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Inequalities in life satisfaction among the retired Europeans:
are they related to inequalities in socioeconomic and health status?

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Motivation

- Well-being (or happiness) is an aspiration of most human beings and largely guides their behavior
- Increasing awareness that subjective well-being (SWB) should be measured and considered in policy development (e.g. OECD 2013, Stiglitz et al. 2009, Kahneman et al. 2004)
- Promotion of SWB is one of the goals of the European Union (Lisbon Treaty, art. 3)
- Little is known about the distribution of SWB in the population (e.g. Stiglitz et al. 2009)

Motivation

- Literature on SWB: mainly a level approach by estimating adjusted means
(e.g. Litvin et al. forth, Angelini et al. 2012, von dem Kneesebeck et al. 2007)
- Literature on inequalities (distributional approaches): mostly focuses on income or health/ health care use
(e.g. Bago d'Uva et al. 2008, van Doorslaer and Koolman 2004, Wagstaff and van Doorslaer 2000)
- No evidence of the *distributions* of SWB in European countries

Motivation

- Health and income are important factors in explaining well-being
 - Own health status and income
 - Comparisons with others: relative health and relative income
- Health and income are the two main targets of policy in Europe, in particular interventions aimed at reducing disparities
- Aging of population and baby-boomers reaching retirement
 - Importance of that group at shaping policy and as target of policies

Research questions

1. How is well-being distributed among the retired population in Europe?
2. How is the distribution of SWB related to
 - the socioeconomic position of individuals in each country?
—i.e. socioeconomic-related disparities in SWB
 - the health status position of individuals in each country?
—i.e. health-related disparities in SWB
3. What are the main factors contributing to such disparities in SWB and what are the causes behind them?

Methods

Measure of subjective well-being

- Life satisfaction: cognitive dimension of SWB (Diener, 1985)

“ On a scale from 0 to 10, where 0 means completely dissatisfied and 10 means completely satisfied, how satisfied are you with your life?”

- Validated scale (e.g. OECD, 2013; Diener et al. 2013)
- Largely used in both the economic and psycho-social literatures (e.g. Kahneman and Krueger 2006, Sacks et al. 2010)

Methods

Estimation steps

1. Linearization of life satisfaction using ordered probit and rescale predicted life satisfaction to interval [0;1]
2. Estimation of Gini and concentration indices using Erreygers (2009) methodology for bounded variables :

