

Working, earning, learning in the age of intelligent tools  
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# THE OECD FUTURE OF WORK INITIATIVE

T2: Employment, Labor Markets, and Social Policy



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# HOW TECHNOLOGY AND GLOBALISATION ARE TRANSFORMING THE LABOUR MARKET



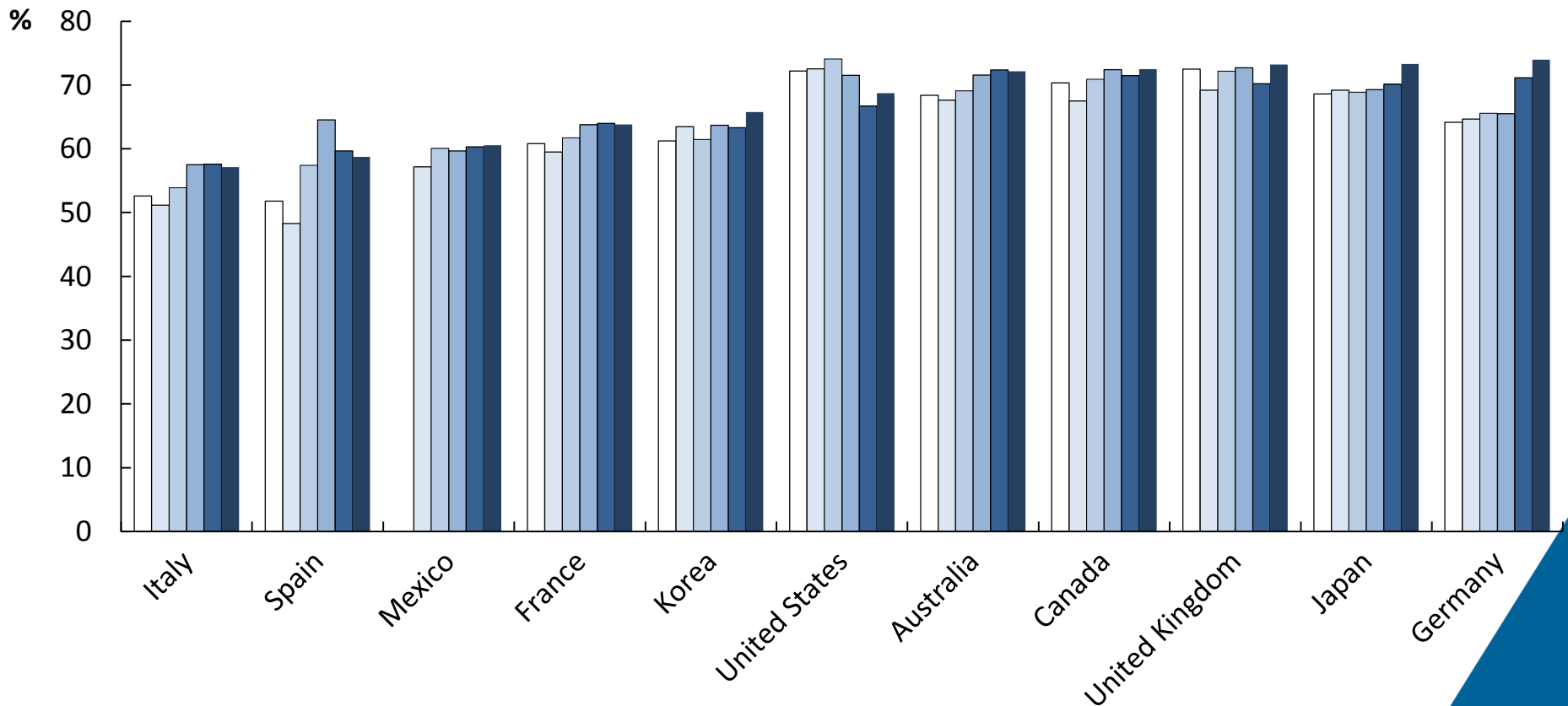
# No evidence of technological unemployment...

## Employment rates have risen in most advanced countries

### Trend in employment-to-population ratio

*Percentage of the working-age population, 1990-2015*

□ 1990 □ 1995 □ 2000 □ 2005 ■ 2010 ■ 2015 (↗)

