

The effects of physical health and aging on financial needs after retirement

an empirical analysis across Europe

Lieke Kools,
Marieke Knoef

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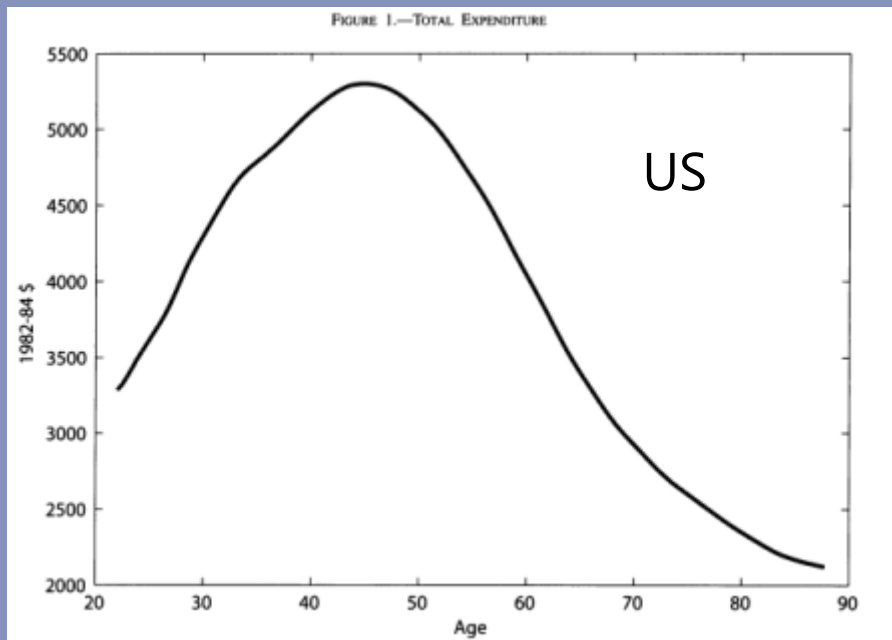


Universiteit Leiden
The Netherlands

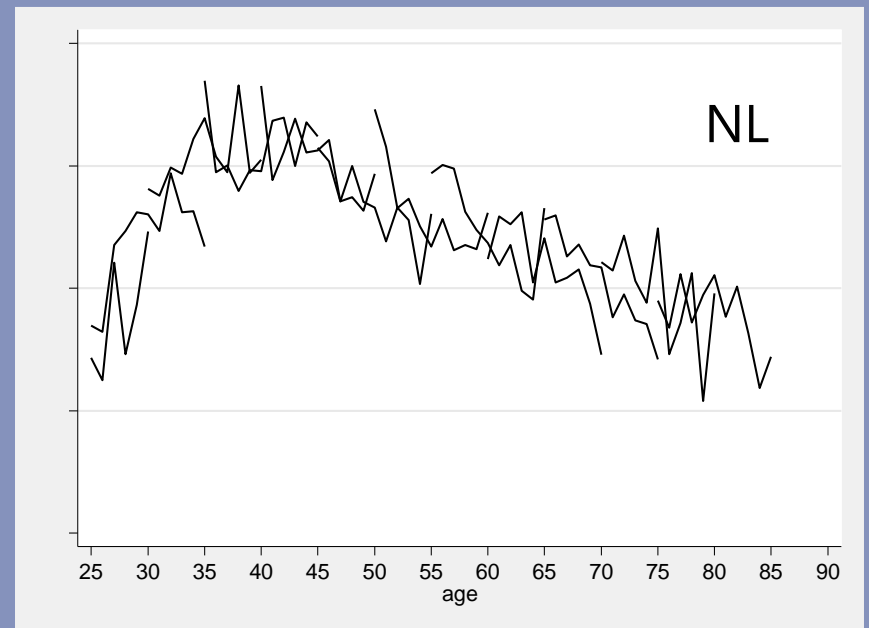


What is an adequate pension?

