FACTBase

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Spatial Distribution and Employment Trends in Perth and Peel since the 2011 Census

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Introduction

This FACTBase Bulletin explores spatial distribution and employment trends in Perth and Peel since the 2011 Census. It also refreshes the data in FACTBase Bulletin 22: *The Spatial Distribution of Employment in Metropolitan Perth, 1991-2011* (Tonts and Plummer, 2011).[1] The Bulletin analyses employment, unemployment and relevant Census labour data by Statistical Area Level 2 (SA2) geographic regions. There are two main sections to this Bulletin, a refresh of Tonts and Plummer (2010) and key highlights on the labour force characteristics of the Greater Perth region.

The key findings of this Bulletin are:

- Greater Perth has experienced a slower period of employment growth in the years 2011 to 2017 compared to 1991 to 2010.
- Mining and resource job losses and a sharp decline in population growth have both contributed to the overall slowing of employment growth in Western Australia during 2011 to 2017.
- Employment hot spots are getting larger in the outer ring of Greater Perth. SA2 area analysis shows that some local government areas are performing better in job creation than others.
- Perth City SA2, whilst further down the list of best performing areas in job creation, still recorded an increase of 29.53% in employment from September 2011 to September 2017. This reinforces the findings from *Get a Move On!*, in that a large portion of jobs are city-centric (Committee for Perth, 2016).
- Unemployment rates in the Greater Perth region were on the decline during the most recent construction expansion phase in the mining industry. Since moving to a production phase, job losses and a lower population growth phase has seen the unemployment rate lift to its most recent peak of 6.23% in March 2017 (Department of Jobs and Small Business, 2017).
- Over the entire Greater Perth region, unemployment rates differ firstly in their magnitude and secondly in how they have changed over time. SA2 areas which have experienced a worsening of unemployment rates include: Girrawheen, 22.12%; Parmelia – Orelia, 18.88%; and Balga – Mirrabooka, 23.05% (Department of Jobs and Small Business, 2017).
- There has been a marked shift in unemployment rates over 2011 to 2017 when plotted against each other and compared to the 1991 to 2010 period in Tonts and Plummer (2011). Firstly, the distribution of unemployment rates have previously been spread across low, medium and high rates. Now however, there has been a large shift towards lower unemployment rates in 2011 to 2017. There are still some SA2 areas that show significantly entrenched unemployment.
- Whilst there has been an increase in female full-time and part-time employment, there still appears to be opportunities to increase the participation of females in the labour force.
- Turning to the detail around unemployment status, it is evident that the number of unemployed persons looking for work has significantly increased since the 2006 Census. The total number of persons looking for work has lifted from 27,959 persons to 81,482 persons in 2016, a rise of 191.43%.

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Employment Trends in Greater Perth

FACTBase Bulletin 22 (Tonts and Plummer, 2011) outlined some of the significant changes that have occurred in the labour force in Metropolitan Perth and Western Australia over the two decades or so leading up to 2011. It pointed to the impact

1 Using labour force data collected by the former Department of Employment and Workplace Relations, now known as the Department of Jobs and Small Business (the Department) for the period 2011-2017. The data from the Department is taken from the Small Area Labour Markets Publication. This dataset is spatially very detailed and breaks down the Perth and Peel region by Statistical Area Level 2 (SA2).

of global economic events, the dynamics of international trade and local investment patterns in shaping the nature of employment change. The research suggests that "the metropolitan area struggled to generate jobs growth during the recession in 1991-1992, before slowly recovering between 1997 and 2001. The economic impact of September 11 attacks [...] and subsequent geopolitical uncertainty is evident in 2001-2002" (Tonts and Plummer, 2011, p.1). In 2002, there were approximately 700,000 workers in Greater Perth. Onwards from 2002, the labour force in both regions grew significantly, reaching just under one million workers in Greater Perth, an increase of 42.86% and 1.2 million workers in Western Australia by 2011. However, this rapid expansion did not continue, with a notable 'flattening out' of growth between 2014 and 2017, see Figure 1.

In December 2010, the total number of workers for the Western Australian labour force was 1,262,539 and 990,086 in Greater Perth. By September 2017, the labour force had grown to 1,436,570 in Western Australia, and 1,127,889 in Greater Perth; increases of 13.78% and 13.92% respectively. This is in sharp contrast to the increases experienced between 2002 and 2011.

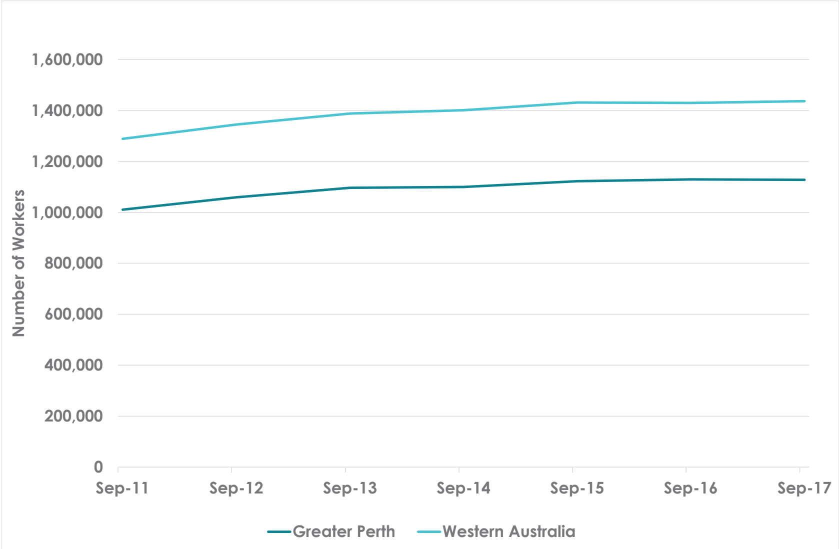
In terms of compound annual growth rates of the labour force between the period September 2011 to September 2017, Western Australia's labour force only grew 1.86% per annum and the Greater Perth labour force grew at 1.58% per annum (Department of Jobs and Small Business, 2017). The much slower pace of growth of the labour force during this period can be attributed to a significant slowing in population growth post-2012, alongside the changing structure of the resource industry, which shifted from a construction phase between 2011-2013, toward a production phase beyond 2013.

