OECD Economic Surveys
AUSTRALIA

DECEMBER 2018



OECD

OECD Economic Surveys: Australia 2018



.

This document, as well as any data and any map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

Please cite this publication as:
OECD (2018), *OECD Economic Surveys: Australia 2018*, OECD Economic Surveys, OECD Publishing, Paris.
https://doi.org/10.1787/eco_surveys-aus-2018-en

ISBN 978-92-64-30858-9 (print)
ISBN 978-92-64-30859-6 (pdf)

Series: OECD Economic Surveys
ISSN 0376-6438 (print)
ISSN 1609-7513 (online)

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

Photo credits: © skyearth/Shutterstock.com.

Corrigenda to OECD publications may be found on line at: *www.oecd.org/publishing/corrigenda*.

© OECD 2018

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgement of OECD as source and copyright owner is given. All requests for public or commercial use and translation rights should be submitted to *rights@oecd.org*. Requests for permission to photocopy portions of this material for public or commercial use shall be addressed directly to the Copyright Clearance Center (CCC) at *info@copyright.com* or the Centre français d'exploitation du droit de copie (CFC) at *contact@cfcopies.com*.

Table of contents

Executive Summary **9**

Key Policy Insights **13**

Macroeconomy: a good near-term outlook but risks remain 15
Monetary policy, housing and financial markets: emerging from the low-interest rate environment 23
Fiscal policy: deficit reduction continues 26
Transport, urban environments and utilities: substantial ongoing challenges 36
Skills: evolving to new needs 38
Inclusiveness: scope to narrowing gaps remains 41
Business policies: ensuring strong competition and boosting innovation 45
Environmental policy: challenges in climate change and biodiversity 48
References 53

Thematic chapter **55**

Chapter 1. Benefitting from globalisation and technological change **57**

Introduction 57
Welfare and activation policies to help workers face change 79
Raising excellence and equity in education and skills 89
Strengthening adaptability to globalisation and technological change in metropolitan areas 105
References 120

Tables

Table 1. Macroeconomic indicators and projections 19
Table 2. Tail-end scenarios for the Australian economy 22
Table 3. Past OECD recommendations on monetary and financial stability 26
Table 4. Illustrative fiscal impact of recommended reforms 34
Table 5. Illustrative GDP-per-capita impact of recommended reforms 35
Table 6. Past OECD recommendations on maintaining fiscal prudence and ensuring efficient tax and public spending 35
Table 7. Past OECD recommendations on infrastructure and utilities 38
Table 8. Past OECD recommendations on employment, health and welfare 44
Table 9. Past OECD recommendations on ensuring competitive and innovative business 47
Table 10. Selected components of Australia's current emission-reduction policy 51
Table 11. Past OECD recommendations on environment policy 52
Table 1.1. Australia's principal metropolitan areas 105
Table 1.2. Government responsibilities across selected urban issues 108
Table 1.3. Recent planning reform initiatives 110
Table 1.4. Key taxes and charges relating to the ownership and use of vehicles 113

Table 1.5. An overview of electric-vehicle policy in Australia 114
Table 1.6. Selected initiatives supporting and trialing autonomous vehicles in Australia 115

Figures

Figure 1. Strong GDP per capita performance 13
Figure 2. Favourable well-being scores 14
Figure 3. A range of economic, social and environmental challenges 16
Figure 4. Robust output growth with recovering investment and falling unemployment 17
Figure 5. Wage and price inflation remain subdued 18
Figure 6. House prices are easing but the household-debt burden continues to rise 20
Figure 7. Exports of commodities to Asia remain dominant 21
Figure 8. Policy-rate normalisation yet to begin, federal budget consolidation continues 23
Figure 9. Capital and liquidity positions of banks have improved 24
Figure 10. Low public debt and comparatively low government spending 27
Figure 11. Federal budget consolidation since the global finance crisis 28
Figure 12. A wide range of debt-reduction speeds can be followed 29
Figure 13. The Goods and Services Tax rate is low in international comparison 32
Figure 14. Education and health indicators point to middle-ranking spending, yet room for better outcomes 33
Figure 15. A new surge in government investment is underway 36
Figure 16. Australia's PISA performance is weakening 39
Figure 17. Motherhood has a strong impact on labour market participation 42
Figure 18. Partnered mothers work very short hours 42
Figure 19. A favourable regulatory climate for business 45
Figure 20. Services Trade Restrictiveness Index 46
Figure 21. Environmental indicators 50
Figure 1.1. Advanced economies have experienced large rises in living standards 58
Figure 1.2. Labour productivity has risen 59
Figure 1.3. Higher labour productivity is associated with more employment 60
Figure 1.4. There has been no strong long-term trend in hours of work per capita 60
Figure 1.5. The sectoral composition of Australian economy has shifted dramatically 61
Figure 1.6. The sectoral composition of Australian employment has also changed 62
Figure 1.7. Job polarisation in Australia continues 63
Figure 1.8. Routine manual jobs in Australia are being replaced by non-routine cognitive and non-routine manual jobs 64
Figure 1.9. Growing use of information and communication technologies 65
Figure 1.10. There will be further automation of tasks 66
Figure 1.11. The share of part-time work is high in Australia, while shares of temporary employment and self-employment are low 67
Figure 1.12. The upward trend in casualisation has been reversed 68
Figure 1.13. The duration of jobs has not fallen 68
Figure 1.14. Australia’s labour-market separation rate is high 69
Figure 1.15. Displaced workers find new jobs rapidly 70
Figure 1.16. Unemployment experience differs across states and territories 71
Figure 1.17. Probability of finding employment after being displaced differs across groups of workers 72
Figure 1.18. Income inequality in Australia has risen and remains above the OECD average 74

Figure 1.19. Growth of incomes in the middle has been comparatively weaker over the last 15 years 75
Figure 1.20. Female participation and the incidence of part-time work have risen 76
Figure 1.21. Wages have risen faster for high-skill occupations 76
Figure 1.22. Poverty in Australia is above the OECD average 77
Figure 1.23. Poverty in Australia has decreased over time 77
Figure 1.24. Poverty rates across country of birth and indigenous status 78
Figure 1.25. Risk of poverty across various characteristics 79
Figure 1.26. Participation tax rate from moving into employment can be high 80
Figure 1.27. Spending on training for the unemployed is low in Australia 83
Figure 1.28. Protection of permanent workers is low in Australia 84
Figure 1.29. Female employment rate is low and many work part-time 86
Figure 1.30. Motherhood has a strong impact on labour market participation 86
Figure 1.31. Partnered mothers work very short hours 87
Figure 1.32. Employment rates of lone mothers in Australia are among the lowest in the OECD 88
Figure 1.33. Australia has highly educated population 90
Figure 1.34. Australian 15-year olds are highly proficient 91
Figure 1.35. Adults in Australia have strong computer and ICT skills 92
Figure 1.36. The participation of adults in education and training is high 92
Figure 1.37. The workplace is a strong element of the skills system 93
Figure 1.38. Expenditure on education has increased over the last decade 93
Figure 1.39. Proficiency of Australian 15-year olds has declined over time 94
Figure 1.40. Disadvantaged students have much higher probability of low performance 95
Figure 1.41. Over-qualification is above the OECD average 96
Figure 1.42. Enrolment rates of Australian children in early childhood education 97
Figure 1.43. Enrolment rates in early childhood education of disadvantaged students are much lower 98
Figure 1.44. There is room to reduce the share of adults with low basic skills 101
Figure 1.45. Australia's metropolitan areas account for a large share of state populations 106
Figure 1.46. Congestion is reducing average traffic speed 107
Figure 1.47. Population density in metropolitan areas remains comparatively low 107
Figure 1.48. Some states still have small-scale local governments in urban areas 109

Boxes

Box 1. Housing affordability initiatives continue 25
Box 2. Hikes in VAT rates: examples from other countries, impact on inflation 31
Box 3. Quantifying the fiscal impact of structural reforms 34
Box 4. Potential impact of structural reforms on per capita GDP 35
Box 5. Keys to successful outcomes in support for indigenous populations 43
Box 1.1. Displacement and re-employment of workers in Australia: evidence from the HILDA Survey 72
Box 1.2. Uncertainties in congestion impact from investing in roads 112
Box 1.3. Recommendations 118

The Survey *is published on the responsibility of the Economic and Development Review Committee, which is charged with the examination of the economic situation of member countries. The economic situation and policies of Australia were reviewed by the Committee on 29th October 2018. The draft was revised in the light of the discussion and given final approval as the agreed report of the whole Committee on 8th November 2018.*

This Survey *was prepared in the Economics Department by Philip Hemmings and Urban Sila under the supervision of Patrick Lenain. Damien Azzopardi provided the statistical research assistance and Stephanie Henry provided editorial support. The* Survey *also benefited from contributions by Valéry Dugain, consultant.*

The previous Survey *of Australia was issued in March 2017.*

Information on other Surveys *and how surveys are prepared is available at www.oecd.org/surveys.*

Follow OECD Publications on:




http://twitter.com/OECD_Pubs


http://www.facebook.com/OECDPublications


http://www.linkedin.com/groups/OECD-Publications-4645871


http://www.youtube.com/oecdilibrary



http://www.oecd.org/oecddirect/

This book has...

StatLinks
A service that delivers Excel® fi from the printed

Look for the *StatLinks* at the bottom of the tables or graphs in this book. To download the matching Excel® spreadsheet, just type the link into your Internet browser, starting with the *http://dx.doi.org* prefix, or click on the link from the e-book edition.

BASIC STATISTICS OF AUSTRALIA

(Data refer to 2017 or latest available. Numbers in parentheses refer to the OECD average)*

LAND, PEOPLE AND ELECTORAL CYCLE					
Population (million)	24.60		Population density per km²	3.2	(37.7)
Under 15 (%)	19.0	(18.0)	Life expectancy (years)	82.5	(80.1)
Over 65 (%)	15.5	(16.5)	Men	80.4	(77.6)
Foreign-born (%)	27.7		Women	84.6	(82.8)
Latest 5-year average growth (%)	1.6	(0.7)	Latest general election	July 2016	
ECONOMY					
Gross domestic product (GDP)			Value added shares (%)		
In current prices (billion USD)	1,378.6		Primary sector	3.0	(2.4)
Latest 5-year average real growth (%)	2.4	(2.1)	Industry including construction	24.8	(26.7)
Per capita (000 USD PPP)	49.7	(42.3)	Services	72.2	(70.9)
GENERAL GOVERNMENT Per cent of GDP					
Expenditure	35.7	(40.7)	Gross financial debt	43.1	(109.8)
Revenue	35.1	(37.7)	Net financial debt	-12.7	(71.0)
EXTERNAL ACCOUNTS					
Exchange rate AUD per USD	1.30		Main exports (% of total merchandise exports)		
PPP exchange rate (USA = 1)	1.47		Crude materials, inedible, except fuels	33.0	
In per cent of GDP			Mineral fuels, lubricants and related materials	30.2	
Exports of goods and services	21.5	(29.2)	Food and live animals	12.2	
Imports of goods and services	20.9	(28.8)	Main imports (% of total merchandise imports)		
Current account balance	-2.62	(0.40)	Machinery and transport equipment	40.8	
Net international investment position	-55.9		Miscellaneous manufactured articles	13.9	
			Mineral fuels, lubricants and related materials	10.3	
LABOUR MARKET, SKILLS AND INNOVATION					
Employment rate for 15-64 year-olds (%)	73.0	(67.8)	Unemployment rate, Labour Force Survey (age 15 and over) (%)	5.6	(5.9)
Men	77.9	(75.5)	Youth (age 15-24, %)	12.6	(11.9)
Women	68.1	(60.1)	Long-term unemployed (1 year and over, %)	1.3	(1.7)
Participation rate for 15-64 year-olds (%)	77.4	(72.1)	Tertiary educational attainment 25-64 year-olds (%)	45.4	(36.9)
Average hours worked per year	1 676	(1759)	Gross domestic expenditure on R&D (% of GDP)	1.9	(2.3)
ENVIRONMENT					
Total primary energy supply per capita (toe)	5.4	(4.1)	CO_2 emissions from fuel combustion per capita (tonnes)	15.8	(9.2)
Renewables (%)	6.5	(9.7)	Water abstractions per capita (m^3)	697	(804)
Fine particulate matter concentration ($PM_{2.5}$, µg/m^3)	6.1	(14.9)	Municipal waste per capita (kilogrammes)	561	(523)
SOCIETY					
Income inequality (Gini coefficient)	0.337	0.317	Education outcomes (PISA score, 2015)		
Relative poverty rate (%)	12.8	(11.9)	Reading	503	(493)
Median disposable household income (000 USD PPP)	31.7	(23.0)	Mathematics	494	(490)
Public and private spending (% of GDP)			Science	510	(493)
Health care, current expenditure	9.3	(9.1)	Share of women in parliament (%)	28.7	(28.7)
Pensions	6.9	(9.1)	Net official development assistance (% of GNI)	0.23	(0.39)
Education (primary, secondary, post sec. non tertiary)	3.9	(3.3)			

Better life index: www.oecdbetterlifeindex.org

* Where the OECD aggregate is not provided in the source database, a simple OECD average of latest available data is calculated where data exist for at least 29 member countries.

Source: Calculations based on data extracted from the databases of the following organisations: OECD, International Energy Agency, World Bank, International Monetary Fund, Inter-Parliamentary Union.

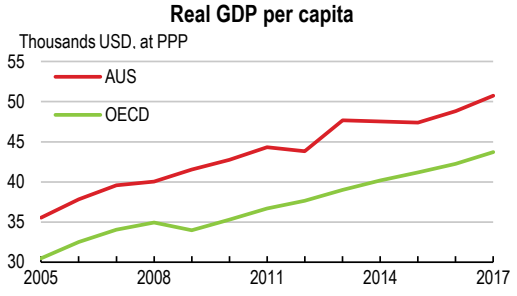
Executive Summary

Economic growth has been resilient…

Australia's long span of positive output growth continues, demonstrating the economy's resilience to shocks (Figure A). The labour market has been equally resilient, with rising employment and labour-force participation. Life is good, with high levels of well being, including health, and education.

Continued robust output growth of around 3% (Figure B) is projected in the near future. Exports and investment will support the economy, and wage growth and price inflation will gradually pick up. Risks to the outlook relate to the housing market, and uncertainty in export demand due to rebalancing in China and potential escalation of international trade disputes.

Figure A. GDP per capita performance has been strong



Source: OECD Productivity Database.
StatLink https://doi.org/10.1787/888933882864

…but there are socio-economic challenges…

Globalisation and automation, while overall positive, have disrupted the life of several groups of people. This is the theme of the in-depth chapter of this *Survey*.

Certain groups are vulnerable with low labour force participation and high risk of poverty. The substantial gaps between indigenous Australians and the rest of the population are narrowing too slowly.

… and climate-change policy still lacks clarity and stability

Australia has made little progress in reducing its environmental footprint in large part because frequent changes in core climate-change instruments have created uncertainty for emitters, which has also discouraged energy sector investment.

Biodiversity is also a core environmental issue for Australia. The country is host to around 10% of the world's biodiversity, with many fragile situations.

The housing market poses macroeconomic risks

Australia's housing market is a source of vulnerabilities due to elevated prices and related household debt (Figure C). House prices have fallen, although only gradually since late last year; the current trajectory would suggest a soft landing, but some risk of a hard landing remains.

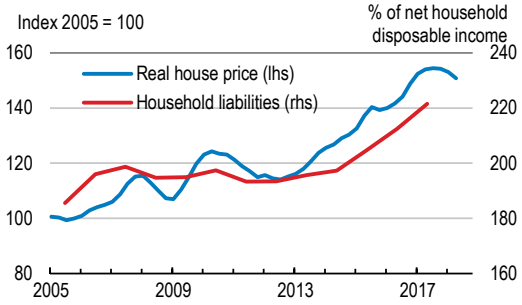
Figure B. Economic growth will remain robust

(annual growth rates, unless specified)	2017	2018	2019	2020
Gross domestic product (GDP)	2.2	3.1	2.9	2.6
Private consumption	2.7	2.5	2.1	1.7
Government consumption	3.7	4.4	3.2	2.8
Gross fixed capital formation	3.4	3.4	4.0	2.9
Exports of goods and services	3.7	4.6	4.1	3.8
Imports of goods and services	7.8	5.6	6.1	4.9
Unemployment rate *(% of labour force)*	5.6	5.4	5.3	5.1
Consumer price index	2.0	2.0	2.1	2.4
Government net lending *(% of GDP)*	-0.6	-0.1	0.2	0.5

Source: OECD Economic Outlook 104 database.

A direct hit to the financial sector from a wave of mortgage defaults is unlikely. However, if house prices collapse consumer spending could suffer, via negative impact on wealth, including from exposures to bank shares, which would encourage deleveraging. Together with reduced housing-related expenditures, this would put pressure on the whole economy.

Figure C. High levels of house prices and household debt pose risks



Source: OECD Analytical database.

StatLink https://doi.org/10.1787/888933882883

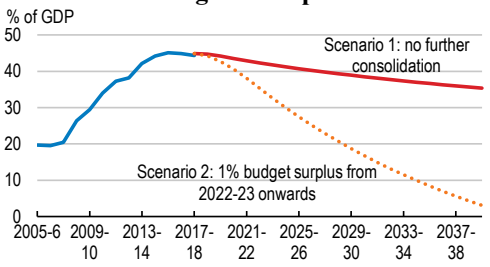
Financial supervisors and bank regulators should be prepared in the event of a hard landing in the housing market. They should also continue to address shortcomings in the financial sector identified in recent inquiries, particularly competition, misconduct and fraud.

In the absence of negative shocks, policy rates should start to rise soon. Monetary conditions remain very accommodative, with the risk of imbalances accumulating further if the low-interest rate environment persists. In the absence of a downturn, a gradual tightening should start as inflation edges up and wage growth gains momentum.

Budget repair needs to continue

Fiscal discipline will still be required to bring fiscal balances to surplus. Robust output growth is helping lift revenues, however this can also prompt increased pressures to expand public spending. No further consolidation would bring only slow reduction in public-debt-to-GDP ratio (Figure D).

Figure D. Fiscal policy needs to get to surplus



Source: OECD calculations based on OECD Analytical Database and Government of Australia.

StatLink https://doi.org/10.1787/888933882902

The federal government has underscored commitment to small government by incorporating its tax-to-GDP ceiling in its fiscal strategy. There is welcome focus on lightening personal-income tax, reforming private-pension tax treatment and tackling tax avoidance and evasion. Yet there remains considerable opportunity for further tax reform.

Greater use of value added tax (the Goods and Services Tax, GST) would provide fiscal space for tax reform in other areas. At 10%, the GST rate is comparatively low and the coverage is at around the OECD average. An increase in the rate or base could fund the removal of less efficient taxes, and be used to further shift the tax mix.

Opportunities to improve infrastructure efficiency with environmental benefits include road transport, where there is scope to shift away from fees based on car-ownership towards those based on car use, such as distance charging or congestion charging.

Australia would benefit from higher public spending efficiency. Recent policy has sensibly focused on improving productivity in health care and long-term care. Accelerated spending on roads, telecoms infrastructure, disability support and defence needs to be monitored in terms of costs and benefits.

Urban environments need further improvement

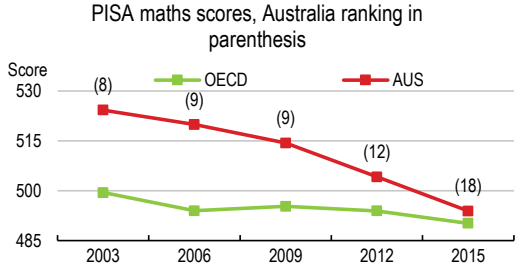
Rapid population growth is supporting Australia's economic growth but concentration in metropolitan areas is straining infrastructures and fuelling traffic congestion, noise and air pollution.

Major transport investment is underway, which is welcome. While political considerations will always influence project selection, decisions should be informed by transparent and rigorous cost-benefit analysis. Some metropolitan areas would benefit from amalgamations of local government or more shared service provision. Also, most of Australia's land-use zoning systems remain overly complex and restrictive.

Education reform and fine-tuning activation policy are crucial

Slippage down PISA scores and rankings (Figure E) signals a need to press on with education reform, especially in a context of fast technological change and globalisation. Focus on disadvantaged students in schools (notably, via funding reform) and early childhood education should continue, as a means of tackling gaps in educational outcomes.

Figure E. Australia's PISA scores have worsened



Source: OECD Program for International Student Assessment (PISA).

StatLink
https://doi.org/10.1787/888933882921

Vocational education and training (VET) needs to provide adequate skills for changing labour-market demands. Immediate problems arising from an explosion of poor quality providers and courses look set to be resolved. Beyond this, the sector needs to better provide core skills to weak students. Also, there remains policy bias in student support towards university studies.

Australia's tertiary-education expansion, while welcome, has also brought challenges. Supply may have overshot as many graduates do not find degree-level jobs. Rapid expansion is also pushing up the fiscal cost. Better information would help students and providers connect choices and course content with evolving labour demand. In addition, new technologies in education, such as Massive Online Open Courses (MOOCs) should be nurtured.

There is still scope to encourage greater labour-force participation, helping reduce poverty and keeping individuals connected with evolving technologies and skills. Australia's system of contracted private employment services could be given greater incentives for long-term employment retention. A new focus on providing support to all displaced workers is promising. Australia's below-par participation of women with children will be improved by recent changes to child-care benefits, but more comprehensive support to mothers is needed.

Business needs to be competitive and innovative

Follow-up of a major competition-policy review (the "Harper Review") continues, and conditions for firm dynamics have improved thanks to amendments to insolvency legislation. Nevertheless, there remains scope for improving market functioning.

Targeted business policy continues to focus on innovation. Recent policy moves have included announced reforms to refocus the R&D Tax Incentive towards supporting high-intensity R&D and progress in reforming intellectual property legislation. However, there has been no pruning of the large number of SME support programmes.

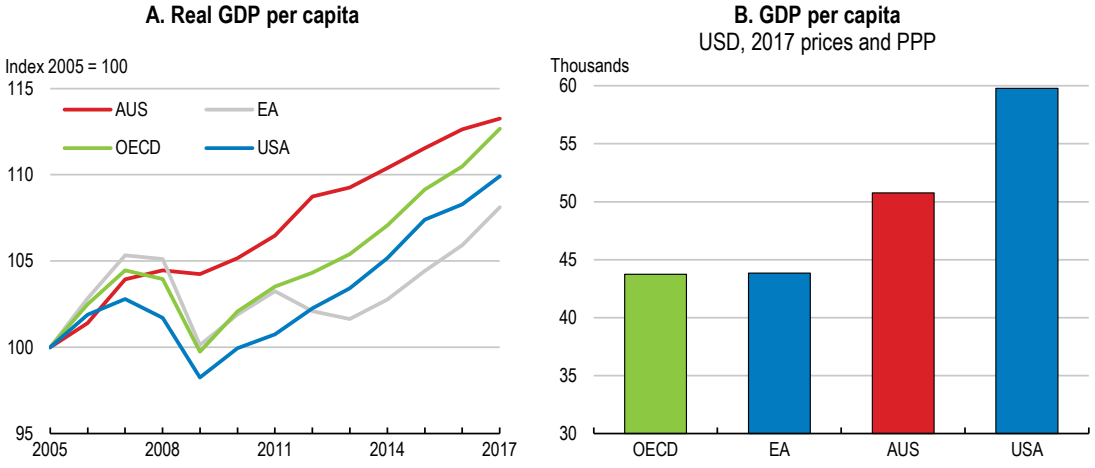
MAIN FINDINGS	KEY RECOMMENDATIONS
Monetary policy, housing market and financial regulation	
Upswing in activity continues and inflation is projected to rise gradually. Elevated house prices and mortgage debt remain sources of risk.	In the absence of a downturn, gradually remove monetary accommodation through a policy rate increase. Prepare contingency plans for a possible significant correction in the housing market including a loss-absorbing regime (including bail-in provisions) in the case of financial-institution insolvency.
Competition is lacking in the banking sector and inquiries have revealed misconduct.	Assure strong accountability, transparency and competition in the financial sector including an appropriate response to the banking Royal Commission.
Fiscal policy, tax and spending reform	
Deficit reduction remains on target but continued fiscal discipline is required.	Ensure fiscal balances remain on track to reach surplus ("budget repair").
Taxation should support welfare and economic growth.	Further shift the tax mix from direct taxes (corporate and personal) and inefficient taxes (including real-estate stamp duty) and towards the Goods and Services Tax and land taxes.
Improving the efficiency of public services is important given current and upcoming spending commitments and continuing budget repair.	Follow up on the recommendations for improving public services made by the Productivity Commission's "human services" inquiry, notably those in health care and long-term care.
Improving transport, urban environments and utilities	
Rapid population growth is supporting Australia's economic growth but concentration in metropolitan areas is straining infrastructures and fuelling traffic congestion, noise and air pollution.	Improve infrastructure project selection by raising the prominence of cost-benefit analysis and economic returns. Accompany accelerated road investment with improved road charging, including distance charging and urban congestion charging. Strengthen urban-area governance through greater leadership from federal and state initiatives in planning, and continued efforts to amalgamate small local authorities.
Deepening skills and increasing inclusiveness	
Students' performance in PISA tests is worsening and skills demands are shifting.	Continue focus on disadvantaged students in early childhood education and schools. Improve VET education including by improving basic-skills provision and reducing policy bias in favour of university education. Provide better information for education choices including through a single platform with career information, education pathways and employment outcomes.
Activation policies could be better geared towards long-term outcomes and labour force participation among women with children is below par.	Incentivise jobactive providers to achieve longer job retention, provide better quality training and on-the-job support. Focus further on lone-parents in terms of childcare availability and affordability, and career guidance and training. Give indigenous communities a greater role in policy design and implementation.
Ensuring competitive and innovative business	
Australia's business environment is good but impediments to market functioning remain in specific areas.	Reforms should include adopting lighter product standards, paring back professional and occupational licensing, and reducing operating restrictions in shipping.
Environmental sustainability	
Frequent change in core climate-change instruments has created uncertainty in emission reduction and discouraged energy sector investment. Australia contains around 10% of the world's biodiversity and more than 1 800 species are listed as threatened.	Stabilise and strengthen climate-change policy. Develop and implement a national, integrated energy and climate policy framework for 2030 based on a low-emission development strategy for 2050, in line with the Paris Agreement objective. Guide the energy transition through an emissions reduction goal for the power sector supported by a market-based mechanism. Give greater priority to biodiversity in project approval and land use.

Key Policy Insights

With 27 years of positive economic growth, Australia has demonstrated a remarkable capacity to sustain steady increases in material living standards and absorb economic shocks. During the global financial crisis, comparatively limited exposure, but also good economic management, saw output growth hold up well (Figure 1). Also, the economy's adjustment in the wake of the commodity super-cycle has been reasonably smooth. This good macroeconomic performance has strengthened the country's standing in terms of GDP per capita (Figure 1). Furthermore, scores are favourable on many other indicators of well-being. Australia performs particularly well in health status, ranking first among OECD countries with life expectancy of 82.5 years compared with an OECD average of 80.1 years and a high score in self-reported health (Figure 2). It also scores well in terms of air pollution, ranking 5th in the OECD, subjective well-being and social connections (both 7th place in the rankings). Immigration has played a fundamental role in the demographic, economic and cultural development of Australia, and continues to do so with broadly successful integration of new migrants.

Economic reforms largely completed during the 1980s and 1990s are often considered as a key ingredient to Australia's economic success. Financial-sector reform included liberalising the banking sector, opening the capital account and floating the Australian dollar. There was also extensive trade liberalisation, labour market reforms and microeconomic reforms (including in utilities). These reforms supported a move towards a more market-based economy. Macroeconomic policy frameworks were strengthened through adoption of an inflation target and central bank independence and the Charter of Budget Honesty. Some consider a practical approach to policymaking, independent reviews and stakeholder involvement have been keys to success (Berger-Thomson et al., 2018).

Figure 1. Strong GDP per capita performance



Source: OECD Analytical database; and OECD Productivity database.

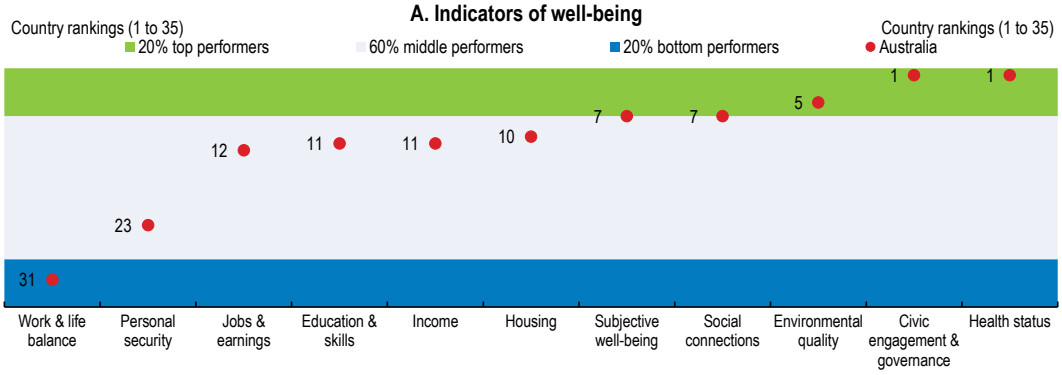
StatLink https://doi.org/10.1787/888933882940

However, Australia faces economic challenges that, if not handled well, could see an end to its strong track record. Risks include potential instabilities from high house prices (Figure 3) and large household debt, along with exposure to global uncertainties in policy and politics, notably as regards trade disputes. Also, as do many economies, Australia faces challenges in productivity growth (Figure 3).

Globalisation and technological change, while overall beneficial, have brought challenges for some segments of society. This is the theme of Chapter 1 of this *Survey*. Furthermore, there remain long standing socio-economic challenges, most notably the substantial gaps between indigenous Australians and the rest of the population (Figure 3), which are narrowing only slowly. In addition, Australia is somewhat below par in terms of work life balance (Figure 2, Panel A), although the gaps in outcomes with other countries are in fact not large. For instance, 13.2% of employees in Australia work 50 hours or more compared with an OECD average of 12.6% (Panel B).

Figure 2. Favourable well-being scores

A. Indicators of well-being



B. Australia well-being sub-indicators selected rankings

	Dimension	Sub-indicator	Rank	Measure	Australia	OECD average
In the top 5	Education	Years in education	1	Years	21	17
	Civic engagement	Voter turnout	1	% of population	91	69
	Environment	Air pollution	2	$PM_{2.5}$, µg/m^3	5	14
	Housing	Rooms per person	4	Ratio	2.3	1.8
	Health	Self-reported health	4	% of population who report "good" or "better" health	85	69
	Health	Life expectancy	5	Years	82.5	80.1
In the bottom 10	Safety	Feeling safe walking alone at night	27	% of people aged 15 and over	63.6	68.6
	Work-Life Balance	Employees working very long hours	28	% of dependent employed working 50 hours or more per week	13.2	12.6
	Work-Life Balance	Time devoted to leisure and personal care	30	Hours per day	14.4	14.9

Source: OECD Better Life Index 2017 database.

StatLink https://doi.org/10.1787/888933882959

Although Australia scores well in terms of particulate air pollution (Figure 2), as highlighted in the OECD's upcoming Environmental Performance Review, the country faces considerable environmental challenges. Achieving targets in greenhouse gas emissions (Figure 3) poses difficult policy trade-offs in shifting away from heavy reliance

on fossil fuels for energy. Biodiversity challenges are also considerable. Australia contains around 10% of the world's biodiversity, according to the upcoming OECD review, and there is much fragility. For instance, more than 1 800 species are listed as threatened and much of this fragility relates to human activity, including land clearing for grazing, urban development, infrastructure and extractive industries, water use, pollution and climate change. Biodiversity loss can eventually have significant adverse impacts on economic growth and human well-being by threatening the resilience of ecosystems that humans rely on.

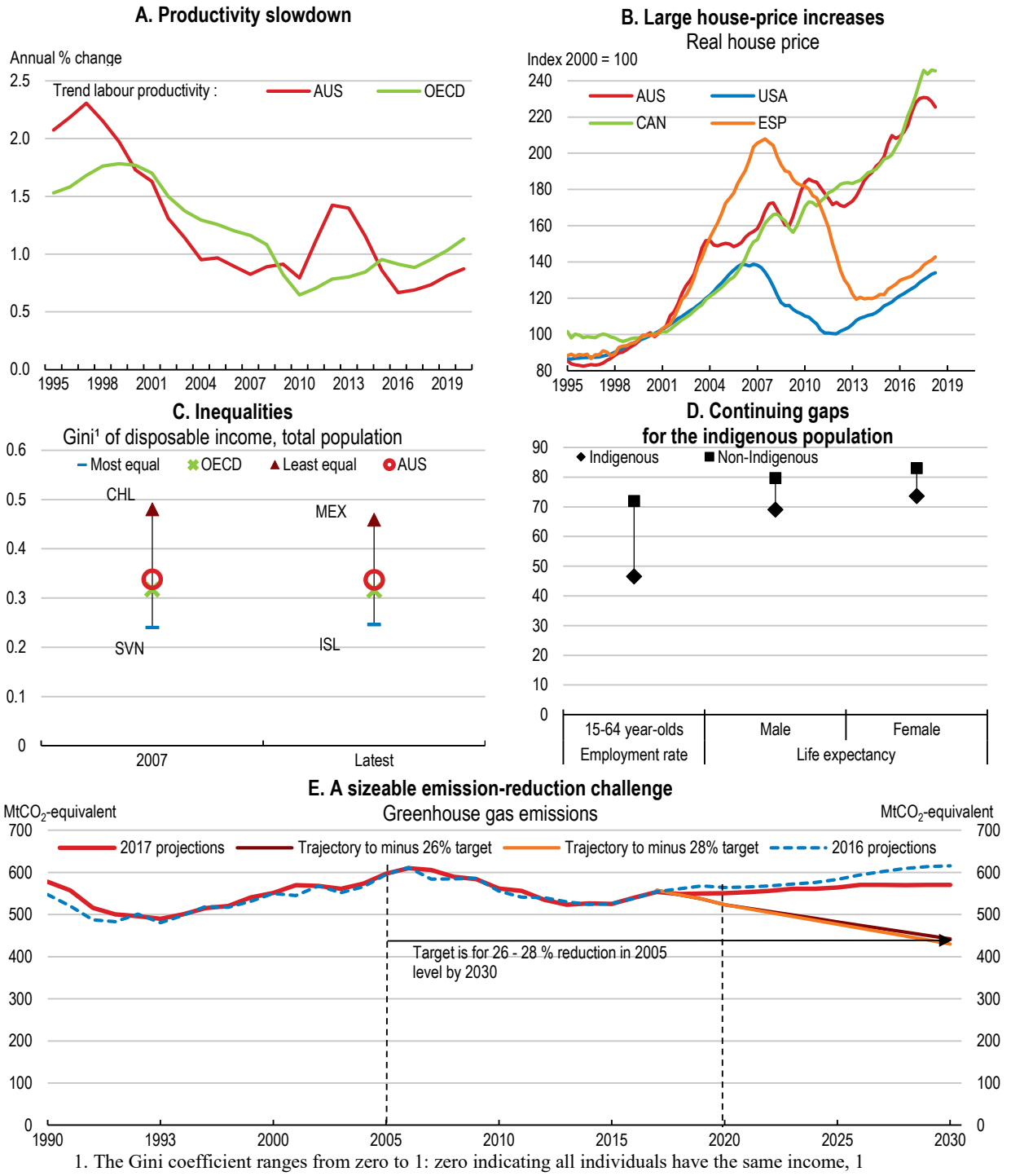
Against this background this *Survey's* main messages are:

- Continued strength in macroeconomic policy and sound financial-sector institutions and policies are required to navigate an exit from the low-interest rate environment, while lowering housing-market risks and building resilience to external shocks.
- Creating conditions for stronger productivity growth requires not only sound macroeconomic policy, but also continued structural-policy reform including reforming the tax mix to be more conducive to growth and innovation, further efforts to make markets competitive and ensuring education and training keep pace with evolving skill demand.
- Risk of widening social tensions from technological change and globalisation, alongside longstanding issues of inclusion (notably Australia's indigenous population) call for emphasis on improving education, labour-market engagement, and transport and utility services (particularly for excluded groups).
- Fully addressing environmental challenges to the benefit of current and future generations of Australians, and the global community, calls for a concerted policy effort and a balanced integration of environmental issues into mainstream policy making.

Macroeconomy: a good near-term outlook but risks remain

In recent years the Australian economy has been adjusting to the end of the commodity super-cycle along with the legacy of the global financial crisis. As for many economies, unemployment rose in the wake of the crisis and fiscal deficits and public debt increased significantly. The substantial decline in global commodity prices from their very high levels in 2011, notably for iron ore and coal, curtailed plans for new investment and prompted cost-cutting by producers. At the same time, some large multi-year construction projects in the resources sector reached completion, further reducing investment activity (Figure 4, Panel D). Moreover, the low-interest rate environment, driven by accommodative monetary policy to support the economy, has incentivised borrowing, pushing up house prices and mortgage debt.

Figure 3. A range of economic, social and environmental challenges

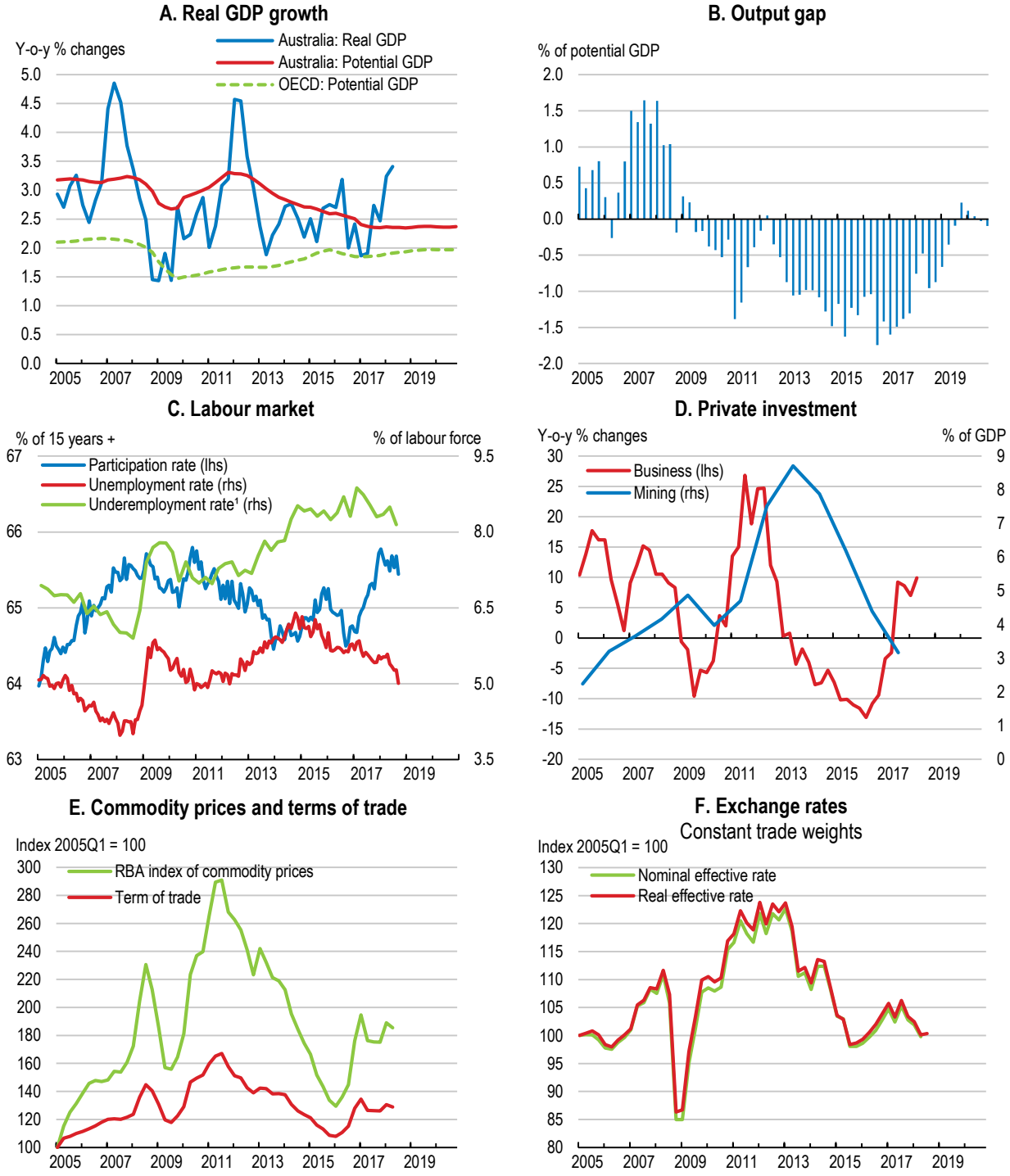


1. The Gini coefficient ranges from zero to 1: zero indicating all individuals have the same income, 1 indicating one individual receives all income.

Source: OECD Economic Outlook 104 database; OECD Database on Income Distribution; Closing the gap: Prime Minister's report 2018; and Department of the Environment and Energy.

StatLink https://doi.org/10.1787/888933882978

Figure 4. Robust output growth with recovering investment and falling unemployment



1. Employed persons aged 15 years and over who want, and are available for, more hours of work than they currently have. They comprise: persons employed part-time who want to work more hours and are available to start work with more hours, either in the reference week or in the four weeks subsequent to the survey; or persons employed full time who worked part-time hours in the reference week for economic reasons (such as being stood down or insufficient work being available). It is assumed that these people wanted to work full time in the reference week and would have been available to do so.

Source: OECD Economic Outlook 104 database; and Thomson Reuters.

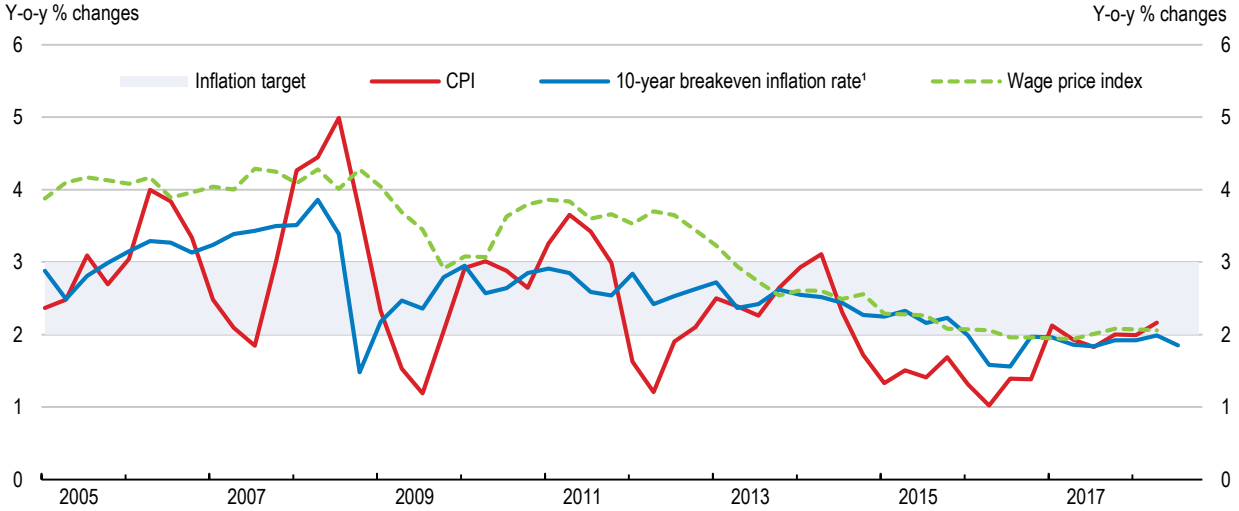
StatLink https://doi.org/10.1787/888933882997

Output growth has been gathering strength in recent quarters (Figure 4). Partial recovery in iron ore and coal prices boosted incomes in some segments of the resource sector, and there has been a higher than expected strength in resource sector investment. In addition, data indicate an investment pick-up in the wider economy, partly fuelled by heightened public investment. Resource exports continue adding to growth as more capacity comes on stream, while drought conditions in the farming sector will likely serve as a temporary drag. The OECD's central projection envisages output growth in 2018 and 2019 of around 3% (Table 1). The economy is in upswing, with growth above potential. However, the negative output gap will close and consumer-price inflation will increase but, stay within the Reserve Bank of Australia's (RBA's) medium-term target range of 2 to 3% (Figure 5). Output growth will moderate slightly in 2020 as capacity constraints tighten, export-market growth slows and as households become less willing to draw down savings to fuel consumption.

As for some other OECD economies, wage growth has remained surprisingly weak considering the strength of demand and employment growth. The large boost in employment has been accompanied by a sharp hike in labour force participation, suggesting some hidden labour supply. Moreover, elevated numbers in employment report that they would prefer to work more hours (under-employment) (Figure 4, Panel C) indicating more labour-market slack than suggested by the rate of unemployment. Nevertheless, economy-wide wage data show signs of pick up (Figure 5) and there are reports of wage increases and difficulties in recruiting in certain labour-market segments.

After several years of rapid increase, a welcome cooling of house prices is underway (Figure 6). Most notably, average prices in Sydney and Melbourne have begun to fall. Contributory factors include prudential measures taken by the Australian authorities (see below) and a sizeable pick up in new housing supply. Price easing may also reflect a fall off globally in the appetite for housing as an asset class (IMF, 2018) as well as domestic rule changes and alterations to state-level taxes that may have deterred some foreign buyers.

Figure 5. Wage and price inflation remain subdued



1. Average annual inflation rate implied by the difference between 10-year nominal bond yield and 10-year inflation indexed bond yield; end-quarter observation.
Source: OECD Analytical Database; and Reserve Bank of Australia.

