

The economic and budgetary consequences of ageing

Projections for the EU25 Member States

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CSIS- Global Ageing Forum

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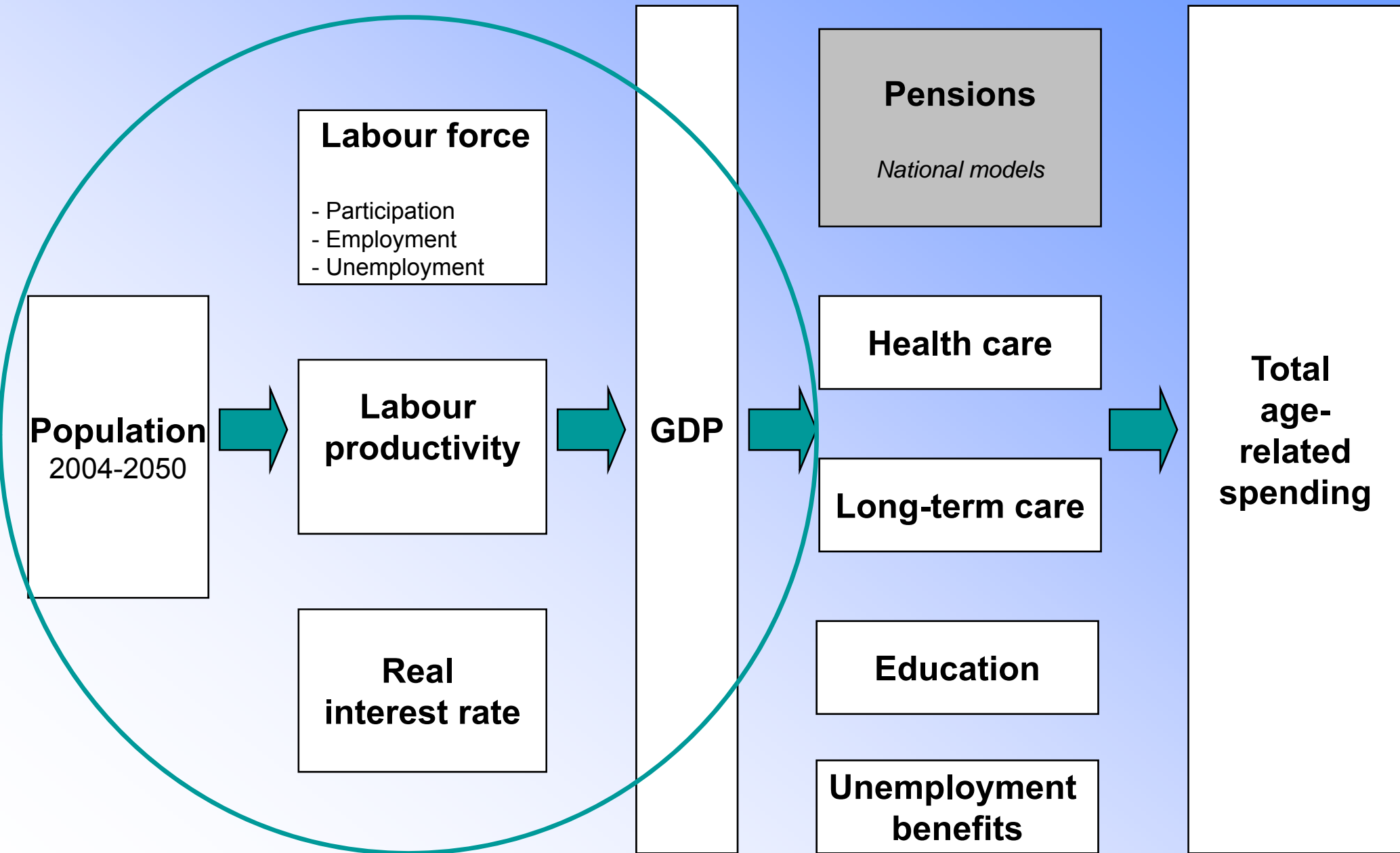
Outline of the presentation

- Overview of the projection exercise
- Underlying population and economic assumptions
- Budgetary projection results
 - Pensions
 - Health care and long-term care
 - Education
 - Overall budgetary impact of ageing
- The assessment of long-term fiscal sustainability

The economic and budgetary projections of the Commission and Ageing Working Group

- Made by a group of officials from European Commission and officials from national Economics and Finance Ministries (Ageing WG)
- Cover main macroeconomic variables
(labour supply, employment, GDP, TFP, labour productivity)
- Covers spending on public pensions, health care, long-term, education and unemployment transfers for EU-15 for period 2000-50
- Results published in 2001/2003 and 2006
- Next projections by 2009

Overview of 2005 projection exercise



Main demographic drivers

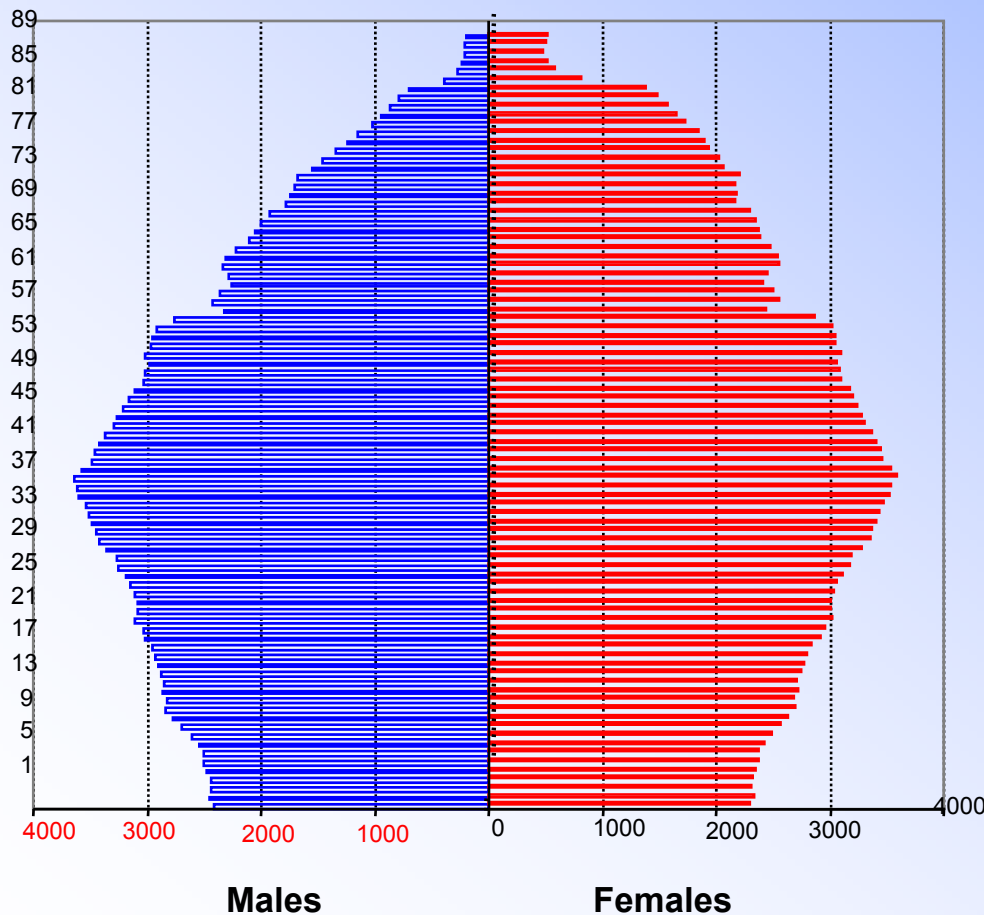
drivers

	EU15				EU10		
	1960	2004	2050		1960	2004	2050
Fertility rate	2,7	1,5	1,6		2,8	1,2	1,6
Life expectancy at birth - men	67,5	76,4	82,1		66	70,1	78,7
Life expectancy at birth - women	72,7	82,2	87,0		71,6	78,2	84,1
Net migration flows (thousands)		1347	778			-3	101
Net migration flows (as a % total population)		0,4	0,2			-0,1	0,2

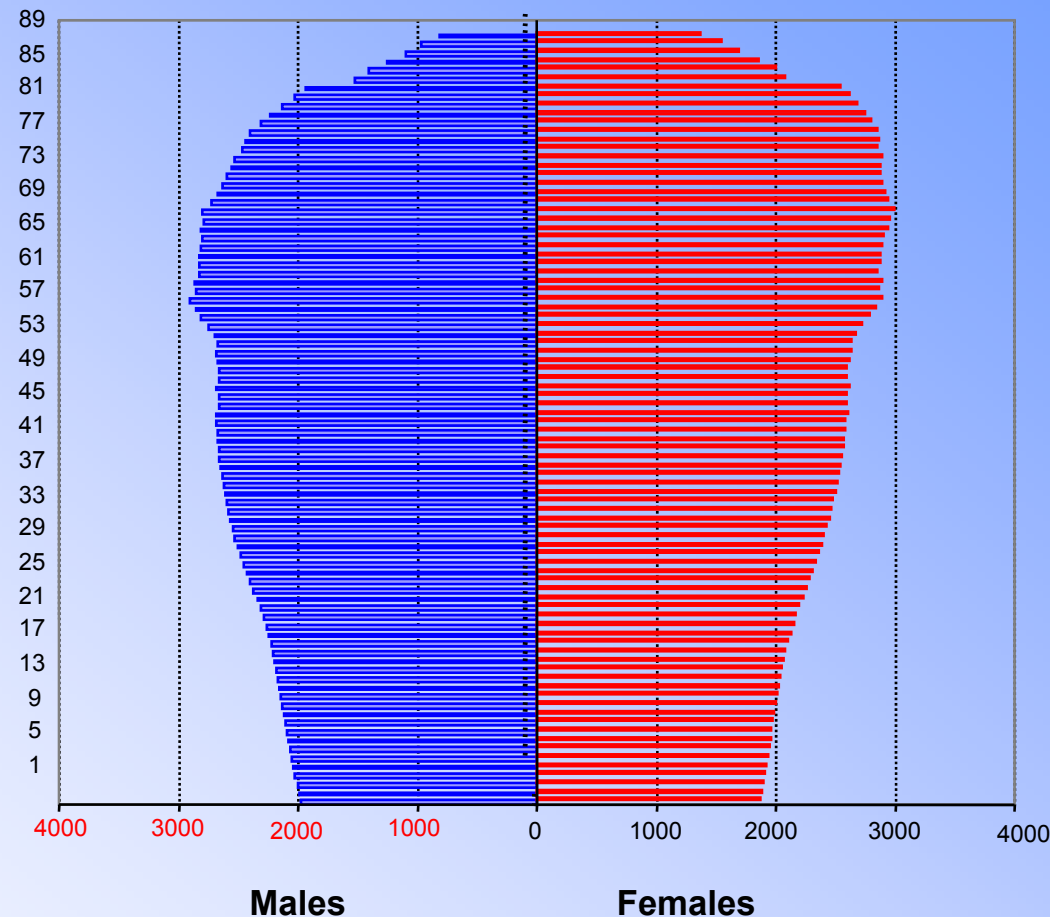
A much older population structure in the EU25

- Total population: 457 mill. in 2004, 471 mill. in 2030, 454 mill. in 2050
- Most numerous age cohorts: age 36 in 2004, age 57-59 in 2050
- Population aged 65+ doubles until 2050 (from 75 to 133 millions in 2050)
- Old age dependency ratio (65+/15-64): **doubles from 26 to 52**

2004



2050



Participation rate projections: the cohort approach

Three Main Features of the Methodology :

1) Use of entry rates and exit rates:

1997-2003 average rates kept
constant over the period of projection

2) Participation rates are projected for each single year of age and gender

3) Incorporate the impact of pension reforms

Methodology to estimate the impact of recent pension reforms on participation rates

FIRST STEP:

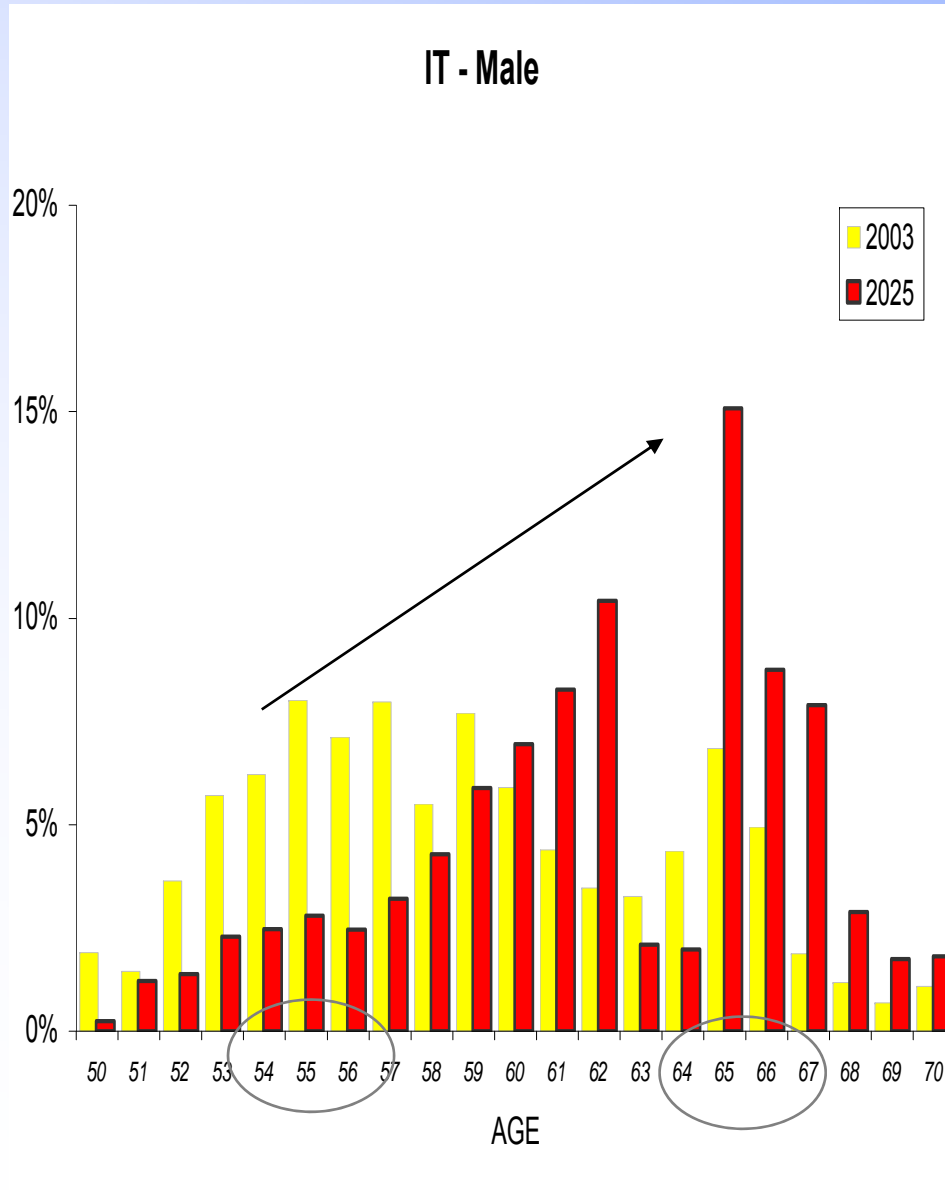
- Analysis of the exit rates, probability of retirement and the cumulative distribution function at different ages
- Analysis of the impact of different pension rules and their changes on the rate of exit and probability of retirement

SECOND STEP:

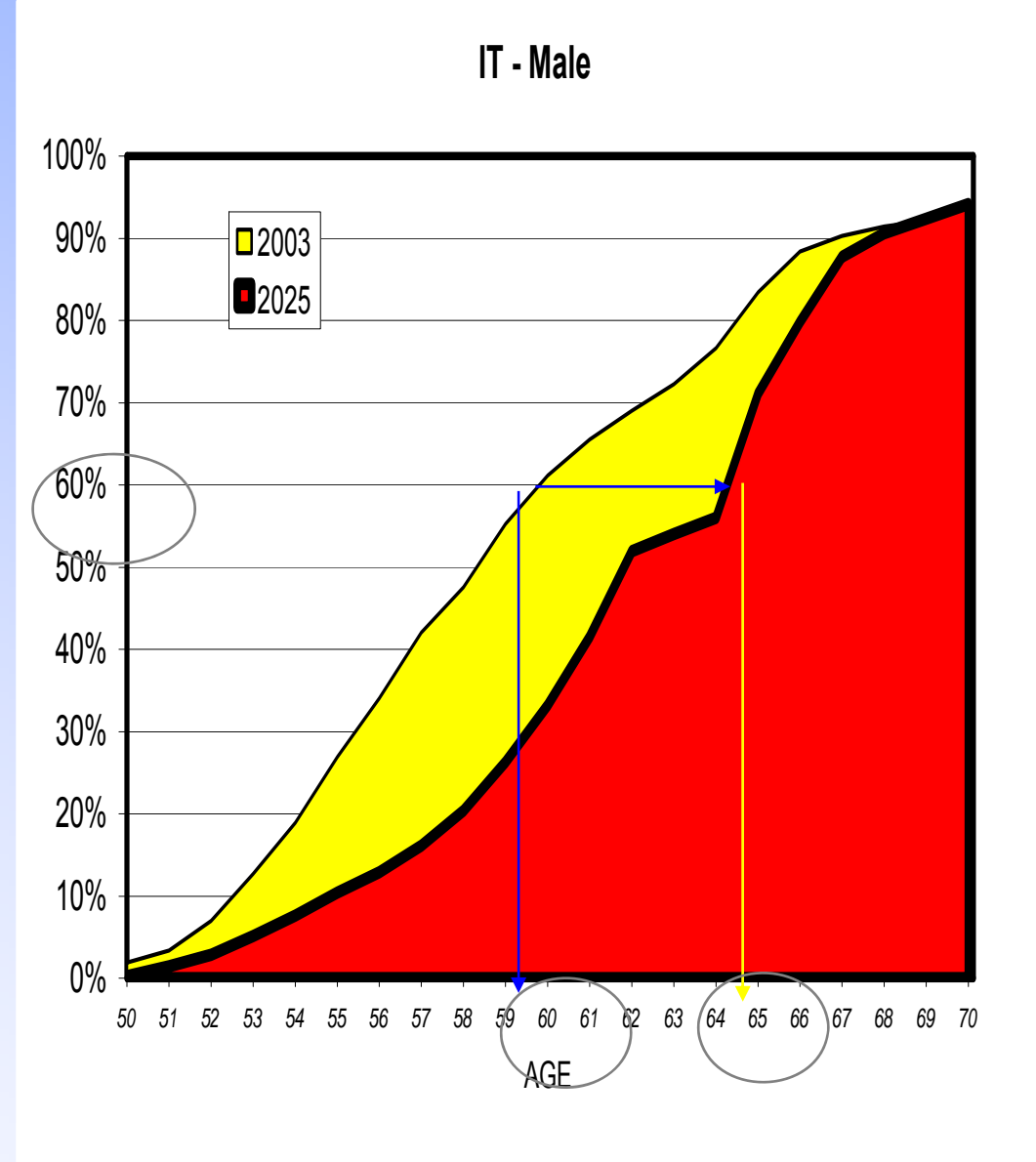
- Change the probability of retirement
- Change the corresponding exit rates
- Re-run the cohort model to get new participation rates

