INSECURITY, INEQUALITY AND THE LABOUR MARKET

PRESENTATION TO JOBS AUSTRALIA CONFERENCE

HOTEL GRAND CHANCELLOR, HOBART – 2ND NOVEMBER 2017

SAUL ESLAKE

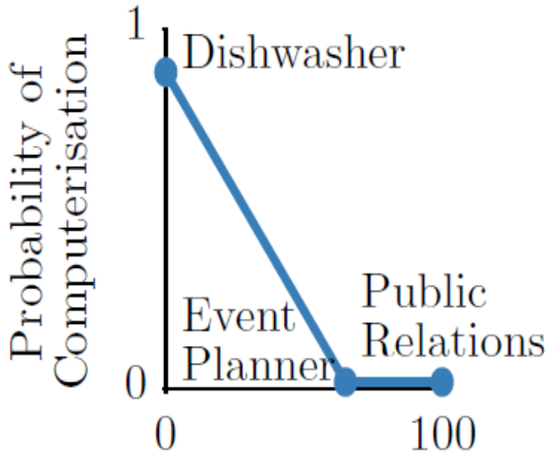
bettercallsaul.com.au

It's widely believed that robots, artificial intelligence, 'big data', machine learning etc will lead to mass unemployment

Carl B. Frey

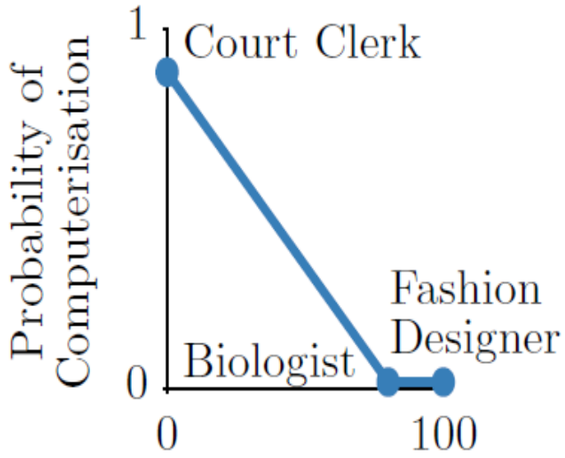
Michael Osborne

One very widely-quoted study seeks to estimate the probability of each of 702 different occupations being replaced by computers, robots or algorithms based on an assessment of the capacity for the tasks undertaken by each occupation 'to be performed by state-of-the-art computer-controlled equipment', and the existence or otherwise of 'bottlenecks' to computerization



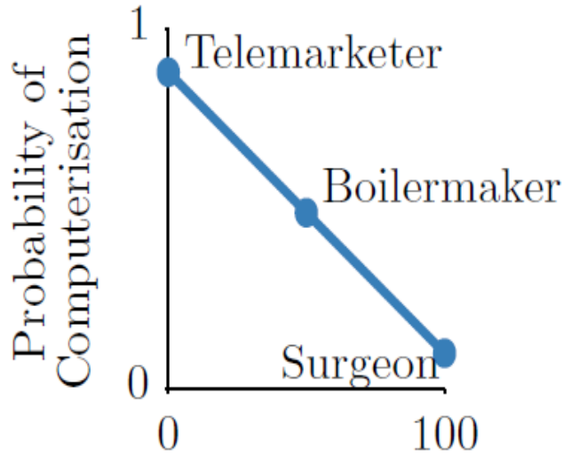
Social Intelligence

(social perceptiveness, negotiation, persuasion, assisting & caring for others)



Creativity

(originality, fine arts)



Perception and manipulation

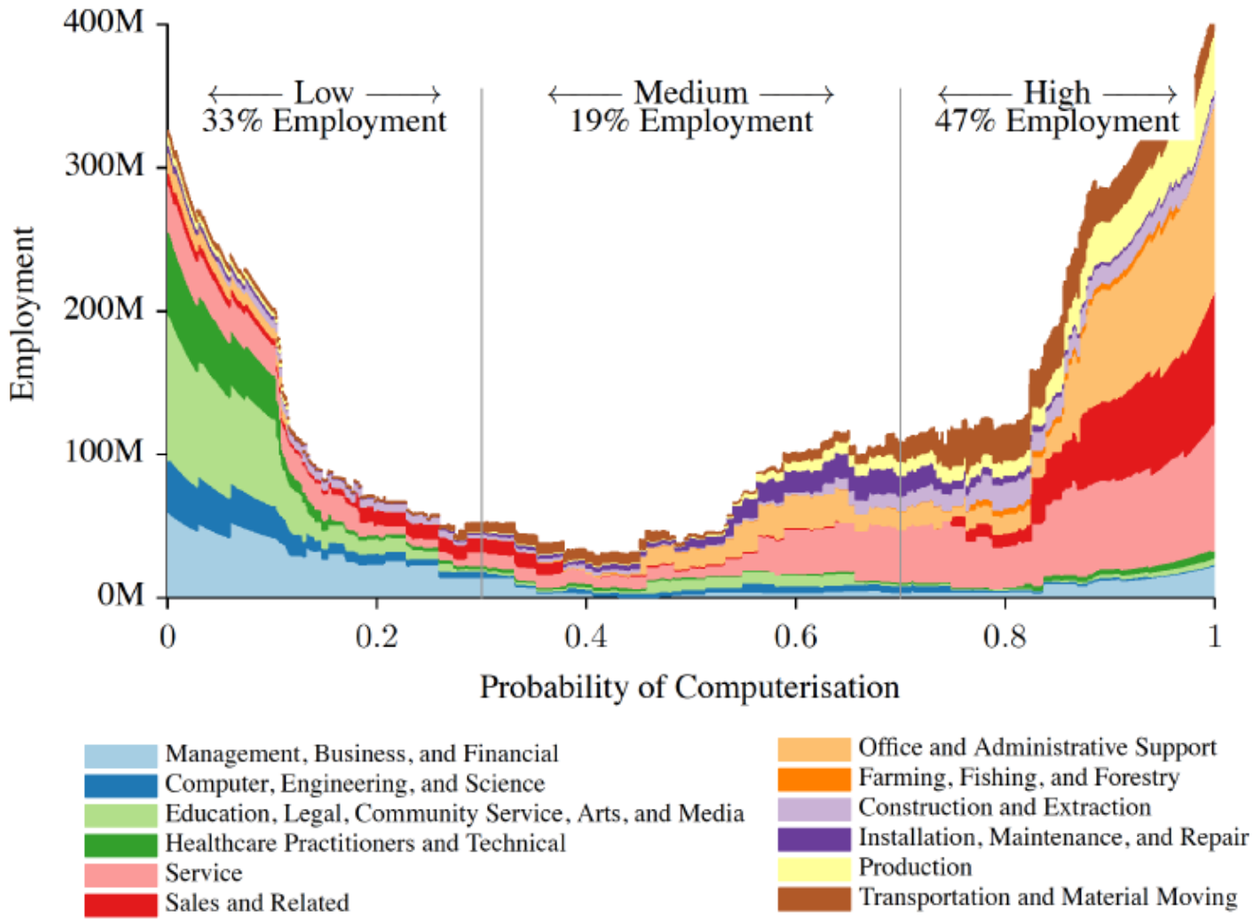
(finger dexterity, manual dexterity, working in cramped spaces or awkward positions)

Source: Carl Frey & Michael Osborne, *The Future of Employment: How Susceptible are Jobs to Computerization*, Oxford Martin School, University of Oxford, September 2013.

SAUL ESLAKE

One widely-quoted study suggests 47% of US employees are working in jobs that could be done by computers or algorithms within 10-20 years

Occupation	Label	Probability
Data Entry Keyers	1	0.99
Tax Preparers		0.99
Umpires and Referees		0.98
Industrial Truck Operators	1	0.94
Waiters and waitresses	0	0.94
Slaughterers		0.60
Economists	0	0.43
Judicial Law Clerks	1	0.41
Clergy	0	0.01
Choreographers		0.00

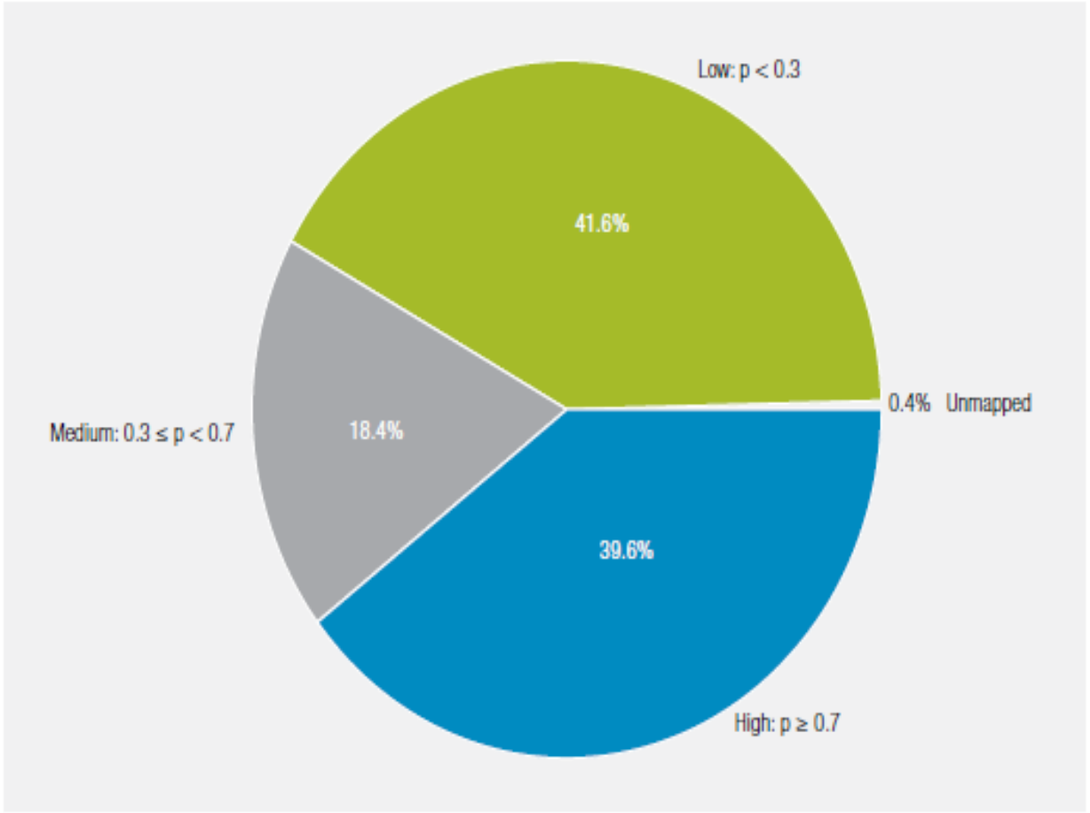


Source: Carl Frey & Michael Osborne, *The Future of Employment: How Susceptible are Jobs to Computerization*, Oxford Martin School, University of Oxford, September 2013.

SAUL ESLAKE

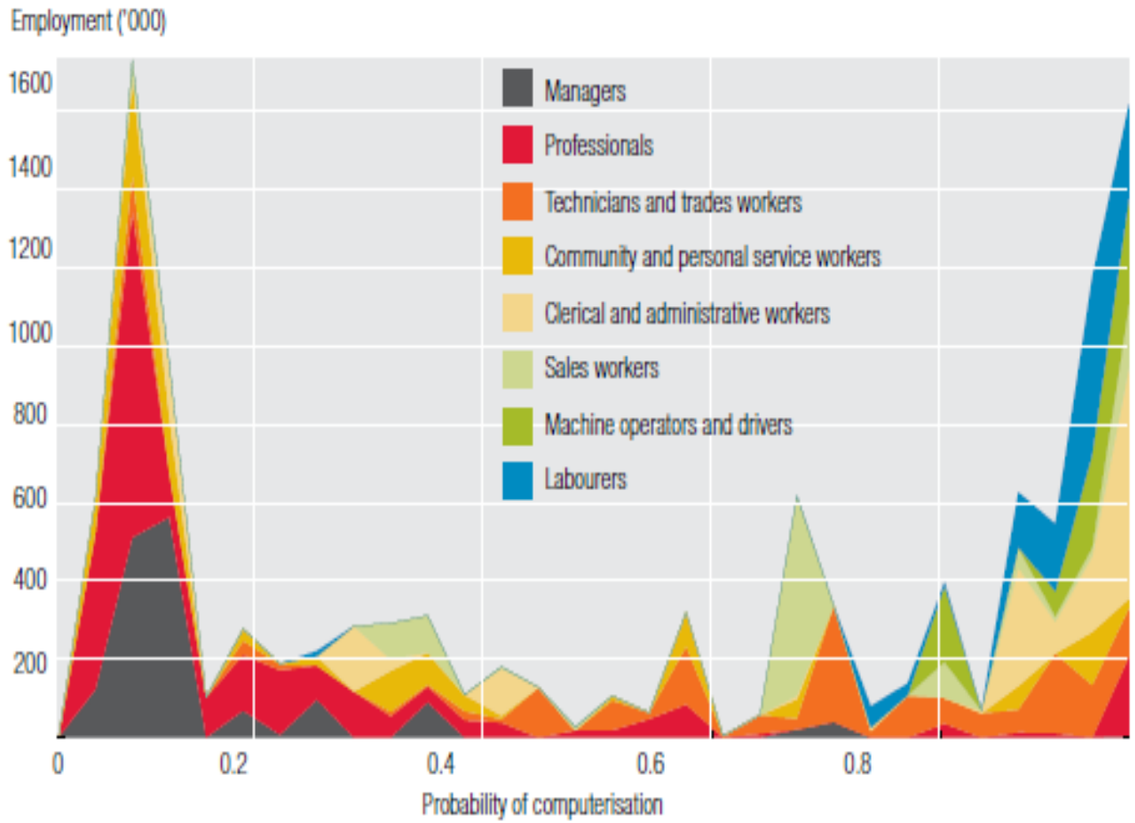
The same framework has been used to suggest that 40% of Australian jobs could be lost to computerisation or automation in the next 10-15 years …

OVERALL PROBABILITIES OF JOB COMPUTERISATION IN AUSTRALIA



Note: p = probability

DISTRIBUTION OF JOB CATEGORIES AGAINST PROBABILITY OF COMPUTERISATION



Source: Hugh Durrant-Whyte et al, 'The impact of computerisation and automation on future employment', in Committee for the Economic Development of Australia (CEDA), *Australia's Future Workforce*?, June 2015.

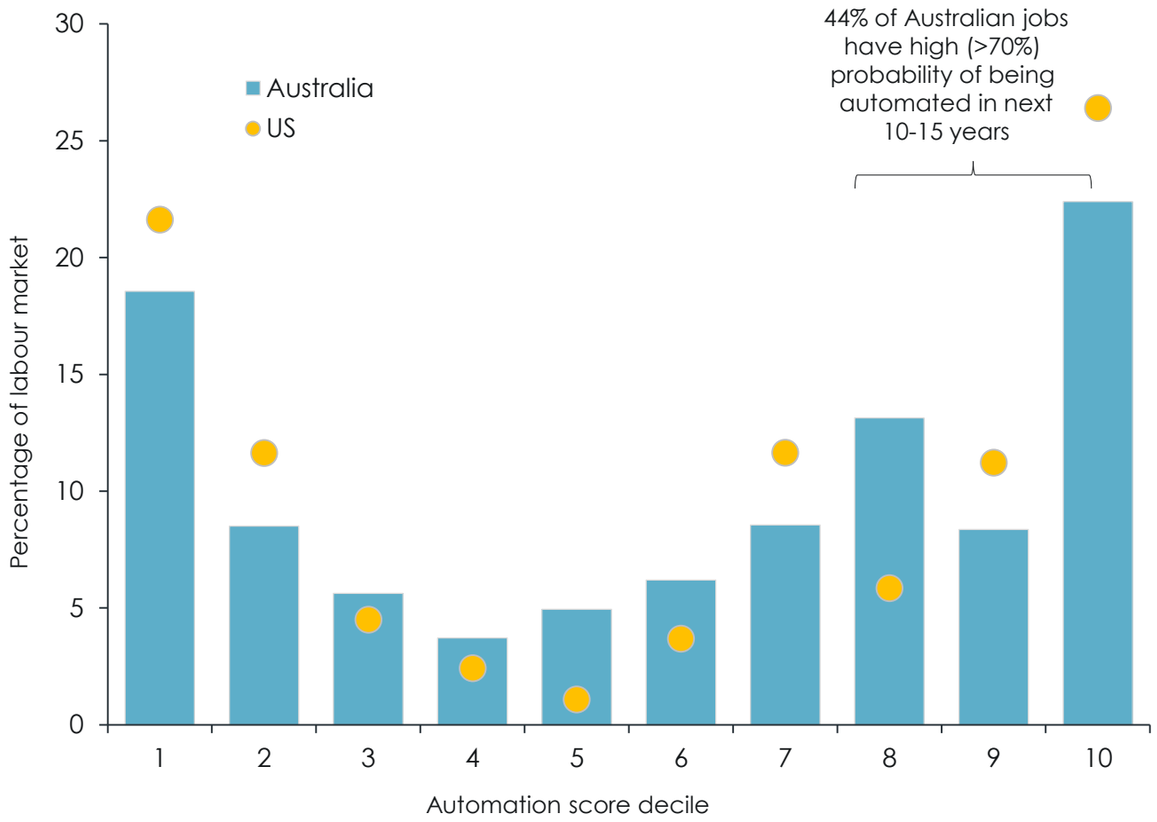
SAUL ESLAKE

… or that the proportion of jobs 'at risk' could even be as high as 44%

Top and bottom 20 occupations, by automation susceptibility, 2014

20 highest automation scores		*20 lowest automation scores*	
Occupation	*Automation score*	*Occupation*	*Automation score*
Telemarketers	99.0	Dietitians	0.4
Bank workers	97.8	Hotel managers	0.4
Bookkeepers	97.7	Education advisers	0.4
Accounting clerks	97.2	Psychologists	0.5
Product quality	97.0	Dental practitioners	0.5
Payroll clerks	97.0	Speech professionals	0.6
Checkout operators	96.9	Education managers	0.7
Other clerical workers	96.7	School principals	0.7
Insurance investigators	96.6	ICT business analysts	0.7
Library assistants	96.3	Secondary teachers	0.8
Other sales assistants	96.2	Podiatrists	0.8
Switchboard operators	96.1	Occupational therapists	0.8
General clerks	96.0	Chiropractors	0.8
Inquiry clerks	95.9	Special educ. teachers	1.1
Secretaries	95.4	Agricultural scientists	1.1
Product assemblers	95.2	Pharmacists	1.2
Keyboard operators	95.1	Ministers of religion	1.3
Jewellers	95.0	ICT trainers	1.4
Debt collectors	95.0	Training professionals	1.4
Garden labourers	95.0	Office managers	1.4

Distribution of Australian and US jobs by susceptibility to automation



Source: Daniel Edmonds and Timothy Bradley, *Mechanical boon: will automation advance Australia?*, Research Paper 7/2015, Office of the Chief Economist, Australian Department of Industry, Innovation and Science, October 2015.

