The following appendices complement the main text. Specifically,

- Appendix 1 begins on page 2,
- Appendix 2 on page 25,
- and Appendix 3 on page 30.

Appendix 1

Table A.1 – *Descriptive statistics by wave and country. For GALI, ADL, IADL the prevalence is reported. Statistics were calculated only on eligible responders.* ***Abbreviations****: n, number of respondents; yy: completed years; sd, standard deviation.*

Wave	*n (% female)*	*Age (y.o.)*	*GALI*	*ADL*	*IADL*
		Austria			
1	1508 (0.58)	65.2 (9.47)	0.49	0.1	0.17
2	1172 (0.59)	66.7 (9.41)	0.52	0.12	0.2
4	4932 (0.57)	65.8 (9.68)	0.49	0.1	0.18
5	4166 (0.57)	67.1 (9.54)	0.48	0.1	0.18
6	3256 (0.58)	69 (9.29)	0.51	0.11	0.22
7	3125 (0.59)	70.4 (9.05)	0.55	0.12	0.23
8	1551 (0.61)	72.2 (8.54)	0.54	0.12	0.24
9	3363 (0.58)	69.6 (10.2)	0.5	0.09	0.19
		Belgium			
Wave	*n (% female)*	*Age (y.o.)*	*GALI*	*ADL*	*IADL*
1	3611 (0.53)	64.5 (10)	0.39	0.12	0.18
2	3099 (0.54)	64.9 (10.1)	0.41	0.13	0.18
4	5122 (0.54)	65 (10.5)	0.51	0.16	0.21
5	5491 (0.55)	65.7 (10.5)	0.46	0.16	0.2
6	5663 (0.55)	66.2 (10.6)	0.49	0.16	0.23
7	4814 (0.55)	67.7 (10.1)	0.51	0.15	0.23
8	1979 (0.56)	69.9 (9.33)	0.5	0.17	0.25
9	4420 (0.56)	68.1 (10.1)	0.5	0.15	0.23
		Denmark			
Wave	*n (% female)*	*Age (y.o.)*	*GALI*	*ADL*	*IADL*
1	1592 (0.53)	64.3 (10.5)	0.46	0.1	0.17
2	2518 (0.54)	64.2 (10.2)	0.37	0.08	0.14
4	2207 (0.54)	64.6 (10.4)	0.38	0.08	0.13
5	4027 (0.53)	65 (9.94)	0.36	0.09	0.13
6	3637 (0.54)	65.4 (9.9)	0.38	0.08	0.14
7	3192 (0.54)	66.7 (9.46)	0.4	0.08	0.14
8	2154 (0.54)	69.3 (9.07)	0.42	0.1	0.15
9	2323 (0.54)	68.5 (9.46)	0.41	0.09	0.15

		France			
Wave	***n (% female)***	***Age (y.o.)***	***GALI***	***ADL***	***IADL***
1	*2938 (0.55)*	*64.6 (10.5)*	*0.39*	*0.12*	*0.16*
2	*2859 (0.56)*	*64.9 (10.4)*	*0.38*	*0.11*	*0.16*
4	*5597 (0.56)*	*66 (10.6)*	*0.46*	*0.12*	*0.16*
5	*4401 (0.57)*	*67.4 (10.3)*	*0.45*	*0.13*	*0.18*
6	*3853 (0.57)*	*67.6 (10.7)*	*0.46*	*0.15*	*0.19*
7	*3264 (0.58)*	*69 (10)*	*0.47*	*0.12*	*0.17*
8	*2449 (0.58)*	*70.8 (9.43)*	*0.48*	*0.15*	*0.21*
9	*2862 (0.57)*	*69.8 (9.68)*	*0.46*	*0.12*	*0.16*
		Germany			
Wave	***n (% female)***	***Age (y.o.)***	***GALI***	***ADL***	***IADL***
1	*2913 (0.53)*	*64 (9.36)*	*0.5*	*0.09*	*0.13*
2	*2567 (0.53)*	*64.8 (9.33)*	*0.48*	*0.1*	*0.12*
4	*1605 (0.53)*	*67.8 (8.69)*	*0.6*	*0.14*	*0.17*
5	*5562 (0.52)*	*64.6 (9.92)*	*0.5*	*0.11*	*0.14*
6	*4332 (0.52)*	*66.1 (9.59)*	*0.55*	*0.11*	*0.14*
7	*3782 (0.53)*	*67.6 (9.27)*	*0.56*	*0.12*	*0.15*
8	*2867 (0.53)*	*69.7 (9)*	*0.57*	*0.14*	*0.19*
9	*4421 (0.54)*	*68 (9.64)*	*0.55*	*0.12*	*0.17*
		Italy			
Wave	***n (% female)***	***Age (y.o.)***	***GALI***	***ADL***	***IADL***
1	*2486 (0.55)*	*64.4 (8.98)*	*0.4*	*0.1*	*0.14*
2	*2899 (0.54)*	*65.3 (9.21)*	*0.43*	*0.1*	*0.18*
4	*3486 (0.54)*	*66.5 (9.41)*	*0.42*	*0.11*	*0.16*
5	*4624 (0.54)*	*66.8 (9.77)*	*0.43*	*0.13*	*0.16*
6	*5185 (0.54)*	*66.9 (9.8)*	*0.4*	*0.11*	*0.15*
7	*4493 (0.55)*	*68.6 (9.51)*	*0.4*	*0.1*	*0.16*
8	*2149 (0.56)*	*70.6 (9.38)*	*0.47*	*0.12*	*0.18*
9	*3600 (0.57)*	*71.6 (8.92)*	*0.45*	*0.1*	*0.19*
		Spain			
Wave	***n (% female)***	***Age (y.o.)***	***GALI***	***ADL***	***IADL***
1	*2259 (0.58)*	*66.3 (10.5)*	*0.47*	*0.14*	*0.25*
2	*2357 (0.55)*	*66.9 (10.6)*	*0.43*	*0.13*	*0.21*
4	*3629 (0.54)*	*67.7 (10.7)*	*0.41*	*0.15*	*0.21*

5	*6519 (0.54)*	*68.1 (10.7)*	*0.39*	*0.13*	*0.22*
6	*5509 (0.55)*	*69.7 (10.3)*	*0.4*	*0.13*	*0.21*
7	*4629 (0.56)*	*71 (10.1)*	*0.4*	*0.13*	*0.23*
8	*2105 (0.57)*	*73.3 (9.59)*	*0.46*	*0.16*	*0.25*
9	*2049 (0.58)*	*70.5 (11)*	*0.44*	*0.16*	*0.24*
		Sweden			
Wave	***n (% female)***	***Age (y.o.)***	***GALI***	***ADL***	***IADL***
1	*2977 (0.53)*	*64.9 (10.1)*	*0.44*	*0.09*	*0.15*
2	*2752 (0.54)*	*66.3 (9.87)*	*0.43*	*0.09*	*0.14*
4	*1950 (0.54)*	*69.4 (8.85)*	*0.44*	*0.11*	*0.14*
5	*4489 (0.53)*	*68.2 (9.19)*	*0.41*	*0.08*	*0.12*
6	*3860 (0.54)*	*69.9 (8.99)*	*0.44*	*0.09*	*0.15*
7	*3163 (0.54)*	*71.6 (8.62)*	*0.48*	*0.09*	*0.13*
8	*2339 (0.54)*	*73.2 (8.22)*	*0.48*	*0.11*	*0.17*
9	*2397 (0.54)*	*73 (8.63)*	*0.48*	*0.11*	*0.17*
		Switzerland			
Wave	***n (% female)***	***Age (y.o.)***	***GALI***	***ADL***	***IADL***
1	*938 (0.53)*	*64.9 (10.4)*	*0.34*	*0.07*	*0.09*
2	*1446 (0.55)*	*64.7 (10.1)*	*0.32*	*0.06*	*0.09*
4	*3642 (0.54)*	*65.1 (9.96)*	*0.32*	*0.06*	*0.09*
5	*2981 (0.54)*	*66.4 (9.65)*	*0.3*	*0.06*	*0.09*
6	*2759 (0.55)*	*68.1 (9.45)*	*0.35*	*0.07*	*0.12*
7	*2372 (0.54)*	*69.6 (9.23)*	*0.36*	*0.06*	*0.11*
8	*1883 (0.55)*	*71.5 (8.73)*	*0.38*	*0.08*	*0.13*
9	*1826 (0.55)*	*71.3 (9.07)*	*0.38*	*0.07*	*0.11*

Table A.2 – Prevalence of GALI, ADL and IADL by wave and wealth quintile. *Statistics were calculated only on eligible responders* ***Abbreviations****: n, number of respondents.*

Austria

Wealth	Wave	1	2	4	5	6	7	8	9
1	ADL	0.15	0.18	0.2	0.21	0.24	0.12	0.27	0.25
	GALI	0.56	0.65	0.68	0.64	0.69	0.55	0.84	0.75
	IADL	0.26	0.34	0.33	0.35	0.46	0.22	0.56	0.45
	n (% female)	196 (0.78)	128 (0.84)	544 (0.71)	446 (0.71)	321 (0.74)	2669 (0.59)	119 (0.79)	184 (0.78)
2	ADL	0.09	0.16	0.14	0.15	0.17	0.2	0.18	0.17
	GALI	0.53	0.59	0.57	0.59	0.58	0.69	0.6	0.62
	IADL	0.19	0.25	0.25	0.24	0.28	0.36	0.32	0.32
	n (% female)	256 (0.59)	231 (0.61)	1077 (0.62)	908 (0.61)	840 (0.62)	157 (0.7)	388 (0.68)	771 (0.69)
3	ADL	0.08	0.08	0.09	0.09	0.1	0.14	0.12	0.08
	GALI	0.5	0.56	0.48	0.46	0.5	0.51	0.51	0.49
	IADL	0.18	0.18	0.16	0.16	0.21	0.28	0.22	0.21
	n (% female)	403 (0.57)	331 (0.57)	1184 (0.56)	970 (0.55)	725 (0.56)	95 (0.55)	339 (0.56)	563 (0.54)
4	ADL	0.08	0.1	0.08	0.07	0.06	0.09	0.07	0.05
	GALI	0.43	0.44	0.42	0.39	0.46	0.49	0.47	0.46
	IADL	0.14	0.17	0.13	0.12	0.15	0.16	0.15	0.14
	n (% female)	432 (0.55)	326 (0.54)	1262 (0.54)	939 (0.54)	667 (0.54)	111 (0.58)	287 (0.57)	580 (0.57)
5	ADL	0.11	0.1	0.05	0.05	0.05	0.09	0.07	0.05
	GALI	0.45	0.38	0.37	0.38	0.4	0.42	0.46	0.41
	IADL	0.13	0.11	0.1	0.1	0.09	0.15	0.14	0.09
	n (% female)	221 (0.45)	156 (0.49)	865 (0.5)	903 (0.52)	703 (0.52)	93 (0.55)	418 (0.54)	1265 (0.52)

Belgium

Wealth	Wave	1	2	4	5	6	7	8	9
1	ADL	0.17	0.24	0.29	0.29	0.31	0.16	0.3	0.28
	GALI	0.54	0.59	0.66	0.63	0.65	0.52	0.69	0.64
	IADL	0.28	0.34	0.38	0.37	0.41	0.23	0.41	0.44
	n (% female)	424 (0.61)	356 (0.62)	649 (0.6)	638 (0.6)	687 (0.63)	3385 (0.55)	204 (0.66)	495 (0.66)
2	ADL	0.15	0.19	0.21	0.21	0.22	0.24	0.29	0.23
	GALI	0.44	0.48	0.56	0.55	0.54	0.58	0.63	0.6