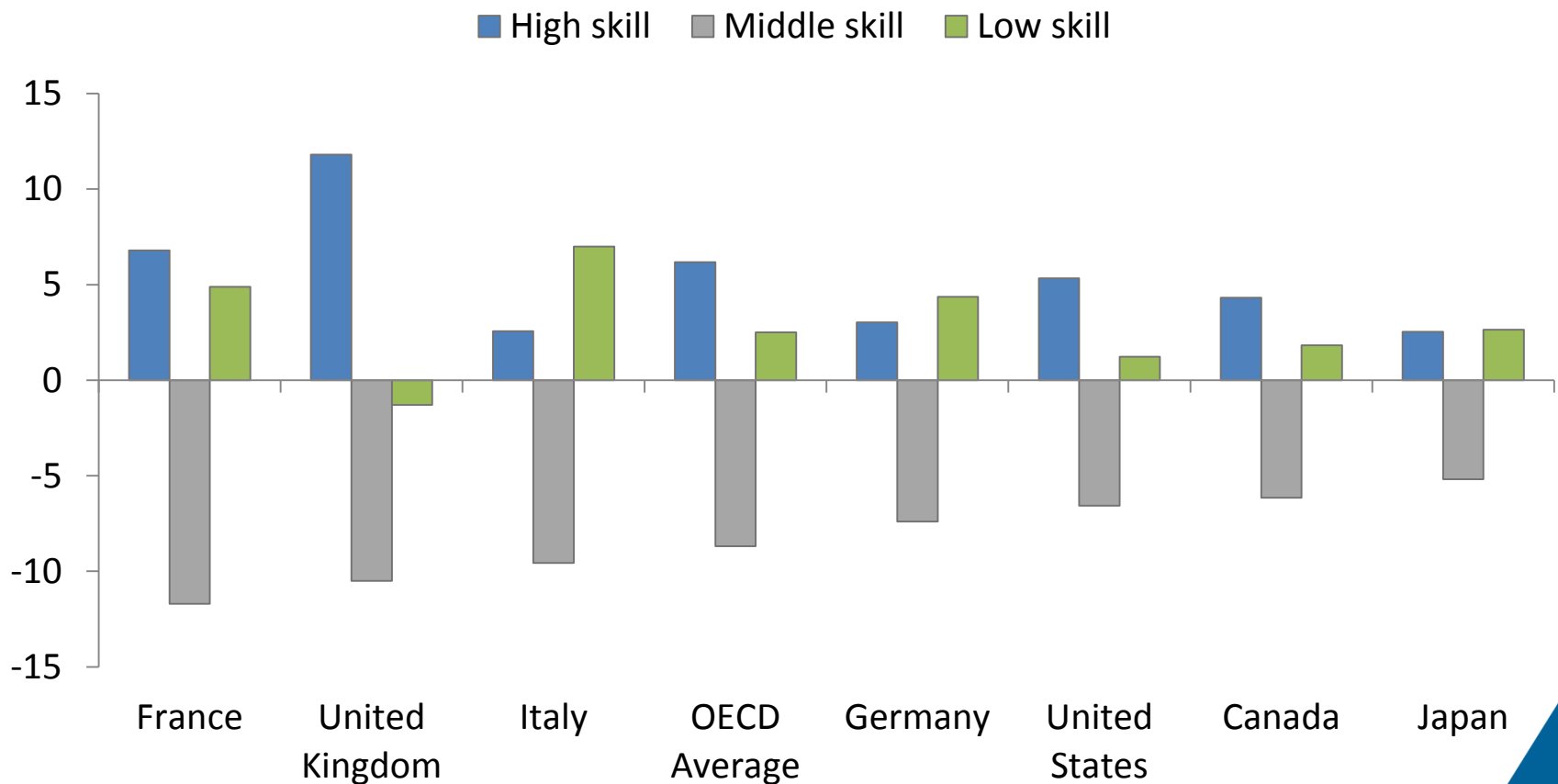




## ...polarisation of employment

### Labour market polarisation, selected OECD countries, 1995 to 2015

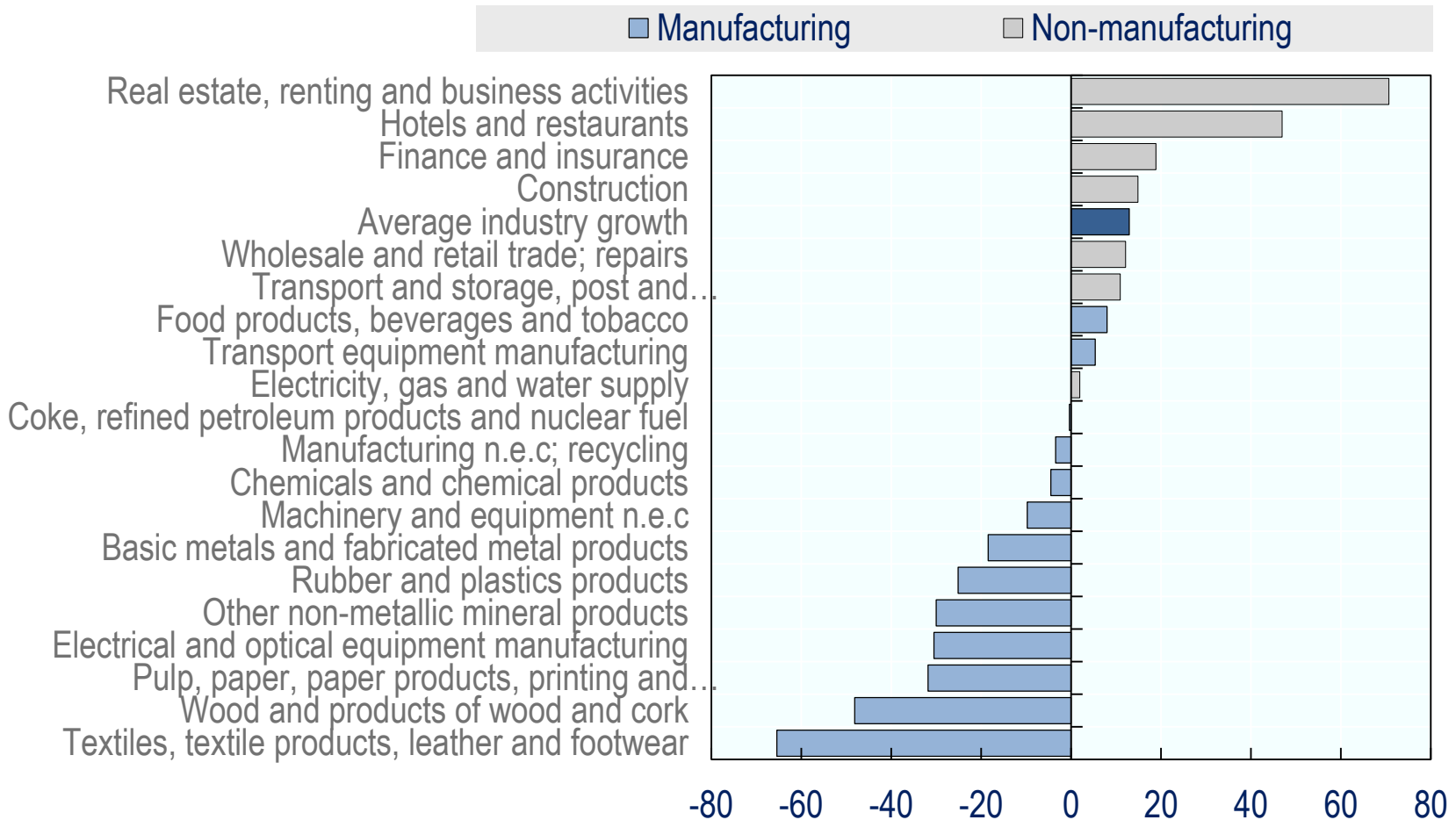
*Percentage point change in share of total employment*





# The decline of manufacturing

Percentage change in total employment within industry, 1995 to 2015

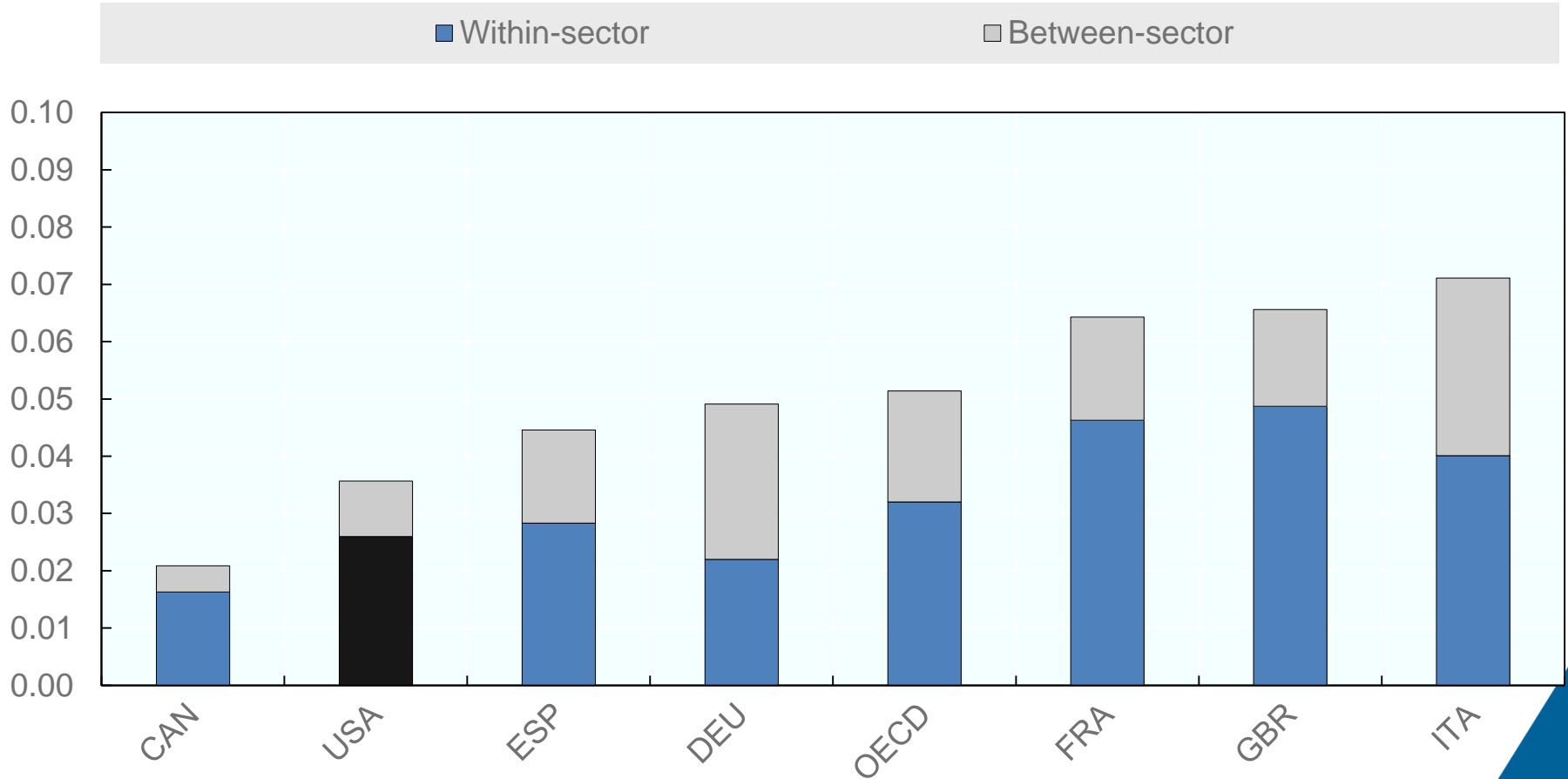


Note: The figure includes Austria, Belgium, Canada, the Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Norway, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, the United Kingdom and the United States.



