

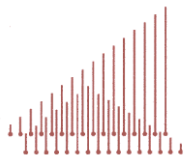
# Reducing migration from “hundreds of thousands to tens of thousands”

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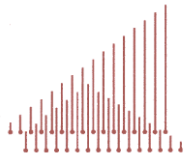
NIESR

December 6, 2013

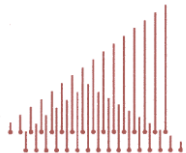
Financial support from the Economic and Social Research Council under the grant: “A dynamic multiregional OLG-CGE model for the study of population ageing in the UK” is gratefully acknowledged.



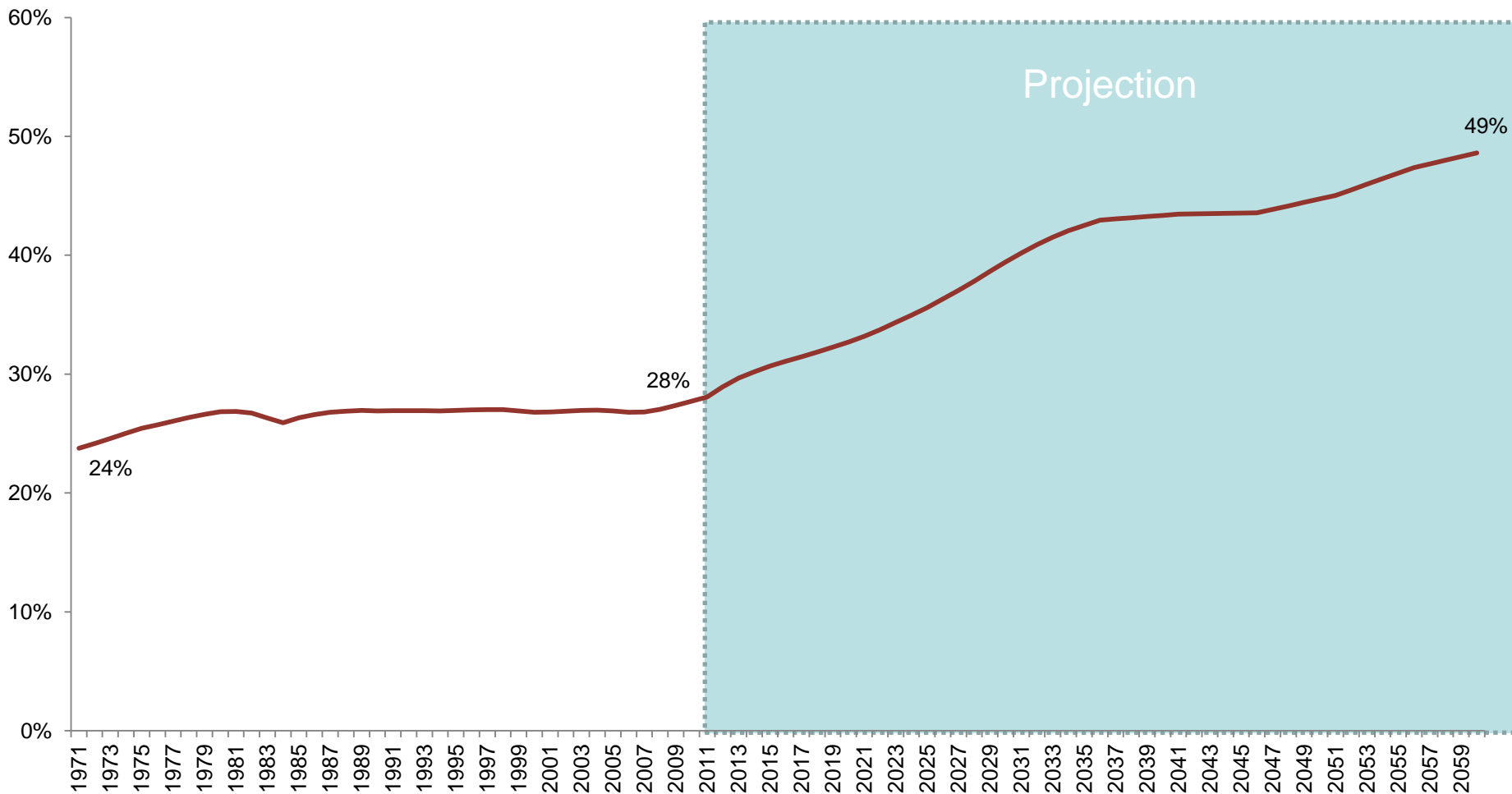
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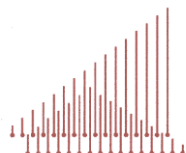
- **Solution** for ageing countries
  - immigrants are younger than natives → replacement for falling native working age population
- **Competition with natives** →
  - higher unemployment for native workers
  - lower pay for native workers
  - demand public services (net contribution to welfare system?)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



