

BANK OF ENGLAND

# The Future of Work

2018 Whitaker Lecture, Central Bank of Ireland

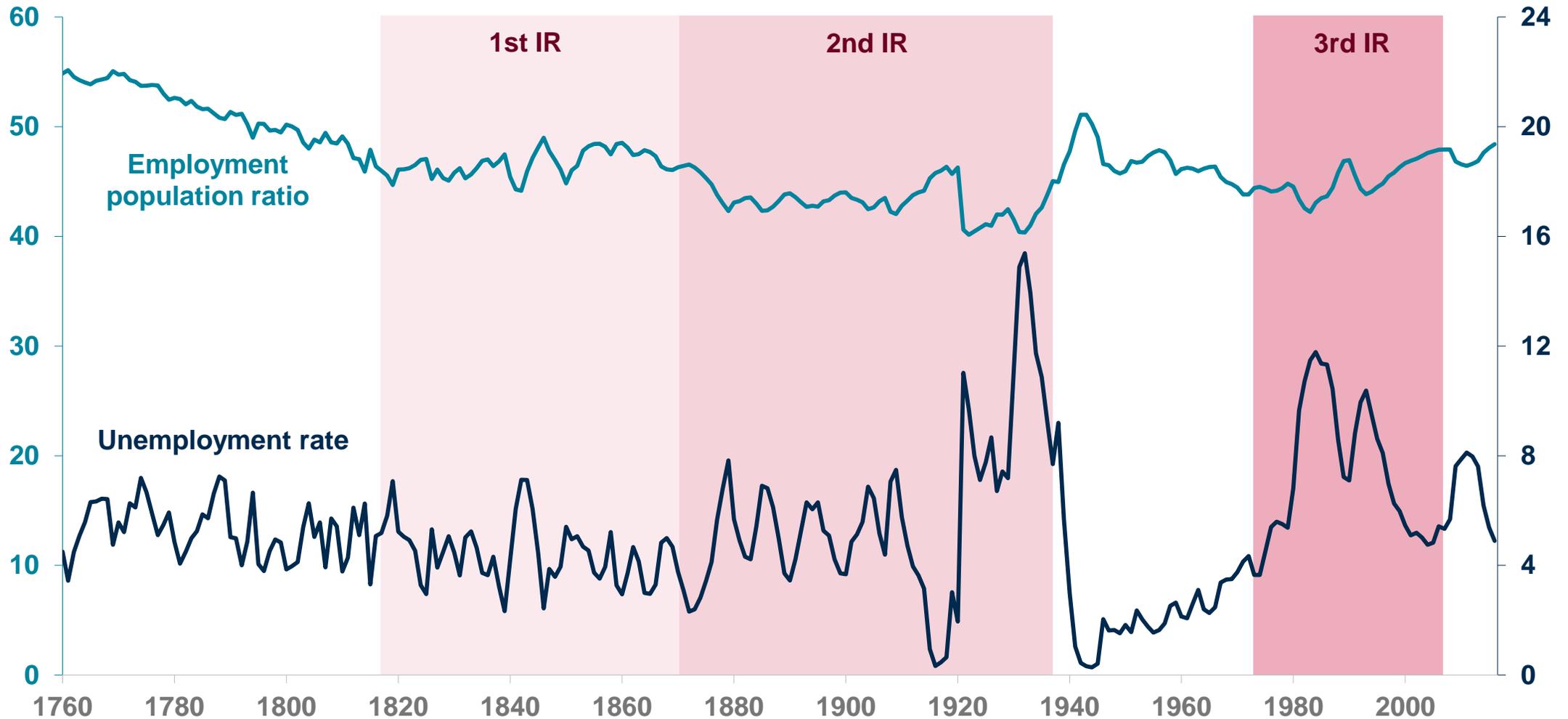
Mark Carney  
Governor

14 September 2018

# Little evidence of technological unemployment over long term

Employment population ratio  
(per cent)

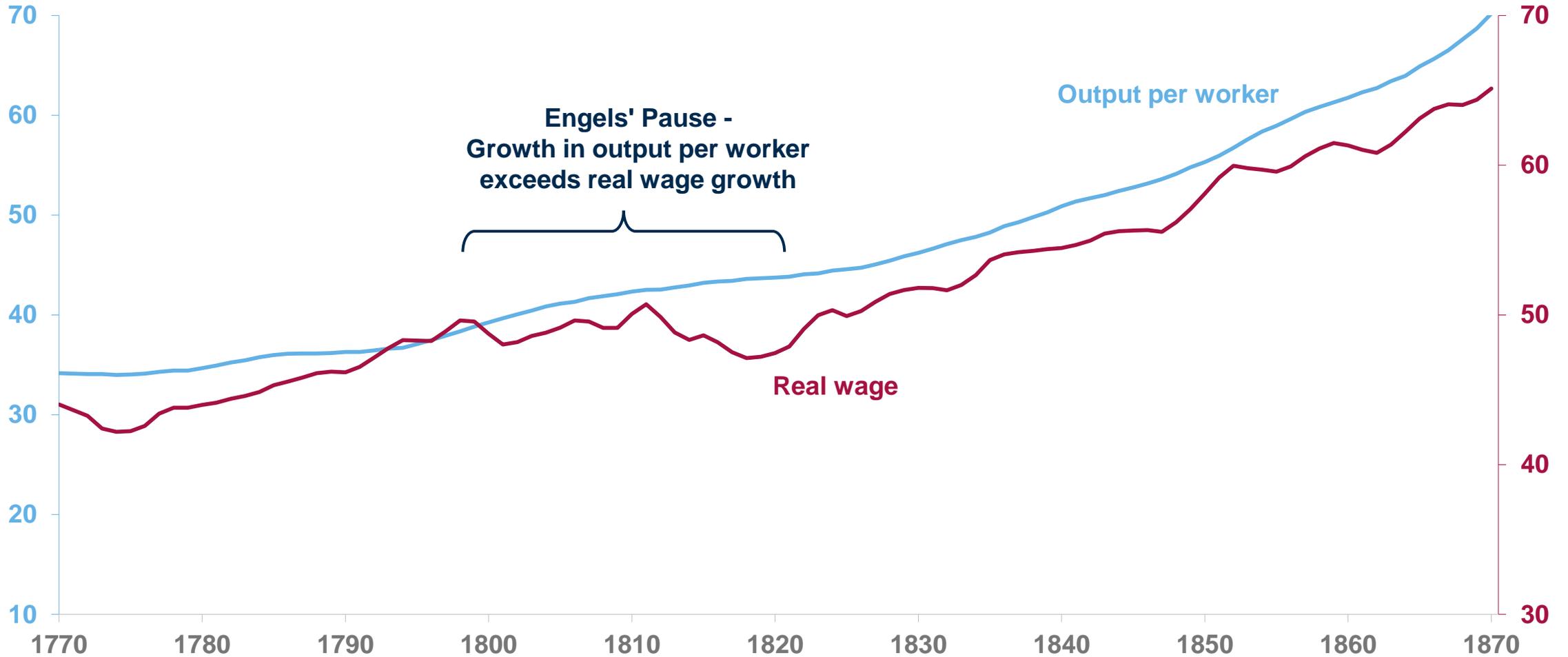
Unemployment rate  
(per cent)



