

**Single-item measures of happiness and life satisfaction: the issue of cross-country
invariance of popular general well-being measures**

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Supplementary information

Table S1 Selection of currently used questions about subjective well-being – cross-national large sample surveys

Research	Year	Type of question	Formulation	Measurement invariance testing
World Values Survey WVS	Wave 1 (1981-1984) Wave 2 (1990-1994) Wave 3 (1995-1998) Wave 4 (1999-2004) Wave 5 (2005-2010) Wave 6 (2010-2014) Wave 7 (2017-2021)	single questions (cognitive well-being: general life satisfaction, happiness)	Taking all things together, how happy would you say you are? (1-4) All things considered, how satisfied are you with your life as a whole these days? (1-10) And where would you rate yourself as you were five years ago? (1-10 Satisfied) [wave 1] And where do you expect you will be in five years time? (1-10 Satisfied) [wave 1]	Bjørnskov (2010)
		life-domains	How satisfied are you with the financial situation of your household? (1-10) Overall, how satisfied or dissatisfied are you with your job? (1-10) [wave 1,2] Overall, how satisfied or dissatisfied are you with your home life? (1-10) [wave 1, 2] How satisfied are you with the way the people now in national office are handling the country's affairs? (1-4) [wave 3, 4] On the whole are you satisfied with the way democracy is developing in our country? (1-4) [wave 4]	-
	Wave 1 (1981-1984) Wave 2 (1990-1994)	multiple questions (affective well-being)	During the past few weeks, did you ever feel (0-1): excited, on top of the world, depressed, things are going your way [wave 1, 2] How often, if at all, do you have the feeling that life is meaningless? (1-4) [wave 1, modified in wave 2] How often you feel this way at home (1-4): relaxed, anxious, happy, aggressive [wave 1]	-

European Values Study EVS	Wave 1 (1981) Wave 2 (1990) Wave 3 (1999) Wave 4 (2008) Wave 5 (2017)	single questions (cognitive well-being: general life satisfaction, happiness)	Taking all things together, how happy would you say you are? (1-4) All things considered, how satisfied are you with your life as a whole these days? (1-10) And where would you rate yourself as you were five years ago? (1-10 Satisfied) [wave 1] And where do you expect you will be in five years time? (1-10 Satisfied) [wave 1]	-
		life-domains	How satisfied are you with the financial situation of your household? (1-10) Overall, how satisfied or dissatisfied are you with your job? (1-10) Overall, how satisfied or dissatisfied are you with your home life? (1-10) [wave 1, 2] On the whole are you satisfied with the way democracy is developing in our country? (1-4) [wave 3, 4]	-
	Wave 1 (1981) Wave 2 (1990)	multiple questions (affective well-being)	During the past few weeks, did you ever feel (0-1): excited, on top of the world, depressed, things are going your way [wave 1] How often, if at all, do you have the feeling that life is meaningless? (1-4) [wave 1, modified in wave 2] How often you feel this way at home (1-4): relaxed, anxious, happy, aggressive [wave 1]	-
International Social Survey Programme ISSP	ISSP 1989 (Work orientation I) ISSP 1991 (Religion I) ISSP 1997 (Work orientation II) ISSP 2002 (Family III) ISSP 2005 (Work orientation III) ISSP 2012 (Family IV, Work orientation IV)	life domains	How satisfied are you in your (main) job? (1-7)	-

International Social Survey Programme ISSP	ISSP 1991 (Religion I) ISSP 1998 (Religion II) ISSP 2001 (Social network II) ISSP 2002 (Family III) ISSP 2007 (Leisure time) ISSP 2008 (Religion III) ISSP 2011 (Health) ISSP 2012 (Family IV) ISSP 2018 (Religion IV)	single questions	If you were to consider your life in general these days, how happy or unhappy would you say you are, on the whole? (1-4) If you were to consider your life in general, how happy or unhappy would you say you are, on the whole? (1-7) [modified in ISSP 2002, 2011, 2012]	-
	ISSP 2011 (Health)	single questions negative affect life domain	If you were to consider your life in general these days, how happy or unhappy would you say you are, on the whole? (1-7) During the past 4 weeks how often have you had difficulties with work or household activities because of health problems? have you had bodily aches or pains? have you felt unhappy and depressed? have you lost confidence in yourself? have you felt you could not overcome your problems? (1-5) In general, how satisfied or dissatisfied are you with the health care system? (1-7)	-
	ISSP 2017 (Social network III)	single questions	All things considered, how satisfied are you with your life as a whole nowadays? (1-7) During the past 4 weeks how often have you felt unhappy and depressed? have you felt difficulties were piling up so high that you could not overcome them? (1-5) It is easy for me to accomplish my goals. (1-7)	-
	ISSP 2002 (Family III) ISSP 2012 (Family IV) ISSP 2018 (Religion IV)	life domains	All things considered, how satisfied are you with your family life? (1-7) All things considered, how satisfied are you with your relationships with family members? (1-7) [in ISSP 2018]	-

European Social Survey ESS	ESS 2002–2020	single questions	All things considered, how satisfied are you with your life as a whole nowadays? (0-10) Taking all things together, how happy would you say you are? (0-10) On the whole my life is close to how I would like it to be. (1-5) [in ESS 3]	-
		life domains	On the whole how satisfied are you with the present state of the economy? (0-10) Now thinking about the [country] government, how satisfied are you with the way it is doing its job? (0-10) And on the whole, how satisfied are you with the way democracy works? (0-10) And how satisfied are you with your present standard of living? (0-10) [in ESS 3] All things considered, how satisfied are you with your present job? (0-10) How satisfied are you with the balance between the time you spend on your paid work and the time you spend on other aspects of your life? (0-10)	-
	ESS3 (2006) ESS6 (2012)	multiple questions (positive-negative affect)	How much of the time during the past week you felt depressed? felt sad? you were happy? you enjoyed life? How satisfied are you with how your life has turned out so far? (0-10) [in ESS 3] All things considered, how satisfied are you with your life as a whole nowadays? (0-10)	Fors and Kulin (2016)
		multiple questions (features of flourishing)	I'm always optimistic about my future. (1-5) In general I feel very positive about myself. (1-5) How much of the time during the past week you felt you had a lot of energy? you felt calm and peaceful? (1-4) I love learning new things. (1-5) [please tell me to what extent you learn new things in your life? (0-6) modification in ESS6] When things go wrong in my life, it generally takes me a long time to get back to normal. (1-5)	Huppert and So (2013)

European Social Survey ESS	ESS3 (2006) ESS6 (2012)		Most days I feel a sense of accomplishment from what I do. (1-5) I generally feel that what I do in my life is valuable and worthwhile. (1-5) There are people in my life who really care about me. (1-5) [in ESS 3] Taking all things together, how happy would you say you are? (0-10)	
	ESS3 (2006) ESS6 (2012)	CES-D 8 scale	How much of the time during the past week you felt depressed? you felt that everything you did was an effort? your sleep was restless? you were happy? you felt lonely? you enjoyed life? felt sad? you could not get going? (1-4)	Van de Velde et al. (2010) Huppert and So (2013) Raudenská (2020)