	IADL	*0.23*	*0.24*	*0.27*	*0.27*	*0.3*	*0.37*	*0.36*	*0.32*
	n (% female)	*1379 (0.56)*	*889 (0.58)*	*1061 (0.58)*	*1155 (0.59)*	*1104 (0.59)*	*306 (0.61)*	*296 (0.59)*	*626 (0.61)*
3	*ADL*	*0.09*	*0.1*	*0.17*	*0.15*	*0.15*	*0.16*	*0.17*	*0.16*
	GALI	*0.33*	*0.38*	*0.51*	*0.47*	*0.52*	*0.5*	*0.54*	*0.56*
	IADL	*0.12*	*0.14*	*0.22*	*0.2*	*0.24*	*0.25*	*0.27*	*0.27*
	n (% female)	*900 (0.49)*	*794 (0.52)*	*1121 (0.55)*	*1254 (0.55)*	*1214 (0.57)*	*392 (0.56)*	*421 (0.56)*	*743 (0.57)*
4	*ADL*	*0.07*	*0.07*	*0.09*	*0.11*	*0.12*	*0.09*	*0.14*	*0.11*
	GALI	*0.33*	*0.29*	*0.46*	*0.39*	*0.45*	*0.39*	*0.49*	*0.48*
	IADL	*0.12*	*0.1*	*0.14*	*0.13*	*0.18*	*0.19*	*0.22*	*0.19*
	n (% female)	*530 (0.48)*	*659 (0.5)*	*1169 (0.51)*	*1273 (0.52)*	*1290 (0.54)*	*391 (0.52)*	*474 (0.56)*	*1068 (0.54)*
5	*ADL*	*0.06*	*0.04*	*0.1*	*0.08*	*0.08*	*0.12*	*0.09*	*0.08*
	GALI	*0.23*	*0.32*	*0.44*	*0.36*	*0.36*	*0.44*	*0.37*	*0.4*
	IADL	*0.08*	*0.09*	*0.11*	*0.1*	*0.12*	*0.17*	*0.13*	*0.12*
	n (% female)	*378 (0.47)*	*401 (0.46)*	*1122 (0.51)*	*1171 (0.5)*	*1368 (0.48)*	*340 (0.51)*	*584 (0.49)*	*1488 (0.51)*

Denmark

Wealth	*Wave*	*1*	*2*	*4*	*5*	*6*	*7*	*8*	*9*
1	*ADL*	*0.22*	*0.23*	*0.17*	*0.21*	*0.2*	*0.08*	*0.21*	*0.24*
	GALI	*0.66*	*0.61*	*0.63*	*0.62*	*0.61*	*0.42*	*0.65*	*0.68*
	IADL	*0.35*	*0.36*	*0.29*	*0.3*	*0.34*	*0.13*	*0.33*	*0.41*
	n (% female)	*316 (0.62)*	*349 (0.66)*	*278 (0.64)*	*470 (0.65)*	*445 (0.64)*	*2053 (0.54)*	*222 (0.66)*	*185 (0.72)*
2	*ADL*	*0.08*	*0.11*	*0.12*	*0.12*	*0.11*	*0.13*	*0.11*	*0.14*
	GALI	*0.46*	*0.45*	*0.46*	*0.45*	*0.46*	*0.47*	*0.46*	*0.5*
	IADL	*0.17*	*0.18*	*0.17*	*0.17*	*0.18*	*0.22*	*0.2*	*0.22*
	n (% female)	*506 (0.54)*	*560 (0.57)*	*502 (0.56)*	*913 (0.55)*	*819 (0.57)*	*272 (0.57)*	*419 (0.59)*	*336 (0.61)*
3	*ADL*	*0.06*	*0.04*	*0.06*	*0.07*	*0.06*	*0.08*	*0.11*	*0.11*
	GALI	*0.4*	*0.29*	*0.35*	*0.33*	*0.35*	*0.38*	*0.43*	*0.47*
	IADL	*0.1*	*0.07*	*0.09*	*0.11*	*0.1*	*0.17*	*0.14*	*0.18*
	n (% female)	*405 (0.5)*	*578 (0.51)*	*539 (0.51)*	*935 (0.51)*	*801 (0.53)*	*265 (0.58)*	*402 (0.53)*	*403 (0.52)*
4	*ADL*	*0.07*	*0.05*	*0.04*	*0.04*	*0.06*	*0.09*	*0.07*	*0.06*
	GALI	*0.35*	*0.31*	*0.27*	*0.28*	*0.31*	*0.37*	*0.37*	*0.35*
	IADL	*0.11*	*0.08*	*0.07*	*0.09*	*0.09*	*0.17*	*0.13*	*0.11*
	n (% female)	*251 (0.47)*	*577 (0.5)*	*505 (0.49)*	*867 (0.52)*	*803 (0.49)*	*269 (0.51)*	*553 (0.51)*	*514 (0.52)*
5	*ADL*	*0.07*	*0.03*	*0.03*	*0.05*	*0.03*	*0.05*	*0.06*	*0.05*

	GALI	0.39	0.27	0.25	0.24	0.25	0.32	0.33	0.31
	IADL	0.11	0.06	0.06	0.07	0.06	0.1	0.08	0.08
	n (% female)	114 (0.49)	454 (0.48)	383 (0.52)	842 (0.49)	769 (0.49)	333 (0.53)	558 (0.49)	885 (0.5)

France

Wealth	Wave	1	2	4	5	6	7	8	9
1	ADL	0.19	0.2	0.22	0.23	0.25	0.12	0.28	0.17
	GALI	0.51	0.49	0.6	0.59	0.59	0.48	0.63	0.57
	IADL	0.3	0.29	0.27	0.3	0.34	0.17	0.36	0.28
	n (% female)	502 (0.65)	442 (0.67)	775 (0.67)	546 (0.68)	528 (0.64)	2210 (0.59)	293 (0.69)	321 (0.67)
2	ADL	0.14	0.14	0.14	0.16	0.19	0.17	0.17	0.15
	GALI	0.46	0.47	0.5	0.52	0.53	0.56	0.52	0.52
	IADL	0.21	0.2	0.19	0.24	0.24	0.28	0.28	0.21
	n (% female)	838 (0.56)	558 (0.6)	1224 (0.58)	918 (0.59)	834 (0.59)	183 (0.62)	542 (0.62)	535 (0.6)
3	ADL	0.09	0.1	0.12	0.12	0.13	0.16	0.15	0.13
	GALI	0.37	0.37	0.48	0.48	0.42	0.49	0.48	0.5
	IADL	0.1	0.16	0.15	0.17	0.17	0.22	0.19	0.17
	n (% female)	586 (0.52)	586 (0.55)	1373 (0.55)	925 (0.56)	905 (0.57)	218 (0.59)	520 (0.58)	541 (0.59)
4	ADL	0.07	0.07	0.08	0.09	0.11	0.12	0.1	0.1
	GALI	0.32	0.33	0.4	0.39	0.44	0.42	0.43	0.42
	IADL	0.09	0.12	0.12	0.12	0.15	0.13	0.16	0.13
	n (% female)	508 (0.49)	607 (0.53)	1192 (0.53)	937 (0.54)	880 (0.54)	303 (0.55)	548 (0.54)	683 (0.53)
5	ADL	0.07	0.05	0.05	0.09	0.08	0.1	0.11	0.08
	GALI	0.26	0.28	0.32	0.35	0.36	0.4	0.41	0.37
	IADL	0.07	0.09	0.08	0.12	0.11	0.13	0.12	0.11
	n (% female)	504 (0.51)	666 (0.5)	1033 (0.51)	1075 (0.53)	706 (0.52)	350 (0.51)	546 (0.53)	782 (0.51)

Germany

Wealth	Wave	1	2	4	5	6	7	8	9
1	ADL	0.21	0.18	0.25	0.24	0.25	0.12	0.27	0.29
	GALI	0.67	0.58	0.72	0.69	0.72	0.57	0.76	0.76
	IADL	0.25	0.23	0.27	0.29	0.29	0.15	0.37	0.39
	n (% female)	344 (0.66)	319 (0.64)	199 (0.63)	649 (0.59)	519 (0.58)	3002 (0.53)	248 (0.6)	340 (0.64)
2	ADL	0.11	0.13	0.18	0.12	0.12	0.18	0.17	0.17
	GALI	0.57	0.56	0.69	0.57	0.6	0.67	0.6	0.61

	IADL	0.16	0.16	0.22	0.17	0.16	0.25	0.24	0.23
	n (% female)	684 (0.53)	619 (0.54)	355 (0.53)	1288 (0.53)	954 (0.52)	224 (0.53)	627 (0.55)	846 (0.56)
3	ADL	0.06	0.09	0.15	0.09	0.1	0.15	0.15	0.13
	GALI	0.47	0.47	0.59	0.51	0.56	0.54	0.59	0.59
	IADL	0.11	0.12	0.18	0.13	0.14	0.14	0.22	0.19
	n (% female)	704 (0.52)	649 (0.52)	399 (0.52)	1357 (0.51)	987 (0.52)	189 (0.53)	605 (0.55)	730 (0.54)
4	ADL	0.07	0.06	0.09	0.07	0.08	0.09	0.12	0.09
	GALI	0.46	0.44	0.53	0.43	0.49	0.48	0.56	0.54
	IADL	0.12	0.08	0.1	0.1	0.11	0.09	0.15	0.13
	n (% female)	700 (0.52)	551 (0.5)	326 (0.51)	1289 (0.51)	1012 (0.53)	182 (0.54)	613 (0.53)	925 (0.54)
5	ADL	0.04	0.04	0.06	0.05	0.06	0.04	0.07	0.07
	GALI	0.36	0.36	0.49	0.36	0.44	0.46	0.46	0.47
	IADL	0.06	0.04	0.09	0.08	0.08	0.11	0.11	0.09
	n (% female)	481 (0.49)	429 (0.5)	326 (0.49)	979 (0.5)	860 (0.48)	185 (0.52)	774 (0.49)	1580 (0.51)

Italy

Wealth	Wave	1	2	4	5	6	7	8	9
1	ADL	0.18	0.18	0.2	0.21	0.2	0.09	0.18	0.16
	GALI	0.51	0.53	0.52	0.58	0.53	0.36	0.53	0.56
	IADL	0.25	0.27	0.26	0.23	0.25	0.14	0.26	0.29
	n (% female)	341 (0.62)	327 (0.61)	434 (0.62)	520 (0.63)	624 (0.62)	3020 (0.54)	225 (0.63)	275 (0.66)
2	ADL	0.12	0.14	0.15	0.18	0.13	0.17	0.17	0.16
	GALI	0.45	0.49	0.53	0.52	0.48	0.56	0.59	0.55
	IADL	0.17	0.25	0.25	0.23	0.21	0.28	0.25	0.26
	n (% female)	693 (0.58)	596 (0.55)	745 (0.56)	853 (0.55)	1048 (0.56)	352 (0.59)	603 (0.58)	900 (0.58)
3	ADL	0.09	0.08	0.13	0.13	0.11	0.13	0.11	0.09
	GALI	0.41	0.45	0.45	0.44	0.39	0.47	0.46	0.46
	IADL	0.12	0.19	0.18	0.16	0.14	0.23	0.18	0.18
	n (% female)	451 (0.53)	505 (0.53)	657 (0.54)	1050 (0.54)	1213 (0.55)	378 (0.54)	559 (0.54)	981 (0.57)
4	ADL	0.09	0.06	0.07	0.11	0.07	0.13	0.08	0.08
	GALI	0.36	0.38	0.34	0.39	0.33	0.49	0.39	0.37
	IADL	0.12	0.14	0.11	0.13	0.11	0.19	0.15	0.14
	n (% female)	492 (0.52)	613 (0.53)	729 (0.52)	1009 (0.53)	1247 (0.51)	372 (0.54)	448 (0.55)	883 (0.54)
5	ADL	0.06	0.08	0.05	0.08	0.07	0.09	0.05	0.05