How do our expenditure needs develop during retirement?



Fernandez-Villaverde and Krueger (2007)



Van Ooijen, De Bresser en Knoef (2016)

Health and expenditures

Health problems

- (1) → lower possibilities to consume (e.g. traveling)
- (2) → increase need to 'outsource' home production tasks
- (3) → medical expenditures

Research goal

- What are the effects of aging and physical impairment in old age on financial needs?
- Can physical health problems explain the declining expenditures after retirement?

Contribution

- Longitudinal analysis of 'making ends meet' to investigate the effect of health on financial needs
- European countries
- Analyze role of informal care and cognitive functioning

Empirical evidence

Aging

- Expenditure needs decrease with age (Soede, 2012 and Dudel, 2016)
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Empirical evidence

Aging

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Health

- Mixed evidence
Finkelstein et al. 2013 -, Lillard and Weiss 1998 +,
De Nardi et al. 2009 ±

Mixed evidence

- Method
 - LCM, **observed change in utility**

Mixed evidence

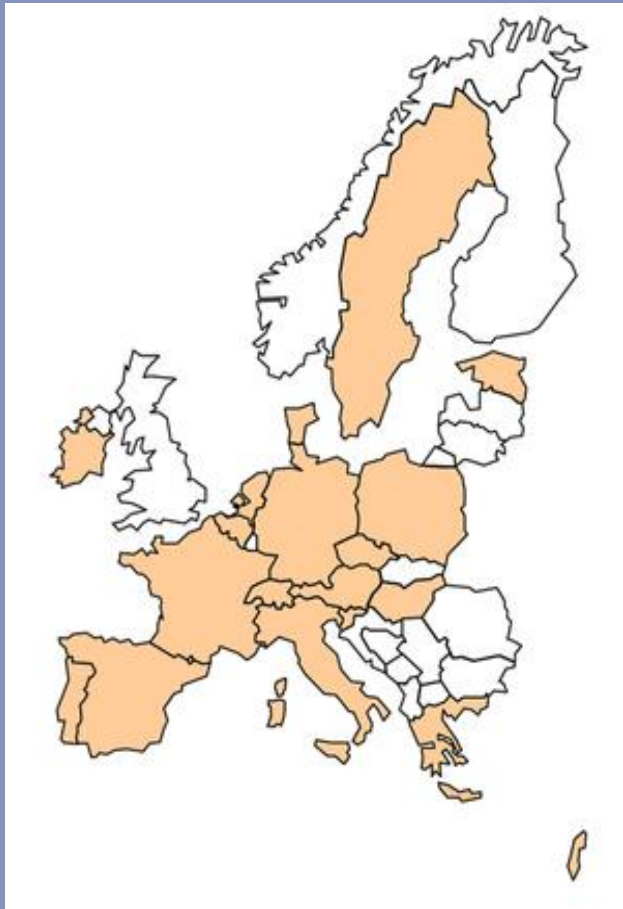
- Method
 - LCM, **observed change in utility**
- Context
 - Sample matters: heterogeneities wrt age
→ **we focus on retirees**

Mixed evidence

- Method
 - LCM, **observed change in utility**
- Context
 - Sample matters: heterogeneities wrt age
→ **we focus on retirees**
 - Broad definition of health (major health conditions)
→ **we focus on physical health problems**
 - Institutions: health care costs, informal care
→ **tests/controls**