Indeed, at the peak of the construction phase, the total mining industry employed on average 108,975 workers (Department of Mines and Petroleum, 2014). By 2015-16, following the end of the construction boom, around 6,700 jobs were lost, a drop of 6.16% (Department of Mines and Petroleum, 2016).

The slowdown in Western Australia's population growth is critical in understanding the performance of the State and Greater Perth's labour markets. Western Australia experienced one of its largest ever annual increases in population in the year to June 2012 at 3.12%. This has only

- Now over 50% of the working age population has completed a non-school qualification. Females attained a higher number of Bachelor Degree qualifications than males, 144,603 compared to 112,861 males (Australian Bureau of Statistics, 2017).
- Seeking and undertaking both full-time and part-time work is growing amongst those people over 65 years of age. In fact, there has been an increase of 137.21% in people aged 65 years and over who worked full-time in 2016 versus 2006. In addition, there was an increase of 150.12% people participating in part-time work (Australian Bureau of Statistics, 2017).
- The larger age groups of employed are now Generation X where in 2016, 40-49 year olds represented 23.62% of employed persons and 50-59 year olds represented 19.60%, making a total of 43.22% of full-time employed persons in Greater Perth. As the population ages in the next 10 to 20 years, the impact on the economy and society will be further pronounced as identified in Davis (2017a) (Australian Bureau of Statistics, 2017).

Figure 1: Labour Force Change in Western Australia and Greater Perth 2011-2017



Source: Department of Jobs and Small Business, 2017.

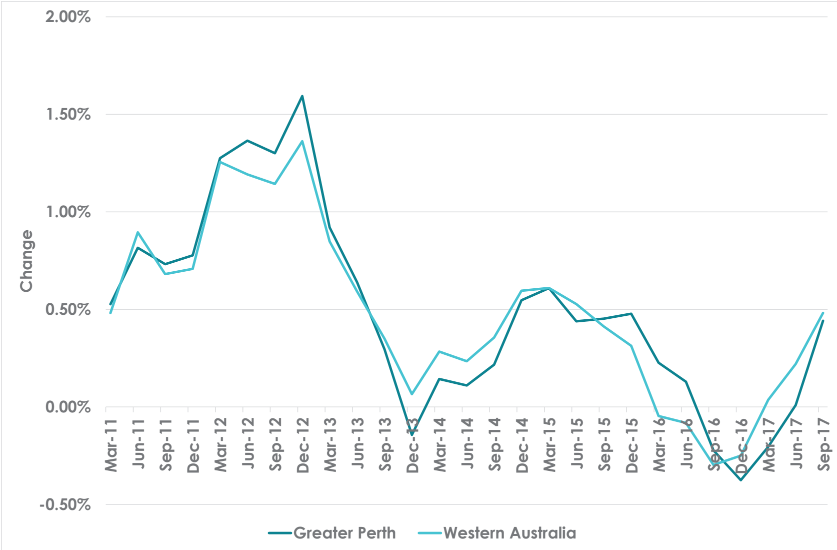
ever been achieved once in the previous 17 years, when an annual percentage increase of 3.11% was recorded in 2008. The latest release for June 2017 of the Estimated Resident Population data shows an annual percentage change of only 0.84%. Over the period June 2011 to June 2017[2], the population of Western Australia grew at an annual compound rate of only 1.32%.

One of the challenges facing policy makers is that forecasting population growth is difficult and this has proven particularly problematic over the past decade.

Figure 2 and 3 help reinforce the earlier observations, that employment growth over the period 2011-2017 has been slowing. By looking at the quarterly and annual percentage changes in the labour force, they demonstrate the low levels of change and in some cases periods of significant decline.

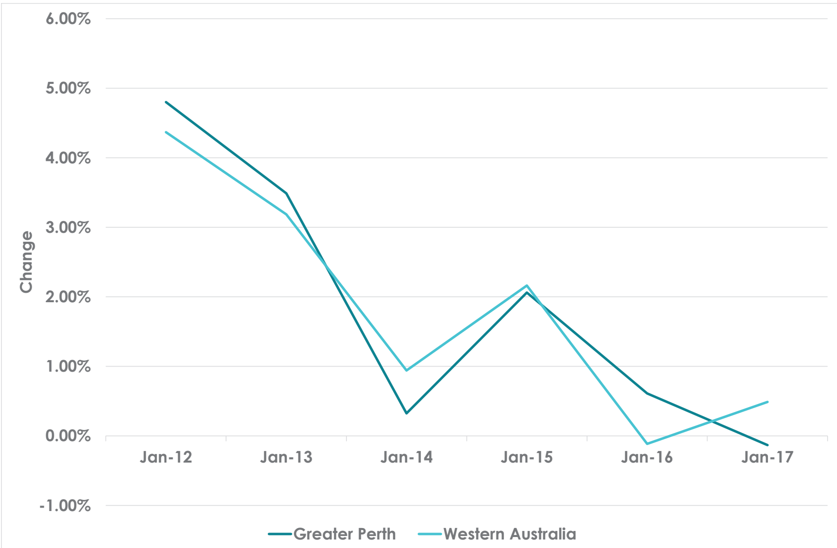
Whilst employment growth across Greater Perth and Western Australia has slowed overall, there have been a number of SA2 areas that have lifted substantially. Figure 4 is a map of employment in each SA2 area in the Greater Perth region for September 2017.

Figure 2: Quarterly Percentage Change in the Labour Force in Western Australia and Greater Perth, 2011-2017



Source: Department of Jobs and Small Business, 2017.

Figure 3: Annual Percentage Change in the Labour Force in Western Australia and Greater Perth, 2012-2017



Source: Department of Jobs and Small Business, 2017.