StatLink https://doi.org/10.1787/888933883016

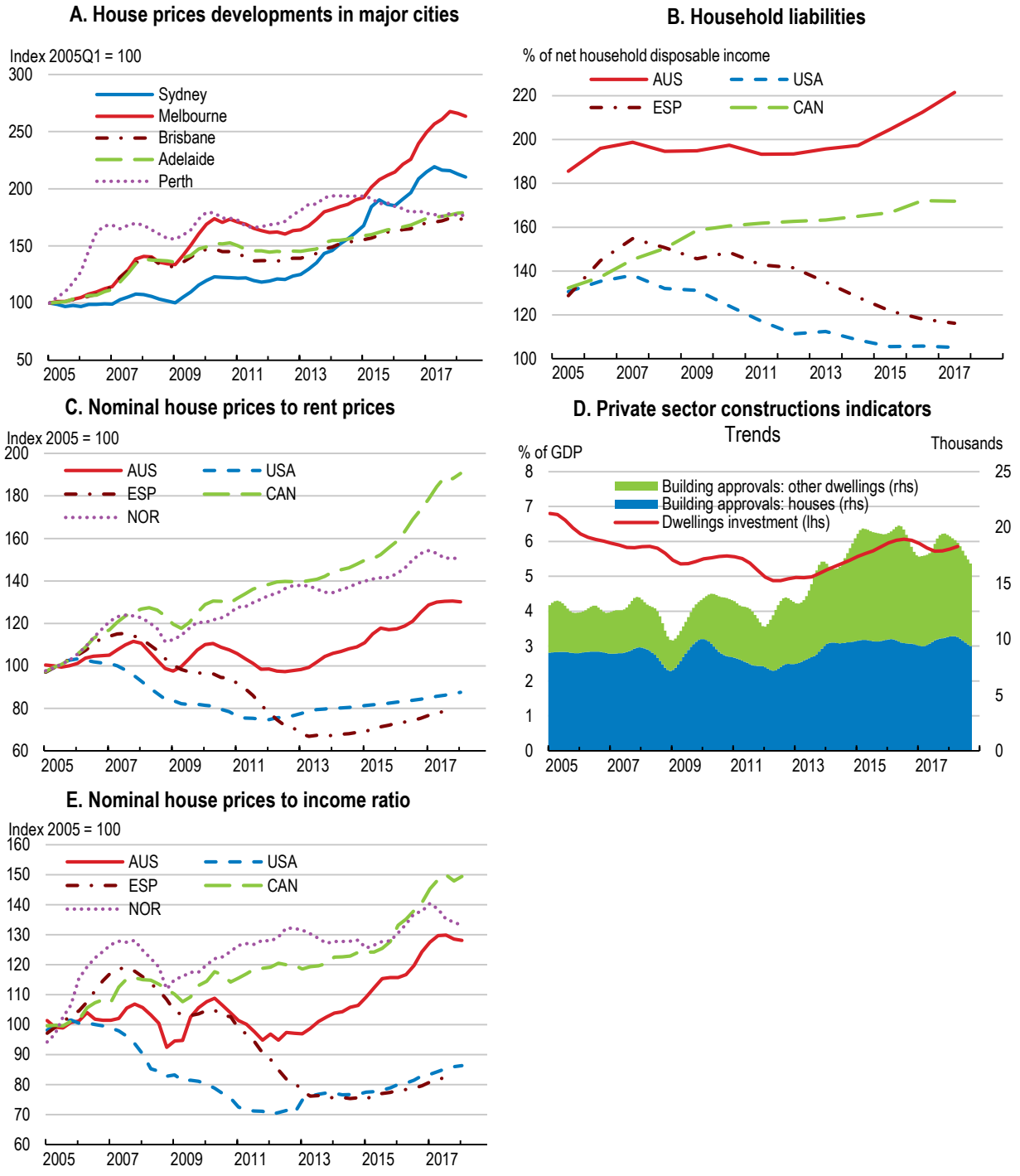
Table 1. Macroeconomic indicators and projections

	2015 Current prices (AUD billion)	2016	2017	2018	2019	2020
Gross domestic product (GDP)	1,638	2.6	2.2	3.1	2.9	2.6
Private consumption	949	2.9	2.7	2.5	2.1	1.7
Government consumption	301	4.1	3.7	4.4	3.2	2.8
Gross fixed capital formation	421	-2.2	3.4	3.4	4.0	2.9
Housing	92	8.7	-2.2	3.7	-1.3	-0.4
Business	279	-8.8	3.0	4.0	5.5	4.3
of which mining[1]	103	-27.3	-24.3	-4.0	. .	. .
General government investment	50	14.0	16.0	0.4	6.0	2.1
Final domestic demand	1,671	1.8	3.1	3.1	2.8	2.2
Stockbuilding[2]	5	0.1	-0.1	0.0	0.0	0.0
Total domestic demand	1,675	1.9	3.0	3.1	2.7	2.2
Exports of goods and services	323	6.8	3.7	4.6	4.1	3.8
Imports of goods and services	360	0.5	7.8	5.6	6.1	4.9
Net exports[2]	-37	1.2	-0.9	-0.2	-0.4	-0.2
Other indicators (growth rates, unless specified)						
Potential GDP	. .	2.6	2.4	2.4	2.4	2.4
Output gap[3]	. .	-1.3	-1.4	-0.8	-0.2	0.0
Employment	. .	1.7	2.3	2.6	2.2	2.0
Unemployment rate	. .	5.7	5.6	5.4	5.3	5.1
GDP deflator	. .	1.2	3.4	1.5	1.1	1.4
Consumer price index	. .	1.3	2.0	2.0	2.1	2.4
Core consumer prices	. .	1.5	1.7	1.6	2.0	2.4
Household saving ratio, net[4]	. .	4.9	2.8	2.2	2.2	2.1
Trade balance[5]	. .	-0.5	0.8	. .	. .	. .
Current account balance[5]	. .	-3.3	-2.6	-2.9	-3.3	-3.4
General government fiscal balance[5]	. .	-1.5	-0.6	-0.1	0.2	0.5
Underlying government fiscal balance[3]	. .	-1.0	0.2	0.3	0.3	0.5
Underlying government primary balance[3]	. .	-0.7	0.5	0.7	0.7	0.9
General government gross debt[5]	. .	42.7	43.6	42.0	39.8	39.8
General government net debt[5]	. .	-11.7	-12.3	-11.6	-11.3	-11.4
Three-month money market rate, average	. .	2.0	1.7	2.0	2.0	2.4
Ten-year government bond yield, average	. .	2.3	2.6	2.7	2.9	3.1

1. Data are based on a financial year.
2. Contributions to changes in real GDP, actual amount in the first column.
3. As a percentage of potential GDP.
4. As a percentage of household disposable income.
5. As a percentage of GDP.

Source: OECD Economic Outlook 104 database; Australian Bureau of Statistics.

Figure 6. House prices are easing but the household-debt burden continues to rise



Source: OECD Analytical Database; and Thomson Reuters.

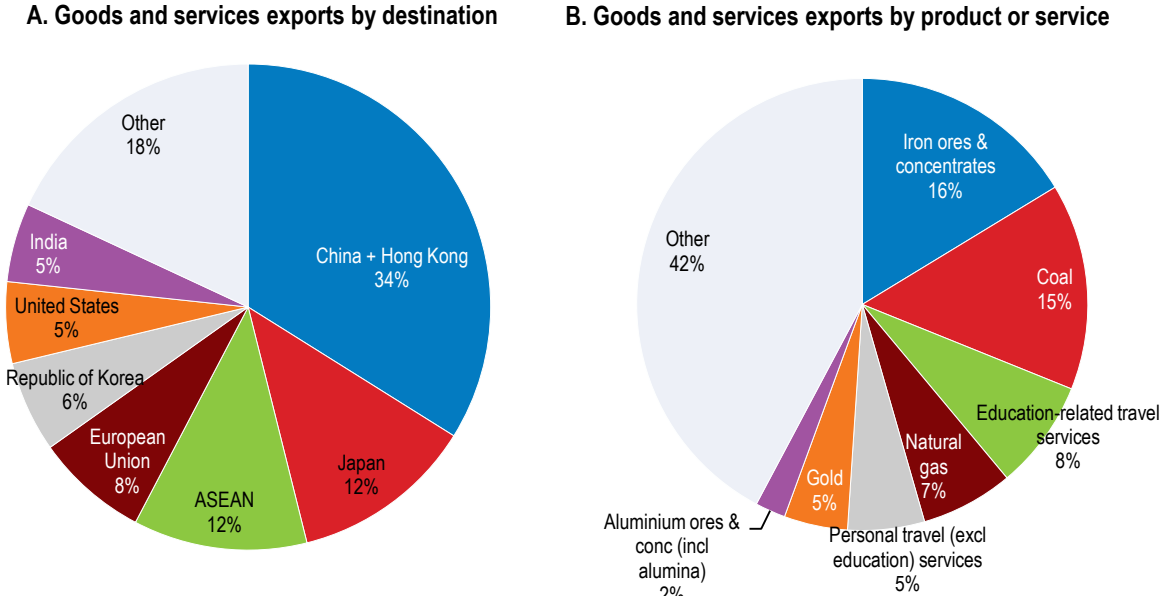
StatLink https://doi.org/10.1787/888933883035

Risks surrounding the central projection are broadly balanced, downside concerns notably include:

- Risk relating to housing market and related debt: though house prices have eased recently, they remain high in level terms (they have more than doubled in Sydney and Melbourne since 2005). Also, the ratio of house prices to incomes has increased substantially in recent years and the ratio of mortgage debt to household income remains elevated (Figure 6).
- Uncertainty in export demand. Concentration of exports in commodities (Figure 7) is a key element in Australia's risk profile. Most critical are developments in demand and prices for iron ore and coal, particularly the impact of China's economy on these. China is also of growing importance for Australia's trade in services, notably in tourism.
- Global uncertainties in policy and politics, including escalating trade disputes. Scenarios assessed by the Productivity Commission (2017a) suggest the impacts on Australia of higher U.S. tariffs on imports from China and Mexico are probably not large but a widespread increase in tariffs globally could have substantial impact.

Figure 7. Exports of commodities to Asia remain dominant

2017



Source: Australia Department of Foreign Affairs and Trade, https://dfat.gov.au/trade/resources/trade-statistics/trade-in-goods-and-services/Pages/australias-trade-in-goods-and-services-2017.aspx

StatLink https://doi.org/10.1787/888933883054

Assessing probability of downturns using the OECD's resilience indicators suggests that there is no emerging downturn at present (Box 1). Some low-probability, but potentially dramatic, scenarios (tail-end scenarios) are nevertheless listed in Table 2. House-price correction could trigger substantial weakening in activity via a fall-offs in consumption growth and house construction (see discussion on monetary policy and financial markets

below). Externally, Australia, as always, is exposed to the vagaries of global commodity markets and could face a renewed plunge in commodity prices. Significant downturn is likely to entail compounding processes. For instance, a negative external shock could prompt a sharp cut to incomes, rise in unemployment and downturn in consumption. This would in turn increase mortgage stress and further escalate falls in house prices. A currency depreciation would also be likely and would be expected to provide support to the Australian economy. Risk from Australia's persistent current account deficit is not considered a substantial concern because a large proportion of foreign-held debt is either denominated in Australian dollars or is hedged against exchange-rate fluctuations.

Table 2. Tail-end scenarios for the Australian economy

Vulnerability	Possible outcome	Possible policy actions
Dramatic house-price correction.	A large drop in house prices could cut household consumption, prompt collapse in the construction sector, increase mortgage defaults and freeze bank lending to business.	Monetary and fiscal support. The latter could focus on low-income households. Relaxation of selected prudential measures on mortgage borrowing. Restore confidence and flows of funds in the financial sector.
Renewed plunge in global iron ore and coal prices, possibly in relation to global environmental policy.	Further cost-savings and retrenchment of investment among mining companies with impact on jobs and incomes, with effects on the wider economy. The exchange rate would be expected to depreciate, which would assist economic adjustment.	Monetary and fiscal support. The latter could include extra support for states most affected by the downturn and additional support for displaced workers.
Acceleration in global trade disputes or pronounced slowdown in China's economy.	Impact on export demand is contingent on how tariffs and other trade instruments develop in the dispute. Impact depends on policies used by the Chinese authorities to counter slowdown and the impact on the Australia's terms of trade and the exchange rate.	Continue to work (in the context of international collaboration) towards free markets and improvements to the rules-based trade system. Strengthen the economy's resilience and workforce adaptability to changes in the global economy.

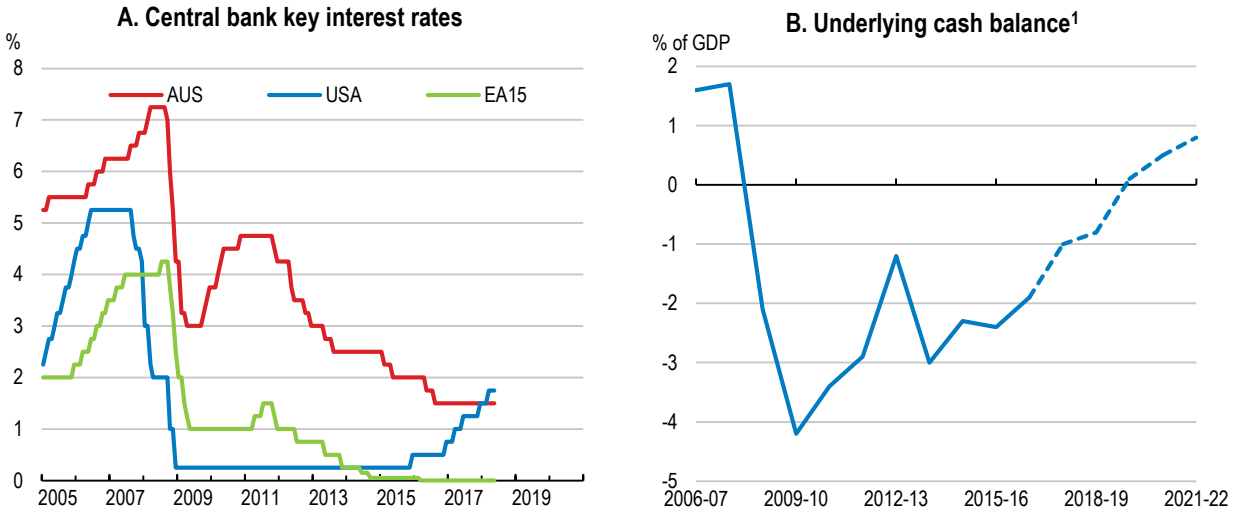
The authorities consider that they are well equipped to handle shocks such as those described in Table 2. Room for monetary and fiscal support in the event of a shock, though smaller than might ideally be the case (see below), is larger than in many other OECD economies. Furthermore, the speed and strength of the rebalancing processes in response to the global financial crisis and the end of the commodity boom indicate the economy has good capacity for absorbing shocks. In addition, Australia has continued to establish free trade agreements, most recently with Singapore and Peru as well as the Comprehensive and Progressive Agreement for Trahttps://doi.org/10.1787/888933883073

Monetary policy, housing and financial markets: emerging from the low-interest rate environment

Policy-rate normalisation will ease tensions

Similar to many other OECD economies, Australia still has accommodative monetary conditions. Though there has been some tightening in short-term money markets, borrowing rates for households and businesses remain low (RBA, 2018). This reflects concerns about the pace of the domestic economic recovery, a negative output gap, in combination with a fiscal-policy focus on curbing deficits. Low outcomes and expectations in consumer-price inflation over recent years have allowed the monetary stimulus to remain consistent with the RBA's medium-term inflation target band of 2 to 3% (Figure 9).

Figure 8. Policy-rate normalisation yet to begin, federal budget consolidation continues



1. The "underlying cash balance" is a main reference balance in federal-government budgeting. It is equal to receipts less payments, less net Future Fund earnings.
Source: OECD Analytical Database; and Budget documents.

StatLink https://doi.org/10.1787/888933883092

A start to policy-rate normalisation is now firmly on the horizon. Current OECD projections for Australia's economy envisage a gradual tightening as inflation moves further inside the inflation target band. Though there are risks to this process, it could potentially bring welcome unwinding of the tensions and imbalances that have accumulated from the low-interest environment, notably housing-related issues.

Vigilance and policy action are still required on mortgage debt and housing

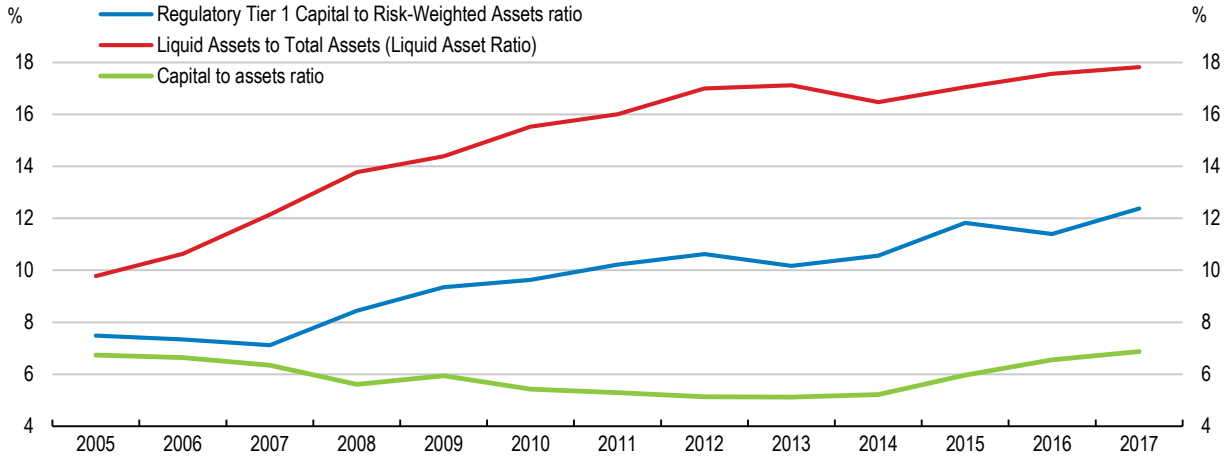
The evidence of housing-market cooling (see above) is welcome following a period of rapid price growth. IMF estimates indicate that as of Q3 2017 Australia's prices were overvalued by between 5 and 15% (Heilbling and Li, 2018), which is relatively modest and provides grounds for expecting a soft landing. So far, the evolution of prices has borne this out. Yet risk of an overshoot in the price correction – a hard landing – remains. Estimates of housing valuation are highly uncertain. Furthermore, a correction in average prices can contain

substantial adjustment in market segments. Past OECD work has found soft landings are rare (Rae and van den Noord, 2006).

Direct risk to the financial sector from mortgage defaults, triggered for instance by a hard landing in house prices or interest rates hikes, is viewed as limited by the authorities (for instance, see, RBA, 2018). Australia's housing loan market mainly comprises variable rate mortgages. This makes household loan repayments more sensitive to movements in interest rates; although at the same time it also supports the transmission of monetary policy. Products related to variable rate mortgages have enabled many mortgage holders to accumulate a substantial buffer of advance payments ("mortgage prepayments"), making them less sensitive to immediate shifts in interest rates. Furthermore, household-survey data indicate declining financial stress in recent years, despite rising house prices and mortgage debt, and indebtedness is concentrated in middle- and high-income households, rather than low-income households. Risk of financial stress from the large number of mortgages with interest-only phases that are due to transition to principal-plus-interest repayment is also not considered substantial.

Prudential measures have been employed to halt deterioration in lending standards as banks competed for share in the mortgage market. (Table 3). Also, banks have become better capitalised and their liquidity position has improved (Figure 10) and in 2017 the banking regulator, the Australian Prudential Regulation Authority (APRA), ramped up requirements further by adopting "unquestionably strong" capital targets by 2020 (this is in addition to other mechanisms). These targets notably include the four major Australian banks achieving Common Equity Tier 1 (CET1) capital ratios of around 10.5% (these figures are around 5 percentage points higher when constructed on an internationally comparable basis). Nevertheless, given past experience with financial crises across the OECD, including the challenges in identifying and dealing with emerging issues, efforts to ensure financial stability need to continue.

Figure 9. Capital and liquidity positions of banks have improved



Source: IMF Financial Soundness Indicators.

StatLink https://doi.org/10.1787/888933883111

However, substantial impact of a hard landing in house prices on the wider economy may occur through other channels. A likely route is via weakening household consumption demand and construction activity. Household consumption could be dented by negative

wealth effects, precautionary saving responses and reduced expenditures related to the purchase and sale of housing (such as spending on renovation and interior decoration). This could, inter alia, lead to losses on loans to businesses thus putting stress on the financial sector, as well as affecting the wider economy via aggregate demand.

Prudential tools should continue to encourage judicious mortgage lending. The authorities should also continue to pursue structural reforms to improve the functioning of the housing market, in particular measures to increase housing supply. Though recent price developments suggest that, broadly speaking, the gap between supply and demand has narrowed, housing affordability remains an issue (see Box 2).

The authorities should prepare contingency plans for a severe collapse in the housing market. These should include the possibility of a crisis situation in one or more financial institutions. Stress tests conducted by APRA show banks' capital remains above regulatory minimum levels under a scenario centred on a housing-market downturn (APRA, 2018). Nevertheless, the possibility of financial-institution crisis should not be discounted entirely. For account holders there is a deposit insurance scheme, the Financial Claims Scheme, which provides protection up to a limit of AUD 250 000 per account holder at each bank. As regards the institutions, a crisis would put recently passed crisis-resolution legislation (the Financial Sector Legislation Amendment (Crisis Resolution Powers and Other Measures) Act, 2018) under test. Unlike in the United States or European Union the legislation does not include explicit bail-in provisions on senior debt or deposits owned by financial institutions. This gives flexibility to adjust resolution plans to the specific characteristics of the crisis. On the other hand, the absence of explicit bail-in provisions could slow down the speed of resolution and risk encouraging financial institutions to gamble for resuscitation. APRA has indicated that it will start a consultation on its loss-absorbing capacity framework in late 2018; loss-absorbing and recapitalisation capacity should consist of a financial entity’s equity as well as debt instruments on which losses can credibly be imposed in a resolution.

Box 1. Housing affordability initiatives continue

Long-term growth in house-prices has deepened and widened housing-affordability issues, particularly in urban areas. While the cooling of the market has brought some relief, housing affordability remains an issue including for some households in the rental market. There has been welcome breadth to policy initiatives, with supply- as well as demand-side measures. For instance, the 2017-18 federal budget announced several measures including assistance for first-time buyers (the First Home Super Saver Scheme) and new programmes to increase the supply of affordable housing. Also, state governments have launched multi-pronged campaigns, for instance the "Homes for Victorians" in 2017 included steps towards abolishing stamp duty, planning reform, tenancy-legislation reform and increased funding for social housing.

High-profile cases of misconduct in the financial sector have emerged

While Australia's financial sector is considered in good health in prudential terms, market concentration and the quality and price of financial services have often come under review. Banking has received the greatest attention, where retail services are dominated by four big players. Measures have included introduction of a levy on major banks in 2017 that, inter

alia, reduces the largest banks' funding cost advantage and provides a more level playing field for smaller banks.

The financial sector has come under sharp scrutiny through the government establishing a Royal Commission to investigate misconduct of banks and other financial services entities (the final report is expected by February 2019). In addition, the government has initiated a range of other reviews into the financial sector including: Productivity Commission inquiries on competition (completed) and superannuation (in progress) and the Australian Competition and Consumer Commission (ACCC) reporting on mortgage pricing (interim report released). The ACCC has charged some senior bankers with criminal cartel offences, and the Australian Transaction Reports and Analysis Centre (AUSTRAC) has imposed a large fine on one of the main banks for contravention of anti-money laundering rules and counter-terrorism laws. While it is important to identify and penalise cases of individual and corporate misconduct, the inquiries should also focus on recommendations that provide lasting solutions that assure strong accountability, competition, transparency and law-abiding conduct in the financial sector.

Table 3. Past OECD recommendations on monetary and financial stability

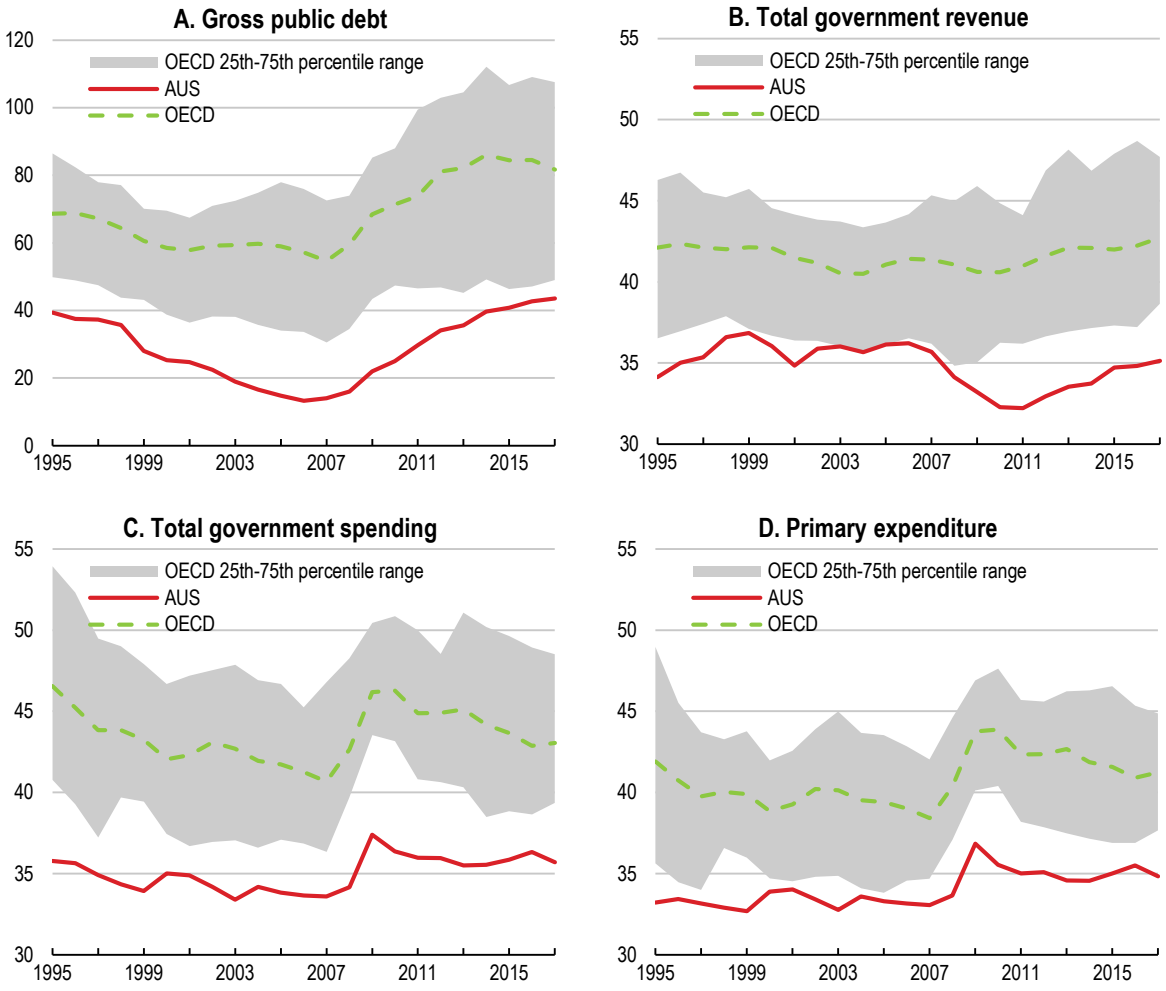
Topic and summary of recommendations	Summary of action taken since 2017 *Survey*
Improving the housing market and related credit markets	
Maintain tight prudential measures.	Active use of prudential measures to shape mortgage lending continues. Steps announced in March 2017 included limiting the share of interest-only mortgages in new mortgage lending. In July 2018 the 10% investor lending cap was removed for banks that could demonstrate adequate lending standards.
Facilitate housing supply.	Federal- and state-level government actions continue. For instance, the 2017-18 federal budget announced several measures to increase the supply of affordable housing. At the state level, "Homes for Victorians", includes some steps towards abolishing stamp duty and planning reform.
Strengthening financial-sector resilience, competition and conduct	
Inter alia reduce banks' implicit guarantees by developing a loss absorbing and recapitalisation framework.	A framework for loss absorbing and recapitalisation capacity is planned. APRA indicated in January 2018 that a consultation on proposals is expected to commence in 2018. A levy on major banks was introduced in 2017. Several official inquiries have recently been launched into competition and conduction in the financial sector.

Fiscal policy: deficit reduction continues

Australia has a comparatively small government in terms of revenues and spending (Figure 11). Nevertheless there are fiscal challenges. A swing into fiscal deficit from surplus and close-to-zero net debt during the global financial crisis prompted a rapid increase of debt and putting a brake on this has required a concerted policy effort. Also, there are long-recognised opportunities for making taxation more efficient and better tuned for businesses and households. Meanwhile, maintaining a small government on the spending side is challenged by reforms and commitments that require additional spending, and pressures from population ageing. Making progress on revenue and spending reform in the Australian context is often complicated by the interplay between federal and state governments.

Figure 10. Low public debt and comparatively low government spending

% of GDP, 1995-2017



Source: OECD Analytical Database.

StatLink https://doi.org/10.1787/888933883130

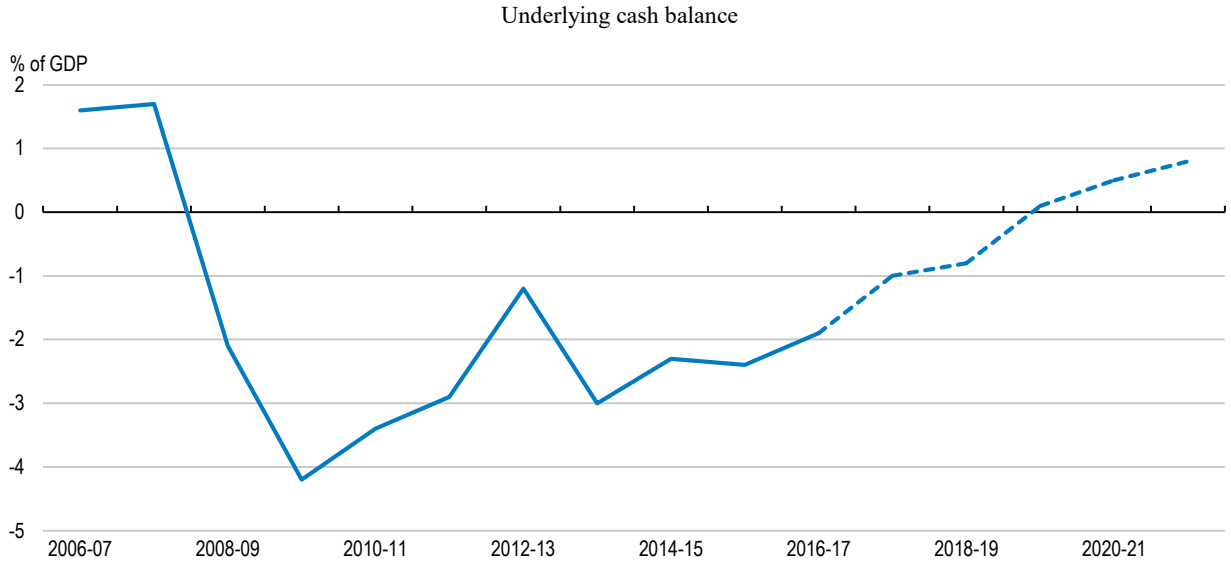
Completion of "budget repair" is on the horizon

Federal fiscal policy in recent years has centred on returning to a positive budget balance ("budget repair") following the deficit that emerged during the global financial crisis (Figure 12). This focus reflects the strong priority given to Australia's broad (and longstanding) fiscal rule of achieving a balanced budget (or surpluses) in the federal budget "over the cycle" (state governments do not substantially affect the overall fiscal stance because their balances are comparatively small). The rule gives room for deficits arising from macroeconomic shocks but also implies these are followed by a high priority in returning to surplus as the economy recovers. By implication the rule means fiscal policy will, in the absence of shocks, aim to bring Australia's public debt back to low levels.

To achieve budget repair budget proposals have typically envisaged deficit reduction averaging around ½ a percentage point of GDP a year over the four-year budget horizon. The deficit outcomes, on average, have been a little lower. Between 2009-10 and 2016-17

the deficit decreased from 4.2% to 1.9%, implying an average deficit reduction of about 0.3 percentage points per year. One influence on this performance has been the negative revenue impact from the substantial fall in commodity prices between 2011 and 2015 (Figure 4, Panel E).

Figure 11. Federal budget consolidation since the global finance crisis



Note: The "underlying cash balance" is a main reference balance in federal-government budgeting. It is equal to receipts less payments, less net Future Fund earnings. Dotted line: balance-projections from the 2018-19 federal budget.
Source: Australia budget documents.

StatLink https://doi.org/10.1787/888933883149

Fiscal policy needs to retain a high priority on achieving budget repair. Robust output growth has been helping lift revenues and growth projections suggest this positive effect is set to continue. However, this does not remove the need to exert fiscal discipline to remain on track with budget repair, as upswing in revenues can prompt increased pressures to expand public spending.

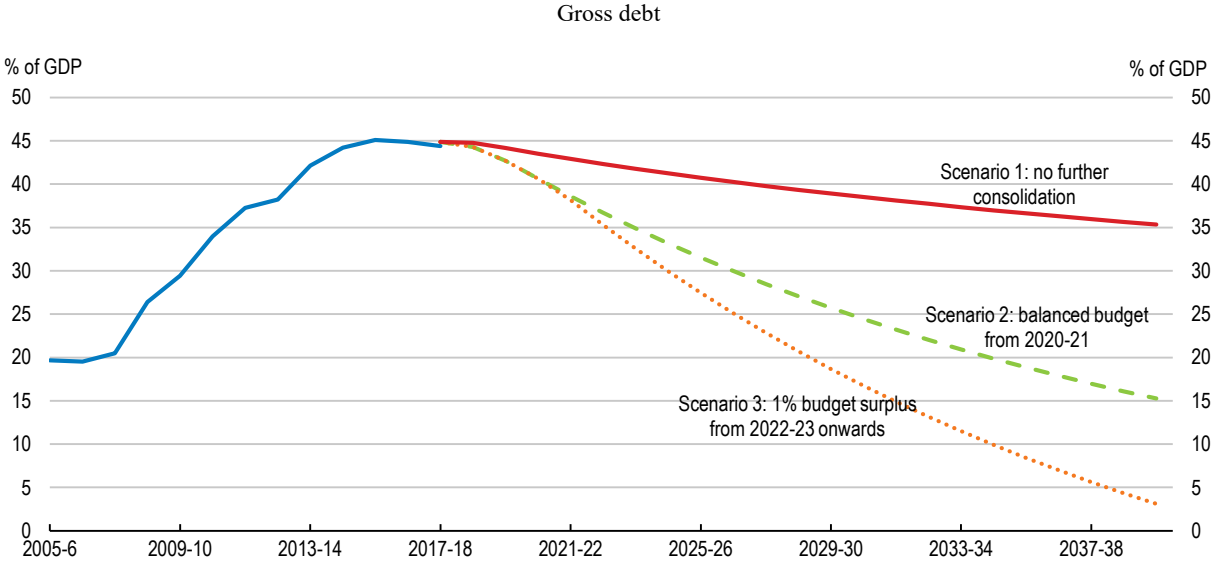
Once budget repair is achieved, policymakers will need to reflect on what level of fiscal surplus ought to be aimed for in the longer term. This primarily entails a trade-off between buffer building (i.e. gross public debt reduction) and fiscal space (less debt reduction means more room to lower tax-burdens, accommodate spending pressures or for targeted expansion in public services and investment). The 2018-19 Budget's projections suggest intention for a surplus in the order of 1% GDP from 2022-23 onwards. If a surplus of this magnitude were indeed maintained over the long term, and assuming just over 5% nominal GDP growth (as reckoned in OECD long-term projections) then there would be fairly rapid decline in the debt-to-GDP ratio (to the pre-global-financial-crisis level by 2029-30), implying high priority on buffer building (Figure 13). Australia's vulnerability to external shocks given its reliance on foreign capital and a significant share of exports in commodities suggests buffer building is indeed important, and this is commonly cited as the reason for conservative fiscal policy. Nevertheless, reflection on long-term fiscal strategy ought to review the strength of this argument and implied trade-offs with fiscal space.

The federal government's 2018-19 Budget signalled stronger commitment to retaining a small government by adopting a tax-to-GDP ceiling. Previous budgets' medium-term projections (beyond the first five years) included a tax-to-GDP 'cap' assumption which was adopted for technical purposes and did not represent a government policy or target. In the 2018-19 Budget, the government announced that this will become part of its fiscal strategy. Neither the tax-to-GDP ceiling nor any of the other fiscal rules are hard-wired into legislation.

As with all such budgeting rules, their usefulness depends on whether the potential gains outweigh the downside risks. A tax-to-GDP ceiling can, for instance, bring positive pressure for increasing public-service efficiency or alternative delivery modes to tax-financed public spending. However, the tax cap might, for instance, prompt inappropriate pro-cyclical tax cuts or excessive constraints on funding public services. Risk of such undesirable consequences is diminished by the fact that the cap is not hard-wired in legislation, and so can be treated with discretion and adjusted to suit circumstances. Parenthetically, however, there is a legislated requirement to have a fiscal strategy. The Charter of Budget Honesty Act 1998 requires the elected government to publish a fiscal strategy set in a sustainable medium-term framework as a benchmark for evaluating its conduct of fiscal policy.

The strong discipline on federal-level public spending implied by the budget-surplus goal and the tax-to-GDP ceiling implies that the call for greater use of stabilisation funds made in previous *Surveys* is less pertinent at the federal level. However, this remains a potentially useful way forward in state budgeting to cope with fluctuating revenue, in particular to counter tendencies to overspend during revenue upswings.

Figure 12. A wide range of debt-reduction speeds can be followed



Note: These debt projections use a simple model that uses various deficit trajectories and projections of GDP growth to calculate debt-to-GDP ratios looking forward. The model does not incorporate the channels of interaction between deficits and GDP, nor structural influences on deficit developments and GDP growth, such as the impact of population ageing.
Source: OECD calculations based on OECD Analytical Database and Government of Australia.

StatLink https://doi.org/10.1787/888933883168

Progress on tax reform but room for more

Australia's tax mix remains tilted towards direct taxes, which can diminish potential output growth (Akgun et al., 2017). Also, some prominent inefficiencies and distortions in taxation remain, particularly in state government taxation and in the tax treatment of private pension savings. As for many countries, issues in tax avoidance and evasion by multinational enterprises have come to the fore in recent years (OECD, 2018a).

A welcome focus on tax reform by the federal government is bringing advances on several fronts, most notably:

- Lightening of personal-income tax (PIT) has been legislated following its announcement in the 2018-19 Budget, including a new tax offset for low and middle income earners, and a multi-year plan for threshold increases and the removal of one PIT bracket.
- Reforms to pension tax treatment, including reduced tax concessions that principally benefit higher income earners. For instance lower ceilings on the concession provided in the contribution phase have been introduced.
- A concerted campaign to reduce tax avoidance and evasion ("tax integrity") continues. Notably, the 2018-19 Budget included measures in relation to the black economy and multinationals. Stronger enforcement of illicit tobacco, an economy-wide cash-payment limit and establishment of a taskforce to strengthen information sharing across agencies are among the measures proposed.
- A legislated series of corporate tax rate cuts for SMEs is underway, the rate has already been cut to 27.5% and is due to reach 25% in 2021-22 (the standard rate is 30%).

However, there remains considerable opportunity for further reform, in particular:

- Greater use of value added tax (the Goods and Services Tax, GST), as underscored in previous *Surveys*, could provide fiscal space for tax reform in other areas. At 10%, the GST rate is among the lowest of this type of tax in the OECD area (Figure 14), and as in other countries a range of goods and services are exempt. Substantial VAT rate hikes in other OECD countries seem generally to have occurred during times of substantial fiscal stress (Box 3); making a case during more benign circumstances may be more challenging. In light of this, and given that GST revenues are distributed to the states, moving ahead on reform may be most tractable if part of a wider reconfiguration of federal-state fiscal relations, something which is advocated in the Productivity Commission's latest five-year review (Productivity Commission, 2017b). Although the government has recently announced that it will change the way that GST revenues are distributed, broader reform including to the rate and base of GST is desirable. Reworking of the GST base through alterations to exemptions may also be a way forward. Careful consideration should be given to the distributional effects of an increase in the rate of GST. Targeted income tax relief and cash transfers would be necessary to minimise the adverse distributional impacts of such reform on those on low incomes.
- Corporate tax rates for large business ought to eventually be reduced to align with those on SMEs, as was previously intended by government. A two-rate

system risks distorting how firms are structured and how they behave, especially around the threshold between the two rates. Furthermore, to the extent that SME support is required, it is arguably better channelled through targeted instruments that focus on particular SME segments—such as businesses in innovative sectors.

- Despite some progress, inefficiencies and distortions in state-level taxation remain substantial, with heavy reliance on real-estate transactions taxes (greater use of land tax would be preferable), exemption-ridden payroll taxes and too many small charges and fees. Australian Capital Territory remains the only jurisdiction with a substantial reform of real-estate stamp duty underway.
- Natural-resource taxation (also primarily a state-level responsibility, the federal government only has exclusive power for taxing offshore natural resources) remains sub-optimal. As discussed in the 2014 *Survey*, a shift towards taxing resource rents, rather than royalties could improve the climate for resource-sector investment and exploration, helping bring further recovery in the sector.
- Opportunities to better address environmental issues include road transport taxation and charging where there is scope to shift the mix away from systems based on car ownership towards those based on car use, notably distance charging and congestion charging. The upcoming Environmental Performance Review also underscores scope to further improve the tax treatment of company cars and waste disposal charging, and flags the environmental downsides of Australia's tax concessions on fuels.

Box 2. Hikes in VAT rates: examples from other countries, impact on inflation

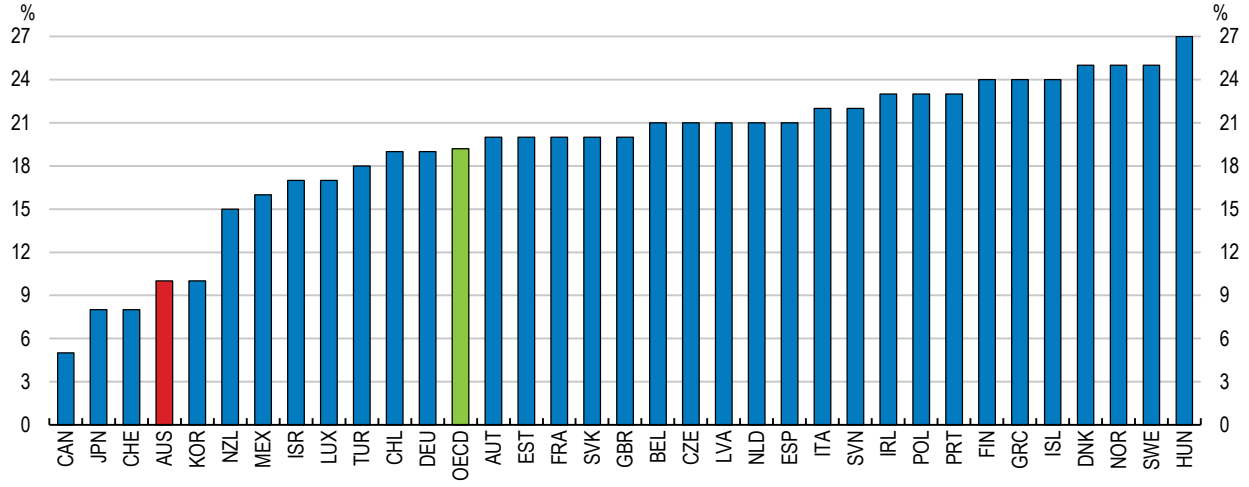
There was a wave of substantial hikes in standard rates of VAT across OECD countries in the early 2010s. Most were made when countries were experiencing very substantial fiscal deficit and debt problems and so revenue-raising must have been a primary driver. Between 2010 and 2011 there were hikes in Greece (19 to 23%), Portugal (20 to 23%), and Spain (16 to 18%), for example. VAT rate hikes in rather less critical fiscal conditions occurred in the Netherlands (19 to 21% in 2013), New Zealand (12.5% to 15% in 2011) and the United Kingdom (17.5 to 20% in 2011). This experience suggests that a substantial VAT hike during benign times is possibly challenging, requiring more offsetting measures to be (politically) feasible.

As regards impact on consumer-price inflation, assessment from the introduction of Australia's GST (Valadkhani and Layton, 2004) suggests every 1-percentage-point hike in GST would lead to an approximately 0.3% one-off increase in CPI (a similar scale of impact was seen in the United Kingdom's VAT hike of 2011, Office For National Statistics, 2011) . This suggests that a hypothetical increase in GST from 10 to 15% would generate a roughly 1.5% price inflation spike.

Source: OECD, VAT-GST Rates data

Figure 13. The Goods and Services Tax rate is low in international comparison

Standard rates of Value Added Tax, as of 1st Jan 2018.



Source: OECD Tax database.

StatLink https://doi.org/10.1787/888933883187

Efficiency in public services is increasingly important

In general, Australian policymaking in recent decades has been adept at policy approaches that deliver on outcomes while involving comparatively light fiscal cost. Examples include mandatory private savings in the pension system, tightly targeted welfare support through means testing, student support via loans and co-funding of infrastructure. Approaches such as these have helped the government provide comprehensive safety nets and maintain a core role in areas such as education and health (Figure 15) while remaining comparatively small in fiscal terms. Furthermore, there is an openness to explore new technologies for policy development, as illustrated by the use of data analytics to target public expenditure by the Ministry of Finance (OECD, 2018b).

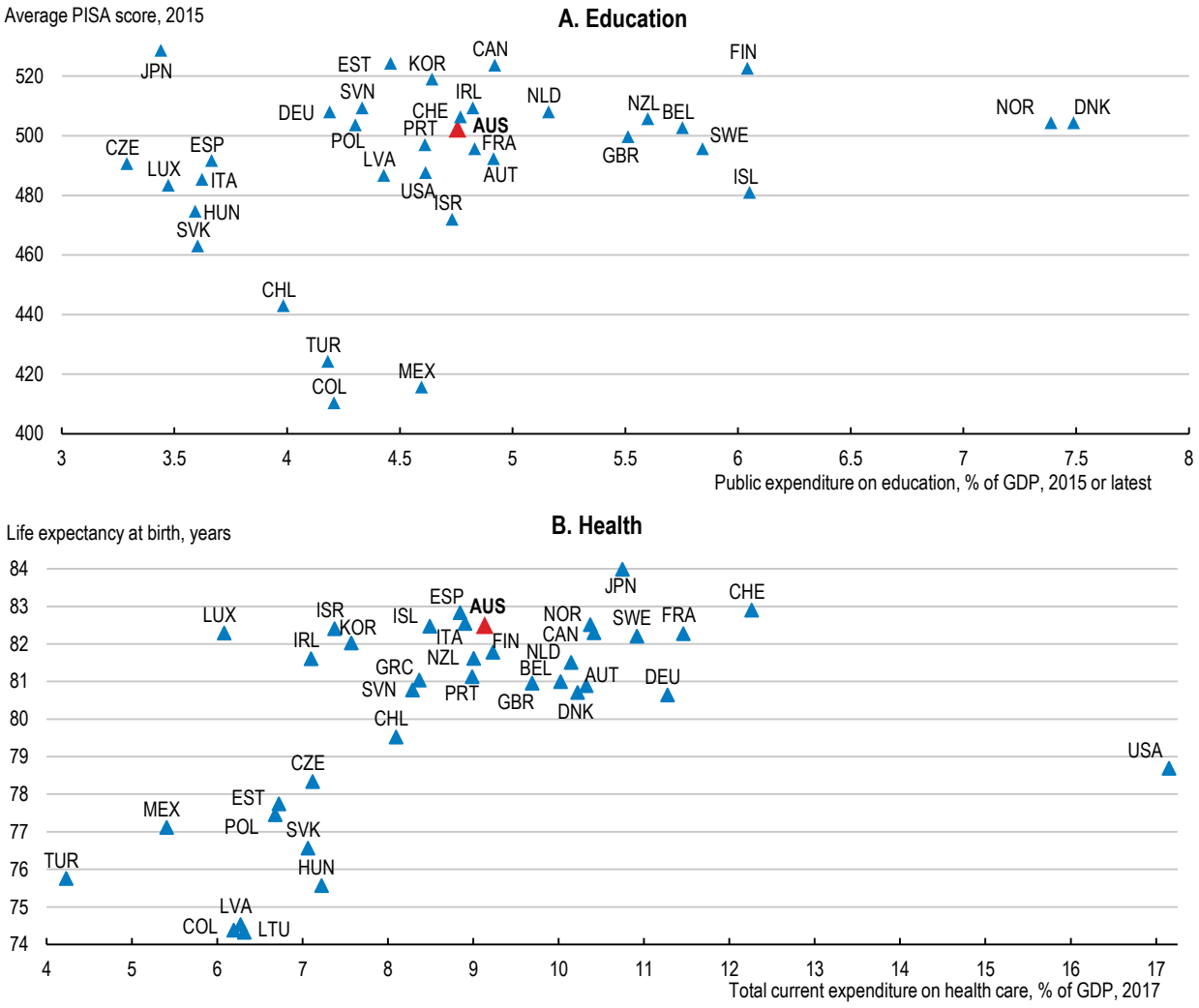
Tapping into fiscally efficient solutions will remain important given current and upcoming spending commitments and continuing budget repair. Spending is being ramped up in several areas, including road and telecoms infrastructure (see below), disability support (implementation of the National Disability Insurance Scheme) and defence. Also, Australia faces the common prospect of increasing public spending on health care, long-term care and pensions as the population ages and as new treatments emerge. OECD analysis suggests that public health care and long-term care costs in Australia may be increasing public spending by as much as 1.5 percentage points of GDP per decade (de la Maisonneuve and Oliveria Martins, 2013). Although Australia is only middle-ranking in this regard, implementing fiscally efficient solutions to these issues, and making efficiency gains in other areas of public spending is important.

Human services are currently a focus of policy, which is sensible given the importance of these for public spending and the challenges in identifying routes for improvement due to complex nature of outputs and inputs, and the shared responsibility between federal and state governments. A Productivity Commission report (Productivity Commission, 2017c), identified six areas with scope to improve user choice, competition and contestability: end-

of-life services, social housing, family and community services, services for remote indigenous communities, patient choice in health care and in public dental care.

