

Frailty and long-term care systems in Europe: aligning care demand and supply through care needs assessments

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The Gateway is a free public resource designed to facilitate cross-national and longitudinal studies on aging using the HRS international network of studies (NIA Grant R01 AG030153)



The Gateway is collecting information on the evolution of LTC policies

- The Gateway to Global Aging (g2aging.org) supports research using the international network of health and retirement studies (HRS-INS)
 - Policies have changed over the 30+ years covered by the HRS-INS
 - This is a barrier to cross-national research that the Gateway, like GOLTC, is working to reduce
- Starting in 2022, we began collecting information on the evolution of LTC policies and promoting related research

Introduction

- Frailty is strongly associated with adverse outcomes such as functional decline, hospitalization, mortality, and greater reliance on long-term care (LTC) (Romero-Ortuno and Kenny, 2012).
- In most LTC systems, eligibility for publicly financed care is determined through care needs assessments (CNA): structured procedures that convert information on physical, cognitive, and psychosocial limitations into eligibility and benefit levels.
- However, CNA design varies considerably across countries. This variation has direct implications for who gains access to LTC, at what stage of frailty, and at what cost to public systems.

Literature review

- LTC systems operate under high need risk, limited private insurance, and constrained supply of formal and informal care (Cylus et al., 2025).
- Public systems act as a backstop when household resources or informal caregiving are insufficient, but must rely on eligibility thresholds to manage service supply (Carrino & Orso, 2014).
- Despite the centrality of CNAs, little comparative evidence exists on how their design shapes cross-national variation in who gains access to LTC and at what stage of frailty.

This paper

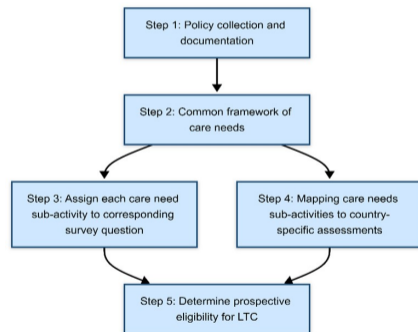
- We address this gap by providing new comparative evidence from eight European countries on eligibility thresholds and their evolution following major reforms.
- Specifically, we document where along the frailty continuum individuals first become eligible for public support, and how these thresholds have shifted over time.
- By applying a common frailty measure to a common population while simulating country-specific CNA rules, we isolate the role of eligibility design in shaping potential public LTC coverage.

Methodology - Frailty model

- A **frailty index** reflects a cumulative deficit model in which frailty is measured as the accumulation of health deficits present out of a defined set, yielding a continuous score between 0 and 1, with higher values indicating greater levels of frailty (Fried et al., 2001).
- In this study, the frailty index is constructed using the functional items on the activities of ADLs and IADLs based on Romero-Ortuno and Kenny (2012), which focuses on core aspects of autonomy in everyday life, medical conditions, and cognitive functions.

Methodology - Country and period-specific eligibility based on care needs assessment

- To systematically address differences in CNAs across countries, we employ a **harmonization process** based on policy documented in the Gateway LTC Policy Explorer (Gateway).
- This harmonization process ensures international comparability and supports longitudinal and cross-country analyses on aging, of which SHARE is a part.



Methodology - Common care needs framework (Step 2)

- A common care needs framework was developed by compiling all tasks and items included in country-specific CNAs.
- Currently there are 13 common macro-activities, 21 activities, and 251 sub-activities identified from country and state LTC care needs assessments.

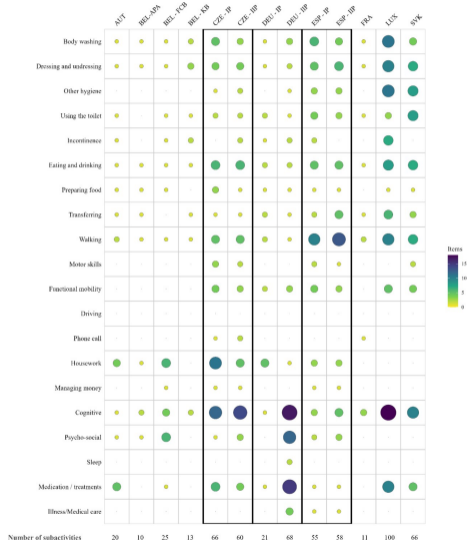
Macro activity	Activity	Sub-activity		
Physical hygiene	Body washing	Overall personal hygiene		
		Overall		
		Upper body		
		Lower body		
		Face		
		Showering		
		Hair washing		
		Hand washing		
		Need for routine bed baths		
		Operating bath or shower		
		Taking a bath		
		Dressing and undressing		Overall
				Putting on shoes
Recognizing clothing and shoes				
Reaching clothing and shoes				
Doing buttoning				
Upper body dressing				
		Lower body dressing		

Data

- We use data from the Survey of Health, Ageing and Retirement in Europe (SHARE).
- We restrict the sample to individuals aged 65+ in eight European countries (Austria, Belgium, Czech Republic, France, Germany, Luxembourg, Slovakia, and Spain) from Wave 9 of SHARE (2022).
- These countries are chosen because they have documented LTC policies in the Gateway LTC Policy Explorer and objective care needs assessments with defined eligibility thresholds.