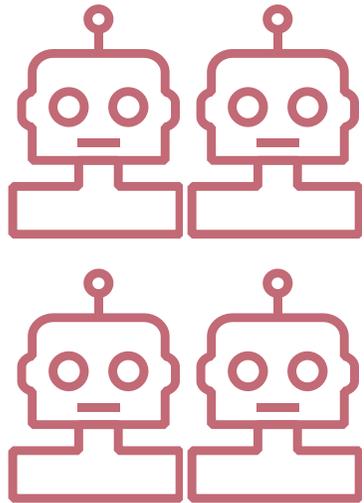
# Pickup in real wages lagged productivity during the 1st IR

Output per worker  
(Index: 1900 = 100)

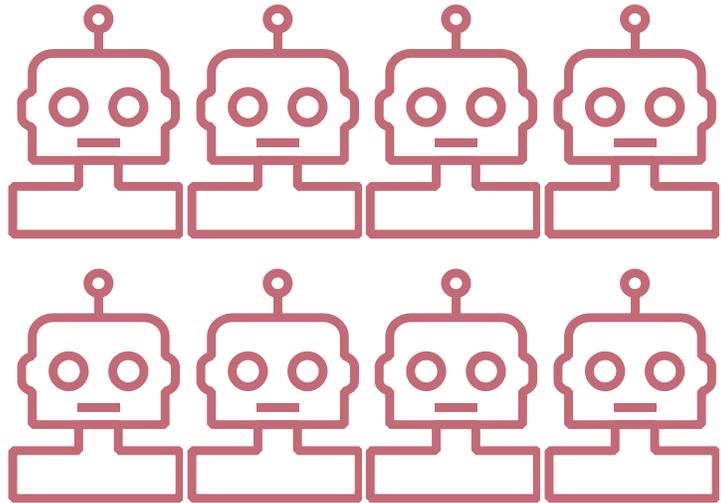
Real wage  
(Index: 1900 = 100)



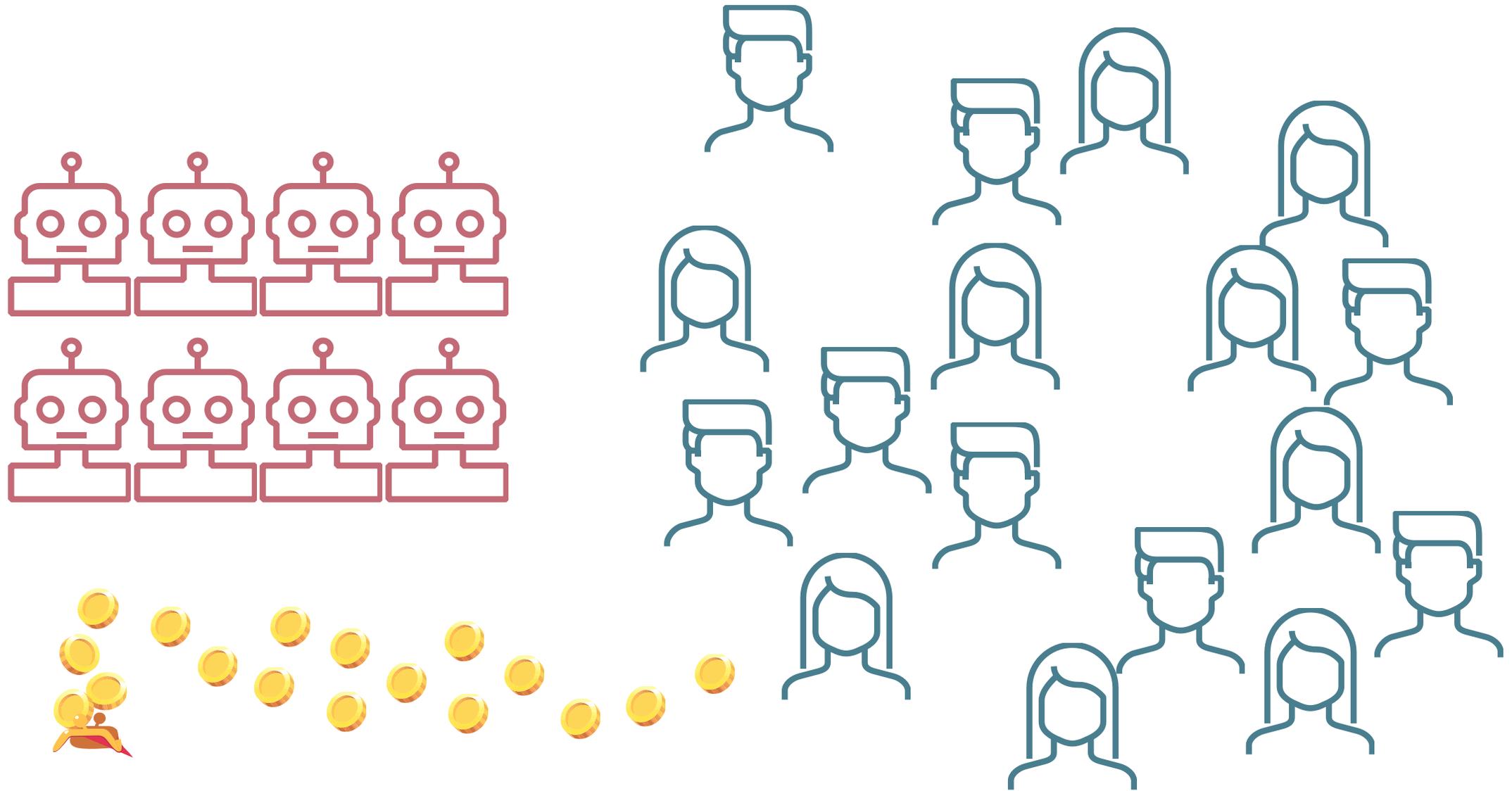
# Technology impacts labour market through...



