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FIW

Seminar in International Economics
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The Long Term Economic Impacts of Reducing Migration in the UK

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This seminar series is an activity in the framework of FIW ('Forschungsschwerpunkt Internationale Wirtschaft'), which is a project designed to build a center of excellence in research on International Economics, funded by the Austrian Ministry of Science, Research and Economy (BMWFW).

The Long Term Economic Impacts of Reducing Migration in the UK

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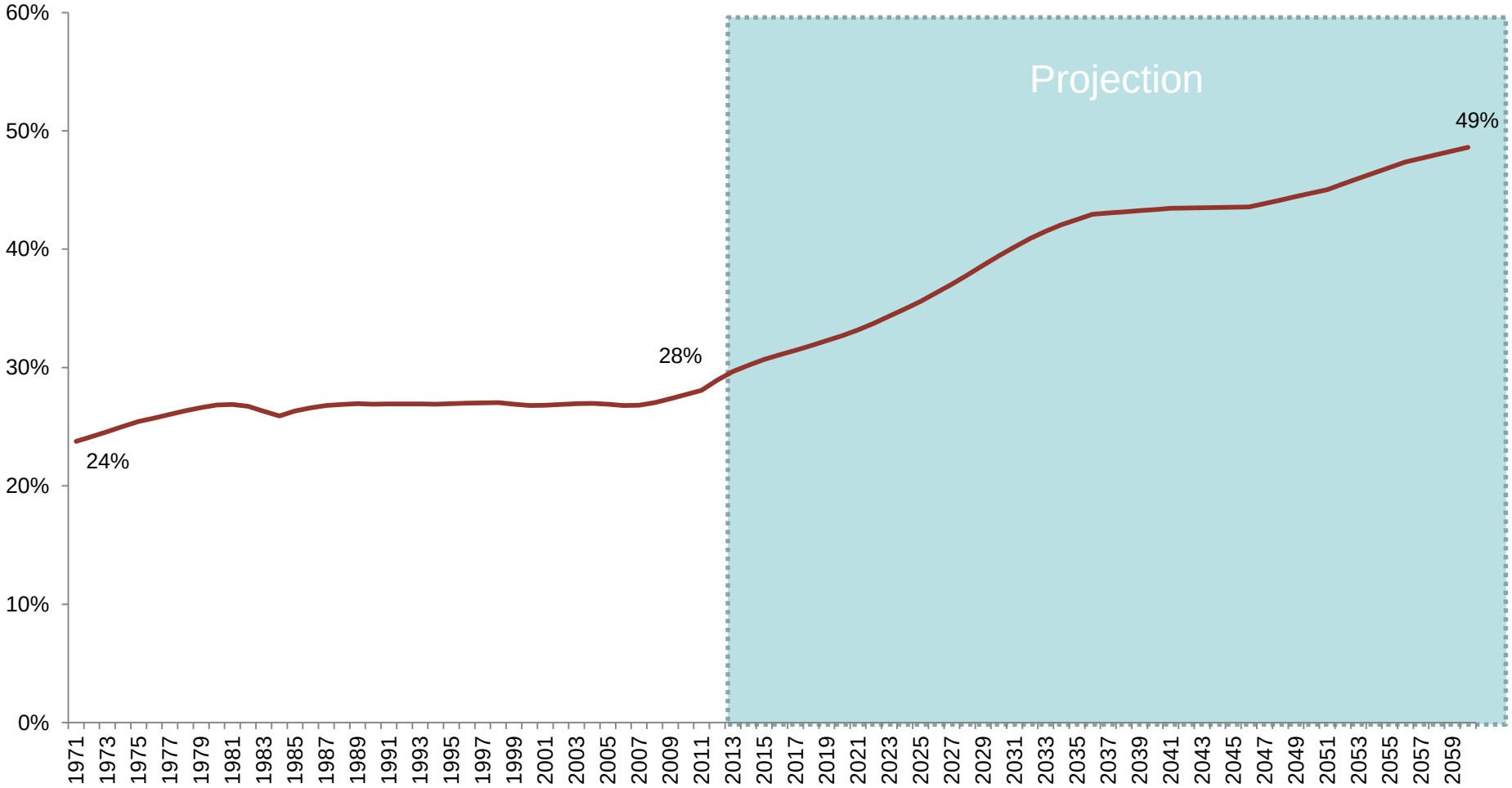
Overview

- Introduction
- Model
- Results
- Conclusions

Two views on immigration

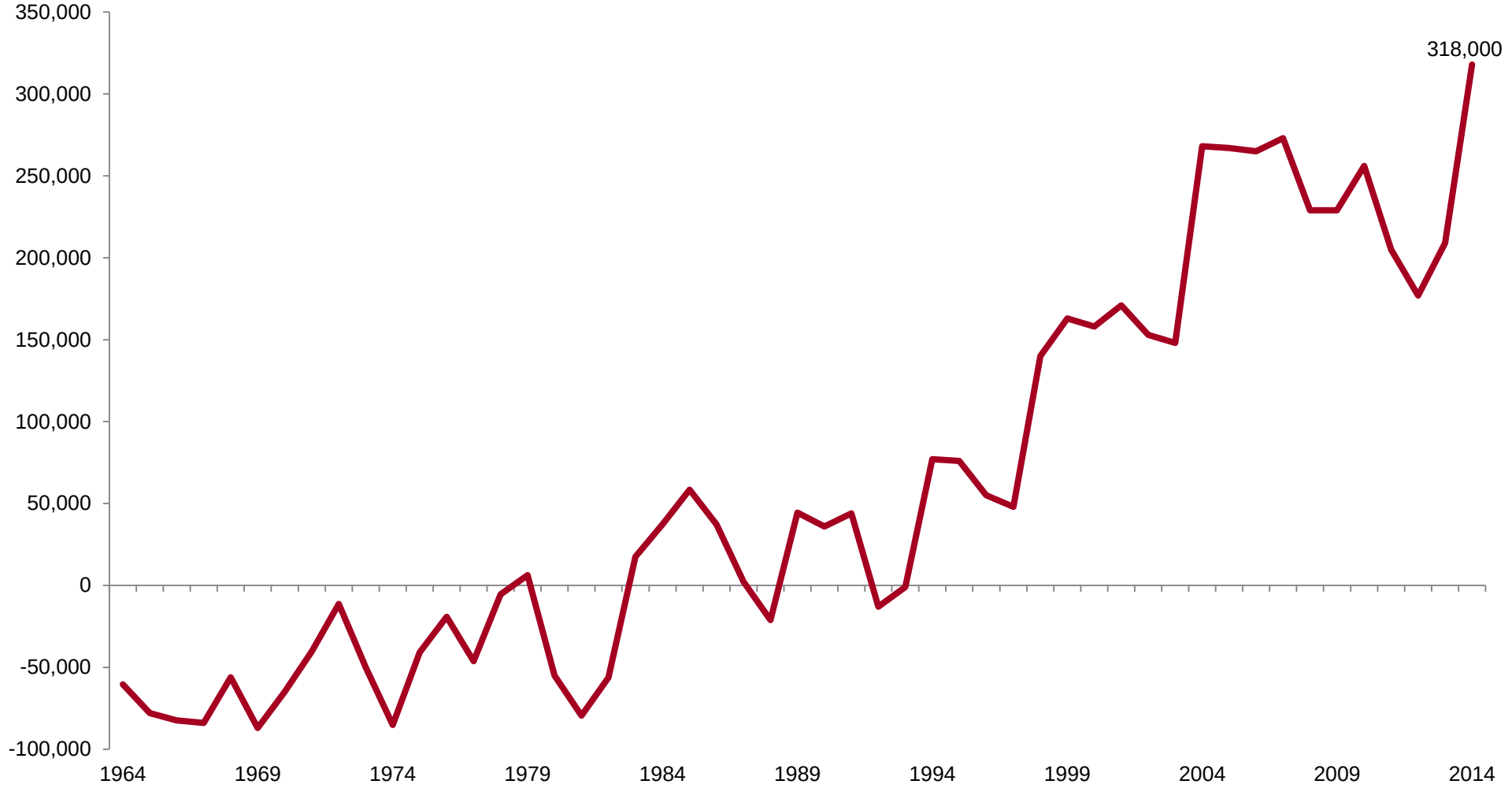
- **Solution** for ageing countries
  - immigrants are younger than natives → replacement for falling native working age population
- **Competition** with natives →
  - higher unemployment for native workers
  - lower pay for native workers
  - demand public services (net contribution to welfare system?)
- **Our aim**: provide a formal analysis in favour/against each of these “opinions”

