Residential care for older persons in Belgium: what are the future needs?
Projections of residential care users 2010 - 2025

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Commissioned by Federal Public Service for Health, Food Chain Safety and Environment

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Policy background

- Successive protocol agreements between federal and regional authorities (1997, 2003, 2005)

- Aims (inter alia):

  Moratorium on the number of beds in residential care

  Substitution of higher care nursing beds (MRS/RVT) for lower care beds (ROB/MRPA)

  Allow older people to stay at home

- Moratorium was due to expire on 1 October 2011

  But has been extended

Policy background

Recent trends in supply of residential care: overall stability, substition of nursing home beds for beds in homes for the elderly

Year	Nursing homes	Homes for the elderly	Total beds	Beds/1000 persons 65+ years	Beds/1000 persons 75+ years
2000	33 103	87 940	121 043	71	164
2001	37 489	85 055	122 544	71	162
2002	39 403	85 350	124 753	71	160
2003	45 306	79 139	124 445	71	156
2004	46 905	78 068	124 973	70	154
2005	47 165	77 917	125 243	70	150
2006	48 712	76 406	125 279	69	146
2007	51 442	73 941	125 539	69	142
2008	54 796	71 963	126 916	70	140
2009	59 504	68 760	128 421	70	139
2010	63 064	66 179	129 400	70	138
2011	65 325	64 255	129 732	n.a.	n.a.

Policy background

Recent trends in home care (Flanders only): expansion

Year	Users of home nursing – 60+	Users/1000 persons 60+	Households receiving family care[a]
2000	107 985	48.2	62 629
2001	112 029	49.8	63 225
2002	n.a.	0	65 870
2003	n.a.	0	67 005
2004	133 119	58.7	67 725
2005	126 037	55	70 112
2006	131 091	56.6	74 406
2007	136 832	57.9	79 181
2008	140 851	58.5	n.a.
2009	148 039	60.4	n.a.
2010	152 802	61.3	n.a.
2011	157 280	n.a.	n.a.

Policy background

Alternative forms of LTC are expanding but still marginal

Year	Short stay centres		Day care centres	
	Beds (absolute numbers)	Beds/1000 persons 75+ years	Places (absolute numbers)	Places/1000 persons 75+ years
2000	241	0.3	713	1
2001	267	0.4	793	1
2002	333	0.4	856	1.1
2003	408	0.5	1 088	1.4
2004	558	0.7	1 259	1.5
2005	749	0.9	1 395	1.7
2006	916	1.1	1 438	1.7
2007	1 103	1.2	1 577	1.8
2008	1 262	1.4	1 648	1.8
2009	1 401	1.5	1 747	1.9
2010	1 626	1.7	1 830	1.9
2011	1 757	n.a.	1 881	n.a.

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Demographic background:
Number of persons by age group and year

