

FACTBase

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Greater Perth's Economic Base: A Comparative Assessment

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Introduction

This FACTBase Bulletin analyses the economic base of Greater Perth by Statistical Area Level 2 (SA2) and compares it to other major cities around Australia. It updates and expands on the analysis presented in FACTBase Bulletin 9 (Tonts, 2010) and draws on Australian Bureau of Statistics data for the Working Population.

The aim of this Bulletin is to create a picture of how the economic base of Greater Perth has changed over the past two Census periods, to draw comparisons with other major Australian cities, and to reflect on the nature of economic change over the period 2011-2016. The Bulletin will also examine local level changes across Greater Perth, providing a fine-grained analysis of the city's increasingly complex economic structure.

In simple terms, the 'economic base' of a city or region incorporates those industries that drive economic growth, usually through exports within the region under analysis.¹ Quotients have been calculated for both the Greater Perth metropolitan region against a reference economy of the nation, as

The key findings of this Bulletin are:

- The results of a location quotient analysis for Greater Perth show a similar pattern observed in FACTBase Bulletin 9, in that the mining industry is still a key contributor to the economic base.
- There is evidence that the economic base of Greater Perth is changing and that there is growing potential for other industries to diversify the city's economy.
- This analysis supports the findings in FACTBase Special Report: *Perth as a resilient economy*, that there are three clear groupings of industry in Greater Perth – the Bright Lights Industries, the Primary Industries and the Industries in Transition (Tonts et al., 2017).
- Whilst the arts and recreation services industry only employs 1.81% of the total working population in Greater Perth, its employment grew by more than 26% since 2011. In 2016, this Bright Lights Industry recorded a location quotient of 1.09, demonstrating that the concentration of this activity is important to Greater Perth relative to the national economy.
- Retail trade industry has been identified in *Perth as a resilient economy* as an Industry in Transition. Whilst facing many new technological, customer and competitor challenges, this industry still remains a key employer in Greater Perth and recorded a quotient of 1.06 over the two Census periods.
- The top five employing industries include health care and social assistance, 12.96%; retail trade, 10.41%; education and training, 9.40%; construction, 8.30%; and professional, scientific and technical services, 7.55%. In total, these industries make up approximately 48% of the total working population in Greater Perth.
- The biggest employing SA2s in Greater Perth are Perth City, with 137,455 workers, Subiaco-Shenton Park with 22,926 workers and Osborne Park Industrial with 22,029 workers. This highlights the centralised nature of Greater Perth's labour force as evidenced in *Get a Move On!* (Committee for Perth, 2016).
- The stand out difference between the Greater Perth economic base and other major cities in Australia is the intense presence of the mining industry and the less prevalent service or knowledge focused industries that are present in Greater Melbourne and Greater Sydney.
- Greater Perth recorded a location quotient higher than Greater Melbourne for education and training, 1.09 versus 1.06. This is important as Melbourne is often viewed as a 'stand out performer' in terms of its education and training economy.

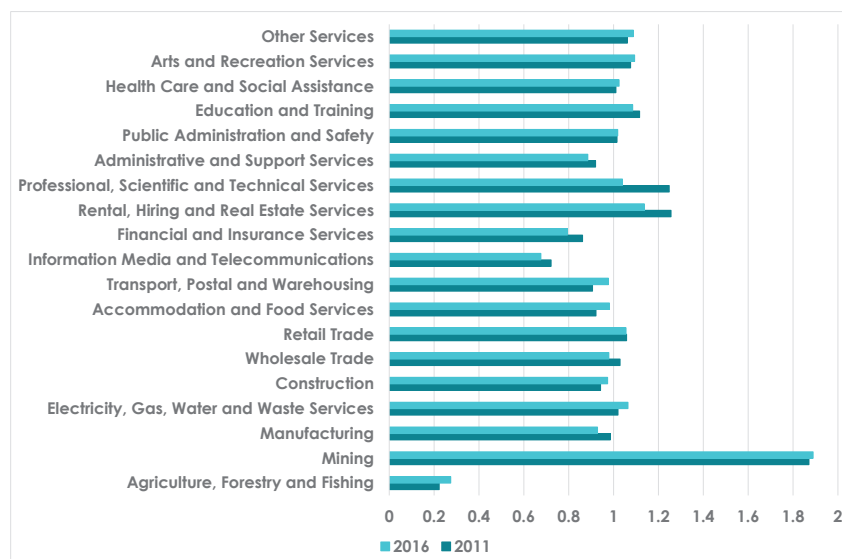
¹ One of the most commonly used methods for determining the economic base is by comparing the size and structure of a local economy with a wider 'reference' economy. While a range of techniques can be used to help determine an economic base, this report uses the 'location quotient' technique (see Appendix A).

well as SA2 analysis measured against a reference economy of Greater Perth to understand which local areas are driving the region's economic base. Interpreting location quotients is relatively straightforward – convention holds that any sector with a score of more than 1.0 is 'over represented' compared to the nation, and therefore might be regarded as one of the city's propulsive industries (Tonts, 2010, p.1).

