Projecting long-term care use in Europe

ANCIEN projection model and results for Germany, the Netherlands, Spain and Poland

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Background

- Population ageing will increase demand for and use of long-term care (LTC) and have a profound impact on availability of formal and informal caregivers in all European countries
- Impact of population ageing on future use and supply of care is likely to differ across Europe
- Considerable cross-national differences in
  - Timing, extent and pace of population ageing
  - Prevalence of disability among older population
  - LTC system characteristics
  - Formal and informal care use
  - Informal care giving and LTC workforce participation

Cross-national differences in LTC needs, use and supply

	ADL Disability		Care use			Care supply	
	Prevalence 65+		Residential	Home		Inf.	Form.
	Men	Women		Form.	Inf.	% 50+	LTC workers/ 1000 65+
DE	6.7%	12.8%	3.8%	4.7%	16.6%	4.8%	177
NL	5.0%	11.7%	5.6%	9.7%	3.9%	1.8%	359
ES	7.8%	16.1%	4.7%	5.7%	16.2	7.1%	287
PL	29.8%	39.9%	1.1%	n.a.	n.a.	3.9%	150

Source: ANCIEN WP2, 3 and 6

Aim of WP 6 – ANCIEN

- Developing models to project use and supply of LTC for 2010-2060 period
- Focusing on formal and informal care for persons aged 65 and over
- For countries representative of different care systems: Germany, the Netherlands, Spain and Poland
- Using a standardised methodology and cross-nationally harmonized data
- Projecting use of care under a range of bio-demographic, risk-factor and socio-demographic scenarios

Overview of projection models

Projection model of long-term care use — FPB

- For different settings and types of care (residential, formal home, informal)
- Focus on nursing and personal care (help with activities of daily living – ADL)
- Based on multivariate models linking probabilities of care use to age, gender, ADL limitations, living situation and other relev. variables
- Different demographic, epidemiol. and socio-dem. scenarios

Projection model of informal care provision — LSE

- Focus on provision of personal care by persons aged 50 and over
- Based on multivariate models linking probabilities of informal care provision to age, gender and marital status
- Separate models for intergenerational care and partner care

Projection model of formal care supply — LEGOS

- Simple model based on aggregate workforce projections and assumption of constant fractions of LTC workers

PROJECTION MODEL OF LTC USE

MODEL STRUCTURE

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Projecting LTC use - model structure

Cell-based (macro-simulation) model

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

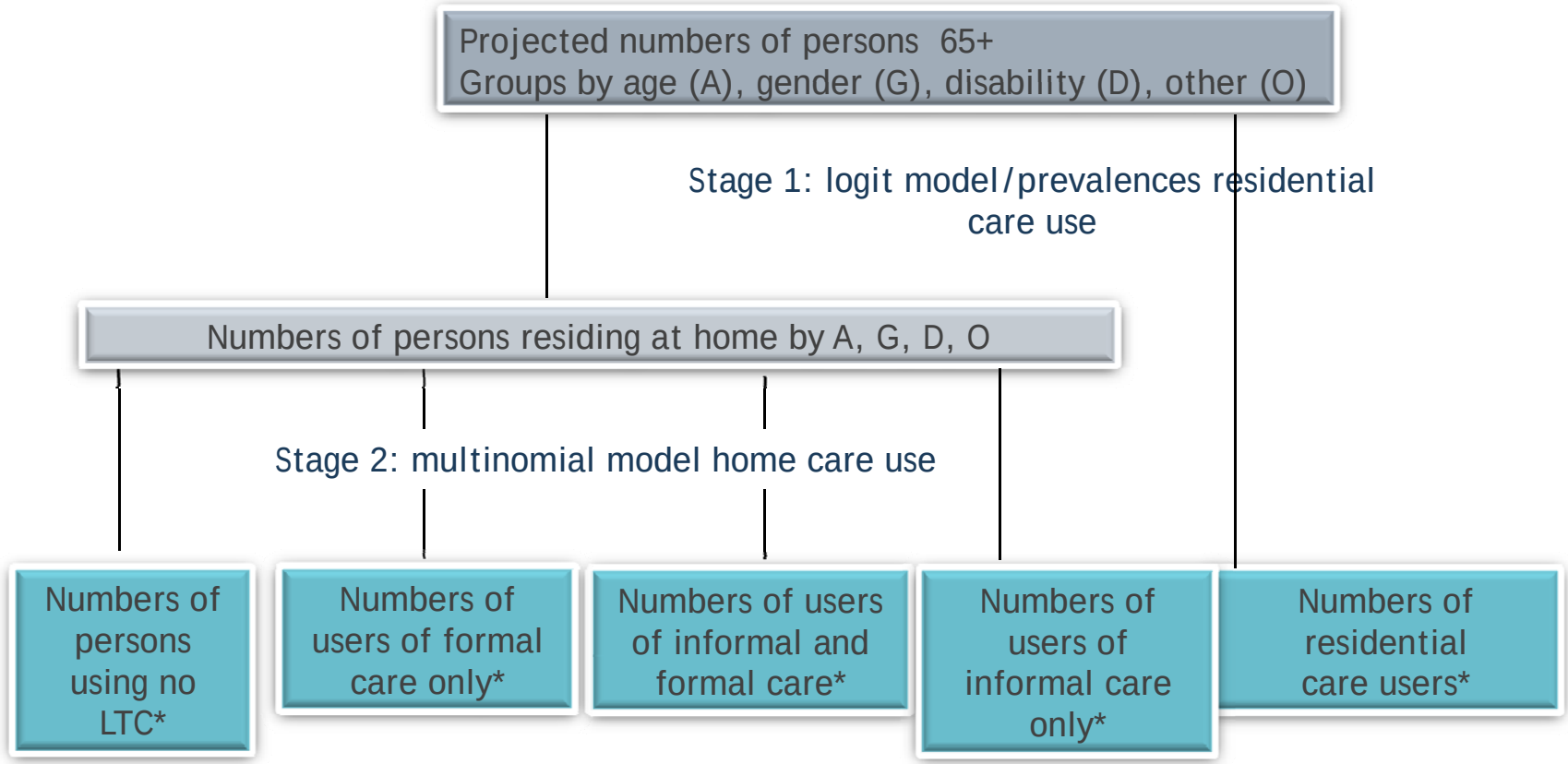
Gender	Age cat	ADL	Other Characteristics					
			A		B		C	
			1	2	1	2	1	2
Female	1	No						
		Yes						
	2	No						
		Yes						
Male	1	No						
		Yes						
	2	No						
		Yes						

Population projections
Numbers 65+

Micro models (static)
Probabilities of care use

Numbers of care users

Model structure – two-stage model



* By A, G, D, O

Probabilities of residential and home care use

- Residential care models

  NL and ES

  Logit models, using national cross-sectional micro data

  → predicted probabilities of residential care use by age category, gender, level of ADL disability, household composition, education, cognitive functioning, chronic conditions

  GE and PL

  No micro data, only administrative data

  → prevalence of residential care use by age and gender, assumption all residents are ADL disabled

Probabilities of residential and home care use

- Home care models

  DE, NL and ES (no data for Poland)

  Multinomial logit models, using SHARE (Survey on Health, Ageing and Retirement in Europe), a large cross-national panel data base of persons aged 50+

  DATA

  - Pooled Wave 1(2004/2005) and 2 (2006/2007) data
  - Analytical sample restricted to respondents aged 65 and over, living at home (DE n=2,491; NL n=2,134; ES n=2,265)

