4,56	4,36	3,59	4,04	4,76	3,81	3,94	4,90	5,11	4,92	4,52	4,35	5,41	4,01	4,71	4,81	5,26	3,18	3,42	3,55
	w2	5,09	4,65	4,83	5,98	3,94	4,35	5,07	5,03	4,97	5,18	4,55	4,36	3,58	4,03	4,74	3,83	3,93	4,90	5,09	4,92	4,52	4,34	5,41	4,02	4,71	4,81	5,25	3,24	3,46	3,52
	w4	5,09	4,63	4,84	5,96	3,94	4,34	5,08	5,03	4,98	5,18	4,56	4,36	3,60	4,04	4,76	3,81	3,94	4,90	5,11	4,92	4,52	4,35	5,41	4,01	4,71	4,81	5,28	3,20	3,44	3,54
	RD	0,86	0,10	-0,10	0,50	0,20	-0,90	-0,58	-0,46	-0,60	-0,47	1,27	1,66	-0,21	0,21	-0,66	3,29	-0,37	0,07	-0,79	1,12	0,11	-0,48	0,19	0,89	-1,05	0,39	-1,37	11,82	3,85	1,78
lrscale - Placement on left right scale (*0 - Left; 10 - Right*)	uw	4,93	4,92	4,92	5,07	5,42	4,54	5,31	5,19	4,54	5,72	4,79	5,12	5,26	5,56	5,13	6,10	5,75	5,26	5,15	5,33	5,75	4,83	5,59	5,39	5,12	4,63	4,73	5,80	5,26	5,01
	dw	4,93	4,98	4,94	5,04	5,55	4,68	5,31	5,19	4,55	5,72	4,77	5,16	5,30	5,57	5,15	6,25	5,79	5,26	5,15	5,33	5,75	4,79	5,62	5,39	5,12	4,63	4,86	5,66	5,16	4,99
	w	4,90	5,05	4,96	5,02	5,49	4,70	5,28	5,24	4,55	5,69	4,80	5,21	5,30	5,61	5,11	6,26	5,74	5,22	5,16	5,29	5,74	4,79	5,63	5,41	5,11	4,64	4,88	5,91	5,25	4,97
	w2	4,90	5,04	4,96	5,02	5,52	4,69	5,28	5,24	4,55	5,69	4,80	5,20	5,27	5,61	5,12	6,23	5,74	5,22	5,16	5,31	5,74	4,81	5,63	5,41	5,12	4,64	4,83	5,91	5,26	5,00
	w4	4,90	5,05	4,96	5,02	5,50	4,70	5,27	5,24	4,55	5,69	4,80	5,21	5,29	5,61	5,11	6,25	5,74	5,22	5,16	5,30	5,74	4,80	5,63	5,41	5,11	4,64	4,87	5,92	5,26	4,98
	RD	0,68	-1,47	-0,31	0,45	0,92	-0,34	0,65	-0,96	0,12	0,50	-0,55	-0,94	0,27	-0,71	0,78	0,14	0,84	0,66	-0,15	0,55	0,08	-0,15	-0,12	-0,40	0,20	-0,29	-0,08	-4,45	-1,97	0,25

stflife - How satisfied with life as a whole (*0 - Extremely dissatisfied; 10 - Extremely satisfied*)	uw	7,27	4,31	7,91	7,00	6,57	6,84	8,52	6,20	7,26	7,94	6,25	5,98	6,43	5,31	7,14	7,40	5,88	5,02	7,62	7,89	6,87	5,60	6,02	5,34	7,86	6,93	6,37	5,52	4,03	7,02
	dw	7,27	4,41	7,96	7,08	6,65	6,95	8,52	6,20	7,31	7,94	6,35	6,06	6,67	5,29	7,12	7,44	5,88	5,02	7,69	7,89	6,87	5,72	6,14	5,47	7,86	6,93	6,51	5,68	4,19	7,08
	w	7,22	4,48	7,99	7,08	6,62	6,91	8,47	6,23	7,34	7,93	6,30	5,97	6,42	5,23	7,08	7,50	5,92	5,02	7,70	7,88	6,85	5,77	6,07	5,49	7,85	6,91	6,56	5,60	4,16	7,03
	w2	7,22	4,47	7,99	7,07	6,65	6,91	8,49	6,23	7,33	7,93	6,29	5,96	6,39	5,24	7,11	7,48	5,93	5,02	7,70	7,88	6,85	5,78	6,07	5,45	7,85	6,91	6,47	5,60	4,10	7,04
	w4	7,22	4,48	7,99	7,08	6,62	6,91	8,47	6,23	7,34	7,93	6,30	5,97	6,42	5,23	7,09	7,49	5,92	5,02	7,70	7,88	6,85	5,77	6,07	5,48	7,85	6,91	6,52	5,62	4,13	7,04
	RD	0,77	-1,47	-0,31	0,07	0,44	0,68	0,54	-0,47	-0,40	0,11	0,73	1,54	3,91	1,14	0,42	-0,60	-0,69	0,06	-0,15	0,09	0,18	-0,82	1,19	-0,29	0,12	0,30	-0,23	1,10	1,25	0,50
stfeco - How satisfied with present state of economy in country (as above)	uw	4,29	2,31	5,86	4,84	3,63	4,12	6,21	3,53	3,63	6,10	2,99	2,37	2,95	1,82	2,64	4,19	1,80	2,32	5,47	6,51	4,45	2,81	3,50	3,50	5,00	4,29	4,73	3,11	1,47	3,05
	dw	4,29	2,33	5,90	4,85	3,74	4,23	6,21	3,53	3,57	6,10	3,04	2,35	2,98	1,78	2,61	4,26	1,81	2,32	5,50	6,51	4,44	2,83	3,55	3,53	5,00	4,29	4,82	3,21	1,50	3,13
	w	4,25	2,35	5,91	4,82	3,72	4,17	6,17	3,50	3,60	6,10	3,02	2,38	2,92	1,70	2,71	4,13	1,84	2,33	5,52	6,44	4,44	2,88	3,55	3,52	4,99	4,28	4,72	3,02	1,52	3,15
	w2	4,25	2,35	5,91	4,80	3,72	4,17	6,17	3,50	3,59	6,10	3,01	2,38	2,93	1,73	2,68	4,15	1,85	2,33	5,52	6,44	4,44	2,88	3,54	3,50	5,00	4,28	4,70	3,09	1,51	3,07
	w4	4,25	2,35	5,91	4,80	3,72	4,17	6,17	3,50	3,59	6,10	3,02	2,38	2,92	1,70	2,70	4,14	1,84	2,33	5,52	6,43	4,44	2,88	3,55	3,52	4,99	4,28	4,73	3,05	1,51	3,12
	RD	1,02	-0,74	-0,26	0,98	0,35	1,41	0,77	0,95	-0,60	0,11	0,63	-1,31	2,13	4,62	-3,06	2,89	-1,66	-0,44	-0,33	1,16	-0,11	-1,69	0,14	0,11	0,06	0,23	1,96	5,36	-0,62	0,28
stfgov - How satisfied with the national government (*as above*)	uw	3,92	2,23	5,93	5,94	3,63	4,13	5,48	3,53	4,02	5,94	3,88	2,70	2,85	1,91	2,82	3,65	1,79	2,25	5,49	5,16	3,59	3,28	3,52	4,96	5,12	4,53	4,85	4,02	1,55	3,52
	dw	3,92	2,22	5,97	5,94	3,71	4,23	5,48	3,53	4,04	5,94	3,89	2,69	2,87	1,88	2,78	3,67	1,80	2,25	5,53	5,16	3,57	3,27	3,49	4,93	5,12	4,53	4,79	4,20	1,53	3,60
	w	3,93	2,18	5,95	5,94	3,68	4,20	5,44	3,52	4,05	5,92	3,88	2,72	2,87	1,81	2,78	3,60	1,82	2,27	5,55	5,09	3,57	3,29	3,54	4,93	5,12	4,51	4,65	3,95	1,50	3,60
	w2	3,93	2,19	5,95	5,94	3,70	4,21	5,45	3,52	4,04	5,92	3,87	2,71	2,88	1,83	2,79	3,61	1,82	2,27	5,54	5,10	3,57	3,29	3,54	4,90	5,13	4,51	4,68	4,03	1,52	3,52
	w4	3,93	2,18	5,95	5,94	3,68	4,20	5,44	3,52	4,05	5,92	3,88	2,72	2,89	1,81	2,79	3,61	1,82	2,27	5,55	5,08	3,57	3,29	3,54	4,93	5,12	4,51	4,66	3,99	1,50	3,57
	RD	-0,18	1,50	0,35	0,04	0,67	0,64	0,68	0,20	-0,17	0,22	0,12	-0,85	-0,50	4,12	-0,28	1,90	-1,07	-0,72	-0,30	1,50	-0,05	-0,62	-1,20	0,09	0,03	0,50	2,66	5,23	2,09	0,88
stfdem - How satisfied with the way democracy works in country (*as above*)	uw	5,17	2,42	6,89	6,47	4,79	5,31	7,36	4,52	5,81	6,52	4,52	4,35	3,78	3,05	4,49	5,05	3,21	3,40	6,17	6,68	4,83	4,06	3,97	3,90	6,47	4,75	4,85	3,90	2,47	4,80
	dw	5,17	2,43	6,93	6,57	4,86	5,54	7,36	4,52	5,83	6,52	4,58	4,38	3,81	3,01	4,46	5,07	3,27	3,40	6,23	6,68	4,81	4,05	3,97	3,94	6,47	4,75	4,96	3,93	2,52	4,88
	w	5,16	2,43	6,94	6,54	4,84	5,49	7,24	4,55	5,82	6,52	4,55	4,39	3,84	2,89	4,44	5,10	3,29	3,40	6,25	6,58	4,81	4,04	3,98	3,94	6,48	4,74	4,90	3,83	2,51	4,80
	w2	5,16	2,44	6,94	6,51	4,86	5,49	7,27	4,55	5,81	6,52	4,54	4,38	3,79	2,93	4,45	5,07	3,28	3,40	6,23	6,59	4,81	4,05	3,97	3,92	6,49	4,74	4,84	3,91	2,52	4,74
	w4	5,16	2,43	6,94	6,53	4,85	5,49	7,24	4,55	5,82	6,52	4,55	4,39	3,81	2,89	4,45	5,10	3,29	3,40	6,25	6,58	4,81	4,05	3,98	3,94	6,48	4,74	4,88	3,87	2,52	4,77
	RD	0,29	-0,34	-0,20	0,58	0,28	0,93	1,64	-0,63	0,16	-0,08	0,55	-0,27	-0,05	4,08	0,27	-0,59	-0,53	-0,18	-0,33	1,56	-0,03	0,22	-0,10	-0,08	-0,13	0,20	1,74	1,73	0,04	2,13

--uw - unweighted data; dw - dweighted data; w - weighted data; w2 - weighted data, trimmed at 2; w4 - weighted data, trimmed at 4. Last row (RD) presents relative difference of estimates before and after weighting ((dw – w4)/w4*100)

Table 7: Relative and standardised bias in Round 4, considering 9 selected variables

	Weights (uncut)						Weights (cut at 2)						Weights (cut at 4)					
	Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias		
Variable	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max
ppltrst	1,247	-1,184	6,184	1,073	-0,944	4,211	1,202	-1,552	3,492	1,077	-1,082	3,627	1,247	-1,184	6,184	1,092	-1,162	4,213
pplfair	0,931	-1,669	3,593	0,920	-1,361	2,972	0,740	-0,582	2,636	0,776	-0,689	2,449	0,931	-1,669	3,593	0,869	-0,873	2,912
pplhlp	0,792	-1,235	3,854	0,652	-1,054	2,364	0,638	-1,150	3,881	0,559	-0,981	2,380	0,792	-1,235	3,854	0,626	-1,002	2,404
trstep	1,237	-1,045	12,609	0,776	-0,908	5,305	1,071	-1,131	10,271	0,691	-1,078	4,413	1,237	-1,045	12,609	0,774	-1,244	5,009
lrscale	0,668	-4,238	1,002	0,624	-3,753	1,055	0,646	-4,319	0,836	0,592	-3,828	0,778	0,668	-4,238	1,002	0,619	-3,953	0,965
stflife	0,715	-1,544	3,968	0,880	-1,251	4,328	0,713	-1,283	4,368	0,836	-1,106	4,746	0,715	-1,544	3,968	0,831	-1,194	4,268
stfeco	1,289	-3,584	6,505	0,842	-2,016	3,303	1,158	-2,459	3,869	0,796	-1,368	2,388	1,289	-3,584	6,505	0,792	-1,715	2,752
stfgov	0,984	-1,227	6,200	0,608	-0,771	3,720	0,875	-1,474	4,286	0,577	-0,760	2,619	0,984	-1,227	6,200	0,611	-0,754	3,169
stfdem	0,703	-0,718	4,096	0,600	-0,683	2,455	0,625	-0,631	2,839	0,566	-0,476	2,631	0,703	-0,718	4,096	0,591	-0,564	2,412

Table 8: Relative and standardised bias for each country in Round 4 (average, minimum and maximum values, considering 9 selected variables)

	Weights (uncut)						Weights (cut at 2)						Weights (cut at 4)					
	Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias		
Country	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max
Belgium	0,762	-0,176	1,440	0,814	-0,142	1,441	0,762	-0,174	1,439	0,814	-0,140	1,440	0,762	-0,176	1,440	0,814	-0,142	1,441
Bulgaria	0,781	-1,544	1,501	0,525	-1,251	0,711	0,723	-1,283	1,014	0,484	-1,037	0,482	0,767	-1,475	1,496	0,514	-1,194	0,708
Croatia	1,403	-0,671	3,968	1,071	-0,416	4,328	1,571	-0,202	4,368	1,200	-0,099	4,746	1,437	-0,504	3,911	1,085	-0,248	4,268
Cyprus	0,322	0,002	0,736	0,252	0,002	0,621	0,423	-0,449	1,021	0,359	-0,320	0,934	0,318	-0,120	0,979	0,262	-0,081	0,754
Czech Republic	0,492	0,120	1,002	0,447	0,099	0,979	0,258	-0,002	0,607	0,224	-0,002	0,596	0,449	0,132	0,917	0,411	0,109	0,896
Denmark**	1,305	-0,611	3,197	1,733	-0,524	4,211	1,071	-0,369	2,741	1,418	-0,316	3,627	1,294	-0,582	3,199	1,716	-0,499	4,213
Estonia**	0,462	-0,959	0,950	0,387	-0,898	0,591	0,462	-0,959	0,950	0,387	-0,898	0,591	0,462	-0,959	0,950	0,387	-0,898	0,591
Finland	0,253	-0,469	0,501	0,368	-0,519	0,647	0,253	-0,469	0,501	0,368	-0,519	0,647	0,253	-0,469	0,501	0,368	-0,519	0,647
France	0,815	-0,564	2,431	0,780	-0,525	2,253	0,928	-0,513	2,250	0,876	-0,477	2,088	0,813	-0,547	2,424	0,779	-0,509	2,246
Germany	0,930	-0,897	1,849	1,083	-0,854	2,032	0,856	-1,131	1,626	0,985	-1,078	1,790	0,930	-0,897	1,849	1,083	-0,854	2,032
Greece	0,927	-1,308	1,657	0,749	-0,926	1,807	0,899	-1,229	1,779	0,729	-0,790	1,829	0,927	-1,310	1,659	0,748	-0,922	1,803
Hungary*	2,081	-0,710	4,627	1,023	-0,588	1,880	1,431	-0,653	2,920	0,720	-0,541	1,316	2,078	-0,711	4,624	1,022	-0,589	1,875
Ireland*	1,136	-3,584	2,067	1,056	-2,016	2,599	0,897	-2,459	1,743	0,851	-1,368	2,133	1,056	-3,065	1,931	0,988	-1,715	2,432
Israel	1,398	-0,728	3,212	1,209	-1,245	2,665	1,251	-0,443	2,687	1,101	-0,755	2,273	1,329	-0,603	3,290	1,138	-1,029	2,437
Latvia*	0,714	-1,549	0,959	0,480	-0,706	0,891	0,820	-1,719	0,836	0,547	-1,082	0,778	0,744	-1,664	0,845	0,494	-0,759	0,785
Lithuania	0,384	-0,723	0,656	0,290	-0,368	0,648	0,384	-0,723	0,656	0,290	-0,368	0,648	0,384	-0,723	0,656	0,290	-0,368	0,648

Netherlands	0,302	-0,794	0,015	0,379	-0,848	0,019	0,266	-0,580	0,246	0,332	-0,683	0,305	0,302	-0,794	0,015	0,379	-0,848	0,019
Norway	0,994	0,087	1,796	1,207	0,135	2,496	0,864	0,138	1,625	1,059	0,175	2,263	1,009	0,091	1,859	1,230	0,169	2,582
Poland	0,098	-0,229	0,181	0,083	-0,151	0,216	0,098	-0,229	0,181	0,083	-0,151	0,216	0,098	-0,229	0,181	0,083	-0,151	0,216
Portugal	0,680	-1,642	0,315	0,570	-1,170	0,289	0,677	-1,712	0,030	0,578	-1,221	0,028	0,693	-1,694	0,220	0,582	-1,208	0,202
Romania	0,526	-1,227	1,191	0,408	-0,791	1,335	0,481	-1,210	1,233	0,385	-0,760	1,382	0,522	-1,202	1,191	0,406	-0,794	1,335
Russia*	0,318	-0,402	0,883	0,260	-0,443	0,525	0,476	-0,286	1,047	0,391	-0,308	0,796	0,324	-0,399	0,888	0,261	-0,430	0,558
Slovakia	1,259	-1,669	2,880	1,095	-1,361	2,319	1,441	-0,924	2,630	1,217	-0,832	2,388	1,205	-1,375	2,658	1,023	-1,244	2,145
Slovenia	0,453	-0,287	1,013	0,326	-0,174	0,742	0,453	-0,287	1,013	0,326	-0,174	0,742	0,453	-0,287	1,013	0,326	-0,174	0,742
Spain	0,363	-0,747	0,116	0,457	-0,944	0,121	0,344	-0,789	0,280	0,442	-0,997	0,373	0,399	-0,918	0,163	0,505	-1,162	0,218
Sweden**	0,273	-1,045	0,447	0,313	-0,908	0,613	0,294	-1,116	0,329	0,328	-0,970	0,459	0,273	-1,045	0,447	0,313	-0,908	0,613
Switzerland	0,285	-0,315	0,519	0,375	-0,610	0,608	0,296	-0,480	0,469	0,391	-0,646	0,560	0,285	-0,315	0,519	0,375	-0,610	0,608
Turkey	5,154	-4,238	12,609	2,737	-3,753	5,305	3,127	-4,319	10,271	1,771	-3,828	4,413	4,266	-4,453	11,821	2,308	-3,953	5,009
Ukraine	2,429	-1,736	4,554	1,378	-1,383	2,536	2,037	-1,976	3,881	1,241	-1,578	2,380	2,242	-1,970	3,922	1,313	-1,573	2,404
United Kingdom**	1,255	-0,879	2,760	1,397	-0,634	3,164	1,720	-0,165	2,839	1,666	-0,208	2,989	1,374	0,253	2,865	1,476	0,196	3,281

* missings re-allocated instead of ignored

** missings in control data decreased to the sample value and equally re-allocated among other values assuming missing at random (MAR)

2.3 Round 3

The third round was fielded in 2006/07, covering 25 countries (for more information about ESS Round 3, see page http://ess.nsd.uib.no/ess/round3/). As in all other rounds, raking with two tables, the post-stratified three-dimensional GAE table (gender, age, education) and the one-dimensional region, was carried out for most countries (Austria, Belgium, Bulgaria, Switzerland, Germany, Denmark, Spain, Finland, France, Hungary, Ireland, Netherlands, Norway, Poland, Portugal, Romania, Russia, Sweden, Slovenia, Slovakia, Ukraine and United Kingdom).