SAUL ESLAKE

Forecasts of mass unemployment arising from rapid technological advances are *not* new

"The increase of technical efficiency has been taking place faster than we can deal with the problem of labour absorption … technical improvements in manufacture and transport have been proceeding at a greater rate in the last ten years than ever before in history …

"We are being afflicted with a new disease … namely, *technological unemployment*. This means unemployment due to our discovery of means of economising on the use of labour outrunning the pace at which we can find new uses for labour …"

– John Maynard Keynes, *Economic Possibilities for Our Grandchildren* (1930)

"We have to find, over a ten-year period, 25,000 new jobs every week to take care of those who are displaced by machines, and those who are coming into the labour market, so that this places a major burden upon our economy and on our society. It is one to which we will have to give a good deal of attention in the next decade. I regard it as a very serious problem"

– John F Kennedy, press conference (1962)

"… new technologies can decimate the labour force in the goods producing sectors of the economy. This will either perpetuate massive unemployment or lead to the creation of large-scale, low-output 'servile' work in the service sector"

– Barry Jones MP, *Sleepers Wake!* (1982)

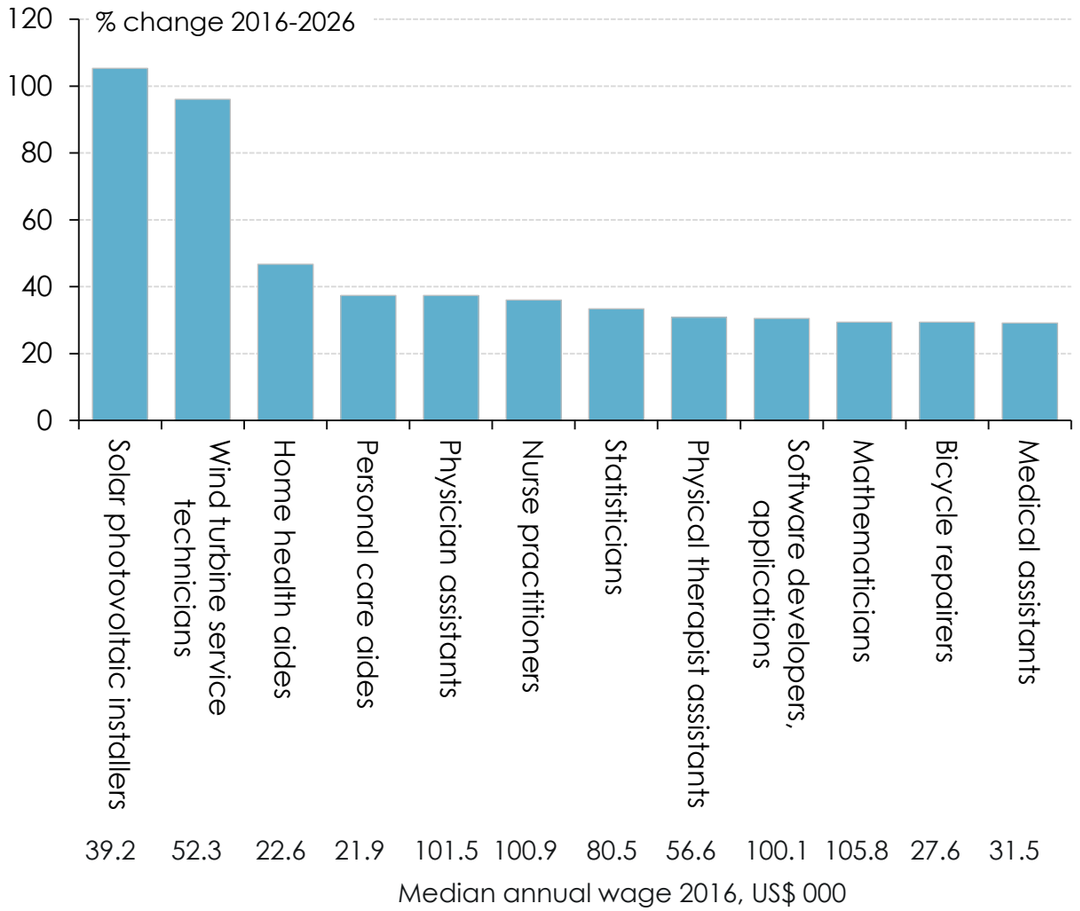
Critiques of the 'most of us will be replaced by computers or robots' thesis

- The Frey-Osborne approach assumes that computers, robots and algorithms will replace entire occupations, rather than some of the tasks which are performed by those occupations
  - research commissioned by the OECD using a 'task-based' (rather than occupation-based) assessment of susceptibility to automation suggests that only 9% of US employees face a high (>70%) probability of being computerised or automated
  - a similar study by economists at Melbourne University suggests a similar proportion, 9%, of Australian jobs are at risk of being replaced by robots or computers
- Just because a job (or a task) can be replaced by a computer or a robot doesn't mean it will be
  - replacing humans with computers or robots can entail large up-front costs, which may make business baulk at undertaking the switch even though it may be technically feasible
  - likewise businesses may be deterred by concerns over legal and regulatory risks, or a backlash from customers, from completely replacing certain types of workers with computers or robots
- Making, programming or controlling computers and robots will create new jobs
  - probably not as many as liable to be displaced, but still needs to be factored in to any assessment of overall employment impact
- New technologies will themselves create new demands which will create new jobs
- Increased national income resulting from productivity enhancements facilitated by technological innovation will create new demands and new jobs
  - although it will be important to get income redistribution policies 'right'

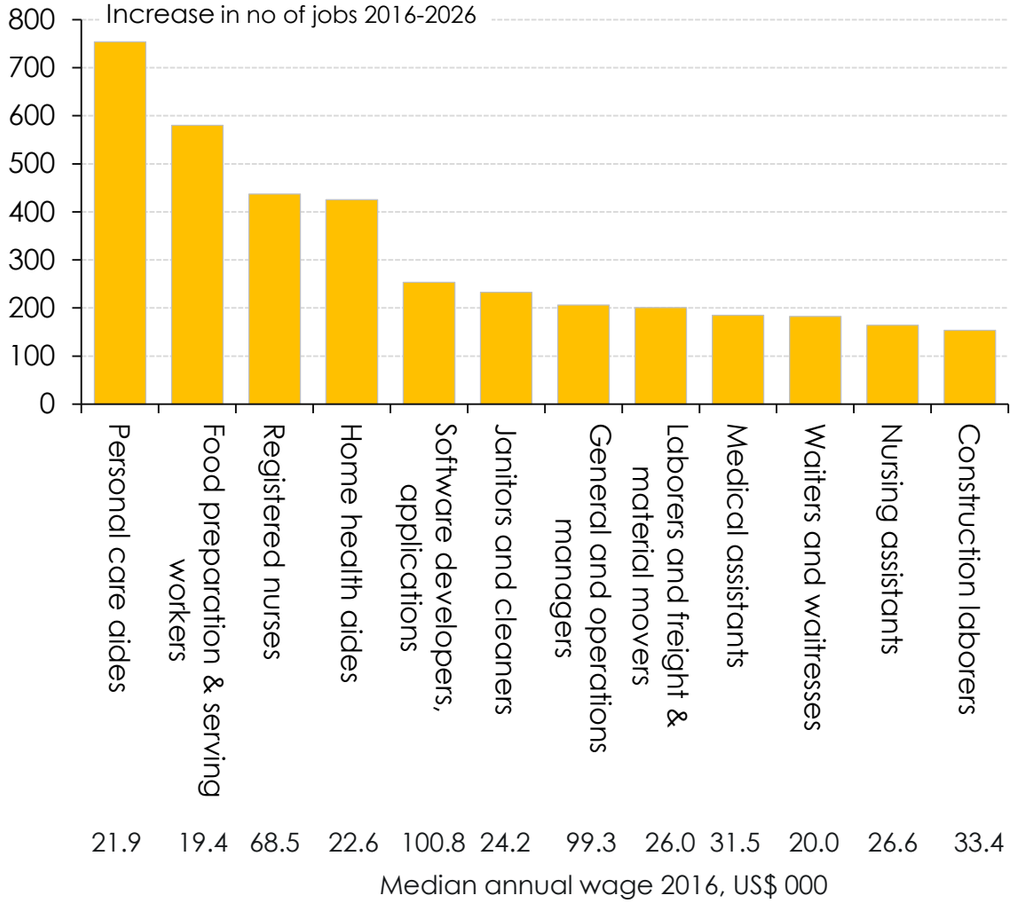
Sources: Melanie Arntz, Terry Gregory & Ulrich Zierahn, *The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis*, OECD Social, Employment and Migration Working Papers No. 189, 2016; Jeff Borland & Michael Coelli, *Are robots taking our jobs?,* University of Melbourne Department of Economics Working Paper, August 2017.

The US Bureau of Labor Statistics has just published a set of forecasts of the employment outlook to 2026 for 817 different occupations (in the US)

12 fastest-growing occupations over the 10 years to 2026, in the US



12 occupations with largest forecast increase in job numbers to 2026, in the US

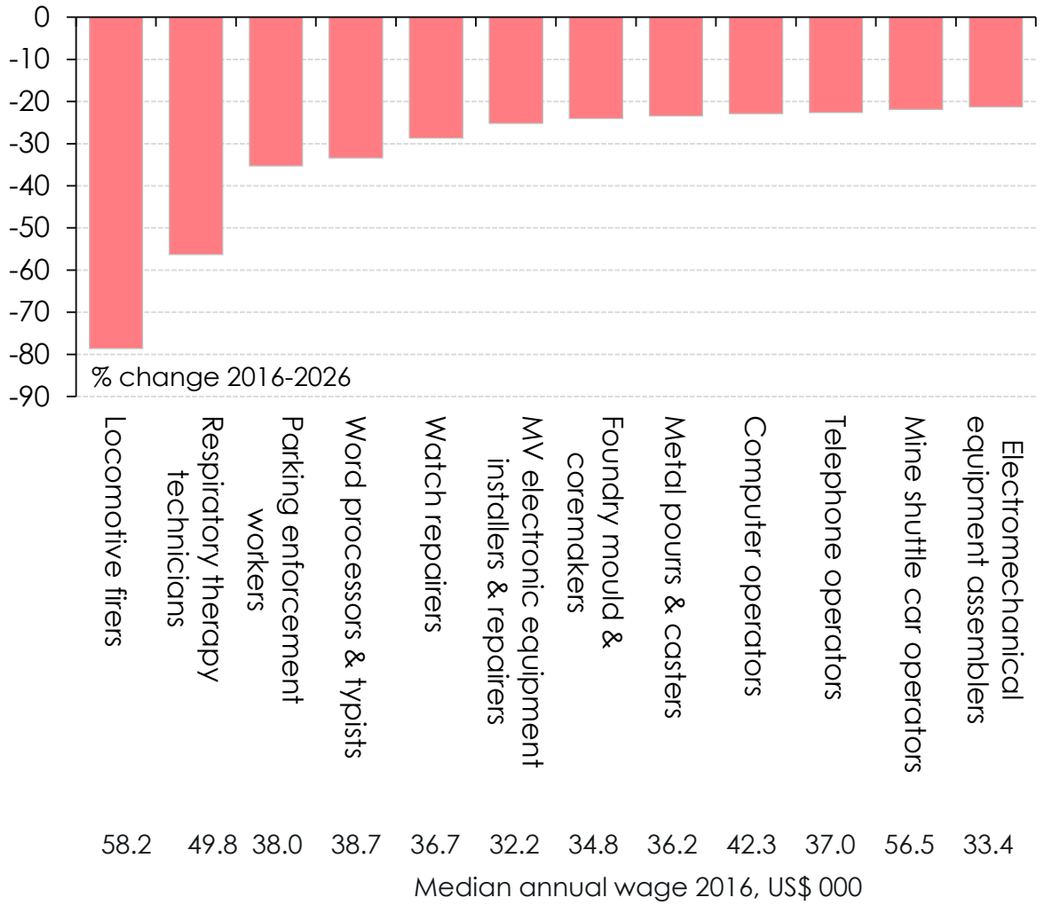


Note: the median annual wage for all occupations in the US in 2016 was $US37,040.
Source: US Bureau of Labor Statistics, *Occupational Outlook Handbook*, October 2017.

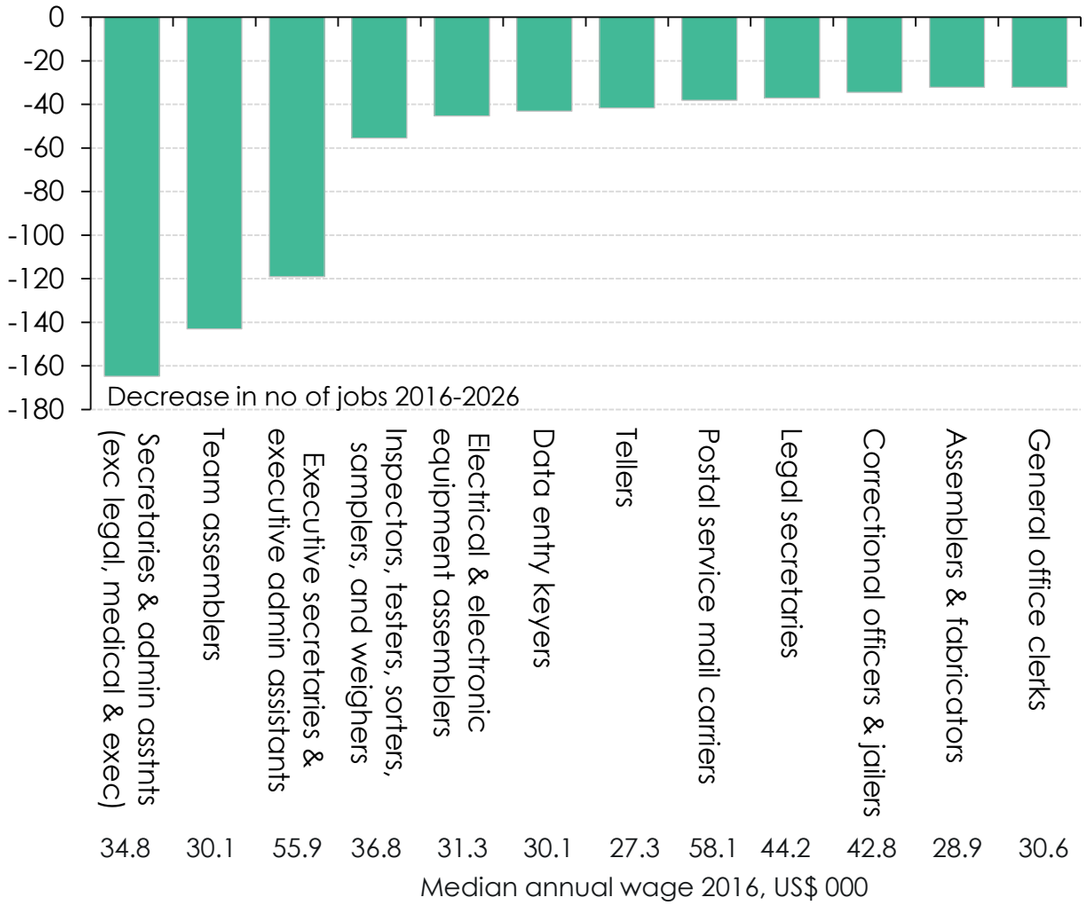
SAUL ESLAKE

The US Bureau of Labor Statistics has just published a set of forecasts of the employment outlook to 2026 for 817 different occupations (in the US)

12 fastest-declining occupations over the 10 years to 2026, in the US



12 occupations with largest forecast decline in job numbers to 2026, in the US

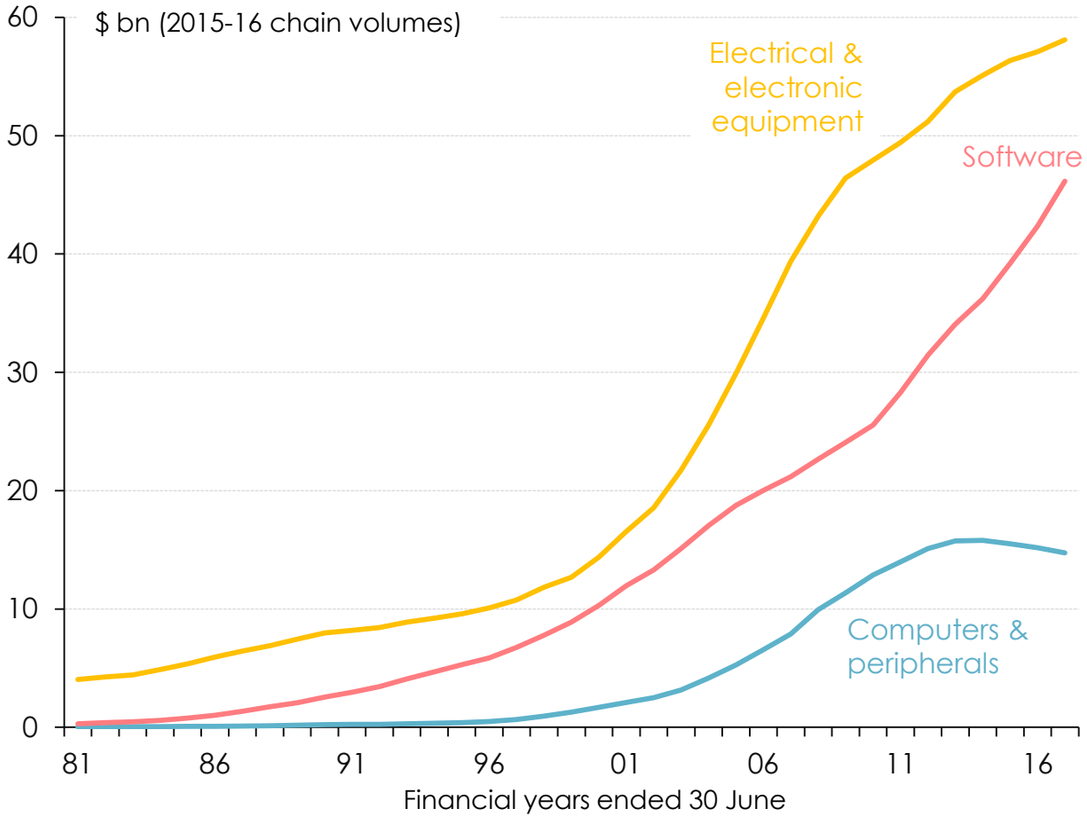


Note: the median annual wage for all occupations in the US in 2016 was $US37,040.
Source: US Bureau of Labor Statistics, *Occupational Outlook Handbook*, October 2017.