Estimating the impact of recent pension reforms

Probability of retirement

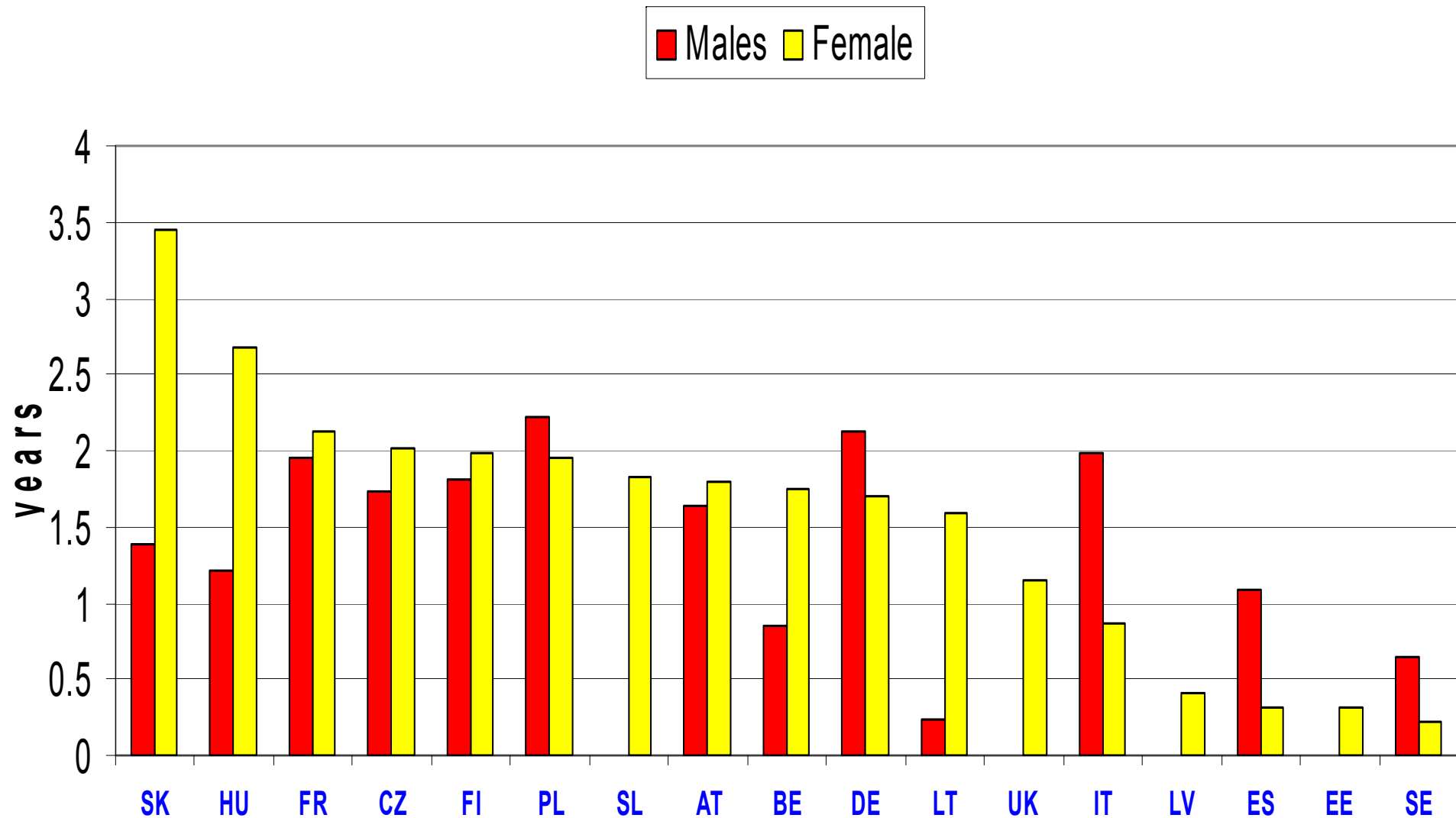


Cumulative probability of retirement

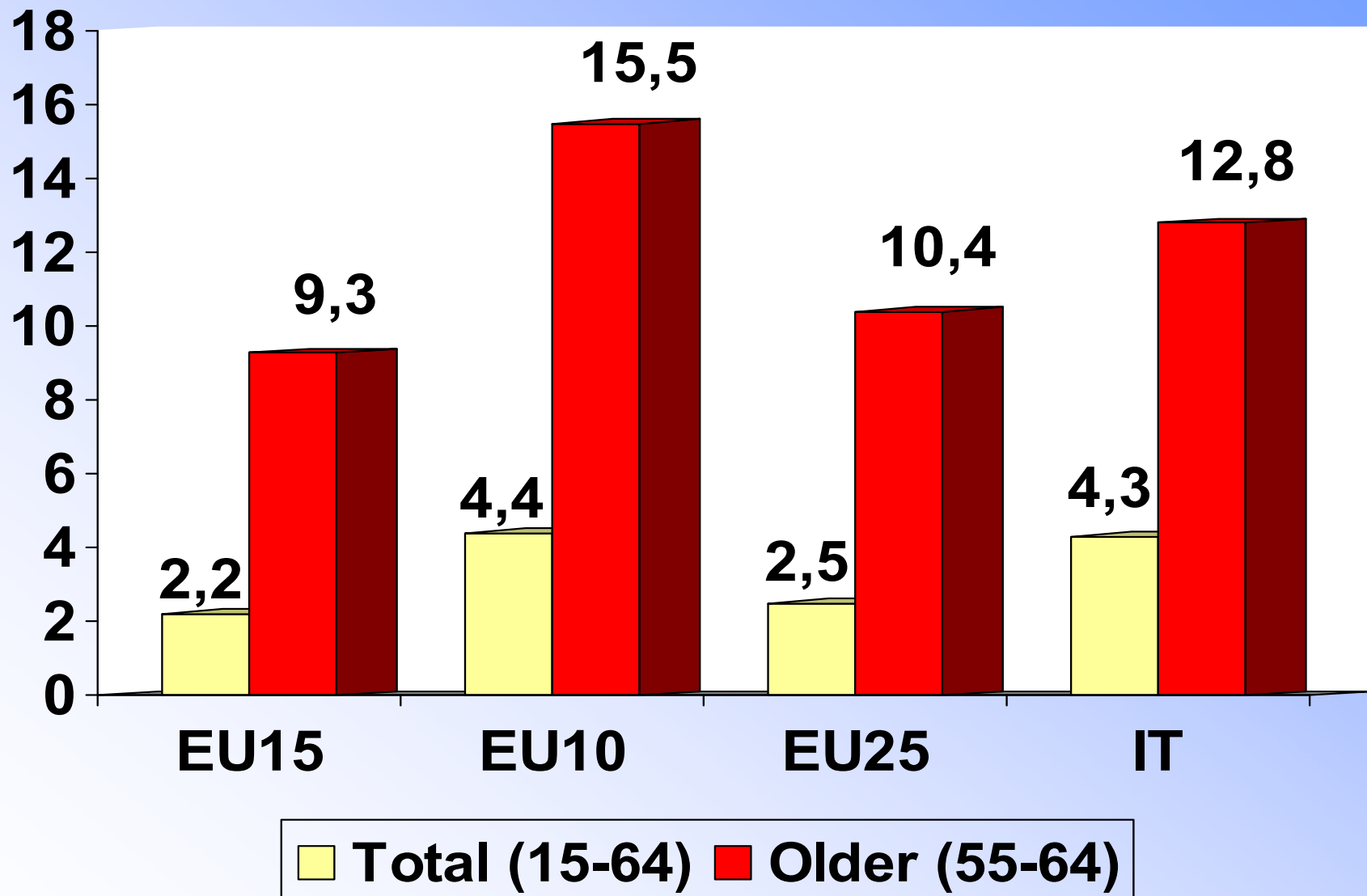


Impact of recent pension reforms (2003 - 2025)

Increase in the average exit age



Increase in participation rates due to pension reforms 2003- 2050

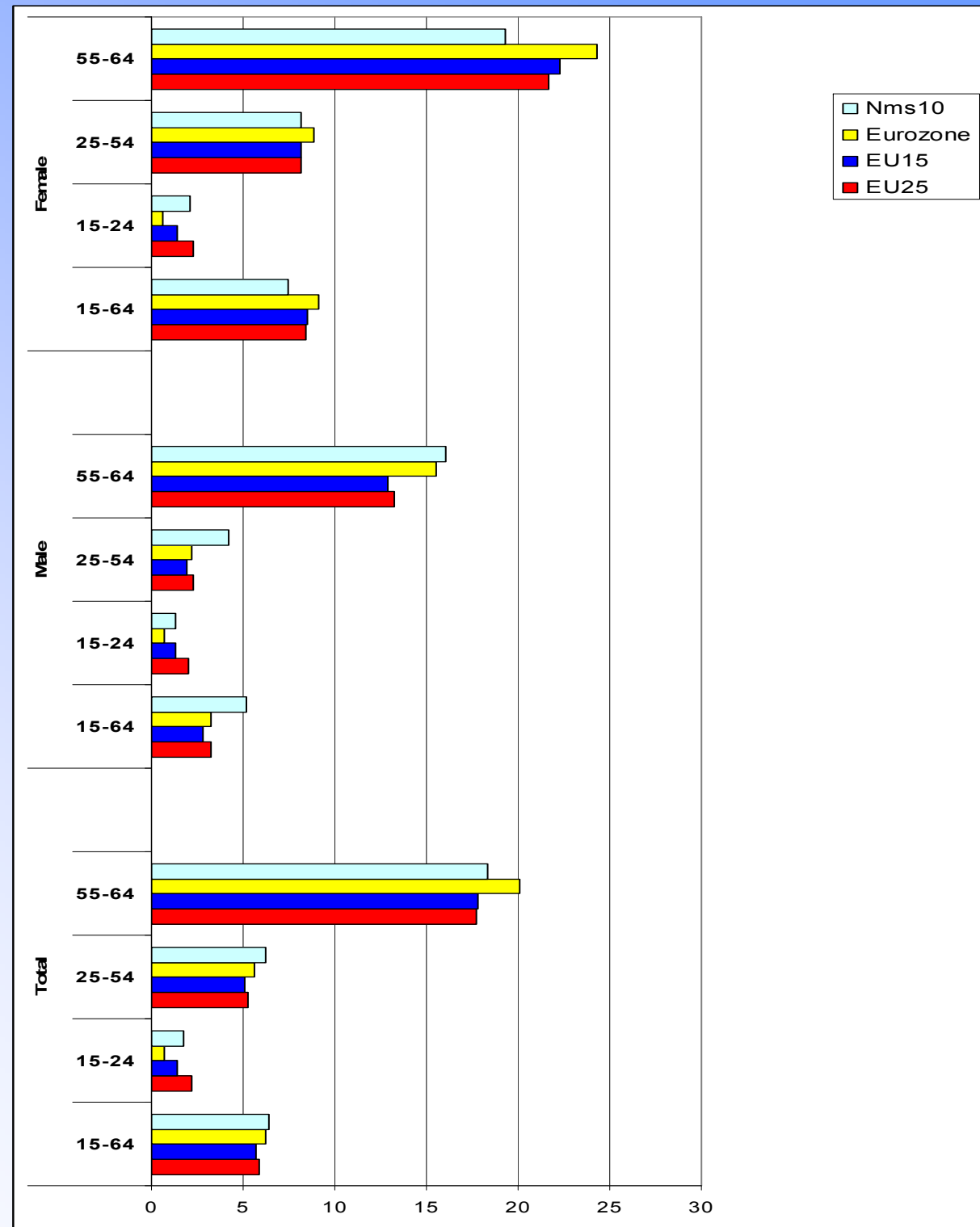


Adult life spent in retirement

EU25	Men		Women	
	2003	2050	2003	2050
Employment rate of older workers	50.0	64.8	30.4	53.0
Average exit age	61.9	62.9	61.1	61.9
Life expectancy at the time of withdrawal	19.0	22.1	23.3	26.6
% of adult life spent in retirement	28.8	31.6	33.6	36.2
Requested exit postponement, in years (to keep % life spent in retirement constant)		1.9		2.0

Main results: changes in the PR (2003-2050)

- **BIG INCREASE FOR OLDER WORKERS**
(21 p.p. for female
13 p.p. for male in both
EU-25 & EU-15)
- **PRIME-AGE FEMALES UP MORE THAN 8 p.p.**
- **ONLY MODERATE INCREASE for PRIME-AGE MALES**
(about 2 p.p. in EU-25 & EU-15)
- **YOUNG rates BROADLY CONSTANT**



FROM PARTICIPATION RATES TO EMPLOYMENT

Unemployment assumptions

3 Groups of countries

1) THOSE BELOW THE EU-15 AVERAGE :

☞ *project further decline in the ECFIN 2005 NAIRU up to 2008
(a simple rule that allows for 50% of the most recent decline:*

$$NAIRU_{t+1} = NAIRU_t - 0.5 * (NAIRU_t - NAIRU_{t-1})$$

2) THOSE ABOVE EU-15 AVERAGE:

☞ *convergence to the 2008 EU15 NAIRU average (about 7%) by 2015*

3) POLAND AND SLOVACK REPUBLIC (with very high UR)

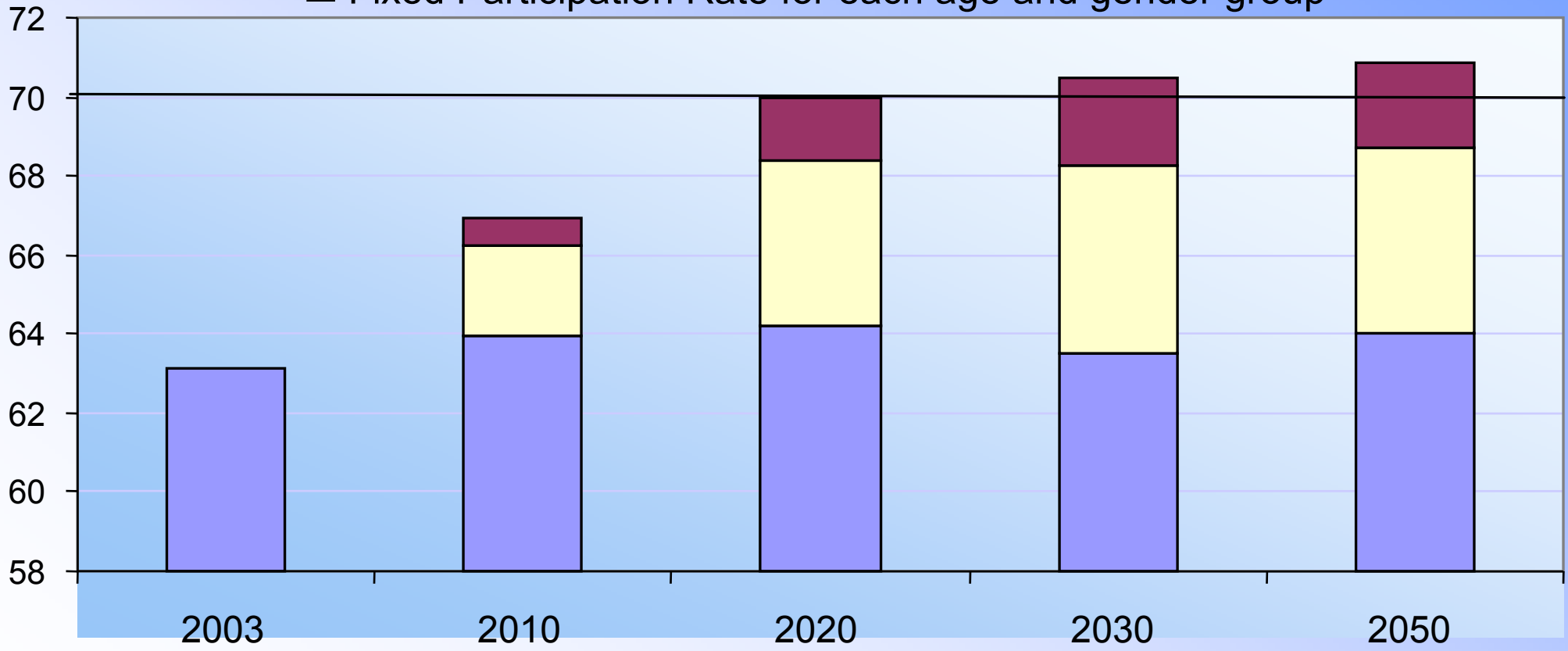
☞ *convergence to the 2008 EU15 NAIRU average
(about 7%) by 2025*

➤ **Employment rate for the EU25:**

from 63% in 2003 to 71% in 2050 mainly due to:

- **women's employment:** **from 55% to 65%**
- **older workers (aged 55-64):** **from 40% to 59%**

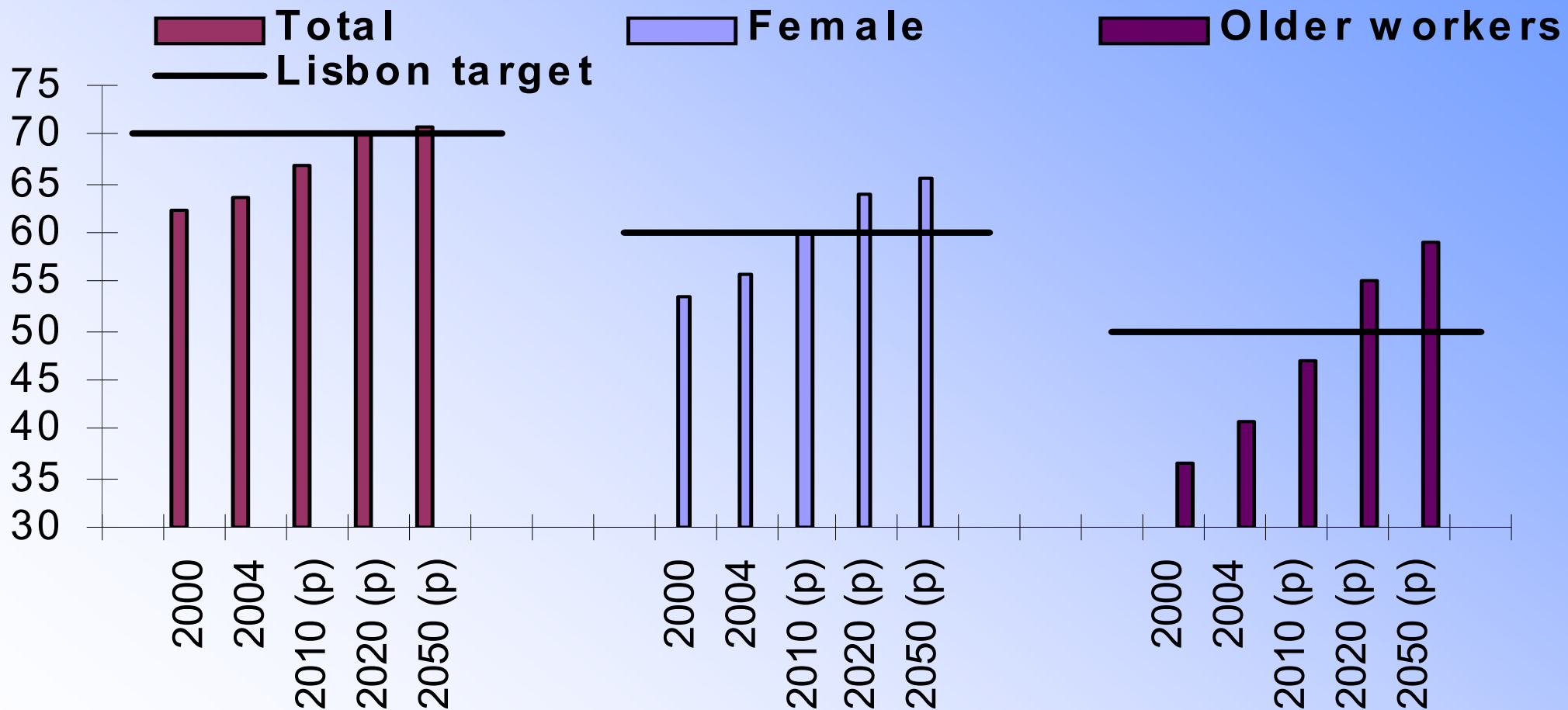
■ Pension reforms effects
■ Cohort effect
■ Fixed Participation Rate for each age and gender group



Source: 2006 EPC/Commission report on ageing.

