

APPENDIX

Table A1. Descriptive statistics about countries based on regions

Characteristic	N	Western N = 3,679 ¹	Southern N = 1,832 ¹	Northern N = 1,399 ¹	Eastern N = 5,444 ¹
Country	12,354				
Austria		567 (15%)			
Germany		1,184 (32%)			
France		421 (11%)			
Netherlands		233 (6.3%)			
Switzerland		314 (8.5%)			
Belgium		900 (24%)			
Luxembourg		60 (1.6%)			
Spain			345 (19%)		
Italy			378 (21%)		
Greece			280 (15%)		
Portugal			362 (20%)		
Cyprus			104 (5.7%)		
Malta			100 (5.5%)		
Slovakia			263 (14%)		
Sweden				342 (24%)	
Denmark				718 (51%)	
Finland				339 (24%)	
Czech Republic					338 (6.2%)
Poland					700 (13%)
Hungary					402 (7.4%)
Slovenia					806 (15%)
Estonia					1,340 (25%)
Croatia					770 (14%)
Lithuania					338 (6.2%)
Bulgaria					149 (2.7%)
Latvia					463 (8.5%)
Romania					138 (2.5%)

¹n (%)

Table A2. Operationalization of indicators of precarious employment within SHARE

Dimensions	Indicators	Operationalization
[1] Employment Stability	[1a] Employment contact/arrangement	[1a] Two categories: 1) fixed-term employment; 2) permanent employment arrangement
	[1b] Job tenure	[1b] Number of years in current job
	[1c] Multiple job	[1c] Dichotomous: 1) Yes – has more than one job; 2) No – has only one job
	[1d] Working time (weekly hours)	[1d] Four categories: 1) <24 hours; 2) 25-36 hours; 3) 37-48 hours; and 4) >48 hours
[2] Working Conditions (Subjective)	[2a] Job satisfaction	[2a] Satisfied with (main) job: 4-point scale, where 1 = Strongly disagree and 4 = Strongly agree (higher values indicate higher satisfaction)
	[2b] Physical demand	[2b] Job (main) physically demanding: 4-point scale, where 1 = Strongly disagree and 4 = Strongly agree (higher values indicate higher physical demand)
	[2c] Time pressure	[2c] Time pressure due to a heavy workload in (main) job: 4-point scale, where 1 = Strongly disagree and 4 = Strongly agree (higher values indicate higher time pressure)
	[2d] Little freedom	[2d] Little freedom to decide how I do my work in (main) job: 4-point scale, where 1 = Strongly disagree and 4 = Strongly agree (higher values indicate more little freedom)
	[2e] Support	[2e] Receive support in difficult situations in (main) job: 4-point scale, where 1 = Strongly disagree and 4 = Strongly agree (higher values indicate higher support)
	[2f] Recognition	[2f] Receive recognition for work in (main) job: 4-point scale, where 1 = Strongly disagree and 4 = Strongly agree (higher values indicate higher recognition)
	[2g] Adequate salary	[2g] Salary or earnings are adequate in (main) job: 4-point scale, where 1 = Strongly disagree and 4 = Strongly agree (higher values indicate more adequate salary)
	[2e] Job security	[2e] Job security in (main) job: 4-point scale, where 1 = Strongly disagree and 4 = Strongly agree (higher values indicate greater job security)
[3] Financial Stability	[3a] Income level	Year-specific earnings from employment as deciles
	[3b] Household income level	Total household earnings from all sources, unadjusted for household size and presented as year-specific deciles.
[4] Inclusion in Social Security Systems	[4a] Future Pension Claims	Dichotomous: 1) Yes ; 2) No
	[4b] Pension contribution ratio	The ratio of the maximum number of contribution years in any pension scheme to the respondent's age
	[4c] Benefits	Amount of benefits (deciles) in the future
[5] Employability	[5a] New skills	Opportunity to develop new skills in (main) job: 4-point scale, where 1 = Strongly disagree and 4 = Strongly agree (higher values indicate more opportunity)
	[5b] Promotion	Job (main) promotion prospects/ prospects for job advancement: 4-point scale, where 1 = Strongly disagree and 4 = Strongly agree (higher values indicate more promotion)

Source : Authors' compilation based on Survey of Health, Aging and Retirement (SHARE)