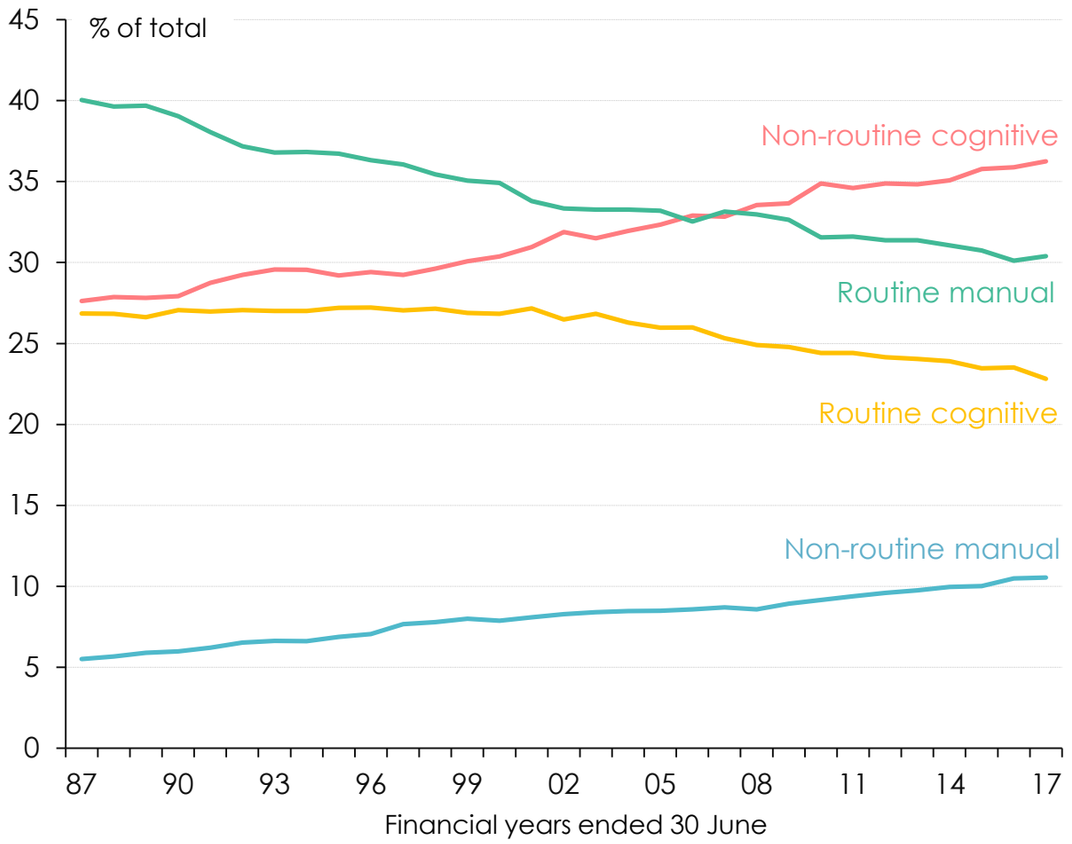
SAUL ESLAKE

Substantial increases in the use of IT by Australian businesses have not so far resulted in massive net job losses

Australia's information technology business capital stock



Australian employment, by skill type



Note: Skill types based on occupational categories in labour force statistics.
Sources: ABS, *Australian System of National Accounts* 2016-17 (5204.0), Table 69; *Labour Force, Australia, Detailed, Quarterly*, August 2017 (6291.0.55.003).
Based on ideas in Jeff Borland & Michael Coelli, *Are robots taking our jobs?,* University of Melbourne, August 2017; and Alex Heath, 'The Changing Nature of the Australian Workforce', Speech to a CEDA Conference, Brisbane, 21st September 2016.

SAUL ESLAKE

There's no hard statistical evidence that employment has become more insecure over the last 20 years

Employed persons by duration of employment with current employer

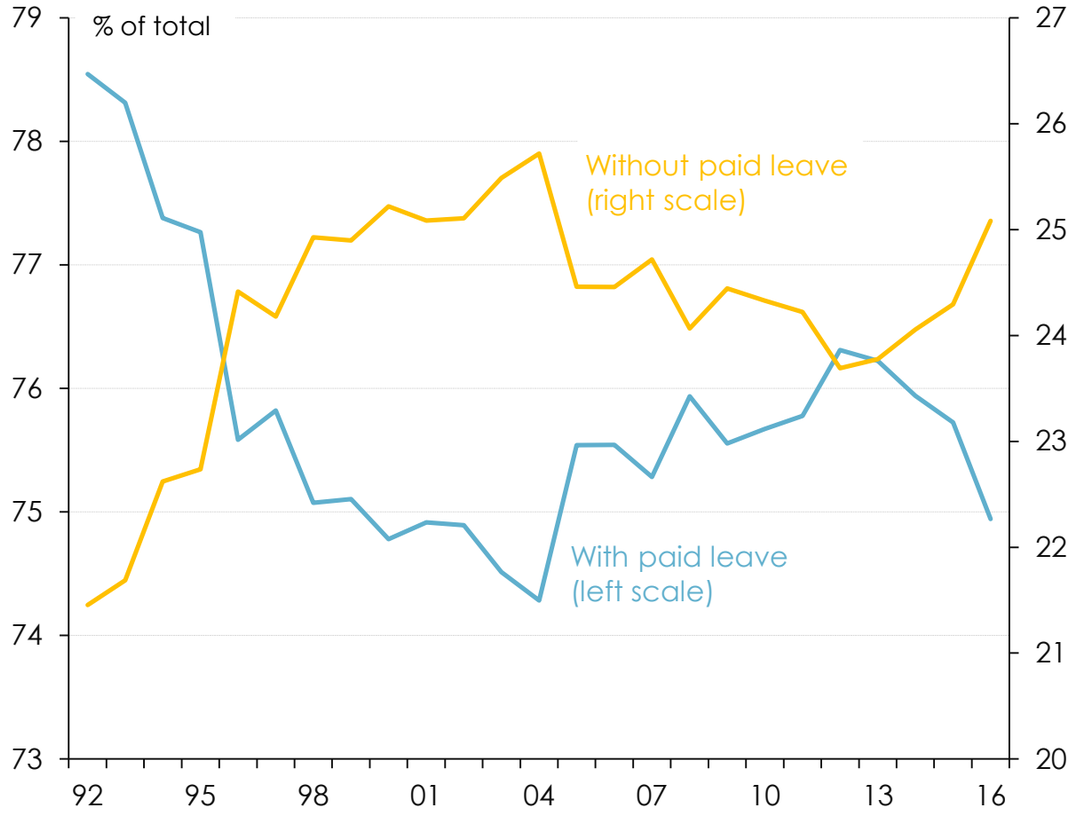
Employees not expecting to be with present employer in 12 months' time

Sources: ABS, *Labour Force, Australia, Detailed, Quarterly*, August 2017 (6291.0.55.003); *Forms of Employment* (6359.0), and *Labour Mobility* (6209.0).
Surveys are typically taken in the middle month of a quarter, but not necessarily every year: for example the question "do you expect to be with your current employer in 12 months' time" was not asked between 1999 and 2003 inclusive.

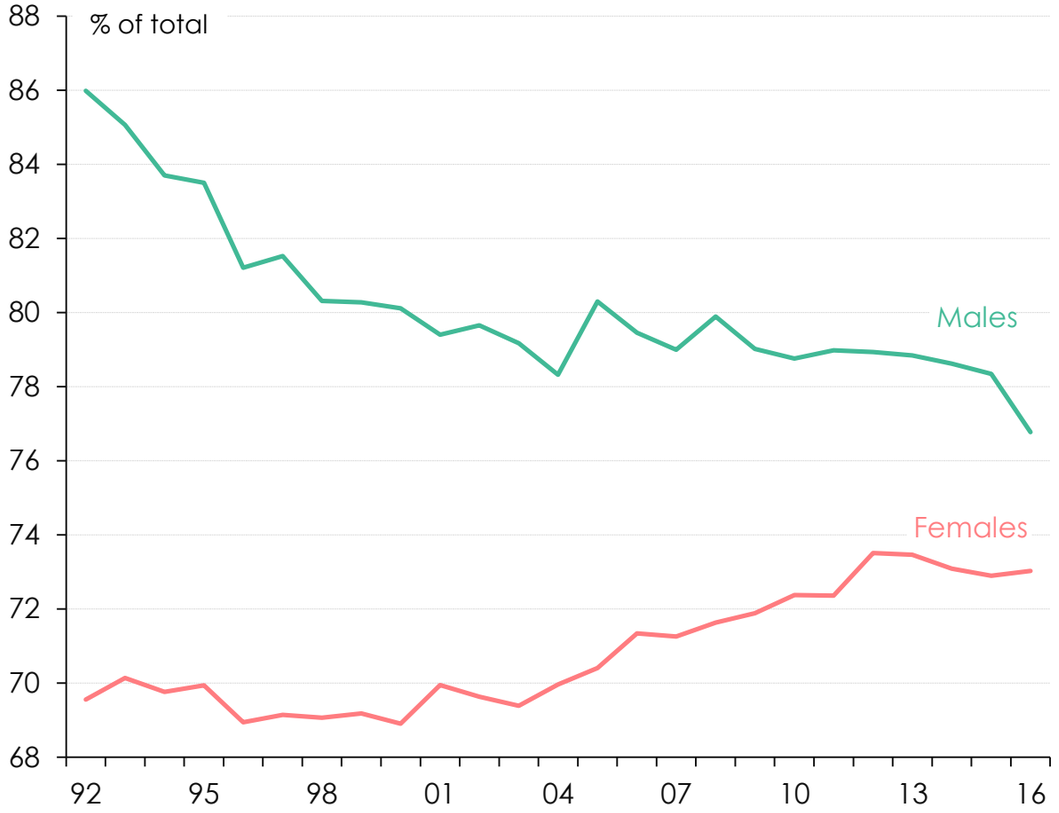
SAUL ESLAKE

Casual employment is becoming more commonplace, but not as dramatically as is widely believed

Employees with and without paid leave entitlements



Employees with paid leave entitlements, by gender

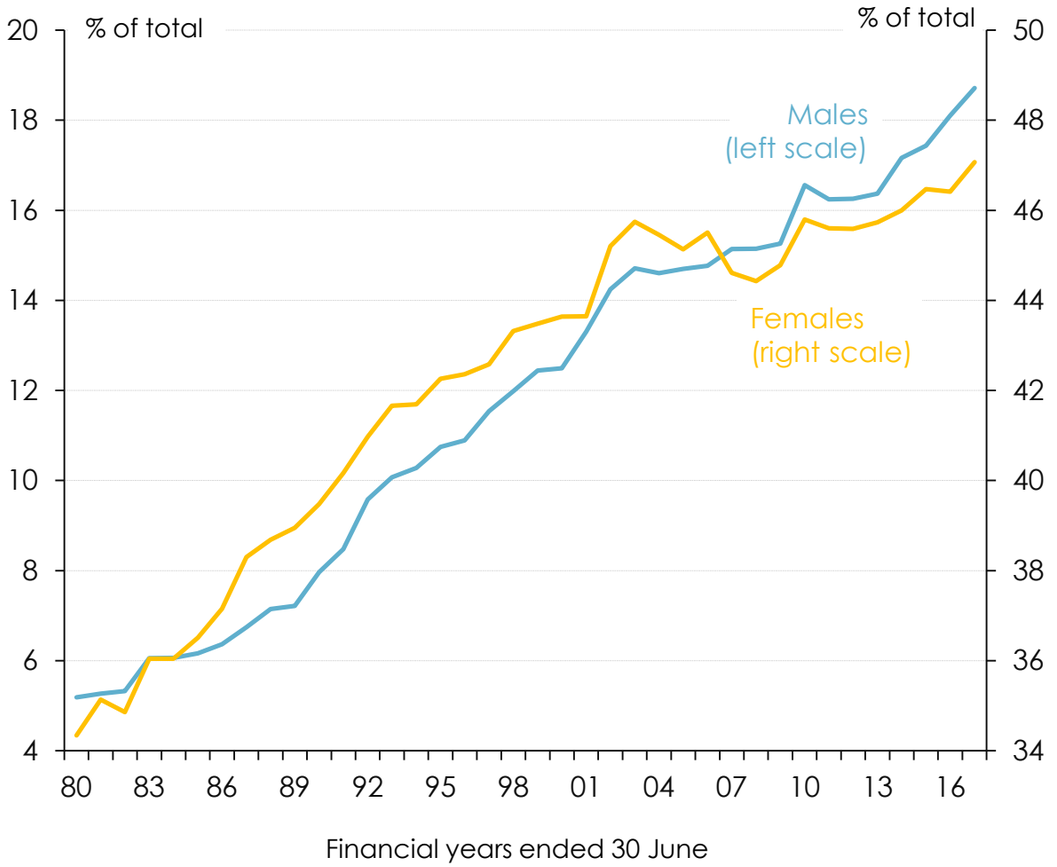


Note: The ABS uses 'employees without paid leave entitlements' as the primary measure of casual employment. This is an objective measure that can be collected consistently. An employee with paid leave entitlements has access to either paid holiday leave or paid sick leave, or both. *Sources:* ABS, *Characteristics of Employment,* August 2016 (6333.0) and *Australian Labour Market Statistics*, July 2013 (6105.0). Surveys are in either August or November of each year.

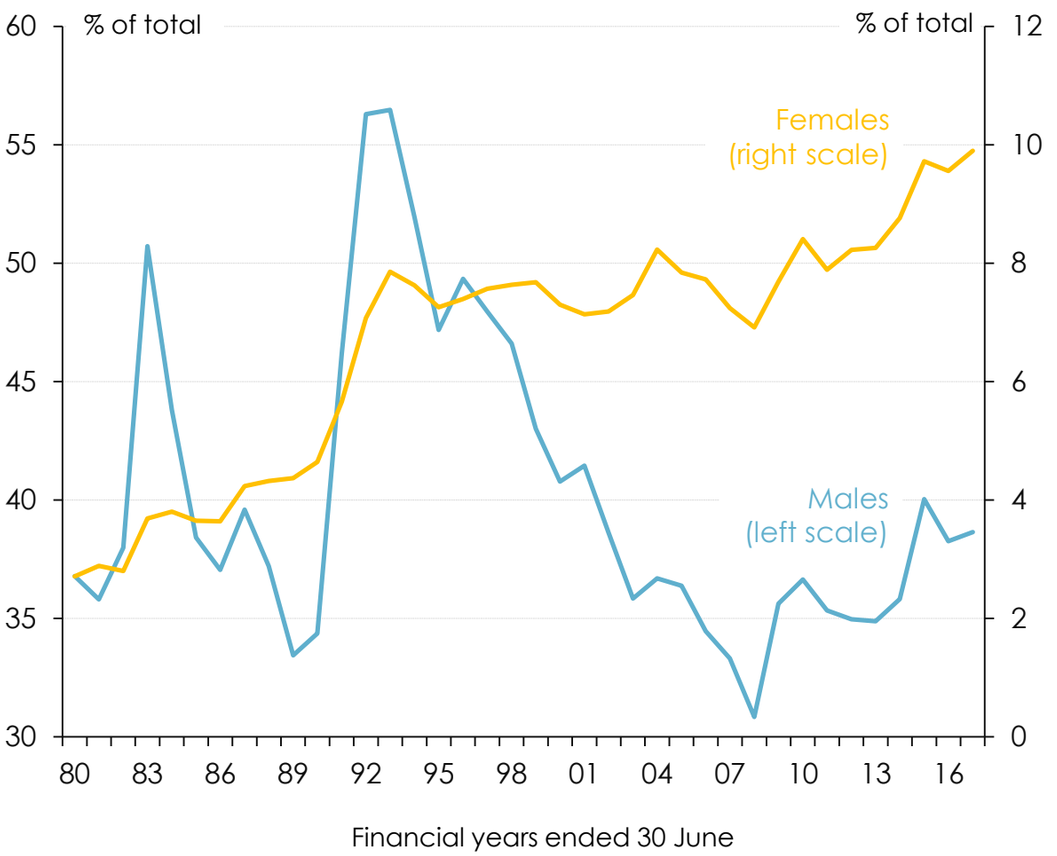
SAUL ESLAKE

A steadily increasing proportion of people are working part-time – and while that suits many, it is not always by choice

Part-time employment as a pc of total, by gender



Part-time workers who would like more hours, as a pc of total, by gender

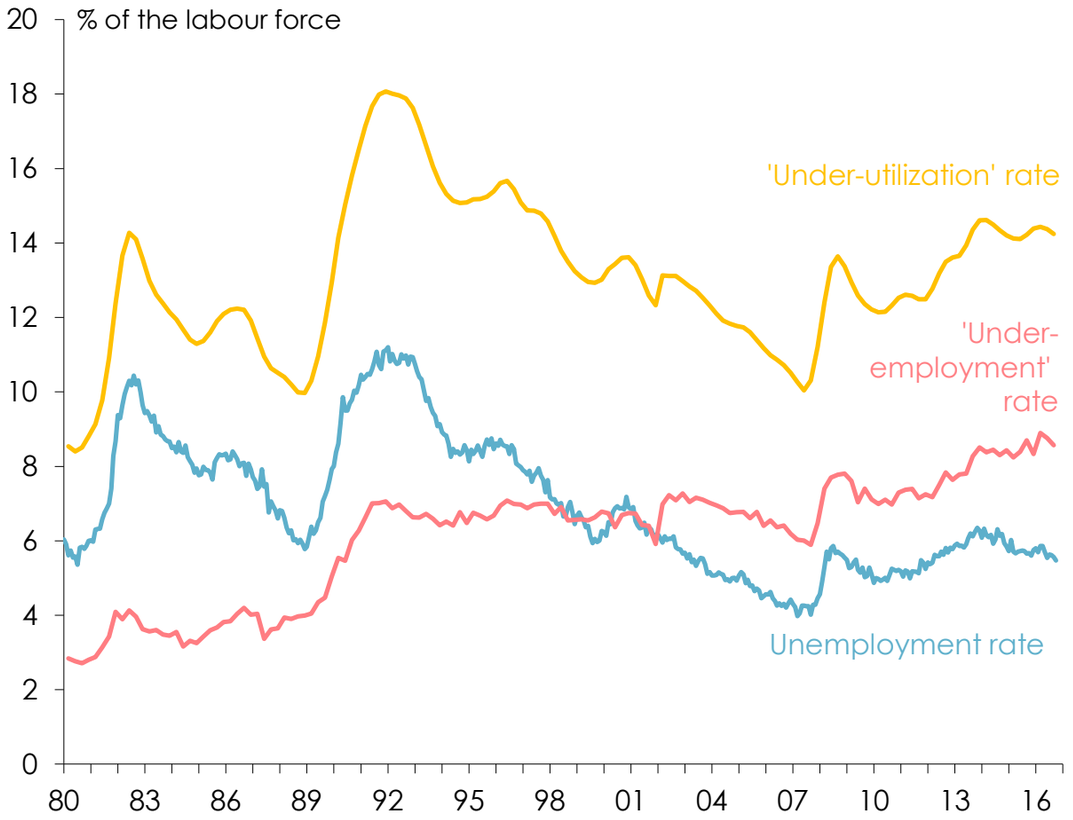


Source: ABS, *The Labour Force, Australia,* September 2016 (6202.0) .