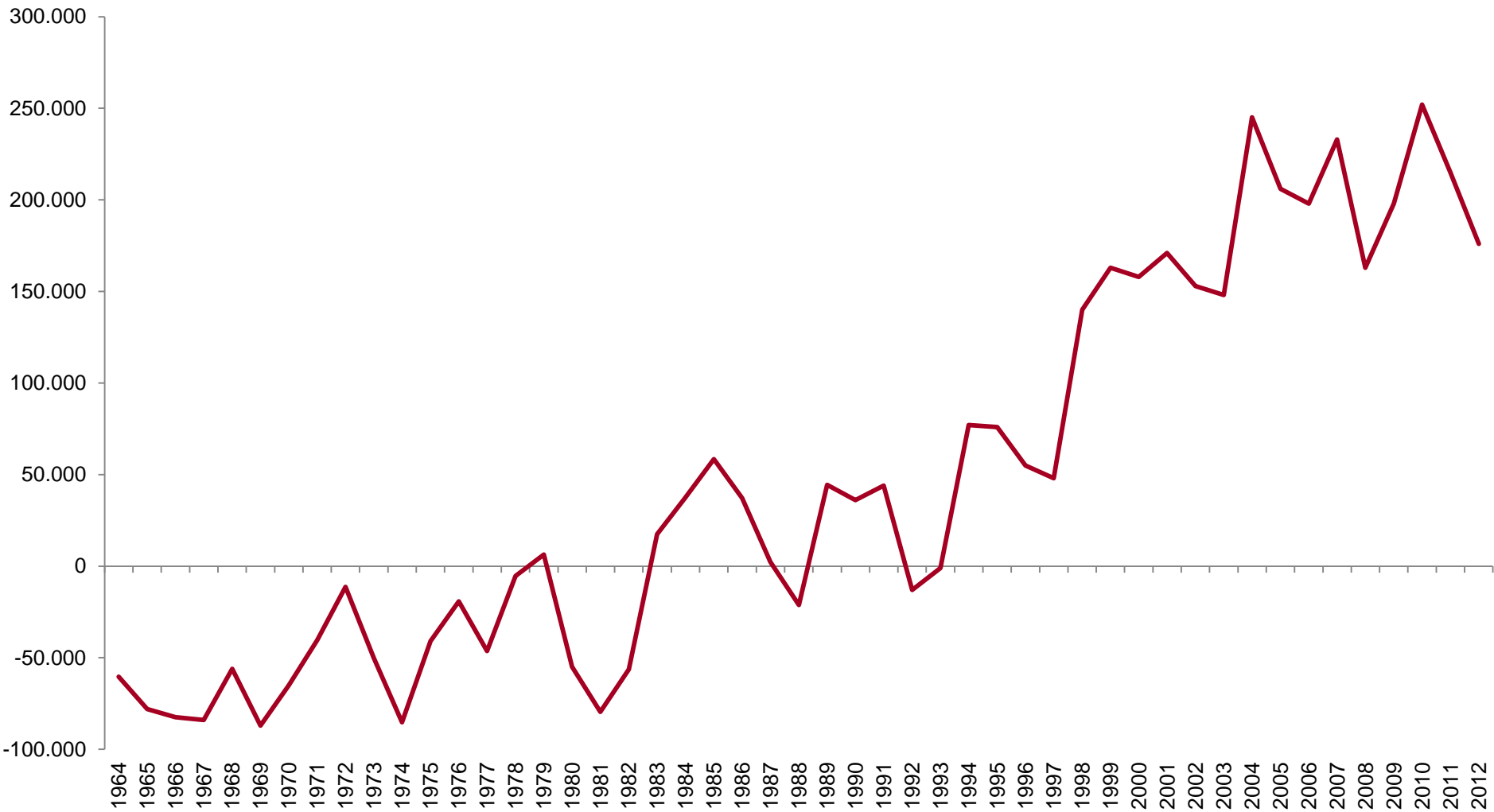
# Old age dependency ratio\*



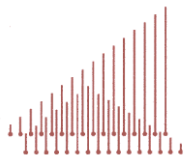
\* Population aged 65+ divided by population aged 20-64



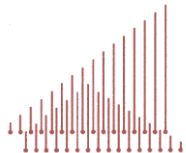
# UK net migration



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- Current government's target is to reduce net migration “from hundreds of thousands to tens of thousands”
- Difficult if not impossible to achieve
- Some impact has already been observed
  - In 2012 net migration was 176,000
- 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

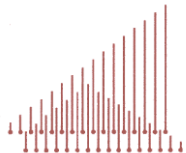


- Introduction

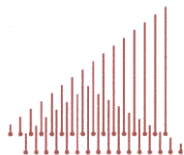
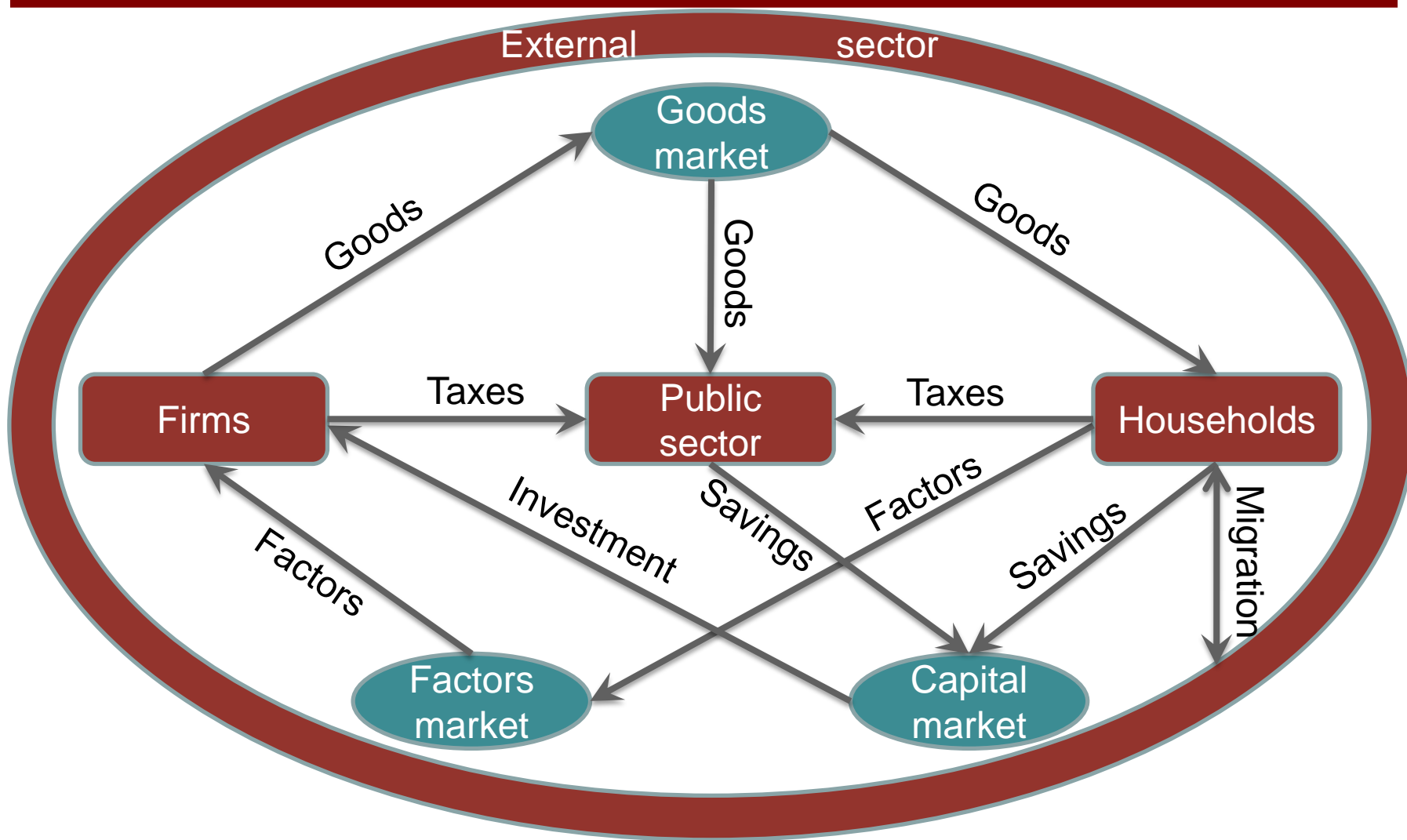
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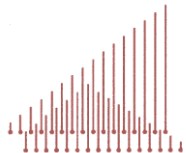