Greater Perth's economic base

The results of the location quotient analysis for Greater Perth shows a similar pattern to that reported in FACTBase Bulletin 9 (Tonts, 2010). Figure 1 shows location quotients for the Greater Perth region between 2011 and 2016. It demonstrates that the mining industry continues to dominate, with the highest location quotient of 1.89, which is slightly lower compared to 2006 when it recorded 2.17 (Tonts, 2010, p.1). This emphasises the continuing importance of the mining and resources industry to the Greater Perth economy, despite the recent downturn. Closely linked to mining, the construction industry also maintained its relative importance with a location quotient of 0.97 in 2016. Whilst construction is below the 1.0 threshold to determine how propulsive the industry is compared to the reference economy as a whole, it still represents a level of importance.

Figure 1: Location Quotients for Industries in Greater Perth, 2011 and 2016²



Source: Australian Bureau of Statistics, 2012; Australian Bureau of Statistics, 2017.

2 The analysis throughout this Bulletin uses Working Population Profiles of the Census of Population unless otherwise stated.

Table 1: Top 10 Location Quotients by Industry for Greater Perth and Proportion of Total Employment, 2016

Industry	2011 location quotient	Proportion of employment 2011	2016 location quotient	Proportion of employment 2016
Mining	1.87	3.28%	1.89	3.14%
Rental, Hiring and Real Estate Services	1.26	1.98%	1.14	1.94%
Arts and Recreation Services	1.08	1.62%	1.09	1.81%
Other Services	1.06	3.99%	1.09	4.07%
Education and Training	1.12	8.92%	1.09	9.40%
Electricity, Gas, Water and Waste Services	1.02	1.17%	1.06	1.15%
Retail Trade	1.06	11.12%	1.06	10.41%
Professional, Scientific and Technical Services	1.25	9.06%	1.04	7.55%
Health Care and Social Assistance	1.01	11.73%	1.03	12.96%
Public Administration and Safety	1.02	6.96%	1.02	6.80%

Source: Australian Bureau of Statistics, 2012; Australian Bureau of Statistics, 2017.

There are a number of other noteworthy industries that are making a significant economic contribution, which reflects an increasingly diverse economy in Greater Perth. Examples include: arts and recreation services (1.09); rental, hiring, and real estate services (1.14); electricity, gas, water and waste services (1.06); education and training (1.09); retail trade (1.06) and professional, scientific and technical services (1.04) (Figure 1).

It is important to note that there is not necessarily a direct relationship between the proportion of people employed within a regional economy and its contribution to the economic base. This is evident in Table 1. The mining industry represented 3.14% of employment in 2016, yet, the location quotient indicates mining is critical to driving economic activity across the economy. In contrast to mining, health care and social assistance accounts for 12.96% of the labour force, but had a location quotient of 1.03 in 2016. This suggests that the health care and social assistance industry is an important employer and significant economic driver, yet not to the same extent as mining.

Table 1 also demonstrates that the Greater Perth economy, whilst driven primarily by the mining industry, is actually more complex than conventional wisdom would suggest. Figure 1 and Table 1 show that there are a number of other industries which are critical to driving growth, or at the very least have the potential to do so. These include arts and recreation services, education and training and professional, scientific and technical services. This confirms the findings from Tonts et al. (2017), that these

industries represent the Bright Lights Industries of Greater Perth's economy.

In relative terms, it is also useful to compare how the top three industries have changed between the Census periods. Mining has maintained the top position across the two time periods, the second position has been held by rental, hiring and real estate services, and the third position has changed from professional, scientific and technical services (1.25) in 2011 to arts and recreation services (1.09) in 2016.

This strengthening of position for arts and recreation services indicates that Greater Perth's economic base is changing and diversifying. This accords with a key observation of the FACTBase Special Report: *Perth as a resilient economy*, which noted three main groupings of industry activity in Greater Perth's economy: Bright Lights Industries, the Perennials or Primary Industries and the Industries in Transition.

Focus on the Bright Lights Industries

Perth as a resilient economy set the scene for identifying those industries that are the future bright lights for the Greater Perth economy. Specifically, the Bright Lights Industries refer to: arts and recreation services; professional, scientific and technical services; tourism; and higher education. The analysis in Tonts et al. (2017) examined the size and turnover activity of each of these industries and demonstrated that there was considerable opportunity for these industries to diversify the Greater Perth economy.

Whilst the arts and recreation services industry only employed 15,378 people in 2016 and represents 1.81% of the total employment in Greater Perth since 2011, the industry has grown its workforce by 26.20% (Australian Bureau of Statistics, 2017). This industry is characterised by non-employing or micro businesses. The analysis in Tonts et al. (2017), found that the number of businesses in these two categories is growing.

By examining arts and recreation services more closely, it is evident that there is a growing concentration of activity in the Greater Perth economy. When compared to the rest of Australia, the Greater Perth economy has a concentration of arts and recreation activity, and that it is growing. The industry recorded location quotients of 1.08 in 2011, and 1.09 in 2016, respectively.

