



Population Ageing and Economic Growth across OECD countries

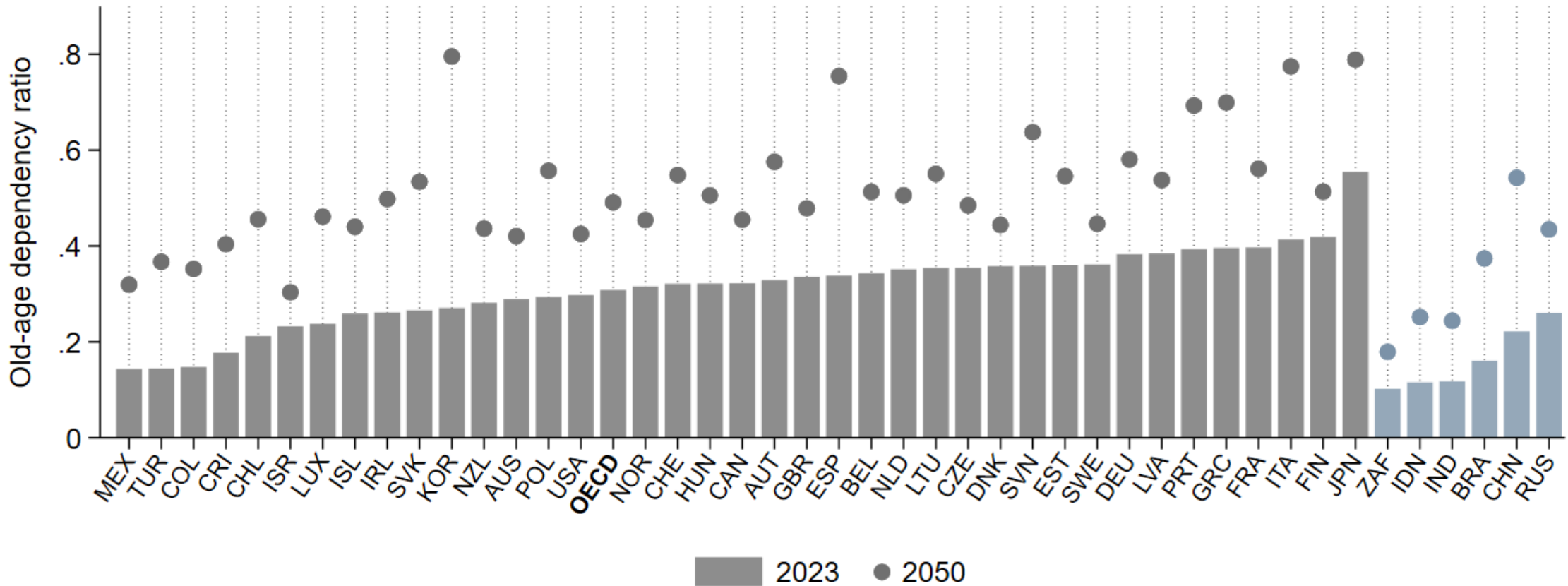
Matthias Schief
OECD
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CEPR RPN Conference on the Economics of Longevity and Ageing



Old-age dependency ratios are projected to increase globally

Increase in the old-age dependency ratio, 2023-2050

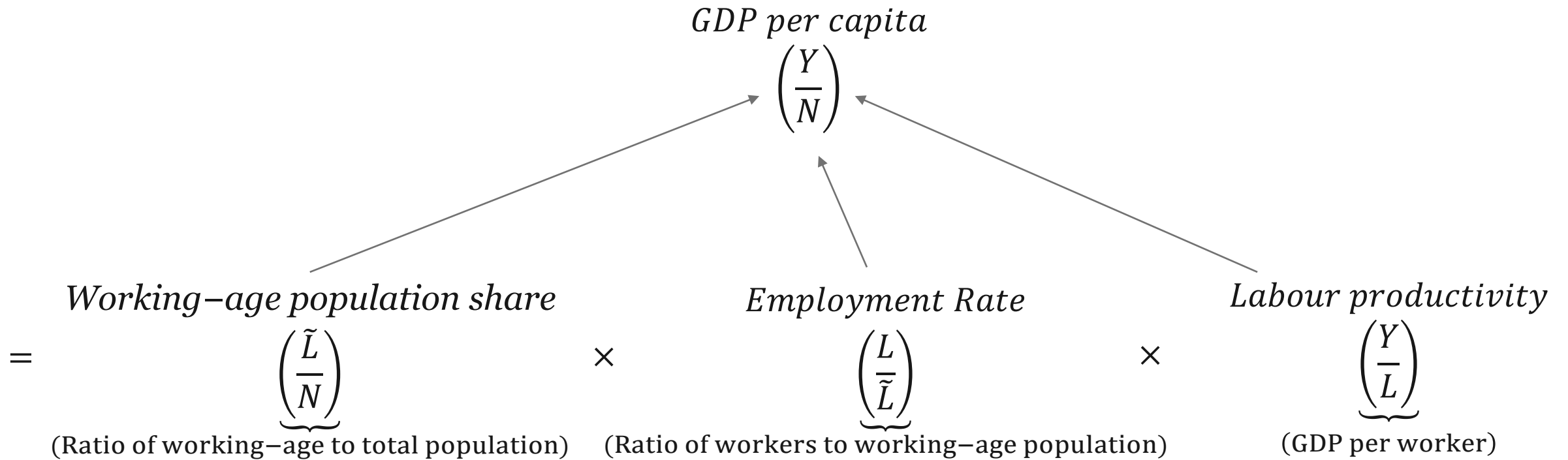


Source: André, C., P. Gal and M. Schief (2024). Based on UN World Population Prospects.