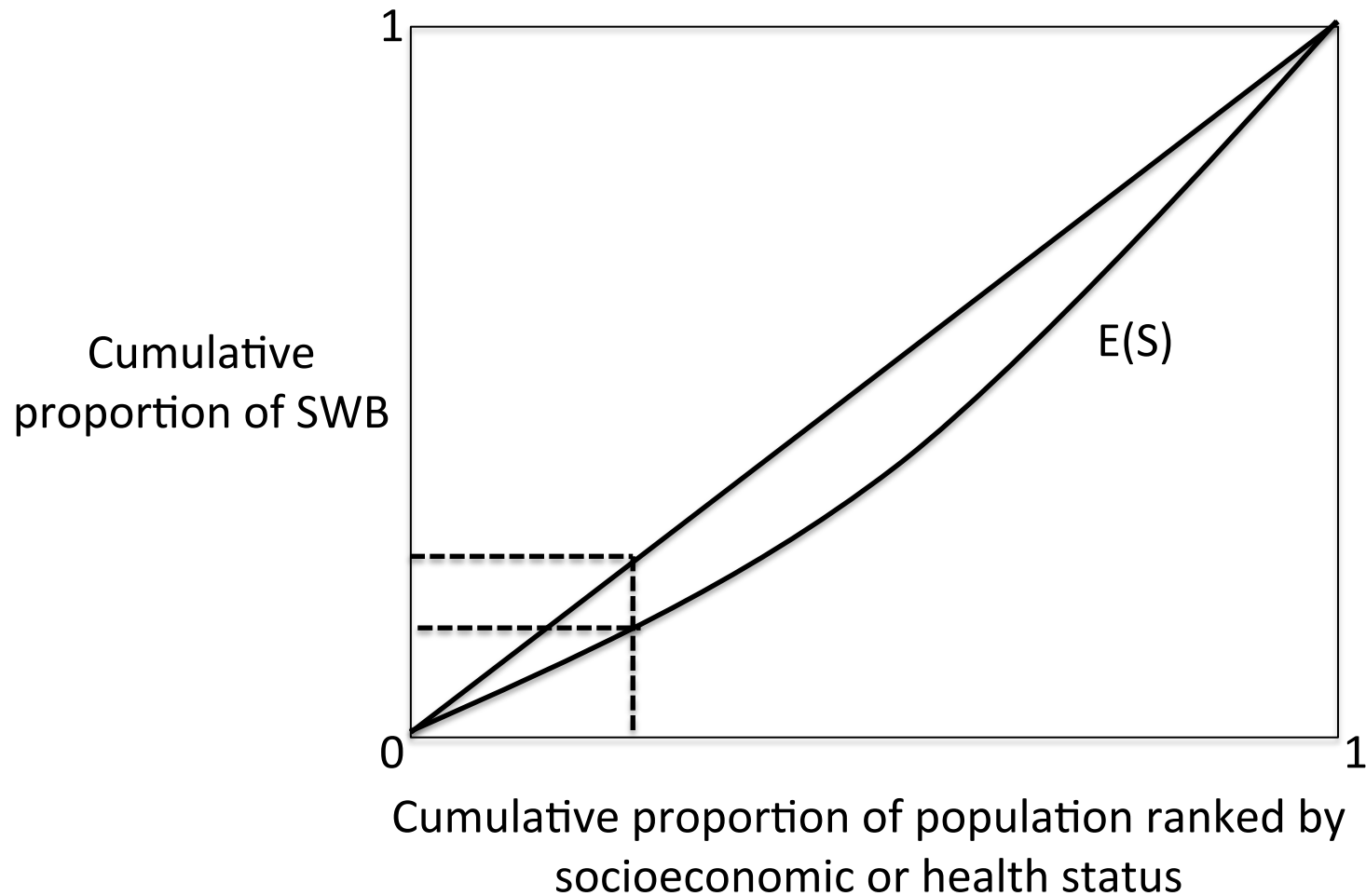
$$E(S) = \frac{8}{N^2(b-a)} \sum_{i=1}^N z_i S_i$$

3. Decomposition of concentration indices according to Erreygers (2009):

$$E(S) = 4 \left[\sum_{j=1}^J \hat{\beta}_j GCI(X_j) + GCI(\hat{\varepsilon}_j) \right]$$

Methods

Illustration of concentration index



Methods

Factors contributing to life satisfaction

- $\ln(\text{individual-equivalent income})$, relative income (<0.8 or >1.2)
- Self-assessed health, relative health (<0.8 and >1.2), mental health score (Euro-D), disability (2+ ADLs, 2+ IADLs)
- Adjust for age•gender, marital status, education, working, family and household sizes, social capital, religiosity, trust in others
- Separate analysis per country
- Region fixed effects

Data

- SHARE wave 4 (2011/12): 16 countries
 - AT, DE, SE, NL, ES, IT, FR, DK, CH, BE, CZ, PL, HU, PT, SI, EE
- Only individuals above official retirement age
(OECD, statistics on average effective age of retirement, 2011)
- $N = 784$ (DE) – 4'060 (EE), Total = 29'397
- Calibrated cross-sectional individual weights
- Adjustment of standard errors for household-level clustering