Pressing on with review and reform in areas of public-spending that are inherently vulnerable to sub-optimal outcomes is important. Past *Surveys* have, for instance, flagged the large number of innovation-related support schemes, which are mostly aimed at SMEs, as a potential source of policy inefficiency. This *Survey's* in-depth chapter underscores that Australia faces the common challenge of ensuring value for money in transport infrastructure investment (see below).

Figure 14. Education and health indicators point to middle-ranking spending, yet room for better outcomes



Source: OECD Education at a glance; PISA 2015 database; Health Statistics database and World Bank WDI.

StatLink https://doi.org/10.1787/888933883206

Box 3. Quantifying the fiscal impact of structural reforms

The following estimates roughly quantify the fiscal impact of selected recommendations. The estimated fiscal effects are first-order only, abstracting from behavioural responses and consequent GDP effects that could be induced by the given policy change. Limitations in available estimates and data mean the reform examples differ from those shown in the companion box illustrating GDP impacts.

Table 4. Illustrative fiscal impact of recommended reforms

Policy	Measure	Annual fiscal balance effect % of GDP
Rebalancing taxation	Increase GST rate (from 10% to 15%, estimate includes compensatory welfare expenses)	+1.1
	Further income-tax reduction: corporate (approx. 10% revenue reduction)	-0.4
	Further income-tax reduction: personal (approx. 5% revenue reduction)	-0.6
	Reduce stamp duty increase land tax (50% revenue shifts each)	-0.4
Improving human services	Efficiency gains (10%) in selected areas, including health services	+0.8
Deepening skills and increasing inclusiveness	Education spending increase (10% increase in spending)	-0.5
	Early Childhood Education and Care (ECEC) spending increase (10%)	-0.1
	Active-labour-market-policy spending increase (50% increase)	-0.1
Balance		-0.2

Notes: 1. GST effect is based on reported results of an in-house assessment by Australian Treasury plus an estimate of the cost of a 5% increase in welfare payments based on the OECD's Social Expenditure Database;
2. Income-tax reduction calculations are based on assuming corporate and personal tax revenues represent around 3.5 and 11.5% of GDP respectively. The revenue reductions refer to percentage reductions these revenue shares;
3. Stamp duty and land tax figures are based on estimates that these account for about 1.3% and 0.5% of GDP (from ABS data on Government Finance Statistics);
4. Impact of efficiency gains in human services and in early childhood education calculation are based on the OECD's Social Expenditure Database;
5. Education spending calculation based on OECD data on public expenditure on education.
Source: OECD calculations.

Box 4. Potential impact of structural reforms on per capita GDP

Selected reforms proposed in the *Survey* are quantified in the table below, based on the framework from Égert and Gal (2017). The estimates are based on cross-country empirical relationships between past structural policy settings and productivity, employment and investment. The estimates assume swift and full implementation, and being based on cross-country estimates, do not incorporate Australia's particular institutional settings. As such, these estimates are illustrative.

Table 5. Illustrative GDP-per-capita impact of recommended reforms

Reform	Percentage increase in GDP per capita	
	10 year effect	Long-run effect
Reduced product market regulation in energy, transport and communication sectors	1.0%	2.5%
Increased spending on active labour market policy	1.1%	2.1%
Reduced corporate income tax	0.3%	0.4%
Increased spending on family benefits in kind	0.5%	0.7%

Notes: The permanent policy changes assumed for the scenarios in the table are:
1. Reducing product market regulation in energy transport and communication sectors half way towards the best performer among OECD countries (reducing PMR indicator from 1.5 to 1.2);
2. Increasing spending on Active Labour Market Programmes (as measured by spending per unemployed as a share in GDP p.c.) toward the median of top third of OECD - equivalent to increasing spending by about 50%;
3. Reducing Corporate Income Tax revenue by 10%;
4. Increasing spending on family benefits in kind to the level of New Zealand, equivalent to raising expenditure by about 10%.
Source: OECD calculations based on Égert and Gal (2017).

Table 6. Past OECD recommendations on maintaining fiscal prudence and ensuring efficient tax and public spending

Topic and summary of recommendations	Summary of action taken since 2017 *Survey*
Maintaining fiscal prudence	
Consider a spending ceiling to contain expenditure growth in booms and targeting debt in the long term.	The 2018-19 Federal Budget announced a cap on the ratio of federal tax revenue to GDP of 23.9% in its fiscal strategy.
Create stabilisation funds using resource revenues, or make greater use of existing funds, to insulate budgets from commodity price changes.	No progress has been made in widening the use of stabilisation funds.
Tax and spending reform	
Further shift from corporate income taxes and, raise the Goods and Services Tax. Reform state financing, including through removing inefficient taxes and raising land taxes, further reduction in grant conditionality. Address federal-state responsibilities in major spending areas: improve co-ordination and co-operation, notably in health care, consider a reallocation of responsibilities.	Corporate-tax reform includes rate cuts for small business (27.5% for 2018-19 and scheduled to reach 25% 2021-22). GST was extended to low-value goods imports as of July 2018. Measures to combat base erosion and profit shifting continue. Australian Capital Territory remains the only sub-national jurisdiction implementing major land-tax reform. The reform is increasing land taxes, reducing transfer duties on conveyances and abolishing insurance taxes.

Source: OECD

Transport, urban environments and utilities: substantial ongoing challenges

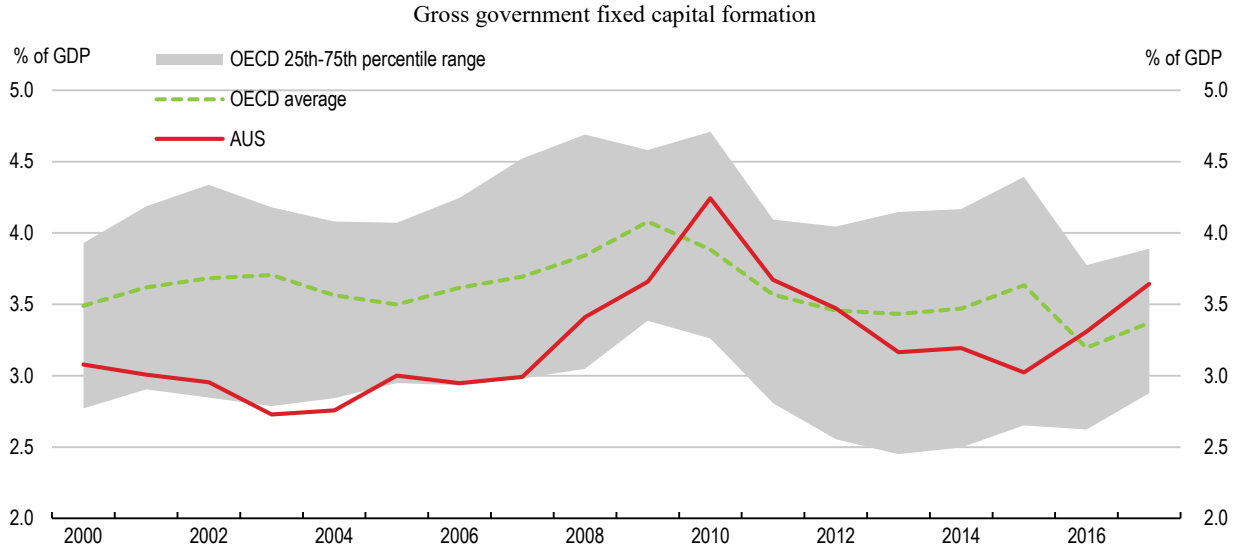
Well-planned and cost-efficient road networks and public transport, plus high quality and competitively priced energy, telecoms and water services contribute to household well-being and are key ingredients to a competitive business environment. Australia's current challenges include strain on urban infrastructure from rapid population growth (see in-depth chapter), supply and price issues in electricity and gas markets, and challenges in the telecommunications sector. In addition, utilities provision in Australia's rural and remote areas faces considerable economic and technical challenges.

Alongside traditional approaches to resolving these issues (see below), the government is demonstrating a welcome openness to seeking new solutions. For example, the federal government is implementing the "Smart Cities Plan", which aims to provide greater federal-government support and steerage on developing and implementing technological solutions to infrastructure and other issues in urban areas.

A major push to improve urban transport infrastructure is underway

Given the growing transport challenges it is welcome that the government is implementing a major programme of investment in transport infrastructure, mainly roads in and around metropolitan areas. This is reflected in a new surge of government investment (Figure 16).

Figure 15. A new surge in government investment is underway



Source: OECD Analytical database.

StatLink https://doi.org/10.1787/888933883225

In common with many other countries, despite formalised processes (in Australia these include checks and assessments provided by independent agencies), politics can overshadow economics in infrastructure project selection. There appear to be instances of bias in economic calculation to help projects pass approval and cases where economic assessment has simply been overridden (Terrill, 2016). Despite some strengthening of the infrastructure agencies, there is room for improvement in project selection. Chapter 1 recommends raising the prominence of cost-benefit analysis.

Tackling urban road congestion also requires attention to alternative transport modes (public transport, walking and cycling) along with the wider use of road pricing (mentioned above). In addition, adapting electric and hybrid vehicle incentives and infrastructure as technology evolves further and continued encouragement of autonomous vehicle trials will help transport development.

Urban environments would benefit from governance and land-use reform

In Australia, state governments take a lead on most urban issues and have been conducting welcome efforts to give urban development stronger direction. For example the New South Wales government plans for a three-centred urban conurbation (A Metropolis of Three Cities - The Greater Sydney Regional Plan). Some metropolitan areas would benefit from amalgamations of local government, or from efforts to ensure opportunities for combined provision and decision making across jurisdictions are fully exploited.

Australia's land-use zoning systems (a state-level responsibility) have long been criticised as having too many categories and excessive direction on allowable activities within each zone. A range of efforts is underway to improve zoning, and planning more generally. However, only Victoria has substantially decluttered its system. Also, such reform does not necessarily remove the risk that land-use planning (largely in the hands of local government) fails to align well with wider community interests and strategic objectives. Chapter 1 suggests accompanying zoning reform with limits on local-government powers for add-on restrictions and removing proximity restrictions that still feature in some retail sectors (pharmacies are a prominent example).

Some underlying energy sector problems have yet to be resolved

High prices for electricity and gas users and supply problems, notably a state-wide blackout in South Australia in 2016, prompted immediate remedial action (including installation of a large battery for back-up supply in South Australia) and investigation of the underlying problems. One contributory factor has been the commencement of gas exports, a broadly positive development, but nevertheless with impact on domestic supply and prices. Other strains on the energy sector are caused by uncertainty in policy and regulation. Most notably, piecemeal solutions and changing policy directions in greenhouse gas emission reduction policy to date (see environmental section below) have, inter alia, created difficulties in planning new electricity generation capacity. Other problems include widespread over investment in electricity transmission network (Grattan Institute, 2018), and poor market information flows and instances of monopoly pricing in the gas sector.

The policy response has brought good progress on some fronts and has included agreements with energy retailers and gas companies for improved information and service levels; strengthening of supply guarantees, increased scrutiny of the energy market competition authority. Also, a large pumped hydro facility (Snowy 2.0) is planned, which will increase capacity to harness solar and wind energy, and additional pumped hydro facilities are being explored. Proposals for a new energy-sector instrument, the "National Energy Guarantee" that would place reliability and emissions requirements on electricity retailers were made in 2017, but this was withdrawn from the government’s agenda in August 2018. The government remains committed to working with the states and territories to implement the reliability component of the National Energy Guarantee framework.

Progress but also remaining challenges in ensuring access to low cost-high speed ICT

With regards to fixed-line services, and as detailed in the previous *Survey,* Australia is rolling out a wholesale-only fixed-line, wireless and satellite network via a publically-owned enterprise (NBN Co.). By mid-2018 over 60% of Australian premises could access the National Broadband Network with 100% access expected by mid-2020.

With respect to mobile services, the previous *Survey* highlighted the growing view among experts that a fourth operator may raise competition significantly (OECD, 2014). Over the next eighteen months several countries will add a fourth operator, including Hungary, Italy, Japan and Singapore. Entry of a fourth operator in Australia could prove beneficial for competition.

Other issues include ensuring wholesale fixed-line pricing is competitive and bringing greater flexibility in how mobile access numbers ("international mobile subscriber identities", IMSIs) are issued and stored. Progress on the latter is important for connecting products, such as cars and appliances, to the internet (the "Internet of Things") thereby facilitating services such as feedback to owners and manufacturers on wear and tear.

Table 7. Past OECD recommendations on infrastructure and utilities

Topic and summary of recommendations	Summary of action taken since 2017 *Survey*
Improving infrastructure investment	
Ensure robust and transparent cost-benefit analysis. Simplify infrastructure investment processes Improve public-private partnership processes.	In July 2018, Infrastructure Australia published its Infrastructure Decision-making Principles and in March 2018 it also updated its Assessment Framework.
Working towards better transport	
Simplify and harmonise road and rail regulation across states. Bring in a road-freight pricing scheme. Consider reforming arrangements for managing and funding road infrastructure.	In May 2018, the Council of Australian Governments' Transport and Infrastructure Council agreed a framework for developing a 20-year national freight and supply chain strategy.
Improving energy-sector efficiency	
Harmonise interstate regulation. Continue privatisation. Remove ceilings on retail electricity prices. Bring in smart meters.	No major policy developments.
Ensuring access, competitive pricing, and quality in telecommunications	
Facilitate the entry of a fourth operator in mobile telephony via a spectrum auction.	No major policy developments.

Skills: evolving to new needs

Ensuring education and skills training reflects evolving labour demands under technological change and globalisation is important for improving productivity performance and for ensuring that individuals are not "left behind" in terms of access to employment and earnings due to weak or inappropriate skills (see Chapter 1).

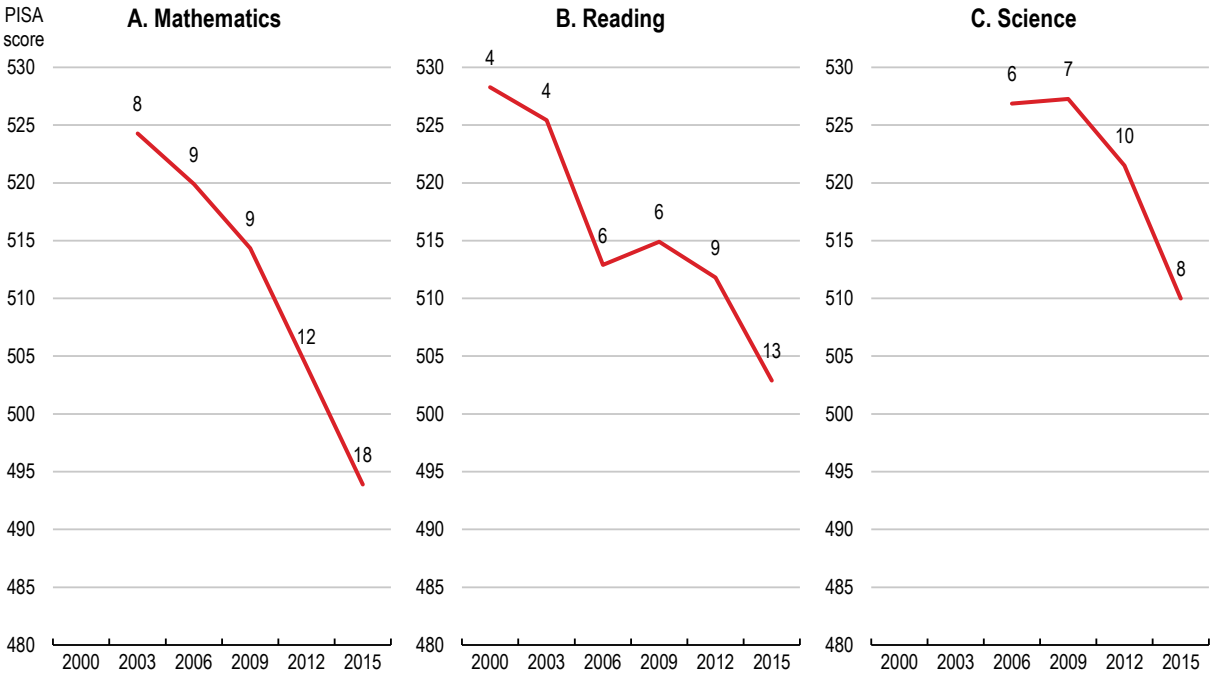
Australia's high level of GDP per capita reflects high levels of educational attainment and skills. As for many countries, participation in tertiary education has increased significantly

over recent decades and Australia also scores well in participation in adult learning. As regards outcomes, Australia has above-average scores in the OECD's PISA tests (which test 15 year-olds) and in PIACC (which tests adult skills). The latter also indicate a good ranking in computer and ICT skills and strong learning skills at work.

However, there are challenges:

- Australia's PISA scores have been edging down both in absolute terms and relative to other participating countries (Figure 17).
- Australia appears to have wider gaps in student performance compared with many other countries, and by certain measures, equity has worsened over time. Despite policy efforts, the proportion of high achievers among disadvantaged students has remained roughly constant, and the impact of socio-economic status on science proficiency appears to have increased (OECD, 2016a).
- The rapid expansion in tertiary education, though largely welcome, has generated cost challenges for university funding and student loan support. It has also contributed to falling completion and weaker labour-market outcomes. Indeed, the expansion may have been too large, i.e. supply may have overshot.

Figure 16. Australia's PISA performance is weakening



The numbers beside the lines in the charts indicate the ranking of Australia, 1 being the country with the highest PISA score.
Source: OECD Program for International Student Assessment (PISA), 2000, 2003, 2006, 2009, 2012, and 2015 Reading, Mathematics and Science Assessments.

StatLink https://doi.org/10.1787/888933883244

Improving skills and education requires work at all points in the educational supply chain. A major reform affecting early childhood education initiated in 2009 expanded access and improved quality assurance. Reforms have also been introduced to better target and

streamline childcare support, partly with the aim to facilitate labour supply of women. This underscores the importance of continued resourcing of universal access to early childhood education and quality improvement. It also suggests offering further targeted support to disadvantaged families by reducing barriers to attend early childhood education and more monitoring of the quality of service.

Primary and secondary school reform in recent years has most notably included changes to the funding system. A first wave of reform ("Gonski 1.0") has introduced more socio-economic variables in school funding formulae with a view to bringing a more "needs based" approach. A second wave is planned that will, in addition, connect funding to learner progression. Continued progress on these reforms is required and could include the establishment of a research institution to improve the evidence base in education.

Australia's VET system has been through severe difficulties following a reform that successfully brought new providers and competition but failed to accompany this with adequate checks on provider quality. This resulted in an explosion of providers and courses, many of them of poor quality and focused on profiting from government support to cover fees via student loans. Reforms look set to fix this problem but close monitoring is nevertheless required. On other fronts, policy should push for greater general-skills content in VET courses in light of a significant share of adults with low numeracy skills and a bias towards job specific content. The authorities should also remove up-front payments for students that feature in VET but not in university education, which biases education choices towards degree-level courses.

Tertiary education's expansion has generated rapid increase in current and future fiscal cost through grants to universities and implicit costs in the accumulation of student-loan debt from interest subsidy and the non-repayment of debt from graduates whose incomes never surpass the repayment threshold. The current government has, in effect, abandoned the demand-driven university funding model that was adopted in 2012 by imposing a two-year spending freeze on university grants and signalling intent to then link spending increases to population growth and other (yet to be determined) criteria. Given the fast paced rise in costs, this approach seems sensible. For the longer term, funding will have to accommodate the large population cohorts reaching the end of high school. Some tweaks to the student-loan repayment rules have been introduced, including reduction in the initial repayment threshold, but further reform is needed to collect more of the outstanding debt. One challenge is to achieve this without significant impact on low-income households.

As for education systems everywhere, better information about provider quality and developments in skill and vocation demand in the labour market can make for better decisions by students, keep courses up to date and more generally better connect demand with supply. In the school sector more regular knowledge updates for school career advisors and less bias towards gearing pupils towards university education would help. A recent Getting Skills Right (OECD, 2018c) review of Australia includes examination of skills assessment and anticipation (SAA) processes and suggests including more regular assessment, more consistency across regions and sectors, and greater assessment in remote areas. Centralisation of online career and education platforms is also recommended. Furthermore, amid rising non-completion in university education, prospective students should be given better information about employment prospects, and about risks and costs of undertaking university education.

New ways of delivering education using digital technologies, such as Massive Online Open Courses (MOOCs) and Open Educational Resources (OER) have an increasing presence in Australia, although they remain still comparatively small compared with traditional

education. Some providers are using new methods to deliver education to remote communities, the further development of which can only be welcomed, especially given the socio-economic challenges of these communities. Policy could assist a more general take up of digital education technologies by a more generalised accreditation system that is more neutral to the learning method.

Inclusiveness: scope to narrowing gaps remains

Some shortfalls in labour-force participation

Labour-force participation in Australia is higher than many countries, yet for some groups - mothers, lone parents and indigenous people - participation lags behind. Encouraging greater labour-force participation would help reduce poverty and keep individuals connected with evolving technologies and skills.

Australian welfare policy entails comparatively light fiscal demands, helping keep tax wedges on labour low and therefore supporting jobs and competitiveness. Strong emphasis on activation schemes, combined with means and activity testing, limit the number of welfare-dependent households. Nevertheless, as discussed in Chapter 1, there are challenges.

Activation policy centres on a system of contracted out employment services (jobactive), and participation in activities (career advice, training, voluntary work, etc.) is among the eligibility requirements for benefit receipt. While this approach merits much praise, getting the incentive structure for providers right is challenging. As pointed out in recent OECD reviews (OECD, 2017 and 2016b), payments to providers for placing a worker are made at the 4th, 12th and 26th weeks of employment. Providers are thus incentivised to get the unemployed into work quickly but there is a risk that attention to employment longevity and stability is limited. An additional payment, beyond 26 weeks, could incentivise provision of more relevant and higher quality training and greater employment retention. Experience from the United Kingdom's Work Programme, which offered employment services for the long-term unemployed, shows that for certain groups of jobseekers prolonged support and incentives can have a positive impact on job retention.

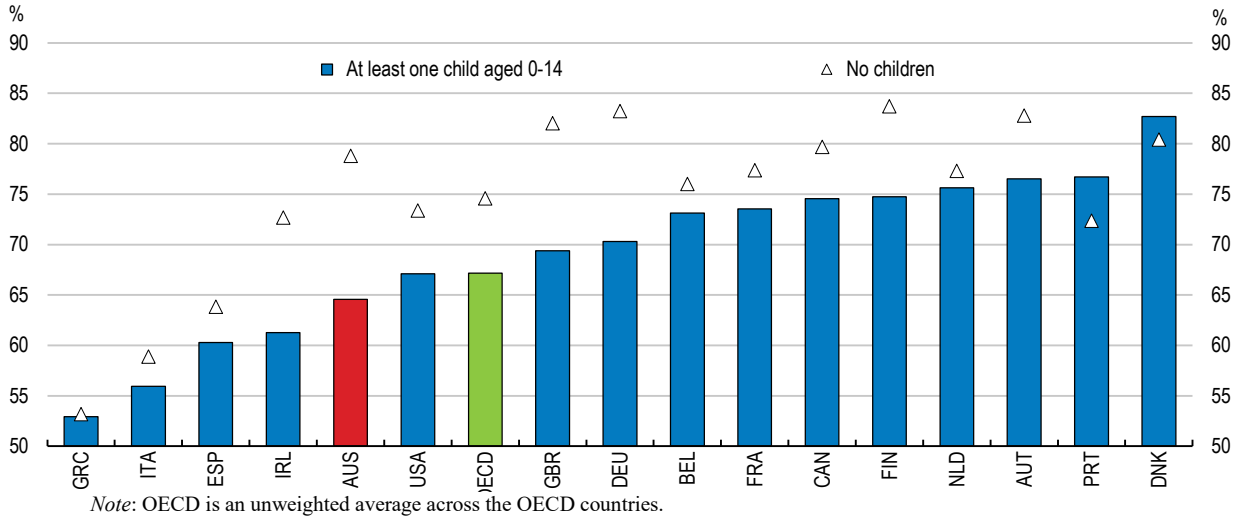
In addition, support for displaced workers (dismissed for economic reasons), or facing the prospect of displacement for instance in mass lay-offs could be improved. Jobactive´s focus on jobseekers facing the highest barriers to re-employment means it is not geared to this task. Past response to mass layoffs has seen substantial ad hoc federal- and state-level intervention, but this has been focused on politically high-profile cases and risks inconsistency. Introduction of the temporary federal package (Stronger Transitions) to provide early intervention is therefore welcome. Another new initiative, Job Change (due to commence in July 2019), will make employment services immediately available for all retrenched workers (and their partners). Improving policy response to lay-offs would also be helped if employers could provide more advanced warning and ensure workers' records on sills and training are up to date.

Australia's labour-force participation of women with children is relatively low (Figures 18 and 19), especially among lone mothers, suggesting issues in family-related benefits and taxation, and in support for child care services. High and uneven marginal effective tax rates related to benefit tapering are potentially dissuasive factors to employment (especially full time) for many women. A recent move to replace two child-care benefits with one scheme will, inter alia, bring welcome simplification to the tax-benefit situation. Nevertheless, the benefit tapering issue remains an inherent challenge of means-tested benefits and ongoing efforts to minimise negative employment incentives are required. Roll

out of a pilot activation and support programme for parents that uses private providers (ParentsNext) is welcome, in particular as many lone parents face multiple barriers to employment, including weak skills, health conditions and limited work experience (OECD, 2017). However, there is also scope for tougher incentives, in particular, Australia's benefit eligibility conditions for lone parents do not require a full work test until all children are 6 years old; in many countries this threshold is 3 years.

Figure 17. Motherhood has a strong impact on labour market participation

Employment rates for women (25-54 years old) with no children and at least one child aged 0-14 years, 2014

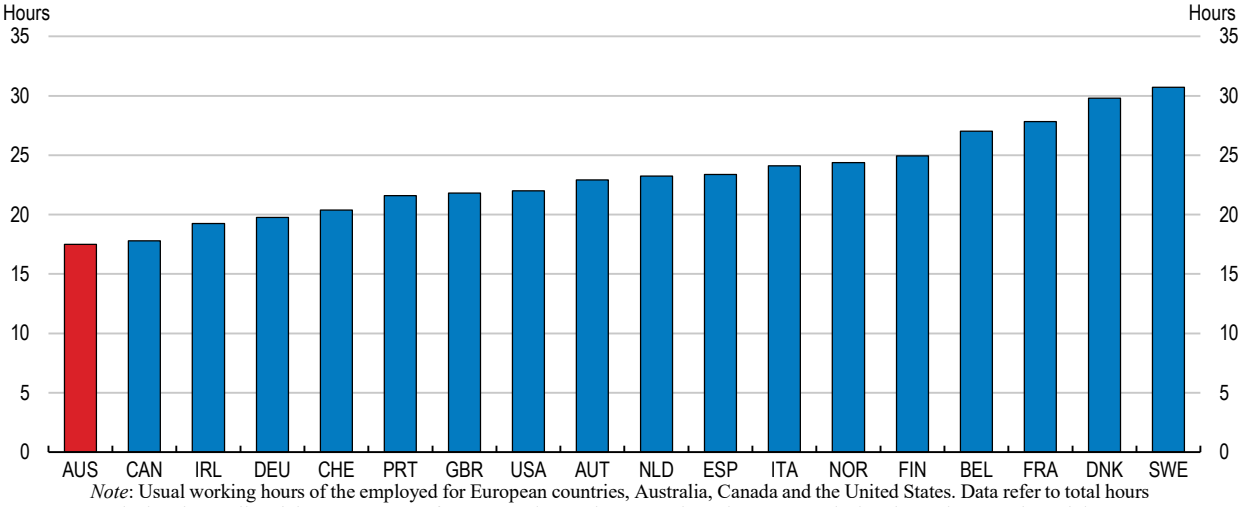


Note: OECD is an unweighted average across the OECD countries.
a) For Canada, children aged between 0-15 and 0-17 for the United States.
b) Data for Denmark and Finland refer to 2012, and to 2013 for Germany.
Source: OECD Family Database.

StatLink https://doi.org/10.1787/888933883263

Figure 18. Partnered mothers work very short hours

Average usual weekly hours of partnered mothers working part-time, aged 25 to 45, with at least one child, 2014 or latest



Note: Usual working hours of the employed for European countries, Australia, Canada and the United States. Data refer to total hours worked in all jobs, except for Canada where only hours worked in the main job are considered.
a) For European countries, the distinction between part-time and full-time employment is self-defined – i.e. based on respondents' own perceptions of whether they are in part-time or full-time employment. Part-time status based on weekly working hours below 30 for Australia and Canada and less than 35 hours for United States.
b) Data refer to 2011 for Canada, to 2014 for Australia and the United States.
Source: OECD Connecting People with Jobs: Key Issues for Raising Labour Market Participation in Australia.

StatLink https://doi.org/10.1787/888933883282

Mixed progress in closing the gaps for indigenous populations

Australia's greatest inclusiveness challenge remains the substantial and multiple socio-economic disadvantages faced by many Aboriginal and Torres Strait Islander communities. The population of Aboriginal and Torres Strait Islanders is around 750 000, approximately 3% of the total population. The top-level strategy and assessment process, Closing the Gap, annually monitors progress on narrowing gaps in socio-economic outcomes (Box 6). The 2018 report finds mixed progress. Targets on track are in the areas of child mortality, attendance of four-year olds in early childhood education, and Year 12 educational attainment. Meanwhile outcomes are lagging in the areas of school attendance, reading and numeracy, employment and life expectancy. Based on assessment of past policy experience, the 2018 Closing the Gap, underscores the key role of good co-ordination in policy and efficient resource allocation (Box 6). In addition, past experience shows the importance of fully involving indigenous communities in policy design and implementation. This is echoed in other reports, including the Productivity Commission's report on human services (Productivity Commission, 2017c).

Box 5. Keys to successful outcomes in support for indigenous populations

The annual Closing the Gap report monitors progress on seven targets in narrowing gaps between outcomes for Aboriginal and Torres Strait communities and the rest of Australia's population. The latest report lists several keys to successful outcomes based on past research and policy experience (Australian Government, 2018, p. 11-12):

- *"holistic approaches that work with Aboriginal and Torres Strait Islander people in ways that take into account the full cultural, social, emotional and economic context of Indigenous people's lives – including an awareness of the ongoing legacy of trauma, grief and loss associated with colonisation;*
- *active involvement of Indigenous communities in every stage of program development and delivery in order to build genuine, collaborative and sustainable partnerships with Aboriginal and Torres Strait Islander people, and build capacity within Indigenous communities;*
- *collaborative working relationships between government agencies and other relevant organisations in delivering services and programs, acknowledging the interrelatedness of key social and economic determinants across multiple life domains for Indigenous Australians;*
- *valuing Indigenous knowledge and cultural beliefs and practices that are important for promoting positive cultural identity and social and emotional wellbeing for Indigenous Australians;*
- *clear leadership and governance for programs, initiatives and interventions. This includes commitment from high-level leadership of relevant organisations and agencies to the aims of reducing Indigenous disadvantage and addressing determinants of health and wellbeing;*
- *employing Indigenous staff and involving them fully in program design, delivery and evaluation, and providing adequate training, where necessary, to build capacity of Aboriginal and Torres Strait Islander staff;*

- *developing committed, skilled staff (Indigenous and non-Indigenous) and providing diversity and cultural awareness training;*
- *adopting a strengths-based perspective that builds and develops the existing strengths, skills and capacities of Aboriginal and Torres Strait Islander people; and*
- *clear plans for research and evaluation to identify successful aspects of programs, provide a basis to amend and improve, demonstrate success and build an evidence base to justify allocation of ongoing resources."*

Table 8. Past OECD recommendations on employment, health and welfare

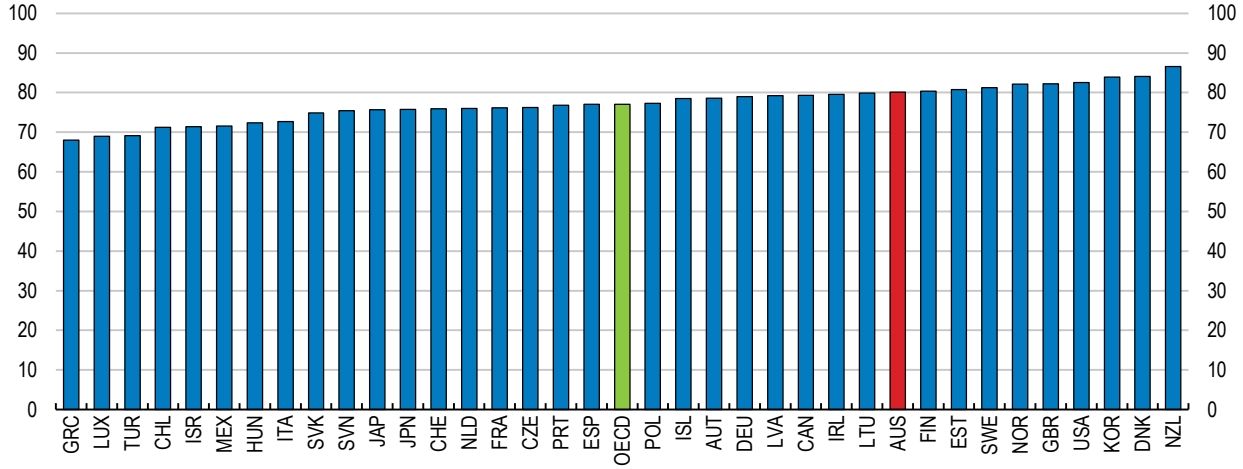
Topic and summary of recommendations	Summary of action taken since 2017 *Survey*
Encourage employment	
Improve early childhood education and care (ECEC) to help parents combine work and family life.	An activation and support for parents (*ParentsNext)* is being rolled out.
Improve benefit settings to encourage employment in particular in the disability support system.	A new disability employment services model has been designed with implementation intended for 2018.
Improve employment services: strengthen funding-performance links, stream claimants more.	A temporary federal programme to help displaced workers (Stronger Transitions) has been announced and a new programme, Job Change, is due to commence in July 2019.
Maintain labour-market flexibility and address supply constraints through migration	
Make negotiation requirements more flexible for new business operations. Reform sector-specific labour regulation in negotiated agreements. Increase labour mobility, for instance by lower interstate differences in education and training programmes.	The first four-yearly review of Modern Awards (which provides for industry and occupation-specific minimum rates of pay and conditions) is currently underway.
Health care, disability and disadvantage	
In health, increase preventative care, improve services for the elderly and mentally ill, promote primary care. Reduce complexity of the disability support system, make it more person-centred.	The 2018-19 Budget includes an increase in mental health funding, with a focus on suicide prevention, older Australians and research. The More Choices For a Longer Life package includes aged care reforms to support choice and a healthy life for older Australians.
Welfare	
Better target superannuation (pension) tax concessions. Develop an investment approach to welfare policy that focuses on vulnerable groups. Improve services for those with multiple disadvantages.	A round of reforms to superannuation taxation has been completed. The government will continue to develop its investment approach to welfare (the Australian Priority Investment Approach to Welfare), with annual valuation reports of the welfare system and interventions to support greater workforce participation for those who have the capacity to work. The government is using insights from its investment approach to welfare to target groups of young people who are at-risk of long-term welfare dependency, funded under the Try, Test and Learn Fund. Roll out of the National Disability Insurance Scheme (NDIS) continues.

Business policies: ensuring strong competition and boosting innovation

A generally strong and flexible skill base, a low tax burden on the overall economy and broadly favourable indicators of product-market restrictiveness, including for the service sector (Figures 20 and 21), point towards a competitive environment for business in Australia. However, ongoing efforts are required to ensure well-functioning markets and to avoid unnecessary regulation.

Figure 19. A favourable regulatory climate for business

Ease of Doing Business, distance to frontier, scale 0-100 (best)



Note: The distance to frontier score is based on how far an economy's score is from the best performance achieved by any economy on each Doing Business indicator. The score for each indicator is normalized to range from 0 to 100, with 100 representing the frontier of best practices (the higher the score, the better). The Doing Business 2018 rankings are benchmarked to June 2017 and based on the average of each economy's distance to frontier scores for the 10 topics included in the aggregate ranking.
Source: World Bank Doing Business 2018 database.

StatLink https://doi.org/10.1787/888933883301

Framework conditions: scope for improving market functioning remains

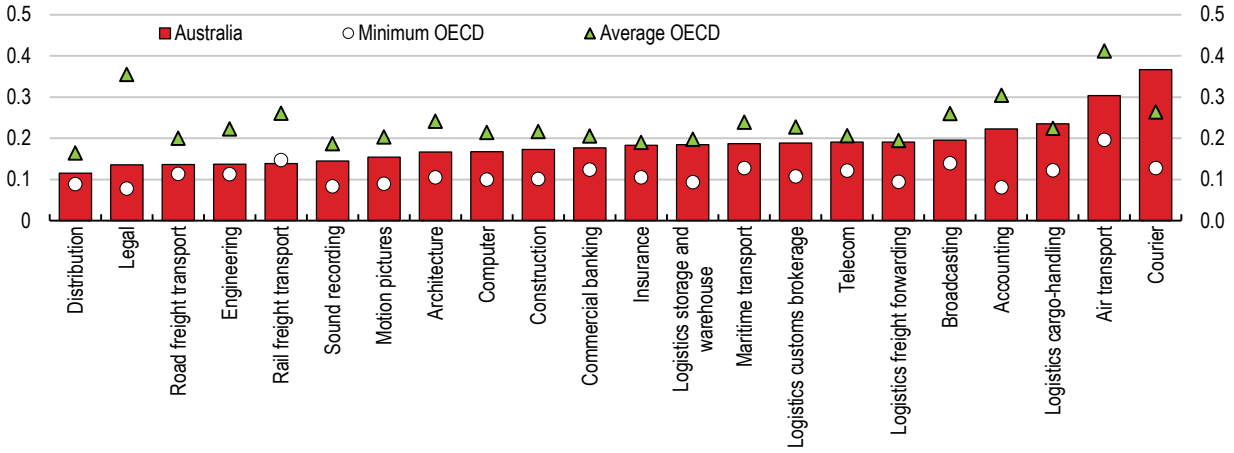
Ongoing policy priority on the tax mix and infrastructure reflects a welcome focus on improving framework conditions for business. Progress has also been made in following up on a major review of competition policy (the "Harper Review", Harper et al, 2015). Actions taken include the passing of major amendments to competition legislation (Table 9). In particular, these include increased legislative scope by replacing price-signalling laws with a more general prohibition of "concerted practices" (practices which have the purpose, effect or likely effect of substantially lessening competition). In addition, conditions for healthy firm dynamics have been improved through amendments to insolvency legislation that facilitate restructuring (see Table 9).

Data rights have been receiving particular policy attention. The Consumer Data Right initiative will give consumers, including businesses, the right to direct businesses holding certain data, to transfer it to themselves or a third party. These rights will first apply to the banking sector, followed by the energy and telecommunications sector, with intention for them to eventually apply economy wide. Granting these data rights will potentially promote

competition by, for instance, improving comparison and switching of products and services, including inputs for business.

Figure 20. Services Trade Restrictiveness Index

The indices take values between zero and one (the most restrictive) [1], 2017.



1. The index includes regulatory transparency, barriers to competition and other discriminatory measures, restrictions on movement of people and restrictions on foreign entry.
Source: OECD Services Trade Restrictiveness Index (STRI).

StatLink https://doi.org/10.1787/888933883320

Scope remains for improving market functioning on numerous specific issues. This *Survey* elsewhere draws attention to negative impacts from stamp duty, and problems in pharmacy regulation and land-use zoning. Other areas commonly flagged as ripe for reform include product standards (for instance there is room to adopt international product standards more widely to reduce red-tape), professional and occupational licencing (the scope of services controlled by the licencing is often broader than necessary), and shipping regulation (for instance, restrictions on the right to operate at sea, cabotage, could be reduced) (see Productivity Commission 2017b, Annex B).

To date the authorities' responses to the new wave of "disruptive" businesses have been broadly positive, endeavouring to reshape regulation to accommodate new players while ensuring neutrality of treatment. In particular, most states and territories have now established "cohabitation" arrangements between ride-sharing and taxi services (however, ideally the regulation ought eventually to converge to a common framework for both ride-sharing and taxi services). Also, local governments have been addressing issues raised by accommodation services. However, barriers to disruption in general framework conditions also need to be addressed. In particular, competition policy should counter undesirable defence strategies by incumbents (such as strengthening barriers to entry). Where tax issues arise from disruption, fair treatment should be sought for entrants and incumbents.

Targeted policy for business: a focus on innovation continues

A major push to improve Australia's environment for innovation has been made via the National Innovation and Science Agenda (NISA), which instigated measures on a wide range of fronts including financial support for innovative business, research-business

collaboration, skills, government procurement and data policy. The 2017 *Survey*'s in-depth assessment of innovation in particular underscored the importance of progress on improving collaboration between the research and business sectors.

Active measures to encourage innovation continue. The 2018-19 Budget announced an AUD 2.4 billion investment in research, science and technology capabilities, many of which aligned with recommendations made in a report (Australia 2030 Prosperity through Innovation) by the independent statutory board Innovation and Science Australia. The Budget also detailed reforms of the R&D Tax Incentive that aim to increase its effectiveness in prompting new R&D activity ("additionality"), while also improving integrity and program administration. Also, there has been progress in reforming intellectual property legislation following the Productivity Commission's 2017 assessment.

Table 9. Past OECD recommendations on ensuring competitive and innovative business

Topic and summary of recommendations	Summary of action taken since 2017 *Survey*
Promoting competitive markets	
Concentrate on broad support for business: prioritise corporate tax rate cuts, reduce regulatory burdens and tax avoidance.	The implementation of tax cuts for small and medium businesses and the campaign to reduce regulatory burdens continues
Strengthen competition and resource allocation, notably: - Improve competition law, notably regarding (abuse of dominant position); - Adjust insolvency legislation; -Encourage market entry by innovative business models.	Amendments to competition legislation introduced in 2017 include replacement of price-signalling laws with a broader prohibition on "concerted practices" and a broader definition of the misuse of market power. The amendments also clarify the law and streamline processes, for instance regarding cartels and mergers. Insolvency legislation amendments (2017) introduced: - a "safe harbour" from personal liability for directors for insolvent trading. This allows company directors to retain control of a company undergoing restructuring (instead of ceding control to an external administrator); - provisions for moratoria on “ipso facto” clauses when a company is undertaking a restructure (these clauses allow contracts to be terminated or modified solely due to an insolvency event).
Encouraging innovation	
Make innovation support more effective by enhancing the impact of the R&D Tax Incentive and reducing the number of support schemes for innovative SMEs.	Reform of the R&D Tax Incentive with a view to refocus support towards additional high-intensity R&D expenditure and improving integrity and program administration, was announced in the 2018-19 Federal Budget.
Encourage more innovation in public services by opening up procurement to more bidders and further development of digital government services.	The National Innovation and Science Agenda included a range of measures along these lines, including: - a digital marketplace to facilitate tendering by SMEs for government IT projects; - Grant funding for SMEs to develop innovative solutions for government policy and service delivery challenges (the Business Research and Innovation Initiative).
Strengthen innovation policy, especially research-business collaboration, notably through: - incentives in university funding; -improved coordination of student placement programmes; - more uniform research assessment across public-sector research organisations; - a more integrated, “whole-of-government” approach.	Among the measures aiming to increase collaboration: - Changes have been made to university research block grants to incentivise collaboration; - Additional funding (AUD 25 million) for the Cooperative Research Centre’s program, with a specific focus on artificial intelligence; - additional funding for the Global Innovation Strategy, which includes measures that provide funding to help Australian businesses and research organisations collaborate with global partners; - The Entrepreneurs’ Programme Innovation Connections program, which continues to drive collaboration between SMEs and researchers.

Some innovation-related policy areas, such as skills and education, will require ongoing policy attention and implementation pressure to bring about change. In other aspects of innovation policy, a phase of finalising implementation of the Agenda and assessing impact is probably appropriate in many cases. However, there remain unaddressed issues, notably there has been no substantial pruning of the large number of business support programmes targeting innovative SMEs. There are efforts to facilitate user navigation of the menu of support programmes through one-stop-shop initiatives (business.gov.au). However, this improved accessibility does not address underlying inefficiencies from programme overlap or redundancy.

Environmental policy: challenges in climate change and biodiversity

CO_2 emissions remain high

Australia's carbon intensity in relation to GDP has fallen. Nevertheless, intensity remains substantially greater than the OECD average. Per capita emissions are around 50% higher than the OECD average (Figure 22). Furthermore, Australia is among the ten largest greenhouse gas (GHG) emitters in the OECD in terms of total emissions.

Australia's high CO_2 emissions mostly relate to the energy mix, rather than high energy intensity of production. Energy intensity continues to trend down, though the latest data point showed an increase. Australia's CO_2 emissions come mainly from the power and transport sectors. Growing demand for transport has added to emissions.

Energy taxation notably comprises comparatively low tax rates on transport fuels in international comparison. Fossil fuels are untaxed in industrial use and in electricity generation (OECD, 2018d, e). This also applies to coal, which is used heavily in electricity generation. Pricing the carbon content of fossil fuel use consistently, and transport fuels at higher rates, would reduce demand for carbon-intensive energy. No projects for new carbon-fired power plants are being pursued (Global Coal Plant Tracker, 2018), which is welcome in the context of reaching the climate objectives of the Paris agreement. However, there are plans to allow further expansion of coal mining, which runs counter to the need for the global decarbonisation of energy supply to stabilise atmospheric CO_2 concentrations. For example, coal use may need to drop by 78% world-wide by 2060 to keep emissions in line with the Paris agreement, according to calculations by the International Energy Agency (IEA, 2017).

Renewable energy production has increased in recent years, though its share in total primary energy supply remains smaller than the OECD average. Falling costs of wind and solar power have supported the increase. Australia is among the few countries to have established a government-owned green bank (the Clean Energy Finance Corporation, CEFC) which helps finance clean energy projects. Stronger pricing of carbon would encourage renewable energy supply, as would more consistent climate policies more generally (see below). More innovation, directed by a clear price signal, could also strengthen renewable energy use and make carbon capture and storage economically viable.

Australia's greenhouse-gas (GHG) reduction target, fixed in its Nationally-Determined Contribution under the Paris Agreement, prescribes reducing GHG emissions by 26-28% below 2005 levels by 2030, including emissions from land-use, land-use change and forestry. As for many OECD countries, this target has been assessed as insufficiently ambitious to be consistent with limiting global climate change to well below 2 degrees, as required by the Paris Agreement (Climate Action Tracker, 2018). Emissions projections from 2017 show that these targets will not be reached. No national target beyond 2030 has

been set as yet, but the federal government is committed to preparing, by 2020, a long-term emissions reduction strategy for 2050. In addition, six states and territories have net zero emissions targets for 2050.

As regards other dimensions of environmental performance, exposure to particulate air pollution is low and municipal waste generation has been substantially reduced (though it remains above the OECD average). Meanwhile, according to patent data, the level of environmentally related innovation is less than the OECD average. Also, as flagged in the introduction, Australia faces considerable challenges in sustaining biodiversity (see below).