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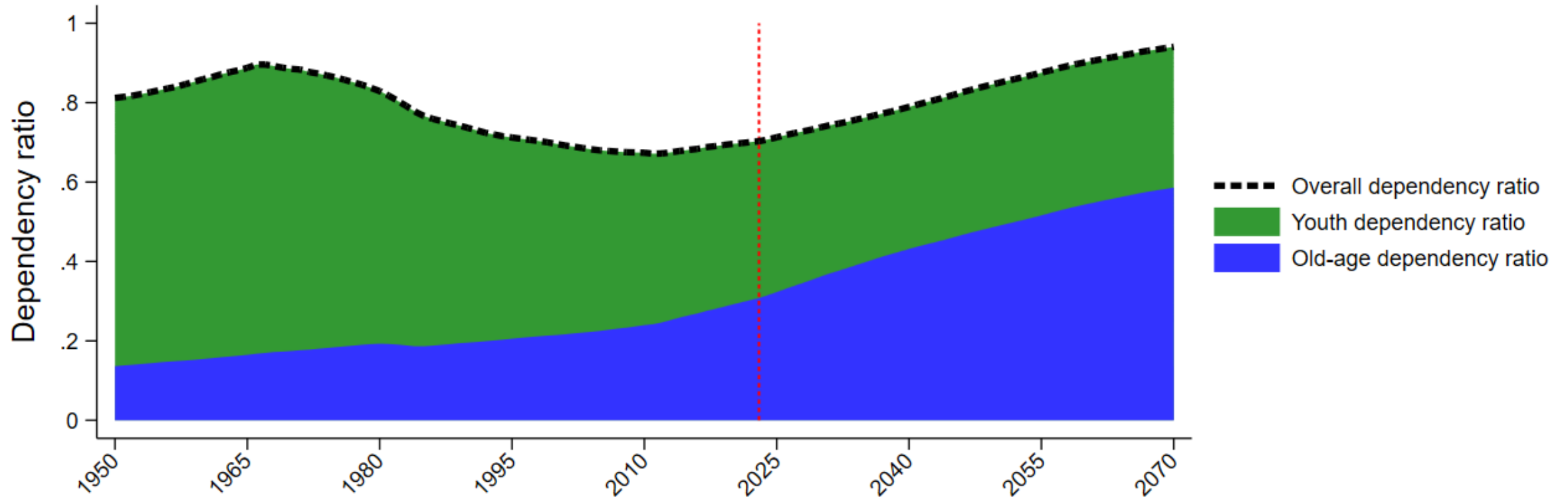
The impact of ageing on GDP per capita



$$\text{Working-age population share} = \frac{1}{1 + \text{youth dependency ratio} + \text{old-age dependency ratio}}$$



The end of the “demographic dividend”

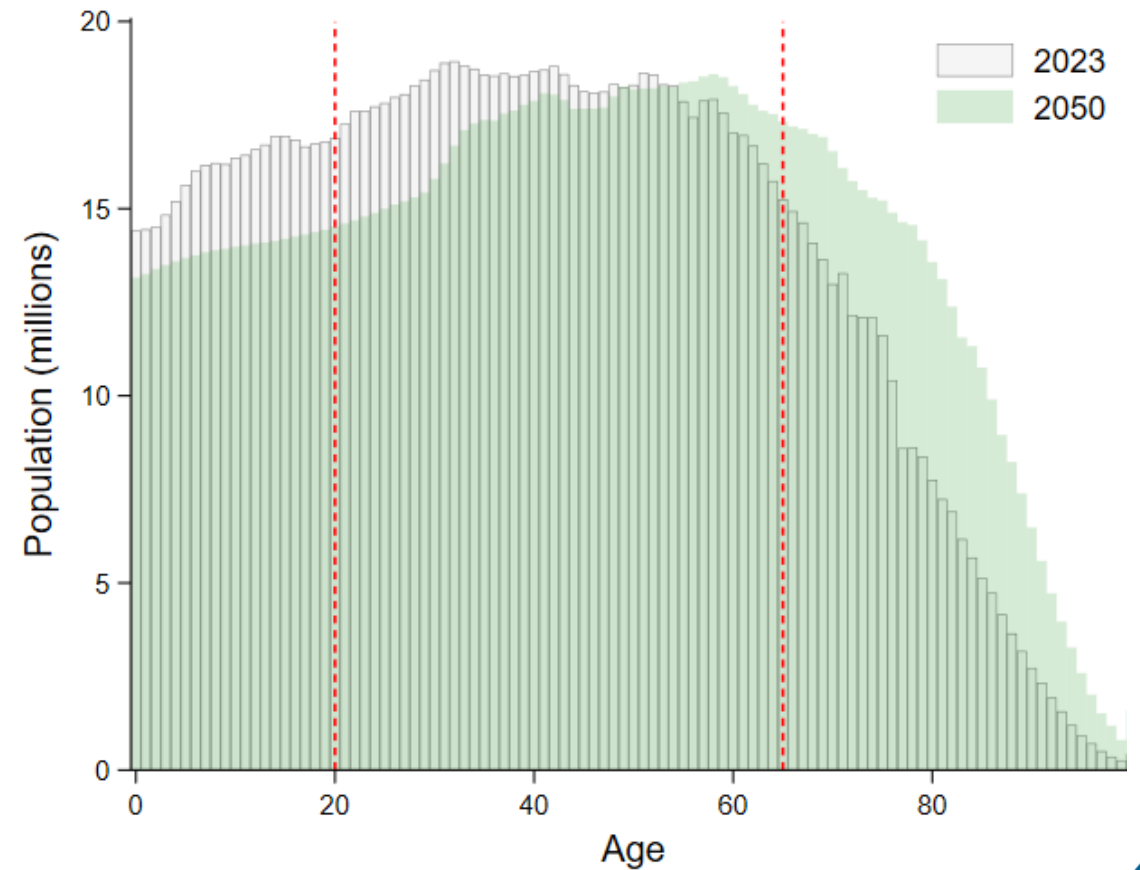
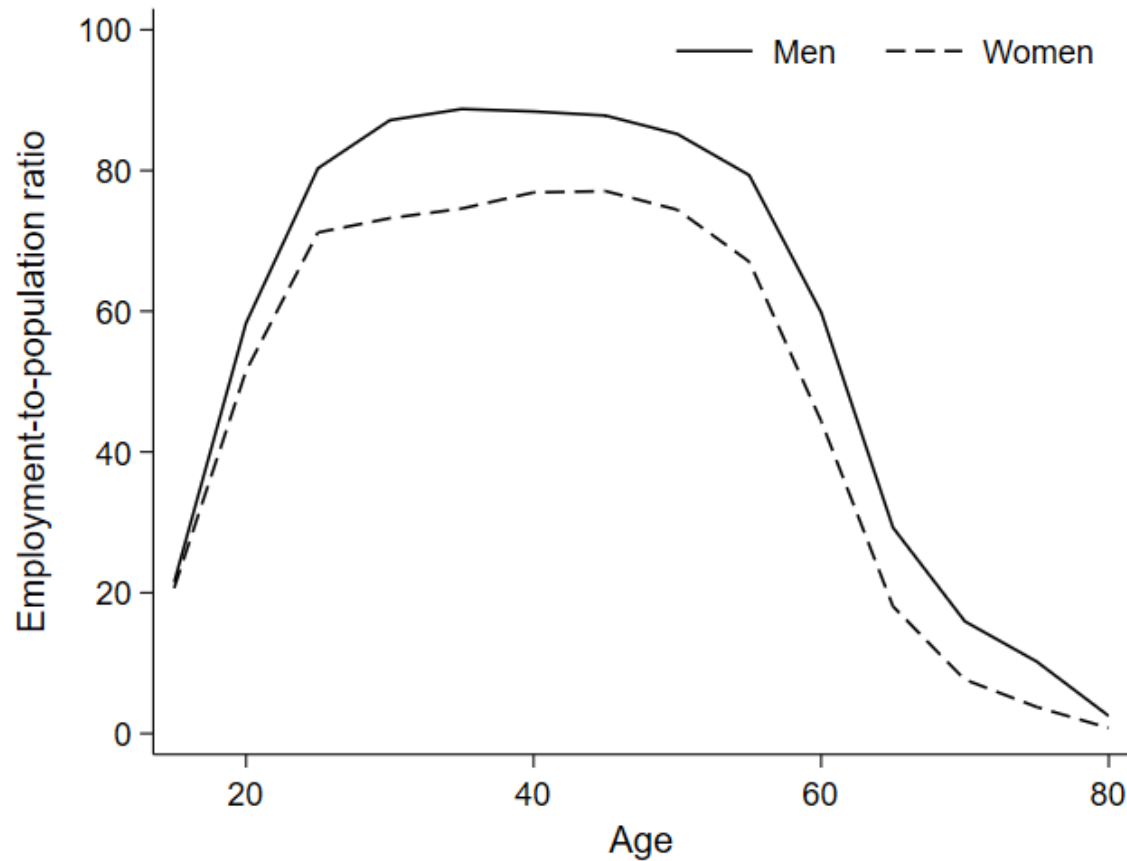