European Quality of Life Survey EQLS	EQLS 2003–2016	single questions	All things considered, how satisfied would you say you are with your life these days? (1-10) Taking all things together on a scale of 1 to 10, how happy would you say you are? (1-10)	-
		life domains	Could you please tell me on a scale of 1 to 10 how satisfied you are with your education, present job, present standard of living, accommodation, family life, local area as a place to live? (1-10) In general how is your health? (1-5) On the whole, how satisfied are you with the way democracy works in [country]? (1-10) [EQLS 2016] How satisfied are you with the present state of the economy in [country]? (1-10) [EQLS 2016]	-
		multiple questions (features of flourishing)	I am optimistic about my future. (1-5) I generally feel that what I do in life is worthwhile. (1-5) [EQLS 2011, 2016] I feel I am free to decide how to live my life. (1-5) [EQLS 2011, 2016] When things go wrong in my life, it generally takes me a long time to get back to normal. (1-5) [EQLS 2016]	-

European Quality of Life Survey EQLS	EQLS 2003–2016		Life has become so complicated today that I almost can't find my way. (1-5) I feel close to people in the area where I live. (1-5) I have felt cheerful and in good spirits. (1-6) I have felt calm and relaxed. (1-6) I have felt active and vigorous. (1-6) My daily life has been filled with things that interest me. (1-6) I have felt downhearted and depressed. (1-6) Taking all things together on a scale of 1 to 10, how happy would you say you are? (1-10)	
Eurobarometer EB	EB 1976–2001	single questions	On the whole, how satisfied are you with the life you lead? (1-4/10) If you think back to your life 5 years ago, would you say that you are more/less satisfied? (1-3) ¹	-
		life domains	Generally speaking, when you think about your professional life, could you tell me how are you satisfied with your salary, work contract etc. (1-4) Now I would like you to indicate on this scale to what extent you are satisfied with your present situation in the following respects – the house/flat where you live, the part of town, the income of you, your standard of living, your present work, the way you spend your spare time etc. (0-10) How about the way democracy works in the European Union? How about the way democracy works in your country?	-

¹ In Eurobarometer, questions were modified during years, see more <https://www.gesis.org/eurobarometer-data-service/search-data-access/eb-trends-trend-files/list-of-trends/life-satisf/>.

EU-SILC	EU-SILC 2013 Special module on well-being (Income and living condition)	single questions affect	Overall, how satisfied are you with your life nowadays? (0-10) Overall, to what extent do you feel that the things you do in your life are worthwhile? (0-10) Overall, how happy did you feel yesterday? (0-10) Overall, how anxious did you feel yesterday? (0-10)	-
Gallup World Poll surveys GWP	GWP 2005 to 2017	single questions	Cantril's (1965) life ladder rating: Please imagine a ladder, with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time? (0-10)	Bjørnskov (2010)
	wave 3-7 (2008-2012, some in 2013), in wave 1, 2, 8 shorten version	positive affect	Did you experience the following feelings during a lot of the day yesterday? How about Happiness? Did you smile or laugh a lot yesterday? How about Enjoyment?	
	GWP 2005 to 2017	negative affect	Did you experience the following feelings during a lot of the day yesterday? How about Worry? How about Sadness? How about Anger?	

Source: Author's table.

Table S2a Number of respondents for each country and round, World Values Survey 1981–2017

Code	Country	WVS 1981	WVS 1990	WVS 1995	WVS 2000	WVS 2005	WVS 2012	WVS 2017
AL	Albania			999	1000			
AD	Andorra					1003		1004
DZ	Algeria				1282		1200	
AR	Argentina	1005	1002	1079	1280	1002	1030	1003
AM	Armenia			2000			1100	
AU	Australia	1228		2048		1421	1477	1784
AZ	Azerbaijan			2002			1002	
BD	Bangladesh			1525	1500			1200
BY	Belarus		1015	2092			1535	
BA	Bosnia			800	1200			
BG	Bulgaria			1075		1001		
BO	Bolivia							2067
BR	Brazil		1782	1143		1500	1486	1762
BF	Burkina Faso					1534		
CA	Canada				1931	2164		
CL	Chile		1500	1000	1200	1000	1000	1000
CN	Chine		1000	1500	1000	1991	2300	3036
CO	Colombia			6025		3025	1512	1520
HR	Croatia			1196				
CY	Cyprus					1050	1000	1000
CZ	Czech Republic		924	1147				
DO	Dominican Rep.			417				
SV	El Salvador			1254				
EC	Ecuador						1202	1200
EG	Egypt				3000	3051	1523	1200
EE	Estonia			1021			1533	
ET	Ethiopia					1500		1228
FI	Finland	1003		987		1014		
FR	France					1001		
GE	Georgia			2008		1500	1202	
DE	Germany			2026		2064	2046	1528
GR	Greece							1200
GH	Ghana					1534	1552	
GT	Guatemala					1000		1203
HT	Haiti						1996	
HK	Hong Kong					1252	1000	2075
HU	Hungary	1464		650		1007		
IN	India		2500	2040	2002	2001	4078	
ID	Indonesia				1000	2015		3200
IR	Iran				2532	2667		1499
IQ	Iraq				2325	2701	1200	1200
IL	Israel				1199			
IT	Italy					1012		
JP	Japan	1204	1011	1054	1362	1096	2443	1297
JO	Jordan				1223	1200	1200	1203
KR	Korea (South)		1251	1249	1200	1200	1165	1245
KZ	Kazakhstan						1500	1276
KG	Kyrgyzstan				1043		1487	1200
KW	Kuwait						1204	
LV	Latvia			1200				
LB	Lebanon						1200	1200
LY	Libya						2131	
LT	Lithuania			1009				

Source: World Values Survey 1981–2017

Table S2b Number of respondents for each country and round, World Values Survey 1981–2017

Code	Country	WVS 1981	WVS 1990	WVS 1995	WVS 2000	WVS 2005	WVS 2012	WVS 2017
MO	Macau							1023
MK	Macedonia			950	1055			
MY	Malaysia					1201	1300	1313
ML	Mali					1534		
MX	Mexico	1837	1531	1510	1535	1560	2000	1739
MD	Moldova			984	1008	1046		
MO	Montenegro			240	1060			
MA	Morocco				1251	1200	1166	
MM	Myanmar							1200
NZ	New Zealand			1201		954	841	983
NL	Netherlands					1050	1902	
NI	Nicaragua							1200
NG	Nigeria		1001	1996	2022		1759	1237
NO	Norway			1127		1025		
PK	Pakistan			733	2000		1200	1995
PS	Palestine						992	
PE	Peru			1211	1501	1500	1210	1400
PH	Philippines			1200	1200		1200	1200
PL	Poland		938	1153		1000	966	
PR	Puerto Rico			1164	720			1127
QA	Qatar						1060	
RO	Romania			1239		1776	1503	1257
RU	Russia		1961	2040		2033	2500	1810
RW	Rwanda					1507	1527	
SA	Saudi Arabia				1502			
RS	Serbia			1280	1200	1220		1046
SG	Singapore				1512		1972	
SR	Srpska Republic			400				
SK	Slovakia		466	1095				
SI	Slovenia			1007		1037	1069	
ZA	South Africa	1596	2736	2935	3000	2988	3531	
ES	Spain		1510	1211	1209	1200	1189	
SE	Sweden	954		1009		1003	1206	
CH	Switzerland		1400	1212		1241		
TW	Taiwan			780		1227	1238	1223
TJ	Tajikistan							1200
TZ	Tanzania				1171			
TH	Thailand					1534	1200	1500
TT	Trinidad and Tobago					1002	999	
TN	Tunisia						1205	1208
TR	Turkey		1030	1907	3401	1346	1605	2415
UA	Ukraine			2811		1000	1500	
UK	United Kingdom					1041		
US	United States	2325		1542	1200	1249	2232	2596
UG	Uganda				1002			
UY	Uruguay			1000		1000	1000	
UZ	Uzbekistan						1500	
VN	Vietnam				1000	1495		1200
VE	Venezuela			1200	1200			
YE	Yemen						1000	
ZM	Zambia					1500		
ZW	Zimbabwe				1002		1500	1215
Total		13586	24558	77818	59030	83975	89565	65355