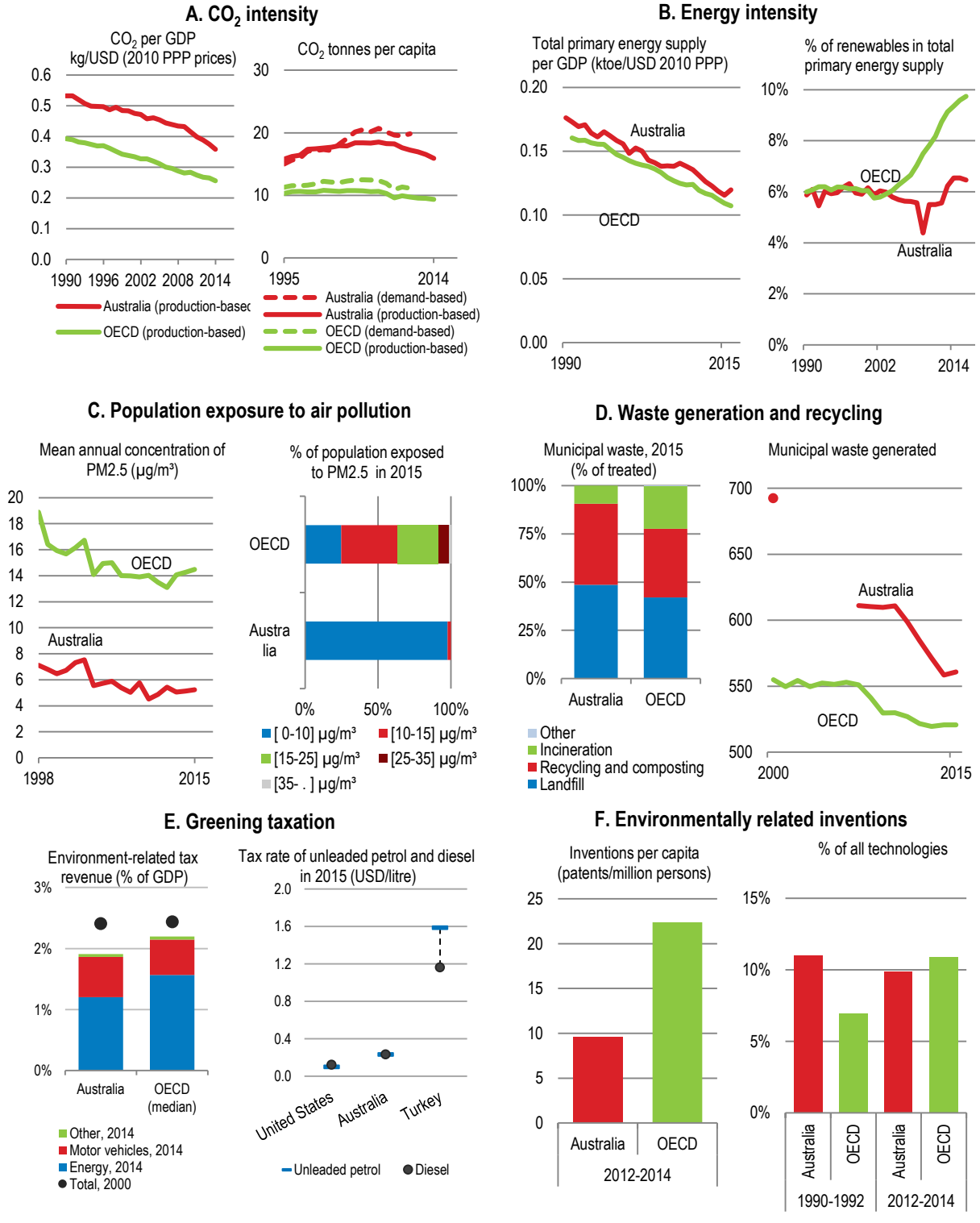
Climate-change policy: clarity and stability are key

Climate-change policy is frequently a centrepiece of party-political platforms and political debate in Australia. While this political interest is in many respects welcome, it has brought major changes in policy direction, and, understandably, a supposition of further policy risk going forward. This situation has not only made for stilted and uncertain progress on emission reduction and related innovation but has also contributed to problems in other areas, such as in energy supply (see infrastructure section above). There is a need for more stable, stronger and co-ordinated climate-change policy, including through development of long-term goals and strategy. This is a central strategic message of other policy reviews, including by the government-sponsored review of the electricity sector (the Finkel Review), the Productivity Commission, the International Energy Agency and the upcoming OECD Environmental Performance Review.

At present the key elements of Australia's emission-reduction policy comprise: *i)* a scheme that pays enterprises and land owners for emission reductions, the Emissions Reduction Fund (Table 8); *ii)* a "safeguard mechanism" which is a baseline-and-offset system that applies to large emitters (including the energy sector); *iii)* a longstanding market-based mechanism to encourage large-scale renewable energy generation, the Large-scale Renewable Energy Target, accompanied by access to two co-financed funds for constructing renewable facilities; *iv*) a programme of energy efficiency measures (the National Energy Productivity Plan); *v*) phasedown of hydrofluorocarbon import and use under the Montreal Protocol and, *vi*) State-level emission-reduction policies that have set typically more ambitious targets than those at the federal level. As a whole, these elements reflect the piecemeal approach to emission reduction in Australia. Furthermore, there are risks in their individual effectiveness. In particular, additionality from the Emission Reduction Fund remains a key watch point (Climate Change Authority, 2017). Also, the appeals provisions to adjust baselines in the safeguard mechanism may dilute its effectiveness

As described in the section on utilities above, the government proposed a "National Energy Guarantee" in 2017 but this was withdrawn from the government’s agenda in August 2018. The emissions component of the Guarantee would have imposed emissions reduction targets on wholesale electricity purchasers. The central idea was that the target would prompt shift towards less emission-intensive electricity generation through retailers renegotiating with suppliers (or arrange for new supply). Despite the withdrawal of the Guarantee from policy, the electricity sector still has emissions reduction policies in place including the Renewable Energy Target and the National Energy Productivity Plan.

Figure 21. Environmental indicators



Source: OECD Green Growth Indicators database.

StatLink https://doi.org/10.1787/888933883339

Table 10. Selected components of Australia's current emission-reduction policy

Policy instrument	Selected details
Emission Reduction Fund, introduced in 2014, as the flagship mechanism to replace the "carbon tax".	Through the Emissions Reduction Fund, the government purchases lowest cost abatement (in the form of Australian carbon credit units) that provides an incentive to businesses, households and landowners to reduce emissions. Following a series of auctions, as of June 2018 there was commitment to purchase 192 million tonnes CO_2-eq with a value of AUD 2.3 billion. Most of the emission-reduction projects selected for payment involve land-use management and landfill gas abatement and capture.
Safeguard mechanism (2016), brought in to bolster the Emission Reduction Fund.	Facility-level baselines are set for large emitters. Emitters exceeding baseline are required to purchase carbon credits. Emitters exceeding baseline can appeal on the grounds of exceptional circumstances.
Large Scale Renewable Energy Target, part of the Renewable Energy Target, in place (with some changes) since 2001.	Large-scale renewable-energy producers generate certificates that are bought by wholesale electricity purchasers (these are mainly the electricity retailers), so as to fulfil renewable energy obligations. Government subsidy for renewable production facilities is available via two co-financing funds, the Clean Energy Finance Corporation and the Australian Renewable Energy Agency. The Target is on track to delivering the goal of 33 000 gigawatt hours of large-scale renewable generation per annum by 2020, no extension of the scheme is planned. The scheme is accompanied by the Small-Scale Renewable Energy Target, which incentivises domestic solar installation etc.
National Energy Productivity Plan (2015-2030).	Includes a target to improve energy productivity by 40 per cent between 2015 and 2030. Currently includes 34 measures to support: • Smarter energy choices (by providing more efficient incentives, empowering consumers and promoting business action); • Better energy services (by driving greater innovation, more competitive and modern markets and updating consumer protections and standards).
Phasedown of hydrofluorocarbons (HFCs).	Australia commenced a phase-down of HFC imports from 1 January 2018, which is one year ahead of the global phase-down agreed under the Montreal Protocol on Substances that Deplete the Ozone Layer. Australia will use 25 per cent less HFCs than permitted under the Montreal Protocol over the period from 2018 to 2036.
State-level emissions targets and mechanisms.	For instance six states and territories aim for net zero emissions by 2050, which implies substantial decarbonisation of the electricity sector. Feed-in tariffs and auctions are the main instruments.

Biodiversity needs greater priority in decision making

As highlighted in the introduction, Australia has considerable biodiversity with many fragilities. Assessment in the OECD's upcoming Environmental Performance Review underscores scope for stronger stewardship:

- Strategic initiatives have typically not provided much impetus to reform. For example, a recent draft strategy Australia's Strategy for Nature 2018-30 is criticised for excessively high-level and vague goals and objectives.
- At the operational level of project approval and land use, biodiversity considerations are increasingly considered in project approvals but the review suggests that nevertheless there is insufficient priority given to them.
- Meanwhile, good progress has been made in expanding protected areas though substantial gaps remain.

Recommendations put forward by the Review include general calls for better strategy making, including stronger federal government leadership and regional strategies, and for more resources for biodiversity conservation and ecological restoration. A need for more policy action in the specific areas of abandoned mine inventories, protected areas, and in offset and bio-banking schemes is also underscored.

Table 11. Past OECD recommendations on environment policy

Topic and summary of recommendations	Summary of action taken since 2017 *Survey*
Achieve greenhouse-gas emission targets	
Strengthen the recently introduced safeguard mechanism should the Emissions Reduction Fund require additional support to achieve greenhouse-gas reduction.	No major reform.
Make transport policy greener	
Expand use-based vehicle charges and extend public transport.	No major reform.
Continue strong commitment to water reform	
Fully implement the Murray-Darling Basin Plan.	The implementation phase (which began in 2012) will continue until 2024.

References

Akgun, O., B. Cournede, J.M. Fournier, (2017), "The effects of tax mix on inequality and growth", OECD *Economics Department Working Paper*, No. 1447.

APRA (2018), "Preparing for Rainy Day", transcript of speech by APRA Chairman, July 2018.

Australian Government (2018), *Closing the Gap*, *Prime Minister's Report 2018*, Department of the Prime Minister and Cabinet, Commonwealth of Australia, 2018.

Berger-Thomson, L., J, Breusch, L. Lilley (2018), "Australia's Experience with Economic Reform", Treasury Working Paper, October 2018.

Climate Change Authority (2017) *Review of the Emission Reduction Fund*, Climate Change Authority, Australian Government.

Climate Action Tracker (2018), *Climate Action Tracker*, https://climateactiontracker.org/ (accessed on 04 July 2018).

Égert, B. and P. Gal (2017), "The quantification of structural reforms in OECD countries: A new framework", OECD Economics Department Working Papers, No. 1354, OECD Publishing, Paris. http://dx.doi.org/10.1787/2d887027-en

Global Coal Plant Tracker (2018), *Global Coal Plant Tracker*, https://endcoal.org/tracker/ (accessed on 04 July 2018).

Grattan Institute (2018), *Down to the wire: A sustainable electricity network for Australia*, Grattan 2018.

Harper, I.. P. Anderson, S. McCluskey and M. O'Bryan (2015), *Competition Policy Review,* Commonwealth of Australia, Final Report, March 2015.

Helbling, H. and G. Bin Li (2018), "Housing Market Imbalances in Australia: Development, Prospects and Policies"*, IMF, Australia Selected Issues,* IMF Country Report No. 18/45.

Hermansen, M. and O. Röhn (2015), "Economic Resilience: The Usefulness of Early Warning Indicators in OECD Countries", OECD Economics Department Working Paper, No. 1250

IEA (2017), *Energy Technology Perspectives. Catalysing Energy Technology Transformations.* IEA, Paris.

IMF (2018), "House Price Synchronisation: what role for financial factors". Chapter 3 *IMF Global Financial Stability Report*, International Monetary Fund, 2018

de la Maisonneuve, C and Oliveira Martins, J. (2013), "A Projection Method for Public Health and Long-Term Care Expenditures", OECD *Economics Department Working Paper*, No 1048.

OECD (2018a), *Country-by-Country Reporting – Compilation of Peer Review Reports (Phase 1): Inclusive Framework on BEPS: Action 13*, OECD/G20 Base Erosion and Profit Shifting Project, OECD Publishing, Paris.

OECD (2018b), *Using Data Analytics to Target Public Expenditure*, a paper prepared by the Australian Ministry of Finance for the 39th Meeting of Senior Budget Officials, June 2018.

OECD (2018c), Getting Skills Right: Australia, forthcoming.

OECD (2018d), *Taxing Energy Use 2018: Companion to the Taxing Energy Use Database*, OECD Publishing, Paris, http://dx.doi.org/10.1787/9789264289635-en.

OECD (2018e), *Taxing Energy Use 2018: Australia Country Note*, OECD Publishing, Paris, http://www.oecd.org/ctp/taxing-energy-use-2018-9789264289635-en.htm.

OECD (2017), Connecting People with Jobs: Key Issues for Raising Labour Market Participation in Australia.

OECD (2016a), PISA 2015 Results (Volume I): Excellence and Equity in Education, PISA, OECD Publishing, Paris.

OECD (2016b), Back to Work: Australia. Improving the Re-employment Prospects of Displaced Workers.

OECD (2014), "Wireless Market Structures and Network Sharing", *OECD Digital Economy Papers*, No. 243.

Office for National Statistics (2011), *Impact of the VAT increase on the CPI*, Information Note, 2011.

Productivity Commission (2017a), *Rising protectionism, challenges, threats and opportunities for Australia,* Productivity Commission Research Report, July 2017.

Productivity Commission (2017b), *Shifting the Dial, 5 Year Productivity Review,* Productivity Commission, Inquiry Report No 84, August 2017.

Productivity Commission (2017c), *Introducing Competition and Informed User Choice into Human Services: Reforms to User services,* Productivity Commission, October 2017.

Rae, D. and P. van den Noord (2006), "Ireland's housing boom: what has driven it and have prices overshot?", OECD *Economics Department Working Paper,* No. 492.

RBA (2018), *Statement on Monetary Policy*, Reserve Bank of Australia, August 2018.

Röhn, O., A. Caldera Sánchez, M. Hermansen and M. Rasmussen (2015), "Economic Resilience: A New Set of Vulnerability Indicators for OECD Countries", OECD Economics Department Working Paper, No. 1249.

Terrill, M. (2016), "Cost overruns in transport infrastructure", Grattan Institute Report No. 2016-13, October 2016.

Valadkhani, A. and Layton, A.P (2004), "Quantifying the Effect of the GST on Inflation in Australia's Capital Cities: An Intervention Analysis". *Australian Economic Review*, Vol. 37, No. 2, pp. 125-138, June 2004.

Thematic chapter

Chapter 1. Benefitting from globalisation and technological change

Australia has seen large rises in living standards over the last decades across the whole of the income distribution. Technological change and international trade have contributed to this success, but have also brought structural change. Some industries have declined, while others flourished. Furthermore, new technologies and structural change create new skills and new tasks, boosting demand for some jobs, while making others disappear.

Although technology and globalisation have not decreased overall employment, certain people, groups, and communities have undergone disruptive change and experienced falling living standards. Some groups face a higher risk of poverty and laid-off workers can have difficulty finding a new job. Well-informed and well-targeted policy is therefore needed to ensure that the benefits of technology and globalisation are widely shared.

This chapter focuses on policies to ensure that everyone in Australia has the opportunity to benefit from technological change and globalisation. The chapter assesses policies relating to three issues: i) labour markets and active labour market policies; ii) education and skills; to ensure adequate skills for accessing good quality jobs; and iii) urban environments, ensuring that Australia's highly urbanised population can adapt to change.

Introduction

Technological change and international trade have brought large rises in living standards to Australia. Yet, they have also brought structural change and disruption. New technologies and the entrance of new countries to global markets change supply and demand for products, services, labour and skills within and across countries. They also bring reallocation of economic activity across sectors and across the globe. In this way, some industries that have been a source of jobs and incomes decline - as has been the case for manufacturing in Australia - while others - such as business services - rise. Furthermore, new technologies and structural change require new skills and new tasks, creating demand for certain jobs, while making others disappear. This has implications for inequality and may diminish social cohesion.

These processes create winners and losers and they also create uncertainty. Experience indicates that technology and globalisation have not decreased overall employment in Australia, yet certain people, groups, and communities have undergone disruptive change and experienced falling living standards. Well-informed and well-targeted policy is needed that ensures that the benefits of technology and globalisation - higher productivity, new and better quality jobs and new and better products and services - are widely shared.

This chapter focuses on policies to ensure that everyone in Australia has the opportunity to benefit from technological change and globalisation. As such it is centred on the socio-economic consequences of these processes; the issue of how Australia can best harness them (for instance through innovation policy) has been addressed in previous *Surveys*. The first section of the chapter describes how these processes have affected Australia in terms of living standards, industry structure, labour market, job polarisation and inequality and

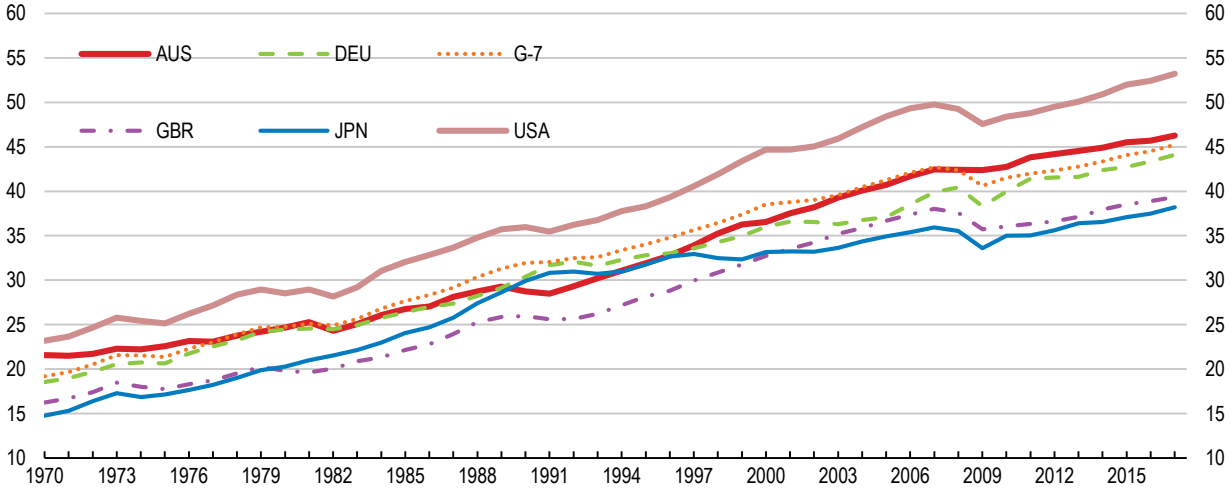
poverty. The chapter then assesses policies relating to three issues: i) labour markets; in particular ensuring that the system effectively enables and encourages the unemployed or those out of the labour force to find jobs; ii) education and skills; ensuring that Australians are equipped with adequate skills to be able to access good quality jobs; and iii) urban environments, ensuring that policy frameworks help Australia's highly urbanised population adapt to change, for instance through ensuring jobs are accessible through good transport systems.

Technological change and globalisation have raised material living standards…

Technological change and globalisation are core drivers of growth. Over a very long period of time, many economies, including Australia, have experienced trend increase in material living standards (Figure 1.1). Technology has been key to productivity growth (Figure 1.2), underpinning growth in wages, GDP per capita and well-being more generally, with improvements in health, infrastructure and educational attainment. Trade liberalisation has supported productivity growth by facilitating specialisation and trade integration has increased economic efficiency and technology diffusion. Technology and globalisation have reinforced each other, and the information and communication technology (ICT) revolution has further enabled the cross-border trade in services.

Figure 1.1. Advanced economies have experienced large rises in living standards

GDP per capita, Thousands USD, constant prices, 2010 PPPs

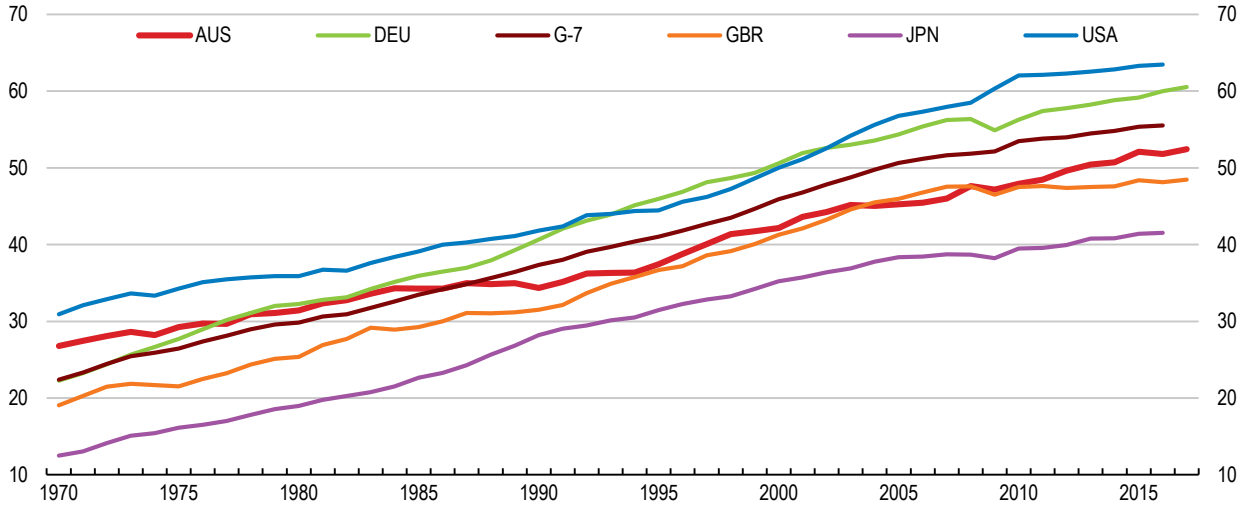


Source: OECD Productivity database.

StatLink https://doi.org/10.1787/888933883358

Figure 1.2. Labour productivity has risen

GDP per hour worked, Thousands USD, constant prices, 2010 PPPs

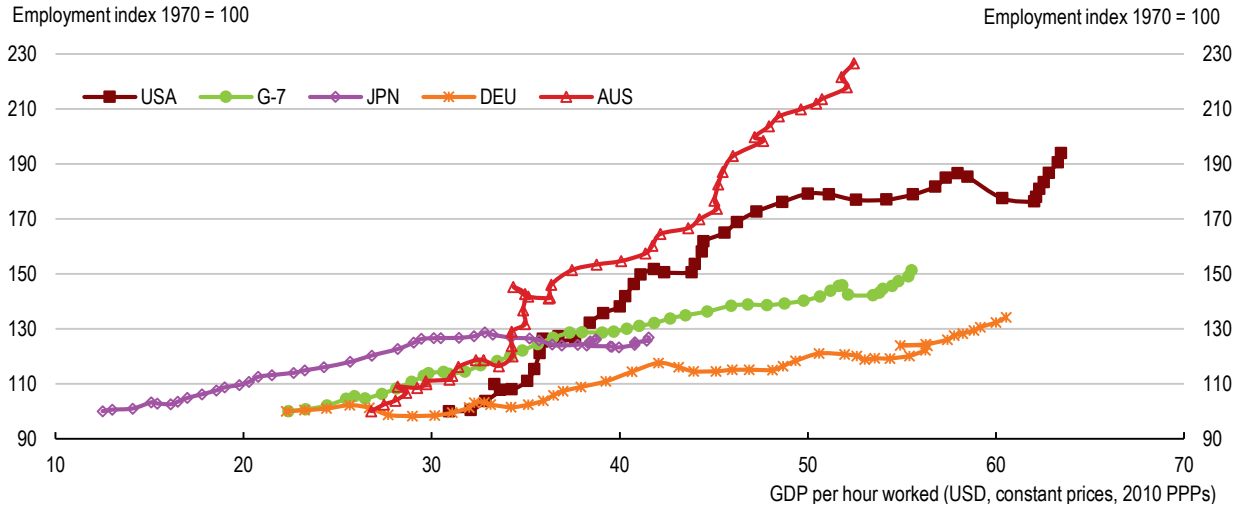


Notes: Australian estimates on GDP, population, employment and total hours worked refer to fiscal years beginning 1st July. Official National Accounts data on Australian total hours worked and employment are extended prior to 1985 and after 2010 using the annual growth rates of the ABS series on employment and monthly aggregate hours worked published in Labour Force Australia Tables 01 and 19, Australian Bureau of Statistics (ABS) catalogue 6202.0. Prior to 1978, estimates for employment are based on OECD Annual Labor Statistics (ALFS) series, while those for total hours worked are derived from the Conference Board Total Economy Database (TED).
Source: OECD Productivity database.

StatLink https://doi.org/10.1787/888933883377

Technological change has been accompanied by rising aggregate employment, as has been the case in many other OECD countries. Fears that labour-displacing technological progress and improvements in productivity would bring about a large drop in available jobs have not materialised. In fact, productivity increases have been associated with more employment, particularly so in Australia (Figure 1.3). While workers were displaced in declining sectors, the overall rise in wages and incomes and demand for other products and services generated enough offsetting demand for labour. Borland and Coelli (2017) report that the total amount of work per capita in Australia has been roughly stable over the last five decades (Figure 1.4). In particular, the amount of work has not fallen following the introduction of computer-based technology, as feared by many.

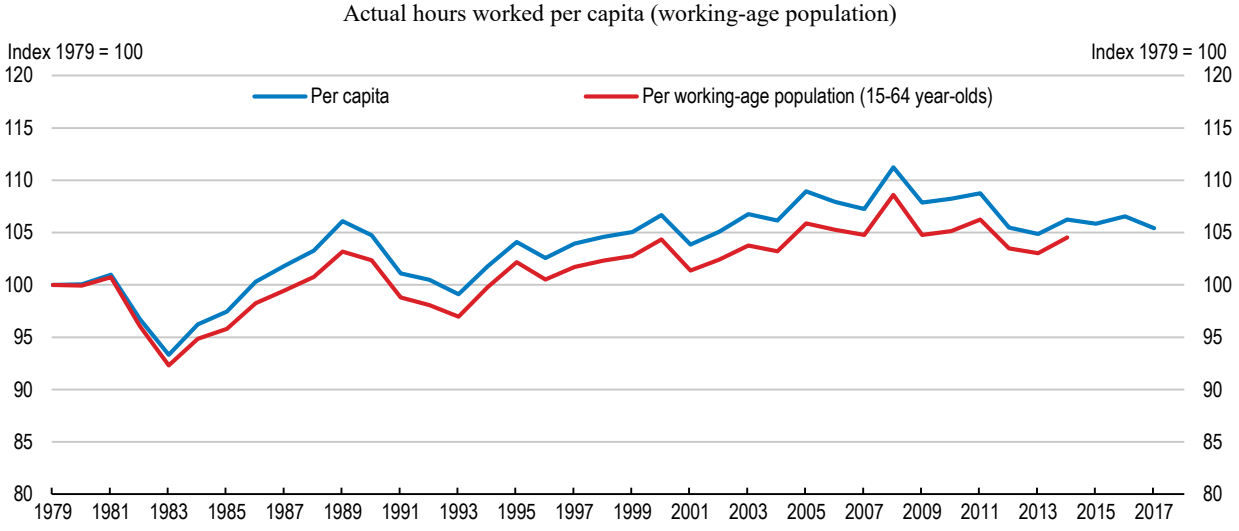
Figure 1.3. Higher labour productivity is associated with more employment



Source: OECD Analytical database and Productivity database.

StatLink https://doi.org/10.1787/888933883396

Figure 1.4. There has been no strong long-term trend in hours of work per capita



Notes: Actual hours worked = Average weekly actual hours worked* Employed persons by hours worked.
Source: OECD Analytical database; and Thomson Reuters.

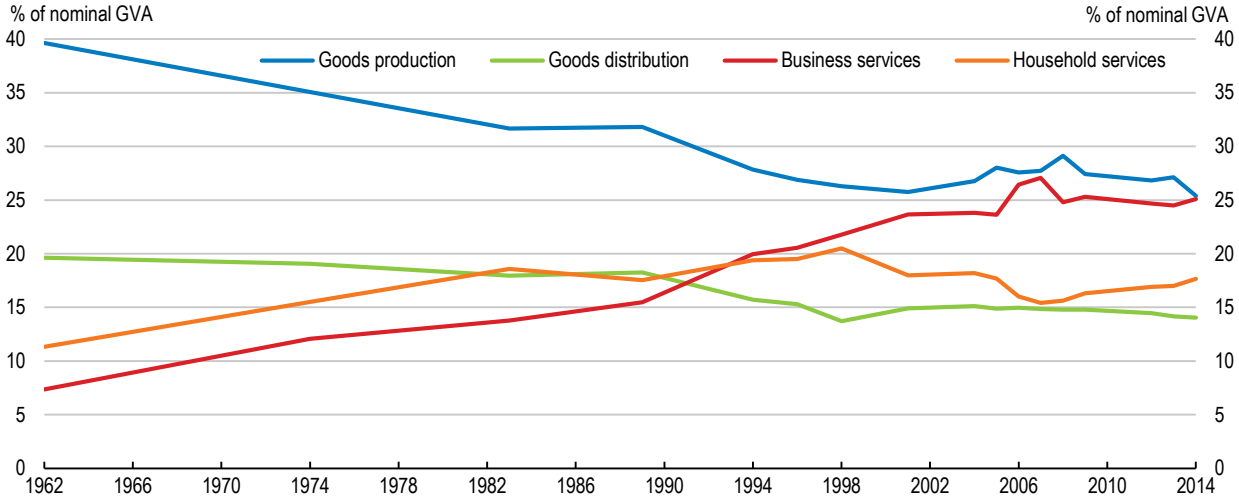
StatLink https://doi.org/10.1787/888933883415

…but have also been a source of structural change and disruption

As in all OECD economies, the sectoral composition of the economy has shifted dramatically over the long term (Figure 1.5), away from goods production and towards services. With higher incomes, consumers typically spend a greater share of their income on services compared to goods, and changing consumer preferences and population ageing also shape demand. In addition, the shift to services - in particular business services - reflects shifts in how goods are produced. Supply chains have lengthened with goods-

producing industries becoming more focused on core activities and outsourcing non-core activities (Adeney, 2018). Moreover, production has become more fragmented across countries (Hummels et al., 2001, De Backer and Miroudot, 2013, Timmer et al., 2014) with the rise of global value chains (GVCs). For Australia, largely due to falling international trade costs and the entrance of emerging markets such as China, a greater share of the production stages of supply chains now occurs overseas (Kelly and La Cava, 2014).

Figure 1.5. The sectoral composition of Australian economy has shifted dramatically

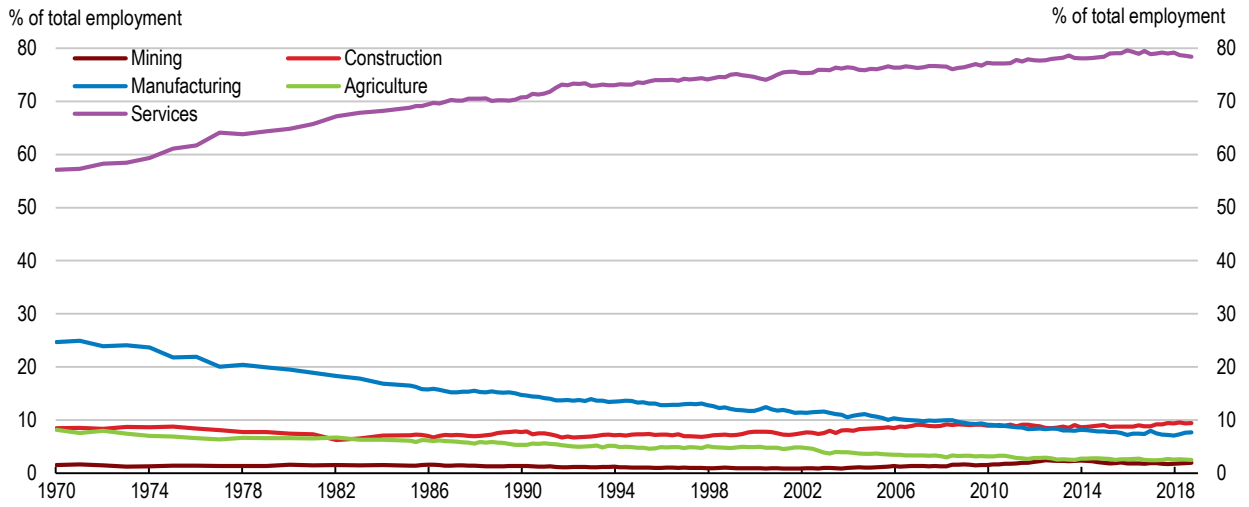


Notes: GVA (gross value added). Excludes agriculture, forestry and fishing, public administration and safety, and ownership of dwellings.
Source: Adeney, R. (2018), "Structural change in the Australian Economy", Reserve Bank of Australia, Bulletin, March Quarter 2018.

StatLink https://doi.org/10.1787/888933883434

These processes have also affected the labour market, with implications for the types of jobs and required skills. Mirroring the industry mix, employment in Australia has moved away from manufacturing towards services (Figure 1.6). This transformation has caused significant disruption for some workers (OECD, 2017a). One policy challenge is that employment is being reshuffled across occupations and industries, generating risks of job loss and potentially difficult transition into new employment. Workers remaining in the same job, on the other hand, face challenges from changing skill demands. Differential changes in skill demands, driven by changing industrial structures, moreover affect trends in inequality (Acemoglu and Autor, 2011).

Figure 1.6. The sectoral composition of Australian employment has also changed



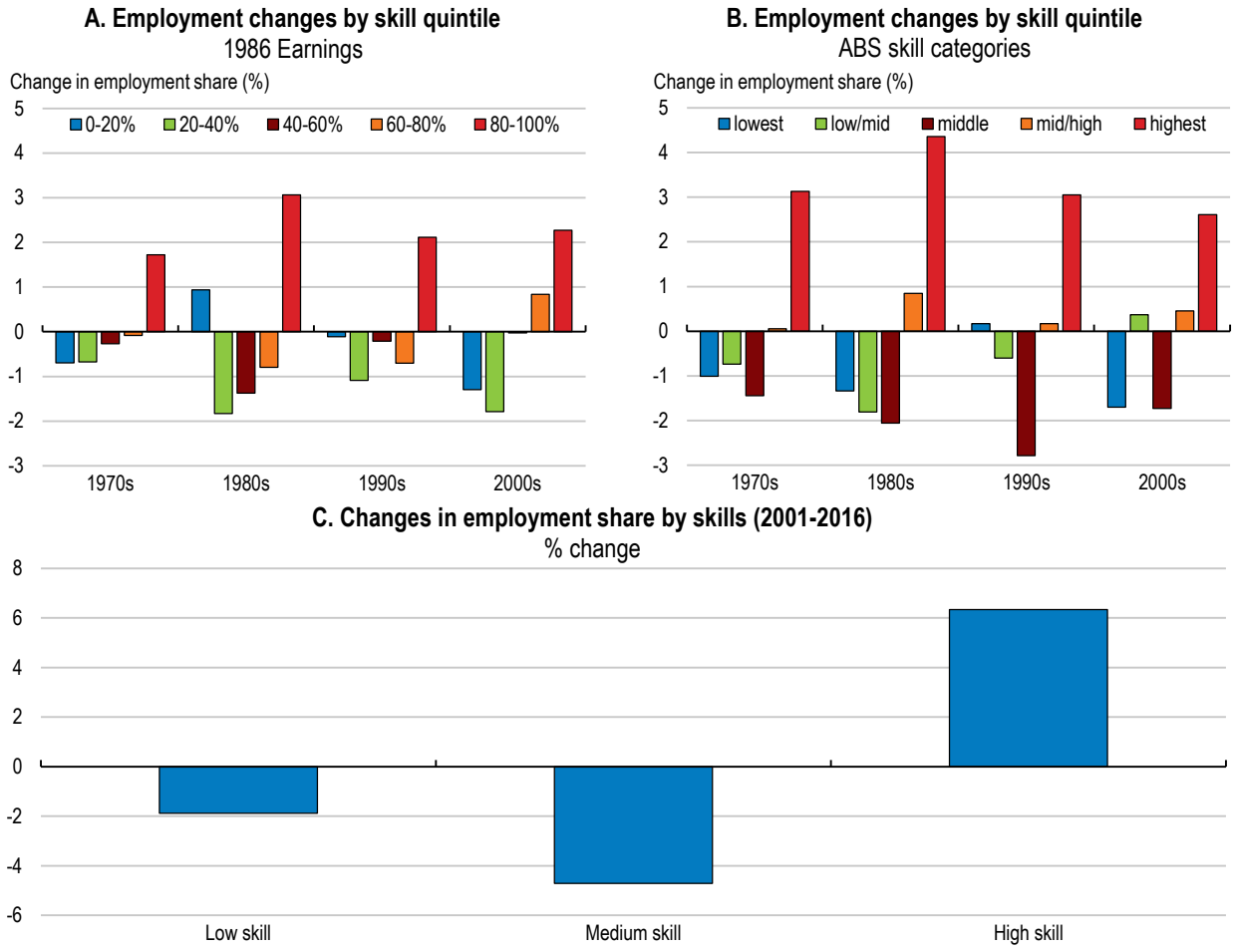
Source: Thomson Reuters; and Adeney, R. (2018), "Structural change in the Australian Economy", Reserve Bank of Australia, Bulletin, March Quarter 2018.

StatLink https://doi.org/10.1787/888933883453

Job polarisation and changes in the demand for skill

Similar to other OECD countries, the labour market has experienced increased polarisation into high-skill/high-paying jobs and low-skill/low-paying jobs, with a hollowing out of middle-skill jobs (OECD, 2017a). Coelli and Borland (2016) find evidence of job polarisation in Australia from the mid-1960s onwards, with particularly rapid change in the 1980s and 1990s (Figure 1.7). For the period between 1966 and 2011 they report employment-share increases in low- and high-pay jobs of 2 and 17 percentage points, respectively, with corresponding fall in the share of employment in middle-pay jobs of 19 percentage points. Australian household survey (HILDA) data further illustrate this process for the last 15 years, with highest gains in the share of jobs in high-skill category, moderate losses in the share of jobs in low-skill and bigger losses in middle-skill category (Figure 1.7). Job polarisation is therefore not new. Yet, due to further advances in digital technologies and complexity of tasks that computers can perform, together with related impact on the labour market, it attracts continued attention.

Figure 1.7. Job polarisation in Australia continues



Note: Panel A: Employment data is from Australian Censuses, 1971 to 2011; Earnings – ABS Employer Survey. Occupations are grouped into quintiles using employment weights for each occupation. Panel B: Employment data is from Australian Censuses, 1971 to 2011; Skill Categories are based on ANZSCO definitions. Panel C: Occupations are ranked by wage level following Autor and Dorn (2013) and Goos et al. (2014). High-skill occupations include jobs classified under the ISCO-88 major groups 1, 2, and 3. That is, legislators, senior officials, and managers (group 1), professionals (group 2), and technicians and associate professionals (group 3). Middle-skill occupations include jobs classified under the ISCO-88 major groups 4, 7, and 8. That is, clerks (group 4), craft and related trades workers (group 7), and plant and machine operators and assemblers (group 8). Low-skill occupations include jobs classified under the ISCO-88 major groups 5 and 9. That is, service workers and shop and market sales workers (group 5), and elementary occupations (group 9).
Source: Panels A and B: Coelli, M. and Borland, J. (2016), 'Job Polarisation and Earnings Inequality in Australia', Figures 2 and 3; Panel C: HILDA database and OECD calculations (see Sila and Dugain, 2018a).

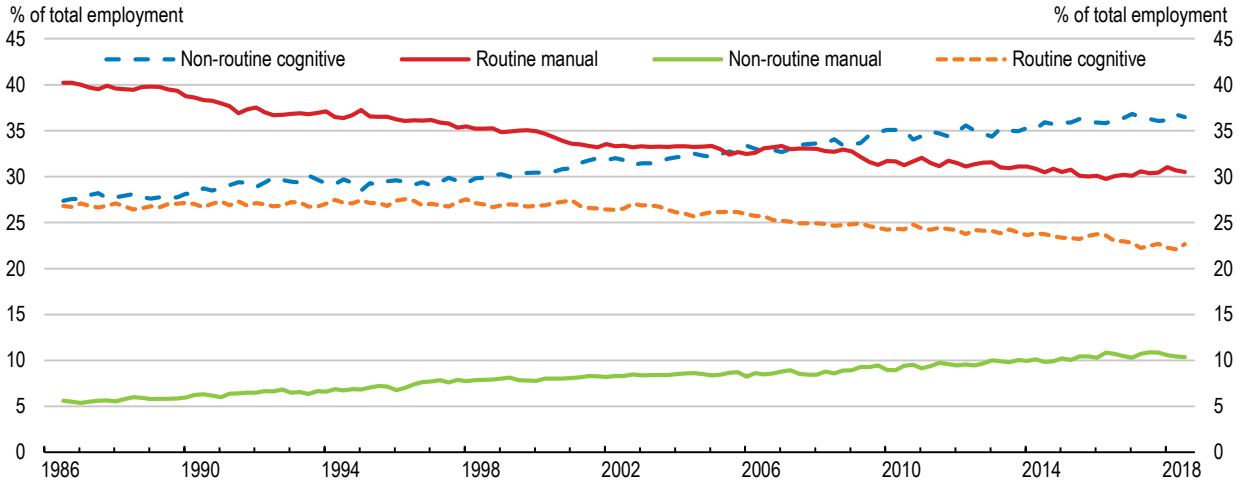
StatLink https://doi.org/10.1787/888933883472

One driver of job polarisation is technology's differential impact across skills and occupations, crucially depending on type of tasks performed (Autor et al., 2006; Goos and Manning, 2007; and Goos et al., 2009; OECD, 2017a). In particular, ICT generally complements high-skill workers performing complex cognitive tasks typically found in managerial and professional occupations (e.g. medicine). Conversely, middle-skill clerical and production jobs, characterised by "routine" tasks, can be more easily automated with ICT (e.g. computational tasks). Meanwhile, many low-skill jobs (e.g. catering, cleaning or delivery) involve non-routine manual tasks that have so far proven more difficult to

automate. This "routinisation" hence lowers demand for middle-skill jobs relative to both high-skill and low-skill jobs. In addition, declining share of middle-skill jobs in advanced economies has also been linked to globalisation, through import competition from emerging economies and offshoring of production (Oldenski, 2014; Autor et al., 2016; Keller and Utar, 2016).

Consistent with the routinisation hypothesis, Australia's share of routine manual jobs has undergone considerable decline (Figure 1.8; Heath, 2016). Similarly, Coelli and Borland (2016) find large declines in the employment shares of occupations that were initially high in routine-task intensity.

Figure 1.8. Routine manual jobs in Australia are being replaced by non-routine cognitive and non-routine manual jobs



Note: The categories are based on the 8 majors ANZSCO (Australian and New Zealand Standard Classification of Occupations) groups. Non-routine cognitive: (Managers, Professionals), Routine manual (Technicians and trades workers, Machinery operators and drivers, Labourers), Routine cognitive (Clerical and administrative workers, Sales workers), Non-routine manual (Community and personal service workers).
Source: Thomson Reuters and OECD Calculations.

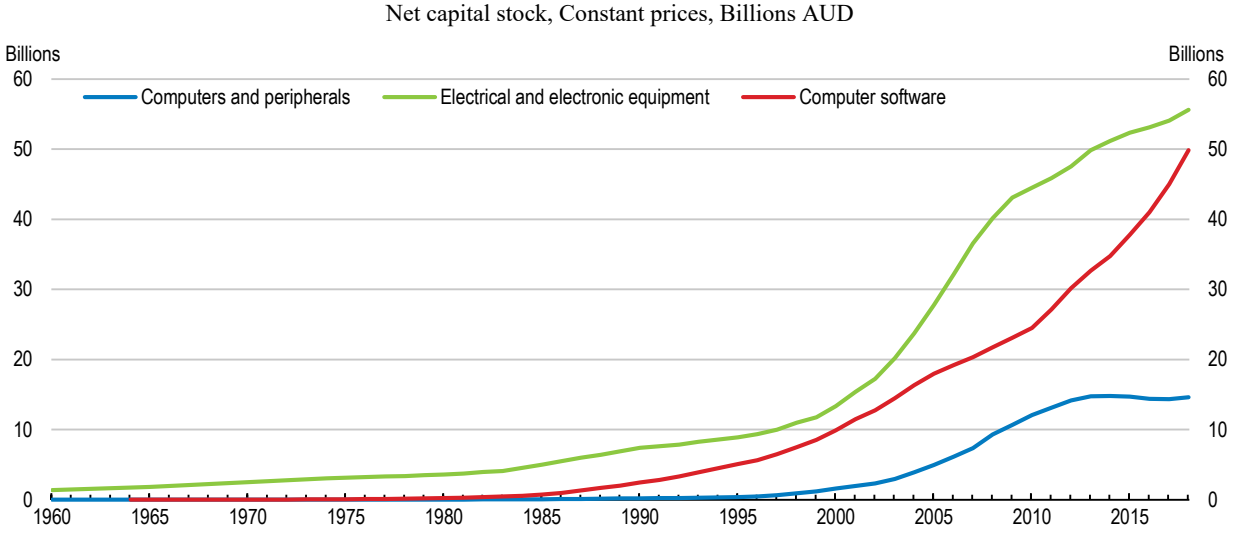
StatLink https://doi.org/10.1787/888933883491

Technological change and globalisation are ongoing. Change associated with further ICT advances (Figure 1.9) continues to be prominent. Much of this involves further dissemination and adaption of technologies that have already proven commercial viability. Meanwhile, at the forefront of development, digital technologies based on big data analytics and artificial intelligence (AI) increasingly permit machine functionalities that can rival human performance across an increasing number of cognitive tasks. Cloud computing and the Internet of Things are widening the scope for intelligent systems and autonomous machines, such as robots. This said, there is considerable uncertainty regarding how quickly and widely such innovations will reach industrial application and commercial use (OECD, 2016a; OECD, 2017a, OECD 2018a).

Understanding which jobs and skills are likely to become obsolete as ICT and related technologies develop further is important. Some studies suggest an accelerated diffusion of AI-enabled robots could lead to significant job losses and technological unemployment (Brynjolfsson and McAfee, 2011; Mokyr et al., 2015). For instance, Frey and Osborne (2013) estimate that close to 50% of U.S. employment is at risk. However, recent OECD

work, exploiting the Survey of Adult Skills (PIAAC), suggests the share of jobs-at-risk from automation may be considerably smaller. This research (OECD, 2017a; Arntz et al., 2016, Nedelkoska and Quintini, 2018) argues that jobs with the same occupational title often have considerable differences in tasks, which is essential to gauging jobs at risk. Using the methodology of Arntz et al. (2016) the estimated share of jobs at high risk of automation (defined as jobs with at least 70% probability of automation) is only 7% for Australia (Figure 1.10), significantly lower than reckoned by some commentators. Nevertheless, many jobs in Australia - 26% according to Arntz et al. (2016) - will be significantly changed by technology (Figure 1.10), requiring different and new skills.

Figure 1.9. Growing use of information and communication technologies

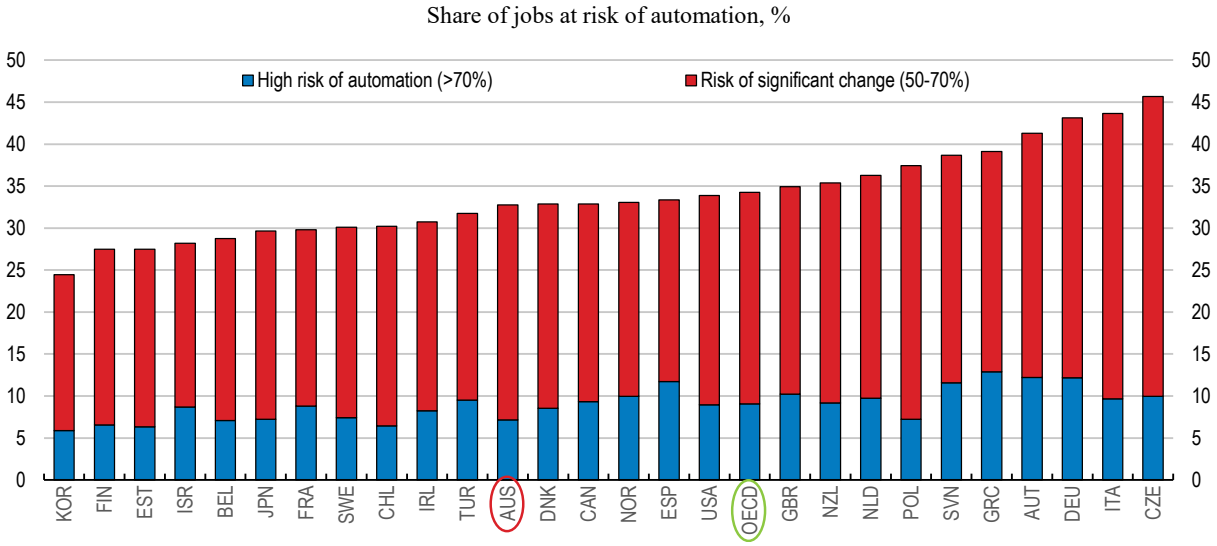


Source: ABS (Catalogue 5204.0 - table 69).