Source: André, C., P. Gal and M. Schief (2024). Based on UN World Population Prospects.

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Age profiles of employment and demographic shifts within the working-age population



Source: OECD Labour Force Statistics and UN World Population Prospects.

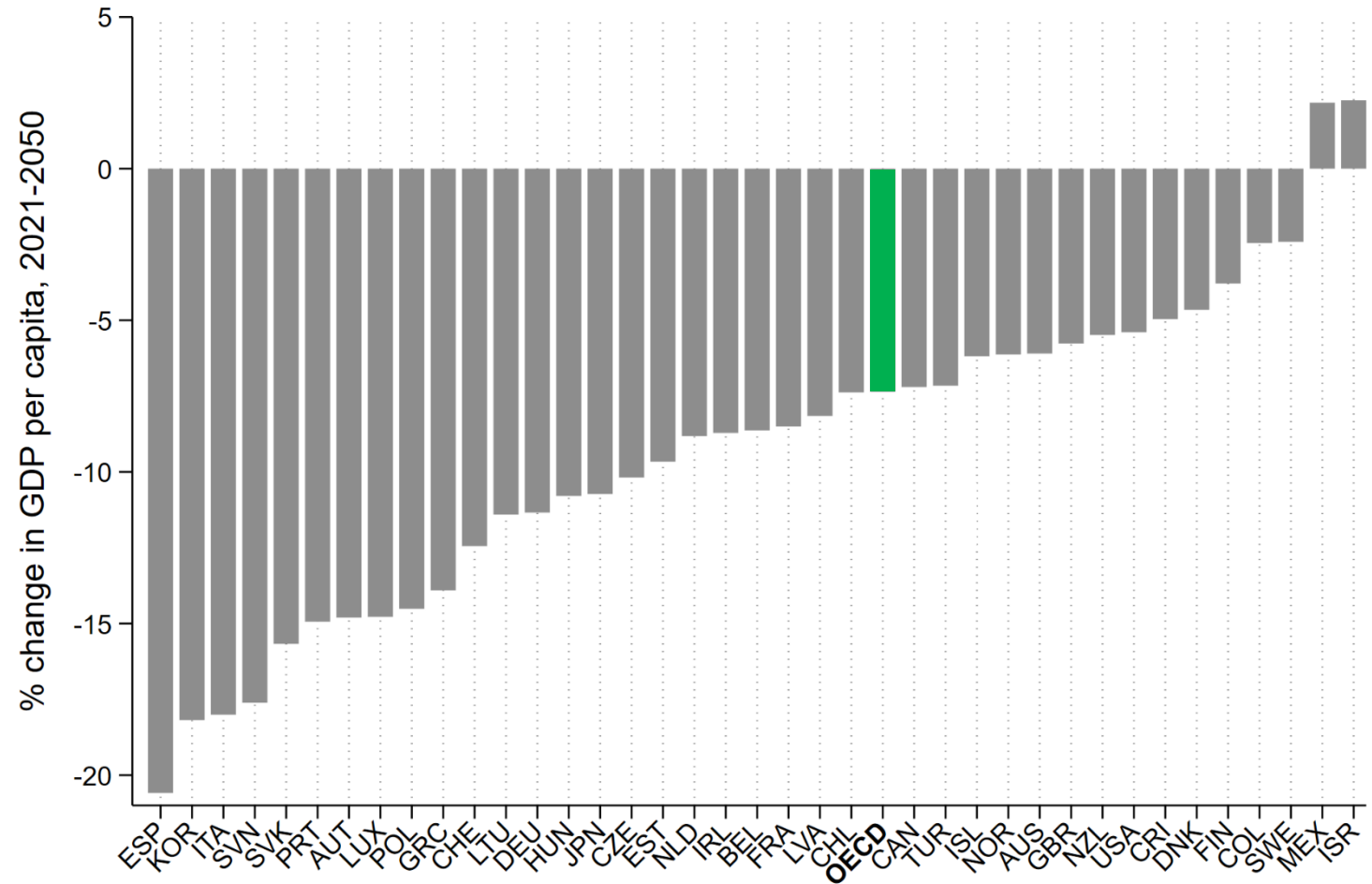
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Large declines in GDP per capita unless offset by increased labour force participation or productivity

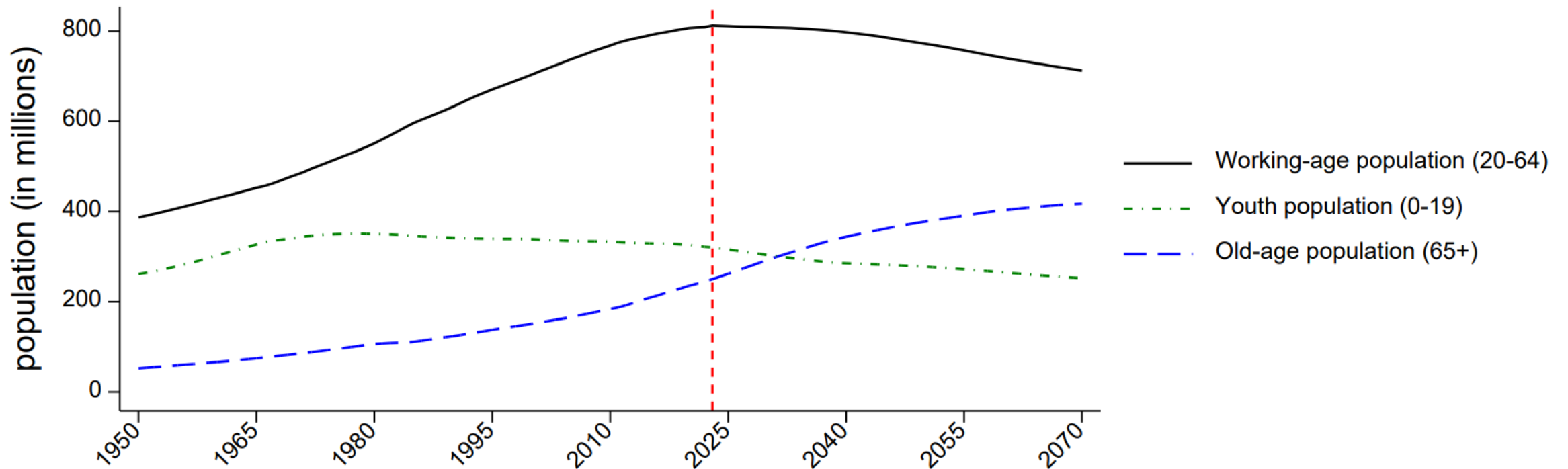
Implied decline in GDP per capita under...