Legend: 65-69 | 70-74 | 75-79 | 80-84 | 85-89 | 90-94 | 95+
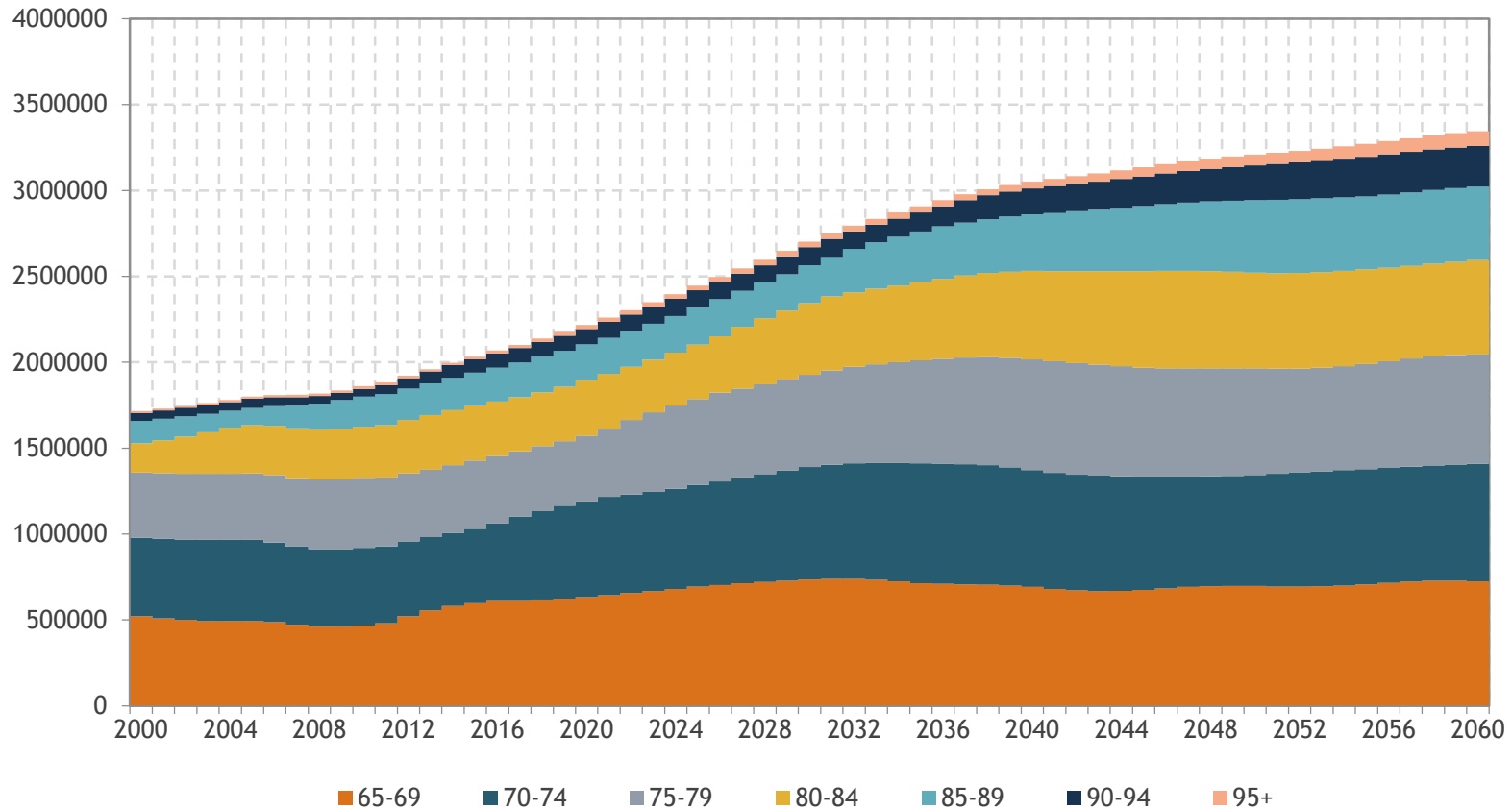
- Strong increase in number of 65+ from 2010 on
- Increase in number of 80+ accelerates after 2025
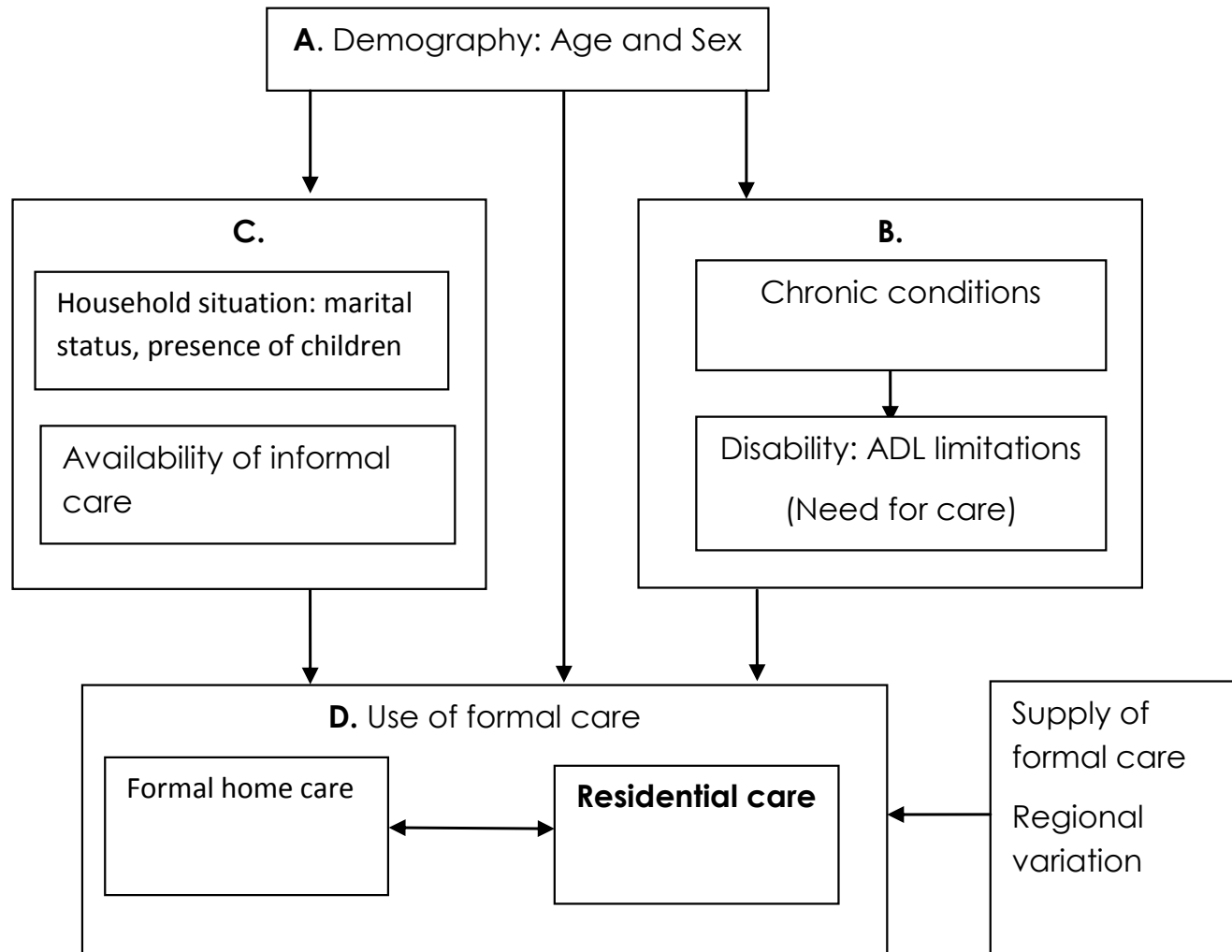
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Research aim

- Projection of the number of older persons (65+) using residential care up to 2025

Research steps

- Literature review
  - Determinants of care needs (ADL disability)
  - Determinants of entry into residential care
  - Projection models of residential care
- Selection of databases
  - Health Interview by Survey (HIS) 2004 , 2008
  - Permanent Sample (EPS) 2004-2009
- Design of projection model
- Estimation of equations
- Projection

Projection model set-up: main variables

A. Demography: Age and Sex

C.
- Household situation: marital status, presence of children
- Availability of informal care

B.
- Chronic conditions
- Disability: ADL limitations (Need for care)

D. Use of formal care
- Formal home care
- **Residential care**

Supply of formal care

Regional variation

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Projection model: main steps

1. Estimation of model of transitions between LTC situations

   Independent variables: age, sex, living situation, disability, province

2. Projecting number of persons in various LTC situations, using equations estimated in step 1.

Transition model database 1: EPS

Main database: Echantillon Permanent(e) Steekproef (EPS)

- Administrative panel, anonymised, 2002-2009

- Sample of population in Belgian public health insurance

  - 1/40 of persons < 65

  - 1/20 of persons 65+

- Data on use of public health care and related variables

  - Also on living situation

  - *Not* on health and disability itself!

- Data used in this project restricted to:

  - Population aged 65+

  - Years 2004-2009

Transition model database 1: EPS

- Five chronic conditions, which are predictors of disability, could be identified in the EPS using data on medication and medical treatments:

Name	Impact	Prevalence
COPD	moderate	high
Dementia	very high	moderate
Diabetes	moderate	high
Hip fracture	high	low
Parkinson's disease	very high	low

- Disability (1 or more limitation in ADL) imputed, using equation estimated with HIS 2004 & 2008

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Transition model database 2: HIS 2004 & 2008

Additional data-base: Health Interview Survey 2004 & 2008

- Large survey on health, health problems and health behavior

- Sample from population of Belgian residents

  - Including institutionalized population

  - Oversampling of persons 65+ (2004) ; 75+ (2008)

  - Sample sizes (65+) 3594 (2004); 2859 (2008)

- Logistic model of disability (1 or more limitations in ADL)

