

Swiss-SEP 2.0 index

Report 1.07 - data analysis

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1 PCA on n'hood aggregated characteristics

Principal components/correlation
Number of obs = 1,527,173
Number of comp. = 4
Trace = 4
Rho = 1.0000
Rotation: (unrotated = principal)

Component	Eigenvalue	Difference	Proportion	Cumulative
Comp1	1.95642	.776499	0.4891	0.4891
Comp2	1.17992	.731361	0.2950	0.7841
Comp3	.448564	.0334764	0.1121	0.8962
Comp4	.415087	.	0.1038	1.0000

Principal components (eigenvectors)

Variable	Comp1	Comp2	Comp3	Comp4	Unexplained
ocu1p	0.6054	-0.1324	0.4427	0.6481	0
edu1p	0.5902	0.2424	0.3022	-0.7082	0
ppr1	0.2401	0.7990	-0.4817	0.2680	0
rent	-0.4770	0.5341	0.6933	0.0812	0

(score assumed)

(3 components skipped)

Scoring coefficients

sum of squares(column-loading) = 1

Variable	Comp1	Comp2	Comp3	Comp4
ocu1p	0.6054	-0.1324	0.4427	0.6481
edu1p	0.5902	0.2424	0.3022	-0.7082
ppr1	0.2401	0.7990	-0.4817	0.2680
rent	-0.4770	0.5341	0.6933	0.0812