- fixed age-specific employment rates
- constant aggregate labour productivity





OECD populations are not only ageing but also beginning to shrink

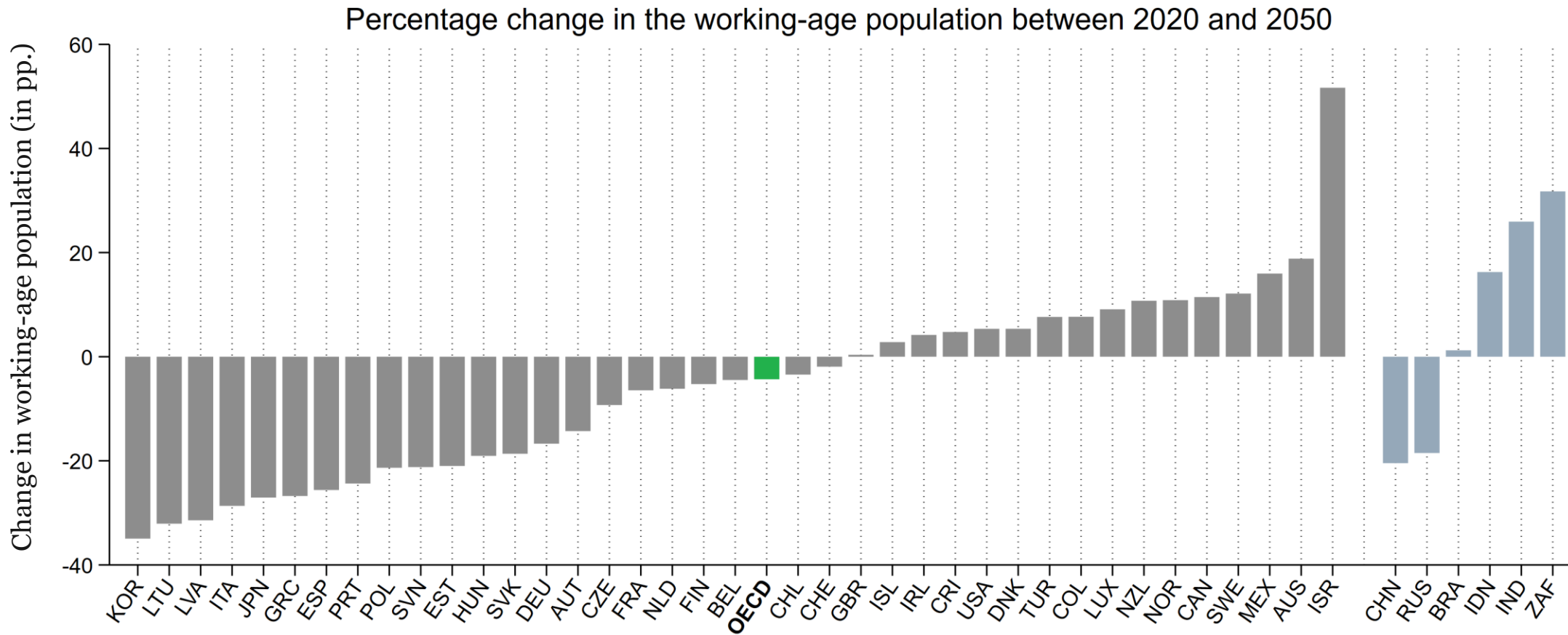


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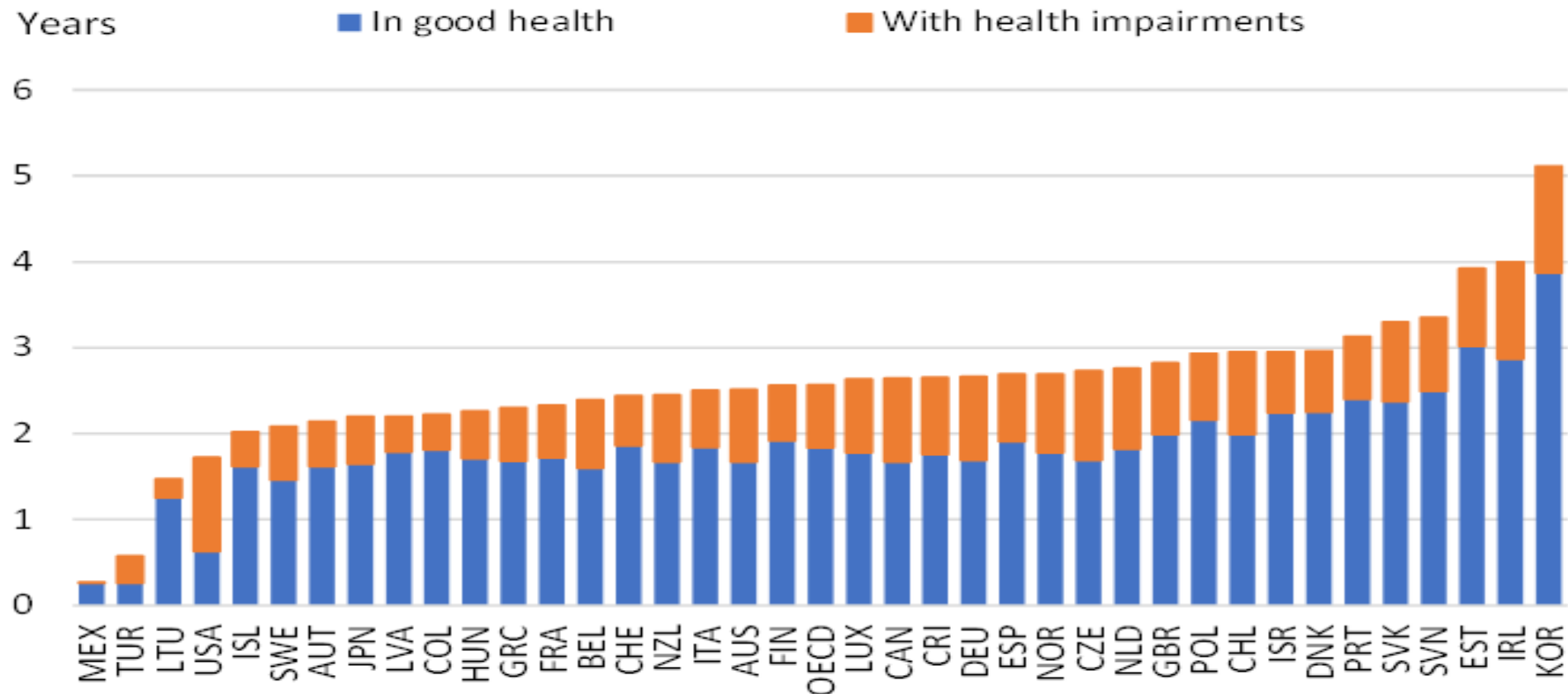