  - Using age, sex, province and five chronic conditions as predictors

Transition model database 2: HIS 2004 & 2008

Age is dominant predictor of disability: % with disability by age

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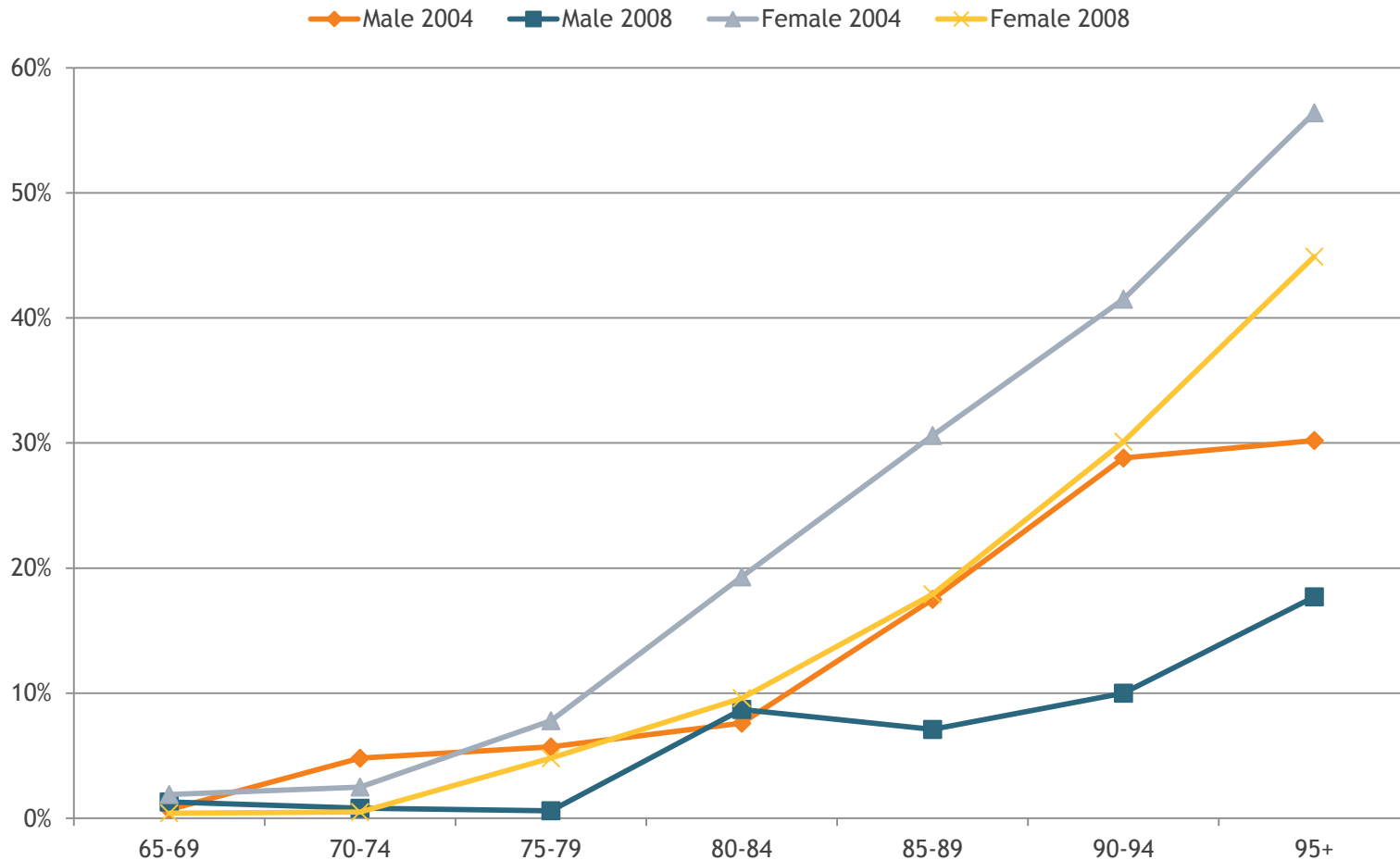
Transition model of LTC use

Model of transitions between LTC situations.

- Quarterly

- Careful definition of care situations: Each individual in any quarter had to be assigned to a single care situation

- Determinants: age, sex, probability of disability, living situation, province
  Living situation:
  - partner
  - daugher, son
  - other persons
  - distinction between present / present but available for informal care / not present

- Set of hierarchical transition probability models
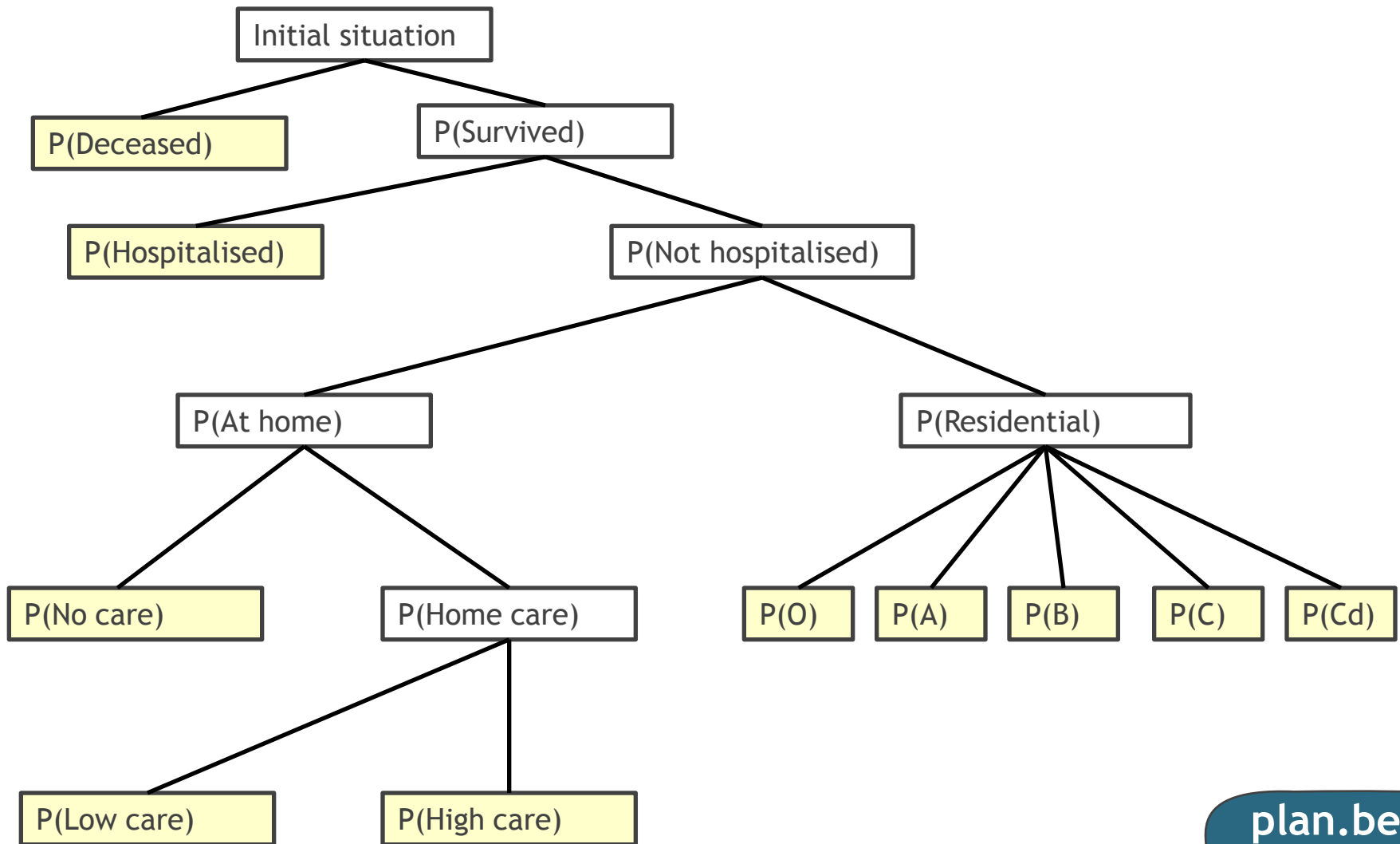
Transition model: LTC situations