Old age dependency ratio*



* Population aged 65+ divided by population aged 20-64

UK net migration



UK migration policy

- Conservative government's target is to reduce net migration "from hundreds of thousands to tens of thousands"
- Difficult if not impossible to achieve
  - Despite toughening of migration rules, during 12 months to December 2014 record net migration of 318,000
- 2010-based principal ONS population projections assume long-term net migration of 200 thousands per year
  - To achieve target, net migration has to decline by a factor of 2

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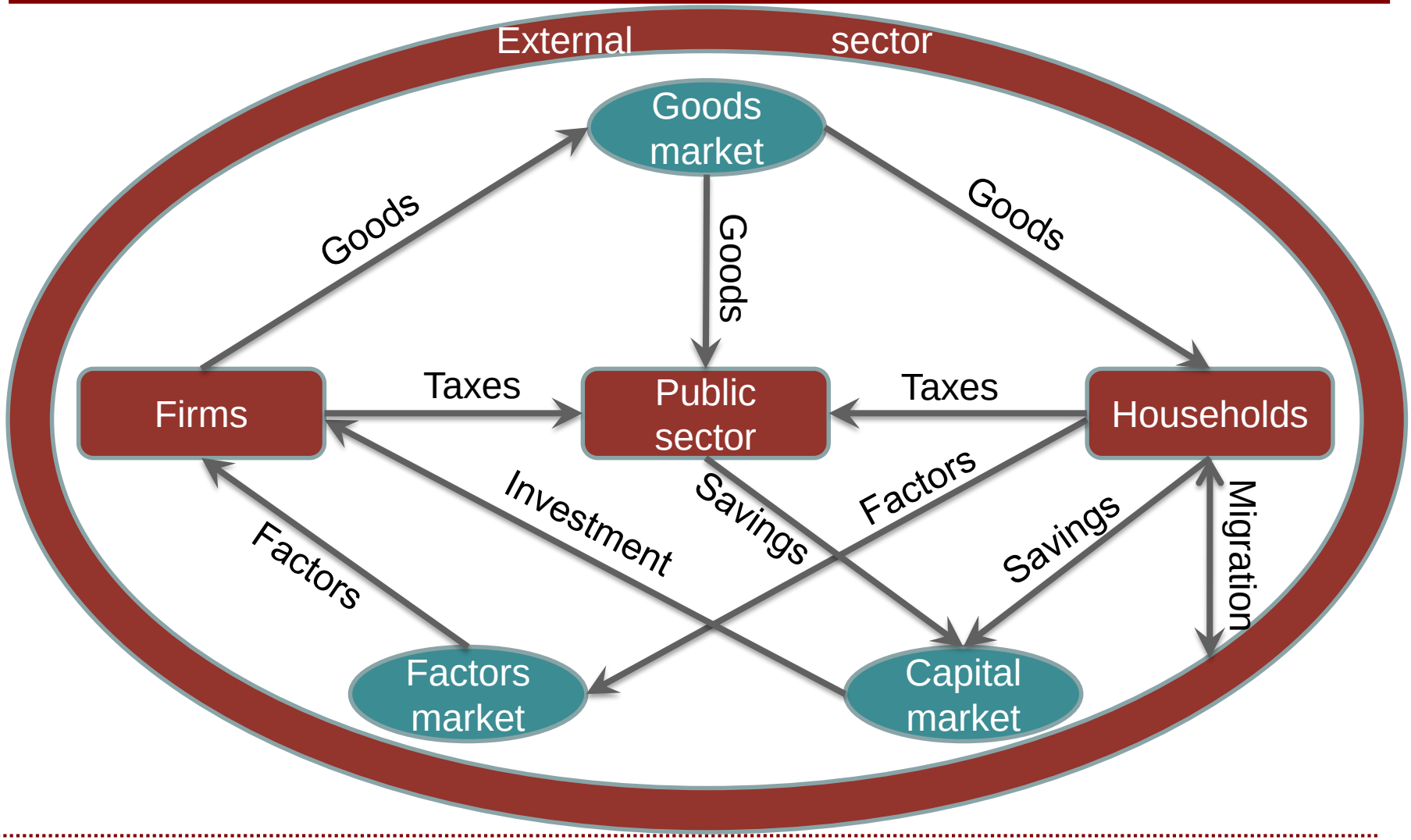
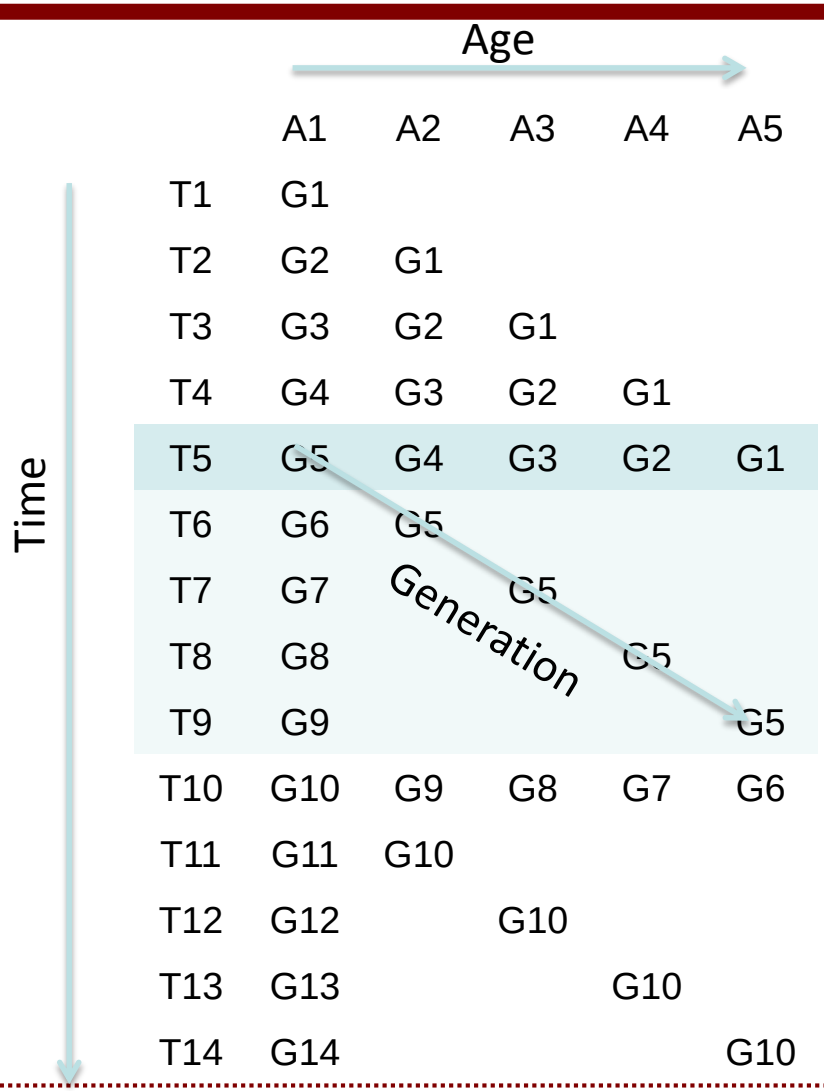
Structure of a CGE model