Probabilities of residential and home care use

- Home care models

  Care use: receipt of help with personal care (ADL) or nursing care

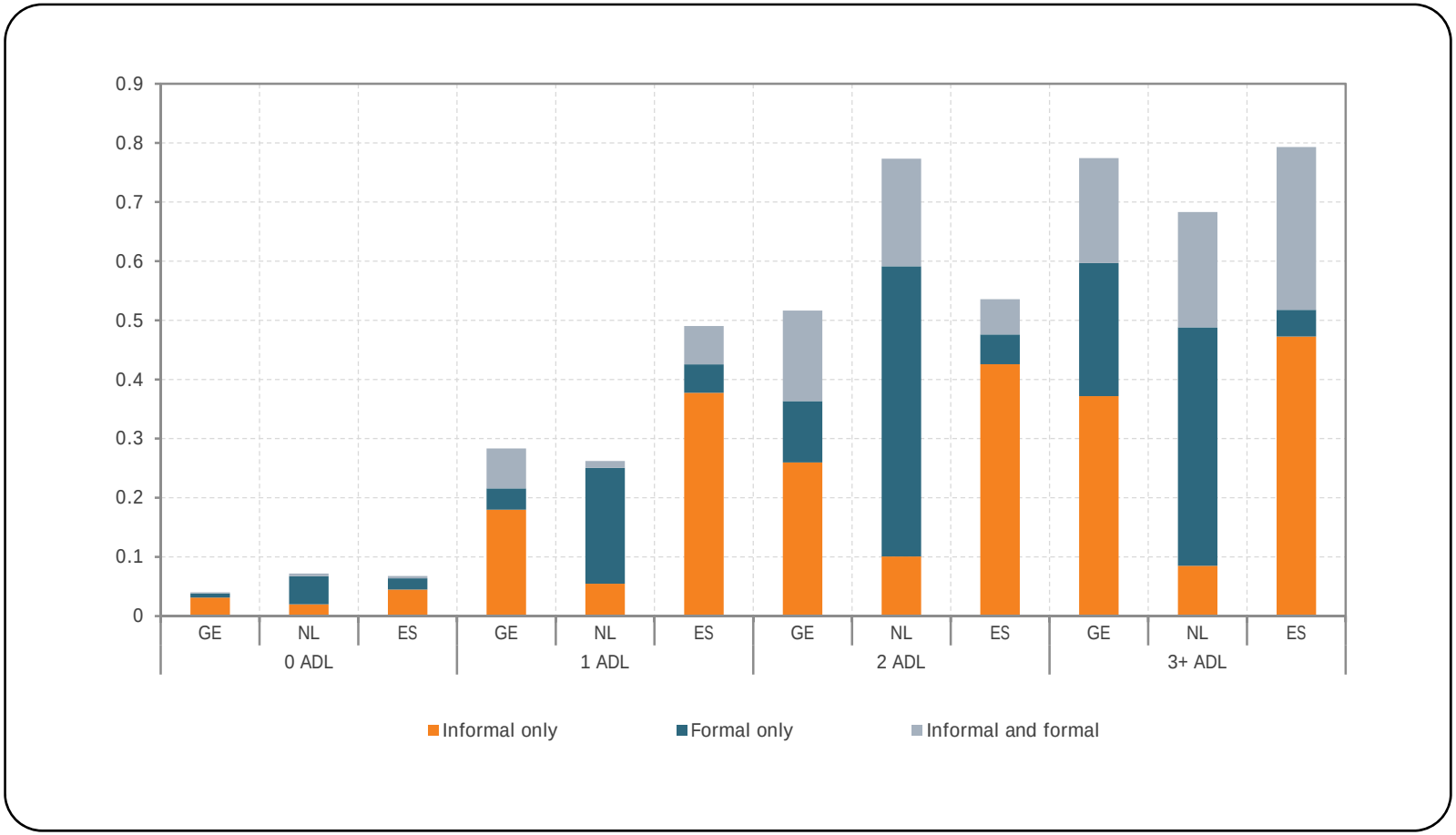
  Four categories: no care, informal care only, formal care only, formal and informal care

  Formal care: professional or paid nursing or personal care, including care from private providers

  Informal care: help with personal care from someone living in the household , from any family member from outside the household or any friend or neighbour

Independent variables: age, gender, ADL limitations, household composition, having children, IADL limitations, cognitive functioning, chronic conditions, education, income

Probabilities of formal and informal care use by ADL



Probabilities of care use

- WP 6: Assumption of constant probabilities of care use by age, gender, disability and other relevant characteristics
  - Use of care constrained by supply factors to a similar extent in future than in base year
  - Shifts from residential care to home care or between formal and informal care have not been modelled
- WP 7: Evaluation of system performance and simulations of effects of shifts in use and supply

Base scenario - DELAY

Projected numbers of older persons by				Care use probabilities
Age (A), gender (G) and Disability (D)	Household composition (H)	Education (E)	Other (O)	By A, G, D, H, E, O
NIDI DELAY scenario, based on EUROPOP2008	Constant	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 disability scenarios (NIDI): bio-demographic scenarios

CONST	• Constant mortality and disability incidence, only demography
PREV	• Constant prevalence of disability
CHRON	• Constant incidence of disability
BIOL	• Same relative disability incidence decline as mortality decline

Alternative disability scenarios (NIDI): risk factor scenarios

SMOKING

SMOK	• Constant (high) prevalence of smoking in new cohorts of older people, 0% quit rate
TREND	• SMOK, 2% quit rate
NOSMOK	• No new smokers, 0% quit rate
NOSQUIT	• NOSMOK, high quit rate

OBESITY

BMI	• Higher prevalence of obesity in new cohorts of older people
LEAN	• Prevalence of obesity decreases by 50%
FAT	• Prevalence of obesity increases by 50%

Alternative socio-demographic scenarios

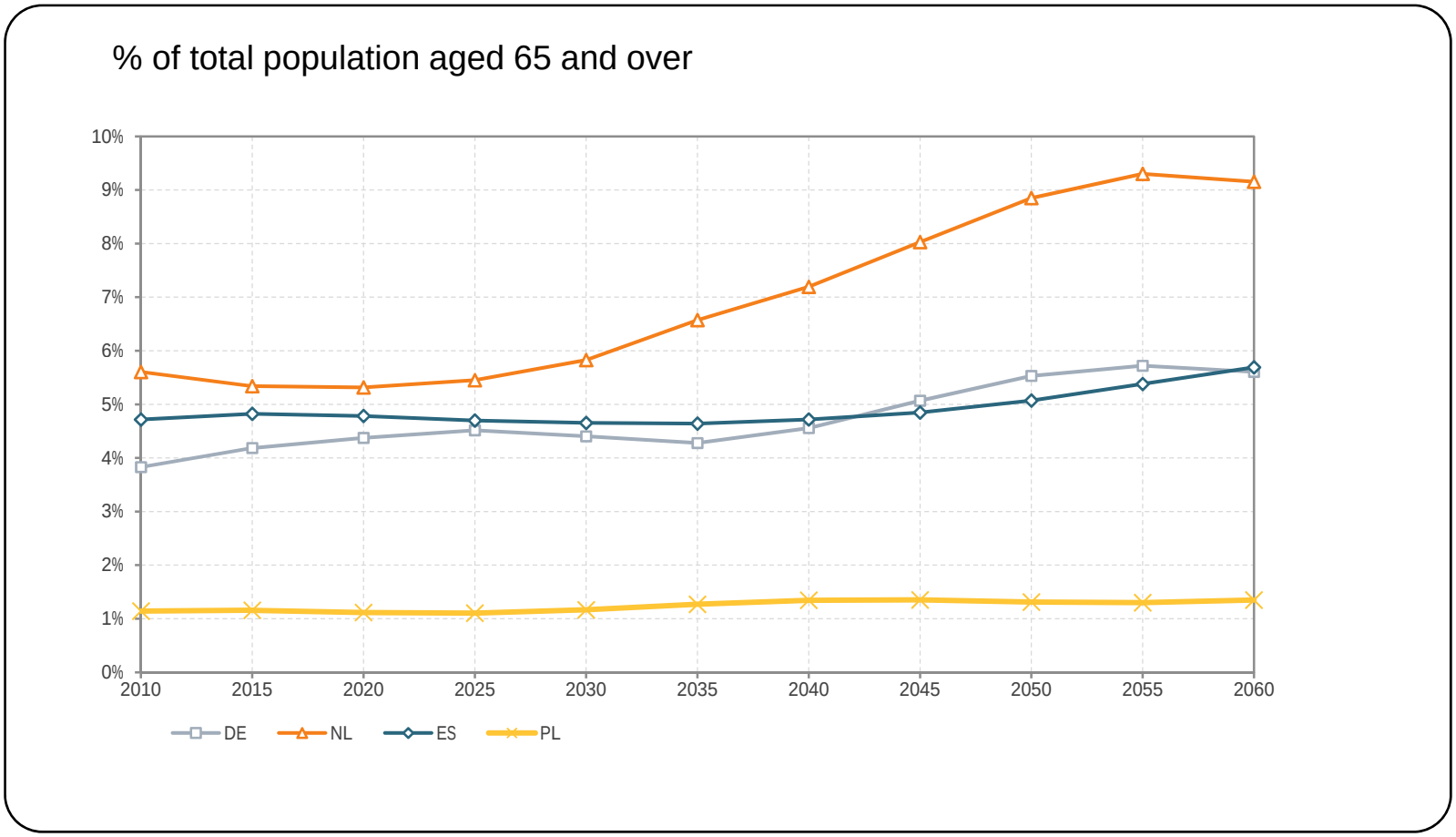
Changing household composition	• Household composition older persons changes in line with national household composition projections (DE, NL)
Better education scenario	• Educational level of older persons changes in line with educational level projections of the International Institute for Applied Systems Analysis (DE, NL, ES)

