

Financing long-term care through housing in Europe?

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Context

Introduction – Data – Method – Results – Discussion

- Population aging
- Financial and fiscal sustainability?
 - ▣ Private financing arrangements for LTC
 - LTC cost >> income of older people
 - Small private LTC insurance market
 - Brown & Finkelstein 2009, Fontaine & Zerrar 2013
 - **Home equity**
 - Self-insurance for LTC (Davidoff 2009-10, Laferrère 2012)

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□ SHARE wave 5, 65+

	% owners	Value of main residence (if >0, median)	Equivalised annual hh income (median)	Net financial assets (median)
Austria	49	200,000	18,251	6,223
Germany	58	195,000	17,430	11,500
Sweden	53	173,028	27,688	46,141
Netherlands	59	215,000	20,118	24,000
Spain	92	120,000	8,468	2,584
Italy	82	200,000	10,323	2,881
France	78	240,000	19,110	17,300
Denmark	67	160,901	21,106	40,225
Belgium	74	250,000	20,714	35,000

Objective

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- Research question: **Ability to pay for LTC needs in Europe?**
 - ▣ Income, financial assets, home equity
 - **Reverse mortgages (RM)**
- Contributions
 - ▣ Life cycle approach
 - ▣ Individual trajectories
 - ▣ "LTC reverse mortgages"

How to extract home equity?

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- Downsizing: selling the house and moving to a less expensive home
 - ▣ Low residential mobility of elderly. Movers generally do not reduce home equity
 - Venti & Wise, Angelini & Laferrère 2012
- Disadvantage: elderly people have to move
 - ▣ Most people would prefer to *"age in place"*

- Equity release schemes: enable homeowners to liquidate all or part of their housing equity, while continuing to live in their home
 - ▣ Home reversions (UK), French sales *en viager*
 - ▣ Reverse mortgages
- Home reversions = sale arrangements
 - ▣ Transfer of ownership
 - ▣ Annuity, lump-sum or combination of the two
 - ▣ 1/3 of the Equity release scheme market in Europe

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- **Reverse mortgages** = credit operation
 - ▣ No repayments as long as the borrower continues to live in the home
 - ▣ No negative equity guarantee + non-recourse loan
- Small but developing market
- Effect on economic well-being?
 - ▣ Restricted to the oldest age-groups, higher for single and low-income individuals

Housing and LTC financing

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- Masson 2015: "LTC reverse mortgage"
- Empirical studies: home equity can improve ability to pay for LTC needs
 - Stucki 2006 (US), Mayhew et al 2010 (UK)
 - Do not take into account disparities in the risk of disability
- Homeownership ↓ risk of LTC expenditures
 - Costa-Font 2008, Bockarjova et al 2014

Database

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- SHARE data, waves 1, 2, 3, 4, 5
 - ▣ Focus on 65+
 - ▣ 9 countries: AT, DE, SE, NL, ES, IT, FR, DK, BE
- Information on
 - ▣ Limitations with instrumental and basic activities of daily living (IADLs and ADLs)
 - ▣ Income, financial and housing assets

Methodology

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- To answer our question, we need 4 steps:
 - ▣ 1. Simulation of the periods of LTC needs
 - Disability transition model
 - Microsimulation → 2051
 - ▣ 2. Estimation of the LTC cost
 - ▣ 3. Simulation of RM
 - ▣ 4. Ability to pay for LTC needs

Step 1: LTC needs

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- We assume that an individual is dependent if he reports **difficulties** with at least 2 ADLs
 - ▣ ADLs: dressing, walking across a room, bathing, eating, getting in/out of bed, using the toilet
 - ▣ Triggers Medicaid and private policies benefits
- LTC risk? Number of periods of LTC needs?
 - ▣ **Microsimulation → year 2051**

Disability transition model

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- Waves 1-2 + 2-3 + 4-5
 - ▣ Probability of dying (logit model, n=31,203)
 - ▣ 2+ ADLs, age, sex, education, hh income, country
 - ▣ Correction factor
- Waves 1-2 + 4-5 (if alive in both waves)
 - ▣ Probability of becoming dependent (n=17,803)
 - ▣ Probability of recovery (n=1,248)
- We simulate (x10) disability trajectories of individuals who are 65+ in wave 5 until they die (n=23,769)