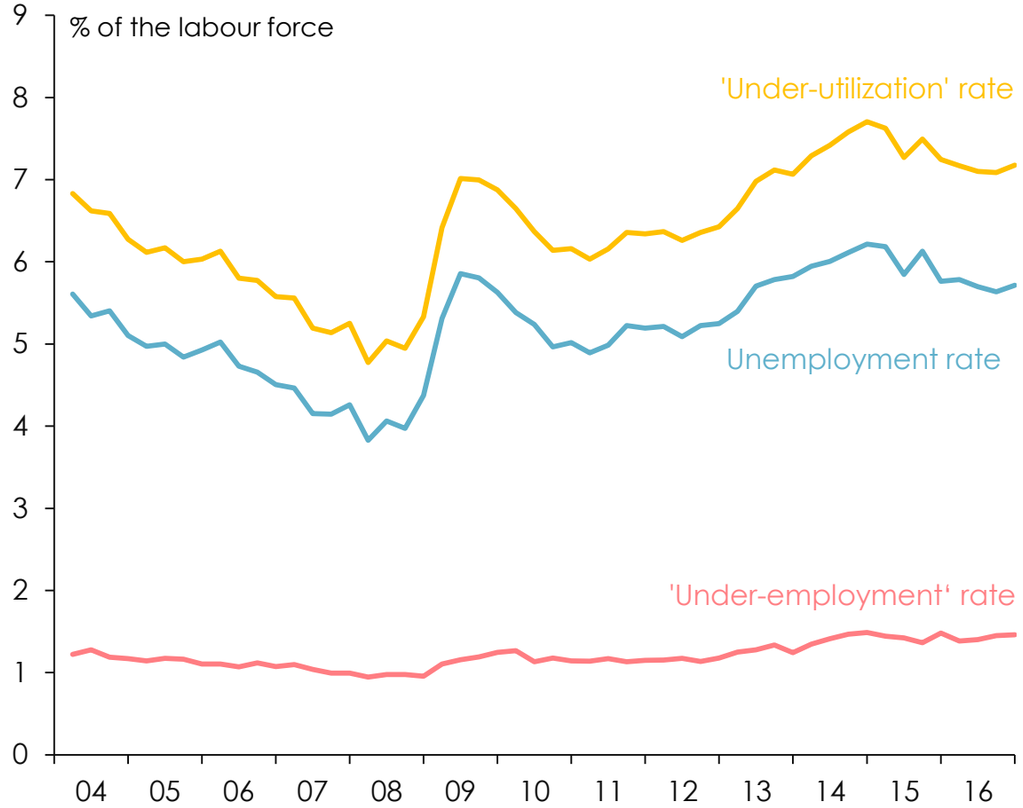
SAUL ESLAKE

There is thus more ‘spare capacity’ in the labour market than suggested by the conventional unemployment rate

‘Heads-based’ alternative measures of ‘spare capacity’ in the labour market



‘Hours-based’ alternative measures of ‘spare capacity’ in the labour market

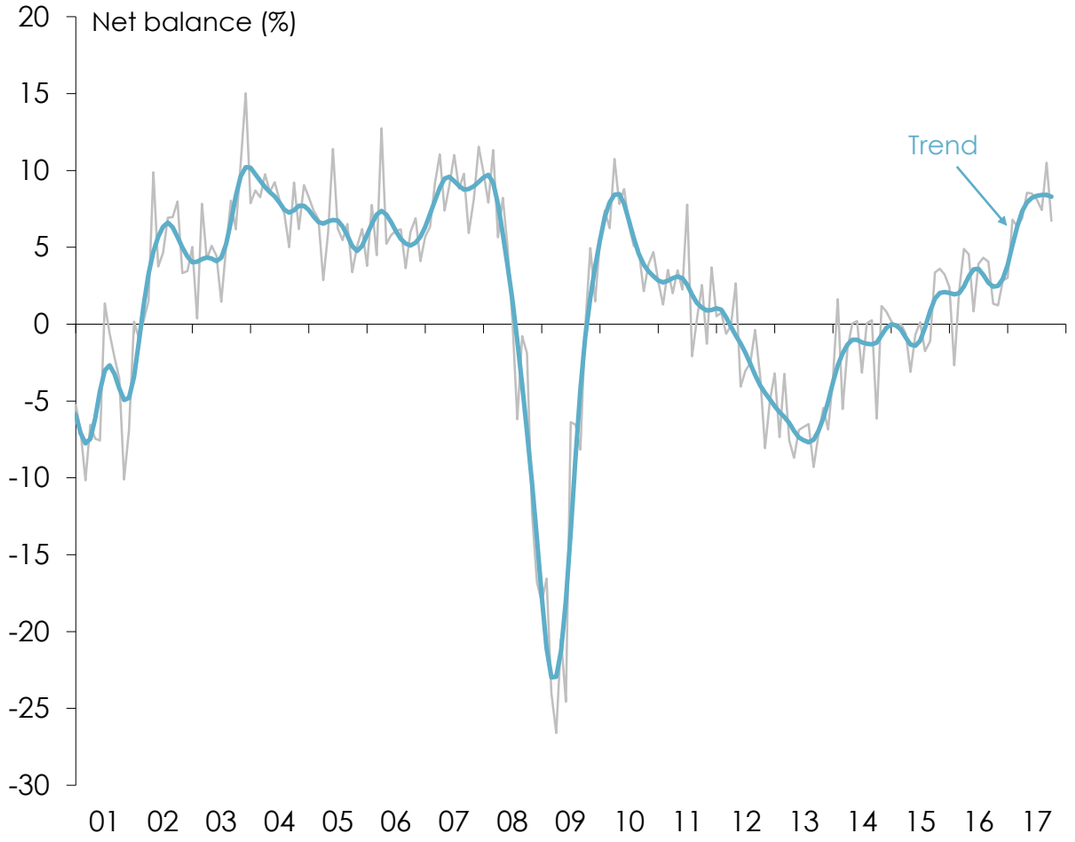


Note: The ‘under-employment’ rate is the number of people working part-time who are willing and able to work more hours (including those who normally work full-time but are working part-time for ‘economic reasons’) as a percentage of the labour force. The ‘under-utilization’ rate is the number of unemployed and under-employed as a percentage of the labour force. The ‘heads-based’ measures take no account of the number of additional hours ‘under-employed’ people would like to work, nor of whether they have been ‘actively looking’ for additional hours (as is required of people not working in order to be counted as ‘unemployed’.

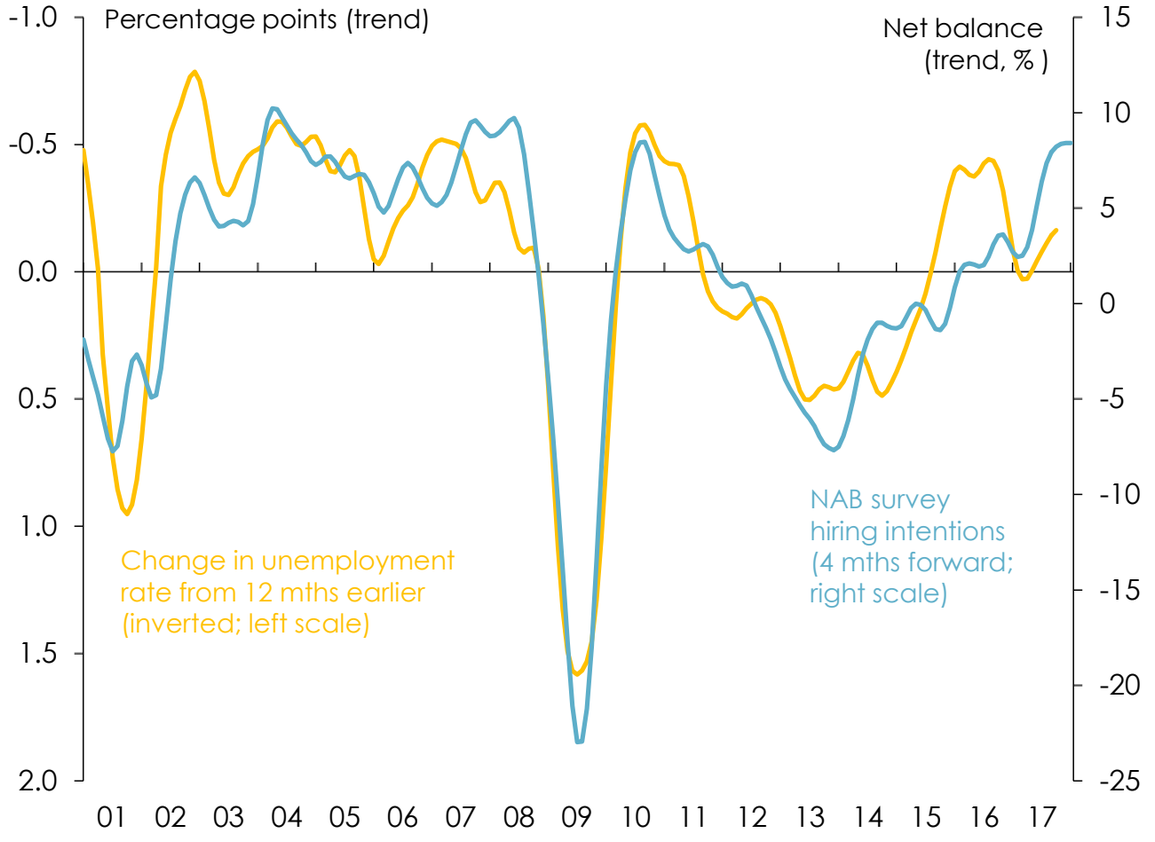
Sources: ABS, *The Labour Force, Australia,* September 2016 (6202.0)*;* Reserve Bank of Australia, *Statement on Monetary Policy*, February 2017, Box B.

Leading indicators of the labour market are pointing to an ongoing gradual decline in unemployment

National Australia Bank monthly survey measure of employer hiring intentions



NAB hiring intentions measure as a leading indicator of changes in unemployment

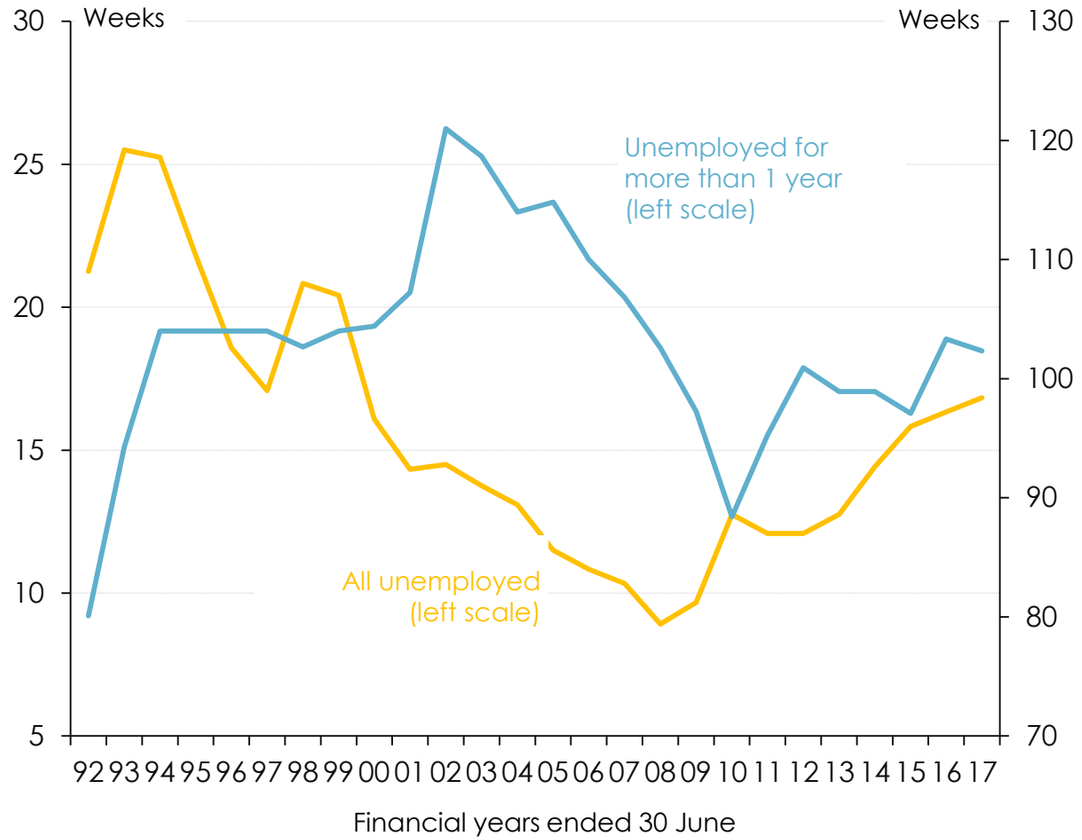


Source: National Australia Bank, *Monthly Business Survey,* September 2017*;* ABS, *The Labour Force, Australia*, September 2017 (6202.0).

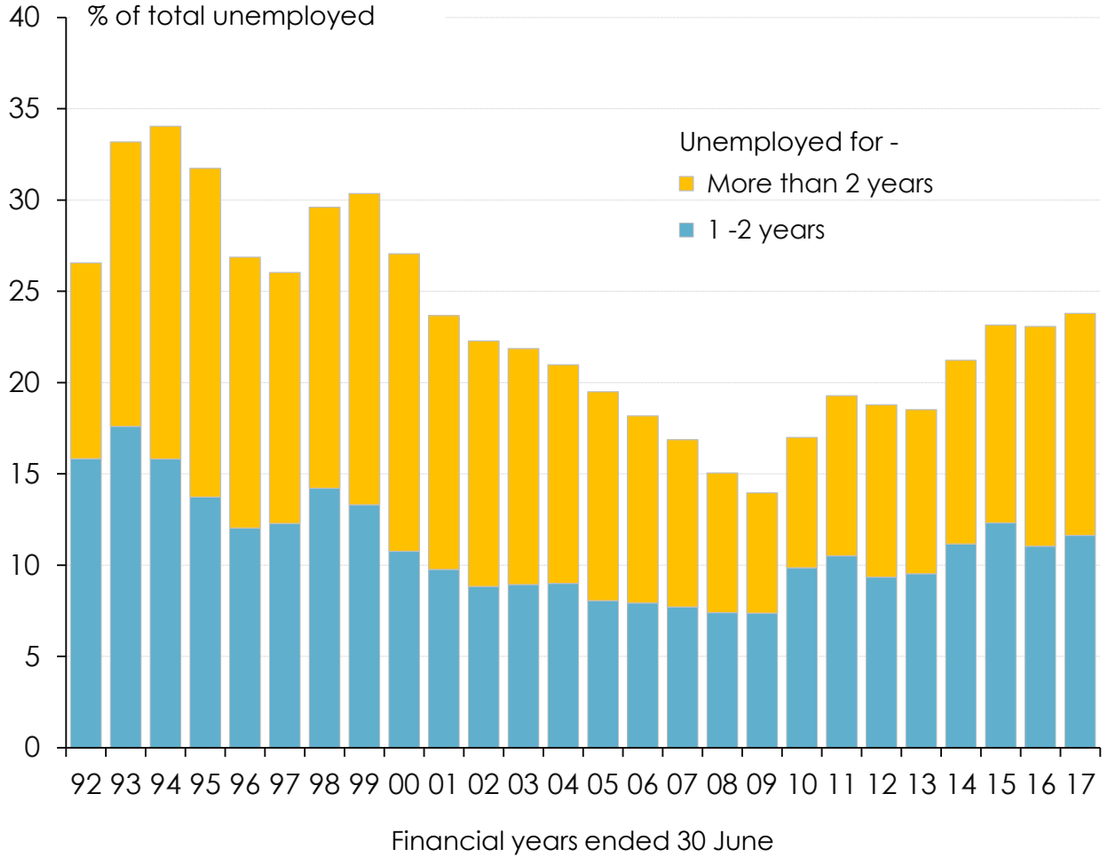
SAUL ESLAKE

However long-term unemployment seems to be becoming more entrenched

Median duration of unemployment



Long-term unemployed as a share of total unemployed

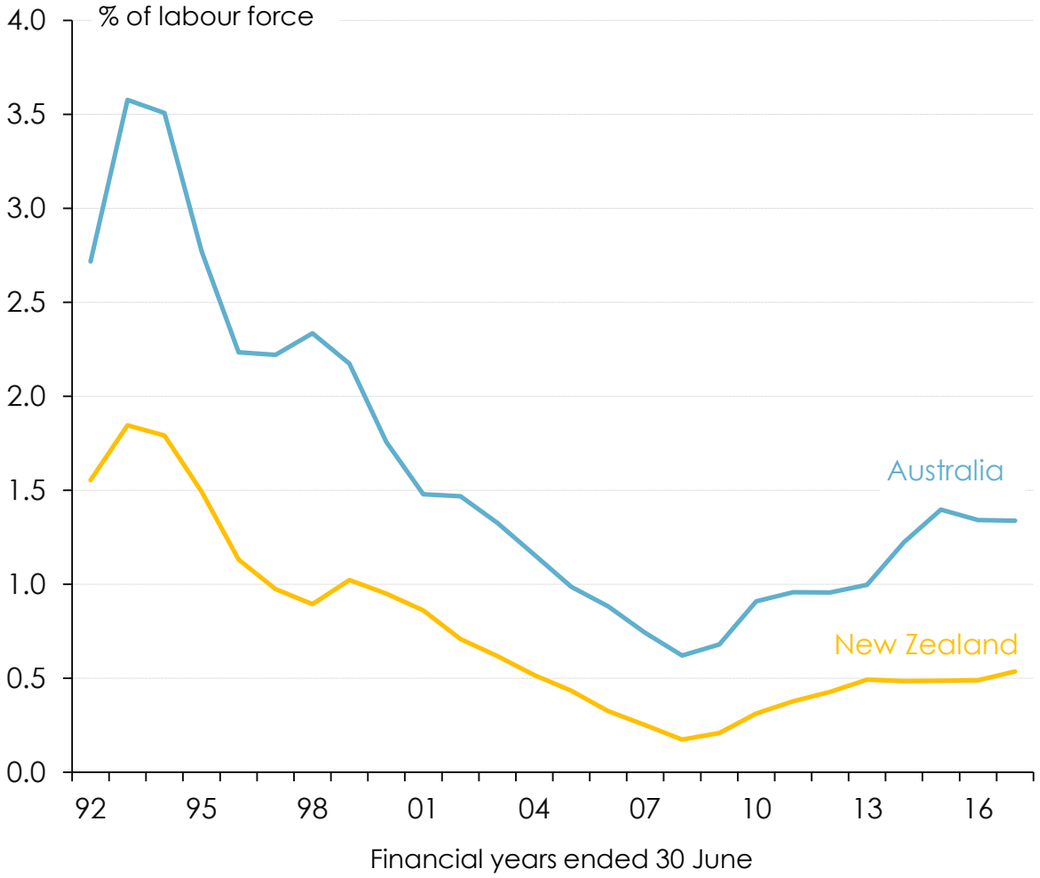


Source: ABS, *The Labour Force, Australia,* September 2017 (6202.0).