Care needs assessment component activity level classification

- Countries differ widely in the size of the CNAs (10 elements in Belgium, 100 in Luxembourg) and in the activities that are most intensively assessed.
- Most systems prioritize functional limitations, cognitive and psycho-social activities. Less attention is devoted to medication and treatment-related activities.



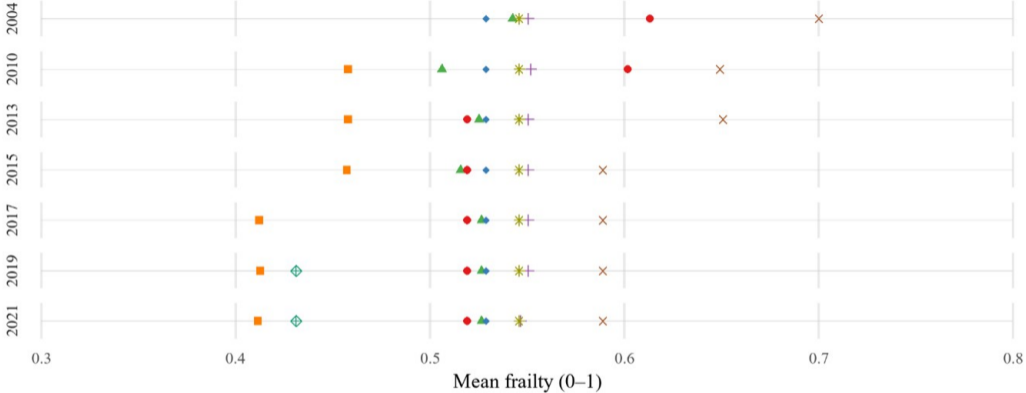
Descriptive statistics

- The average age of respondents is 76 years, and 56.5% are women. Most respondents live with a partner (56.6%), while 13.7% are single and 29.7% are widowed.
- 83.3% of respondents report no ADL difficulties, 8.3% report one limitation, 3.5% report two, and 4.9% report three or more.
- Applying each country's CNA rules to its respective respondents, we find that 15.0% of individuals in the pooled sample are eligible for LTC. This proportion varies conditional on the specific CNA applied.

Descriptive statistics

Characteristic	Total	AUT	GER	ESP	FR	BEL	CZE	SVK	LUX
Age (mean)	75.9	75.2	75.2	78.2	75.8	75.6	74.2	73.0	74.6
Sex									
Men	6343 (43.5%)	877 (44.2%)	1277 (44.1%)	606 (42.6%)	862 (43.5%)	1192 (44.4%)	1001 (41.4%)	259 (40.6%)	269 (46.3%)
Women	8247 (56.5%)	1277 (55.8%)	1372 (55.9%)	789 (57.4%)	1129 (56.5%)	1494 (55.6%)	1604 (58.6%)	293 (59.4%)	289 (53.7%)
Marital status									
In couple	8829 (56.6%)	1224 (54.2%)	1798 (58.5%)	933 (55.3%)	1123 (55.4%)	1555 (59.0%)	1405 (53.9%)	379 (52.1%)	412 (59.7%)
Single	1924 (13.7%)	364 (19.5%)	258 (12.9%)	112 (11.0%)	323 (15.8%)	398 (13.7%)	362 (12.5%)	45 (11.4%)	62 (16.8%)
Widowed	3827 (29.7%)	564 (26.3%)	592 (28.6%)	349 (33.7%)	541 (28.7%)	731 (27.4%)	838 (33.6%)	128 (36.5%)	84 (23.5%)
Orientation (% impaired)	845 (6.5%)	156 (7.2%)	103 (4.1%)	221 (16.8%)	75 (4.7%)	153 (6.5%)	98 (3.5%)	13 (3.0%)	26 (5.3%)
ADL difficulties									
0	12362 (83.3%)	1886 (88.3%)	2238 (83.9%)	1095 (78.0%)	1701 (84.1%)	2186 (80.6%)	2239 (86.9%)	511 (91.4%)	506 (89.1%)
1	1099 (8.3%)	115 (5.1%)	216 (8.7%)	81 (6.3%)	179 (9.5%)	277 (10.6%)	193 (6.8%)	15 (3.2%)	23 (4.3%)
2	479 (3.5%)	58 (2.6%)	88 (3.4%)	73 (5.1%)	45 (2.7%)	117 (4.7%)	71 (2.8%)	11 (2.1%)	16 (3.8%)
3+	611 (4.9%)	92 (4.0%)	99 (4.0%)	139 (10.5%)	60 (3.6%)	99 (4.1%)	96 (3.5%)	13 (3.3%)	13 (2.9%)
Frailty score (mean)	0.24	0.22	0.23	0.29	0.22	0.24	0.23	0.22	0.22
LTC eligibility									
Not eligible	12875 (85.0%)	1912 (89.4%)	2049 (77.2%)	1216 (86.9%)	1836 (91.2%)	2491 (92.1%)	2371 (91.4%)	525 (93.5%)	475 (83.3%)
Eligible	1648 (15.0%)	240 (10.6%)	546 (22.8%)	173 (13.1%)	150 (8.8%)	195 (7.9%)	234 (8.6%)	27 (6.5%)	83 (16.7%)
N	14590	2154	2649	1395	1991	2686	2605	552	558