- no long-term care, no hospitalization

- home-care use 'low' intensity (categories A, T)

- home-care use 'high intensity' (categories B, C),

- residential care, cat. O: 0 ADL limitations

- residential care, cat. A: 1-2 ADL lim's *or* 'disoriented'

- residential care, cat. B*: 3-4 ADL lim's *or* 'disoriented' and 1-2 ADL lim's

- residential care, cat. C*: 5-6 ADL lim's, *not* 'disoriented'

- residential care, cat. Cd*: 5-6 ADL lim's *and* 'disoriented'

- hospitalization

- Deceased

* Distinction between ROB/MRPA and RVT/MRS collapsed

# Transitions in LTC situations after one year: descriptive

4 quarters	No care	Home care low	Home care high	Resid. care level O	Resid. care level A	Resid. care level B*	Resid. care level C*	Resid. care level Cd*	Hospitali zation	Total
No care	93.4	7.4	4.4	1.6	0.6	0.5	0.2	0.2	31.8	81.2
Home care low	1.9	66.8	5.9	0.3	0.4	0.4	0.2	0.0	9.5	5.3
Home care high	0.4	5.6	57.6	0.1	0.1	0.1	0.3	0.2	4.8	1.5
Resid. care level O	0.2	0.8	0.2	65.7	7.0	2.3	0.7	0.1	2.7	1.2
Resid. care level A	0.2	1.7	0.7	10.6	49.9	5.8	2.2	0.5	3.2	1.1
Resid. care level B*	0.3	2.6	2.3	6.4	15.8	48.5	5.0	1.9	5.0	1.4
Resid. care level C*	0.1	1.0	2.2	2.0	4.4	6.0	48.7	1.4	3.0	0.7
Resid. care level Cd*	0.2	1.5	3.1	1.9	4.7	15.2	12.6	60.2	4.8	1.8
Hospitalization	0.7	2.5	2.1	1.0	1.0	0.9	0.8	0.5	12.9	0.9
Deceased	2.7	10.3	21.4	10.5	16.2	20.3	29.4	35.0	22.4	4.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
% in origin category	86.1%	5.1%	1.5%	1.3%	1.1%	1.4%	0.8%	1.8%	1.0%	100.0%

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Transition model: hierarchical structure

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Transition model: results

Probability of transition into residential care, from a situation of no care, by risk of disability, for four types of persons, by quarter

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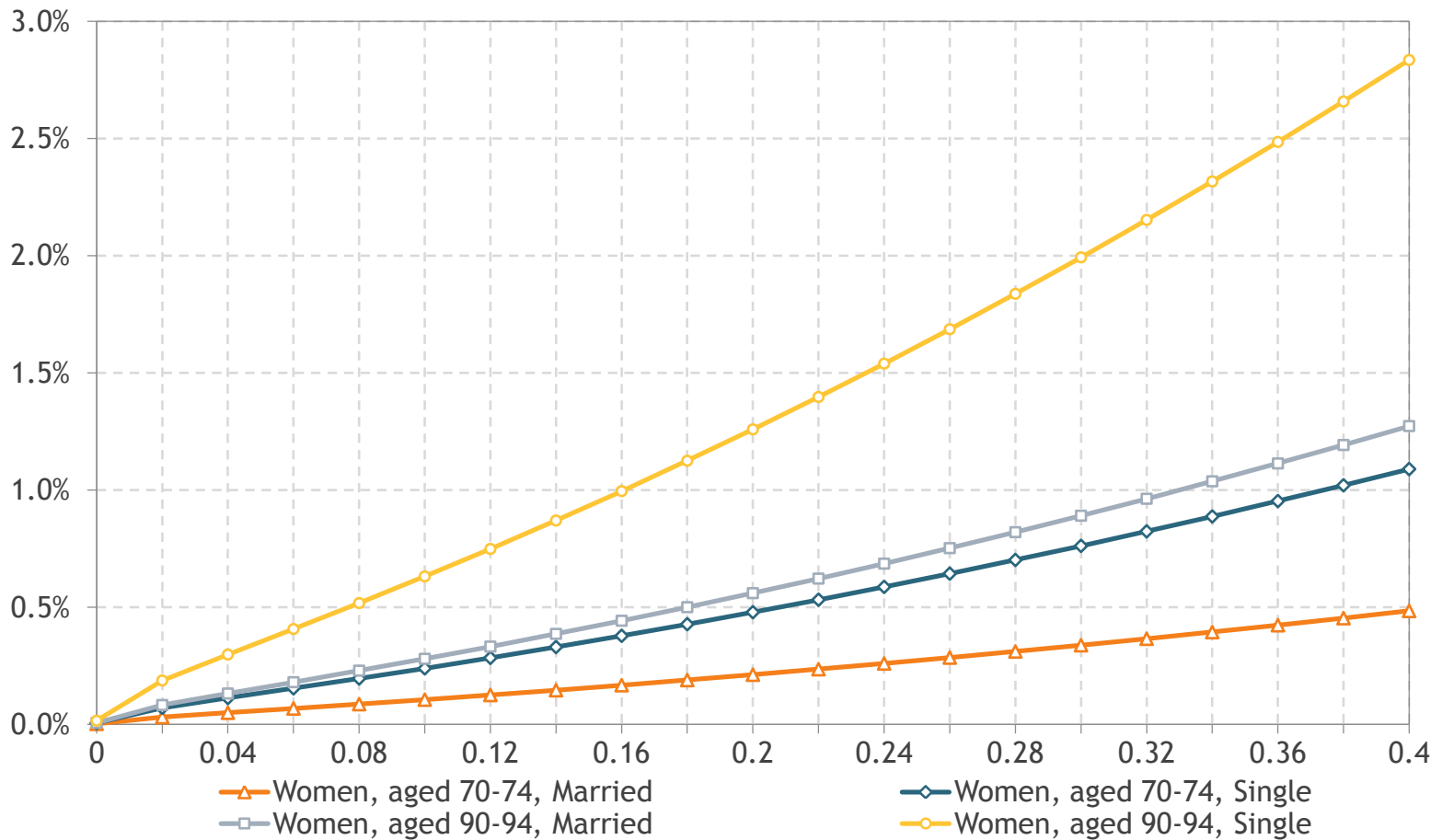
Model of transitions in LTC: results