PROJECTION RESULTS

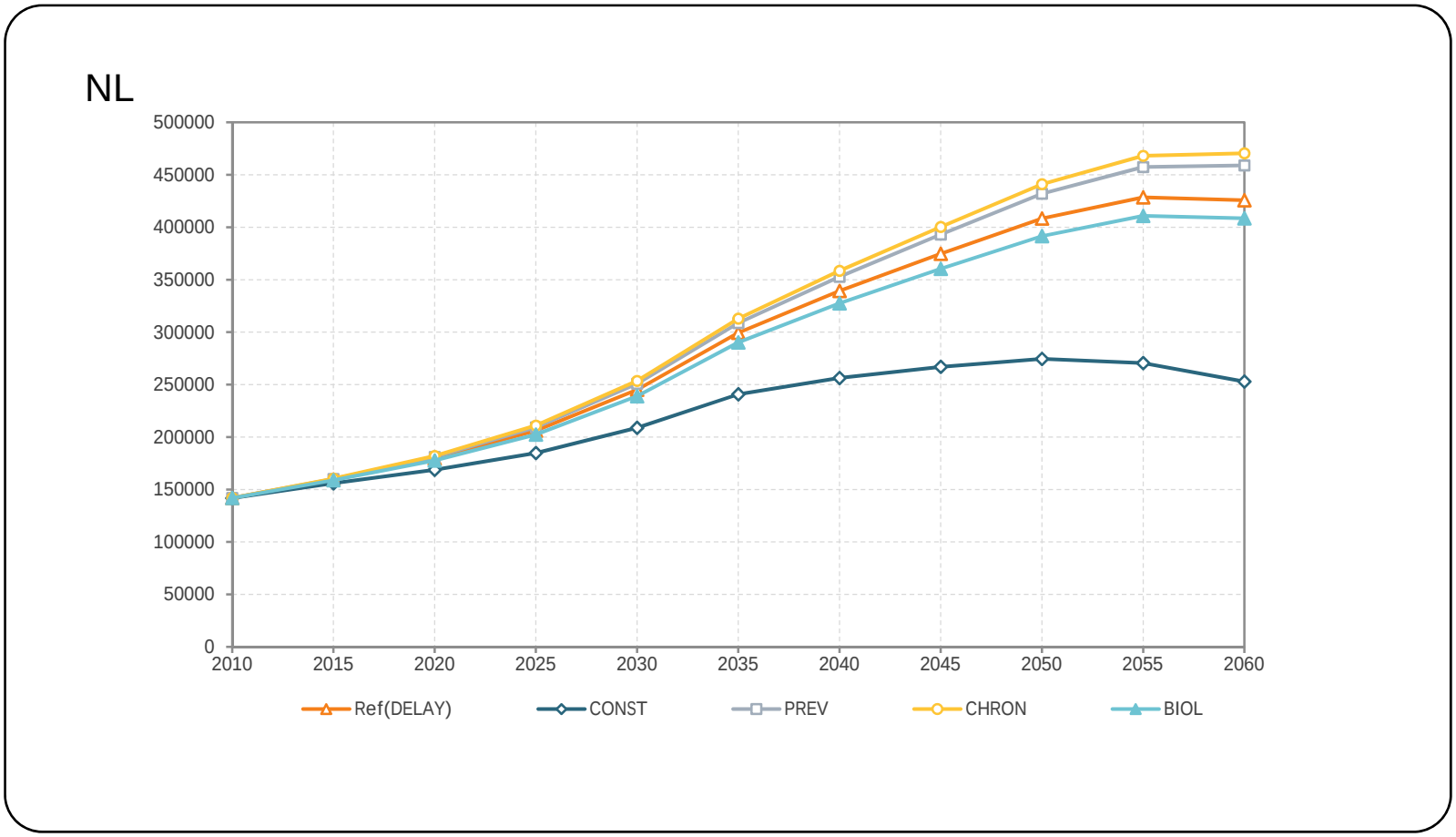
Projections of residential care use

Projected numbers of residential care users (in thousands), DELAY scenario												% increase 2010-2060
	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	
DE	648	729	814	906	978	1,028	1,108	1,218	1,321	1,360	1,310	102%
NL	142	160	180	206	245	299	339	375	408	429	426	200%
ES	364	400	426	465	522	593	680	777	858	918	954	162%
PL	59	67	77	88	98	110	121	129	136	141	149	152%

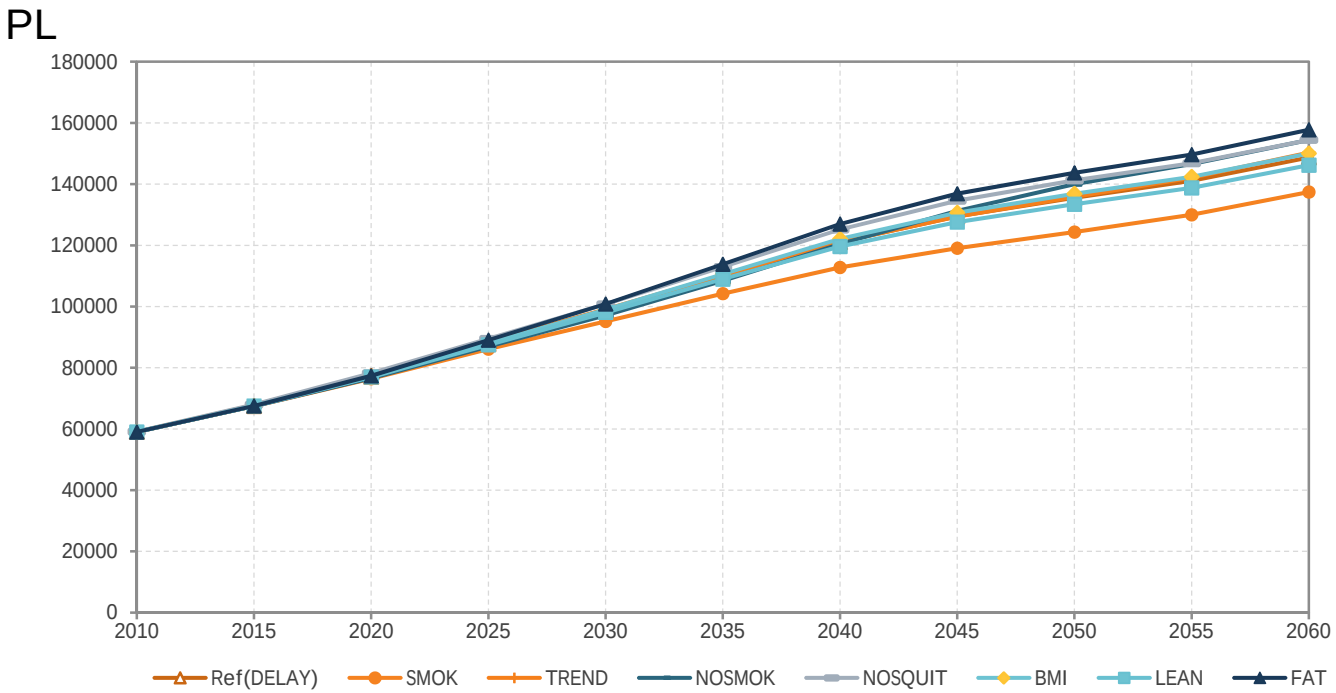
Prevalence of residential care use, 2010-2060, DELAY