The future growth possibilities in this industry's contribution to Greater Perth's economic base will need to be secured by policies that encourage start-up businesses, growing those businesses and creating 'a vibrant state where arts and cultural appreciation and activity is part of everyday life for all Western Australians' as envisioned in the Committee for Perth's *A Cultural Compact for Western Australia: the 10 year challenge* (2008, p.3). It is also likely that recent developments in arts festivals, urban renewal projects and the advent of more cultural infrastructure have contributed to increases in economic concentration of the arts and recreation services industry over the five year intercensal period.

Table 1 also shows that professional, scientific and technical services remains an

important industry in the Perth economy, with a location quotient of 1.04 in 2016. The industry currently represents 7.55% of total employment in Greater Perth, down from 9.06% in 2011 (Australian Bureau of Statistics, 2017).

This industry is closely linked to the resources sector through the development of the Mining, Equipment, Technology and Services (METS) sector. In the future, uplifts in productivity through innovative practices will continue to be important to this industry. The sector is also closely linked to broader research and development, particularly in higher education and State and Commonwealth and government agencies, like the CSIRO. The research and development sector has been widely noted as an area of significant economic potential for Perth, which is already home to key research facilities related to the mining and energy industries (Department of Jobs, Tourism, Science and Innovation, 2018). The role of innovation in continuing to build the research and development capability in Perth is critical (Parliament of Western Australia, 2016). Closely linked to this is the city's role in higher education. In 2011, education and training recorded a quotient of 1.12 and 1.09 in 2016 (Figure 1).

Western Australia's current share of the international student market is well documented in Davis (2017b). In this report, Davis found that while Western Australia has a high proportion of offshore enrolments, it is attracting a lower national share of onshore international enrolments when compared to its eastern States counterparts. Strategies are now being put in place by the universities

and the state government to increase this share, particularly given Perth's accessibility to the Indo-Pacific region and a number of ASEAN countries.

The education and training industry also makes a significant contribution to economic growth, with a location quotient of 1.09 in 2016.

Focus on the Primary Industries

The contribution of the resources sector to the Perth economy is well understood, and the evidence suggests that this increased over the period 2011 to 2016. Figure 1 shows this increase in the significance of mining. Mining recorded a location quotient of 1.89 in 2016, making it by far the most significant propulsive industry in Perth. The FACTBase Special Report *Perth as a resilient economy* (Tonts et al., 2017) noted the potential for future growth into the specialised METS sector. This would likely increase the overall performance of the resources sector, enhance innovation, and increase collaboration with the professional and scientific and technical services industry.

The construction industry, whilst not traditionally regarded as a primary industry, has been grouped as such due to its strong ties to the resources sector. Construction is a significant player in Greater Perth's economic base and whilst it has not recorded location quotients above 1.0 in each of the past two Census periods, it still represents an industry with strong levels of economic concentration. In 2016, the construction industry lifted its contribution to Greater Perth's economic base, reaching 0.97 from 0.94 in 2011. In terms of total employment, the construction

industry employed 8.30% of Greater Perth's labour force (Australian Bureau of Statistics, 2017). It increased its share of employment between 2011 and 2016 by 20.95%.

An industry that did not have the same level of economic concentration in Greater Perth, as say the mining industry, is the agriculture, forestry and fishing industry. However, from 2011 to 2016, the agriculture, forestry and fishing industry lifted its location quotient from 0.22 in 2011 to 0.27 in 2016. An important aspect to consider whilst using these location quotients as a measure of contribution to the Greater Perth economic base, is that agriculture also contributes to the economy in other ways through export trade and innovation in business practices. The analysis of firm turnover and number of employees in Tonts et al. (2017) showed that whilst the number of firms had declined in this industry, the turnover or output from this industry was increasing. This suggests improvements in production efficiency characterise the sector.

Focus on the Industries in Transition

The *Perth as a resilient economy* report drew attention to Perth's Industries in Transition. These are those industries experiencing significant structural change as a result of disruptive technologies, increasing international competition, and shifting policy frameworks. The industries identified in this category include health care and social assistance, retail trade and manufacturing.

In 2011, the health care and social assistance industry recorded a location quotient of 1.01 and then 1.03 in 2016.

As identified earlier in this Bulletin, a higher proportion of total employment does not necessarily correlate to a higher representation in the region's economic base. Despite this, there are a number of reforms required to enhance future efficiencies that will ensure productivity gains continue in light of an ageing society. Davis (2017a) discusses and documents the challenges and opportunities of an ageing society in detail.

This is particularly important as the government funding envelope is under pressure, and moves to deregulate some aspects of this industry, like aged care are occurring. This means that innovation policies and technological advancements will be crucial elements to the future contribution of this industry to Greater Perth's economic base.