- Disability is dominant predictor

- Other important predictors: age, presence partner or child in household

- Disability is itself largely determined by age

- Important differences between provinces (not always significant)

  - But difficult to interpret

Transition & projection model limitations

- Not all relevant data are available
  - Level of disability (*number* of ADL limitations)
  - Informal care from outside the household
  - Income, education, home ownership
  - Formal LTC not paid by INAMI / RIZIV (home care)
- No data on local variations in supply of care (waiting lists?)
- Data limited to 2004-09, not possible to identify time trends
- No projections for Belgium for disability or chronic conditions

Projection method

Cell-based macro-projection model

- Cells defined by
  - Year (2010 – 2025)
  - Age category (5 year intervals)
  - Sex
  - Province+
  - Living situation (4 variables)
  - Chronic conditions (5 variables)
- Variables in each cell
  - Number in population
  - Risk (%) of disability
  - % in each LTC situation
- Projection results by aggregation across cells, weighted by number in population
- Calibration to 2010 total according to RIZIV data (125.500)
  - Necessary because of residential care 'immigrants'

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Projection method: set-up of projection matrix

- Population projections by FPB – ADSEI
  - Year x Age x Sex x Province+
- Projection of living situations by Michel Poulain
  - Year x Age x Sex x Living situation
  - Living situation in base year from EPS
  - Some interpolation and calibration necessary
- Chronic conditions from EPS
  - Chronic conditions x Age x Sex x Province
  - Assumed unchanged across projection period in base scenario
  - But adapted in other scenarios
- Risk of disability
  - Imputed using equation estimated on HIS
- Proportion in each care situation
  - Imputed using equations estimated on EPS
- Cf. block diagram in handout

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Projection results: base scenario

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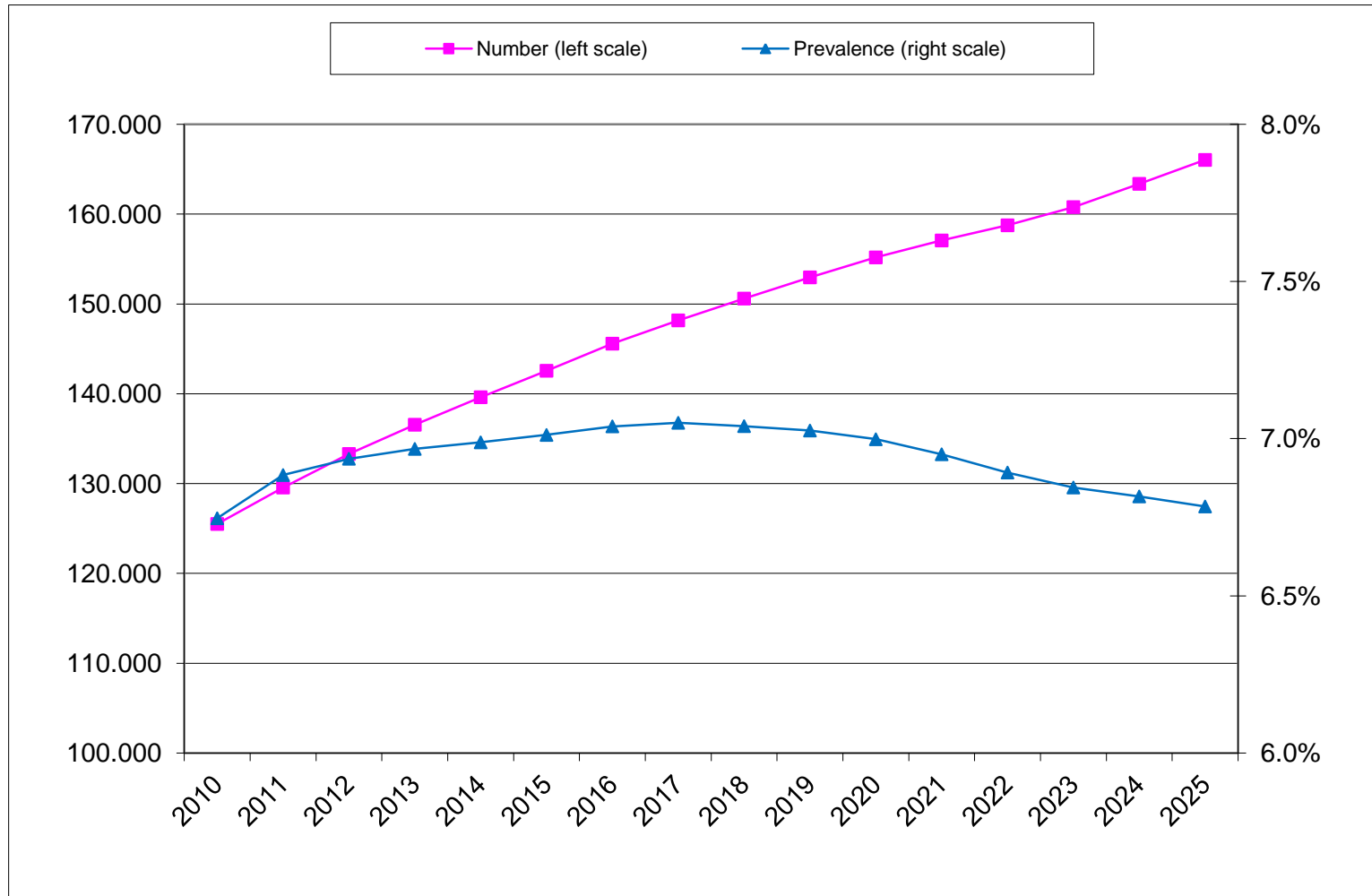
Projection results by province+: base scenario