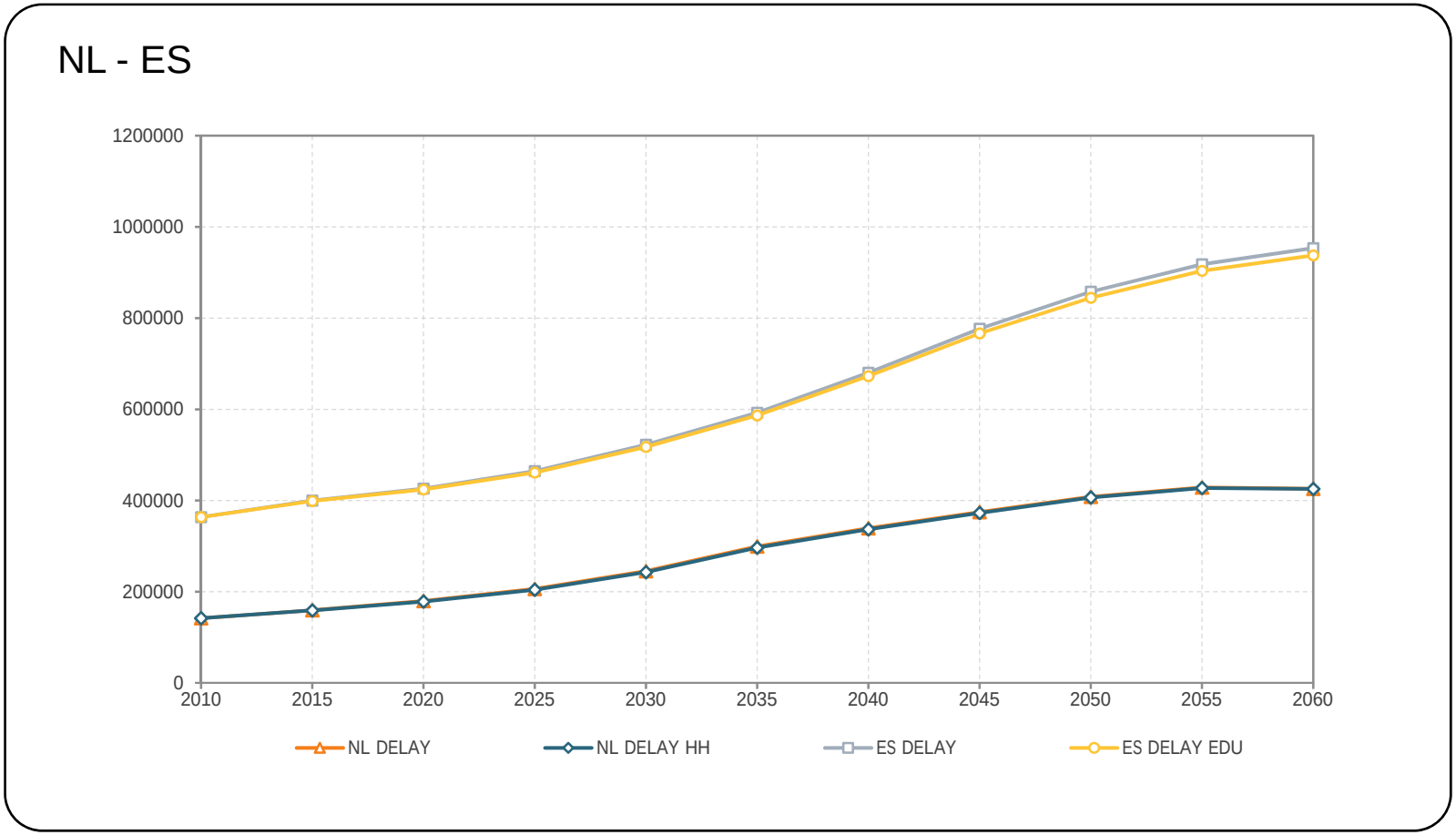
Residential care - bio-demographic scenarios



Residential care use - risk factor scenarios



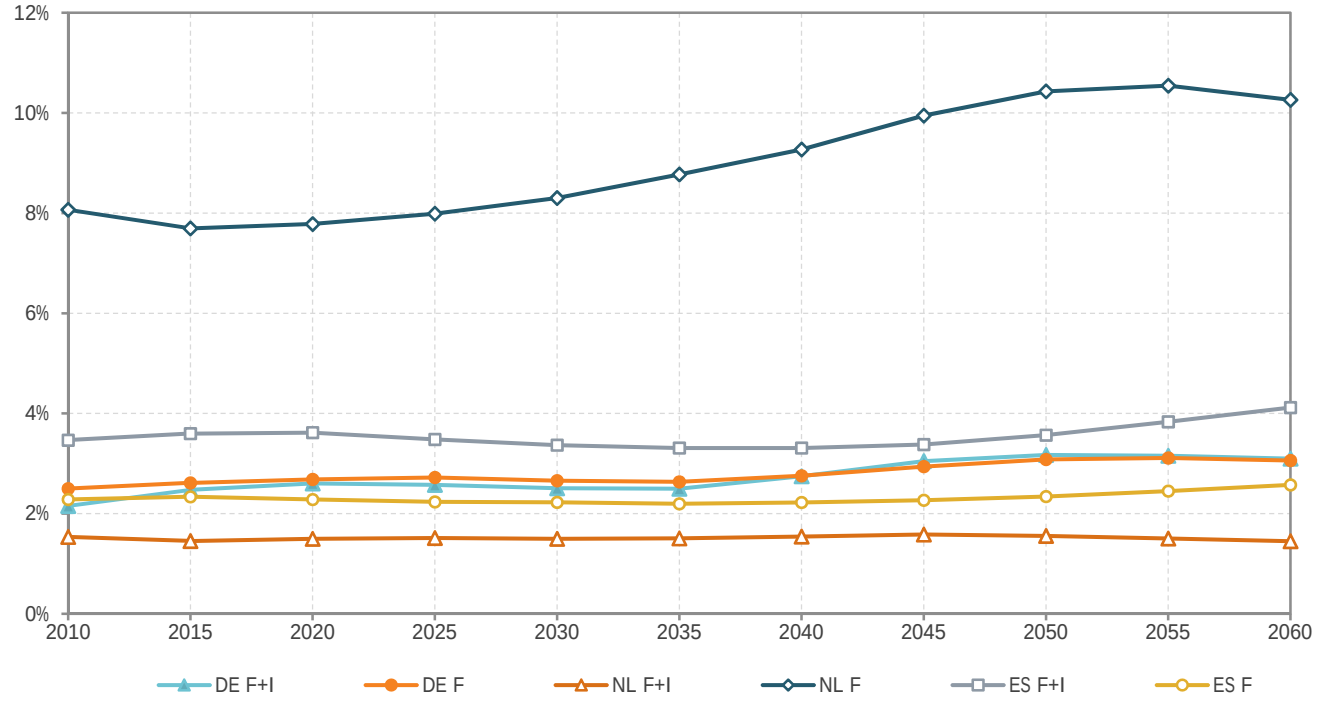
Residential care use – socio-demographic scenarios