Household. Overlapping generations



- Several generations
- Finitely-lived individuals with complete life cycle (birth, work, retirement, death)
- Age specific characteristics
  - productivity (age-earnings profiles)
  - employment rates
  - demand for public services

Main features of the model

- Closed economy
  - Interest rate reacts to population ageing
- One final good
  - Cobb-Douglas production function
- Demography:
  - 21 generations (0-4, … 100+)
  - time-variable **fertility** rate
  - time/age-variable **mortality and migration** rates
- Unintentional bequests
  - distributed via a perfect annuity market
- In every generation six types of households
  - Three qualification levels
  - Two origins
    - Native-born
    - Foreign-born
- Age-specific public consumption
  - Health and education

Household problem. Forward-looking

- Household Utility Function

$$U = \frac{1}{1-\theta}\sum_{k=4}^{20}\left\{\left[\frac{1}{1+\rho}\right]^{k}\Pi_{m=0}^{k} sr_{t+m,g+m}\left((C_{t+k,g+k})^{1-\theta}\right)\right\} \qquad 0< \theta < 1$$

- Household Budget Constraint

$$HA_{t+1,g+1} = \frac{1}{sr_{t.g}}\left\{(1-\tau^{l})Y_{t,g} + [1+r_{t}]HA_{t,g} - (1+\tau^{c})C_{t,g}\right\}$$