Results

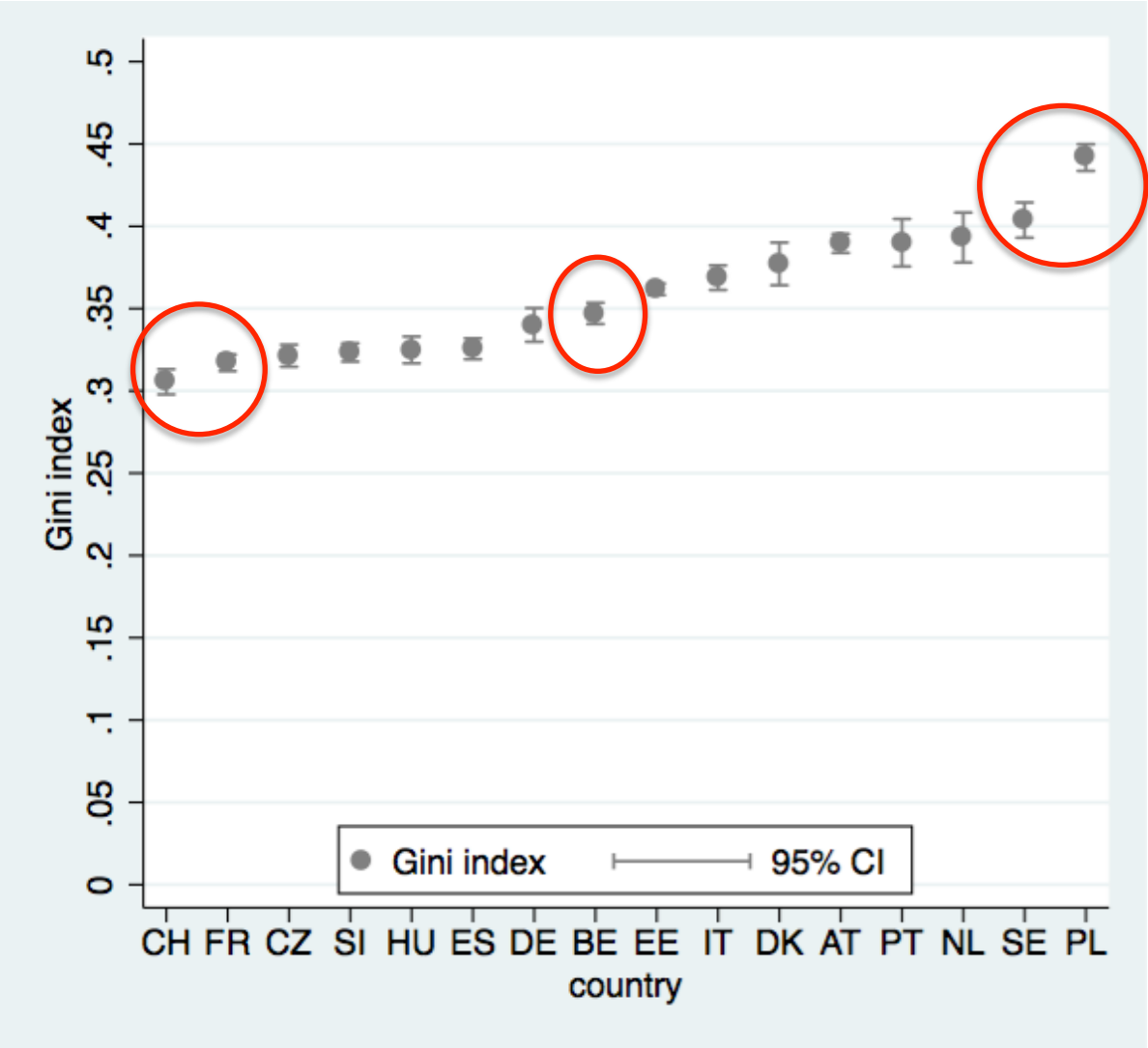
Descriptive statistics of key variables

Country	SWB (0=minimum 1=maximum)	Ind. Equiv. Income (in 1,000 €)	Proportion of respondents		Health (1=poor 5=excellent)	Proportion of respondents	
			Rel. income < 0.8	Rel. income > 1.2		Rel. health < 0.8	Rel. health > 1.2
AT	0.59	20.89	0.46	0.25	2.98	0.32	0.28
DE	0.53	20.30	0.48	0.24	2.56	0.27	0.28
SE	0.57	22.51	0.44	0.24	3.05	0.33	0.32
NL	0.65	22.10	0.44	0.23	2.93	0.33	0.25
ES	0.38	11.57	0.44	0.28	2.40	0.29	0.31
IT	0.50	14.56	0.52	0.22	2.58	0.35	0.24
FR	0.51	22.03	0.39	0.27	2.70	0.28	0.27
DK	0.61	17.24	0.38	0.23	3.38	0.28	0.29
CH	0.63	42.86	0.52	0.23	3.21	0.21	0.25
BE	0.58	45.66	0.69	0.24	2.88	0.30	0.26
CZ	0.62	10.60	0.35	0.26	2.55	0.24	0.33
PL	0.53	6.13	0.43	0.27	2.14	0.30	0.31
HU	0.39	6.99	0.46	0.19	2.17	0.37	0.30
PT	0.46	14.00	0.65	0.21	2.10	0.26	0.25
SI	0.46	25.25	0.72	0.20	2.49	0.33	0.28
EE	0.50	7.63	0.50	0.21	2.00	0.29	0.22

In bold: minimum et maximum values.