Source: World Values Survey 1981–2017; WVS 2017 (excluding interview modes other than assisted interviewing used in WVS-7, such as self-administered postal survey or online survey; some countries were excluded from the analysis because they contain cases with missing data for all variables)

Table S3 Number of respondents for each country and round, International Social Survey Programme 2002, 2011, 2012, 2017

Code	Country	ISSP 2002	ISSP 2011	ISSP 2012	ISSP 2017
AR	Argentina			977	
AU	Australia				
AT	Austria	2047		1182	1200
BE	Belgium/Flanders				
BG	Bulgaria	1003	1003	1003	
BR	Brazil	2000			
CA	Canada				
CL	Chile	1505	1559	1564	
CN	Chine		5620	5946	4219
HR	Croatia		1210	1000	1026
CY	Cyprus	1004			
CZ	Czech Republic	1289	1804	1804	1405
DK	Denmark				
FI	Finland				
FR	France				
DE	Germany		272	302	246
DE-W	Germany - west				
DE - E	Germany - east				
HU	Hungary	1023			1007
IS	Iceland			926	
IN	India			1660	1510
IE	Ireland	1240			
IL	Israel	1209	1220	1220	1267
IT	Italy				
JP	Japan	1132			
KR	Korea (South)		1535	1396	
LV	Latvia	1000		1000	
LT	Lithuania		1187	1187	1052
MX	Mexico	1495		1527	1002
NZ	New Zealand				
NL	Netherlands				
NO	Norway				
NIRL	Northern Ireland				
PH	Philippines	1200	1200	1200	1200
PL	Poland	237	1115	1115	
PT	Portugal	1092	1022		
RU	Russia	1798	1511	1525	1559
SK	Slovakia	1133	1128	1128	1404
SI	Slovenia	1093	1082	1034	1047
ZA	South Africa		3004	2547	3098
ES	Spain	2471	2712	2595	1733
SR	Surinam				647
SE	Sweden				
CH	Switzerland	1008	1212	1237	1066
TW	Taiwan	1853	2199	2072	1955
TH	Thailand				1500
TR	Turkey		1559	1620	
UK/GB	United Kingdom/GB				
US	United States		1239	1136	1058
VE	Venezuela			1016	
Total		29328	34393	40919	30201

Source: International Social Survey Programme 2002, 2011, 2012, 2017; excluding interview modes other than assisted interviewing used in the ISSP, such as self-completion (arriving with the interviewer, mailed to the respondent, CASI, web questionnaire; some countries were excluded from the analysis because they contain cases with missing data on all variables)

Table S4 Number of respondents for each country and round, European Values Study 1981–2017

Code	Country	EVS 1981	EVS 1990	EVS 1999	EVS 2008	EVS 2017
AL	Albania				1534	1435
AM	Armenia				1500	1500
AT	Austria		1460	1522	1510	1644
AZ	Azerbaijan				1505	1800
BE	Belgium	1145	2792	1912	1509	
BY	Belarus			1000	1500	1548
BG	Bulgaria		1034	1000	1500	1560
BA	Bosna Hercegovina				1512	
CA	Canada	1254	1730			
HR	Croatia			1003	1525	1488
CY	Cyprus				1000	
CY-N	Cyprus (Northern)				500	
CZ	Czech Republic		2109	1908	1821	1812
DK	Denmark	1182	1030	1023	1507	1696
EE	Estonia		1008	1005	1518	1304
FI	Finland		588	1038	1134	388
FR	France	1200	1002	1615	1501	1870
GE	Georgia				1500	2194
DE	Germany	1305	3437	2036	2075	1494
GR	Greece			1142	1500	
HU	Hungary		999	1000	1513	1516
IS	Iceland	927	702	968	808	915
IE	Ireland	1217	1000	1012	1013	
IT	Italy	1348	2018	2000	1519	2277
XK	Kosovo				1601	
LV	Latvia		903	1013	1506	
LT	Lithuania		1000	1018	1500	1448
LU	Luxembourg			1211	1610	
MK	Macedonia				1500	
MT	Malta	467	393	1002	1500	
MD	Moldova				1551	
MO	Montenegro				1516	
NL	Netherlands	1221	1017	1003	1554	686
NO	Norway	1051	1239		1090	1123
NIRL	Northern Ireland	312	304	1000	500	
PL	Poland		982	1095	1510	1352
PT	Portugal		1185	1000	1553	
RO	Romania		1103	1146	1489	1613
RU	Russia			2500	1504	1825
RS	Serbia				1512	1500
SK	Slovakia		1136	1331	1509	1435
SI	Slovenia		1035	1006	1366	1076
ES	Spain	2303	2637	1200	1500	1211
SE	Sweden	954	1047	1015	1187	1194
CH	Switzerland				1272	673
TR	Turkey			1206	2384	
UA	Ukraine			1195	1507	
GB	Great Britain	1167	1484	1000	1561	1788
US	United States	2325	1839			
Total		19378	38213	41125	67786	43365

Source: European Values Study 1981–2017; EVS 2017 (excluding interview modes other than assisted interviewing used in EVS 2017, such as a self-administered web survey; some countries were excluded from the analysis because they contain cases with missing data for all variables).

Table S5 Number of respondents for each country and round, European Social Survey 2002–2018

Code	Country	ESS 2002	ESS 2004	ESS 2006	ESS 2008	ESS 2010	ESS 2012	ESS 2014	ESS 2016	ESS 2018
AT	Austria	2257	2256	2405				1795	2010	2499
BE	Belgium	1899	1778	1798	1760	1704	1896	1769	1766	1767
BG	Bulgaria			1400	2230	2434	2260			2198
HR	Croatia				1484	1649				
CY	Cyprus			995	1215	1083	1116			781
CZ	Czech Republic	1360	3026		2018	2386	2009	2148	2269	2398
DK	Denmark	1506	1487	1505	1610	1576	1650	1502		
EE	Estonia		1989	1517	1661	1793	2380	2051	2019	1904
FI	Finland	2000	2022	1896	2195	1878	2197	2087	1925	1755
FR	France	1503	1806	1986	2073	1728	1968	1917	2070	2010
DE	Germany		2870	2916	2751	3031	2958	3045	2852	2358
GR	Greece	2566	2406		2072	2715				
HU	Hungary	1685	1498	1518	1544	1561	2014	1698	1614	1698
IS	Iceland		579				752		880	
IE	Ireland	2046	2286	1800	1764	2576	2628	2390	2757	2216
IL	Israel	2499			2490	2294	2508	2562	2557	
IT	Italy	1207					960		2626	2745
LT	Lithuania					1677	2109	2250	2122	
LU	Luxembourg	1552	1635							
NL	Netherlands	2364	1881	1889	1778	1829	1845	1919	1681	1673
NO	Norway	2036	1760	1750	1549	1548	1624	1436	1545	1406
PL	Poland	2110	1716	1721	1619	1751	1898	1615	1694	1500
PT	Portugal	1511	2052	2222	2367	2150	2151	1265	1270	
RU	Russia			2437	2512	2595	2484		2430	
RS	Serbia									2043
SK	Slovakia		1512	1766	1810	1856	1847			
SI	Slovenia	1519	1442	1476	1286	1403	1257	1224	1307	1318
ES	Spain	1729	1663	1876	2576	1885	1889	1925	1958	
SE	Sweden	1999	1948	1927	1830	1497	1847	1791	1551	
CH	Switzerland	2040	2141	1804	1819	1506	1493	1532	1525	1542
TR	Turkey		1856		2416					
UA	Ukraine		2031	2002	1845	1931	2178			
UK	United Kingdom	2052	1897	2394	2352	2422	2286	2264	1959	2204
Total		43359	47537	43000	52626	52458	52177	40185	44387	36015