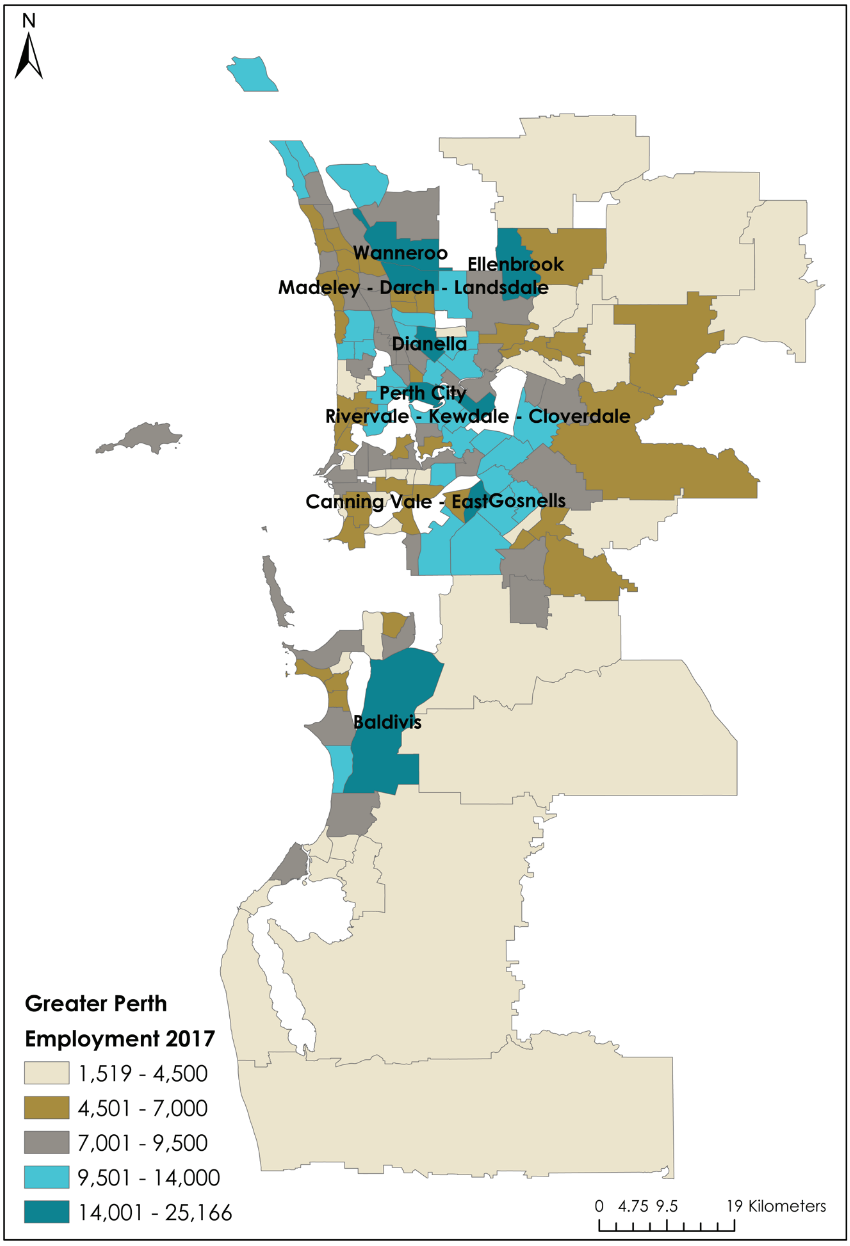
2 Australian Bureau of Statistics Estimated Resident Population data is current to June 2017 therefore a direct comparison between the labour market compound annual growth rates for September 2011-Septmber 2017 could not be made for this data point.

The Greater Perth region employed 1,127,889 workers in September 2017 (Department of Jobs and Small Business, 2017). The five largest SA2 labour force areas in the Greater Perth region include Perth City, 25,166; Ellenbrook, 18,964; Baldivis, 18,543; Madeley – Darch – Landsdale, 15,922; and Wanneroo, 15,691, Figure 4. The ongoing importance of the Perth Central Business District (CBD) is particularly evident in this map.

The spatial structure of employment in Greater Perth and the link with land use planning in the region was evidenced and discussed in detail in the Committee for Perth's landmark study in 2016, *Get a Move On!*. This research found that the Greater Perth region comprised of an 'inner and middle decentralised' structure, where the bulk of employment occurs in the CBD and is supported by other employment areas in the inner and middle areas (Davis G, 2016 as cited in Committee for Perth, 2016, p.46).

What is interesting about the data presented in Figure 4, is that the concentration of employment is increasing in the outer ring of Greater Perth. This may be a result of a number of factors such as the mobility of firms, improved transport options, planning policy and focus at a local government level of developing local economies. This data points to the fact that these SA2 areas are growing in population and popularity.

Figure 4: Map of Employment Numbers for SA2 Areas in Greater Perth, 2017[3]



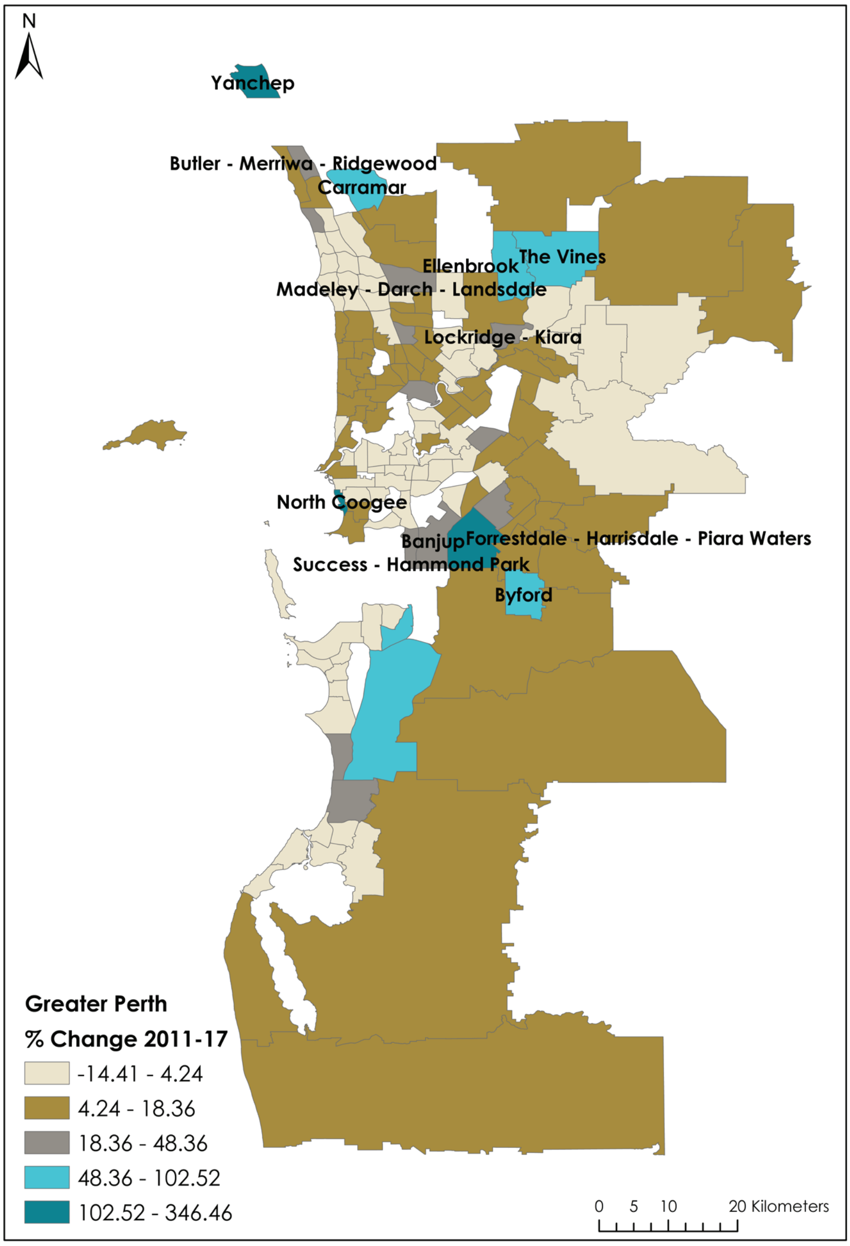
Source: Department of Jobs and Small Business, 2017.