$sr_{a,t}$ -- conditional probability of survival from age *a* to age *a+1*

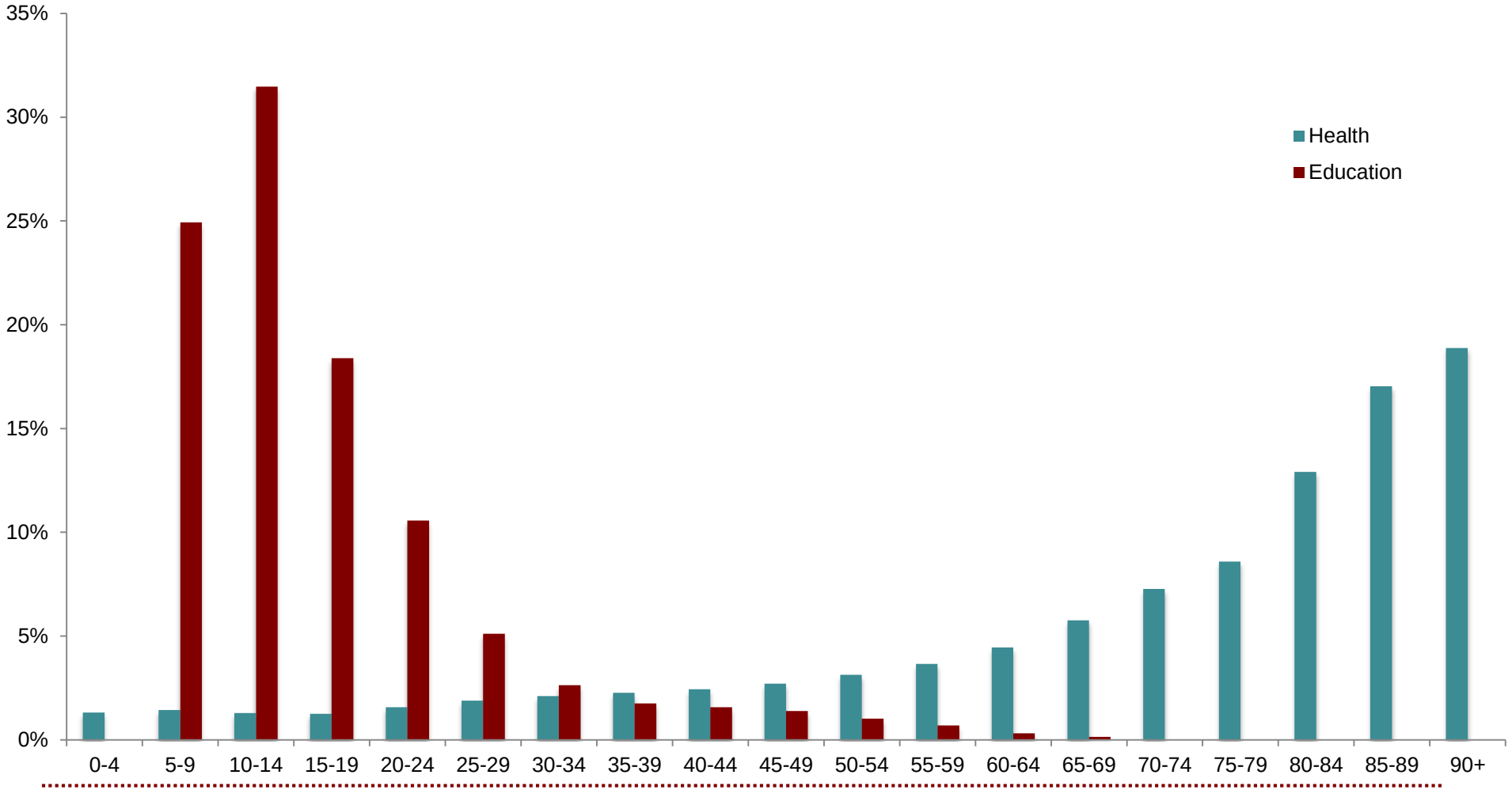
- Euler Equation

$$\frac{C_{t+1,g+1}}{C_{t,g}} = \left(\frac{1+r_{t+1}}{1+\rho}\right)^{1/\theta}$$

- Household problem is qualification- and origin-specific

- Revenues
  - Labour income tax (endogenous)
  - Consumption tax
  - Pension contributions
- Expenditures
  - Age-independent (fixed level per capita)
  - Health expenditures (mostly in old age)
  - Education expenditures (mostly in young age)
  - Transfers (origin-specific)
  - Pensions (for 65+ year old)

Age distribution of health and education spending per capita



- Fertility
- Mortality
- Two types of migration

} Realistic population structure

$$Pop_{t,g+k} = \begin{cases} Pop_{t-1,g+k+5}\, fr_{t-1} & for \quad k = 0 \\ Pop_{t-1,g+k-1}\left(sr_{t-1,g+k-1} + mr_{t-1,g+k-1}\right) & for \quad k \in [1,20] \end{cases}$$

$$mr_{t,g+k} = nmr_{t,g+k} + fmr_{t,g+k}$$

Modelling migration

- We introduce differences between natives and immigrants in **two** main dimensions:

1) Labour market characteristics
   - Qualification distribution
   - Employment rates
   - Productivity

2) Use of public funds
   - Origin-specific government transfers

Modelling migration: employment rates/qualification distribution

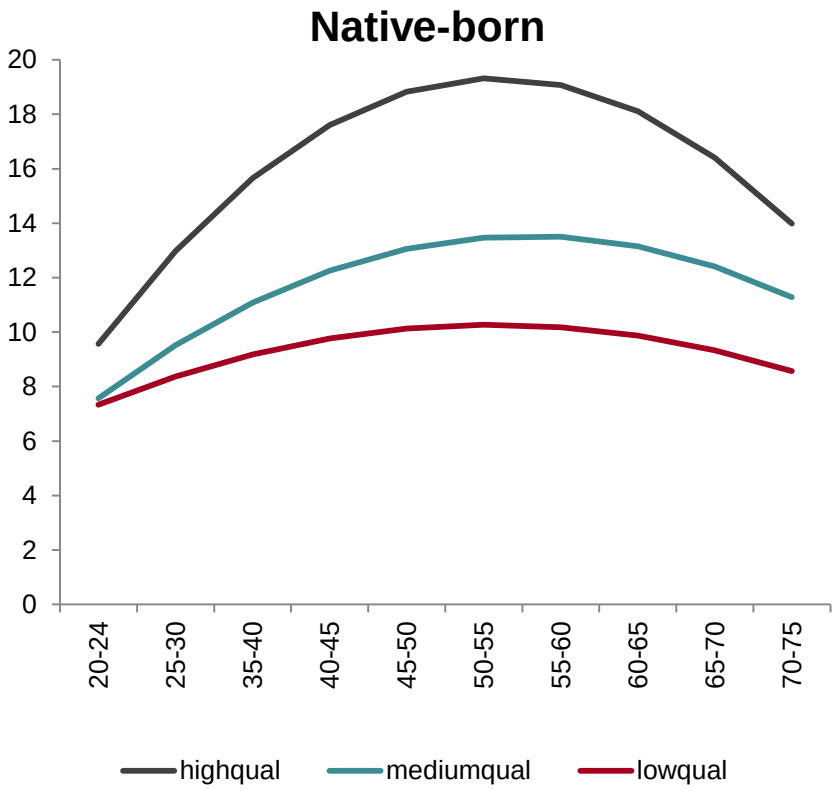
Immigrant workers display a **higher** qualification compared to that of natives but **lower** employment rate:

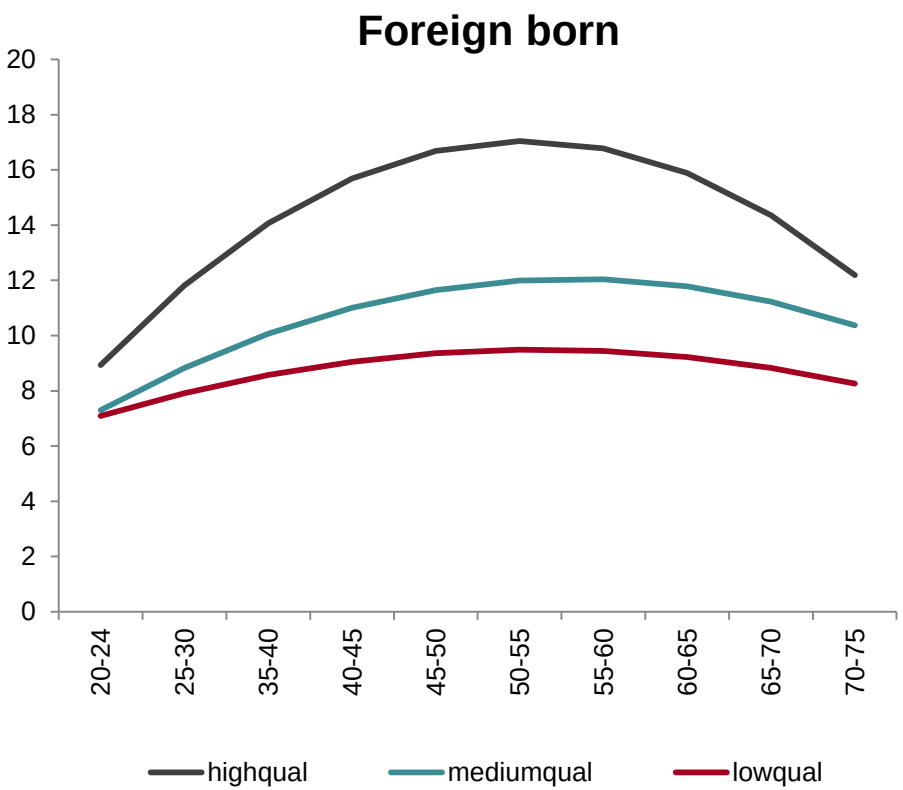
Workers	Native-born 84%	Foreign-born 16%
Employment rate	75%	70%
High qualification	22%	**44%**
Medium qualification	31%	**35%**
Low qualification	47%	21%