In Cyprus, Estonia and Latvia there was only one category in region variable (either in sample data, or in the LFS control source). Therefore, only post-stratification on gender, age and education was performed, without raking it. As it was already described we used LFS data as controls. Exceptions were only, Russia and Ukraine. In these cases we used data from ESS Appendix, reported by national coordinators. For Norway we used a combination of LFS data and the ESS Appendix.

Table 9 presents descriptive statistics (i.e. minimum and maximum value of weights, variance) for newly computed weights for each country. As we can see in table below, we get the highest calculated weights for Ukraine, where the highest weight is 8.5. Other countries with the highest weights are United Kingdom (8.3), Ireland (6.7) and Cyprus (6.5). Countries where the highest weight is smaller are Estonia (1.3), Slovenia (1.4), Slovakia (1.5) and Latvia (1.7), Sweden (1.8) and Finland (1.9). However, all weights above 4 were trimmed, therefore every country has got final weights that are not much higher than 4 (after cutting all the higher values, the weights are rescaled so that the average 1 is preserved, thus those weights which were preliminary trimmed at 4, basically have values slightly above 4). If we look at the variance of those weights (trimmed at 4) we can find out that the smallest variance of weights have countries such as Slovakia (0.018), Estonia (0.035), Slovenia (0.035), Finland (0.056), Sweden (0.062), Spain (0.066) and Romania (0.068), whereas the largest variance of weights have countries such as Ukraine (1.022), United Kingdom (0.504), Ireland (0.474), Cyprus (0.410) and Portugal (0.403).

Table 9: A description of weights (min, max and variance) for Round 3

		Design weights (dweight)			Weights (uncut)				Weights (cut at 4)		
country	N	Min	Max	Variance	Mean	Min	Max	Variance	Min	Max	Variance
AT	2405	0,414	3,314	0,256	1	0,177	5,556	0,391	0,177	4,008	0,378
BE	1798	1,000	1,000	0,000	1	0,612	3,506	0,088	0,612	3,506	0,088
BG	1400	0,384	3,456	0,219	1	0,230	4,197	0,321	0,230	4,001	0,320
CH	1804	0,502	3,090	0,213	1	0,205	5,074	0,266	0,205	4,002	0,262
CY	995	0,369	2,959	0,207	1	0,196	6,471	0,508	0,199	4,055	0,410
DE	2916	0,550	1,240	0,108	1	0,005	5,620	0,345	0,005	4,020	0,313
DK	1505	1,000	1,000	0,000	1	0,011	4,685	0,317	0,011	4,004	0,311
EE*	1517	1,000	1,000	0,000	1	0,631	1,261	0,035	0,522	1,374	0,035
ES	1876	0,510	1,431	0,016	1	0,334	3,696	0,066	0,335	3,698	0,066
FI	1896	1,000	1,000	0,000	1	0,558	1,896	0,056	0,558	1,896	0,056
FR	1986	0,389	2,900	0,175	1	0,186	4,583	0,336	0,186	4,002	0,333
HU**	1518	0,033	4,075	0,253	1	0,030	5,100	0,381	0,030	4,007	0,371
IE**	1800	0,461	4,148	0,273	1	0,171	6,678	0,505	0,172	4,019	0,474
LV**	1960	1,000	1,000	0,000	1	0,104	1,665	0,068	0,104	1,665	0,068
NL	1889	0,539	3,775	0,195	1	0,350	5,681	0,276	0,351	4,007	0,264
NO	1750	1,000	1,000	0,000	1	0,591	3,308	0,237	0,591	3,308	0,237
PL	1721	0,461	1,382	0,049	1	0,412	3,153	0,084	0,412	3,153	0,084
PT	2222	0,237	4,102	0,229	1	0,150	4,594	0,410	0,150	4,005	0,403
RO	2139	1,000	1,000	0,000	1	0,019	2,116	0,068	0,019	2,116	0,068
RU*	2437	0,212	4,202	0,320	1	0,186	4,590	0,358	0,186	4,003	0,354
SE**	1927	1,000	1,000	0,000	1	0,672	1,849	0,062	0,672	1,849	0,062
SI	1476	1,000	1,000	0,000	1	0,622	1,404	0,035	0,622	1,404	0,035
SK	1766	1,000	1,000	0,000	1	0,696	1,503	0,018	0,696	1,503	0,018
UA	2002	0,032	4,000	1,128	1	0,023	8,534	1,304	0,024	4,185	1,022
UK**	2394	0,536	4,000	0,238	1	0,213	8,316	0,584	0,215	4,048	0,504

* missings re-allocated instead of ignored

** missings in control data decreased to the sample value and equally re-allocated among other values assuming missing at random (MAR)

In Table 10 below we can observe estimates for 9 selected variables for each country in different variations – when data are unweighted (uw), weighted by design weight (dw) or weighted by final weights with three versions (uncut weights – w; weights, trimmed at 2 – w2; weights, trimmed at 4 – w4). All these data enable us to get insight into differences in estimates before and after weighting. The analysis for Round 3 shows that for 9 specific but standard ESS variables the relative change in estimated mean after weighting (for interpretation weights, trimmed at 4 were used, which are final recommended weights) is predominantly negligible, and typically much below relative change of 5%. For example, in case of Austria the average trust in people after weighting is 5.05 and 5.11 when final weight are not applied, which means that the relative change in estimate before and after weighting is 1.18%. In Germany the relative change of estimate for average trust in the European Parliament is 0.18%. Before population weighting the estimate for average trust in the European Parliament is 4.07, while after weighting the estimate is 4.06. For example, in case of Belgium the average satisfaction

with whole life after weighting is 7.32 and 7.41, when final weights are not applied, which is also negligible difference (relative change is 1.17%). However, there is still example when the relative change with weighting surpass 5%. In case of Ukraine we can find the relative change 5.70%, where estimate for average satisfaction with the European Parliament decreases after weighting from 3.89 to 3.68.

In accordance with that results, also the average relative change (or bias) for these variables is in general small (below 1%). The highest average relative bias is noticed for variable *ppltrst* ('trust into people'), which counts 0.90%, and variable *stfgov* ('satisfaction with the national government') has the lowest average relative bias (0.45%). Meanwhile, the variable with the highest average standardised bias is also variable *ppltrst* (average standardised bias is 0.85), and variable with the lowest average standardised bias is also variable *stfgov* with value 0.36.

In Table 12 below we can see, that countries with the highest average relative bias are Ukraine (2.1%), Portugal (1.1%) and Belgium (1.0%). On the contrary, Slovakia (0.14%) Spain (0.19%) and Sweden (0.24%) are among countries with the lowest average relative bias. But as we can see, in general all countries in ESS round 3 have small average relative bias and also average standardised bias.

Table 10: Effects of the weights in Round 3 - estimates for the means for 9 selected variables

Variable		AT	BE	BG	CH	CY	DE	DK	EE	ES	FI	FR	HU	IE	LV	NL	NO	PL	PT	RO	RU	SE	SI	SK	UA	UK
ppltrst - Most people can be trusted or you can't be too careful (*0 - You can't be too careful; 10 - Most people can be trusted*)	uw	5,08	4,98	3,34	5,72	4,13	4,71	7,02	5,34	5,12	6,57	4,43	4,28	5,33	4,47	5,73	6,82	4,07	4,09	4,07	3,83	6,28	4,06	4,29	4,01	5,40
	dw	5,11	4,98	3,35	5,68	4,19	4,77	7,02	5,34	5,10	6,57	4,45	4,33	5,36	4,47	5,76	6,82	4,07	4,06	4,07	3,91	6,28	4,06	4,29	4,14	5,37
	w	5,05	4,89	3,33	5,70	4,24	4,72	6,90	5,31	5,10	6,56	4,40	4,38	5,30	4,45	5,80	6,69	4,10	4,11	4,08	3,93	6,29	4,03	4,29	4,05	5,27
	w2	5,07	4,89	3,33	5,70	4,21	4,75	6,90	5,31	5,10	6,56	4,41	4,35	5,29	4,45	5,80	6,73	4,10	4,12	4,08	3,90	6,29	4,03	4,29	4,01	5,32
	w4	5,05	4,89	3,33	5,70	4,23	4,72	6,90	5,31	5,10	6,56	4,40	4,38	5,30	4,45	5,80	6,69	4,10	4,11	4,08	3,93	6,29	4,03	4,29	4,05	5,29
	RD	1,18	1,98	0,52	0,26	1,08	1,04	1,76	0,49	0,04	0,07	1,14	1,01	1,28	0,29	0,72	1,89	0,86	1,33	0,18	0,48	0,14	0,92	0,19	2,11	1,52
pplfair - Most people try to take advantage of you, or try to be fair (*0 - Most people would try to take advantage of me; 10 - Most people would try to be fair*)	uw	5,68	5,76	4,52	6,49	4,85	5,75	7,33	5,64	5,41	6,89	5,83	4,73	5,87	5,19	6,26	7,02	4,76	4,71	3,81	4,75	6,63	4,87	4,70	4,49	5,78
	dw	5,76	5,76	4,50	6,51	4,90	5,79	7,33	5,64	5,41	6,89	5,84	4,71	5,91	5,19	6,28	7,02	4,77	4,73	3,81	4,81	6,63	4,87	4,70	4,64	5,76
	w	5,74	5,70	4,45	6,51	4,95	5,76	7,22	5,58	5,41	6,87	5,79	4,75	5,86	5,17	6,30	7,00	4,80	4,78	3,82	4,79	6,61	4,84	4,70	4,54	5,68
	w2	5,72	5,71	4,47	6,51	4,94	5,79	7,22	5,58	5,41	6,87	5,80	4,74	5,85	5,17	6,30	7,00	4,79	4,79	3,82	4,77	6,61	4,84	4,70	4,50	5,71
	w4	5,73	5,70	4,45	6,52	4,94	5,76	7,22	5,58	5,41	6,87	5,79	4,75	5,86	5,17	6,30	7,00	4,80	4,78	3,82	4,78	6,61	4,84	4,70	4,55	5,68
	RD	0,41	0,93	1,01	0,09	0,85	0,39	1,50	0,93	0,10	0,20	0,88	0,81	0,97	0,38	0,37	0,31	0,65	0,92	0,30	0,52	0,36	0,66	0,04	1,87	1,34
pplhlp - Most of the time people helpful or mostly looking out for themselves (*0 - People mostly look out for themselves; 10 - People mostly try to be helpful*)	uw	5,34	4,63	3,26	5,63	4,03	4,96	6,16	4,61	4,44	5,86	4,49	4,36	5,89	4,84	5,29	6,09	3,56	4,05	3,36	3,86	6,02	4,58	4,12	3,64	5,68
	dw	5,43	4,63	3,16	5,61	4,08	4,96	6,16	4,61	4,44	5,86	4,48	4,36	5,85	4,84	5,28	6,09	3,58	4,02	3,36	3,90	6,02	4,58	4,12	3,60	5,68
	w	5,39	4,55	3,15	5,60	4,12	4,98	6,09	4,58	4,45	5,85	4,53	4,39	5,78	4,85	5,26	6,04	3,61	4,08	3,36	3,88	6,02	4,55	4,13	3,58	5,63
	w2	5,37	4,55	3,16	5,60	4,09	4,98	6,10	4,58	4,45	5,85	4,53	4,38	5,79	4,85	5,26	6,07	3,61	4,07	3,36	3,87	6,02	4,55	4,13	3,54	5,63
	w4	5,38	4,55	3,15	5,60	4,11	4,98	6,09	4,58	4,45	5,85	4,53	4,39	5,78	4,85	5,26	6,04	3,61	4,08	3,36	3,88	6,02	4,55	4,13	3,58	5,62
	RD	0,85	1,68	0,46	0,20	0,56	0,27	1,07	0,60	0,24	0,08	0,95	0,64	1,15	0,08	0,36	0,68	0,79	1,38	0,17	0,38	0,06	0,66	0,07	0,56	0,92
trstep - Trust in the European Parliament (*0 - No trust at all; 10 - Complete trust*)	uw	3,95	5,15	4,63	4,69	5,78	4,00	4,96	5,33	5,01	4,99	4,33	4,99	5,23	4,29	4,73	4,74	4,77	4,59	6,00	3,89	4,49	4,98	5,14	3,55	3,39
	dw	3,97	5,15	4,76	4,76	5,84	4,07	4,96	5,33	5,03	4,99	4,37	4,96	5,26	4,29	4,78	4,74	4,80	4,55	6,00	3,92	4,49	4,98	5,14	3,89	3,49
	w	4,01	5,10	4,79	4,79	5,86	4,06	4,95	5,35	5,04	5,04	4,33	4,94	5,26	4,24	4,84	4,74	4,79	4,56	6,01	3,91	4,51	4,94	5,15	3,69	3,49
	w2	4,00	5,10	4,76	4,78	5,87	4,08	4,94	5,35	5,04	5,04	4,33	4,94	5,27	4,24	4,82	4,72	4,79	4,58	6,01	3,91	4,51	4,94	5,15	3,62	3,45
	w4	4,01	5,10	4,79	4,79	5,87	4,06	4,95	5,35	5,04	5,04	4,34	4,94	5,26	4,24	4,84	4,74	4,79	4,56	6,01	3,91	4,51	4,94	5,15	3,68	3,48
	RD	0,85	1,01	0,59	0,62	0,40	0,18	0,08	0,34	0,27	1,02	0,73	0,48	0,08	1,23	1,24	0,01	0,18	0,20	0,19	0,16	0,54	0,68	0,13	5,70	0,51
lrscale - Placement on left right scale (*0 - Left; 10 - Right*)	uw	4,75	4,94	4,26	5,00	5,21	4,41	5,40	5,41	4,50	5,72	4,83	5,33	5,26	5,66	5,12	5,25	5,77	4,92	5,33	5,15	5,22	4,78	5,02	5,57	5,12
	dw	4,77	4,94	4,28	5,00	5,10	4,50	5,40	5,41	4,51	5,72	4,79	5,41	5,27	5,66	5,16	5,25	5,78	4,91	5,33	5,06	5,22	4,78	5,02	5,84	5,10
	w	4,81	4,92	4,31	5,02	5,03	4,55	5,37	5,41	4,53	5,69	4,81	5,44	5,24	5,64	5,17	5,27	5,77	4,89	5,32	5,09	5,24	4,79	5,01	5,58	5,09
	w2	4,80	4,92	4,32	5,03	5,06	4,53	5,39	5,41	4,52	5,69	4,81	5,42	5,26	5,64	5,17	5,26	5,77	4,90	5,32	5,08	5,24	4,79	5,01	5,63	5,12
	w4	4,80	4,92	4,31	5,02	5,01	4,55	5,38	5,41	4,53	5,69	4,81	5,44	5,25	5,64	5,17	5,27	5,77	4,89	5,32	5,09	5,24	4,79	5,01	5,59	5,09
	RD	0,72	0,36	0,66	0,49	1,79	0,99	0,44	0,01	0,24	0,68	0,28	0,51	0,41	0,50	0,28	0,37	0,26	0,38	0,13	0,56	0,23	0,21	0,14	4,38	0,20

stflife - How satisfied with life as a whole (*0 - Extremely dissatisfied; 10 - Extremely satisfied*)	uw	7,53	7,41	4,66	8,03	7,41	6,71	8,48	6,38	7,44	7,99	6,32	5,31	7,48	6,06	7,48	7,76	6,67	5,46	5,85	5,19	7,82	6,97	6,08	4,28	7,13
	dw	7,63	7,41	4,70	8,10	7,46	6,83	8,48	6,38	7,44	7,99	6,42	5,42	7,54	6,06	7,55	7,76	6,69	5,52	5,85	5,25	7,82	6,97	6,08	4,39	7,23
	w	7,60	7,32	4,72	8,11	7,43	6,78	8,46	6,41	7,45	7,97	6,37	5,47	7,52	5,99	7,58	7,78	6,73	5,61	5,87	5,29	7,82	6,97	6,08	4,44	7,18
	w2	7,59	7,33	4,73	8,11	7,43	6,81	8,46	6,41	7,45	7,97	6,38	5,44	7,51	5,99	7,57	7,77	6,72	5,58	5,87	5,29	7,82	6,97	6,08	4,38	7,18
	w4	7,60	7,32	4,72	8,11	7,44	6,78	8,46	6,41	7,45	7,97	6,37	5,47	7,51	5,99	7,58	7,78	6,73	5,60	5,87	5,29	7,82	6,97	6,08	4,43	7,19
	RD	0,43	1,17	-0,36	-0,10	0,28	0,65	0,19	-0,50	-0,07	0,20	0,83	-0,77	0,34	-1,09	-0,33	-0,20	0,54	-1,54	-0,38	-0,83	0,10	0,01	0,10	-1,06	0,51
stfeco - How satisfied with present state of economy in country (*0 - Extremely dissatisfied; 10 - Extremely satisfied*)	uw	6,17	5,45	2,60	6,55	5,72	4,25	7,60	5,57	5,32	6,78	3,70	2,89	6,30	3,47	6,17	7,08	4,08	3,20	3,63	3,52	6,00	4,95	4,73	2,33	5,18
	dw	6,21	5,45	2,60	6,56	5,78	4,38	7,60	5,57	5,32	6,78	3,77	2,84	6,36	3,47	6,18	7,08	4,09	3,21	3,63	3,55	6,00	4,95	4,73	2,27	5,22
	w	6,20	5,39	2,62	6,60	5,81	4,36	7,59	5,59	5,34	6,75	3,74	2,86	6,31	3,45	6,21	6,99	4,12	3,27	3,66	3,60	6,01	4,94	4,74	2,26	5,14
	w2	6,21	5,39	2,63	6,59	5,81	4,37	7,59	5,59	5,35	6,75	3,73	2,85	6,33	3,45	6,21	7,00	4,12	3,27	3,66	3,59	6,01	4,94	4,74	2,28	5,17
	w4	6,20	5,39	2,62	6,60	5,81	4,36	7,59	5,59	5,34	6,75	3,74	2,86	6,31	3,45	6,21	6,99	4,12	3,27	3,66	3,60	6,01	4,94	4,74	2,27	5,15
	RD	0,21	1,09	-0,96	-0,69	-0,51	-0,42	-0,16	-0,27	-0,35	-0,32	-0,96	-0,77	-0,76	-0,65	-0,40	-1,22	-0,79	-2,07	-0,82	-1,29	-0,21	-0,22	-0,29	-0,10	-1,38
stfgov - How satisfied with the national government (*0 - Extremely dissatisfied; 10 - Extremely satisfied*)	uw	4,17	5,04	2,79	5,89	6,20	3,60	5,79	4,77	4,80	6,28	3,84	2,77	5,31	3,10	5,39	4,77	2,86	3,60	3,39	4,37	5,01	4,47	4,96	2,24	3,98
	dw	4,15	5,04	2,77	5,93	6,23	3,68	5,79	4,77	4,80	6,28	3,85	2,68	5,31	3,10	5,44	4,77	2,88	3,61	3,39	4,39	5,01	4,47	4,96	2,17	4,05
	w	4,13	5,01	2,74	5,96	6,19	3,69	5,77	4,76	4,82	6,26	3,86	2,69	5,31	3,07	5,46	4,75	2,88	3,66	3,41	4,40	5,02	4,46	4,96	2,19	4,03
	w2	4,14	5,01	2,74	5,94	6,22	3,69	5,78	4,76	4,82	6,26	3,87	2,69	5,33	3,07	5,46	4,74	2,88	3,67	3,41	4,41	5,02	4,46	4,96	2,17	4,01
	w4	4,13	5,01	2,74	5,96	6,20	3,69	5,78	4,76	4,82	6,26	3,86	2,69	5,31	3,07	5,47	4,75	2,88	3,66	3,41	4,40	5,02	4,46	4,96	2,19	4,02
	RD	0,57	0,57	1,18	0,53	0,45	0,22	0,22	0,17	0,25	0,25	0,22	0,30	0,06	0,99	0,48	0,48	0,10	1,28	0,67	0,27	0,12	0,30	0,02	0,89	0,57
stfdem - How satisfied with the way democracy works in country (*0 - Extremely dissatisfied; 10 - Extremely satisfied*)	uw	6,04	5,49	2,66	6,87	6,63	5,01	7,45	4,87	5,92	6,76	4,57	3,57	5,88	4,37	6,07	6,63	4,34	4,22	4,04	3,55	6,35	4,61	4,78	3,10	4,88
	dw	6,04	5,49	2,69	6,90	6,65	5,24	7,45	4,87	5,93	6,76	4,66	3,52	5,93	4,37	6,08	6,63	4,36	4,24	4,04	3,58	6,35	4,61	4,78	3,22	4,93
	w	6,06	5,45	2,74	6,95	6,62	5,27	7,42	4,89	5,94	6,76	4,65	3,52	5,88	4,35	6,11	6,56	4,35	4,28	4,09	3,59	6,37	4,61	4,79	3,16	4,85
	w2	6,07	5,45	2,74	6,94	6,63	5,26	7,42	4,89	5,94	6,76	4,63	3,51	5,89	4,35	6,11	6,57	4,35	4,29	4,09	3,60	6,37	4,61	4,79	3,14	4,86
	w4	6,06	5,45	2,74	6,95	6,61	5,26	7,42	4,89	5,94	6,76	4,65	3,52	5,88	4,35	6,11	6,56	4,35	4,28	4,09	3,59	6,37	4,61	4,79	3,15	4,85
	RD	-0,27	0,69	-1,55	-0,71	0,52	-0,35	0,43	-0,47	0,16	0,04	-0,24	0,02	0,90	0,44	-0,42	0,93	0,23	-0,92	-1,25	-0,39	0,38	0,00	0,24	-1,97	1,73