3 The Department of Jobs and Small Business employment data did not record values for every SA2 area. Given this, there are some SA2 areas in the map which are omitted.

Figure 5 shows the spatial distribution of the percentage change in the labour force in each SA2 area from September 2011 to September 2017. This map tells another important story about the shifting structure of local labour forces in the Greater Perth region. Some SA2 areas, which previously had a very low employment base, recorded a significant increase in the number of workers in their region. Examples of this include North Coogee, where the region tripled its labour force to 1,576 workers; Anketell – Wandi rose 150.00% to 1,880 workers; and Byford is now employing 9,259 workers, a rise of 102.52%.

Of the SA2 areas that have had employment increases greater than 20% but less than 100% between 2011 and 2017, that is 19 SA2 areas, 9 of these were located in the local government areas of the City of Wanneroo (Bulter – Merriwa – Ridgewood, Carramar and Madeley – Darch – Landsdale), the City of Swan (The Vines, Ellenbrook and Lockridge – Kiara) and the City of Cockburn (Beeliar, Success – Hammond Park, Banjup). These SA2s, shown in Figure 5, have all focused on economic development through targeted strategies and policies. What this demonstrates is that there is some validity as a local government authority to focus on local job creation opportunities to try and encourage people to live near their work.

Figure 5: Map of Employment Percentage Change for SA2 Areas in Greater Perth, 2011-2017



Source: Department of Jobs and Small Business, 2017.

Table 1 also shows that Perth City has continued to grow its employment base since 2011. Tonts and Plummer (2011) identified the then strong increase in the labour force at the statistical local area level and attributed much of this increase to the "success of numerous planning and policy initiatives to increase both the number of people living and working in central Perth" (p.3).

Indeed, the research highlights areas of future growth due to population expansion in Wanneroo, Rockingham, Cockburn and Mandurah as something to anticipate. Now, as we look at current data, those insights for future growth are well underway and established in 2017.

Unemployment in Greater Perth

As outlined in Tonts and Plummer (2011), "it is equally as important to consider unemployment, since this gives an indication of excess capacity in the labour force [and] from a public policy point of view, unemployment provides insights into issues such as social well-being (in cases of high unemployment) and labour shortages (in cases of very low unemployment) [rates]" (p.4).

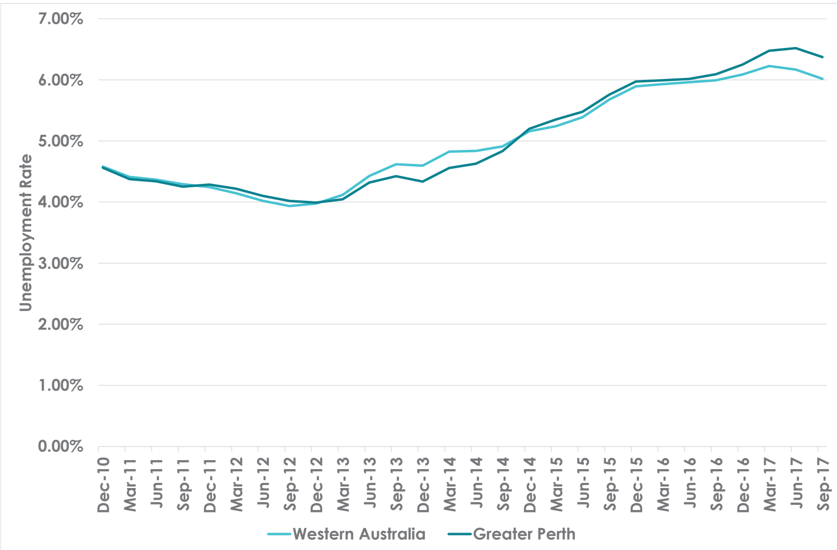
Figure 6 shows more recent trends in unemployment rates for Western Australia and the Greater Perth region since 2011 using data from the Department. Unemployment rates since 2011 have been characterised by lower rates during the most recent resource industry construction boom, up until 2013-14, at which point the historical trend of downward rates (as observed in Tonts and Plummer, 2011) reversed and a new trend started of