Source: European Social Survey 2002–2018 (some countries were excluded from the analysis because they contain cases with missing data for all variables)

Table S6 Number of respondents for each country and round, European Quality of Life Survey 2003–2016

Code	Country	EQLS 2003	EQLS 2007	EQLS 2011	EQLS 2016
AL	Albania				1011
AT	Austria	1007	1043	1032	1181
BE	Belgium	1005	1010	1013	1017
BG	Bulgaria	1007	1030	1000	1016
HR	Croatia		1000	1001	
CY	Cyprus	598	1003	1006	1009
CZ	Czech Republic	995	1227	1012	1014
DK	Denmark	999	1004	1024	1020
EE	Estonia	591	1023	1002	1001
FI	Finland	997	1002	1020	1052
FR	France	1033	1537	2270	1198
DE	Germany	1052	2008	3055	1631
GR	Greece	1002	1000	1004	1096
HU	Hungary	1001	1000	1024	1042
IS	Iceland			1000	
IE	Ireland	990	1000	1051	1011
IT	Italy	1004	1516	2250	2007
XK	Kosovo			1076	
LV	Latvia	1004	1002	1009	1000
LT	Lithuania	1001	1004	1134	1005
LU	Luxembourg	605	1004	1005	1021
MK	Macedonia		1008	1006	1013
MT	Malta	603	1000	1001	1000
MO	Montenegro			1000	1000
NL	Netherlands	1050	1011	1008	1010
NO	Norway		1000		
PL	Poland	1000	1500	2262	1009
PT	Portugal	998	1000	1013	1070
RO	Romania	1030	1000	1542	1004
RS	Serbia			1002	1056
SK	Slovakia	1071	1128	1000	1019
SI	Slovenia	601	1035	1008	1003
ES	Spain	1005	1015	1512	1005
SE	Sweden	1000	1017	1007	1053
TR	Turkey	996	2000	2035	2019
UK	United Kingdom	1012	1507	2252	1304
Total		26257	35634	43636	36908

Source: European Quality of Life Survey 2003–2016 (some countries were excluded from the analysis because they contain cases with missing data for all variables)

Table S7 Number of respondents for each country and round, Eurobarometer 1976-1979, 1982-1986, 1993-1995, 1998-2001

Code	Country	EB 1976	EB 1977	EB 1978	EB 1979	EB 1982	EB 1983	EB 1984	EB 1985	EB 1986	EB 1993	EB 1994	EB 1995	EB 1998	EB 1999	EB 2000	EB 2001
AT	Austria											1082	5145	3144	4070	3025	7242
BE	Belgium	2041	1994	3035	1982	2026	2033	2053	2027	2006	3059	3133	5184	3083	4152	3187	7289
DK	Denmark	1942	2007	2979	2102	1998	2027	1986	2017	2040	3000	3006	5000	3014	4002	3002	7004
FI	Finland										2028	2001	5164	3085	4140	3030	7097
FR	France	2587	2266	3322	1996	1938	2012	2014	2024	1998	3047	3041	5012	3050	4012	3018	7028
DE	Germany	2011	2014	3002	2008	2173	2106	2045	2036	2072	6359	6308	10623	6092	8144	6116	14240
GR	Greece					1999	2000	2000	2000		3005	3014	5028	3029	4036	3023	7025
IE	Ireland	1987	2005	3017	2003	1990	1989	2008	2017	2009	3009	3070	5024	3000	4010	3003	6961
IT	Italy	1975	2180	3124	2348	2109	2064	2157	2174	2200	3075	3180	5225	3004	4029	2970	6978
LU	Luxembourg	570	648	943	598	599	604	599	596	600	1515	1627	3228	1806	2426	1818	4267
NL	Netherlands	2028	1993	3190	2115	2084	2048	2033	2053	2027	3009	3067	5061	3080	4022	2977	7194
NO	Norway										3018	2034	1952				
PT	Portugal								1000	2000	3000	2999	4930	3001	4002	3000	7003
ES	Spain								1003	2018	3022	3009	5000	3000	4000	3000	7000
SE	Sweden											501	5143	3036	4015	3000	6981
UK	United Kingdom	2691	2775	4089	2721	2594	2625	2759	2827	2698	4114	4107	6924	4120	5416	4121	9247
Total		17832	17882	26701	17873	19510	19508	19654	21774	23668	44260	45179	83643	48544	64476	48290	112556

Source: Eurobarometer 1976-1979, 1982-1986, 1993-1995, 1998-2001 (some countries were excluded from the analysis because they contain cases with missing data for all variables)