# Most polarisation comes from within-sector shifts rather than changing industrial structure

Percentage-point change in polarisation between 1997 and 2007





# Measuring the impacts of technology and globalisation on the labour market

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- Increased technology adoption displays the strongest association with labour market polarisation
  - A 10% increase in ICT use is associated with a 1.5% increase in high-skill relative to middle-skill employment within manufacturing
- Technology adoption displays a clear association with the progressive shift of employment from manufacturing to services
  - A 10% increase in ICT correlates with a fall of 0.5% in manufacturing employment
  - Overall, ICT use does not display negative effects on employment across the economy



# Measuring the impacts of technology and globalisation on the labour market

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- No clear relationship between involvement in global value chains (or the penetration of Chinese imports), and changing occupational patterns...
  - ...but some evidence that growing import penetration from China has contributed to reducing employment in manufacturing.
- Labour market institutions may affect the way trade and globalisation impact the structure of the labour market.
  - Stricter EPL amplifies the effect of both ICT and GVC's on polarisation.
  - Stronger unions reduce the effect of ICT on bottom polarisation.





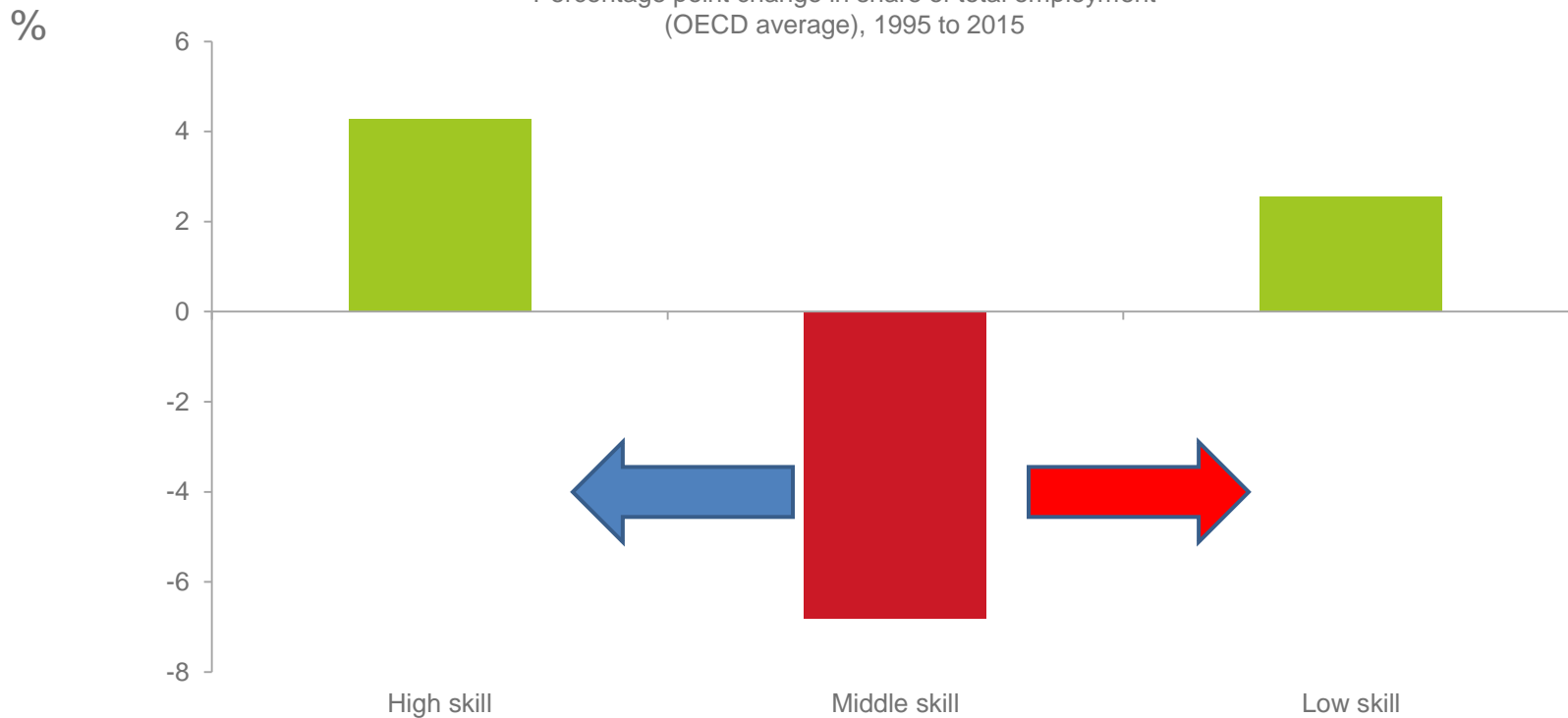
# HOW BIG IS THE RISK OF AUTOMATION ?



# Is there a risk of further polarisation? If so in which direction?

## Labour markets are polarising

Percentage point change in share of total employment  
(OECD average), 1995 to 2015



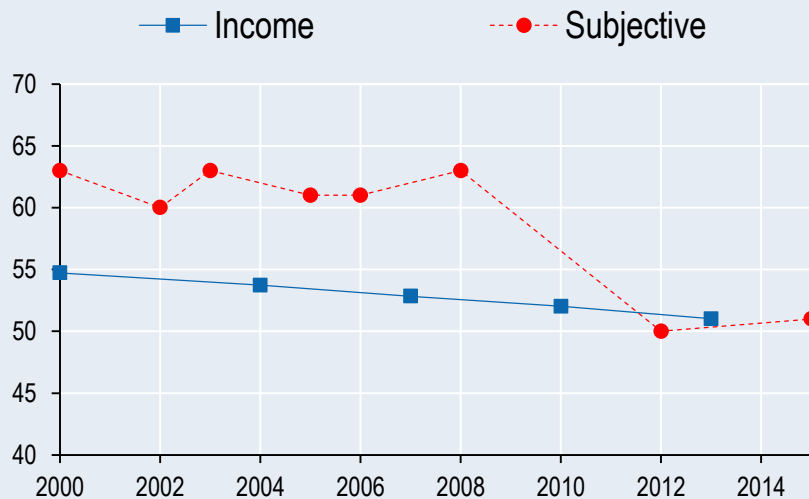


# The middle class increasingly concerned

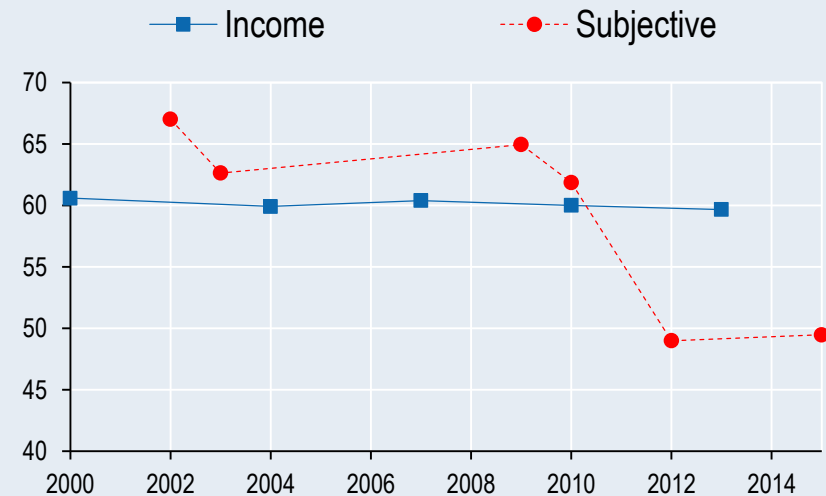
Fewer people think they belong to the middle class.  
Income data suggests a more moderate trend.