--uw - unweighted data; dw - dweighted data; w - weighted data; w2 - weighted data, trimmed at 2; w4 - weighted data, trimmed at 4. Last row (RD) presents relative difference of estimates before and after weighting ((dw – w4)/w4*100)

Table 11: Relative and standardised bias in Round 3, considering 9 selected variables

	Weights (uncut)						Weights (cut at 2)						Weights (cut at 4)					
	Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias		
Variable	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max
ppltrst	0,916	-1,323	1,985	0,864	-1,091	2,912	0,797	-1,527	3,036	0,734	-1,261	2,223	0,899	-1,331	2,107	0,847	-1,096	2,912
pplfair	0,685	-1,004	2,088	0,721	-0,922	2,265	0,656	-1,055	2,926	0,671	-1,090	2,226	0,672	-0,919	1,871	0,710	-0,949	2,270
pplhlp	0,604	-1,382	1,683	0,559	-1,220	1,515	0,577	-1,233	1,736	0,526	-1,087	1,473	0,595	-1,382	1,683	0,558	-1,220	1,515
trstep	0,682	-1,222	5,587	0,477	-1,281	2,548	0,794	-1,018	7,558	0,535	-0,988	3,385	0,697	-1,245	5,701	0,486	-1,305	2,598
lrscale	0,608	-1,035	4,553	0,543	-1,321	3,622	0,491	-0,800	3,706	0,439	-0,755	2,973	0,610	-0,992	4,382	0,537	-1,267	3,493
stflife	0,523	-1,579	1,168	0,679	-1,952	1,936	0,416	-1,174	1,142	0,567	-1,446	1,894	0,503	-1,544	1,168	0,658	-1,909	1,936
stfeco	0,703	-2,062	1,463	0,670	-1,592	1,708	0,633	-1,901	1,145	0,595	-1,465	1,609	0,676	-2,068	1,379	0,656	-1,596	1,708
stfgov	0,455	-1,282	1,161	0,359	-0,998	0,604	0,441	-1,555	1,020	0,358	-1,214	0,780	0,447	-1,276	1,179	0,356	-0,994	0,604
stfdem	0,610	-1,574	1,934	0,568	-1,090	1,697	0,635	-1,533	2,325	0,579	-1,016	1,460	0,611	-1,551	1,973	0,571	-1,089	1,720

Table 12: Relative and standardised bias for each country in Round 3 (average, minimum and maximum values, considering 9 selected variables)

	Weights (uncut)						Weights (cut at 2)						Weights (cut at 4)					
	Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias		
Country	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max
Austria	0,593	-0,945	1,191	0,647	-0,835	1,250	0,608	-0,777	1,023	0,695	-0,627	1,191	0,610	-0,848	1,176	0,671	-0,770	1,235
Belgium	1,053	0,364	1,975	1,145	0,370	1,936	1,050	0,337	1,932	1,141	0,343	1,894	1,053	0,364	1,975	1,145	0,370	1,936
Bulgaria	0,817	-1,574	1,161	0,391	-0,680	0,601	0,711	-1,533	1,020	0,340	-0,662	0,439	0,810	-1,551	1,179	0,387	-0,670	0,596
Cyprus	0,755	-1,254	1,371	0,535	-0,763	0,675	0,460	-0,744	0,853	0,344	-0,563	0,516	0,715	-1,078	1,789	0,497	-0,641	0,876
Denmark	0,669	0,082	1,761	0,880	0,067	2,265	0,602	0,075	1,736	0,796	0,067	2,223	0,649	0,083	1,756	0,859	0,068	2,270
Estonia*	0,420	-0,501	0,934	0,370	-0,561	0,838	0,420	-0,501	0,934	0,370	-0,561	0,838	0,420	-0,501	0,934	0,370	-0,561	0,838
Finland	0,318	-1,018	0,683	0,424	-0,988	0,819	0,318	-1,018	0,683	0,424	-0,988	0,819	0,318	-1,018	0,683	0,424	-0,988	0,819
France	0,689	-0,934	1,151	0,661	-0,870	1,072	0,734	-0,897	1,045	0,684	-0,835	0,882	0,692	-0,953	1,137	0,664	-0,889	1,072
Germany	0,545	-1,035	1,130	0,676	-1,321	1,241	0,304	-0,594	0,384	0,361	-0,755	0,501	0,502	-0,992	1,037	0,626	-1,267	1,139
Hungary**	0,660	-1,112	0,476	0,438	-0,740	0,327	0,387	-0,561	0,418	0,248	-0,395	0,288	0,590	-1,014	0,476	0,396	-0,675	0,327
Ireland**	0,640	-0,150	1,181	0,709	-0,146	1,174	0,604	-0,403	1,351	0,659	-0,392	1,262	0,662	-0,061	1,280	0,733	-0,060	1,229
Latvia**	0,627	-0,075	1,226	0,503	-0,065	1,210	0,627	-0,075	1,226	0,503	-0,065	1,210	0,627	-0,075	1,226	0,503	-0,065	1,210
Netherlands	0,498	-1,222	0,387	0,660	-1,281	0,457	0,410	-0,794	0,319	0,554	-0,829	0,377	0,513	-1,245	0,365	0,682	-1,305	0,431

Norway	0,676	-0,365	1,895	0,952	-0,389	2,912	0,610	-0,322	1,395	0,815	-0,343	2,155	0,676	-0,365	1,895	0,952	-0,389	2,912
Poland	0,491	-0,863	0,260	0,393	-0,628	0,256	0,454	-0,792	0,240	0,364	-0,580	0,237	0,491	-0,863	0,260	0,393	-0,628	0,256
Portugal	1,108	-2,062	0,373	1,012	-1,952	0,353	1,144	-1,901	0,287	1,027	-1,465	0,273	1,114	-2,068	0,380	1,016	-1,909	0,360
Romania	0,453	-1,245	0,127	0,348	-0,929	0,113	0,456	-1,244	0,136	0,350	-0,927	0,121	0,453	-1,245	0,127	0,348	-0,929	0,113
Russia*	0,534	-1,296	0,484	0,430	-0,958	0,413	0,551	-1,147	0,730	0,440	-0,846	0,621	0,543	-1,294	0,523	0,437	-0,957	0,446
Slovakia	0,136	-0,290	0,188	0,118	-0,255	0,141	0,136	-0,290	0,188	0,118	-0,255	0,141	0,136	-0,290	0,188	0,118	-0,255	0,141
Slovenia	0,407	-0,207	0,920	0,280	-0,130	0,532	0,407	-0,207	0,920	0,280	-0,130	0,532	0,407	-0,207	0,920	0,280	-0,130	0,532
Spain	0,191	-0,348	-0,036	0,204	-0,407	-0,040	0,211	-0,392	-0,017	0,228	-0,460	-0,018	0,191	-0,348	-0,036	0,204	-0,407	-0,040
Sweden**	0,238	-0,540	0,357	0,282	-0,496	0,537	0,238	-0,540	0,357	0,282	-0,496	0,537	0,238	-0,540	0,357	0,282	-0,496	0,537
Switzerland	0,413	-0,713	0,196	0,536	-1,090	0,236	0,309	-0,586	0,159	0,410	-0,895	0,191	0,411	-0,713	0,201	0,533	-1,089	0,242
Ukraine	2,189	-1,284	5,587	1,350	-0,928	3,622	2,471	-0,617	7,558	1,477	-0,321	3,385	2,072	-1,057	5,701	1,274	-0,762	3,493
United Kingdom**	0,954	0,209	1,784	1,168	0,145	2,156	0,888	-0,262	1,463	0,992	-0,355	1,460	0,965	0,199	1,728	1,147	0,269	1,858

* missings re-allocated instead of ignored

** missings in control data decreased to the sample value and equally re-allocated among other values assuming missing at random (MAR)

2.4 Round 2

The second round was fielded in 2004/05, covering 26 countries (for more information about ESS Round 2, see page http://ess.nsd.uib.no/ess/round2/). As in all other rounds, raking with two tables, the post-stratified three-dimensional GAE table (gender, age, education) and the one-dimensional region, was carried out for most countries (Austria, Belgium, Switzerland, Czech Republic, Germany, Denmark, Spain, Finland, France, Greece, Hungary, Ireland, Italy, Netherlands, Norway, Poland, Portugal, Sweden, Slovenia, Slovakia, Turkey, Ukraine and United Kingdom).

In Estonia, Iceland, and Luxembourg there was only one category in region variable (either in sample data, or in the LFS control source). Therefore, only post-stratification on gender, age and education was performed, without raking it. Moreover, in case of Iceland in control data the interaction is known only for gender and age, while education frequencies are given separately. Thus, a two-table raking was performed, where the first table was gender by age and the second education. As described and shown in methodological document (Table 2 in report Post-stratification weighting of the ESS) we used LFS data as controls. Exceptions were only Iceland and Ukraine. In these cases we used data from ESS Appendix, reported by national coordinators. For Norway we used a combination of LFS data and the ESS Appendix.

Table 13 presents descriptive statistics (i.e. minimum and maximum value of weights, variance) for newly computed weights for each country in ESS round 2. As we can see in table below, we get the highest calculated weights for Ukraine, where the highest weight is 11.5. Other countries with the highest weights are Hungary (7.8), Czech Republic (6.6) and United Kingdom (6.1). Countries where the highest weight is smaller are Finland (1.3), Estonia (1.4), Slovenia (1.6) and Belgium (1.7). However, all weights above 4 were trimmed, therefore every country has got final weights that are not much higher than 4 (after cutting all the higher values, the weights are rescaled so that the average 1 is preserved, thus those weights which were preliminary trimmed at 4, basically have values slightly above 4). If we look at the variance of those weights (trimmed at 4) we can find out that the smallest variance of weights have countries such as Slovenia (0.018), Finland (0.024), Estonia (0.035) and Poland (0.054), whereas the largest variance of weights have countries such as Hungary (1.168) and Ukraine (0.791). This is not surprising because these countries already have the largest variance in design weights – weights which were also used in the process of production of population weights.

Table 13: A description of weights (min, max and variance) for Round 2

		Design weights (dweights)			Weights (uncut)				Weights (cut at 4)		
country	N	Min	Max	Variance	Mean	Min	Max	Variance	Min	Max	Variance
AT	2256	0,419	3,348	0,253	1	0,198	5,232	0,394	0,199	4,010	0,380
BE	1778	1,000	1,000	0,000	1	0,627	1,744	0,075	0,627	1,744	0,075
CH	2141	0,478	3,203	0,221	1	0,214	4,478	0,305	0,214	4,002	0,302

CZ	3026	0,033	4,000	0,503	1	0,006	6,646	0,600	0,006	4,036	0,545
DE**	2870	0,552	1,247	0,110	1	0,351	5,872	0,321	0,353	4,022	0,285
DK	1487	1,000	1,000	0,000	1	0,231	3,525	0,278	0,231	3,525	0,278
EE*	1989	1,000	1,000	0,000	1	0,733	1,446	0,035	0,733	1,446	0,035
ES	1663	0,650	1,517	0,011	1	0,414	2,872	0,062	0,414	2,872	0,062
FI	2022	1,000	1,000	0,000	1	0,628	1,339	0,024	0,628	1,339	0,024
FR	1806	1,000	1,000	0,000	1	0,374	4,684	0,234	0,374	4,005	0,227
GR	2406	0,419	3,767	0,204	1	0,233	5,552	0,291	0,233	4,003	0,287
HU*	1498	0,032	4,000	1,165	1	0,010	7,776	1,291	0,010	4,092	1,168
IE*	2286	0,028	3,906	0,306	1	0,014	5,168	0,563	0,014	4,013	0,544
IS	579	1,000	1,000	0,000	1	0,435	1,660	0,112	0,435	1,660	0,112
IT	1529	0,357	5,573	0,249	1	0,154	4,536	0,301	0,154	4,003	0,297
LU	1635	0,011	5,983	0,523	1	0,002	4,867	0,451	0,002	4,008	0,440
NL	1881	0,510	4,000	0,199	1	0,273	4,515	0,345	0,274	4,002	0,342
NO	1760	1,000	1,000	0,000	1	0,457	3,257	0,127	0,457	3,257	0,127
PL	1716	0,771	1,123	0,015	1	0,536	2,353	0,054	0,536	2,353	0,054
PT	2052	0,201	5,135	0,398	1	0,155	5,782	0,591	0,157	4,034	0,541
SE**	1948	1,000	1,000	0,000	1	0,495	3,221	0,197	0,495	3,221	0,197
SI	1442	1,000	1,000	0,000	1	0,286	1,646	0,018	0,286	1,646	0,018
SK	1512	1,000	1,000	0,000	1	0,516	1,970	0,081	0,516	1,970	0,081
TR	1856	0,333	3,996	0,223	1	0,124	4,123	0,297	0,124	4,000	0,296
UA	2031	0,049	4,000	0,732	1	0,048	11,487	1,073	0,049	4,138	0,791
UK**	1897	0,002	4,000	0,262	1	0,001	6,108	0,611	0,001	4,022	0,577

* missings re-allocated instead of ignored

** missings in control data decreased to the sample value and equally re-allocated among other values assuming missing at random (MAR)

In Table 14 below we can observe estimates for 9 selected variables for each country in different variations – when data are unweighted (uw), weighted by design weight (dw) or weighted by final weights with three versions (uncut weights – w; weights, trimmed at 2 – w2; weights, trimmed at 4 – w4). All these data enable us to get insight into differences in estimates before and after weighting. The analysis for Round 2 shows that for 9 specific but standard ESS variables the relative change in estimated mean after weighting (for interpretation weights, trimmed at 4 were used, which are final recommended weights) is predominantly negligible, and typically much below relative change of 5%. For example, in Austria the average trust in people after weighting is 5.10 and 5.18 when final weight are not applied, which means that the relative change in estimate before and after weighting is 1.59%. In case of Belgium the relative change of estimate for average trust in the European Parliament is 0.75%. Before population weighting the estimate for average trust in the European Parliament is 4.98, while after weighting the estimate is 4.95. For example, in Sweden the average satisfaction with whole life after weighting is 7.10 and 7.13, when final weights are not applied, which is also negligible difference (relative change is 0.39%). However, there are still examples when the relative change after weighting surpass 5%. In case of Turkey we can find the relative change 8.75%. Also in Ukraine relative change surpass 5%. In case of variable, which measures satisfaction with the national

government, the estimate of average satisfaction before weighting is 4.25, and 4.02 after weighting (relative change 5.78%).

In accordance with that results, also the average relative change (or bias) for these variables is in general small (around 1% and below). The highest average relative bias is noticed for variable *trstep* ('trust in the European Parliament'), which counts 1.09%, and variable *stflife* ('satisfaction with life') has the lowest average relative bias (0.51%). Meanwhile, the variable with the highest average standardised bias is variable *lrscale* (average standardised bias is 0.86), while variable with the lowest average standardised bias is variable *pplhlp* ('trust in the European Parliament'), with value 0.57.

In Table 16 below we can see, that countries with the highest average relative bias are Ukraine (2.8%), Turkey (2.1%), Portugal (1.3%) and Hungary (1.2%). On the contrary, Slovenia (0.16%) Finland (0.22%) and Czech Republic (0.23%) are among countries with the lowest average relative bias. But we can conclude that in general, all countries in ESS round 2 have small average relative bias. With respect to average standardised bias the highest average standardised bias arise in case of Ukraine, where the value is slightly below 2.0.