Data

Survey of Health, Ageing, and Retirement in Europe



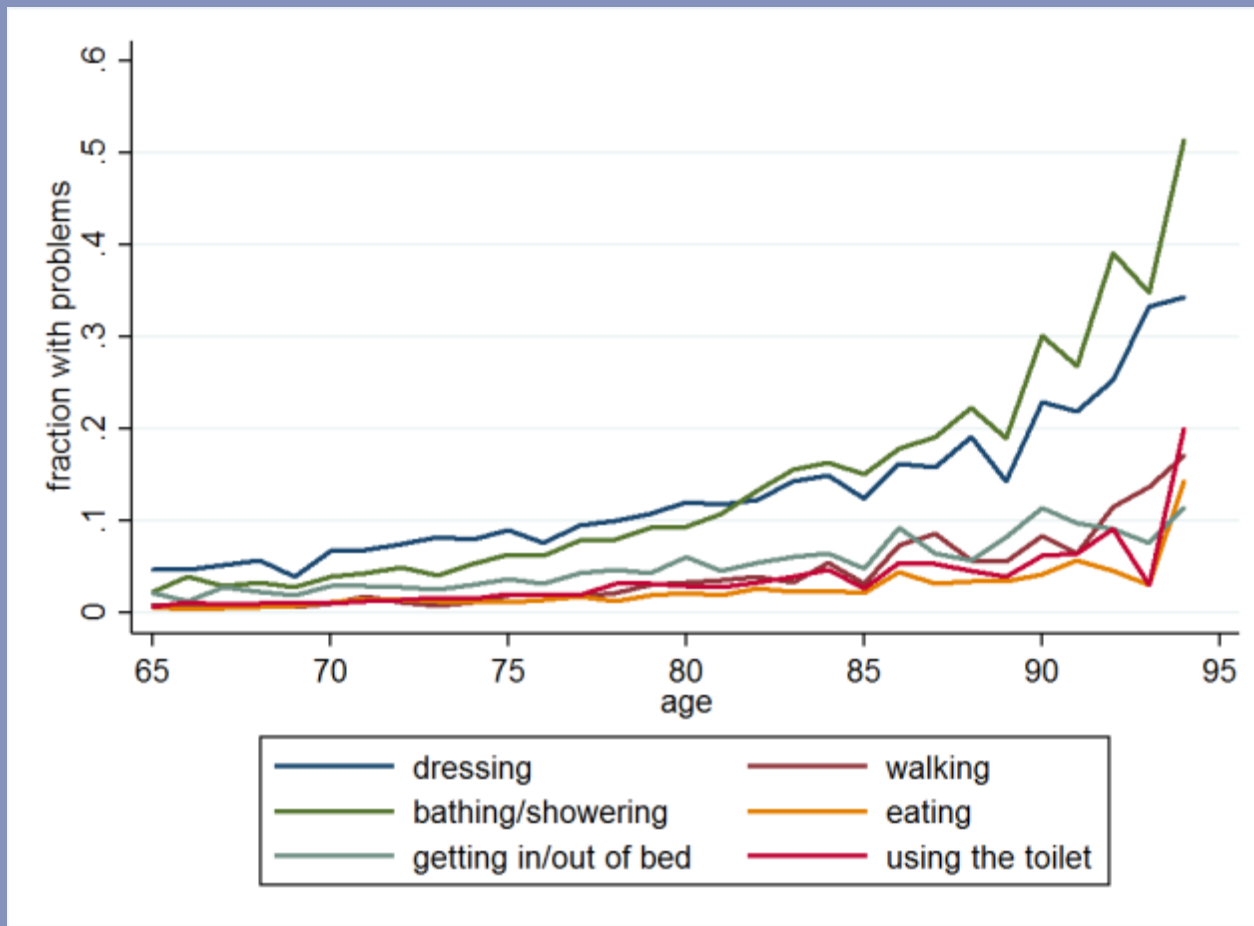
- 50+
- 4 waves (2004-2013)
- 20 countries
- Select 65+ retirees
→ health shock does not affect budget through labor supply

Financial satisfaction: making ends meet

Thinking of your household's total monthly income would you say your household is able to make ends meet?