	GALI	*0.29*	*0.36*	*0.32*	*0.33*	*0.34*	*0.4*	*0.34*	*0.33*
	IADL	*0.06*	*0.11*	*0.08*	*0.09*	*0.09*	*0.13*	*0.06*	*0.09*
	n (% female)	*509 (0.52)*	*858 (0.52)*	*921 (0.51)*	*1192 (0.51)*	*1053 (0.5)*	*371 (0.53)*	*314 (0.52)*	*561 (0.52)*
Spain									
Wealth	*Wave*	*1*	*2*	*4*	*5*	*6*	*7*	*8*	*9*
	ADL	*0.2*	*0.25*	*0.26*	*0.18*	*0.17*	*0.12*	*0.2*	*0.13*
1	*GALI*	*0.52*	*0.51*	*0.49*	*0.44*	*0.48*	*0.38*	*0.52*	*0.45*
	IADL	*0.28*	*0.33*	*0.32*	*0.25*	*0.26*	*0.21*	*0.3*	*0.23*
	n (% female)	*230 (0.63)*	*224 (0.58)*	*392 (0.58)*	*695 (0.54)*	*487 (0.55)*	*3430 (0.55)*	*174 (0.59)*	*164 (0.57)*
	ADL	*0.16*	*0.16*	*0.19*	*0.17*	*0.18*	*0.21*	*0.23*	*0.23*
2	*GALI*	*0.53*	*0.48*	*0.48*	*0.47*	*0.49*	*0.55*	*0.54*	*0.52*
	IADL	*0.29*	*0.25*	*0.27*	*0.31*	*0.29*	*0.36*	*0.37*	*0.35*
	n (% female)	*685 (0.6)*	*398 (0.55)*	*658 (0.55)*	*1362 (0.54)*	*1295 (0.57)*	*350 (0.6)*	*519 (0.59)*	*538 (0.6)*
	ADL	*0.15*	*0.11*	*0.14*	*0.12*	*0.13*	*0.18*	*0.17*	*0.17*
3	*GALI*	*0.48*	*0.47*	*0.44*	*0.42*	*0.4*	*0.45*	*0.48*	*0.49*
	IADL	*0.22*	*0.21*	*0.21*	*0.25*	*0.22*	*0.29*	*0.23*	*0.27*
	n (% female)	*465 (0.55)*	*515 (0.54)*	*785 (0.55)*	*1400 (0.54)*	*1369 (0.56)*	*321 (0.58)*	*483 (0.58)*	*489 (0.59)*
	ADL	*0.12*	*0.14*	*0.11*	*0.1*	*0.09*	*0.2*	*0.16*	*0.13*
4	*GALI*	*0.44*	*0.41*	*0.38*	*0.36*	*0.35*	*0.45*	*0.41*	*0.42*
	IADL	*0.24*	*0.2*	*0.19*	*0.16*	*0.16*	*0.29*	*0.25*	*0.2*
	n (% female)	*478 (0.58)*	*536 (0.54)*	*827 (0.53)*	*1584 (0.53)*	*1237 (0.54)*	*256 (0.55)*	*424 (0.57)*	*465 (0.57)*
	ADL	*0.09*	*0.1*	*0.11*	*0.09*	*0.08*	*0.09*	*0.09*	*0.08*
5	*GALI*	*0.37*	*0.36*	*0.32*	*0.29*	*0.3*	*0.37*	*0.36*	*0.28*
	IADL	*0.21*	*0.15*	*0.14*	*0.13*	*0.12*	*0.16*	*0.11*	*0.12*
	n (% female)	*401 (0.54)*	*684 (0.54)*	*967 (0.53)*	*1478 (0.52)*	*1121 (0.53)*	*272 (0.51)*	*505 (0.53)*	*393 (0.53)*
Sweden									
Wealth	*Wave*	*1*	*2*	*4*	*5*	*6*	*7*	*8*	*9*
	ADL	*0.18*	*0.21*	*0.22*	*0.19*	*0.2*	*0.09*	*0.22*	*0.24*
1	*GALI*	*0.59*	*0.55*	*0.57*	*0.56*	*0.6*	*0.49*	*0.68*	*0.68*
	IADL	*0.28*	*0.27*	*0.3*	*0.25*	*0.29*	*0.13*	*0.28*	*0.37*
	n (% female)	*515 (0.63)*	*480 (0.61)*	*253 (0.7)*	*493 (0.63)*	*398 (0.68)*	*2180 (0.53)*	*231 (0.65)*	*217 (0.66)*
2	*ADL*	*0.09*	*0.09*	*0.15*	*0.11*	*0.13*	*0.16*	*0.17*	*0.17*
	GALI	*0.47*	*0.47*	*0.53*	*0.49*	*0.51*	*0.5*	*0.56*	*0.55*

	IADL	*0.17*	*0.15*	*0.18*	*0.15*	*0.2*	*0.27*	*0.26*	*0.25*
	n (% female)	*987 (0.53)*	*795 (0.55)*	*480 (0.54)*	*952 (0.55)*	*726 (0.55)*	*215 (0.6)*	*349 (0.59)*	*276 (0.6)*
3	*ADL*	*0.07*	*0.07*	*0.08*	*0.07*	*0.09*	*0.12*	*0.09*	*0.11*
	GALI	*0.42*	*0.39*	*0.39*	*0.39*	*0.46*	*0.53*	*0.49*	*0.48*
	IADL	*0.1*	*0.09*	*0.12*	*0.1*	*0.16*	*0.15*	*0.16*	*0.2*
	n (% female)	*788 (0.5)*	*667 (0.51)*	*453 (0.51)*	*1031 (0.53)*	*830 (0.55)*	*235 (0.57)*	*436 (0.52)*	*348 (0.54)*
4	*ADL*	*0.04*	*0.04*	*0.09*	*0.05*	*0.06*	*0.06*	*0.07*	*0.1*
	GALI	*0.33*	*0.35*	*0.38*	*0.36*	*0.37*	*0.41*	*0.46*	*0.47*
	IADL	*0.08*	*0.08*	*0.09*	*0.11*	*0.09*	*0.08*	*0.13*	*0.14*
	n (% female)	*496 (0.51)*	*478 (0.53)*	*403 (0.52)*	*1010 (0.51)*	*944 (0.52)*	*253 (0.53)*	*598 (0.53)*	*612 (0.53)*
5	*ADL*	*0.03*	*0.06*	*0.07*	*0.04*	*0.05*	*0.04*	*0.08*	*0.07*
	GALI	*0.28*	*0.33*	*0.35*	*0.31*	*0.37*	*0.38*	*0.38*	*0.42*
	IADL	*0.04*	*0.06*	*0.07*	*0.07*	*0.09*	*0.09*	*0.12*	*0.1*
	n (% female)	*191 (0.42)*	*332 (0.49)*	*361 (0.5)*	*1003 (0.49)*	*962 (0.49)*	*280 (0.53)*	*725 (0.5)*	*944 (0.49)*

Switzerland

Wealth	*Wave*	*1*	*2*	*4*	*5*	*6*	*7*	*8*	*9*
1	*ADL*	*0.1*	*0.1*	*0.14*	*0.12*	*0.16*	*0.07*	*0.22*	*0.15*
	GALI	*0.4*	*0.41*	*0.46*	*0.42*	*0.51*	*0.37*	*0.63*	*0.63*
	IADL	*0.14*	*0.14*	*0.18*	*0.16*	*0.24*	*0.11*	*0.3*	*0.27*
	n (% female)	*166 (0.65)*	*258 (0.64)*	*461 (0.65)*	*326 (0.63)*	*251 (0.69)*	*1695 (0.54)*	*212 (0.73)*	*191 (0.72)*
2	*ADL*	*0.06*	*0.07*	*0.08*	*0.07*	*0.1*	*0.1*	*0.09*	*0.08*
	GALI	*0.37*	*0.29*	*0.36*	*0.32*	*0.41*	*0.4*	*0.43*	*0.47*
	IADL	*0.1*	*0.1*	*0.11*	*0.12*	*0.17*	*0.15*	*0.16*	*0.14*
	n (% female)	*235 (0.52)*	*375 (0.58)*	*823 (0.56)*	*710 (0.57)*	*592 (0.58)*	*152 (0.64)*	*360 (0.57)*	*312 (0.58)*
3	*ADL*	*0.08*	*0.06*	*0.05*	*0.05*	*0.06*	*0.05*	*0.08*	*0.07*
	GALI	*0.35*	*0.31*	*0.3*	*0.28*	*0.31*	*0.32*	*0.37*	*0.36*
	IADL	*0.09*	*0.08*	*0.09*	*0.08*	*0.11*	*0.09*	*0.13*	*0.11*
	n (% female)	*242 (0.52)*	*395 (0.49)*	*877 (0.53)*	*689 (0.54)*	*580 (0.54)*	*173 (0.53)*	*318 (0.55)*	*297 (0.54)*
4	*ADL*	*0.06*	*0.04*	*0.05*	*0.03*	*0.04*	*0.03*	*0.05*	*0.07*
	GALI	*0.29*	*0.29*	*0.28*	*0.26*	*0.31*	*0.31*	*0.34*	*0.35*
	IADL	*0.04*	*0.07*	*0.07*	*0.06*	*0.08*	*0.08*	*0.1*	*0.09*
	n (% female)	*184 (0.49)*	*265 (0.53)*	*799 (0.51)*	*703 (0.51)*	*612 (0.52)*	*173 (0.53)*	*435 (0.5)*	*402 (0.52)*
5	*ADL*	*0.03*	*0.01*	*0.04*	*0.05*	*0.05*	*0.06*	*0.04*	*0.04*

GALI	*0.26*	*0.28*	*0.27*	*0.28*	*0.29*	*0.32*	*0.29*	*0.29*
IADL	*0.03*	*0.07*	*0.05*	*0.08*	*0.08*	*0.08*	*0.08*	*0.07*
n (% female)	*111 (0.44)*	*153 (0.54)*	*682 (0.5)*	*553 (0.5)*	*724 (0.5)*	*179 (0.53)*	*558 (0.49)*	*624 (0.51)*

Table A.3 – Model coefficient for GALI.

