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Long-term care use: Determinants and projections

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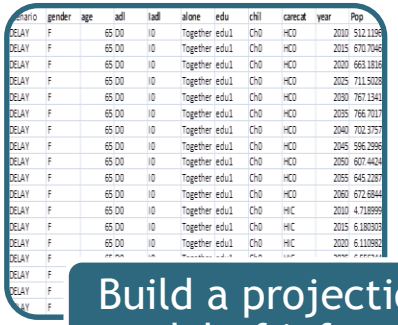
Modelling future use of LTC (WP 6)

- How will use of long-term care (LTC) evolve in future years?

Key research question WP 6

Gather information on

- Factors influencing care use
- Future trends in determining factors



Scenario	gender	age	adl	iadl	alone	edu	chil	carecat	year	Pop
DELAY	F		65:00	10	Together	edu1	Ch0	HC0	2010	512.1195
DELAY	F		65:00	10	Together	edu1	Ch0	HC0	2015	670.7046
DELAY	F		65:00	10	Together	edu1	Ch0	HC0	2020	663.1816
DELAY	F		65:00	10	Together	edu1	Ch0	HC0	2025	711.5028
DELAY	F		65:00	10	Together	edu1	Ch0	HC0	2030	767.1341
DELAY	F		65:00	10	Together	edu1	Ch0	HC0	2035	766.7017
DELAY	F		65:00	10	Together	edu1	Ch0	HC0	2040	702.3757
DELAY	F		65:00	10	Together	edu1	Ch0	HC0	2045	596.2996
DELAY	F		65:00	10	Together	edu1	Ch0	HC0	2050	607.4424
DELAY	F		65:00	10	Together	edu1	Ch0	HC0	2055	645.2287
DELAY	F		65:00	10	Together	edu1	Ch0	HC0	2060	672.6844
DELAY	F		65:00	10	Together	edu1	Ch0	HC	2010	4.718995
DELAY	F		65:00	10	Together	edu1	Ch0	HC	2015	6.180303
DELAY	F		65:00	10	Together	edu1	Ch0	HC	2020	6.110882
DELAY	F									
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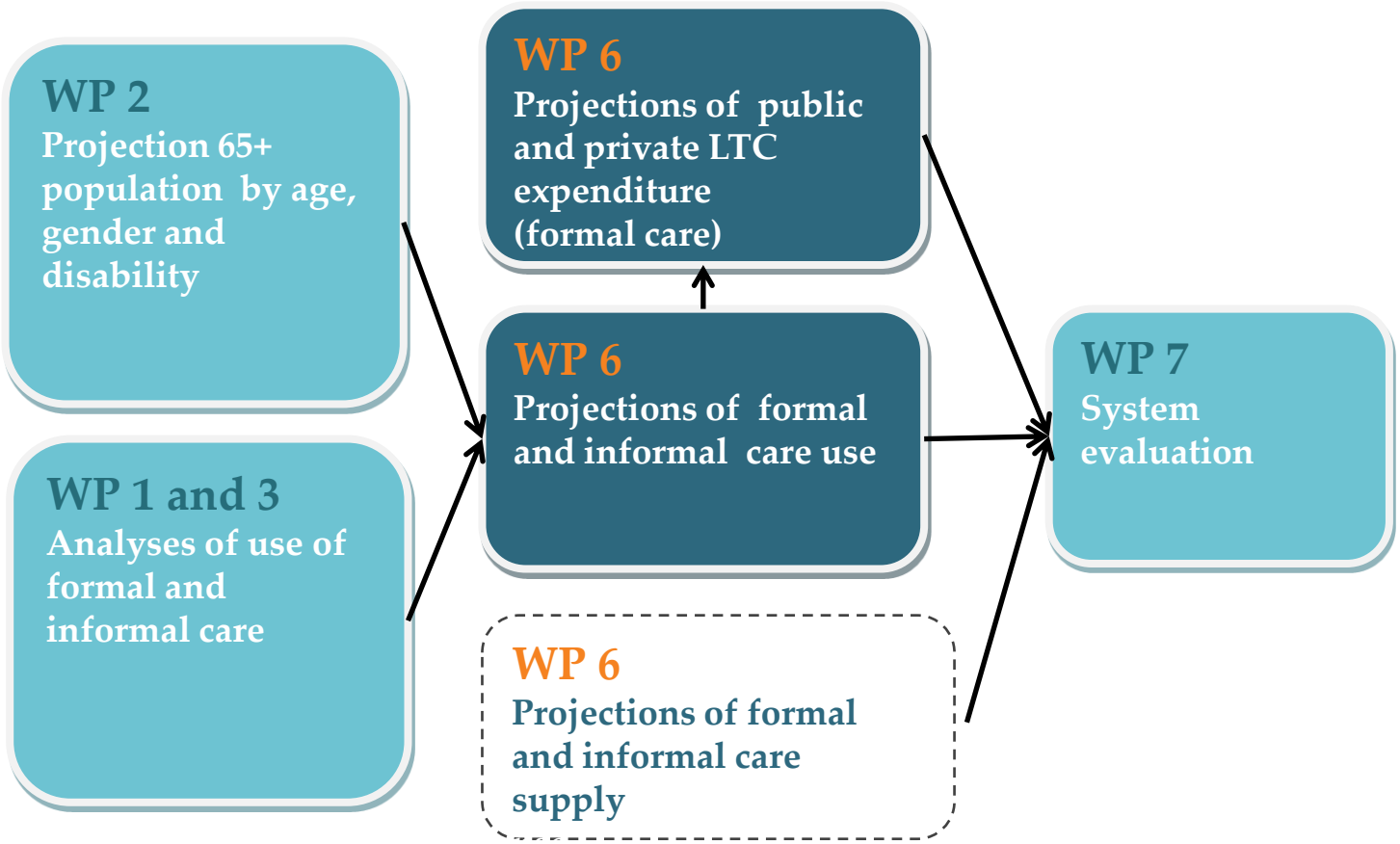
DELAY	F									
DELAY	F									