Tonts et al. (2017) pointed to retail trade as an industry in transition. The advent of online shopping, pop-up retail and changing consumer preferences were all outlined as key challenges for this industry. Other sources indicate that pressure from online retailers, as well as changing behaviours of consumers are testing industry (Inside Retail, 2017; Deloitte, 2017). The industry is still an important employer in the Greater Perth economy at 10.41%. Its contribution in terms of economic concentration has been stable over the two Census periods. In 2016, it recorded a location quotient of 1.06. Even though the industry is facing challenges, there is still scope for its contribution to the broader economic base of the region.

The manufacturing industry's historical importance to Greater Perth's economy is detailed in Tonts et al. (2017). With increased globalisation and competition, traditional manufacturing has become less important. Increasingly significant is niche, specialised and high-value manufacturing, where Perth appears well placed with existing capacity and new opportunities in food and beverage processing, defence, and the METS sector.

In terms of the location quotient analysis, manufacturing has experienced a decline from 0.95 in 2006 to 0.93 in 2016. Over this period, its proportion of total employment has also dipped (Australian Bureau of Statistics, 2017).

A closer look at Greater Perth's economic base by SA2 level

This section of the Bulletin focuses on what is happening at the local level within Greater Perth. It looks at which SA2s are home to the greatest portion of total employment in Greater Perth and then investigates further which SA2 areas are contributing more to the Greater Perth economy.³

As FACTBase Bulletin 57 *Spatial Distribution and Employment Trends in Perth and Peel since the 2011 Census* (Kazalac, 2018) pointed out, the structure of the labour force in Greater Perth is changing. One of the most apparent trends was the shift in those seeking both part-time and full-time employment, specifically in the over 65s, under 25s and female cohorts.

With this in mind, taking a closer look at the economic base by working population data in industry at SA2 level expands upon the analysis presented in FACTBase Bulletin 57 and FACTBase Bulletin 9 (Kazalac, 2018; Tonts, 2010).

The Australian Bureau of Statistics' Census of Population Working Population Profiles reports that the total number of people employed in Greater Perth by industry in 2016 was 850,151. These workers are split across 19 industry classifications. Since 2011, the total number of people employed by industry has grown by 13.08% (Australian Bureau of Statistics, 2017). The top five employing industries in Greater Perth include: health care and social assistance (12.96%); retail trade (10.41%); education and training (9.40%); construction (8.30%); and professional, scientific and technical services (7.55%). In total, these industries make up approximately 48.00% of the total working population in Greater Perth.

Breaking down the employment market by SA2 offers a view of the geography of employment in Perth, and tends to emphasise the centralised nature of the labour market. Table 2 shows a significant concentration of employment in SA2s in central Perth, as well as significant nodes of employment across the broader metropolitan region.

³ This section of analysis uses Greater Perth as the reference economy in comparing SA2 concentration of economic activity.