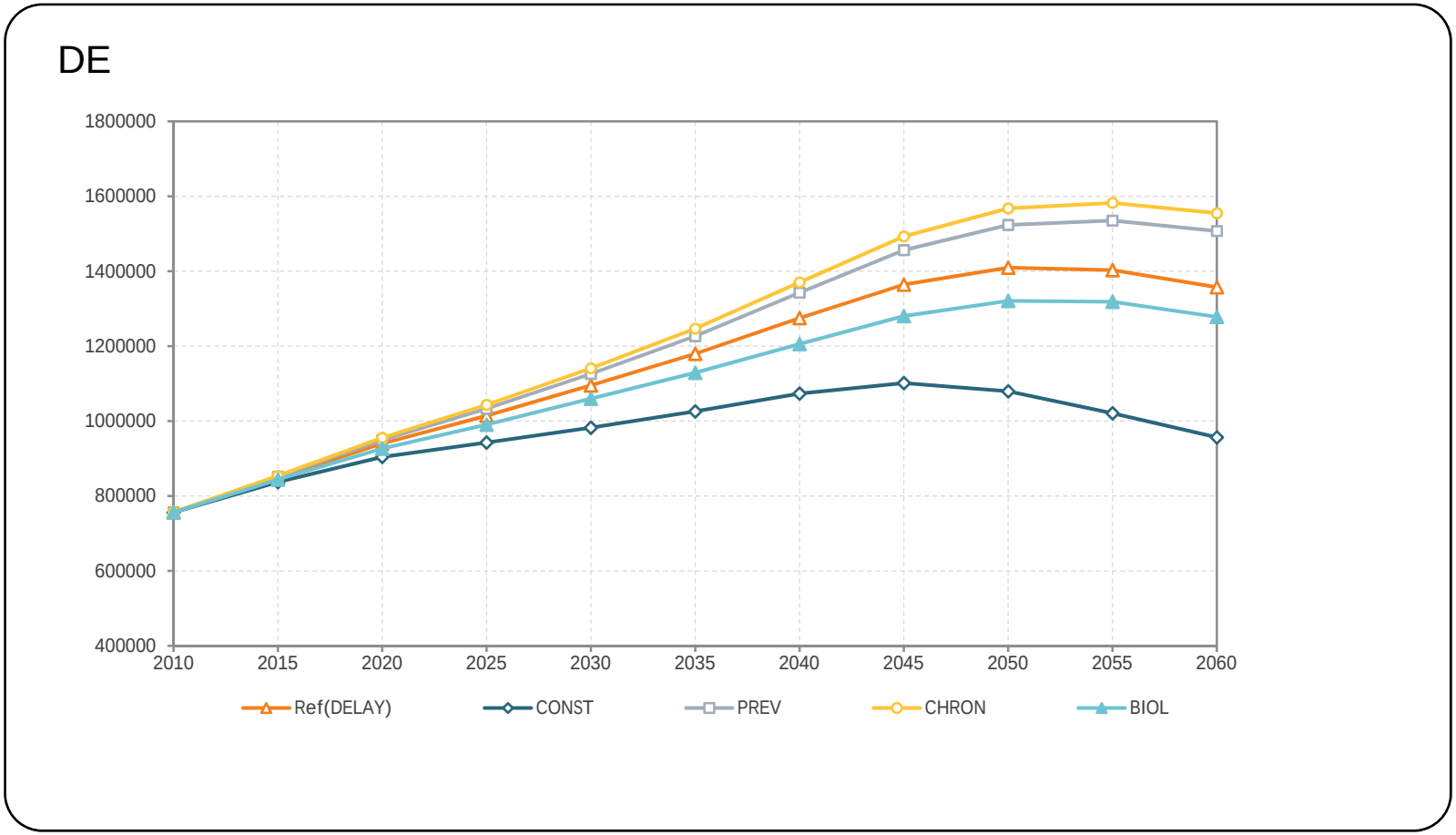
Projections of formal home care use

Projected numbers of formal home care users (in thousands), DELAY												% increase 2010-2060
	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	
DE	756	849	940	1014	1095	1180	1275	1364	1410	1403	1357	79%
NL	229	258	296	338	387	436	472	493	502	502	493	116%
ES	417	463	494	532	592	663	751	851	937	1001	1042	150%

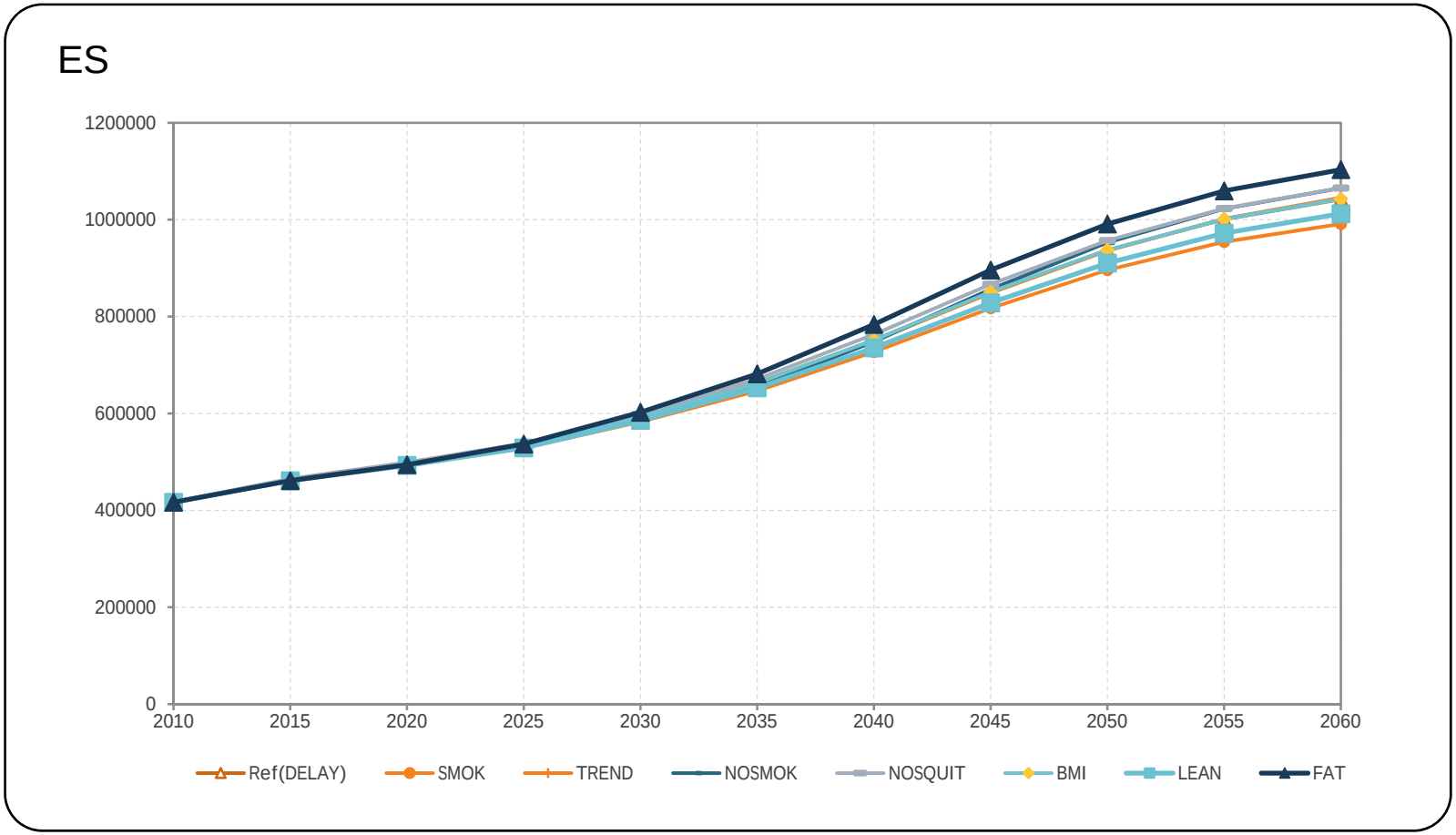
Prevalence of formal home care use, 2010-2060,DELAY



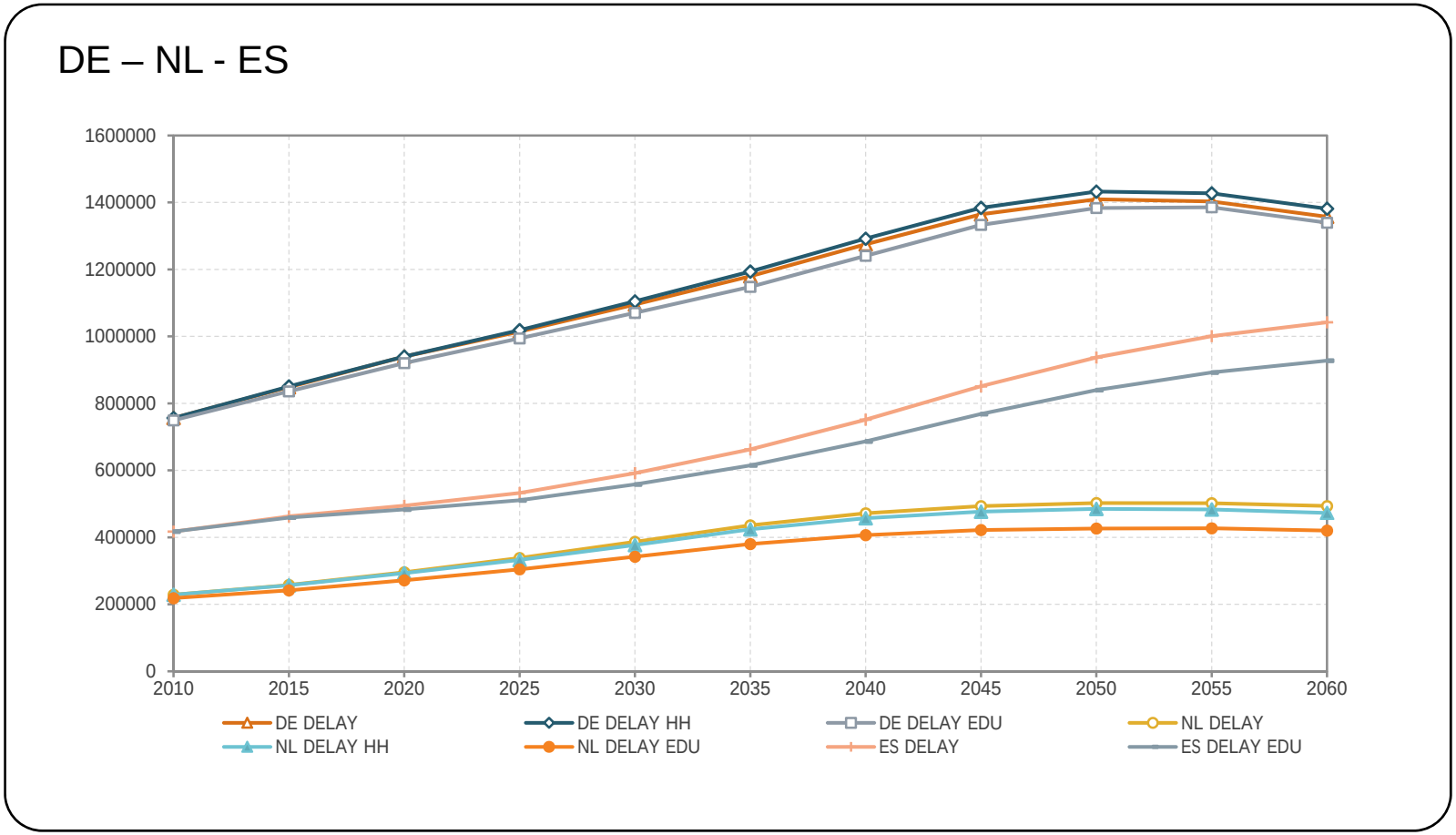
Formal home care use – bio-demographic scenarios