# Structure of a CGE model

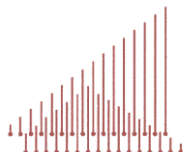
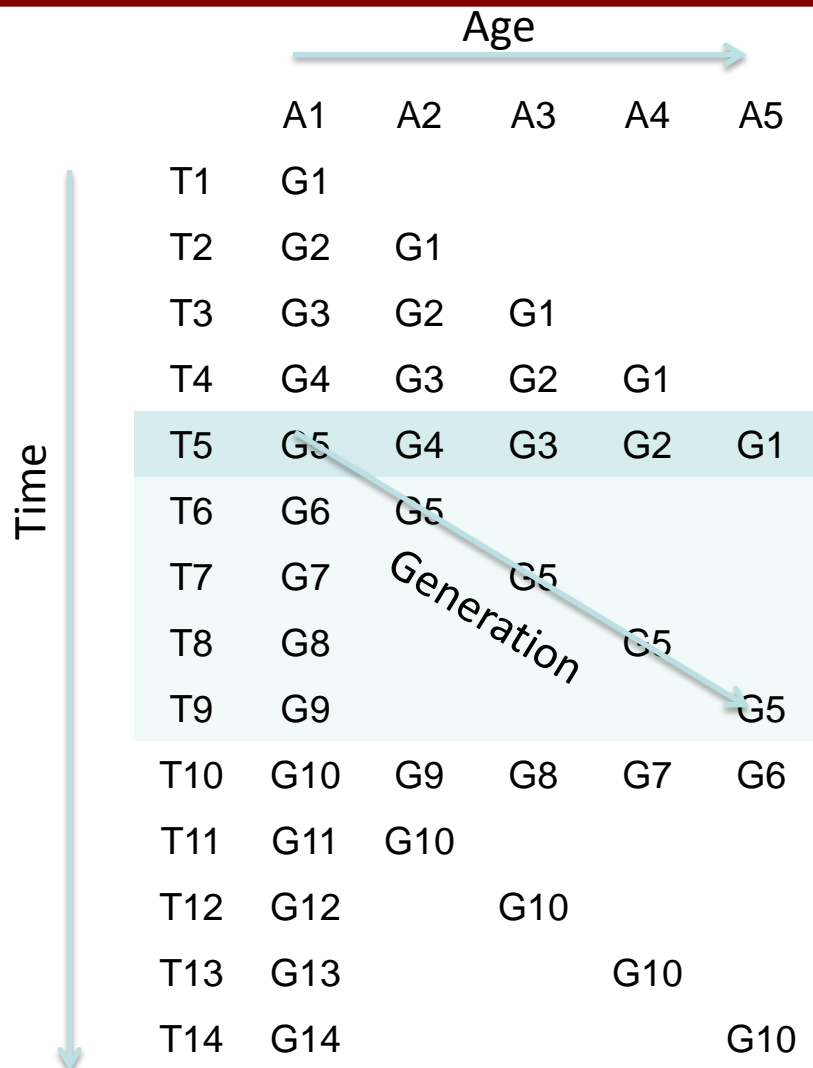




- Several generations
- Finitely-lived individuals with complete life cycle (birth, work, retirement, death)
- Age specific characteristics
  - productivity (age-earnings profiles)
  - employment rates
  - demand for public services

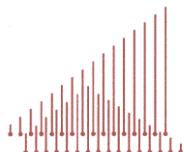


# Overlapping generations structure



## 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
- **Three different types of households by qualification levels**
- **Two origins of households**
  - Native-born
  - Foreign-born
- **Age-specific public consumption**
  - Health and education

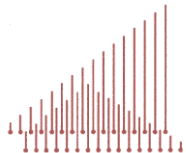


- **Revenues**

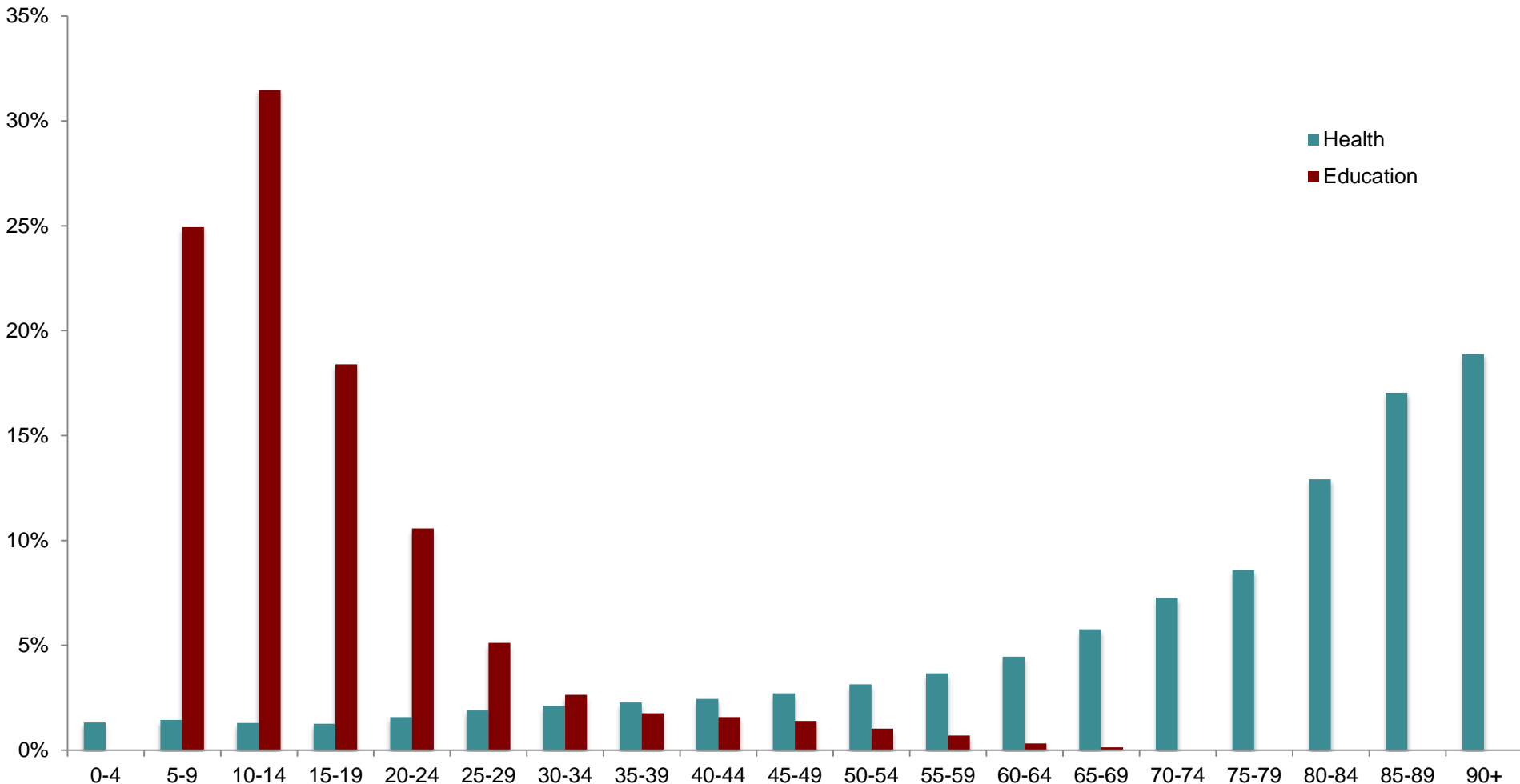
- Labour income tax (endogenous)
- Consumption tax
- Pension contributions