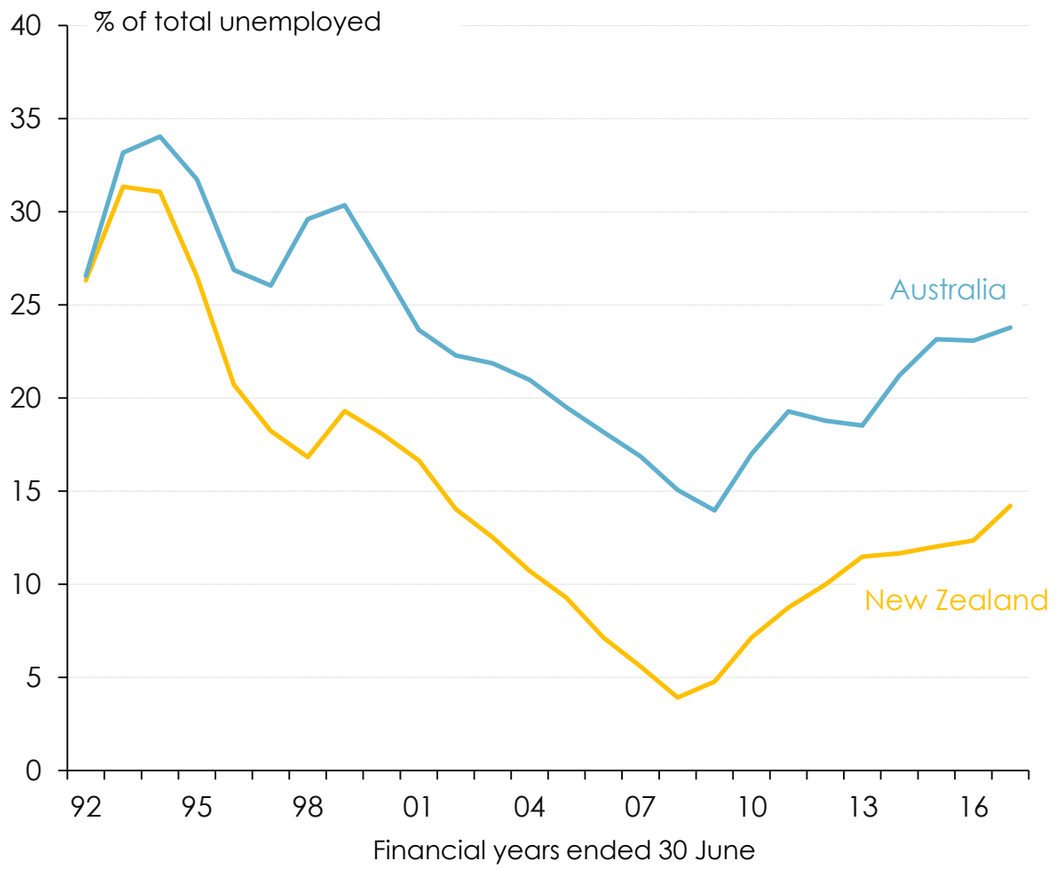
SAUL ESLAKE

New Zealand seems to be doing better in dealing with long-term unemployment than Australia

Long-term unemployment rates (pc of labour force), Australia and NZ



Long-term unemployed as pc of total unemployed, Australia and NZ

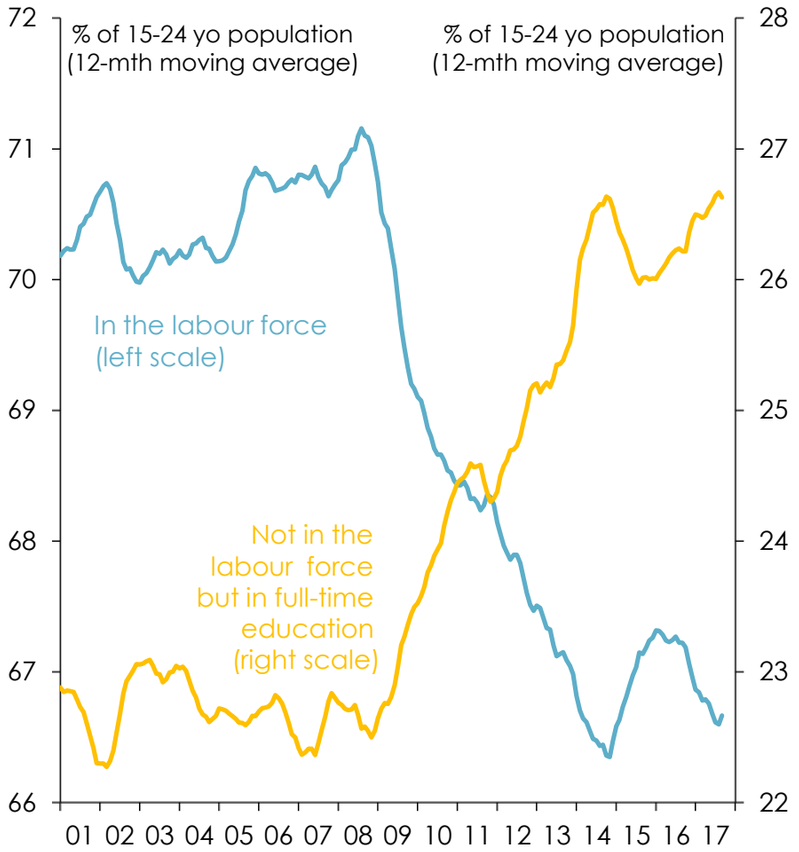


Source: ABS, *The Labour Force, Australia,* September 2017 (6202.0); Statistics New Zealand *Infoshare*, Household Labour Force Survey.

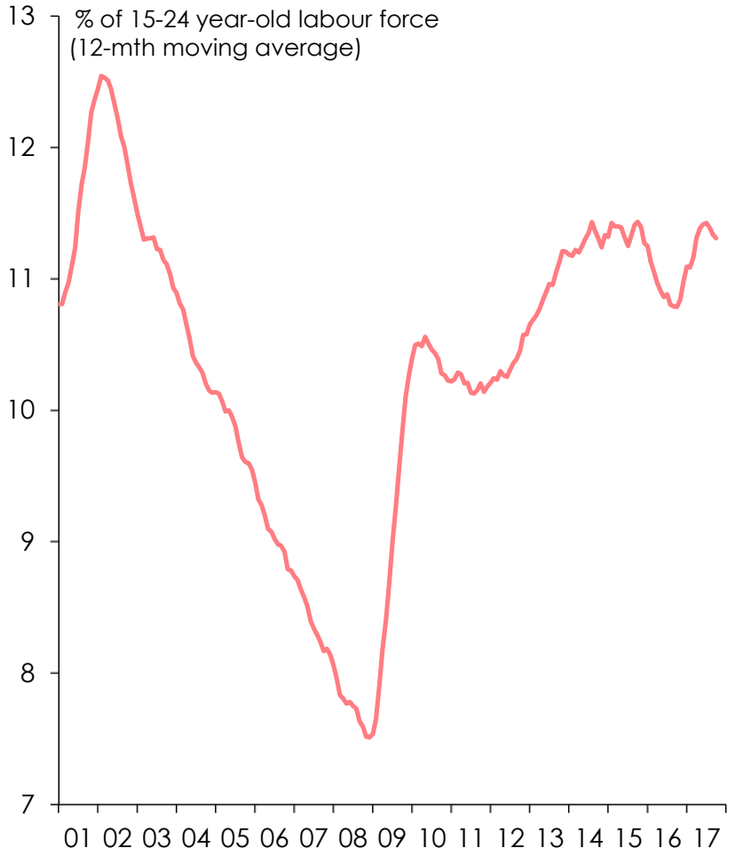
SAUL ESLAKE

Some aspects of youth unemployment, and disengagement from the labour market, appear to be becoming more intractable

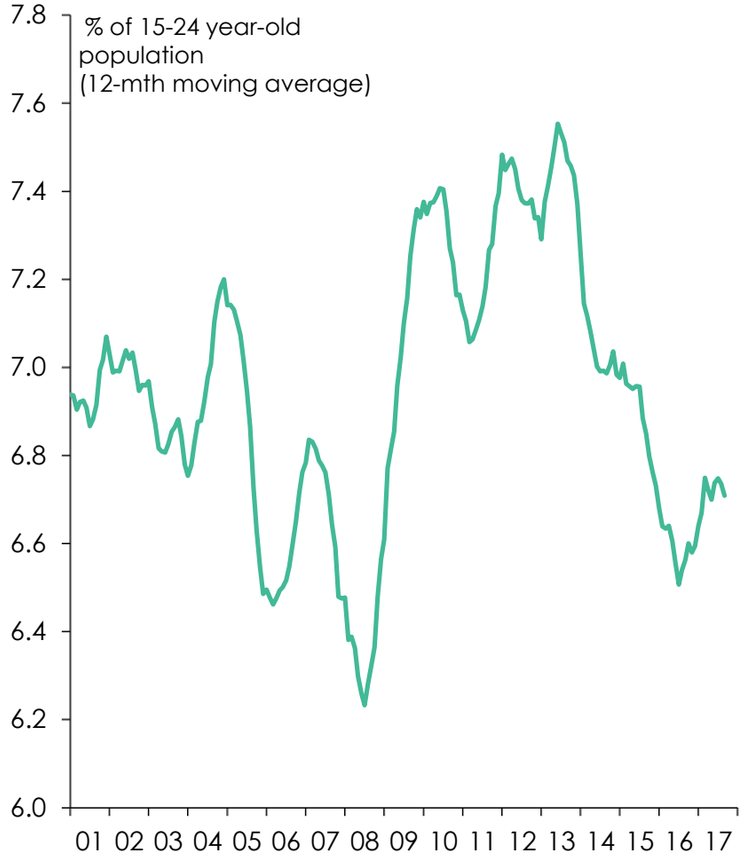
Work force and education participation -15-24 yr olds



15-24 yr olds unemployed and not in full-time education



15-24 yr olds in neither work force nor full-time education



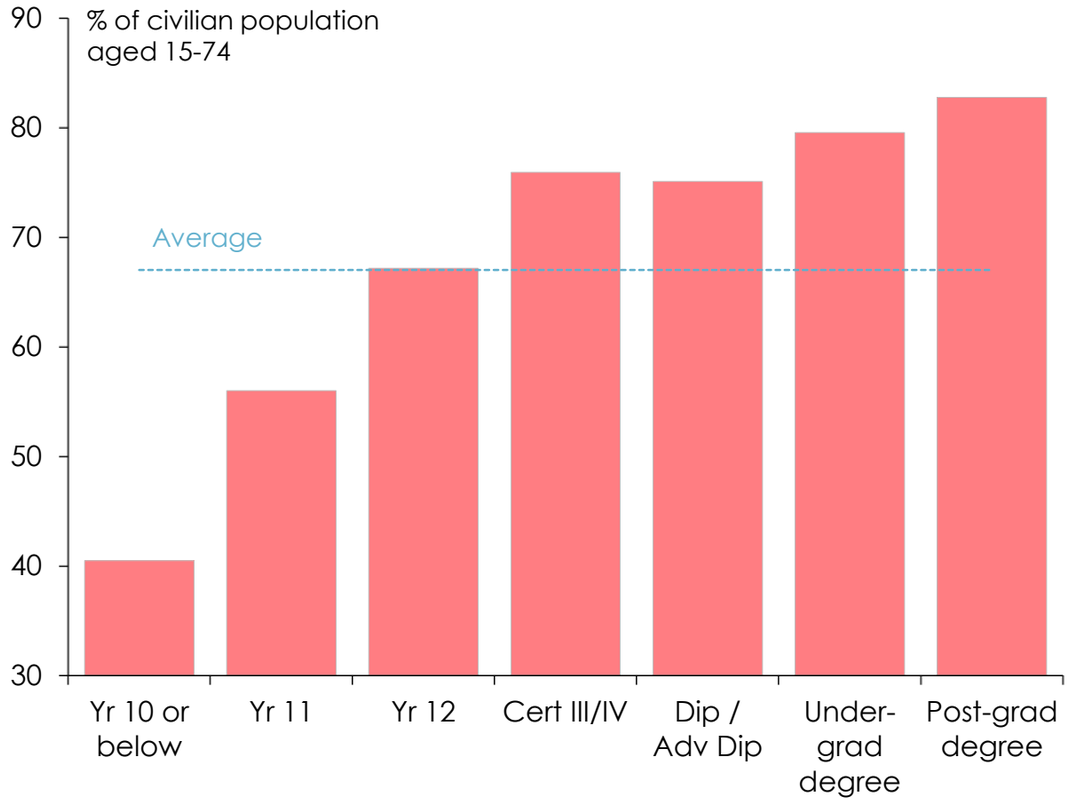
Sources: Australian Bureau of Statistics, *The Labour Force, Australia*, September 2017 (6202.0) and *The Labour Force, Australia, Detailed – Electronic Delivery*, September 2017 (6291.0.55.001)

SAUL ESLAKE

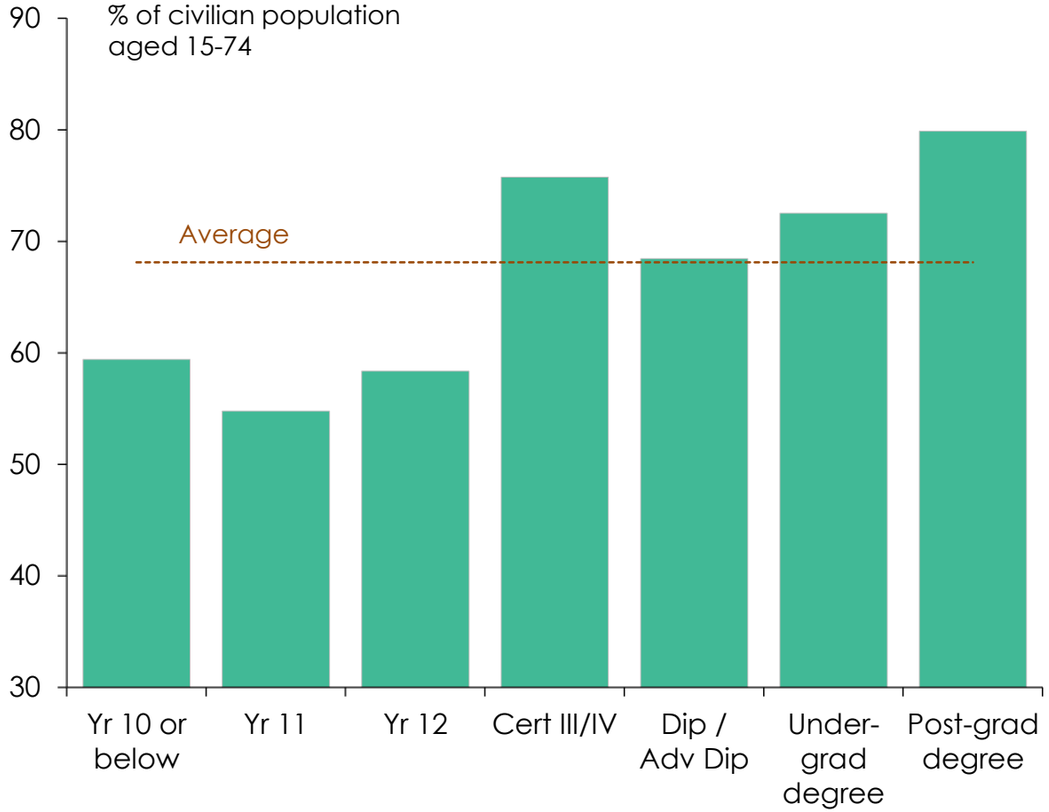
The higher a person's level of educational attainment, the more likely he or she is to be working – and to be working full-time

Labour force experience by level of educational attainment – Australia, May 2016

Employment as a pc of population, by level of educational attainment



Full-time work as a pc of total employment, by level of educational attainment

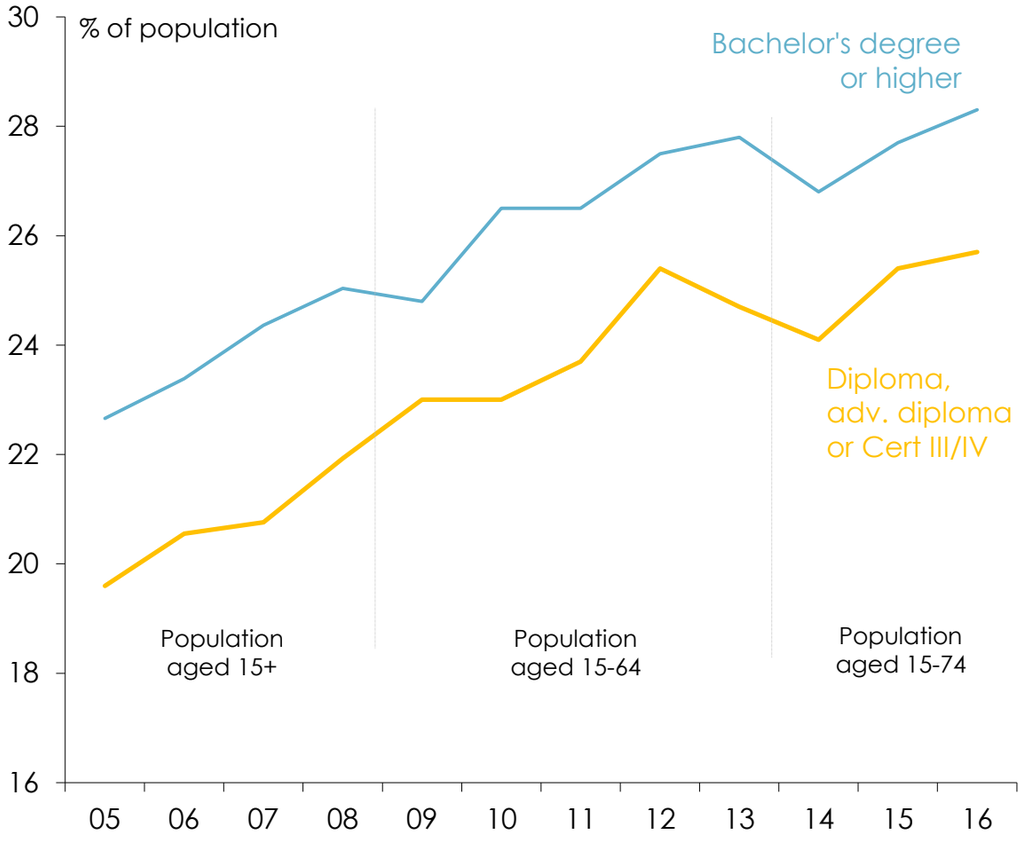


Source: ABS, *Education and Work, Australia,* May 2016 (6227.0).