Coefficients		Estimate	Std. Error	Z value	P-value	95%CI
(Intercept)	μ_0	-0.46	0.1	-4.37	0	(-0.66,-0.25)
$ns_1(Age_{i,j})$	α_1	0.35	0.12	3.03	0	(0.12,0.58)
$ns_2(Age_{i,j})$	α_2	1.43	0.13	11.19	0	(1.18,1.68)
$ns_3(Age_{i,j})$	α_3	2.19	0.26	8.55	0	(1.69,2.69)
$ns_4(Age_{i,j})$	α_4	2.37	0.22	10.61	0	(1.93,2.8)
Man	β	2.37	0.15	-0.69	0.49	(-0.4,0.19)
Wave	ε	2.37	0.01	3.23	0	(0.01,0.05)
2nd quintile wealth	λ_2	2.37	0.01	-4.15	0	(-0.08,-0.03)
3rd quintile wealth	λ_3	-0.18	0.01	-14.14	0	(-0.21,-0.16)
4th quintile wealth	λ_4	-0.27	0.01	-20.6	0	(-0.29,-0.24)
5th quintile wealth	λ_5	-0.35	0.01	-25.9	0	(-0.37,-0.32)
Germany	δ_2	-0.03	0.12	-0.24	0.81	(-0.26,0.2)
Sweden	δ_3	-0.12	0.14	-0.87	0.38	(-0.4,0.15)
Spain	δ_4	-0.75	0.13	-5.7	0	(-1.01,-0.49)
Italy	δ_5	-0.51	0.12	-4.11	0	(-0.76,-0.27)
France	δ_6	-0.37	0.12	-3.04	0	(-0.6,-0.13)
Denmark	δ_7	-0.29	0.12	-2.39	0.02	(-0.53,-0.05)
Switzerland	δ_8	-0.4	0.14	-2.78	0.01	(-0.67,-0.12)
Belgium	δ_9	-0.11	0.11	-0.99	0.32	(-0.33,0.11)
Man x $ns_1(Age_{i,j})$	ζ_1	-0.04	0.16	-0.22	0.83	(-0.35,0.28)
Man x $ns_2(Age_{i,j})$	ζ_2	-0.17	0.17	-1.01	0.31	(-0.51,0.16)
Man x $ns_3(Age_{i,j})$	ζ_3	-0.21	0.36	-0.59	0.56	(-0.92,0.49)
Man x $ns_4(Age_{i,j})$	ζ_4	-0.94	0.29	-3.3	0	(-1.5,-0.38)
Wave x $ns_1(Age_{i,j})$	θ_1	-0.03	0.01	-2.74	0.01	(-0.05,-0.01)
Wave x $ns_2(Age_{i,j})$	θ_2	-0.05	0.01	-4.66	0	(-0.07,-0.03)
Wave x $ns_3(Age_{i,j})$	θ_3	-0.03	0.02	-1.23	0.22	(-0.07,0.02)
Wave x $ns_4(Age_{i,j})$	θ_4	0.02	0.02	1.32	0.19	(-0.01,0.06)
Germany x $ns_1(Age_{i,j})$	$\eta_{1,2}$	0.35	0.13	2.61	0.01	(0.09,0.61)
Sweden x $ns_1(Age_{i,j})$	$\eta_{1,3}$	-0.06	0.15	-0.41	0.68	(-0.36,0.23)
Spain x $ns_1(Age_{i,j})$	$\eta_{1,4}$	0.38	0.14	2.63	0.01	(0.1,0.66)
Italy x $ns_1(Age_{i,j})$	$\eta_{1,5}$	0.43	0.14	3.12	0	(0.16,0.7)
France x $ns_1(Age_{i,j})1$	$\eta_{1,6}$	0.17	0.14	1.27	0.2	(-0.09,0.44)
Denmark x $ns_1(Age_{i,j})1$	$\eta_{1,7}$	-0.002	0.14	-0.01	0.99	(-0.28, 0.27)

Switzerland x $ns_1(Age_{i,j})$	$\eta_{1,8}$	0.03	0.16	0.19	0.85	(-0.28,0.34)
Belgium x $ns_1(Age_{i,j})$	$\eta_{1,9}$	0.22	0.13	1.7	0.09	(-0.03,0.47)
Germany x $ns_2(Age_{i,j})$	$\eta_{2,2}$	-0.17	0.16	-1.08	0.28	(-0.48,0.14)
Sweden x $ns_2(Age_{i,j})$	$\eta_{2,3}$	-0.51	0.16	-3.23	0	(-0.82,-0.2)
Spain x $ns_2(Age_{i,j})$	$\eta_{2,4}$	0.21	0.15	1.4	0.16	(-0.08,0.5)
Italy x $ns_2(Age_{i,j})$	$\eta_{2,5}$	0.28	0.15	1.83	0.07	(-0.02,0.58)
France x $ns_2(Age_{i,j})$	$\eta_{2,6}$	-0.04	0.15	-0.26	0.79	(-0.33,0.25)
Denmark x $ns_2(Age_{i,j})$	$\eta_{2,7}$	-0.47	0.16	-2.92	0	(-0.78,-0.15)
Switzerland x $ns_2(Age_{i,j})$	$\eta_{2,8}$	-0.54	0.17	-3.2	0	(-0.88,-0.21)
Belgium x $ns_2(Age_{i,j})$	$\eta_{2,9}$	-0.09	0.14	-0.6	0.55	(-0.37,0.2)
Germany x $ns_3(Age_{i,j})$	$\eta_{3,2}$	0.6	0.3	2.01	0.05	(0.01,1.18)
Sweden x $ns_3(Age_{i,j})$	$\eta_{3,3}$	-0.09	0.33	-0.26	0.79	(-0.74,0.57)
Spain x $ns_3(Age_{i,j})$	$\eta_{3,4}$	0.82	0.31	2.62	0.01	(0.21,1.43)
Italy x $ns_3(Age_{i,j})$	$\eta_{3,5}$	0.65	0.31	2.13	0.03	(0.05,1.25)
France x $ns_3(Age_{i,j})$	$\eta_{3,6}$	0.37	0.29	1.25	0.21	(-0.21,0.94)
Denmark x $ns_3(Age_{i,j})$	$\eta_{3,7}$	-0.16	0.3	-0.51	0.61	(-0.75,0.44)
Switzerland x $ns_3(Age_{i,j})$	$\eta_{3,8}$	-0.74	0.34	-2.16	0.03	(-1.41,-0.07)
Belgium x $ns_3(Age_{i,j})$	$\eta_{3,9}$	-0.04	0.28	-0.13	0.89	(-0.58,0.51)
Germany x $ns_4(Age_{i,j})$	$\eta_{4,2}$	0.06	0.3	0.21	0.84	(-0.52,0.65)
Sweden x $ns_4(Age_{i,j})$	$\eta_{4,3}$	-0.4	0.26	-1.54	0.12	(-0.91,0.11)
Spain x $ns_4(Age_{i,j})$	$\eta_{4,4}$	0.4	0.24	1.67	0.1	(-0.07,0.86)
Italy x $ns_4(Age_{i,j})$	$\eta_{4,5}$	1.17	0.29	4.07	0	(0.61,1.73)
France x $ns_4(Age_{i,j})$	$\eta_{4,6}$	0.32	0.25	1.27	0.2	(-0.17,0.81)
Denmark x $ns_4(Age_{i,j})$	$\eta_{4,7}$	-0.64	0.27	-2.42	0.02	(-1.17,-0.12)
Switzerland x $ns_4(Age_{i,j})$	$\eta_{4,8}$	-0.32	0.27	-1.2	0.23	(-0.85,0.2)
Belgium x $ns_4(Age_{i,j})$	$\eta_{4,9}$	-0.61	0.24	-2.51	0.01	(-1.08,-0.13)
Man x Germany	κ_2	-0.12	0.19	-0.67	0.5	(-0.49,0.24)
Man x Sweden	κ_3	-0.47	0.23	-2.07	0.04	(-0.92,-0.02)
Man x Spain	κ_4	-0.18	0.21	-0.85	0.4	(-0.6,0.24)
Man x Italy	κ_5	-0.62	0.21	-2.98	0	(-1.04,-0.21)
Man x France	κ_6	-0.02	0.19	-0.1	0.92	(-0.39,0.35)
Man x Denmark	κ_7	-0.25	0.19	-1.27	0.2	(-0.63,0.13)
Man x Switzerland	κ_8	-0.39	0.23	-1.69	0.09	(-0.85,0.06)
Man x Belgium	κ_9	-0.09	0.18	-0.5	0.62	(-0.43,0.26)

Man x Germany x $ns_1(Age_{i,j})$	$\iota_{1,2}$	0.06	0.21	0.28	0.78	(-0.35,0.46)
Man x Sweden x $ns_1(Age_{i,j})$	$\iota_{1,3}$	0.38	0.24	1.58	0.12	(-0.09,0.85)
Man x Spain x $ns_1(Age_{i,j})$	$\iota_{1,4}$	0.08	0.23	0.35	0.73	(-0.37,0.53)
Man x Italy x $ns_1(Age_{i,j})$	$\iota_{1,5}$	0.54	0.22	2.42	0.02	(0.1,0.98)
Man x France x $ns_1(Age_{i,j})1$	$\iota_{1,6}$	0.17	0.21	0.82	0.41	(-0.24,0.58)
Man x Denmark x $ns_1(Age_{i,j})1$	$\iota_{1,7}$	0.27	0.22	1.25	0.21	(-0.16,0.7)
Man x Switzerland x $ns_1(Age_{i,j})$	$\iota_{1,8}$	0.25	0.25	0.97	0.33	(-0.25,0.74)
Man x Belgium x $ns_1(Age_{i,j})$	$\iota_{1,9}$	0.09	0.2	0.45	0.65	(-0.3,0.47)
Man x Germany x $ns_2(Age_{i,j})$	$\iota_{2,2}$	0.35	0.23	1.48	0.14	(-0.11,0.81)
Man x Sweden x $ns_2(Age_{i,j})$	$\iota_{2,3}$	0.58	0.24	2.44	0.02	(0.11,1.05)
Man x Spain x $ns_2(Age_{i,j})$	$\iota_{2,4}$	-0.11	0.23	-0.49	0.62	(-0.56,0.34)
Man x Italy x $ns_2(Age_{i,j})$	$\iota_{2,5}$	0.49	0.23	2.11	0.04	(0.03,0.95)
Man x France x $ns_2(Age_{i,j})$	$\iota_{2,6}$	0.32	0.23	1.38	0.17	(-0.13,0.76)
Man x Denmark x $ns_2(Age_{i,j})$	$\iota_{2,7}$	0.55	0.24	2.26	0.02	(0.07,1.03)
Man x Switzerland x $ns_2(Age_{i,j})$	$\iota_{2,8}$	0.35	0.26	1.32	0.19	(-0.17,0.86)
Man x Belgium x $ns_2(Age_{i,j})$	$\iota_{2,9}$	-0.12	0.22	-0.56	0.58	(-0.55,0.31)
Man x Germany x $ns_3(Age_{i,j})$	$\iota_{3,2}$	0.32	0.46	0.68	0.49	(-0.59,1.22)
Man x Sweden x $ns_3(Age_{i,j})$	$\iota_{3,3}$	0.89	0.53	1.68	0.09	(-0.15,1.94)
Man x Spain x $ns_3(Age_{i,j})$	$\iota_{3,4}$	0.17	0.5	0.33	0.74	(-0.81,1.14)
Man x Italy x $ns_3(Age_{i,j})$	$\iota_{3,5}$	0.91	0.5	1.83	0.07	(-0.07,1.88)
Man x France x $ns_3(Age_{i,j})$	$\iota_{3,6}$	0.25	0.46	0.54	0.59	(-0.65,1.15)
Man x Denmark x $ns_3(Age_{i,j})$	$\iota_{3,7}$	0.52	0.47	1.1	0.27	(-0.41,1.45)
Man x Switzerland x $ns_3(Age_{i,j})$	$\iota_{3,8}$	1.09	0.55	1.99	0.05	(0.02,2.17)
Man x Belgium x $ns_3(Age_{i,j})$	$\iota_{3,9}$	0.26	0.43	0.6	0.55	(-0.59,1.11)
Man x Germany x $ns_4(Age_{i,j})$	$\iota_{4,2}$	0.54	0.43	1.25	0.21	(-0.31,1.38)
Man x Sweden x $ns_4(Age_{i,j})$	$\iota_{4,3}$	1.15	0.38	3.02	0	(0.4,1.89)
Man x Spain x $ns_4(Age_{i,j})$	$\iota_{4,4}$	0.78	0.35	2.21	0.03	(0.09,1.47)
Man x Italy x $ns_4(Age_{i,j})$	$\iota_{4,5}$	0.71	0.41	1.73	0.08	(-0.09,1.52)
Man x France x $ns_4(Age_{i,j})$	$\iota_{4,6}$	0.96	0.38	2.49	0.01	(0.2,1.71)
Man x Denmark x $ns_4(Age_{i,j})$	$\iota_{4,7}$	1.39	0.41	3.38	0	(0.58,2.2)
Man x Switzerland x $ns_4(Age_{i,j})$	$\iota_{4,8}$	1.38	0.41	3.33	0	(0.57,2.19)
Man x Belgium x $ns_4(Age_{i,j})$	$\iota_{4,9}$	1.14	0.36	3.15	0	(0.43,1.85)

Table A.4 – Estimated working correlation matrix for GALI. The matrix is symmetric. Since the third wave was not considered, it must be $\boldsymbol{Cor(y_{i3}, y_{i9}) = 0}$. The only respondents for which we observe $\boldsymbol{j = 9}$ started in the first wave and given that we did not consider wave three (the third time we observe these respondents), there are no observations to estimate $\boldsymbol{Cor(y_{i3}, y_{i9}) = 0}$. This partly justifies the choice of the unstructured working correlation matrix. Except from that, the estimated working correlation matrix is very similar to a "Toepliz" type structure.