Table 2: Various SA2 Areas, 2016 Working Population and Proportions

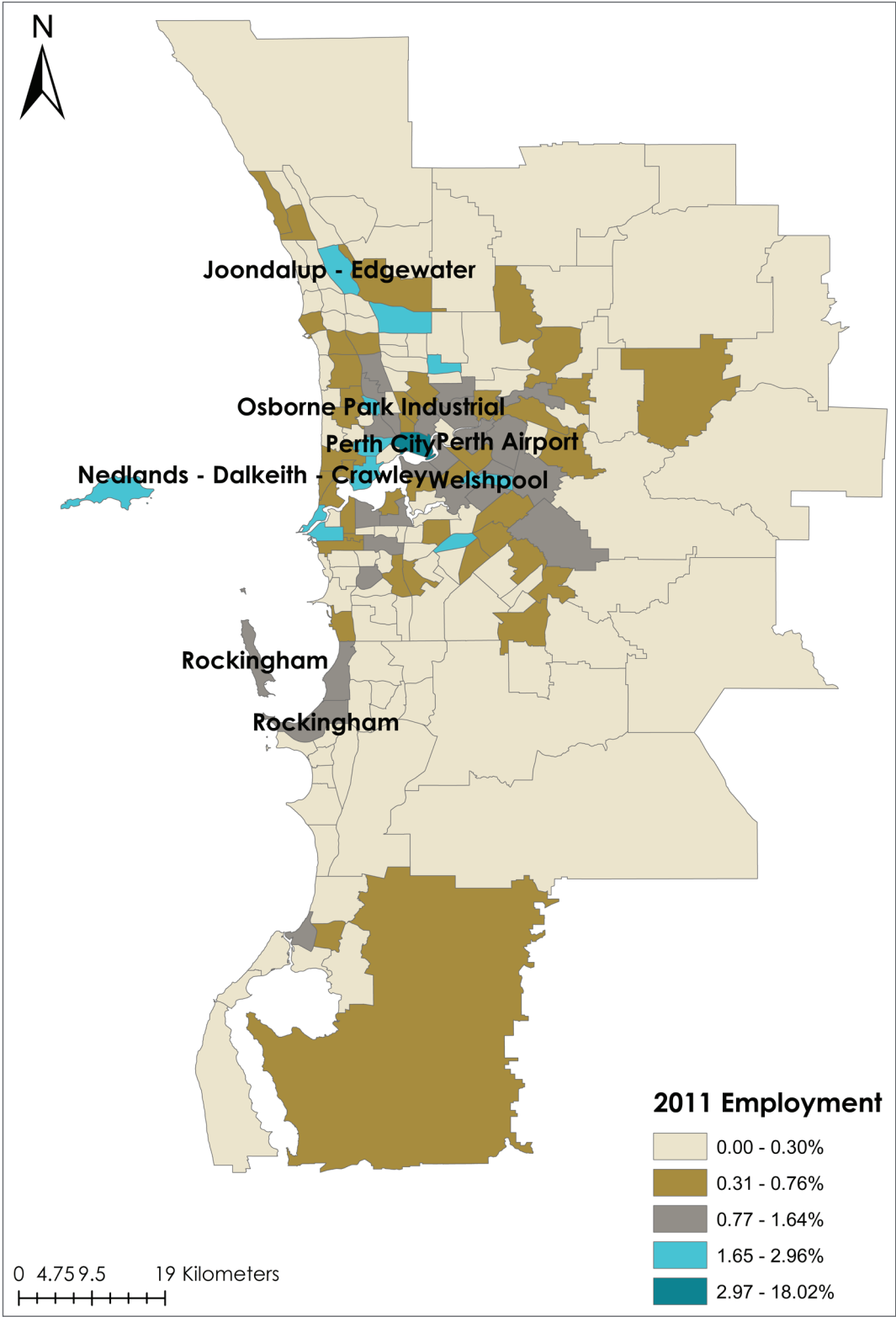
SA2	2011 Working Population	2011 Proportion of Total	2016 Working Population	2016 Proportion of Total
Perth City	134,279	18.02%	137,455	16.15%
Subiaco – Shenton Park	22,061	2.96%	22,926	2.69%
Osborne Park Industrial	20,974	2.81%	22,029	2.59%
Nedlands – Dalkeith – Crawley	17,713	2.38%	20,287	2.38%
Joondalup – Edgewater	14,874	2.00%	18,554	2.18%
Madeley – Darch – Landsdale	13,631	1.83%	18,358	2.16%
Welshpool	17,943	2.41%	17,152	2.02%
Fremantle	17,568	2.36%	16,584	1.95%
Malaga	15,416	2.07%	15,971	1.88%
Midland – Guildford	11,713	1.57%	14,571	1.71%
Canning Vale Commercial	14,759	1.98%	14,567	1.71%
Rockingham	11,987	1.61%	13,925	1.64%
Belmont – Ascot – Redcliffe	12,235	1.64%	13,923	1.64%
Murdoch – Kardinya	7,219	0.97%	13,620	1.60%
Victoria Park – Lathlain – Burswood	10,828	1.45%	12,893	1.51%
Perth Airport	10,004	1.34%	12,819	1.51%
Bentley – Wilson – St James	11,449	1.54%	12,744	1.50%
Balcatta – Hamersley	10,825	1.45%	11,481	1.35%
Wembley – West Leederville – Glendalough	8,349	1.12%	10,358	1.22%

Source: Australian Bureau of Statistics, 2012; Australian Bureau of Statistics, 2017.

The biggest employing SA2 level areas in Greater Perth were Perth City, with 137,455 workers (or 16.15% of the total metropolitan labour market). This was followed by Subiaco-Shenton Park with 22,926 workers (2.69%) and Osborne Park Industrial with 22,029 workers (2.59%). These top three SA2 areas suggests that whilst Greater Perth has a mostly centralised workforce in the Perth CBD, as found in *Get a Move On!* (Committee for Perth, 2016), there are other major employment