	persons in residential care		Increase in %	% aged 85+	
	2010	**2025**	**2025 / 2010**	**2010**	**2025**
Antwerpen-Mechelen	15 294	19 563	28%	12.9%	15.0%
Turnhout	3 472	6 142	77%	9.7%	13.0%
Brussels	12747	12 223	-4%	16.2%	14.2%
Halle-Vilvoorde	6 118	8 843	45%	11.9%	14.7%
Leuven	4 824	7 069	47%	12.4%	14.8%
Nivelles	4 111	6 082	48%	13.1%	13.7%
West-Vlaanderen-Kust	7 772	11 711	51%	12.1%	14.1%
West-Vlaanderen-Binnen	7 461	10 494	41%	12.6%	16.2%
Gent-Aalst	9 430	13 138	39%	12.4%	15.5%
Oost-Vlaanderen-rest	9 065	12 766	41%	11.9%	14.7%
Charleroi-Mons-Soignies	10 471	11 753	12%	13.4%	12.3%
Hainaut-autre	7 211	8 706	21%	14.4%	13.9%
Liège	14 195	17 186	21%	12.8%	13.1%
Limburg	5 571	10 390	87%	9.6%	13.0%
Luxembourg	2 745	3 401	24%	12.9%	13.2%
Namur-Namur	3 531	4 619	31%	13.1%	13.3%
Namur-autre	1 481	1 944	31%	13.0%	13.0%
Belgium-total	125 500	166 000	32%	12.6%	14.1%

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Projection results: base scenario

- Results driven by ageing of the population

    - Due to importance of age, constant risk of disability, and constant transition probabilities between care situations

- Important differences between provinces in the projected number of users of residential care

    - Due to variation in demographic composition:

   - Some provinces with few 85+ now will experience strong ageing effect in near future

Projection results: six alternative scenarios

Three alternative scenarios on disability

1. "Better education": the prevalence of chronic conditions declines in line with the increased educational level of each new cohort of older persons

2. "Morbidity compression" : the risk of disability by age and sex will decrease in future, in the sense that half of the projected increases in longevity are assumed to be spent free of disability

3. " Diabetes epidemic" the prevalence of diabetes will increase by 5% annually during the projection period

Projection results: six alternative scenarios

Projected trends in use of residential care according to four scenarios on disability
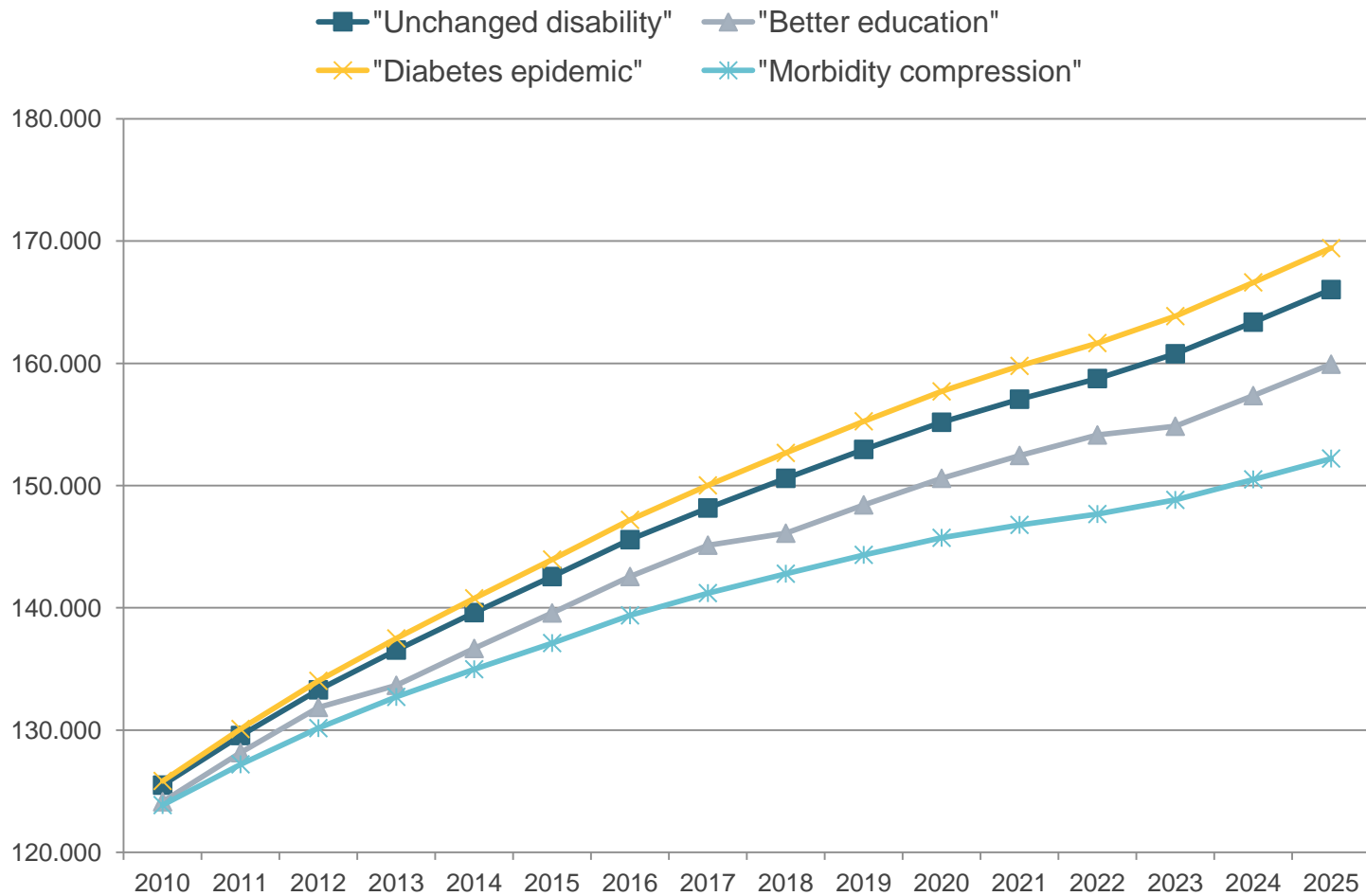
Projection results: six alternative scenarios