- **Expenditures**

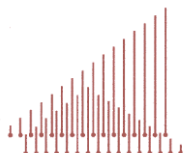
- Age-independent (fixed level per capita)
- Health expenditures (mostly in old age)
- Education expenditures (mostly in young age)
- Transfers (nationality-specific)
- Pensions (for 65+ year old)



# Age distribution of health and education spending per capita



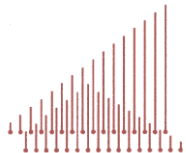
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- Fertility
  - Mortality
  - Two types of migration
- } Realistic population structure

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

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

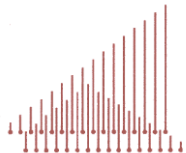


## ■ Treatment of migrants' assets:

- Fehr et al. (2004) and Chojnicki et al. (2011) assume that immigrants have the same level of assets as natives of the same age and qualification
- Storesletten (2000) assumes that immigrants have no assets when they come
- Chojnicki et al. (2011) state that the choice with respect to this assumption should not make much difference, due to the young age of most migrants
- We assume that new migrants have the **same** level of assets as households in the same origin/qualification/age group living in the UK

## ■ The capital accumulation equation then reads:

$$Kstock_{t+1} = Inv_t + (1 - \delta)Kstock_t + \sum_{qual} \sum_g HA_{qual,nat,t+1,g+1} NM_{qual,nat,t+1,g+1}$$



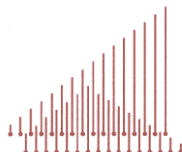
- We introduce differences between natives and immigrants in **two** main dimensions:

## 1) Labour market characteristics

- Qualification distribution
- Employment rates
- Productivity

## 2) Use of public funds

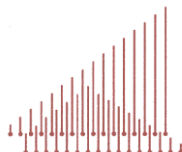
- Origin-specific government transfers



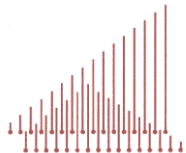
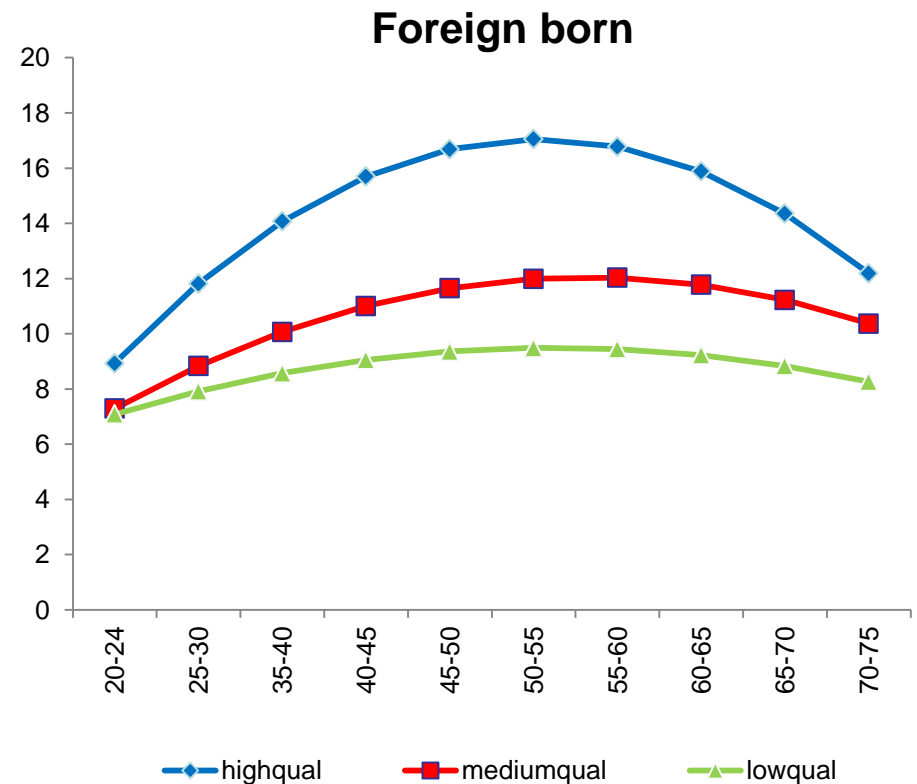
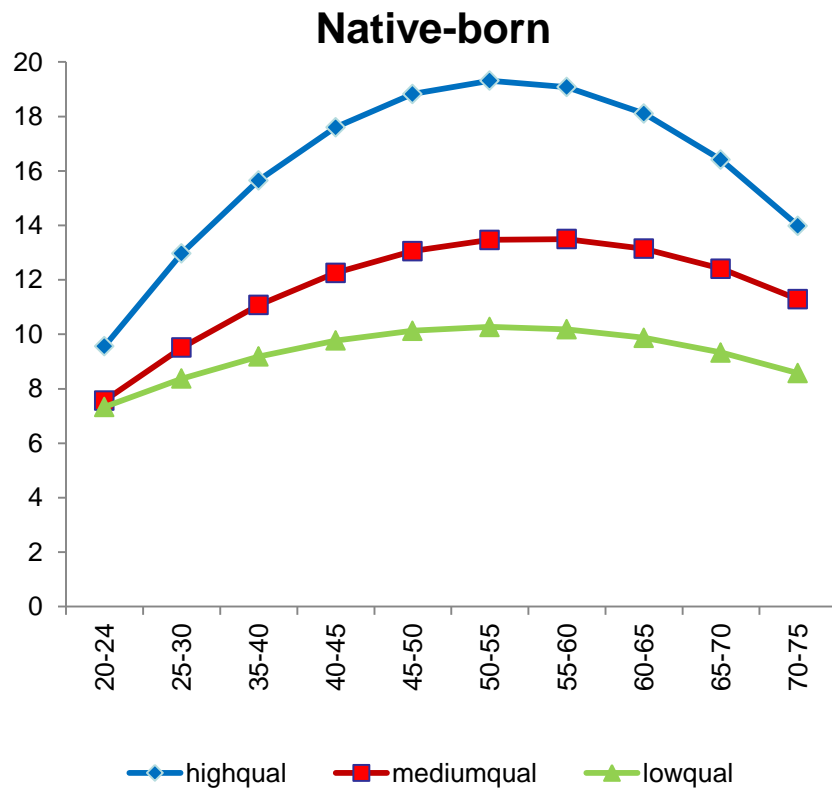