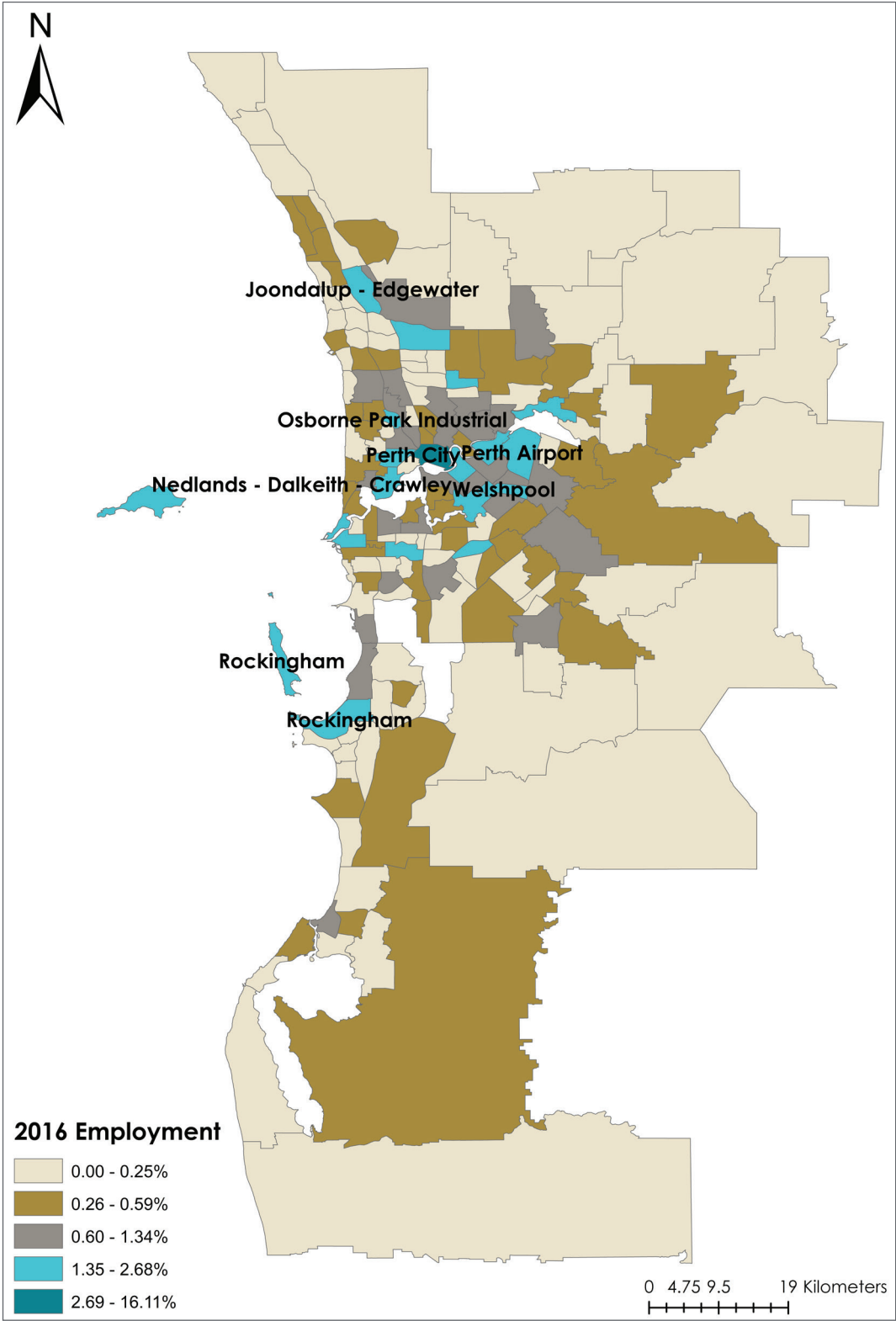
nodes around the inner suburban ring and light industrial areas. This highly centralised spatial structure of the labour force presents policy challenges in terms of access to transport and alternative transportation options, broader planning and place making policies, as well as economic development strategies at a local and state level. Figure 2 shows the spatial distribution of the working population in Greater Perth for 2016.

Figure 2: Proportion of Working Population by SA2 in Greater Perth, 2011



Source: Australian Bureau of Statistics, 2012.

Figure 3: Proportion of Working Population by SA2 in Greater Perth, 2016



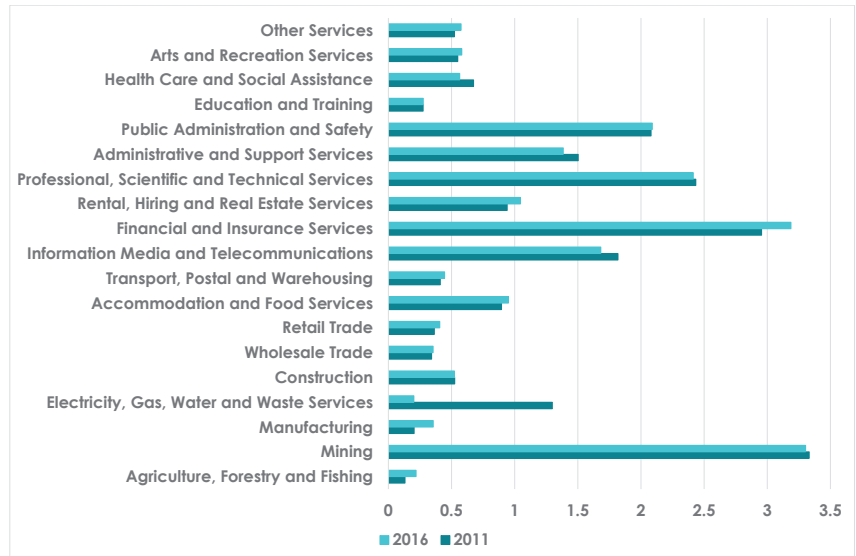
Source: Australian Bureau of Statistics, 2017.

The next section examines those SA2 areas highlighted in Table 2 that have the highest levels of employment, based on working population data. These form the basis for discussing the concentration of activity in those SA2 areas and in turn how they fare against the Greater Perth economic base. Figure 4 shows the location quotient changes over the past two Census periods for the Perth City SA2.