Share of population in the middle class (75-200% median)

## United States



## Canada



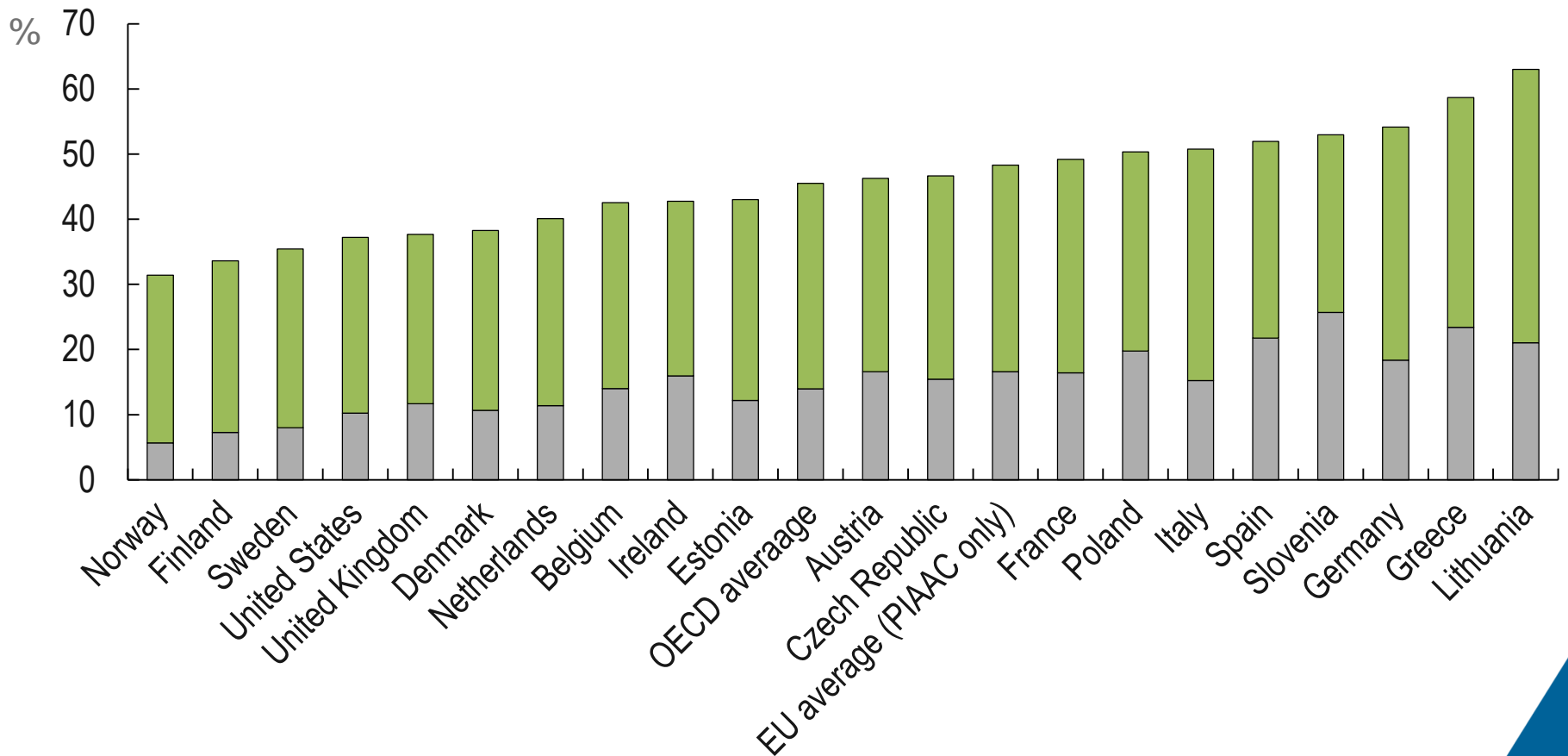
**Subjective:** share of population who report belonging to the middle class

**Income:** share of population living in households with income between 75% and 200% median household disposable income.



# A number of jobs at risk of (partial) automation, but fears of mass unemployment are exaggerated

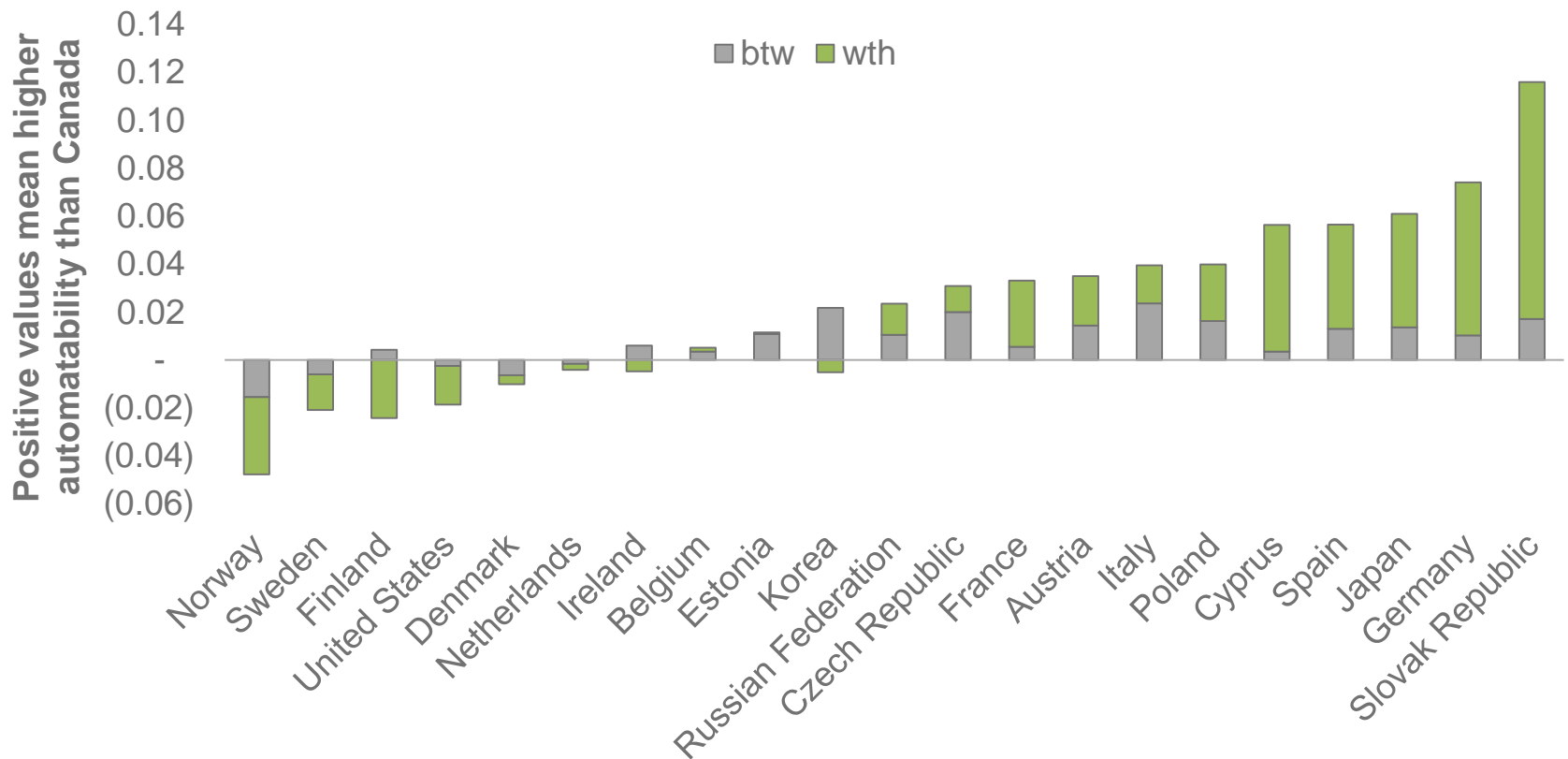
Share of jobs at high risk (>70%) of automation and at **significant risk (50-70%)**