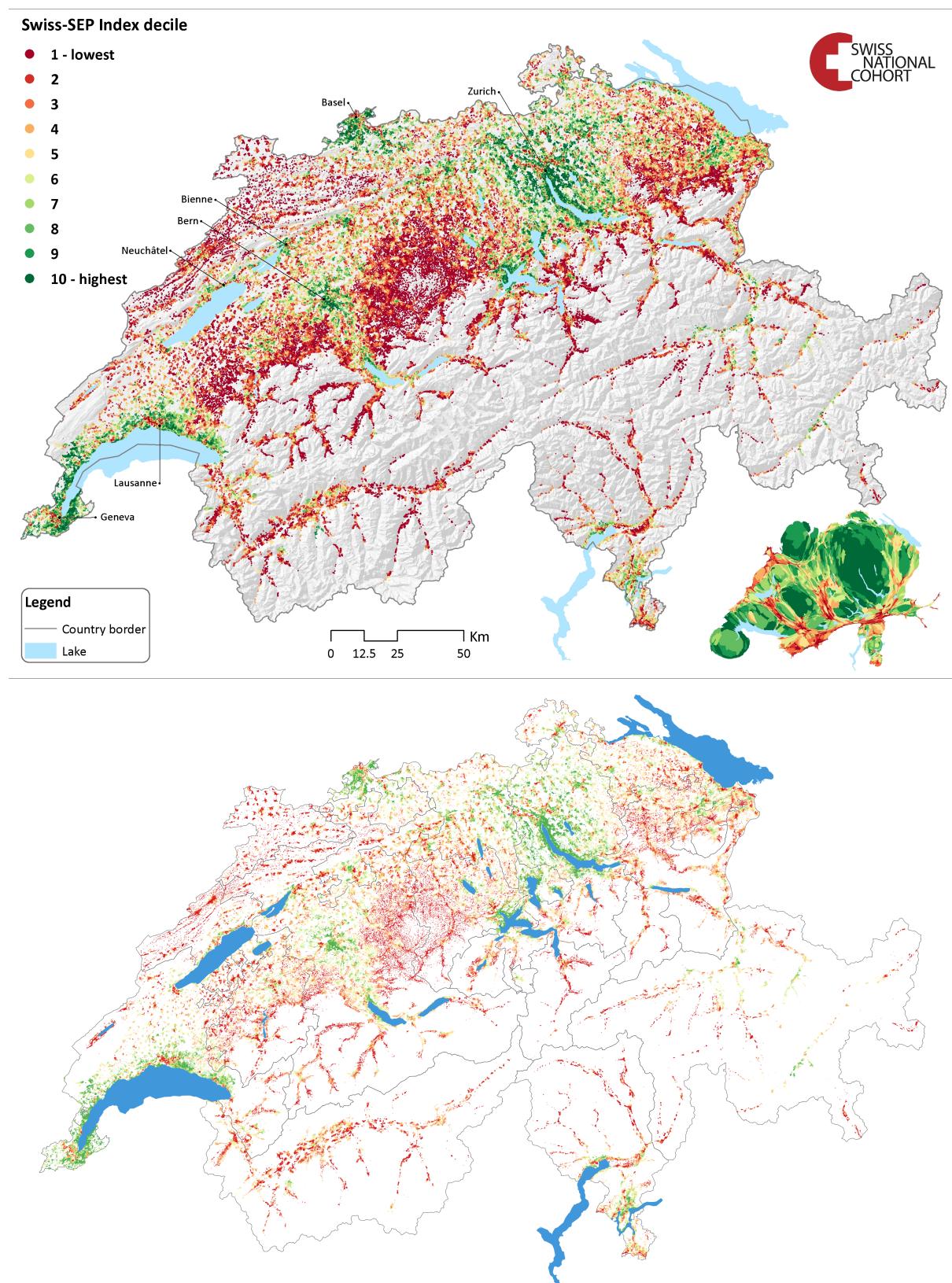
2 Index deciles

(SSEP 2.0 - user dataset of index and XY coordinates)

Summary for variables: ssep2
by categories of: ssep2_d (Swiss-SEP 2.0 - deciles)

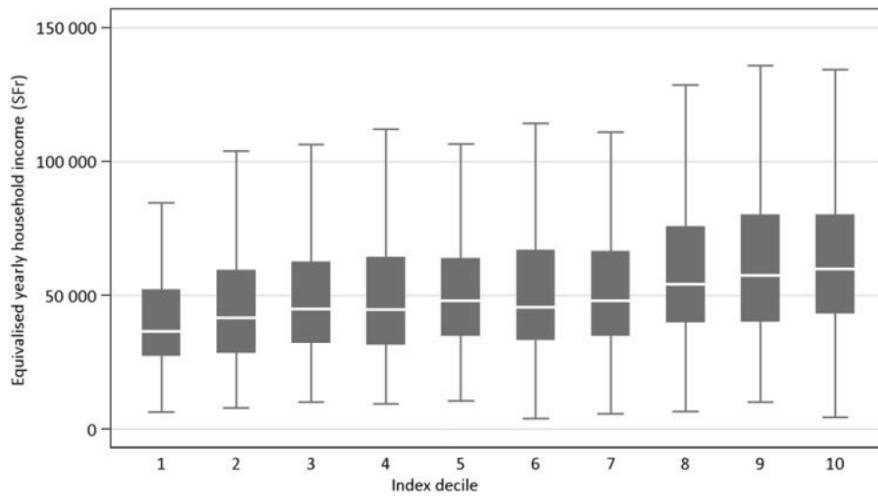
ssep2_d	min	mean	max
1	0.00	38.20	43.96
2	43.96	46.71	49.12
3	49.12	51.05	52.84
4	52.84	54.52	56.14
5	56.14	57.72	59.25
6	59.25	60.76	62.27
7	62.27	63.86	65.54
8	65.54	67.38	69.37
9	69.37	71.69	74.31
10	74.31	79.07	100.00
Total	0.00	59.10	100.00