The consequences of ageing populations on employment and growth

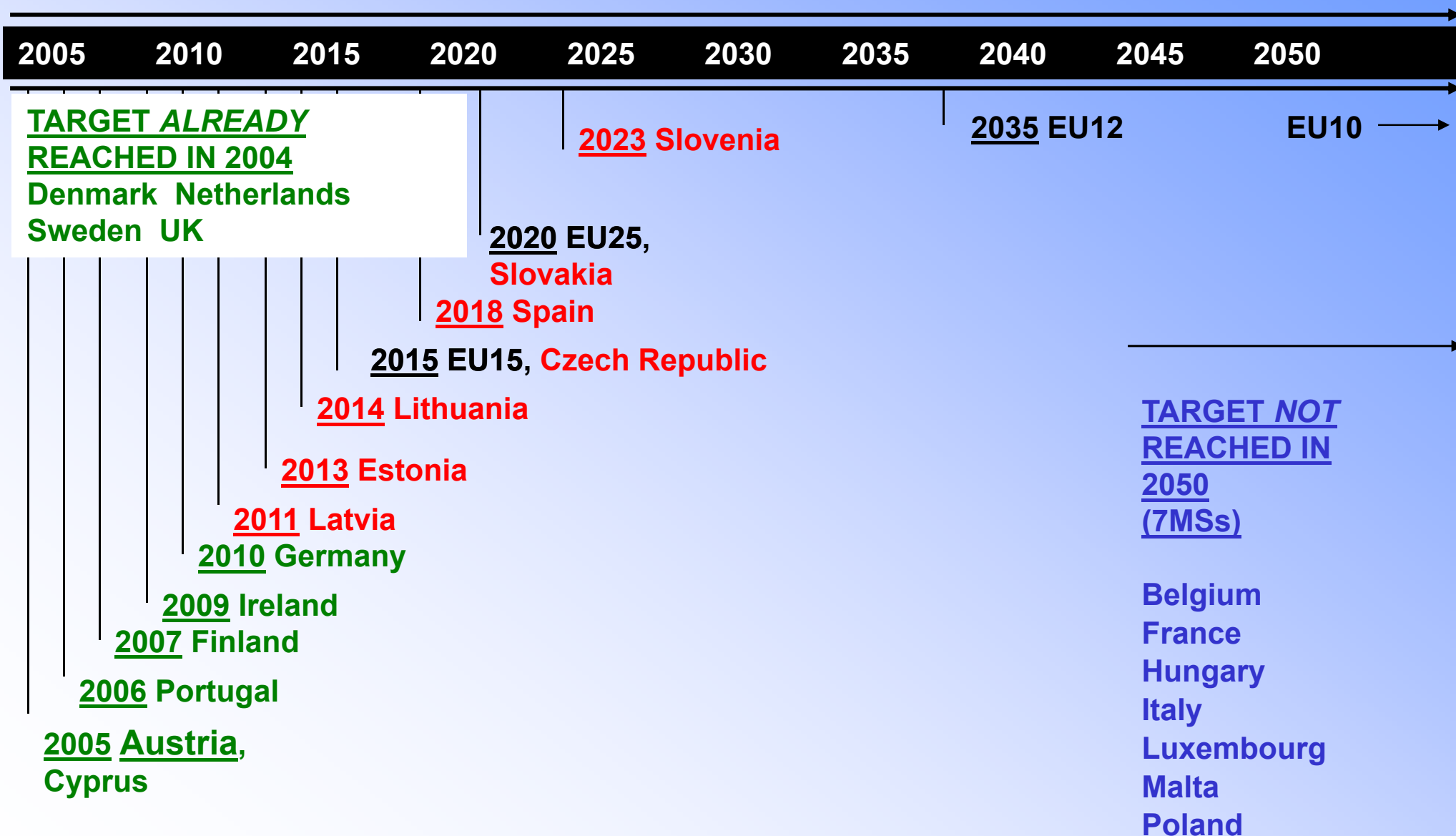
Projected employment rates and Lisbon targets for the EU25



Source: 2006 EPC/Commission report on ageing.

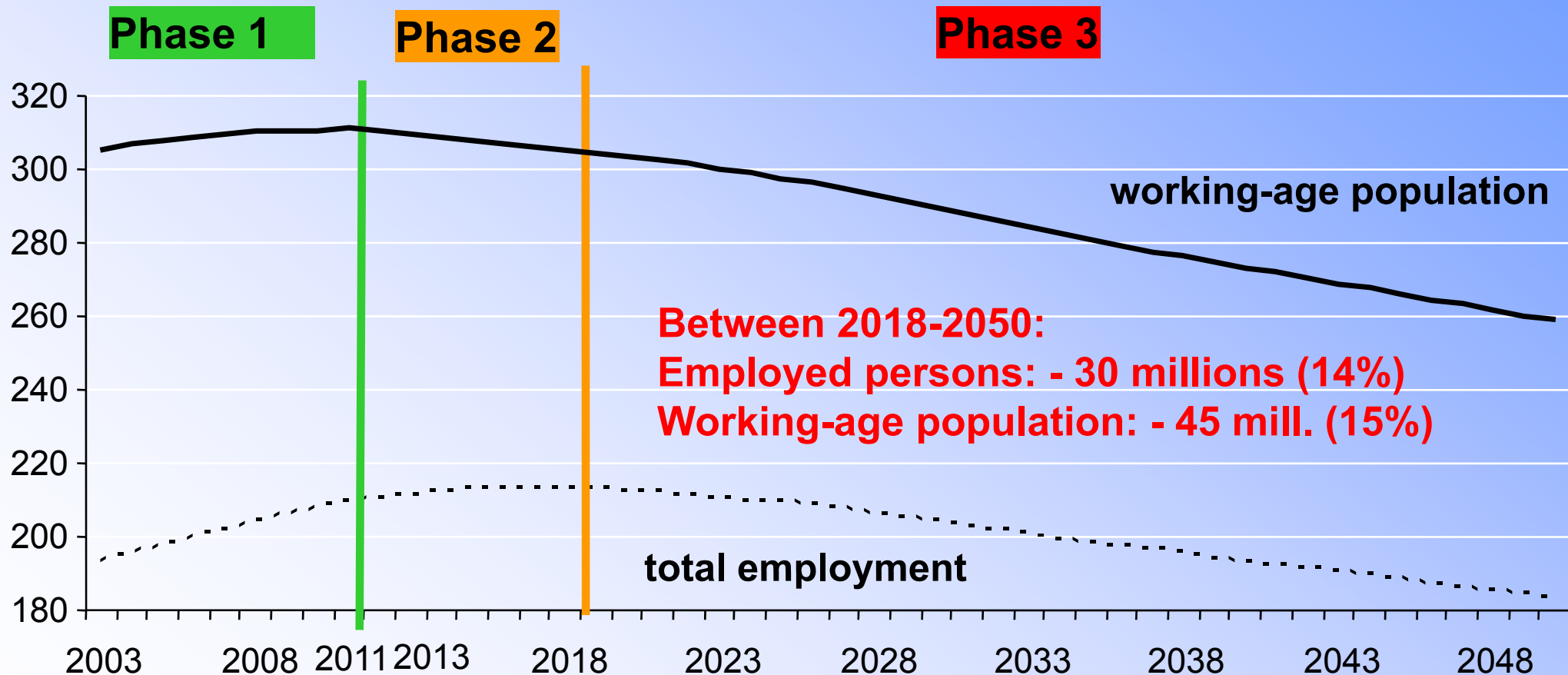
The consequences of ageing populations on employment and growth

Projected time frame for meeting the Lisbon employment target



The consequences of ageing populations on employment

Phase 1: A “window of opportunity”:
both working-age population and employment increasing



Impact of ageing on economic growth

Production function approach

based on the projections of the main components:

$$\dot{GDP} = \underbrace{\dot{POP} + \frac{\dot{POP}_{15-64}}{POP} + \frac{\dot{E}}{POP_{15-64}}}_{\text{Employment growth}} + \underbrace{\dot{TFP} + (1-\alpha)\frac{\dot{K}}{E}}_{\text{Productivity growth}}$$

Employment growth

Productivity growth

GDP growth = Δ labour input (Δ population + Δ Active ageing population + Δ employment rate)
+
 Δ labour productivity (TFP growth + contribution from capital deepening)

- long run equilibrium in Solow model: $\Delta Y/L = \Delta K/L = \Delta TFP/a =$
(labour augmenting technical

progress)

Labour input: employment growth

- Annual growth rate of 0.4% over the period 2003 to 2025
- Negative annual growth rate of -0.5% in 2025-2050
- Overall number of employed people in the EU-25 is projected to fall by about 25 millions (-12%) over the period 2025 to 2050
(Males: -13 millions Females: -12 millions)

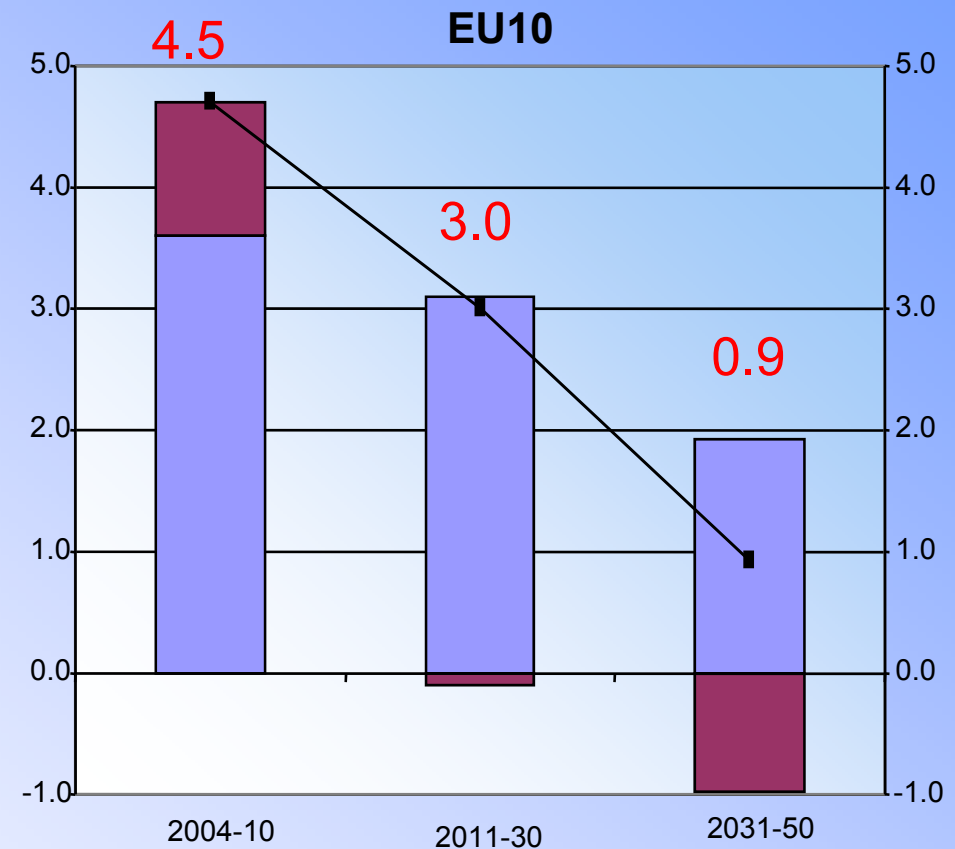
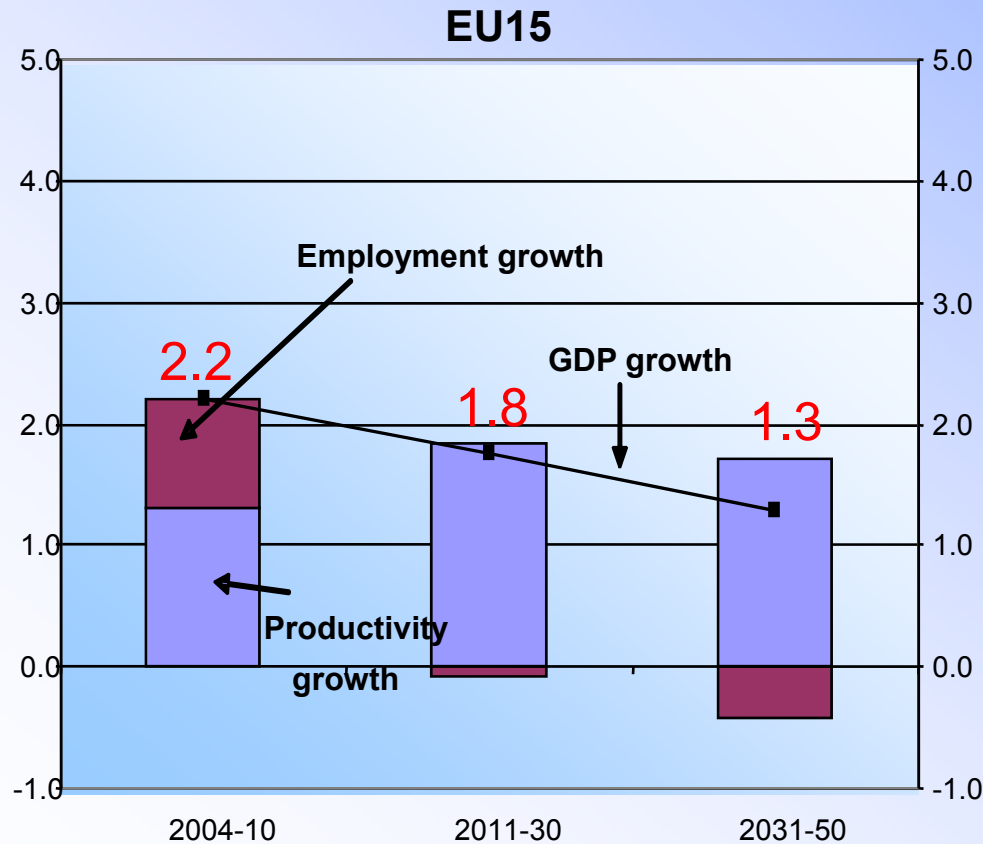
Productivity

Δ labour productivity :

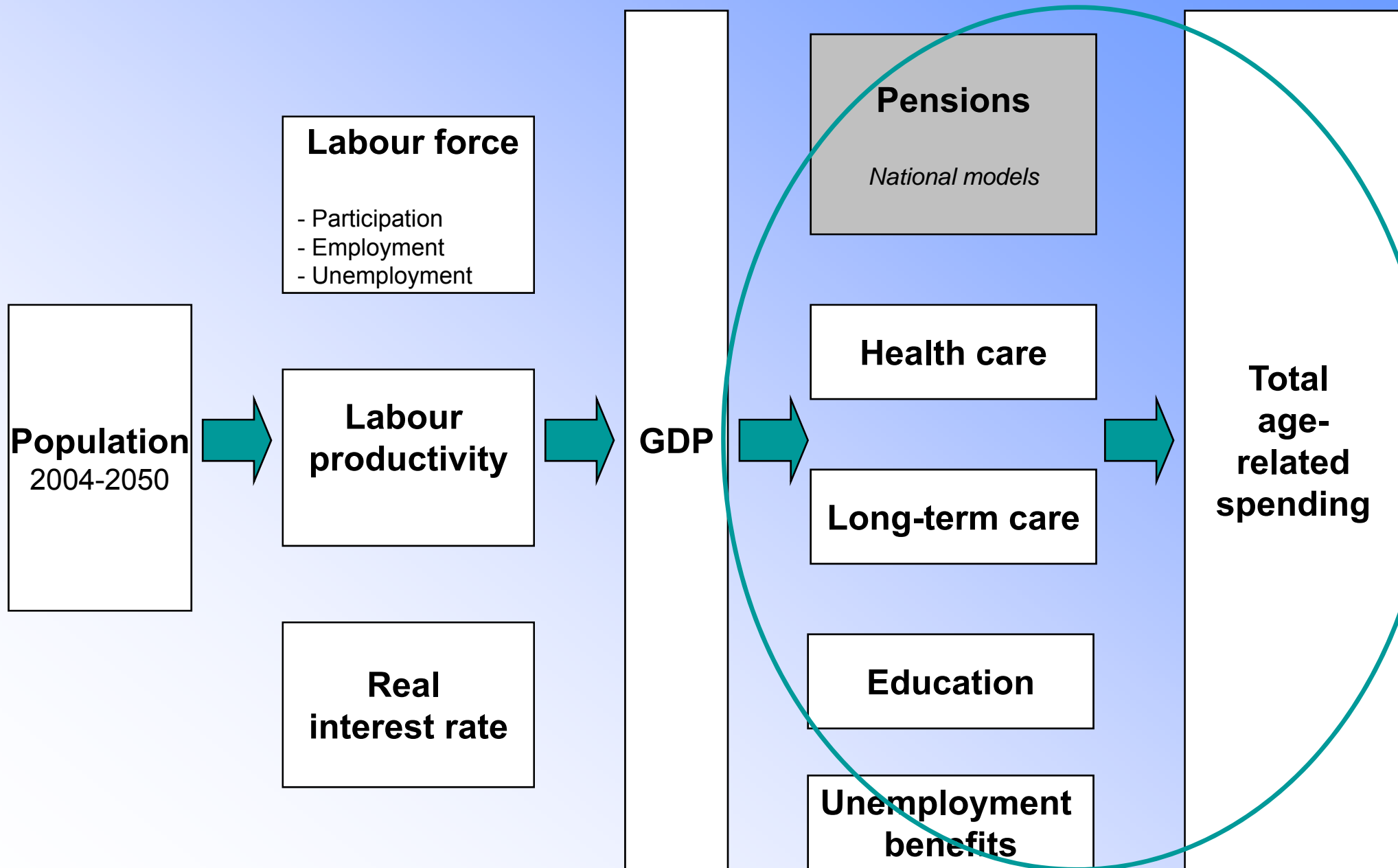
- Δ TFP assumptions is key :
 - convergence to 1.1% in 2030
- +
- Contr. from capital deepening: 0.6% in 2030
 - = $(1 - \alpha) * \Delta K/L$ or $\Delta TFP(1 - \alpha) / \alpha$ (α =labour share = 0.65)
- long run capital rule: Δ capital stock = ΔE +labour augmenting technical progress (or TFP / α), thus capital/labour ratio in efficiency units constant