Source: LFS, Q2:2008-Q1:2013

Modelling migration: age-earnings profiles

Immigrants' earnings (a proxy for productivity) are lower





Source: LFS, Q2:2003-Q1:2013

Modelling Migration: differences in demand for government services

- Immigrants are estimated to be **4.6%** less likely to claim social benefits than natives

- This difference feeds into origin-specific government transfers in the model

Source: LFS, Q2:2008-Q1:2013

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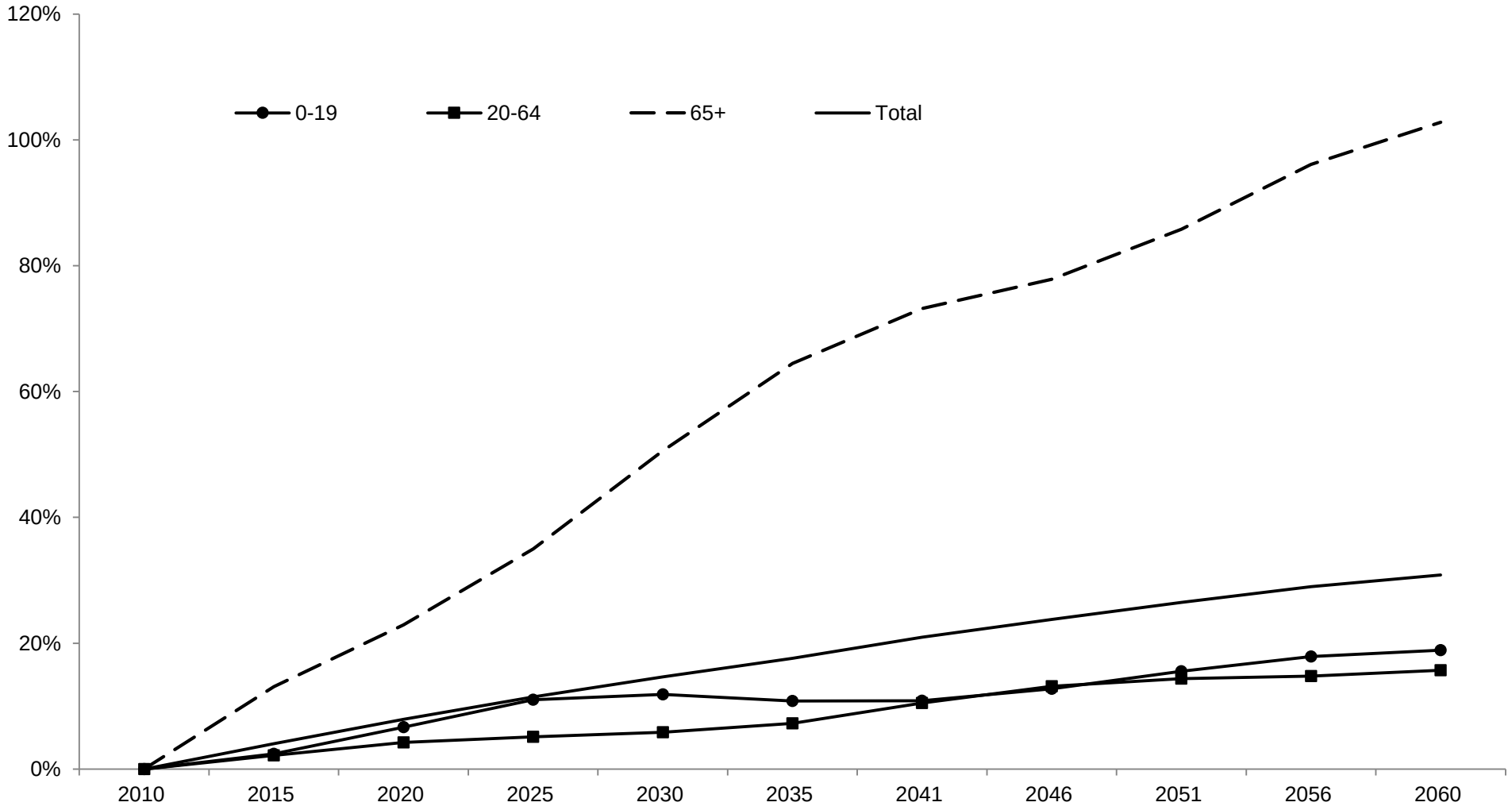
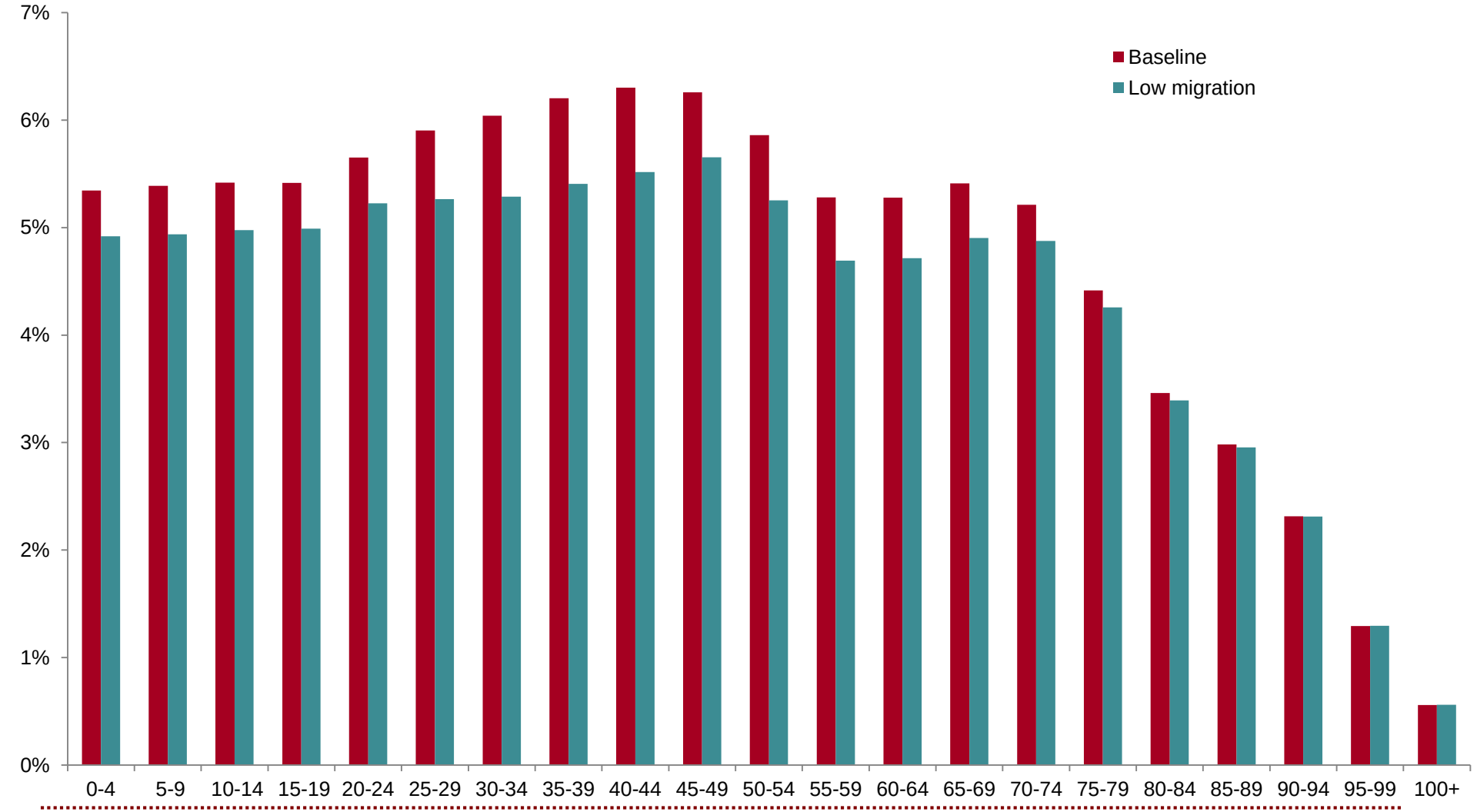
Principal ONS population projections: baseline scenario