Table S8 Bayesian CFA Global Fit Indices; World Values Survey 1981–2017

Model	Prior	DIC	BIC	PPP	95% CI
WVS 1 – 1981 9 countries, N=12,609	0.000	101432	101779	0.000	[161.361;218.671]
	<i>0.001</i>	<i>101003</i>	<i>102050</i>	<i>0.691</i>	<i>[-42.547;26.536]</i>
	0.005	101040	102047	0.590	[-37.010;33.193]
	0.010	101030	102046	0.558	[-36.464;34.383]
	0.025	100979	102046	0.528	[-35.619;35.628]
	0.050	100885	102046	0.512	[-35.516;35.794]
WVS 2 – 1990 15 countries, N=21,250	0.000	171195	173206	0.000	[501.086;581.481]
	<i>0.001</i>	<i>171495</i>	<i>172995</i>	<i>0.793</i>	<i>[-60.594;31.317]</i>
	0.005	171428	172995	0.625	[-50.400;44.236]
	0.010	171330	172995	0.576	[-47.734;49.251]
	0.025	171141	172996	0.548	[-46.014;52.603]
	0.050	170999	172996	0.534	[-45.467;54.276]
WVS 3 – 1995 53 countries, N=74,707	0.000	589367	592302	0.000	[947.038;1110.975]
	<i>0.001</i>	<i>587951</i>	<i>594808</i>	<i>0.900</i>	<i>[-135.633;25.124]</i>
	0.005	587969	594809	0.687	[-105.569;64.200]
	0.010	587848	594810	0.618	[-99.242;72.490]
	0.025	587453	594812	0.532	[-93.941;80.439]
	0.050	586773	594812	0.506	[-90.868;83.536]
WVS 4 – 2000 37 countries, N=55,102	0.000	450275	451913	0.000	[2334.470;2492.184]
	<i>0.001</i>	<i>446579</i>	<i>451748</i>	<i>0.873</i>	<i>[-103.437;31.400]</i>
	0.005	446191	451749	0.624	[-84.494;55.469]
	0.010	445965	451750	0.550	[-80.463;60.975]
	0.025	445519	451752	0.510	[-77.511;64.684]
	0.050	444974	451754	0.490	[-77.801;65.634]
WVS 5 – 2005 57 countries, N=80,922	0.000	651634	653959	0.000	[2580.205;2742.232]
	<i>0.001</i>	<i>647813</i>	<i>655215</i>	<i>0.890</i>	<i>[-129.285;32.760]</i>
	0.005	647882	655214	0.689	[-95.797;70.595]
	0.010	647841	655213	0.606	[-89.751;82.149]
	0.025	647716	655212	0.554	[-82.708;87.112]
	0.050	647465	655212	0.528	[-81.293;88.375]
WVS 6 – 2012 60 countries, N=89,505	0.000	723340	727120	0.000	[3392.433;3542.662]
	<i>0.001</i>	<i>720045</i>	<i>727889</i>	<i>0.604</i>	<i>[-110.800;86.970]</i>
	0.005	720160	727889	0.390	[-78.310;110.553]
	0.010	719985	727886	0.317	[-70.962;122.078]
	0.025	719230	727887	0.273	[-64.331;128.008]
	0.050	718417	727890	0.259	[-60.678;130.426]
WVS 7 – 2017 45 countries, N= 65,343	0.000	533244	535395	0.000	[2095.002;2232.673]
	<i>0.001</i>	<i>530826</i>	<i>536085</i>	<i>0.849</i>	<i>[-123.590;33.698]</i>
	0.005	530829	536085	0.584	[-94.456;65.138]
	0.010	530780	536085	0.516	[-87.531;72.424]
	0.025	530625	536085	0.474	[-81.541;80.461]
	0.050	530383	536085	0.448	[-78.651;83.891]

Source: World Values Survey 1981–2017. Notes: Prior = prior variance, DIC = deviance information criterion, PPP = posterior predictive *p* value, 95% CI = 95 percent Credibility Interval

Table S9 Bayesian CFA Global Fit Indices; International Social Survey Programme 2002, 2011, 2012, 2017

Model	Prior	DIC	BIC	PPP	95% CI
ISSP – 2002 21 countries, N=27,724	0.000	185623	186992	0.000	[680.435;792.161]
	<i>0.001</i>	<i>184474</i>	<i>187385</i>	<i>0.683</i>	<i>[-67.210;39.294]</i>
	0.005	184439	187379	0.602	[-61.028;48.197]
	0.010	184090	187378	0.560	[-58.915;48.199]
	0.025	183498	187392	0.546	[-57.621;50.574]
	0.050	182901	187395	0.538	[-58.139;51.574]
ISSP – 2011 21 countries, N=34,365	0.000	257861	259090	0.000	[384.797;483.804]
	<i>0.001</i>	<i>257508</i>	<i>2598498</i>	<i>0.811</i>	<i>[-67.834;24.834]</i>
	0.005	257549	259865	0.620	[-54.479;40.059]
	0.010	257518	259874	0.574	[-51.340;42.900]
	0.025	257372	259884	0.526	[-48.758;45.604]
	0.050	257117	259885	0.449	[-48.221;46.598]
ISSP – 2012 26 countries, N=38,372	0.000	309077	310869	0.000	[1284.681;1379.165]
	<i>0.001</i>	<i>308200</i>	<i>310967</i>	<i>0.803</i>	<i>[-75.310;34.542]</i>
	0.005	308178	310961	0.629	[-65.168;50.944]
	0.010	308084	310968	0.574	[-61.314;55.469]
	0.025	307792	310988	0.534	[-60.321;60.360]
	0.050	307338	310990	0.528	[-57.960;62.220]
ISSP – 2017 21 countries, N=30,166	0.000	244926	247658	0.000	[604.355;698.942]
	<i>0.001</i>	<i>245505</i>	<i>247951</i>	<i>0.805</i>	<i>[-71.800;25.434]</i>
	0.005	245377	247950	0.625	[-60.853;42.563]
	0.010	245238	247950	0.582	[-58.283;47.086]
	0.025	244954	247950	0.520	[-55.755;50.694]
	0.050	244546	247950	0.510	[-55.009;52.468]

Source: International Social Survey Programme 2002, 2011, 2012, 2017. Notes: Prior = prior variance, DIC = deviance information criterion, PPP = posterior predictive *p* value, 95% CI = 95 percent Credibility Interval

Table S10 Bayesian CFA Global Fit Indices; European Values Study 1981–2017

Model	Prior	DIC	BIC	PPP	95% CI
EVS – 1981 16 countries, N=19,370	0.000	155010	156559	0.000	[35.552;112.658]
	0.001	155302	157196	0.797	[-63.676;26.712]
	0.005	155336	157197	0.620	[-53.942;37.823]
	0.010	155279	157198	0.576	[-51.979;41.255]
	0.025	155094	157197	0.534	[-49.954;44.879]
	0.050	154808	157198	0.510	[-49.019;46.280]
EVS – 1990 28 countries, N=37,804	0.000	304277	305835	0.000	[238.192;336.212]
	0.001	303669	307197	0.875	[-86.542;32.564]
	0.005	303561	307196	0.661	[-68.236;46.318]
	0.010	303318	307197	0.602	[-63.110;52.561]
	0.025	302509	307198	0.536	[-58.768;58.371]
	0.050	301258	307206	0.516	[-57.914;61.294]
EVS – 1999 32 countries, N=40,068	0.000	266443	268019	0.000	[357.230;476.281]
	0.001	266270	269623	0.713	[-79.843;46.915]
	0.005	266327	269597	0.633	[-75.514;55.725]
	0.010	266322	269592	0.602	[-71.966;56.711]
	0.025	266214	269596	0.556	[-71.400;60.212]
	0.050	265966	269598	0.526	[-70.775;62.885]
EVS – 2008 47 countries, N=67,764	0.000	539618	541852	0.000	[2359.012;2489.967]
	0.001	537046	542505	0.865	[-119.074;30.879]
	0.005	536972	542503	0.639	[-89.026;61.463]
	0.010	536848	542503	0.576	[-84.453;69.355]
	0.025	536364	542505	0.534	[-81.826;75.599]
	0.050	535178	542505	0.512	[-80.445;78.035]
EVS – 2017 30 countries, N=43,364	0.000	343971	345372	0.000	[568.985;679.230]
	0.001	342989	346645	0.837	[-91.947;26.992]
	0.005	342962	346644	0.625	[-72.004;47.770]
	0.010	342868	346644	0.588	[-67.242;54.030]
	0.025	342569	346645	0.544	[-63.651;57.453]
	0.050	342138	346646	0.532	[-62.483;59.463]

Source: *European Values Study 1981–2017*. Notes: Prior = prior variance, DIC = deviance information criterion, PPP = posterior predictive *p* value, 95% CI = 95 percent Credibility Interval