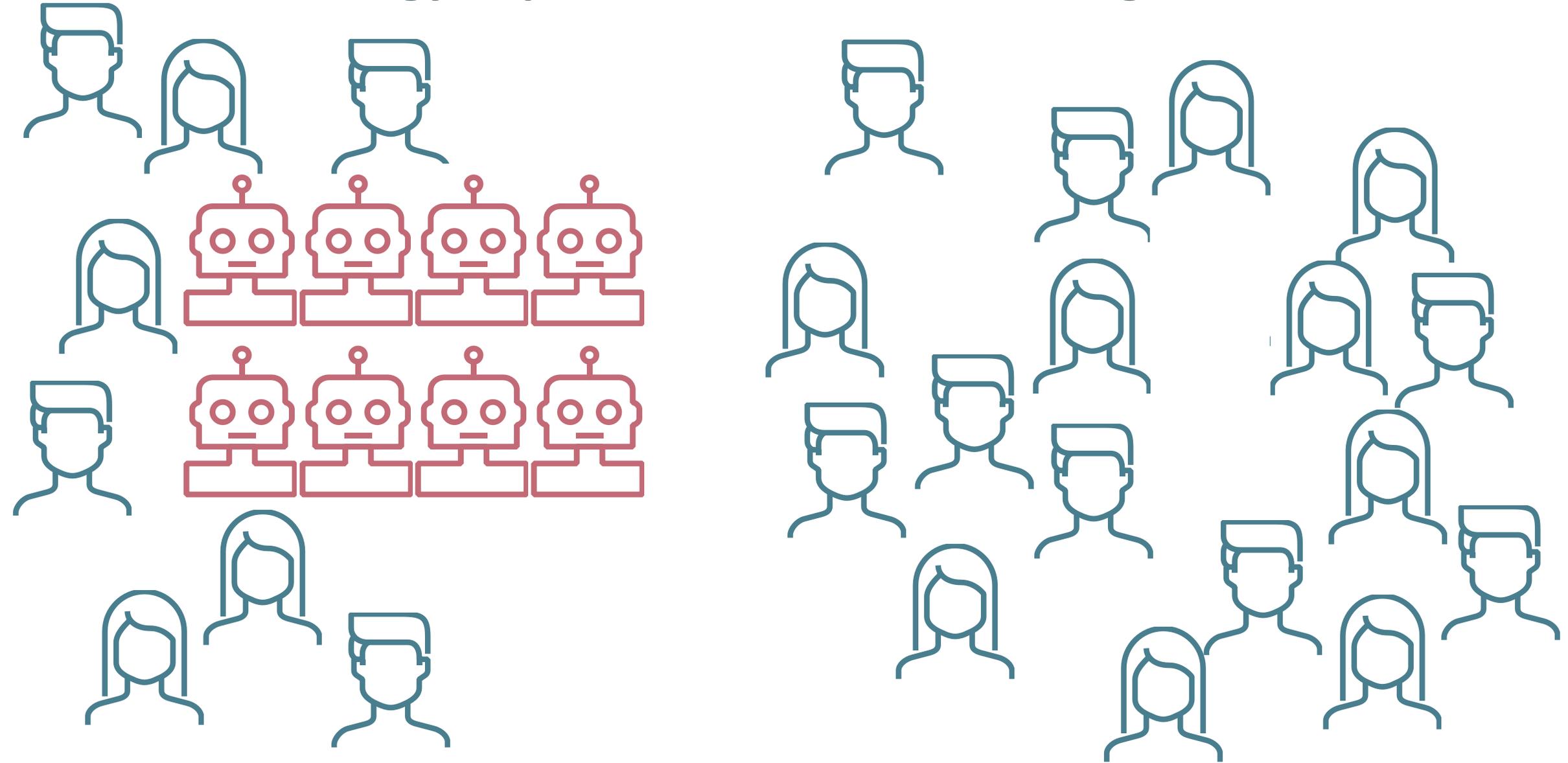
# Technology impacts labour market through **destruction...**



# Technology impacts labour market through productivity...

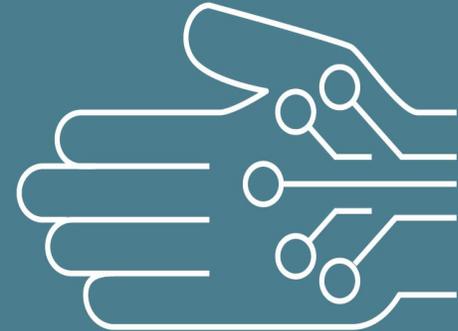
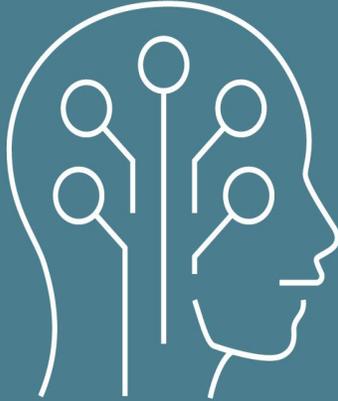