StatLink https://doi.org/10.1787/888933883510

As regards future skill requirements, rising routinisation and further expansion of ICT applications increases demand for skills that are complementary to technology. As reported by Nedelkoska and Quintini (2018) occupations with high automatability typically only require a low level of education, while the least automatable occupations almost all require professional training and/or tertiary education. In addition to ICT-specialist skills, there is increasing demand for ICT-generic skills that enable use of technologies for professional purposes and for ICT-complementary skills such as information-processing, problem-solving and communication. Foundation skills, digital literacies as well as social and emotional skills are important for effective use of technology. Moreover, stronger core skills and readiness to learn can ensure that individuals will be able to adapt more easily (OECD, 2016b and 2017b).

Figure 1.10. There will be further automation of tasks



Note: Jobs are at high risk of automation if the likelihood of their job being automated is at least 70%. Jobs at risk of significant change are those with the likelihood of their job being automated estimated at between 50 and 70%

Source: OECD calculations based on the Survey of Adult Skills (PIAAC) 2012, 2015; and Arntz, M., T. Gregory and U. Zierahn (2016), "The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis", OECD Social, Employment and Migration Working Papers, No. 189, OECD Publishing, Paris, http://dx.doi.org/10.1787/5jlz9h56dvq7-en.

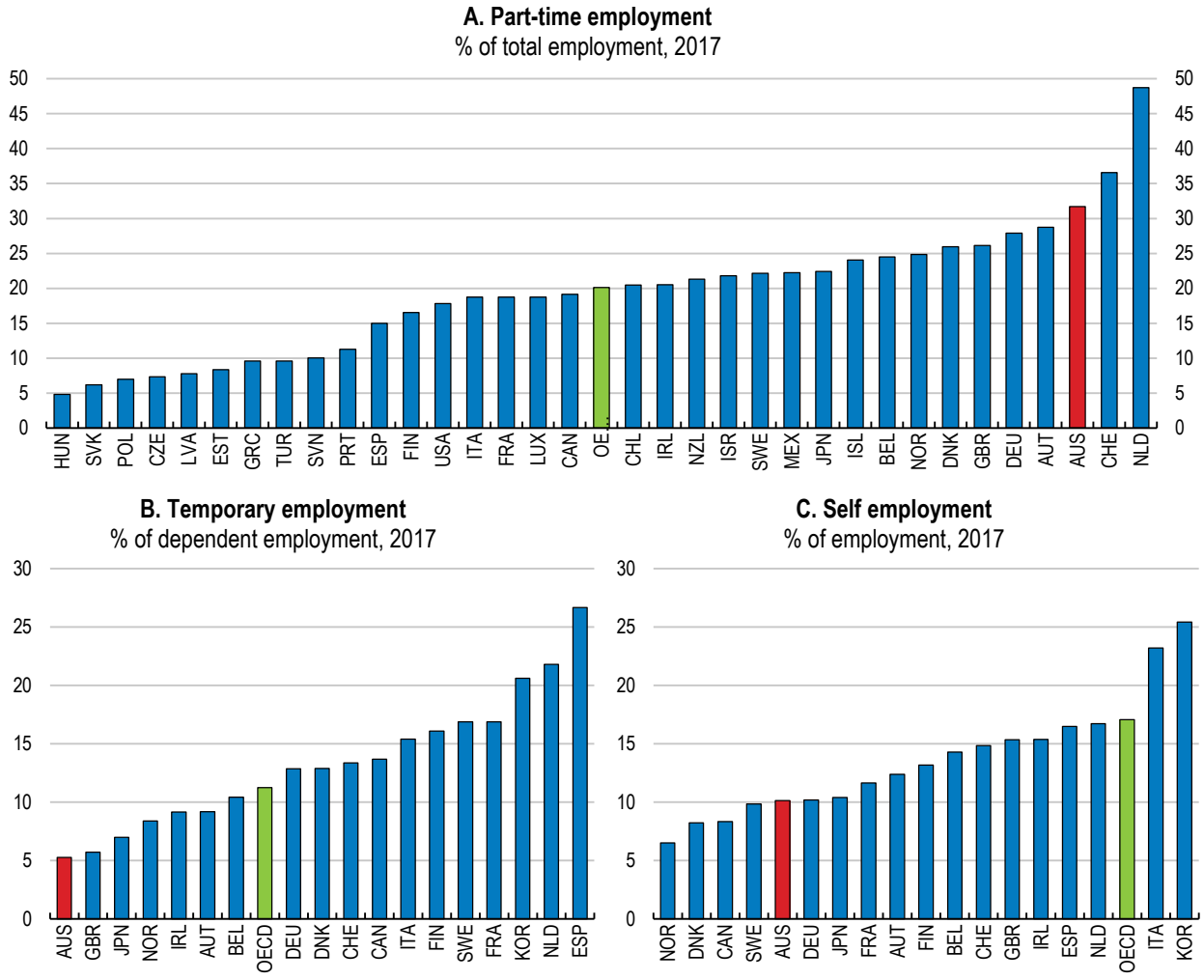
StatLink https://doi.org/10.1787/888933883529

Australian jobs have not become more precarious

Technological progress and globalisation have also been associated with the shifts in the type, quality and security of jobs. Non-standard forms of employment - part-time work, temporary work, self-employment and casual work – have been on the rise across OECD countries since the 1990s and there has been longstanding debate about the positive and negative dimensions of this process (OECD, 2015, 2016c). The debate has been heightened in recent years with the spread of new forms of work via the "gig economy", and the "platform economy" (such as AirBnB or Uber).

Australia has a comparatively high share of part-time work (Figure 1.11), but small shares of temporary workers and self-employed (these groups are not mutually exclusive; workers can work part-time and be on a temporary contract, for example). Australia has a particular form of casual work; workers are not entitled to paid sick or holiday leave but are guaranteed additional pay. According to Borland and Coelli (2016) this form of employment has been declining since the early 2000s (Figure 1.12). Furthermore, job duration has, if anything, risen (Figure 1.13). This partly counters concerns that Australian jobs have become significantly more precarious over time.

Figure 1.11. The share of part-time work is high in Australia, while shares of temporary employment and self-employment are low

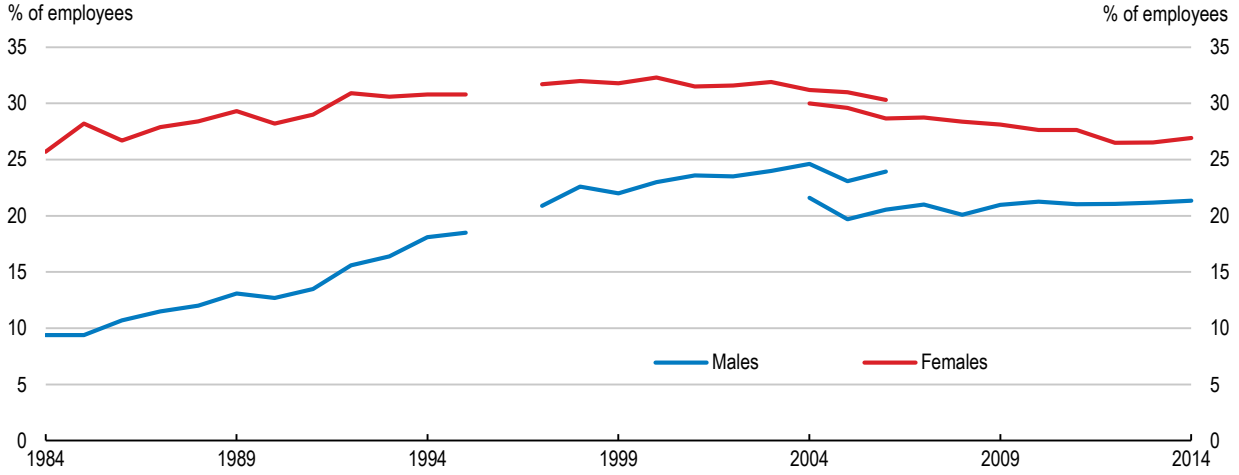


Source: OECD, Labour Force Statistics database.

StatLink https://doi.org/10.1787/888933883548

Figure 1.12. The upward trend in casualisation has been reversed

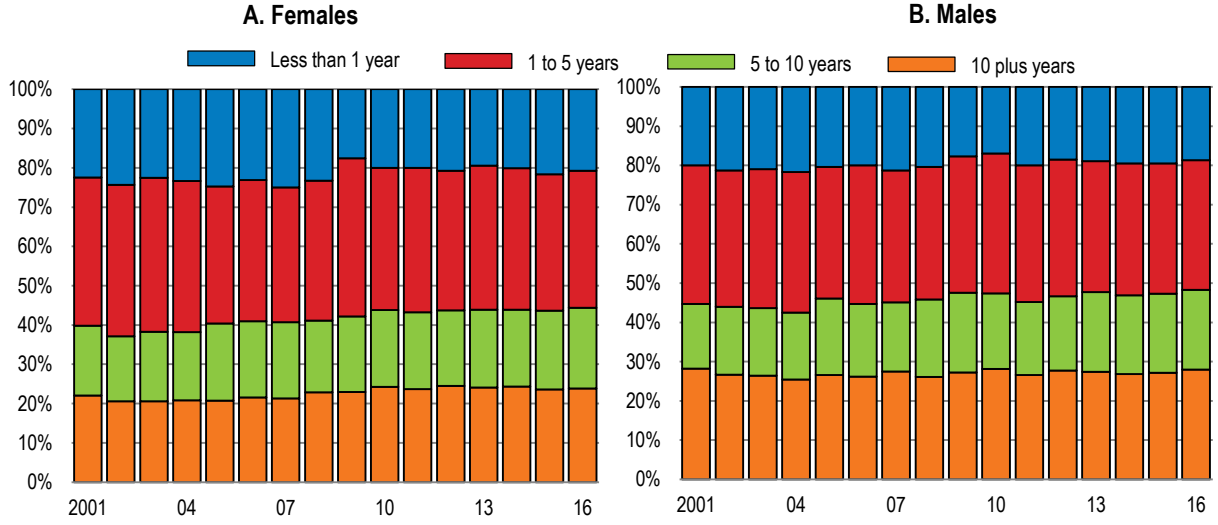
Share of all workers in casual jobs, by gender, 1984 to 2014



Notes: Casual employment is characterised by flexibility for employers and employees in the number and timing of hours worked from week to week (including the ability for employers to very readily reduce hours to zero). Typically, employees are not entitled to paid annual and sick leave, but receive a higher pay (casual loading). A break occurs between 2006 and 2007 as the sampling frame for questions on paid leave entitlements was changed between these years.
Source: Borland and Coelli (2016) "Labour Market Inequality in Australia".

StatLink https://doi.org/10.1787/888933883567

Figure 1.13. The duration of jobs has not fallen



Source: HILDA database and OECD calculations.

StatLink https://doi.org/10.1787/888933883586

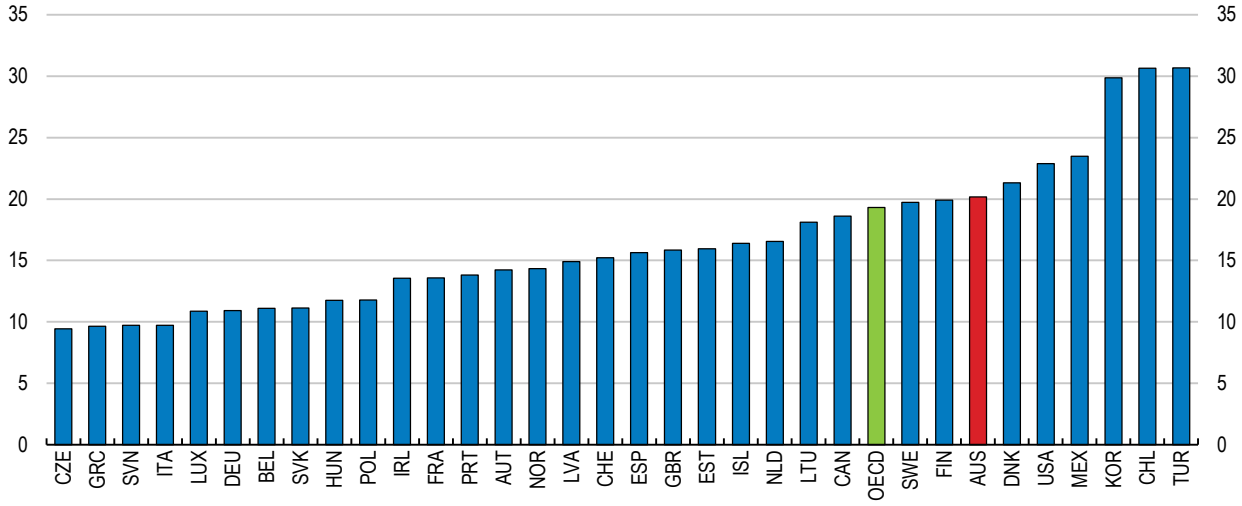
Australia has been quite resilient despite structural change

So far, Australia has showed resilience in the face of structural change and shocks. Notably, it fared relatively well during the global financial crisis, although partly on the back of the commodity super-cycle. Australia's resilience is underpinned by a dynamic and flexible

labour market, with high employment rates and low unemployment rates. Labour-market dynamism is reflected in high job turnover; job separation is high (Figure 1.14), most of it voluntary. Also, while the displacement rate (the share of workers laid off for economic reasons) is high, around 80% of displaced workers find new jobs within two years (Figure 1.15) (OECD, 2017c and 2016d; Sila, 2018).

Figure 1.14. Australia's labour-market separation rate is high

Difference between the hiring rate and the net employment change, % points, 2016[1]



1. 2015 for Australia. Original data source for Australia is the ABS Labour Force Survey.
Source: OECD, Employment database.

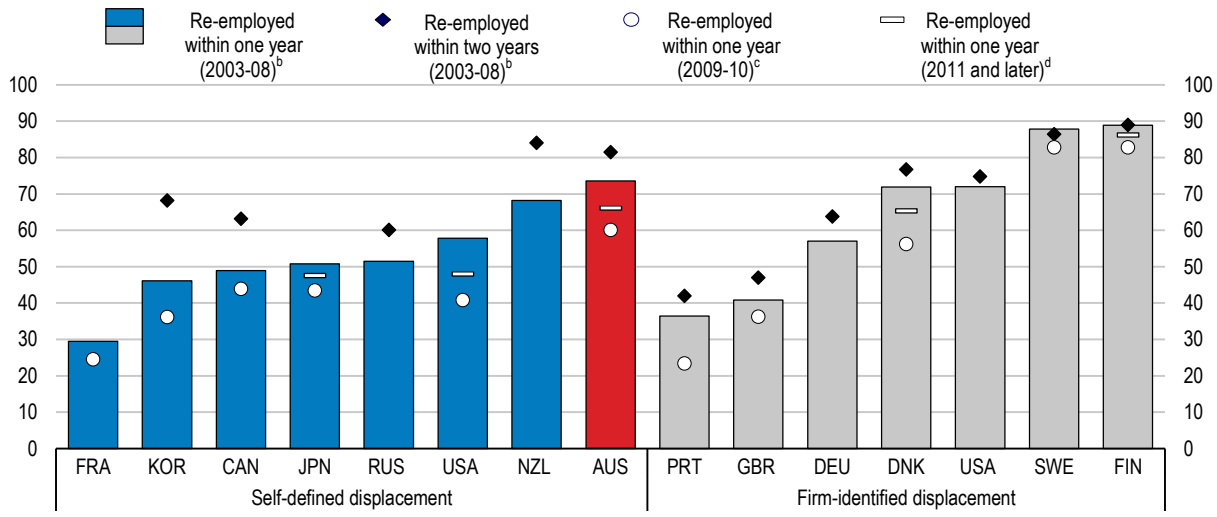
StatLink https://doi.org/10.1787/888933883605

Nevertheless, Australia has seen socio-economic deprivation emerge in some localities characterised by high unemployment and poverty. While the overall labour market is dynamic, some laid-off workers nevertheless face difficulties in finding new jobs (see Box 1.1). Comparing unemployment rates across the relatively aggregate level of states and territories illustrates differences in exposure to change (Figure 1.16).

The secular decline of Australian manufacturing can serve as an example of the differing impact of structural change across different local areas. Manufacturing tends to be concentrated in localities within metropolitan areas. The Productivity Commission (2017a, Box 1.1) compares experiences of two local areas, Geelong (near Melbourne, Victoria) and Adelaide - North (South Australia), where large automotive plants were closed in 2016 and 2017, also prompting job losses among local suppliers. There are important differences between the two regions that will likely drive differences in how well they adjust to the closures. First, Adelaide - North has much higher local unemployment. Second, the greater metropolitan area of Melbourne has high population growth and strong demand for labour, in particular in services and construction, whereas greater Adelaide is much less booming. Finally, skills and education differ; on average, Adelaide - North residents have fewer qualifications than those in Geelong and a higher share are blue-collar workers, which negatively impacts the probability of re-employment (see Box 1.1).

Figure 1.15. Displaced workers find new jobs rapidly

Re-employment rates after displacement in selected OECD countries[a], 2000-13 percentages

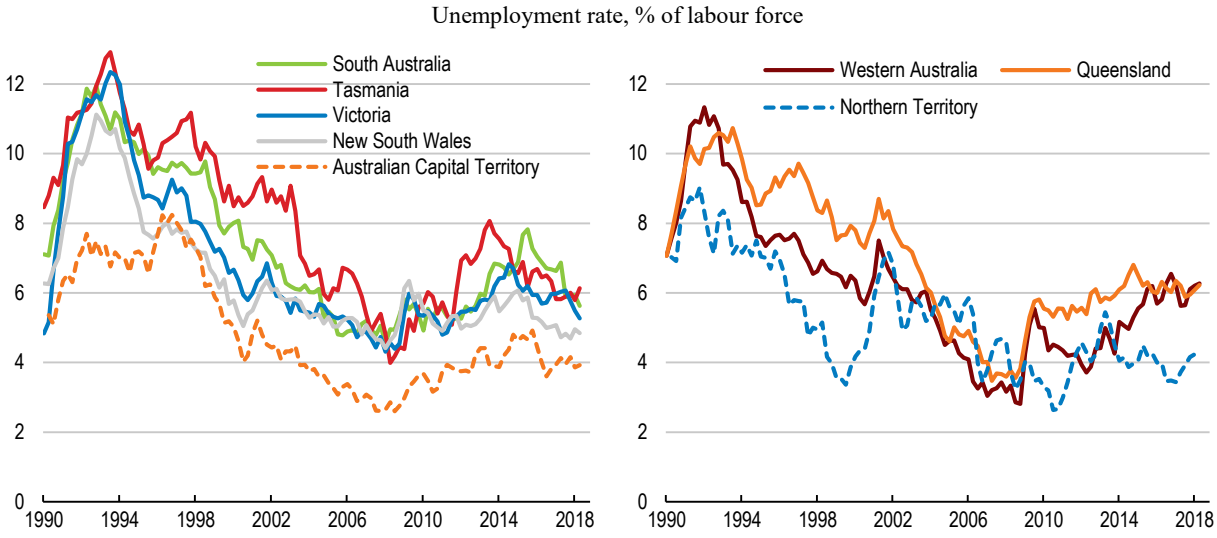


Note: a) For countries with self-defined definition of job displacement, data refer to workers who lose their job for economic reasons, due to the end of a temporary contract or for cause. For countries with firm-identified definition of job displacement, data refer to workers who lose their job due to a mass layoff or firm closure. For full details of the data sources and methodology, see Table A1.1 in Annex A.1 of OECD (2013). b) Data refer to an average of 2000-08 for Canada, to an average of 2004-08 for France and the Russian Federation, to an average of 2000-04 for Germany, and to an average of 2004, 2006 and 2008 for the United States. There are no data on re-employment within two years for France and for the United States. c) Data refer to 2009 for Korea, Portugal and Sweden, and to 2010 for the United States for self-defined displacement. d) Data refer to an average of 2011-13 for Australia and Japan, to an average of 2011-12 for Denmark and Finland, and to an average of 2012 and 2014 for the United States for self-defined displacement.

Source: OECD (2013), "Back to work: Re-employment, earnings and skill use after job displacement", Final Report, Directorate for Employment Labour and Social Affairs, OECD Publishing, Paris, October, www.oecd.org/els/emp/Backtowork-report.pdf and OECD estimates updated from national microdata.

StatLink https://doi.org/10.1787/888933883624

Figure 1.16. Unemployment experience differs across states and territories



Source: Thomson Reuters.

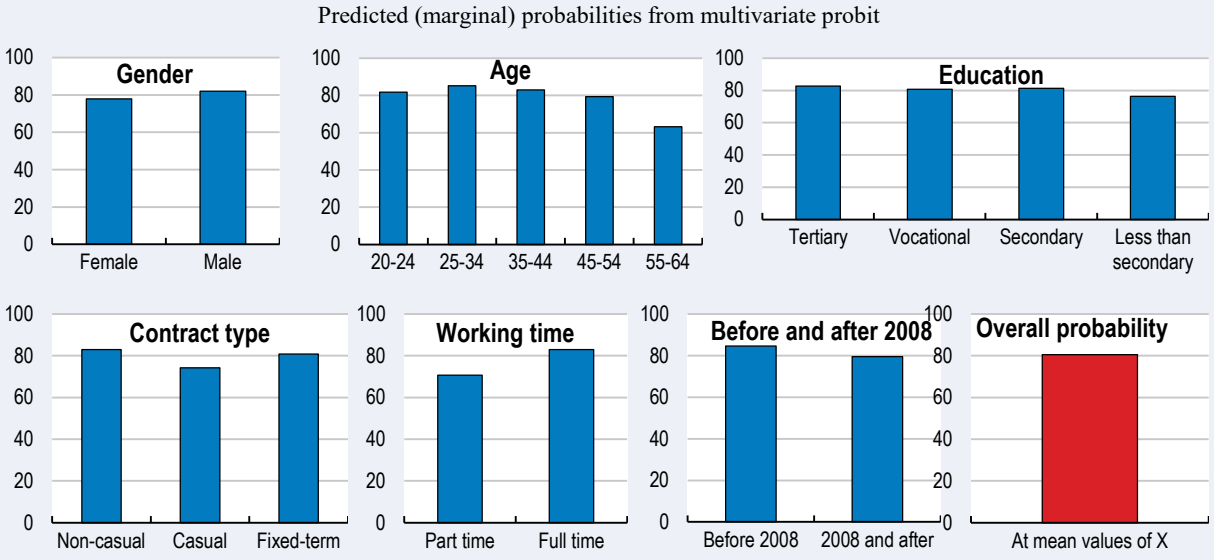
StatLink https://doi.org/10.1787/888933883643

Box 1.1. Displacement and re-employment of workers in Australia: evidence from the HILDA Survey

This box analyses the incidence and consequences of job displacement using Australia's household panel - the Household, Income and Labour Dynamics (HILDA) Survey data. It reports the main results of the analysis in Sila (2018), and is based on previous OECD work on displacement and re-employment (OECD, 2017c and 2016d). The results refer to the 2001-2016 period. Displaced workers are workers who lose their job for economic reasons, due to the end of a temporary contract or for cause.

Reflecting the dynamic nature of the Australian economy and its labour market, job turnover is high compared with most other OECD countries. According to the HILDA data, about one-fifth of all employees aged 20-64 are separated from their job every year. In general, only a minority of job separations tend to be for economic reasons (i.e. "displacements"), while the rest are voluntary. In 2015-16 only about one fifth of workers who separated from their jobs were displaced workers.

Figure 1.17. Probability of finding employment after being displaced differs across groups of workers



Note: Predicted probabilities from multivariate probit - specification (4) from Table 2. Predicted probabilities are evaluated at the mean value of all RHS variables. Only selected characteristics are shown - those that show some significant variation across different values.
Source: HILDA survey and OECD calculations. Sila (2018).

StatLink https://doi.org/10.1787/888933883662

Certain groups of workers are more at risk of displacement than others. Sila (2018) estimates the probability of displacement using multivariate probit regression, controlling for various worker and job characteristics. Being male, an older worker and a worker with less than secondary education all raise the risk of displacement. In certain industries, such as construction and manufacturing, the incidence of displacement has consistently been higher over the last fifteen years. There is a clear pattern with respect

to job tenure, whereby workers with lower tenure face a higher probability of being displaced, especially for tenure of less than one year. Similarly, casual employees have a higher probability of being displaced.

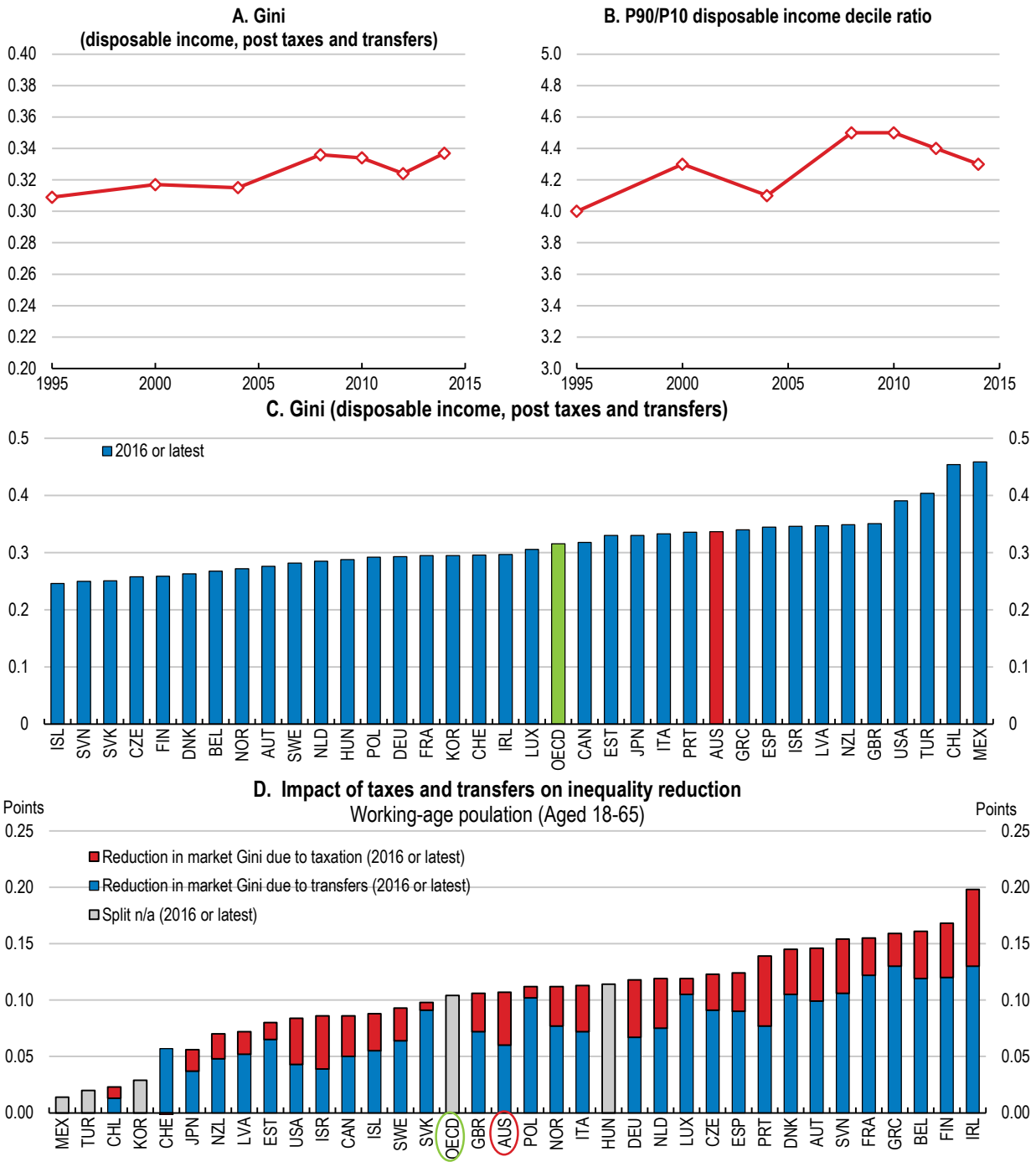
A very high proportion of displaced workers find a new job soon after being displaced. According to HILDA data, more than 60% of displaced workers find employment within one year, and close to 80% find work within two years. But certain groups of workers have a significantly lower incidence of regaining employment (Figure 1.17). Based on multivariate probit, after controlling for other characteristics, women, older workers, and less educated workers, workers who had a casual job and part-time workers have a significantly lower chance of returning to employment. There is also tentative evidence that workers who worked in manufacturing, after controlling for their other characteristics, find it more difficult to find a new job.

Having said that, for certain groups this does not necessarily imply that finding a job is more difficult. Perhaps becoming displaced simply lowered their labour market attachment and they did not even search for a job. Indeed, analysing the probability of being out of the labour force after displacement we find that in particular women, older workers and workers in low-skilled occupations are more likely to become detached from the labour market. Labour market policy should therefore pay special attention to prevent such workers from becoming discouraged and keep them attached to the labour market.

The rise in income inequality has slowed

Income inequality (after taking into account taxes and transfers) in Australia has risen slightly, and is somewhat above the OECD average. However, this increase has slowed and inequality has stabilised in the last decade (Figure 1.18). Though overall inequality has been constant for some time and incomes of all groups have continued rising considerably in real terms, gains of the top quintile and the bottom two quintiles have been larger than in the middle of the income distribution over the past 15 years (Figure 1.19).

Figure 1.18. Income inequality in Australia has risen and remains above the OECD average



Note: Panels A, B and C refer to whole population. The Gini coefficient is a measure of income inequality ranging from 0 (perfect equality) to 1 (perfect inequality). Panel D indicates the difference between the Gini before and after taxes and transfers.
Source: OECD, Income Inequality database.

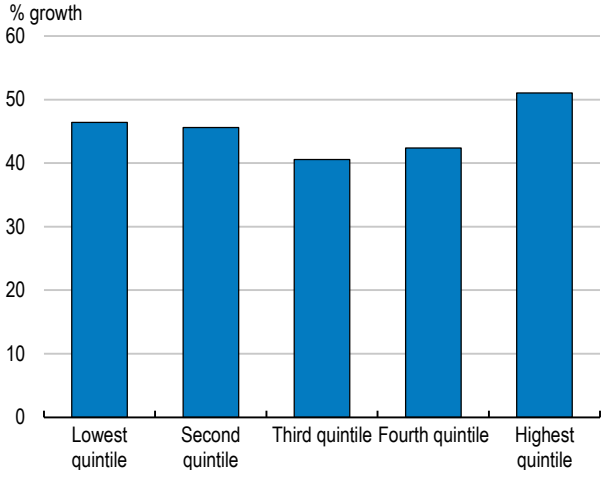
StatLink https://doi.org/10.1787/888933883681

Australia's income inequality has risen primarily due to higher earnings inequality. Borland and Coelli (2016) find that while hours worked have become more evenly allocated among

the population (more people work), wage gaps among workers have risen. Rising female labour-force participation has been a core driver of the more even allocation of work (Figure 1.20). That said, the share of people working part-time, for both men and women, has also risen. Since 2000 the rise in earnings inequality has slowed. While wage rates have grown most quickly at the top and for high-skill occupations (Figure 1.21), pushing inequality higher, total working hours have increased more at the bottom, offsetting the effect. In particular at the bottom, increased employment, longer hours worked, and generally a decline in the share of jobless households have reduced income inequality (Greenville et al., 2013; Sila and Dugain, 2018a).

Figure 1.19. Growth of incomes in the middle has been comparatively weaker over the last 15 years

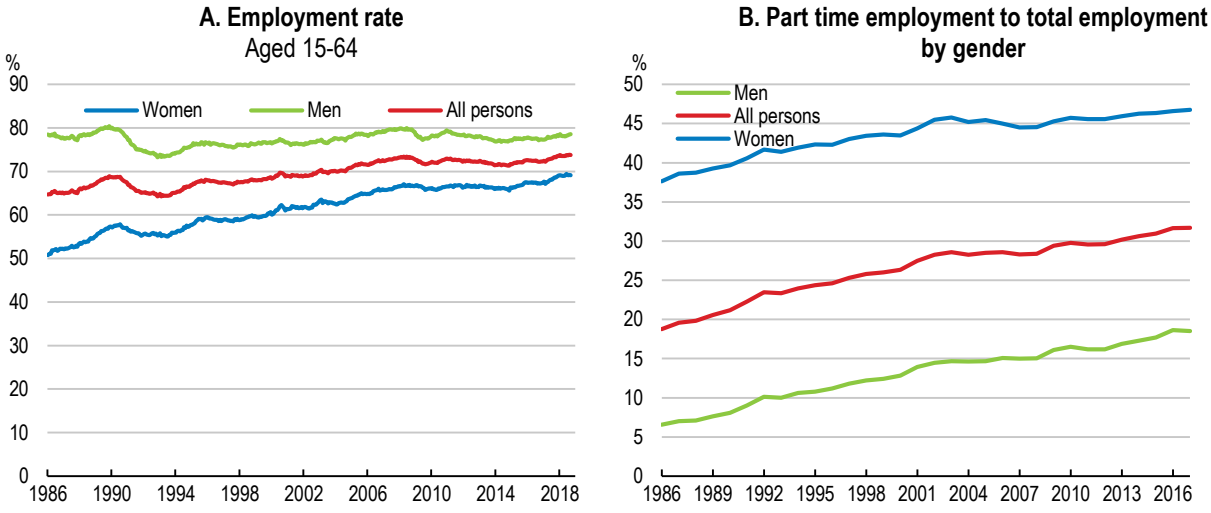
% growth in mean disposable household income by quintile, 2000-01 to 2015-16



Note: Equivalised disposable household income, adjusted for inflation.
Source: ABS Catalogue 6523.0.

StatLink https://doi.org/10.1787/888933883700

Figure 1.20. Female participation and the incidence of part-time work have risen

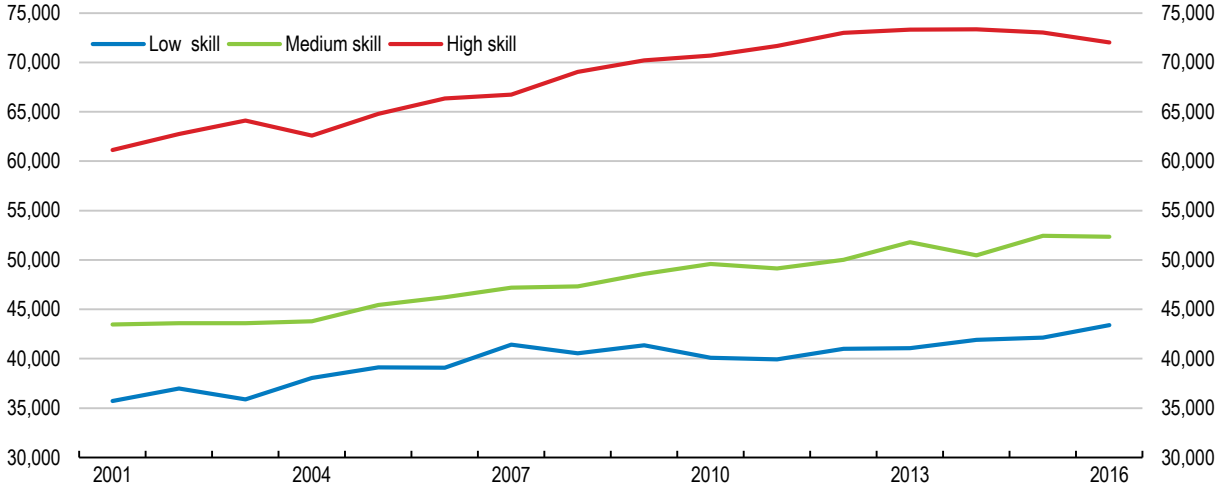


Source: OECD Labour Force Statistics.

StatLink https://doi.org/10.1787/888933883719

Figure 1.21. Wages have risen faster for high-skill occupations

Real median wages (AUD), full-time employed individuals aged 15 and over



Source: HILDA database and OECD calculations. Sila and Dugain (2018a).

StatLink https://doi.org/10.1787/888933883738

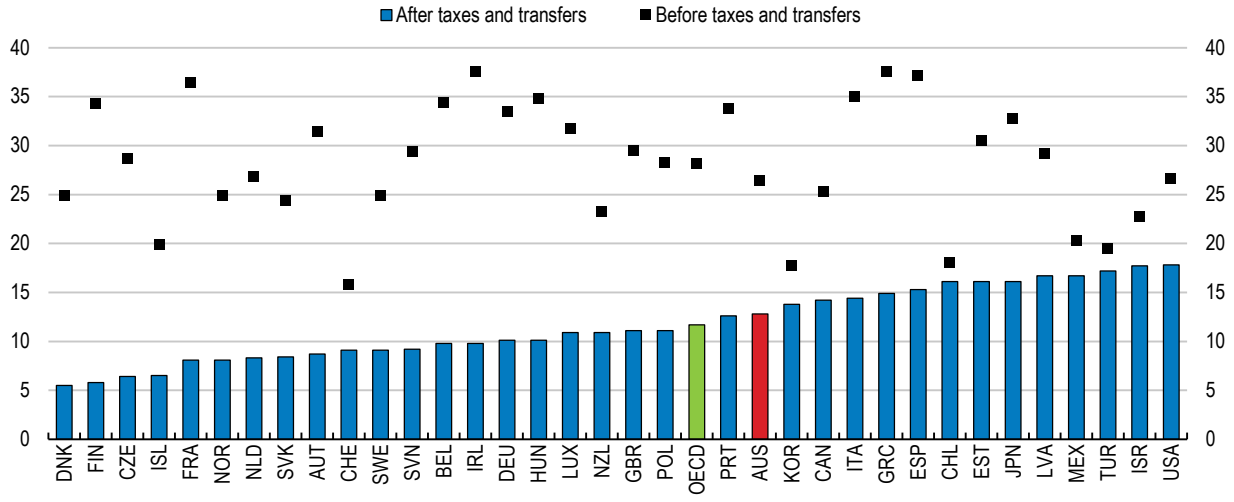
Income poverty has declined but certain groups face a high risk

Relative income poverty is slightly above the OECD average (Figure 1.22), according to measures that classify the poor as those living in households that have below 50% of the median equivalised household income (OECD, 2008). Sila and Dugain (2018b), using HILDA Survey data, show that income poverty has decreased in the last 15 years (Figure 1.23). The share of people living in households with income below 50% of the median household equivalent income decreased from 15% in 2001 to 12% in 2016. The

Productivity Commission (2018a) also finds that income poverty has decreased in recent years in its major recent report on inequality.

Figure 1.22. Poverty in Australia is above the OECD average

Poverty rates (poverty line 50%), Total population, 2016 or latest

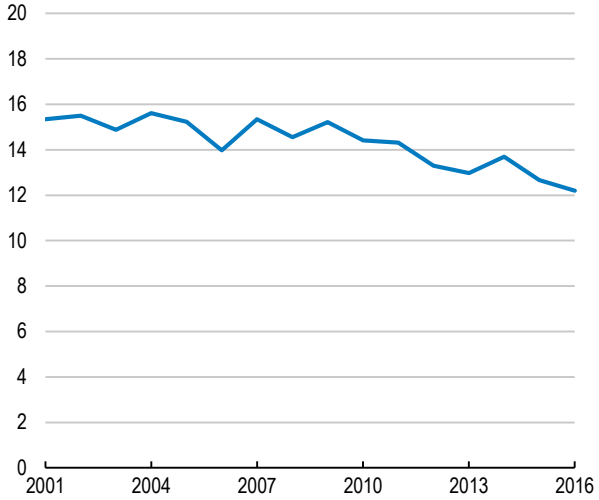


Note: the poverty rate is the percentage of individuals who live in households with incomes below the poverty line (set at 50% of the median household income).
Source: OECD Income Distribution and Poverty database.

StatLink https://doi.org/10.1787/888933883757

Figure 1.23. Poverty in Australia has decreased over time

Poverty rate, based on equivalised household income, population aged 15 and over

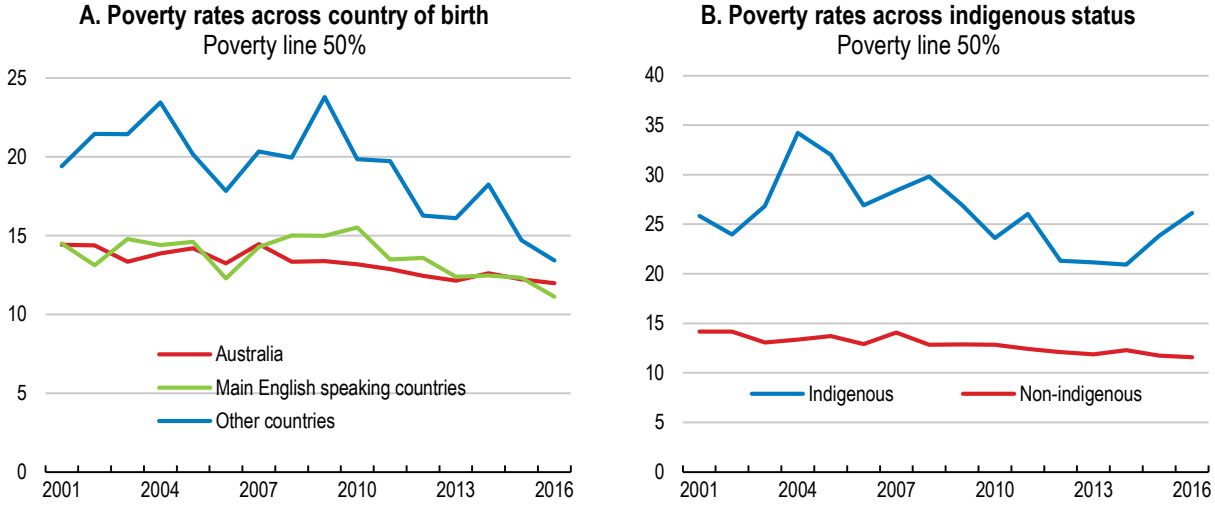


Note: the poverty rate is the percentage of individuals who live in households with incomes below the poverty line (set at 50% of the median household income).
Source: HILDA survey and OECD calculations. Sila and Dugain (2018b).

StatLink https://doi.org/10.1787/888933883776

Certain groups are however significantly more at risk than others. People living alone and lone parents are at higher risk of poverty. Poverty among the elderly has fallen in the last 15 years, but nevertheless remains very high. According to OECD data, about 25% of older Australians fall below the relative poverty threshold, one of the highest shares in the OECD. It should however be noted that poverty rates for the elderly are somewhat reduced when their home ownership is taken into account; moreover, many pensioners decide to take a significant amount of their pensions as a lump sum at the onset of their retirement, which thereafter does not count as current income. Indigenous Australians are almost twice as likely to be at risk of poverty than the rest of Australians. With respect to country of birth, foreign born Australians who have no English speaking background are at significantly higher risk, too (Figure 1.24). While for immigrants the poverty gap has declined, for the indigenous population the gaps appear to have risen in the latest two data points.

Figure 1.24. Poverty rates across country of birth and indigenous status



Note: the poverty rate is the percentage of individuals who live in households with incomes below the poverty line (set at 50% of the median household income).
Source: HILDA survey database and OECD calculations. Sila and Dugain (2018b).

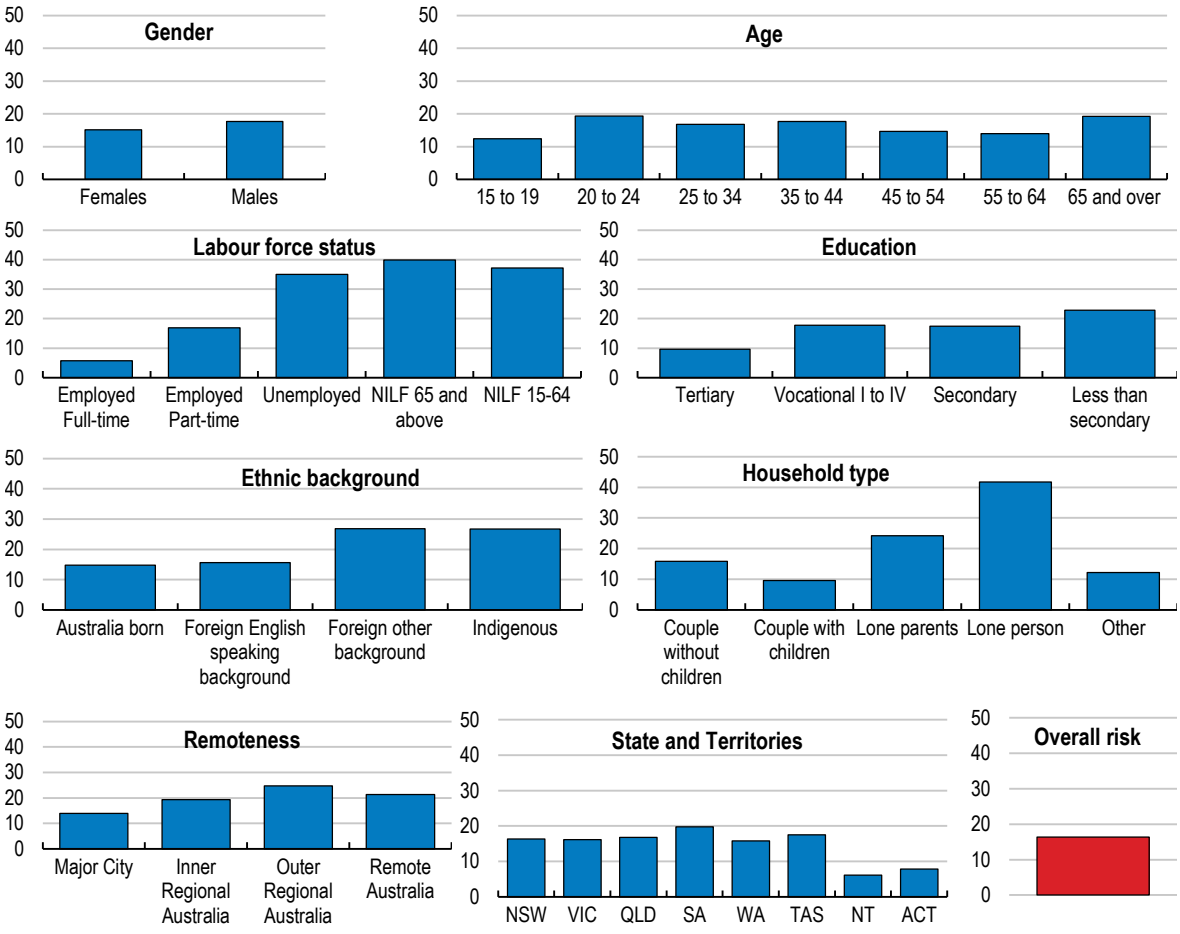
StatLink https://doi.org/10.1787/888933883795

Individuals out of the labour force and the unemployed are at much higher risk of poverty. But even some people who work are poor, commonly casual workers and part-time workers. People with low education are also at risk. People who live in lone person or one parent households face quite a high risk of poverty, even if they are employed.

Sila and Dugain (2018b) report results from a multivariate probit for the probability of poverty using household-panel data, where they control for personal and household characteristics. Marginal predicted probabilities across various characteristics are shown in Figure 1.25. Interestingly, ethnic background and indigenous status remain strong explanatory factors of poverty even after controlling for education, age, industry, skill and remoteness. This means that high poverty of indigenous people stems from unobserved characteristics such as health, life-style, the local economy or discrimination.

Figure 1.25. Risk of poverty across various characteristics

Predicted marginal probabilities from multivariate probit (60% poverty line)



Note: Based on specification (2) from Table 1, Sila and Dugain (2018b). Predicted probabilities are evaluated at the mean value of all RHS variables.
Source: HILDA survey database and OECD calculations; Sila and Dugain (2018b).

StatLink https://doi.org/10.1787/888933883814

Welfare and activation policies to help workers face change

Ensuring that inactive, unemployed or displaced individuals are encouraged and incentivised to look for employment and re-skill is important for making economies resilient to globalisation and technological change – and to avoid socio-economic deprivation from it. Broadly speaking, workers in routine, automatable tasks will have to re-equip to non-routine tasks that are complementary to new technology rather than substitutable.