Unsurprisingly, the Perth City SA2 is the most concentrated employment node in the Greater Perth economy and has a number of industries that score a location quotient greater than 1.0. The mining and financial and insurance services industries recorded location quotients above 3.0. This emphasises the importance of these sectors to central Perth. Industries that also feature strongly include professional, scientific and technical services (2.41) and public administration and safety (2.08). Industries with a location quotient above 1.0 include administrative and support services (1.38); and rental, hiring and real estate services (1.04); and rental, hiring and real estate services (1.04).

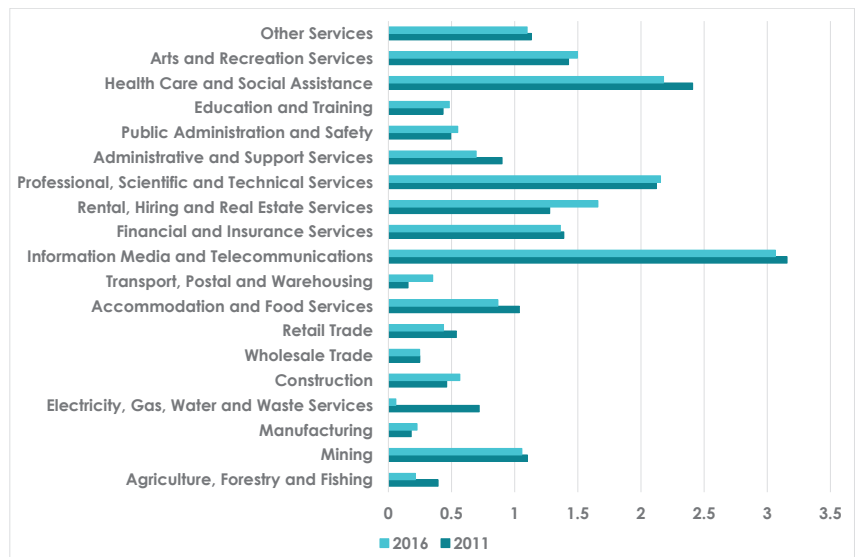
Figure 5 shows the location quotients for industries in the second largest employing area, Subiaco-Shenton Park. It highlights an economic base that is heavily dominated by services industries such as information media and telecommunications, health care and social assistance, professional, scientific and technical services, rental, hiring and real estate services and arts and recreation services. This local area is a breeding ground for the Bright Lights Industries discussed earlier. As found in the Committee's *Get a Move On!* report, Subiaco-Shenton Park is well serviced with public

Figure 4: Perth City SA2 Location Quotient Analysis, 2011 and 2016



Source: Australian Bureau of Statistics, 2012; Australian Bureau of Statistics, 2017.

Figure 5: Subiaco-Shenton Park SA2 Location Quotient Analysis, 2011 and 2016



Source: Australian Bureau of Statistics, 2012; Australian Bureau of Statistics, 2017.

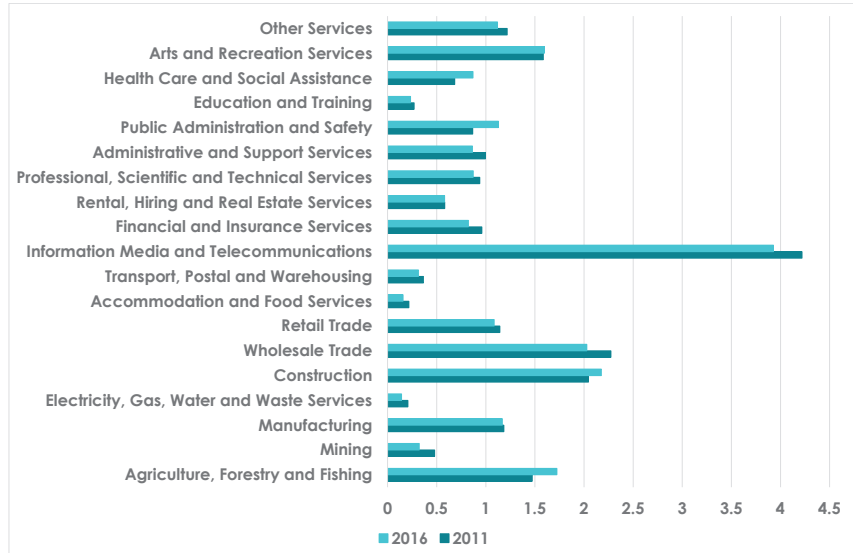
transport and amenity, which most likely makes it a favourable place to establish these service-based firms.

The third largest employing SA2 is Osborne Park Industrial with just over 2.50% of total working population in the Greater Perth region (Figure 6). This SA2 has a prevalence of information media and telecommunications firms, light industrial sectors such as wholesale trade and, construction and agricultural, forestry and fishing industries.

The SA2 of Nedlands-Dalkeith-Crawley (Figure 7) holds fourth position in the proportion of total working population in Greater Perth. *Perth as a resilient economy* (Tonts et al., 2017) identified this SA2 as a medical and health care and professional services precinct. Unsurprisingly, the location quotient analysis shows the propulsive nature of the information media and telecommunications industry (3.06), health care and social assistance industry (2.17) and professional, scientific and technical services (2.15).