# Technology impacts labour market through creation...

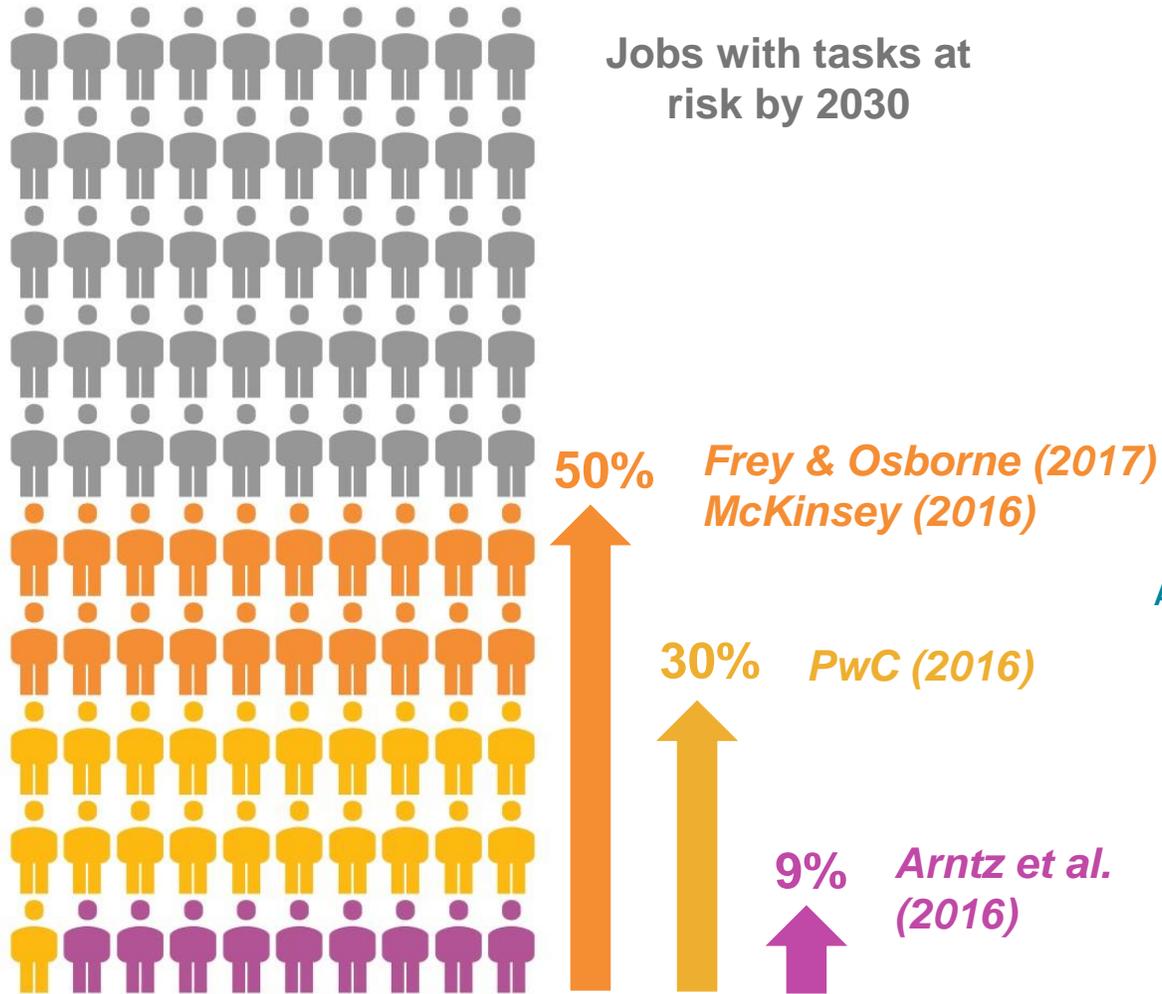


# Could this time be different?

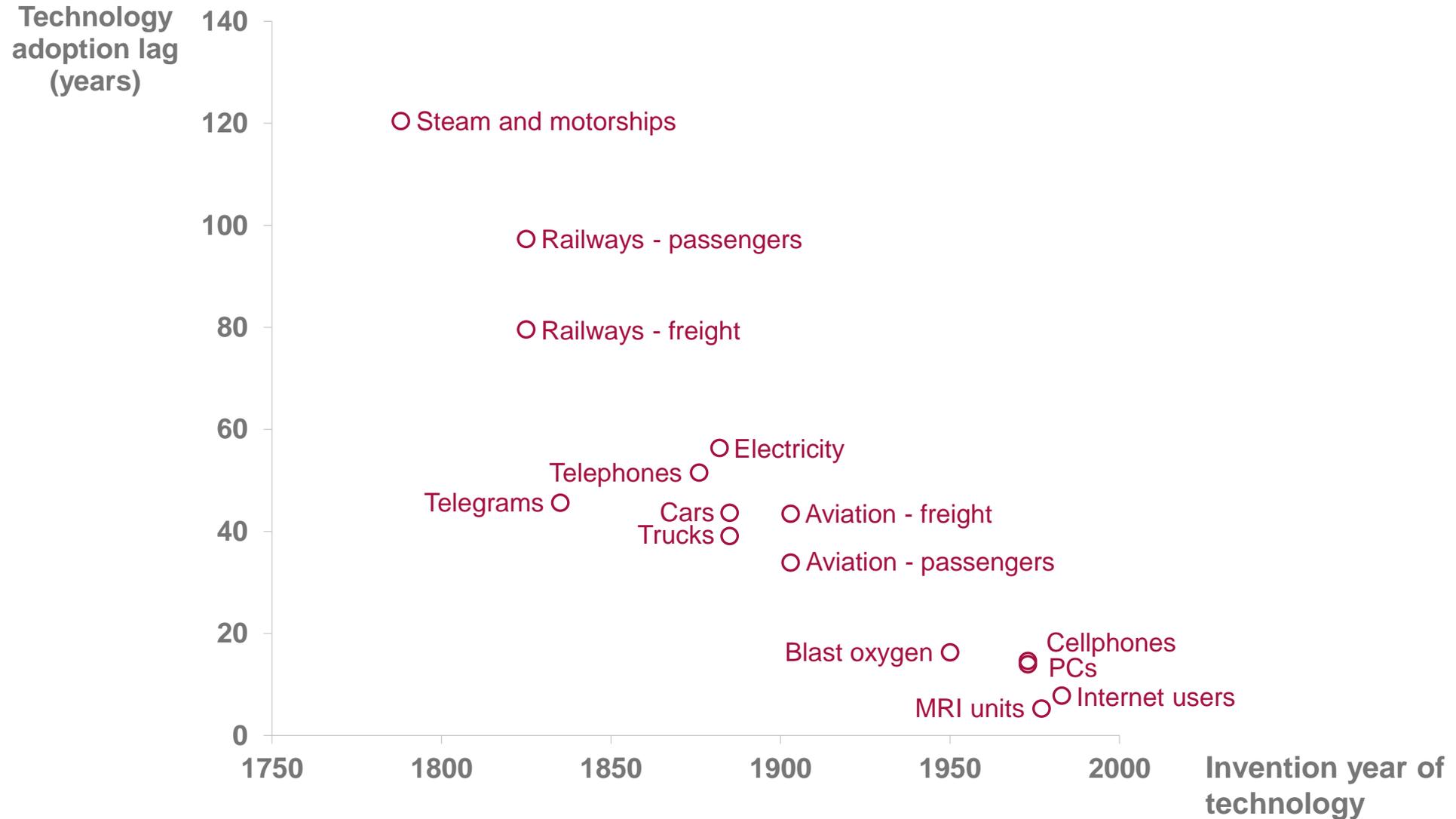
4<sup>th</sup> Industrial Revolution replacing heads not hands?