As emphasised in previous *Surveys* (OECD 2017d and 2014), the fiscal demands of Australia's welfare system are comparatively light, helping keep tax wedges on labour low, as well as supporting employment and competitiveness. There is strong emphasis on encouraging transition from welfare to work, whereby various financial incentives and

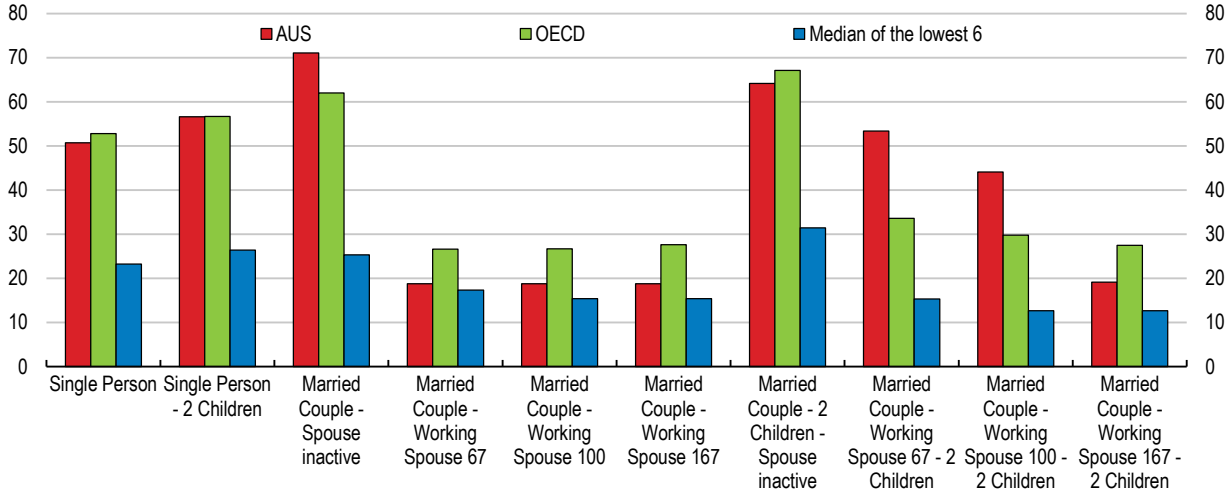
activation schemes together with means- and activity- testing help limit the number of households dependent on transfers.

Offering the right incentives to individuals to move from inactivity or unemployment into employment is however a challenging area of tax-benefit policy. It is difficult to avoid a fairly substantial implied tax for those on benefit taking up a job. Figure 1.26 shows the results of OECD microsimulations that calculate the participation tax rate of someone moving from inactivity (with attendant benefits) into a job at two-thirds the average wage across a range of family scenarios. Australia is generally doing better than most countries in this context. However the participation tax rates, especially for families, are still significantly above best performers and in certain cases above the OECD average. For instance, a person with two children and a spouse that also earns two-thirds of the average wage faces a 53% effective tax when moving from inactivity into employment.

Australia's tax-benefit incentives, including the participation tax rate, are shaped in particular by benefit tapering. As pointed out in the 2014 *Survey* (OECD, 2014), while Australia's focus on means-tested benefits has many strengths, high effective marginal tax rates generated by benefit tapering add to the challenges in policy design. The high marginal tax rates principally arise because benefits are means-tested and therefore reduced when a recipient's income rises above a certain threshold. The lower the rate of benefit withdrawal, the lower the marginal-tax effect and attendant risk to incentives, but the greater the fiscal cost with respect to pay-outs and the weaker the benefit's targeting. Furthermore, schemes cannot be viewed in isolation, as it is the net effect of all benefits and taxes that matters for incentives. Having said that, factors external to the tax and transfer systems are also important drivers of participation decisions, particularly for second earners. In particular, partner income, access to childcare, flexible working arrangements and personal preferences to be the primary carer of children.

Figure 1.26. Participation tax rate from moving into employment can be high

Participation Tax Rates for a transition from inactivity into full-time work, 2016



Notes: Participation tax rates measure the extent to which taxes and benefits reduce the financial gain of moving into work. In-work earnings are equal to 67% of average wage (AW). For married couples, the spouse is assumed to have full-time earnings with AW indicated in the labels. Children are aged 4 and 6 and neither childcare benefits nor childcare costs are considered.
Source: OECD tax-benefit models http://www.oecd.org/els/soc/benefits-and-wages.htm.

StatLink https://doi.org/10.1787/888933883833

The following sections examine three areas of policy: contracted employment services, displaced-worker support and boosting participation among mothers. For further coverage see Connecting People with Jobs: Key Issues for Raising Labour Market Participation in Australia (OECD, 2017c), Back to Work: Australia; Improving the Re-employment Prospects of Displaced Workers (OECD, 2016d), and Investing in Youth: Australia (OECD, 2016e).

Further improving services and outcomes for jobseekers

As discussed in the 2017 OECD Employment Outlook (OECD, 2017a) an activation framework should: i) motivate jobseekers to actively pursue employment; ii) improve their employability; and iii) expand the set of opportunities for them to be placed and retained in high-quality jobs. Given the potential in the future of multiple careers and jobs over a worker's working life, the system should also effectively support mid-career workers who are displaced by structural economic change and need to switch industry or occupation. Activation measures should also be preventive, taking into account ongoing megatrends and the risk of job loss in different sectors. They should provide workers with adequate information and re-employment support ahead of potential job losses, such as during the notice period prior to a mass redundancy.

Activation policies in Australia are well developed and generally quite effective in connecting people with jobs and, thereby, contribute to low rates of unemployment. Australia is also the only OECD country where employment services are provided entirely under contract with private-sector providers. Australia recently adopted an investment approach (the Priority Investment Approach to Welfare), to further ensure the effective and efficient spending of public resources, and established the Try, Test and Learn Fund to be used towards testing the effectiveness of innovative policies in raising labour market participation. This is a welcome step, although OECD (2017c) has argued that the actuarial-financial valuation of welfare used in the investment approach may be too narrow to ensure efficient resource allocation, and that employment and welfare spending decisions should include broader considerations, such as health and childcare. Also, an expert panel has been established to consider the future format of employment services (the current format expires in 2020). Changes in technology and the labour market will be key considerations in the new format (Australian Government, 2018).

Unlike most OECD countries, Australia does not have an unemployment insurance scheme that provides benefits linked to previous earnings, but has an entirely tax-funded unemployment assistance programme that is only intended to meet minimum income requirements. Unemployed persons receiving public income support are subject to a strict activity test. For instance they must be available for and willing to accept suitable work, including part-time and casual employment, and attend all scheduled interviews with Centrelink (the public benefit administration agency) and with their employment service provider. In addition, eligibility for the main unemployment benefit (Newstart) and some other benefits requires completion of the Annual Activity Requirement for six months each year. Work for the Dole –work experience programmes run by not-for-profit organisations or by local, state or territory government agencies - is the main way to meet the Annual Activity Requirement, but jobseekers can also perform other activities, such as part-time work, part-time study in an eligible course, accredited language, literacy and numeracy training or volunteering. Jobseekers unemployed for 12 months can also receive a relocation assistance payment to help taking a job elsewhere.

Employment services to jobseekers are provided by private providers (for-profit and not-for-profit) contracted by the government through a system called jobactive. Service providers are chosen through a competitive tendering process and evaluated through the Star Rating system, which ranks providers according to their performance in terms of employment and educational outcomes for jobseekers. For each client, providers receive an up-front administration fee and an allocation towards their Employment Fund, which is used to cover training and other costs towards enhancing employability of its clients. Jobseekers are assigned to three different services through the Job Seeker Classification Instrument, administered by Centrelink. The up-front fee received by the provider depends on which stream a job seeker is assigned to and on age and region. In addition, providers receive outcome fees if a jobseeker is placed into employment, with payments at 4, 12 and 26 weeks of employment. Outcome fees are the most significant for the providers financially.

Jobactive's fee structure focuses on getting jobseekers into employment as quickly as possible. Even short-term jobs (e.g. seasonal work, such as fruit picking) are rewarded as the first outcome payment is made after four weeks (of which providers can claim up to four per year and jobseeker). The rationale behind this policy is that that even short-term jobs can provide jobseekers with useful work experience and work habits that facilitate finding more stable longer-term employment (OECD, 2017c).

The fee structure could however be tilted more towards longer-term outcomes to ensure greater job retention. As argued in OECD (2017c), as providers receive no further fees after a client's 26th week of employment, longer-term employment outcomes are not strongly rewarded. Paying for employment outcomes beyond 26 weeks could promote employment retention and career advancement of workers, by better incentivising service providers to place jobseekers into better and more stable jobs and to deliver higher quality pre-placement training and post-placement assistance.

Experience from the UK Work Programme, which offered contracted out employment services for the long-term unemployed, shows that for certain groups of jobseekers prolonged support and incentives have a positive impact on job retention. Within the programme, outcome payments for providers are available from 1.25 up to 2.25 years after the initial placement. This encourages providers to assist participants with in-work help and advice. While there are challenges and a full impact evaluation is not available to date, Australia could nevertheless pilot variations to its existing jobactive payment model that provide such long-term outcome payments.

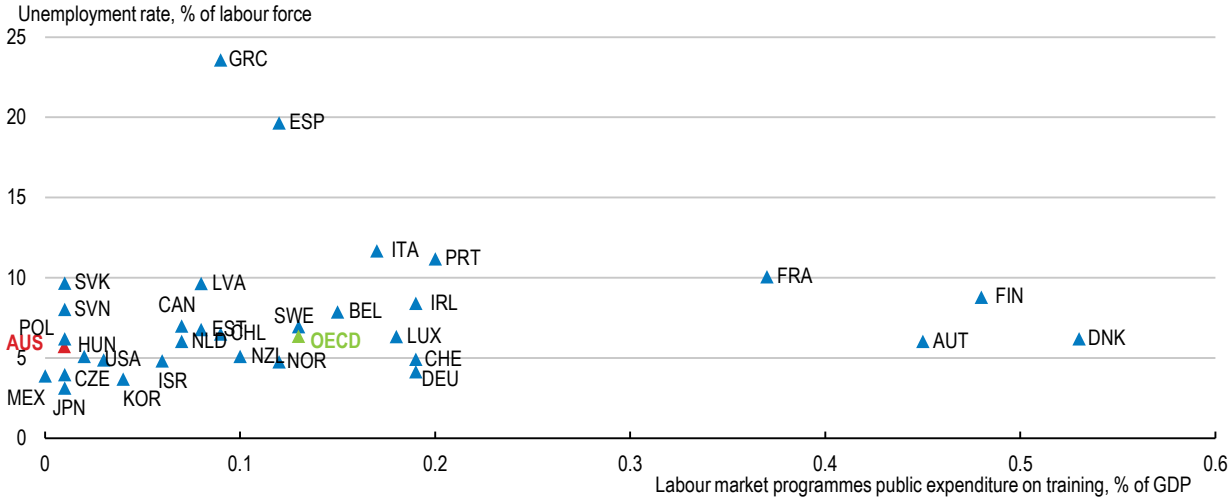
Another consequence of the relatively short time to reward for providers (4 weeks) in Australia is that jobactive providers are not strongly incentivised to provide training (OECD, 2018b). Spending on training for the unemployed, as well as the incidence of such training, is quite low in Australia. According to the internationally-harmonised data collected by the OECD, only 0.01% of GDP is allocated to skills training of the unemployed in Australia, which represents one of the lowest expenditures on training across OECD countries, even among countries with a similar or lower level of unemployment (Figure 1.27). Low spending on training reflects a low share of unemployed persons participating in training programmes as well as a small amount spent on each participant, which in Australia is among the lowest in the OECD (OECD, 2016d). In addition, only 37% of jobactive participants are satisfied with the help they receive in gaining skills for work, as reported by the Employment Services Outcomes Report, July 2016 to June 2017.

The "work first" focus of jobactive is also seen in provider performance assessment. A provider’s Star Rating is based on 12 months of performance, again limiting the incentives

to put jobseekers through longer-term skills training, even if doing so would result in better matches. International experience of training programs for the unemployed finds neutral or even negative employment effects in the short-term, while positive employment effects are evident only 2-3 years after completion of the program (Card, et al., 2017).

Figure 1.27. Spending on training for the unemployed is low in Australia

Incidence of unemployment and expenditure on training programmes, Australia and selected OECD countries, 2016 or latest available



Notes: The unemployment rate refers to the harmonised unemployment rate (HUR). Data refer to fiscal years for Australia, Canada, Japan, New Zealand and the United States. For Australia, expenditure on state and territory programmes is not included.
Source: "Harmonised unemployment rates (HUR)" (indicator), http://dx.doi.org/10.1787/52570002-en for harmonised unemployment rates; and OECD Labour Market Programme Database, http://dx.doi.org/10.1787/data-00312-en for expenditure on training.

StatLink https://doi.org/10.1787/888933883852

Facilitating job transitions of displaced workers

In Australia as in many other OECD countries, employment services are largely in place and prioritised for jobseekers receiving unemployment benefits (or income support), and link participation in job search and other activation steps to eligibility for that support. As such, the employment services are not targeting groups of workers who are more readily available for the labour market, such as (recently) displaced workers. These are, for instance, workers who have lost their job due to the business cycle or economic restructuring, but with otherwise stable employment careers in the past, and possibly confronting unemployment for the first time. The challenge therefore is to absorb these workers in the labour market and to match their skills with the skills required.

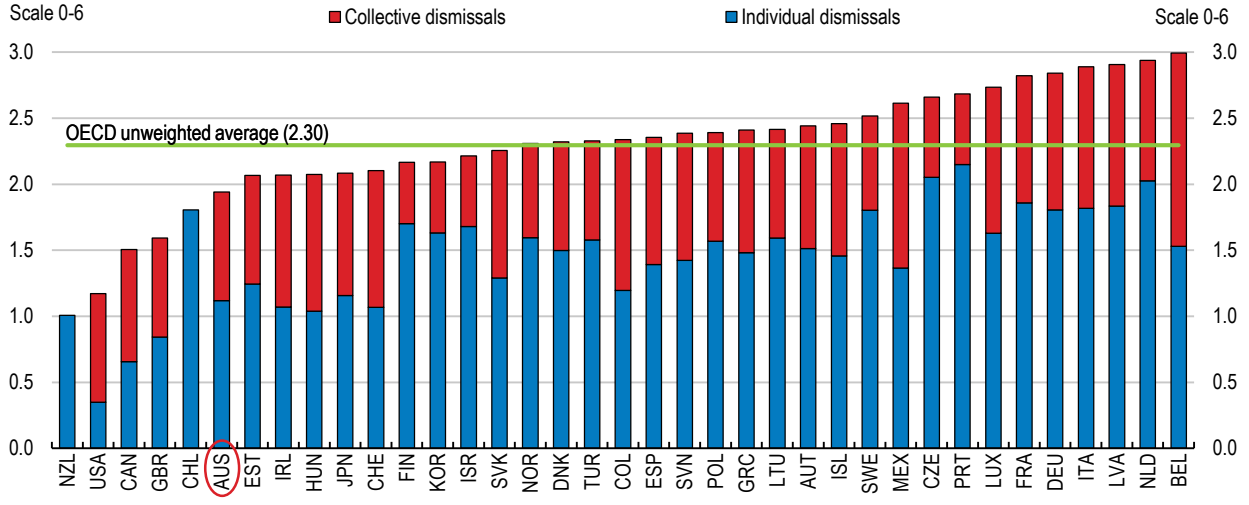
Jobactive is geared towards jobseekers on income support, whereas other jobseekers are eligible for only limited employment support in their first year of unemployment. This is further accentuated for workers who receive severance pay as this delays entitlement to income support and, correspondingly, more intensive employment support. They can access services voluntarily for up to 6 months but support is only basic. In most cases, displaced workers are not eligible for substantial re-employment support until after 12 months of unemployment. Finally, jobactive employment service providers generally lack

expertise and incentives to support displaced workers. In sum, many displaced workers in Australia end up receiving only little support, if any, and often very late. This raises the risk of demotivation, exit from the labour force, a cycle of unstable jobs and repeated spells of unemployment.

As discussed above, Australia has a flexible labour market that facilitates finding a new job. The legislation governing hiring and firing is not strict (Figure 1.28) and Australian employers face relatively few restrictions on layoffs, although there is protection against unfair dismissals. This approach promotes higher labour mobility and results in most unemployed workers finding their way back to employment relatively quickly (OECD, 2016d). However, public policy to help displaced workers encountering difficulty in finding employment is less developed than in some other OECD countries (OECD 2017c and 2016d). Instances of mass localised layoffs in Australia (the closure of automotive industry plants, for example), have prompted substantial ad hoc assistance programmes for displaced workers. This approach has in some instances been successful, however, it risks being patchy with support going to high profile layoffs. The majority of displaced workers in Australia, from individual displacements or displacements from small businesses, are left to the general system that offers little support.

Figure 1.28. Protection of permanent workers is low in Australia

Employment protection legislation indicators for OECD countries, 2013



Note: The figure presents the contribution of employment protection for regular workers against individual dismissal and additional provisions for collective dismissal to the indicator of employment protection for regular workers against individual and collective dismissals (EPRC). The height of the bar represents the value of the EPRC indicator.
Source: OECD Employment Protection Database, 2013 update, http:dx.doi.org/10.1787/lfs-epl-data-en.

StatLink https://doi.org/10.1787/888933883871

Australia could benefit from a more comprehensive approach to mass layoffs that would cover all sectors of the economy, both permanent and casual workers and not limited to specific regions (OECD 2016d and 2017c). The cost of this approach could be limited by tailoring the intensity of the public response to the needs of the workers involved, depending also on the severity of the layoff, local labour market and economic conditions, and local institutional capacity.

A welcome move in this direction has been made with the introduction (in July 2018) of the federal government's temporary Stronger Transitions package. The scheme provides support to displaced workers in certain regions affected by structural change in order to assist their transition to new jobs. The package includes collaborative partnerships between the government and employers to help workers prior to displacement. It also provides immediate access to intensive employment support after displacement, as well as access to relocation assistance and help in exploring small business opportunities. More importantly, another initiative, Job Change (due to commence in July 2019), aims at making employment services immediately available for all retrenched workers (and their partners), before they become eligible for income support.

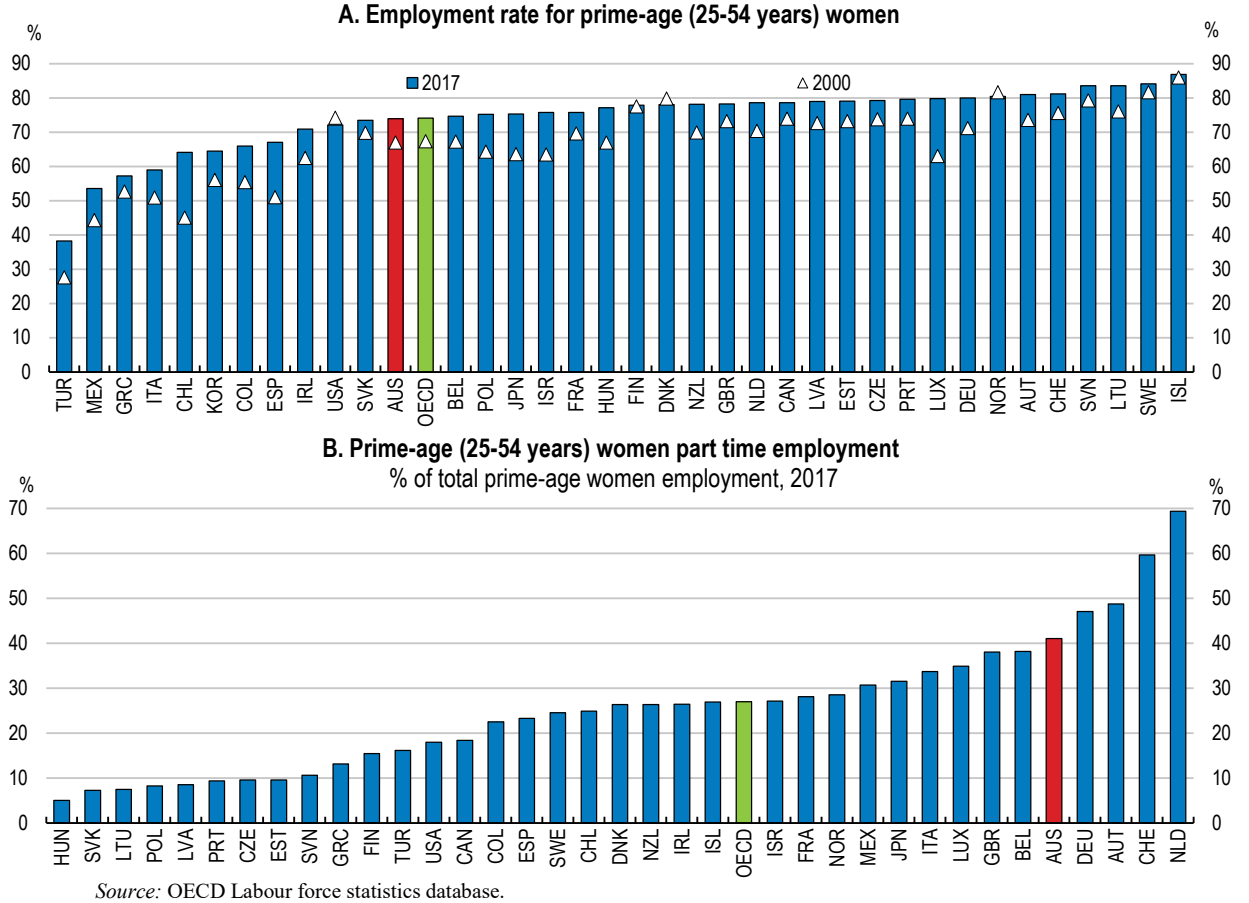
Modification to employer obligations in the case of collective dismissals could also help transition for displaced workers. Employers in Australia have only limited obligations towards workers they dismiss for economic reasons. Notice periods are relatively short in international comparison (OECD, 2016d) and in most cases the public authorities are notified after dismissals have already occurred. There is room to strengthen employer responsibilities towards displaced workers, including by introducing an obligation to keep training records to facilitate the recognition of skills obtained on the job. Early intervention in case of dismissal is now only possible when employers voluntarily notify the public authorities well in advance. Introducing and enforcing a longer notice period in case of collective dismissal, would make it easier for public authorities to provide information to workers about the services they can access before they are laid off. Counselling during the notice period can be quite effective, as trying to reach displaced workers after they have been displaced is much more difficult and costly. Additionally, the Collaborative Partnership on Mature Age Employment commenced in July 2018 and will help educate employers of the benefits of recognising the skills of older workers and retaining them.

Further reducing the gender gap in labour-force participation

Overall female labour-force participation in Australia has risen significantly in recent decades, reducing the gap with male participation. Nevertheless, the prime-age female employment rate in Australia ranks in the lower third of OECD countries and a high proportion of prime-age women work part-time (Figure 1.29). In Australia, employment rates of women with children are considerably lower than those of prime-aged women (aged 25-54 years) without a child (Figure 1.30). Furthermore, even when in employment, they work comparatively few hours. Among partnered working mothers (aged 25-45 years) 45% work part-time, and four-fifths of them cite family reasons as the main reason for doing so. The average usual weekly hours of partnered mothers working part-time are less than 20 hours (Figure 1.31), the second lowest number in the OECD (OECD, 2017c).

Moreover, the labour-force participation of lone parents, who account for over a tenth of Australian households, is particularly low. Australia’s lone-mother employment rate is the third-lowest in the OECD (Figure 1.32). Furthermore, lone parent households are at significantly higher risk of living in poverty, even when employed (Sila and Dugain, 2018b).

Figure 1.29. Female employment rate is low and many work part-time

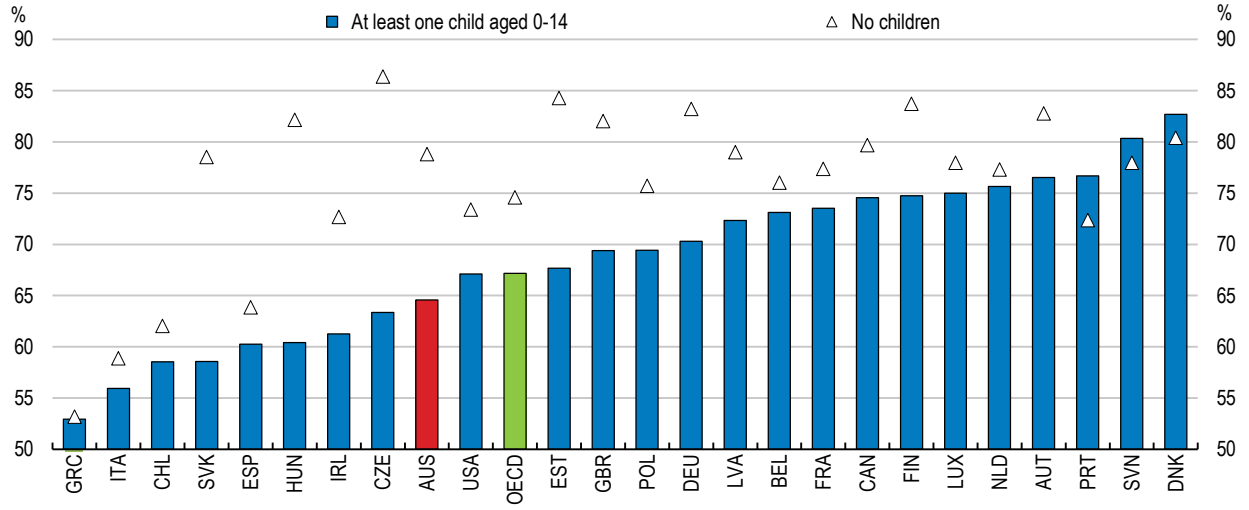


Source: OECD Labour force statistics database.

StatLink https://doi.org/10.1787/888933883890

Figure 1.30. Motherhood has a strong impact on labour market participation

Employment rates for women (25-54 years old) with no children and at least one child aged 0-14 years, 2014



Note: OECD is an unweighted average across the OECD countries in each panel. a) For Canada, children aged between 0-15 and 0-17 for the United States. b) Data for Denmark and Finland refer to 2012, and to 2013 for Chile, Germany and Turkey.

Source: OECD Family database www.oecd.org/els/family/database.htm

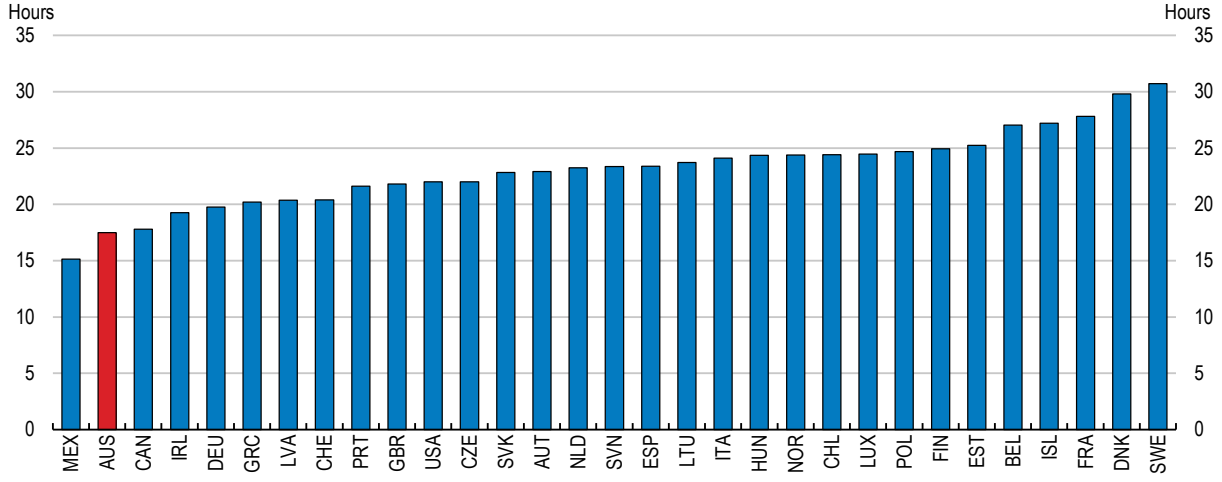
StatLink https://doi.org/10.1787/888933883909

Female labour-force participation varies across countries because of differences in individual characteristics but also due to institutional frameworks and policies in a range of policy areas. These include public childcare support, including cash benefits (e.g. childcare subsidies), public in-kind services (e.g. public provision of childcare and out-of-school-hours care) and fiscal support (e.g. tax advantages for paid childcare services). In Australia, public spending on family benefits is concentrated on cash payments, notably via means-tested support for families in meeting the costs of children and in fee subsidies for childcare.

As pointed out above, high marginal tax rates generated by benefit tapering are an inherent challenge in policy design. To the extent that women are the lone earner or "second earner" in a household, high marginal tax rates likely play a role in lower female participation. Participation incentives in the tax and transfer system should ensure that there are clear benefits of work particularly for low income earners and those with primary care responsibilities. Work on tax and transfer reform in recent years suggests that there is scope for improving participation incentives by streamlining means testing across the income support and family payments systems. As the 2014 *Survey* points out, these tapering issues reinforce the case for further simplification of the tax-benefit system.

Figure 1.31. Partnered mothers work very short hours

Average usual weekly hours of partnered mothers working part-time, aged 25 to 45, with at least one child, 2012



Note: Usual working hours of the employed for European countries, Australia, Canada and the United States, and actual hours worked for Chile and Mexico. Data refer to total hours worked in all jobs, except for Chile and Canada where only hours worked in the main job are considered.
a) For European countries and Chile, the distinction between part-time and full-time employment is self-defined – i.e. based on respondents' own perceptions of whether they are in part-time or full-time employment. Part-time status based on weekly working hours below 30 for Australia, Canada and Mexico and less than 35 hours for United States.
b) Data refer to 2011 for Canada, to 2013 for Chile and to 2014 for Australia, Mexico and the United States.
Source: OECD Connecting People with Jobs: Key Issues for Raising Labour Market Participation in Australia.

StatLink https://doi.org/10.1787/888933883928

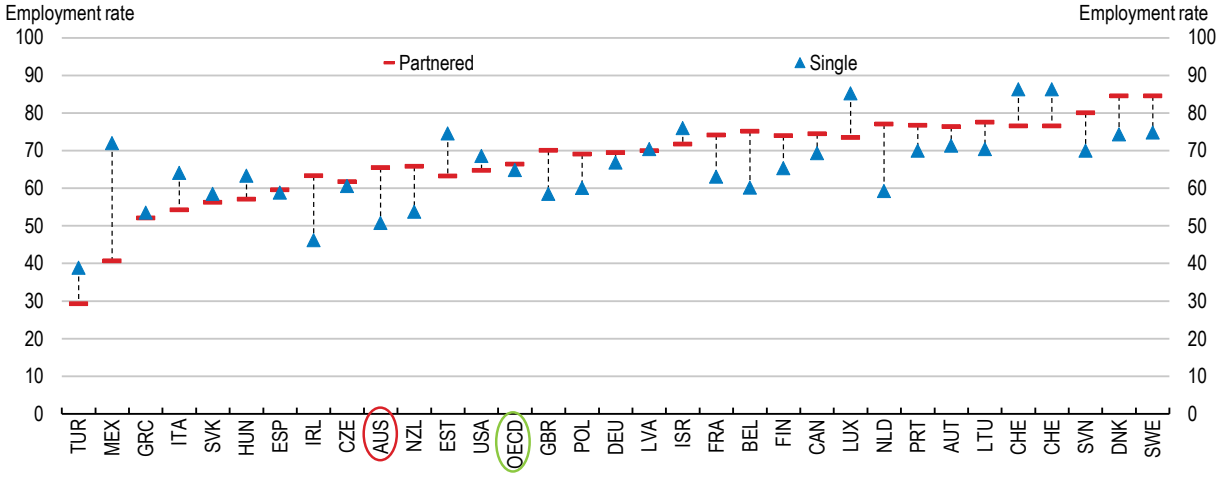
Recent reforms to childcare support, in part, reflect an effort to address the marginal-tax issue. From July 2018 onwards the single means-tested Child Care Subsidy is replacing previous two measures (the Child Care Benefit and Child Care Rebate). This move follows recommendations of the Productivity Commission (2014a), and aims to increase and better

target support. The Productivity Commission (2014a) estimated that the reform's impact on workforce participation would probably only be small. This underscores the need for ongoing attention to minimising negative impacts from benefit tapering.

The Child Care Subsidy covers up to 85% of families' childcare fees, depending on income, up to an hourly cap and with an upper annual cap for families earning more than AUD 187 000. Eligibility criteria include that the family satisfies an activity test, with the hours of subsidised care depending on the hours spent in work, training, study or other recognised activities such as volunteering. Recognising that children from non-working families can be more vulnerable and can benefit more from ECEC, low-income families who do not meet the activity test will be subsidised for up to 24 hours of childcare each fortnight. In addition, the Child Care Safety Net programme provides targeted support to disadvantaged or vulnerable families who encounter barriers to accessing regular childcare. This is important as families in disadvantaged socio-economic areas generally have fewer and lower quality early childhood education and care services available in their area (Pascoe and Brennan, 2017).

Figure 1.32. Employment rates of lone mothers in Australia are among the lowest in the OECD

Employment rates (%) for women (15-64 year olds) with at least one child aged 0-14, by partnership status



Source: OECD Family database www.oecd.org/els/family/database.htm.

StatLink https://doi.org/10.1787/888933883947

Lone parents - or the principal carer in couple families – where the youngest child is under six years old are subject to much lighter mutual obligations to be eligible for income support, most notably they are not required to participate in the employment services system. They can take-up support services from the contracted employment service providers as "volunteers", but the services they receive are limited in comparison to jobseekers with older children that are required to participate. Those volunteering receive time-limited services of up to six months helping them understand and navigate the labour market and write a CV, or referring them to suitable vacancies. Provider fees for such volunteers are rather low, as they only attract fees of work-ready jobseekers. Once the youngest child turns six, mutual obligation requirements kick in (unless they are granted an exemption) and amount to about half of the hours required for other jobseekers on income support. However, they may not be required to attend any activity outside of their

home during the school holidays, where appropriate care and supervision of their children is not available. Once the youngest child turns eight, lone parents are no longer eligible for the Parenting Payment but instead may be eligible for other payments, generally the Newstart Allowance, which pays out about 20% less than the Parenting Payment.

Following the Welfare to Work reforms of 2006, lone-mother employment rates continued rising but then stagnated in the wake of the global financial crisis. In contrast, employment rates of partnered mothers continued to grow over the same period. The analysis in OECD (2017c) shows that many lone parents out of the labour market face a range of employment barriers including low education or skills, long-standing physical or mental health conditions and a lack of work experience. This suggests that additional measures are needed to achieve a lasting increase in lone parent labour market participation.

A recently introduced programme (ParentsNext), initially run as a pilot in ten local government areas and expanded to all non-remote areas as of July 2018, aims to address some of these issues through providing services that assist parents to plan and prepare for employment. Parents with children under age six and who had no paid employment in the last six months can participate on a voluntary basis, but for some recipients of the Parenting Payment participation is mandatory. ParentsNext is delivered through contracted providers, some of which also deliver jobactive services. Participating parents are required to attend six-monthly appointments with their provider, sign a Participation Plan and engage in activities that help them prepare for employment (education and training measures, improving skills, information on and help with childcare assistance).

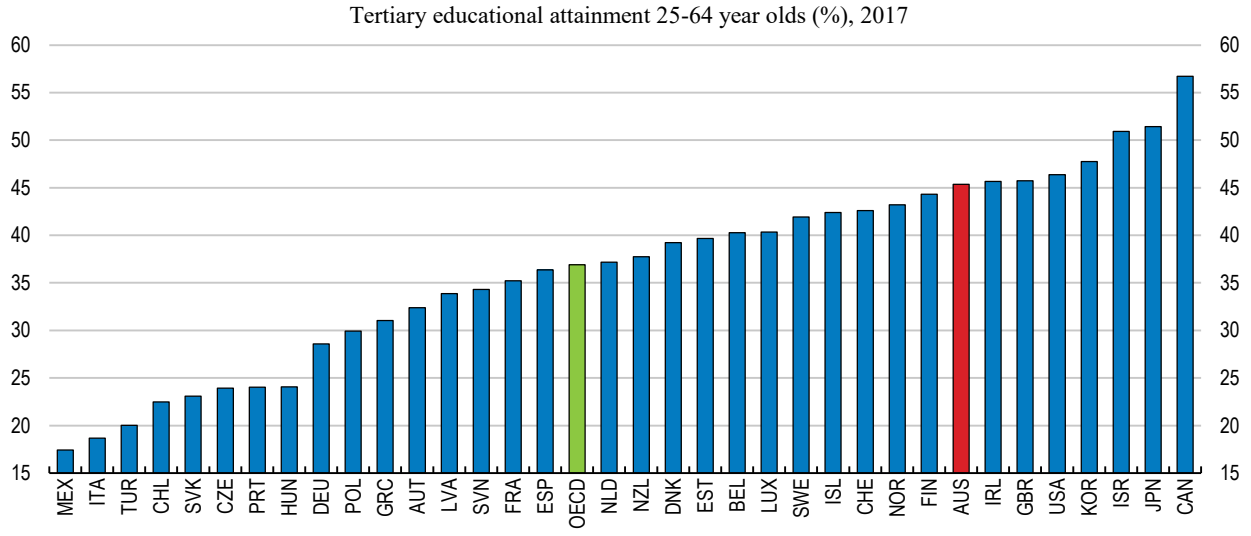
A more comprehensive support to lone parents would require additional counselling, career guidance and (vocational) training as well as support to find solutions to reconcile work and childcare. As such support usually goes beyond the scope of employment services, Germany, for instance, has been strengthening support networks for lone parents (OECD, 2017c). Furthermore, in comparison to other OECD countries, Australia's work test for lone parents remains limited in scope. Many countries apply a full-time work test when the youngest child turns three, or even earlier, while at the same time out-of-pocket childcare costs tend to be relatively low. Changes to participation requirements in Australia could therefore include introducing a work test early on and even introducing full-time work requirements for lone (and partnered principal carer) parents with older children.

Raising excellence and equity in education and skills

As discussed above, technological change, globalisation and demographic change are shifting the demand for skills and type of jobs that workers do. In the future, workers may have to change employers and jobs multiple times over their life-time, and renew their skills. Those that struggle with such adjustment risk being left behind, raising the prospect of increased inequality and poverty. Education and training policy can play a key role in limiting this risk, principally by giving greater emphasis on general and adaptable skills so that individuals can more easily transition between different types of work. With this in mind, policy makers should ensure that education, including early education, equips individuals with solid literacy, numeracy, problem-solving abilities but also basic ICT skills and soft skills. As many of these latter skills are acquired outside school and through work, accessibility of work-based learning opportunities will become increasingly important. To ensure that everyone succeeds, particular attention should be paid also to the most disadvantaged groups who often lag behind in skill acquisition.

Australia has a comparatively educated and skilled population. Tertiary-education attainment among the working-age population is one of the highest among OECD countries (Figure 1.33). About half of 20-year-olds are enrolled in tertiary education. Programme for International Student Assessment (PISA) results - that report competencies of 15-year old across countries - point to well above average results in reading, numeracy and science proficiency (Figure 1.34). According to the PIAAC Survey of adult skills, adults in Australia are also highly competent in international comparison. Moreover, adults across all age groups have strong computer and ICT skills (Figure 1.35) - which bodes well for further digitalisation.

Figure 1.33. Australia has highly educated population



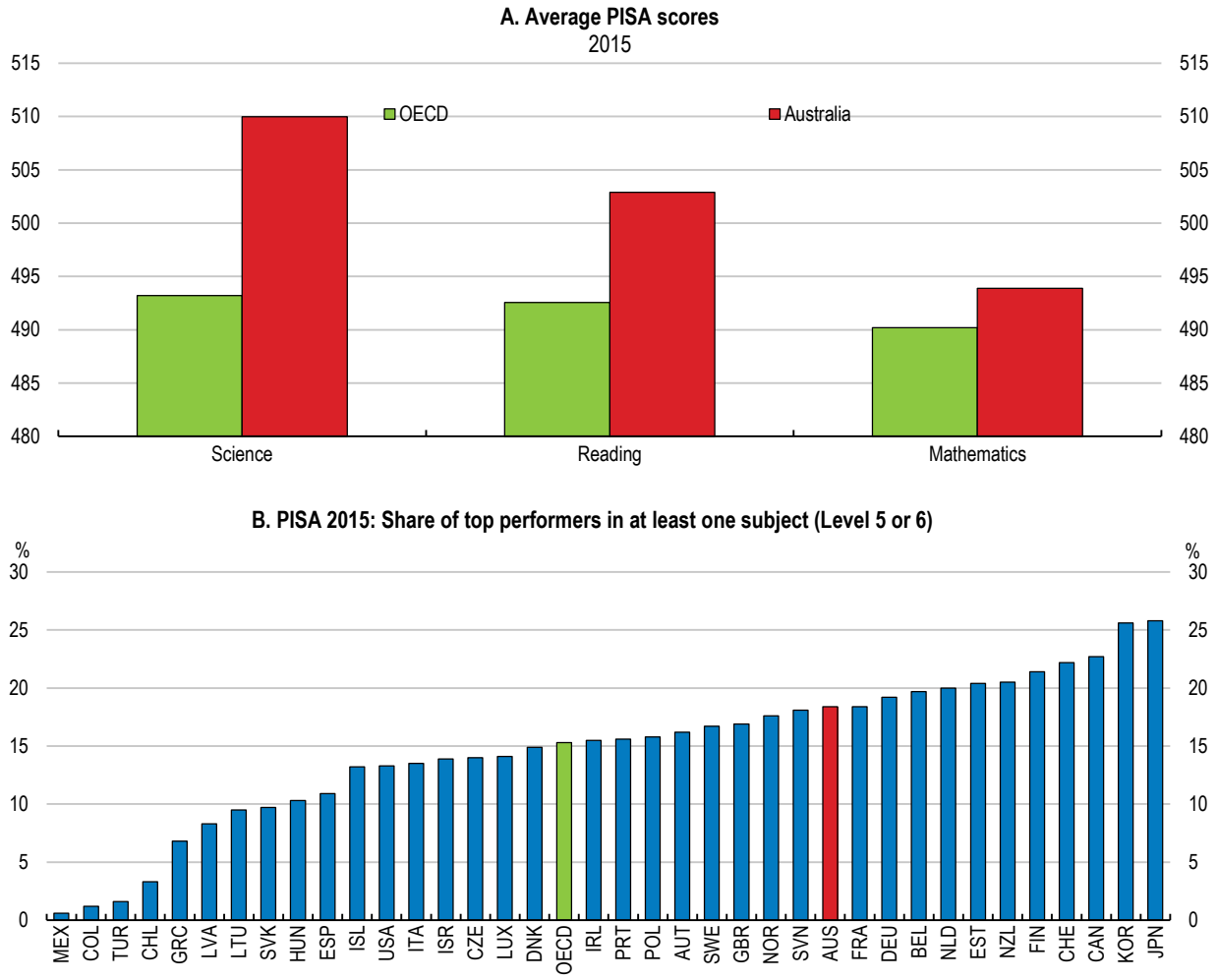
Source: OECD Education at glance database.

StatLink https://doi.org/10.1787/888933883966

Also good news is that Australia has a high percentage of adults participating in some form of education and training (Figure 1.36). Adult learning plays an important role in acquiring new knowledge and skills, in particular the increasingly important information processing skills, and helps adapting to change. In addition, according to PIACC data, jobs and working environments in Australia give plenty of opportunities for learning, including for those with low skills (Figure 1.37). The workplace is therefore an important and strong element of the skills system in Australia (OECD, 2017e).

Nevertheless, Australia's education system faces a number of challenges. Performance on a number of fronts has declined or remained unchanged despite rising expenditure on education (Figure 1.38). The performance of 15-year old students in PISA has fallen over the past 15 years (Figure 1.39), both in absolute scores achieved and in international rankings. Moreover, results from other surveys - such as Australia's National Assessment Program - Literacy and Numeracy (NAPLAN) that assesses skills of students at different ages, and Trends in International Mathematics and Science Study (TIMSS) - show little progress (Productivity Commission, 2017b). These trends are particularly worrying in the context of changing skill demands in the future as it suggests weakening average performance in competencies that are core to more flexible skill sets.

Figure 1.34. Australian 15-year olds are highly proficient

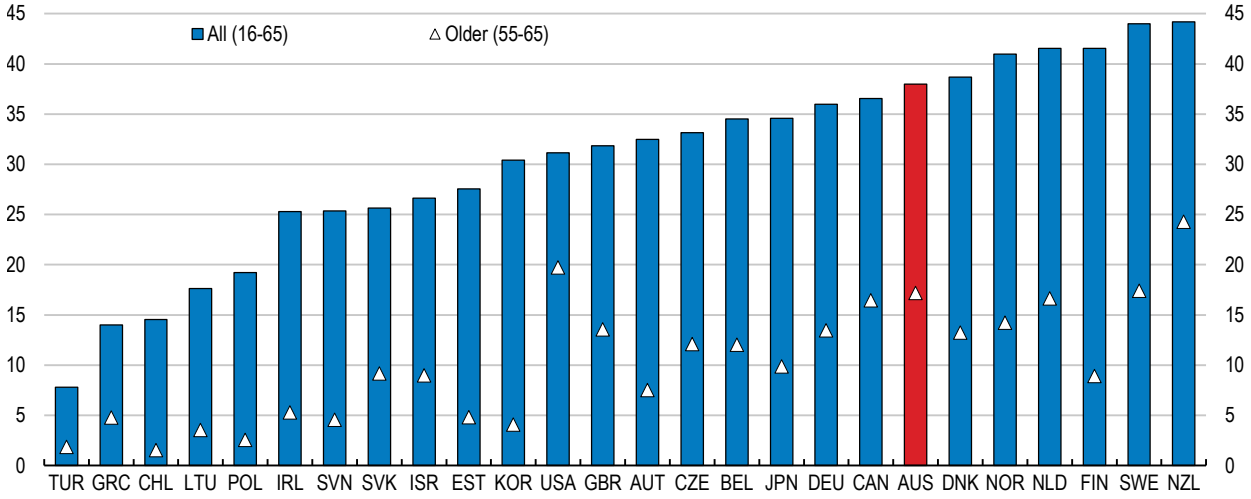


Source: OECD Program for International Student Assessment (PISA) 2015 Reading, Mathematics and Science Assessments.

StatLink https://doi.org/10.1787/888933883985

Figure 1.35. Adults in Australia have strong computer and ICT skills

Share of adults scoring at Level 2 or 3 in problem solving in technology-rich environments (PSTRE), by age group, %



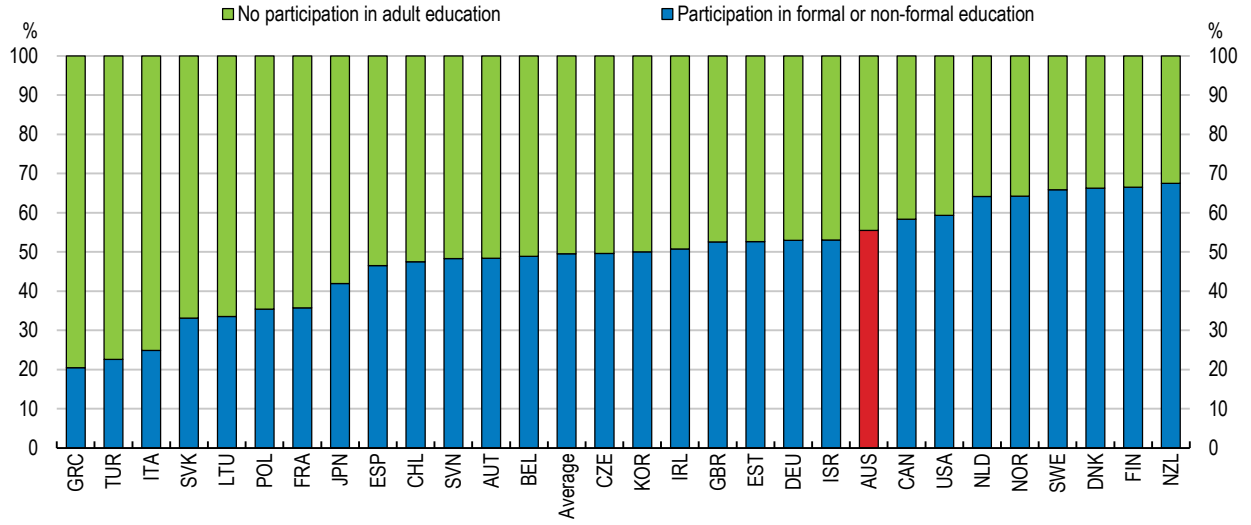
Note: Data for the United Kingdom correspond to England and Northern Ireland. Data for Belgium correspond to the Flemish Community.
Source: OECD calculations based on the Survey of Adult Skills (PIAAC) (2012, 2015).