Table 1: Labour Force by SA2 with More Than 20% Change, 2011-2017

Statistical Area Level 2 (SA2)	September 2011	September 2017	% Change 11-17
North Coogee	353	1,576	346.46%
Yanchep	3,862	10,721	177.60%
Forrestdale – Harrisdale – Piara Waters	4,706	12,714	170.17%
Anketell – Wandi	752	1,880	150.00%
Byford	4,572	9,259	102.52%
Baldivis	9,452	18,543	96.18%
Bertram – Wellard (West)	4,631	8,208	77.24%
The Vines	3,025	5,247	73.45%
Carramar	6,568	10,275	56.44%
Ellenbrook	12,331	18,964	53.79%
Casuarina – Wellard (East)	823	1,229	49.33%
Iluka – Burns Beach	3,921	5,817	48.36%
Madeley – Darch – Landsdale	11,234	15,922	41.73%
Huntingdale – Southern River	8,758	11,651	33.03%
Success – Hammond Park	6,809	8,850	29.98%
Perth City	19,429	25,166	29.53%
Butler – Merriwa – Ridgewood	9,848	12,638	28.33%
Beeliar	3,553	4,488	26.32%
Lockridge – Kiara	4,282	5,366	25.32%
Mandurah – North	6,861	8,556	25.32%
Singleton – Golden Bay – Secret Harbour	8,807	10,789	22.50%
Nollamara – Westminster	8,753	10,722	22.50%
Cannington – Queens Park	9,091	11,087	21.96%
Banjup	8,679	10,445	20.35%

Source: Department of Jobs and Small Business, 2017.

Figure 6: Unemployment Rate in Western Australia and Greater Perth, 2011-2017



Source: Department of Jobs and Small Business, 2017.

increased unemployment rates. Late 2017 saw a slight drop off in unemployment rates for Western Australia, however more observation periods are needed to assess if the labour market is creating enough jobs to encourage a decline in unemployment levels. It is also important to note that the Australian Bureau of Statistics Labour Force Survey is often subject to multiple revisions as more data comes through.

Table 2 shows the best and worst performing SA2 areas in terms of unemployment rates. Waroona improved by 0.88%, Mandurah by 0.81%, however, still had a very elevated unemployment rate of 14.91%. The western suburbs including Cottesloe, Mosman Park – Peppermint Grove and Swanbourne – Mount Hawthorn all experienced a slight drop in their unemployment rates over the period September 2011 to September 2017.

What this demonstrates is that even though some areas have experienced the most growth in employment levels, as discussed earlier, their unemployment rates have still lifted during the current period of contracting economic growth. What's differentiating though, is that the magnitude of these areas' lifts in unemployment are significantly below those SA2 areas identified in Table 2. Put another way, some geographical areas of the Greater Perth region benefitted more than others and, held their levels of employment up and unemployment down.

Table 2: Top 5 Most Improved and Bottom 5 Least Improved Unemployment Rates by SA2 Areas, 2011-2017

SA2	Unemployment Rate 2011	Unemployment Rate 2017	Difference across time periods
Waroona	6.31%	5.43%	-0.88%
Mandurah	15.72%	14.91%	-0.81%
Cottesloe	1.72%	1.62%	-0.10%
Mosman Park – Peppermint Grove	3.94%	3.84%	-0.10%
Swanbourne – Mount Hawthorn	2.36%	2.34%	-0.02%
SA2	**Unemployment Rate 2011**	**Unemployment Rate 2017**	**Difference across time periods**
Girrawheen	12.45%	22.12%	9.67%
Parmelia – Orelia	10.37%	18.88%	8.51%
Butler – Merriwa – Ridgewood	5.19%	13.40%	8.21%
Balga – Mirrabooka	15.44%	23.05%	7.61%
Calista	12.37%	19.84%	7.47%

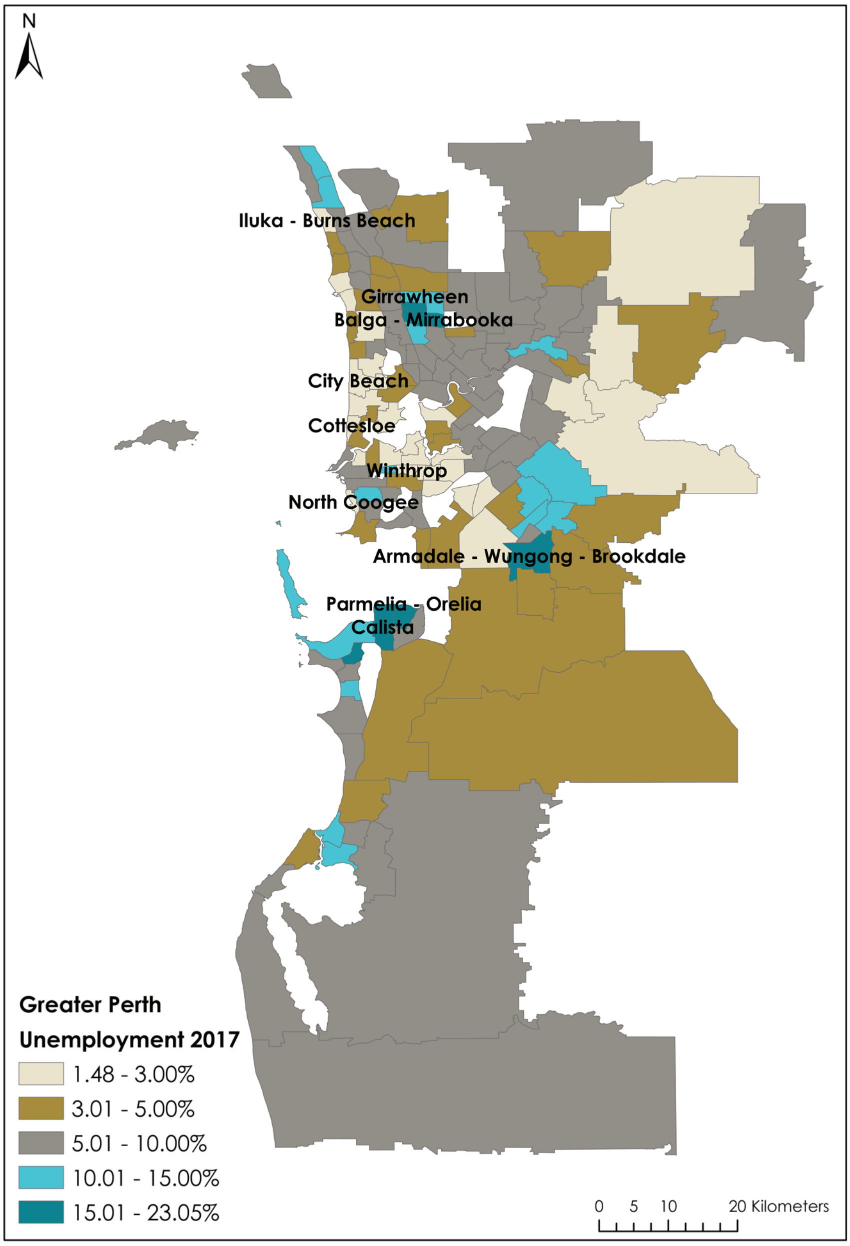
Source: Department of Jobs and Small Business, 2017.