Table S11 Bayesian CFA Global Fit Indices; European Social Survey 2002–2018

Model	Prior	DIC	BIC	PPP	95% CI
ESS 2002 22 countries, N=42,341	0.000	330328	331582	0.000	[793.067;890.655]
	<i>0.001</i>	<i>329748</i>	<i>332068</i>	<i>0.767</i>	<i>[-74.298;37.162]</i>
	0.005	329807	332066	0.614	[-64.491;48.788]
	0.010	329808	332063	0.582	[-62.031;51.602]
	0.025	329781	332062	0.558	[-61.321;52.870]
	0.050	329722	332063	0.534	[-61.530;53.107]
ESS 2004 25 countries, N=47,520	0.000	369662	370686	0.000	[707.618;803.734]
	<i>0.001</i>	<i>368871</i>	<i>371573</i>	<i>0.711</i>	<i>[-74.012;42.192]</i>
	0.005	368770	371575	0.488	[-56.970;61.334]
	0.010	368956	371569	0.524	[-58.514;56.888]
	0.025	368902	371572	0.496	[-58.604;60.400]
	0.050	368770	371575	0.488	[-56.970;61.334]
ESS 2006 23 countries, N=42,991	0.000	335154	336061	0.000	[520.282;615.666]
	<i>0.001</i>	<i>334640</i>	<i>336980</i>	<i>0.747</i>	<i>[-73.511;38.443]</i>
	0.005	334676	336977	0.582	[-64.769;51.068]
	0.010	334675	336977	0.546	[-62.295;54.203]
	0.025	334641	336977	0.500	[-60.610;56.719]
	0.050	334543	336979	0.480	[-59.331;57.462]
ESS 2008 27 countries, N=52,622	0.000	409480	410578	0.000	[911.525;1012.497]
	<i>0.001</i>	<i>408286</i>	<i>411397</i>	<i>0.677</i>	<i>[-68.997;61.149]</i>
	0.005	408419	411389	0.558	[-62.922;67.173]
	0.010	408426	411389	0.522	[-58.753;69.232]
	0.025	408336	411391	0.494	[-57.994;71.458]
	0.050	408147	411395	0.478	[-58.408;72.290]
ESS 2010 27 countries, N=52,455	0.000	404732	406143	0.000	[710.608;807.975]
	<i>0.001</i>	<i>404291</i>	<i>407155</i>	<i>0.759</i>	<i>[-74.999;36.283]</i>
	0.005	404363	407150	0.616	[-63.190;52.259]
	0.010	404370	407150	0.562	[-59.677;58.350]
	0.025	404350	407151	0.524	[-56.384;61.150]
	0.050	404287	407153	0.520	[-54.459;61.597]
ESS 2012 27 countries, N=52,161	0.000	404630	405733	0.000	[730.186;834.637]
	<i>0.001</i>	<i>403894</i>	<i>406729</i>	<i>0.669</i>	<i>[-79.429;39.270]</i>
	0.005	403946	406720	0.560	[-68.359;52.913]
	0.010	403950	406718	0.526	[-66.361;56.575]
	0.025	403924	406719	0.490	[-64.740;59.694]
	0.050	403820	406721	0.478	[-62.457;60.970]
ESS 2014 21 countries, N=40,183	0.000	310526	311372	0.000	[534.232;624.726]
	<i>0.001</i>	<i>309834</i>	<i>312135</i>	<i>0.723</i>	<i>[-71.963;36.072]</i>
	0.005	309825	312134	0.586	[-62.774;49.154]
	0.010	309770	312134	0.544	[-60.159;51.398]
	0.025	309649	312139	0.512	[-57.627;55.117]
	0.050	309487	312139	0.496	[-56.097;55.978]
ESS 2016 23 countries, N=44,382	0.000	342798	343765	0.000	[584.282;671.621]
	<i>0.001</i>	<i>342210</i>	<i>344628</i>	<i>0.739</i>	<i>[-71.286;36.795]</i>
	0.005	342279	344621	0.624	[-65.999;48.290]
	0.010	342287	344621	0.584	[-63.833;50.652]
	0.025	342264	344621	0.552	[-61.093;52.751]
	0.050	342165	344622	0.534	[-60.330;53.688]
ESS 2018 19 countries, N=36,009	0.000	277907	278679	0.000	[290.460;375.861]
	<i>0.001</i>	<i>277606</i>	<i>279525</i>	<i>0.683</i>	<i>[-67.318;36.824]</i>
	0.005	277644	279519	0.560	[-61.254;43.306]
	0.010	277647	279519	0.532	[-61.218;44.551]
	0.025	277630	279520	0.512	[-60.178;47.079]
	0.050	277582	279525	0.490	[-60.121;47.456]

Source: European Social Survey 2002–2018. Notes: Prior = prior variance, DIC = deviance information criterion, PPP = posterior predictive *p* value, 95% CI = 95 percent Credibility Interval

Table S12 Bayesian CFA Global Fit Indices; European Quality of Life Survey 2003–2016

Model	Prior	DIC	BIC	PPP	95% CI
EQLS – 2003 28 countries, N=26,254	0.000	203854	204920	0.000	[293.44;395.026]
	<i>0.001</i>	<i>203499</i>	<i>206301</i>	<i>0.871</i>	<i>[-89.260;27.231]</i>
	0.005	203533	206297	0.679	[-72.661;50.373]
	0.010	203510	206295	0.618	[-68.144;57.178]
	0.025	203403	206294	0.558	[-65.576;61.425]
	0.050	203193	206297	0.532	[-64.614;63.972]
EQLS – 2007 31 countries, N=35,633	0.000	278855	280196	0.000	[367.951;475.609]
	<i>0.001</i>	<i>278127</i>	<i>281748</i>	<i>0.837</i>	<i>[-94.401;28.430]</i>
	0.005	278005	281745	0.653	[-74.290;48.331]
	0.010	277730	281744	0.596	[-70.351;53.608]
	0.025	276900	281747	0.550	[-67.718;57.647]
	0.050	276091	281750	0.534	[-65.936;59.811]
EQLS – 2011 34 countries, N=43,631	0.000	343090	344617	0.000	[609.382;719.296]
	<i>0.001</i>	<i>342540</i>	<i>346157</i>	<i>0.823</i>	<i>[-90.997;36.993]</i>
	0.005	342638	346149	0.653	[-72.306;55.736]
	0.010	342660	346146	0.580	[-69.285;61.079]
	0.025	342643	346144	0.520	[-66.685;65.018]
	0.050	342564	346148	0.504	[-64.861;67.313]
EQLS – 2016 33 countries, N=36,908	0.000	279872	281161	0.000	[678.504;786.831]
	<i>0.001</i>	<i>279108</i>	<i>282568</i>	<i>0.815</i>	<i>[-90.586;29.785]</i>
	0.005	279203	282566	0.624	[-74.388;49.784]
	0.010	279214	282565	0.574	[-70.798;55.451]
	0.025	279183	282563	0.534	[-66.803;58.284]
	0.050	279104	282564	0.522	[-65.276;59.185]

Source: *European Quality of Life Survey 2003–2016*. Notes: Prior = prior variance, DIC = deviance information criterion, PPP = posterior predictive *p* value, 95% CI = 95 percent Credibility Interval

