



Economic Issues

Insights from the 2016 Census

South Australian
Centre for Economic Studies
University of Adelaide



Economic Issues

No. 51

Insights from the 2016 Census

Author:

Anthony Kosturjak, Senior Research Economist, SACES

March 2018

**South Australian Centre for Economic Studies
University of Adelaide**

ISSN 1445-6826

Copyright: All rights reserved. The Copyright Act 1968 permits fair dealing for study, research, news reporting, criticism or review. Selected passages, tables or diagrams may be reproduced for such purposes provided acknowledgement of the source is included. Otherwise, no part of this publication may be reproduced, stored or transmitted in any form or by any means without the prior permission in writing of the Publisher.

Disclaimer: While embodying the best efforts of the investigators this Issue Paper is but an expression of the issues considered most relevant, and neither SACES, the investigators, nor the University of Adelaide can be held responsible for any consequences that ensue from the use of the information in this report. Neither SACES, the investigators, nor the University of Adelaide make any warranty or guarantee regarding the contents of the report, and any warranty or guarantee is disavowed except to the extent that statute makes it unavoidable.

The views expressed in this paper are the views of the author(s), and should not be taken to represent the views of the South Australian Centre for Economic Studies nor the University of Adelaide.

Published by: South Australian Centre for Economic Studies
University of Adelaide
SA 5005
AUSTRALIA
Telephone: (61+8) 8313 5555
Facsimile: (61+8) 8313 4916
Internet: <http://www.adelaide.edu.au/saces>
Email: saces@adelaide.edu.au

© SA Centre for Economic Studies, 2018

Subscription and Corporate Membership:

Information on Corporate Membership of the SA Centre for Economic Studies may be obtained by contacting SACES or at our website, www.adelaide.edu.au/saces

Executive Director's Note

Welcome to the fifty first issue of *Economic Issues*, a series published by the South Australian Centre for Economic Studies as part of its Corporate Membership Program. The scope of *Economic Issues* is intended to be broad, limited only to topical, applied economic issues of relevance to South Australia and Australia. Within the scope, the intention is to focus on key issues – public policy issues, economic trends, economic events – and present an authoritative, expert analysis which contributes to both public understanding and debate. Papers will be published on a continuing basis, as topics present themselves and as resources allow.

This paper provides a high level overview of the 2016 census data for South Australia, highlighting notable trends and patterns in relation to demography, labour force, education, structural changes and incomes. In general, the 2016 census confirms what other survey data and partial indicators have implied: that South Australia underperformed during the last inter-census period. The State experienced more unfavourable demographic trends in terms of population ageing, decline in the relative size of the working age population, sustained interstate migration losses, and significant deterioration in labour market conditions. Although a number of socio-economic trends have not been unique to South Australia (e.g. rising youth unemployment, decline in manufacturing employment), in some cases they have been felt more strongly within the State.

The most notable socio-economic and demographic trends over the last inter-census period include: a heightened degree of structural change as evidenced by an accelerated decline in manufacturing employment; failure to grow full-time employment levels; slowdown in wages growth; and ageing of the population. The latter has not only contributed to the ageing of the workforce, it has affected the structure of employment, contributing to strong growth in the health care and aged care sectors. Such demographic trends not only have implications for public policy in terms of ensuring efficient and effective delivery of public services in respect of health and ageing services, they have implications for business in terms of sustaining access to required skills and labour resources.

The author of this paper is Anthony Kosturjak, Senior Research Economist, SACES. The views expressed in the report are the view of the author.

Michael O'Neil
Executive Director
SA Centre for Economic Studies
March 2018

Recent Issues Papers

50. "To Ignore Reform is to Ignore Opportunity: Creating a more effective and sustainable public sector", by Michael O'Neil and Darryl Gobbett, February 2018
49. "Development Strategy for Reinventing South Australia", by Michael O'Neil and Darryl Gobbett, January 2018.
48. "EFTPOS In Gaming Areas: Wrong Way – Go Back!", by Michael O'Neil, April 2016.
47. "The Aged Structure of the Population and Economic Growth – Does it Matter?", by Michael O'Neil and Lauren Kaye, February 2016.
46. "The Regulatory Load in South Australia and Impact on Economic Activity", by Darryl Gobbett, Michael O'Neil and Steve Whetton, February 2016.
45. "Where Do We Go From Here? South Australia's Economic Prospects Going Forward and the Role of Government", by Michael O'Neil, Steve Whetton, Darryl Gobbett and Christopher Findlay AM, July 2015.
44. "Should South Australians Really Be 'Down in the Mouth'? Macroeconomic Performance", by Michael O'Neil, Steve Whetton, Darryl Gobbett and Christopher Findlay AM, June 2015.
43. "Exceeding the Limit: How Excessive Speeding Fines May Undermine Community Engagement with Government Road Safety Policies", by Michael O'Neil and Lauren Kaye, June 2015.
42. "Structural Change: Lessons from Port Augusta's Experience in the 1990s", by Michael O'Neil, July 2014.
41. "The Labour Market, Competitiveness, Employment and Economic Prospects", by Michael O'Neil, Lauren Kaye and Mark Trevithick, June 2014.
40. "Providing Local Economic Stimulus and Promoting Local Economic Development: Possibilities for Councils in South Australia", by Michael O'Neil, Cliff Walsh, Anthony Kosturjak and Mark Trevithick, October 2013.
39. "The Task of Strengthening Regional Development", by Michael O'Neil, September 2013.
38. "Localism: Learning from Federal Nation Building (Economic Stimulus) Projects", by Michael O'Neil, Steve Whetton and Suraya Abdul Halim, September 2013.
37. "Re-Thinking Social Policy: Place-Shaped As Well As People-Focussed", by Cliff Walsh and Michael O'Neil, May 2013.
36. "South Australian Centre for Economic Studies: 30 Year Anniversary", by Gary Banks AO and Gary Sturges AM, April 2013.
35. "Is Adelaide a University City?", by Michael O'Neil and Mark Trevithick, April 2013.
34. "Assisting Regions and Communities to Cope with Structural Change: Context, Objectives, Principles and Good Practice", by Cliff Walsh and Michael O'Neil, August 2011.
33. "The Economic Consequences of the Euro" by Colin Rogers, July 2011.
32. "Banking Competition: The Rhetoric and the Reality" by Dr Penny Neal, May 2011.
31. "South Australian Labour Markets: 2000 to 2010" by Michael O'Neil and Mark Trevithick, February 2011.
30. "Migration Trends in South Australia, 1998/99 to 2008/09" by Mark Trevithick, January 2011.
29. "Decline and Rejuvenation: The Provincial Cities of South Australia" by Michael O'Neil, Mark Trevithick, Daisy McGregor and Antony Pietsch, January 2011.
28. "Re-Thinking the Approach to Regional Development in South Australia", by Michael O'Neil and Cliff Walsh, December 2010.
27. "Identifying the Main Economic Issues Facing the South Australian Wine Industry", by Nicola Chandler, April 2010.
26. "Nuclear Power in Southeast Asia: Implications for Australia and Non-Proliferation", by Andrew Symon, April 2009.
25. "The Global Economic Crisis of 2008: Some Thoughts on Causes and Remedies", by Colin Rogers, January 2009.
24. "Assisting Injured Workers Return to Work: The Economy Needs You!", by Michael O'Neil and Peter Lumb, November 2008.
23. "A Review of the Literature of Active Labour Market Policies", by Michael O'Neil and Penny Neal, June 2008.
22. "Self-Managed Superannuation Funds: Some Public Policy Issues Regarding Their 'Decumulation' Phase, by Owen Covick, April 2008.
21. "Australia's Productivity Growth in the 21st Century", by Dean Parham, September 2007.
20. "Building a Local Defence Industry: Workforce Requirements 2006-2010", by Michael O'Neil, Steve Whetton and Edwin Dewan, March 2007.
19. "Running on Empty: The Risk of Continuing to Dither While the Empty Light is Flashing", by Professor Peter Cullen, AO, FTSE, January 2007.
18. "South Australia's Recent Productivity Performance" by Jim Hancock and Wing Hsieh, April 2006.
17. "Mining the Labour Market: The Estimated Demand for Labour in the SA Mining Sector, 2006-2014" by Michael O'Neil and Paul Huntley, April 2006.
16. "Australia's New Trade Agreements: Beneficial Liberalisation or Harmful Policy?" by Andrew Symon, November 2005.
15. "Wind Generation and the South Australian Economy" by Stephen Nelson, April 2005.
14. "South Australia's Overseas Exports" by Paul Huntley, March 2005.
13. "The 2004/05 South Australian Budget" by Jim Hancock, July 2004.
12. "The Relative Decline of Manufacturing Employment in South Australia" by Anthony Kosturjak and Joshua Wilson-Smith, July 2004.
11. "An Ageing Australia: Small Beer or Big Bucks?" by Gary Banks, May 2004.
10. "Enhancing Trust in Australia's Tax System" by Owen Covick, April 2004.
9. "Inquiry into the Management of Electronic Gaming Machine Numbers" by Michael O'Neil and Steve Whetton, April 2004.
8. "Review of the South Australian Economy, 1990-2003" by Michael O'Neil, Penny Neal and Anh Thu Nguyen, March 2004.

7. "Darwin: A Gateway to Asia?" by Andrew Symon, March 2004.
6. "Innovation Activity and Income Levels: A Summary of Indicators" by Jim Hancock, Marianne Herbert and Steve Whetton, April 2003.
5. "The SA Labour Market Through the 1990s" by Anthony Kosturjak, February 2003.
4. "The 2002/03 Commonwealth Budget" by Owen Covick, August 2002.
3. "An Assessment of the Impact of Gaming Machines on Small Regional Economies" by Michael O'Neil and Steve Whetton, May 2002.
2. "Timor Sea Natural Gas Development: Still in Embryo" by Andrew Symon, August 2001.
1. "The 2001/02 South Australian Budget" by Jim Hancock, August 2001.