Indices	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1	1								
2	0.41	1							
3	0.38	0.44	1						
4	0.33	0.37	0.44	1					
5	0.3	0.33	0.37	0.44	1				
6	0.27	0.3	0.34	0.38	0.44	1			
7	0.26	0.26	0.32	0.33	0.38	0.44	1		
8	0.23	0.24	0.27	0.29	0.34	0.38	0.42	1	
9	0.18	0.21	0	0.28	0.29	0.32	0.36	0.44	1

Table A.5 – Model coefficient for ADL.

Coefficients		Estimate	Std. Error	Z value	P-value	95%CI
(Intercept)	μ_0	-3.01	0.25	-12.27	0	(-3.49,-2.53)
$ns_1(Age_{i,j})$	α_1	0.41	0.26	1.58	0.12	(-0.1,0.91)
$ns_2(Age_{i,j})$	α_2	1.51	0.2	7.53	0	(1.12,1.91)
$ns_3(Age_{i,j})$	α_3	3.38	0.55	6.09	0	(2.29,4.46)
$ns_4(Age_{i,j})$	α_4	3.92	0.22	17.88	0	(3.49,4.35)
Man	β	0.22	0.35	0.63	0.53	(-0.46,0.9)
Wave	ε	0.03	0.02	1.69	0.09	(-0.01,0.07)
2nd quintile wealth	λ_2	-0.05	0.02	-2.79	0.01	(-0.09,-0.02)
3rd quintile wealth	λ_3	-0.24	0.02	-12.03	0	(-0.28,-0.2)
4th quintile wealth	λ_4	-0.36	0.02	-17.25	0	(-0.4,-0.32)
5th quintile wealth	λ_5	-0.46	0.02	-20.64	0	(-0.51,-0.42)
Germany	δ_2	-0.3	0.29	-1.06	0.29	(-0.87,0.26)
Sweden	δ_3	-0.26	0.35	-0.75	0.45	(-0.94,0.42)
Spain	δ_4	-0.03	0.3	-0.1	0.92	(-0.61,0.55)
Italy	δ_5	-0.37	0.3	-1.22	0.22	(-0.96,0.22)
France	δ_6	0.34	0.27	1.28	0.2	(-0.18,0.87)
Denmark	δ_7	0.15	0.28	0.53	0.6	(-0.41,0.7)
Switzerland	δ_8	-0.13	0.34	-0.37	0.71	(-0.79,0.54)
Belgium	δ_9	0.43	0.25	1.68	0.09	(-0.07,0.92)
Man x $ns_1(Age_{i,j})$	ζ_1	0.11	0.36	0.32	0.75	(-0.59,0.82)
Man x $ns_2(Age_{i,j})$	ζ_2	0.01	0.28	0.05	0.96	(-0.53,0.56)
Man x $ns_3(Age_{i,j})$	ζ_3	-0.88	0.78	-1.13	0.26	(-2.41,0.65)
Man x $ns_4(Age_{i,j})$	ζ_4	-0.7	0.3	-2.33	0.02	(-1.29,-0.11)
Wave x $ns_1(Age_{i,j})$	θ_1	-0.05	0.02	-2.18	0.03	(-0.09,0)
Wave x $ns_2(Age_{i,j})$	θ_2	-0.04	0.02	-2.23	0.03	(-0.07,0)
Wave x $ns_3(Age_{i,j})$	θ_3	-0.09	0.05	-1.99	0.05	(-0.18,0)
Wave x $ns_4(Age_{i,j})$	θ_4	-0.06	0.02	-3.3	0	(-0.1,-0.02)
Germany x $ns_1(Age_{i,j})$	$\eta_{1,2}$	0.67	0.3	2.21	0.03	(0.08,1.26)
Sweden x $ns_1(Age_{i,j})$	$\eta_{1,3}$	0.54	0.35	1.52	0.13	(-0.16,1.24)
Spain x $ns_1(Age_{i,j})$	$\eta_{1,4}$	0.29	0.31	0.92	0.36	(-0.33,0.9)
Italy x $ns_1(Age_{i,j})$	$\eta_{1,5}$	0.73	0.31	2.33	0.02	(0.12,1.35)
France x $ns_1(Age_{i,j})1$	$\eta_{1,6}$	0.08	0.29	0.28	0.78	(-0.48,0.64)
Denmark x $ns_1(Age_{i,j})1$	$\eta_{1,7}$	0	0.31	-0.01	0.99	(-0.61,0.6)

Switzerland x $ns_1(Age_{i,j})$	$\eta_{1,8}$	-0.34	0.37	-0.91	0.36	(-1.07,0.39)
Belgium x $ns_1(Age_{i,j})$	$\eta_{1,9}$	0.54	0.27	2	0.05	(0.01,1.07)
Germany x $ns_2(Age_{i,j})$	$\eta_{2,2}$	0.32	0.24	1.34	0.18	(-0.15,0.8)
Sweden x $ns_2(Age_{i,j})$	$\eta_{2,3}$	-0.54	0.27	-1.99	0.05	(-1.08,-0.01)
Spain x $ns_2(Age_{i,j})$	$\eta_{2,4}$	0.29	0.23	1.22	0.22	(-0.17,0.75)
Italy x $ns_2(Age_{i,j})$	$\eta_{2,5}$	0.61	0.24	2.52	0.01	(0.13,1.08)
France x $ns_2(Age_{i,j})$	$\eta_{2,6}$	-0.14	0.23	-0.61	0.54	(-0.58,0.3)
Denmark x $ns_2(Age_{i,j})$	$\eta_{2,7}$	-0.39	0.25	-1.53	0.13	(-0.89,0.11)
Switzerland x $ns_2(Age_{i,j})$	$\eta_{2,8}$	-0.2	0.29	-0.68	0.5	(-0.77,0.37)
Belgium x $ns_2(Age_{i,j})$	$\eta_{2,9}$	-0.12	0.21	-0.55	0.59	(-0.54,0.3)
Germany x $ns_3(Age_{i,j})$	$\eta_{3,2}$	0.84	0.65	1.29	0.2	(-0.43,2.11)
Sweden x $ns_3(Age_{i,j})$	$\eta_{3,3}$	0.06	0.77	0.08	0.94	(-1.44,1.57)
Spain x $ns_3(Age_{i,j})$	$\eta_{3,4}$	0.38	0.67	0.56	0.57	(-0.94,1.69)
Italy x $ns_3(Age_{i,j})$	$\eta_{3,5}$	0.94	0.67	1.39	0.16	(-0.38,2.26)
France x $ns_3(Age_{i,j})$	$\eta_{3,6}$	-0.57	0.61	-0.94	0.35	(-1.77,0.62)
Denmark x $ns_3(Age_{i,j})$	$\eta_{3,7}$	-0.77	0.65	-1.19	0.23	(-2.05,0.5)
Switzerland x $ns_3(Age_{i,j})$	$\eta_{3,8}$	-0.84	0.78	-1.08	0.28	(-2.36,0.68)
Belgium x $ns_3(Age_{i,j})$	$\eta_{3,9}$	0.25	0.57	0.44	0.66	(-0.87,1.38)
Germany x $ns_4(Age_{i,j})$	$\eta_{4,2}$	-0.16	0.27	-0.59	0.56	(-0.69,0.37)
Sweden x $ns_4(Age_{i,j})$	$\eta_{4,3}$	-0.2	0.27	-0.73	0.46	(-0.73,0.33)
Spain x $ns_4(Age_{i,j})$	$\eta_{4,4}$	0.64	0.24	2.64	0.01	(0.17,1.11)
Italy x $ns_4(Age_{i,j})$	$\eta_{4,5}$	0.8	0.27	3	0	(0.28,1.32)
France x $ns_4(Age_{i,j})$	$\eta_{4,6}$	-0.38	0.24	-1.59	0.11	(-0.84,0.09)
Denmark x $ns_4(Age_{i,j})$	$\eta_{4,7}$	-0.61	0.27	-2.21	0.03	(-1.14,-0.07)
Switzerland x $ns_4(Age_{i,j})$	$\eta_{4,8}$	-0.59	0.3	-1.98	0.05	(-1.17,-0.01)
Belgium x $ns_4(Age_{i,j})$	$\eta_{4,9}$	-0.1	0.24	-0.44	0.66	(-0.56,0.36)
Man x Germany	κ_2	-0.18	0.44	-0.42	0.67	(-1.04,0.67)
Man x Sweden	κ_3	-0.36	0.54	-0.66	0.51	(-1.43,0.71)
Man x Spain	κ_4	-0.35	0.47	-0.74	0.46	(-1.27,0.58)
Man x Italy	κ_5	-0.38	0.48	-0.78	0.44	(-1.33,0.57)
Man x France	κ_6	-0.19	0.41	-0.46	0.65	(-0.99,0.61)
Man x Denmark	κ_7	-0.68	0.44	-1.54	0.12	(-1.55,0.19)
Man x Switzerland	κ_8	-1	0.58	-1.73	0.08	(-2.13,0.14)
Man x Belgium	κ_9	-0.17	0.39	-0.44	0.66	(-0.93,0.59)

