The Future of Work
Public Policy Forum, Toronto

Mark Carney
Governor

12 April 2018
First lost decade of real wages since the mid-19th Century

Mid 18th Century
Mid 19th Century
Early 20th Century
Late 20th Century
21\textsuperscript{st} Century
Little evidence of technological unemployment over long term
Pickup in real wages lagged productivity during the 1st IR

Source: A Millennium of Data, Bank of England. Note: series are ten year moving averages
Technology impacts labour market through...
Technology impacts labour market through destruction...
Technology impacts labour market through productivity...
Technology impacts labour market through creation
Wage growth muted despite near-record employment

Source: 'Brexit and interest rates', speech by Ben Broadbent, 15 November 2017
Technology driving labour share down globally

Source: IMF April 2017 WEO. Notes: the chart shows the labour share and relative price of investment across advanced economies.
Technology polarising labour market

Technology polarising labour market

Real wage level of full time U.S. male workers relative to 1963

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

- PwC (2016), Haldane (2016): 30%
- Arntz et al. (2016): 9%

This time it’s faster?

1st IR (54 years)
2nd IR (66 years)
3rd IR (34 years)
4th IR? (12 years)

Agriculture & Mining
Manufacturing
Services

1817-1871
1871-1937
1973-2007
2018-2030

Annual pp change

Expanding
Shrinking
## What has been done

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

First:
• Assess and address the skills gap

Then:
• Reduce frictions to applying new technologies
• Deepen Productivity and Creation effects
• Adapt all elements of market ecosystem
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 protections 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)
• Equalise 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
  • 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
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