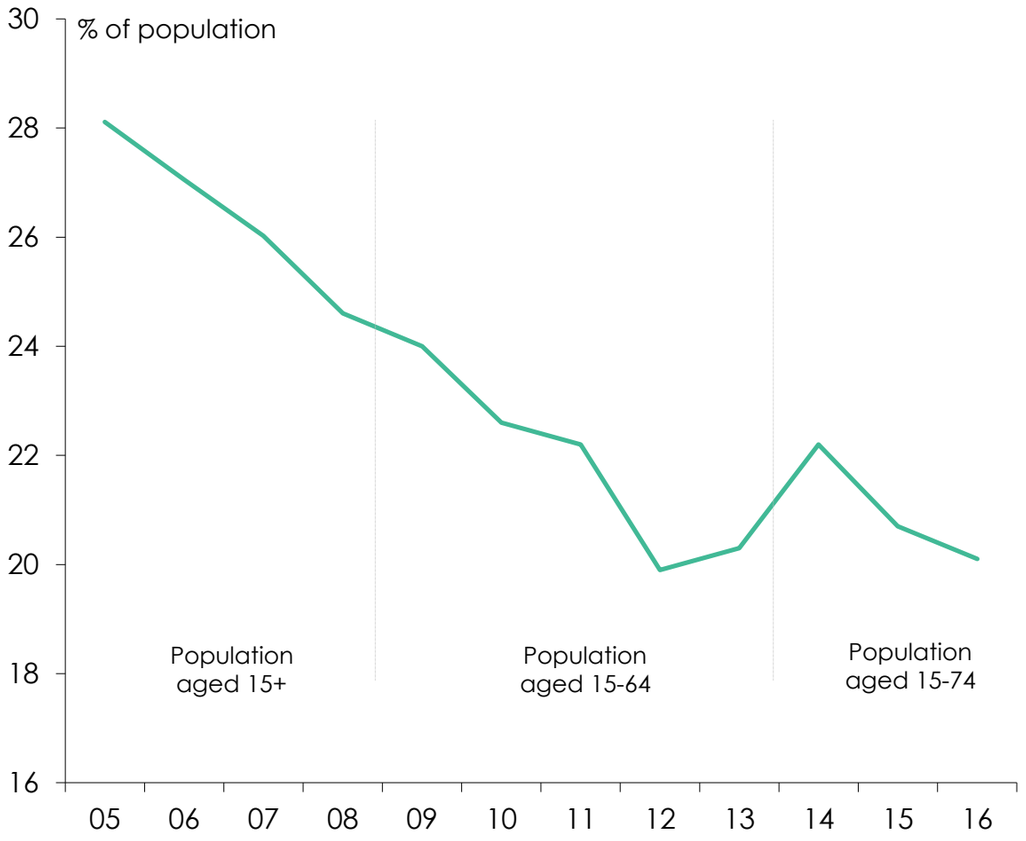
SAUL ESLAKE

And while more Australians are getting more education …

Australians with some kind of post-secondary school qualification



Australians with no formal educational qualification beyond Year 10



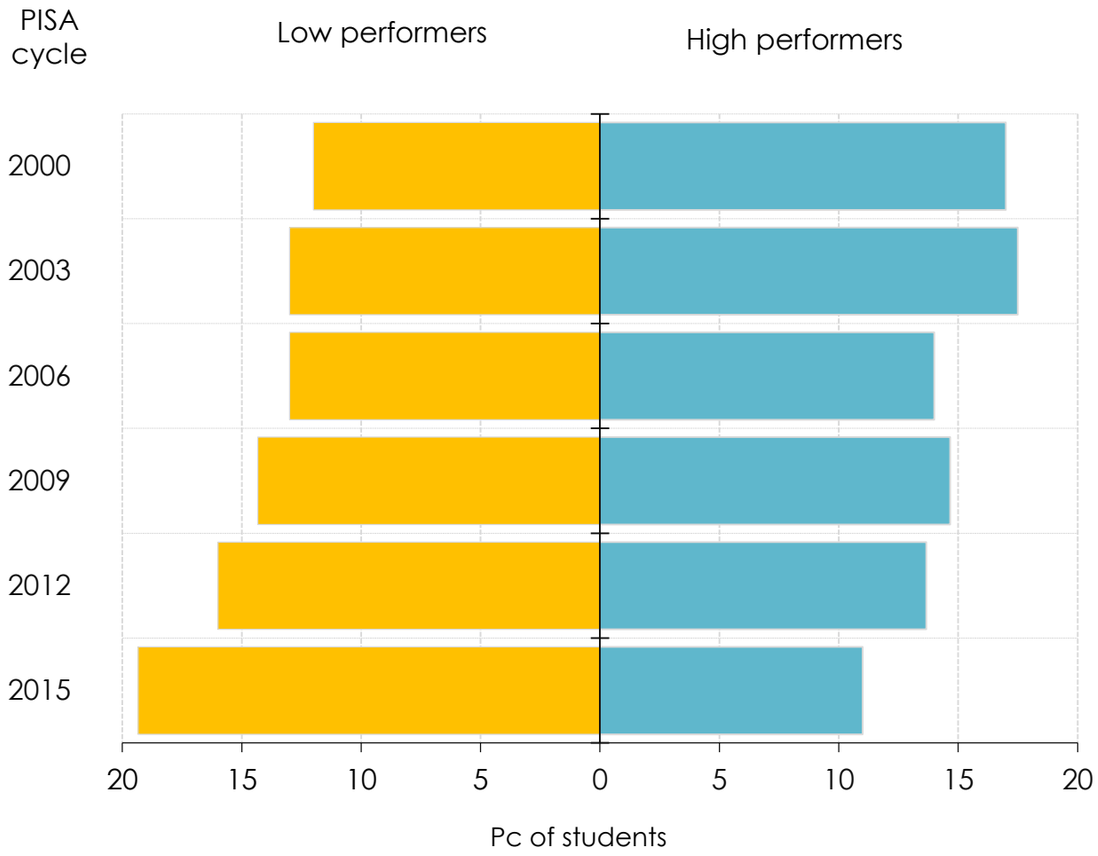
Source: ABS, *Education and Work, Australia*, May 2016 (6227.0).

SAUL ESLAKE

… they may not be getting *better* education

Australia's average PISA scores compared with OECD average

High and low performers in Australia

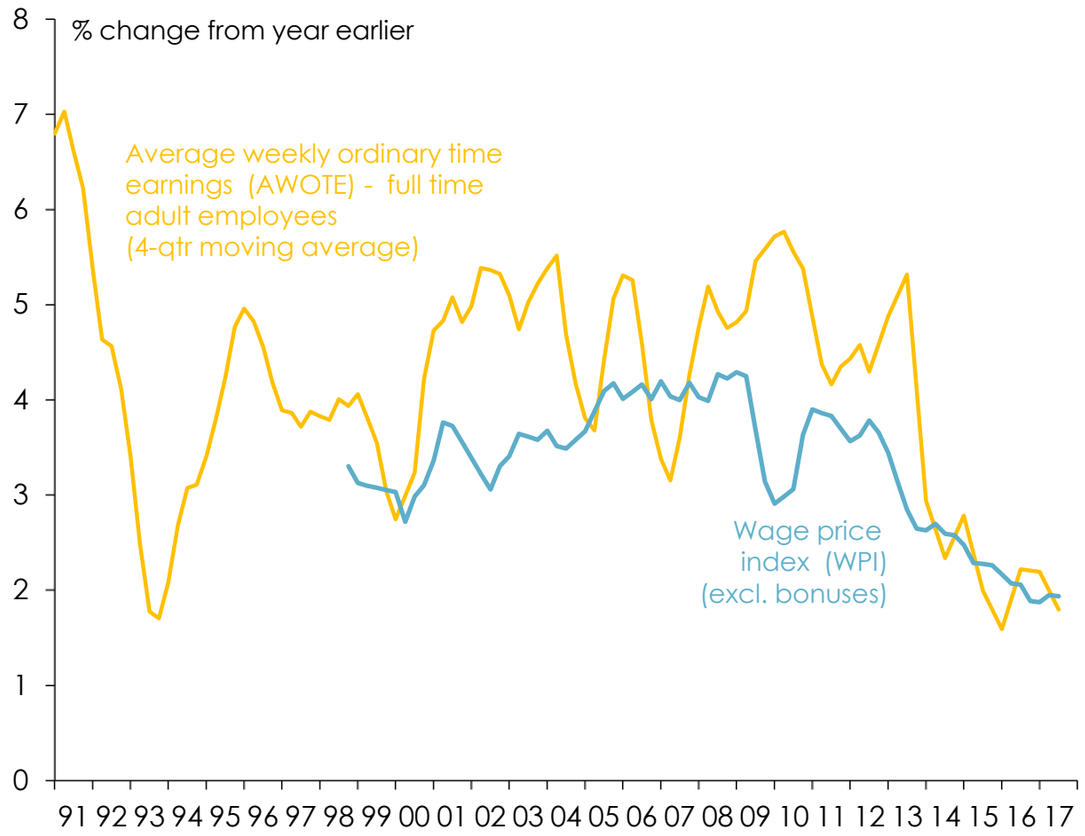


Note: Scores are averaged across reading (2000 onwards), mathematical literacy (2003 onwards) and scientific literacy(2006 onwards).
Source: Sue Thomson, Lisa De Bortoli and Catherine Underwood, *PISA 2015: A first look at Australian student's [sic] performance*, Australian Council for Educational Research, December 2016.

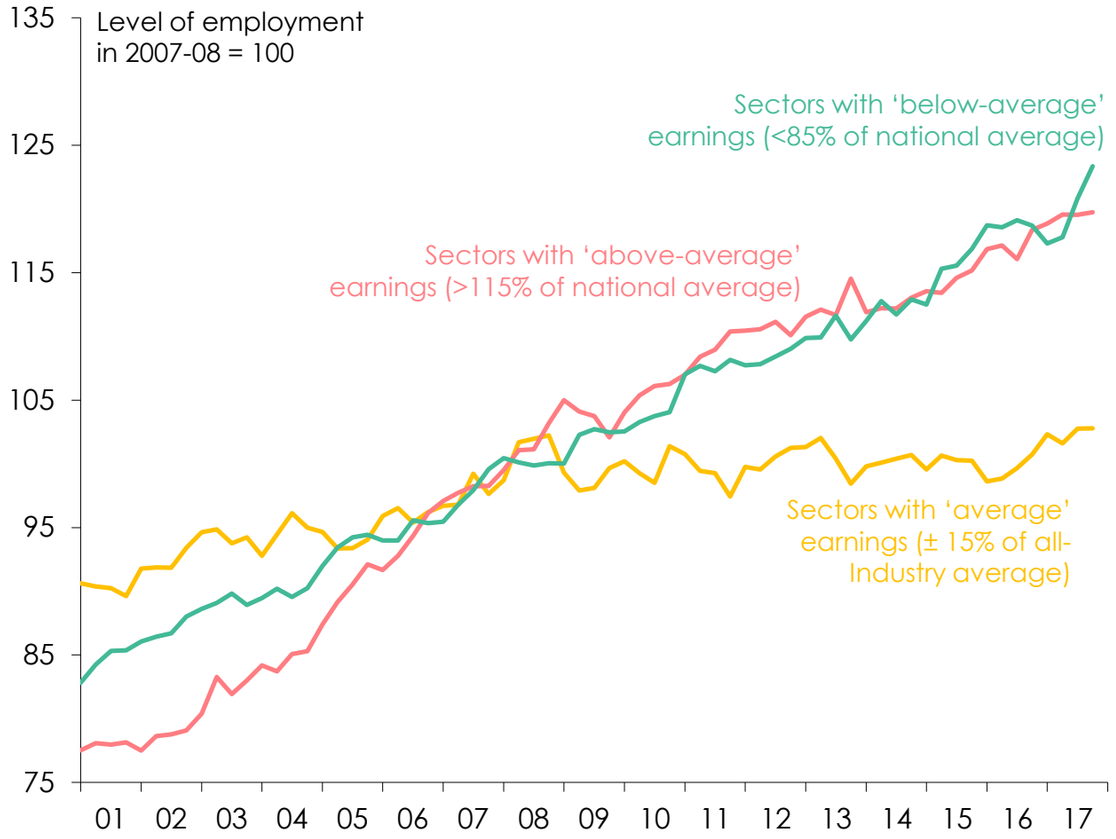
SAUL ESLAKE

Wages growth is now slower than at any time since the early 1990s – but not because jobs growth has been concentrated in low-paying sectors

Measures of growth in wages



Employment by industry, according to average earnings

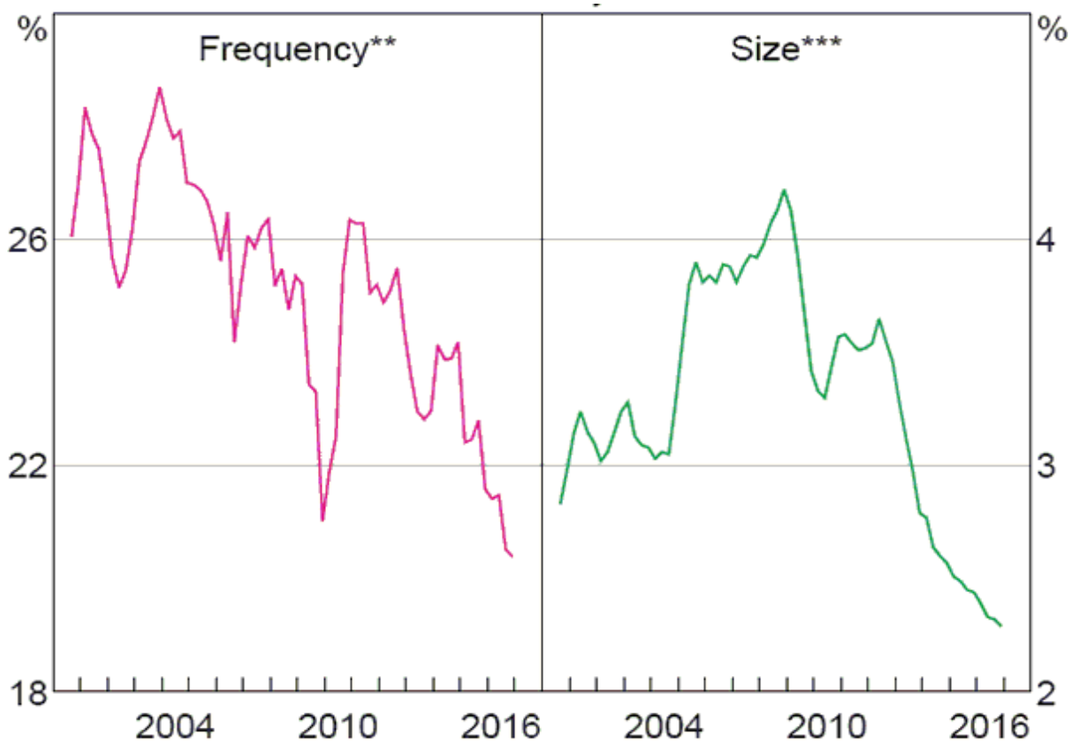


Sources: ABS, *Wage Price Index*, June quarter 2017 (6345.0); *Average Weekly Earnings*, May 2017 (6302.0) ; *The Labour Force, Australia, Detailed, Quarterly*, August 2017 (6291.0.55.003).

SAUL ESLAKE

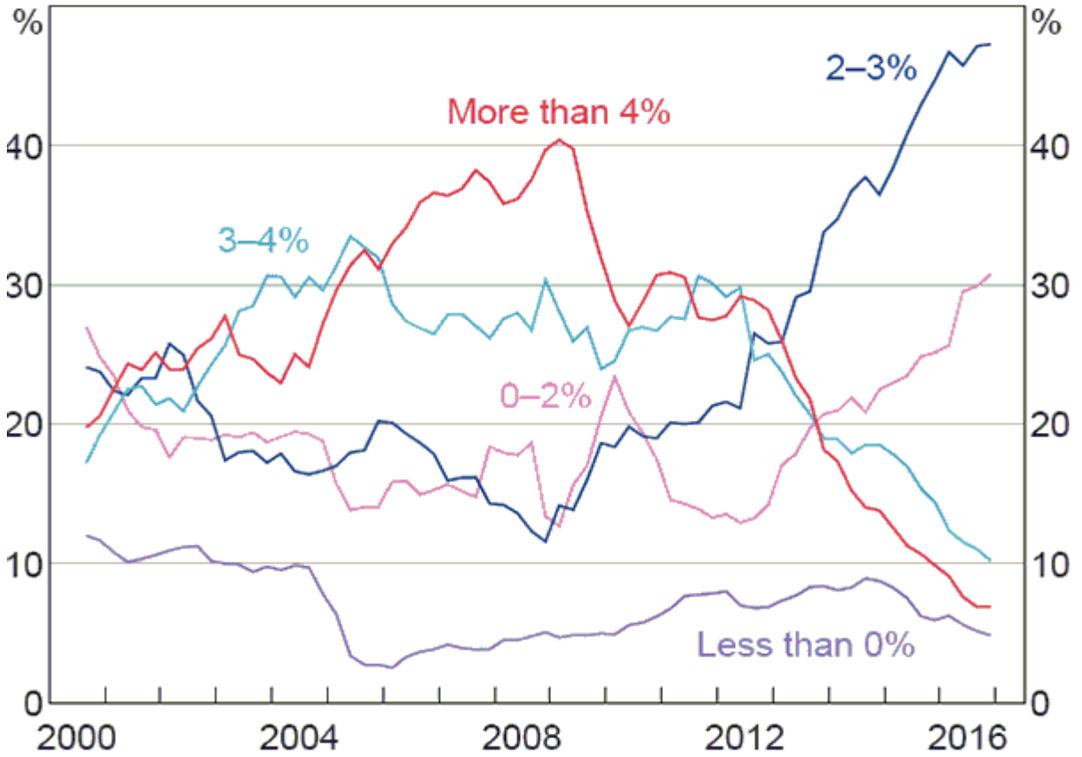
Rather, it's because wage increases have become smaller, and rarer

Frequency and size of wage changes



* Smoothed using a four-quarter trailing average
** Share of jobs with a wage change
*** Average percentage wage change, conditional on a wage change

Share of jobs that experience a wage change of given size



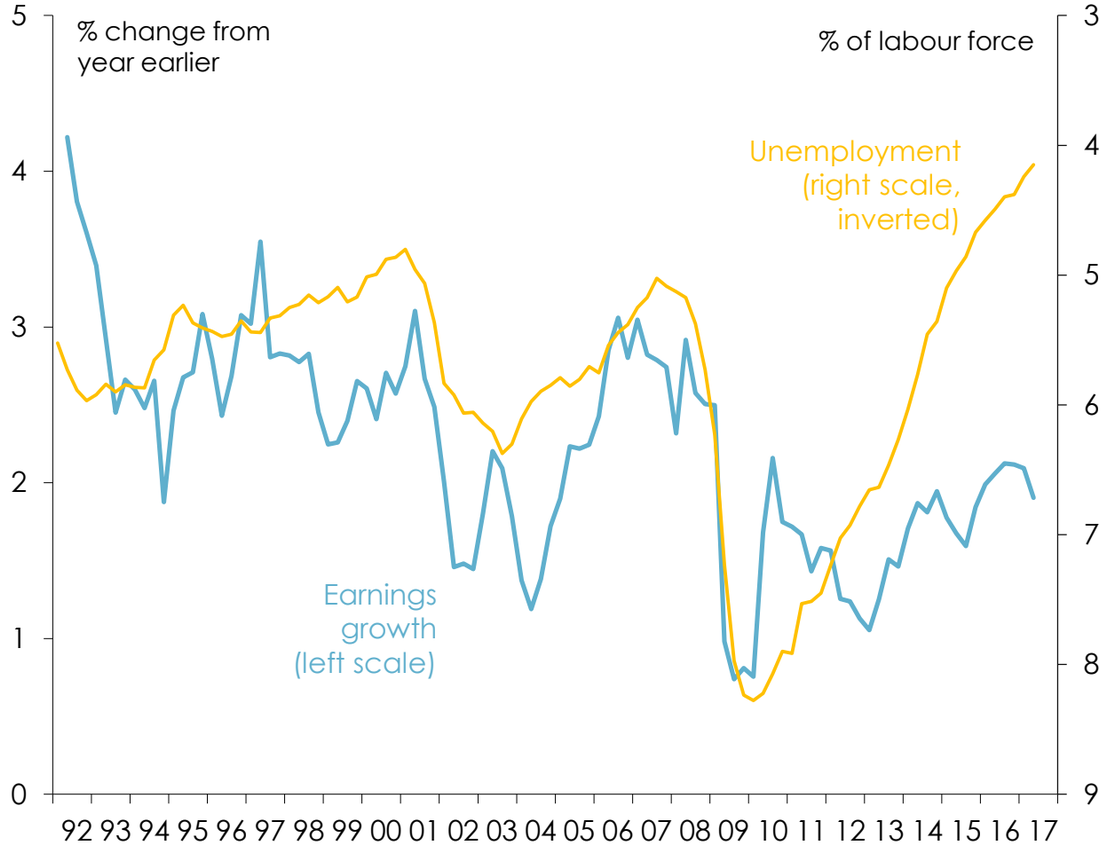
* Smoothed using a four-quarter trailing average

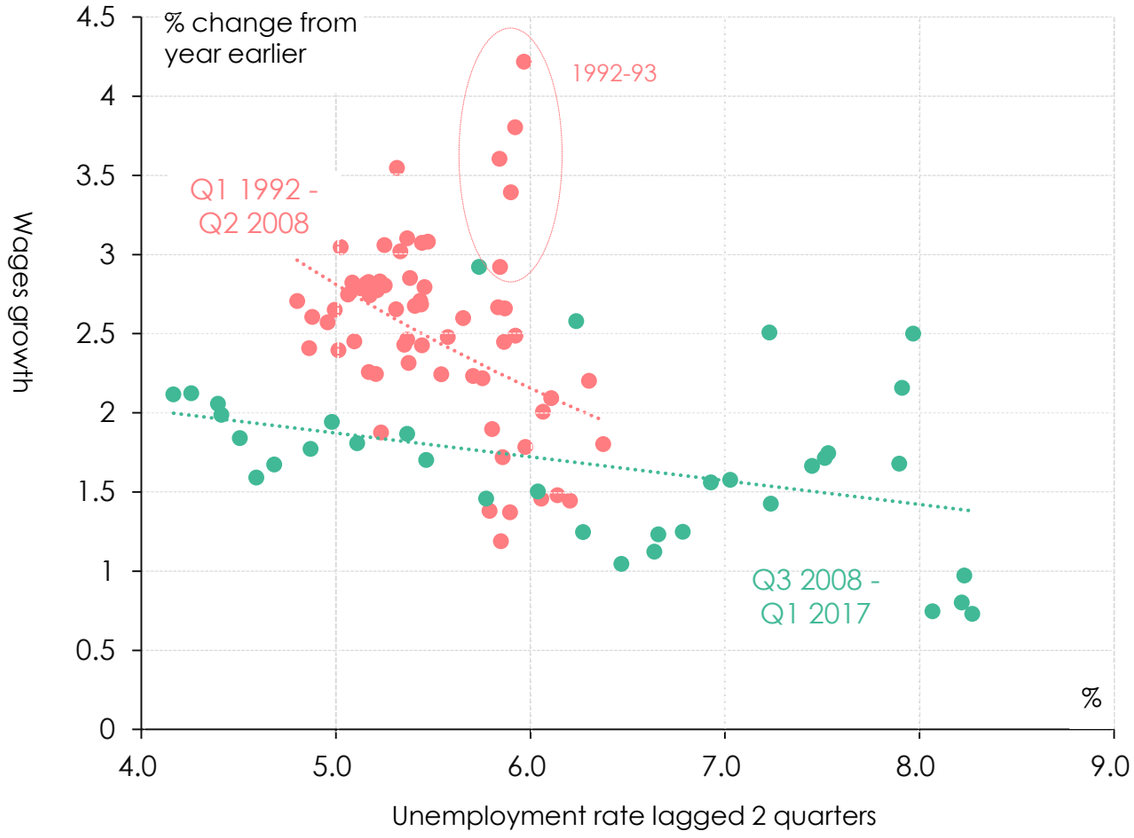
Source: James Bishop and Natasha Cassidy, 'Insights into Low Wage Growth in Australia', Reserve Bank of Australia *Bulletin*, March Quarter 2017.