The consequences of ageing populations on employment and growth

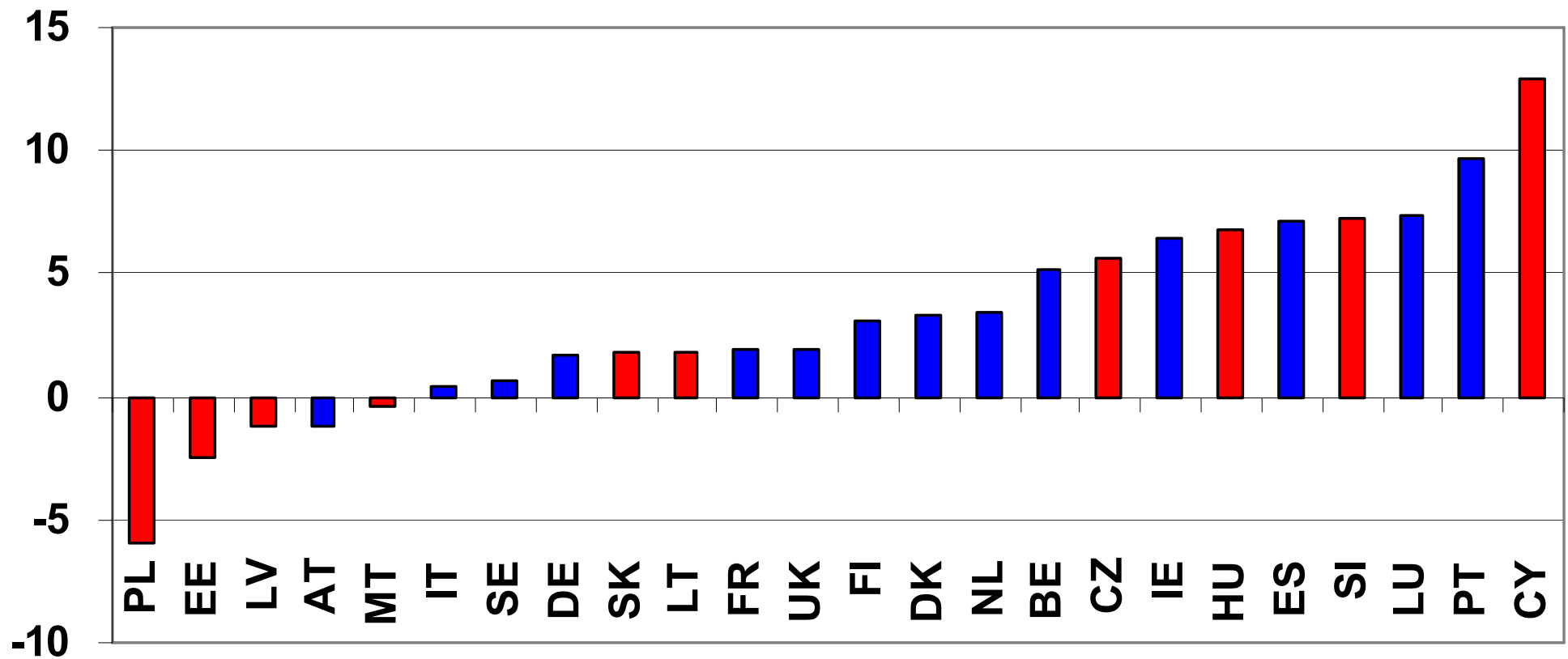
Projected Growth : EU15 & EU10



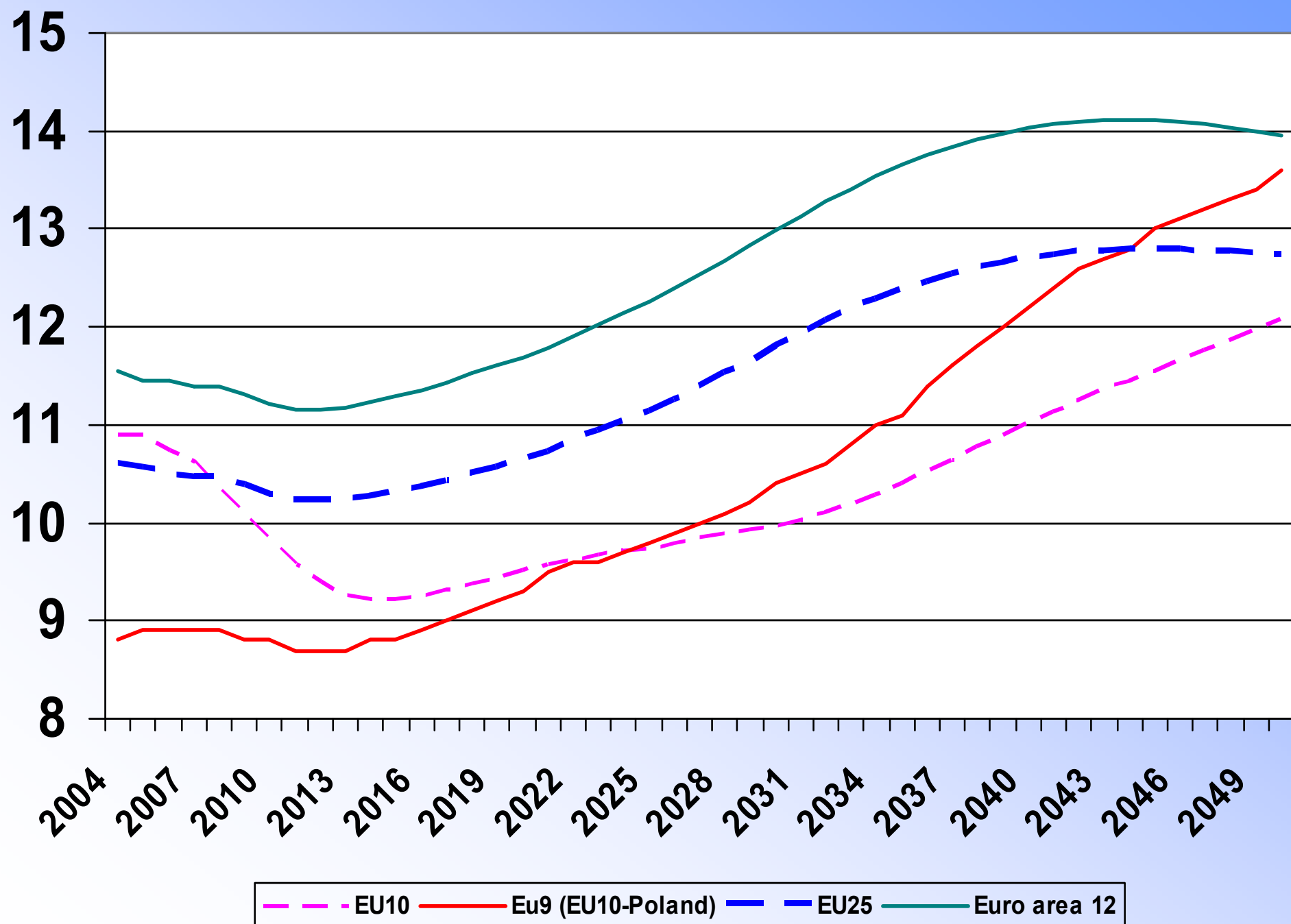
Results of the budgetary projections



Projected changes in public pension expenditure 2004-2050 (% of GDP)



Time profile of projected public pension expenditure 2004-2050 (% of GDP)

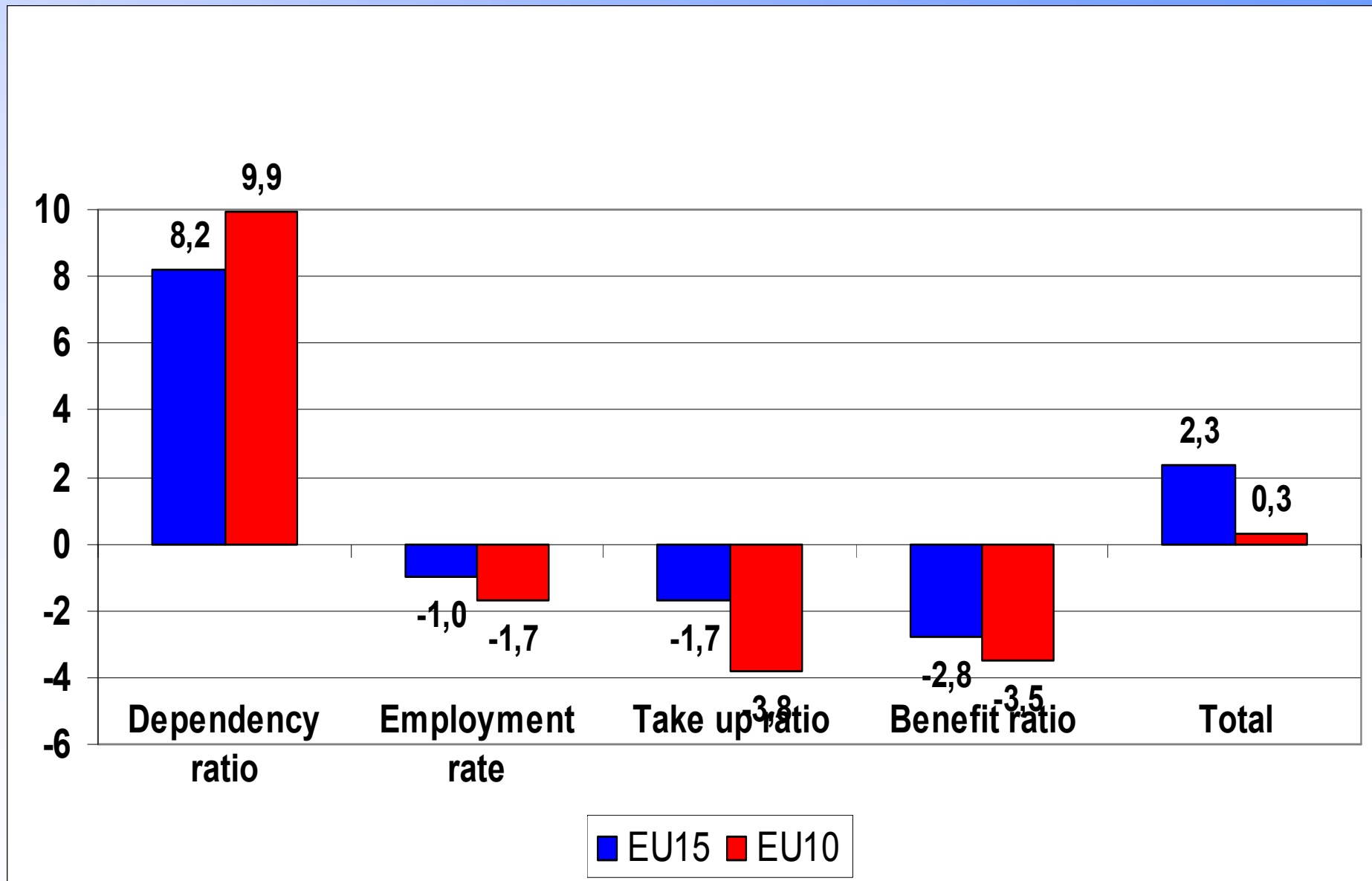


Decomposition of the increase in pension expenditure

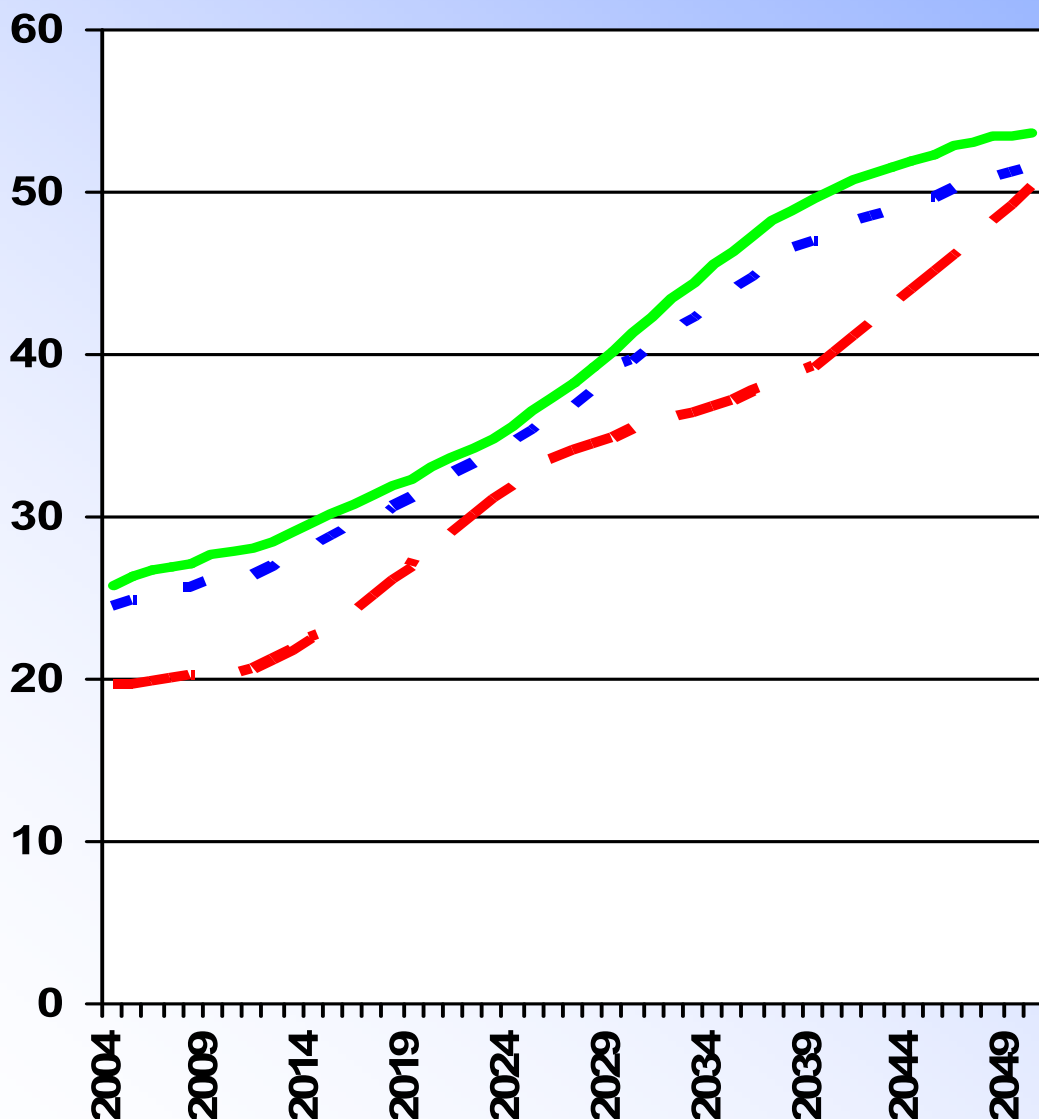
$$\frac{\text{PensExp}}{\text{GDP}} = \frac{\text{Dep. effect}}{\frac{\text{Pop}_{>65}}{\text{Pop}(15-64)}} \times \frac{\text{Empl. effect}}{\frac{\text{Pop}(15-64)}{\text{EmplNo}}}$$

$$\times \frac{\text{Take-up eff.}}{\frac{\text{PensNo}}{\text{Pop}_{>65}}} \times \frac{\text{Benefit effect}}{\frac{\text{GDP}}{\text{EmplNo}}}$$

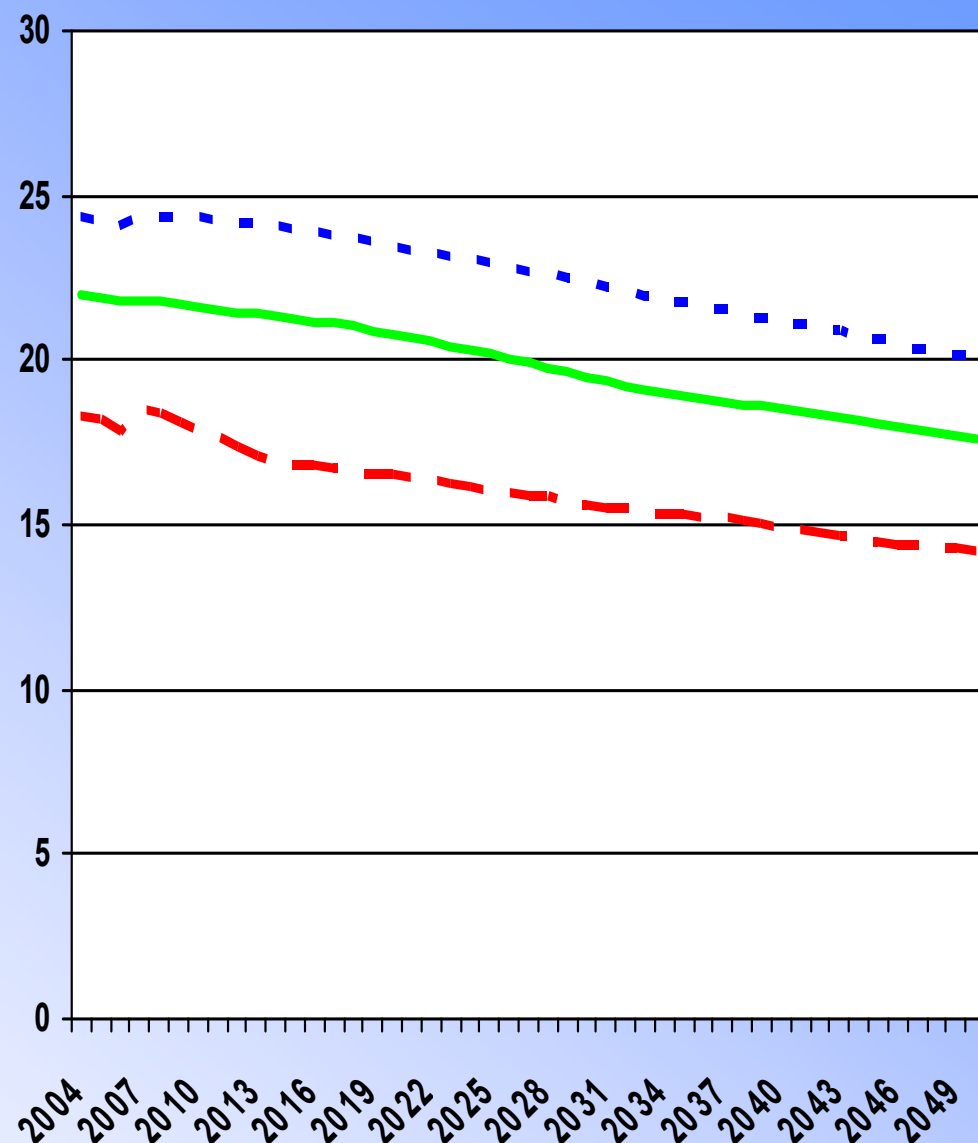
Factors contributing to pension expenditure changes, EU15 and EU10 (% of GDP)