# Jobs with tasks at risk of automation: huge range of estimates



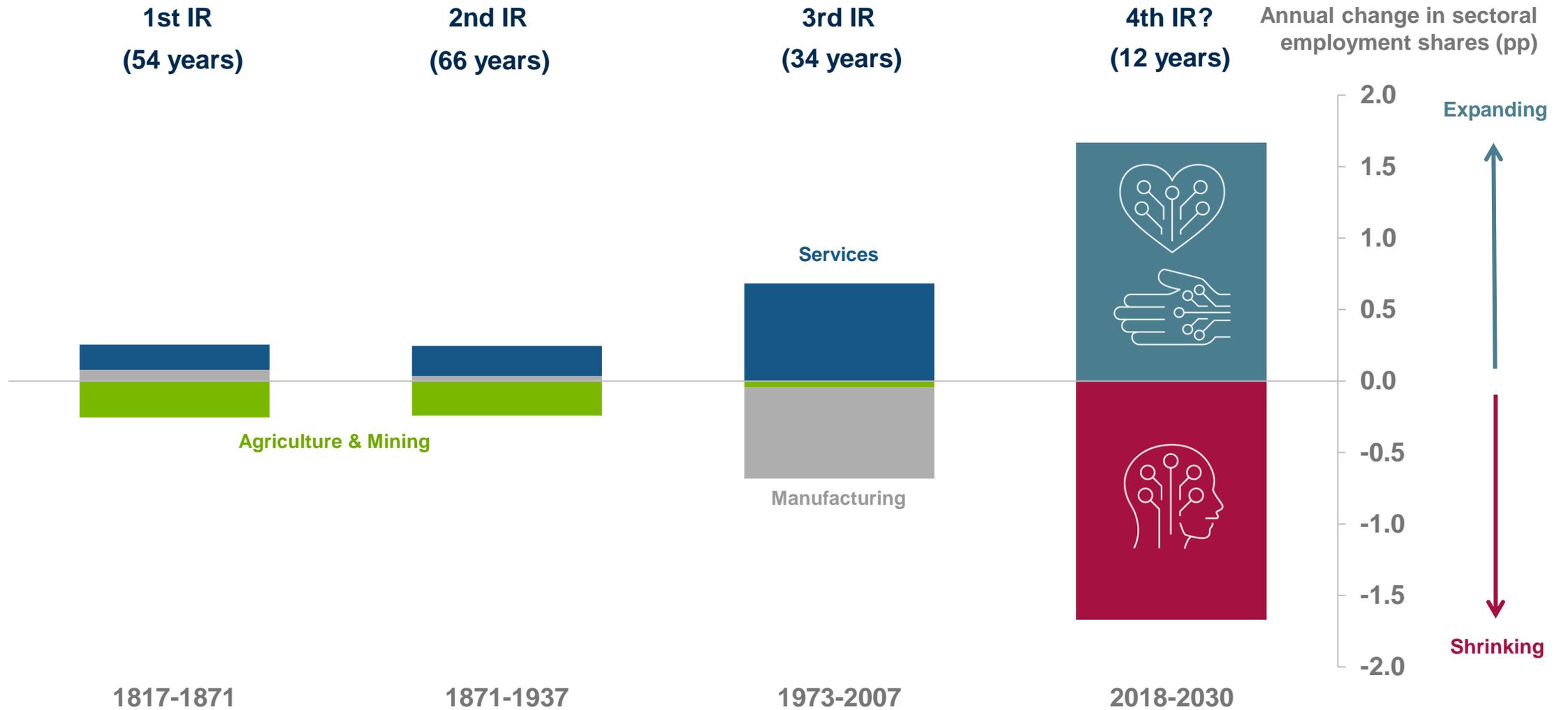
# Technology adoption lags decreasing over time



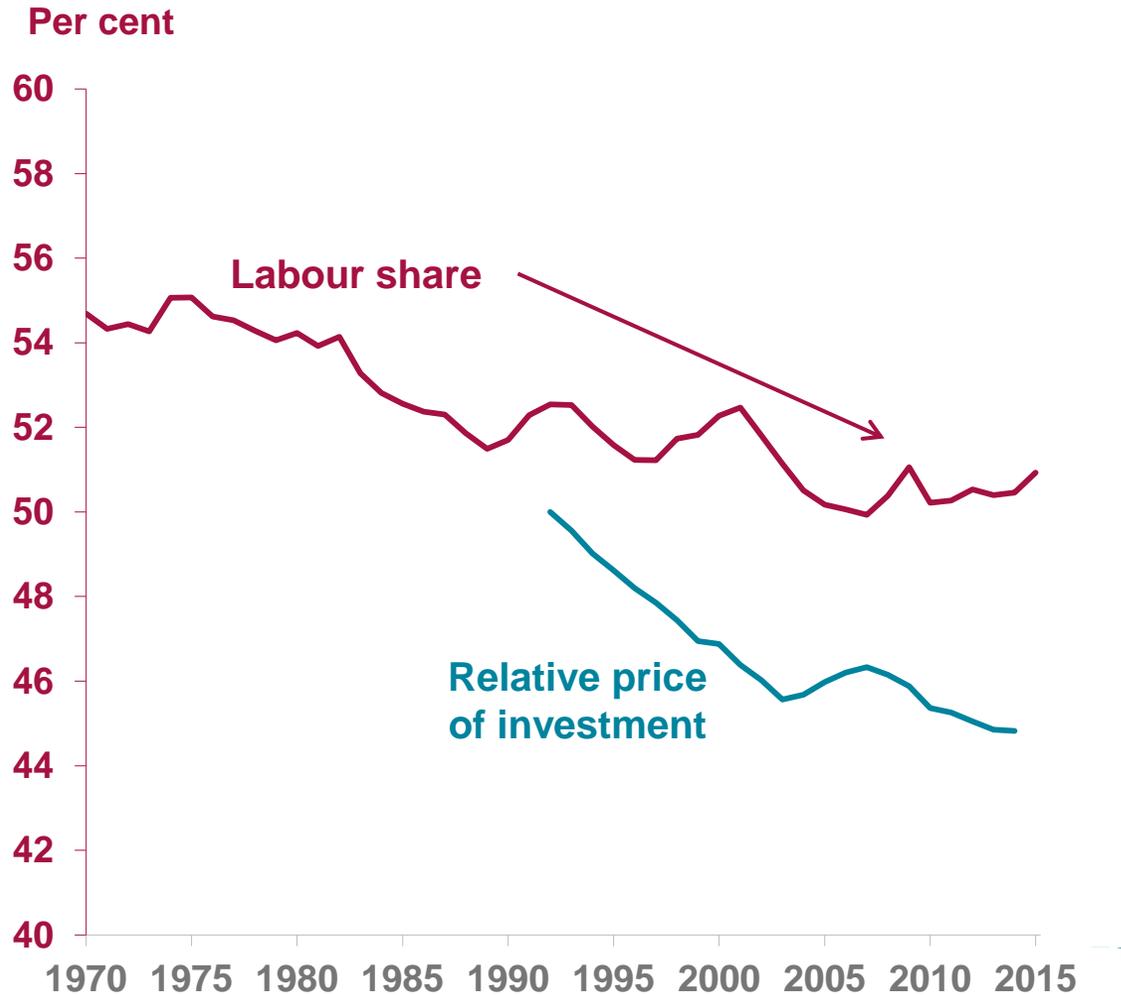
Notes: Technology adoption lag is a mean estimated lag in cross-country technology diffusion.