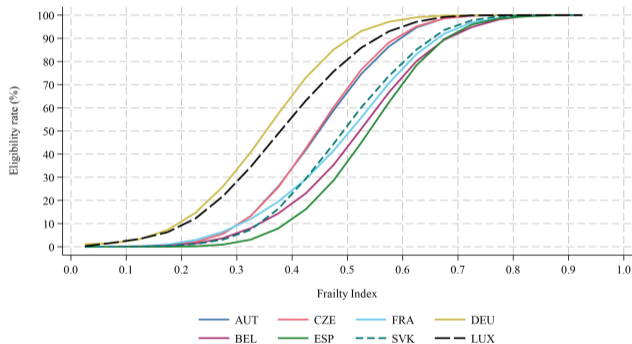
Results - Mean frailty ranges from 0.41 in Germany to 0.59 in Spain



Eligibility system

- ▲ AUT
- CZE
- ◆ FRA
- DEU
- + BEL
- × ESP
- * SVK
- ◇ LUX

Results - LTC eligibility rises steadily with frailty



- Threshold at 0.55: more than 50% eligible
- Levels off above 0.7: over 90% eligible
- Country variation: same dependency profile yields different eligibility across countries

Conclusion

- **Heterogeneity of CNAs design:** At the individual level, prospective eligibility for care varies depending on the assessment system used.
- **Evolution of CNAs:** A shift from purely functional measures to multidimensional assessments (physical, cognitive, psychosocial, behavioral), driven by aging, longer life expectancy, and the rise of dementia.
- **Timing of intervention:** Our framework provides a foundation for examining whether LTC systems intervene early, at stages when frailty may still be modifiable, or primarily at advanced stages, when needs are more complex and costly.

Thank you!

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Gateway's LTC Policy Effort

Step 1 - Policy collection and documentation

Collect and document historical LTC policies using standardized language for LTC eligibility and benefits (GPE documents).

Step 2 - Framework

Develop a framework of care needs with common categories and subcategories based on country and state LTC care need assessments.

Step 3 - Narratives

Identify a plausible HRS-INS survey question that can inform each category of care needs and develop documentation to facilitate consistent cross-country/state application of HRS-INS survey questions.

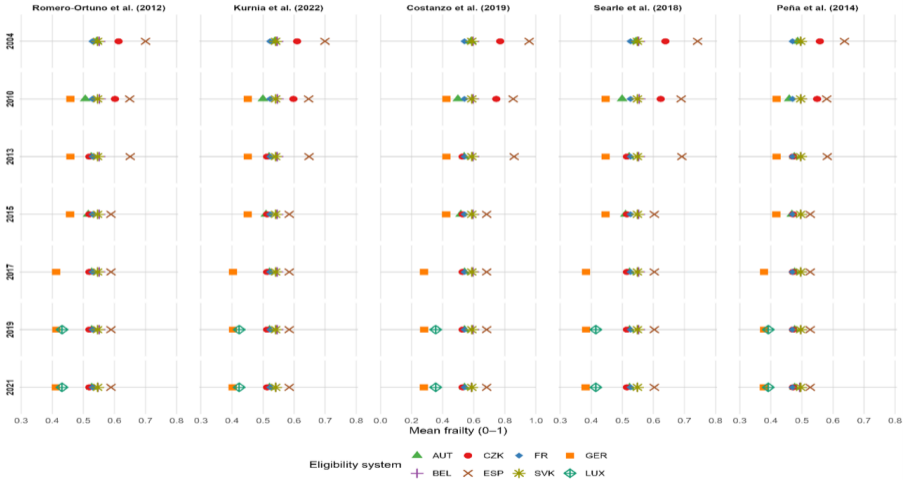
Step 4 - Mapping

Apply narratives to specific country and state assessment tools.

Step 5 - Predict eligibility

Use the mappings to code and apply the assessments to HRS-INS data in order to predict needs-based eligibility for care.

Robustness check - Mean frailty



Robustness check - Eligibility rates