3 Maps

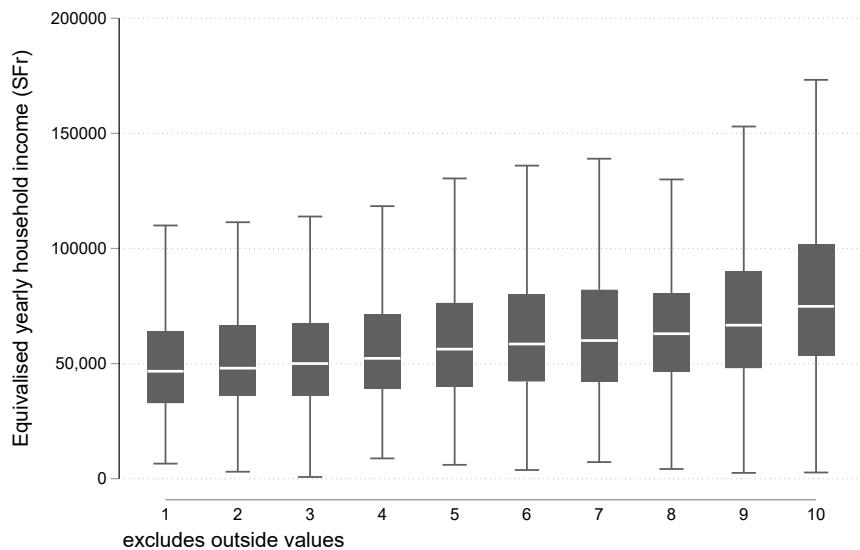


4 Validation - SHP data

4.1 Income graph - 1.0



4.2 Income graph - 2.0



4.3 Financial variables table - 1.0

Characteristic	Index decile			Total N (%)	p Value
	1 N (%)	5 N (%)	10 N (%)		
Number of households	437 (100.0)	447 (100.0)	426 (100.0)	4460 (100.0)	—
Mean yearly equivalised* household net income in SFr (SD)	42 329 (21 253)	54 785 (33 488)	72 074 (56 796)	55 372 (38 781)	<0.0001
Saving at least 100 SFr/month					
No answer/does not know	4 (0.9)	5 (1.1)	6 (1.4)	54 (1.2)	<0.0001
Yes	329 (75.3)	366 (81.9)	363 (85.2)	3629 (81.4)	
No	104 (23.8)	76 (17.0)	57 (13.4)	777 (17.4)	
Reason why not saving at least 100 SFr/month					
Inapplicable	333 (76.2)	371 (83.0)	369 (86.6)	3683 (82.6)	<0.0001
Because you cannot afford it	88 (20.1)	66 (14.8)	47 (11.0)	642 (14.4)	
For another reason	16 (3.7)	10 (2.2)	10 (2.3)	135 (3.0)	
Voluntary private pension scheme					
No answer/does not know	9 (2.1)	8 (1.8)	4 (0.9)	67 (1.5)	<0.0001
Yes	210 (48.1)	266 (59.5)	266 (62.4)	2581 (57.9)	
No	218 (49.9)	173 (38.7)	156 (36.6)	1812 (40.6)	
Reason why no voluntary private pension scheme					
Inapplicable	219 (50.1)	274 (61.3)	270 (63.4)	2648 (59.4)	<0.0001
No answer/does not know	1 (0.2)	0 (0.0)	2 (0.5)	25 (0.6)	
Because you cannot afford it	81 (18.5)	53 (11.9)	30 (7.0)	553 (12.4)	
For another reason	136 (31.1)	120 (26.8)	124 (29.1)	1234 (27.7)	
Reception of financial help					
No answer/does not know	1 (0.2)	5 (1.1)	1 (0.2)	23 (0.5)	0.002
Yes	102 (23.3)	75 (16.8)	56 (13.1)	765 (17.2)	
No	334 (76.4)	367 (82.1)	369 (86.6)	3672 (82.3)	
Assessment of household income and expenses					
No answer/does not know	2 (0.5)	3 (0.7)	7 (1.6)	38 (0.9)	<0.0001
Your household can save money	189 (43.2)	233 (52.1)	239 (56.1)	2262 (50.7)	
Your household spends what it earns	212 (48.5)	170 (38.0)	152 (35.7)	1821 (40.8)	
Your household eats into its assets and savings	27 (6.2)	39 (8.7)	23 (5.4)	296 (6.6)	
Your household gets into debt	7 (1.6)	2 (0.4)	5 (1.2)	43 (1.0)	
Financial situation manageable, mean (SD)†	6.6 (2.6)	7.5 (2.3)	8.0 (2.1)	7.3 (2.3)	<0.0001