Immigrant workers display a **higher** qualification distribution compared to that of natives:

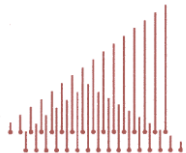
Workers	Native-born 84%	Foreign-born 16%
Employment rate	75%	70%
High qualification	22%	<b>44%</b>
Medium qualification	31%	<b>35%</b>
Low qualification	47%	21%



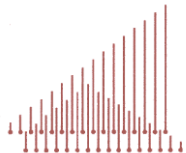
## Immigrants' earnings (a proxy for productivity) are lower



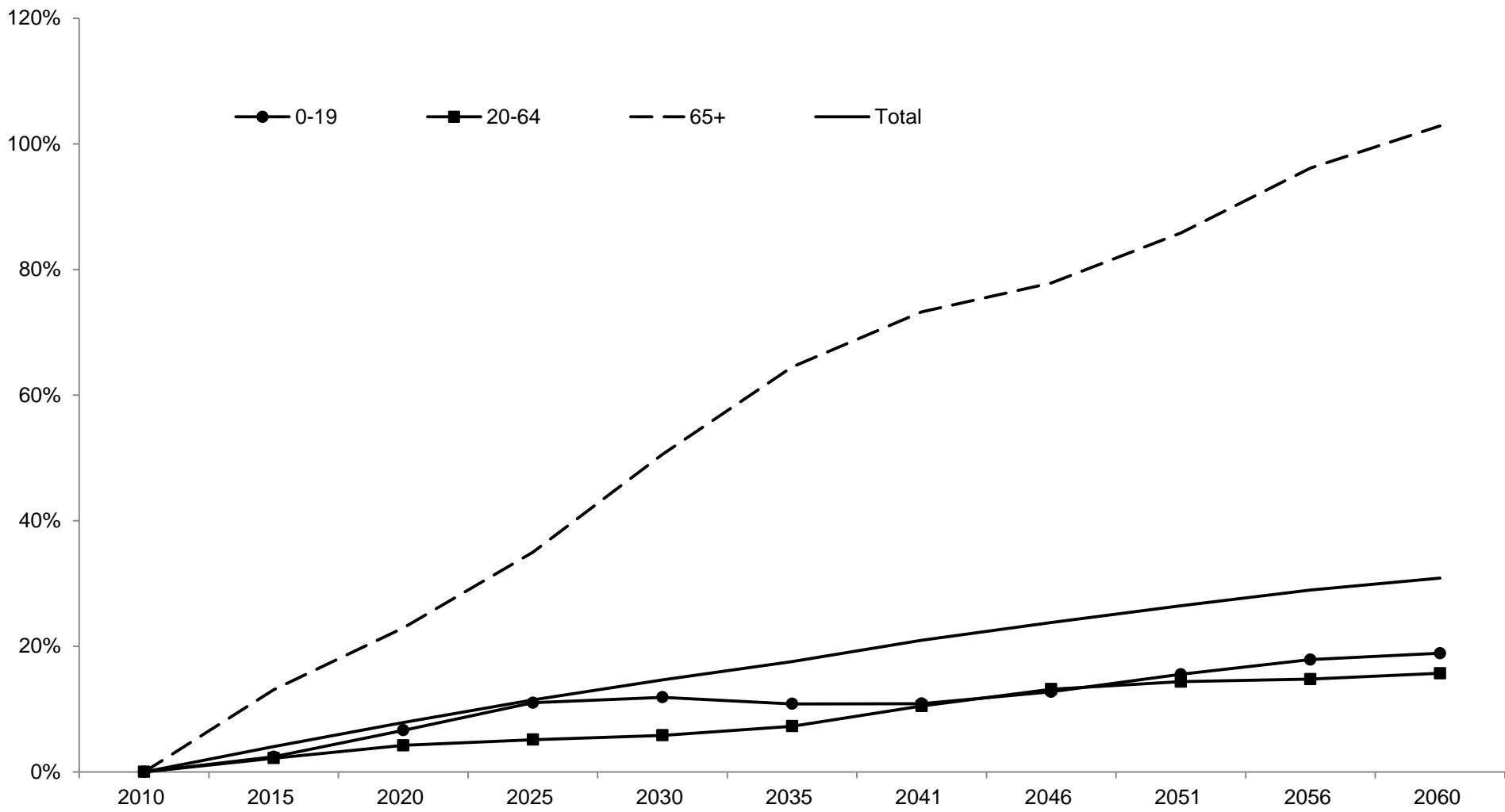
- Immigrants are estimated to be **4.6%** less likely to claim social benefits than natives
- This difference feeds into origin-specific government transfers in the model



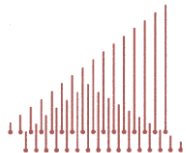
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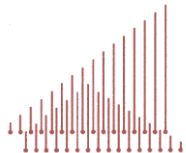
# Principal ONS population projections: baseline scenario