Source: Comin, D and Hobijn, B (2010), 'An exploration of technology diffusion', *American Economic Review*, Vol. 100, No. 5, pp2031-59.

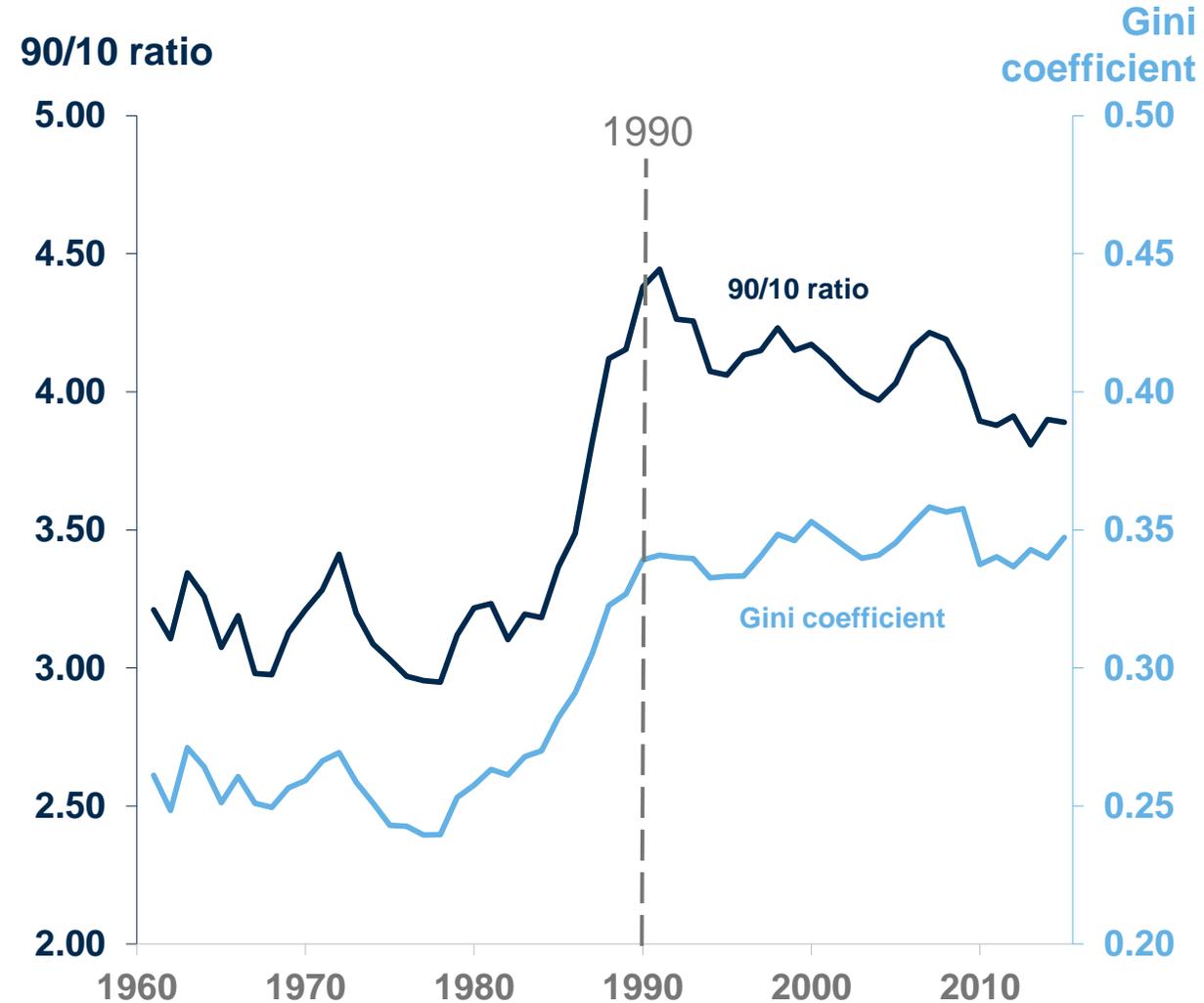
# This time it's faster?