4.4 Financial variables table - 2.0

Summary for variables: i13eqon
by categories of: ssep2_d (Swiss-SEP 2.0 - deciles)

ssep2_d	mean	sd
1	51405.8	26113.2
5	62935.3	33764.0
10	86560.1	69105.5

Summary for variables: h13i51
by categories of: ssep2_d (Swiss-SEP 2.0 - deciles)

ssep2_d	mean	sd
1	6.8	2.3
5	7.4	2.2
10	8.0	2.0

Savings min. 500 SFrs monthly	Swiss-SEP 2.0 - deciles			Total
	1	5	10	
no answer / doesn't k	23 2.68	11 1.42	22 2.65	56 2.27
yes	390 45.45	431 55.68	560 67.47	1,381 56.09
no	445 51.86	332 42.89	248 29.88	1,025 41.63
Total	858 100.00	774 100.00	830 100.00	2,462 100.00

Reason why no savings min. 500 Sfrs monthly	Swiss-SEP 2.0 - deciles			Total
	1	5	10	
inapplicable	413 48.14	442 57.11	582 70.12	1,437 58.37
no answer	0 0.00	1 0.13	0 0.00	1 0.04
no answer / doesn't k	0 0.00	1 0.13	0 0.00	1 0.04
because you cannot af	358 41.72	263 33.98	182 21.93	803 32.62
for another reason	87 10.14	67 8.66	66 7.95	220 8.94
Total	858 100.00	774 100.00	830 100.00	2,462 100.00

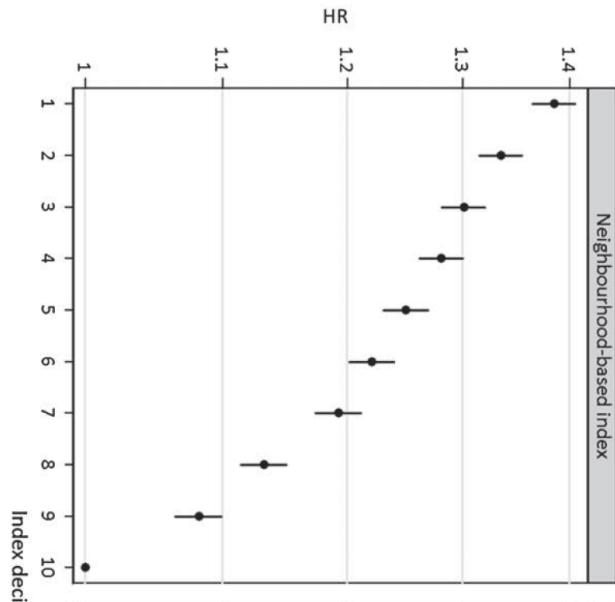
Savings into 3rd pillar	Swiss-SEP 2.0 - deciles			Total
	1	5	10	
does not know	23 2.68	8 1.03	13 1.57	44 1.79
yes	424 49.42	483 62.40	522 62.89	1,429 58.04
no	411 47.90	283 36.56	295 35.54	989 40.17
Total	858 100.00	774 100.00	830 100.00	2,462 100.00

Reasons why no savings into 3rd pillar	Swiss-SEP 2.0 - deciles			Total
	1	5	10	

inapplicable	447 52.10	491 63.44	535 64.46	1,473 59.83
no answer / doesn't k	7 0.82	4 0.52	4 0.48	15 0.61
because you cannot af	139 16.20	76 9.82	57 6.87	272 11.05
for another reason	265 30.89	203 26.23	234 28.19	702 28.51
Total	858 100.00	774 100.00	830 100.00	2,462 100.00
Financial help: health insurance	Swiss-SEP 2.0 - deciles 1 5 10			Total
inaplicable / no answ	6 0.70	4 0.52	5 0.60	15 0.61
yes	209 24.36	150 19.38	95 11.45	454 18.44
no	643 74.94	620 80.10	730 87.95	1,993 80.95
Total	858 100.00	774 100.00	830 100.00	2,462 100.00
Income: Assessment of income and expenses	Swiss-SEP 2.0 - deciles 1 5 10			Total
inaplicable / no answ	6 0.70	4 0.52	10 1.20	20 0.81
your household can sa	402 46.85	412 53.23	502 60.48	1,316 53.45
your household spends	356 41.49	278 35.92	236 28.43	870 35.34
your household eats i	73 8.51	67 8.66	78 9.40	218 8.85
your household gets i	21 2.45	13 1.68	4 0.48	38 1.54
Total	858 100.00	774 100.00	830 100.00	2,462 100.00