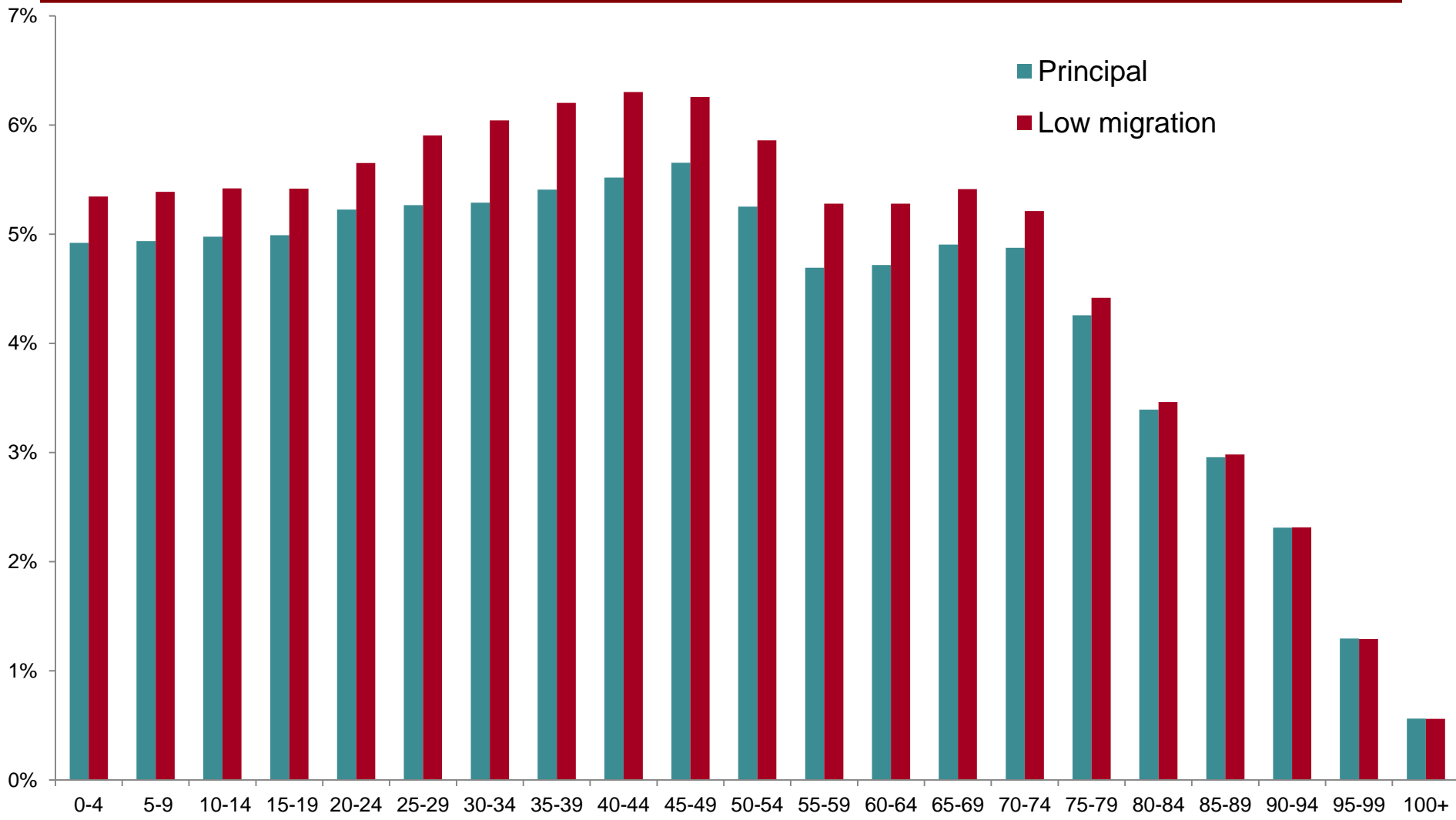
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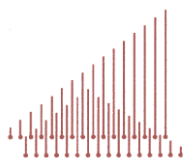
- Experiment: net migration level **2 times** lower than in baseline scenario
- We assume that native net migration level is **not affected** by the government migration policy
- And impose a reduction in the foreign net migration rate **only**
- To achieve total net migration level approximately 2 times lower than in baseline scenario foreign net migration rates have to be reduced by a factor of 1.53



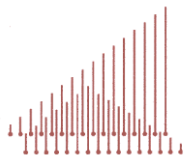
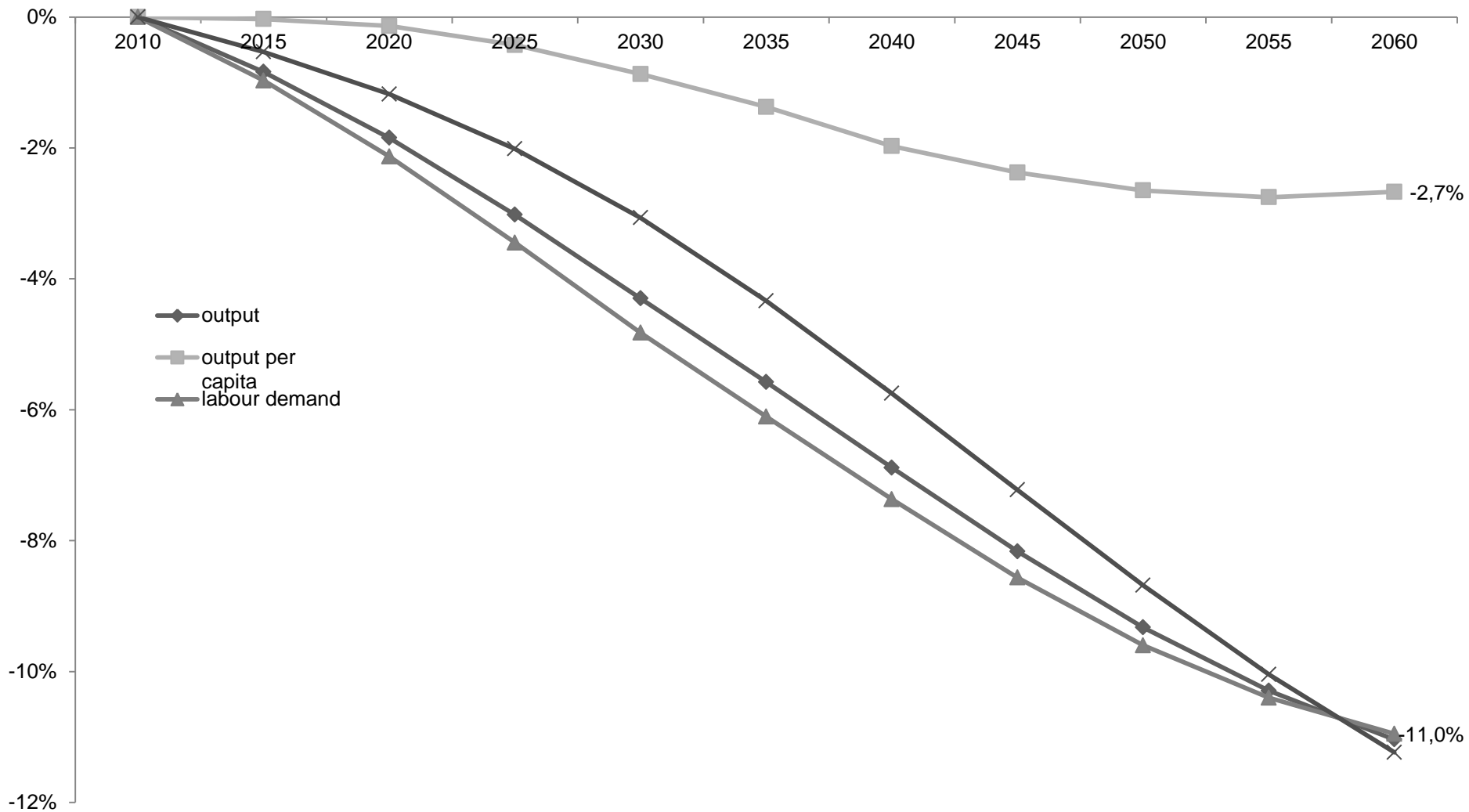
# Population age structure in 2060