Probability of dying

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	Average marginal effects
2+ ADLs	0.067***
Age	0.005***
Female	-0.029***
Income (country level)	
- 1st quintile	Ref
- 2 nd quintile	-0.006*
- 3rd quintile	-0.007**
- 4th quintile	-0.007*
- 5th quintile	-0.010**
Education	
- Primary	Ref
- Secondary	-0.006*
- Tertiary	-0.009**
Number of observations	31,203

Probability of becoming dependent

Introduction – Data – **Method** – Results – Discussion

	Average marginal effects
Age	0.006***
Female	0.012***
Income (country level)	
- 1st quintile	Ref
- 2 nd quintile	ns
- 3rd quintile	-0.014***
- 4th quintile	-0.023***
- 5th quintile	-0.025***
Education	
- Primary	Ref
- Secondary	-0.016***
- Tertiary	-0.027***
Number of observations	17,803

Probability of recovery

Introduction – Data – **Method** – Results – Discussion

	Average marginal effects
Age	-0.011***
Female	ns
Income (country level)	
- 1st quintile	Ref
- 2 nd quintile	ns
- 3rd quintile	ns
- 4th quintile	ns
- 5th quintile	ns
Education	
- Primary	Ref
- Secondary	0.052*
- Tertiary	ns
Number of observations	1,248

Step 2: LTC cost

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- We use 6 ADLs and 3 IADLs
 - ▣ LTC needs in hours (Pampalon et al 1991)
 - ▣ + Hourly labor costs (Eurostat 2015)
 - ▣ Assumption: no public coverage, no informal care

LTC needs (average on 65+ with limitations in 2+ ADLs)

Austria	28 hours/w	41,006 €/year (v1)	24,172 €/year (v2)
Germany	27	38,714	23,200
Sweden	29	51,431	37,716
Netherlands	26	44,505	24,923
Spain	33	38,820	24,023
Italy	28	41,320	26,282
France	27	40,463	31,763
Denmark	26	48,722	38,896
Belgium	27	42,619	29,764

Step 3: Simulation of RM

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- $LS \text{ payment} = H \times \frac{(1+g)^{life_exp}}{(1+m)^{life_exp}}$
 - ▣ H: home equity
 - ▣ g: growth rate of housing prices
 - Assumption = 0%
 - ▣ m: interest rate of the reverse mortgage
 - Assumption = 8%
 - ▣ Life tables from the Human Mortality Database
- Ex: if H=200,000 euros and age=84 in France (life expectancy=7.57 years), LS=111,689 euros today

Step 4: Ability to pay

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- Ability to pay for LTC on the basis of:
 - ▣ HH income – (home expenditure + food consumption)
 - ▣ + HH net financial assets
 - ▣ + Other real estate: holiday homes, land...
 - ▣ + Reverse mortgage
- Focus on individuals who have no partner (7,000)
- Income and assets are known in wave 5. Evolution?
 - ▣ LTC costs and income remain unchanged
 - ▣ Assets are divided by two if there are children