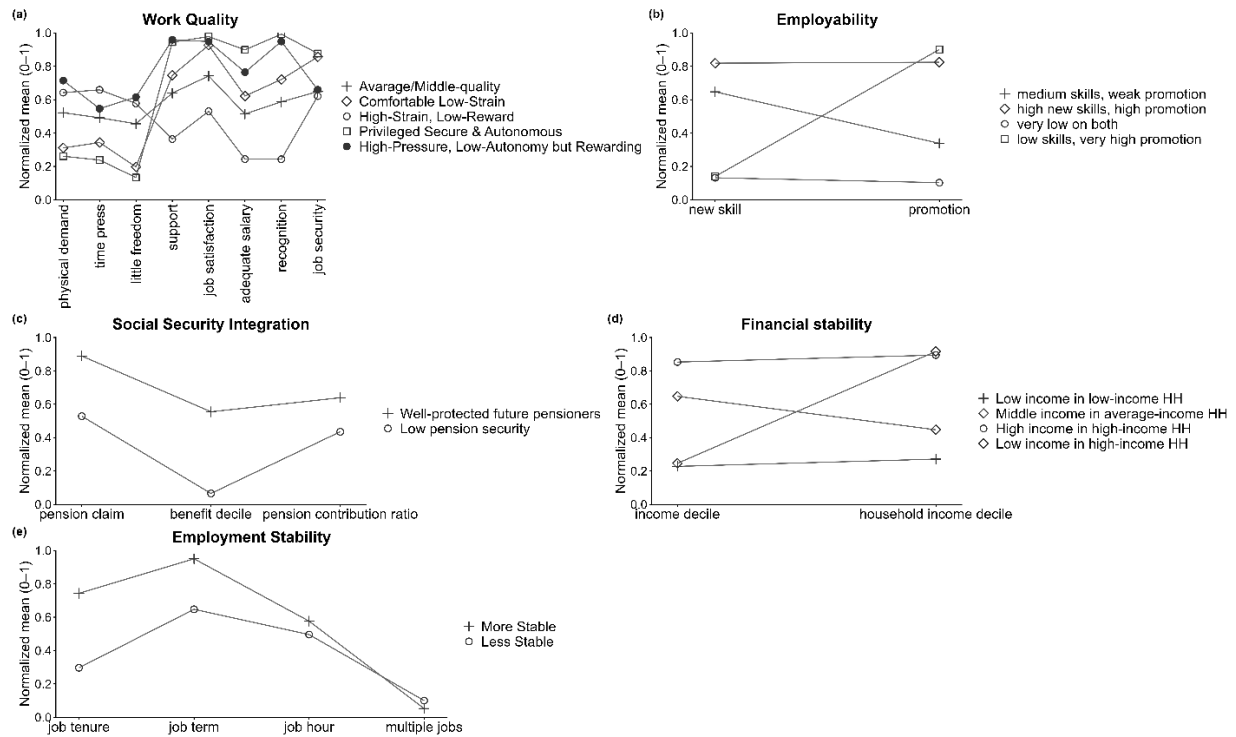
Table A3. Model selection for latent class solutions by precarious employment dimension

Dimension	Number of classes	Log-likelihood	BIC (LL)	AIC (LL)	Entropy	Class proportions
<i>Employment stability</i>	1	-35861,9753	71808,7462	71741,9505	—	—
	2	-35609,1186	71350,1416	71246,2373	0.3547	0.83 / 0.17
	3	-35592,8263	71364,6655	71223,6526	0.3442	0.84 / 0.10 / 0.06
<i>Work quality</i>	1	-69000,6993	138214,9232	138049,3985	—	—
	2	-66210,1797	132713,9558	132486,3594	0.6863	0.64 / 0.36
	3	-65354,2982	131082,2647	130792,5965	0.6940	0.64 / 0.19 / 0.17
	4	-64988,5729	130430,8858	130079,1459	0.7020	0.63 / 0.17 / 0.15 / 0.05
	5	-64770,2763	130074,3643	129660,5526	0.6531	0.55 / 0.20 / 0.12 / 0.08 / 0.05
	6	-64623,2041	129860,2917	129384,4083	0.6477	0.52 / 0.18 / 0.12 / 0.08 / 0.05 / 0.05
<i>Financial stability</i>	1	-36987,7378	74141,4924	74011,4755	—	—
	2	-36551,1452	73295,9768	73144,2905	0,5034	0.70 / 0.30
	3	-36502,097	73225,5499	73052,1941	0,4033	0.52 / 0.37 / 0.11
	4	-36448,6794	73146,384	72951,3587	0,5389	0.38 / 0.38 / 0.17 / 0.07
	5	-36443,4627	73163,6201	72946,9253	0,5528	0.38 / 0.31 / 0.17 / 0.07 / 0.07
<i>Employability</i>	1	-18034,6315	36122,6376	36081,263	—	—
	2	-17855,3951	35790,852	35728,7901	0.6125	0.93 / 0.07
	3	-17785,6876	35678,1243	35595,3751	0.7184	0.86 / 0.12 / 0.02
	4	-17701,1074	35535,6513	35432,2148	0.6796	0.74 / 0.12 / 0.11 / 0.03
	5	-17627,2601	35414,6441	35290,5203	0.7070	0.57 / 0.16 / 0.12 / 0.11 / 0.04
<i>Social security integration</i>	1	-26795,9555	53714,3028	53617,9111	—	—
	2	-26625,5833	53411,2173	53285,1666	0,3657	0.81 / 0.19
	3	-26610,9518	53419,6134	53263,9037	0,3689	0.65 / 0.24 / 0.11

Note. Selected solutions (lowest BIC and substantively interpretable) are indicated in bold.

AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion.

Figure A1. Posterior class profiles for the dimension-specific latent class solutions



The figure displays the estimated class-specific posterior means and probabilities for the observed indicators, illustrating systematic differences between classes. Within the **employment stability** dimension, the posterior profiles primarily distinguish a large class characterized by stable, permanent employment from a smaller class marked by temporary and discontinuous careers (see figure A1e). Indicators capturing weekly working hours and multiple job holding show limited differentiation across classes. The relatively coarse clustering within this dimension reflects the strong concentration of older workers in stable employment arrangements, consistent with age-graded labour market sorting. In other words, our results suggest that employment stability plays a minor role in defining precarity at older ages (showing much less variation than usually found among younger cohorts). For this reason, employment stability indicators are subsequently used as predictors rather than as a basis for further class differentiation.

By contrast, the **work quality** dimension yields five distinct classes (see figure A1a). The posterior profiles differentiate (1) “*privileged, secure, and autonomous*” jobs, characterized by the lowest levels of physical demands, time pressure, and restrictions on autonomy, alongside the highest levels of job security, satisfaction, pay, recognition, and support; (2) “*comfortable, low-strain*” jobs, which score relatively low on negative job

aspects and high on positive aspects compared with the remaining classes; (3) “*high-pressure, low-autonomy but rewarding*” jobs, marked by elevated demands, time pressure, and restricted autonomy but comparatively high levels of pay, support, recognition and job satisfaction; (4) “*average-quality*” jobs, showing mid-range levels across all indicators; and (5) “*high-strain, low-reward*” jobs, characterized by the highest levels of negative job attributes and the lowest levels of positive job characteristics.

Comparable and well-defined posterior patterns are also observed across the remaining dimensions. For **financial stability**, four classes emerge (see Figure A1d): (1) “*high-income individuals in high-income households*”, (2) “*middle-income individuals in average-income households*”, (3) “*low-income individuals in high-income households*”, and (4) “*low-income individuals in low-income households*”. For **employability opportunities** (see Figure A1b), the solution distinguishes (1) *high skill development and high promotion prospects*, (2) *medium skill development and weak promotion prospects*, (3) *low skill development combined with very high promotion prospects*, and (4) *very low levels on both dimensions*. Finally, the **social security** dimension yields two clearly differentiated classes (see Figure A1c), distinguishing (1) “*well-protected future pensioners*”, characterized by a higher claim a pension in the future, higher expected pension benefits, and higher contribution-to-age ratios, from individuals with (2) “*low pension security*”. All the distinctions of classes confirm that the selected class solutions capture internally coherent and theoretically meaningful positions within each domain.

Table A4. Fit Indices for Higher-Order Latent Class Models

Number of clusters	Log-likelihood	BIC (LL)	AIC (LL)	Entropy	Class proportions
1	-63906,9005	128002,2162	127853,801	—	—
2	-63014,0229	126367,1933	126100,0459	0.4151	0.64 / 0.36
3	-62810,9393	126111,7582	125725,8785	0.3825	0.54 / 0.28 / 0.18
4	-62633,8788	125908,3696	125403,7577	0.3848	0.47 / 0.20 / 0.19 / 0.14
5	-62516,0199	125823,384	125200,0399	0.3877	0,50 / 0,18 / 0,14 / 0,09 / 0,09

Note. Selected solutions (lowest BIC and substantively interpretable) are indicated in bold. AIC = Akaike Information Criterion; BIC = Bayesian Information Criterion

Table A5. Prevalence of precarious employment classes by occupations, regions and countries Or Distribution of precarious employment clusters across occupations, regions and countries and occupations (raw percentages)

Variable	Standard and Secure	Core-Precarious	Peripheral-Precarious	Privileged and Secure
Cluster Size	45%	20%	21%	14%
Occupation, n (%)				
Managers	40%	1%	6%	53%
Professionals	60%	2%	17%	21%
Technicians	53%	11%	19%	17%
Clerks	60%	12%	24%	4%
Service workers	31%	27%	37%	5%
Agriculture/fishery	31%	45%	20%	5%
Craft trades workers	53%	34%	7%	6%
Plant/machine operators	43%	45%	5%	7%
Elementary occup	7%	56%	36%	2%
Region, n (%)				
Eastern	47%	33%	9%	10%
Northern	48%	8%	22%	23%
Southern	50%	35%	9%	7%
Western	40%	4%	40%	16%