Dependency ratio (+65/15-64)

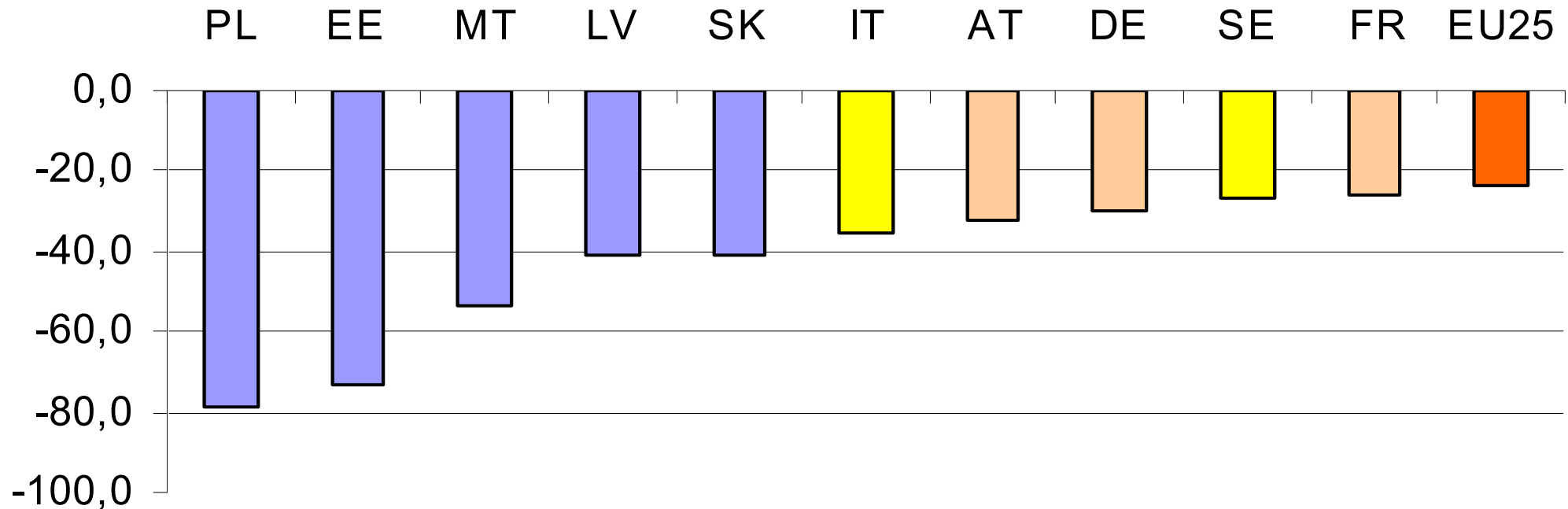


Benefit ratio



— EU10
- - EU25
— Euro area 12

Large reductions in the benefit ratio in several countries (2050 in percent of 2004)



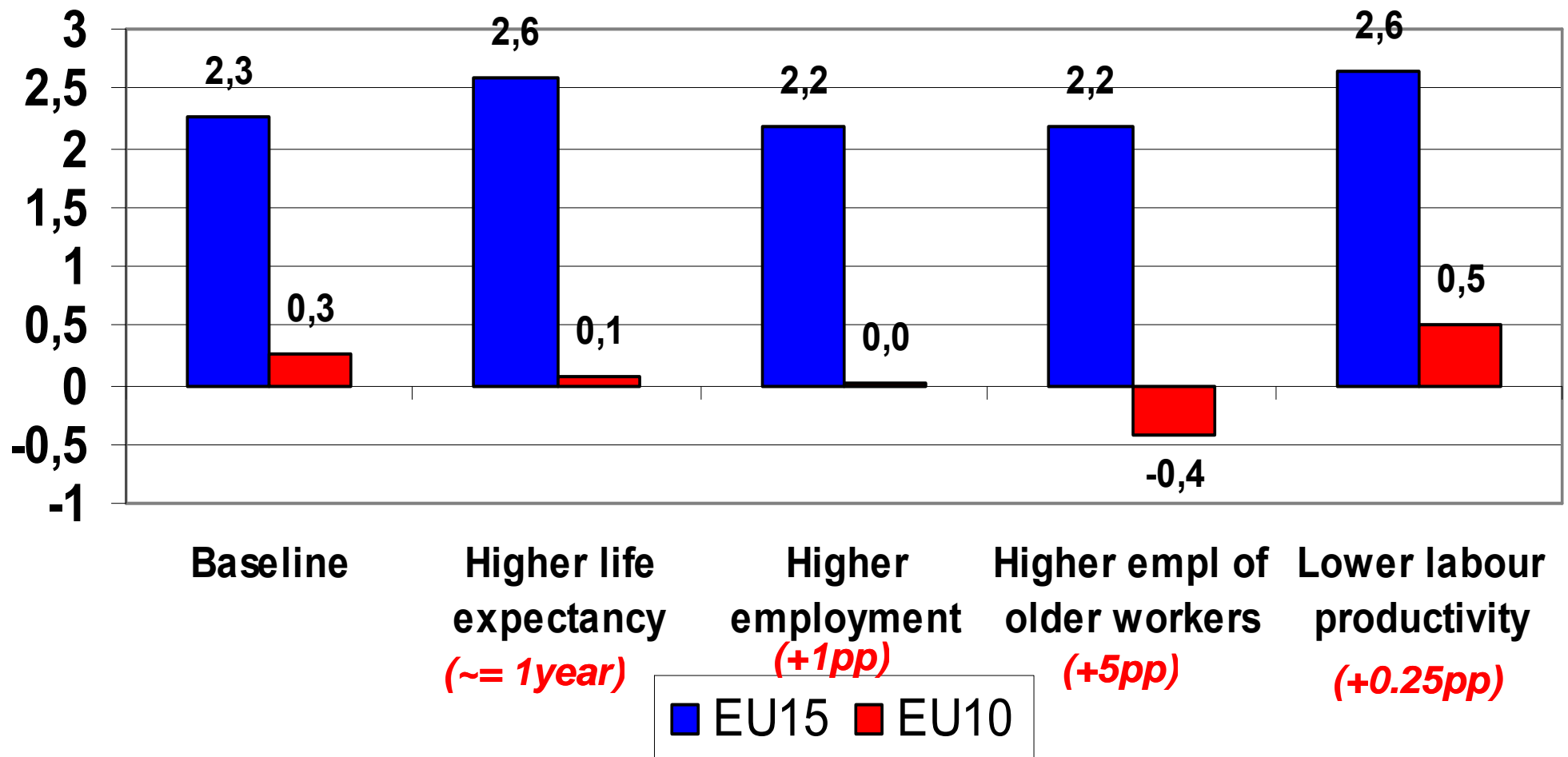
Mainly resulting from:

- shift towards *private* funded schemes,
- pension inversely *linked to life expectancy gains*;
- shift towards *indexation* to prices

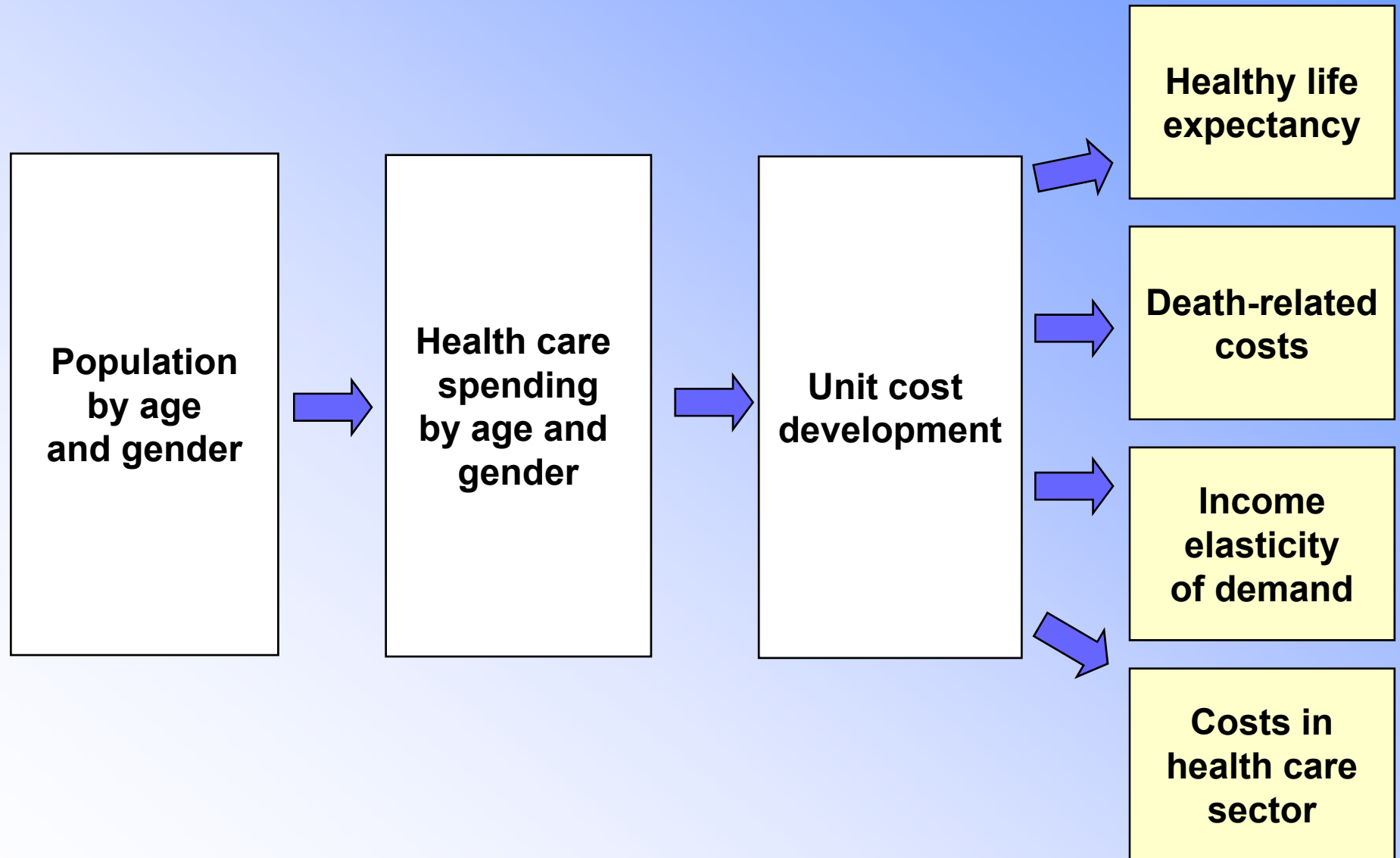
... and leading to possible adequacy challenges...

Sensitivity tests

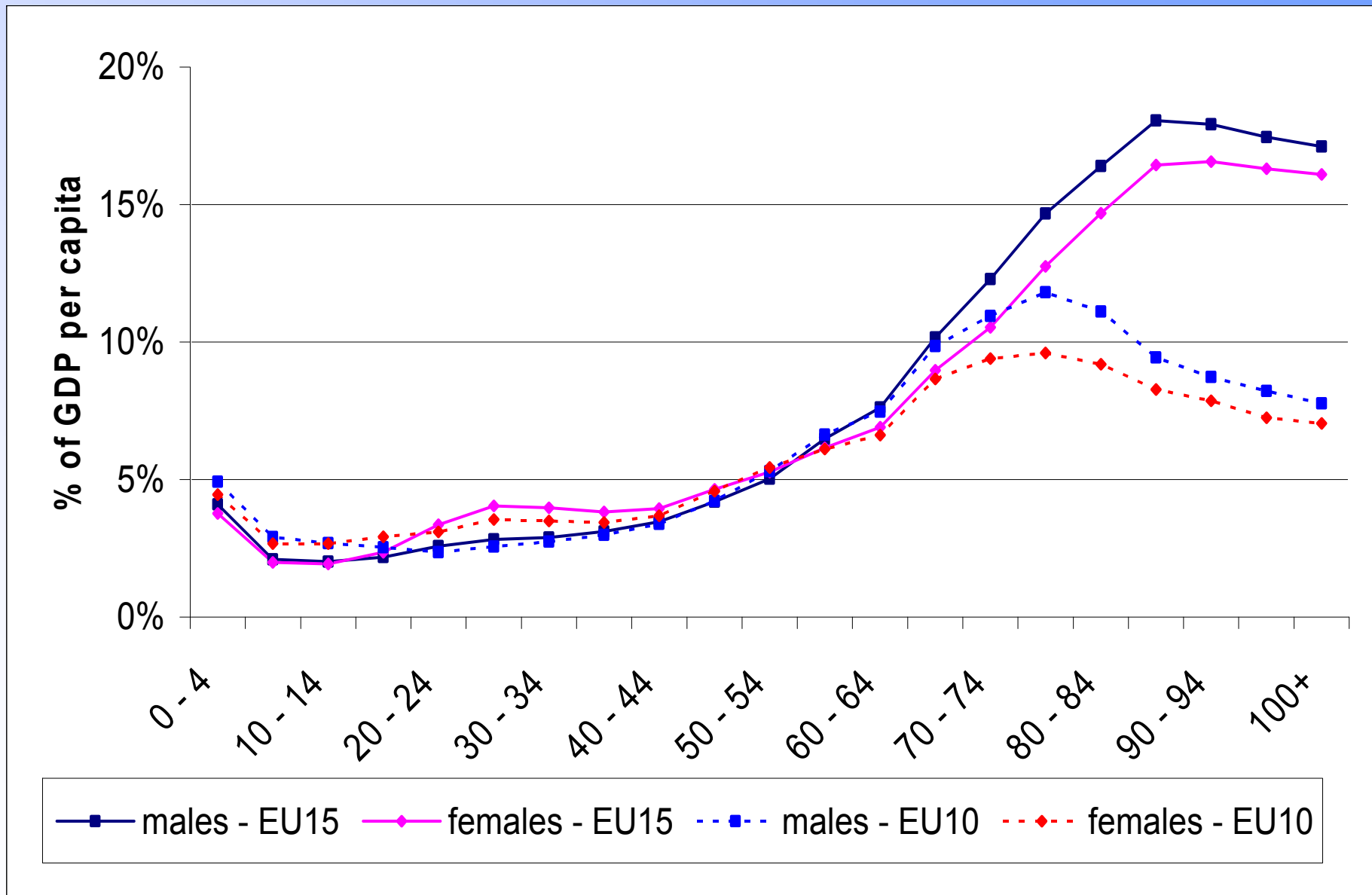
**Increase in gross public pension expenditure 2004-2050
(% of GDP)**