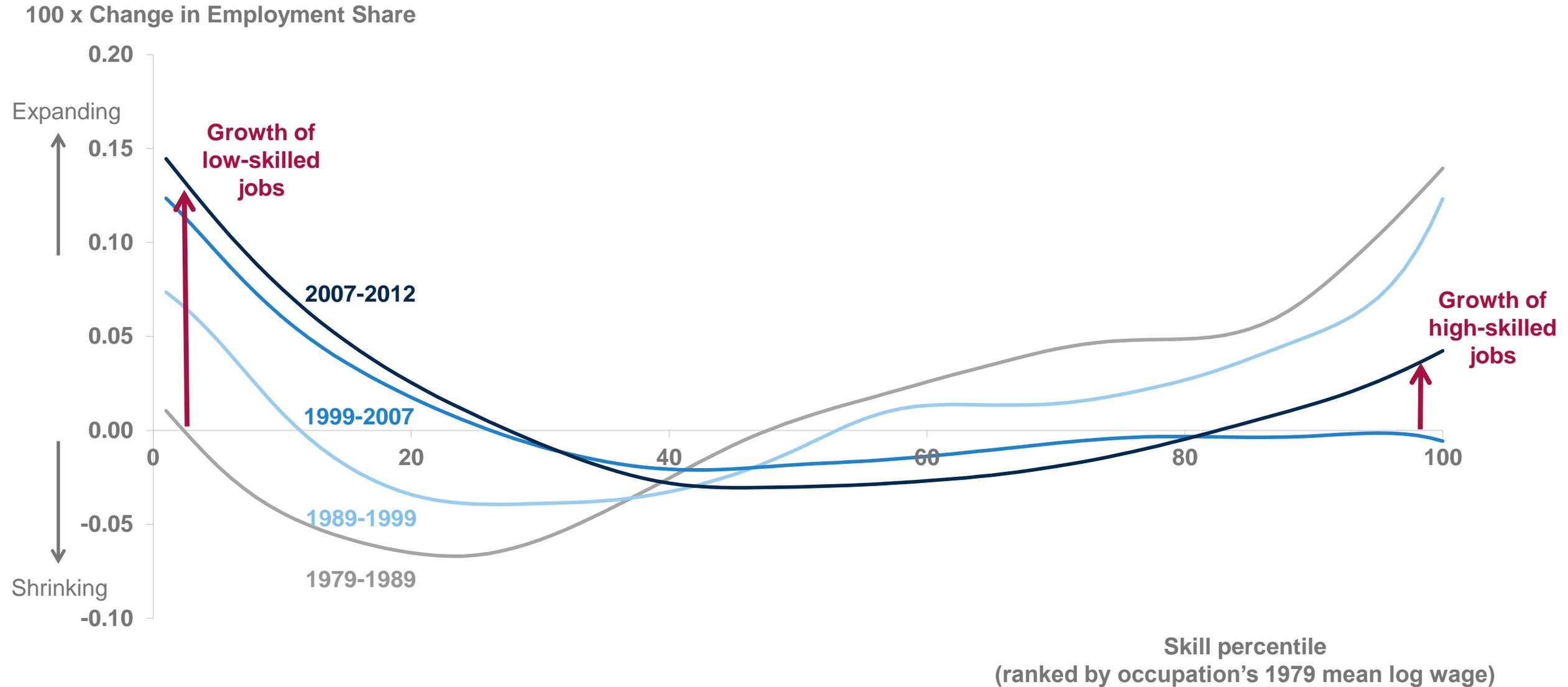
# Technology driving labour share down globally



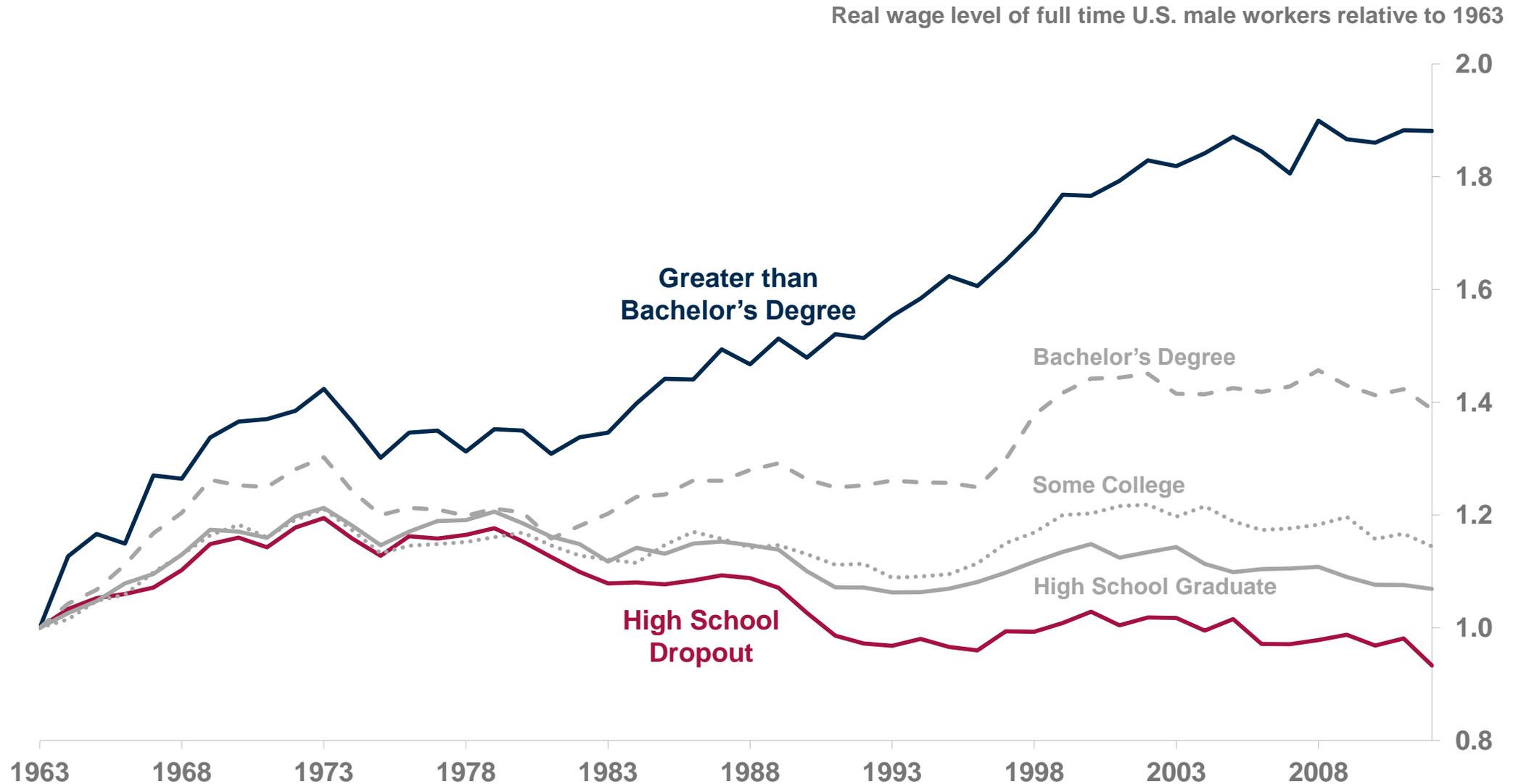
# UK inequality high but stable



# Technology polarising labour market



# Technology polarising labour market



# What has been done

Institution	Effect	Examples
<b>Enabling institutions</b>	Transformed the skill base of workers	Spread of primary, secondary, tertiary and technical education
<b>New insurance institutions</b>	Supported those displaced	Unemployment insurance, universal healthcare, state pensions, child benefit
<b>Labour market institutions</b>	Influenced provisions and shared the surplus	Friendly Societies, Trade Unions, Co-operatives, minimum wages
<b>Employers</b>	Created environments to help employees thrive	“Model Villages” (providing housing, schooling and recreation), higher pay (Ford’s \$5 initiative), occupational pensions