Table S13a Bayesian CFA Global Fit Indices; Eurobarometer 1976-1979, 1982-1986

Model	Prior	DIC	BIC	PPP	95% CI
EB 1976 9 countries, N=17,798	0.000	117944	118400	0.000	[84.934;159.973]
	<i>0.001</i>	<i>117721</i>	<i>118661</i>	<i>0.669</i>	<i>[-41.602;28.742]</i>
	0.005	117779	118657	0.610	[-41.500;29.678]
	0.010	117781	118656	0.582	[-40.955;30.405]
	0.025	117750	118655	0.558	[-39.834;30.616]
	0.050	117681	118657	0.548	[-39.086;31.232]
EB 1977 9 countries, N=17,858	0.000	118352	118792	0.000	[59.683;125.491]
	<i>0.001</i>	<i>118174</i>	<i>119139</i>	<i>0.653</i>	<i>[-41.587;24.956]</i>
	0.005	118232	119137	0.588	[-39.253;28.065]
	0.010	118245	119137	0.572	[-37.881;30.218]
	0.025	118226	119142	0.532	[-36.532;30.809]
	0.050	118158	119145	0.530	[-36.022;33.363]
EB 1978 9 countries, N=17,806	0.000	138407	139681	0.000	[209.479;275.251]
	<i>0.001</i>	<i>138892</i>	<i>139737</i>	<i>0.649</i>	<i>[-39.187;29.103]</i>
	0.005	138903	139737	0.556	[-35.173;34.500]
	0.010	138894	139736	0.532	[-34.780;35.706]
	0.025	138856	139737	0.518	[-33.778;36.886]
	0.050	138790	139738	0.512	[-33.861;37.001]
EB 1979 9 countries, N=17,247	<i>0.000</i>	<i>93362</i>	<i>93836</i>	<i>0.098</i>	<i>[-10.767;58.846]</i>
	0.001	92509	94264	0.600	[-40.238;31.527]
	0.005	92706	94269	0.552	[-38.947;34.636]
	0.010	92661	94270	0.540	[-38.055;35.307]
	0.025	92522	94274	0.524	[-38.411;36.020]
	0.050	92460	94273	0.514	[-37.557;36.218]
EB 1982 9 countries, N=17,429	0.000	115093	115888	0.000	[106.359;181.644]
	<i>0.001</i>	<i>115287</i>	<i>116122</i>	<i>0.620</i>	<i>[-40.347;26.571]</i>
	0.005	115298	116117	0.588	[-39.165;30.585]
	0.010	115302	116118	0.568	[-38.370;31.952]
	0.025	115304	116115	0.548	[-38.074;32.894]
	0.050	115297	116115	0.530	[-37.458;34.529]
EB 1983 10 countries, N=19,474	0.000	152502	152973	0.000	[146.928;211.135]
	<i>0.001</i>	<i>152380</i>	<i>153317</i>	<i>0.665</i>	<i>[-45.081;27.751]</i>
	0.005	152395	153315	0.580	[-39.439;33.821]
	0.010	152394	153316	0.560	[-38.069;35.711]
	0.025	152371	153321	0.532	[-36.196;37.500]
	0.050	152249	153322	0.524	[-35.823;38.616]
EB 1984 10 countries, N=19,616	0.000	130101	130502	0.000	[53.151;133.456]
	<i>0.001</i>	<i>129940</i>	<i>130924</i>	<i>0.673</i>	<i>[-40.544;27.488]</i>
	0.005	129974	130920	0.604	[-36.149;32.598]
	0.010	129977	130920	0.576	[-34.765;33.445]
	0.025	129966	130921	0.558	[-33.840;34.193]
	0.050	129941	130922	0.544	[-33.195;34.725]
EB 1985 12 countries, N=21,718	0.000	146638	147273	0.000	[66.291;147.398]
	<i>0.001</i>	<i>146536</i>	<i>147716</i>	<i>0.679</i>	<i>[-48.135;25.013]</i>
	0.005	146576	147713	0.586	[-44.070;30.418]
	0.010	146576	147719	0.564	[-42.926;33.002]
	0.025	146548	147722	0.544	[-41.382;34.506]
	0.050	146466	147717	0.530	[-40.766;35.459]

Source: Eurobarometer 1976-1979, 1982-1986, 1993-1995, 1998-2001. Notes: Prior = prior variance, DIC = deviance information criterion, PPP = posterior predictive p value, 95% CI = 95 percent Credibility Interval

Table S13b Bayesian CFA Global Fit Indices; Eurobarometer 1993-1995, 1998-2001

Model	Prior	DIC	BIC	PPP	95% CI
EB 1986 12 countries, N=23,647	0.000	185698	186388	0.000	[100.908;177.325]
	<i>0.001</i>	<i>185656</i>	<i>186886</i>	<i>0.703</i>	<i>[-48.341;28.362]</i>
	0.005	185671	186884	0.582	[-43.226;35.446]
	0.010	185631	186884	0.554	[-41.052;37.454]
	0.025	185423	186885	0.524	[-40.126;39.676]
	0.050	185103	186889	0.522	[-39.600;39.900]
EB 1993 14 countries, N=30,129	0.000	227695	228395	0.000	[265.517;347.947]
	<i>0.001</i>	<i>227304</i>	<i>228818</i>	<i>0.633</i>	<i>[-46.670;39.627]</i>
	0.005	227379	228811	0.544	[-45.592;43.479]
	0.010	227384	228811	0.512	[-45.794;44.365]
	0.025	227354	228812	0.508	[-45.208;44.436]
	0.050	227276	228814	0.498	[-44.381;44.183]
EB 1994 13 countries, N=41,383	0.000	286941	287786	0.000	[533.502;649.129]
	<i>0.001</i>	<i>286176</i>	<i>287814</i>	<i>0.604</i>	<i>[-46.783;39.037]</i>
	0.005	286285	287816	0.530	[-43.742;40.444]
	0.010	286259	287811	0.510	[-42.899;40.174]
	0.025	286101	287805	0.500	[-42.481;40.413]
	0.050	285763	287821	0.496	[-42.245;41.756]
EB 1995 16 countries, N=17,149	0.000	130345	131002	0.000	[407.619;516.469]
	<i>0.001</i>	<i>129520</i>	<i>131356</i>	<i>0.705</i>	<i>[-66.283;27.333]</i>
	0.005	129580	131353	0.564	[-58.517;36.393]
	0.010	129531	131349	0.522	[-55.610;39.838]
	0.025	129431	131345	0.500	[-53.506;42.689]
	0.050	129341	131345	0.494	[-52.870;43.703]
EB 1998 15 countries, N=16,134	0.000	117583	118681	0.000	[601.343;722.453]
	<i>0.001</i>	<i>117271</i>	<i>118678</i>	<i>0.733</i>	<i>[-54.824;25.955]</i>
	0.005	117292	118674	0.627	[-49.153;33.988]
	0.010	117278	118676	0.576	[-46.315;38.042]
	0.025	117220	118679	0.536	[-45.514;40.210]
	0.050	117128	118679	0.520	[-44.582;41.827]
EB 1999 15 countries, N=47,606	0.000	239389	240216	0.000	[589.354;756.877]
	<i>0.001</i>	<i>238240</i>	<i>239877</i>	<i>0.546</i>	<i>[-49.600;41.882]</i>
	0.005	238282	239865	0.514	[-45.768;44.277]
	0.010	238284	239862	0.504	[-44.255;44.022]
	0.025	238259	239878	0.510	[-44.179;45.386]
	0.050	238186	239896	0.512	[-43.719;45.880]
EB 2000 15 countries, N=32,104	0.000	238844	239508	0.000	[1126.471;1262.662]
	<i>0.001</i>	<i>237484</i>	<i>238999</i>	<i>0.570</i>	<i>[-45.237;40.002]</i>
	0.005	237506	238990	0.542	[-47.265;40.712]
	0.010	237508	238989	0.540	[-1445.653;40.890]
	0.025	237480	238993	0.536	[-44.924;41.543]
	0.050	237268	239004	0.534	[-46.661;41.503]
EB 2001 15 countries, N=47,867	0.000	250681	251301	0.000	[126.526;254.332]
	<i>0.001</i>	<i>250067</i>	<i>251635</i>	<i>0.400</i>	<i>[-39.895;53.245]</i>
	0.005	250070	251601	0.484	[-43.755;44.151]
	0.010	250072	251596	0.490	[-44.996;44.067]
	0.025	250065	251592	0.486	[-44.355;43.290]
	0.050	250015	251597	0.496	[-44.764;42.713]