HEALTHY AGEING AND LABOUR FORCE PARTICIPATION



We are increasingly living longer and healthier

Gains in (healthy) life expectancy at age 60 between 2000 and 2019



Source: World Health Organization



And we are staying in the labour force for longer

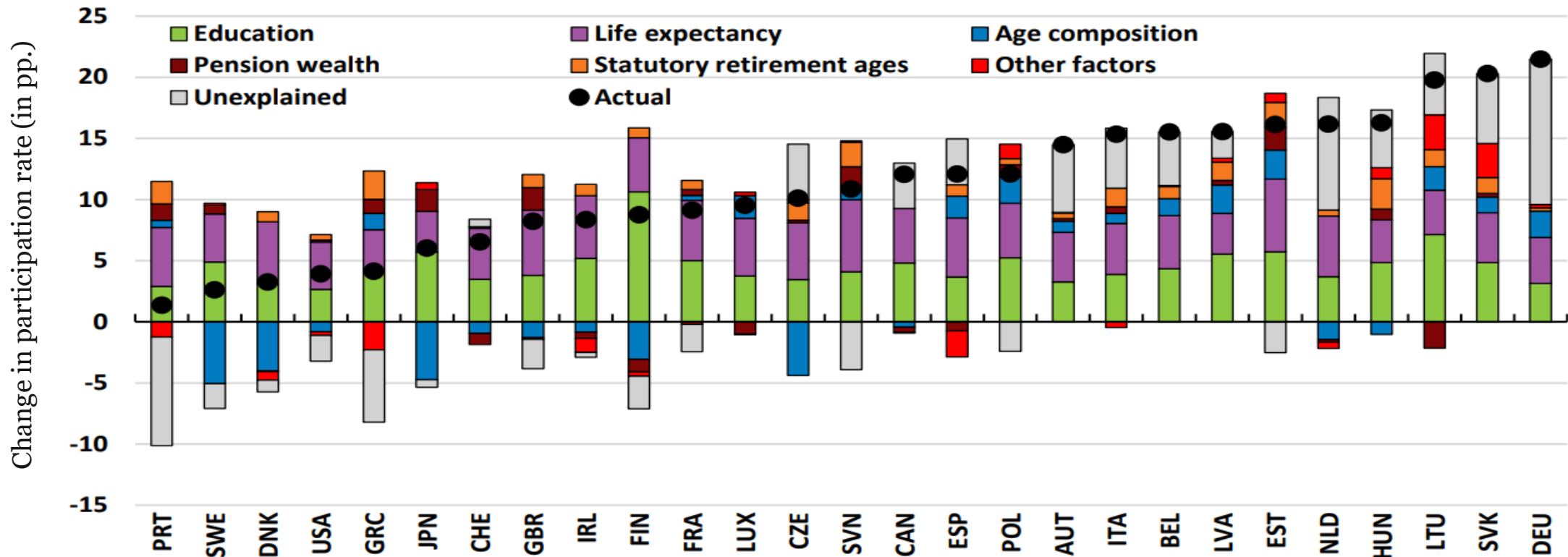


Source: OECD Labour Force Statistics



Gains in life expectancy seem to play more important role than changes in statutory retirement age

Decomposition of change in participation rate of people aged 55-74 (2002-2017)



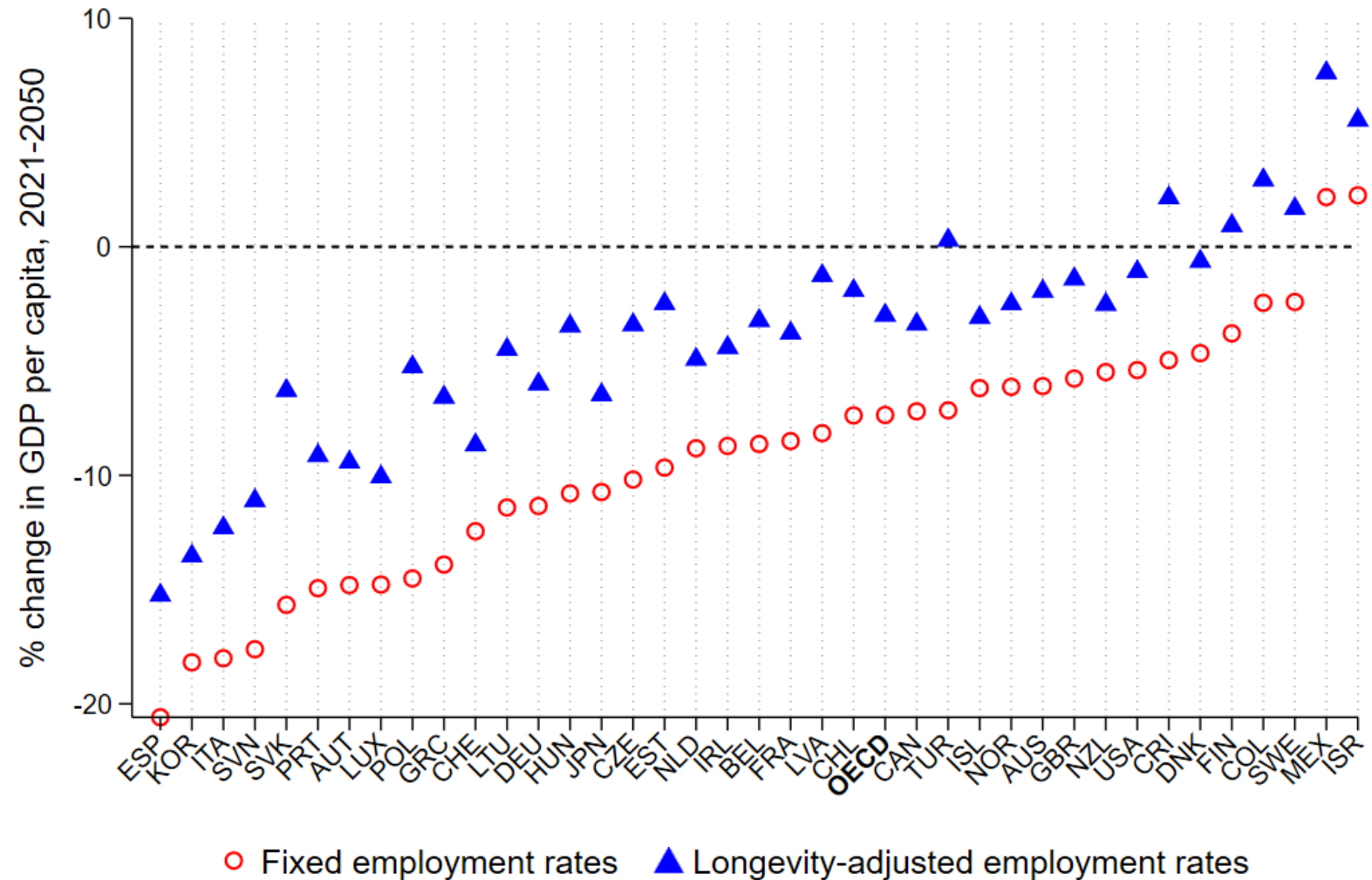
Source: Geppert et al. (2022). OECD Economics Department Working Papers, No. 1554.