Table 14: Effects of the weights in Round 2 - estimates for the means for 9 selected variables

Variable		AT	BE	CH	CZ	DE	DK	EE	ES	FI	FR	GR	HU	IE	IS	IT	LU	NL	NO	PL	PT	SE	SI	SK	TR	UA	UK
ppltrst - Most people can be trusted or you can't be too careful (*0 - You can't be too careful; 10 - Most people can be trusted*)	uw	5,11	4,79	5,70	4,16	4,75	6,76	5,18	4,89	6,52	4,52	3,90	4,01	5,89	6,37	4,30	5,01	5,80	6,63	3,60	3,88	6,05	4,13	4,02	3,01	4,33	5,14
	dw	5,18	4,79	5,71	4,28	4,82	6,76	5,18	4,89	6,52	4,52	3,82	4,11	5,84	6,37	4,36	5,02	5,84	6,63	3,59	3,92	6,05	4,13	4,02	2,95	4,45	5,18
	w	5,10	4,70	5,66	4,30	4,72	6,64	5,18	4,90	6,51	4,46	3,86	4,03	5,79	6,29	4,31	5,02	5,87	6,58	3,57	3,91	6,12	4,15	4,04	3,04	4,40	5,13
	w2	5,08	4,70	5,66	4,26	4,75	6,65	5,18	4,90	6,51	4,47	3,86	4,07	5,81	6,29	4,31	5,03	5,86	6,58	3,57	3,88	6,12	4,15	4,04	3,05	4,42	5,14
	w4	5,10	4,70	5,67	4,30	4,72	6,64	5,18	4,90	6,51	4,46	3,86	4,04	5,79	6,29	4,31	5,02	5,87	6,58	3,57	3,90	6,12	4,15	4,04	3,04	4,41	5,13
					-				-			-					-	-				-	-	-	-	
	RD	1,59	2,04	0,78	0,32	2,05	1,69	0,04	0,04	0,10	1,42	0,85	1,68	0,83	1,28	1,12	0,01	0,40	0,77	0,62	0,68	1,16	0,31	0,39	3,17	0,76	0,86
pplfair - Most people try to take advantage of you, or try to be fair (*0 - Most people would try to take advantage of me; 10 - Most people would try to be fair*)	uw	5,80	5,61	6,43	5,15	5,73	7,31	5,44	5,20	6,82	5,62	3,74	4,57	6,06	6,90	4,52	5,70	6,24	6,93	4,59	4,83	6,53	4,77	4,50	3,68	4,73	5,55
	dw	5,90	5,61	6,41	5,23	5,74	7,31	5,44	5,22	6,82	5,62	3,68	4,55	6,09	6,90	4,55	5,64	6,24	6,93	4,58	4,83	6,53	4,77	4,50	3,65	4,79	5,59
	w	5,84	5,54	6,38	5,23	5,69	7,26	5,41	5,23	6,81	5,58	3,70	4,49	6,02	6,82	4,53	5,66	6,25	6,90	4,56	4,84	6,55	4,78	4,52	3,68	4,66	5,55
	w2	5,83	5,54	6,39	5,20	5,70	7,27	5,41	5,23	6,81	5,58	3,71	4,52	6,03	6,82	4,53	5,67	6,26	6,90	4,56	4,83	6,54	4,78	4,52	3,70	4,71	5,54
	w4	5,84	5,54	6,38	5,23	5,69	7,26	5,41	5,23	6,81	5,58	3,70	4,50	6,02	6,82	4,53	5,66	6,26	6,90	4,56	4,84	6,55	4,78	4,52	3,68	4,70	5,54
									-			-					-	-			-	-	-	-	-	
	RD	1,12	1,16	0,56	0,07	0,77	0,67	0,50	0,26	0,27	0,79	0,51	1,02	1,15	1,23	0,44	0,42	0,26	0,42	0,41	0,08	0,30	0,15	0,38	0,92	1,89	0,87
pplhlp - Most of the time people helpful or mostly looking out for themselves (*0 - People mostly look out for themselves; 10 - People mostly try to be helpful*)	uw	5,24	4,43	5,48	4,07	4,77	6,02	4,73	4,19	5,71	4,58	3,26	4,04	6,29	6,22	3,71	4,77	5,37	5,99	3,20	3,87	5,91	4,36	3,73	3,46	3,82	5,67
	dw	5,29	4,43	5,52	4,15	4,80	6,02	4,73	4,21	5,71	4,58	3,18	3,99	6,24	6,22	3,72	4,73	5,39	5,99	3,18	3,94	5,91	4,36	3,73	3,39	3,82	5,64
	w	5,25	4,42	5,49	4,15	4,75	5,98	4,72	4,17	5,69	4,53	3,20	3,96	6,15	6,16	3,73	4,76	5,39	5,99	3,17	3,93	5,94	4,37	3,76	3,46	3,89	5,62
	w2	5,24	4,42	5,48	4,13	4,78	5,99	4,72	4,17	5,69	4,54	3,20	3,99	6,18	6,16	3,73	4,77	5,38	5,99	3,17	3,93	5,93	4,37	3,76	3,47	3,86	5,62
	w4	5,25	4,42	5,49	4,15	4,76	5,98	4,72	4,17	5,69	4,53	3,20	3,97	6,15	6,16	3,73	4,76	5,39	5,99	3,17	3,93	5,94	4,37	3,76	3,46	3,90	5,63
												-				-	-	-				-	-	-	-	-	
	RD	0,76	0,18	0,55	0,18	0,83	0,67	0,37	0,89	0,37	1,03	0,41	0,49	1,40	1,03	0,16	0,72	0,03	0,04	0,62	0,27	0,50	0,11	0,91	2,10	2,08	0,21
trstep - Trust in the European Parliament (*0 - No trust at all; 10 - Complete trust*)	uw	3,98	4,98	4,58	4,26	4,17	4,83	4,87	5,04	5,00	4,29	5,39	5,09	5,36	5,29	4,90	5,15	4,54	4,55	4,27	4,00	3,95	4,53	4,74	4,23	4,49	3,45
	dw	4,02	4,98	4,61	4,38	4,18	4,83	4,87	5,05	5,00	4,29	5,34	5,22	5,37	5,29	4,88	5,22	4,61	4,55	4,26	4,04	3,95	4,53	4,74	4,37	4,83	3,55
	w	4,04	4,95	4,60	4,39	4,17	4,79	4,89	5,03	5,01	4,33	5,34	5,09	5,38	5,28	4,88	5,16	4,65	4,54	4,26	3,96	4,05	4,55	4,76	4,02	4,62	3,53
	w2	4,03	4,95	4,59	4,34	4,18	4,81	4,89	5,03	5,01	4,30	5,34	5,11	5,38	5,28	4,87	5,16	4,63	4,54	4,26	3,97	4,04	4,55	4,76	4,03	4,63	3,50
	w4	4,04	4,95	4,60	4,38	4,17	4,79	4,89	5,03	5,01	4,33	5,34	5,12	5,38	5,28	4,88	5,16	4,65	4,54	4,26	3,96	4,05	4,55	4,76	4,02	4,64	3,52
		-						-		-	-			-		-		-				-	-	-			
	RD	0,42	0,75	0,24	0,08	0,39	0,98	0,33	0,39	0,19	0,92	0,01	2,10	0,24	0,21	0,03	1,19	0,95	0,17	0,11	2,07	2,32	0,28	0,39	8,75	4,10	0,71
lrscale - Placement on left right scale (*0 - Left; 10 - Right*)	uw	4,57	4,87	5,03	5,40	4,50	5,47	5,15	4,40	5,76	4,75	5,68	5,06	5,28	5,09	4,80	5,17	5,16	5,05	5,43	4,95	5,22	5,01	4,87	6,32	5,55	4,98
	dw	4,60	4,87	5,08	5,42	4,55	5,47	5,15	4,41	5,76	4,75	5,63	4,95	5,26	5,09	4,81	5,07	5,23	5,05	5,42	5,03	5,22	5,01	4,87	6,23	5,83	4,99
	w	4,66	4,85	5,09	5,45	4,59	5,41	5,19	4,39	5,73	4,78	5,57	4,98	5,20	5,10	4,89	5,16	5,25	5,04	5,40	5,14	5,33	5,01	4,91	6,28	5,65	5,04
	w2	4,65	4,85	5,08	5,44	4,58	5,43	5,19	4,38	5,73	4,77	5,58	4,96	5,22	5,10	4,87	5,17	5,24	5,04	5,40	5,09	5,30	5,01	4,91	6,28	5,72	4,99
	w4	4,66	4,85	5,09	5,45	4,59	5,41	5,19	4,39	5,73	4,78	5,58	4,98	5,20	5,10	4,89	5,16	5,25	5,04	5,40	5,13	5,33	5,01	4,91	6,28	5,70	5,03
		-		-	-	-		-			-		-		-	-	-	-			-	-		-	-		-
	RD	1,39	0,50	0,12	0,48	0,87	1,05	0,83	0,57	0,45	0,76	1,05	0,63	1,08	0,13	1,58	1,58	0,30	0,28	0,50	1,95	2,00	0,14	0,88	0,84	2,39	0,87

stflife - How satisfied with life as a whole (*0 - Extremely dissatisfied; 10 - Extremely satisfied*)	uw	7,41	7,43	8,01	6,41	6,70	8,46	5,89	7,12	8,00	6,37	6,39	5,63	7,69	8,46	6,39	7,82	7,48	7,66	6,23	5,61	7,84	6,90	5,58	6,35	4,34	7,03
	dw	7,50	7,43	8,06	6,54	6,79	8,46	5,89	7,13	8,00	6,37	6,42	5,69	7,72	8,46	6,51	7,73	7,57	7,66	6,24	5,68	7,84	6,90	5,58	6,29	4,44	7,12
	w	7,49	7,42	8,04	6,50	6,74	8,43	5,92	7,10	7,99	6,38	6,45	5,62	7,66	8,45	6,48	7,77	7,59	7,66	6,21	5,72	7,83	6,90	5,60	6,38	4,50	7,02
	w2	7,47	7,42	8,05	6,48	6,76	8,44	5,92	7,10	7,99	6,36	6,45	5,65	7,67	8,45	6,48	7,79	7,58	7,66	6,21	5,73	7,84	6,90	5,60	6,39	4,46	7,04
	w4	7,49	7,42	8,04	6,50	6,74	8,43	5,92	7,10	7,99	6,38	6,45	5,61	7,66	8,45	6,48	7,77	7,59	7,66	6,21	5,73	7,83	6,90	5,60	6,38	4,49	7,03
								-			-	-						-	-				-	-	-	-	
	RD	0,20	0,11	0,28	0,63	0,82	0,44	0,50	0,39	0,07	0,15	0,56	1,46	0,75	0,11	0,40	0,49	0,22	0,02	0,53	0,78	0,16	0,02	0,42	1,44	1,12	1,23
stfeco - How satisfied with present state of economy in country (*0 - Extremely dissatisfied; 10 - Extremely satisfied*)	uw	5,20	5,09	5,26	3,66	3,44	7,06	4,61	5,28	6,54	3,76	3,51	3,12	6,57	6,27	3,79	6,45	4,98	6,37	3,19	2,64	5,01	4,50	3,12	4,83	2,98	5,28
	dw	5,22	5,09	5,32	3,70	3,49	7,06	4,61	5,28	6,54	3,76	3,49	3,21	6,56	6,27	3,78	6,40	4,99	6,37	3,19	2,70	5,01	4,50	3,12	4,77	3,13	5,34
	w	5,28	5,07	5,30	3,71	3,47	7,02	4,62	5,22	6,55	3,80	3,52	3,18	6,51	6,25	3,79	6,44	5,02	6,30	3,19	2,69	5,01	4,51	3,16	4,73	3,08	5,29
	w2	5,27	5,07	5,29	3,67	3,49	7,03	4,62	5,22	6,55	3,78	3,51	3,21	6,55	6,25	3,79	6,45	5,02	6,30	3,19	2,68	5,02	4,51	3,16	4,73	3,06	5,27
	w4	5,28	5,07	5,30	3,70	3,48	7,02	4,62	5,22	6,55	3,80	3,52	3,19	6,51	6,25	3,79	6,44	5,02	6,30	3,19	2,69	5,01	4,51	3,16	4,73	3,08	5,29
		-			-			-		-	-	-				-	-	-					-	-			
	RD	1,13	0,31	0,39	0,16	0,26	0,49	0,37	1,22	0,22	0,96	0,72	0,88	0,81	0,38	0,15	0,56	0,69	1,04	0,11	0,55	0,10	0,20	1,28	0,86	1,83	1,01
stfgov - How satisfied with the national government (*0 - Extremely dissatisfied; 10 - Extremely satisfied*)	uw	4,22	4,74	5,21	3,43	3,40	5,92	3,98	5,10	6,23	4,27	4,54	3,17	5,20	5,04	3,83	6,19	4,41	4,39	2,42	2,47	4,62	4,35	3,03	5,92	3,97	4,34
	dw	4,25	4,74	5,26	3,43	3,45	5,92	3,98	5,11	6,23	4,27	4,53	3,23	5,19	5,04	3,84	6,19	4,45	4,39	2,41	2,52	4,62	4,35	3,03	5,84	4,25	4,37
	w	4,28	4,75	5,23	3,44	3,45	5,92	3,99	5,11	6,22	4,27	4,51	3,15	5,11	5,13	3,87	6,22	4,50	4,36	2,42	2,48	4,58	4,34	3,09	5,80	4,03	4,31
	w2	4,27	4,75	5,23	3,41	3,45	5,92	3,99	5,11	6,22	4,27	4,51	3,17	5,14	5,13	3,86	6,21	4,48	4,36	2,42	2,47	4,60	4,34	3,09	5,80	4,03	4,31
	w4	4,28	4,75	5,23	3,43	3,45	5,92	3,99	5,11	6,22	4,27	4,51	3,16	5,12	5,13	3,87	6,22	4,50	4,36	2,42	2,48	4,58	4,34	3,09	5,80	4,02	4,31
		-	-					-			-				-	-	-	-					-				
	RD	0,62	0,21	0,62	0,03	0,12	0,06	0,20	0,14	0,23	0,09	0,39	2,43	1,37	1,59	0,69	0,41	1,09	0,64	0,23	1,79	0,85	0,15	2,05	0,64	5,78	1,47
stfdem - How satisfied with the way democracy works in country (*0 - Extremely dissatisfied; 10 - Extremely satisfied*)	uw	6,03	5,56	6,36	4,61	5,06	7,31	4,56	6,05	6,70	4,85	6,24	4,05	5,78	5,86	4,79	6,64	5,65	6,23	3,71	3,39	5,91	4,54	3,84	4,98	4,04	5,09
	dw	6,01	5,56	6,39	4,63	5,28	7,31	4,56	6,07	6,70	4,85	6,19	4,10	5,73	5,86	4,78	6,61	5,66	6,23	3,70	3,35	5,91	4,54	3,84	4,88	4,31	5,14
	w	6,06	5,54	6,38	4,64	5,27	7,30	4,57	6,04	6,69	4,84	6,17	4,09	5,66	5,88	4,77	6,64	5,73	6,21	3,72	3,25	5,92	4,54	3,88	4,88	4,07	5,10
	w2	6,05	5,54	6,38	4,63	5,27	7,30	4,57	6,05	6,69	4,83	6,18	4,14	5,70	5,88	4,77	6,63	5,72	6,21	3,72	3,28	5,94	4,54	3,88	4,88	4,11	5,09
	w4	6,06	5,54	6,38	4,64	5,27	7,30	4,57	6,04	6,69	4,84	6,17	4,12	5,67	5,88	4,77	6,64	5,73	6,21	3,72	3,25	5,92	4,54	3,88	4,88	4,08	5,09
		-			-			-					-		-		-	-		-		-		-			
	RD	0,77	0,49	0,17	0,10	0,15	0,17	0,29	0,42	0,08	0,15	0,18	0,40	1,11	0,41	0,21	0,38	1,23	0,43	0,54	3,11	0,20	0,04	0,95	0,02	5,62	0,91

--uw - unweighted data; dw - dweighted data; w - weighted data; w2 - weighted data, trimmed at 2; w4 - weighted data, trimmed at 4. Last row (RD) presents relative difference of estimates before and after weighting ((dw – w4)/w4*100)

Table 15: Relative and standardised bias in Round 2, considering 9 selected variables

	Weights (uncut)						Weights (cut at 2)						Weights (cut at 4)					
	Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias		
Variable	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max
ppltrst	0,979	-3,162	2,099	0,867	-1,517	2,304	0,926	-3,416	2,043	0,810	-1,643	1,907	0,960	-3,166	2,050	0,851	-1,519	2,251
pplfair	0,679	-0,915	2,694	0,711	-0,492	2,374	0,642	-1,451	1,586	0,673	-0,784	1,531	0,640	-0,920	1,894	0,679	-0,495	1,682
pplhlp	0,664	-2,095	1,405	0,577	-1,442	1,838	0,600	-2,494	1,027	0,511	-1,282	1,226	0,651	-2,101	1,400	0,565	-1,487	1,831
trstep	1,127	-2,323	8,761	0,730	-1,692	3,874	1,048	-2,167	8,276	0,673	-1,576	3,677	1,089	-2,323	8,754	0,704	-1,692	3,872
lrscale	0,944	-2,156	3,280	0,908	-2,064	2,734	0,692	-1,765	1,966	0,657	-1,638	1,660	0,893	-2,005	2,390	0,863	-2,064	2,010
stflife	0,499	-1,436	1,298	0,669	-1,261	2,031	0,458	-1,522	1,121	0,625	-1,338	1,758	0,511	-1,436	1,460	0,682	-1,261	1,931
stfeco	0,662	-1,282	1,614	0,611	-1,302	1,334	0,618	-1,282	2,248	0,570	-0,935	1,518	0,643	-1,282	1,833	0,596	-1,264	1,334
stfgov	0,938	-2,047	5,573	0,675	-1,086	3,437	0,850	-2,047	5,526	0,603	-1,086	3,410	0,919	-2,047	5,777	0,661	-1,086	3,556
stfdem	0,730	-1,226	6,077	0,618	-1,554	3,762	0,669	-1,075	5,003	0,565	-1,242	3,128	0,713	-1,230	5,619	0,607	-1,559	3,493

Table 16: Relative and standardised bias for each country in Round 2 (average, minimum and maximum values, considering 9 selected variables)

	Weights (uncut)						Weights (cut at 2)						Weights (cut at 4)					
	Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias		
Country	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max
Austria	0,897	-1,397	1,524	0,977	-1,467	1,560	0,868	-1,148	1,870	0,980	-1,202	1,907	0,889	-1,389	1,590	0,972	-1,458	1,626
Belgium	0,640	-0,206	2,043	0,621	-0,201	1,729	0,640	-0,206	2,043	0,621	-0,201	1,729	0,640	-0,206	2,043	0,621	-0,201	1,729
Czech Republic	0,330	-0,537	0,552	0,357	-0,576	0,889	0,570	-0,261	0,976	0,599	-0,279	1,286	0,227	-0,476	0,626	0,272	-0,511	1,006
Denmark	0,691	0,064	1,691	0,833	0,063	2,010	0,529	-0,035	1,546	0,651	-0,035	1,841	0,691	0,064	1,691	0,833	0,063	2,010
Estonia*	0,381	-0,832	0,503	0,378	-0,880	0,546	0,381	-0,832	0,503	0,378	-0,880	0,546	0,381	-0,832	0,503	0,378	-0,880	0,546
Finland	0,219	-0,225	0,445	0,318	-0,373	0,555	0,219	-0,225	0,445	0,318	-0,373	0,555	0,219	-0,225	0,445	0,318	-0,373	0,555
France	0,685	-0,968	1,368	0,595	-0,762	1,149	0,542	-0,507	1,283	0,481	-0,430	1,079	0,698	-0,962	1,425	0,607	-0,757	1,197
Germany**	0,741	-0,912	2,099	0,896	-1,197	2,304	0,426	-0,622	1,387	0,533	-0,814	1,533	0,695	-0,868	2,050	0,846	-1,140	2,251
Greece	0,530	-0,887	1,077	0,505	-0,766	1,188	0,510	-0,866	0,989	0,487	-0,786	1,091	0,521	-0,851	1,054	0,500	-0,801	1,163
Hungary*	1,428	-0,641	2,750	0,990	-0,513	1,911	0,862	-1,075	2,203	0,600	-0,766	1,618	1,233	-0,626	2,426	0,863	-0,501	1,544
Iceland	0,708	-1,591	1,278	0,483	-0,818	1,097	0,708	-1,591	1,278	0,483	-0,818	1,097	0,708	-1,591	1,278	0,483	-0,818	1,097
Ireland*	0,982	-0,207	1,405	1,281	-0,212	1,838	0,603	-0,245	1,037	0,797	-0,250	1,283	0,970	-0,239	1,400	1,263	-0,245	1,831
Italy	0,523	-1,585	1,096	0,388	-1,087	0,802	0,511	-1,210	1,116	0,386	-0,826	0,816	0,531	-1,581	1,118	0,393	-1,084	0,818
Luxembourg	0,625	-1,584	1,202	0,622	-1,468	1,007	0,787	-1,765	1,191	0,789	-1,638	0,999	0,639	-1,583	1,191	0,638	-1,467	0,998

Netherlands	0,570	-1,226	-0,016	0,661	-1,554	-0,020	0,429	-0,982	0,064	0,509	-1,242	0,079	0,575	-1,230	-0,031	0,667	-1,559	-0,039
Norway	0,425	0,023	1,044	0,512	0,042	1,208	0,425	0,024	1,045	0,512	0,043	1,210	0,425	0,023	1,044	0,512	0,042	1,208
Poland	0,408	-0,537	0,621	0,291	-0,350	0,536	0,410	-0,548	0,611	0,293	-0,358	0,543	0,408	-0,537	0,621	0,291	-0,350	0,536
Portugal	1,254	-2,156	3,156	0,959	-1,951	2,140	1,111	-1,107	2,249	0,847	-1,003	1,538	1,253	-1,950	3,113	0,963	-1,761	2,112
Slovakia	0,848	-2,047	-0,381	0,524	-1,086	-0,251	0,848	-2,047	-0,381	0,524	-1,086	-0,251	0,848	-2,047	-0,381	0,524	-1,086	-0,251
Slovenia	0,155	-0,306	0,147	0,110	-0,195	0,106	0,155	-0,306	0,147	0,110	-0,195	0,106	0,155	-0,306	0,147	0,110	-0,195	0,106
Spain	0,481	-0,258	1,219	0,475	-0,252	1,334	0,467	-0,237	1,175	0,459	-0,231	1,287	0,481	-0,258	1,219	0,475	-0,252	1,334
Sweden**	0,844	-2,323	0,853	0,848	-2,064	0,787	0,713	-2,167	0,429	0,702	-1,576	0,397	0,844	-2,323	0,853	0,848	-2,064	0,787
Switzerland	0,419	-0,116	0,794	0,561	-0,134	0,973	0,425	-0,002	0,810	0,549	-0,002	0,992	0,412	-0,116	0,785	0,551	-0,135	0,962
Turkey	2,082	-3,162	8,761	1,105	-1,517	3,874	2,171	-3,416	8,276	1,161	-1,643	3,677	2,083	-3,166	8,754	1,105	-1,519	3,872
Ukraine	3,105	-2,023	6,077	2,132	-1,442	3,762	2,533	-1,044	5,526	1,691	-0,736	3,410	2,841	-2,085	5,777	1,925	-1,487	3,556
United Kingdom**	0,886	-0,943	1,514	0,967	-1,145	2,031	0,945	-0,035	1,480	0,964	-0,042	1,758	0,905	-0,867	1,473	0,977	-1,053	1,931

* missings re-allocated instead of ignored

** missings in control data decreased to the sample value and equally re-allocated among other values assuming missing at random (MAR)

2.5 Round 1

The first round was fielded in 2010/11, covering 27 countries (for more information about ESS Round 5, see page http://ess.nsd.uib.no/ess/round1/). As in all other rounds, raking with two tables, the post-stratified three-dimensional GAE table (gender, age, education) and the one-dimensional region, was carried out in most countries (Austria, Belgium, Switzerland, Czech Republic, Germany, Denmark, Spain, Finland, France, Greece, Hungary, Ireland, Italy, Netherlands, Norway, Poland, Portugal, Sweden, Slovenia and United Kingdom).