# Why are jobs in different countries more/less automatable ? (1)

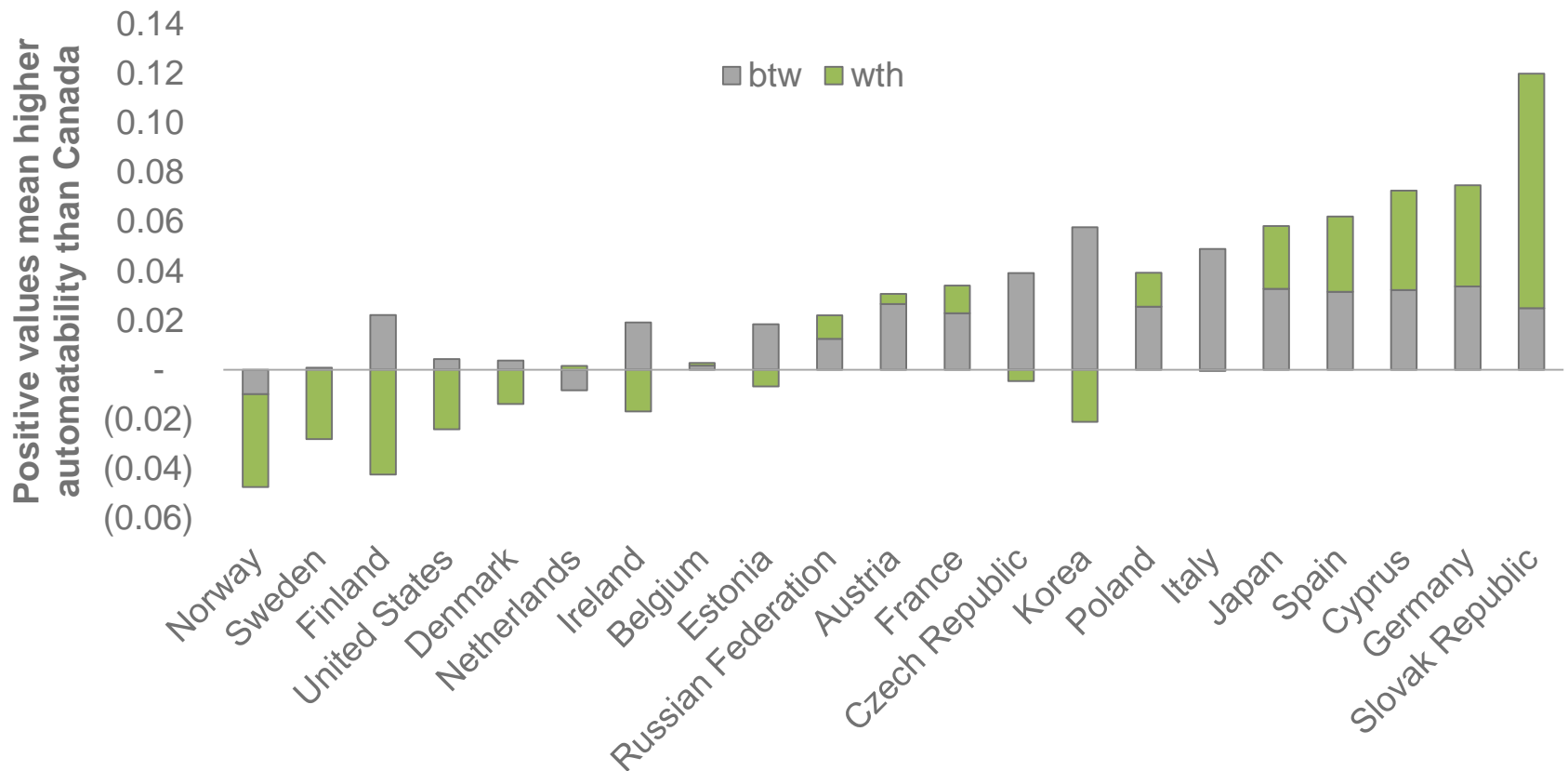
Within-industry variation in tasks (70%) more important than differences in the industrial structure (30%)





# Why are jobs in different countries more/less automatable ? (2)

Equal importance of differences within and between occupations





# In the era of AI, the risk of automation is highest for low-skilled low-paid workers



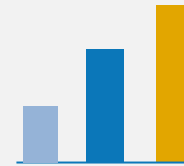
Highest risk in **routine jobs** with low skill and education requirement BUT low risk applies to a broad range from **professionals to social workers**



The risk of automation also falls with **educational attainment**



Automation mostly affects **manufacturing industry and agriculture** BUT some service sectors are highly automatable too.



No evidence of **polarisation or rising risk at the high end**: automation risk declines with skills, education and hourly wages



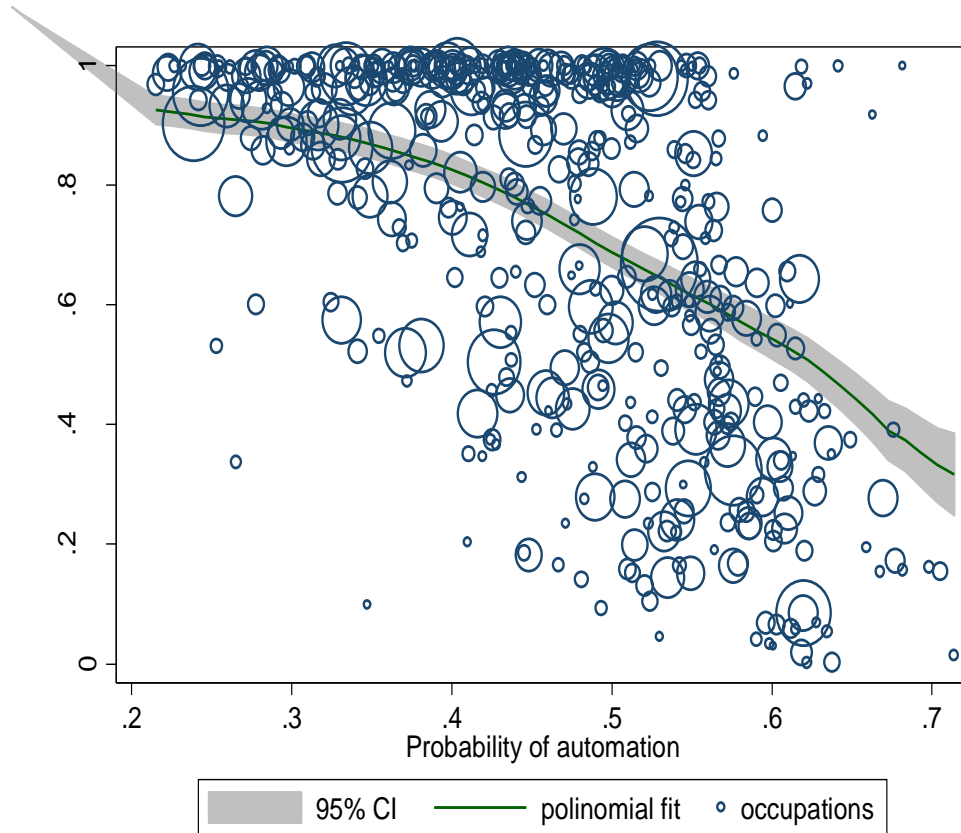
The risk of automation falls monotonically with **hourly wages**