Formal home care use – risk factor scenarios



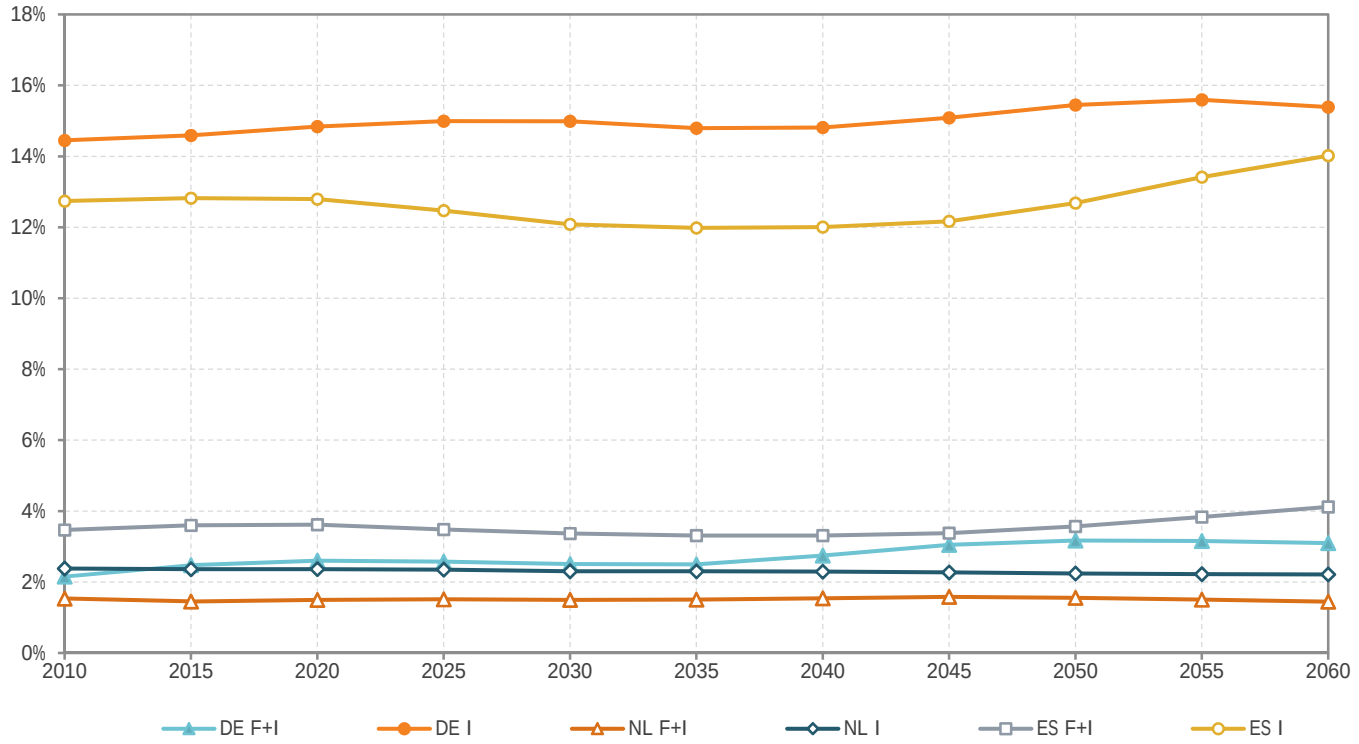
Formal home care use – socio-demographic scenarios



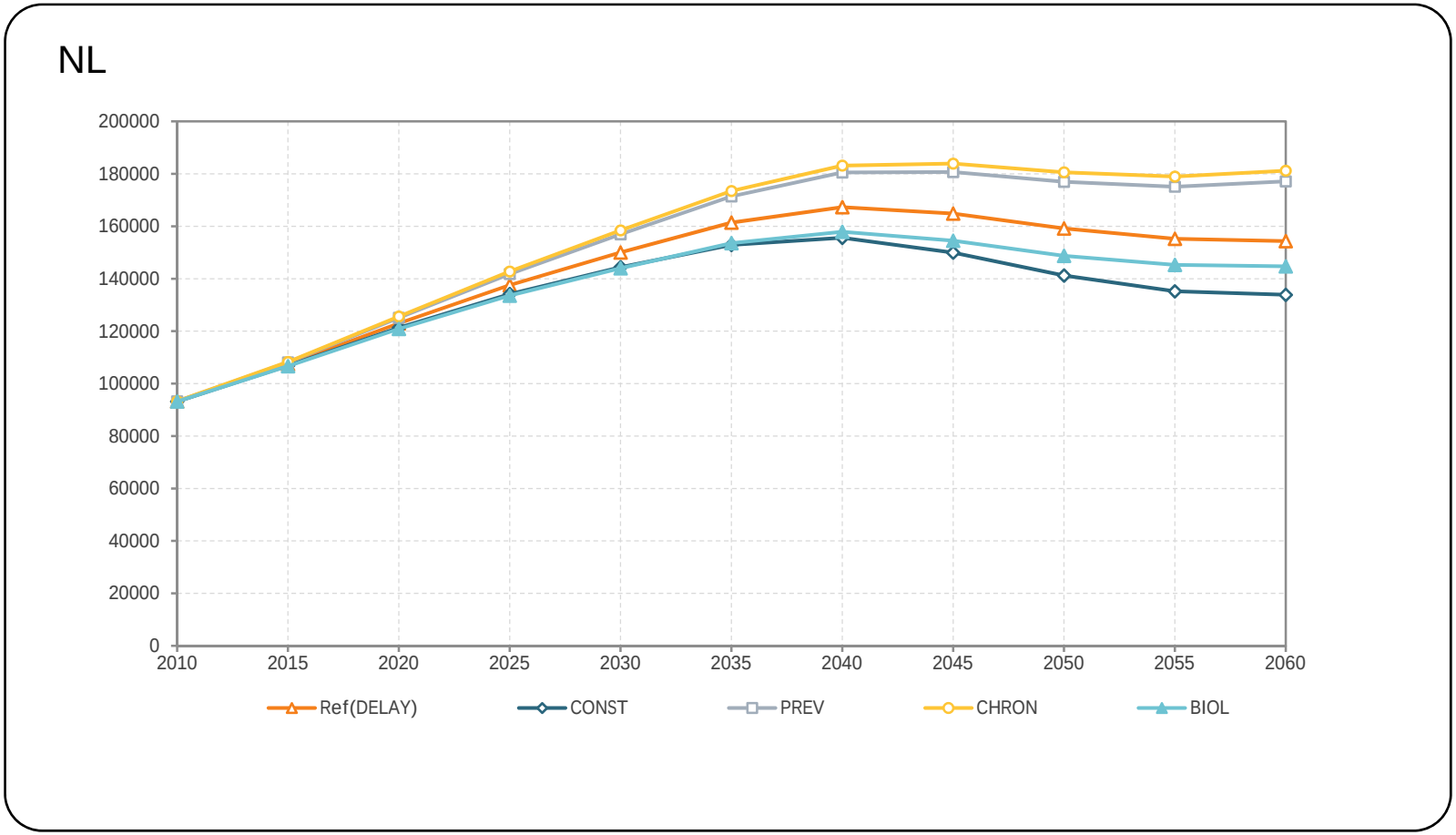
Projections of informal care use

Projected numbers of informal care users (in thousands), DELAY												% increase 2010-2060
	2010	2015	2020	2025	2030	2035	2040	2045	2050	2055	2060	
DE	2700	2846	3102	3364	3710	3975	4070	4133	4197	4198	4075	51
NL	93	107	123	138	150	161	167	165	159	155	154	66
ES	1176	1280	1376	1486	1635	1841	2080	2343	2577	2747	2825	140