LTC risk and duration

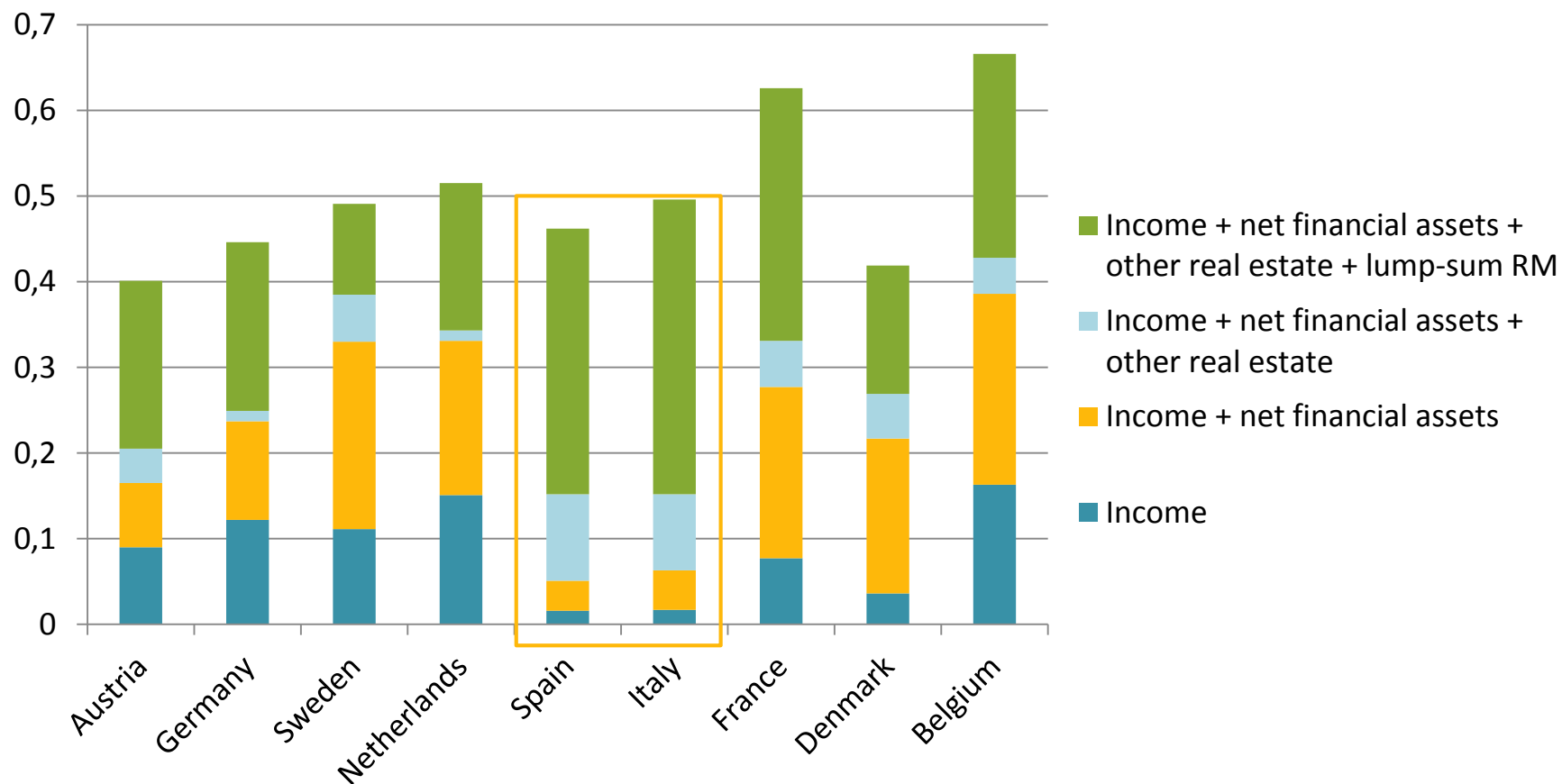
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65+ in wave 5 (n=23,769)	LTC risk (%)	Duration if >0 (years, discrete)
Total	57.1	4.3
Male	45.8	3.7
Female	65.5	4.6
1st income quintile	62.2	4.2
5th income quintile	50.4	4.3
Primary education	64.5	4.4
Tertiary education	46.4	4.1
Austria	55.8	4.2
Germany	58.8	4.2
Sweden	34.0	3.4
Netherlands	34.0	3.7
Spain	67.6	4.8
Italy	63.0	4.5
France	51.4	3.8
Denmark	41.8	4.2
Belgium	55.4	4.3