Two alternative scenarios on living situation

4. "Pure demographic": living situation of older persons by age and sex group will not change during the projection period

5. "Fewer children": the number of children living with their older parents will be halved during the projection period
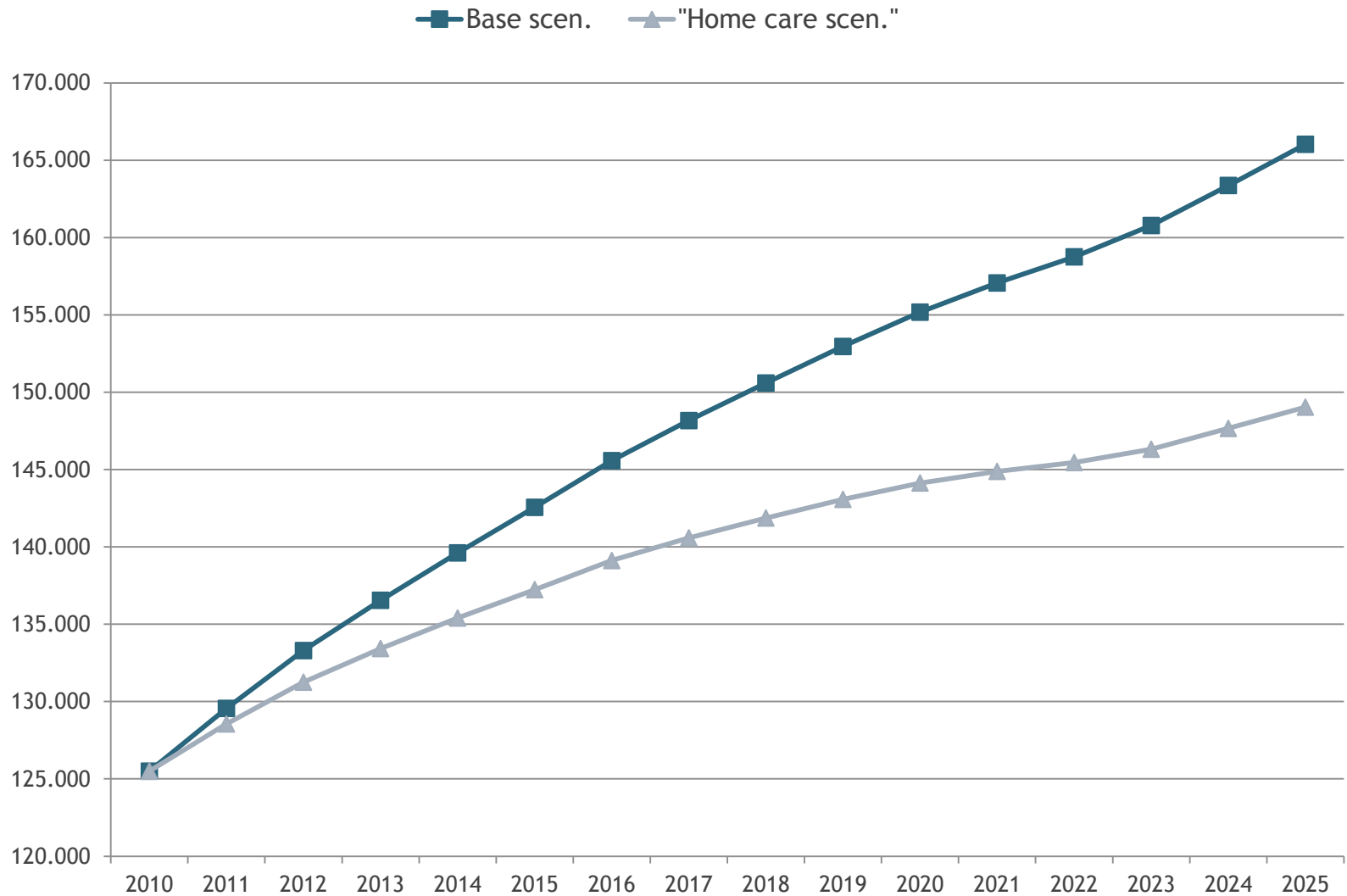
One alternative scenario on home care

6. "Home care": home care expands by 50 % (beyond what is required by the ageing of the population).

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Projection results: six alternative scenarios

Projected trends in use of residential care according to three scenarios on living situation

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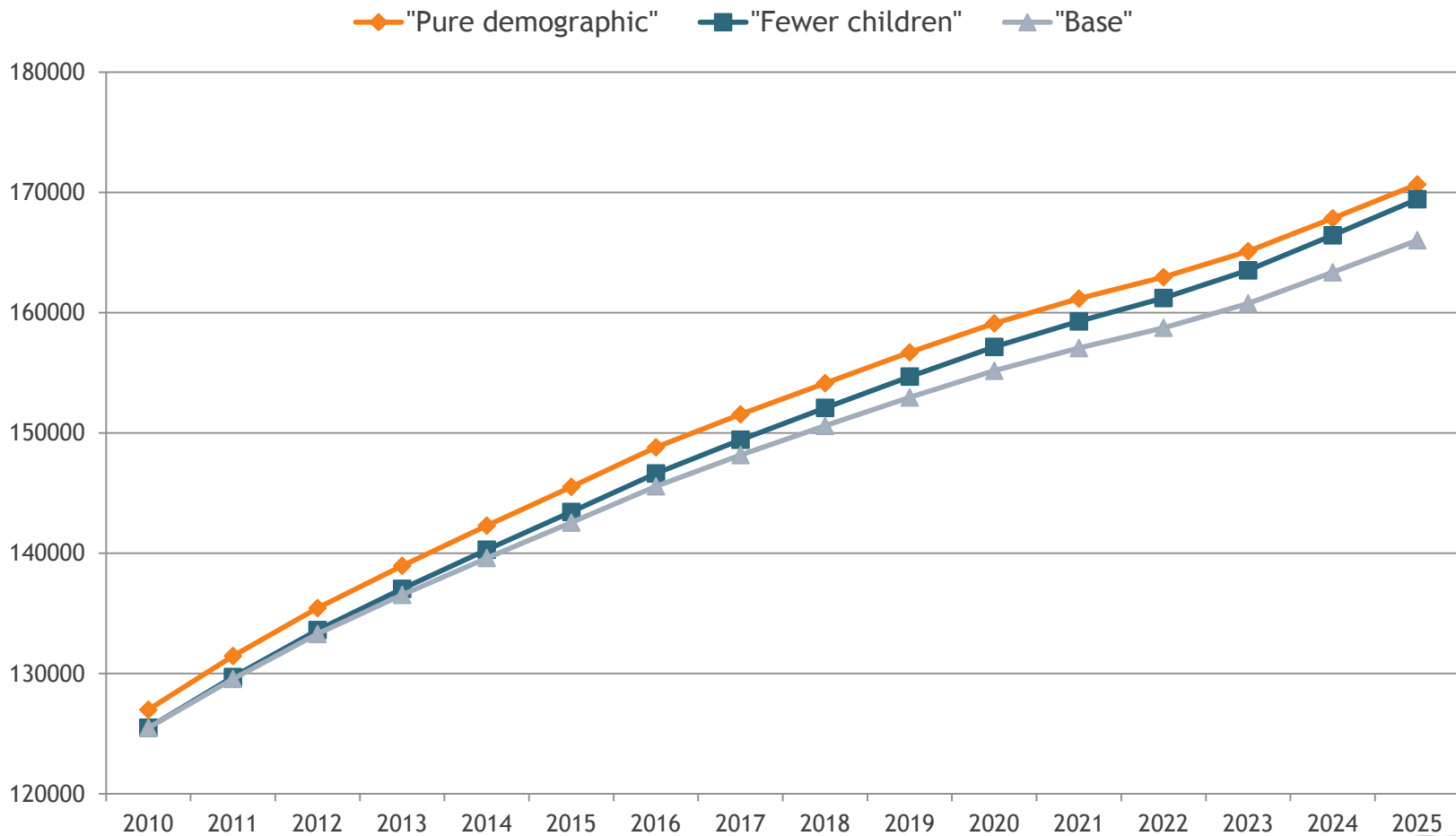
Policy implications