1. Introduction

The Australian Bureau of Statistics (ABS) conducts the national Census of Population and Housing every five years. The census aspires to collect information on the characteristics of all people and dwellings in Australia on census night.¹ It consequently provides a comprehensive picture of the demographic, socio-economic, labour force and dwelling characteristics of the Australian population, including for small geographic areas and population groups.

In the following Issues Paper we review the 2016 census data to identify stylistic facts regarding the South Australian population, identifying changes over time and notable differences relative to national patterns. The aim of the paper is to provide a high level overview of notable developments rather than an exhaustive analysis. Key topics that are considered include demography, labour force, education, structural changes (i.e. employment by industry) and incomes.

It is important to note that not all census data had been processed and released at the time of writing. For example, detailed employment by industry data was only available in limited formats, while migration data and Socio-Economic Indexes for Areas – which rank areas according to their relative socio-economic advantage and disadvantage – had not yet been released.²

2. Demography

Ageing of the population is a well-known phenomenon and South Australia has been near the forefront of this trend, at least within Australia. The median age of the South Australian population in 2016 was 40 years, approximately 2 years higher than the national median age of 38 years. Tasmania was the only state or territory with a higher median age than South Australia in 2016 (42 years).

In addition to being relatively older compared to the national profile, the South Australian population has also aged at a faster pace. Between 2006 and 2016 the share of the state's population aged 65 years and over rose by 2.9 percentage points to 18.3 per cent, while this cohort's share nationally rose by 2.4 percentage points to 15.7 per cent.

There have been some notable changes in the aggregate and relative size of particular age groups since the previous census. The impact of baby boomers entering retirement age is especially apparent – refer Table 1.³ Between 2011 and 2016 the number of persons aged 65 to 74 years rose by 27 per cent, which is more than 5 times the proportional increase in total population over this period (5.0 per cent). A very similar pattern is observed nationally with the 65 to 74 year cohort growing by 28 per cent.

Another notable outcome is a decline in the population aged 35 to 44 years. The aggregate size of this age group fell by 3.2 per cent over the 5 years to 2016, whereas at the national level it rose by 2.7 per cent. The contraction of this age group would be in part explained by the bulge in the baby boomer cohort moving into older age groups. It would also be explained by the loss of younger cohorts via interstate migration, reducing inflows into older age groups. South Australia has traditionally experienced net interstate migration losses, which tend to be concentrated among the 15-24, 25-34 and 35-44 age groups. These migration losses have strengthened over recent years.

The other main age demographic trend has been rapid growth among the oldest ages. The population aged 85 years and over rose by 17 per cent between 2011 and 2016, which was the second strongest rise among the age groups reported in Table 1. Rapid growth within the oldest ages, and population ageing more generally, places increased pressure on health and social assistance systems, which in large part explains the strength of employment growth observed in the health care and social assistance sector – refer section 4.2.

One of the main consequences of population ageing and baby boomers entering retirement is that the share of the working age population (i.e. persons aged 15 to 64 years) has started to fall noticeably since the previous census. While the share of the working age population fell by just 0.2 percentage points to 65.9 per cent over the 5 years to 2011, it fell by 1.7 per cent points to 64.2 per cent over the subsequent 5 years to 2016. This trend means there are now less people of working age to support people in retirement. For example, while there were 4.3 persons of working age to support every person of retirement age (i.e. 65 years and over) in 2006, by 2016 this ratio had fallen to 3.5 persons. By comparison, the corresponding national ratio fell from 5.0 to 4.2 persons over this period. These patterns will of course only intensify as more baby boomers enter retirement.

Table 1: South Australian Population by Age Group by Census Year

| Age group | Persons | | | Share of total (per cent) | | | % Change 2011 to 2016 |
|-------------------|-----------|-----------|-----------|---------------------------|-------|-------|--------------------------|
| | 2006 | 2011 | 2016 | 2006 | 2011 | 2016 | |
| 0-4 years | 87,332 | 96,143 | 97,072 | 5.8 | 6.0 | 5.8 | 1.0 |
| 5-14 years | 193,490 | 190,793 | 195,927 | 12.8 | 12.0 | 11.7 | 2.7 |
| 15-24 years | 200,863 | 208,836 | 208,672 | 13.3 | 13.1 | 12.4 | -0.1 |
| 25-34 years | 185,745 | 202,326 | 218,112 | 12.3 | 12.7 | 13.0 | 7.8 |
| 35-44 years | 219,066 | 216,372 | 209,468 | 14.5 | 13.6 | 12.5 | -3.2 |
| 45-54 years | 216,887 | 224,942 | 226,891 | 14.3 | 14.1 | 13.5 | 0.9 |
| 55-64 years | 177,823 | 199,608 | 213,924 | 11.7 | 12.5 | 12.8 | 7.2 |
| 65-74 years | 115,096 | 133,203 | 168,849 | 7.6 | 8.3 | 10.1 | 26.8 |
| 75-84 years | 87,430 | 86,193 | 93,259 | 5.8 | 5.4 | 5.6 | 8.2 |
| 85 years and over | 30,594 | 38,155 | 44,479 | 2.0 | 2.4 | 2.7 | 16.6 |
| Total | 1,514,340 | 1,596,569 | 1,676,653 | 100.0 | 100.0 | 100.0 | 5.0 |

Source: ABS, 2016 Census of Population and Housing, *Time Series Profile*, Cat. No. 2003.0.

Enhanced losses from the workforce due to population ageing driven retirement will present challenges for employers in terms of replacing skilled workers. The scale of the challenge is illustrated by the fact that the aggregate size of the 55 to 64 year age group that is about to enter retirement age is larger than the 5 to 14 year age group which will soon enter the workforce (213,924 cf. 195,927 in 2016). A similar though less severe pattern was evident in 2011, whereas in 2006 and earlier years the younger cohort was significantly larger. It represents a significant break from the past when rising female participation and the surge of baby boomers significantly expanded the workforce.

3. Migration

The census collects information on a person's place of usual residence one and five years before the census. This information provides insight into internal migration patterns within Australia.

Table 2 shows for each state and territory, counts of interstate inward migration, outward migration and the net difference. There has been a general pattern of net interstate migration losses for New South Wales, South Australia and the Northern Territory, and migration gains for Queensland, Victoria and, to a lesser degree, the Australian Capital Territory. Although the former regions have experienced net interstate migration losses, they continue to attract significant inward migration from interstate. For example, while South Australia lost almost 64,000 people via interstate emigration between 2001 and 2016, the state gained about 51,000 people via interstate migration.

Table 2: Interstate Migration Movements by State and Territory, 2011 to 2016^(a)

| | Inward migration | Outward migration | Net change |
|------------------------------|------------------|-------------------|------------|
| New South Wales | 191,677 | 240,553 | -48,876 |
| Victoria | 174,841 | 146,602 | 28,239 |
| Queensland | 220,316 | 180,263 | 40,053 |
| South Australia | 51,227 | 63,775 | -12,548 |
| Western Australia | 78,316 | 77,916 | 400 |
| Tasmania | 29,062 | 31,014 | -1,952 |
| Northern Territory | 32,081 | 40,336 | -8,255 |
| Australian Capital Territory | 47,869 | 44,648 | 3,221 |
| Other Territories | 632 | 933 | -301 |

Note: (a) Migration based on place of usual resident five years ago as indicated in the 2016 census.

Source: ABS, 2016 Census of Population and Housing, *General Community Profile*, various. Cat. No. 2901.0.

For those South Australians who migrated interstate between 2011 and 2016, the most popular destinations were Victoria (31 per cent), Queensland (24 per cent) and New South Wales (20 per cent). Looking at those who migrated to South Australia over this period, the most significant sources of origin were Victoria (26 per cent), New South Wales (25 per cent) and Queensland (21 per cent). While South Australia had a negative population migration balance with most states and territories, it effectively broke even with New South Wales (loss of just 160 persons) and had a significant net gain from the Northern Territory (1,700 persons). While the census provides no information on what prompted people to migrate interstate, a combination of job opportunities, family and lifestyle factors are all undoubtedly catalysts.

With net interstate migration losses population growth in South Australia has been maintained by a combination of natural increase and especially overseas migration. About 75,000 people living in South Australia at the time of the 2016 census – equivalent to 4.7 per cent of the total population – had lived overseas 5 years previously. The proportion of the total population who previously lived overseas was lower for South Australia than the national average (6.3 per cent), while only Tasmania had a lower share of overseas migrants (2.5 per cent).⁴ These results emphasise that South Australia underperforms in terms of attracting overseas migrants.

4. Labour Force Characteristics

Table 3 presents census data on key labour force characteristics for South Australia and other states and territories, including the unemployment rate, participation rate and employment to population ratio. For comparative purposes, corresponding estimates from the Labour Force Survey (LFS) are also shown as they represent the official estimates of Australian labour force parameters including the unemployment rate. It is important to note that the census and LFS estimates are not directly comparable due to various methodological difference between the two data collections. These differences include variations in terms of scope and coverage, collection method⁵, treatment of non-respondents, and presence of sampling error in the LFS estimates. The latter of course reflects that the LFS is based on a sample of the population whereas the census seeks to collect data for the whole population (ABS 2016).