LTC financing

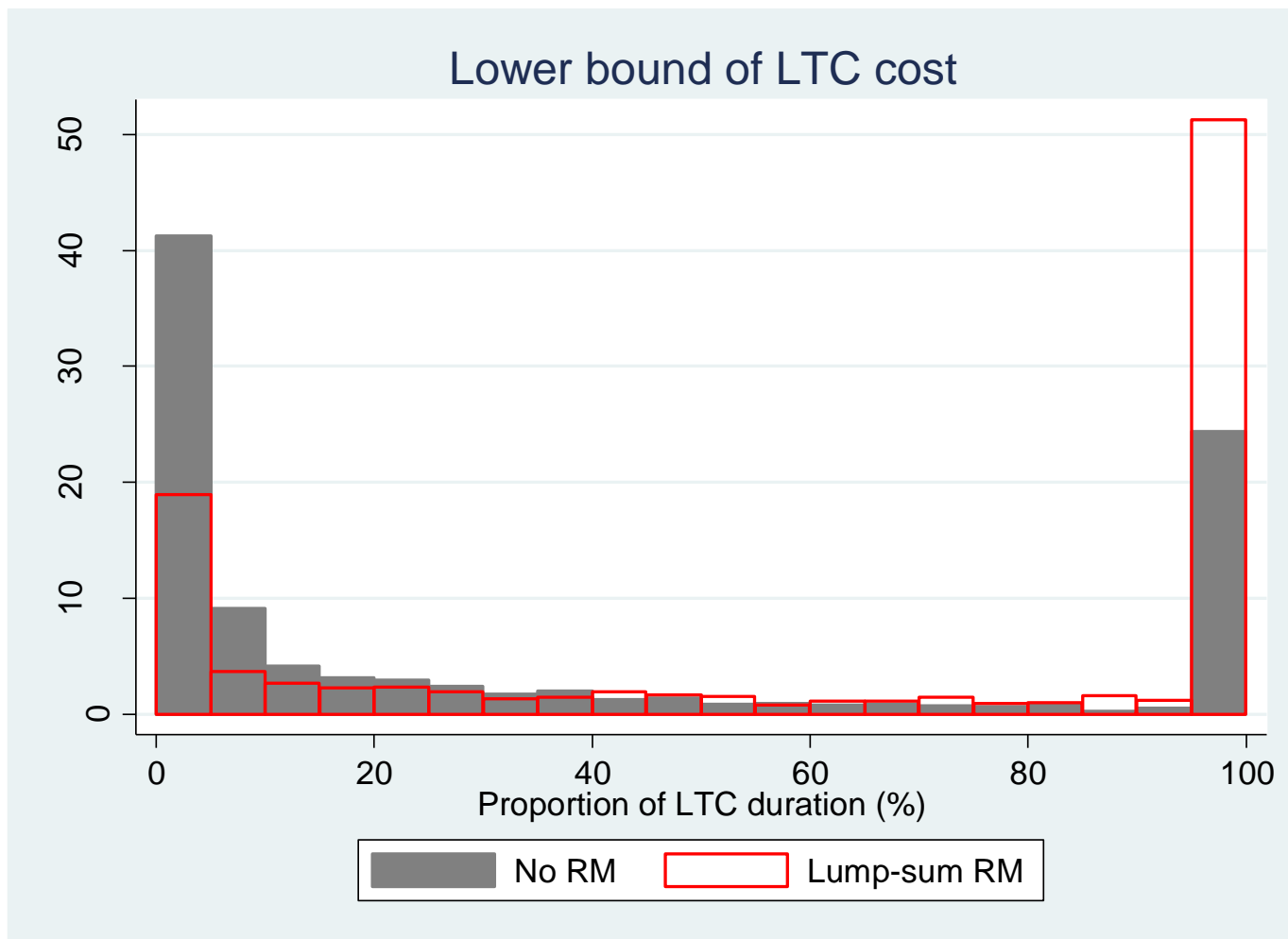
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Proportion of dependent individuals who are able to pay for LTC