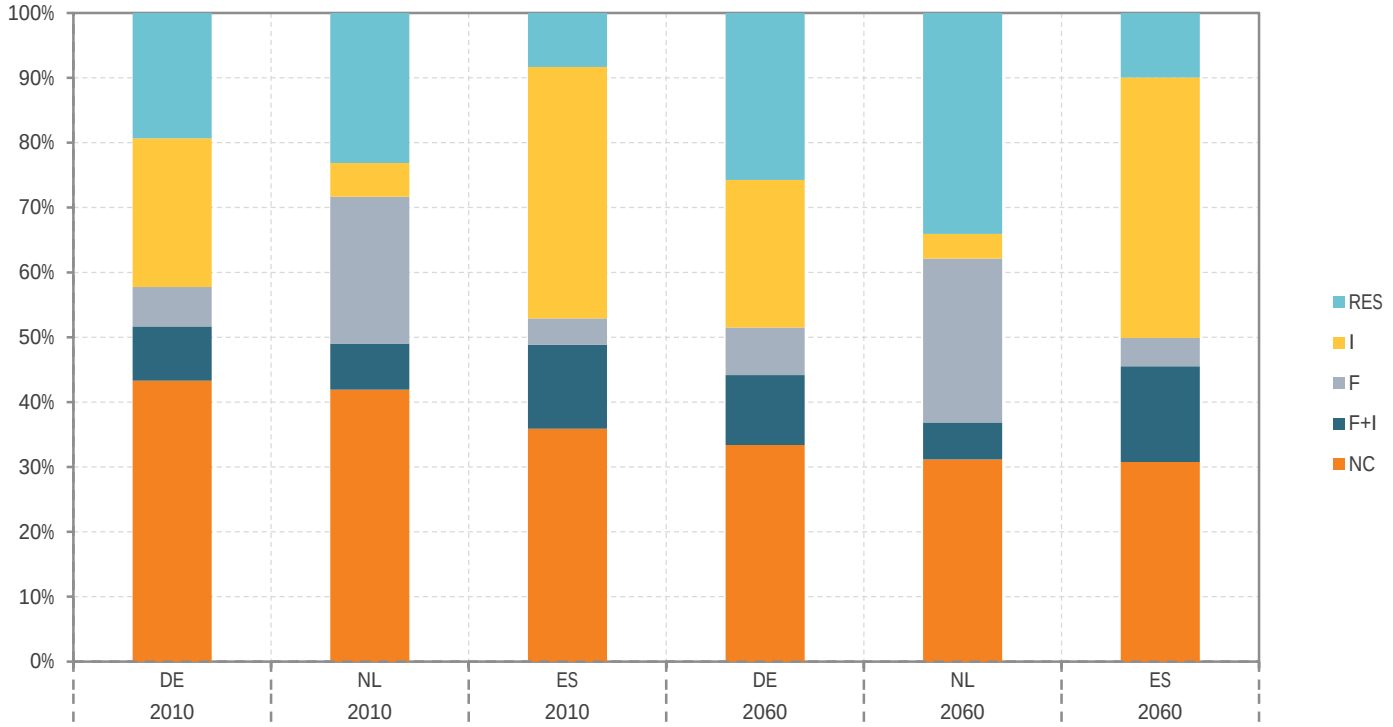
Prevalence of informal care use, 2010-2060, DELAY



Informal care use – bio-demographic scenarios



Residential, formal and informal care use, ADL disabled population, 2010 and 2060, DELAY



Projection results LTC use - Summary

- Current patterns of LTC use differ
  - Prevalence formal care (residential and at home) much higher in NL than in other countries
  - Prevalence informal care low in NL, high in DE, ES
- Large increases in number of users for all types of care, in all countries
  - 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
- Differences are related to demographic, epidemiological and care system factors

Projection results LTC use: Summary

- Rise in care use mainly as a result of demographic factors
- Sensitivity to alternative scenarios differs between countries

  Generally, quite large effect of alternative bio-demographic scenarios

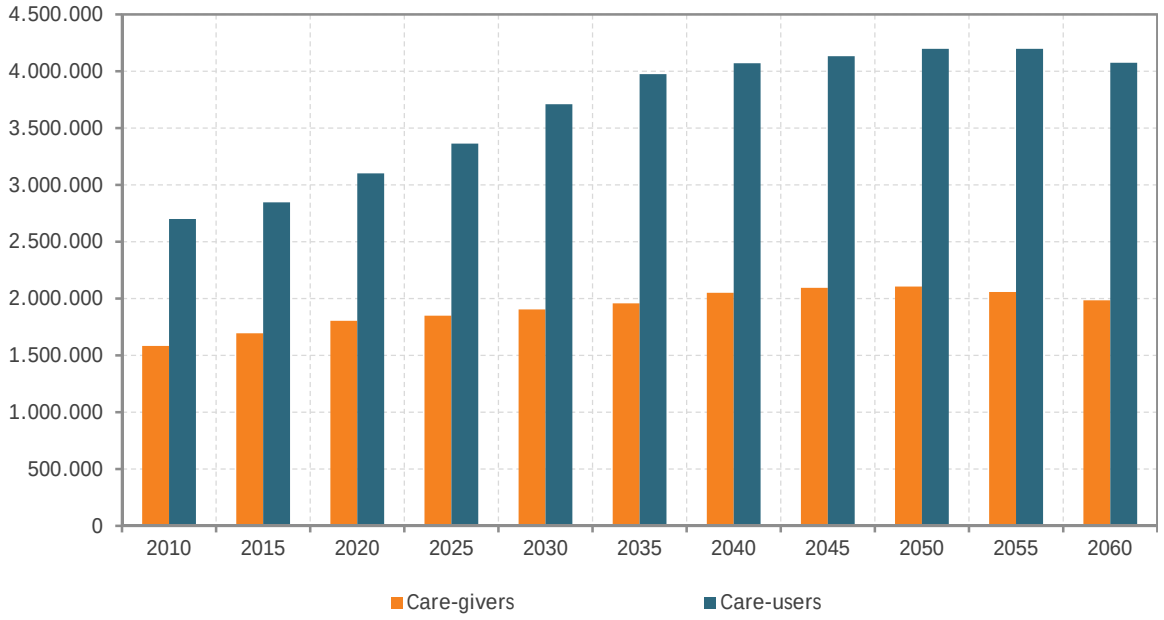
  Little impact of BMI scenarios and changing household composition, larger impact of smoking scenarios and better education scenario

Comparison of use and supply of informal care, 2010-2060

Assumptions

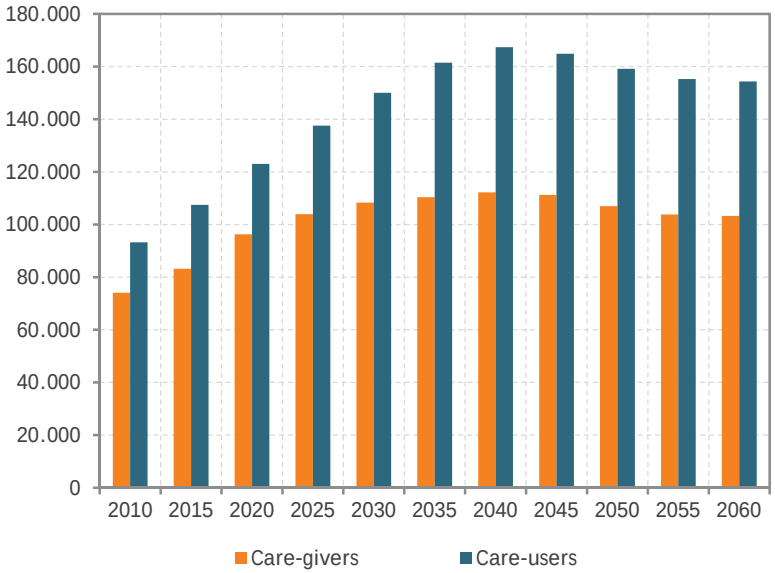
- Use of informal care: constant probabilities by age, gender, disability, household composition, other; DELAY scenario
- Supply of informal care: constant probabilities by age, gender, marital status