Table 3: Labour Force Characteristics by State and Territory
2016 Census of Population and Housing and Labour Force Survey

| | NSW | VIC | QLD | SA | WA | TAS | NT | ACT | AUST |
|---|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Census estimates (2016) | | | | | | | | | |
| Employment status as % total employed | | | | | | | | | |
| Employed - worked full-time ^(a) | 63.1 | 61.1 | 62.4 | 58.3 | 61.8 | 56.2 | 72.1 | 66.7 | 62.0 |
| Employed - worked part-time | 31.7 | 33.7 | 32.4 | 36.2 | 32.5 | 37.7 | 20.9 | 27.8 | 32.7 |
| Employed - away from work ^(b) | 5.2 | 5.3 | 5.2 | 5.4 | 5.7 | 6.1 | 6.9 | 5.6 | 5.3 |
| Employed – total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Unemployment rate (%) | 6.3 | 6.6 | 7.6 | 7.5 | 7.8 | 7.0 | 7.0 | 4.7 | 6.9 |
| Labour force participation rate (%) ^(c) | 59.2 | 60.5 | 61.0 | 58.3 | 62.9 | 55.5 | 61.5 | 66.8 | 60.3 |
| Employment to population ratio (%) ^(d) | 55.5 | 56.5 | 56.4 | 53.9 | 58 | 51.6 | 57.3 | 63.7 | 56.1 |
| Official Labour Force Survey estimates^(e) | | | | | | | | | |
| Unemployment rate | 5.0 | 5.6 | 6.1 | 6.7 | 6.2 | 7.3 | 3.9 | 3.5 | 5.6 |
| Participation rate | 63.2 | 65.0 | 64.1 | 61.5 | 66.6 | 59.7 | 73.3 | 70.4 | 64.2 |
| Employment to population ratio | 60.0 | 61.4 | 60.2 | 57.4 | 62.5 | 55.3 | 70.4 | 67.9 | 60.6 |

Note: (a) Defined as having worked 35 hours or more in all jobs during the week prior to census night.
(b) Comprises employed persons who did not work any hours in the week prior to census night or did not state hours worked.
(c) Persons in the labour force (i.e. employed or unemployed) as a proportion of persons aged 15 years and over.
(d) Employed persons as a proportion of persons aged 15 years and over.
(e) Based on original data for the month of August 2016.

Source: ABS, 2016 Census of Population and Housing, *General Community Profile*, various. Cat. No. 2901.0.

The methodological differences between the census and LFS gives rise to some persistent differences between the labour force estimates produced by two the sources. For instance, unemployment rates as measured by the census are consistently higher, whereas labour force participation rates and employment to population ratios are consistently lower – refer Table 3. These differences are partly explained by the LFS including a broader range of questions to more accurately identify the labour force status of individuals. The ABS notes that “the omission of these additional questions from the census may result in some employed people being incorrectly categorised as either unemployed or not in the labour force, and some unemployed people being categorised as not in the labour force” (ABS 2016).

Unemployment

According the 2016 census, South Australia had an unemployment rate of 7.5 per cent, which was 0.6 percentage points higher compared to the national unemployment rate of 6.9 per cent. Interestingly, both Western Australia (7.8 per cent) and Queensland (7.6 per cent) had higher unemployment rates, indicating that South Australia had the third highest unemployment rate across all states and territories. These results stand in contrast to the official LFS estimates at the time, which suggested that South Australia had the second highest unemployment rate (6.7 per cent) behind Tasmania (7.3 per cent), while Western Australia and Queensland had moderately lower unemployment rates (6.2 and 6.1 per cent respectively). Furthermore,

South Australia's official unemployment rate was 1.1 percentage points higher than the national rate of 5.6 per cent – a relatively larger difference than indicated by the census data.

Why South Australia's labour market performance relative to other states and territories in August 2016 (as measured by the unemployment rate) looks less poor according to census than LFS data is uncertain.⁶ It is possible that the unemployment rate was simply overstated by the LFS at the time due to sampling error. South Australia's official unemployment rate has since fallen back toward the national rate, which lends credence to this hypothesis. On the other hand, methodological differences between the two collections and certain features of the South Australian population may account for the discrepancies. It is noticeable that census-LFS unemployment rate differentials were lowest for South Australia and Tasmania, the two states with the relatively oldest populations. Does the more limited questioning applied by the census lead to older unemployed and employed persons being incorrectly categorised as not in the labour force and unemployed respectively?

A consideration of regional variances in labour market performance is provided in Box 1.

Box 1 Regional Dimensions of Unemployment

Regional dimensions of labour market health across South Australia were considered by examining unemployment rates by Statistical Area Level 2 (SA2). SA2s are medium-sized general purpose areas defined by the ABS to represent a "community that interacts together socially and economically" (ABS 2016a).

The Anangu Pitjantjatjara Yankunytjatjara (APY) Lands had the highest rate of unemployment in South Australia in 2016 with just over one in four people in the labour market being classified as unemployed. The APY Lands are located in a remote part of the state with a very limited economic base, and hence suffers a high degree of relative socio-economic disadvantage. Elsewhere in regional South Australia unemployment tended to be highest in major urban centres. Unemployment rates were particularly high for the "Iron Triangle" regional cities of Whyalla (12.4 per cent), Port Pirie (11.6 per cent), and Port Augusta (9.7 per cent). These provincial cities, which originally developed on the back of major industrial activities, have been hit particularly hard by the decline in manufacturing over recent decades. Turning elsewhere, unemployment was also relatively high for Renmark (10.2 per cent), Murray Bridge (9.6 per cent) and Coober Pedy (9.5 per cent).

Figure 1 illustrates patterns of unemployment for SA2s in the Greater Adelaide metropolitan area. The Elizabeth region had the highest rates of unemployment in South Australia outside the APY Lands with the SA2s of Elizabeth (21.9 per cent), Smithfield – Elizabeth North (20.1 per cent) and Davoren Park (16.1 per cent) recording particularly high rates of unemployment. As Figure 1 shows, unemployment was relatively high throughout northern Adelaide in a band stretching south-southwest from Elizabeth down to Enfield – Blair Athol, and then westward across to Port Adelaide. In Southern Adelaide there was an area of high unemployment situated around the Christie Downs region.

If one were to superimpose a map of employment by industry on top of the regional map of unemployment rate it would show that the latter are correlated with regions of high manufacturing employment. Hence Adelaide's pattern of spatial unemployment reflects the impact of structural change in terms of the contraction of traditional manufacturing activities.

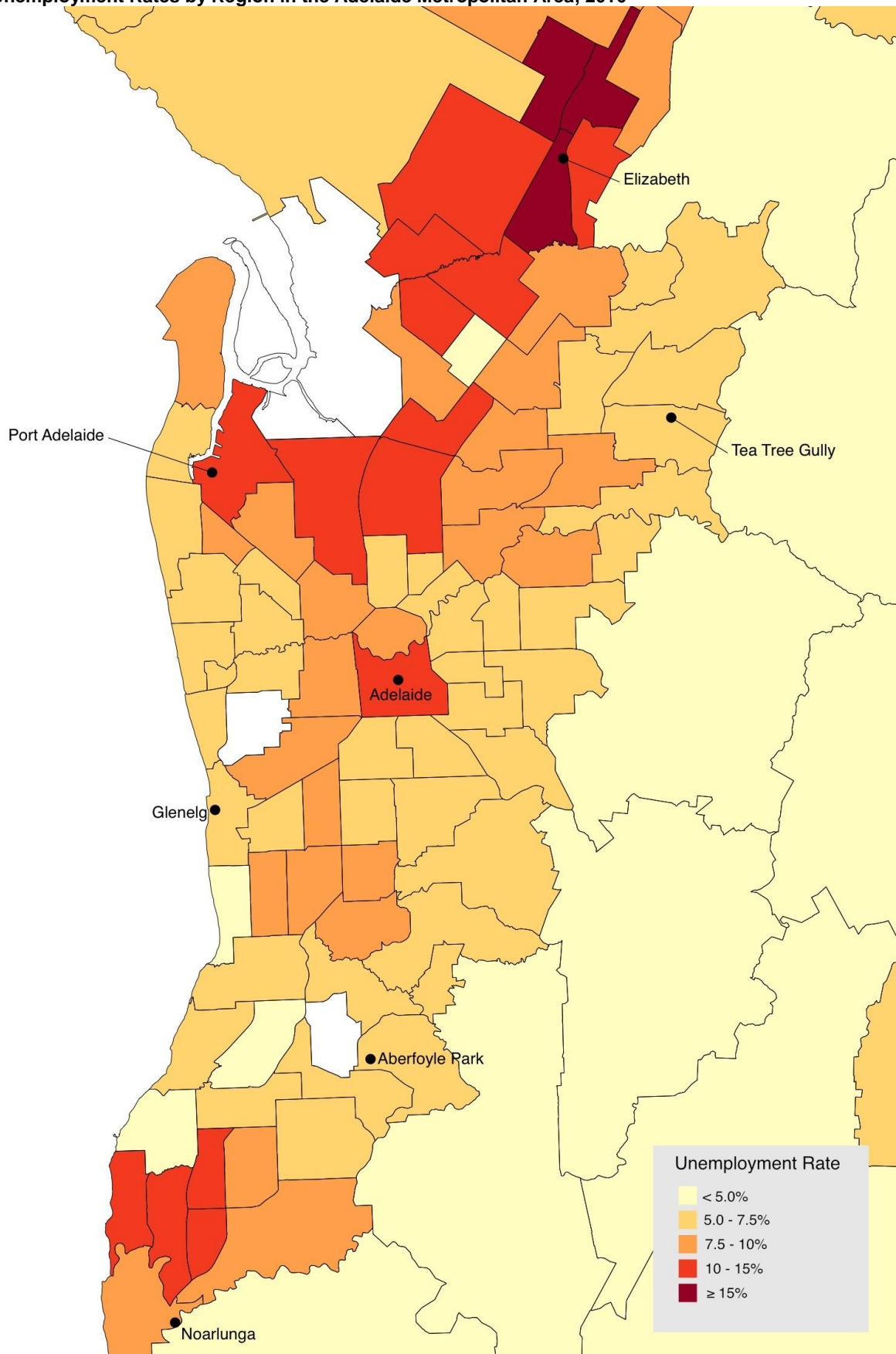
Unemployment rates were generally low in the sparsely populated Adelaide Hills regions, and below average in the eastern and south eastern suburbs, and to a lesser degree along the western metropolitan coastline.