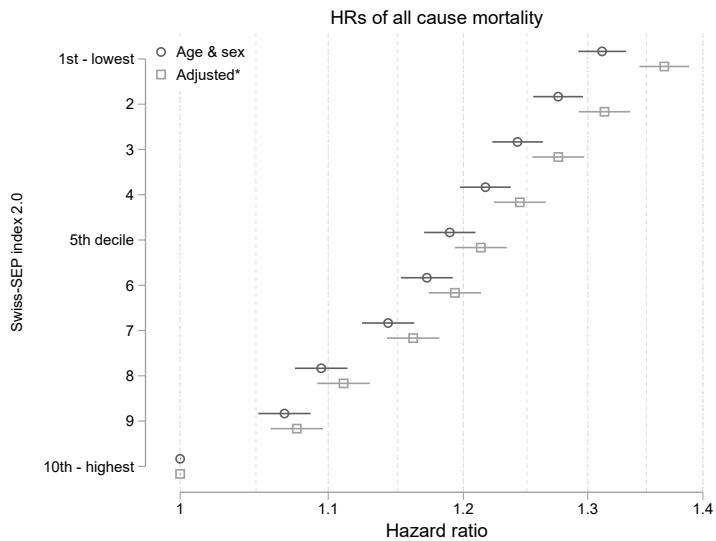
5 Validation - SNC mortality

5.1 All cause mortality - 1.0



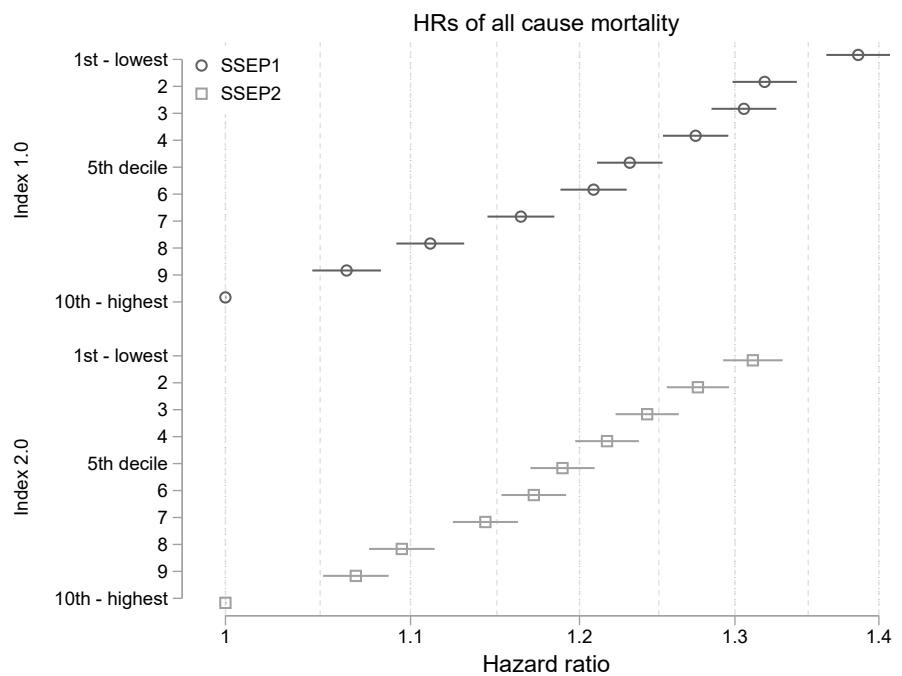
Note: Calculations from 'old' SNC data from the **2001 - 2008 period**, as described in paper!

5.2 All cause mortality - 2.0 results



Note: Results from Cox models. 'Age & sex' - adjusted for age (via stset) and sex (as in figure above); 'Adjusted' - additionally adjusted for civil status, nationality, level of urbanization and language region. Calculations from 'new' SNC data from the **2012 - 2018 period**, as described in paper! Keep in mind that the latter model does NOT have information about individual level education or employment!