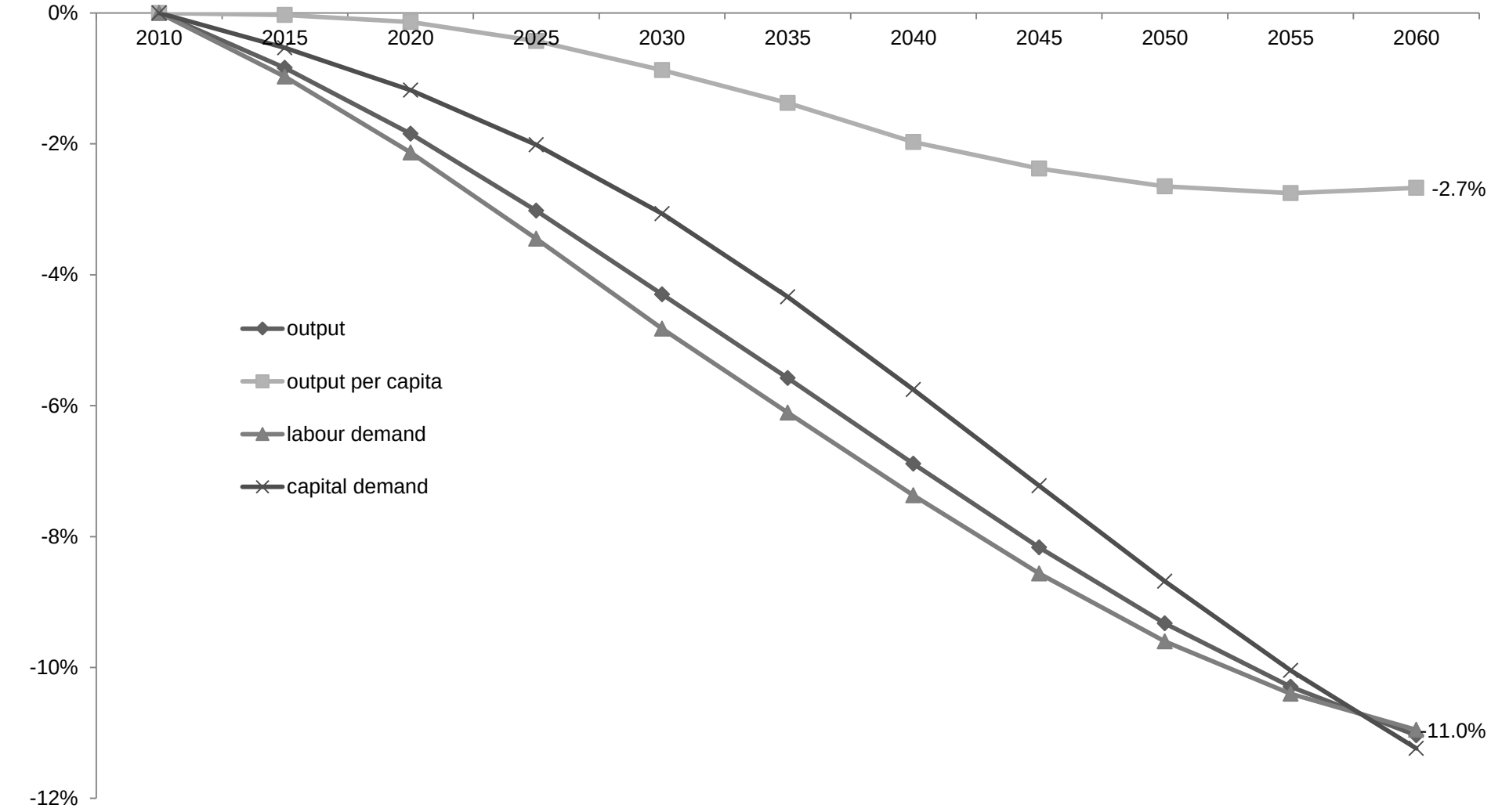
Low migration scenario

- Experiment: net migration level **2 times** lower than in baseline scenario
- We assume that native net migration level is **not affected** by the government migration policy
- And impose a reduction in the foreign net migration rate **only**