Participation

Looking at other measures of South Australia's labour market performance, the 2016 census indicates that South Australia had a relatively lower participation rate compared to the nation (58.3 per cent c.f. 60.3 per cent), and a relatively lower employment to population ratio (53.9 per cent c.f. 56.1 per cent). Compared to other states and territories, South Australia was ranked second lowest for both these measures behind Tasmania. Notwithstanding differences in levels, these results are consistent with the corresponding LFS estimates whereby South Australia was ranked second lowest.

South Australia's lower labour force participation rate is wholly explained by the older age structure of the population. The participation rate for those of working age in 2016 (i.e. 15 to 64 years) was virtually identical to the corresponding national figure (71.6 per cent compared to 71.7 per cent). On the surface this is a positive result as it suggests people have not become discouraged from looking for work despite higher unemployment in South Australia. However, parity in participation rates has been maintained in part by people migrating interstate to pursue job opportunities and enhanced career prospects.

Figure 1: Unemployment Rates by Region in the Adelaide Metropolitan Area, 2016^(a)



Note: Regions are Statistical Area Level 2 (SA2) as defined by the ABS's Australian Statistical Geography Standard (2016a).
 Source: ABS, 2016 Census of Population and Housing, *General Community Profile*, various. Cat. No. 2901.0.

One of the interesting changes in labour force participation over time has been an increase in participation among older cohorts. For example, labour force participation for those aged 55 to 64 years rose from 54 to 62 per cent between 2006 and 2016, while participation for 65 to 74 year olds rose from 12 to 18 per cent – refer Table 4. This lift has occurred across both genders, but has been significantly more pronounced for females, reflecting the earlier increase in labour force participation among baby boomer females. Other factors contributing to this trend would include, inter alia, various factors that have enabled people to work longer, including a shift away from physically demanding occupations to knowledge based industries, improved general health outcomes, and labour enhancing technological change; government policies designed to boost participation among older cohorts (e.g. increase in Age Pension age); and a shift away from relatively generous employer funded defined benefit superannuation schemes toward defined contribution schemes.

Table 4: Labour Force Characteristics by Age Group and Census Year, South Australia

| Age group | Share in full-time employment (%) | | | Unemployment rate (%) | | | Participation rate (%) | | |
|-------------------|-----------------------------------|------|------|-----------------------|------|------|------------------------|------|------|
| | 2006 | 2011 | 2016 | 2006 | 2011 | 2016 | 2006 | 2011 | 2016 |
| 15-24 years | 46.8 | 42.2 | 35.8 | 10.6 | 12.6 | 16.5 | 63.8 | 62.2 | 60.2 |
| 25-34 years | 68.5 | 67.2 | 64.4 | 5.5 | 5.9 | 7.4 | 77.6 | 78.5 | 77.7 |
| 35-44 years | 63.9 | 63.8 | 63.3 | 4.4 | 4.6 | 6.0 | 78.6 | 79.6 | 79.3 |
| 45-54 years | 67.1 | 65.8 | 65.3 | 3.2 | 3.8 | 5.3 | 78.8 | 79.6 | 78.3 |
| 55-64 years | 61.1 | 60.0 | 59.5 | 3.5 | 3.4 | 5.3 | 54.2 | 59.9 | 61.9 |
| 65-74 years | 40.7 | 39.5 | 39.8 | 1.5 | 1.6 | 2.1 | 11.9 | 16.5 | 18.2 |
| 75 years and over | 34.0 | 27.1 | 29.4 | 2.3 | 1.8 | 2.8 | 2.2 | 2.2 | 3.2 |
| Total | 61.8 | 60.2 | 58.3 | 5.2 | 5.7 | 7.5 | 59.0 | 59.9 | 58.3 |

Some other noticeable changes in labour force participation by age and gender over the last decade include:

- a fall in participation for all male cohorts aged below 55 years;
- a rise in participation for all female cohorts aged 25 years and over (despite a modest decline for those aged 45 to 54 years between 2011 and 2016); and
- relatively large declines in participation for both males and females aged 15 to 24 years, with a much more pronounced effect for males.

The latter appears to be in large part explained by increased participation in education and training, particularly at the tertiary level. In 2016, about 38 per cent of persons aged 15 to 24 years reported attending a university or other tertiary institution, up from 27 per cent in 2006. The more pronounced decline in male labour force participation, which occurred between 2011 and 2016, may also be the product of structural changes in employment. Strong growth in male dominant industries such as construction and mining helped to sustain male participation between 2006 and 2011, but employment in these sectors stagnated between 2011 and 2016. Reduced opportunities in these sectors may have encouraged younger males to pursue further education instead.

Full-time and Part-time

A relatively lower share of the South Australian workforce reported being employed on a full-time-basis compared to the national workforce in 2016 (58.3 per cent c.f. 62.0 per cent). This result is partly a product of the older age profile of the South Australia workforce as older workers increasing shift to part time employment as they reach and pass retirement age – refer Table 4. It would also reflect structural differences in the South Australian economy, including greater representation in sectors that have relatively high part-time employment (e.g. health care and social assistance, and retail trade), and lower representation in sectors that have high full-time employment (e.g. construction, mining, and professional, scientific and technical services).

The share of people in full-time employment has steadily declined over time, from 62 per cent in 2006 to 58 per cent in 2016. South Australia is not unique in this sense as similar patterns are observed across Australia, although to a less severe degree.⁷ Several underlying factors have contributed to the falling full-time employment trend, including population ageing; a shift in employment growth toward services industries which typically have higher part-time and casual employment compared to traditional industries; and adoption of more flexible working arrangements.

The relatively larger decline in full-time employment for South Australia is due to a combination of the more rapid ageing of the state's population, ongoing decline in manufacturing employment and weakness in other sectors – refer below. Manufacturing, which has one of the highest sectoral levels of full-time employment (78 per cent in 2016), has traditionally been of greater importance to the South Australian than Australian economy.

Its contraction consequently represents a significant loss of full-time jobs, and other sectors have been unable to compensate for the loss of these jobs, particularly during the last inter-census period. For example, total full-time employment in South Australia actually fell by 2.2 per cent (10,000 persons) between 2011 and 2016, whereas nationally it rose by 4.4 per cent.

Youth Unemployment

One of the notable and concerning trends from Table 5 is that the rise in unemployment over the decade to 2016 was particularly severe for younger cohorts. This is more acutely demonstrated by Table 5, which shows a finer level breakdown of unemployment rates by age group. While the state's overall unemployment rate rose by 2.3 percentage points to 7.5 per cent over the decade to 2016, the unemployment rate for 15-19 year olds rose by 7.8 percentage points to 21.7 per cent over this period. Similarly, the unemployment rate for 20-24 year olds rose by 4.9 percentage points to 13.3 per cent, while the unemployment rate for 25-29 year olds rose by 2.3 percentage points to 8.3 per cent. Unemployment rates for most other age categories rose by 2 percentage points or less, and remained below the state average.

Interestingly, a similar pattern has been observed nationally. For instance, while the national overall unemployment rate rose by 1.6 percentage points to 6.9 per cent over the 5 years to 2016, the unemployment rate for 15-19 year olds rose by 7.0 percentage points to 20.1 per cent. This similarly suggests that common underlying factors have driven the deterioration in youth labour force outcomes. Nonetheless, since the trend for South Australia has been slightly worse and occurred against a background of existing outward net migration of younger cohorts, it has potentially exacerbated the pressure for younger cohorts to leave the state.

Table 5: Unemployment Rate by Age Group and Census Year

| | South Australia (%) | | | Australia (%) | | |
|-------------------|---------------------|------|------|---------------|------|------|
| | 2006 | 2011 | 2016 | 2006 | 2011 | 2016 |
| 15-19 years | 14.0 | 16.2 | 21.7 | 13.1 | 16.2 | 20.1 |
| 20-24 years | 8.4 | 10.4 | 13.3 | 8.3 | 9.7 | 11.9 |
| 25-29 years | 6.1 | 6.4 | 8.3 | 5.6 | 5.9 | 7.1 |
| 30-34 years | 4.9 | 5.4 | 6.5 | 4.7 | 4.9 | 5.6 |
| 35-39 years | 4.6 | 4.9 | 6.4 | 4.4 | 4.5 | 5.3 |
| 40-44 years | 4.2 | 4.3 | 5.7 | 4.1 | 4.3 | 5.2 |
| 45-49 years | 3.3 | 4.0 | 5.4 | 3.7 | 4.0 | 4.9 |
| 50-54 years | 3.1 | 3.5 | 5.2 | 3.5 | 3.7 | 4.9 |
| 55-59 years | 3.3 | 3.5 | 5.2 | 3.8 | 3.8 | 5.1 |
| 60-64 years | 3.9 | 3.4 | 5.4 | 4.3 | 4.1 | 5.8 |
| 65-69 years | 1.5 | 1.5 | 2.2 | 1.8 | 2.1 | 2.9 |
| 70-74 years | 1.6 | 1.8 | 1.8 | 1.7 | 2.1 | 2.6 |
| 75 years and over | 2.3 | 1.8 | 2.8 | 2.5 | 2.2 | 2.9 |
| Total | 5.2 | 5.7 | 7.5 | 5.2 | 5.6 | 6.9 |

The data on youth unemployment needs to be treated with caution as it potentially overstates the degree of disadvantage being experienced by younger cohorts and may not be solely explained by a lack of job creation (although a lack of job creation was a clear problem for South Australia overall during the last inter-census period). For example, the rise in youth unemployment has been accompanied by an increase in participation in full-time education. Census data shows that the proportion of 15-19 year olds in full-time education in South Australia rose from 69 per cent in 2011 to 74 per cent in 2016. It is possible that participation in full-time education makes it more difficult for a student to secure a job that accommodates their existing educational commitments. Thus the problem becomes one of there not being enough suitable jobs for full-time students specifically (i.e. in terms of number of hours desired, flexibility to accommodate study commitments) rather than there not being enough jobs in general.