Increased employment at older ages can mitigate the costs of ageing

Longevity adjustment:

- For ages 50+, project gains in healthy life expectancy
- Assume employment rates depend on prospective healthy life years, not chronological age



Source: André, C., P. Gal and M. Schief (2024). *OECD Economics Department Working Papers*, No. 1807.

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There is also scope for improving participation rates at younger ages

Improved employment in 25-60 age group:

- For each age, define the gender-specific “employment frontier” as the average employment rate in the top 5 OECD countries
- Assume that a country can reach the current frontier by 2050



Source: Modification of graph in André, C., P. Gal and M. Schief (2024). *OECD Economics Department Working Papers*, No. 1807

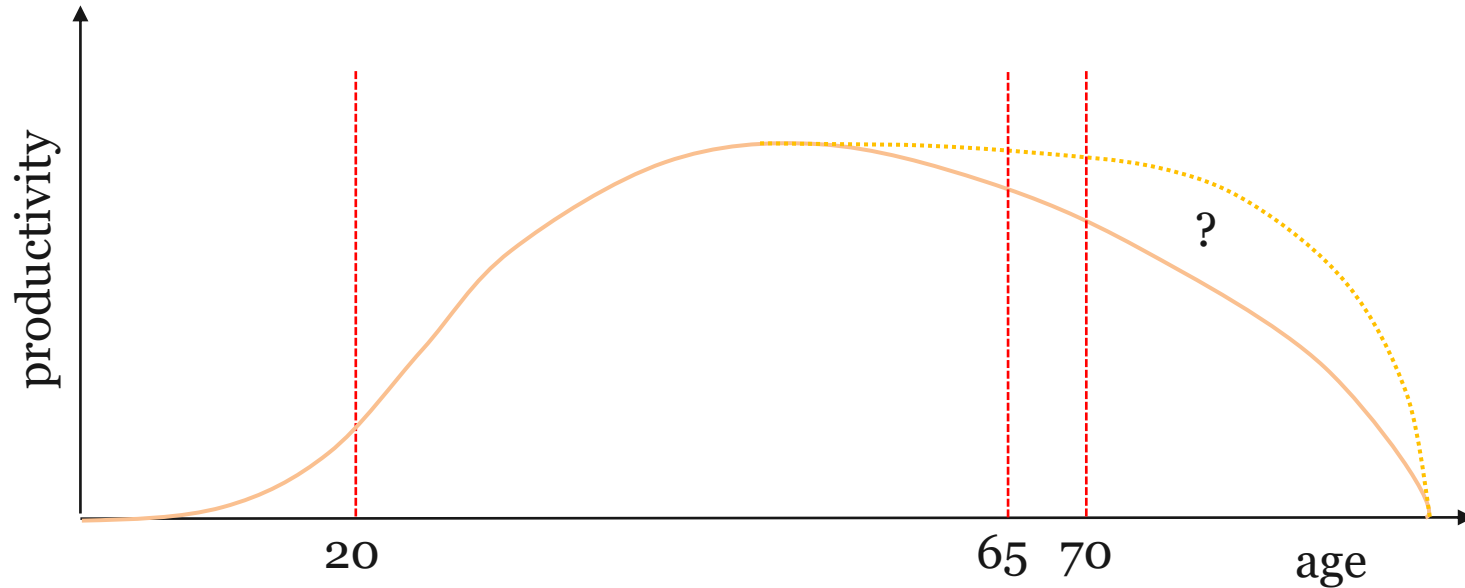


POPULATION AGEING AND PRODUCTIVITY



Why should population ageing affect productivity?

Productivity increases with experience and declines with poor health or obsolescence of skills



→ compositional effect when average worker grows older?

- Limited evidence for a productivity decline leading up to retirement
- Even if productivity peaks mid-career, compositional effects are likely small (National Research Council, 2012)



Why should population ageing affect productivity? (cont.)

Beyond compositional effects, the literature has highlighted other mechanisms through which ageing could affect productivity.

- Workforce ageing could **slow the career progression** of young workers, limiting their ability to accumulate the experience required for successful entrepreneurship (Liang, Wang, and Lazear, 2018)
- Rising share of older households could **increase consumer inertia**, generating market power for incumbents and discouraging firm entry (Bornstein, 2025)
- Slowing population growth could **depress business dynamism**, because firm entry is linked in equilibrium to the pace of labor supply growth (Hopenhayn et al. 2022; Karahan et al., 2024)
- Moreover, population ageing (and population shrinkage) could **slow innovation** and technological progress (Jones, 2010; Jones, 2022; Derrien et al, 2023;)
- On the other hand, population ageing (and population shrinkage) could lead to **capital deepening** and adoption of labour-saving technology (Acemoglu and Restrepo, 2017; Eggertsson et al., 2019)



Productivity and ageing: a summary of the evidence

Mechanism		I. Workforce ageing	II. Workforce shrinkage	III. Rising old-age dependency
More micro ↓	1. Direct effects of age differences in individual productivity	Mixed		
	2. Dynamic effects through innovation and entrepreneurship	Negative		
	3. Adoption of labour-saving technologies (automation, robots)	Positive		
	4. Changing structure of aggregate demand towards less productive activities	Negative		Negative
	5. Capital deepening	Positive / Mixed		
More macro	6. Higher government spending on ageing related expenditures			Negative

Source: André, C., P. Gal and M. Schief (2024). *OECD Economics Department Working Papers*, No. 1807.