StatLink https://doi.org/10.1787/888933884004

Figure 1.36. The participation of adults in education and training is high

Adults' participation in formal and/or non-formal education, by type (2012 or 2015)

Survey of Adult Skills (PIAAC), 25-64 year-olds

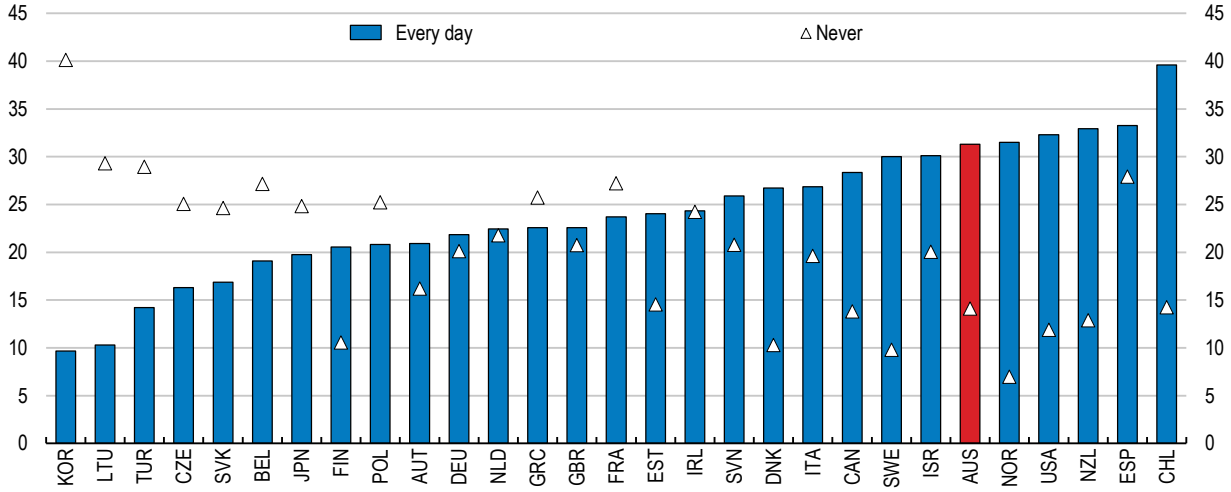


Source: Education at a glance, Table C6.1a. See Source section for more information and Annex 3 for notes (www.oecd.org/education/education-at-a-glance-19991487.htm).

StatLink https://doi.org/10.1787/888933884023

Figure 1.37. The workplace is a strong element of the skills system

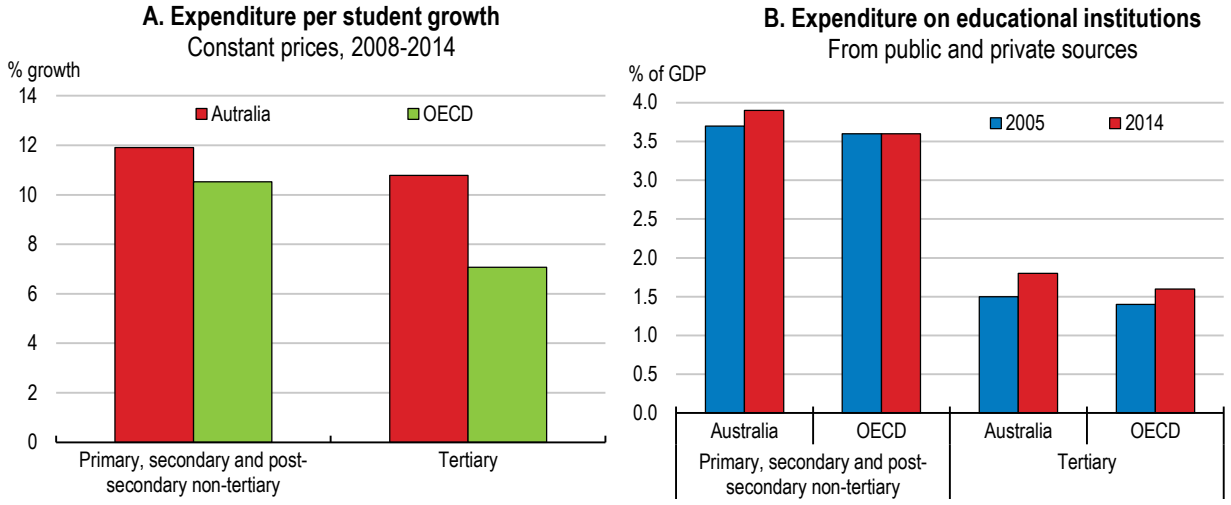
How often low-skilled workers learn work related skills from co-workers and supervisors, %



Note: The white triangles stand for the % of low-skilled workers who report to never learn from others. Bars show the % of low-skilled workers reporting learning every day from colleagues.
Source: Building Skills for All in Australia. Policy Insights from the Survey of Adult Skills.

StatLink https://doi.org/10.1787/888933884042

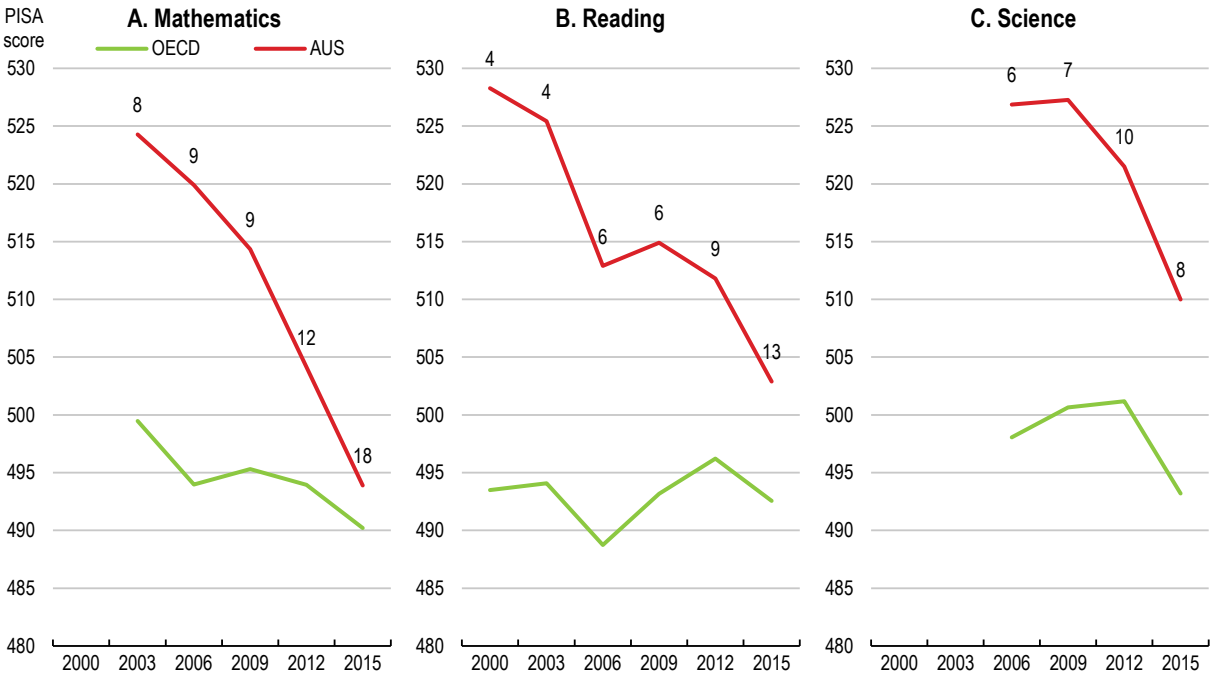
Figure 1.38. Expenditure on education has increased over the last decade



Source: OECD Education at a glance (tables B1.3 and B2.2).

StatLink https://doi.org/10.1787/888933884061

Figure 1.39. Proficiency of Australian 15-year olds has declined over time



Note: The numbers beside the lines in the charts indicate the ranking of Australia, 1 being the country with the highest PISA score.
Source: OECD Program for International Student Assessment (PISA), 2000, 2003, 2006, 2009, 2012, and 2015 Reading, Mathematics and Science Assessments.

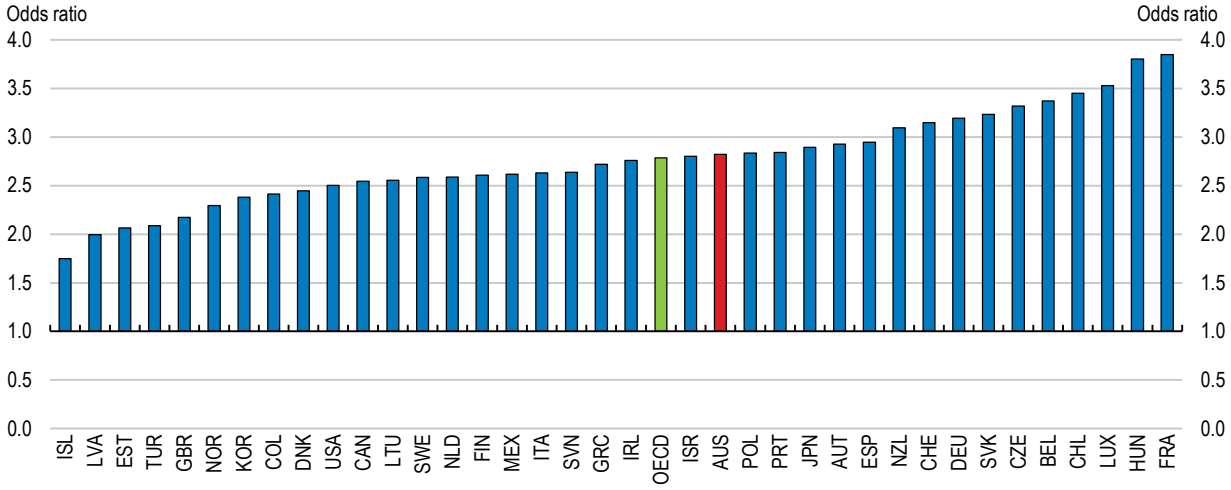
StatLink https://doi.org/10.1787/888933884080

Australia could further close gaps in performance between high and low performing individuals. According to PISA results, disadvantaged students have close to three times higher probability of low performance in science proficiency than other students (Figure 1.40), higher than the OECD average. Likewise, according to PIAAC results, there is a large gap between the most proficient and least proficient adults in numeracy. While generally Australian students and adults score high on various tests, numeracy proficiency of adults is quite mediocre (OECD, 2017e). These gaps suggest workers may be particularly vulnerable in sectors where further advances in technology are raising the bar on mathematical and scientific competency even in low- to mid-range jobs.

Linked to the gaps in performance, there is evidence that equity in education, while a policy priority, has not improved and certain indicators point to worsening. From 2006 to 2015, the proportion of high achievers among disadvantaged students remained roughly constant, and the slope of the socioeconomic gradient (the impact that a socio-economic status of a student has on her science proficiency score) steepened (OECD, 2016f). Moreover, the divide between disadvantaged and non-disadvantaged students grows as they progress through school. Goss et al. (2016) estimate that the gap between students of parents with low education and students whose parents have a degree increases from being the equivalent of ten months behind in learning in Year 3 to being two and a half years behind by Year 9.

Figure 1.40. Disadvantaged students have much higher probability of low performance

Likelihood of low performance among disadvantaged students, relative to non-disadvantaged students



Note: A socio-economically disadvantaged student is a student in the bottom quarter of the distribution of the PISA index of economic, social and cultural status (ESCS) within his or her each country/economy.
Source: PISA 2015 Results (Volume I): Excellence and Equity in Education

StatLink https://doi.org/10.1787/888933884099

Rapid expansion in tertiary education also represents a challenge. More people studying is broadly welcome but the growth in numbers and costs requires adjustments to the system of student support that was developed when student numbers were much smaller. Completion rates at universities have been slightly trending downwards since 2008, and as 40% more people go to university now than in 2008, the number of early leavers has grown substantially (Norton et al, 2018). With places at universities being increasingly available also to students with lower performance in secondary school - as measured by Australian Tertiary Admission Rank (ATAR) - these numbers may grow further, entailing costs to students and governments.

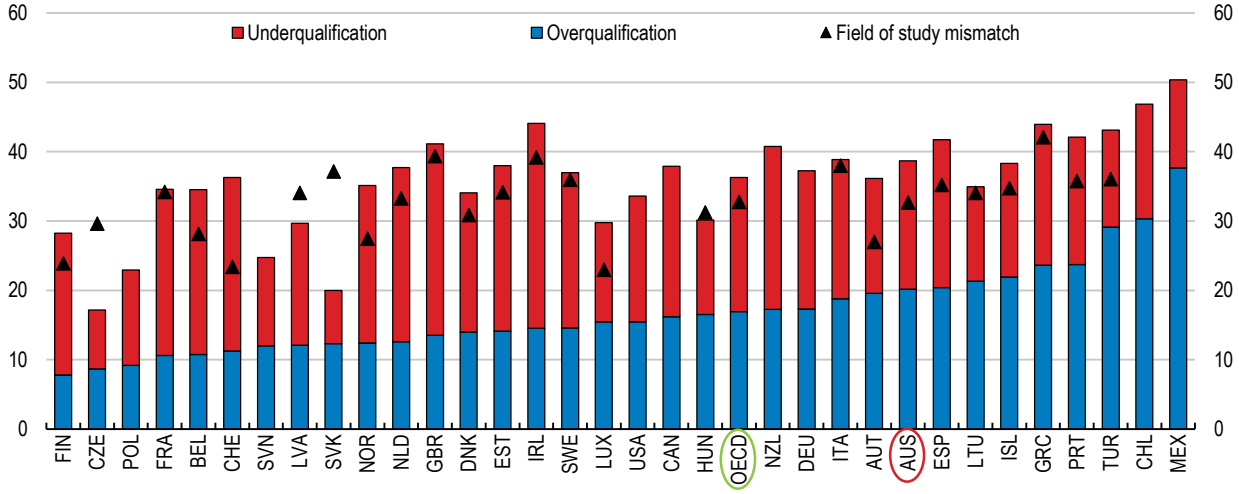
There are also signs that the labour market outcomes of recent tertiary graduates - both vocational education and training (VET) and higher education - have weakened. Based on the Department of Education and Training's (DET) Graduate Outcomes Survey and Graduate Careers Australia Survey, the share of bachelor graduates in full-time work four months after graduation declined from 85% in 2008 to 72% in 2017. Over the same period, government-funded VET graduates saw their overall employment rates (full-time and part-time) decline from 82% to 74%. Similarly, the underemployment rate among graduates grew from 8.9% in 2008 to 19.7% in 2017 and is close to twice as high as for the economy overall, indicating that many bachelor graduates who work part-time, do not do so necessarily by choice (QILT, 2018; Productivity Commission, 2017b). This said, weakening employment outcomes can be partly explained by a less buoyant labour market in 2017 as compared to 2008. For example, employment outcomes of graduates have started improving since 2014.

Australia exhibits a significant skill mismatch. OECD (2018b) finds that over-qualification in Australia is above the OECD average, although it has to be noted that the ranking might be affected by the state of the economic cycle of each economy (Figure 1.41). Moreover, VET graduates tend to be better matched to their jobs than graduates from higher education.

While university graduates overall continue to record better labour market outcomes than VET graduates and those with no tertiary qualifications, Norton et al. (2018) argue that an increasing share of graduates are taking jobs that do not require a degree, and which often pay less than skilled trades occupations. The salary of mismatched workers tends to be lower than salaries of equally qualified but well-matched workers, and mismatch negatively impacts job satisfaction (OECD, 2018b). Norton et al. (2018) further argue that many part-time university students and students with low ATARs who face a high risk of non-completion in university could have been more successful if having enrolled in VET courses instead.

Figure 1.41. Over-qualification is above the OECD average

Incidence of qualification mismatch and field-of-study mismatch, % of workers who are mismatched



Note: Most recent year available for each country. Data for Australia are for 2016. Field-of-study mismatch is calculated for all countries at the 2-digit ISCO level. See OECD (2017), *Getting Skills Right: Skills for Jobs Indicators* for details on methodology.
Source: Skills for Jobs database 2017. Data for Australia come from the Australian Bureau of Statistics and are based on the two-digit ANZCO classification.

StatLink https://doi.org/10.1787/888933884118

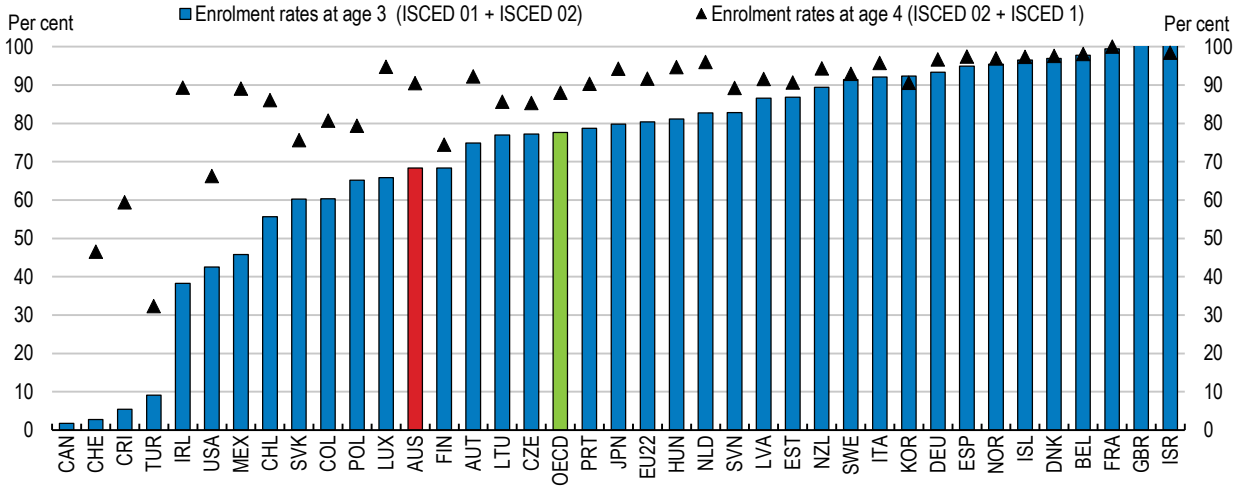
Boosting access to early education further

In addition to the role early childhood education and care services play in facilitating labour market participation by parents, there is increasing awareness of their role in children's well-being and cognitive and social-emotional development, that also form a foundation for lifelong learning (OECD 2017f, 2017g, 2018c). The number of years spent in early childhood education and care is a strong predictor of the level of performance reached at later stages, both in and out of school. In the Australian context, it has been shown that early childhood education improves school readiness and lifts NAPLAN results and PISA scores (Pascoe and Brennan, 2017; Productivity Commission, 2014a). High quality early childhood education raises the likelihood of completing Year 12 and reduces the likelihood of repeating grades. Early education can also be positive for equity outcomes. Disadvantaged students who receive support to enter early education are shown to more likely break the intergenerational cycle of disadvantage (OECD, 2018c; Pascoe and Brennan, 2017).

Enrolment rates of Australian three-year olds in early childhood education are below the OECD average (Figure 1.42). Conversely, those of four-year-olds are slightly above the OECD average. Enrolments of four-year-olds have in fact surged recently, following reform that aimed at universal access; between 2005 and 2015 enrolment rate of four-year-olds rose by over 30 percentage points (OECD 2017f). In this section we focus on the education aspect of children from age 3 onwards, while the activation section above focuses more on the childcare aspect and parent labour participation.

State and territory governments are responsible for planning, regulating and delivering early childhood education and care, and provide part of the funding. It is however the federal government that provides bulk of the funding (around 80%), mostly as Child Care Benefit and Child Care Rebate (from July 2018 onwards a single means-tested Child Care Subsidy) to eligible families that use approved childcare services (Productivity Commission, 2018b).

Figure 1.42. Enrolment rates of Australian children in early childhood education



Note: Early childhood educational development programmes = ISCED 01, pre-primary education = ISCED 02, primary education = ISCED 1.
Source: OECD Education at a glance database.

StatLink https://doi.org/10.1787/888933884137

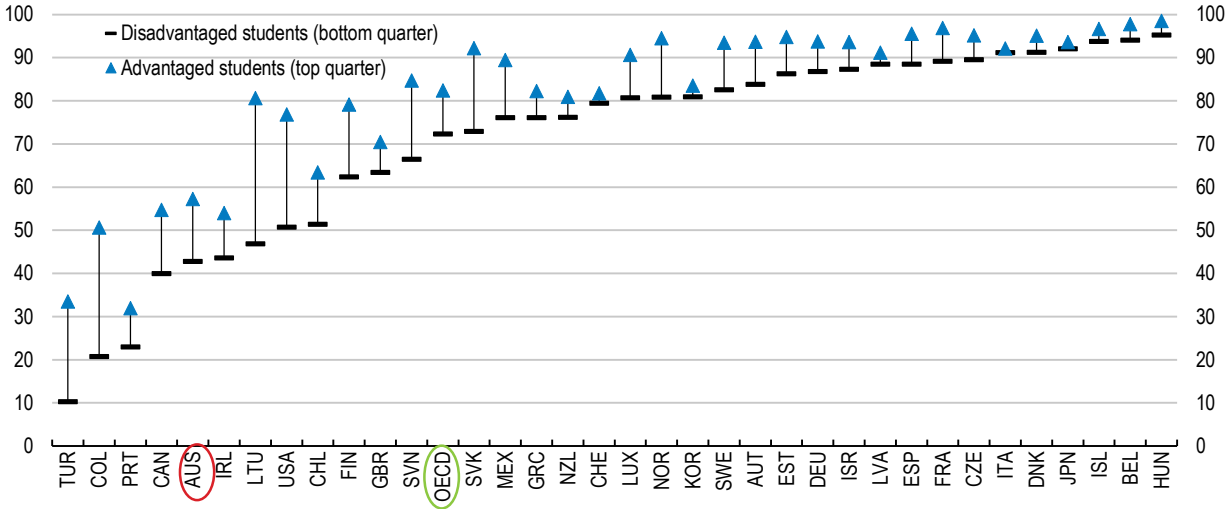
In 2009, the National Early Childhood Development Strategy, via the Universal Access programme significantly increased federal funding to states and territories to support early childhood programmes for all children in the year before school (i.e. four-year olds). The programme operates through a series of National Partnership Agreements, and provides funding that is in addition to other family support and that goes toward 600 hours of preschool education per year (i.e. about 15 hours per week), delivered by qualified early childhood teachers. The 2009 reform also brought the National Quality Framework that aims to deliver an integrated and unified national quality and regulatory system for early childhood education and care, replacing separate state and territory licensing (Pascoe and Brennan, 2017).

Given the importance of early education these reforms are welcome. In particular, as universal access is not a guarantee for high-quality early childhood education (OECD, 2017g), efforts to ensure quality via the National Quality Framework are commendable. Australian governments should ensure continued adequate resourcing of these initiatives.

Various barriers can prevent vulnerable and disadvantaged children - the ones that can benefit the most - from attending early childhood education. Australia has quite a big gap in enrolment between disadvantaged and other children (Figure 1.43). Early education policy should therefore be designed to facilitate access. For disadvantaged children this could entail a better targeted subsidy, a more intensive service, provision of transportation, or programs to improve home learning environment. However, in many countries greater access to childcare has resulted in many disadvantaged children ending up in low quality childcare, exacerbating disadvantage (OECD, 2018c). Delivering education to disadvantaged children can be a challenge. In order to ensure quality, skilled and stable workforce and additional resources may be needed.

Figure 1.43. Enrolment rates in early childhood education of disadvantaged students are much lower

Percentage of 15-year-old students who attended early childhood education (ISCED 0) for two years and more, by socio-economic background (PISA 2015)



Source: OECD (2018), Engaging Young Children: Lessons from Research about Quality in Early Childhood Education and Care, Starting Strong, OECD Publishing, Paris, https://doi.org/10.1787/9789264085145-en.

StatLink https://doi.org/10.1787/888933884156

Raising excellence and equity in schools

Primary and secondary education is where students, at least in principle, acquire the core competencies, such as basic reading, mathematics and science that are important to skill sets under technological change and globalisation. As seen above, the Australian schooling system provides good core skills to most students, but faces some major challenges. Students' performance in reading, numeracy and science proficiency has been declining over recent years, notably there is room to raise outcomes among low performers.

Implementation of a welcome major funding reform continues that aims to tilt resourcing towards schools with disadvantaged students. Following the "Gonski 1.0" review (Gonski et al., 2011), the government - under the Quality Schools package - will be gradually increasing the total funding and altering allocation formulae for federal-government grants to schools, notably with the inclusion of more socio-economic variables. Funding will be based on the Schooling Resource Standard (SRS), which comprises of a base funding amount for every student plus six additional loadings that provide extra funding for

disadvantage (loadings for disability, low English proficiency, Aboriginal and Torres Strait Islanders, socio-educational disadvantage, school location and school size).

Transition to the new system is gradual. Eventually, the federal government will contribute a consistent share of the SRS for each type of school by 2027 and its share of government–school funding will increase from an average of 17% of the SRS in 2017 to 20% in 2027 (states and territories are prime funders of these schools), and from an average of 76.1% of the SRS in 2017 to 80% in 2027 for non-government schools (where Commonwealth is the main public funder). Conditional on receiving the federal-government's increased contribution, state and territory governments will be required to deliver their prescribed share of public funding.

Further reform is planned that aims to lever quality improvement in education. Reform will be broadly based on proposals detailed in the Review to Achieve Educational Excellence in Australian Schools ("Gonski 2.0", Gonski et al., 2018). The review provides numerous recommendations with the aim to focus on delivering at least one year's growth in terms of learning for every student every year – therefore focusing on learning progression, rather than on learning specific to a certain grade, year, and age.

Focus on individual learning progression can help ensure that high achievers learn to their full potential, while helping prevent disadvantaged students from lagging behind (Gonski et al., 2018). But a successful learning-progression approach requires thorough reform of the way students are taught and assessed, including more personalised learning and teaching, based on each child's learning needs. In particular, disadvantaged and vulnerable students may require greater and specialised support (Goss et al., 2016).

Furthermore, to sustain continuous improvement, schools and teachers need access to valid and reliable evidence on what works. In this context, Australia could benefit from more and better education research to develop policy and practice. While it monitors outcomes and benchmarks performance reasonably well, data and evidence could be better used to identify and apply the most effective programmes, policies and education practices (Productivity Commission, 2016). Australia should establish an independent institution to coordinate, source and generate the development of a national research and evidence base to support more evidence-based decision making in school education (Gonski et al, 2018; Sonnemann and Goss, 2018). This institution would complement, rather than replace, the existing network of state government research bodies.

Stabilising VET

Vocational educational and training (VET) is critical for providing practical skills, and the sector needs to keep pace with the evolving skill demand under technological change and globalisation. VET is also important for providing skills to students who have not performed well in previous schooling and who are at higher risk of being left behind by change.

Australia's VET system provides training for entry level jobs through to highly technical occupations. It is a complex system that on the supply side comprises a wide variety of providers and courses, the latter ranging from single-subject units of competency to multi-year qualifications. On the demand side is a diverse group of students from widely ranging backgrounds, ages, educational expectations and needs.

Most of government funding to VET is provided by states and territories, who also oversee VET delivery. The Australian Skills Quality Authority (ASQA) accredits courses and regulates registered training organisations (RTOs) to ensure that quality standards are met.

Industry liaison (i.e. liaison with employers) is provided via the Australian Industry and Skills Committee (AISC). Australian governments channel financial support to individuals (as incentives, subsidies or government loans), employers (subsidies and incentive payments) and directly to providers for certain VET programmes (Productivity Commission, 2018c).

In recent years the VET sector has suffered large reputational damage following a major reform. The National Partnership Agreement on Skills Reform from 2012 opened the sector to a wider set of (private) providers, partly by expanding the VET sector's student loan system - VET FEE-HELP, which provides income contingent student loans, paid directly to the RTOs for VET qualifications at the level of diploma or above. The reform widened the range of eligible courses and institutions, with the aim of increasing accessibility, quality and responsiveness to the needs of students, employers and industry (Acil Allen Consulting, 2015). One goal was to provide competition for public providers – the Technical and Further Education (TAFE) institutes.

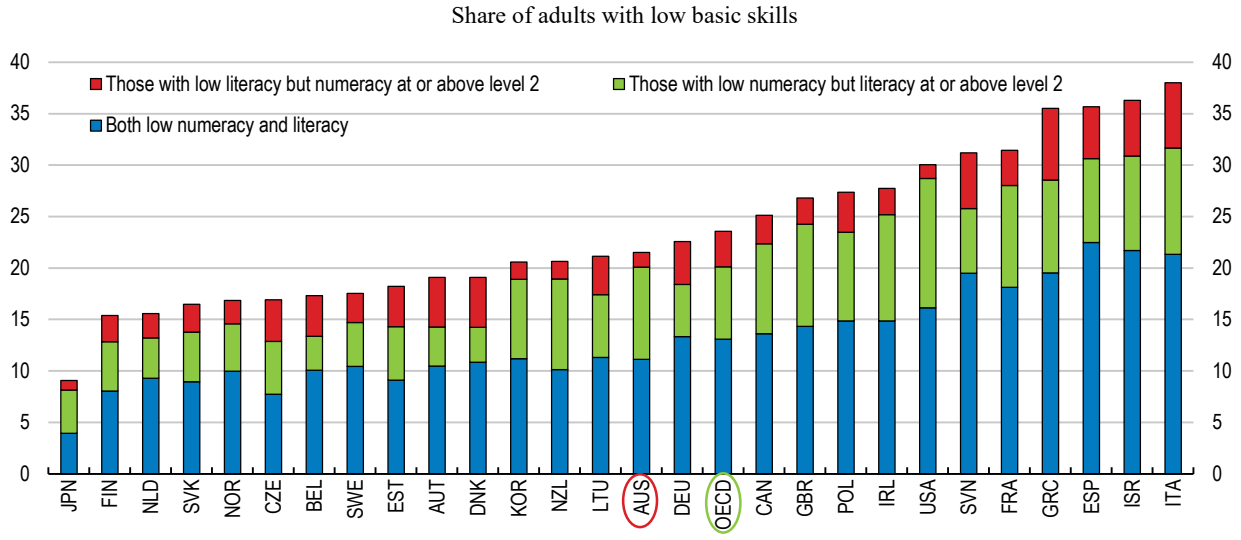
However, the reform backfired. While accessibility increased and some successful steps were taken to improve TAFEs operations (Acil Allen Consulting, 2015), the sector became characterised by rapidly rising student debt, high student non-completion rates, poor labour market outcomes for certain students, and fraudulent behaviour on the part of some training providers (Productivity Commission, 2017b). Between 2009 and 2015, the number of students accessing VET FEE-HELP jumped from 5 262 to 272 000 and the value of outstanding debt to students went from AUD 26 million to AUD 2.9 billion (Australian Government, 2017). Contrary to the objectives, the reform and consequent increase in enrolments was largely supply driven, not demand led and reflecting students and industry needs. In addition, there was an apparent lack of proper contract management and regulatory oversight (Acil Allen Consulting, 2015).

The federal government has taken steps to restore confidence and stability to the VET sector. In 2017 the VET Student Loans program replaced the VET FEE-HELP scheme, and includes stronger controls regarding who can offer courses funded by loans, stronger control on prescribing which courses are eligible, and loan caps per course and per student. The latter partly aims to prevent excessive pricing by providers as experienced under the VET FEE-HELP. The scheme endeavours to limit eligibility to courses that have high national priority, meet industry needs, contribute to addressing skills shortages and align with strong employment outcomes (Australian Government, 2017).

The authorities should continue to ensure regular review and monitoring of the VET Student Loans scheme, with particular attention to ensuring that courses eligible for loans (and subsidies) are relevant and of high quality. Furthermore, the regulatory framework and the functioning of the VET regulator ASQA could be strengthened following recommendations from the recent National Vocational Education and Training Regulator Act 2011 review (Braithwaite, 2018).

One risk of Australia's VET system is that training packages put too much focus on job-specific skills, and overlook the important role of transversal or foundation skills, like literacy, numeracy and digital skills. This may partly stem from industry's (otherwise welcome) prominent say in developing VET training. PIAAC data show that numeracy proficiency among adults in Australia represents a challenge (Figure 1.44), in particular among women. In light of this specific-skills bias, the OECD recommends ensuring VET providers are capable of providing basic skills (Building skills for all in Australia; OECD, 2017e). This capacity should be strengthened in particular for VET providers catering for students with weak school qualifications.

Figure 1.44. There is room to reduce the share of adults with low basic skills



Source: Building Skills for All in Australia. Policy Insights from the Survey of Adult Skills (PIAAC 2012 and 2015).

StatLink https://doi.org/10.1787/888933884175

Challenges in rapidly expanding higher education

As in many countries, participation in tertiary education in Australia has expanded significantly in recent decades, reflecting not only a supply response to increasing skill requirements in the labour market, but also as a consumption-good experience as living standards rise. Demand for higher education has also been boosted in recent years by a switch to demand-driven federal funding support in 2012.

The demand-driven funding has been a success on many fronts. It has brought greater flexibility and responsiveness to student and labour market needs, as illustrated by a large shift towards health-care related courses in light of the increasing number of jobs in this area due to population aging. Furthermore, participation rose quickly among students from disadvantaged background (Norton, 2018).

But rapid expansion has also brought challenges. Large increase in higher education enrolments has contributed to falling completion rates, and challenges for funding and government loan support for students (see above). Employment outcomes for graduates have also weakened over the past decade, affected by the economic cycle. In an effort to contain costs, in 2018 the government froze bachelor degree tuition subsidy funding for two years and committed to link it to population growth and yet-to-be-determined additional criteria from 2020 onwards (Norton and Savage, 2018).

The Higher Education Loan Program (HELP) scheme might need adjustment, or the cost to taxpayers may rise excessively in the future. Outstanding HELP debt (for higher education and VET studies combined) increased from approximately AUD 12.4 billion in 2006 to over AUD 47.8 billion in 2016, and some projections indicate that the figure could be nearly AUD 200 billion by 2025 (Productivity Commission, 2017b). Largely due to a high repayment threshold (a level of income beyond which a debtor needs to start repaying the loan), a significant proportion of HELP debt will not be repaid. The Department of Education and Training (2017) estimates that as of 2016-17, 25% of new HELP debt was

"doubtful". HELP's interest subsidy (debts are only indexed by inflation, as is usual for government loan schemes) also adds to the cost of the scheme.

In 2018 the parliament agreed to adjust HELP, including reduction of the initial repayment threshold to AUD 45 881 from 1 July 2019. However, further reform is needed to limit the long-run fiscal cost. Lowering the repayment threshold further, and collecting more of the loan every year from those who earn above the threshold could help. The initial repayment threshold remains above similar thresholds in the UK or New Zealand (Norton and Cherastidtham, 2018 and 2016), although Australia's repayment rates apply to total earnings rather than marginal earning as in the other jurisdictions. While the HELP programme is not considered a form of welfare and the intent is to get those who benefit from education to make a contribution, the generosity of the HELP programme is at odds with otherwise highly targeted and means-tested social policy in Australia. For example, many graduates who never reach the repayment threshold work part-time and live in households with combined income well above means-testing thresholds in other social programmes. Such arrangements may even introduce perverse incentives for part-time workers to refrain from working more hours, in order to avoid repaying the debt (Productivity Commission, 2017b). Lower generosity of the HELP system would therefore not necessarily compromise the education and social policy goals of the scheme. Besides, international experience shows that thresholds lower than proposed in Australia do not deter students from undertaking tertiary education (Norton and Cherastidtham, 2018 and 2016).

Domestic students generally attend university via a Commonwealth-supported place (CSP), for which the federal government provides a pre-determined subsidy for each student and places maximum limits on student contributions (the latter normally covered from the HELP loan system). The total amount (subsidy plus student contribution) varies by field of study to roughly reflect cost, but there is evidence that it is nevertheless well in excess of cost for some courses (Productivity Commission, 2017b). This generates surpluses which universities use to fund research. Cross-subsidisation creates strong incentives for universities to offer more places for prospective students in high-margin courses, which can result in oversupply of graduates in certain fields. A thorough review of the pricing structure of university teaching and transparency on the end use of funding could help to limit fiscal costs of university education. The Australian government has made some steps towards better understanding of the cost of teaching by discipline and improving accounting methods for universities. However, reducing cross-subsidies would decrease funding for research, which would need to be offset by other policies, if needed.

Better information for decision making in education

High quality information (data and analysis) on current and future labour market demand, trends and earning potential can help governments as well as students in making choices, and can help tune public funding to labour-market developments. This can help the education sector keep up to speed with shifts in skill demand amid technological change and globalisation.

As suggested in the OECD's Getting Skills Right: Australia, (OECD, 2018b), skill assessment and anticipation (SAA) exercises help policy makers better understand skill imbalances and their causes. Generally, Australia's SAA system is well developed and a wide variety of exercises are carried out. The system could nevertheless benefit from some improvement. Getting Skills Right suggests:

- More regular forecasting of future skill needs (every 2 to 3 years) rather than the ad hoc basis so far. This would help better identify emerging labour market imbalances in the longer-term (say, a10-year time span).
- More sharing of knowledge and SAA methodologies between states and territories, national government, and between industry reference committees. For example, the state-level exercises to determine which VET qualifications merit subsidies, as well as the Industry Skill Forecasts, vary widely in their methodologies.
- More analysis of skill needs in remote and rural regions.
- More focus on skills in SAA exercises, which at present tend to focus excessively on specific occupations or qualifications.

Incomplete information and policy bias may prompt many students to enrol in higher education instead of VET. In Australia, prospective students could have better information about risks and costs of undertaking tertiary, and in particular higher education. Although labour market outcomes are generally better for bachelor graduates compared to VET graduates, many part-time higher education students or those with low success in prior education would probably be better off choosing VET education, as they face a high risk on non-completion in higher education. But they may have decided for higher education due to incomplete information (Norton et al., 2018). There seems to be a policy bias towards higher education; higher education study does not impose any upfront fees on students, as tuition fees can be fully covered with HELP student loans. In contrast, in many cases a VET student needs to pay some of the money up front.

There is also room for improving information on employment prospects and linking it to education choices of students. In Australia there are several websites that provide information about careers and education pathways, and their employment outcomes. For higher education, the Quality Indicators for Learning and Teaching (QILT) website enables comparisons of the quality of higher education institutions in terms of graduate satisfaction and employment outcomes. For VET, the website MySkills is a national directory of vocational education and training providers and courses, offering information on average course fees, course length, subsidy information, and employment outcomes by VET qualification. Furthermore, the Department of Jobs and Small Business (DJSB) also disseminates labour market information about occupations through their Job Outlook and Labour Market Information Portal, and several states also have their own career websites. Evidence however shows that, despite having access to relevant information, young people can suffer from "information overload" and demonstrate lack of knowledge about their career options (OECD, 2018b).

Australia would benefit from centralising existing labour market information and data into a single online platform, as suggested in OECD's Getting Skills Right: Australia (OECD, 2018b). New Zealand's careers website provides a good example (OECD, 2018b). For higher education, the information provided to users should include personalised information about the risk of not completing a degree and give advice on how to reduce this risk (Norton et al., 2018).

In schools there is evidence that in Australia career guidance counsellors would benefit from more regularly updating their knowledge of the labour market by consulting SAA information. A high share of high school students report that they do not find advice very useful, moreover, reportedly, information about higher education courses is given higher priority than VET courses (OECD, 2018b).

Harnessing digital technologies for education

Digital technologies are creating new opportunities for skill development, potentially reducing time and space barriers, and facilitating personalised and collaborative learning. This has potential for smoothing adjustment amid shifting demand for skills, for instance by making the acquisition of new skills less time consuming and more effective. Massive Online Open Courses (MOOCs) and Open Educational Resources (OER) modify learning methods and give access to quality resources to a larger population over more flexible hours (OECD, 2016g).

Potential for remote communities

Scope for using digital technology in education has particular potential for Australia's numerous remote communities, many of which face multiple socio-economic challenges. Distance education has been available in Australia for around 70 years or so, through the Alice Springs School of the Air and the University of New England. These and other institutions are already pursuing the opportunities that digital technology offers. For example, the Open Access College in South Australia offers school education to those unable to attend a local school or access a curriculum (or course) not available in their school. Innovative methods include: telephone or online sessions with individuals or small groups, materials for group or individual work via online integrated learning programs, personalised learning materials, but also face to face workshops, visits from teachers and camps and excursions (OECD, 2016g).

Approaches being used for remote communities in Canada suggest further ways forward. The University of Saskatchewan's College of Nursing in Northern Canada provides an example of higher education that reaches groups who would be otherwise unserved - Indigenous students who are predominantly located in remote areas. The College uses a Learn Where You Live approach, using Remote Presence (RP) technologies, the College provides students with access to highly qualified staff. This model could be used more extensively across Australia for students with the need for distance learning, and especially to reach out to remote and/or disadvantaged communities.

Overcoming barriers to digital-technology solutions more generally

As in other countries more general use of innovative education tools, notably MOOCs, remains fairly limited, despite their advantages on several fronts. MOOCs can be less expensive than traditional training, they allow learners to go through the materials at their own pace and lastly, online testing and certificates enable demonstration of the acquisition of skills. In Australia online education - by providers such as Coursera and EdX - has been expanding and mainly targets continuing education and professional development. Companies are teaming up with providers to provide training and universities are beginning to engage too. For instance, the Australian National University has partnered with EdX to offer micro-masters (Productivity Commission, 2017b). However, overall the number of courses and students remains small.

Barriers to using MOOCs and similar approaches include concerns about the quality of the education provided and a lack of recognition for learning outcomes (OECD, 2016g). As proposed by the Productivity commission (2017b), the federal government should develop a framework to facilitate the independent accreditation of skills obtained through any learning method. Existing institutional infrastructure could be used when relevant, as for example the Tertiary Education Quality and Standards Agency (TEQSA) for university-level qualifications.

Strengthening adaptability to globalisation and technological change in metropolitan areas

Metropolitan areas are typically where the impacts of globalisation and technological change are widely felt, chiefly because a large share of the population lives and works in them. Australia is no exception. Metropolitan areas are home to a very substantial share of their respective state populations and the country's population as a whole. Table 1.1 and Figure 1.45 illustrate this for the five largest areas, which are centred on Sydney, Melbourne, Brisbane, Perth and Adelaide.

Australia's metropolitan focus has advantages for coping with socio-economic risks from structural change as it implies labour markets are relatively deep. This facilitates, for instance, the shift from routinised to non-routinised employment, and helps access to services for potential users of welfare and employment services, and reskilling. Furthermore, a metropolitan focus has advantages for harnessing change as it helps business clustering and positive network effects – which, as Silicon Valley and similar centres of activity illustrate, remain important.

Table 1.1. Australia's principal metropolitan areas

Metropolitan area	Definitions generally used for administrative and governance purposes	Population… million	…as % of state	…as % of national	2006-16 population % growth
Greater Sydney	A geographic area comprising 35 local councils covering about 12 000 square kilometres.	5.0	65	21	17.2
Melbourne metropolitan region	Generally considered as comprising an area comprising 31 local governments.	4.7	76	20	22.5
Brisbane metropolitan area	A large proportion of the metropolitan area is governed by the City of Brisbane – Australia's largest local government. Four other local governments and part of a fifth are also generally considered as part of the metropolitan area.	2.3	49	10	25.6
Perth metropolitan area	Generally considered to be an area comprising 30 local governments, with wider definitions including additional local governments.	2.0	79	8	38.3
Adelaide metropolitan area	Generally considered to be an area comprising 19 local governments.	1.3	77	5	12.7
Totals		15.5	-	64	22.3

Note: The population data are based on Greater Capital City Statistical Areas developed by the Australian Bureau of Statistics.
Source: Population data are from Australian Bureau of Statistics using their Greater Capital City.

Rapid population growth, notably in the urban conurbations centred on Melbourne and Sydney, has put stresses on infrastructure, which in turn added impetus to planning and reform. In particular, road congestion has become a prominent issue (Figure 1.46). Rapid population growth has also underscored the issues generated by low-density housing, which remains dominant in Australia's metropolitan areas (Figure 1.47). There has been progress on this front, but there is scope for further gains from making Australia's cities more compact ("densification").

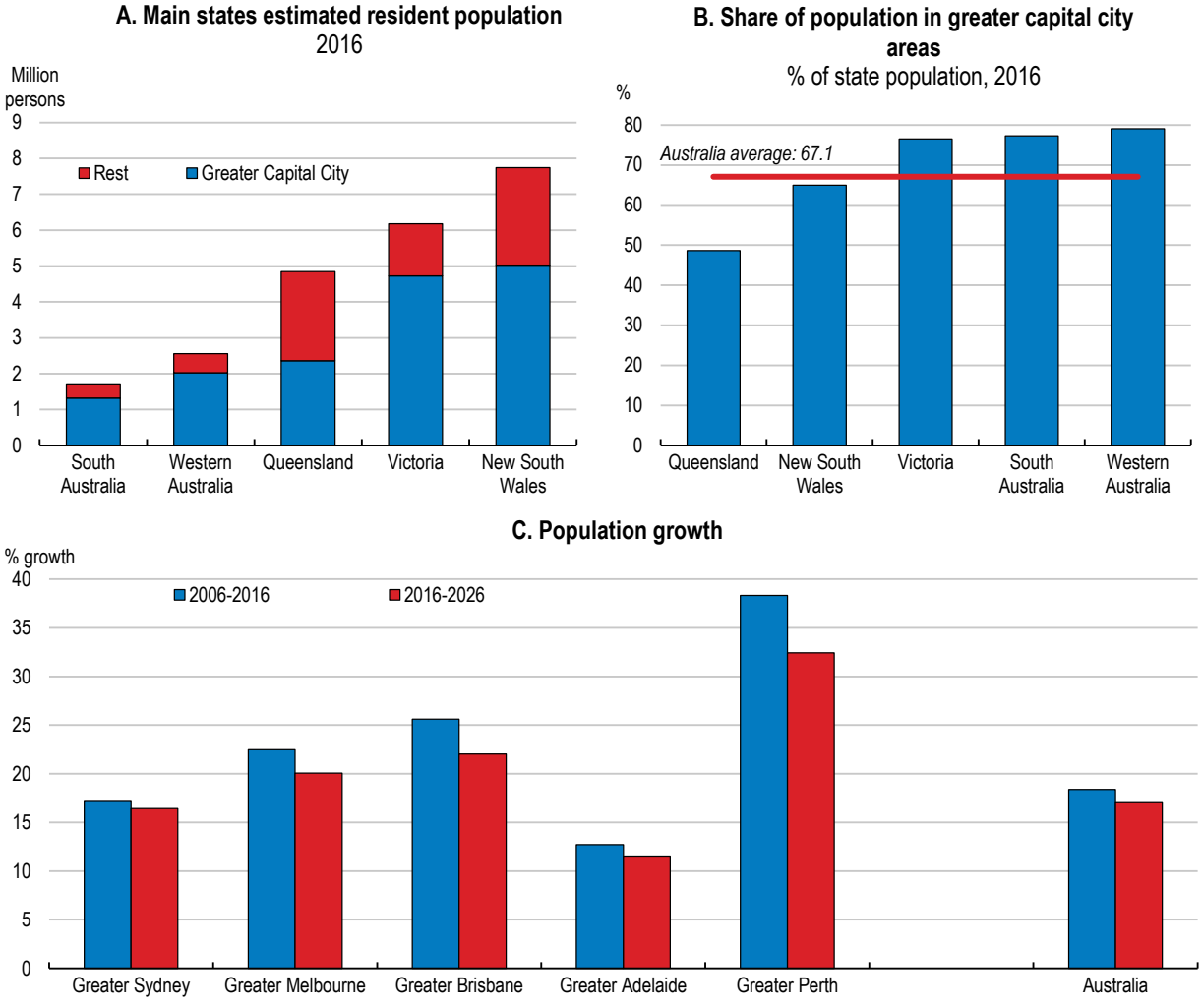
The following sections consider governance, land-use, infrastructure, transport and housing affordability issues from a metropolitan perspective. This is not to deny that these issues, and others, are not relevant for rural areas in the context of adjustment to globalisation and technological change. Indeed, the preceding sections on education have highlighted that

new technologies are providing new opportunity for distance learning, which is highly relevant for Australia's rural communities. However comprehensive coverage of the opportunities and challenges of globalisation and technological change for rural areas is beyond the scope of this review.