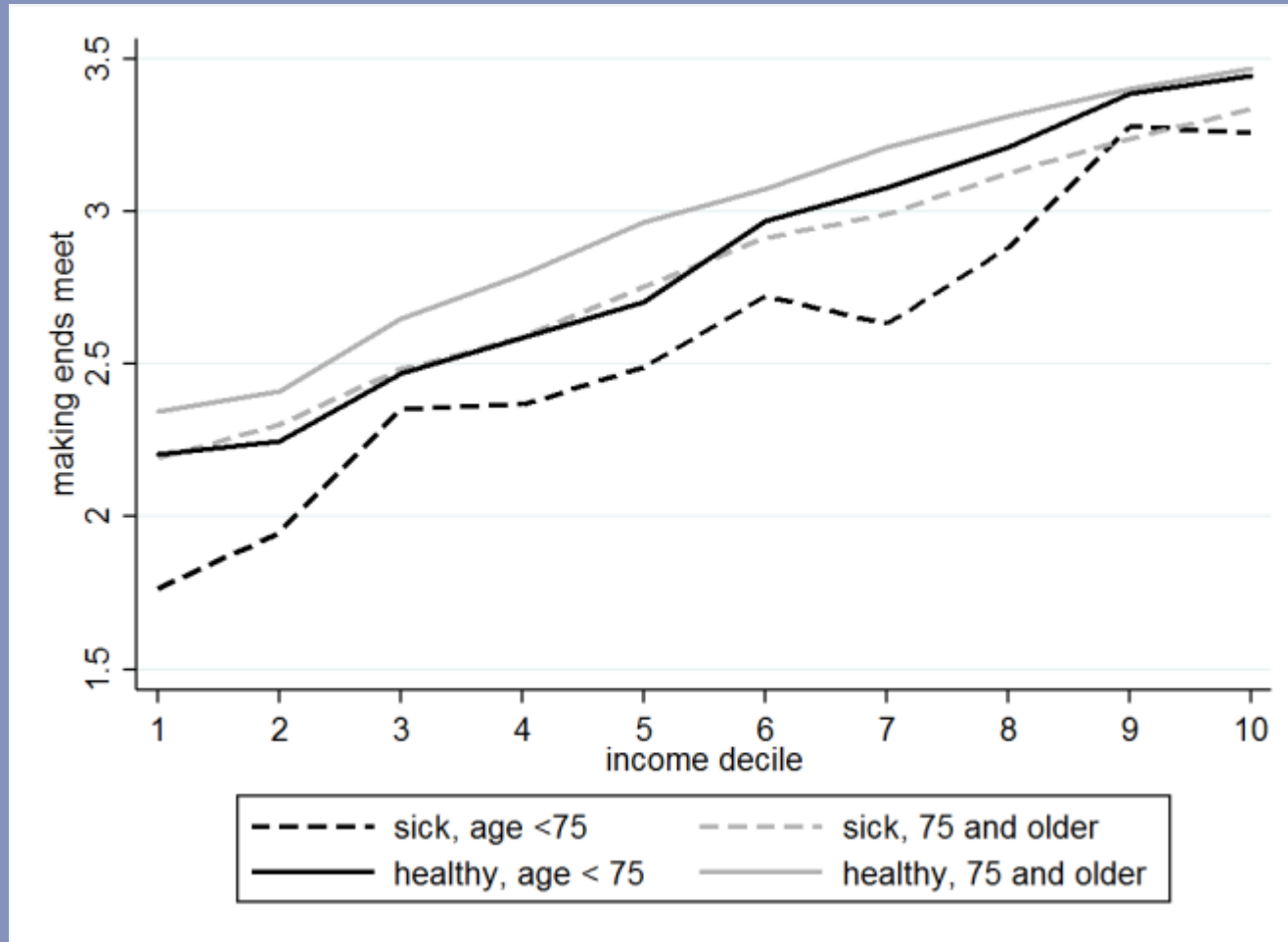
1. With great difficulty (9%)
2. With some difficulty (26%)
3. Fairly easily (34%)
4. Easily (31%)

Limitations: activities of daily living



Data

First impression



Intuition

How does the ability to make ends meet change after a health change?