Results

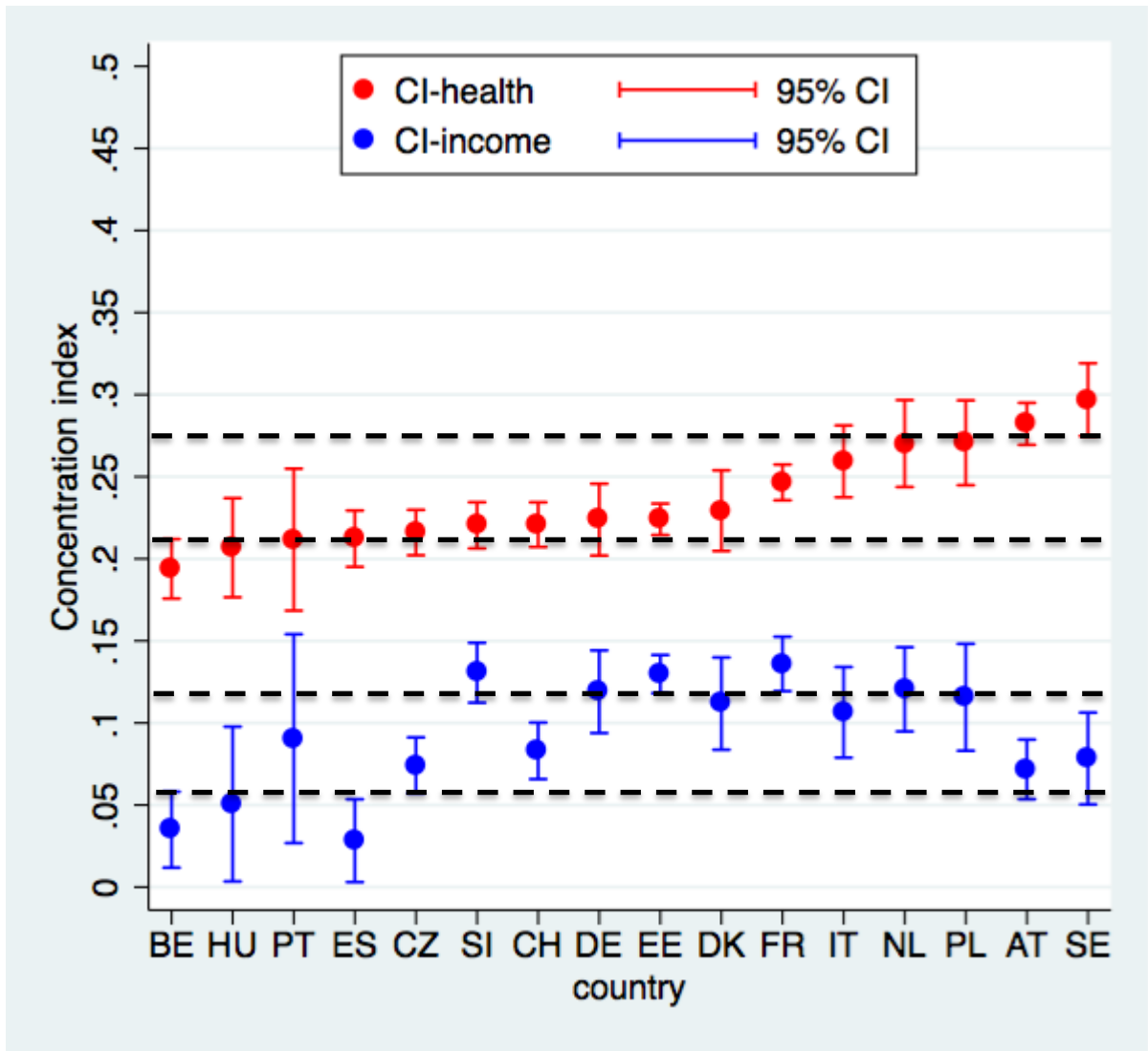
Inequalities in SWB: Gini coefficients



Countries ranked by increasing value of Gini coefficient. SHARE data 2011/12

Results

Socioeconomic and health-related inequalities in SWB



Countries ranked by increasing value of health-related concentration index.
SHARE data 2011/12

Results

Decomposition of health-related inequalities in SWB

	Lowest health-related inequalities: BE				Highest health-related inequalities: SE			
	beta	GCI	contr.	% contr.	beta	GCI	contr.	% contr.
Log(income)	-0.03	0.06	-0.01	-0.04	-0.08	0.07	-0.02	-0.08
Low rel. income	-0.02	-0.02	0.00	0.01	-0.06	-0.03	0.01	0.03
High rel. income	0.00	0.01	0.00	0.00	0.03	0.03	0.00	0.01
Tot. contr. rel. income			0.00	0.01			0.01	0.04
SAH: fair	0.12	-0.16	-0.08	-0.40	0.17	-0.15	-0.11	-0.36
SAH: good	0.21	0.05	0.04	0.19	0.07	0.00	0.00	0.00
SAH: very good	0.30	0.13	0.15	0.80	0.12	0.11	0.05	0.17
SAH: excelent	0.34	0.05	0.07	0.37	0.21	0.12	0.10	0.34
Tot. contr. SAH			0.19	0.96			0.04	0.15
Low rel. SAH	0.03	-0.20	-0.03	-0.14	-0.17	-0.21	0.15	0.49
High rel. SAH	-0.06	0.17	-0.04	-0.22	0.05	0.20	0.04	0.14
Tot. contr. rel. SAH			-0.07	-0.37			0.19	0.62
2+ ADLs	-0.04	-0.05	0.01	0.04	0.01	-0.02	0.00	0.00
2+ IADLS	-0.06	-0.07	0.01	0.07	-0.04	-0.04	0.01	0.02
Tot. contr. disability			0.02	0.11			0.01	0.02
Depressed	-0.16	-0.09	0.06	0.29	-0.19	-0.07	0.05	0.17
Concentration index			0.19				0.30	