Man x Germany x $ns_1(Age_{i,j})$	$\iota_{1,2}$	-0.23	0.46	-0.51	0.61	(-1.13,0.66)
Man x Sweden x $ns_1(Age_{i,j})$	$\iota_{1,3}$	-0.1	0.55	-0.18	0.86	(-1.18,0.98)
Man x Spain x $ns_1(Age_{i,j})$	$\iota_{1,4}$	-0.06	0.49	-0.13	0.9	(-1.02,0.9)
Man x Italy x $ns_1(Age_{i,j})$	$\iota_{1,5}$	-0.28	0.5	-0.57	0.57	(-1.26,0.7)
Man x France x $ns_1(Age_{i,j})1$	$\iota_{1,6}$	-0.16	0.44	-0.36	0.72	(-1.01,0.7)
Man x Denmark x $ns_1(Age_{i,j})1$	$\iota_{1,7}$	0.57	0.48	1.21	0.23	(-0.36,1.5)
Man x Switzerland x $ns_1(Age_{i,j})$	$\iota_{1,8}$	0.98	0.6	1.62	0.11	(-0.21,2.16)
Man x Belgium x $ns_1(Age_{i,j})$	$\iota_{1,9}$	-0.29	0.41	-0.71	0.48	(-1.09,0.51)
Man x Germany x $ns_2(Age_{i,j})$	$\iota_{2,2}$	-0.02	0.37	-0.06	0.95	(-0.74,0.7)
Man x Sweden x $ns_2(Age_{i,j})$	$\iota_{2,3}$	0.67	0.42	1.6	0.11	(-0.15,1.5)
Man x Spain x $ns_2(Age_{i,j})$	$\iota_{2,4}$	-0.24	0.37	-0.64	0.52	(-0.96,0.49)
Man x Italy x $ns_2(Age_{i,j})$	$\iota_{2,5}$	-0.22	0.38	-0.57	0.57	(-0.97,0.53)
Man x France x $ns_2(Age_{i,j})$	$\iota_{2,6}$	0.12	0.35	0.33	0.74	(-0.57,0.8)
Man x Denmark x $ns_2(Age_{i,j})$	$\iota_{2,7}$	0.33	0.39	0.83	0.4	(-0.44,1.1)
Man x Switzerland x $ns_2(Age_{i,j})$	$\iota_{2,8}$	0.02	0.48	0.04	0.97	(-0.92,0.95)
Man x Belgium x $ns_2(Age_{i,j})$	$\iota_{2,9}$	-0.41	0.33	-1.22	0.22	(-1.06,0.24)
Man x Germany x $ns_3(Age_{i,j})$	$\iota_{3,2}$	0.94	0.99	0.96	0.34	(-0.99,2.88)
Man x Sweden x $ns_3(Age_{i,j})$	$\iota_{3,3}$	0.98	1.2	0.81	0.42	(-1.38,3.34)
Man x Spain x $ns_3(Age_{i,j})$	$\iota_{3,4}$	0.46	1.06	0.44	0.66	(-1.61,2.54)
Man x Italy x $ns_3(Age_{i,j})$	$\iota_{3,5}$	0.45	1.08	0.41	0.68	(-1.67,2.56)
Man x France x $ns_3(Age_{i,j})$	$\iota_{3,6}$	0.86	0.93	0.92	0.36	(-0.97,2.68)
Man x Denmark x $ns_3(Age_{i,j})$	$\iota_{3,7}$	1.92	1.01	1.9	0.06	(-0.06,3.9)
Man x Switzerland x $ns_3(Age_{i,j})$	$\iota_{3,8}$	2.3	1.29	1.78	0.08	(-0.24,4.83)
Man x Belgium x $ns_3(Age_{i,j})$	$\iota_{3,9}$	0.1	0.88	0.11	0.91	(-1.62,1.82)
Man x Germany x $ns_4(Age_{i,j})$	$\iota_{4,2}$	0.33	0.42	0.79	0.43	(-0.49,1.16)
Man x Sweden x $ns_4(Age_{i,j})$	$\iota_{4,3}$	0.05	0.43	0.12	0.91	(-0.78,0.89)
Man x Spain x $ns_4(Age_{i,j})$	$\iota_{4,4}$	0.43	0.38	1.13	0.26	(-0.32,1.19)
Man x Italy x $ns_4(Age_{i,j})$	$\iota_{4,5}$	0.22	0.42	0.52	0.6	(-0.6,1.05)
Man x France x $ns_4(Age_{i,j})$	$\iota_{4,6}$	0.56	0.39	1.44	0.15	(-0.2,1.32)
Man x Denmark x $ns_4(Age_{i,j})$	$\iota_{4,7}$	1.02	0.44	2.31	0.02	(0.16,1.89)
Man x Switzerland x $ns_4(Age_{i,j})$	$\iota_{4,8}$	0.65	0.49	1.32	0.19	(-0.32,1.61)
Man x Belgium x $ns_4(Age_{i,j})$	$\iota_{4,9}$	0	0.37	0.01	0.99	(-0.73,0.74)

Table A.6 – Estimated working correlation matrix for ADL The matrix is symmetric. Since the third wave was not considered, it must be $\boldsymbol{Cor(y_{i3}, y_{i9}) = 0}$. The only respondents for which we observe $\boldsymbol{j = 9}$ started in the first wave and given that we did not consider wave three (the third time we observe these respondents), there are no observations to estimate $\boldsymbol{Cor(y_{i3}, y_{i9}) = 0}$. This partly justifies the choice of the unstructured working correlation matrix. Except from that, the estimated working correlation matrix is very similar to a "Toepliz" type structure.

Indices	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1	1								
2	0.39	1							
3	0.32	0.39	1						
4	0.27	0.3	0.4	1					
5	0.24	0.25	0.36	0.4	1				
6	0.2	0.23	0.27	0.31	0.43	1			
7	0.16	0.17	0.2	0.26	0.33	0.4	1		
8	0.15	0.17	0.18	0.23	0.27	0.3	0.41	1	
9	0.15	0.13	0	0.17	0.22	0.27	0.32	0.43	1

Table A.7 – Model coefficient for IADL.

Coefficients		Estimate	Std. Error	Z value	P-value	95%CI
(Intercept)	μ_0	-1.94	0.17	-11.58	0	(-2.27,-1.61)
$ns_1(Age_{i,j})$	α_1	0.4	0.18	2.23	0.03	(0.05,0.75)
$ns_2(Age_{i,j})$	α_2	1.64	0.16	10.52	0	(1.33,1.95)
$ns_3(Age_{i,j})$	α_3	2.92	0.39	7.55	0	(2.16,3.68)
$ns_4(Age_{i,j})$	α_4	3.79	0.22	17.33	0	(3.36,4.22)
Man	β	-0.26	0.26	-1.02	0.31	(-0.76,0.24)
Wave	ε	0.03	0.02	1.66	0.1	(0,0.06)
2nd quintile wealth	λ_2	-0.05	0.02	-2.93	0	(-0.08,-0.02)
3rd quintile wealth	λ_3	-0.22	0.02	-12.52	0	(-0.25,-0.18)
4th quintile wealth	λ_4	-0.33	0.02	-18.21	0	(-0.36,-0.29)
5th quintile wealth	λ_5	-0.5	0.02	-25.79	0	(-0.54,-0.46)
Germany	δ_2	-0.56	0.2	-2.81	0.01	(-0.95,-0.17)
Sweden	δ_3	-0.32	0.23	-1.38	0.17	(-0.77,0.13)
Spain	δ_4	-0.66	0.21	-3.09	0	(-1.09,-0.24)
Italy	δ_5	-0.9	0.22	-4.16	0	(-1.33,-0.48)
France	δ_6	-0.1	0.19	-0.53	0.59	(-0.47,0.27)
Denmark	δ_7	-0.5	0.2	-2.5	0.01	(-0.9,-0.11)
Switzerland	δ_8	-0.57	0.24	-2.39	0.02	(-1.05,-0.1)
Belgium	δ_9	0.1	0.17	0.6	0.55	(-0.24,0.44)
Man x $ns_1(Age_{i,j})$	ζ_1	-0.15	0.27	-0.57	0.57	(-0.68,0.37)
Man x $ns_2(Age_{i,j})$	ζ_2	0.01	0.22	0.04	0.97	(-0.43,0.45)
Man x $ns_3(Age_{i,j})$	ζ_3	-0.45	0.58	-0.77	0.44	(-1.59,0.69)
Man x $ns_4(Age_{i,j})$	ζ_4	-0.54	0.29	-1.85	0.06	(-1.11,0.03)
Wave x $ns_1(Age_{i,j})$	θ_1	-0.03	0.02	-1.67	0.09	(-0.06,0)
Wave x $ns_2(Age_{i,j})$	θ_2	-0.06	0.01	-4.59	0	(-0.09,-0.04)
Wave x $ns_3(Age_{i,j})$	θ_3	-0.04	0.04	-1.16	0.24	(-0.12,0.03)
Wave x $ns_4(Age_{i,j})$	θ_4	0.04	0.02	2.11	0.03	(0,0.07)
Germany x $ns_1(Age_{i,j})$	$\eta_{1,2}$	0.36	0.21	1.66	0.1	(-0.06,0.77)
Sweden x $ns_1(Age_{i,j})$	$\eta_{1,3}$	-0.23	0.24	-0.95	0.34	(-0.7,0.24)
Spain x $ns_1(Age_{i,j})$	$\eta_{1,4}$	0.61	0.23	2.71	0.01	(0.17,1.06)
Italy x $ns_1(Age_{i,j})$	$\eta_{1,5}$	0.78	0.23	3.4	0	(0.33,1.22)
France x $ns_1(Age_{i,j})1$	$\eta_{1,6}$	0.02	0.2	0.11	0.91	(-0.38,0.42)
Denmark x $ns_1(Age_{i,j})1$	$\eta_{1,7}$	0.3	0.22	1.36	0.17	(-0.13,0.73)

Switzerland x $ns_1(Age_{i,j})$	$\eta_{1,8}$	-0.46	0.27	-1.73	0.08	(-0.98,0.06)
Belgium x $ns_1(Age_{i,j})$	$\eta_{1,9}$	0.21	0.19	1.11	0.27	(-0.16,0.58)
Germany x $ns_2(Age_{i,j})$	$\eta_{2,2}$	0.07	0.19	0.36	0.72	(-0.31,0.45)
Sweden x $ns_2(Age_{i,j})$	$\eta_{2,3}$	-0.39	0.2	-1.92	0.06	(-0.79,0.01)
Spain x $ns_2(Age_{i,j})$	$\eta_{2,4}$	0.78	0.19	4.22	0	(0.42,1.15)
Italy x $ns_2(Age_{i,j})$	$\eta_{2,5}$	0.9	0.19	4.67	0	(0.52,1.28)
France x $ns_2(Age_{i,j})$	$\eta_{2,6}$	-0.2	0.18	-1.14	0.25	(-0.56,0.15)
Denmark x $ns_2(Age_{i,j})$	$\eta_{2,7}$	-0.06	0.2	-0.29	0.77	(-0.45,0.33)
Switzerland x $ns_2(Age_{i,j})$	$\eta_{2,8}$	-0.31	0.23	-1.35	0.18	(-0.75,0.14)
Belgium x $ns_2(Age_{i,j})$	$\eta_{2,9}$	-0.27	0.17	-1.55	0.12	(-0.6,0.07)
Germany x $ns_3(Age_{i,j})$	$\eta_{3,2}$	0.72	0.46	1.56	0.12	(-0.18,1.62)
Sweden x $ns_3(Age_{i,j})$	$\eta_{3,3}$	0.13	0.52	0.26	0.8	(-0.89,1.16)
Spain x $ns_3(Age_{i,j})$	$\eta_{3,4}$	1.22	0.49	2.51	0.01	(0.27,2.18)
Italy x $ns_3(Age_{i,j})$	$\eta_{3,5}$	1.42	0.49	2.88	0	(0.45,2.38)
France x $ns_3(Age_{i,j})$	$\eta_{3,6}$	0.02	0.43	0.05	0.96	(-0.83,0.87)
Denmark x $ns_3(Age_{i,j})$	$\eta_{3,7}$	0.5	0.47	1.07	0.29	(-0.42,1.41)
Switzerland x $ns_3(Age_{i,j})$	$\eta_{3,8}$	-0.12	0.55	-0.22	0.82	(-1.21,0.96)
Belgium x $ns_3(Age_{i,j})$	$\eta_{3,9}$	0.51	0.4	1.26	0.21	(-0.28,1.3)
Germany x $ns_4(Age_{i,j})$	$\eta_{4,2}$	-0.01	0.27	-0.04	0.97	(-0.55,0.52)
Sweden x $ns_4(Age_{i,j})$	$\eta_{4,3}$	-0.58	0.26	-2.23	0.03	(-1.09,-0.07)
Spain x $ns_4(Age_{i,j})$	$\eta_{4,4}$	0.33	0.24	1.37	0.17	(-0.14,0.8)
Italy x $ns_4(Age_{i,j})$	$\eta_{4,5}$	0.73	0.27	2.71	0.01	(0.2,1.27)
France x $ns_4(Age_{i,j})$	$\eta_{4,6}$	0	0.24	0.02	0.99	(-0.47,0.48)
Denmark x $ns_4(Age_{i,j})$	$\eta_{4,7}$	-0.61	0.27	-2.26	0.02	(-1.13,-0.08)
Switzerland x $ns_4(Age_{i,j})$	$\eta_{4,8}$	-0.68	0.28	-2.44	0.02	(-1.22,-0.13)
Belgium x $ns_4(Age_{i,j})$	$\eta_{4,9}$	0.13	0.25	0.52	0.61	(-0.36,0.62)
Man x Germany	κ_2	-0.13	0.34	-0.38	0.71	(-0.79,0.53)
Man x Sweden	κ_3	-1.18	0.48	-2.48	0.01	(-2.12,-0.25)
Man x Spain	κ_4	0	0.37	-0.01	0.99	(-0.73,0.73)
Man x Italy	κ_5	-0.34	0.4	-0.86	0.39	(-1.12,0.44)
Man x France	κ_6	-0.35	0.33	-1.08	0.28	(-0.99,0.29)
Man x Denmark	κ_7	-0.05	0.34	-0.13	0.89	(-0.72,0.63)
Man x Switzerland	κ_8	-1.22	0.51	-2.4	0.02	(-2.21,-0.22)
Man x Belgium	κ_9	-0.3	0.3	-1.03	0.3	(-0.88,0.28)