Figure 7 maps the unemployment rates across the Greater Perth region by SA2 to depict the areas of low and high unemployment. The SA2 areas with the lowest unemployment rates include: City Beach, 1.48%; Cottesloe, 1.62%; North Coogee, 1.65%; Winthrop, 1.85%; and Iluka – Burns Beach, 1.91%.

Table 3 ranks the top ten SA2 areas with the highest unemployment rates in September 2017. Balga – Mirrabooka, 23.05%; Girrawheen, 22.12%; Calista, 19.84%; Parmelia – Orelia, 18.88%; and Armadale – Wungong – Brookdale, 18.39%. Compared to September 2011, each of those SA2 areas with the exception of Parmelia – Orelia, were also the highest areas of unemployment in September 2011. The top position in 2011 went to Mandurah with an unemployment rate of 15.72%.

The trend observed in Tonts and Plummer (2011) shows where areas undergoing "urban renewal, gentrification and demographic change" (p.5) like Victoria Park and Fremantle have maintained their lower rates of unemployment up to 2017, while there are those areas which haven't experienced these sorts of change, like, Balga – Mirrabooka.

Figure 7: Unemployment rates across Greater Perth by SA2, 2017



Source: Department of Jobs and Small Business, 2017.

Understanding the fuller picture of the labour force and those seeking work can assist policy makers in setting and directing reforms or changes in the right areas to, for example, create job growth opportunities and reduce areas of entrenched unemployment. Furthermore, this analysis highlights that currently there is some spare capacity in the labour market even in those areas with strong employment growth. This analysis also reinforces the issue that there are some areas in Greater Perth that have entrenched unemployment, which must continue to be addressed through public policy development.

In FACTBase Bulletin 22, Tonts and Plummer (2011) undertook a simple analysis of the unemployment data in 1991 and 2011 using Pearson's correlation and found an r = 0.687. They plotted the unemployment rates of 1991 against the unemployment rates of 2011 in a scatterplot. What they found was that 'a strong relationship [exists] between unemployment in the two periods' (p.7). What this means is that levels of previous unemployment rates are good predictors of future unemployment rates.

By reproducing the same analysis for the period 2011 to 2017, the Pearson correlation

$R^2 = 0.8609$ demonstrates a very high relationship between unemployment rates in 2011 against 2017. The following observations can be made. As shown in Tonts and Plummer (2011), areas of high unemployment can become entrenched over time, and this isn't a new finding. What's new in the context of this Bulletin, is that there are SA2 areas which are now 'newly' entrenched and this requires attention.

Probably the biggest difference in the findings of Tonts and Plummer compared to this FACTBase Bulletin is that there are now a significant number of SA2 areas that have recorded and maintained relatively lower unemployment rates than during the period of 1991 to 2011. For example, the scatterplot in Figure 8 shows a very large presence of SA2 areas in the lower left quadrant of the chart, meaning they had lower unemployment rates in both time periods. In Tonts and Plummer (2011) the scatterplot showed a more evenly spread out distribution of low, medium and high unemployment rates, whereas this is not observed in Figure 8.

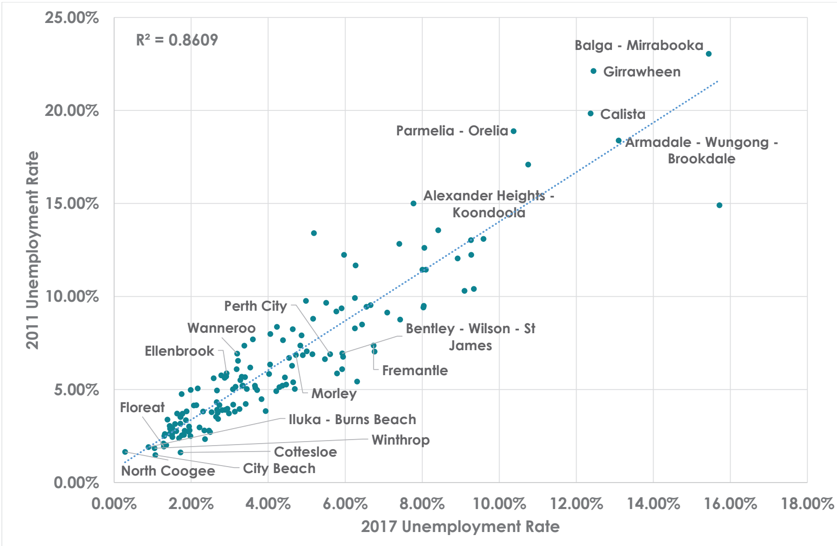
The other feature of the data in Figure 8 is that there is a clear issue with entrenched unemployment in some SA2 areas shown by the top right corner of the scatterplot. Focus from a public policy perspective must be on reducing the very high unemployment rates in SA2 areas like Balga – Mirrabooka, Girrawheen, Calista, Mandurah and Armadale – Wungong – Brookdale. Regeneration, investment and economic development strategies must all be considered in the public policy mix for addressing this obvious entrenched unemployment.

Table 3: Top 10 SA2 Areas with the Highest Unemployment Rates, September 2017

SA2	Unemployment rate 2011	Unemployment rate 2017	Difference across time periods
Balga – Mirrabooka	15.44%	23.05%	7.61%
Girrawheen	12.45%	22.12%	9.67%
Calista	12.37%	19.84%	7.47%
Parmelia – Orelia	10.37%	18.88%	8.51%
Armadale – Wungong – Brookdale	13.10%	18.39%	5.29%
Cooloongup	10.75%	17.09%	6.34%
Alexander Heights – Koondoola	7.77%	15.00%	7.23%
Mandurah	15.72%	14.91%	-0.81%
Rockingham	8.41%	13.56%	5.15%
Butler – Merriwa – Ridgewood	5.19%	13.40%	8.21%

Source: Department of Jobs and Small Business, 2017.