How does the ability to make ends meet change when one becomes one year older?

- + expenditure needs decline
- expenditure needs increase

Model

where

$$z_{it}^* = \mathbf{x}_{it}\boldsymbol{\beta} + \eta_i + \epsilon_{it}$$

$$z_{it} = \begin{cases} 1 & \text{if } z_{it}^* \leq \delta_1 \\ 2 & \text{if } \delta_1 < z_{it}^* \leq \delta_2 \\ \vdots & \\ K & \text{if } \delta_{K-1} < z_{it}^* \end{cases}$$

$$\eta_i = \bar{\mathbf{x}}_i\boldsymbol{\delta} + \xi_i$$

z : making ends meet

\mathbf{x} : health, age, permanent income, negative/positive affect, gender, partner, education level, homeownership, country dummies, etc.

Answering styles



- Individual specific answering styles cancel out (tendency to use upper or lower end of the scale)

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- Time varying optimism/pessimism
 - measures of positive/negative affect
 - (+) positive expectations, concentration, enjoyment;
 - (-) sadness, guilt and irritation.

'Third factors' and reverse causality

Socio-economic status and time preferences may influence both physical health and the ability to make ends meet

- Variation within individuals

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- Variation within individuals

People who face difficulties in making ends meet have more stress and this may affect health negatively

- Long term stress may cause ADL problems -> within effects

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People who face difficulties in making ends meet have more stress and this may affect health negatively

- Long term stress may cause ADL problems -> within effects

When people face difficulties to make ends meet, they may be unable to pay for customary medical interventions

- Health insurance/government
- Sensitivity check: exclude poorest 25%

Limitations *increase* financial needs

A. Parameter estimates

limited (β_1)	-0.0902** (0.0363)
age (β_2)	0.0295*** (0.00714)
ln(perm. inc.) (β_3)	0.862*** (0.0299)