DE

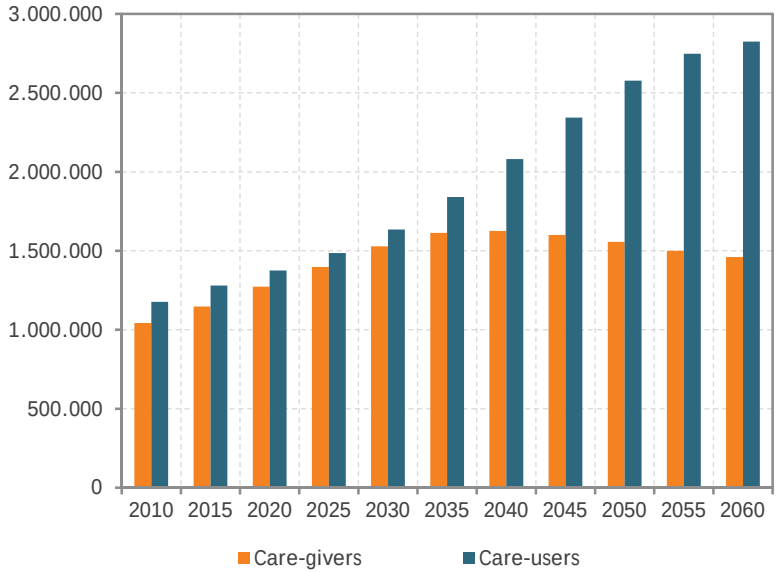


Comparison of use and supply of informal care, 2010-2060

NL



ES



Comparison of use and supply of informal care, 2010-2060

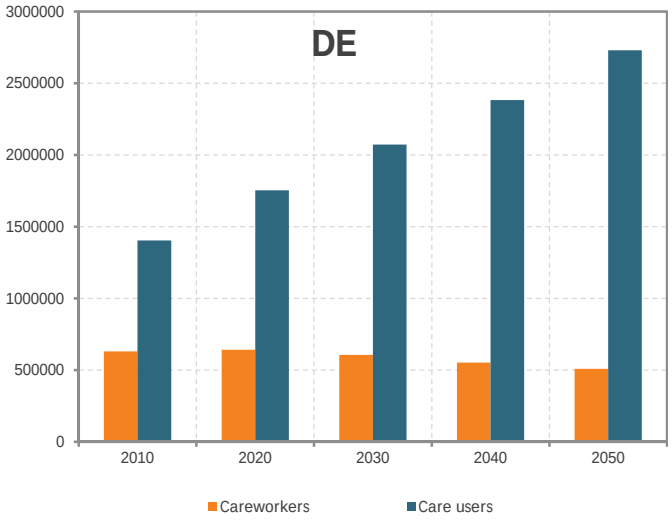
- 'Informal care gap': numbers of informal care givers needed if supply were to meet demand
- Assumption current ratio of caregivers to care users to remain constant

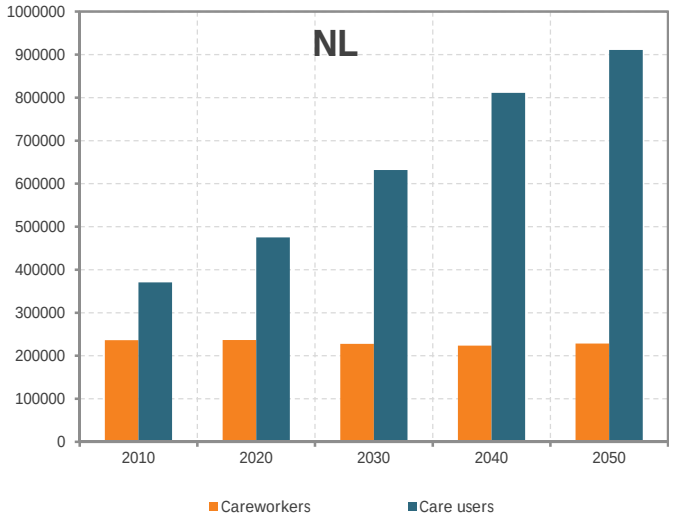
	Ratio care givers/care users 2010	Ratio caregivers/ care users 2060	'Informal care gap' ('000s)
DE	0.59	0.49	405
NL	0.79	0.67	19
ES	0.89	0.52	1043

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

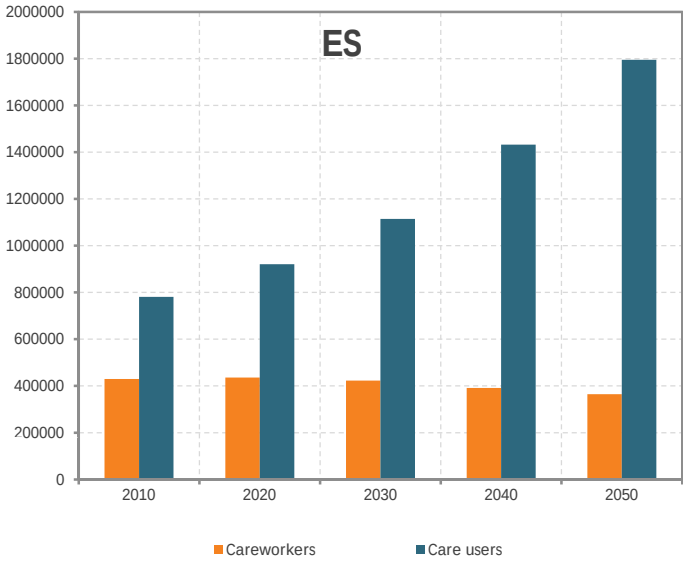
Assumptions

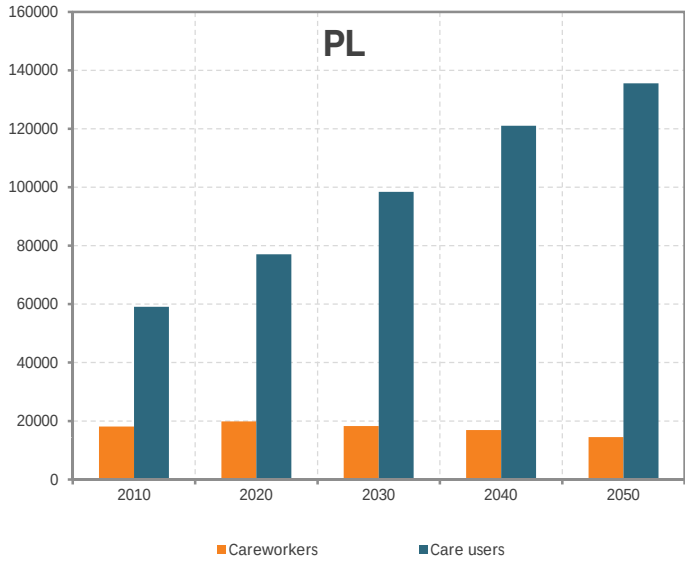
- Use of formal care: constant probabilities by age, gender, disability, household composition, other; DELAY scenario
- Supply of formal care: constant fraction of LTC workers, applied to overall labour force projections





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





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

Conclusions

- Key factor underlying projected shortages in care is demographic change: rise in numbers of older people in relation to numbers of people of working age

- Main reason that supply of informal care is unlikely to keep pace with demand are trends in intergenerational care

  Based on underlying demographic trends in numbers of people aged 50 to 64. Informal care gap' particularly large in DE and ES reflecting heavy reliance on informal care

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

  'Formal care gap' is large in NL (due to increased demand), ES and PL (combination of increased demand and shrinking workforce)

Policy implications

- Key policy issue: how to increase efficiency of use of available carers?

  Difficult to increase efficiency of informal care.

  Therefore, crucial to take measures to

  - use available formal resources as efficiently as possible

    Further research needed into effect of new technologies and differences in efficiency between settings

  - sustain and stimulate formal care capacity
  - sustain informal care capacity and prevent negative health, financial and labour market consequences of informal care giving

- No single combination of measures will fit all. National approach is required, adjusted to country-specific conditions