Man x Germany x $ns_1(Age_{i,j})$	$\iota_{1,2}$	0.09	0.36	0.26	0.79	(-0.61,0.8)
Man x Sweden x $ns_1(Age_{i,j})$	$\iota_{1,3}$	1.15	0.48	2.38	0.02	(0.21,2.1)
Man x Spain x $ns_1(Age_{i,j})$	$\iota_{1,4}$	0	0.39	0.01	0.99	(-0.76,0.76)
Man x Italy x $ns_1(Age_{i,j})$	$\iota_{1,5}$	0.01	0.41	0.02	0.98	(-0.8,0.82)
Man x France x $ns_1(Age_{i,j})1$	$\iota_{1,6}$	0.24	0.35	0.68	0.5	(-0.45,0.93)
Man x Denmark x $ns_1(Age_{i,j})1$	$\iota_{1,7}$	0.08	0.37	0.22	0.83	(-0.65,0.81)
Man x Switzerland x $ns_1(Age_{i,j})$	$\iota_{1,8}$	1.38	0.52	2.63	0.01	(0.35,2.41)
Man x Belgium x $ns_1(Age_{i,j})$	$\iota_{1,9}$	0.23	0.32	0.71	0.48	(-0.4,0.85)
Man x Germany x $ns_2(Age_{i,j})$	$\iota_{2,2}$	0.19	0.31	0.61	0.54	(-0.42,0.79)
Man x Sweden x $ns_2(Age_{i,j})$	$\iota_{2,3}$	1	0.37	2.7	0.01	(0.27,1.72)
Man x Spain x $ns_2(Age_{i,j})$	$\iota_{2,4}$	-0.38	0.31	-1.23	0.22	(-0.99,0.22)
Man x Italy x $ns_2(Age_{i,j})$	$\iota_{2,5}$	0.09	0.33	0.27	0.79	(-0.55,0.73)
Man x France x $ns_2(Age_{i,j})$	$\iota_{2,6}$	0.27	0.3	0.89	0.38	(-0.32,0.86)
Man x Denmark x $ns_2(Age_{i,j})$	$\iota_{2,7}$	0.2	0.33	0.61	0.54	(-0.44,0.84)
Man x Switzerland x $ns_2(Age_{i,j})$	$\iota_{2,8}$	0.56	0.42	1.34	0.18	(-0.26,1.37)
Man x Belgium x $ns_2(Age_{i,j})$	$\iota_{2,9}$	0.13	0.28	0.47	0.64	(-0.42,0.68)
Man x Germany x $ns_3(Age_{i,j})$	$\iota_{3,2}$	0.62	0.77	0.8	0.42	(-0.9,2.14)
Man x Sweden x $ns_3(Age_{i,j})$	$\iota_{3,3}$	1.91	1.05	1.82	0.07	(-0.15,3.96)
Man x Spain x $ns_3(Age_{i,j})$	$\iota_{3,4}$	-0.17	0.84	-0.2	0.84	(-1.81,1.48)
Man x Italy x $ns_3(Age_{i,j})$	$\iota_{3,5}$	0.27	0.89	0.3	0.76	(-1.48,2.01)
Man x France x $ns_3(Age_{i,j})$	$\iota_{3,6}$	0.41	0.75	0.54	0.59	(-1.07,1.89)
Man x Denmark x $ns_3(Age_{i,j})$	$\iota_{3,7}$	-0.14	0.79	-0.18	0.86	(-1.7,1.41)
Man x Switzerland x $ns_3(Age_{i,j})$	$\iota_{3,8}$	2.41	1.12	2.14	0.03	(0.2,4.61)
Man x Belgium x $ns_3(Age_{i,j})$	$\iota_{3,9}$	0.32	0.68	0.47	0.64	(-1.02,1.66)
Man x Germany x $ns_4(Age_{i,j})$	$\iota_{4,2}$	0.4	0.42	0.95	0.34	(-0.42,1.22)
Man x Sweden x $ns_4(Age_{i,j})$	$\iota_{4,3}$	1.01	0.41	2.44	0.02	(0.2,1.82)
Man x Spain x $ns_4(Age_{i,j})$	$\iota_{4,4}$	0.66	0.38	1.77	0.08	(-0.07,1.4)
Man x Italy x $ns_4(Age_{i,j})$	$\iota_{4,5}$	0.04	0.41	0.1	0.92	(-0.77,0.86)
Man x France x $ns_4(Age_{i,j})$	$\iota_{4,6}$	0.79	0.39	2.02	0.04	(0.02,1.55)
Man x Denmark x $ns_4(Age_{i,j})$	$\iota_{4,7}$	1.02	0.43	2.37	0.02	(0.18,1.86)
Man x Switzerland x $ns_4(Age_{i,j})$	$\iota_{4,8}$	1.23	0.46	2.66	0.01	(0.32,2.13)
Man x Belgium x $ns_4(Age_{i,j})$	$\iota_{4,9}$	0.17	0.38	0.44	0.66	(-0.57,0.91)

Table A.8 – Estimated working correlation matrix for IADL The matrix is symmetric. Since the third wave was not considered, it must be $\boldsymbol{Cor(y_{i3}, y_{i9}) = 0}$. The only respondents for which we observe $\boldsymbol{j = 9}$ started in the first wave and given that we did not consider wave three (the third time we observe these respondents), there are no observations to estimate $\boldsymbol{Cor(y_{i3}, y_{i9}) = 0}$. This partly justifies the choice of the unstructured working correlation matrix. Except from that, the estimated working correlation matrix is very similar to a "Toepliz" type structure.

Indices	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
1	1								
2	0.36	1							
3	0.32	0.4	1						
4	0.26	0.33	0.38	1					
5	0.24	0.27	0.33	0.39	1				
6	0.2	0.22	0.28	0.31	0.42	1			
7	0.17	0.17	0.21	0.26	0.34	0.44	1		
8	0.13	0.15	0.16	0.26	0.27	0.34	0.4	1	
9	0.15	0.16	0	0.18	0.25	0.32	0.36	0.43	1

Table A.9 – Descriptive Marginal effect of the wealth variable in the models for GALI, ADL and IADL, expressed on the prevalence scale.

Variable	*Wealth*	*Effect*	*Std. Error*	*95% CI*
	1	*0.49*	*0.0023*	*(0.4854, 0.4946)*
	2	*0.4779*	*0.0024*	*(0.4731, 0.4826)*
GALI	***3***	*0.4485*	*0.0023*	*(0.444, 0.453)*
	4	*0.4294*	*0.0023*	*(0.4249 ,0.434)*
	5	*0.4113*	*0.0024*	*(0.4065, 0.416)*
	1	*0.1385*	*0.0016*	*(0.1354, 0.1416)*
	2	*0.133*	*0.0016*	*(0.13, 0.136)*
ADL	***3***	*0.1148*	*0.0015*	*(0.1119 ,0.1177)*
	4	*0.1043*	*0.0015*	*(0.1015, 0.1072)*
	5	*0.0959*	*0.0015*	*(0.093, 0.0989)*
	1	*0.2047*	*0.0018*	*(0.2011, 0.2082)*
	2	*0.1981*	*0.0018*	*(0.1946, 0.2016)*
IADL	***3***	*0.1765*	*0.0017*	*(0.1731, 0.1798)*
	4	*0.1634*	*0.0017*	*(0.16, 0.1667)*
	5	*0.1441*	*0.0017*	*(0.1407, 0.1475)*

Appendix 2

Age-period-cohort analysis

The classical age-period-cohort (APC) accounting generalized linear model for the age group $i = 1, \dots, a$, period $j = 1, \dots, p$ and cohorts $k = 1, \dots, a + p - 1$, can be written as

$$g(E[Y_{ij}]) = \mu + \alpha_i + \beta_j + \gamma_k, \quad \text{(A.1)}$$

Where μ is the intercept, α_i is the effect of the age group i, β_j is the effect of the period j and γ_k the effect of the cohort k, $g(.)$ is a link function and $E[.]$ the expected value of the random variable modelled. Note that in generalized linear model, the link function is a map from the space of the parameter to the real line, which is the space of the linear predictor. Y_{ij} belongs to the exponential family and the simplest case is when Y_{ij} is a Gaussian random variable. To be identifiable, the model in Equation (A.1) must be subject to the usual ANOVA parametrization constraint $\sum_{i=1}^{a} \alpha_i = \sum_{j=1}^{p} \beta_j = \sum_{k=1}^{a+p-1} \gamma_k = 0$. In addition, it is well known that the APC accounting model is not identified because of the linear dependency between age, period, and cohort [1]. In fact, the design matrix of model (A.1) has rank 1 less than full, so an infinite number of solutions (estimates) for the parameters α_i, β_j and γ_k fit any data equally well. That is, the data cannot distinguish different estimation results, so a constraint on the parameter space (e.g. $\beta_4 = \beta_1$) must be imposed in order to choose one set of estimates. Different solutions to the constraints selection problem are discussed in [1].
Recently, Luo and Hodges [2], proposed a different solution to the identifiability problem, assuming the model

$$g(E[Y_{ij}]) = \mu + \alpha_i + \beta_j + \alpha\beta_{ij(k)}, \quad \text{(A.2)}$$

Where $\alpha\beta_{ij(k)}$ is the interaction between the i-th age group and the j-th period, corresponding to the k-th cohort. The main difference is that now the representation of the cohort effect is done with more than one parameter.

Let Y_{ij} be a normally distributed random variable, $a = 5$ and $p = 5$, then Table 1 (reproduced from [2]) represent the expected value under models (A.1) (top panel) and (A.2) bottom panel.

Table 1. Age-period-cohort analysis representation.