Limitations *increase* financial needs

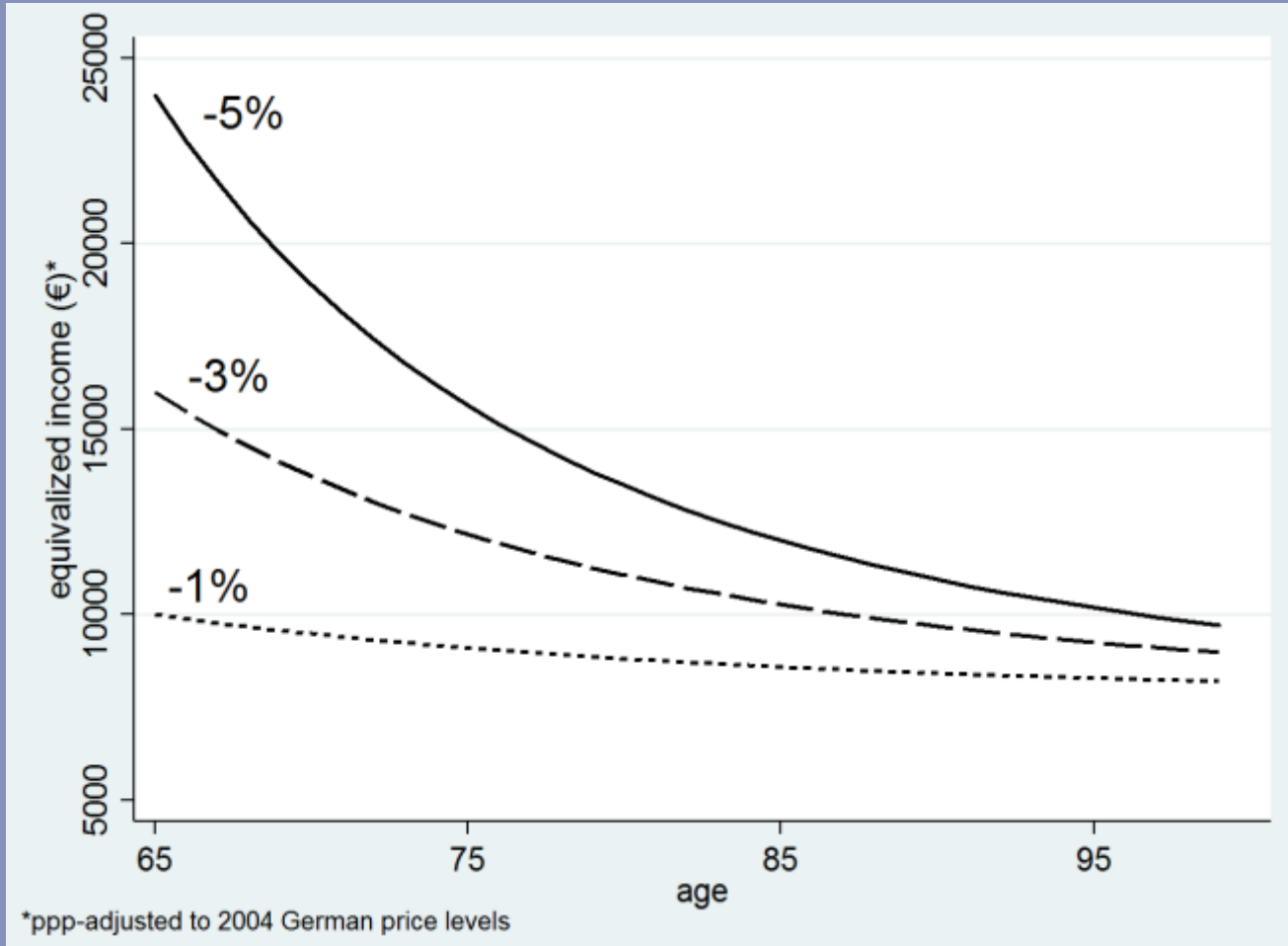
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Relative income change needed for ability to make ends meet to remain the same

1 year older	-0.034*** (0.0081)
1 or more limitations	0.11** (0.0469)

Heterogeneous age effects



(Daily) informal care

Spouse vs outside household

	bivariate regression	
	(2a)	(2b)
	ends meet	inf. care
A. Parameter estimates		
limited (β_1)	-0.0854*** (0.0277)	0.301*** (0.0463)
age (β_2)	0.0221*** (0.00529)	0.0147 (0.0115)
ln(perm. inc.) (β_3)	0.643*** (0.0223)	-0.0512 (0.0322)
informal care (β_4)	0.278*** (0.102)	
<u>informal care</u> (β_5)	0.204* (0.105)	
nr children		0.0299 (0.0556)
<u>nr children</u>		0.0410*** (0.0103)