Methodology to project health care spending



Age-related expenditure profile EU15 & E10



Health status scenarios

Pure Demographic Scenario



Constant Health Scenario



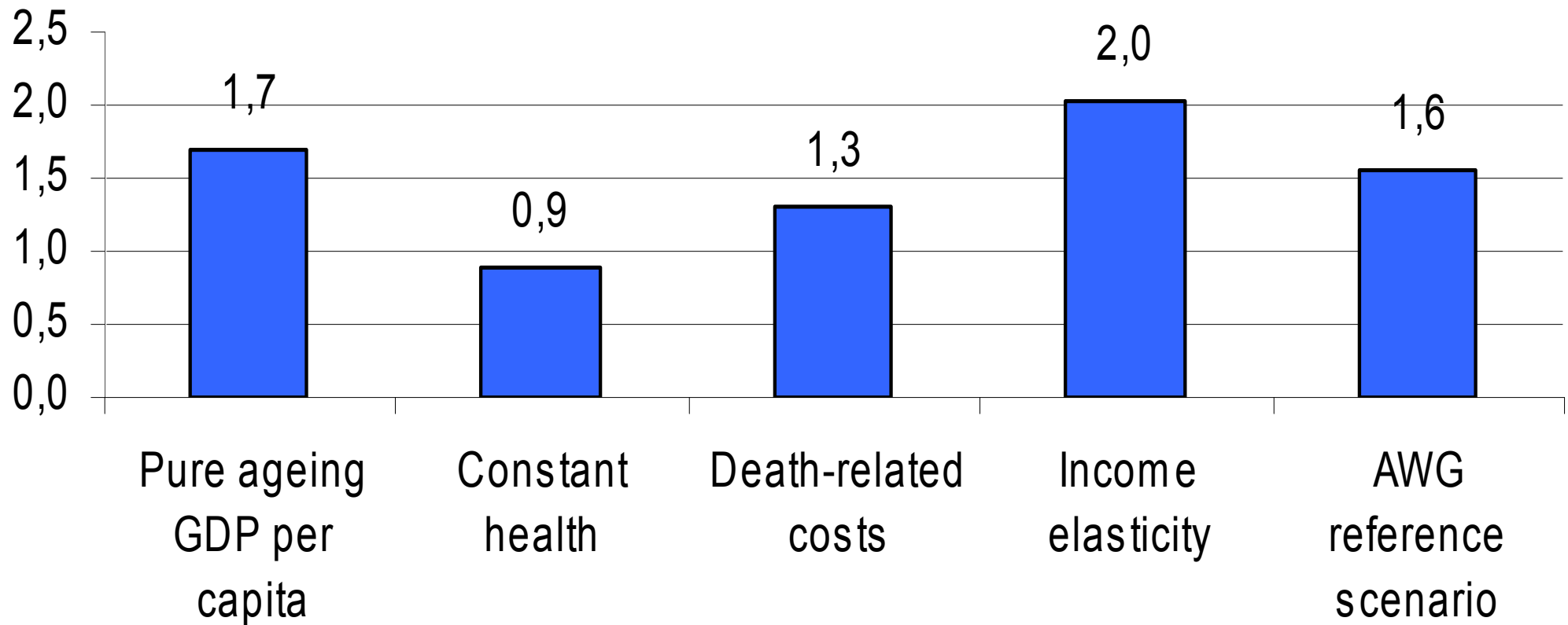
Improved Health Scenario



→ Increase in life expectancy

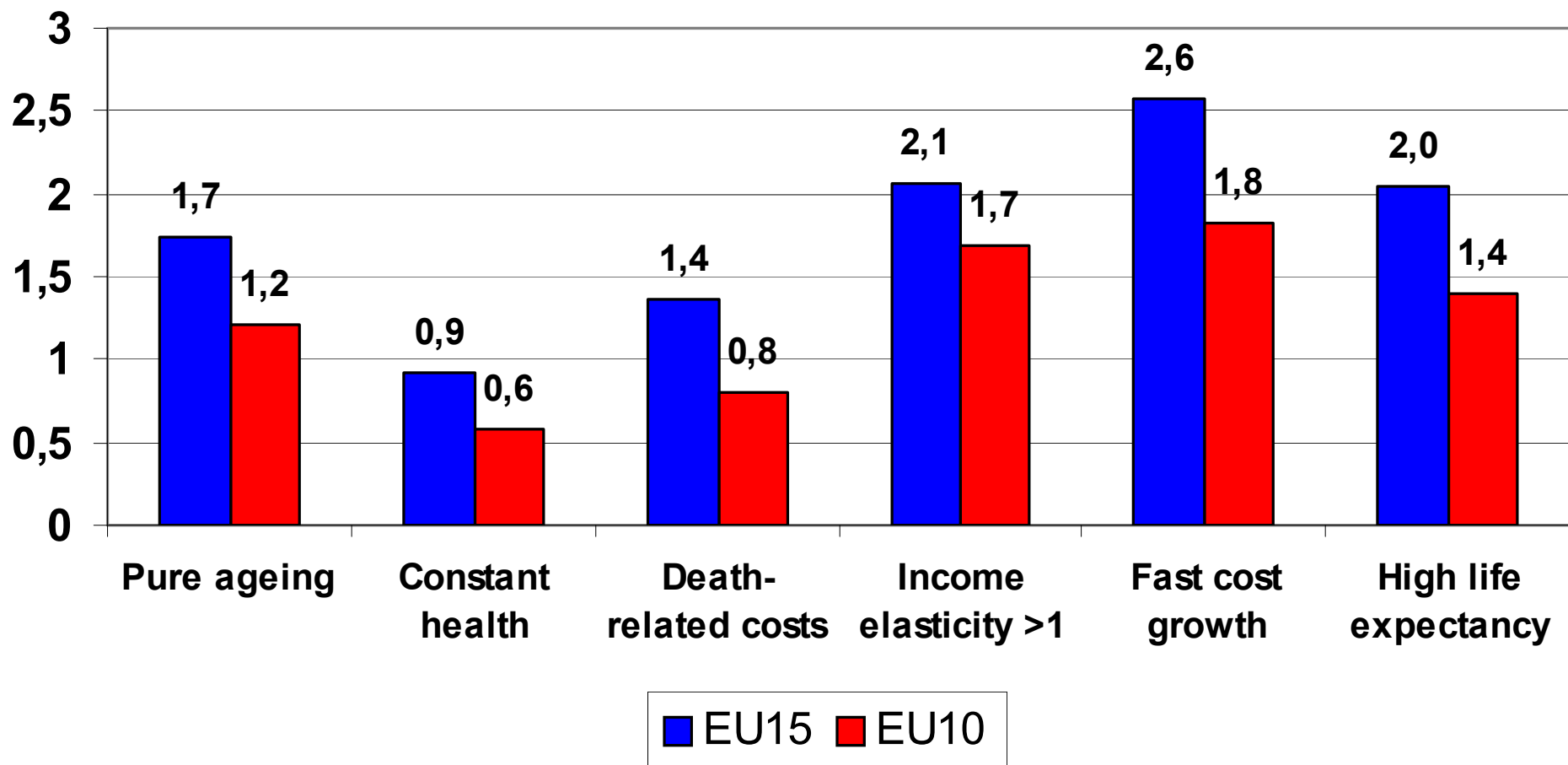
- Years spent in good health
- Years spent in bad health (with morbidity/disability)

Change in health care expenditure (In percent of GDP; EU25)



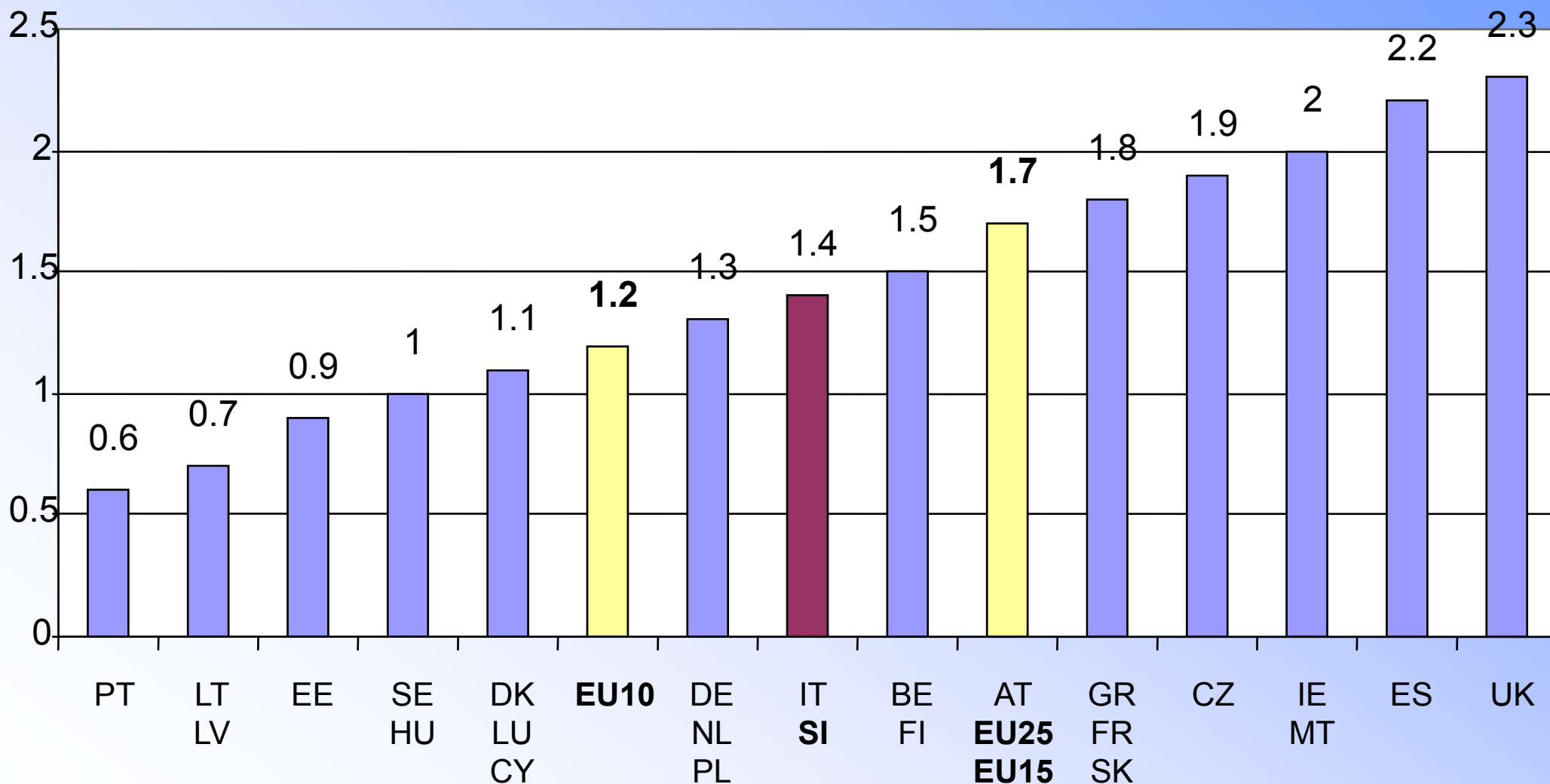
Results of different scenarios

Increase in public health care expenditure 2004-2050 (% of GDP)

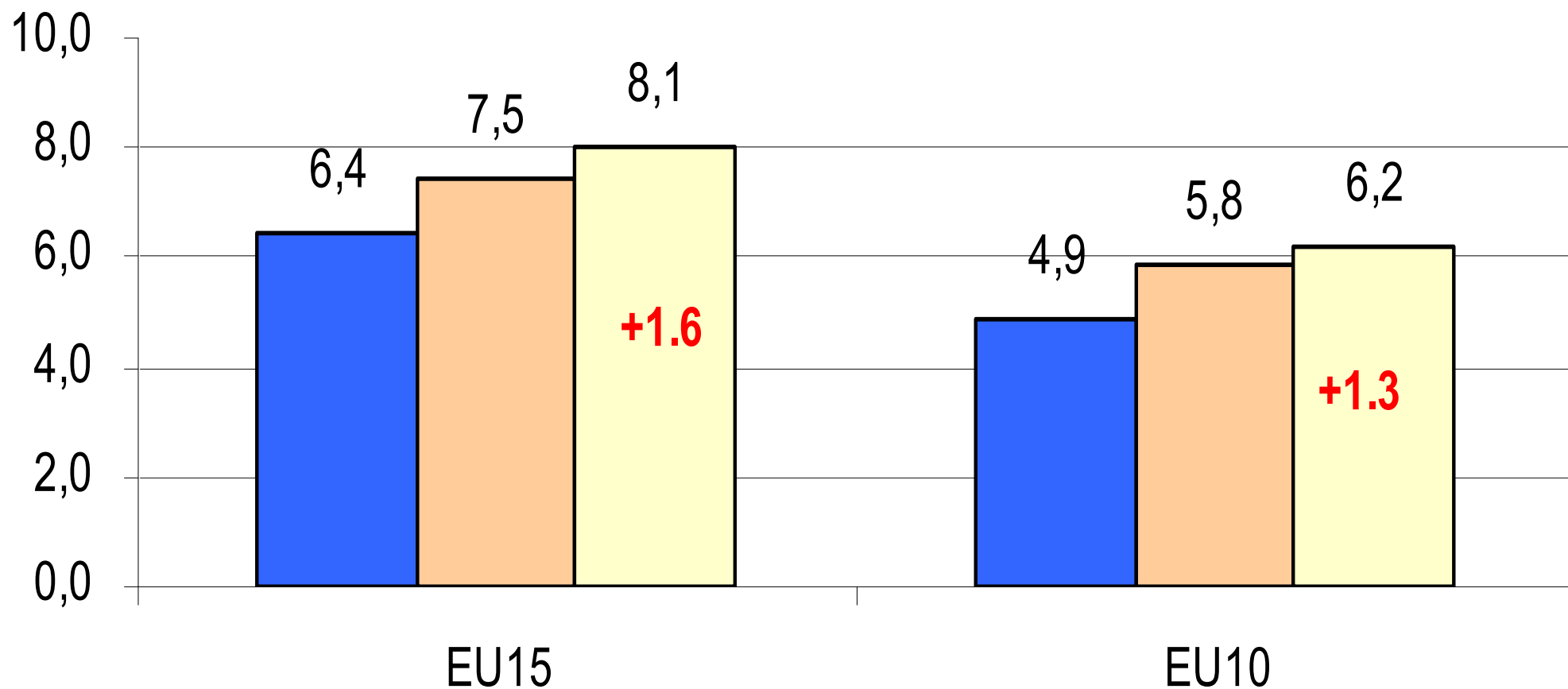


Change in health care expenditure 2004-2050 (in percent of GDP)

Pure ageing scenario



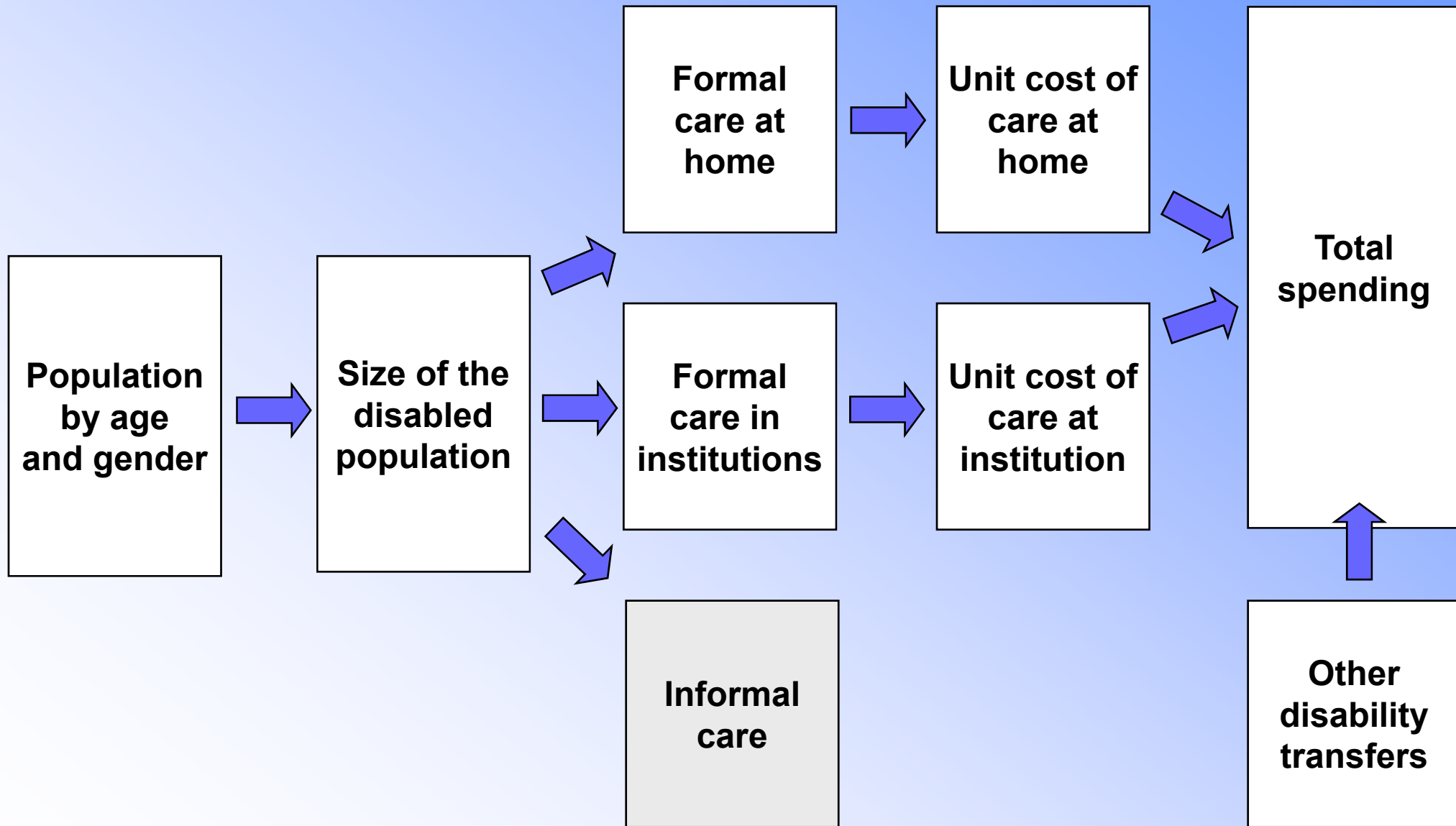
Health care expenditure in 2004 - 2030 and 2050 (*In percent of GDP; AWG scenario*)



Main findings on health care

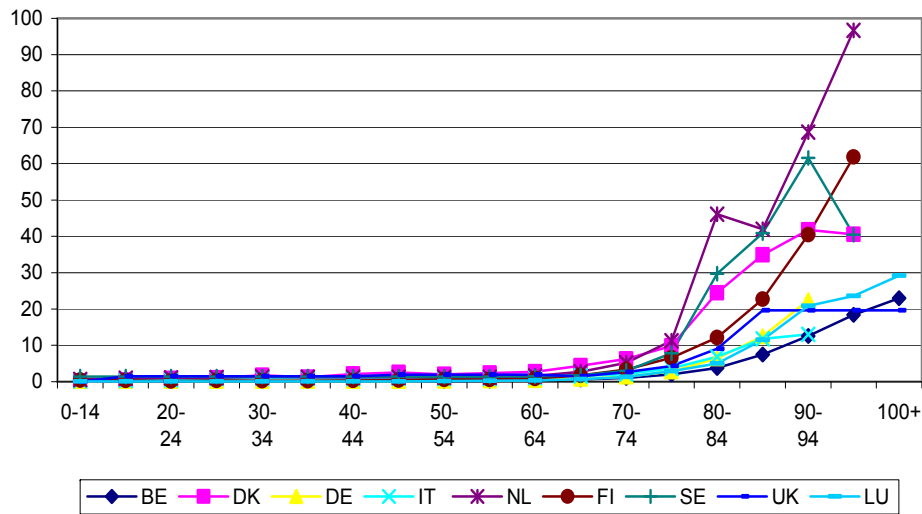
- Ageing leads to strong increase in spending
- Improved health status would substantially offset ageing effects
- Less progress made in modelling supply side factors (technology, prices in health care sector, institutional setting) that tend to push up spending