Age		Period 1	2	3	4	5
Model (A.1)	1	$\mu + \alpha_1 + \beta_1 + \gamma_5$	$\mu + \alpha_1 + \beta_2 + \gamma_6$	$\mu + \alpha_1 + \beta_3 + \gamma_7$	$\mu + \alpha_1 + \beta_4 + \gamma_8$	$\mu + \alpha_1 + \beta_5 + \gamma_9$
	2	$\mu + \alpha_2 + \beta_1 + \gamma_4$	$\mu + \alpha_2 + \beta_2 + \gamma_5$	$\mu + \alpha_2 + \beta_3 + \gamma_6$	$\mu + \alpha_2 + \beta_4 + \gamma_7$	$\mu + \alpha_2 + \beta_5 + \gamma_8$
	3	$\mu + \alpha_3 + \beta_1 + \gamma_3$	$\mu + \alpha_3 + \beta_2 + \gamma_4$	$\mu + \alpha_3 + \beta_3 + \gamma_5$	$\mu + \alpha_3 + \beta_4 + \gamma_6$	$\mu + \alpha_3 + \beta_5 + \gamma_7$
	4	$\mu + \alpha_4 + \beta_1 + \gamma_2$	$\mu + \alpha_4 + \beta_2 + \gamma_3$	$\mu + \alpha_4 + \beta_3 + \gamma_4$	$\mu + \alpha_4 + \beta_4 + \gamma_5$	$\mu + \alpha_4 + \beta_5 + \gamma_6$
	5	$\mu + \alpha_5 + \beta_1 + \gamma_1$	$\mu + \alpha_5 + \beta_2 + \gamma_2$	$\mu + \alpha_5 + \beta_3 + \gamma_3$	$\mu + \alpha_5 + \beta_4 + \gamma_4$	$\mu + \alpha_5 + \beta_5 + \gamma_5$
Model (A.2)	1	$\mu + \alpha_1 + \beta_1 + \alpha\beta_{11(5)}$	$\mu + \alpha_1 + \beta_2 + \alpha\beta_{12(6)}$	$\mu + \alpha_1 + \beta_3 + \alpha\beta_{13(7)}$	$\mu + \alpha_1 + \beta_4 + \alpha\beta_{14(8)}$	$\mu + \alpha_1 + \beta_5 + \alpha\beta_{15(9)}$
	2	$\mu + \alpha_2 + \beta_1 + \alpha\beta_{21(4)}$	$\mu + \alpha_2 + \beta_2 + \alpha\beta_{22(5)}$	$\mu + \alpha_2 + \beta_3 + \alpha\beta_{23(6)}$	$\mu + \alpha_2 + \beta_4 + \alpha\beta_{24(7)}$	$\mu + \alpha_2 + \beta_5 + \alpha\beta_{25(8)}$
	3	$\mu + \alpha_3 + \beta_1 + \alpha\beta_{31(3)}$	$\mu + \alpha_3 + \beta_2 + \alpha\beta_{32(4)}$	$\mu + \alpha_3 + \beta_3 + \alpha\beta_{33(5)}$	$\mu + \alpha_3 + \beta_4 + \alpha\beta_{34(6)}$	$\mu + \alpha_3 + \beta_5 + \alpha\beta_{35(7)}$
	4	$\mu + \alpha_4 + \beta_1 + \alpha\beta_{41(2)}$	$\mu + \alpha_4 + \beta_2 + \alpha\beta_{42(3)}$	$\mu + \alpha_4 + \beta_3 + \alpha\beta_{43(4)}$	$\mu + \alpha_4 + \beta_4 + \alpha\beta_{44(5)}$	$\mu + \alpha_4 + \beta_5 + \alpha\beta_{45(6)}$
	5	$\mu + \alpha_5 + \beta_1 + \alpha\beta_{51(1)}$	$\mu + \alpha_5 + \beta_2 + \alpha\beta_{52(2)}$	$\mu + \alpha_5 + \beta_3 + \alpha\beta_{53(3)}$	$\mu + \alpha_5 + \beta_4 + \alpha\beta_{54(4)}$	$\mu + \alpha_5 + \beta_5 + \alpha\beta_{55(5)}$

Note: α_i denotes the mean difference from the global mean μ associated with the i-th age category. β_j denotes the mean difference from μ associated with the j-th period. γ_k denotes the mean difference from μ due to the membership in the k-th cohort in model (A.1). $\alpha\beta_{ij(k)}$ denotes the mean difference from age main effects α_i and period main effects β_j associated with ij-th age-by-period interaction in model (A.2).

Cohort 5 was highlighted in gray. Under model (A.1) the cohort effect is γ_5, however under model (A.2) there are five parameters representing the effect of $k = 5$, i.e. $\alpha\beta_{11(5)}$, $\alpha\beta_{22(5)}$, $\alpha\beta_{33(5)}$, $\alpha\beta_{44(5)}$ and $\alpha\beta_{55(5)}$. These parameter can be ordered according to period or age.

If we call the linear predictor of equation (A.1) $\eta_{ij1} = \mu + \alpha_i + \beta_j + \gamma_k$, and the linear predictor of equation (A.2) $\eta_{ij2} = \mu + \alpha_i + \beta_j + \alpha\beta_{ij(k)}$, it follows that the element in the top panel of table 1 can be written as $g^{-1}(\eta_{ij1})$ and the element in the bottom panel as $g^{-1}(\eta_{ij2})$, where $g^{-1}(.)$ is the inverse of the link function. Hence, when the link function is not the identity function, the cohort effect is not anymore linear. Two possible solutions are:

- To discuss the cohort effect in scale of the linear predictor (as we did in the manuscript),
- To discuss the expression $g^{-1}(\eta_{ij2})$ - $g^{-1}(\mu + \alpha_i + \beta_j)$.

Explanation of the Model

As explained in the "Statistical analysis" section of the paper, the following model was estimated

$$\begin{aligned} logit(\pi_{i,j}) = {} & \mu_0 + \sum_{l=1}^{4} \alpha_l \cdot ns_l(Age_{i,j}) + \beta \cdot M_i + \sum_{l=2}^{5} \gamma_l \cdot 1_{Wealth_{i,j}} \\ & + \sum_{l=2}^{9} \delta_l \cdot 1_{Country_{i,j}}(l) + \varepsilon \cdot p_{i,j} + \sum_{l=1}^{4} \zeta_l \cdot ns_l(Age_{i,j}) \\ & \cdot M_i \\ & + \sum_{l=1}^{4} \sum_{m=2}^{9} \eta_{l,m} \cdot ns_l(Age_{i,j}) \cdot 1_{\{Country_{i,j}\}}(m) \\ & + \sum_{l=1}^{4} \theta_{l,j} \cdot ns_i(Age_{i,j}) \cdot p_{i,j} \\ & + \sum_{l=1}^{4} \sum_{m=2}^{9} \iota_{q,i} \cdot ns_i(Age_{i,j}) \cdot M \cdot 1_{\{Country_{i,j}\}}(m) \\ & + \sum_{l=2}^{9} \kappa_s \cdot M_i \cdot 1_{Country_{i,j}}(l) \end{aligned} \qquad (A.3)$$

Where $ns_{(\cdot)}(Age_{i,j}, 4)$ indicates a natural spline transformation of the age with 4 degrees of freedom (estimated with the R package splines), $\mathrm{M_i}$ =

1_{Gender}(Male), where 1_X(x) is an indicator function equal to 1 when $X = x$ and zero otherwise, indicates the effect of being male and $j = p_{ij} - p_{i1} + 1$, counting repeated observations within the same subject (p_{ij} is the wave index). Greek letters represent the parameters to be estimated, the letter i indexes the individual and j the repeated measures. Note that the Greek letters were not used with the same meaning as in the previous paragraph.

The response variable in this analysis is modeled as a binomial variable with a single trial and a probability parameter, π_{ij}, which represents the probability of success. Since the SHARE dataset is used cross-sectionally, π_{ij} reflects prevalence. Being a generalized linear model, the mean is parameterized through a nonlinear link function, ensuring that the predicted mean (π_{ij}) remains within its natural bounds, i.e. between 0 and 1, while the linear predictor can span the entire real number line.

The linear predictor includes four variables - age, sex, wealth, and country - along with some of their interactions. To provide a flexible representation of the relationship with age, natural splines were employed. These are piecewise polynomial functions that ensure continuity and smoothness up to a specified order of differentiation. Natural splines enforce linearity at the boundaries of the defined interval, minimizing excessive oscillations at the edges. This characteristic makes them particularly suitable for capturing nonlinear relationships while preserving interpretability. For this study, we used natural splines with four degrees of freedom, effectively representing the relationship with age as a sum of four polynomial basis functions. Each interaction involving age incorporates all four spline components to fully represent its effect. In the model formula, the spline transformation is indicated by $ns_i(Age_{i,j})$ for brevity.The remaining model terms enter the linear predictor linearly, allowing their interpretation in the standard fashion.

Unlike the model described in [2], age in this study is treated as a continuous variable sampled at a one-year resolution. The period, represented by the wave index, is sampled at a two-year resolution but is also modeled as a continuous variable. Consequently, cohorts can technically be defined by individuals born within arbitrarilys mall time intervals. However, given the resolution of age and period, it is more practical to conceptualize cohorts as spanning one-year intervals. The interpretation remains consistent with the model presented in the previous section, with the following nuances:

1. The model is not parametrized with the respect to a grand average μ on the linear predictor scale. On the contrary, in Equation (A.3) the parameter μ_0 represents the women at 50 years old, living in Austria and in the first wave.
2. The age effect for the women in Austria, is here represented by a set of 4 parameter α_l which represent the effect of the single spline component. Most of the time, the coefficients of the splines function are not interpreted but the curve resulting from the linear combination of the different basis is plotted. The effect varies for male and for each other country. For example, for male in Austria, the coefficient for the effect of age is represented from $\alpha_l + \zeta_l$. Similarly with another country (note that there is a three way interaction between sex, age and country). In model (A.1) there was only one set of parameter indicated by α_i.
3. The effect of period is represented by a single parameter ε, since period was assumed to be linear (after a careful exploratory analysis).
4. The cohort effect is represented by the term $\sum_{l=1}^{4} \theta_{l,j} \cdot ns_i\left(Age_{i,j}\right) \cdot p_{i,j}$. This type of representation is parsimonious since there are only four $\theta_{l,j}$ for each j.

According to this notation, the cohort effect can be represented on the scale of the linear predictor as $\sum_{l=1}^{4} \theta_{l,j} \cdot ns_i\left(Age_{i,j}\right) \cdot p_{i,j}$ or on the scale of the prevalence as $logit^{-1}\left(\eta_{ij}\right) - logit^{-1}(\eta_{ij}^{*})$, where η_{ij} is the linear predictor represented in the Equation (A.3), η_{ij}^{*} is $\eta_{ij} - \sum_{l=1}^{4} \theta_{l,j} \cdot ns_i\left(Age_{i,j}\right) \cdot p_{i,j}$ and $logit^{-1}(.)$ is the inverse of the logit link. We adopted the first strategy on the paper.

An important aspect of the model concerns the correlation structure. The analysis includes data from all waves of the SHARE survey, which means some participants have repeated measurements across waves. These repeated measures introduce correlations within the data. To address this, we applied the generalized estimating equation framework, ensuring efficient variance estimation for confidence intervals and hypothesis testing. Given the substantial dataset, we employed an unstructured working correlation matrix, where a separate correlation parameter is estimated for each pair of periods. Here, the index j represents the period and ranges from 1 to 9. Notably, respondents observed at $\boldsymbol{j = 9}$ participated in the first wave, but since wave three was excluded, there are no data available to estimate $\boldsymbol{Cor(y_{i3}, y_{i9}) = 0}$. This absence supports the choice of the unstructured working correlation matrix. From the results section, it can be observed that the estimated working correlation matrix closely resembles a Toeplitz structure, except for one correlation that is set to zero.

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Appendix 3

Acknowledgements (full)

The SHARE data collection has been funded by the European Commission, DG RTD through FP5 (QLK6-CT-2001-00360), FP6 (SHARE-I3: RII-CT-2006-062193, COMPARE: CIT5-CT-2005-028857, SHARELIFE: CIT4-CT-2006-028812), FP7 (SHARE-PREP: GA N°211909, SHARE-LEAP: GA N°227822, SHARE M4: GA N°261982, DASISH: GA N°283646) and Horizon 2020 (SHARE-DEV3: GA N°676536, SHARE-COHESION: GA N°870628, SERISS: GA N°654221, SSHOC: GA N°823782, SHARE-COVID19: GA N°101015924) and by DG Employment, Social Affairs & Inclusion through VS 2015/0195, VS 2016/0135, VS 2018/0285, VS 2019/0332, VS 2020/0313 and SHARE-EUCOV: GA N°101052589 and EUCOVII: GA N°101102412. Additional funding from the German Ministry of Education and Research, the Max Planck Society for the Advancement of Science, the U.S. National Institute on Aging (U01_AG09740-13S2, P01_AG005842, P01_AG08291, P30_AG12815, R21_AG025169, Y1-AG-4553-01, IAG_BSR06-11, OGHA_04-064, BSR12-04, R01_AG052527-02, HHSN271201300071C, RAG052527A) and from various national funding sources is gratefully acknowledged (see www.share-eric.eu).
We acknowledge funding from Next Generation EU, in the context of the National Recovery and Resilience Plan, Investment PE8 – Project Age-It: "Ageing Well in an Ageing Society" [DM 1557 11.10.2022].