Governance: strengthening direction and efficiency

As elsewhere, Australia's large urban conurbations face the challenge of making policy progress in a multi-government setting. For many urban issues, all three levels of government, national, state and local, have interests and powers to influence outcomes. Though state governments have the core responsibilities in urban issues (Table 1.2), national government has considerable influence, principally through funding, and local governments have powers too, notably in planning.

Figure 1.45. Australia's metropolitan areas account for a large share of state populations



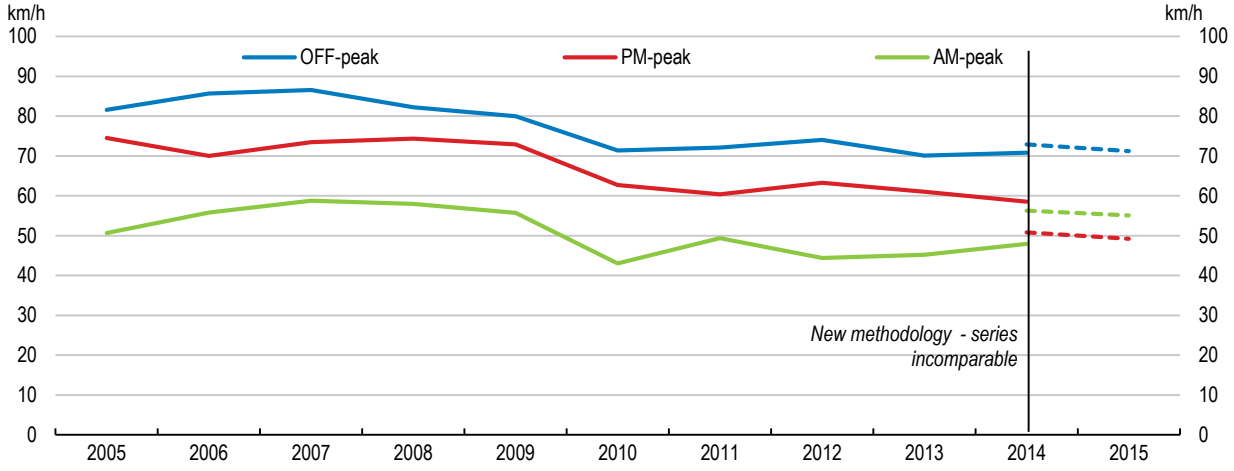
Source: ABS.

StatLink https://doi.org/10.1787/888933884194

Figure 1.46. Congestion is reducing average traffic speed

Average travel speed in Melbourne by financial year

Freeways, Inner zones

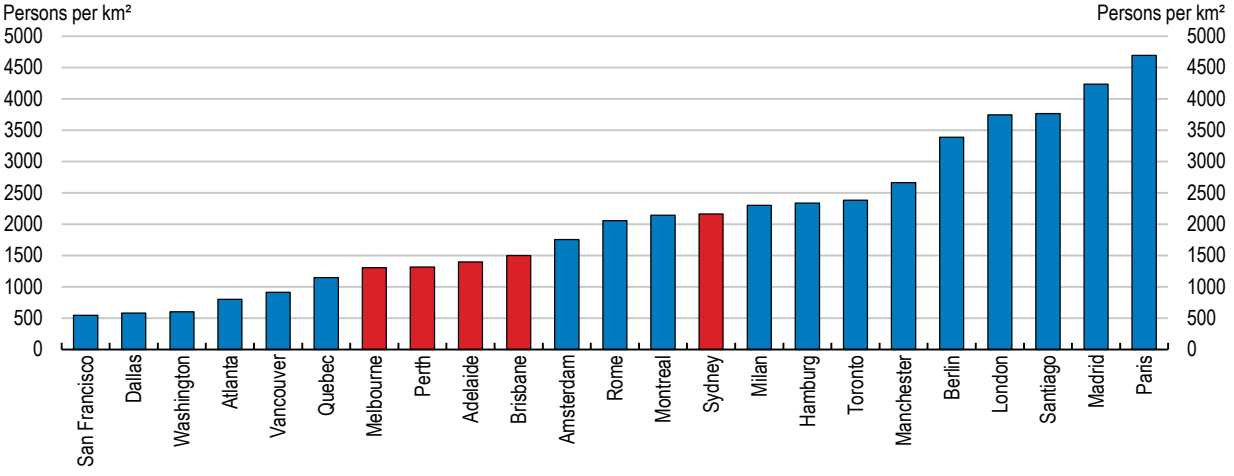


Source: VicRoads: traffic monitor, https://public.tableau.com/profile/vic.roads#!/vizhome/TM-TravelSpeed2014-15/AverageSpeed.

StatLink https://doi.org/10.1787/888933884213

Figure 1.47. Population density in metropolitan areas remains comparatively low

Population density of the city area (persons per km²), 2014



Source: OECD Metropolitan areas statistics.

StatLink https://doi.org/10.1787/888933884232

Table 1.2. Government responsibilities across selected urban issues

	Federal	State and Territory government	Local Government*
Planning	Top-level guidance (notably via *Infrastructure Australia*)	Planning laws and zoning systems, generally lead urban planning strategy	Powers to influence zoning and impose additional regulation
Transport	Contributions to financing state and local-government projects Vehicle standards	Urban transport systems (road, rail, bus etc.) and related investment Vehicle licensing, road taxes	Local roads
Waste management		Waste disposal	Waste collection
Other		Water and sewerage, electricity and gas	Sports fields, playgrounds, parks

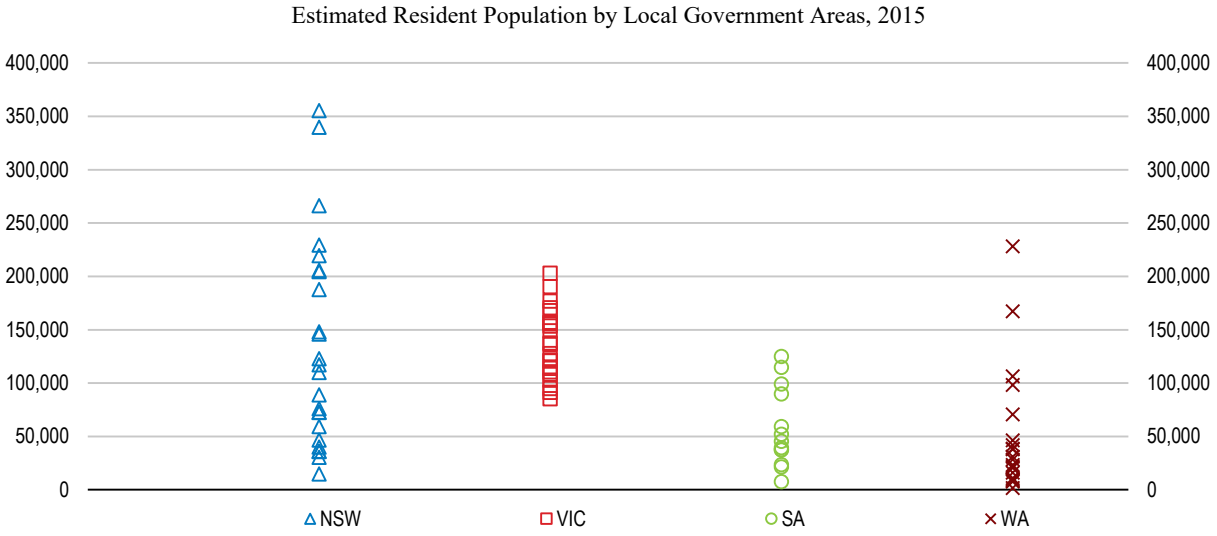
* Local government is not constitutionally defined in Australia, though the powers are generally similar across the States and Territories. Nomenclature varies, the most common is "Shire" (e.g. Shire of Peppermint Grove) or "City" (e.g. City of Randwick).

Australia's major urban centres do not generally have very large, metropolitan-scale, local authorities; most are under the jurisdiction of many local authorities, even in the central urban areas (Table 1.1). One exception is Queensland where Brisbane City Council governs much of the conurbation and is the largest local authority population-wise in Australia with around 1.1 million inhabitants according to the 2016 Census. In other metropolitan areas the state governments take a lead on most urban issues. This is a workable approach given that each state's economy and population is largely based on a single metropolitan area. Indeed, introducing jurisdictions to cover entire metropolitan areas could overly complicate governance, whereby a state could, in effect, end up with two governments, one for its metropolitan area and one for the rest of the state.

Welcome efforts to give urban development stronger direction in urban planning have been underway. For example, the government of New South Wales has plans for a three-centred urban conurbation (A Metropolis of Three Cities - The Greater Sydney Regional Plan), the Victorian government released the latest of its strategic planning documents for Melbourne in 2017 (Plan for Melbourne 2017-2015) and the Queensland government has recently updated its metropolitan-area plan (South East Queensland Regional Plan, 2017).

Some of Australia's metropolitan areas would benefit from local-government amalgamations, especially among small jurisdictions (Figure 1.48). There have been substantial consolidations in the past, for instance in Victoria in the mid-1990s. However, not every consolidation effort has succeeded. In the Perth metropolitan area an attempt to roughly halve the number of municipalities was abandoned in 2015 and consequently there remain some very small local governments (e.g. Peppermint Grove, population 1 600). Similarly, in 2017 the New South Wales government abandoned an attempt to reduce the state's 152 municipalities to 112. Failure to amalgamate does not mean, however, an absence of opportunity for policy action. There can still be scope to encourage more shared provision and decision making across local governments.

Figure 1.48. Some states still have small-scale local governments in urban areas



Note: the chart shows the population of local governments with at least 1000 persons per square kilometre. Data for Queensland is not shown due to the large role played by Brisbane City Council (population approximately 1.1 million) in the metropolitan area.
Source: ABS.

StatLink https://doi.org/10.1787/888933884251

More effective land-use regulation

Adapting to change requires capacity to adapt metropolitan land-use to new circumstances. For instance, as mentioned above, further progress on densification is still needed to cope with rapid population growth and facilitate public transport.

Most land-use development in Australia is under the purview of planning authorities that are part of local government. State governments influence land use through zoning legislation that defines the categories of development that are allowable within each zone of a local-government's jurisdiction. However, it is typically local governments that decide how to allocate land under the zoning system and are permitted to add further development criteria, such as building-height restrictions.

The zoning systems have long been criticised for having too many categories and excessive prescription on allowable activities within each zone. The issue is widely acknowledged across state and territory governments and a range of efforts is underway to improve zoning, and planning more generally (Table 1.3). However, only Victoria has so far substantially decluttered its zoning system, with now only two business zones in the planning system.

Given the local authorities' powers in planning state-level zoning reform does not remove risk that planning fails to align well with wider community interests and strategic objectives. Conceivably, derestriction of state-level zoning could in fact raise this risk, giving local authorities more leeway to follow planning approaches that serve their own goals and not state-level strategy. This risk could be perhaps contained by state (or nationwide) legislation that limits use of "add-on" restrictions, such as proximity restrictions (location restrictions in national legislation on pharmacies are prominent example).

Table 1.3. Recent planning reform initiatives

	Planning reform in recent years
New South Wales	Clearer and more integrated state, regional and district plans for Greater Sydney Reduction in number of State-level planning instruments Less red tape for development for some approvals
Victoria	Zoning regulation reform (2014 and 2017) including reduced restrictions on high and density of developments
Queensland	Legislation to better align local development with state objectives Streamlining of development assessment processes
Western Australia	Introduction of more uniform planning processes across local governments
South Australia	Broad reform is planned that envisages reshaping the 1 500 zones and local plans into a more succinct format
Tasmania	Broad reform is planned that envisages replacing 29 local planning schemes with a single state-wide planning scheme with limited room for local variation

Source: Productivity Commission, *Shifting the Dial: 5-year productivity review*, Section 4.6.

Improving decision-making processes for major infrastructure development

A metropolitan area's capacity to adapt to change and its overall functionality and "shape" are strongly influenced by its infrastructure. In the Australian context the spatial pattern and capacity of major roads is particularly important. Ensuring good decision making for major new road infrastructure is therefore paramount. Most major infrastructure development in Australia is primarily driven by state governments but national government has considerable influence, principally through co-funding. As such, ensuring consistently good project decision making by both state and national-level policymakers is a primary objective of project-development processes. Urban transport infrastructure is probably the most prominent issue for most households and businesses (Infrastructure Australia, 2018).

Australia's project development processes at the technical level comprise national and state-level infrastructure agencies (Infrastructure Australia, Infrastructure Victoria, Infrastructure New South Wales, and so on). The agencies develop strategy and evaluate project proposals following structured assessment processes, although there are wide variations in the role and independence of these agencies. As elsewhere, the interplay between project proposals and infrastructure agencies is complex. Ideas for new major infrastructure have often been around for some time, with political support and technical evaluation evolving over time.

In common with many other countries, despite the checks and assessments provided by independent agencies, politics can overshadow economics in project selection. Biases in economic calculation to help projects pass approval processes look to be a potential problem in Australia. For instance, Terrill (2016) questions the cost estimates of Sydney's WestConnex project and Melbourne's West Gate Tunnel, both currently under construction. In addition, economic assessment may simply get overridden in the final decision to press ahead with projects. A prominent example was the Victorian Government's initiation of a major road project (the East West Link), despite unfavourable cost-benefit analysis. The project was later terminated but at considerable taxpayer expense as the provider was entitled to compensation.

Some strengthening of the infrastructure agencies has already been carried out. For instance, in recent years Infrastructure Australia (established 2008) has undergone changes in governance arrangements following a major legislative amendment in 2014 and the

introduction of a requirement for the agency to evaluate all infrastructure proposals seeking over AUD 100 million in federal government funding. Infrastructure Victoria's legislation was overhauled in 2015 (the Infrastructure Victoria Act, 2015), and included commitment to a 30-year strategic planning process.

Despite the progress in developing the infrastructure agencies, the cases of questionable decisions suggest further room to improve the infrastructure-agency system. The Productivity Commission's 5-year productivity assessment, Shifting the Dial (Productivity Commission, 2017c), calls for more cost-benefit analysis and greater opportunity for public scrutiny of alternative proposals – and claims many recommendations from its 2014 public-infrastructure report still apply (Productivity Commission, 2014b). This latter report notably calls for a country-wide rule that public-investment proposals above AUS 50 million should be subject to a common cost-benefit analysis. Such nationwide ground rules may be a useful way ahead, helping inter-state consistency. Similarly, a recent proposal for incentive-based additional funding for state infrastructure looks a promising way of ensuring good development choices (Infrastructure Australia, 2018).

Technical aspects of economic assessment can be key in shaping the prioritisation of projects. For instance Australian governments have been applying a 7% discount rate to cost-benefit analysis and other calculations requiring discounting since 1989. A recent paper by the Grattan Institute (Terrill and Batrouney, 2018) argues that discount rates ought to vary with the cost of borrowing and differ according to risk—suggesting that, currently, discount rates on many projects ought to be lower than 7%. Meanwhile, others (e.g. Harrison 2010) argue against such fine tuning, making a case for retaining the current rate of discount (or close to it) but accompanying this with sensitivity testing around this value (Harrison recommends 3 to 10%).

Sound economic analysis ought to also apply to road maintenance. A report commissioned by Infrastructure Australia (GHD, 2015) underscores that the expansion of road networks in metropolitan areas means increased future maintenance commitments. The report underscores the need for improving whole-of-life asset management and long-term funding strategies, for instance.

Urban transport: substantial challenges but also new solutions on the horizon

Good urban transport facilitates labour markets in metropolitan areas, helping labour adapt to change by widening commuting possibilities. Road congestion is Australia's most prominent urban-transport issue. Even in Australia's largest cities car dependency remains high, in large part the legacy of a sprawling urban geography (Terrill, 2018). More and better public transport, the encouragement of walking and cycling, and further urban densification could bring car dependency down, particularly in inner suburbs. However, these solutions have limited scope in Australia's extensive outer suburbs. For instance a major new rail system under construction in Melbourne is expected to increase commuting by public transport for those living near the new stations but the overall impact on commuting across the Melbourne metropolitan area as a whole is expected to be small; by 2031 the new rail system is expected to increase public transport trips by 2% and reduce car trips by 0.5% (Terrill, 2018).

Investment in new or improved roads can be part of the solution – though the impact on congestion is often uncertain (see Box 1.2). This section focuses on three further avenues for reducing congestion and environmental impact in road use, and more generally improving the travel experience: road-use charging, electric-vehicle incentives and encouraging the development of autonomous vehicles.

Wider use of road-use charging could help alleviate congestion and air pollution

As in many other countries, there is scope for tackling congestion and environmental issues through wider use of road pricing and, more generally, closer linkage between road vehicle taxation and charging with use rather than ownership.

Box 1.2. Uncertainties in congestion impact from investing in roads

Congestion reduction from investment in new or improved roads can be difficult to achieve because of uncertainties in the response of road users to the new configuration of transport options that investment brings. For instance, road-widening can prompt a greater-than-expected response in usage, new roads can prove more popular than projected, congestion can develop on connecting roads, and so on. Furthermore, the full behavioural response can take time to develop - for instance where new roads are connected with new housing developments that have yet to be completed and occupied. Also, there are tricky conceptual issues - congestion can be defined in many ways and, logically, aiming for a road system with zero congestion may not be optimal. For an extensive discussion on urban road congestion management by the Australian authorities see Austroads (2009).

Australia does not have a network-wide road-use charging system for light vehicles. Progress towards a comprehensive road-use charging and vehicle taxation system is most advanced for heavy vehicles. Heavy vehicles (weighing more than 4.5 metric tonnes) are subject to both road-use and registration charges for use of the road network and governments are working to reform the current arrangements. The reform's aim is to improve the economic outcomes of heavy vehicles by creating stronger links between the needs of users, the charges they pay and the investment of those charges back into road services.

To date, most road pricing for light vehicles in Australia comprises tolls on sections of motorway that have been built under build-operate-transfer (BOT) contracts with the private sector. Time-varying charges operate in some cases (for instance the Sydney Harbour Bridge and Tunnel). Wider use of time variation in existing tolls would be welcome but would not make full use of the scope for road-use charging. The limited coverage and profit orientation of the BOT toll roads means they do not represent a comprehensive system of road pricing focused on congestion and pollution issues. Indeed, tolls can create congestion through drivers finding alternative routes to avoid the expense.

Comprehensive schemes that target car use, for instance along the lines of London's area charging model or GPS-based charging have not yet been introduced in Australia (and such schemes would be a state and territory government issue). As stressed in a previous *Survey* (OECD, 2012), getting public acceptance for congestion charging can be a major hurdle. Recent research making the case for congestion charges includes a report by the Grattan Institute (Terrill, 2018) that analyses trip-time data. These underscore the considerable variation in congestion over the course of a day. For instance the report finds that in Sydney the average CBD-bound trip takes 70% longer at morning peak compared with the middle of the night and around 80% longer in Melbourne. Also, the principle company engaged in Australia's BOT roads, Transurban, ran a congestion charge trial in which GPS responders were installed in 1400 vehicles with drivers able to choose different road-use charges using notional accounts (Transurban, 2016). In addition to recording behavioural responses, the

study surveyed participants' preferences. Some results were encouraging, for instance 63% of participants said they were comfortable with cordon-charging after experiencing it.

Including urban congestion charging in a reform package on road transport taxation could be one way forward - helping gain public acceptance for them. For instance, urban congestion charging could be combined with the introduction of distance-based charging (using Global Navigation Satellite Systems, GNSS) with corresponding reduction in taxes and fees connected with vehicle ownership, notably the state-based annual vehicle registration fees (Table 1.4). From a fiscal perspective, new use-based revenue streams could also offset the ongoing decline in fuel-excise revenues which is likely to accelerate as the share of electric vehicles increases.

Table 1.4. Key taxes and charges relating to the ownership and use of vehicles

Category of taxation or charge	Detail (level of government indicated in parentheses)
Vehicle ownership—purchase	Stamp duty (rates vary) (*state)* Luxury Car Tax (LCT); 33% of the value of the car above a threshold amount (AUD 66 331 in 2018-19) (a higher threshold applies to more fuel efficient vehicles (includes electric vehicles) (AUD 75 526 in 2018-19). (*federal)* Customs duty (*federal*) Regular Goods and Services Tax also applies (10%). (*federal collection with distribution to states)*
Vehicle ownership--regular taxes, fees and charges	Annual state-based registration fees that vary according to a vehicle's value and/or other characteristics ("Motor Vehicle Duty" or colloquially, "Rego") (*state*) Fringe benefits taxes are imposed on employers when company vehicles are used for private purposes by employees. Employers can choose one of two methods to measure the extent of the private use. (*federal*)
Vehicle use	Excise and GST on fuel. A common excise rate is applied to gasoline and diesel for vehicles (and applies to number of other hydrocarbon fuels). The excise is indexed to CPI with biannual adjustment. As of August 2018 the rate was AUD 0.412 per litre. Liquid Petroleum Gas (LPG) is much less taxed with a rate of AUD 0.134 per litre (as of August 2018) (*federal*) Toll systems on some motorways but few charges on other sections of road (*state*) State-managed parking levies (*state*)

From both a technical and policy-design perspective, co-ordination between state and federal governments on such reforms is important. Vehicle-related taxation comprises a mix of federal and state mechanisms – ideally reform should involve combined adjustment. Furthermore, co-ordination is important because, for instance, economies of scale and compatibility issues may suggest development of a nationwide GNSS platform that allows for the collection of both federal and state road-use charges.

Given systemic change in road-related taxes and charges will take time, politically and in implementation, practicable near-term adjustments to relieve congestion should be sought. Actions (largely based on those suggested in Terrill, 2018) could include:

- higher parking prices;
- wider gaps between peak and off-peak pricing in public transport;
- more time-variation in pricing on existing toll roads;
- improved public information on journey times, including delays on roads.

Electric-vehicle use

Electric-vehicle adoption can bring substantial benefits to urban areas by reducing particulate air and noise pollution, as well as contributing to greenhouse gas reduction

(though the latter depends heavily on the fuel-base of electricity generation). However, take up in Australia has been comparatively low. According to one calculation (Whichcar, 2018), even including an estimate for Tesla sales (which has a policy of not reporting sales figures in Australia), only about 0.2% of new cars sold in 2017 were electric. This suggests that the financial incentives offered to date (Table 1.5), which are mainly in the form of state-level discounts on vehicle stamp duty or annual registration fees, have not had a huge impact on car purchase decisions. Australia's comparatively low gasoline and diesel prices (notably, excise duties are low in international comparison) also play a role. In addition, vehicle range is a more substantial issue in Australia compared with high-population-density countries. Metropolitan areas are extensive and the scale of long-distance journeys by road is large (for instance, Sydney to Melbourne, around 900km).

Table 1.5. An overview of electric-vehicle policy in Australia

		ACT	NSW	NT	QLD	SA	TAS	VIC	WA	FED
Uptake	EV purchases 2011-2016	125	843	12	541	805	56	1017	298	3697
	EV sales per 10,000 vehicles (2016)	18	7	4	5	9	5	8	3	7
Regulation	Vehicle CO2 emissions standards									O
Financial incentives	Stamp duty, registration and tax discounts	✓	✓	✓	✓		O	✓		✓
	Direct vehicle subsidy						O			
	Fleet incentive						O			✓
	Changing infrastructure support	✓		O	✓	✓	✓*			
Non-financial incentives	Vehicle lane and parking privileges	✓					O			
	Electric vehicle public transport trials			✓		✓				
	Government fleet incentives	✓	✓			✓	✓			
	Information and education programmes	✓			✓*	✓	✓			✓

Note: Policies that are in place are marked ✓, policies that are planned but not implemented are marked ✓*, policies under consideration are marked O. This table was compiled through a survey of Australia's state, territory and federal governments on their electric vehicle policies. The Commonwealth Government, the Australian Capital Territory, New South Wales, the Northern Territory, Queensland, South Australia, Tasmania and Victoria provided input. For Western Australia we undertook a desktop research study. Vehicle purchase numbers do not include Teslas.
Source: ClimateWorks Australia and the Electric Vehicle Council, *The State of Electric Vehicles,* (June 2017), p.12.

To a degree, the holding off from substantial subsidy of electric vehicles or technological commitment to charging systems until technology matures has made sense in the Australian context. The range issue and the absence of any substantial domestic electric vehicle development or production have played a role. In addition, though undergoing reform, Australia's electricity production remains comparatively carbon intensive which means smaller climate-change returns to electric-vehicle adoption compared with low-emission generation. Urban air quality is also a less pressing issue than it is in many other countries (see Key Policy Insights). Nevertheless, federal and state governments should continue to develop policy in line with progress in electric-vehicle performance and cost, and decarbonisation of electricity generation.

Encouraging autonomous vehicles

As elsewhere, self-driving or fully driverless road vehicles could re-shape urban environments through providing flexibility to public and private transport and changing the economic geography of urban living - such as decisions on where to live in relation to work, schools etc. Extensive use of driverless trucks in some of Australia's mining operations has

illustrated the potential for such technologies, albeit in a comparatively controlled environment (The Economist, 2017). As regards use on open roads, most states are actively encouraging autonomous vehicle trials, including through changes to legislation (see Table 1.6). These efforts are welcome, and reflect Australia's efforts to further advance their readiness for autonomous vehicles. According to KPMG's 2018 Autonomous Vehicles Readiness Index, Australia ranks 14th out of 20 countries. However, there has been some progress since this index was constructed. In particular federal and state transport ministers have agreed to update the action plan attached to a national policy, which draw together work on automated vehicle safety, trials, cybersecurity, road rules, insurance, data protection and infrastructure readiness.

Table 1.6. Selected initiatives supporting and trialing autonomous vehicles in Australia

Jurisdiction	Selected detail
Federal level	A roadmap for reform has been agreed that aims for the operation of conditionally automated vehicles before 2020 and fully automated vehicles by 2020
New South Wales	Legislation allowing automated vehicle trials passed 2017 Trial of driverless shuttle bus at Sydney Olympic Park
Victoria	Legislation allowing automated vehicles trials passed 2018 Grant programme to support development of vehicles with connected and automated technology State government partnership with Bosch to develop a self-driving vehicle
Queensland	Co-operative and Automated Vehicle Initiative—aims to prepare for new technologies
Western Australia	Trials of electric-powered autonomous vehicles by the French company NAVYA
South Australia	Legislation encouraging autonomous vehicle trials passed 2016

Source: based on Bhunia (2018).

Urban housing affordability

In urban areas the risk of being pushed into poverty and low quality living can be amplified by an absence of affordable housing. Lower-income households can be increasingly driven to the more distant and hard-to-access suburbs and satellite towns, narrowing access to jobs.

Australia's substantial house-price increases, and accompanying increase in rents, have contributed to a deepening and widening of the housing affordability issue. First there are deeper challenges for those traditionally vulnerable to access and cost difficulties (the long-term unemployed, single parents, poor pensioners, the homeless). Second, there are growing housing affordability challenges for those further up the income scale. The latter is important in the Australian context as home-ownership is a central aspiration of many households (influenced by favourable policy settings for ownership) and is also central to saving, wealth and retirement plans. Furthermore, home-ownership is an assumed norm in much of policy, for instance in policies on pensions and ageing.

There has been welcome breadth to Australia's policy initiatives to address the affordable housing issues. This is important as, for instance, a policy that only focuses on increasing subsidies for home purchase can be counterproductive, prompting price increases rather than new homes. A Senate committee report on housing affordability in 2015 (Commonwealth of Australia, 2015) pushed for:

- Increasing provision and protection in the rental market, notably through: increasing the proportion of social housing in the total housing stock; investigating

innovative financing models for affordable housing; and, strengthening of tenant rights.

- Improving home purchase affordability, notably through: phasing out conveyancing stamp duties; reducing up-front costs for installing utilities in new housing developments; and, measures to ensure land supply and changes to urban planning and zoning processes to support affordable housing.
- Stronger co-ordination and policy direction on affordable housing, notably through: strengthening of existing federal-state agreements (such as the National Affordable Housing Agreement); and, greater unity in policy strategy, including through the federal government taking a lead in formulating a long-term national affordable housing plan.

State governments have launched initiatives that echo the committee's multi-pronged approach. For instance the Victorian government launched "Homes for Victorians" in 2017 which envisages progress along similar lines to those advocated in the senate report, including some steps towards tenancy-legislation reform, increased funding for social housing, abolishing stamp duty and planning reform,

There has also been some federal-level policy action. The 2017-18 Budget announced several measures including assistance for first-time buyers (the First Home Super Saver Scheme) and new programmes to increase the supply of housing and reform of housing-related payments to the states and territories.

The ambition at both the state and federal level to address housing affordability is admirable. However, some measures entail risks, greater protection for tenants can aggravate affordable housing problems if it prompts owners to withdraw property for rent or become more selective in choosing tenants. Also, progress on some policy dimensions is inherently difficult. In particular, planning reform to increase housing supply can meet stiff opposition and phasing out stamp duty poses a fiscal challenge for states as it is a substantial source of revenue (though this could be offset through increasing land taxation). There is therefore a risk that advances will only be made in the more easily implementable support measures.

Encouraging use of new technologies: the "Smart Cities Plan"

Although there are pressing challenges for urban areas, new technologies are providing scope for tackling them. The small but growing share of electric vehicles, and advances in the development of autonomous vehicles are prominent examples (discussed above in the section on transportation). However the scope for utilising new technologies is wider than this. For example the City Futures Research Centre (University of New South Wales) is developing analytical and visualisation tools on various dimensions of urban environments (e.g. affordability). The wide range of potential applications of new technology to urban policy and environments has been recognised in the federal government's "Smart Cities Plan", which aims to provide greater federal-government support and steerage on developing and implementing technological solutions to urban problems. The Plan focuses on three pillars "Smart Investment", "Smart Policy" and "Smart Technology".

In concrete terms the Plan entails the following elements:

- A "City Deals" programme (similar in nature to that carried out in the United Kingdom) that provides extra federal support for pursuing a development strategy. As of July 2018, a number of deals were underway. For example in Townsville,

Queensland, a deal has been struck that includes co-financing a sports stadium, rail link and port upgrade. In Launceston, Tasmania, the deal includes relocation of a university campus and a programme to revitalise the central-business district.

- "Smart Cities and Suburbs Programme": co-financing for individual technology-based projects to improve urban environments and promote development. A first round of approvals gave the green light to 52 projects, funded entailing a financial commitment by government of AUS 28.5 million and a commitment of AUD 40 million from other sources, such as local government, industry and research organisations. Most of the projects approved are small scale, with budgets of less than AUD 500 000, and involve the development of software solutions.

To assist these processes, and urban planning more generally, the Plan also includes establishment of a federal-level financing unit (the Infrastructure Financing Unit), an expert advisory group (the Cities Reference Group) and monitoring initiative (the National Cities Performance Framework).

Overall, the "Smart Cities" plan has much merit on principle. Also the relatively small budget allocation means that the fiscal cost is modest. However, even comparatively small projects ought to deliver value for money, so every effort should be made for the plan to succeed.

Box 1.3. Recommendations

Activation policies

Key recommendations

- Incentivise jobactive providers to achieve longer job retention, provide better quality training and on-the-job support.
- Focus further on lone-parents in terms of childcare availability and affordability, childcare benefit targeting, and career guidance and training.

Other recommendations

- Continue making support for displaced workers more comprehensive and covering all regions and sectors of the economy.
- Continue to work on reducing disincentives to employment, particularly among women.
- Introduce a mandatory early notification of collective dismissal by employers to Centrelink.

Education and skills

Key recommendations

- Continue focus on disadvantaged students in early childhood education and schools.
- Improve VET education including by better basic-skills provision among providers and reduced policy bias in favour of university education.
- Provide better information for education choices including through a single platform with career information, education pathways and employment outcomes.

Other recommendations

Early Childhood Education and Care (ECEC)

- Ensure continued adequate resourcing of Universal Access and National Quality Framework in provision of early childhood education.

Primary and Secondary education

- Continue rolling out the needs-based funding to schools under the Quality Schools package.
- Move towards a school system - teaching, curriculum, assessment - that focuses on delivering at least a year's learning-progress equivalent to every student every year, with a particular focus on disadvantaged students.
- Establish a national independent research institution to improve education evidence base.

Vocational Education and Training (VET)

- Ensure regular review and monitoring of the VET Student Loans programme, with particular attention to ensuring that courses eligible for loans (and subsidies) are of high quality and relevant.

- Strengthen the regulatory framework and the functioning of the VET regulator ASQA following recommendations from the "Braithwaite Review".

Tertiary education

- Reduce the generosity of the HELP (income contingent student loans) scheme and review the pricing structure of university education for federally-supported places to better match with the cost of teaching across different courses.

Improving information for better decision-making

- Provide prospective students (of all ages) with relevant and up to date information of costs and risks involved in education pathways.
- Introduce more regular (2-3 years) skill assessment and anticipation (SAA) exercises to better preview skill demand and potential skill imbalances in the longer-term.
- Encourage knowledge sharing between states and territories, national government, and between industry reference committees to make the quality and methodology of SAA at sub-national levels more consistent and strengthen it for remote and rural regions.

Digital technologies

- Develop a framework to facilitate the independent accreditation of skills obtained through any learning method to enable recognition of learning acquired via online courses.

Improving urban environments

Key recommendations

- Improve infrastructure project selection further by raising the prominence of cost-benefit analysis and economic returns.
- Accompany accelerated road investment with more road charging, including urban congestion charging.
- Strengthen urban-area governance through greater leadership from federal and state initiatives in planning, and continued efforts to amalgamate small local authorities.

Other recommendations

- Simplify state zoning systems in land use regulation, consider limiting local-government powers for add-on restrictions, remove proximity restrictions that still feature in some retail sectors.
- Ensure advance on the tough issues in housing affordability, notably planning reforms to allow more high-density development and the phase out of stamp duty.
- Continue tapping into new-technology solutions to urban issues, including via the "Smart Cities plan".

References

Acemoglu, D. and D. Autor (2011), "Skills, Tasks and Technologies: Implications for Employment and Earnings", Handbook of Labor Economics, Vol. 4, pp. 1043-1171.

Acil Allen Consulting (2015), Review of the National Partnership Agreement on Skills Reform. Final Report.

Adeney, R. (2018), "Structural change in the Australian Economy", Reserve Bank of Australia, Bulletin, March Quarter 2018.

Arntz, M., T. Gregory and U. Zierahn (2016), "The Risk of Automation for Jobs in OECD Countries: A Comparative Analysis", OECD Social, Employment and Migration Working Papers, No. 189, OECD Publishing, Paris.

Australian Government (2018), The next generation of employment services, Discussion paper, Department of Jobs and Small Business.

Australian Government (2017), VET Student Loans, Review of the VET Student Loans course list and loan caps methodology, Discussion Paper.

Austroads (2009), Guide to Road Transport Planning, Canberra.

Autor, D., D. Dorn and G.H. Hanson (2016), "The China Shock: Learning from Labor-Market Adjustment to Large Changes in Trade", Annual Review of Economics, Vol. 8, pp. 205-240.

Autor, D., L. Katz and M. Kearney (2006), "The Polarization of the U.S. Labor Market", American Economic Review, Vol. 96, No. 2, pp. 189-194.

Bhunia P. (2018), "A brief overview of automated vehicles legislation and trials in Australia", OpenGov.

Borland, J. and Coelli, M. (2017), 'Are Robots Taking Our Jobs?', The Australian Economic Review, 50(4), pp 377–397.

Borland, J., and Coelli, M. (2016), "Labour Market Inequality in Australia", Economic Record, vol. 92, no. 299, pp. 517-547.

Braithwaite, V. (2018), All eyes on quality: Review of the National Vocational Education and Training Regulator Act 2011 report, Australian Government.

Brynjolfsson, E. and A. McAfee (2011), Race Against the Machine: How the Digital Revolution is Accelerating Innovation, Driving Productivity, and Irreversibly Transforming Employment and the Economy, Digital Frontier Press.

Card, D., Kluve, J., & Weber, A. (2017). What Works? A Meta Analysis of Recent Active Labor Market Program Evaluations. NBER Working paper No. 21431.

Coelli, M. and Borland, J. (2016), 'Job Polarisation and Earnings Inequality in Australia', Economic Record, 92, 1–27.

Commonwealth of Australia (2015), Out of Reach? The Australian housing affordability challenge, Final report of the Senate inquiry into affordable housing, May 2015.

De Backer, K. and Miroudot, S. (2013), "Mapping Global Value Chains", OECD Trade Policy Papers, No. 159, OECD Publishing.

Department of Education and Training (2017), Education and Training Portfolio Budget Statements 2017-18, May.

Frey, C.B. and M. Osborne (2013), "The Future of Employment: How Susceptible Are Jobs to Computerisation?", Oxford Martin Programme on Technology and Innovation Working Paper.

GHD (2015), *Infrastructure Maintenance*, *A report for Infrastructure Australia*, March 2015.

Gonski, D., Arcsu, T., Boston, K., Gould, V., Johnson, W., O'Brien, L., Perry & LA, Roberts, M. (2018) Through Growth to Achievement: Report of the Review to Achieve Educational Excellence in Australian Schools. March 2018, Australian Government: Canberra.

Gonski, D., Boston, K., Greiner, K., Lawrence, C., Scales, B. & Tannock, P. (2011) Review of funding for schooling – Final report, Australian Government: Canberra.

Goos, M. and A. Manning (2007), "Lousy and Lovely Jobs: The Rising Polarization of Work in Britain", Review of Economics and Statistics, Vol. 89, No. 1, pp. 118-133.

Goos, M., A. Manning and A. Salomons (2009), "Job Polarization in Europe", American Economic Review, pp. 58-63.

Goss, P., Sonnemann, J., Chisholm, C. and Nelson, L. (2016) Widening gaps: What NAPLAN tells us about student progress, Grattan Institute.

Greenville, J., Pobke, C., and Rogers, N. (2013). 'Trends in the Distribution of Income in Australia'. Productivity Commission Staff Working Paper. March 2013.

Harrison, M. (2010), "Valuing the Future: the social discount rate in cost-benefit analysis", *Visiting Researcher Paper*, *Productivity Commission*, 2010.

Heath A (2016), 'The Changing Nature of the Australian Workforce', Speech at CEDA – Future Skills: The Education and Training Pipeline, Brisbane, 21 September.

Hummels D, Ishii, J. and Yi, K. M. (2001), 'The Nature and Growth of Vertical Specialization in World Trade', Journal of International Economics, 54, pp 75–96.

Infrastructure Australia (2018), Making Reform Happen: Using Incentives to Drive a New era of Infrastructure Reform, June 2018.

Keller,W. and Utar, H. (2016), "International Trade and Job Polarization: Evidence at the Worker Level", Technical Report, No. 22315, National Bureau of Economic Research.

Kelly, G., and La Cava, G. (2014) "International Trade Costs, Global Supply Chains and Value-added Trade in Australia", Reserve Bank of Australia, Research Discussion Paper – RDP 2014-07.

Mokyr, J., C. Vickers and N. Ziebarth (2015), "The History of Technological Anxiety and the Future of Economic Growth: Is this Time Different?", Journal of Economic Perspectives, Vol. 29, pp. 31-50.

Nedelkoska, L. and G. Quintini (2018), "Automation, skills use and training", OECD Social, Employment and Migration Working Papers, No. 202, OECD Publishing, Paris.

Norton, A. (2018), Demand for cuts deals death blow to Australia's demand-driven system. Times higher Education, Thursday 4 January.

Norton, A. and Cherastidtham, I. (2018), Submission to the Education and Employment Legislation Committee on the Higher Education Support Legislation Amendment (Student Loan Sustainability) Bill 2018. Grattan Institute.

Norton, A., Cherastidtham, I., and Mackey, W. (2018). Dropping out: the benefits and costs of trying university, Grattan Institute.

Norton, A. and Savage, G. C. (2018), Budget 2018: what's in store for education, The Conversation.

Norton, A. and Cherastidtham, I. (2016), HELP for the future: fairer repayment of student debt, Grattan Institute.

OECD (2018a), Achieving inclusive growth in the face of digital transformation and the future of work, Report to G-20 Finance Ministers.

OECD (2018b), Getting Skills Right: Australia, forthcoming.

OECD (2018c), Starting Strong. Engaging Young Children. Lessons from research about quality in early childhood education and care, OECD Publishing, Paris.

OECD (2017a), "How technology and globalisation are transforming the labour market", Chapter 3, Employment Outlook 2017.

OECD (2017b), OECD Skills Outlook 2017: Skills and Global Value Chains, OECD Publishing, Paris.

OECD (2017c), Connecting People with Jobs: Key Issues for Raising Labour Market Participation in Australia.

OECD (2017d), OECD Economic Surveys: Australia. OECD Publishing, Paris.

OECD (2017e), Building Skills for All in Australia, Policy Insights from the Survey of Adult Skills. OECD Skills Studies.

OECD (2017f), Education at a Glance 2017, OECD Indicators. OECD Publishing, Paris.

OECD (2017g), Starting Strong 2017: Key OECD Indicators on Early Childhood Education and Care, OECD Publishing, Paris.

OECD (2016a), OECD Science, Technology and Innovation Outlook 2016.

OECD (2016b), “Skills for a Digital World: 2016 Ministerial Meeting on the Digital Economy Background Report”, OECD Digital Economy Papers, No. 250, OECD Publishing, Paris.

OECD (2016c), “Automation and Independent Work in a Digital Economy”, Policy Brief on The Future of Work, OECD Publishing, Paris.

OECD (2016d), Back to Work: Australia. Improving the Re-employment Prospects of Displaced Workers.

OECD (2016e), Investing in Youth: Australia. OECD Publishing, Paris.

OECD (2016f), PISA 2015 Results (Volume I): Excellence and Equity in Education, PISA, OECD Publishing, Paris.

OECD (2016g), “Skills for a Digital World: 2016 Ministerial Meeting on the Digital Economy Background Report”, OECD Digital Economy Papers, No. 250, OECD Publishing, Paris.

OECD (2015), In It Together: Why Less Inequality Benefits All, OECD Publishing, Paris.

OECD (2014), OECD Economic Surveys: Australia 2014. OECD Publishing, Paris.

OECD (2012), OECD Economic Surveys, Australia, OECD Publishing, Paris

OECD (2008), Growing Unequal? Income Distribution and Poverty in OECD Countries, OECD Publishing, Paris.

Oldenski, L. (2014), “Offshoring and the Polarization of the U.S. Labor Market”, Industrial and Labor Relations Review.

Pascoe, S. and Brennan, D. (2017) Lifting our Game: Report of the Review to Achieve Educational Excellence in Australian Schools through Early Childhood Interventions.

Productivity commission (2018a), Rising inequality? A stocktake of the evidence. Productivity Commission Research Paper, August 2018.

Productivity Commission (2018b), "Early Childhood Education and Care" Chapter 3 in Report on Government Services 2018, Part B.

Productivity Commission (2018c), "Vocational Education and Training" Chapter 5 in Report on Government Services 2018, Part B.

Productivity Commission (2017a), "Transitioning Regional Economies. Productivity Commission Study Report. December 2017.

Productivity Commission (2017b), Future skills and work, Chapter 3 in Shifting the Dial: 5 year productivity review - Inquiry report.

Productivity Commission (2017c), Shifting the Dial: 5 year productivity review - Inquiry report.

Productivity Commission (2016), National Education Evidence Base.

Productivity Commission (2014a), Childcare and Early Childhood Learning. Public Inquiry.

Productivity Commission (2014b), Public Infrastructure, Productivity Commission Inquiry Report, No 71, 27, May 2014.

QILT (2018), 2017 Graduate Outcomes Survey, National Report. QILT – quality indicators for learning and teaching.

Sila, U. (2018), Job displacement in Australia: Evidence from the HILDA survey, OECD Economics department working paper, forthcoming.

Sila, U., and Dugain, V. (2018a), Income, wealth and earnings inequality in Australia: Evidence from the HILDA Survey, OECD Economics department working paper, forthcoming.

Sila, U., and Dugain, V. (2018b), Characteristics of people at risk of poverty in Australia: Evidence from the HILDA survey, OECD Economics department working paper, forthcoming.

Sonnemann, J. and Goss, P. (2018), The Commonwealth's role in improving schools. Grattan Institute, February 2018.

Terrill, M. (2018), "Stuck in traffic? Road congestion in Sydney and Melbourne", Grattan Institute Report, No. 2017-10, October 2017.

Terrill, M. (2016), "Cost overruns in transport infrastructure", Grattan Institute Report No. 2016-13, October 2016.

Terril, M. and H. Batrouney, (2018), Unfreezing discount rates, transport infrastructure for tomorrow, Grattan Institute, 2018.

The Economist (2017), Rio Tinto puts its faith in driverless trucks, trains and drilling rigs, June 2017.

Timmer, M. P., Eurmban, A. A., Los, B., Stehrer, R., and de Vries, G. J. (2014), 'Slicing Up Global Value Chains', Journal of Economic Perspectives, 28(2), pp 99–118.

Transurban (2016), Changed Conditions Ahead, Melbourne Road Usage Study, October 2016.

Whichcar (2018), How Australia compares globally for electric vehicle sales, March 2018.

ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

The OECD is a unique forum where governments work together to address the economic, social and environmental challenges of globalisation. The OECD is also at the forefront of efforts to understand and to help governments respond to new developments and concerns, such as corporate governance, the information economy and the challenges of an ageing population. The Organisation provides a setting where governments can compare policy experiences, seek answers to common problems, identify good practice and work to co-ordinate domestic and international policies.

The OECD member countries are: Australia, Austria, Belgium, Canada, Chile, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Israel, Italy, Japan, Korea, Latvia, Lithuania, Luxembourg, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. The European Union takes part in the work of the OECD.

OECD Publishing disseminates widely the results of the Organisation's statistics gathering and research on economic, social and environmental issues, as well as the conventions, guidelines and standards agreed by its members.

OECD PUBLISHING, 2, rue André-Pascal, 75775 PARIS CEDEX 16
(10 2018 24 1 P) ISBN 978-92-64-30858-9 – 2018

OECD Economic Surveys

AUSTRALIA

Australia's long span of positive output growth continues, demonstrating the economy's resilience. In the absence of negative shocks, policy rates should start to rise soon, as wage growth and price-inflation pick up. Fiscal discipline will nevertheless still be required to bring balances to surplus. Despite countervailing measures, the housing market and related debt pose macroeconomic risks. Furthermore, as flagged in previous Surveys, there is room to improve the tax system, notably through greater use of value-added tax and less use of inefficient and distorting taxes, such as real-estate transactions tax.

Levels of well-being are generally high but climate-change policy still lacks clarity and stability and there are socio-economic challenges. Some groups are at high risk of being disrupted by globalisation and technological change and this is the theme of this Survey's in-depth chapter. Further reforms to education, including efforts to improve PISA scores and vocational education, and better target disadvantaged students, are important. So too is activation policy where there is scope to improve employment services, support for displaced workers and measures helping parents combine work and family life. Australia's highly urbanised population means that good metropolitan transport, planning and housing policy can importantly boost labour-market flexibility, as well as living standards.

SPECIAL FEATURE: COPING WITH GLOBALISATION AND TECHNOLOGICAL CHANGE

Consult this publication on line at ***https://doi.org/10.1787/eco_surveys-aus-2018-en***.

This work is published on the OECD iLibrary, which gathers all OECD books, periodicals and statistical databases.
Visit ***www.oecd-ilibrary.org*** for more information.

Volume 2018/Supplement 5
December 2018

OECD publishing
www.oecd.org/publishing

ISSN 0376-6438
2018 SUBSCRIPTION
(18 ISSUES)

ISBN 978-92-64-30858-9
10 2018 24 1 P

9 789264 308589