Model structure for long-term care

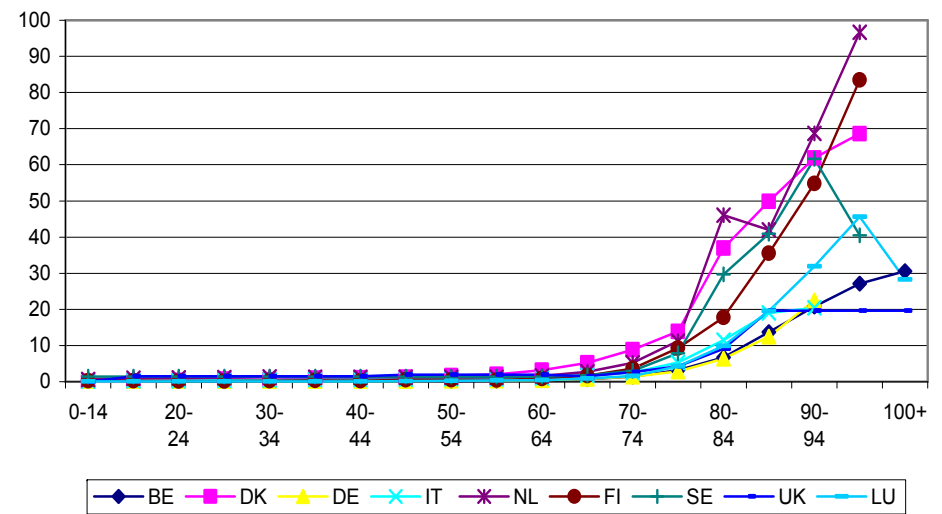


Per capita cost rises with age

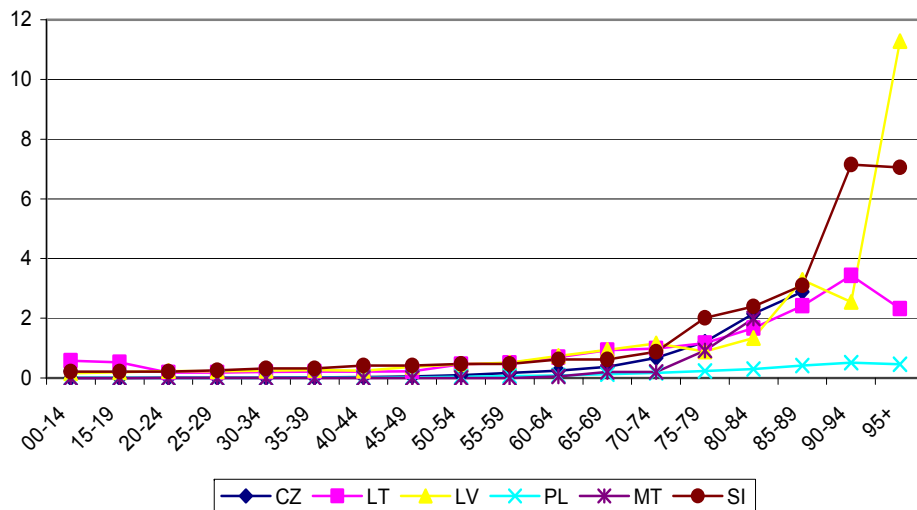
EU15 - males



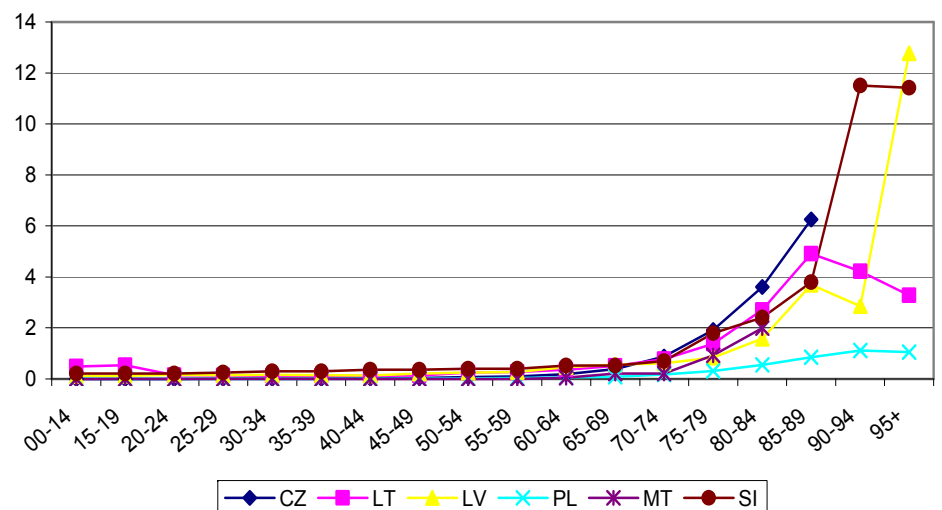
EU15 - females



EU10 - males

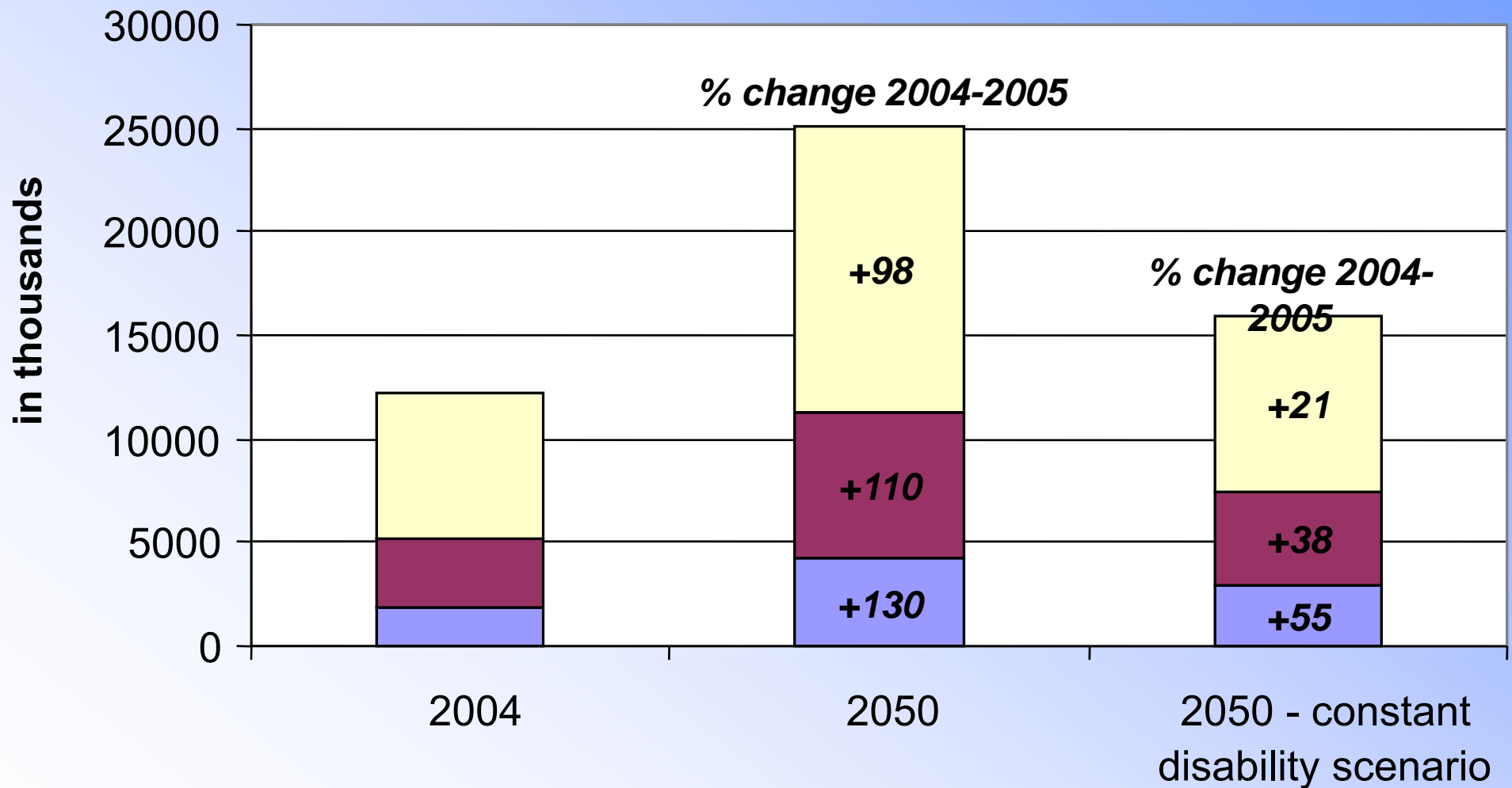


EU10 - females

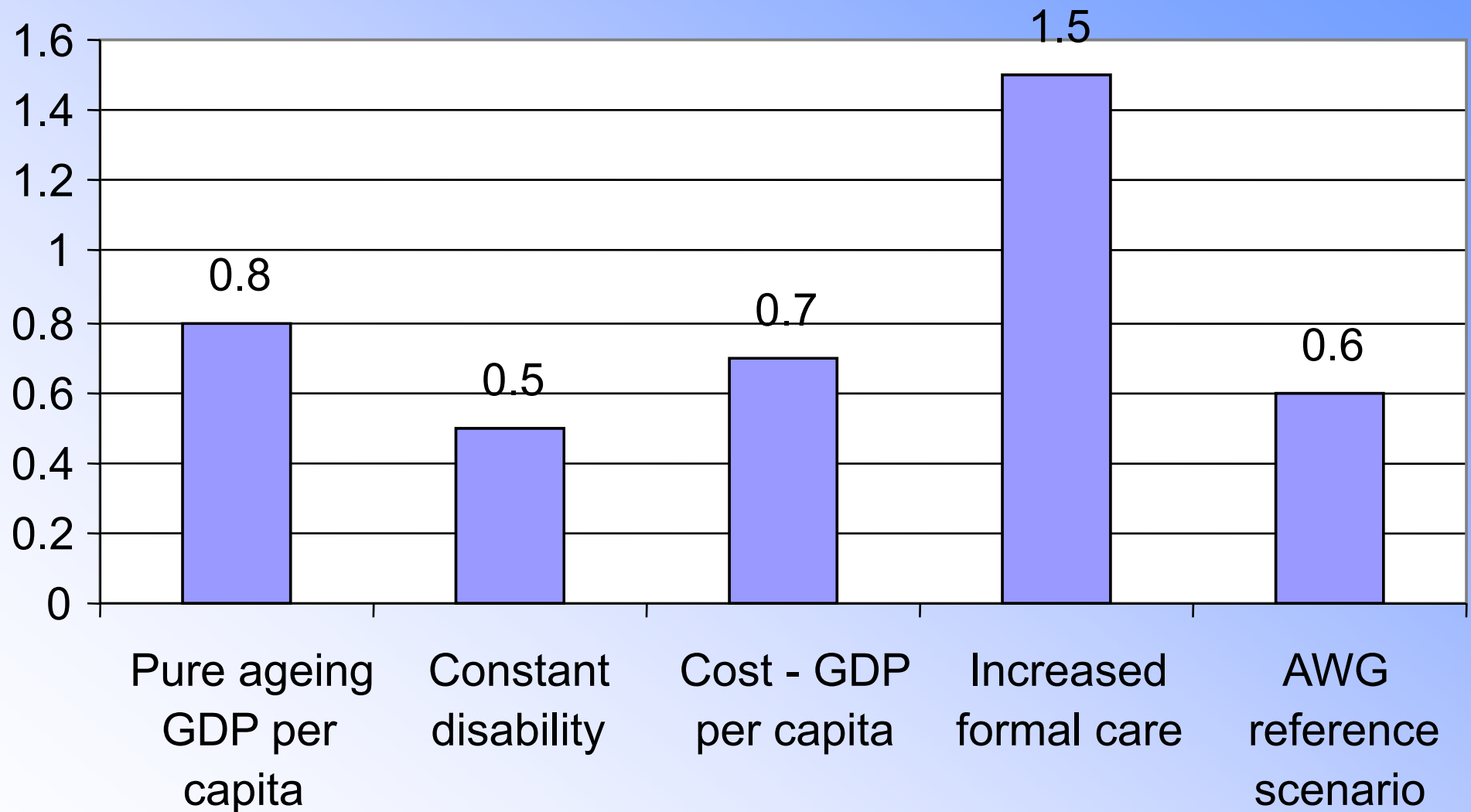


Projection of dependent population

■ Formal care in institutions ■ Formal care at home ■ Informal or no care

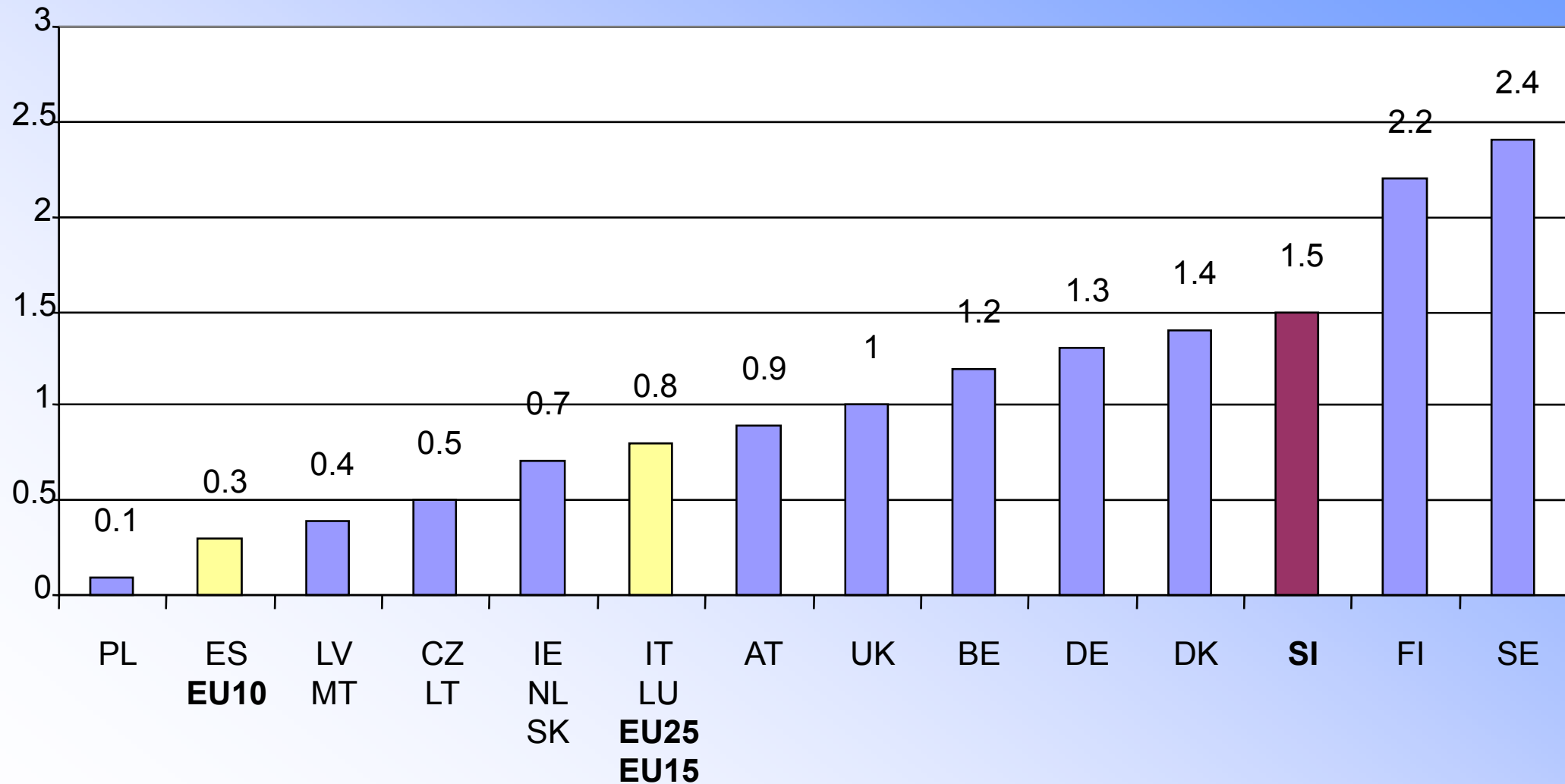


Change in long-term care expenditure 2004-2005 (in percent of GDP; EU25)



Change in long-term care expenditure 2004-2050 (in percent of GDP)

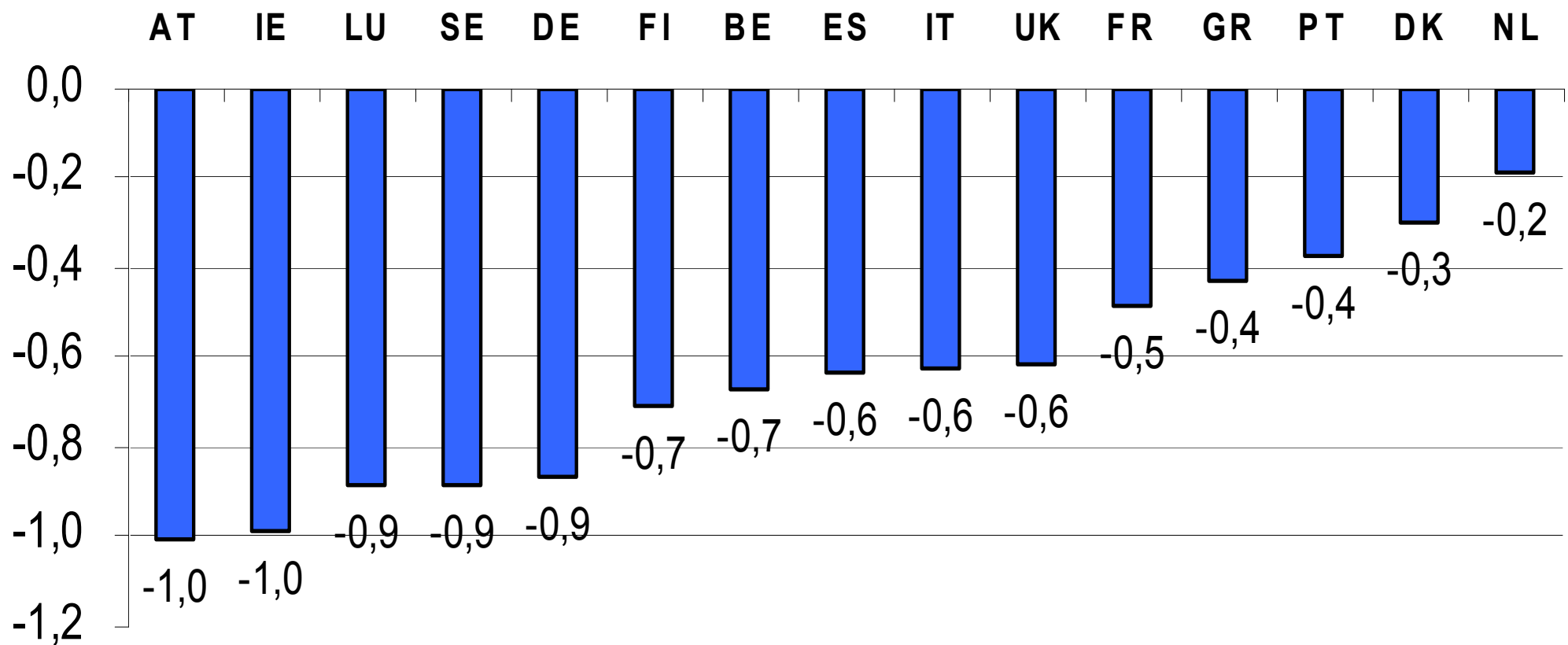
Pure ageing scenario



Main findings on long-term care

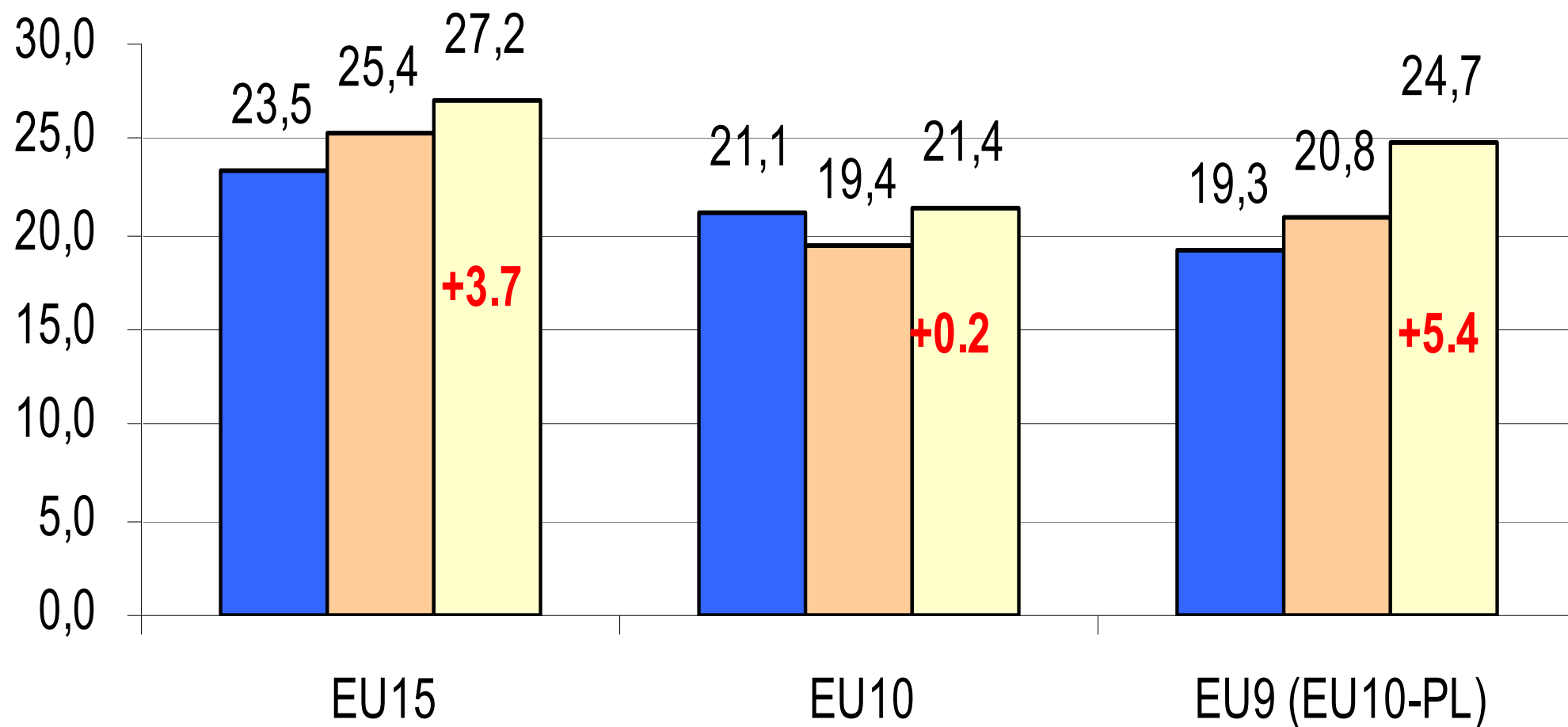
- Strong impact of ageing populations on long-term care expenditure
- Significant divergences in projection results due to different starting levels of formal LTC provision/financing
- Need to reconcile two opposite trends: growing pressure on public finances and/or increasing need for formal LTC provision