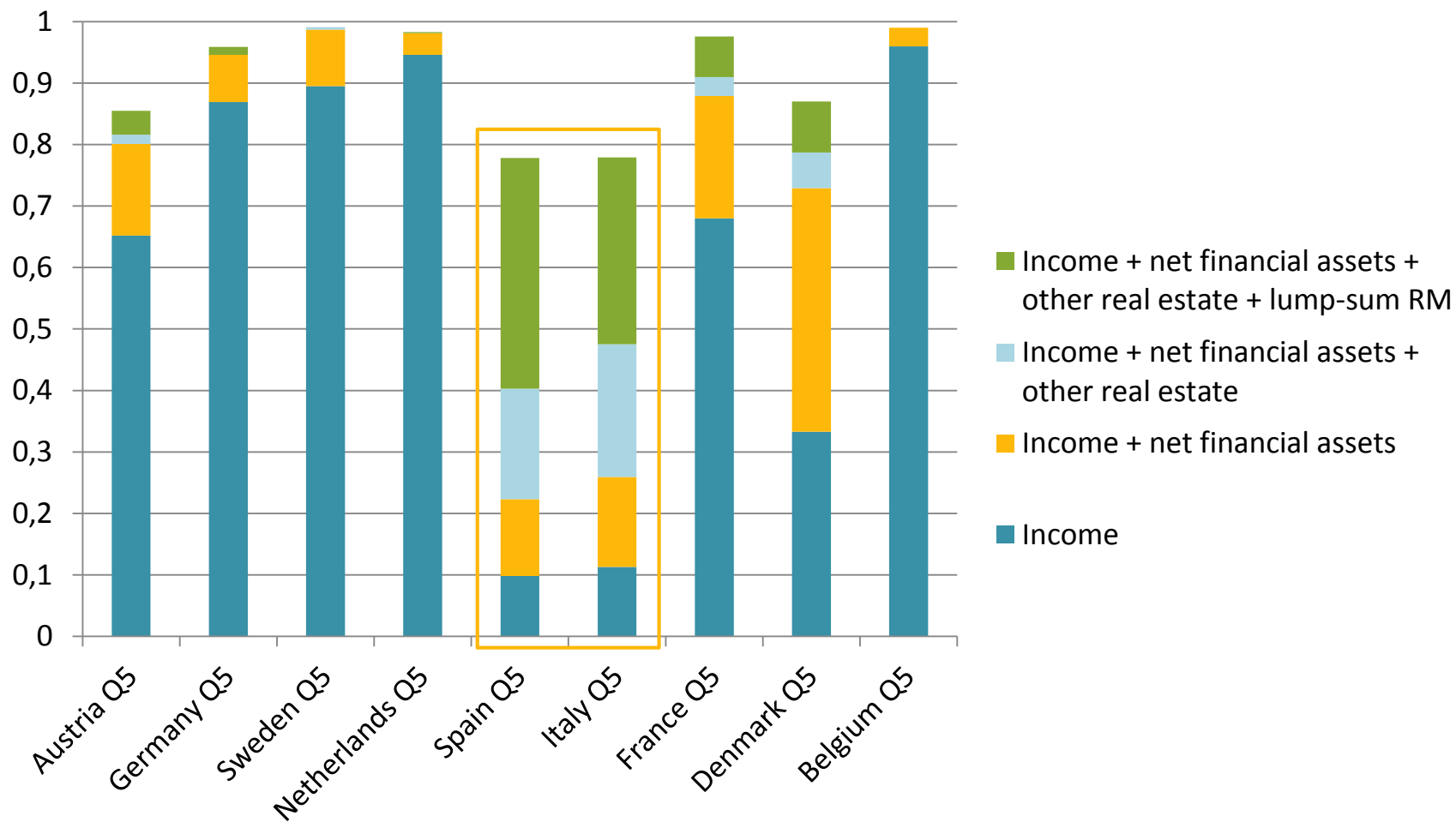
LTC financing - distribution

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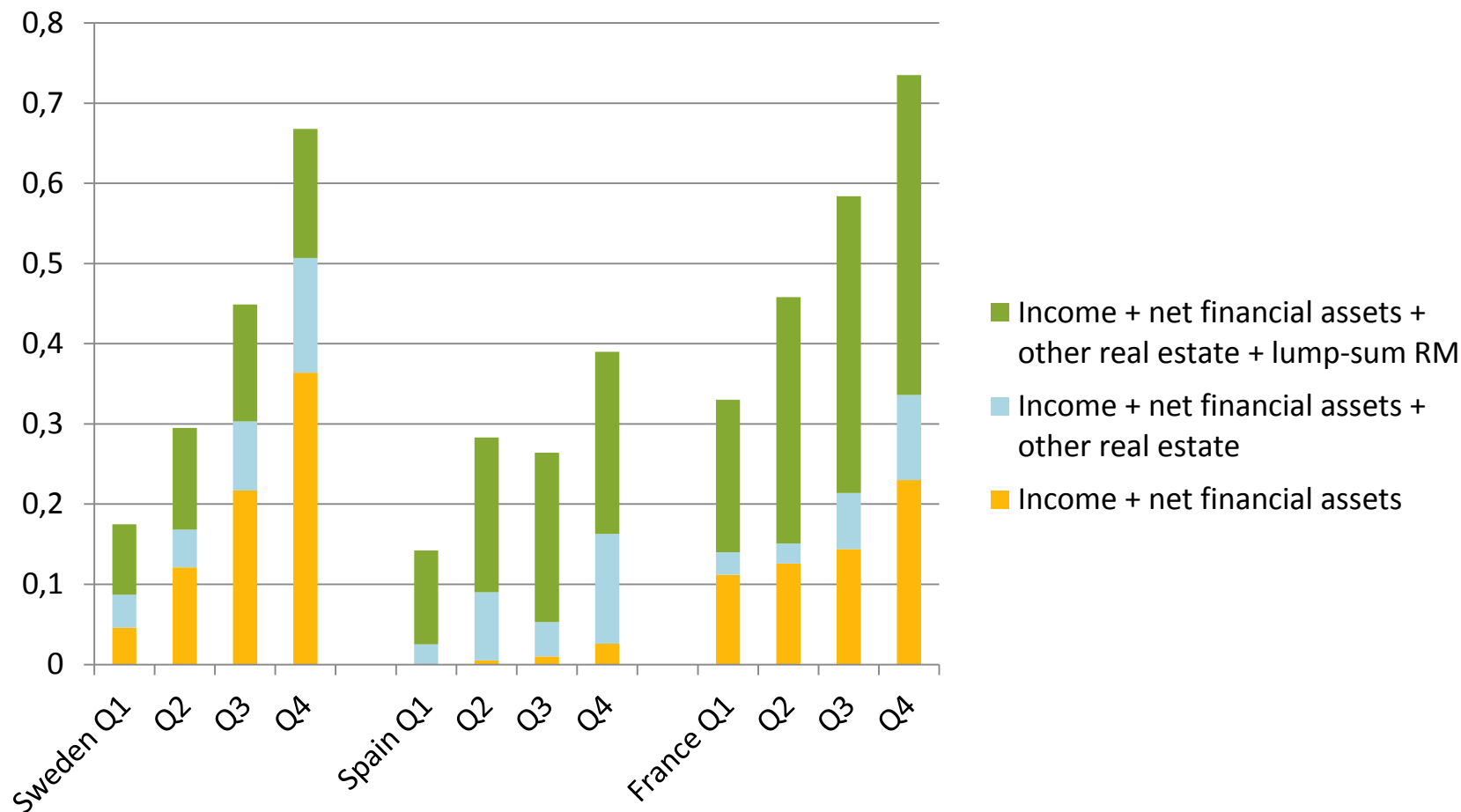


LTC financing – by income quintiles

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Introduction – Data – Method – Results – Discussion



Alternative scenarios

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- Results robust to changes in interest rate and LE
- RMs improve the ability to pay for LTC even if individuals borrow on only 50 or 75% of H
- Informal care (LTC cost 50% lower if children)
 - 68% of individuals with children can pay for LTC, 50% of individuals without children
- Public LTC coverage improves the ability to finance periods of disability and, if copayments increase with income, it reduces social inequalities

Conclusion

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- RMs play an important role, particularly in Spain and Italy
- But **half** of individuals **cannot** totally pay for their LTC expenditures, even if they use all their income and assets...
- ...and 20% can finance less than 5% of their LTC needs
- → Need for additional LTC coverage, provided by the family, the State or the market

Limitations

■ Introduction ■ Data ■ Method ■ Results ■ Discussion

- Attrition in the disability transition model
- Potential changes in disability and mortality trends
- Simplifying assumptions
- Further work
 - More realistic informal care & public policy scenarios
 - Replicate the model on English data (ELSA)

Thanks for your attention!