## Business

- Identify skills mismatches and adopt anticipatory talent management strategies
- More effective workforce training, as skill set of existing employees is rate limiting factor of technology adoption
- Corporate re-training programmes for workers to be retained by company and returned to workforce
- Providers of general purpose technologies explore opportunities to maximise job-creating, augmented intelligence

## Labour market institutions

- Balance labour mobility with appropriate protection of workers in new, non-standard jobs
- Taylor Review of modern working practices suggests people working for platform-based companies be classed as dependent contractors
- Embrace technology-enabled solutions to improve matching and bridge skills gaps
- Enhance benefits and data portability (including reputational histories of dependent contractors)
- Incentives for human capital and physical investment

## Enabling institutions

- Successive IRs developed primary, secondary and tertiary education
- Could 4IR lead to quaternary education?
  - Institutionalise re-training in mid-career
  - Integrated with social welfare system
- Universal support schemes for retraining
  - The UK's Flexible Learning Fund and New Enterprise Allowance
  - Singapore's SkillsFuture programme

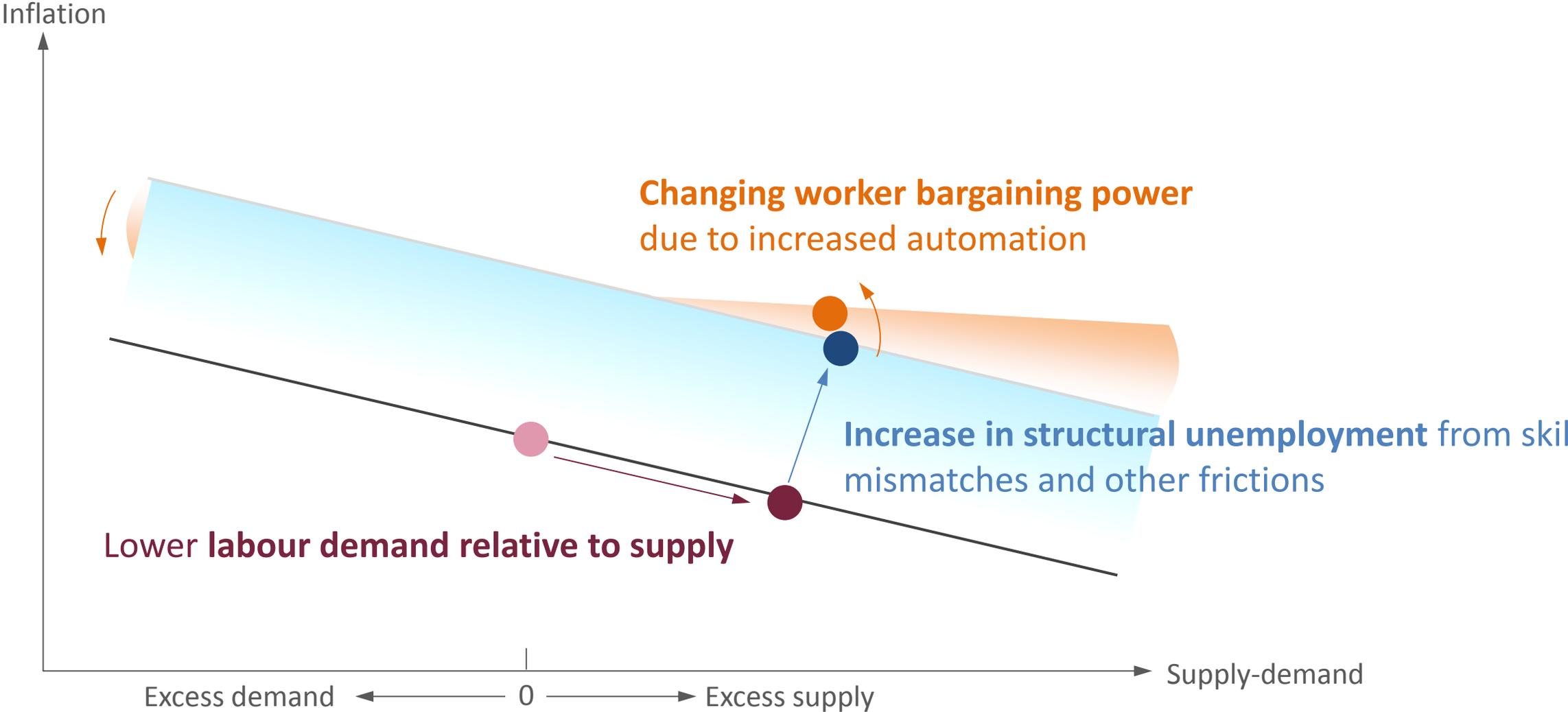
## Financial system

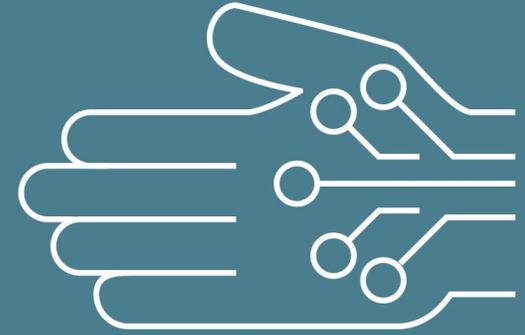
- New payment solutions for distributed commerce and real-time P2P transactions
- More effective, platform-based finance for SMEs
- Data-based financing for intangibles
- More efficient cross border transactions and trade finance through better payments plumbing and robust digital IDs
- Expand impact investing to build social capital consistent with new labour market

# Monetary policy



# Potential inflationary consequences





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