Figure 8: Scatterplot 2011 Versus 2017 Unemployment Rates by SA2



Source: Department of Jobs and Small Business, 2017.

What's changed in the labour force since the 2011 Census – Greater Perth?

With the context of the current employment and unemployment aspects of the Greater Perth and Western Australian labour force now laid out earlier in this FACTBase Bulletin, this section pulls out some key themes and findings on characteristics of the labour force contained in the Census of Population (Australian Bureau of Statistics, 2017).

Labour force status and education characteristics for Greater Perth

The 2016 Census of Population Time Series Profile data shows that the working population, (15 to 65 year olds) has increased by 29.27% for both males and females since 2006 (Australian Bureau of Statistics, 2017). The increase in working age population has roughly been split evenly between males and females over the 10 years from 2006 (Table 4).

The breakdown into different employment statuses shows some interesting trends developing in the labour market that were not present in the 2006 Census. Specifically, the 10-year period from 2006 shows that there was an increase of 27.42% in females employed in full-time work, from 158,394 to 201,826 in 2016. This trend is also true for females in part-time work, where there was an increase of 35.54% since the 2006 Census. Looking at compound annual growth rates (CAGR) between these two time periods shows growth of females in full-time employment of 2.45% and part-time employment of 3.09%.

So whilst there has been an increase in female full-time and part-time employment, there is still spare capacity in the labour force for females working in the future. This is interesting as it suggests that public policies around returning to work and access to affordable childcare may be moving in the right direction, however, there is certainly more that could be done.

The trend towards more employment in part-time work is interesting as it possibly suggests a number of changes in business structure, the flexibility of work options now compared to 10 years ago, a slowing of the broader Western Australian economy and more recently, a trend towards jobless growth in some industries as technology advancements and innovation change how we work and produce output.

Table 4: Labour Force by Age for All Persons, 2006 to 2016

	2006 Census	2011 Census	% Change 06-11	2016 Census	% Change 11-16	% Change 06-16	10 yr CAGR
Persons aged 15 years and over	1,217,261	1,396,460	14.72%	1,573,536	12.68%	29.27%	2.60%
Labour force status:							
Employed, full-time	461,071	542,259	17.61%	565,148	4.22%	22.57%	2.06%
Employed, part-time	218,767	260,272	18.97%	306,272	17.67%	40.00%	3.42%
Employed, away from work	49,734	55,099	10.79%	48,775	-11.48%	-1.93%	-0.19%
Unemployed, looking for work	27,959	42,859	53.29%	81,482	90.12%	191.43%	11.29%
Total labour force	**757,531**	**900,489**		**1,001,677**			

Source: Australian Bureau of Statistics, 2017.

Table 5: Category of Non-school Qualification, All Persons in Greater Perth

	2006 Census	2011 Census	% Change 06-11	2016 Census	% Change 11-16	% Change 06-16
Non-school qualifications:						
Postgraduate Degree	28,906	47,273	63.54%	70,476	49.08%	143.81%
Grad Dip and Grad Cert	17,337	24,935	43.83%	32,920	32.02%	89.88%
Bachelor Degree	148,736	201,759	35.65%	257,460	27.61%	73.10%
Advanced Diploma and Diploma	96,357	120,403	24.96%	146,738	21.87%	52.29%
Sub Total	**291,336**	**394,370**		**507,594**		
Certificate:						
Certificate III & IV	175,044	221,449	26.51%	256,410	15.79%	46.48%
Certificate I & II	12,480	15,749	26.19%	18,307	16.24%	46.69%
Certificate, nfd	20,835	22,025	5.71%	31,179	41.56%	49.65%
Sub Total	**208,359**	**259,223**	**24.40%**	**305,896**	**18.01%**	**46.80%**
Total	**499,706**	**653,584**		**813,487**		
Proportion working age population	41.05%	46.80%		51.70%		

Source: Australian Bureau of Statistics, 2017.

The Census of Population also investigates what level of qualification has been attained by the working age population. Table 5 shows a summary for all persons by category of non-school qualification.

As was found in FACTBase Bulletin 52 – *Sizing and Mapping Higher Education and Vocational Education and Training in Perth and Peel* (Davis, 2017b), "human capital is critical to growth [in an economy]" (Davis, 2017b, p. 1). The Bulletin also discusses the fact that, "in 2015, the ABS established that average personal weekly income in Australia increases with the number of non-school qualifications completed" (Davis, 2017b, p. 2). These are important findings and reiterate that access to higher education and vocational training for people of working age is a fundamental part of a knowledge economy.

The data presented in Table 5 shows an increase in the proportion of working age population now completing non-school qualifications since the 2006 Census. Now, over 50% of the working age population has completed a non-school qualification. In 2016, the most commonly attained qualification was a Bachelor Degree and an Advanced Diploma. In terms of gender split, the data shows 48.96% of females of working age population attained a non-school qualification and 54.53% of males achieved the same. Females attained a higher number of Bachelor Degree qualifications than males, 144,603 compared to 112,861 males. In addition, females also attained more qualifications at the Advance Diploma level than males in the order of 16,915.

Gender and age characteristics of the Greater Perth labour force

The Census of Population also provides more detailed characteristics of the labour force and considers labour force status by age and gender. In the 10 years from 2006, the age groups with the highest percentage changes include: 65-74 years, 53.98%; 25-34 years, 51.11%; and 75+ years, 32.12%. This demographic shift reinforces the important public policy issue of our ageing society and the challenges and opportunities that it brings with it.

In October 2017, the Committee for Perth published FACTBase Bulletin 56 – *Sizing Ageing in Western Australia* (Davis, 2017a). This research clearly outlined the challenges which policy makers are more than aware of, but it also highlighted some of the opportunities an ageing population brings. The 2016 Census data wasn't available at the time of its publication, but with the data now available it is clear that it supports some of the opportunities identified in Davis (2017a). Specifically, the importance of keeping older people in the workforce through paid employment, either full-time or part-time.