Change in education expenditure 2004 - 2050) (In percent of GDP)

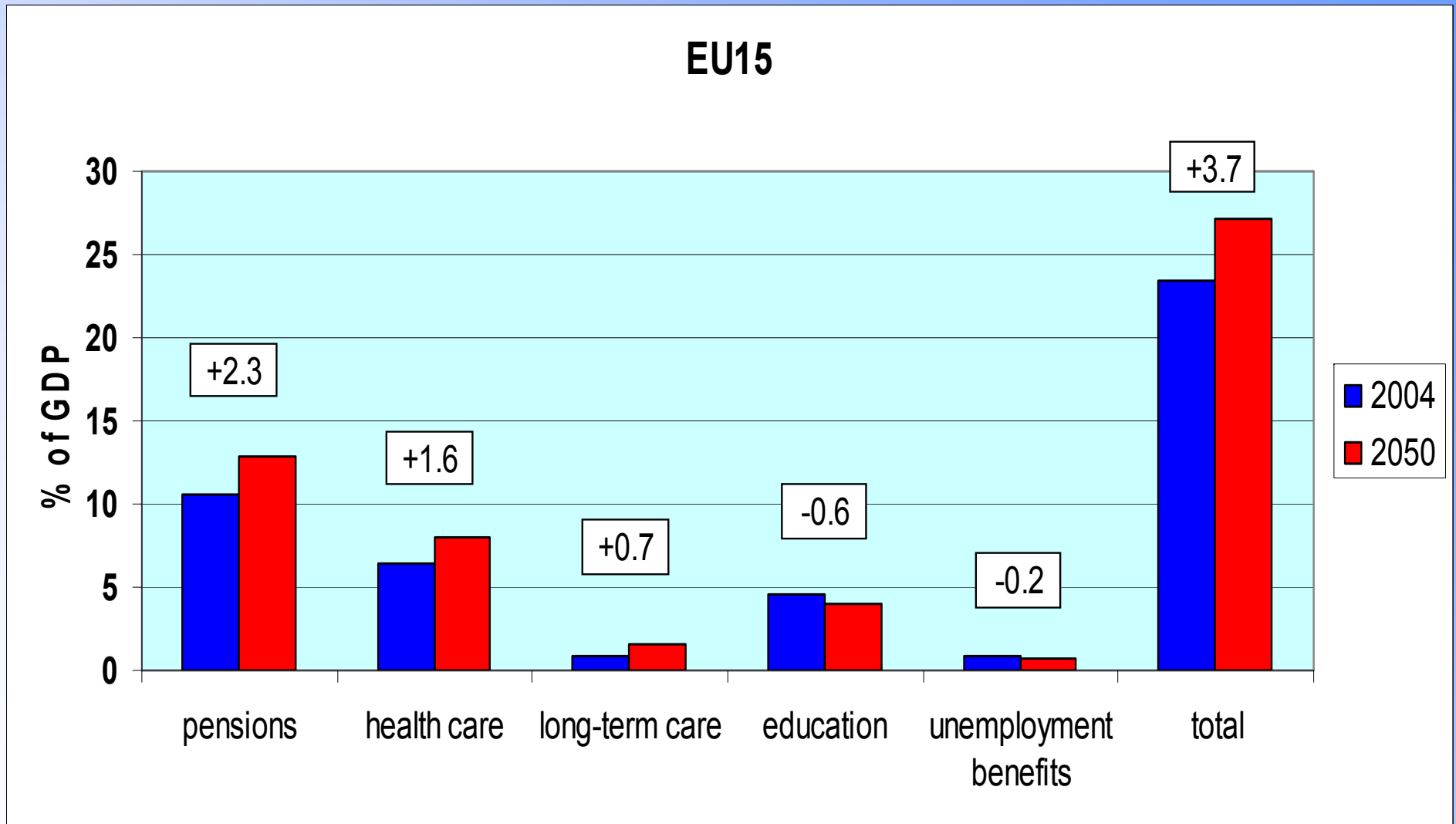


Significant changes only projected for some countries

Age-related expenditure in 2004-2030 and 2050 (In percent of GDP)

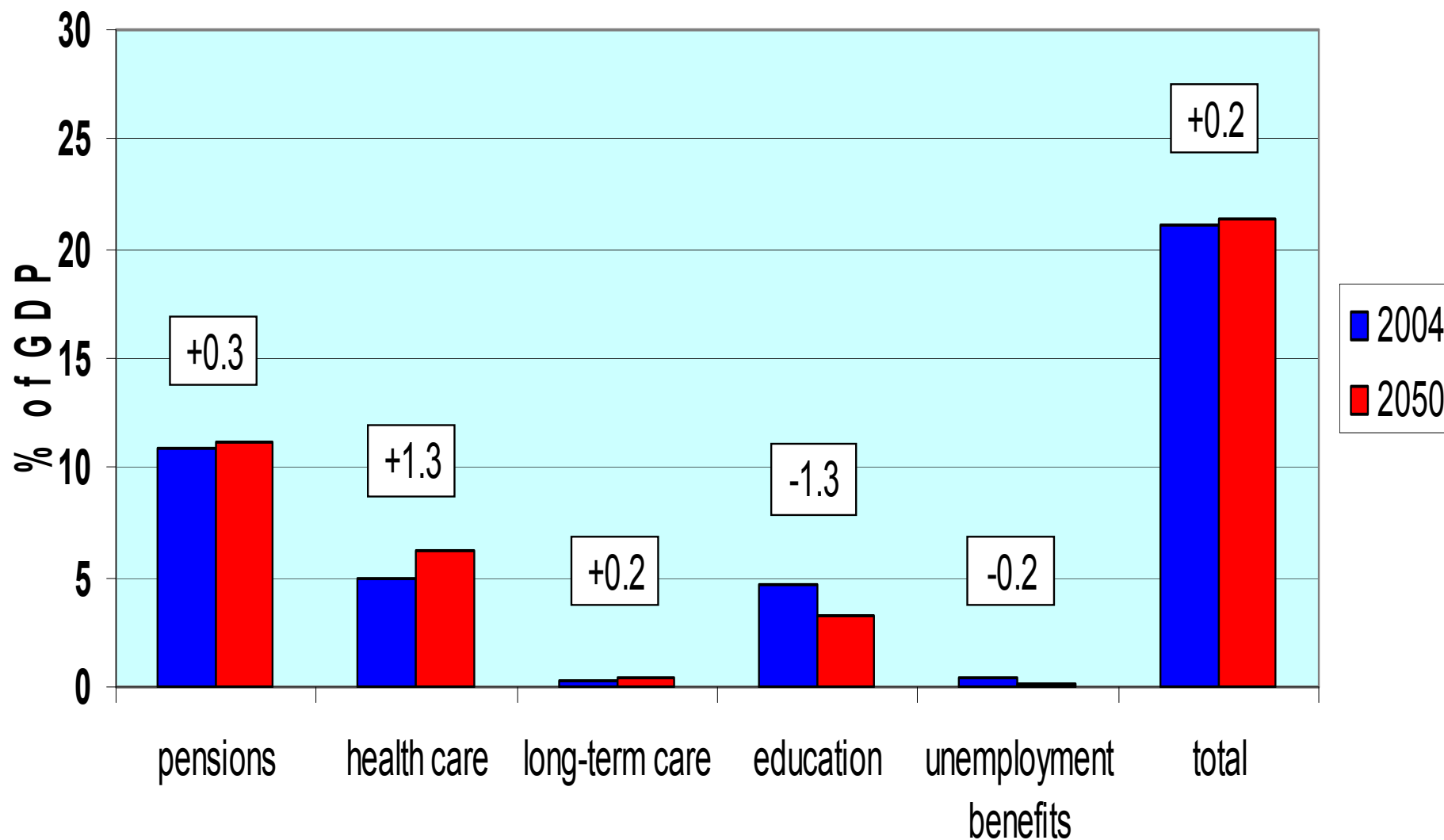


Budgetary projection results, EU15

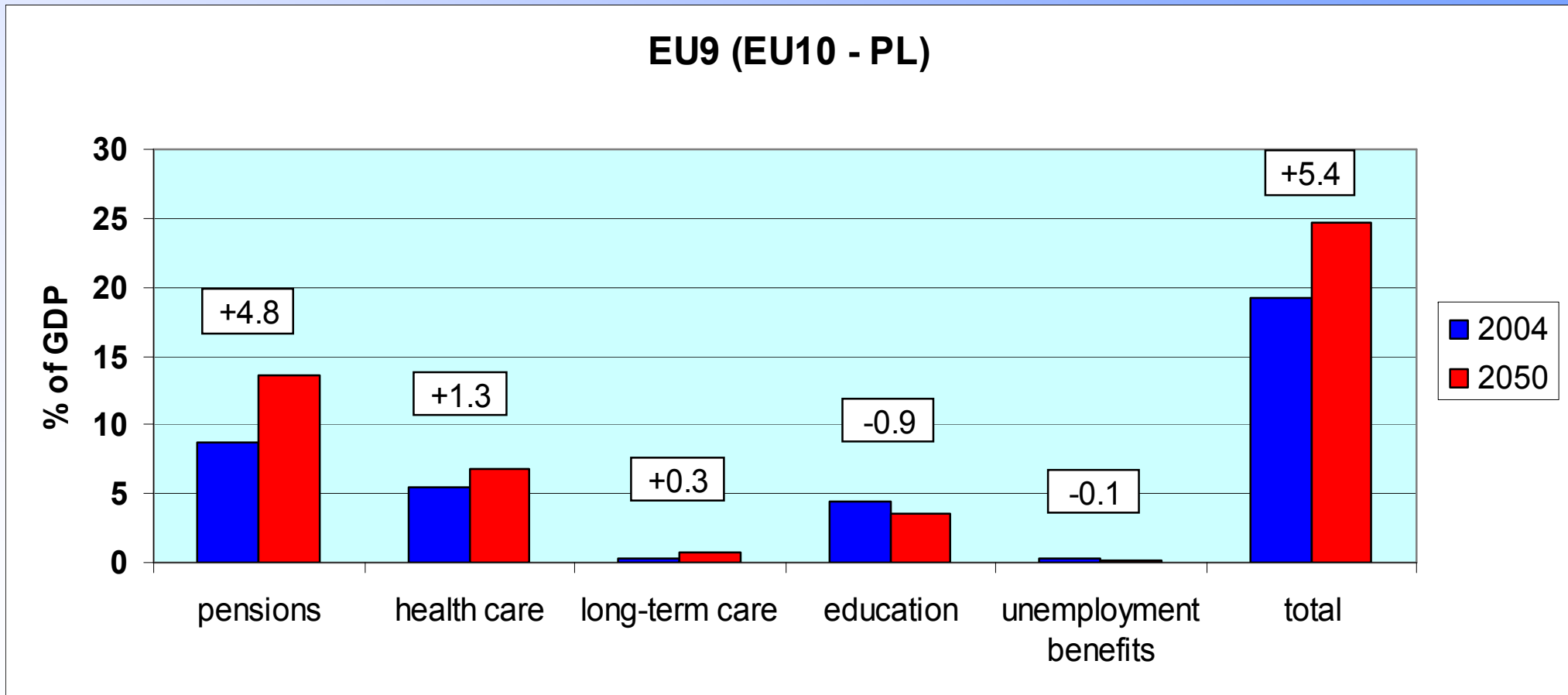


Budgetary projection results, EU10

EU10



Budgetary projection results, EU9 (excluding Poland)



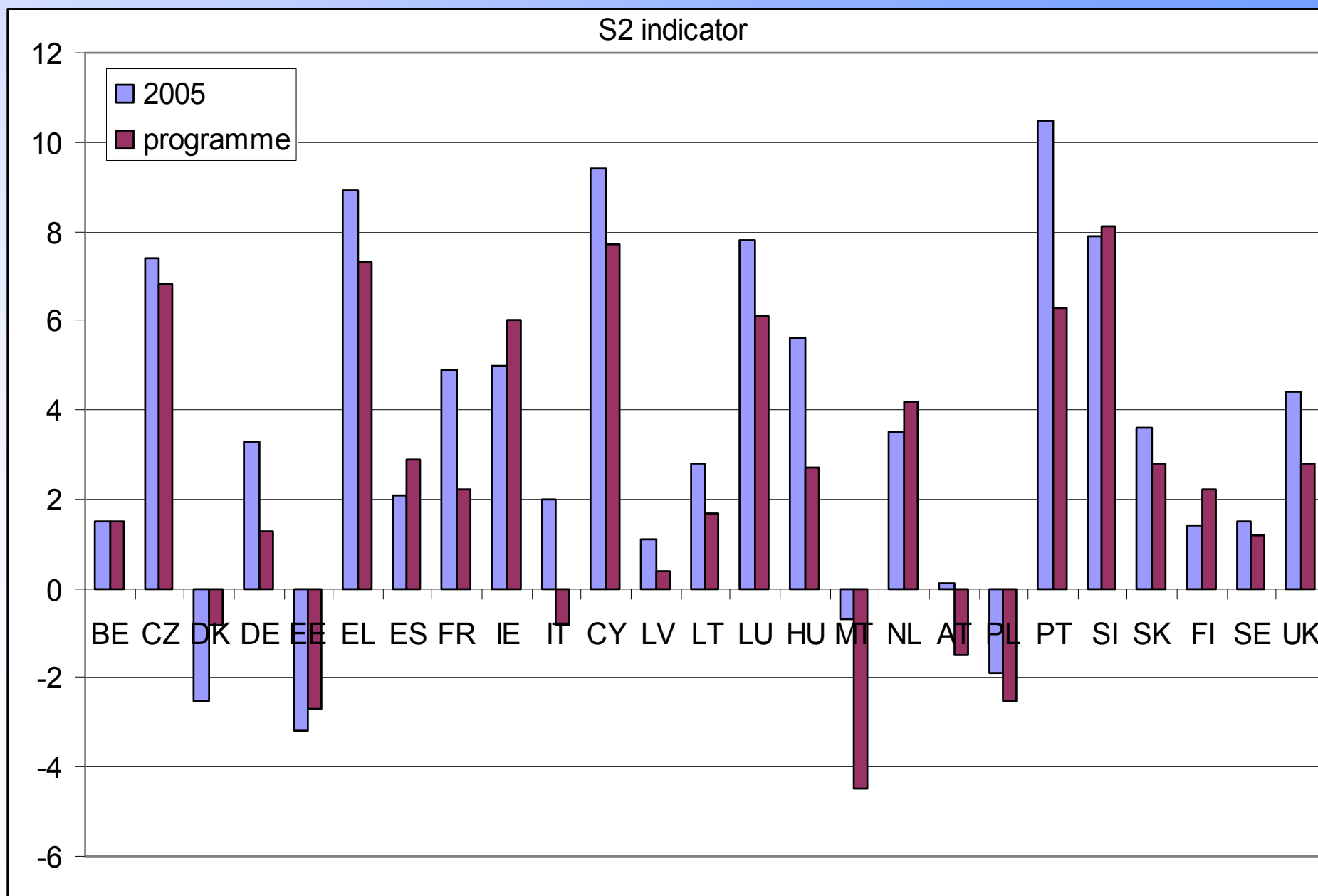
Making use of the results

- **Budgetary surveillance**: more emphasis on sustainability in Stability and Growth Pact
- **Growth and Job Strategy (Lisbon strategy)**: impact of reforms on employment and GDP growth
- **Employment policy**: progress towards Lisbon employment targets for older workers (50% by 2010)
- **Open Method of Co-ordination** : multilateral surveillance and peer pressure on pensions, health care and long-term care

Fiscal sustainability: Decomposing the sustainability indicators

Impact of					
	Initial budgetary position		Debt requirement in 2050		Long-term changes in the primary balance
S1=	Gap to the debt-stabilizing primary balance	+	Additional adjustment required to reach a debt target of 60% of GDP in 2050	+	Additional adjustment required to finance the increase in public expenditure <i>up to 2050</i>
S2=	Gap to the debt-stabilizing primary balance	+	0	+	Additional adjustment required to finance the increase in public expenditure <i>over an infinite horizon</i>

Results from the 2005/06 SCP assessment round, S2 indicator



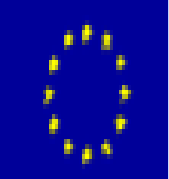
Overall classification of risks to sustainability

Risk category	Country
Low	DK, EE, LV, LT, AT, PL, SK, FI, SE
Medium	BE, DE, ES, FR, IE, IT, LU, MT, NL, UK
High	CZ, EL, CY, HU, PT, SI

Source: Commission services.

A three-pronged strategy to meet the economic and budgetary impact of ageing

- ***A faster pace of debt reduction:*** Stability and Growth Pact
- ***Increased employment rates, especially of women and older workers:*** European Employment Strategy and Lisbon employment targets
- ***Reform of pension and health care systems:*** EU single market legislation and Open-method of Co-ordination



Thanks for your attention !

Full report

- The 2005 EPC projections of age-related expenditure (2004-2050) for the EU25 Member States: underlying assumptions and projection methodologies

http://europa.eu.int/comm/economy_finance/publications/european_economy/2005/eespecialreport0405_en.htm

- The impact of ageing on public expenditure: projections for the EU25 Member States on pensions, long-term care, education and unemployment transfers (2004-2050)

http://europa.eu.int/comm/economy_finance/publications/european_economy/2006/eespecialreport0106_en.htm