Source: Eurobarometer 1976-1979, 1982-1986, 1993-1995, 1998-2001. Notes: Prior = prior variance, DIC = deviance information criterion, PPP = posterior predictive *p* value, 95% CI = 95 percent Credibility Interval

Table S14 Examples of Mplus script for the Bayesian approximate measurement invariance of general well-being latent construct - World Values Survey 2017, International Social Survey Programme 2017, European Values Study 2017, European Social Survey 2018, European Quality of Life Survey 2016

**TITLE: Model - SCALAR BSEM AMI
(prior variance = 0.001) – WVS 2017;**

DATA: FILE IS WVS 7_happy_mplus.dat;

VARIABLE:
NAMES ARE country happy health stflife;
USEVARIABLES ARE country happy health
stflife;
MISSING ARE ALL (-999);
classes=c(45)
knownclass is c (country= 20 32 50 68 76 104
152 156 158 170 196 218 231 276 300 320 344
360 364 368 398 400 410 417 422 446 458 484
558 566 586 604 608 630 642 643 688 704 716
762 764 788 792 818 840);

MODEL:
%overall%
f1 by stflife* happy health (lam#_1-lam#_3);
[stflife happy health] (nu#_1-nu#_3);
%c#1%

[f1@0];

ANALYSIS:
TYPE=mixture;
ESTIMATOR=Bayes;
Biterations=(1400);
model=allfree;

Model priors:
do (1,3) diff (lam1_#-lam45_#)~N(0,0.001);
do (1,3) diff (nu1_#-nu45_#)~N(0,0.001);

OUTPUT: TECH1 TECH8;

**TITLE: Model - SCALAR BSEM AMI
(prior variance = 0.001) – ISSP 2017**

DATA: FILE IS ISSP 2017_mplus.dat;

VARIABLE:
NAMES ARE country health happyfeel v04
stflife v05;
USEVARIABLES ARE country health
happyfeel stflife;
MISSING ARE ALL (-999);

classes=c(21);
knownclass is c (country= 40 156 158 191 203
276 348 356 376 440 484 608 643
703 705 710 724 740 756 764 840);

MODEL:
%overall%
f1 by happyfeel* stflife health (lam#_1-
lam#_3);
[happyfeel stflife health] (nu#_1-nu#_3);
%c#1%

[f1@0];

ANALYSIS:
TYPE=mixture;
ESTIMATOR=Bayes;
Biterations=(1500);
model=allfree;

Model priors:
do (1,3) diff (lam1_#-lam21_#)~N(0,0.001);
do (1,3) diff (nu1_#-nu21_#)~N(0,0.001);

OUTPUT: TECH1 TECH8;

**TITLE: Model - SCALAR BSEM AMI
(prior variance = 0.001) – EVS 2017**

DATA: FILE IS EVS 2017_mplus.dat;

VARIABLE:
NAMES ARE country happy health v04
stflife;
USEVARIABLES ARE country happy health
stflife;
MISSING ARE ALL (-999);
classes=c(30);
knownclass is c (country= 8 31 40 51 100 112
191 203 208 233 246 250 268 276 348 352 380
440 528 578 616 642 643 688 703 705 724 752
756 826);

MODEL:
%overall%
f1 by happy* stflife health (lam#_1-lam#_3) ;
[happy stflife health] (nu#_1-nu#_3);

```

%c#1%

[f1@0];
ANALYSIS:
TYPE=mixture;
ESTIMATOR=Bayes;
FBiterations=600;
model=allfree;

Model priors:
do (1,3) diff (lam1_#-lam30_#)~N(0,0.001);
do (1,3) diff (nu1_#-nu30_#)~N(0,0.001);

OUTPUT: TECH1 TECH8;

TITLE: Model - SCALAR BSEM AMI
(prior variance = 0.001) – ESS 2018

DATA: FILE IS ESS9_mplus.dat;

VARIABLE:
NAMES ARE country stflife happy health;
USEVARIABLES ARE country happy stflife
health;
MISSING ARE ALL (-999);
classes=c(19);
knownclass is c (country= 1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19);

MODEL:
%overall%
f1 by happy* stflife health (lam#_1-lam#_3);
[happy stflife health] (nu#_1-nu#_3);
%c#1%

[f1@0];

ANALYSIS:
TYPE=mixture;
ESTIMATOR=Bayes;
Biterations=(11000);
model=allfree;

Model priors:
do (1,3) diff (lam1_#-lam19_#)~N(0,0.001);
do (1,3) diff (nu1_#-nu19_#)~N(0,0.001);

OUTPUT: TECH1 TECH8;

TITLE: Model - SCALAR BSEM AMI
(prior variance = 0.001) – EQLS 2016

```

```

DATA: FILE IS eqls4 2016_mplus.dat;

VARIABLE:
NAMES ARE country stflife happy health
health2;
USEVARIABLES ARE country happy health2
stflife;
MISSING ARE ALL (-999);
classes=c(33);
knownclass is c (country= 1 2 3 4 5 6 7 8 9 10
11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
26 27 28 29 32 33 35 36);

MODEL:
%overall%
f1 by happy* stflife health (lam#_1-lam#_3);
[happy stflife health] (nu#_1-nu#_3);
%c#1%

[f1@0];

ANALYSIS:
TYPE=mixture;
ESTIMATOR=Bayes;
FBiterations=7100;
model=allfree;

Model priors:
do (1,3) diff (lam1_#-lam33_#)~N(0,0.001);
do (1,3) diff (nu1_#-nu33_#)~N(0,0.001);

OUTPUT: TECH1 TECH8;

TITLE: Model - SCALAR BSEM AMI
(prior variance = 0.001) – EB 2001

DATA: FILE IS EB_2001_mplus.dat;

VARIABLE:
NAMES ARE country stflife happy stfдем
stfдеu;
USEVARIABLES ARE country stflife stfдем
stfдеu;
MISSING ARE ALL (-999);
classes=c(15);
knownclass is c (country= 1 2 3 4 5 6 7 8 9 11
12 13 16 17 18);

MODEL:
%overall%
f1 by happy* stflife stfдем (lam#_1-lam#_3);

```



```
[happy stflife stfdem] (nu#_1-nu#_3);  
%c#1%
```

```
[f1@0];
```

```
ANALYSIS:
```

```
TYPE=mixture;
```

```
ESTIMATOR=Bayes;
```

```
FBiterations=46300;
```

```
model=allfree;
```

```
Model priors:
```

```
do (1,3) diff (lam1_#-lam15_#)~N(0,0.001);
```

```
do (1,3) diff (nu1_#-nu15_#)~N(0,0.001);
```

```
OUTPUT: TECH1 TECH8;
```