**Young people** are the most at risk of automation, followed by older workers, with disappearing student jobs and entry positions.



# Computer use and automatability



- Workers in low-risk jobs use more ICT
- Individually, ICT complements labour
- Possible substitution at the aggregate level
- Large variance at 40%-60% risk of automation



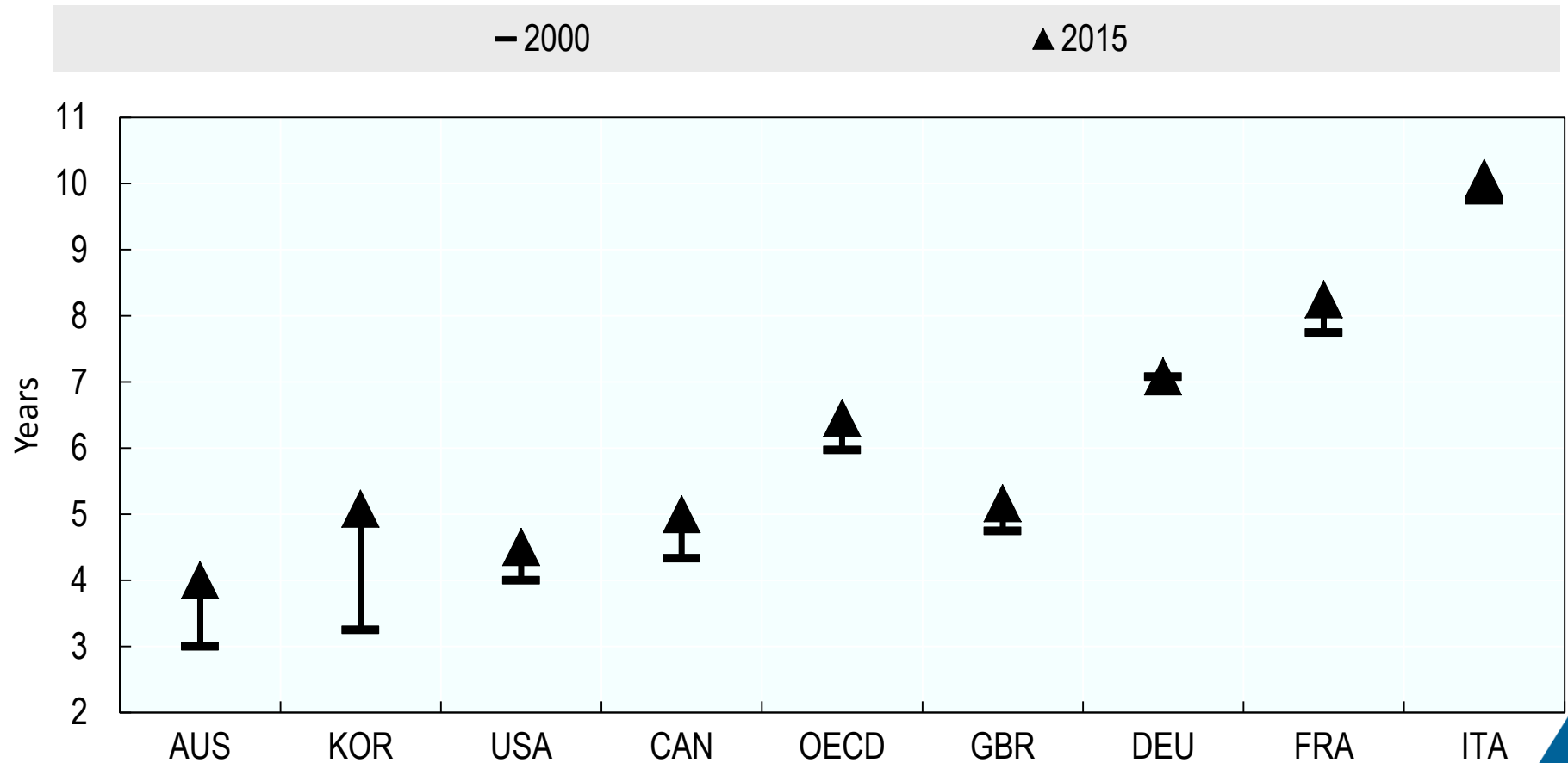


IS MOBILITY IN THE  
LABOUR MARKET  
INCREASING?



# Job stability has increased

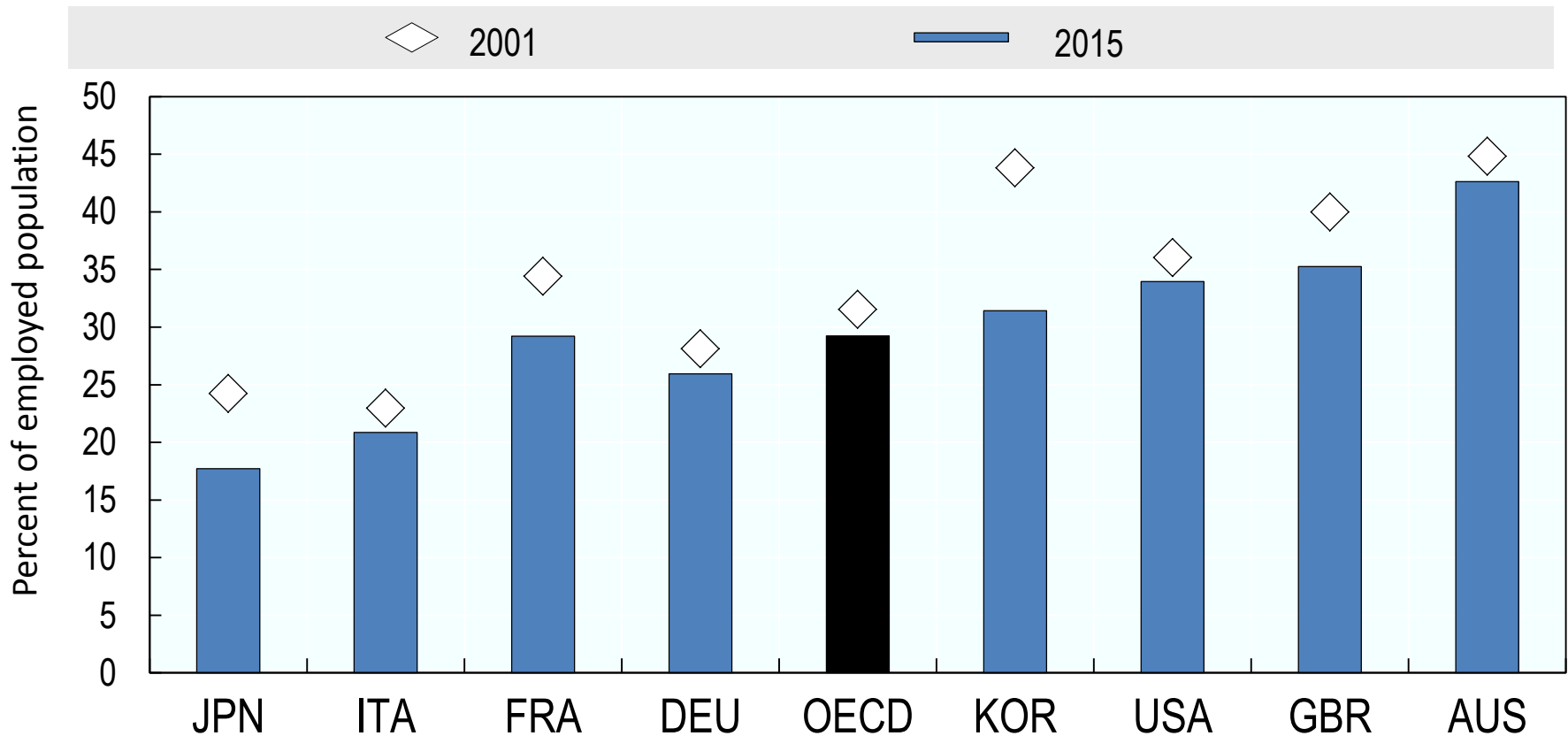
Median tenure in years for workers aged 16 to 69, years 2000 and 2015