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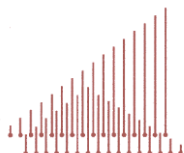
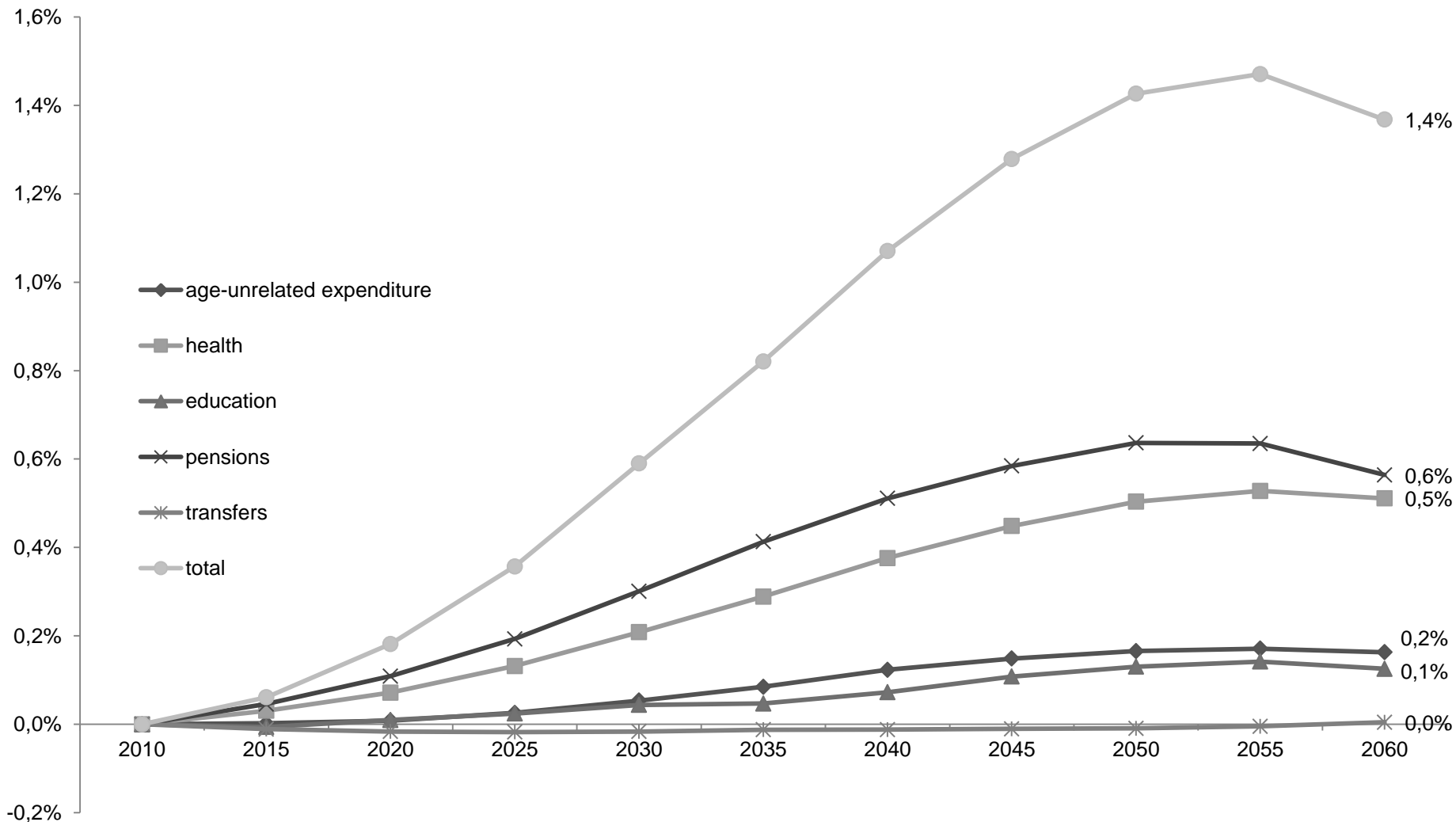