SAUL ESLAKE

Australia's experience with low wages growth is similar to that of other 'advanced' economies around the world

Wages growth and unemployment in the four largest 'advanced' economies



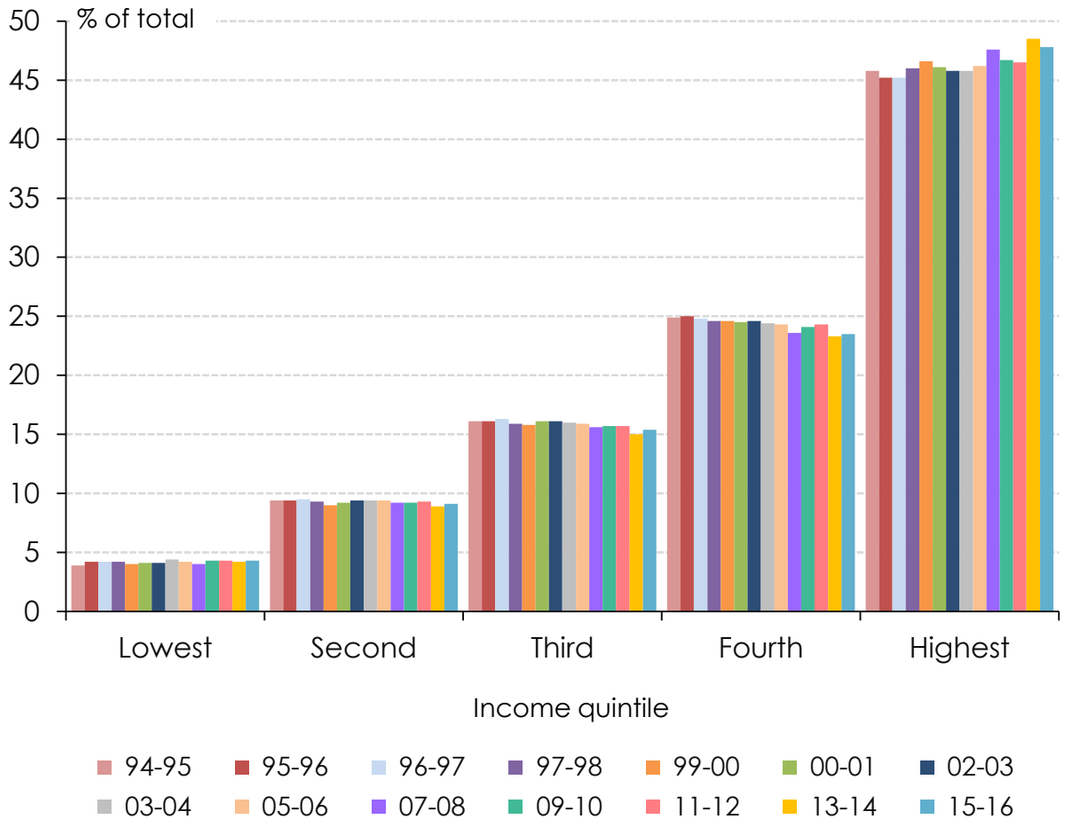


Note: Wages growth and unemployment are averages for the US, Japan, Germany and the UK, weighted by total employment.
Sources: US Bureau of Labor Statistics; Eurostat; Japan Labour Ministry; Bundesagentur fur Arbeit; UK Office of National Statistics; OED; Corinna Economic Advisory.

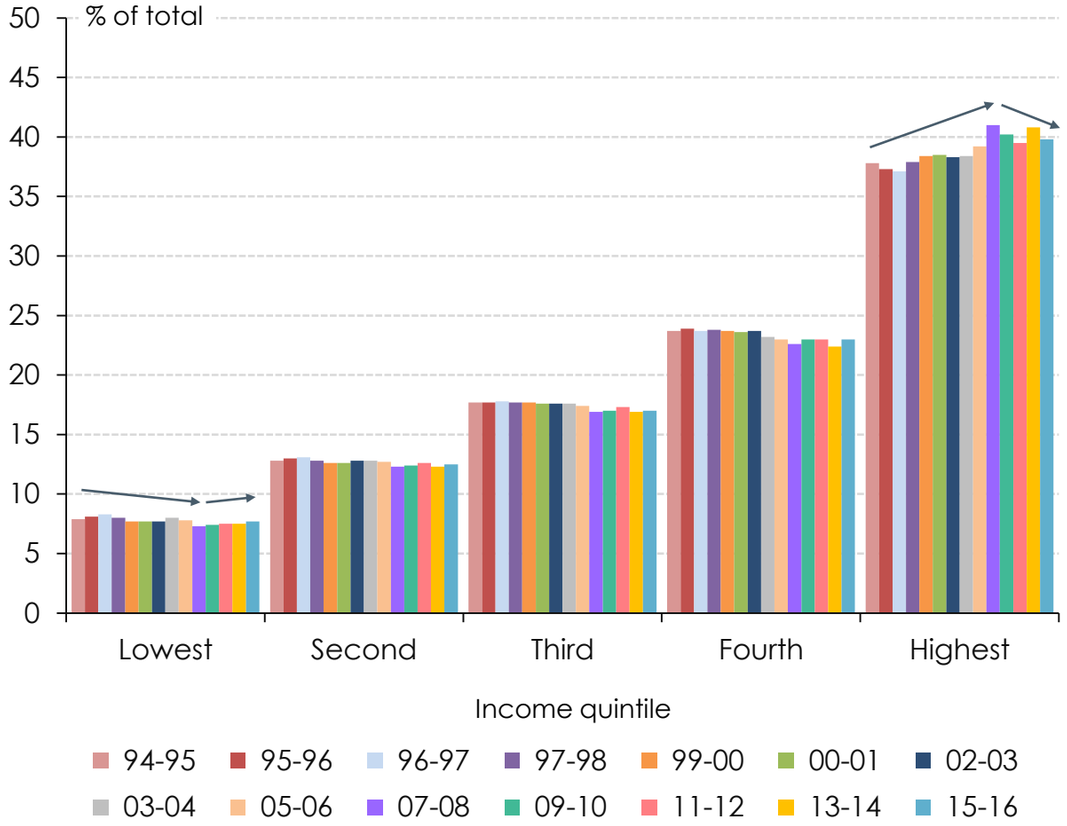
SAUL ESLAKE

Income inequality widened in the years before the global financial crisis but has narrowed a bit since then

Shares of total gross household income, by quintile, 1994-95 to 2015-16



Shares of equivalized household disposable income, by quintile, 1994-95 to 2015-16

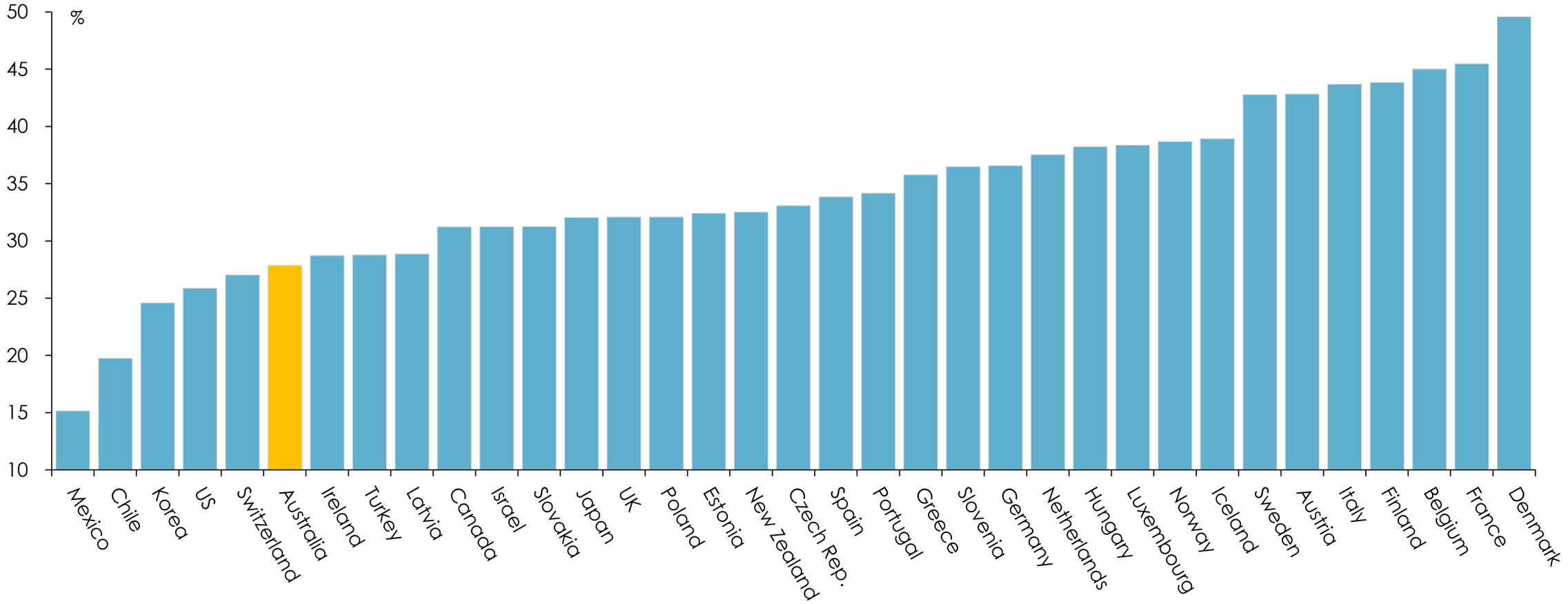


Note: Quintiles are five equally-sized groups each comprising 20% of the population, ranked (in this case) by income. Gross household income is income from all sources (including pensions and benefits) before income tax and Medicare levy. 'Equivalized' disposable income means after adjusting for differences in household composition and size (number of adults and children) and after deducting income tax and Medicare levy.
Source: Australian Bureau of Statistics, *Household Income and Wealth, Australia*, 2015-16 (6523.0).

SAUL ESLAKE

Although Australia is a low-tax country by 'advanced' economy standards …

Taxation revenue as a share of GDP – OECD countries, 2014

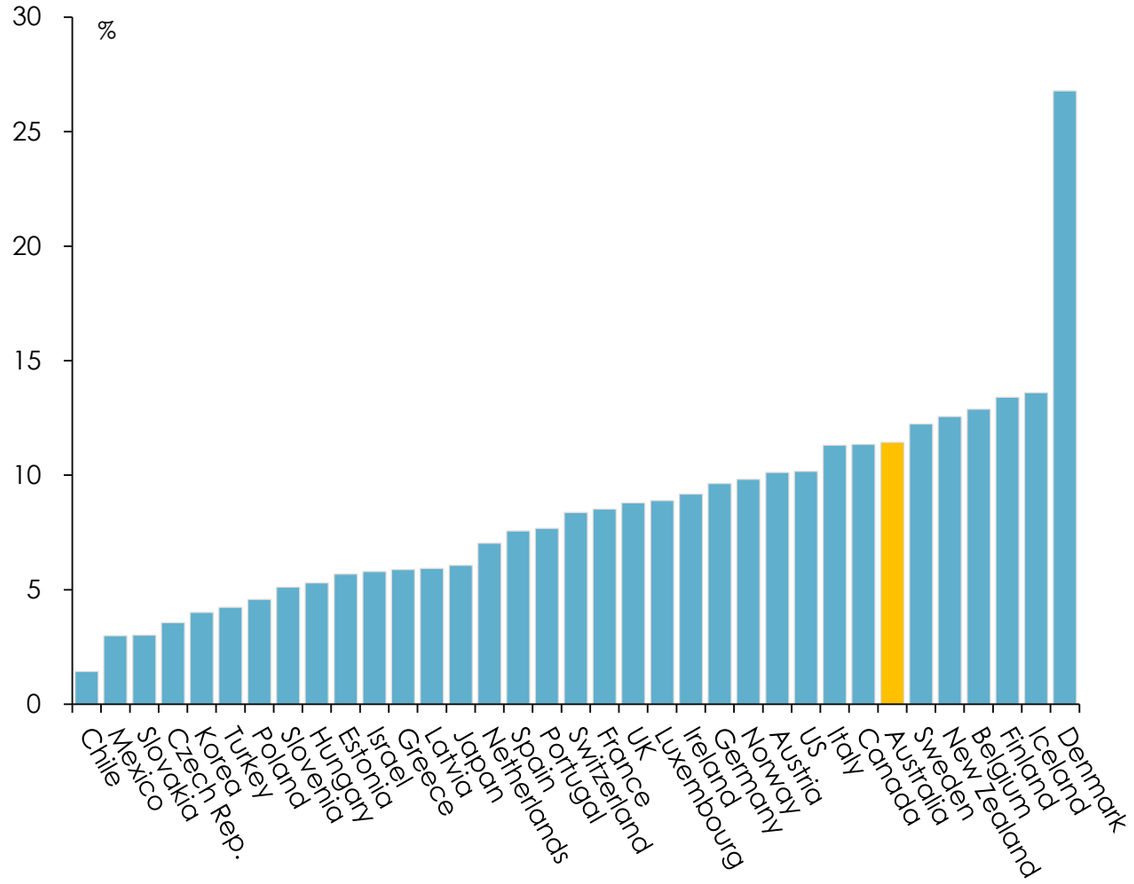


Source: Organization for Economic Co-operation and Development (OECD), *Revenue Statistics – OECD Countries: Comparative Tables,* 2017.

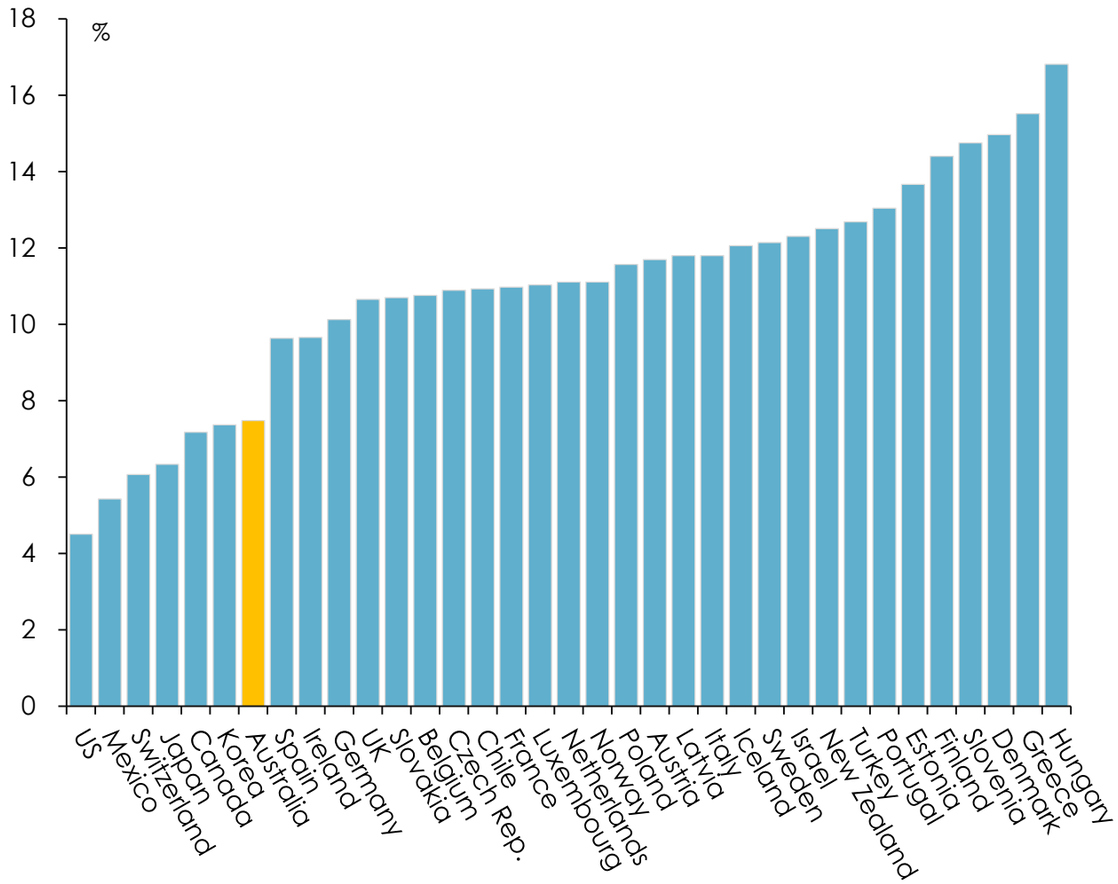
SAUL ESLAKE

… Australia's tax system is in some important respects more 'progressive' than many of those which collect a bigger share of GDP in tax