Build a projection model of informal and formal care use

Modelling future use of LTC - link to other WPs



Overview

- Projection model of LTC use
  - General features
  - Model structure
  - Current use
  - Factors determining use
  - Projection results
- Comparison of trends in use and supply of formal care
- Conclusions

ANCIEN Projection model of LTC use

- Focus on personal care for persons aged 65 and over
- Formal residential care, formal home care, informal care
- Countries representative of different care systems: Germany, the Netherlands, Spain and Poland
- Standardised methodology and cross-nationally harmonized data
- Projection horizon: 2010 to 2060
- No policy/behavioural change (assumption constant probabilities of use by relevant characteristics)
- Output: care users and expenditure under different bio-demographic, risk factor and socio-demographic scenarios

ANCIEN projection model of LTC use and expenditure

For more information on the model and projection results see:

Geerts, J., Willemé, P., Comas-Herrera, A. (2012), **Long-Term Care Use in Europe: Projection Model and Results for Germany, the Netherlands, Spain and Poland**, in: Geerts, J., Willemé, P., Mot, E. (Eds.), *'Long-Term Care Use and Supply in Europe: Projections for Germany, The Netherlands, Spain and Poland'*, ENEPRI Research Report No. 116, pp. 30-75.

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http://www.ancien-longtermcare.eu/

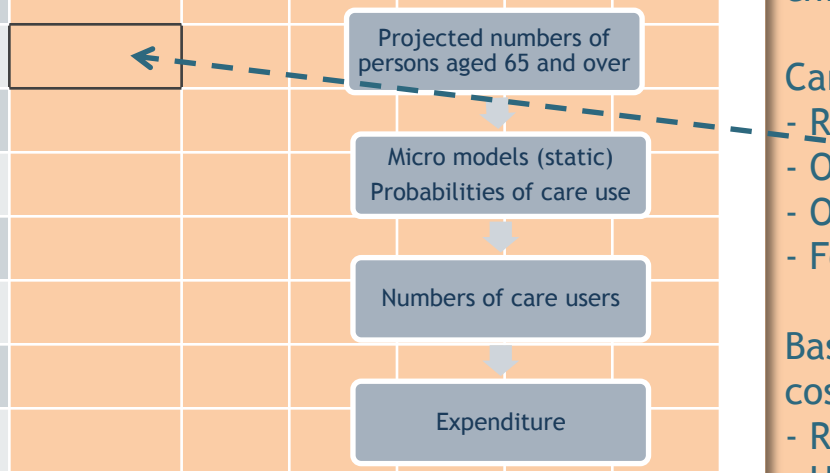
Geerts, J., Willemé, P. (forthcoming), **Long-Term Care Expenditure in Europe: Projections for Germany, the Netherlands, Spain and Poland**, in: Mot et al. (Eds.), *'Performance of long-term care systems in Europe'*