Private sector versus public sector employment

South Australia looks quite similar to the nation in terms of the share of employment accounted for by the private and public sectors – see Table 6. The 2016 census indicates that 84.0 per cent of total employment in South Australia was in the private sector compared to 83.6 per cent nationally. The share of private sector employment nationally is skewed somewhat by the larger share of public sector employment in the Australian Capital Territory (ACT). Total private sector employment for Australia excluding the ACT was 84.1 per cent, which is equivalent to the South Australian share.

Table 6: Employment by Private and Public Sectors and State, 2016
Per cent of Total Employment

| | NSW | VIC | QLD | SA | WA | TAS | NT | ACT | AUST |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Public sector | 14.2 | 13.7 | 15.8 | 15.1 | 14.5 | 17.3 | 27.0 | 41.0 | 15.2 |
| National Government | 3.5 | 3.5 | 3.3 | 3.7 | 2.6 | 2.8 | 8.6 | 31.3 | 3.9 |
| State/Territory Government | 9.3 | 8.7 | 10.9 | 10.1 | 10.5 | 13.0 | 16.5 | 9.5 | 9.8 |
| Local Government | 1.4 | 1.4 | 1.6 | 1.2 | 1.4 | 1.5 | 1.9 | 0.2 | 1.4 |
| Private sector | 84.4 | 85.0 | 83.1 | 84.0 | 84.5 | 81.7 | 71.4 | 58.1 | 83.6 |
| Not stated | 1.4 | 1.3 | 1.1 | 0.9 | 1.0 | 1.0 | 1.5 | 0.9 | 1.2 |
| Total employment | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

In comparison to other states and territories, relative private sector employment for South Australia was marginally lower compared to the other large states with the notable exception of Queensland (83.1 per cent), but significantly higher compared to Tasmania and the two territories. One of the notable features from Table 6 is that smaller states in terms of population naturally have a relatively larger share of employment in the public sector. This may in part reflect economies of scale effects associated with the provision of public services. However, other factors would also contribute to differences in the rate of public sector employment across the states and territories, including differences in the level of population density and distribution, size of vulnerable groups (e.g. relatively large disadvantaged indigenous population in the Northern Territory), privatisation of government services etc.

Although the share of public sector employment for South Australia was basically equivalent to the national share, there are some marginal differences by government sector. For instance, the share of persons employed by the national government was higher for South Australia (3.7 per cent) compared to other states, which may in part reflect the presence of significant defence related activity in South Australia (e.g. Defence Science and Technology Group). Meanwhile, employment by the local government sector was relatively lower (1.2 per cent), and in fact the lowest of any state or territory with the exception of the ACT. This is a surprising result given the relatively large number of councils in South Australia. It suggests there are limited labour economies associated with council size, although further research would need to be conducted to determine whether this is the case. Part of the explanation may be that local government in South Australia delivers a narrower range of services compared to local government in other states and territories (SACES 2018, p.26).

In terms of total employment accounted for by state or territory government, South Australia (10.1 per cent) was ranked middle of the pack compared to other states and territories. Queensland (10.9 per cent), Western Australia (10.5 per cent), Tasmania (13 per cent) and the Northern Territory (16.5 per cent) all recorded higher levels of state/territory employment compared to South Australia in 2016. This is an intriguing result given that recent calculations by SACES using other data sources, including the Office for the Public Sector and State Budget Papers, suggest that South Australia has the highest level of state government public sector employment of any state.⁸

It is worth noting that the Labour Force Survey for 2016 paints a similar picture to the census data in terms of relative differences between the states regarding public sector employment as a whole (i.e. state + national + local). The main difference is that South Australia is recorded as having higher public sector employment compared to the nation (13.6 per cent compared to 12.8 per cent) under the Labour Force Survey.

Employment by Industry

In the following section we consider changes in employment by industry sector to gain insight into structural changes in the South Australian economy over the past decade. Table 7 shows total persons employed by broad industry sector for the last three censuses, and their share of total employment, while Table 8 shows the aggregate and proportional change in employment by industry sector between the various census years.

The decline of manufacturing as a source of employment has been an on-going longer-term structural phenomenon across most developed economies including South Australia. The latest census data reveals that not only has this trend continued, it accelerated during the most recent inter-census period. Between 2011 and 2016, total employment in manufacturing in South Australia fell by about 18,300 persons (-24 per cent), which follows a decline of about 10,600 persons (-12 per cent) between 2006 and 2011. As a consequence of this decline, manufacturing's share of total employment has fallen from almost 13 per cent in 2006 to 8.0 per cent in 2016. Manufacturing has effectively gone from being the largest to fourth largest employing sector over this period.

Table 7: Employment by Industry and Census Year, South Australia^(a)

| Industry Sector | Persons | | | Share of total (%) | | |
|---|---------|---------|---------|--------------------|-------|-------|
| | 2006 | 2011 | 2016 | 2006 | 2011 | 2016 |
| Agriculture, Forestry & Fishing | 31,974 | 28,796 | 30,084 | 4.6 | 3.9 | 4.0 |
| Mining | 5,969 | 9,647 | 9,222 | 0.9 | 1.3 | 1.2 |
| Manufacturing | 88,489 | 77,890 | 59,579 | 12.8 | 10.5 | 8.0 |
| Electricity, Gas, Water & Waste Services | 7,438 | 9,926 | 9,164 | 1.1 | 1.3 | 1.2 |
| Construction | 46,085 | 55,599 | 56,635 | 6.7 | 7.5 | 7.6 |
| Wholesale Trade | 25,791 | 25,862 | 21,187 | 3.7 | 3.5 | 2.8 |
| Retail Trade | 81,399 | 83,070 | 79,742 | 11.8 | 11.2 | 10.7 |
| Accommodation & Food Services | 40,373 | 46,249 | 49,738 | 5.9 | 6.3 | 6.7 |
| Transport, Postal & Warehousing | 28,745 | 30,700 | 30,953 | 4.2 | 4.2 | 4.1 |
| Information Media & Telecommunications | 10,745 | 10,585 | 9,633 | 1.6 | 1.4 | 1.3 |
| Financial & Insurance Services | 21,986 | 22,045 | 20,291 | 3.2 | 3.0 | 2.7 |
| Rental, Hiring & Real Estate Services | 9,575 | 9,446 | 9,969 | 1.4 | 1.3 | 1.3 |
| Professional, Scientific & Technical Services | 36,178 | 40,551 | 41,499 | 5.2 | 5.5 | 5.6 |
| Administrative & Support Services | 23,268 | 25,437 | 26,769 | 3.4 | 3.4 | 3.6 |
| Public Administration & Safety | 44,876 | 52,263 | 52,914 | 6.5 | 7.1 | 7.1 |
| Education & Training | 52,377 | 58,637 | 64,506 | 7.6 | 7.9 | 8.6 |
| Health Care & Social Assistance | 86,220 | 100,602 | 110,479 | 12.5 | 13.6 | 14.8 |
| Arts & Recreation Services | 7,948 | 9,304 | 10,152 | 1.2 | 1.3 | 1.4 |
| Other Services | 26,252 | 28,843 | 29,099 | 3.8 | 3.9 | 3.9 |
| Inadequately described/Not stated | 14,231 | 13,897 | 24,488 | 2.1 | 1.9 | 3.3 |
| Total | 689,897 | 739,359 | 746,105 | 100.0 | 100.0 | 100.0 |

Note: (a) Employment based on place of usual residence.

Source: ABS, 2016 Census of Population and Housing, *Time Series Profile*, Cat. No. 2003.0.