In Luxembourg there was only one category in region variable (either in sample data, or in the LFS control source). Therefore, only post-stratification on gender, age and education was performed, without raking it. Moreover, in case of Israel in control data the interaction is known only for gender and age, while education frequencies are given separately. Thus, a three-table raking was performed, where the first table was gender by age, the second was education and the third table was region. As described and shown in methodological document (Table 2 in report Post-stratification weighting of the ESS) we used LFS data as controls. Exception was only Israel. In this case we used data from ESS Appendix, reported by national coordinators. For Norway we used a combination of LFS data and the ESS Appendix.

Table 17 presents descriptive statistics (i.e. minimum and maximum value of weights, variance) for newly computed weights for each country. Next, Table 18 demonstrates the effects of weighting (i.e. the relative differences of estimates before and after weighting) for 9 selected variables. Furthermore, relative and standardised biases are presented for i) each country and ii) in total, considering 9 selected variables (Table 19 and 20). More details about calculating the relative and standardized bias are presented in Appendix C.

As we can see in table 17 below, we get the highest calculated weights for Spain, where the highest weight is 10.9. Other countries with the highest weights are United Kingdom (9.7), Slovakia (9.1) and Czech Republic (7.0). Countries where the highest weight is smaller are Slovenia (1.3), Hungary (1.5) and Poland (1.6). However, all weights above 4 were trimmed, therefore every country has got final weights that are not much higher than 4 (after cutting all the higher values, the weights are rescaled so that the average 1 is preserved, thus those weights which were preliminary trimmed at 4, basically have values slightly above 4). If we look at the variance of those weights (trimmed at 4) we can find out that the smallest variance of weights have countries such Slovenia (0.025), Poland (0.045) and Hungary (0.055), whereas the largest variance of weights have countries such as Portugal (0.832), Israel (0.561) and Czech Republic (0.505).

Table 17: A description of weights (min, max and variance) for Round 1

		Design weights (dweight)			Weights (uncut)				Weights (cut at 4)		
country	N	Min	Max	Variance	Mean	Min	Max	Variance	Min	Max	Variance
AT	2257	0,300	4,000	0,245	1	0,146	5,078	0,325	0,146	4,006	0,317
BE	1899	1,000	1,000	0,000	1	0,548	3,479	0,147	0,548	3,479	0,147
CH	2040	0,507	3,676	0,213	1	0,075	3,935	0,308	0,075	3,935	0,308
CZ	1360	0,437	3,412	0,253	1	0,006	6,966	0,556	0,006	4,031	0,505
DE**	2919	0,567	1,257	0,111	1	0,276	5,179	0,374	0,276	4,006	0,364
DK*	1506	1,000	1,000	0,000	1	0,430	2,215	0,113	0,430	2,215	0,113
ES	1729	0,120	3,612	0,223	1	0,115	10,940	0,421	0,116	4,026	0,356
FI	2000	1,000	1,000	0,000	1	0,628	2,637	0,146	0,628	2,637	0,146
FR	1503	1,000	1,000	0,000	1	0,037	3,394	0,185	0,037	3,394	0,185
GR	2566	0,421	3,787	0,218	1	0,247	4,192	0,286	0,247	4,000	0,285
HU**	1685	1,000	1,000	0,000	1	0,001	1,515	0,055	0,001	1,515	0,055
IE*	2046	0,917	2,750	0,044	1	0,412	4,286	0,219	0,412	4,001	0,218
IL	2499	0,004	4,000	0,556	1	0,003	6,274	0,605	0,003	4,029	0,561
IT	1207	0,163	4,000	0,157	1	0,109	6,213	0,279	0,110	4,019	0,244
LU	1552	0,126	1,548	0,258	1	0,031	2,569	0,281	0,031	2,569	0,281
NL	2364	0,490	2,940	0,186	1	0,242	4,786	0,290	0,242	4,004	0,284
NO	2036	0,833	1,245	0,005	1	0,395	3,528	0,131	0,395	3,528	0,131
PL	2110	0,726	1,161	0,020	1	0,437	1,641	0,045	0,437	1,641	0,045
PT	1511	0,111	4,340	0,834	1	0,090	6,119	0,948	0,092	4,081	0,832
SE**	1999	1,000	1,000	0,000	1	0,585	2,688	0,126	0,585	2,688	0,126
SI**	1519	1,000	1,000	0,000	1	0,550	1,331	0,025	0,550	1,331	0,025
UK**	2052	0,053	4,000	0,219	1	0,034	9,744	0,623	0,035	4,097	0,432

* missings re-allocated instead of ignored

** missings in control data decreased to the sample value and equally re-allocated among other values assuming missing at random (MAR)

In Table 18 below we can observe estimates for 9 selected variables for each country in different variations – when data are unweighted (uw), weighted by design weight (dw) or weighted by final weights with three versions (uncut weights – w; weights, trimmed at 2 – w2; weights, trimmed at 4 – w4). All these data enable us to get insight into differences in estimates before and after weighting. The analysis for ESS Round 1 shows that for 9 specific but standard ESS variables the relative change in estimated mean after weighting (for interpretation weights, trimmed at 4 were used, which are final recommended weights) is predominantly negligible, and typically much below relative change of 5%. For example, in case of Denmark the average trust in people after weighting is 6.92 and 6.99 when final weight are not applied, which means that the relative change in estimate before and after weighting is 1.10%. In case of Belgium the relative change of estimate for average trust in the European Parliament is 1.57%. Before population weighting the estimate for average trust in the European Parliament is 4.88, while after weighting the estimate is 4.80. For example, in Poland the average satisfaction with whole life after weighting is 5.80 and 5.80, when final weights are not

applied, which is also negligible difference (relative change is 0.71%). The largest relative change that arise with population weighting we can find in case of Belgium, where estimate for average trust into people with weighting decreases for 3.44% (from the value 4.81 to 4.65)

In accordance with that results, also the average relative change (or bias) for these variables is in general small (below the value 0.83%). However, the highest average relative bias is noticed for variable *ppltrst* ('trust into people'), which counts 0.83%, and variable *stflife* ('satisfaction with life') has the lowest average relative bias (0.38%). Meanwhile, the variable with the highest average standardised bias is also variable *ppltrst* (average standardised bias is 0.79), while variable with the lowest average standardised bias is variable *stfgov* ('satisfaction with national government'), with value 0.37.

In Table 20 we can see, that countries with the highest average relative bias are Belgium (1.4%), France (1.0%), Ireland (0.9%) and Israel (0.9). But as we can notice, in general all countries in ESS round 1 have small average relative bias. Also the average standardised bias is low and considerably lower than value 2.0 (the largest average standardised bias appears in Belgium, with the value 1.38).

Table 18: Effects of the weights in Round 1 - estimates for the means for 9 selected variables

Variable		AT	BE	CH	CZ	DE	DK	ES	FI	FR	GR	HU	IE	IL	IT	LU	NL	NO	PL	PT	SE	SI	UK
ppltrst - Most people can be trusted or you can't be too careful (*0 - You can't be too careful; 10 - Most people can be trusted*)	uw	5,07	4,81	5,65	4,25	4,61	6,99	4,86	6,46	4,47	3,64	4,08	5,46	4,76	4,54	5,21	5,71	6,60	3,72	4,00	6,09	3,98	5,05
	dw	5,13	4,81	5,64	4,29	4,67	6,99	4,89	6,46	4,47	3,63	4,08	5,47	4,89	4,52	5,18	5,71	6,60	3,69	4,16	6,09	3,98	5,05
	w	5,07	4,65	5,60	4,29	4,58	6,92	4,89	6,47	4,38	3,65	4,05	5,41	4,93	4,51	5,19	5,72	6,55	3,66	4,21	6,11	3,96	5,02
	w2	5,07	4,66	5,61	4,29	4,60	6,92	4,89	6,47	4,38	3,65	4,05	5,42	4,93	4,53	5,19	5,72	6,56	3,66	4,12	6,12	3,96	5,02
	w4	5,07	4,65	5,60	4,29	4,58	6,92	4,90	6,47	4,38	3,66	4,05	5,41	4,93	4,52	5,19	5,72	6,55	3,66	4,19	6,11	3,96	5,01
					-			-	-		-			-	-	-	-			-	-		
	RD	1,16	3,44	0,78	0,06	2,03	1,10	0,27	0,22	2,01	0,79	0,72	1,01	0,71	0,11	0,01	0,20	0,75	0,67	0,62	0,33	0,40	0,81
pplfair - Most people try to take advantage of you, or try to be fair (*0 - Most people would try to take advantage of me; 10 - Most people would try to be fair*)	uw	5,55	5,61	6,19	5,07	5,77	7,33	5,21	6,88	5,61	3,68	4,64	6,02	5,25	4,61	5,57	6,18	6,98	4,54	5,18	6,66	4,68	5,55
	dw	5,62	5,61	6,20	5,11	5,77	7,33	5,23	6,88	5,61	3,69	4,64	6,00	5,36	4,59	5,50	6,19	6,98	4,53	5,27	6,66	4,68	5,56
	w	5,59	5,53	6,18	5,10	5,71	7,29	5,19	6,88	5,53	3,69	4,62	5,93	5,38	4,64	5,50	6,19	6,99	4,53	5,32	6,68	4,66	5,54
	w2	5,58	5,53	6,19	5,08	5,72	7,29	5,21	6,88	5,52	3,69	4,62	5,93	5,37	4,66	5,50	6,19	7,00	4,53	5,24	6,67	4,66	5,54
	w4	5,59	5,53	6,18	5,10	5,71	7,29	5,21	6,88	5,53	3,69	4,62	5,93	5,38	4,65	5,50	6,19	6,99	4,53	5,30	6,68	4,66	5,54
														-	-	-		-		-	-		
	RD	0,52	1,50	0,30	0,14	1,01	0,64	0,43	0,01	1,60	0,06	0,46	1,32	0,35	1,28	0,01	0,00	0,18	0,14	0,70	0,23	0,50	0,19
pplhlp - Most of the time people helpful or mostly looking out for themselves (*0 - People mostly look out for themselves; 10 - People mostly try to be helpful*)	uw	5,14	4,44	5,33	3,95	4,85	6,12	4,42	5,68	4,42	3,00	4,16	5,95	4,38	4,08	4,55	5,25	6,01	3,18	3,79	6,01	4,24	5,42
	dw	5,19	4,44	5,32	3,95	4,85	6,12	4,40	5,68	4,42	3,01	4,16	5,95	4,51	4,07	4,54	5,26	6,01	3,16	3,91	6,01	4,24	5,41
	w	5,19	4,39	5,28	3,95	4,80	6,08	4,39	5,68	4,39	3,00	4,15	5,85	4,51	4,09	4,51	5,24	6,01	3,16	3,96	6,01	4,23	5,41
	w2	5,19	4,39	5,30	3,96	4,82	6,09	4,40	5,69	4,39	2,99	4,15	5,86	4,50	4,12	4,52	5,23	6,01	3,16	3,88	6,01	4,23	5,41
	w4	5,19	4,39	5,28	3,95	4,80	6,08	4,40	5,68	4,39	3,00	4,15	5,85	4,51	4,11	4,51	5,24	6,01	3,16	3,94	6,01	4,23	5,41
		-			-				-					-	-			-	-	-	-		
	RD	0,05	1,15	0,76	0,11	0,95	0,57	0,02	0,14	0,64	0,38	0,22	1,79	0,02	0,96	0,53	0,43	0,01	0,05	0,80	0,07	0,15	0,06
trstep - Trust in the European Parliament (*0 - No trust at all; 10 - Complete trust*)	uw	4,22	4,88	4,78	4,65	4,46	4,84	4,80	4,88	4,36	5,69	5,67	5,11	4,22	5,51	4,98	4,67	4,68	4,77	4,76	4,02	4,65	3,61
	dw	4,21	4,88	4,81	4,67	4,52	4,84	4,82	4,88	4,36	5,75	5,67	5,11	4,12	5,54	5,03	4,72	4,68	4,75	4,85	4,02	4,65	3,64
	w	4,24	4,80	4,78	4,69	4,53	4,83	4,76	4,88	4,32	5,73	5,62	5,07	4,00	5,52	4,95	4,78	4,71	4,74	4,84	4,08	4,62	3,63
	w2	4,22	4,80	4,77	4,67	4,52	4,84	4,78	4,89	4,31	5,72	5,62	5,07	4,03	5,51	4,95	4,75	4,69	4,74	4,79	4,08	4,62	3,58
	w4	4,23	4,80	4,78	4,68	4,53	4,83	4,78	4,88	4,32	5,73	5,62	5,07	4,00	5,52	4,95	4,78	4,71	4,74	4,84	4,08	4,62	3,61
		-			-	-			-								-	-			-		
	RD	0,50	1,57	0,69	0,29	0,07	0,02	0,82	0,07	0,96	0,42	0,73	0,76	2,99	0,42	1,54	1,25	0,58	0,26	0,25	1,55	0,62	0,88
lrscale - Placement	uw	4,65	4,83	4,88	5,41	4,60	5,54	4,42	5,62	4,75	5,66	4,95	5,41	5,30	4,79	4,98	5,30	5,33	5,10	4,95	4,88	4,70	5,14

on left right scale (*0 - Left; 10 - Right*)	dw	4,65	4,83	4,87	5,45	4,69	5,54	4,41	5,62	4,75	5,69	4,95	5,39	5,68	4,84	4,92	5,32	5,33	5,11	5,08	4,88	4,70	5,18
	w	4,65	4,77	4,87	5,43	4,75	5,55	4,39	5,65	4,72	5,65	4,96	5,34	5,75	4,82	4,94	5,33	5,31	5,10	5,01	4,95	4,72	5,22
	w2	4,66	4,78	4,88	5,42	4,72	5,55	4,41	5,65	4,73	5,65	4,96	5,35	5,71	4,82	4,94	5,33	5,31	5,10	5,01	4,94	4,72	5,17
	w4	4,65	4,77	4,87	5,43	4,75	5,55	4,39	5,65	4,72	5,65	4,96	5,34	5,76	4,82	4,94	5,33	5,31	5,10	5,03	4,95	4,72	5,19
	RD	0,11	1,23	0,14	0,32	-1,34	-0,01	0,48	-0,58	0,64	-0,73	-0,33	0,91	-1,28	0,38	-0,56	-0,24	0,35	0,20	0,98	-1,29	-0,39	-0,27
stflife - How satisfied with life as a whole (*0 - Extremely dissatisfied; 10 - Extremely satisfied*)	uw	7,55	7,44	7,96	6,27	6,81	8,44	6,93	7,91	6,36	6,26	5,61	7,46	6,42	6,86	7,80	7,62	7,76	5,84	5,76	7,80	6,57	7,02
	dw	7,64	7,44	8,01	6,45	6,96	8,44	7,08	7,91	6,36	6,33	5,61	7,44	6,61	6,91	7,83	7,69	7,76	5,85	5,91	7,80	6,57	7,07
	w	7,64	7,35	8,00	6,48	6,89	8,41	7,04	7,91	6,30	6,34	5,61	7,42	6,63	6,95	7,83	7,67	7,80	5,80	5,89	7,79	6,54	7,03
	w2	7,64	7,36	8,00	6,43	6,90	8,41	7,06	7,91	6,29	6,35	5,61	7,42	6,59	6,92	7,83	7,67	7,79	5,80	5,83	7,79	6,54	7,06
	w4	7,63	7,35	8,00	6,48	6,89	8,41	7,06	7,91	6,30	6,34	5,61	7,42	6,64	6,94	7,83	7,67	7,80	5,80	5,89	7,79	6,54	7,06
	RD	0,10	1,12	0,22	-0,52	1,01	0,29	0,35	-0,07	0,97	-0,20	0,11	0,30	-0,39	-0,42	0,02	0,17	-0,46	0,71	0,36	0,11	0,35	0,15
stfeco - How satisfied with present state of economy in country (*0 - Extremely dissatisfied; 10 - Extremely satisfied*)	uw	5,22	5,33	4,96	3,71	2,92	6,93	4,77	6,18	3,50	3,51	4,09	4,51	2,44	4,12	6,66	5,33	6,00	2,76	2,91	5,13	4,12	5,12
	dw	5,24	5,33	5,03	3,74	3,01	6,93	4,81	6,18	3,50	3,53	4,09	4,52	2,59	4,14	6,69	5,34	6,00	2,77	3,06	5,13	4,12	5,16
	w	5,24	5,28	4,99	3,79	3,04	6,92	4,77	6,19	3,47	3,52	4,09	4,49	2,61	4,13	6,69	5,34	5,99	2,76	3,03	5,12	4,11	5,12
	w2	5,24	5,27	4,99	3,78	3,03	6,92	4,79	6,18	3,46	3,52	4,09	4,49	2,58	4,13	6,69	5,35	5,99	2,76	3,00	5,12	4,11	5,12
	w4	5,24	5,28	4,99	3,79	3,04	6,92	4,78	6,19	3,47	3,52	4,09	4,49	2,61	4,13	6,69	5,34	5,99	2,76	3,04	5,12	4,11	5,12
	RD	0,14	1,06	0,78	-1,21	-0,77	0,15	0,55	-0,15	0,91	-0,33	-0,14	0,59	-0,92	-0,39	0,08	0,06	-0,20	0,15	0,57	0,26	0,17	0,80
stfgov - How satisfied with the national government (*0 - Extremely dissatisfied; 10 - Extremely satisfied*)	uw	3,81	5,18	5,51	3,84	3,13	5,87	4,28	5,81	4,22	4,06	4,88	/	3,56	3,91	6,36	4,21	4,36	3,11	3,39	5,23	4,28	4,37
	dw	3,88	5,18	5,56	3,86	3,18	5,87	4,26	5,81	4,22	4,06	4,88	/	3,79	3,99	6,41	4,24	4,36	3,12	3,54	5,23	4,28	4,38
	w	3,90	5,16	5,53	3,84	3,18	5,86	4,24	5,80	4,22	4,03	4,83	/	3,84	3,97	6,43	4,25	4,35	3,11	3,48	5,22	4,27	4,39
	w2	3,89	5,16	5,53	3,85	3,19	5,86	4,27	5,80	4,21	4,04	4,83	/	3,80	3,97	6,43	4,25	4,34	3,11	3,45	5,22	4,27	4,33
	w4	3,90	5,16	5,53	3,84	3,18	5,86	4,25	5,80	4,22	4,03	4,83	/	3,84	3,97	6,43	4,25	4,35	3,11	3,49	5,22	4,27	4,36
	RD	-0,50	0,30	0,45	0,48	-0,17	0,21	0,30	0,06	-0,05	0,77	0,98	/	-1,14	0,48	0,33	0,40	0,34	0,37	1,41	0,32	0,19	0,51
stfdem - How satisfied with the way democracy works in country (*0 - Extremely dissatisfied; 10 - Extremely satisfied*)	uw	5,63	5,52	6,57	4,79	5,01	7,26	5,68	6,35	4,85	5,79	4,85	4,99	4,88	4,93	6,83	5,83	6,14	4,07	4,55	6,12	4,39	5,07
	dw	5,66	5,52	6,60	4,85	5,28	7,26	5,70	6,35	4,85	5,81	4,85	4,99	5,03	5,01	6,87	5,85	6,14	4,07	4,56	6,12	4,39	5,08
	w	5,66	5,46	6,55	4,91	5,30	7,24	5,64	6,35	4,79	5,79	4,83	4,95	5,05	5,04	6,89	5,89	6,11	4,05	4,55	6,12	4,38	5,04
	w2	5,65	5,46	6,56	4,87	5,28	7,24	5,65	6,35	4,78	5,80	4,83	4,95	5,02	5,02	6,89	5,88	6,11	4,05	4,54	6,13	4,38	5,01
	w4	5,65	5,46	6,55	4,91	5,30	7,24	5,64	6,35	4,79	5,79	4,83	4,95	5,05	5,03	6,89	5,89	6,11	4,05	4,55	6,12	4,38	5,02
	RD	0,09	0,94	0,71	-1,12	-0,20	0,28	0,98	-0,05	1,19	-0,28	-0,43	0,91	-0,36	-0,47	-0,26	-0,69	-0,56	-0,45	-0,20	-0,07	-0,18	1,18