Projection model of long-term care use and expenditure: model structure

Cell-based (macro-simulation) model

- Linking explanatory models of care use with projections of population by relevant characteristics

Gender	Age cat	ADL	Other Characteristics					
			A		B		C	
			1	2	1	2	1	2
Female	1	No						
		Yes						
	2	No						
		Yes						
Male	1	No						
		Yes						
	2	No						
		Yes						



Example

Dutch woman, aged 83, living alone, 1 ADL , 3+ IADLs, no dementia, no children, low education

Care use probabilities
- Residential 0.06
- Only informal 0.03
- Only formal 0.33
- Formal + informal 0.03

Base year annual unit costs
- Residential 55,500 €
- Home care 12,000 €

Current use of formal and informal care

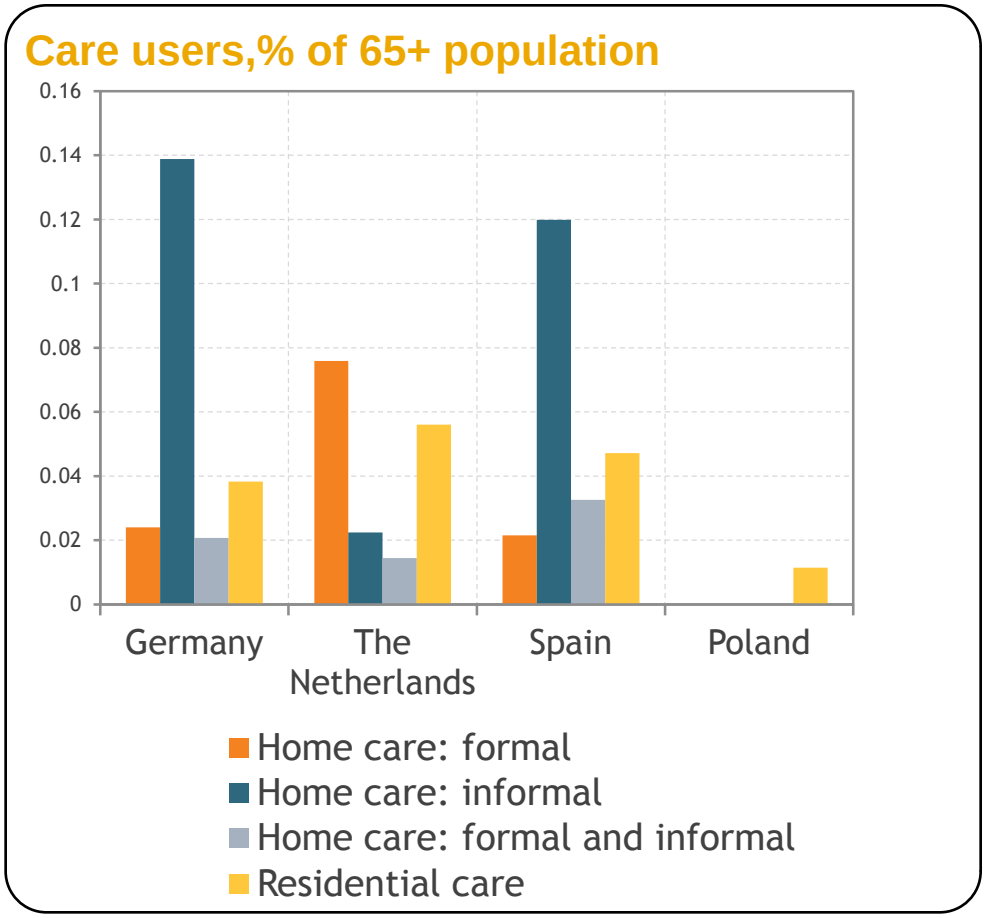
Current patterns of care use differ considerably

Use of formal care, both residential and at home, highest in the Netherlands

Use of informal care high in Germany and Spain, low in the Netherlands

In the Netherlands, most users of formal care do not receive informal care

In Germany and Spain, formal care often combined with informal care



Source: Geerts, Willemé & Comas-Herrera (2012), Long-Term Care Use in Europe.ENEPRI Research Report No. 116, pp. 30-75.