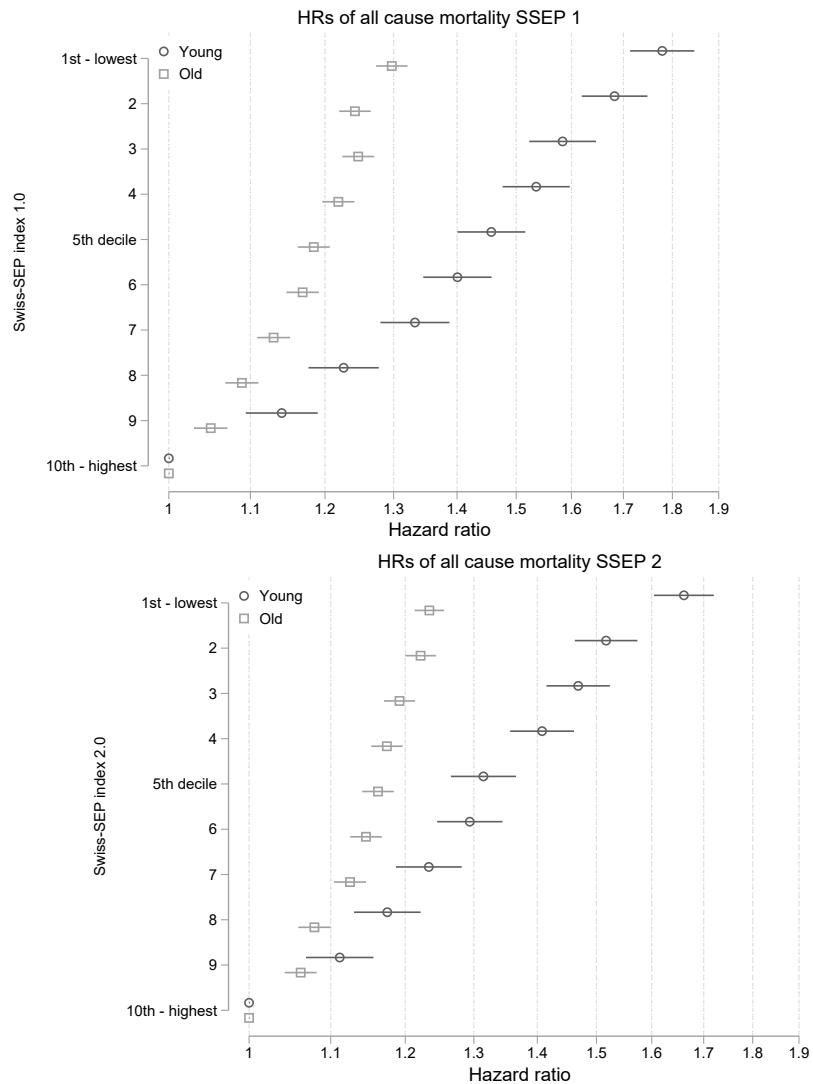
5.3 All cause mortality - 1.0 vs 2.0 using new data



Note: Results from Cox models, adjusted for age (via stset) and sex.