--uw - unweighted data; dw - dweighted data; w - weighted data; w2 - weighted data, trimmed at 2; w4 - weighted data, trimmed at 4. Last row (RD) presents relative difference of estimates before and after weighting ((dw – w4)/w4*100)

Table 19: Relative and standardised bias in Round 1, considering 9 selected variables

	Weights (uncut)						Weights (cut at 2)						Weights (cut at 4)					
	Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias		
Variable	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max
ppltrst	0,837	-1,102	3,442	0,793	-0,769	2,948	0,774	-0,678	3,222	0,726	-0,635	2,765	0,829	-0,794	3,442	0,791	-0,662	2,948
pplfair	0,549	-1,090	1,596	0,587	-1,039	1,634	0,524	-1,458	1,631	0,553	-0,976	1,599	0,527	-1,276	1,596	0,562	-0,853	1,634
pplhlp	0,467	-1,379	1,802	0,443	-0,992	2,070	0,446	-1,208	1,626	0,412	-0,760	1,872	0,447	-0,956	1,792	0,426	-0,600	2,060
trstep	0,778	-1,554	2,976	0,611	-1,417	1,701	0,774	-1,510	2,274	0,603	-1,132	1,370	0,783	-1,554	2,994	0,613	-1,397	1,711
lrscale	0,632	-1,373	1,350	0,628	-1,843	1,161	0,492	-1,219	1,367	0,475	-1,098	1,070	0,580	-1,341	1,232	0,571	-1,798	1,161
stflife	0,410	-0,611	1,122	0,591	-0,958	1,849	0,380	-0,353	1,286	0,527	-0,732	1,790	0,381	-0,515	1,122	0,548	-0,958	1,849
stfeco	0,491	-1,228	1,059	0,419	-0,795	1,140	0,452	-0,828	1,850	0,383	-0,533	1,217	0,472	-1,206	1,059	0,405	-0,780	1,140
stfgov	0,482	-1,144	1,673	0,378	-0,813	0,921	0,497	-0,420	2,581	0,393	-0,346	1,408	0,465	-1,142	1,410	0,371	-0,812	0,778
stfdem	0,518	-1,212	1,193	0,532	-1,067	1,105	0,493	-0,629	1,362	0,510	-0,972	1,275	0,527	-1,122	1,193	0,542	-1,070	1,172

Table 20: Relative and standardised bias for each country in Round 1 (average, minimum and maximum values, considering 9 selected variables)

	Weights (uncut)						Weights (cut at 2)						Weights (cut at 4)					
	Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias			Relative bias (%)			Standardised bias		
Country	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max	Average	Min	Max
Austria	0,353	-0,561	1,177	0,335	-0,435	1,148	0,315	-0,420	1,052	0,311	-0,303	1,027	0,353	-0,501	1,163	0,341	-0,388	1,135
Belgium	1,367	0,296	3,442	1,377	0,319	2,948	1,339	0,392	3,222	1,355	0,423	2,765	1,367	0,296	3,442	1,377	0,319	2,948
Czech Republic	0,543	-1,228	0,610	0,402	-0,919	0,395	0,331	-0,828	0,529	0,244	-0,533	0,426	0,473	-1,206	0,483	0,353	-0,851	0,314
Denmark*	0,364	-0,008	1,101	0,513	-0,009	1,478	0,353	-0,014	1,078	0,499	-0,015	1,447	0,364	-0,008	1,101	0,513	-0,009	1,478
Finland	0,149	-0,582	0,060	0,200	-0,709	0,080	0,157	-0,604	0,053	0,208	-0,736	0,070	0,149	-0,582	0,060	0,200	-0,709	0,080
France	0,997	-0,054	2,008	0,789	-0,039	1,511	1,090	0,139	1,968	0,859	0,100	1,539	0,997	-0,054	2,008	0,789	-0,039	1,511
Germany**	0,847	-1,373	2,034	1,046	-1,843	2,158	0,628	-0,822	1,551	0,772	-1,098	1,654	0,840	-1,341	2,033	1,036	-1,798	2,157
Greece	0,443	-0,786	0,778	0,402	-0,580	0,839	0,423	-0,653	0,674	0,390	-0,481	0,781	0,442	-0,794	0,770	0,401	-0,585	0,844

Hungary**	0,458	-0,329	0,975	0,351	-0,256	0,732	0,458	-0,329	0,975	0,351	-0,256	0,732	0,458	-0,329	0,975	0,351	-0,256	0,732
Ireland*	0,952	0,291	1,802	1,013	0,471	2,070	0,875	0,260	1,626	0,930	0,421	1,872	0,949	0,296	1,792	1,011	0,478	2,060
Israel	0,874	-1,200	2,976	0,648	-1,135	1,701	0,498	-0,678	2,274	0,379	-0,635	1,308	0,907	-1,279	2,994	0,681	-1,210	1,711
Italy	0,490	-1,011	0,504	0,364	-0,689	0,301	0,559	-1,458	0,500	0,385	-0,976	0,379	0,545	-1,276	0,476	0,391	-0,853	0,354
Luxembourg	0,369	-0,558	1,536	0,313	-0,442	1,152	0,347	-0,540	1,477	0,293	-0,428	1,108	0,369	-0,558	1,536	0,313	-0,442	1,152
Netherlands	0,387	-1,264	0,435	0,502	-1,417	0,557	0,325	-0,726	0,559	0,433	-0,972	0,715	0,382	-1,246	0,429	0,495	-1,397	0,550
Norway	0,381	-0,584	0,755	0,526	-0,958	1,135	0,363	-0,353	0,647	0,501	-0,732	0,974	0,381	-0,584	0,755	0,526	-0,958	1,135
Poland	0,334	-0,055	0,707	0,271	-0,034	0,715	0,334	-0,055	0,707	0,271	-0,034	0,715	0,334	-0,055	0,707	0,271	-0,034	0,715
Portugal	0,887	-1,379	1,673	0,646	-1,039	1,057	1,238	0,491	2,581	0,894	0,392	1,408	0,654	-0,799	1,410	0,478	-0,665	0,778
Slovenia**	0,327	-0,393	0,615	0,238	-0,297	0,399	0,327	-0,393	0,615	0,238	-0,297	0,399	0,327	-0,393	0,615	0,238	-0,297	0,399
Spain	0,646	-0,070	1,123	0,620	-0,063	1,105	0,336	-0,117	0,868	0,338	-0,105	0,927	0,466	-0,271	0,983	0,448	-0,242	1,049
Sweden**	0,471	-1,554	0,325	0,459	-1,165	0,367	0,451	-1,510	0,313	0,440	-1,132	0,354	0,471	-1,554	0,325	0,459	-1,165	0,367
Switzerland	0,537	0,144	0,783	0,674	0,162	1,042	0,484	-0,053	0,886	0,601	-0,060	0,991	0,537	0,144	0,783	0,674	0,162	1,042
United Kingdom**	0,498	-0,940	0,864	0,560	-1,212	0,863	0,623	0,057	1,493	0,568	0,087	1,275	0,537	-0,266	1,176	0,530	-0,341	1,172

* missings re-allocated instead of ignored

** missings in control data decreased to the sample value and equally re-allocated among other values assuming missing at random (MAR)

3 Sensitivity analysis

Before the establishment of our standard weighting procedure, during the elaboration of methodology and also during the process of computation of weights various dilemmas and questions appeared about which weighting procedure (or parts of procedure) are the most appropriate and relevant for ESS population weighting. Besides that, additional suggestions for potential improvement of weighting procedure were raised. For instance, should we use four categories in education variable instead of three categories, should we include more regions into weighting procedure or less, does different trimming option bring different final weighting results etc. were one of the questions that appeared. Therefore, we carried out all these various weighting procedures in order to compare them and test what differences appear with various weighting approaches and options.

3.1 Education variable

3.1.1 Four categories instead of three

Case: Slovenia, ESS Round 5 (medium category of education split into two)

One possible approach – mostly endeavored by ESS education experts - would be to treat 3C category separately and have a four-category education control variable in weighting. In fact, from a sociological perspective, 3C is very often a completely different category than the rest of the Medium level (3A and 3B), which can proceed with the education at ISCED level 5. At the same time, very often, this category is also very different from the Low level (ISCED 1, 2). Moreover, its role also varies across countries, e.g. in Germany it is very similar to ISCED 3B, while in Slovenia it is closer to ISCED 2 (Low), than to 3B (Medium). Thus, the separation of 3C would be beneficial from many substantive points. Of course, as we already mentioned, extra efforts would be required at the ESS and LFS data side, but also from the weighting aspect.

Here we present results for comparison between these two approaches for the case of Slovenia. As we mentioned above, firstly we used three categories for education control variable and then four categories, where medium category was split in two categories (3A and 3B into high-medium and 3C into low-medium).

Table 21: Control data for education variable (Slovenia, round 5)

Approach	Data source	Missing	Low	Medium-low	Medium-high	High	Total
three-category education variable	ESS (dweight)	0,21	23,88	55,02		20,88	100
	LFS	0,00	24,96	56,27		18,77	100
four-category	ESS	0,21	23,88	20,96	34,07	20,88	100

education variable	(dweight)						
	LFS	0,00	24,96	23,61	32,65	18,77	100

Results show that the range of post-stratification weights is slightly larger in four-category approach, where the largest calculated weight is 2.18, whereas in three-category approach the largest calculated weight is 1.78. Also the variance of weights is slightly higher in weighting with four-category education variable (0.052 versus 0.042), but in general, a variance is small in both cases.

Table 22: Characteristics for post-stratification weights (Slovenia, round 5)

Approach	N	Mean	Min (uncut)	Max (uncut)	Var (uncut)	Var (cut at 4)	Var (cut at 2)
three-category education variable	1403	1	0,681	1,776	0,042	0,042	0,042
four-category education variable	1403	1	0,678	2,182	0,052	0,052	0,051

In our analysis of bias we included 11 scale variables. If we check survey estimates and biases which arise from both weighting approaches (see Table 3) we can find out that the differences are minor. Average relative bias of all 11 variables in weighting approach, where we use four-category education variable, is 0.35%, and 0.43% when we use three-category education variable. So the average relative bias in four-category approach is only 0.084% point lower than in three-category model. Also the average standardized bias is very similar in both weighting approaches (see Table 4). In general, we get very similar survey estimates (i.e. mean), regardless of how many categories we have used in weighting process.

Table 23: Survey estimates and bias comparison (Slovenia, round 5)

Variable	Mean (dweight)	Mean (weight, cut at 4)		Relative bias (%)		Standardised bias	
ppltrst	3,94	3,96	3,94	-0,49	-0,16	-0,30	-0,10
pplfair	4,49	4,52	4,50	-0,57	-0,23	-0,39	-0,16
pplhlp	4,41	4,42	4,41	-0,25	0,00	-0,18	0,00
trstep	3,74	3,76	3,74	-0,34	0,05	-0,19	0,03
lrscale	4,85	4,87	4,88	-0,42	-0,63	-0,27	-0,41
stflife	6,97	6,97	6,97	0,03	-0,03	0,04	-0,03
stfeco	2,87	2,91	2,91	-1,39	-1,36	-0,73	-0,71
stfgov	2,65	2,64	2,64	0,25	0,38	0,11	0,18
stfdem	3,20	3,21	3,21	-0,29	-0,16	-0,16	-0,08
happy	7,28	7,29	7,30	-0,12	-0,17	-0,18	-0,24
rlgdgr	4,61	4,59	4,58	0,55	0,63	0,32	0,36
a) three-category education variable			b) four-category education variable				

Table 24: Differences in min, max and average relative bias and standardized bias (Slovenia, round 5)

Approach	Relative bias (%)			Standardised bias		
	Average	Min	Max	Average	Min	Max
three-category education variable	0,429	-1,39	0,55	0,260	-0,73	0,32
four-category education variable	0,345	-1,36	0,63	0,208	-0,71	0,36
Difference	0,084	0,037	0,071	0,052	0,020	0,041

Of course, when we apply those calculated weights from both weighting approaches, we get completely equal final structure of control variables (age, gender and region, also high and low category in education variable). Differences appear on fifth decimal.

Table 25: Final structure of control variables in both weighting approaches (Slovenia, round 5)

Weight	Gender (%)			Age (%)				Region (%)		Education (%)				
	Missing	Male	Female	Missing	15-34	35-54	55+	Vzhodna	Zahodna	Missing	Lower	Medium	Higher	
dw	0,1	46,4	53,5	1,3	29,4	31,8	37,5	58,9	41,1	0,2	23,9	55,0	20,9	
w4	0,1	49,2	50,6	1,3	30,8	34,2	33,8	53,1	46,9	0,2	24,8	56,3	18,7	
	Missing	Male	Female	Missing	15-34	35-54	55+	Vzhodna	Zahodna	Missing	Low	L Medium	H Medium	High
dw	0,1	46,4	53,5	1,3	29,4	31,8	37,5	58,9	41,1	0,2	23,9	21,0	34,1	20,9
w4	0,1	49,2	50,6	1,3	30,8	34,2	33,8	53,1	46,9	0,2	24,8	23,5	32,9	18,7
a) weighting with three-category education variable								b) weighting with four-category education variable						

3.2 Region variable

3.2.1 Problem of "over-merging"

Case: Slovenia, ESS Round 5 (2 regions in NUTS 2 vs. 12 regions in NUTS 3)

On region variable one of the important questions appears: Is the existing prevailing weighting with region at NUTS 2 level sufficient or should we try even harder to attain more detailed data for all countries? (E.g. attain NUTS 3 or national specific regional data from other sources)? For example, Slovenia has got 12 regions available in the ESS data and there are 2 NUTS 2 regions in the LFS data. In weighting procedure we then selected the number of regions corresponding to the lowest common denominator, in this case 2 regions. But what if we use some other control source and attain more detailed data (12 regions)? Below we present comparison between these two approaches (when 2 and 12 regions are used) where we check for the differences in final weighting results. For weighting procedure with 12 regions the control data from Statistical office of the Republic of Slovenia (SORS) were used instead of the LFS data.

Table 26: Control data for region variable (Slovenia, round 5)

2 – category region variable			12 – category region variable		
	Data source			Data source	
Region	ESS (dw)	LFS	Region	ESS (dw)	SORS
Vzhodna Slovenija	58,95	53,13	Gorenjska	9,84	9,80
Zahodna Slovenija	41,05	46,87	Goriška	6,63	5,84
Total	100,00	100,00	Jugovzhodna Slovenija	8,27	6,88
			Koroška	3,56	3,55
			Notranjsko-kraška	2,49	2,55
			Obalno-kraška	4,63	5,51
			Osrednjeslovenska	19,96	25,76
			Podravska	18,46	15,96
			Pomurska	6,27	5,89
			Savinjska	13,83	12,64
			Spodnje-posavska	3,78	3,44
			Zasavska	2,28	2,20
			Total	100,00	100,00

Results show that we get slightly larger range of post-stratification weights in weighting procedure with 12 (where the largest calculated weight is 2.04), whereas in 2-category approach the largest calculated weight is 1.78. Therefore, also a variance of weights is slightly higher in weighting with 12-category region variable (0.056 versus 0.041), but in general, a variance is small in both cases.

Table 27: Characteristics for post-stratification weights (Slovenia, round 5)

Approach	N	Mean	Min (uncut)	Max (uncut)	Var (uncut)	Var (cut at 4)	Var (cut at 2)
2-category region variable	1403	1	0,681	1,776	0,041	0,041	0,041
12-category region variable	1403	1	0,626	2,035	0,056	0,056	0,056

If we check survey estimates and biases which arise from both weighting approaches (see Table 12) we can see that we get very similar survey estimates and that the differences are negligible. For example in 12-region model we get value 3.78 for variable *trstep* and 3.76 in 2-region model, which is only 0.66% difference (and this is the biggest difference between these two approaches). Average relative bias of all 11 variables in weighting approach, where we use 2-category region variable, is 0.43%, and 0.51% when we use 12-category region variable. Thus, the average relative bias in 12-category approach is larger than in 2-category model, but this difference is rather negligible (0.084% point). Also the average standardized bias is very similar in both weighting approaches (values are 0.260 and 0.304).