Personal income taxation revenue as a share of GDP – OECD countries, 2014



Goods & services taxation revenue as a share of GDP – OECD countries, 2014

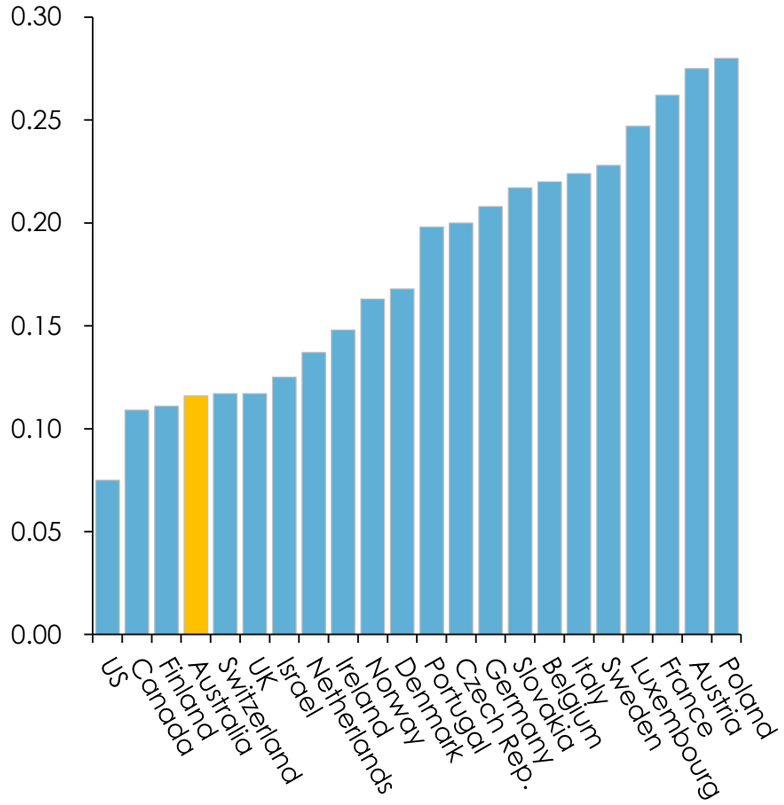


Source: Organization for Economic Co-operation and Development (OECD), *Revenue Statistics – OECD Countries: Comparative Tables, 2017.*

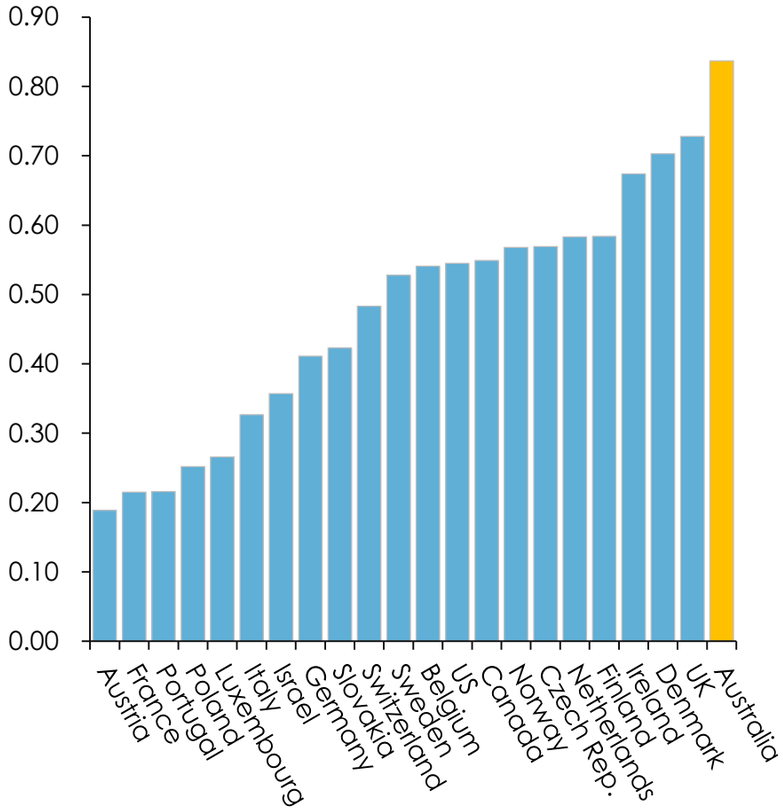
SAUL ESLAKE

… and Australia's targeted transfer payments system is highly effective in redistributing income

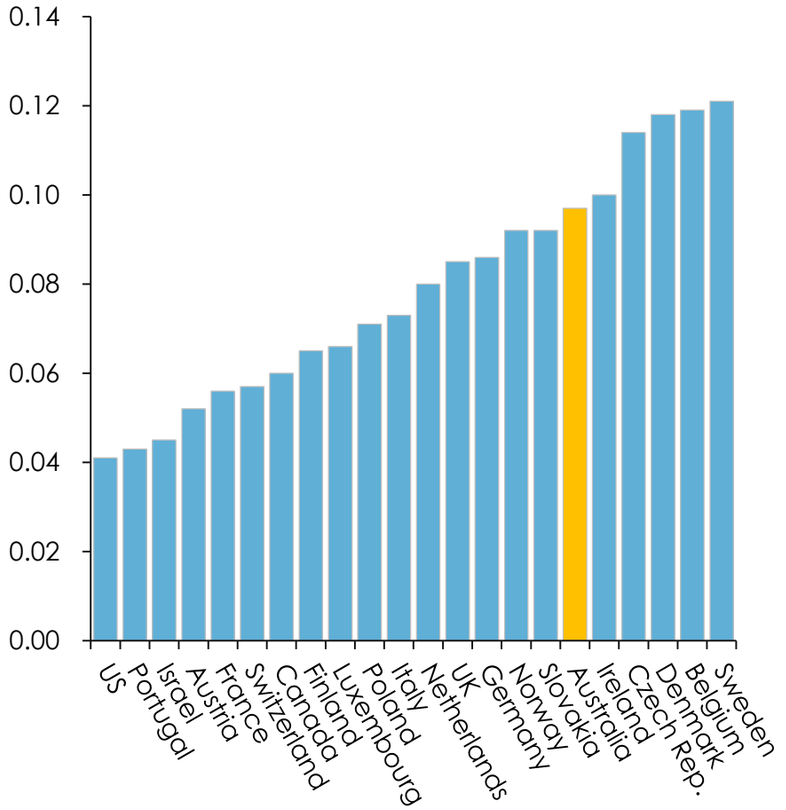
Size of cash transfers OECD countries, mid-2000s



Progressivity of cash transfers OECD countries, mid-2000s



Redistributive impact of cash transfers, mid-2000s

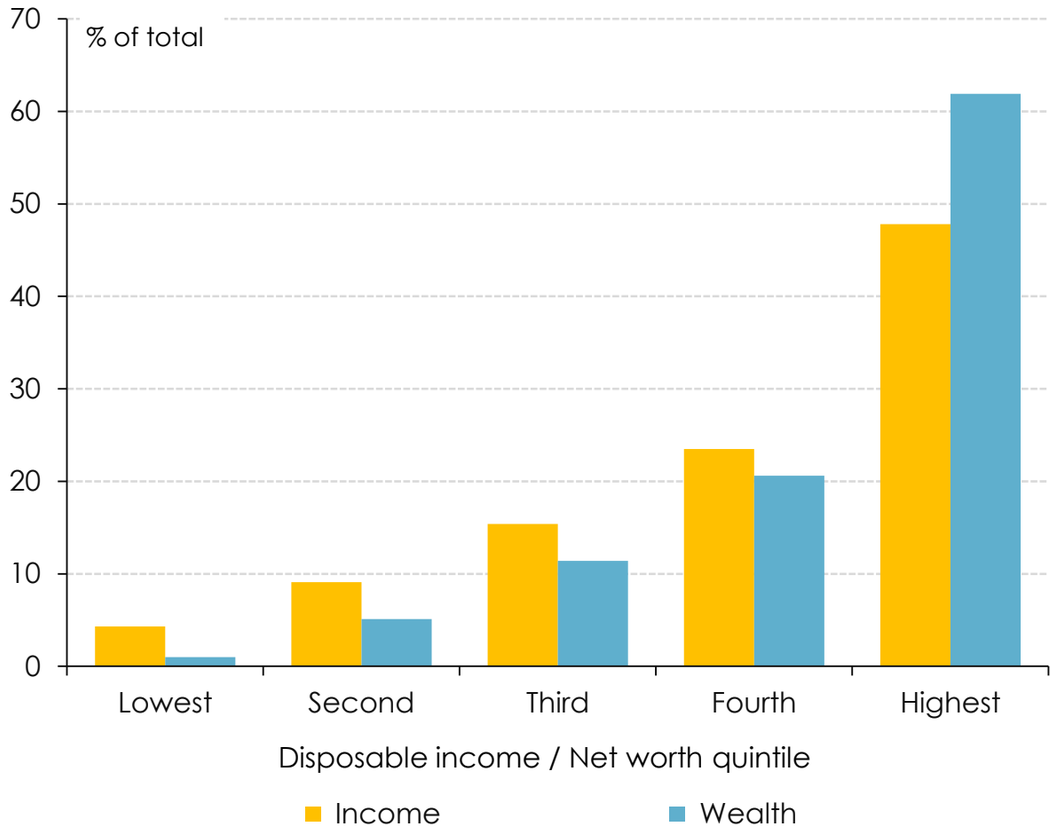


Note: Size of cash transfers measured by their share of market income plus transfers; progressivity is the difference between the concentration coefficient of transfers and the concentration coefficient of market income; the redistributive impact is the difference between the concentration coefficient of market income plus transfers and the concentration coefficient of market income alone. Cash transfers include age and disability pensions, cash benefits to families, unemployment benefits and housing benefits. *Source:* Isabelle Joumard, Mauro Pisu and Debra Bloch, *Less Income Inequality and More Growth: Are They Compatible? Part 3 – Income Redistribution via Taxes and Transfers Across OECD Countries*, OECD Economics Department Working Paper No. 926, OECD, 2012, Annex Table A2.1

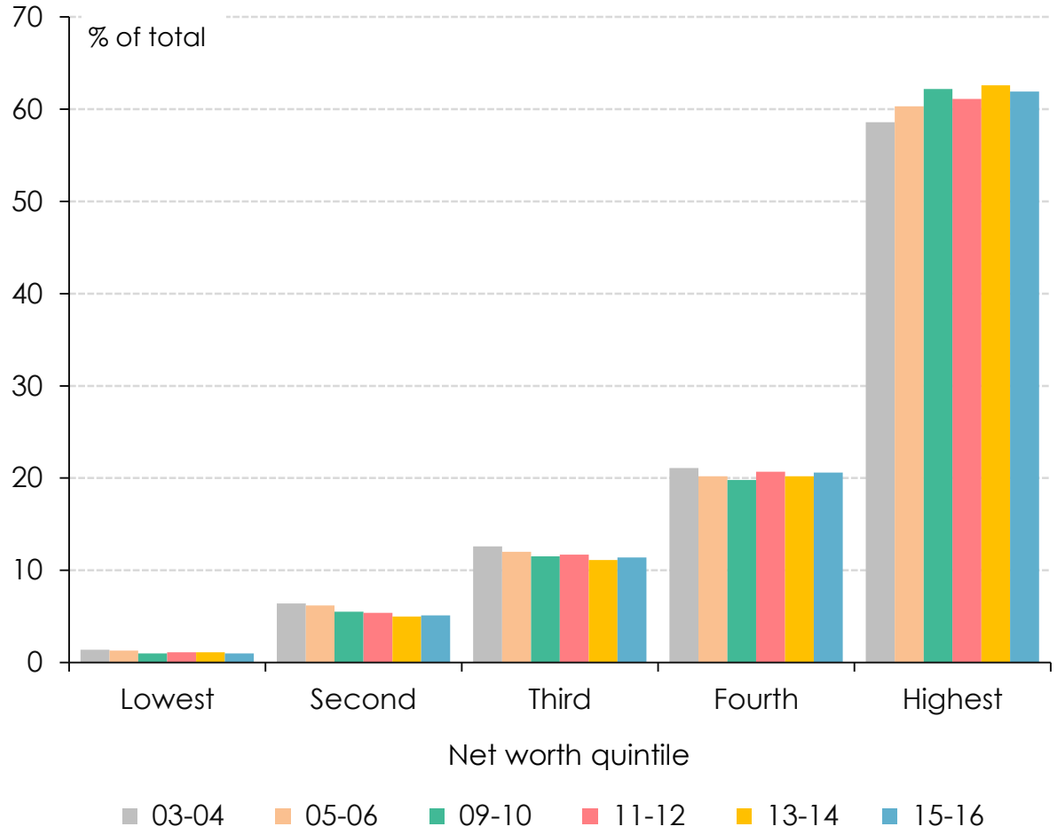
SAUL ESLAKE

Wealth is more unequally distributed than income, and has become more so over the past decade

Shares of total household disposable income and net worth, 2015-16



Shares of equivalized household net worth, 2003-04 to 2015-16



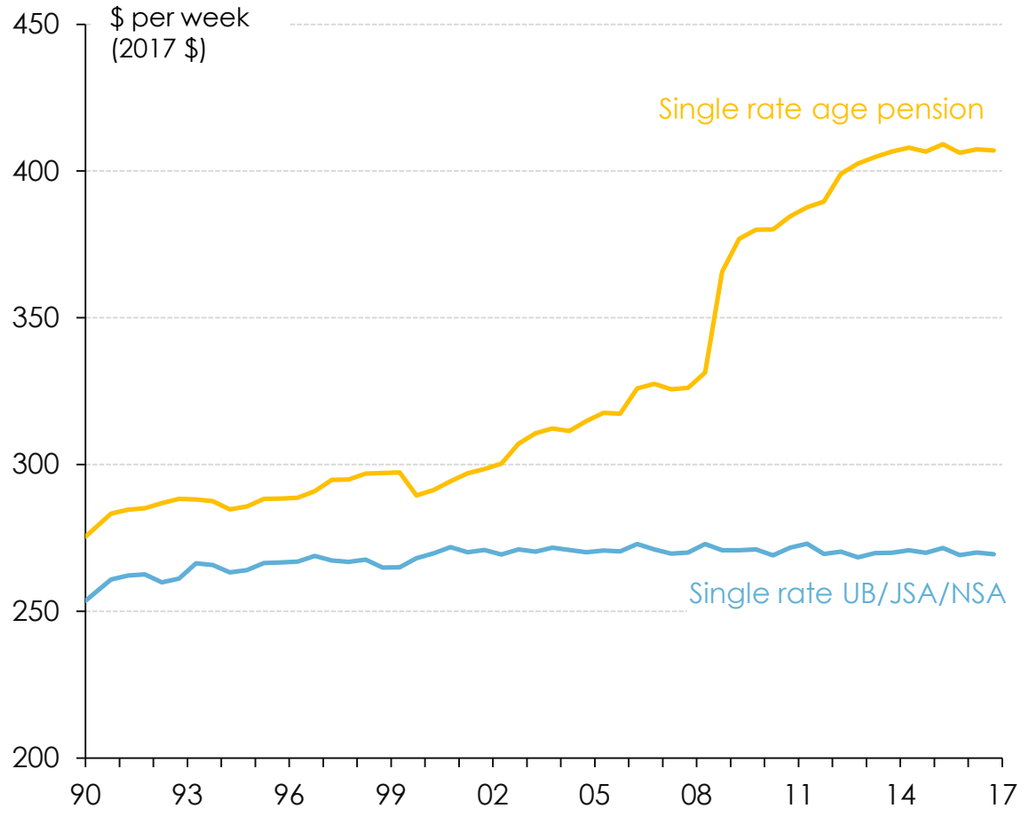
Note: Quintiles are five equally-sized groups each comprising 20% of the population, ranked (in this case) by income or net worth. 'Equivalized' means after adjusting for differences in household composition and size (number of adults and children)

Source: Australian Bureau of Statistics, *Household Income and Wealth, Australia*, 2015-16 (6523.0).

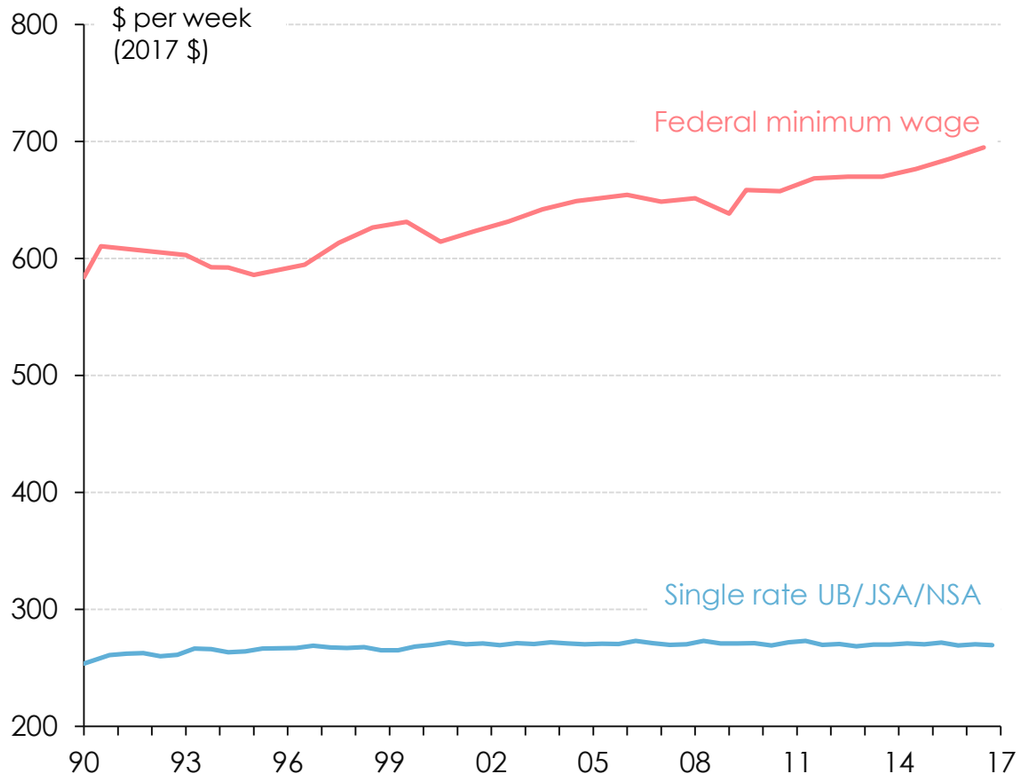
SAUL ESLAKE

Unemployment benefits have fallen relative to other social security payments and by comparison with the minimum wage

Single rate unemployment benefit / 'Newstart' Allowance vs age pension



Single rate unemployment benefit / 'Newstart' allowance vs minimum wage



Sources: Australian Government, Department of Social Security, *Guide to Social Security Law*, Version 1.237, October 2017, Section 5.2 – Historical rates; Reg Hamilton, *The history of the Australian Minimum Wage*, Fair Work Commission, Sir Richard Kirby Archives, March 2016.

SAUL ESLAKE

Some concluding suggestions

- Don't set too much store by exaggerated claims regarding the impact of technology on jobs
  - yes, advances in information technology, 'big data', machine learning, etc. will lead to a range of tasks (and some jobs) disappearing
  - but those and other advances, demographic and other changes, will also create new tasks and new jobs
  - as has always been the case, down the ages
- Continue to emphasize the importance of education to improving employment outcomes
  - and, in particular, in improving educational participation and attainment of people from lower-income and otherwise socio-economically disadvantaged backgrounds
- Challenge the notions that there is something inherently more noble or worthy about manufacturing jobs than other areas of employment, and that services jobs are all about "flipping hamburgers" or "taking in each others' laundry"
  - and similarly challenge traditional gendered views about "men's" and "women's" work
- Consider how the New Zealand 'investment' approach to long-term unemployment can be adapted to Australian circumstances
- Give consideration to ways in which the Government might more directly address the problem of stagnant wages growth
  - for example in its submissions to FWC minimum wage cases
- Continue to advocate for increases in the level of Newstart Allowances

And so to your question …

What strategies will you use to counter the challenges and changes in the availability of work for you, your organisation and the people you work with?