Both calculations from new SNC data from the **2012 - 2018 period!**

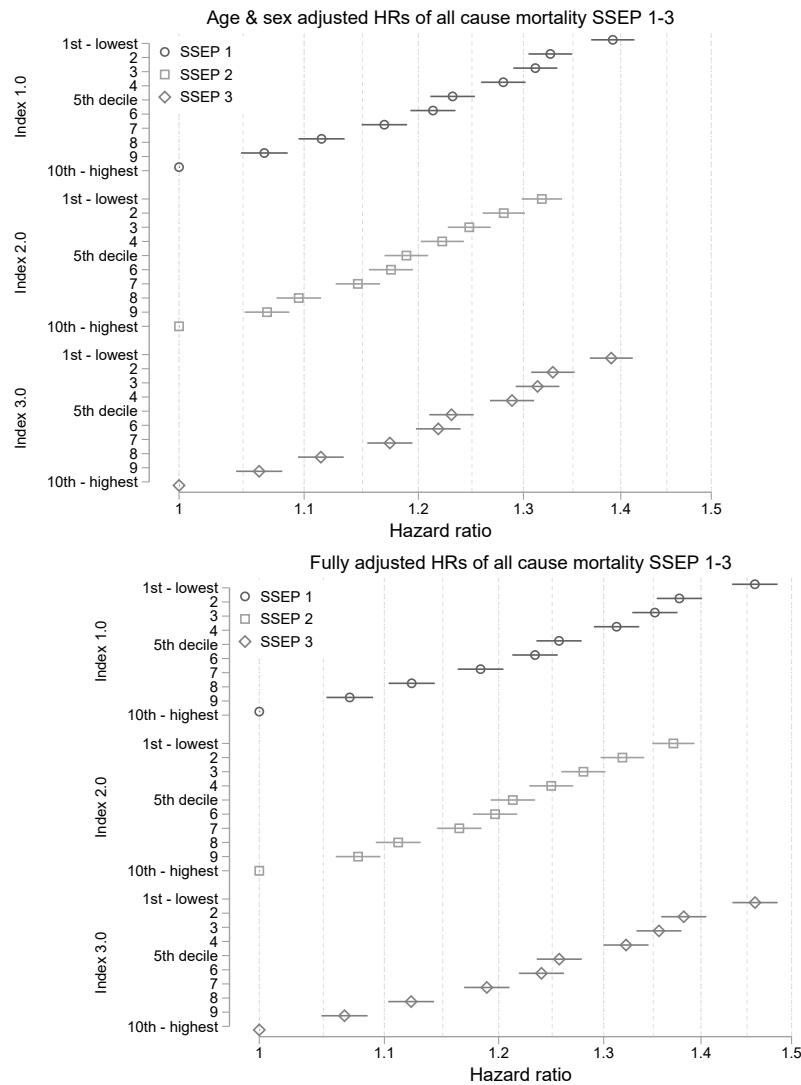
5.4 All cause mortality - two indices, stratified by age



5.5 All cause mortality - combining two SEP indices

9,144 (0.16%) individuals were excluded here since there was no info about building age.

Then 789,759 individuals in 202,015 buildings (14.1% building stock) had their SEP modified to new one.



5.6 Cause specific mortality - 1.0

Cause	Age and sex adjusted
	HR (95% CI)
All-causes	1.38 (1.36 to 1.41)
Lung cancer	1.83 (1.71 to 1.95)
Breast cancer	0.93 (0.85 to 1.02)
Prostate cancer	1.17 (1.07 to 1.28)
Cardiovascular diseases	1.48 (1.44 to 1.51)
Myocardial infarction	1.68 (1.57 to 1.80)
Stroke	1.28 (1.20 to 1.36)
Respiratory diseases	1.99 (1.87 to 2.12)
Traffic accidents	2.42 (1.94 to 3.01)
Suicide	0.86 (0.78 to 0.95)

5.7 Cause specific mortality - 2.0 results

	Age & sex HR	95% CI	Adjusted HR	95% CI
Lung cancer	1.78 (1.66, 1.91)		1.83 (1.70, 1.97)	
Breast can-r	1.01 (0.91, 1.13)		1.05 (0.93, 1.17)	
Prostate c-r	1.13 (1.01, 1.26)		1.13 (1.01, 1.27)	
Cardiovasc-r	1.40 (1.35, 1.44)		1.45 (1.40, 1.50)	
Myocardial-n	1.55 (1.41, 1.70)		1.69 (1.54, 1.86)	
Stroke	1.26 (1.16, 1.36)		1.30 (1.19, 1.41)	
Respiratory	1.64 (1.54, 1.76)		1.61 (1.50, 1.73)	
Traffic ac-s	2.14 (1.60, 2.86)		1.80 (1.33, 2.44)	
Suicide	1.29 (1.13, 1.47)		1.36 (1.18, 1.56)	

Note for both tables: HRs for the 10th (lowest SEP) decile compared to 1st (highest SEP). Breast and prostate cancer: for men and women respectively.