Determinants of residential care use

The Netherlands and Spain: estimates based on logit models, using cross-sectional micro data (national databases)

Significant factors	The Netherlands	Spain
Age	X	X
Gender		X
Education		X
Income	X	
Informal care availability	X	X
ADL limitations	X	X
Dementia/cognitive functioning	X	X
Chronic conditions		X

Source: Mot, Schulz, Sowa, Vegas & Wittwer (2012), *Determinants of institutionalisation in Europe for elderly disabled persons*, ENEPRI Research Report No. 116, pp 4-14, http://www.ancien-longtermcare.eu/

Germany and Poland: no micro data available, prevalence of residential care use by age and gender, based on administrative data

Determinants of informal and formal home care use

Estimates based on multinomial logit models, using pooled wave 1&2 SHARE data, no data for Poland

Significant factors	Germany	The Netherlands	Spain
Age	X	X	X
Gender			
Education		X	X
Living alone	X	X	X
Children		X	
Income	X	X	
ADL limitations	X	X	X
IADL limitations	X	X	X
Chronic conditions		X	X
Cognitive functioning		X	X

Source: Geerts (2012), *Determinants of use of formal and informal personal care by older persons living at home*, ENEPRI Research Report No. 116, pp 15-29, http://www.ancien-longtermcare.eu/

Projections of older population – base scenario

Projected numbers of older persons by			
Age (A), gender (G) and Disability (D)	Household composition (H)	Education (E)	Other (O)
NIDI DELAY scenario, based on EUROPOP2008	Constant	Constant	Constant

DELAY disability scenario

- Disability incidence is delayed to older ages with same amount of time as mortality is delayed (same absolute decline)

Alternative scenarios

Exploring the sensitivity of the projections to alternative assumptions about disability and socio-demographic trends

- Bio-demographic scenarios

  Exploring the effect of different relationship between the incidence of disability and mortality

- Risk factor scenarios

  Exploring the effect of trends in smoking and obesity

- Socio-demographic scenarios

  Exploring the effect of trends in household composition and education

Expenditure projections:

Data sources

- Ageing Working Group (AWG)
  - Expenditure profiles by age and gender (public)
- System of Health Accounts (SHA)
  - Total LTC expenditure (public and private)

Scenarios

- Base:
  - DELAY disability scenario
  - Unit costs evolve in line with GDP per hour worked
- Alternative scenarios
  - Disability and socio-demographic scenarios (cf. projections of care use)
  - Unit costs development scenarios:
    - Constant unit costs
    - Unit costs evolve in line with GDP per capita

Projections of LTC care use: results (1)

Projected increase in numbers of care users between 2010 and 2060				
		DELAY	BIOL "optimistic"	CHRON "pessimistic"
Germany	Res	+102%	+74%	+153%
	Home formal	+79%	+69%	+105%
	Informal	+51%	+46%	+59%
Netherlands	Res	+200%	+188%	+231%
	Home formal	+116%	+107%	+139%
	Informal	+66%	+55%	+94%
Spain	Res	+162%	+159%	+168%
	Home formal	+150%	+128%	+190%
	Informal	+140%	+115%	+183%
Poland	Res	+152%	+130%	+176%

Geerts, Willemé & Comas-Herrera (2012), Long-Term Care Use in Europe. ENEPRI Research Report No. 116, pp. 30-75

Projections of LTC care use: results (2)

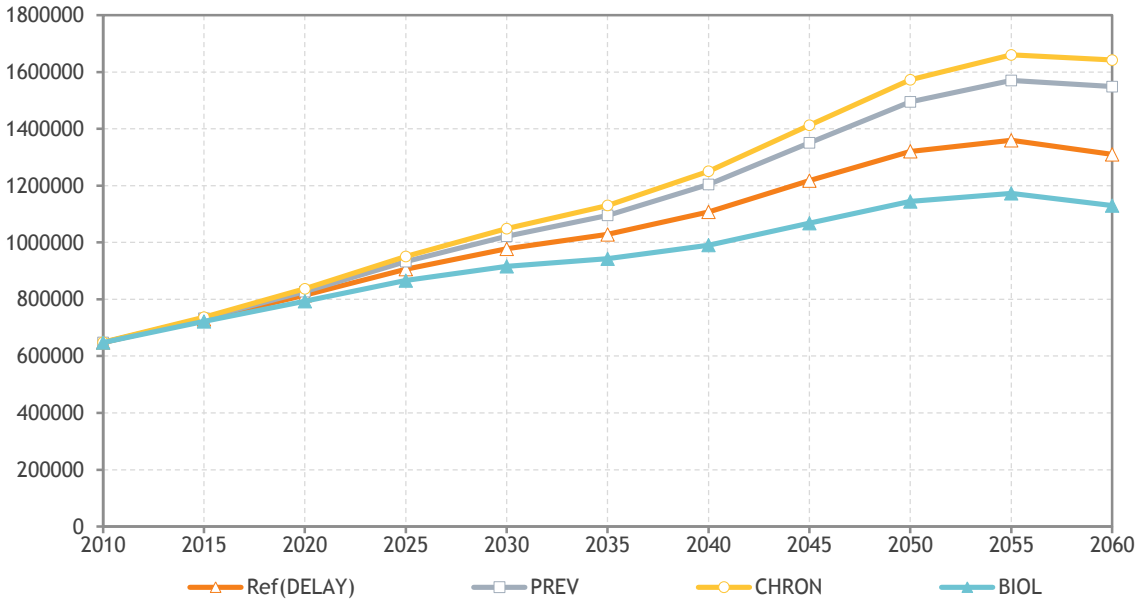
Large projected increases in number of care users