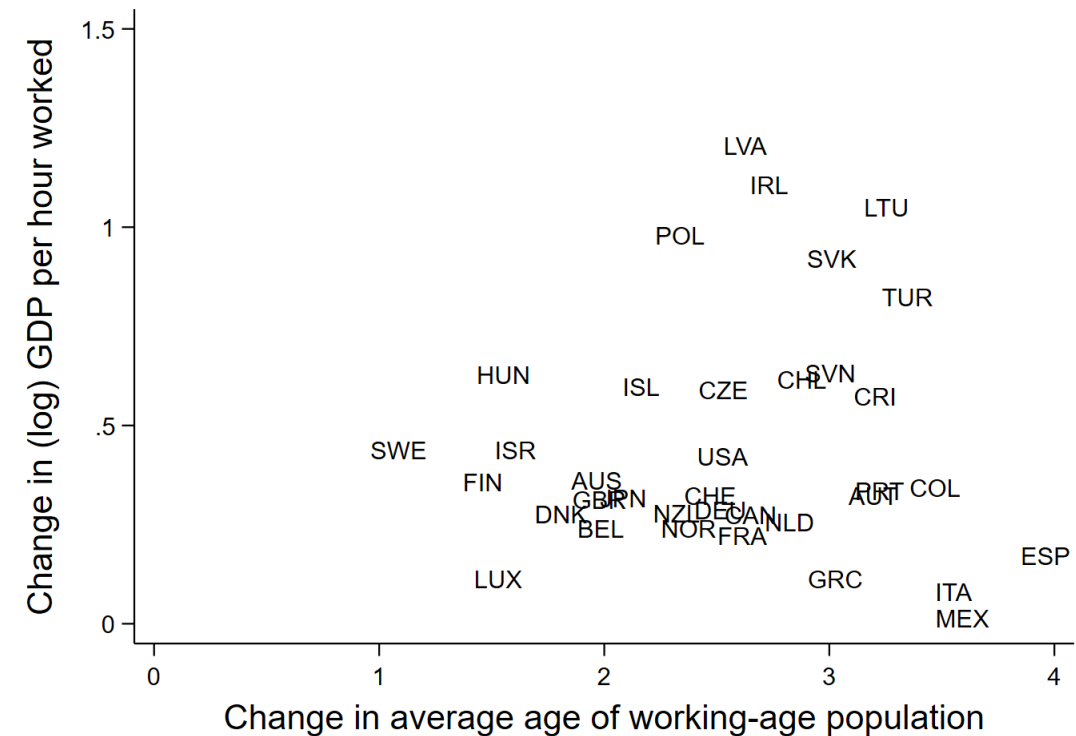
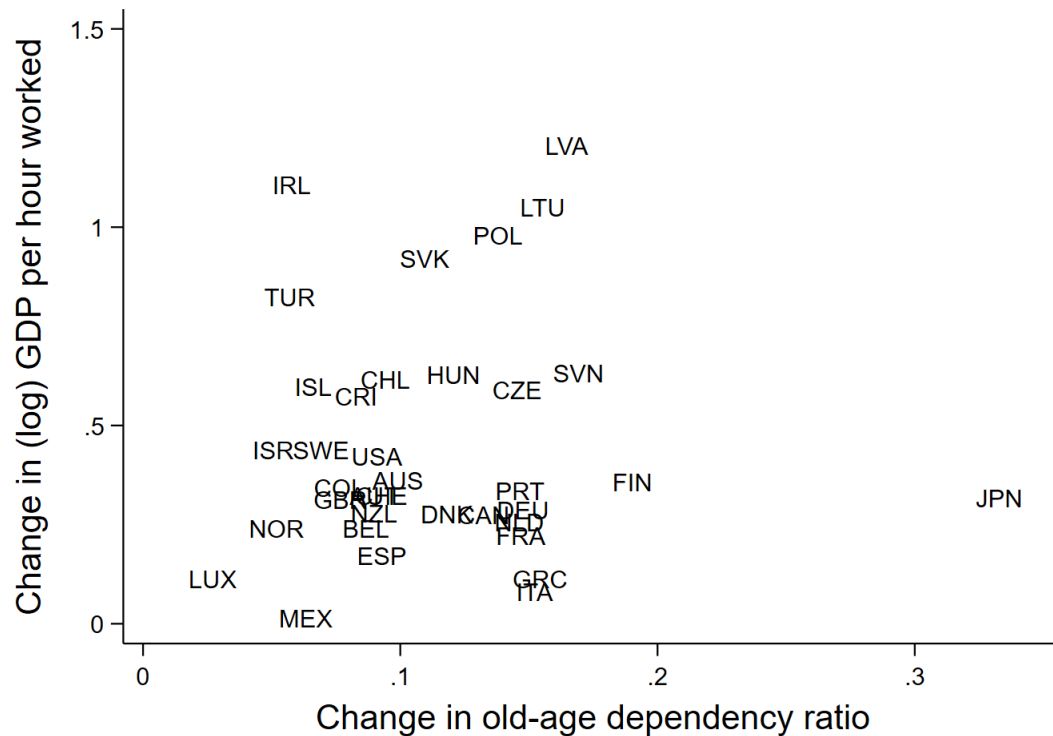
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No strong association between ageing and productivity growth in the past

While there are some studies that document negative productivity effect of ageing at the subnational level (e.g., Maestas et al., 2023), the relationship at the country-level is not so clear

Ageing and productivity growth, 1995-2022





POLICIES TO MITIGATE AGEING-RELATED HEADWINDS



“Mitigation” vs “adaptation”

Mitigation: Preventing or slowing population ageing

Adaptation: Creating conditions for older societies to thrive

Mitigation through increased birth rates?