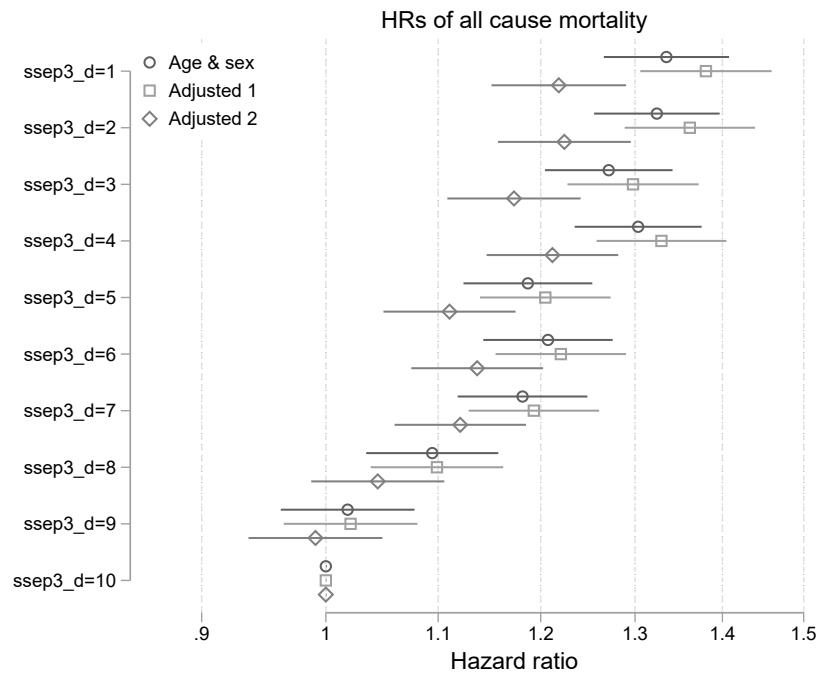
5.8 Cause specific mortality - 3.0 results

	Age & sex HR	95% CI	Adjusted HR	95% CI
Lung cancer	1.92 (1.78, 2.07)		2.00 (1.85, 2.16)	
Breast can-r	1.09 (0.97, 1.23)		1.13 (1.00, 1.28)	
Prostate c-r	1.18 (1.05, 1.32)		1.20 (1.07, 1.36)	
Cardiovasc-r	1.50 (1.45, 1.55)		1.57 (1.51, 1.62)	
Myocardial-n	1.64 (1.48, 1.80)		1.79 (1.62, 1.99)	
Stroke	1.24 (1.14, 1.35)		1.28 (1.17, 1.41)	
Respiratory	1.85 (1.72, 1.99)		1.83 (1.70, 1.98)	
Traffic ac-s	2.09 (1.57, 2.78)		1.72 (1.27, 2.33)	
Suicide	1.32 (1.15, 1.52)		1.39 (1.20, 1.61)	

Note for both tables: HRs for the 10th (lowest SEP) decile compared to 1st (highest SEP). Breast and prostate cancer: for men and women respectively.

6 Validation - SNC SE mortality

6.1 All cause mortality - 3.0



Note: See notes from previous section. 'Adjusted 2' - additionally adjusted for education and occupation.

6.2 Cause specific mortality - 3.0

	Age & sex HR	95% CI	Adjusted 1 HR	95% CI	Adjusted 2 HR	95% CI
Lung cancer	1.92 (1.49, 2.48)		1.98 (1.52, 2.58)		1.45 (1.11, 1.91)	
Breast can-r			0.94 (0.64, 1.39)		0.94 (0.63, 1.40)	
Prostate c-r	0.77 (0.54, 1.10)		0.77 (0.53, 1.12)		0.78 (0.53, 1.15)	
Cardiovasc-r	1.51 (1.34, 1.68)		1.56 (1.38, 1.75)		1.35 (1.20, 1.53)	
Myocardial-n	1.50 (1.10, 2.05)		1.58 (1.14, 2.19)		1.32 (0.95, 1.84)	
Stroke	1.50 (1.10, 2.05)		1.60 (1.16, 2.20)		1.49 (1.07, 2.06)	
Respiratory	2.03 (1.59, 2.59)		1.93 (1.50, 2.50)		1.63 (1.26, 2.13)	
Traffic ac-s	1.55 (0.65, 3.70)		1.70 (0.68, 4.26)		1.88 (0.73, 4.86)	
Suicide	0.82 (0.51, 1.30)		0.87 (0.53, 1.41)		0.73 (0.44, 1.20)	

Note: results of traffic accidents have small number of events resulting in large CI (n=91)