- Higher relative increase residential care in NL; higher relative increase formal home care and informal care in ES
- In all countries increase residential > formal care > informal care
- Differences in care utilisation trends can be related to demographic, epidemiological and care system factors

Projections of LTC use: results (3)

- Considerable effects of alternative bio-demographic scenarios on use of care

  Example: Projected numbers of residential care users, Germany



Source: Geerts, Willemé & Comas-Herrera (2012), Long-Term Care Use in Europe: Projection Model and Results for Germany, the Netherlands, Spain and Poland, ENEPRI Research Report No. 116, pp. 30-75

Projections of LTC use: results (4)

- Even under the most optimistic bio-demographic scenario, the number of care users will strongly increase in all countries
- BMI scenarios generally have little impact, as their impact on disability projections is low
- Alternative assumptions about future trends in smoking behaviour have a larger effect
- Taking account of future trends in household composition generally makes little difference
- Impact of better education scenarios differs between countries

Projected increase in public and private spending on formal personal care

	Public (based on AWG base year data)		Private (based on SHA base year data)	
	% of GDP		% of GDP	
	2010	2060	2010	2060
Germany	0.7	1.8	0.3	0.9
Netherlands	1.8	4.7	0.2	0.6
Spain	0.4	1.1	0.2	0.4
Poland (only residential care)	0.04*	0.14*	0.01	0.02

* Based on SHA data
Source: Geerts & Willemé (forthcoming), Long-Term Care Expenditure in Europe: Projections for Germany, the Netherlands, Spain and Poland

- Current public expenditure high in the Netherlands, very low in Poland
- Share of private expenditure low in the Netherlands
- For all countries, % of GDP spent on long-term care is projected to more than double between 2010 and 2060, and even treble in some cases
- Even under an optimistic disability scenario expenditure is still expected to rise considerably.

Simulating effect of different care systems on formal care expenditure

Projected public expenditure in 2060, in % of GDP
Demography of row country, care use and expenditure patterns of column country (based on SHA base year data)

	Germany		Netherlands		Spain		Poland
	Formal home	Res	Formal home	Res	Formal home	Res	Formal home
Germany	0.7	1.3	1.8	7.0	0.2	0.6	0.04
The Netherlands	0.4	0.6	1.1	4.3	0.1	0.4	0.03
Spain	0.7	1.3	1.8	7.0	0.2	0.6	0.04
Poland	1.9	3.9	4.2	15.5	0.6	1.2	0.13

Source: Geerts & Willemé (forthcoming), Long-Term Care Expenditure in Europe: Projections for Germany, the Netherlands, Spain and Poland

Public expenditure for formal home care in Germany is 0.7 % of GDP in 2060, but would be 1.8 % with the German demography and disability and the Dutch patterns of formal home care use and expenditure and 0.2 with the Spanish care use and expenditure patterns.

Comparing projected use and supply of formal care

Projecting care supply

- Focus on long-term care workforce
- Projections are based on national labour force projections
- Projections assume constant fraction of labour force working in LTC sector (in FTE)

For more information on projection method and results, see:

Wittwer, J. & Goltz, A. (2012), **Projections of the Future Long-Term Care Workforce**, in Geerts, J., Willemé, P., Mot, E. (Eds.), '*Long-Term Care Use and Supply in Europe: Projections for Germany, The Netherlands, Spain and Poland*', ENEPRI Research Report No. 116, pp 107-113 .
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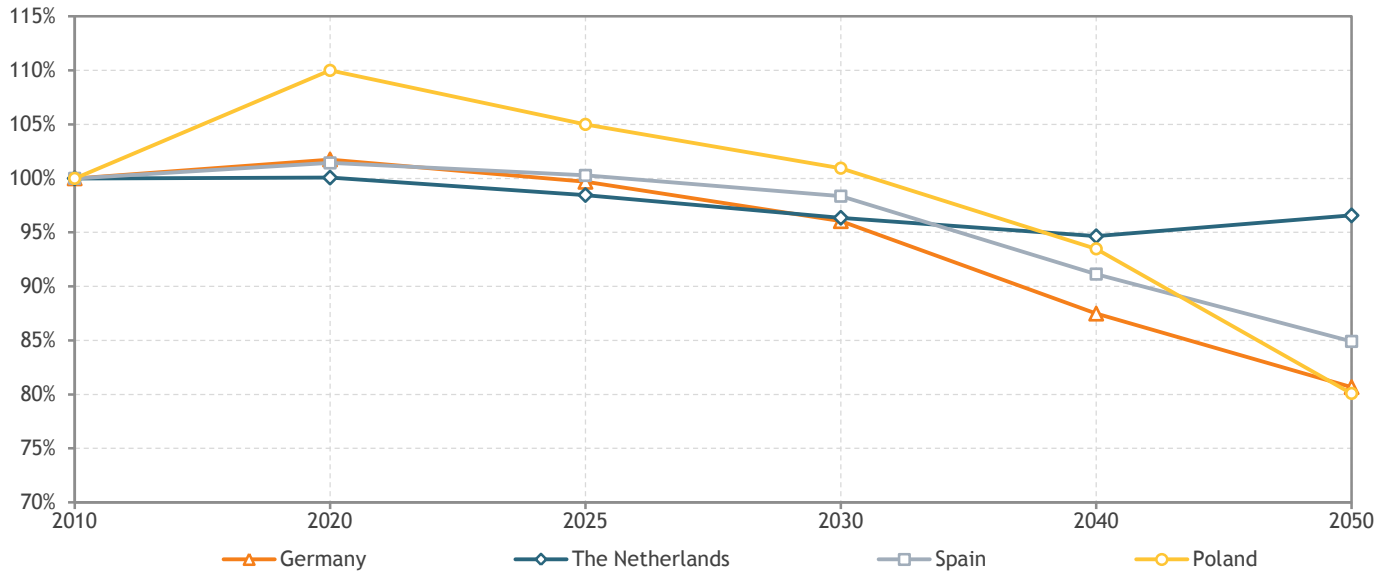
Projections of the long-term care workforce, 2010-2050 (2010=100)



Until 2025, more or less stable number of care workers, increase in Poland; between 2025-2050 strong decrease (-15 à 20 %) in Spain, Germany and Poland, small decrease followed by increase in the Netherlands

Source: Wittwer & Goltz (2012), *Projections of the future long-term care workforce*, ENEPRI Research Report No. 116, pp 107-113.

Comparison of use and supply of formal care, 2010-2050*

- 'Formal care gap': numbers of formal care givers needed if supply were to meet demand
- Assumption current ratio of caregivers to care users to remain constant

	Ratio care givers/care users 2010	Ratio caregivers/ care users 2050	'formal care gap' ('000s)
DE	0.45	0.19	718
NL	0.64	0.25	353
ES	0.55	0.20	623
PL	0.31	0.11	27

Source: Geerts & Willemé, Formal Care Supply and Demand in Europe, ENEPRI Research Report No. 116, pp 123-128

In relatively terms, the 'formal care gap' is large in all four countries; in the Netherlands mainly due to an increased demand, in Spain, Poland and Germany due to a combination of an increased demand and a shrinking workforce.

* This slide uses a methodology developed by Dr Linda Pickard, described in Pickard L & King D (2012) 'Informal care supply and demand in Europe', ENEPRI Report No 116, pages 114-123, http://www.ancien-longtermcare.eu/.

Conclusions

- Current patterns of formal and informal care use, care expenditure and care provision differ considerably between the four countries, representative of different care systems

- Under the assumption of constant probabilities of care utilisation, the projections show a considerable increase in the numbers of users of all types of care – residential care, formal home care and informal care – even under the more optimistic scenarios.

- Public and private LTC expenditure are projected to increase accordingly

Conclusions

- Under the assumption of constant patterns of formal care use and formal care provision, the projections show considerable 'formal care gaps'

- Key factor underlying projected shortages in care is demographic change:

  Increasing numbers of care dependent persons as a consequence of population ageing

  Demographic factors will at the same time influence size and composition of working age population and supply of LTC workers