Table 28: : Survey estimates and bias comparison (Slovenia, round 5)

Variable	Mean (dweight)	Mean (weight, cut at 4)		Relative bias (%)		Standardised bias	
ppltrst	3,94	3,96	3,94	-0,49	-0,09	-0,30	-0,05
pplfair	4,49	4,52	4,51	-0,57	-0,47	-0,39	-0,32
pplhlp	4,41	4,42	4,41	-0,25	0,09	-0,18	0,06
trstep	3,74	3,76	3,78	-0,34	-1,00	-0,19	-0,57
lrscale	4,85	4,87	4,84	-0,42	0,14	-0,27	0,09
stflife	6,97	6,97	6,96	0,03	0,21	0,04	0,26
stfeco	2,87	2,91	2,92	-1,39	-1,63	-0,73	-0,85
stfgov	2,65	2,64	2,66	0,25	-0,44	0,11	-0,20
stfdem	3,20	3,21	3,22	-0,29	-0,64	-0,16	-0,34
happy	7,28	7,29	7,28	-0,12	0,06	-0,18	0,09
rlgdgr	4,61	4,59	4,57	0,55	0,87	0,32	0,50
a) weighting with 2 regions			b) weighting with 12 regions				

Table 29: Differences in min, max and average relative bias and standardized bias (Slovenia, round 5)

Approach	Relative bias (%)			Standardised bias		
	Average	Min	Max	Average	Min	Max
2 regions	0,429	-1,39	0,55	0,260	-0,73	0,32
12 regions	0,514	-1,63	0,87	0,304	-0,85	0,50
Difference	0,084	0,239	0,320	0,044	0,127	0,182

When we apply those calculated weights from both weighting approaches, we get completely equal final structure of control variables (age, gender and education). Differences appear on third decimals.

Table 30: Final structure of control variables in both weighting approaches (Slovenia, round 5)

Weight	Gender (%)			Age (%)				Education (%)			
	Missing	Male	Female	Missing	15-34	35-54	55+	Missing	Lower	Medium	Higher
dw	0,14	46,40	53,46	1,28	29,44	31,79	37,49	0,21	23,88	55,02	20,88
w4	0,14	49,23	50,63	1,28	30,75	34,15	33,81	0,21	24,78	56,31	18,69
w4	0,14	49,23	50,63	1,28	30,75	34,15	33,81	0,21	24,78	56,31	18,69
a) weighting with 2-category region variable				b) weighting with 12-category region variable							

3.2.2 Comparability across rounds

Case: France, ESS Round 5 (8 regions vs. 21 regions)

Another dilemma is related to the change of regional classification for certain countries. For instance, in Round 5, Belgium and France have a higher number of categories than in previous rounds. Similarly, Greece and Switzerland have a lower number of categories in one of the rounds (CH in Round 1, GR in R4), while other rounds have a higher number of categories. The dilemma is: Should we recode the variable to a lower number of categories to keep comparability with previous rounds, even if more detailed data is available, or should we exploit this new information but reduce comparability with rounds that need this recoding? Below we present results for comparison between these two options for the case of France, where firstly 8 regions were applied in weighting procedure and then 21.

Table 31: Control data for region variable (France, round 5)

8 – category region variable			21 – category region variable		
	Data source			Data source	
Region	ESS (dw)	LFS	Region	ESS (dw)	LFS
Île De France	15,24	18,67	Ile de France	15,24	18,67
Bassin Parisien	15,40	17,21	Champagne-Ardenne	2,72	2,15
Nord - Pas-De-Calais	6,77	6,33	Picardie	2,04	3,00
Est	10,71	8,64	Haute-Normandie	2,81	2,90
Ouest	16,18	13,54	Centre	3,37	4,12
Sud Ouest	10,94	11,15	Basse-Normandie	2,49	2,38
Centre-Est	13,77	12,00	Bourgogne	1,97	2,65
Méditerranée	10,98	12,46	Nord-Pas-De-Calais	6,77	6,33
Total	100,00	100,00	Lorraine	4,86	3,76
			Alsace	3,06	3,00
			Franche-Comté	2,79	1,87
			Pays de la Loire	6,11	5,59
			Bretagne	5,15	5,10
			Poitou-Charentes	4,92	2,86
			Aquitaine	5,27	5,25
			Midi-Pyrénées	3,94	4,67
			Limousin	1,73	1,23
			Rhône-Alpes	11,59	9,84
			Auvergne	2,19	2,16
			Languedoc-Roussillon	3,18	4,33
			Provence-Alpes-Côte-d'Azur	7,81	8,14
			Total	100,00	100,00

Results show that the range of post-stratification weights is a bit larger when 8-category region variable is used in weighting procedure. The largest calculated weight in 8-category approach is 6.10, whereas in 21-category model the largest calculated weight is 5.73, but variance of weights is slightly lower in weighting with 8 regions.

Table 32: Characteristics for post-stratification weights (France, round 5)

Approach	N	Mean	Min (uncut)	Max (uncut)	Var (uncut)	Var (cut at 4)	Var (cut at 2)
8-category region variable	1728	1	0,071	6,104	0,419	0,396	0,267
21-category region variable	1728	1	0,082	5,733	0,443	0,417	0,275

If we look at the survey estimates and biases for both weighting approaches (Table 17) we can find out that differences are minor and certainly not drastic. The biggest difference is in a variable *stfgov*, where with one weighting approach we get an estimate 3.54 and 3.52 with other. Difference is only 0.011, which is rather negligible. Average relative bias of all 11 variables in weighting approach, where we use 8-category region variable, is 0.58%, whereas in 21-category approach the average relative bias is 0.57%, which is only 0.009% point lower. Also average standardised bias in both weighting approaches remains the same (0.490 and 0.488). In general, we get very similar results from both weighting approaches.

Table 33: : Survey estimates and bias comparison (France, round 5)

Variable	Mean (dweight)	Mean (weight, cut at 4)		Relative bias (%)		Standardised bias	
ppltrst	4,31	4,25	4,26	1,44	1,22	1,17	1,00
pplfair	5,80	5,77	5,77	0,53	0,51	0,61	0,58
pplhlp	4,39	4,45	4,46	-1,21	-1,40	-1,03	-1,20
trstep	4,27	4,26	4,26	0,25	0,36	0,19	0,27
lrscale	4,71	4,73	4,73	-0,38	-0,42	-0,32	-0,35
stflife	6,34	6,33	6,34	0,11	0,05	0,12	0,06
stfeco	3,36	3,39	3,39	-0,94	-0,75	-0,65	-0,52
stfgov	3,53	3,54	3,52	-0,13	0,18	-0,08	0,12
stfdem	4,24	4,27	4,26	-0,63	-0,35	-0,45	-0,25
happy	7,13	7,11	7,10	0,35	0,46	0,58	0,76
rlgdgr	3,60	3,61	3,62	-0,35	-0,53	-0,18	-0,27
		a) weighting with 8 regions		b) weighting with 21 regions			

Table 34: Differences in min, max and average relative bias and standardized bias (France, round 5)

Approach	Relative bias (%)			Standardised bias		
	Average	Min	Max	Average	Min	Max
8 regions	0,576	-1,21	1,44	0,490	-1,03	1,17
21 regions	0,567	-1,40	1,22	0,488	-1,20	1,00
Difference	0,009	0,197	0,214	0,002	0,170	0,173

When we apply those calculated weights from both weighting approaches, we get almost the same final structure for control variables age, gender and education. Differences in structure are lower than 0.042% point.

Table 35: Final structure of control variables in both weighting approaches (France, round 5)

Weight	Gender (%)			Age (%)				Education (%)			
	Missing	Male	Female	Missing	15-34	35-54	55+	Missing	Lower	Medium	Higher
dw	0,00	47,66	52,34	0,00	26,30	37,05	36,65	0,58	27,87	46,74	24,81
w4	0,00	47,63	52,37	0,00	29,86	34,15	35,99	0,58	38,60	37,95	22,88
w4	0,00	47,63	52,37	0,00	29,84	34,14	36,02	0,58	38,56	37,97	22,90
a) weighting with 8-category region variable				b) weighting with 21-category region variable							

3.2.3 Problem of "small region''

Case 1: Germany, ESS Round 5 (16 regions in NUTS 1 vs. 2 regions)
Case 2: Netherlands, ESS Round 5 (12 regions in NUTS 2 vs. 4 regions in NUTS 1)
Case 3: United Kingdom, ESS Round 5 (12 regions in NUTS 1 vs. 10 regions)

Another issue in handling with region variable in weighting procedure is a question what should we do if we have smaller cells in a sample data. Should we merge small cells with other similar cells, but we can lose important information, or should we keep smaller cells with option that they collapse? However, what is the required minimum size of the sample cell? 30, 20 or even 5% of overall sample? For example, in Germany (Round 5) the ESS sample contains NUTS 1 regions, such as Saarland and Bremen with cell size 25 (0.8%) and 28 (0.9%) units. The different opinions have appeared how to deal with this situation in weighting procedure. We heard some opinions that all those cells which are below 3% or even 5% of overall sample need to be merged with other similar cells. But other experts express opinions that minimum size of the sample cell can be also 20. However, in analyses below we check for differences in final weighting results when we use 16 regions and 2 regions, in case of Germany. We also compare results of weighting for Netherlands (when 12 regions and 4 regions are used) and United Kingdom (weighting with 12 regions vs. 10 regions, where we merge Wales, Scotland and Northern Ireland into one region).

Table 36: Control data for region variable (Germany, round 5)

16 – category region variable			2 – category region variable		
	Data source			Data source	
Region	ESS(dw)	LFS	Region	ESS(dw)	LFS
01 Schleswig-Holstein	3,22	3,40	East Germany	19,97	20,44
02 Hamburg	1,06	2,21	West Germany	80,03	79,56
03 Niedersachsen	7,78	9,79	Total	100,00	100,00
04 Bremen	0,94	0,82			
05 Nordrhein-Westfalen	23,10	21,70			
06 Hessen	7,79	7,35			
07 Rheinland-Pfalz	5,42	4,90			
08 Baden-Württemberg	11,92	12,98			
09 Bayern	17,99	15,21			
10 Saarland	0,83	1,20			
11 Berlin	2,99	4,28			
12 Brandenburg	3,86	3,16			
13 Mecklenburg-Vorpommern	2,01	2,00			
14 Sachsen	4,46	5,24			
15 Sachsen-Anhalt	3,16	2,96			
16 Thüringen	3,47	2,80			
Total	100,00	100,00			

Table 37: Control data for region variable (Netherlands, round 5)

12-category region variable			4-category region variable		
	Data source			Data source	
Region	ESS (dw)	LFS	Region	ESS (dw)	LFS
Groningen	3,10	3,50	Northern Netherlands	10,59	10,35
Friesland	4,55	3,88	Eastern Netherlands	22,62	21,10
Drenthe	2,94	2,97	Western Netherlands	44,65	46,64
Overijssel	8,43	6,84	Southern Netherlands	22,15	21,91
Gelderland	12,47	12,01	Total	100,00	100,00
Flevoland	1,72	2,25			
Utrecht	7,62	7,23			
Noord-Holland	15,55	16,12			
Zuid-Holland	19,51	20,98			
Zeeland	1,97	2,31			
Noord-Brabant	15,41	14,84			
Limburg	6,74	7,06			
Total	100,00	100,00			

Table 38: Control data for region variable (United Kingdom, round 5)

12-category region variable			10-category region variable		
	Data source			Data source	
Region	ESS (dw)	LFS	Region	ESS (dw)	LFS
North East	4,33	4,23	North East	4,33	4,23
North West	11,38	11,09	North West	11,38	11,09
Yorkshire and The Humber	9,57	8,48	Yorkshire and The Humber	9,57	8,48
East Midlands	7,69	7,23	East Midlands	7,69	7,23
West Midlands	9,13	8,72	West Midlands	9,13	8,72
South West	7,69	8,56	South West	7,69	8,56
East of England	9,50	9,33	East of England	9,50	9,33
London	8,54	12,57	London	8,54	12,57
South East	14,46	13,56	South East	14,46	13,56
Wales	5,59	4,87	Wales + Scotland + N. Ireland	17,70	16,24
Scotland	9,44	8,57	Total	100,00	100,00
Northern Ireland	2,67	2,81			
Total	100,00	100,00			

Weighting results in case of Germany show that we get larger range of post-stratification weights in weighting procedure, where more regions are used. The largest calculated weight in 16-category approach is 4.65, whereas in 2-category approach the largest calculated weight is 2.54. But, in case of Netherlands and United Kingdom the difference is barely noticeable. Thus, in case of Germany the variance of weights somewhat increase when we apply more regions in weighting procedure, whereas in case of Netherlands and United Kingdom the variance is practically the same regardless of how many regions we use in weighting procedure (see Table 18).

Table 39: Characteristics for post-stratification weights (Germany, Netherlands and United Kingdom)

	Approach	N	Mean	Min (uncut)	Max (uncut)	Var (uncut)	Var (cut at 4)	Var (cut at 2)
DE	16-category region variable	3031	1	0,206	4,648	0,243	0,240	0,201
	2-category region variable	3031	1	0,226	2,539	0,184	0,184	0,161
NL	12-category region variable	1829	1	0,206	4,720	0,382	0,378	0,264
	4-category region variable	1829	1	0,222	4,596	0,371	0,367	0,260
UK	12-category region variable	2422	1	0,233	12,625	0,478	0,383	0,231
	10-category region variable	2422	1	0,232	12,613	0,477	0,384	0,231

If we compare survey estimates and biases that arise from different weighting approaches we can see that in all three cases (Germany, Netherlands and United Kingdom) the average relative bias and standardized bias is larger when a less number of region in weighting process is used. The biggest difference appear in Germany, where the average relative bias in 16-category approach is 0.57%, and in 2-category model 0.77%, whereas in Netherlands and United Kingdom values are more similar among different weighting approaches (0.47% and 0.51% in Netherlands, 0.65% and 0.70% in United Kingdom). It is not surprising, that in Germany the difference is slightly larger than in Netherlands or United Kingdom, because in Germany the biggest decrease in number of regions was performed (decrease from 16 regions to 2 regions).

But we must stress out that even in case of Germany we get very similar survey estimates and the differences are rather negligible. For example, in 16-region model we get value 5.31 for variable *stfeco* and 5.29 in 2-region model, which is the biggest difference in estimate between these two weighting approaches (relative difference is 0.51%) considering eleven included scale variables (see Table 20).

Therefore, on the basis of these results we have got from different weighting approaches, we can conclude that no matter how many regions we use in weighting procedure (e.g. 2 or 12 in case of Slovenia, 21 or 8 in case of France, 16 or 2 in case of Germany, 12 or 4 in case of Netherlands, 12 or 10 in case of United Kingdom) the differences in final results are predominantly negligible according to eleven specific but standard ESS variables.

Table 40: Differences in min, max and average relative bias and standardized bias (Germany, Netherlands and United Kingdom)

Country	Approach	Relative bias (%)			Standardised bias		
		Average	Min	Max	Average	Min	Max
DE	16 regions	0,573	-1,12	1,35	0,653	-0,89	1,19
	2 regions	0,770	-1,25	1,44	0,883	-0,99	1,42
	Difference	0,197	0,124	0,086	0,231	0,100	0,231
NL	12 regions	0,471	-1,58	1,41	0,531	-1,68	0,90
	4 regions	0,510	-1,76	1,14	0,598	-1,88	0,73
	Difference	0,039	0,185	0,276	0,066	0,201	0,174
UK	12 regions	0,653	0,03	1,31	0,825	0,04	1,60
	10 region	0,703	0,11	1,35	0,873	0,13	1,64
	Difference	0,050	0,076	0,036	0,048	0,092	0,044

Table 41: : Survey estimates and bias comparison (Germany, round 5)

Variable	Mean (dweight)	Mean (weight, cut at 4)		Relative bias (%)		Standardised bias	
ppltrst	4,73	4,69	4,67	0,85	1,30	0,93	1,42
pplfair	5,89	5,87	5,87	0,49	0,45	0,73	0,67
pplhlp	5,02	5,00	5,00	0,26	0,40	0,35	0,53
trstep	4,02	3,97	3,96	1,35	1,44	1,19	1,26
lrscale	4,65	4,65	4,66	-0,09	-0,20	-0,13	-0,28
stflife	7,25	7,24	7,23	0,21	0,31	0,39	0,59
stfeco	5,34	5,31	5,29	0,49	1,01	0,64	1,31
stfgov	3,79	3,78	3,77	0,42	0,74	0,38	0,67
stfdem	5,31	5,28	5,26	0,64	0,97	0,75	1,14
happy	7,45	7,42	7,42	0,37	0,39	0,80	0,85
rlgdgr	4,31	4,36	4,36	-1,12	-1,25	-0,89	-0,99
a) weighting with 16 regions				b) weighting with 2 regions			

Table 42: : Survey estimates and bias comparison (Netherlands, round 5)

Variable	Mean (dweight)	Mean (weight, cut at 4)		Relative bias (%)		Standardised bias	
ppltrst	6,02	6,03	6,04	-0,13	-0,27	-0,16	-0,35
pplfair	6,49	6,51	6,51	-0,31	-0,30	-0,51	-0,50
pplhlp	5,60	5,60	5,61	0,00	-0,13	0,00	-0,16
trstep	4,94	5,02	5,03	-1,58	-1,76	-1,68	-1,88
lrscale	5,34	5,32	5,32	0,45	0,48	0,50	0,54
stflife	7,77	7,77	7,78	0,01	-0,05	0,01	-0,11
stfeco	5,72	5,72	5,73	-0,05	-0,14	-0,07	-0,21
stfgov	5,30	5,32	5,32	-0,44	-0,52	-0,56	-0,66
stfdem	6,18	6,22	6,22	-0,66	-0,67	-1,03	-1,05
happy	7,88	7,87	7,87	0,16	0,14	0,41	0,37
rlgdgr	4,71	4,64	4,66	1,41	1,14	0,90	0,73
a) weighting with 12 regions			b) weighting with 4 regions				

Table 43: : Survey estimates and bias comparison (United Kingdom, round 5)

Variable	Mean (dweight)	Mean (weight, cut at 4)		Relative bias (%)		Standardised bias	
ppltrst	5,35	5,28	5,28	1,31	1,35	1,60	1,64
pplfair	5,60	5,55	5,55	0,90	0,92	1,21	1,23
pplhlp	5,75	5,70	5,70	0,81	0,83	1,18	1,22
trstep	3,36	3,35	3,34	0,44	0,56	0,28	0,36
lrscale	5,03	5,03	5,02	0,03	0,11	0,04	0,13
stflife	7,17	7,11	7,10	0,92	0,94	1,56	1,61
stfeco	3,49	3,49	3,48	0,12	0,18	0,10	0,15
stfgov	4,29	4,26	4,26	0,71	0,72	0,62	0,63
stfdem	4,97	4,95	4,95	0,54	0,57	0,53	0,56
happy	7,50	7,44	7,44	0,78	0,80	1,54	1,58
rlgdgr	3,93	3,91	3,90	0,63	0,75	0,41	0,49
a) weighting with 12 regions			b) weighting with 10 regions				

3.3 Trimming

Case: Cyprus, Czech Republic, Germany, Greece and Netherlands (cut at 4 vs. cut at 2 vs. uncut)

Weight trimming is related to the decision of the optimal cut-off level. Thus, one of the relevant questions is which cut-off level is the most appropriate, considering the increase in variance, reduction in bias and also getting the final weighted structure which best matches to control population structure. Therefore, in this sensitivity analysis we make comparison between three weighting approaches (when weights are trimmed at 2, 4 and when weights are not trimmed) and we check if any differences in final results appear.