Results

Decomposition of income-related inequalities in SWB

	Lowest income-related inequalities: ES				Highest income-related inequalities: FR			
	beta	GCI	contr.	% contr.	beta	GCI	contr.	% contr.
Log(income)	-0.02	0.42	-0.03	-0.99	0.02	0.39	0.03	0.24
Low rel. income	0.01	-0.23	-0.01	-0.33	-0.01	-0.21	0.01	0.06
High rel. income	0.05	0.19	0.04	1.47	0.01	0.17	0.01	0.05
Tot. contr. rel. income			0.03	1.14			0.02	0.11
SAH: fair	0.07	-0.01	0.00	-0.13	0.08	-0.03	-0.01	-0.08
SAH: good	0.13	0.01	0.00	0.12	0.12	0.03	0.01	0.10
SAH: very good	0.10	0.01	0.01	0.20	0.19	0.03	0.02	0.14
SAH: excellent	0.22	0.00	0.00	0.09	0.33	0.01	0.02	0.13
Tot. contr. SAH			0.01	0.28			0.04	0.30
Low rel. SAH	-0.02	0.00	0.00	0.00	-0.04	-0.04	0.01	0.04
High rel. SAH	0.02	0.00	0.00	0.00	0.03	0.02	0.00	0.02
Tot. contr. rel. SAH			0.00	0.00			0.01	0.07
2+ ADLs	-0.03	-0.01	0.00	0.07	-0.06	-0.02	0.00	0.03
2+ IADLs	-0.05	-0.02	0.00	0.16	-0.03	-0.02	0.00	0.02
Tot. contr. disability			0.01	0.22			0.01	0.05
Depressed	-0.15	-0.04	0.02	0.79	-0.09	-0.04	0.01	0.10
Concentration index			0.03				0.14	

Discussion

- Contribution: distribution of SWB in Europe and how it relates to SES and health status positions of individuals in each country
- Associations and not causal relationships
 - Typical of this type of analyses
 - Although interplay between income and health are taken into account in decomposition procedure
- Sensitivity analyses to explore remaining risk of “scale of reference bias” (e.g. Lindeboom and van Doorslaer, 2004)
- Analysis at one point in time
 - Would be interesting to look at trend over time

Wrap up

- Health-related disparities in SWB are significantly larger than income-related disparities in all countries
- The different role played by health across countries are mainly due to differences in the association of health and SWB
 - Not to unequal distribution of health by SES or health status
- Implication: reduction in health- and income-related inequalities in SWB may be difficult to achieve by policy...

Thank you

References

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Extra slides

Results

Decomposition of health-related inequalities in SWB

Relative contribution of each factor in percentages

	AT	DE	SE	NL	ES	IT	FR	DK	CH	BE	CZ	PL	HU	PT	SI	EE
Income	0.00	0.01	-0.08	0.00	-0.01	0.01	0.03	0.07	0.00	-0.04	-0.01	-0.04	0.02	0.07	0.01	0.02
Rel. income	0.00	0.01	0.04	0.00	0.00	0.00	0.01	-0.01	0.01	0.01	0.00	0.04	0.00	-0.06	0.04	0.02
Health	0.94	0.74	0.15	0.95	0.49	0.25	0.55	0.44	0.56	0.96	0.57	0.37	0.36	1.07	0.70	0.65
Rel. health	-0.28	-0.08	0.62	-0.20	0.13	0.32	0.21	0.27	0.20	-0.37	0.05	0.24	0.36	-0.59	-0.08	0.01
Mental health	0.27	0.18	0.17	0.16	0.31	0.23	0.14	0.20	0.16	0.29	0.23	0.27	0.28	0.15	0.19	0.21
Disability	0.03	0.13	0.02	0.01	0.11	0.14	0.05	0.05	0.06	0.11	0.12	0.08	-0.02	0.09	0.04	0.12
Age-gender	-0.06	-0.08	0.04	-0.02	-0.02	-0.07	-0.02	-0.07	-0.06	-0.09	-0.10	-0.08	-0.03	0.03	-0.06	-0.10
Marital status	0.02	0.00	0.00	0.08	0.00	0.03	0.00	0.01	0.02	0.02	0.05	0.01	-0.01	-0.02	0.02	0.00
Region	-0.01	0.05	0.01	0.00	-0.01	0.01	0.00	0.00	0.00	0.06	0.00	0.02	0.00	0.00	0.00	0.00
Education	0.01	-0.03	0.01	0.00	0.01	0.03	0.02	-0.01	0.02	-0.01	0.03	0.03	0.03	-0.04	0.10	-0.02
Activity status	-0.01	-0.01	0.01	0.00	0.00	0.01	0.01	-0.03	0.01	0.00	0.00	0.00	-0.05	0.00	0.00	0.03
(Grand)children	-0.01	0.00	0.00	0.00	-0.03	-0.01	0.00	0.01	-0.02	0.00	-0.01	0.00	-0.05	0.00	-0.01	0.00
Hhld size	0.00	0.00	0.04	-0.01	0.00	0.01	0.01	0.01	-0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00
Social activities	0.07	0.01	-0.03	0.01	0.02	0.02	-0.01	0.04	0.02	0.02	0.02	0.01	0.01	0.08	0.02	0.00
Religiosity	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.02	-0.01	0.00	0.00	0.00
Trust in others	0.03	0.05	0.01	0.00	-0.01	0.02	0.01	0.03	0.02	0.02	0.04	0.01	0.11	0.21	0.03	0.06
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Results