(Daily) informal care

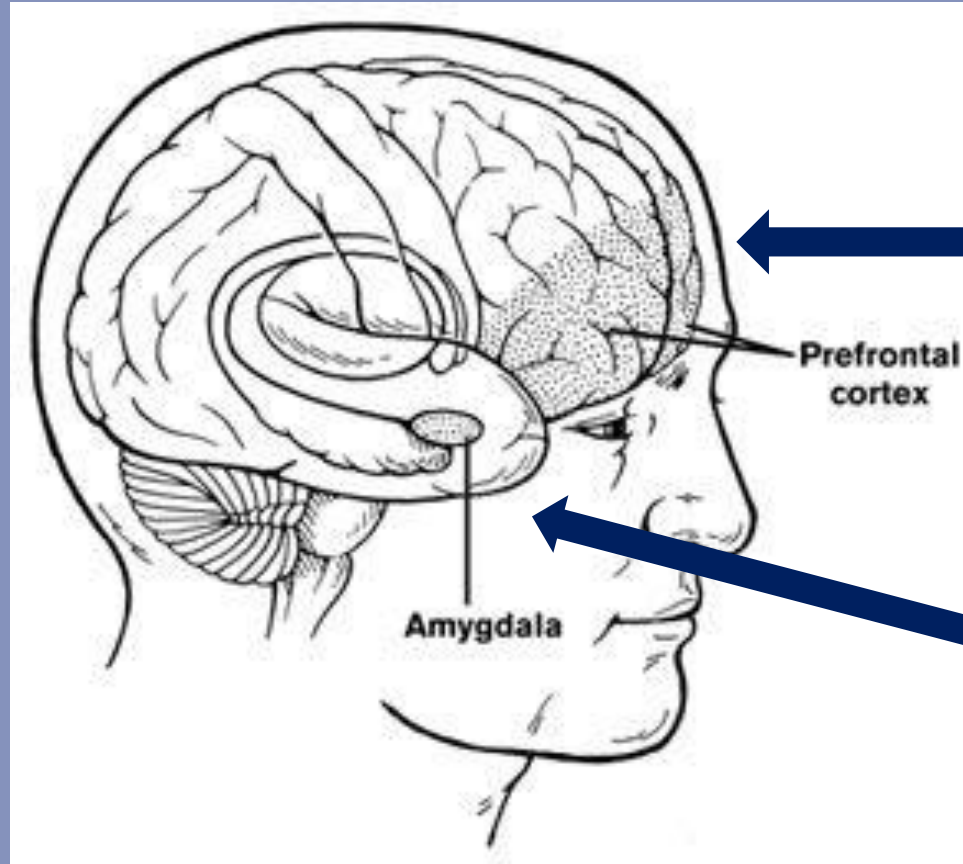
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Relative income change needed:

1 year older	-0.034*** (0.008)
1 or more limitations	0.142*** (0.0496)
daily informal care (between)	-0.351*** (0.1032)
daily informal care (within)	-0.272** (0.119)

Cognitive functioning



← Taking initiatives
Planning
Organizing

← Anxiety



Cognitive functioning

A. Parameter estimates

limited (β_1)	-0.0907** (0.0367)
age (β_2)	0.0320*** (0.00720)
ln(perm. inc.) (β_3)	0.874*** (0.0302)
cognitive disfunctioning (β_4)	0.0235*** (0.00721)

Cognitive functioning

A. Parameter estimates

limited (β_1)	-0.0907** (0.0367)
age (β_2)	0.0320*** (0.00720)
ln(perm. inc.) (β_3)	0.874*** (0.0302)
cognitive disfunctioning (β_4)	0.0235*** (0.00721)

Relative income change needed:

1 year older	-0.036*** (0.008)
1 or more limitations	0.109** (0.0468)
1 word less recalled	-0.027*** (0.0081)

Results

Other results and checks

No significant differences between north, central and south/east European countries

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Alternative measures of limitations

- IADL (shopping, preparing a meal, gardening, etc.) +11.5%
- mobility (walking 100m, climbing stairs, etc.) + 13.8%

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Alternative measures of limitations

- IADL (shopping, preparing a meal, gardening, etc.) +11.5%
- mobility (walking 100m, climbing stairs, etc.) + 13.8%

Weekly informal care

Alternative instruments: distance children, fraction female children

Health, aging, and financial needs

- Financial needs decline with age, though not due to physical limitations
- Limitations *increase* financial needs (not driven by health care costs)

Health, aging, and financial needs

- Financial needs decline with age (-3%), though not due to physical limitations
- Limitations *increase* financial needs (+11%, not driven by medical costs)
- Informal care decreases financial needs
- Cognitive impairments lower financial needs



Policy implications

- The onset of physical limitations is heterogeneous → variation in expenditure needs after retirement
- Default pension declining with age (at least for high income earners), combined with a “disability insurance”?