All results on weighting (e.g. Table 2, 3 and 5 in chapter two) already include a comparison of results with different trimming option. Apart of weights with cut-off level at 4 (which are the default weights) we can get insight in results also for weights, trimmed at 2, and weights which are not trimmed. We can find out that the differences in final results are not substantive. Also more detailed analysis for Cyprus, Czech Republic, Germany, Greece and Netherland show that differences in results that appear because of different trimming option are not drastic. As we can see in Table 28, the variance increases with higher cut-off level, which is not surprising. For instance, in Cyprus the variance, when weights are trimmed at 2 is 0.19, when weights are trimmed at 4 the variance is 0.28 and 0.33 when weights are untrimmed.

Table 44: A description of weights (CY, CZ, DE, GR, NL in round 5)

country	N	Min weight			Max weight			Variance of weights		
		uncut	cut at 2	cut at 4	uncut	cut at 2	cut at 4	uncut	cut at 2	cut at 4
CY	1083	0,432	0,450	0,434	8,643	2,082	4,020	0,331	0,189	0,284
CZ	2386	0,037	0,037	0,037	5,139	2,039	4,004	0,247	0,195	0,241
DE	3031	0,206	0,209	0,206	4,648	2,033	4,002	0,243	0,201	0,240
GR	2715	0,208	0,215	0,209	7,236	2,064	4,007	0,321	0,232	0,307
NL	1829	0,206	0,215	0,206	4,720	2,092	4,003	0,382	0,264	0,378

If we look at the survey estimates and biases for all three weighting approaches with different trimming options (Table 29 and Table 30) we can see that differences are predominantly negligible. Survey estimates that we get with weighting procedure where weights are trimmed at 4, and estimates that we get them when weights are untrimmed, are slightly more similar to each other than estimates from weighting procedure where we use trimming at 2. We can also notice that average relative and standardised bias do not differ substantially among different trimming approaches. For example, the biggest increase in average relative and standardised bias appears in case of Germany, where values for average relative bias are 0.44% (weights trimmed at 2), 0.57% (weights trimmed at 4) and 0.58% (untrimmed weights). It should be mentioned that average relative and standardised bias does not increases always with higher cut-off level, which can be noticed in case of Greece and Netherlands.

Table 45: Survey estimates comparison (CY, CZ, DE, GR, NL in round 5)

country	trimming approach	Survey variables										
		ppltrst	pplfair	pplhlp	trstep	lrscale	stflife	stfeco	stfgov	stfdem	happy	rlgdgr
CY	uncut	3,903	4,159	3,719	5,045	5,119	7,207	4,113	4,767	5,707	7,319	6,921
	cut at 2	3,903	4,172	3,747	5,056	5,135	7,196	4,128	4,775	5,699	7,318	6,939
	cut at 4	3,897	4,154	3,718	5,040	5,120	7,207	4,109	4,762	5,705	7,324	6,923
CZ	uncut	4,567	5,112	4,400	4,052	5,375	6,382	3,476	3,423	4,834	6,679	2,465
	cut at 2	4,566	5,113	4,403	4,048	5,380	6,385	3,480	3,427	4,839	6,684	2,450
	cut at 4	4,567	5,111	4,400	4,050	5,376	6,382	3,476	3,424	4,833	6,680	2,462
DE	uncut	4,685	5,865	5,004	3,967	4,651	7,239	5,314	3,779	5,275	7,417	4,359
	cut at 2	4,699	5,876	5,014	3,982	4,645	7,238	5,321	3,774	5,275	7,421	4,342
	cut at 4	4,687	5,866	5,005	3,968	4,651	7,240	5,314	3,778	5,275	7,418	4,359
GR	uncut	4,015	3,917	3,250	2,583	5,161	5,637	1,367	1,837	3,016	5,983	6,244
	cut at 2	4,016	3,920	3,259	2,590	5,155	5,645	1,368	1,851	3,030	5,995	6,237
	cut at 4	4,017	3,918	3,254	2,587	5,163	5,643	1,368	1,840	3,020	5,988	6,241
NL	uncut	6,030	6,507	5,604	5,020	5,319	7,772	5,725	5,320	6,217	7,871	4,645
	cut at 2	6,033	6,512	5,618	5,008	5,308	7,771	5,723	5,315	6,221	7,871	4,653
	cut at 4	6,031	6,507	5,604	5,019	5,318	7,772	5,725	5,319	6,217	7,871	4,644

Table 46: Table 24: Differences in min, max and average relative bias and standardized bias (CY, CZ, DE, GR and NL in round 5)

Country	trimming approach	Relative bias (%)			Standardised bias		
		Average	Min	Max	Average	Min	Max
CY	uncut	1,556	-3,01	3,06	1,168	-1,63	2,94
	cut at 2	1,526	-3,01	2,90	1,135	-1,63	2,70
	cut at 4	1,554	-2,86	3,18	1,170	-1,54	2,92
CZ	uncut	0,596	-3,07	0,96	0,462	-1,37	0,99
	cut at 2	0,497	-2,49	0,86	0,389	-1,10	0,88
	cut at 4	0,587	-2,96	0,93	0,458	-1,32	0,96
DE	uncut	0,582	-1,15	1,38	0,664	-0,91	1,21
	cut at 2	0,439	-0,74	1,00	0,506	-0,59	0,88
	cut at 4	0,573	-1,12	1,35	0,653	-0,89	1,19
GR	uncut	0,858	-2,16	1,34	0,752	-1,27	1,94
	cut at 2	0,943	-2,23	1,14	0,755	-1,14	1,64
	cut at 4	0,870	-2,23	1,27	0,740	-1,19	1,83
NL	uncut	0,472	-1,58	1,40	0,533	-1,69	0,89
	cut at 2	0,481	-1,35	1,23	0,562	-1,44	0,78
	cut at 4	0,471	-1,58	1,41	0,531	-1,68	0,90

When we apply those calculated weights from all three weighting approaches, the weighting approaches with un-trimming and trimming at 4 produce final structure that slightly better matches with the population control data, which is to expect because trimming at 2 is a little more conservative, and therefore more manipulation with weights is performed. However, all three trimming options produce very similar final structure and in general produce very similar weighting results.

Table 47: Final structure of control variables in all three weighting approaches (CY, CZ, DE, GR and NL for round 5)

country	trimming approach	Gender (%)			Age (%)				Education (%)			
		Missing	Male	Female	Missing	15-34	34-54	55+	Missing	Low	Medium	High
CY	uncut	0,59	48,25	51,16	0,55	35,37	34,55	29,53	0,07	36,03	35,14	28,76
	cut at 2	0,61	48,38	51,00	0,57	33,70	35,42	30,31	0,08	34,81	35,84	29,28
	cut at 4	0,59	48,49	50,92	0,55	35,05	34,72	29,68	0,07	35,73	35,41	28,78
	control data	0,00	48,70	51,30	0,00	35,27	34,97	29,76	0,00	36,13	35,05	28,82
CZ	uncut	0,00	48,73	51,27	0,00	32,85	32,69	34,46	0,00	16,64	69,64	13,72
	cut at 2	0,00	49,08	50,92	0,00	32,94	32,59	34,47	0,00	16,15	70,72	13,12
	cut at 4	0,00	48,78	51,22	0,00	32,89	32,70	34,41	0,00	16,55	69,72	13,73
	control data	0,00	48,73	51,27	0,00	32,86	32,68	34,46	0,02	16,64	69,63	13,71
DE	uncut	0,00	48,84	51,16	0,18	26,76	35,33	37,73	0,14	23,25	55,35	21,26
	cut at 2	0,00	49,31	50,69	0,18	27,14	35,65	37,04	0,14	22,21	56,07	21,57
	cut at 4	0,00	48,86	51,14	0,18	26,77	35,35	37,71	0,14	23,22	55,37	21,27
	control data	0,00	48,75	51,25	0,00	26,79	35,39	37,83	0,15	23,28	55,29	21,28
GR	uncut	0,00	48,79	51,21	0,03	28,57	34,82	36,58	0,00	47,94	34,18	17,89
	cut at 2	0,00	47,81	52,19	0,03	28,05	34,72	37,19	0,00	46,80	35,12	18,08
	cut at 4	0,00	48,70	51,30	0,03	28,47	34,86	36,64	0,00	47,85	34,24	17,91
	control data	0,00	48,81	51,19	0,00	28,58	34,83	36,59	0,00	47,95	34,19	17,86
NL	uncut	0,00	49,21	50,79	0,00	29,54	36,24	34,21	0,49	35,42	38,03	26,06
	cut at 2	0,00	48,45	51,55	0,00	28,19	36,48	35,33	0,44	36,40	36,15	27,02
	cut at 4	0,00	49,16	50,84	0,00	29,53	36,23	34,24	0,49	35,44	38,02	26,05
	control data	0,00	49,22	50,78	0,00	29,59	36,27	34,14	0,69	35,36	37,94	26,01

3.4 Dealing with missing data

Case: Denmark, Round 5 (1. approach vs. 2. approach vs. 3. approach)

In several cases there was a situation that missing values appeared in population control data. When missing values appeared only in control data we usually ignored them, using the so-called missing completely at random assumption – MCAR (1. approach). However, if unknown values presented more than 1% of population, assuming MCAR is risky as population structure could be affected. In these cases we used another alternative, assuming an equal distribution of unknown values, i.e.

missing at random (MAR), and equally re-allocating them between known values (2. approach). Moreover, it was possible that cells with missing value on control data were substantially higher than on sample data. In that situation we treated in a similar way as in first two approaches, but the control missing value was additionally decreased to the sample value and equally re-allocated among other values assuming missing at random – MAR (3. approach). Denmark is one of the countries with relatively high number of missing values on control data, therefore all three approaches could be performed. In that cases we applied the third approach, for which we believe that it is most improved. However, below we make a comparison of these three approaches, and check for the differences in final weighting results.

Table 48: Characteristics for post-stratification weights (Denmark, round 5)

Dealing with missing data	N	Mean	Min (uncut)	Max (uncut)	Var (uncut)	Var (cut at 4)	Var (cut at 2)
1. approach	1576	1	0,346	12,274	0,274	0,149	0,134
2. approach	1576	1	0,358	11,988	0,265	0,148	0,133
3. approach	1576	1	0,353	1,801	0,134	0,134	0,134

Results in Table 32 show that the range of post-stratification weights is considerably larger in first two weighting approaches, where the largest calculated weights are 12.3 and 12.0, whereas with third approach we get the largest calculated weight 1.8, which is substantially lower weight than in first two approaches. In accordance with that also variance is larger in the first and second approach (0.27 vs. 0.13 in third approach), but when the final weights are trimmed at 4 (which are our default weights) the difference in variance is not much substantive.

When we analyze estimated means and biases which arise from all three weighting approaches, the results show that for eleven standard ESS variables differences among weighting approaches are minor and in general, we get very similar survey estimates. However, the average relative and standardized bias is the smallest in weighting approach three, where average relative bias is 0.77% and average standardized bias 1.02. In weighting approach two average relative and standardized bias slightly increase (0.79% and 1.05) and also slightly more in weighting approach one, where average relative bias is 0.83% and standardized bias 1.08.

Table 49: Table 29: Survey estimates comparison (Denmark, round 5)

Dealing with missing data	Survey variables (mean estimates)										
	ppltrst	pplfair	pplhlp	trstep	lrscale	stflife	stfeco	stfgov	stfdem	happy	rlgdgr
1. approach	6,73	7,06	6,10	4,97	5,19	8,29	5,39	4,63	6,88	8,23	4,04
2. approach	6,73	7,06	6,10	4,96	5,20	8,29	5,39	4,63	6,88	8,23	4,05
3. approach	6,73	7,06	6,11	4,96	5,20	8,29	5,38	4,62	6,89	8,23	4,04

Table 50: Differences in min, max and average relative bias and standardized bias (Denmark, round 5)

Dealing with missing data	Relative bias (%)			Standardised bias		
	Average	Min	Max	Average	Min	Max
1. approach	0,825	-0,46	1,70	1,084	-0,37	2,61
2. approach	0,793	-0,46	1,66	1,048	-0,36	2,51
3. approach	0,768	-0,30	1,61	1,022	-0,23	2,45

As we can see in Table 35 below all three weighting approaches produce the final structure of control variables which matches quite good with the structure of population control data. The weighting approach three produce slightly better matching for gender and age variables, whereas the weighting approaches one and two produce better matching in education variable. However, the differences are not drastic, especially as all three structures bring very similar survey estimates.

Table 51: Final structure of control variables in all three weighting approaches (Denmark, round 5)

Dealing with missing data	Gender (%)			Age (%)				Education (%)			
	Missing	Male	Female	Missing	15-34	34-54	55+	Missing	Low	Medium	High
1. approach	0,00	49,43	50,57	0,00	29,99	34,61	35,40	0,77	34,86	38,79	25,58
2. approach	0,00	49,55	50,45	0,00	29,30	34,43	36,28	0,77	34,93	38,78	25,52
3. approach	0,00	49,20	50,80	0,00	29,65	34,43	35,92	0,19	35,11	38,99	25,71
control data	0,00	49,20	50,80	0,00	29,65	34,43	35,92	4,07	33,70	37,50	24,73

3.5 Work module variables

As part of sensitivity analysis we also analyzed the weighting effects for variables from ESS Work module, with the assumption that a little more weighting effect could arise in these specific variables. For the analysis we arbitrary selected 40 variables - 32 categorical and 8 continuous - on which we have made comparisons between estimates before and after post-stratification weighting. The analysis also included different comparisons for correlation estimates and significance values. The overall report about this analysis is available in a separate file.

Appendix A: Weighting guidelines draft, April 2013

Description of the post-stratification weights

The population weighting (post-stratification or raking) weighting was based on control margins from EUROSTAT Labor Force Survey for education (low, medium, high), gender (male, female), age (15-34, 35-54, 55+) and region (in principle European NUTS II level was used). For non EU countries alternative sources were found.

After weighting and trimming (at the value of 4) the final recommended weight is w4 from the related file below with post-stratification weights. The design weight is already included there.

The weights are in a block with following variables: round, country, id number, dweight (design weight, repeated), w (initial weight after weighing procedure), w2 (w trimmed at 2), w4 (w trimmed at 4, which is also the weight to be used).

These weights are not (yet) and integral part of ESS files, but need to be merged with the standard ESS data file release in archives using corresponding identifiers (id number).

http://mi.ris.org/uploadi/editor/DnD1366702037DACE_final_weights_R1-R5.xlsx

Detailed information about the weights is available here:

- *Weighting issues and preparation http://mi.ris.org/uploadi/editor/DnD1364916446DACE_PostStratW_reviewed_final4.docx*
- *Data for age, gender and education http://mi.ris.org/uploadi/editor/DnD1364559786ESSGAEtablePostStrat.xlsx*
- *Data for region http://mi.ris.org/uploadi/editor/DnD1363613945ESSRegionPostStrat.xlsx*
- *Effects of the weights for R5:* http://mi.ris.org/uploadi/editor/DnD1364559786ESSR5resultsPostStrat.xlsx

FAQ: Should we use the post-stratification weights?

Experience shows that with relatively high response rates, as is the case of ESS, the effects of socio-demographic weighting on target variables is relatively limited.

The basic non-response rule says that in principle with X% (30%, 50%,…) non-response rate this same share X% (30%, 50%,…) of the difference between the respondents and non-respondents enters into the non-response bias of the estimates. For example, if the share of smokers among respondents is 0.2 and it is 0.3 among non-respondents (which are not included in the survey), having 40% non-response rate we get a bias of 40%(0.3-0.2)=0.04. We thus get survey estimate of 0.2 instead of true value 0.24. In this case we of course have a very substantial relative change in the estimate due to weighting - around one fifth of the estimate.*

Luckily, in practice, the socio-demographic variables are often (but not always) weakly linked to target (especially attitudinal) variables, so even if the non-respondents are truly different from respondents in socio-demographics, the corresponding weights usually remove only a (small) part of the difference/bias in target variable (e.g. certain opinion).

In any case, it is clear from above calculation that if non-response rate is very small (e.g. less than 10%), the related changes from weighting are also very small.

The illustrative analysis (see Effects of the weights for R5) shows that for nine specific but standard ESS variables the relative change in estimated mean - after this weighting - was predominantly negligible, and typically much below relative change of 5% (this would mean for example having the average 5.25 after weighting, instead of 5.00 unweighted) and it was never above 6%. At the same time the average relative bias for these variables was around 1%. However, there are still examples with the relative change after weight to approach or even surpass 5%.

Experience also shows that weights have even much less impact on relations among variables, so correlations are relatively much safer to calculate without weights compared to means. On the other side, it is true that estimates for shares (percentages) are more sensitive than averages. In addition, the weights may sometimes complicate certain test or multivariate statistical procedures.

Some countries – particularly those with considerable non-response – can have serious distortions already in population margins (e.g. only 40% of males instead of 50%), so the weights have immediate and considerable effects there already on socio-demographics and perhaps also potentially larger effect on target variables. In such countries (anybody can check above data on control variables in link to Data for age, gender and education), it is recommended to run critical analysis also with weights.

Majority of contemporary social surveys typically do have this type of weights routinely included, at least because this provide comparable control variables. However, some users have strong objections to use any weights, as they perceive them as possible manipulation or they see them as an insurmountable technical complication for analysis.

The fact that effects of theses weight are usually small still does not remove the danger that it is hard to know in advance whether certain variable in ESS is more sensitive to the weights that those nine ESS variables analyzed above.

The decision is thus up to the users. Perhaps for very serious analysis of point estimates the analysis should be (re)run also with weights to check for difference (especially with countries with large non-response and/or with considerable discrepancies in control data). Similarly the users who like and highly value the cosmetically exactly right control margins (fully tuned with other national surveys), the weight are also preferable. For some complex and very important multivariate analysis, perhaps also the item non-response should be dealt.

Appendix B: Variables included in the analysis

Table 52: The 9 selected variables, which were included in testing the effects of population weighting

Name	Label
ppltrst	Most people can be trusted (10) or you can't be too careful (0)
pplfair	Most people try to take advantage (0) of you, or try to be fair (10)
pplhlp	Most of the time people helpful (10) or mostly looking out for themselves (0)
trstep	Trust in the European Parliament (0 - No trust at all, 10 - complete trust)
lrscale	Placement on left (0) right (10) scale
stflife	How satisfied with life as a whole (0 - Extremely dissatisfied, 10 - Extremely satisfied)
stfeco	How satisfied with present state of economy in country (as above)
stfgov	How satisfied with the national government (as above)
stfdem	How satisfied with the way democracy works in country (as above)

Appendix C: Measures for calculating a weighting effect

For evaluation of weighting effect we use two more elaborated measures – ***relative bias*** and ***standardised bias***. If in this case bias is the difference between estimate, when population weights are not applied, and estimate, when final weights are applied:

$$bias(\overline{y}) = \overline{y} - \bar{y}_w \ ,$$

then the ***relative bias*** provides a measure of the magnitude of the bias in comparison with the estimate itself:

$$Rbias = Relative\ bias = \frac{bias(\bar{y}_w)}{\bar{y}_w},$$

while the ***standardised bias*** compares bias with the standard error of the estimate, i.e. the sampling error. Here we calculate the standard error on the assumption of a simple random sample (SRS). Thus, the expression for calculating the standardised bias is:

$$Sbias = Standardised\ bias = \frac{bias(\bar{y}_w)}{se(\bar{y}_{SRS})} \ .$$

As a part of evaluation of the weighting effect we also calculated the *average relative bias* and the *average standardised bias*, whereby we outline overall weighting effect (1) for each country, considering 9 selected variables (i.e. country average relative and standardised bias), and (2) for each variable, considering all countries (i.e. variable average relative and standardised bias).