- Base projection of 166 000 users (65+) of residential care in Belgium in 2025

  - Increase of 41 000 relative to 2010

- Alternative scenarios result in 150 000 to 170 000 users

- Without drastic changes in policies, 25 000 extra beds in 2025 seems an absolute minimum estimate (but only when home care is expanded drastically)

- At the same time, home care must be expanded by 31% to keep up with the ageing population

- The growth in the number of users of residential care will accelerate after 2025

Policy implications

Projection up to 2050, according to "pure demographic" scenario

Number in residential care
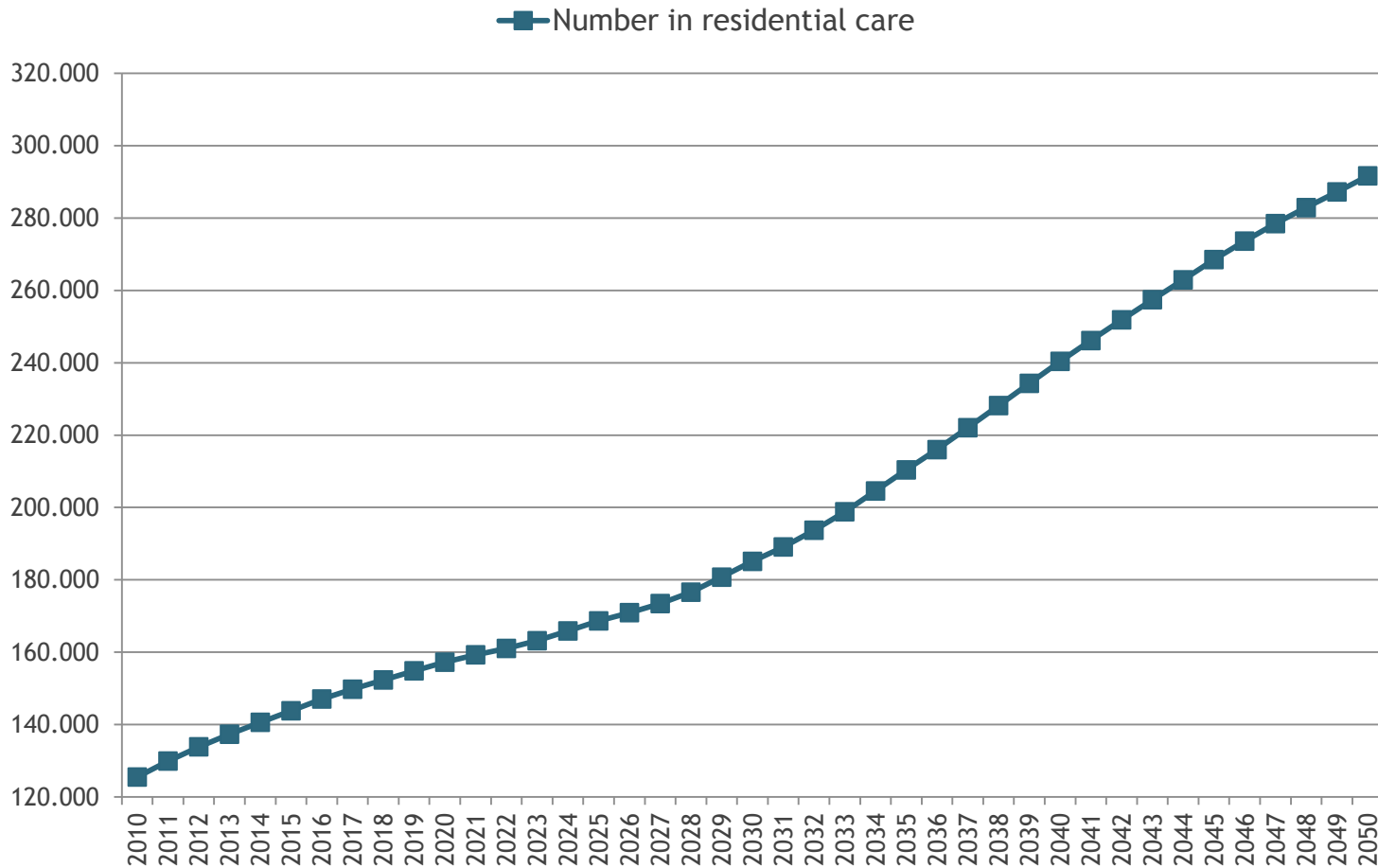
Possible alternatives?

- Limit entry into residential care at level O

  - Currently 23 000 older persons in category MR/ROB O, who mostly are not really needing residential care (based on their ADL disability)

  - Beds could be used for older persons needing more intensive levels of care

  - This will require alternative care for persons now in residential care level O

- Due to ageing of the population, home care will have to expand anyway, roughly in the same proportion as residential care

- The expansion of both types of care will require additional qualified personnel, if quality is to be maintained

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