# Mobility has decreased

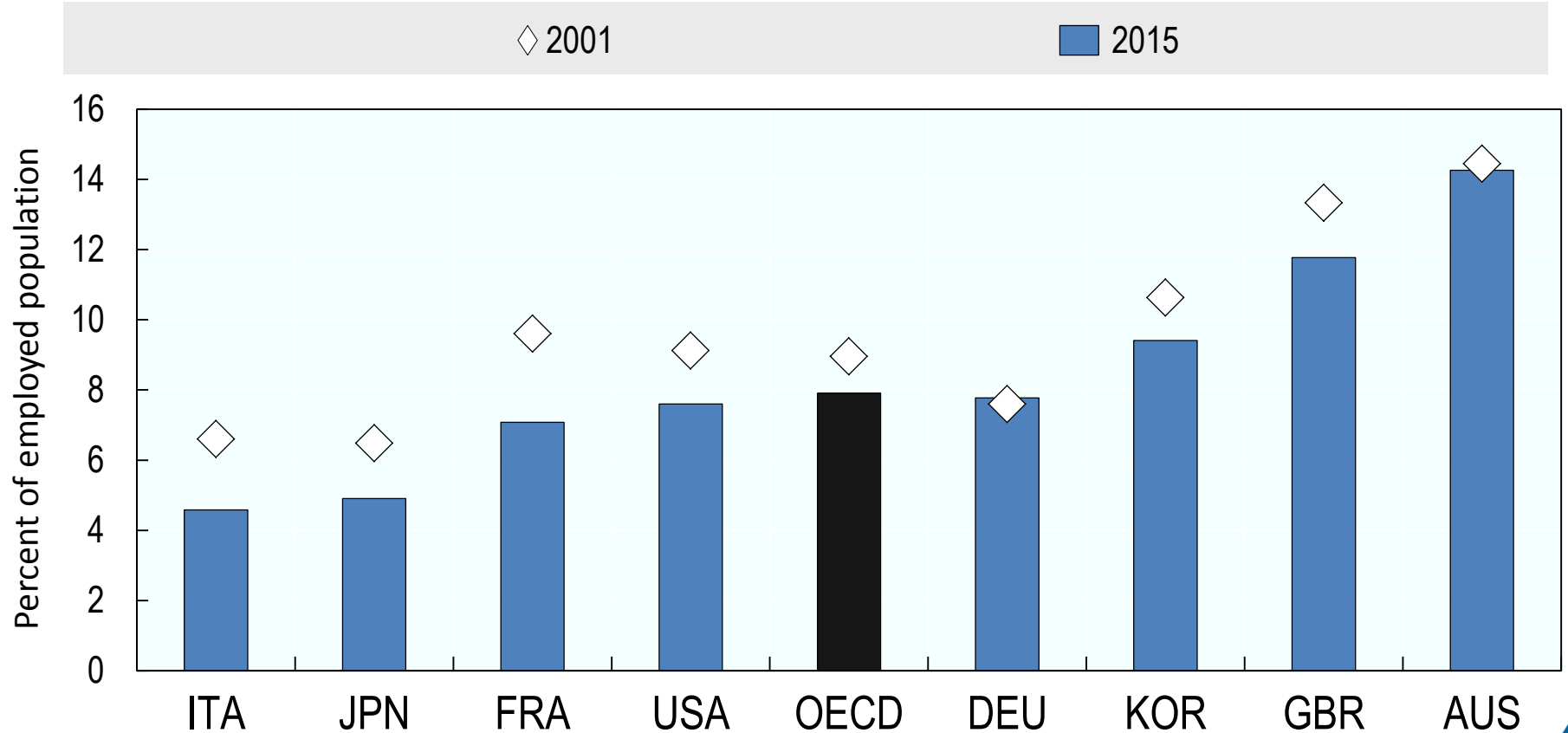
Gross Worker Reallocation (Hires + Separations), 2001-2015