Table 8: Changes in Employment by Industry between Census Years, South Australia^(a)

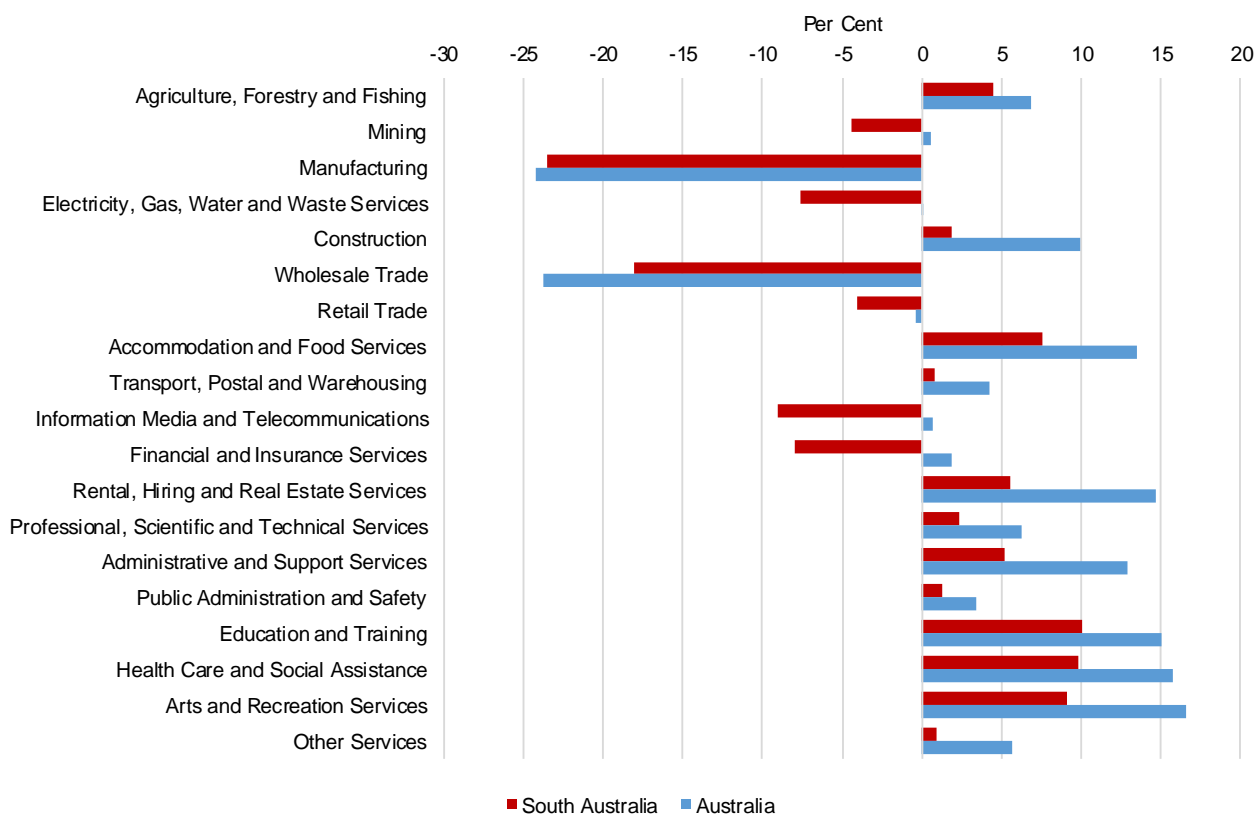
| Industry | Persons | | | Per cent | | |
|---|-----------|-----------|-----------|-----------|-----------|-----------|
| | 2006-2011 | 2011-2016 | 2006-2016 | 2006-2011 | 2011-2016 | 2006-2016 |
| Agriculture, Forestry & Fishing | -3,178 | 1,288 | -1,890 | -9.9 | 4.5 | -5.9 |
| Mining | 3,678 | -425 | 3,253 | 61.6 | -4.4 | 54.5 |
| Manufacturing | -10,599 | -18,311 | -28,910 | -12.0 | -23.5 | -32.7 |
| Electricity, Gas, Water & Waste Services | 2,488 | -762 | 1,726 | 33.4 | -7.7 | 23.2 |
| Construction | 9,514 | 1,036 | 10,550 | 20.6 | 1.9 | 22.9 |
| Wholesale Trade | 71 | -4,675 | -4,604 | 0.3 | -18.1 | -17.9 |
| Retail Trade | 1,671 | -3,328 | -1,657 | 2.1 | -4.0 | -2.0 |
| Accommodation & Food Services | 5,876 | 3,489 | 9,365 | 14.6 | 7.5 | 23.2 |
| Transport, Postal & Warehousing | 1,955 | 253 | 2,208 | 6.8 | 0.8 | 7.7 |
| Information Media & Telecommunications | -160 | -952 | -1,112 | -1.5 | -9.0 | -10.3 |
| Financial & Insurance Services | 59 | -1,754 | -1,695 | 0.3 | -8.0 | -7.7 |
| Rental, Hiring & Real Estate Services | -129 | 523 | 394 | -1.3 | 5.5 | 4.1 |
| Professional, Scientific & Technical Services | 4,373 | 948 | 5,321 | 12.1 | 2.3 | 14.7 |
| Administrative & Support Services | 2,169 | 1,332 | 3,501 | 9.3 | 5.2 | 15.0 |
| Public Administration & Safety | 7,387 | 651 | 8,038 | 16.5 | 1.2 | 17.9 |
| Education & Training | 6,260 | 5,869 | 12,129 | 12.0 | 10.0 | 23.2 |
| Health Care & Social Assistance | 14,382 | 9,877 | 24,259 | 16.7 | 9.8 | 28.1 |
| Arts & Recreation Services | 1,356 | 848 | 2,204 | 17.1 | 9.1 | 27.7 |
| Other Services | 2,591 | 256 | 2,847 | 9.9 | 0.9 | 10.8 |
| Inadequately described/Not stated | -334 | 10,591 | 10,257 | -2.3 | 76.2 | 72.1 |
| Total | 49,462 | 6,746 | 56,208 | 7.2 | 0.9 | 8.1 |

Note: (a) Employment based on place of usual residence.

Source: ABS, 2016 Census of Population and Housing, *Time Series Profile*, Cat. No. 2003.0.

The marked decline in manufacturing employment for South Australia over the last inter-census period mirrored national trends over this period – national employment in manufacturing also fell by 24 per cent (see Figure 2). The similarity of these patterns implies that broader underlying factors drove the decline in manufacturing employment. These would include persistent long term factors such as increased competition from developing countries, reductions in trade barriers, labour-saving technological change, and a shift in consumer preferences towards services. Specific one-off factors exacerbated the recent decline in manufacturing employment during the last inter-census period, the most significant of which was the appreciation of the Australian dollar to a very high level from 2011 to 2013 in response to the resources boom and financial inflows attracted by relatively higher interests in Australia. Appreciation of the real exchange rate significantly reduced the international competitiveness of local manufacturers. Their competitiveness was also undermined by the effect of the resources boom in bidding up prices for inputs, including labour, as miners sought to ramp up production. Unfortunately the subsequent depreciation of the exchange rate and unwinding of the resources boom came too late to relieve the pressure on marginal manufacturing operations, leading to their scaling down or closure.

Figure 2: Percentage change in employment by industry, 2011 to 2016
South Australia and Australia



Source: ABS, 2016 Census of Population and Housing, *Time Series Profile*, Cat. No. 2003.0. Calculations by SACES.

Turning to other industry sectors, there were noticeable declines in employment in the wholesale trade and retail trade sectors during the last inter-census period. Total employment in wholesale trade fell by 4,675 persons (-18 per cent), while for retail trade it fell by 3,330 persons (-4.0 per cent). Interestingly, employment in wholesale trade fell by an even greater magnitude at the national level (-24 per cent), whereas retail trade employment fell only marginally (-0.3 per cent).

Employment levels in the mining sector over the past decade have been well aligned with the commodity and investment cycle. Employment rose strongly between 2006 and 2011 (up 3,680 persons / 62 per cent) as rising commodity prices produced a burst in exploration and investment activity, but then fell moderately between 2011 and 2016 (down 425 persons or 4.4 per cent) as commodity prices fell back toward long run average levels. Lower commodity prices not only caused firms to pull-back their exploration activity, they led them to cancel or pause proposed projects, and improve the efficiency of their existing operations.

Construction sector employment rose modestly over the last inter-census period (1,040 persons / 1.9 per cent) after growing strongly between 2006 and 2011 (9,500 persons / 21 per cent). This slowdown is in large part due to a significant fall in employment in the residential building sector (down 35 per cent). Residential building

activity slowed following the emergence of much slower population growth around 2010/11. Construction employment earlier in the decade was also supported by a ramp up in public sector investment activity that commenced in 2009 as the Federal and State Governments sought to provide economic stimulus in the face of the global financial crisis. Public sector capital spending has gradually fallen after peaking in 2009/10, providing reduced support to the construction sector over time. The shift in the resources cycle from a construction to production phase would also have contributed to slower construction employment growth over the past 5 years.

A general improvement in farm conditions has supported a partial recovery in employment in agricultural, forestry and fishing over recent years. After falling by approximately 3,200 persons (-10 per cent) between 2006 and 2011, agriculture sector employment rose by about 1,300 persons (4.5 per cent) between 2011 and 2016. The earlier inter-census period was characterised by severe drought earlier in the period and lower commodity prices on average. Agricultural employment during this time was also probably negatively impacted by the resources boom, with people in rural and regional areas being attracted by the prospect of lucrative job opportunities in the resources sector.

The general weakness in employment outcomes for those goods-related industries identified above stands in contrast to robust growth in services sectors. Over the 5 years to 2016 there were large rises in aggregate employment for healthcare and social assistance (up 9,880 persons / 9.8 per cent), education and training (5,870 persons / 10 per cent), and accommodation and food services (3,490 persons / 7.5 per cent). In fact, these were the only industry sectors to noticeably grow their share of total employment between 2011 and 2016.

Not all service sectors have enjoyed employment gains. Financial and insurances services and information media and telecommunications both recorded relatively large falls in employment between 2011 and 2016 (-8.0 and -9.0 per cent respectively). In comparison, both sectors recorded small increases at the national level over this period. A possible explanation for these divergent trends is consolidation of financial and information media services in eastern states. Advances in information and communications technologies have enabled these services to be increasingly consumed and delivered by digital means, reducing the need for a local physical presence. For traditional media such as newspaper publishing and television broadcasting, the impetus for consolidation has been reinforced by enhanced competition from online competitors.

Almost all other services sectors generally recorded sufficient employment growth to maintain or slightly improve their share of total employment over the 5 years to 2016.