Decomposition of income-related inequalities in SWB

Relative contribution of each factor in percentages

	AT	DE	SE	NL	ES	IT	FR	DK	CH	BE	CZ	PL	HU	PT	SI	EE
Income	0.03	0.08	-1.36	0.07	-0.99	0.15	0.24	0.79	-0.02	-1.97	-0.18	-0.60	0.91	1.38	0.10	0.20
Rel. income	-0.10	0.28	0.93	0.09	1.14	-0.05	0.11	-0.18	0.36	0.39	0.25	0.86	-0.70	-1.12	0.30	0.34
Health	0.69	0.29	0.09	0.37	0.28	0.12	0.30	0.17	0.26	0.90	0.20	0.07	0.32	0.49	0.32	0.22
Rel. health	-0.16	-0.02	0.38	-0.08	0.00	0.17	0.07	0.04	0.08	-0.27	0.00	0.12	0.07	-0.24	-0.02	0.00
Mental health	0.23	0.12	0.22	0.21	0.79	0.13	0.10	0.14	0.15	0.41	0.16	0.22	0.29	0.05	0.05	0.11
Disability	0.04	0.11	0.04	0.02	0.22	0.17	0.05	0.06	0.06	0.18	0.11	-0.02	-0.05	0.10	0.02	0.06
Age-gender	-0.29	-0.05	0.17	-0.09	-0.09	-0.09	-0.03	-0.26	-0.24	-0.49	-0.18	-0.07	-0.16	0.06	-0.11	-0.15
Marital status	0.22	-0.06	0.08	0.46	0.12	0.15	0.06	0.13	0.20	0.80	0.43	0.22	0.15	-0.07	0.15	0.11
Region	0.11	0.20	-0.06	-0.02	-0.34	0.00	-0.03	0.00	0.08	0.68	0.00	0.10	-0.05	-0.02	0.00	0.00
Education	0.07	-0.06	0.11	0.05	0.19	0.12	0.09	-0.05	0.12	-0.01	0.07	0.26	0.19	-0.01	0.21	0.00
Activity status	-0.04	-0.01	0.02	0.02	0.00	0.03	0.01	-0.15	0.04	0.02	0.01	0.00	-0.15	0.00	0.00	0.07
(Grand)children	-0.11	-0.02	0.03	-0.03	-0.16	-0.03	0.00	0.00	-0.08	0.07	0.01	0.03	-0.11	0.00	-0.04	0.02
Hhld size	0.01	0.00	0.45	-0.08	-0.27	0.00	0.01	0.19	-0.11	0.11	0.00	-0.19	0.02	-0.04	0.00	-0.01
Social activities	0.27	0.03	-0.11	0.02	0.16	0.05	-0.01	0.03	0.04	0.08	0.04	0.01	0.08	0.02	0.02	0.00
Religiosity	0.00	0.01	-0.02	0.00	0.00	-0.02	-0.01	0.00	0.00	0.01	-0.01	-0.04	0.07	0.00	-0.01	0.00
Trust in others	0.03	0.10	0.03	0.00	-0.07	0.09	0.05	0.08	0.06	0.10	0.10	0.01	0.12	0.40	0.02	0.03
Total	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00