Table 6: Employed and Unemployed Persons by Age Characteristics, 2006, 2011 and 2016

	Employed Persons									
	Worked full-time					Worked part-time				
	2006	2011	2016	% Change 11-16	% Change 06-16	2006	2011	2016	% Change 11-16	% Change 06-16
15-24 yrs	67,301	69,040	51,974	-24.72%	-22.77%	58,746	65,681	75,520	14.98%	28.55%
25-34 yrs	106,488	135,917	153,068	12.62%	43.74%	32,279	40,964	55,684	35.93%	72.51%
35-39 yrs	54,463	61,651	66,648	8.11%	22.37%	23,249	24,875	28,410	14.21%	22.20%
40-49 yrs	115,859	131,091	136,662	4.25%	17.96%	47,947	53,934	57,991	7.52%	20.95%
50-59 yrs	93,080	106,816	113,427	6.19%	21.86%	37,583	43,152	48,962	13.46%	30.28%
60-64 yrs	18,211	27,893	29,903	7.21%	64.20%	11,217	18,073	20,356	12.63%	81.47%
65-74 yrs	5,119	9,385	12,607	34.33%	146.28%	6,735	12,131	16,982	39.99%	152.15%
75 yrs +	554	475	850	78.95%	53.43%	1,008	1,477	2,385	61.48%	136.61%
65 yrs +	5,673	9,860	13,457	36.48%	137.21%	7,743	13,608	19,367	42.32%	150.12%
	Unemployed Persons									
	Looking for full-time work					Looking for part-time work				
	2006	2011	2016	% Change 11-16	% Change 06-16	2006	2011	2016	% Change 11-16	% Change 06-16
15-24 yrs	4,921	7,872	10,645	35.23%	116.32%	5,298	8,455	15,459	82.84%	191.79%
25-34 yrs	3,666	5,870	11,780	100.68%	221.33%	2,076	3,098	5,806	87.41%	179.67%
35-39 yrs	1,623	2,248	4,742	110.94%	192.17%	1,155	1,450	2,429	67.52%	110.30%
40-49 yrs	2,827	4,393	9,825	123.65%	247.54%	1,996	2,555	4,207	64.66%	110.77%
50-59 yrs	1,925	3,209	8,163	154.38%	324.05%	1,228	1,604	2,987	86.22%	143.24%
60-64 yrs	543	897	2,625	192.64%	383.43%	421	654	1,367	109.02%	224.70%
65-74 yrs	81	182	503	176.37%	520.99%	136	309	779	152.10%	472.79%
75 yrs +	21	14	59	321.43%	180.95%	35	50	95	90.00%	171.43%
65 yrs +	102	196	562	186.73%	450.98%	171	359	874	143.45%	411.11%

Source: Australian Bureau of Statistics, 2017.

Table 6 shows that there has been an increase of 137.21% in people aged 65 years and over who worked full-time in 2016 versus 2006. In addition, for the same age group there was an increase of 150.12% people participating in part-time work. When looking at those who are seeking full and part-time work, the evidence is even more compelling. There has been an increase of 450.98% seeking full-time work and 411.11% seeking part-time work for persons aged over 65 years. This demonstrates that the senior members of our society are trying to participate and be active in our communities. Some of the strategies for opportunities cited in Davis (2017a) included increasing workforce participation of over 65s and maximising human capital through training and education programs for senior members of our community.

Taking a look at younger age brackets, some of the trends are a little different. For example, in the 10 years from 2006, there was a decline by 22.77% of 15-24 years olds working full-time. However, in terms of part-time work, this lifted by 28.55% over the same period and interestingly, this age group has the highest level of part-time employment across all age groups in this analysis, recording 75,520 youths (see Table 6).

Table 6 also shows that the larger age groups of employed are now Generation X where in 2016, 40-49 year olds represented 23.62% of employed persons and 50-59 year olds represented 19.60%, making a total of 43.22% of full-time employed persons in Greater Perth. As the population ages in the next 10 to 20 years, the impact on the economy and society will be further pronounced as identified in Davis (2017a).

Conclusion

This FACTBase Bulletin pulls together data trends and findings across two important data sets; the employment data of the Department and the 2016 Census of Population Time Series tables. What is evident in this analysis is that compared to the findings in Tonts and Plummer in 2011, the labour force has now changed significantly. Whilst there is slower job growth over the seven year period compared to the 19-year period – which is not surprising as major economic events shaped that earlier time-frame – the labour force has in effect still created jobs during shifting economic periods. It is evident that significant growth in jobs has occurred during the latest resource expansion construction phase and whilst jobs were lost during the transition, the labour force has in some areas of the Greater Perth region actually held up reasonably well.

There has been a significant shift away from SA2 areas with 'evenly' distributed unemployment rates to a more pronounced shift where the bulk of SA2 areas in Greater Perth are concentrated in the lower left quadrant of Figure 8 and a clearer picture of those SA2 areas with entrenched unemployment is also apparent.

The characteristics of our labour force has also changed dramatically and this can be evidenced by the impact of an ageing society now, and the clear opportunity to drive growth in participation rates of females and over 65s as these two cohorts are seeking more employment, both full-time and part-time.

This presents a great opportunity for the State Government and industry. With a changing labour market and evidence of latent labour supply, public policy decisions and reforms to activate more labour force participation and address entrenched unemployment in key regions is paramount. These sorts of policies will go a long way to assisting to deal with the biggest shock to our economy on the horizon – an ageing population.

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About FACTBase

FACTBase is a collaborative research project between the Committee for Perth and The University of Western Australia to benchmark the liveability of Perth and its global connectedness through an examination of Perth's economic, social, demographic and political character.

The FACTBase team of academics and researchers condense a plethora of existing information and databases on the major themes, map what is happening in Perth in pictures as well as words, and examine how Perth compares with, and connects to, other cities around the world.

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About the author

Lisa Kazalac is the Manager of Research and Policy at the Committee for Perth. In her role Lisa oversees the development and publication of research and public policy positions which help to shape the future of Perth and Peel.

Trained as an economist at RMIT University, Lisa graduated with upper second class honours, and has recently graduated from Curtin University with an MBA. Lisa's career has spanned 10 years in the Victorian public sector.

Lisa moved to WA five years ago and has held two positions in WA's corporate environment with CCIWA and more recently with REIWA leading the advocacy and research agenda for the property industry.

Lisa is an outcomes driven individual, who challenges the status quo. Lisa brings a passion for public policy, evidence-based research and is keen to influence decision makers for a more prosperous WA.

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