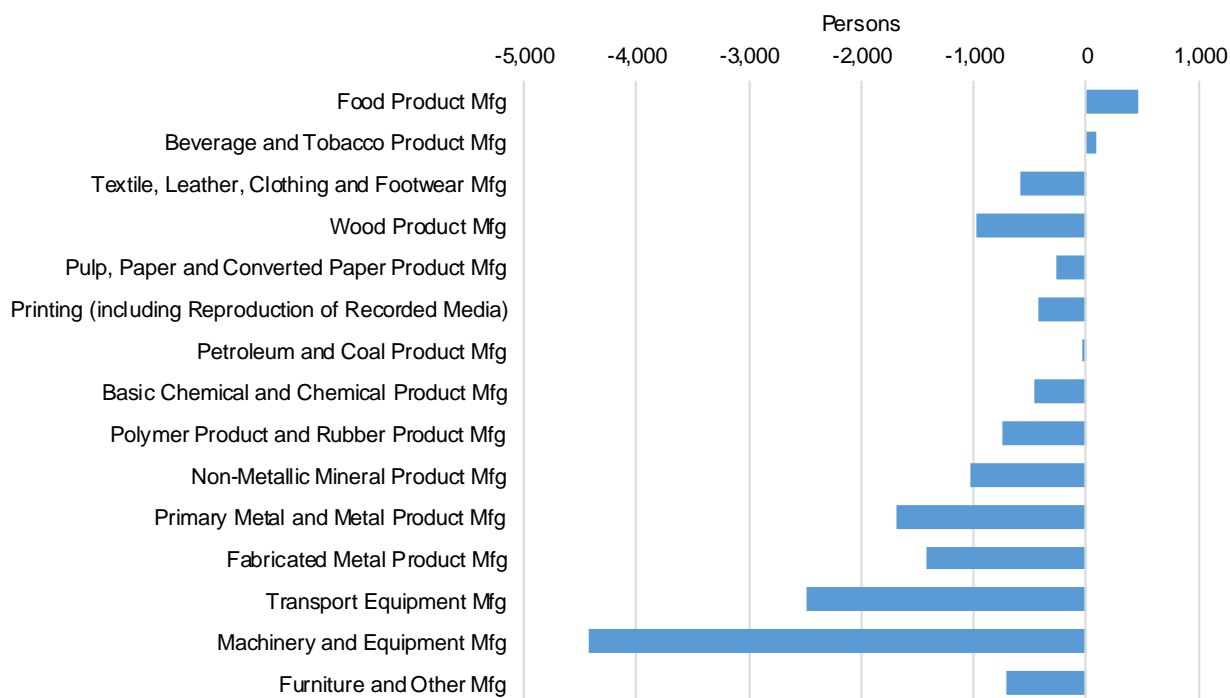
The net effect of the sectoral changes described above is a continued structural shift in the South Australian economy, with employment increasingly based on the provision of services rather than physical goods. The share of total employment accounted for goods-related industries fell from 39 per cent in 2011 to 36 per cent in 2016.⁹ Nationally, goods related industries accounted for an even lower share of employment in 2016 – 33 per cent – which suggests that the good related sectors could have further to fall in South Australia.

A Closer Look at Employment Outcomes for Manufacturing and Health Care and Social Assistance

The most prominent sectoral trends over the past decade, at least in terms of changes in aggregate employment, have been a large decline in manufacturing employment, offset to a large degree by a strong rise for health care and social assistance – refer Table 8. To better understand how these divergent outcomes have impacted employment, we take a closer look at outcomes at the sub-sectoral level over the past 5 years.

Figure 3 shows changes in employment by manufacturing subdivision between 2011 and 2016. It is clear the deterioration in manufacturing employment has been broadly based, with 13 of the 15 manufacturing subdivisions recording a fall in employment over this period. Employment losses were concentrated in machinery and metal product manufacturing related sectors. The largest falls were recorded for machinery and equipment manufacturing (-4,430 persons) and transport equipment manufacturing (-2,500 persons), followed by primary metal and metal product manufacturing (-1,700 persons) and fabricated metal product manufacturing (1,430 persons).

Machinery and equipment manufacturing comprises a range of activities including professional and scientific equipment manufacturing, electronic equipment manufacturing, electrical equipment manufacturing, domestic appliance manufacturing etc. All of the sub-sectors within machinery and equipment manufacturing recorded significant falls in employment over the last inter-census period. These sectors seem to have been quite vulnerable to enhanced competition from emerging economies and the adverse shock to competitiveness stemming from the surge in the Australian dollar during the resources boom.

Figure 3: Change in Manufacturing Employment by Subdivision, 2011 to 2016, South Australia

Source: ABS, 2016 Census of Population and Housing, *Time Series Profile*, Cat. No. 2003.0. Calculations by SACES.

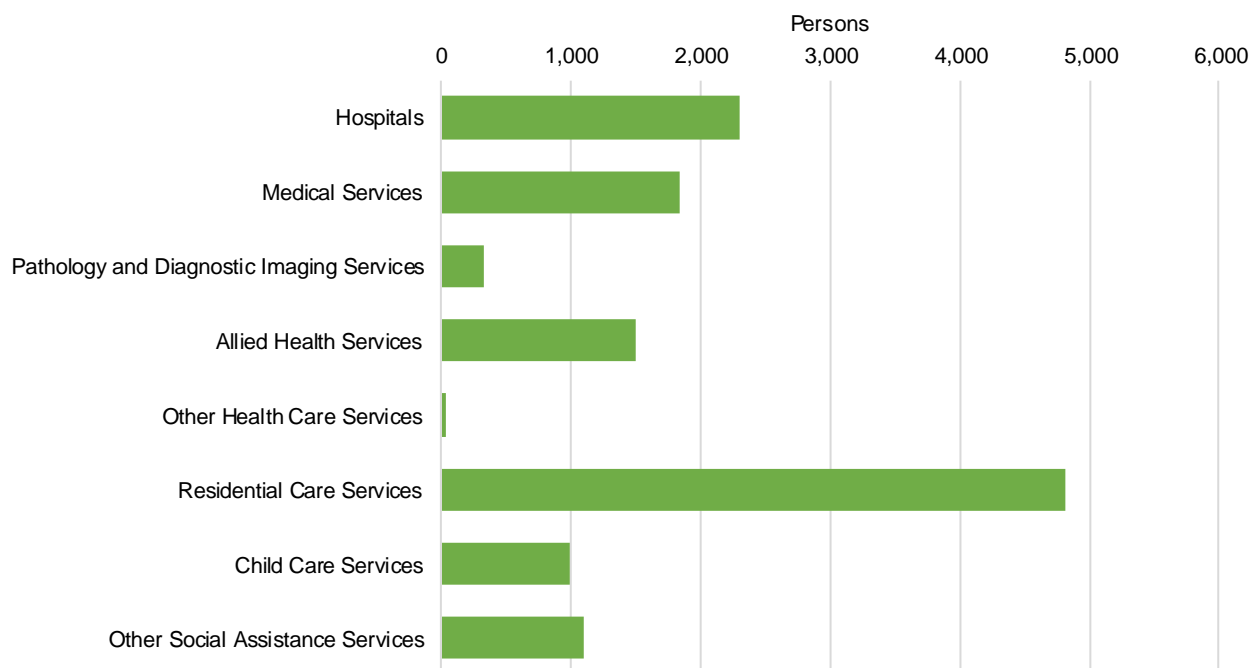
The sharp decline in employment for transport equipment manufacturing was, of course, driven by motor vehicle manufacturing. The decision of the remaining local producers to cease passenger vehicle production in Australia – including Holden’s decision to close its Elizabeth plant by late October 2017 – represented a significant shock to the South Australian economy. Employment in motor vehicle and motor vehicle part manufacturing fell by approximately 2,600 persons between 2011 and 2016. Outside motor vehicle manufacturing, there was some growth in employment for the other transport equipment manufacturing sector (up 225 persons), which could be attributed to a rise in shipbuilding activity associated with the Air Warfare Destroyer program.

On a more positive note, there were increases in employment in food manufacturing (470 persons) and beverage and tobacco product manufacturing (90 persons) over the 5 years to 2016. These results are heartening. They demonstrate that South Australia has capacity to grow manufacturing activities where it has comparative advantage, in this case agriculture deriving from the state’s natural resources. However, these gains have not been sufficient to offset the losses in other manufacturing subsectors.

Turning to health care and social assistance sector, all groups recorded rises in aggregate employment between 2001 and 2016 – see Figure 4. However, there were only minor increases for pathology and diagnostic imaging services (331 persons) and other health care services (44 persons).

Employment gains were greatest for the residential care services sector, which relates primarily to aged care but also includes other forms of residential care that involve nursing or other types of supervisory care (e.g. community mental health hostel, crisis care accommodation, refugee accommodation etc.). Total employment for the sector rose by 4,800 persons over the 5 years to 2016, contributing almost half of the total increase in employment for health care and social assistance over this period. Hence ageing of the population has played a major role in the expansion of employment within the broader sector.

There were also solid increases in employment for hospitals (2,300 persons), medical services (1,850 persons), allied health services (1,500 persons), child care services (1,000 persons) and other social assistance services (1,100 persons).

Figure 4: Change in Employment in Health Care and Social Assistance, 2011 to 2016, South Australia

Source: ABS, 2016 Census of Population and Housing, *Time Series Profile*, Cat. No. 2003.0. Calculations by SACES.

5. Incomes

Table 9 shows the median personal, family and household income for South Australia and Australia for the last three censuses. In the following discussion we focus on outcomes for median personal incomes which abstracts for household size effects which can complicate comparisons of total family and household income.