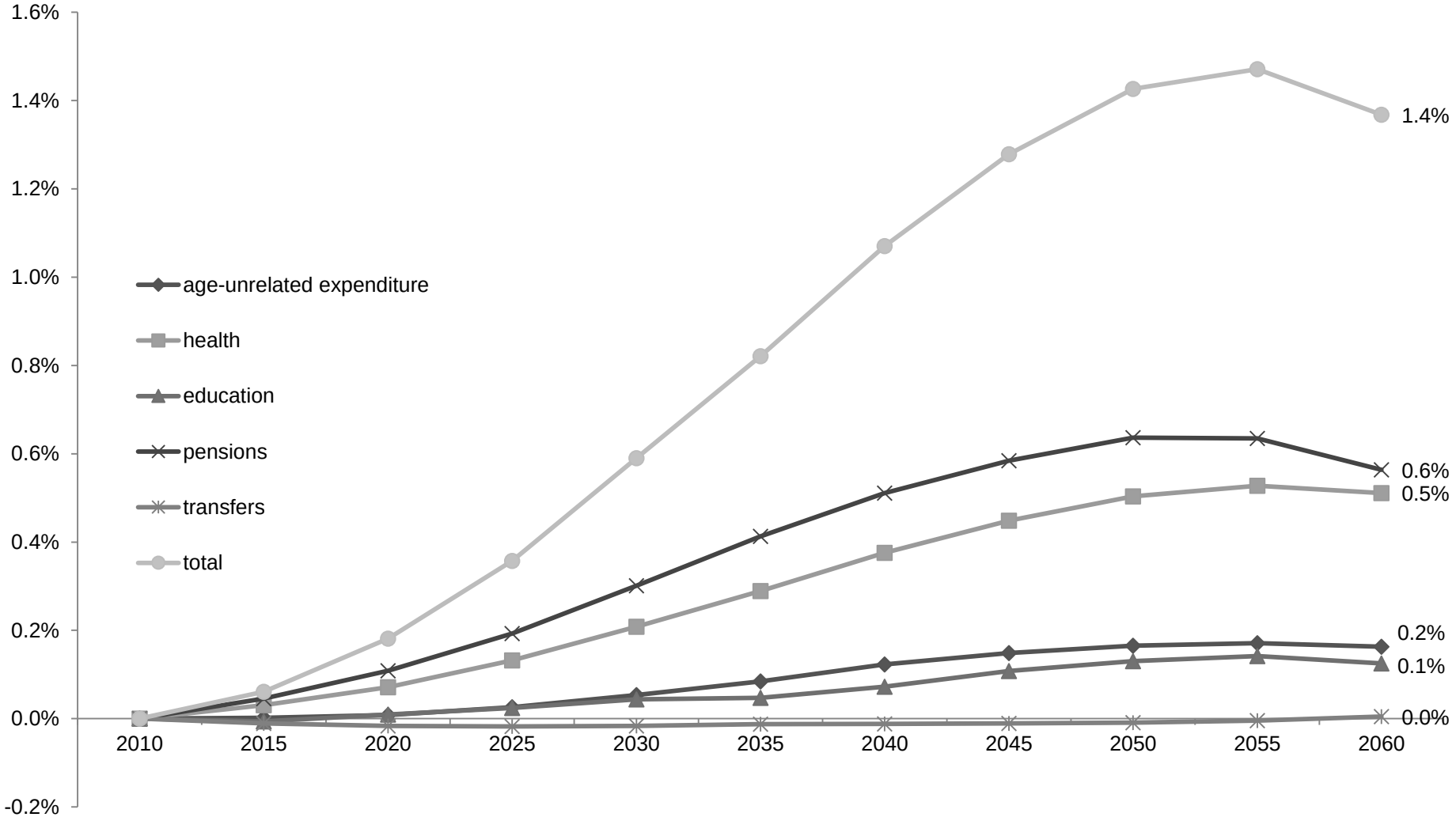
Population age structure in 2060



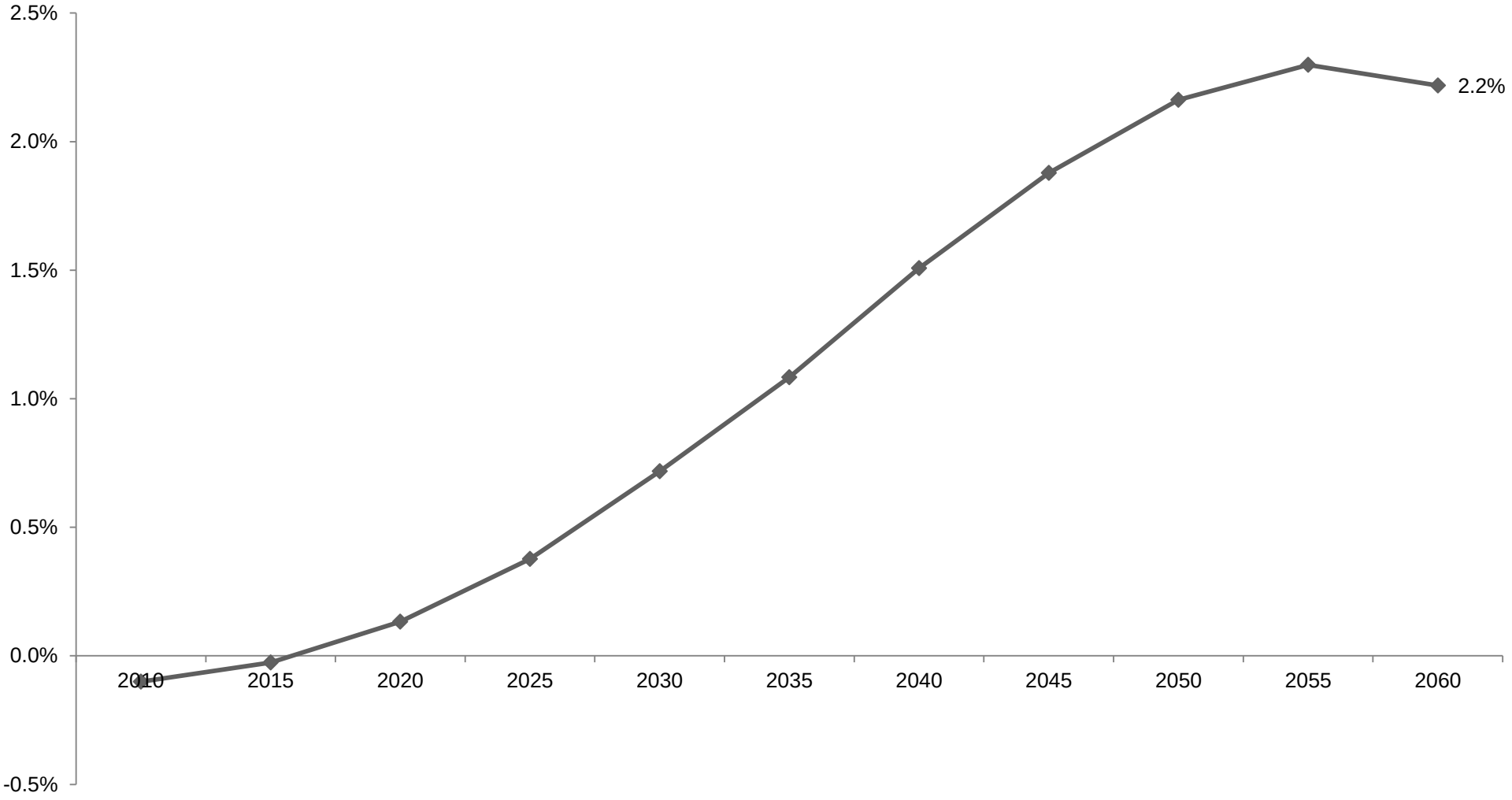
Output and factors of production



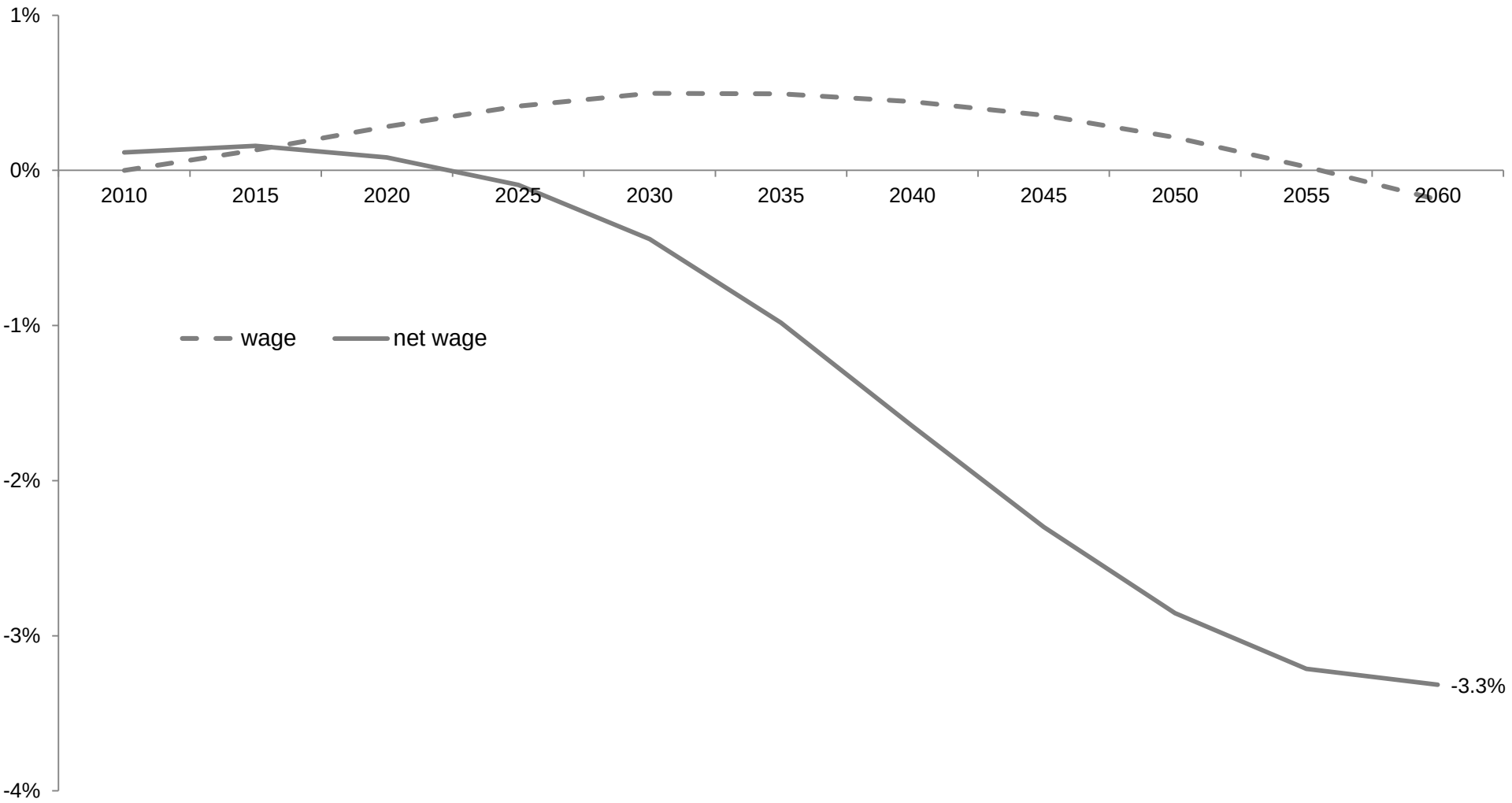
Government spending % of GDP, pp difference



Labour income tax rate, pp difference



Wage and net wage



Sensitivity analysis . Effects for different labour market characteristics

	Output per person difference in 2060	Labour income tax rate pp difference in 2060
Foreigners are like natives	-2.8%	2.4%
Different productivity	-2.2%	2.1%
Different employment rates	-1.8%	1.9%
Different qualification distribution	-4.1%	2.9%
All characteristics are different	-2.7%	2.2%

Sensitivity analysis. Quality of migrants

- The results shown before show the effect of the **number** of immigrants on the economy
- We want to check how sensitive the results are to the "**quality**" of immigrants
- For this, we chose A8 immigrants (8 Eastern European countries that joined the EU in 2004)

This subgroup differs **significantly** with respect to the average migrant:

	All immigrants	A8
Employment rate	**70%**	**85%**
High qualification	44%	37%
Medium qualification	35%	**53%**
Low qualification	21%	10%
Probability of claiming state benefits (pp less than that of natives)	**4.5%**	**13.0%**

Sensitivity analysis. If all future migrants are like A8 migrants

	Output per person difference in 2060	Labour income tax rate pp difference in 2060
A8 migrants	-3.2%	2.5%
All migrants	-2.7%	2.2%

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Conclusions

- Lower net migration policy has
  - **significant negative effect on output** and a smaller but **non-negligible negative effect** on output per person
  - **negative impact on the public finances**, owing to the shift in the demographic structure
  - **small and temporary positive effect on gross wage.** However, if growing fiscal imbalances are covered by income tax, **the effect on net wage is large and negative**
- **Qualification distribution of migrants** has the strongest effect among labour market characteristics
- "**Quality**" of migrants has expected effect, although it is much smaller than the effect of the **number** of migrants

Caveats

- Downward bias of our estimates
  - the least strict interpretation of the migration target
  - the model does not take into account potential positive productivity effects from higher levels of immigration (TFP growth, imperfect substitution between natives and migrants)
  - closed economy model => higher equilibrium capital-labour ratio and lower returns on capital. In an open economy model with perfect capital mobility, downward pressure on interest rates would lead to capital outflow and thus even stronger negative effects of reduced migration
- Upward bias of our estimates
  - we do not capture the negative externalities resulting from, for instance, congestion
  - do not take into account the potential social impacts of higher immigration