# Output and factors of production

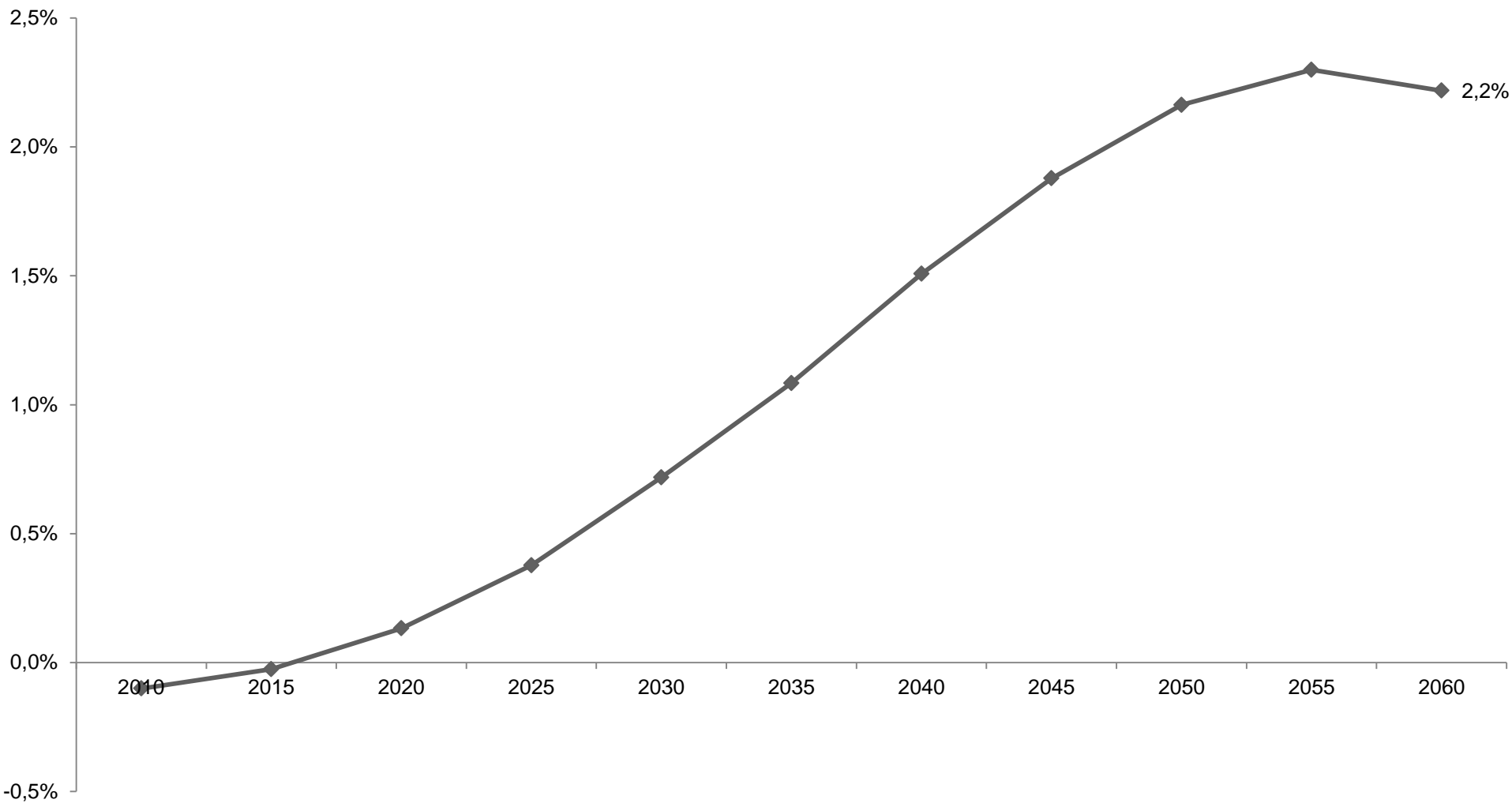




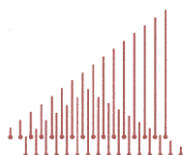
# Government spending % of GDP, pp difference



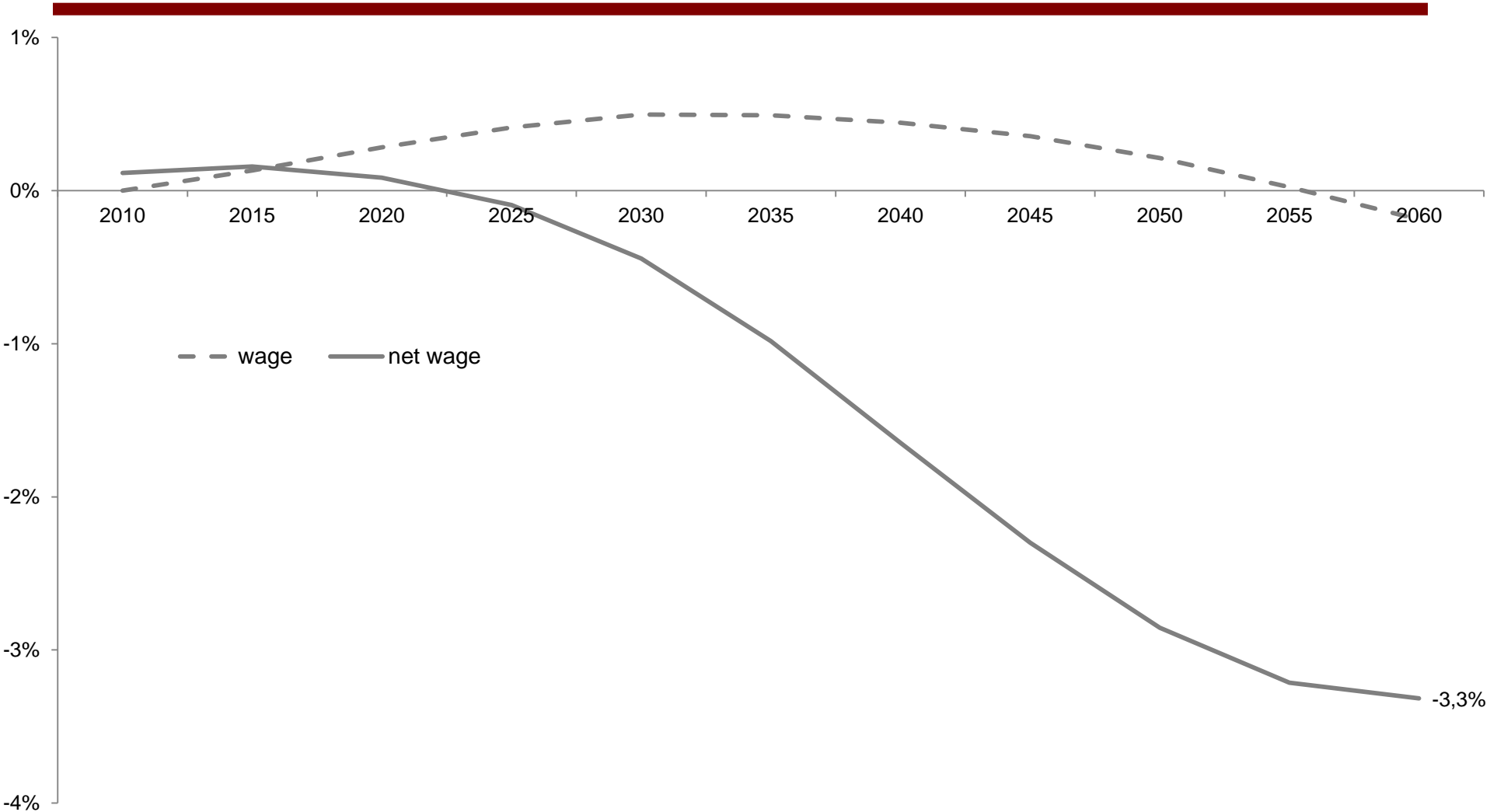
# Labour income tax rate, pp difference



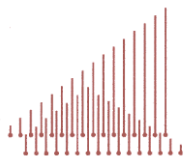
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# Wage and net wage



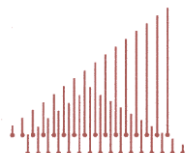
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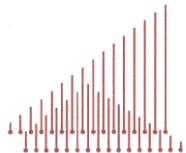
# Sensitivity analysis . Effects for different labour market characteristics



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



- 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)

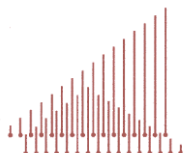


## Why A8 immigrants?



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

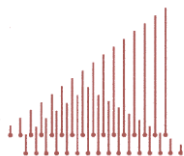
	Average immigrants	A8
Employment rate	<b>70%</b>	<b>85%</b>
High qualification	44%	37%
Medium qualification	35%	<b>53%</b>
Low qualification	21%	10%
Probability of claiming state benefits (pp less than that of natives)	<b>4.5%</b>	<b>13.0%</b>



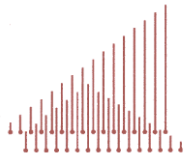
# Sensitivity analysis. If all future migrants are like A8 migrants



	Output per person difference in 2060	Labour income tax rate pp difference in 2060
<b>A8 migrants</b>	-3.2%	2.5%
<b>Average migrants</b>	-2.7%	2.2%



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- Lower net migration has a **significant negative effect on output** and a smaller but **non-negligible negative effect** on output per person
- Reduced net migration has **small 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