Table 9: Selected Median Income Indicators by Census Year, South Australia and Australia

| | 2006 | 2011 | 2016 |
|---|-------|-------|-------|
| South Australia | | | |
| Median total personal income (\$/weekly) | 433 | 534 | 600 |
| Median total family income (\$/weekly) | 1,114 | 1,330 | 1,510 |
| Median total household income (\$/weekly) | 885 | 1,042 | 1,204 |
| Australia | | | |
| Median total personal income (\$/weekly) | 466 | 577 | 662 |
| Median total family income (\$/weekly) | 1,191 | 1,481 | 1,734 |
| Median total household income (\$/weekly) | 1,029 | 1,230 | 1,432 |
| SA as proportion of Australia | | | |
| Median total personal income (\$/weekly) | 0.93 | 0.93 | 0.91 |
| Median total family income (\$/weekly) | 0.94 | 0.90 | 0.87 |
| Median total household income (\$/weekly) | 0.86 | 0.85 | 0.84 |

Source: ABS, 2016 Census of Population and Housing, *Time Series Profile*, Cat. No. 2003.0.

Nominal incomes both in South Australia and nationally have continued to grow over time although the rate of increase was much slower during the last inter-census period. The median total personal income for South Australia rose by 23 per cent between 2006 and 2011, but by only 12 per cent between 2011 and 2016. In comparison, national median personal total income rose by 24 per cent and 15 per cent over these periods respectively. The slowdown in part reflects the general deterioration in labour market conditions but also the impact of the end of the mining boom, which put downward pressures on wages after bidding them up during the initially upswing of the boom. Although the boom was centered on Western Australia and Queensland, it had a ripple effect throughout the national economy. The slowdown in wage gains also reflects a secular trend toward slower wage growth across developed economies. Various factors have been identified as contributing to this trend, including but not limited to: slower labour productivity growth, globalisation through its role of enhancing labour competition across borders, high levels of underemployment, technological change

especially automation, deregulation of labour markets, structural changes in labour markets including a shift away from full-time employment toward part-time and casual employment, increasing concentration of market and monopoly power, and immigration.¹⁰

Despite the slowdown in income growth during the last inter-census period, nominal incomes outpaced household inflation, indicating that incomes continued to rise in real terms. The median total personal income for South Australia in real terms rose by 3.4 per cent over the 5 years to 2016, while for Australia it rose by 5.6 per cent.¹¹ Nonetheless, growth in real personal incomes also slowed over the last inter-census period.

Regardless of whether one uses real or nominal measures, it is clear that median personal incomes grew more slowly in South Australia relative to the nation as a whole over the last inter-census period. This outcome of course reflects the state's poor labour market performance during this period, especially the failure to grow full-time employment levels.

6. Conclusion

The last inter-census period was one of relative underperformance for South Australia. Unfavourable demographic trends in terms of population ageing, decline in the relative size of the working age population and net interstate migration losses became more pronounced or persisted, while labour market conditions deteriorated significantly. In this sense the latest census simply confirms what other survey data and partial indicators have suggested, although in some cases the census data indicates outcomes have not been as bad as suggested by other sources (e.g. degree of unemployment relative to other states and territories).

A number of these socio-economic trends – e.g. relatively large rise in youth unemployment, slowdown in wages growth, decline in manufacturing employment, and decline in share of full-time employment – have not been peculiar to South Australia but part of broader underlying trends. However, in some cases they have been felt more strongly within South Australia. A major reason for this is the heightened degree of structural change that has occurred in South Australia over the last inter-census period in terms of the accelerated decline in manufacturing employment. Without growth in other sectors to compensate for these losses, the resulting deterioration in labour market conditions has adversely affected outcomes in terms of incomes, quality of employment, and interstate migration. The lack of full-time employment growth was particularly noticeable.

Apart from the structural shift away from manufacturing employment, the other major socio-economic trend that weighs large in the census data is the ageing of the population. It is not only evident in ageing of the workforce, it has affected the structure of employment, contributing to robust growth in the health care and social assistance sector. The state's heightened degree of population ageing emphasises the need for effective and efficient delivery of public services in respect of ageing and health services. Pressure on these services will grow considerably over coming decades but recent poor outcomes related to the treatment of aged care residents and mental health outcomes raise concerns about existing service standards. Meanwhile, ensuring efficient service delivery is critical from a state budget sustainability perspective, including minimising the relative taxation burden on the private sector to maintain cost competitiveness.

Ageing of the workforce and the associated relative decline of the working age population also has implications for business in terms of sustaining access to required skills and labour resources.

The most notable structural trends in employment over the past 5 years has been a large contraction in manufacturing jobs and large increase in employment for health care and social assistance, including aged care. One of the policy responses to this so far has been to encourage those that have become unemployed in the former to transition into emerging opportunities in the latter. While this is a reasonable approach, to some degree it is less than ideal given the disparity in skills between the two activities, while manufacturing activities have greater potential for producing export and import replacement activities. However, fostering manufacturing activities is a difficult task, and South Australia's current period of heightened structural change is in part a consequence of previous state government intervention to promote an industry – automobiles – that could ultimately not be sustained in the long term due to a lack of comparative advantage.¹²

Comparisons of sectoral changes in employment confirms that the South Australia economy, like most advanced economies, is shifting further towards a services rather than goods based economy. Australia's relatively higher share of services activity relative to South Australia suggests that this structural transition may have even further to go for South Australia. This trend reinforces the lessons from a recent SACES focus article that explored the embedded value of services in South Australia's overseas goods exports, namely the importance of maintaining a competitive and efficient services sector to boost export performance.¹³

Finally, the review of census data identified some interesting trends and patterns that offer avenues for further research, including:

- rising youth unemployment both in South Australia and Australia more broadly – to what extent is this associated with rising full-time education participation versus general labour market weakness and other changes;
- the share of state government public sector employment for South Australia was not as high relative to interstate patterns as suggested by other data sources – to what extent can these differences be reconciled and can the census provide further detail on which areas of public activity have the most pronounced differences; and
- the slowdown in real wages growth is a real and widespread phenomenon – how significant are the various potential factors to South Australia and Australia, and to what extent has interstate migration helped to stabilise wages in South Australia.

Bibliography

Australian Bureau of Statistics (2018), Consumer Price Index, Australia, Dec 2017. Cat. No. 6401.0. Available: <http://www.abs.gov.au/>

_____ (2016), *Differences between the LFS and Census*, Available: <http://www.abs.gov.au/websitedbs/censushome.nsf/4a256353001af3ed4b2562bb00121564/7e658c9da9d1c029ca257aa5007f2b20!OpenDocument>

_____ (2016a), Australian Statistical Geography Standard: Volume 1 – Main Structure and Greater Capital City Statistical Areas, July 2016. Cat. No. 1270.55.001. Available: <http://www.abs.gov.au/>

Bishop and Cassidy (2017), “Insights into Low Wage Growth in Australia”, *Bulletin*, Reserve Bank of Australia, March quarter 2017.

International Monetary Fund (IMF) (2017), “Recent Wage Dynamics in Advanced Economies: Drivers and Implications”, *World Economic Outlook*, October 2017.

South Australian Centre for Economic Studies (SACES) (2018), “Development Strategy for Reinventing South Australia”, *Economic Issues Paper Series*, No. 49.

_____ (2017), “Revealing the True Role of South Australian Services Exports”, *Economic Briefing Report*, December 2017, Vol. 35, No. 2, pp.24-28.

Stansbury, A., and L.H. Summers (2018), “On the link between US pay and productivity”, *VOX CEPR’s Policy Portal*. Available: <https://voxeu.org/article/link-between-us-pay-and-productivity>

Endnotes

- 1 Foreign diplomats and their families are excluded.
- 2 Many of these additional census products, including the Socio-Economic Indexes for Areas, were released on 27 March 2018, i.e. after completion of this Issues Paper.
- 3 The first baby boomers started to enter retirement age around the time of the 2011 census.
- 4 Note that overseas migrants here would be comprised of foreign nationals that have migrated to Australia (either permanently or temporarily), and Australians that have returned from living overseas.
- 5 The primary difference in terms of collection method is that the census is self-enumerated whereas the LFS survey is conducted by an interviewer. The latter improves the quality and clarity of results obtained, and reduces non-responses to particular questions.
- 6 "Less poor" relative performance here refers to South Australia's unemployment rate not being as overstated compared to the national figure under the census versus LFS (0.6 versus 1.1 percentage points). Although South Australia's unemployment rate was higher under the census than LFS (7.5 versus 6.7 per cent), as mentioned earlier this difference is due to methodological differences between the two series and also affects other states and territories.
- 7 In South Australia, full-time employment as a proportion of total employment fell by 3.5 percentage points between 2006 and 2016, whereas nationally it fell by 2.0 percentage points.
- 8 South Australian Centre for Economic Studies (SACES) (2018), "Development Strategy for Reinventing South Australia", *Economic Issues Paper Series* Number 49, page 26.
- 9 Goods related industries are defined as 'agriculture, forestry and fishing', 'mining', 'manufacturing', 'construction', 'electricity, gas, water and waste services', 'construction', 'wholesale trade' and 'retail trade'. Wholesale and retail trade could equally be classified as services sectors. Even under this scenario the general trends described here are maintained.
- 10 IMF (2017) explores the slowdown in nominal wages growth for advanced economies since the Great Recession, while Stansbury and Summers (2018) summarise possible causes of low wage growth identified in the literature as part of a study of the relationship between US pay and productivity. Meanwhile, Bishop and Cassidy (2017) consider recent developments in low wage growth for Australia specifically.
- 11 Median personal income for South Australia was converted to real terms using the Adelaide Consumer Price Index (ABS 2018), while national median personal income was adjusted using the Australian CPI weighted average of eight capitals.
- 12 The lack of comparative advantage includes a lack of scale economies due to the small size of the domestic market and natural barriers to international markets in the form of high transport costs. The reliance on foreign ownership in a highly globalised sector was also an inherent barrier.
- 13 SA Centre for Economic Studies (2017), "Revealing the True Role of South Australian Services Exports", *Economic Briefing Report, December 2017*, Vol. 35, No. 2, pp.24-28.