# Reduced mobility is driven primarily by decreased job-to-job flows

Employment to employment flows, 2001 and 2015



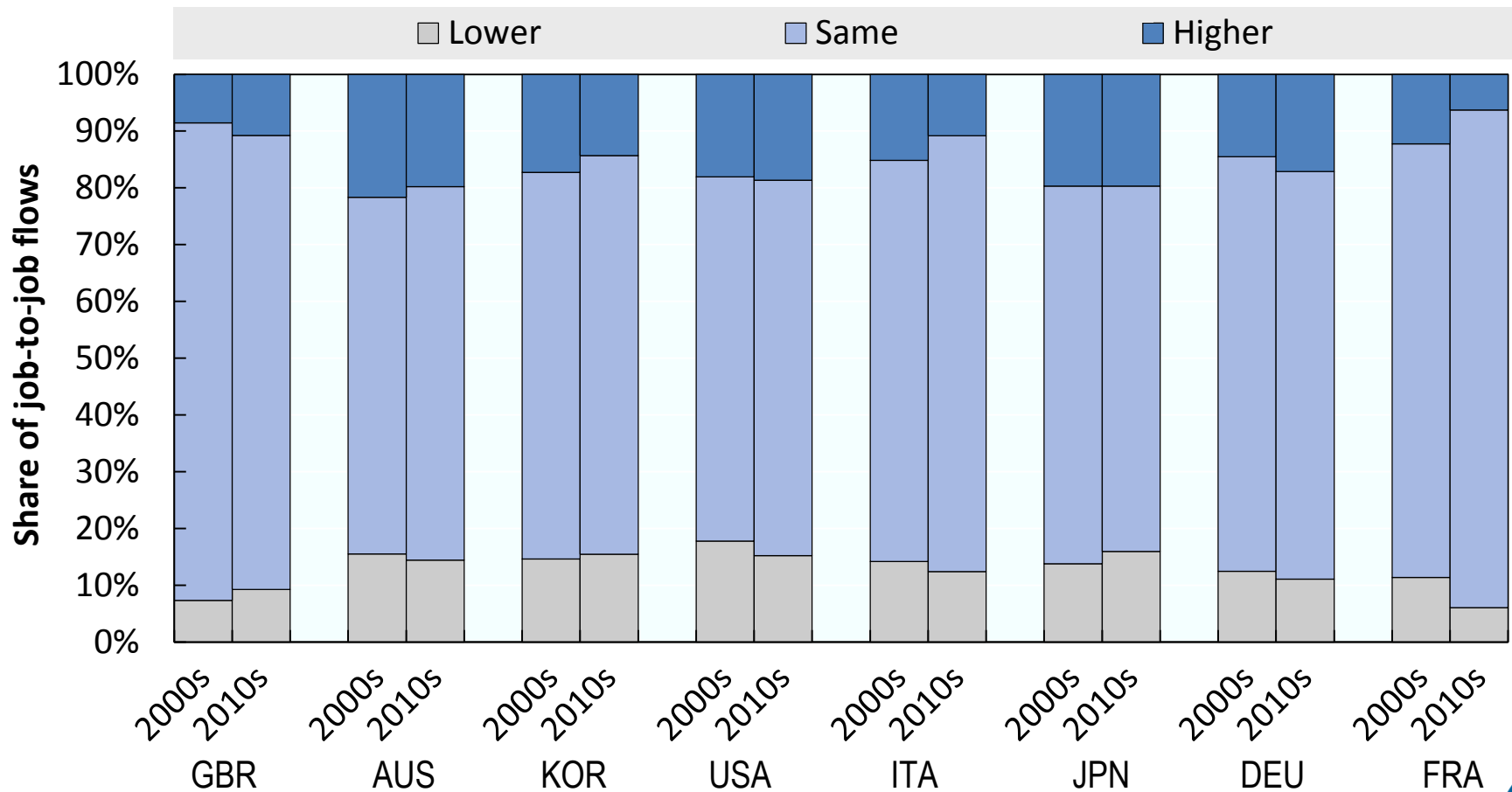


# WHAT HAPPENS TO MIDDLE-SKILLED WORKERS?



# The quality of job-to-job flows has been stagnant, if not decreasing

Share of job-to-job flows into occupations with lower, same and higher skill requirements



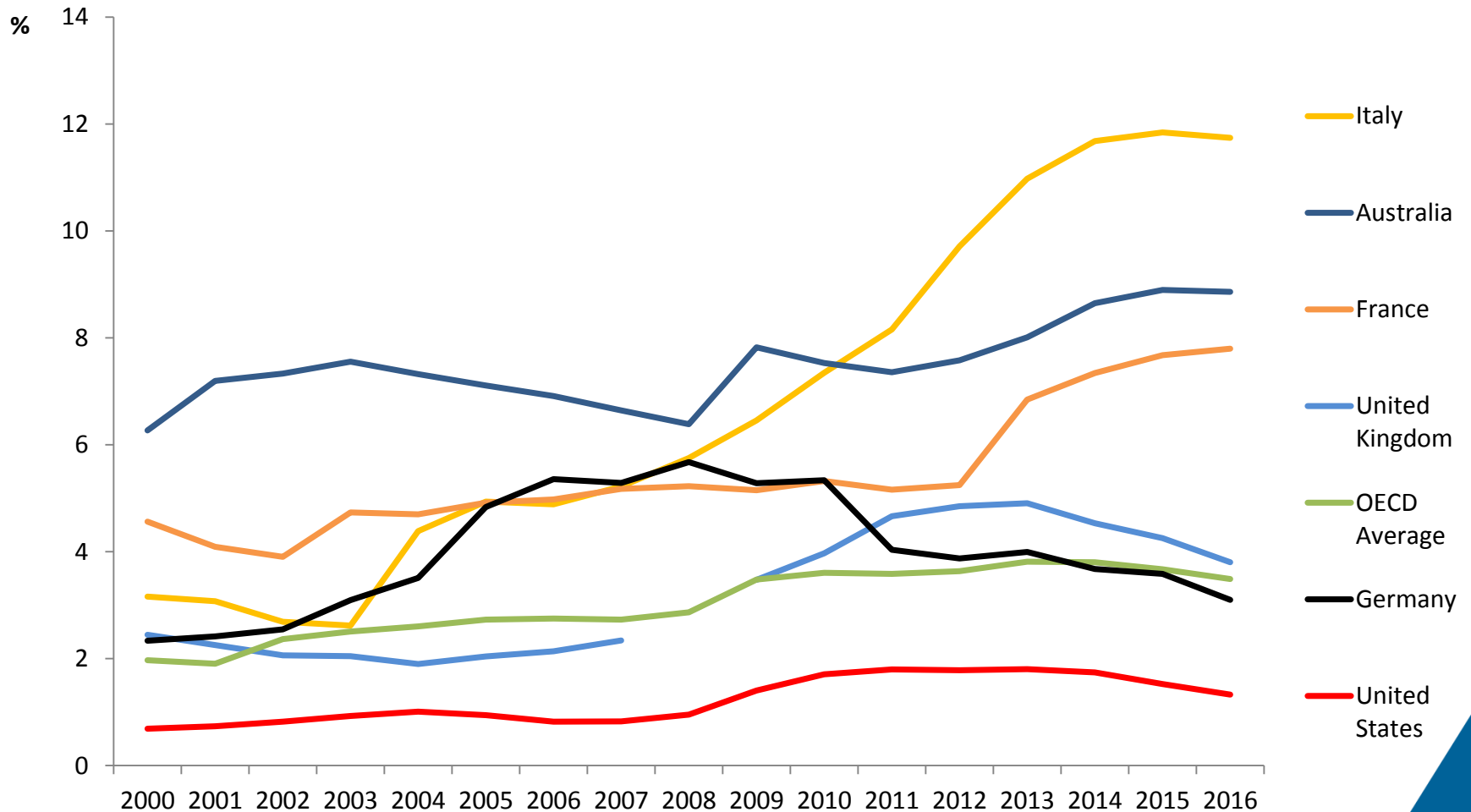


NOT UNEMPLOYED BUT  
**UNDEREMPLOYED?**



# In many countries, there has been an increase in underemployment

## Involuntary part-time workers as a share of total employment







# Does policy need a paradigm shift?

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**Skills.** Lifelong learning: from rhetoric to reality.



**Regulation.** Balancing flexibility with security.



**Social protection.** Repairing or replacing the safety net?



**Social dialogue.** Rebuilding or reinventing?



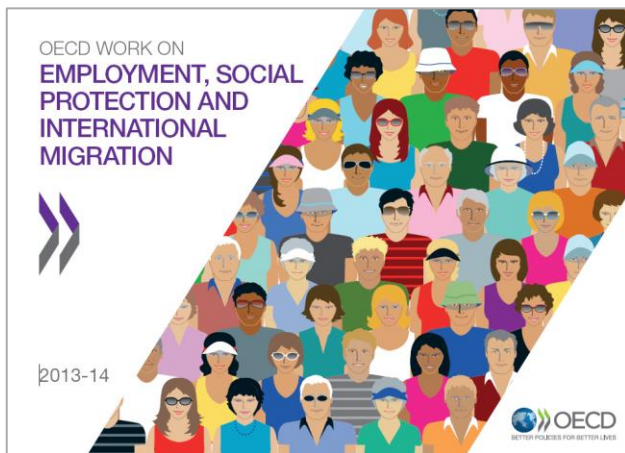
Thank you

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