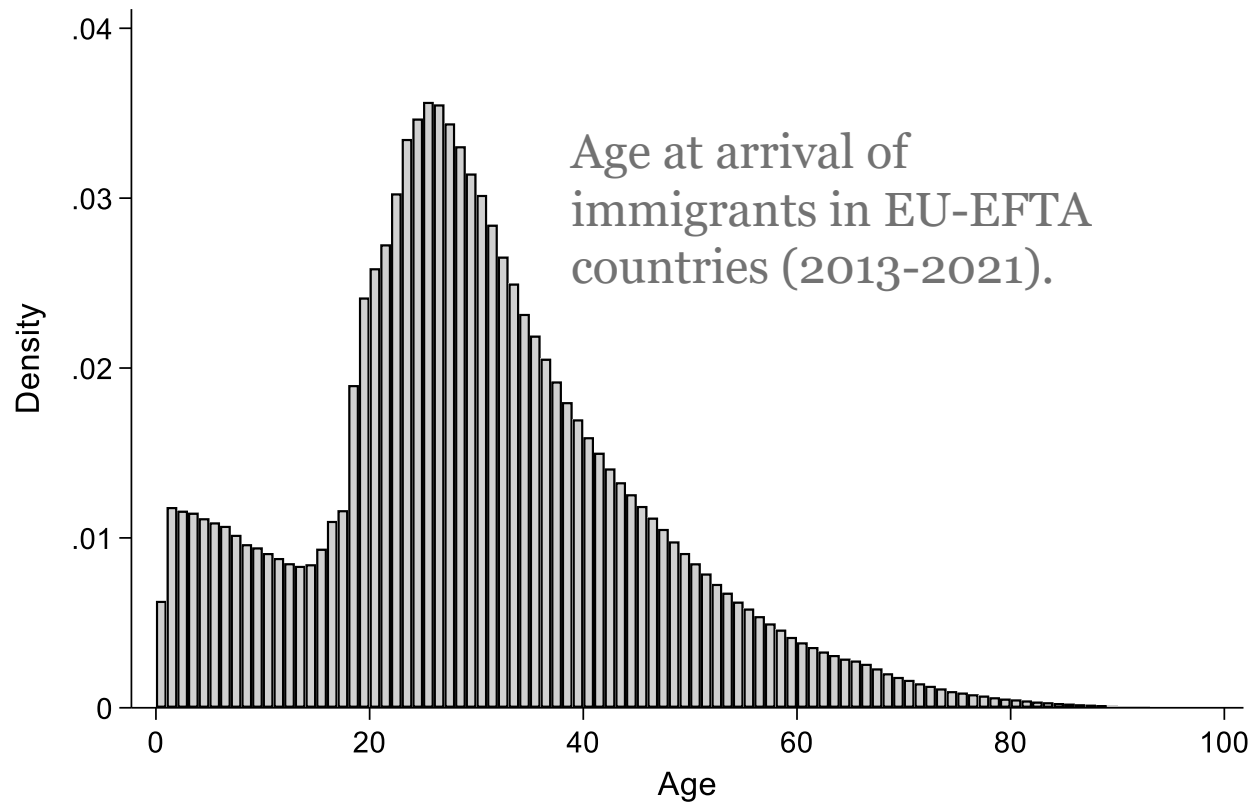
- Population ageing today largely reflects **past declines in fertility** → cannot be undone
- Increased birth rates today would not prevent population ageing over next 2-3 decades

Mitigation through migration?



Avoiding population ageing through immigration?

Migrants tend to be young at arrival



Source: Eurostat.

However,

- immigrants themselves also age
- some migration is between OECD countries → zero-sum effect

Question: what level of migration would prevent an increase in the OECD-wide old-age dependency ratio?

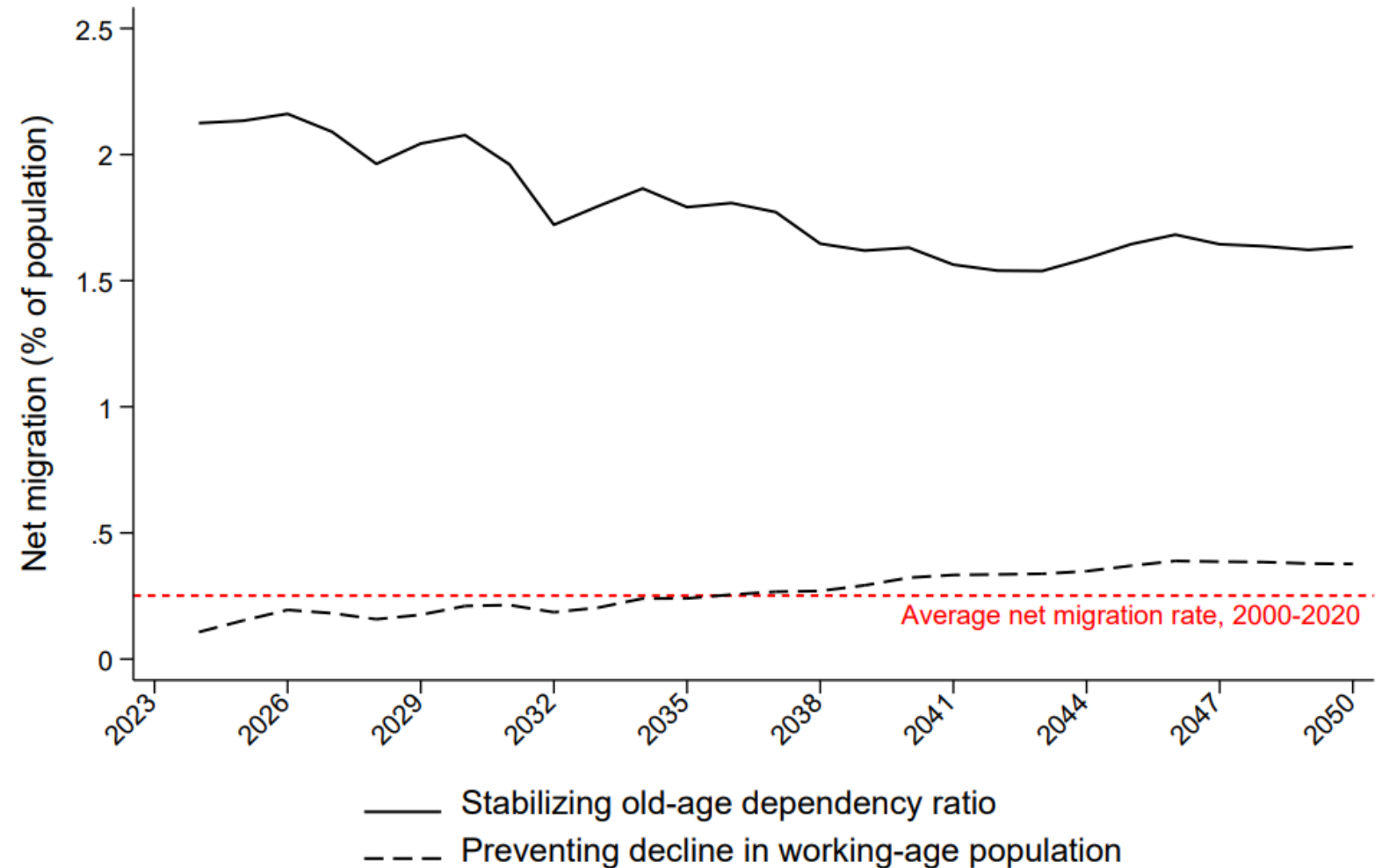


High migration rates required to avoid population ageing

Assumptions:

- Immigrant age distribution on arrival remains as in the past
- Immigrants experience same age-specific fertility and mortality rates as non-immigrant population

Note: migrants can still play an important role in fostering business dynamism and in affecting the demographic profile of individual countries!





Policies can support the longevity society

Preventing population ageing may not be possible (“mitigation” is difficult)

→ Focus on “adaptation” is important and promising!

Government policies can help create an environment for older societies to thrive:

- Promote healthy ageing
- Promote life-long learning
- Harness the benefits of age-diverse teams
- Support business dynamism
- Mobilise existing labour resources in all age groups



Thank you

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