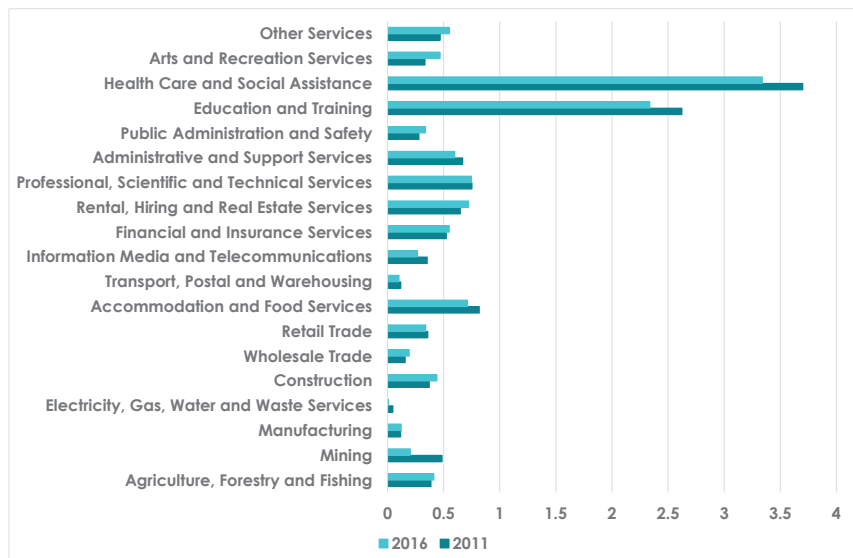
The final SA2 analysed, Joondalup-Edgewater has a health and education precinct in its surrounds, as well as a strong retail presence. These industries are all heavily represented in Figure 8, with location quotients ranging from 1.92 (health care and social assistance) to 1.80 (retail trade) and 1.50 for education and training industries.

Figure 6: Osborne Park Industrial SA2 Location Quotient Analysis, 2011 and 2016



Source: Australian Bureau of Statistics, 2012; Australian Bureau of Statistics, 2017.

Figure 7: Nedlands-Dalkeith-Crawley SA2 Location Quotient Analysis, 2011 and 2016



Source: Australian Bureau of Statistics, 2012; Australian Bureau of Statistics, 2017.

The analysis of these five SA2s identifies that the Greater Perth economy cannot just be referenced as one economy. It is more appropriate to describe the economic base of the Greater Perth region as a concentration of specialised areas within a metropolitan landscape. In terms of an approach to public policy, this spatially spread out economy will need careful and targeted approaches to investment and planning.

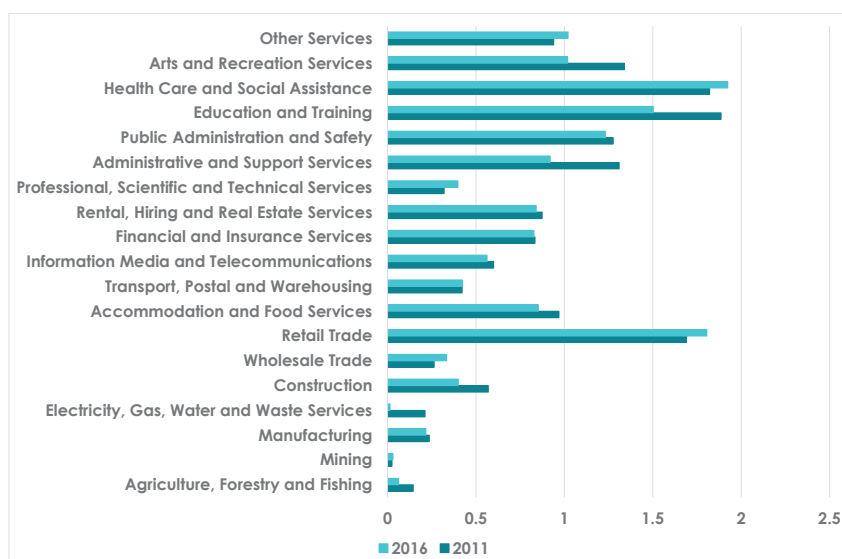
A comparison with other Australian cities

Undertaking an analysis of the economic base of other Australian capital cities highlights the relative strengths of each region. Table 3 shows the breakdown by industry of location quotients in five Australian capital cities: Perth; Adelaide; Brisbane; Melbourne and Sydney. As undertaken in Tonts (2010), Table 3 highlights those industries with a location quotient value greater than 1.1. This then forms the basis of discussion for the relative specialities of each region.

The stand out difference of the Greater Perth economic base versus other major cities in Australia is the intense presence of the mining industry and the less prevalent service or knowledge focused industries found in Greater Melbourne and Greater Sydney.

Greater Adelaide has five industries with location quotients greater than 1.1 which include manufacturing, 1.23; electricity, gas, water and waste services, 1.21; retail trade, 1.13; public administration and safety, 1.19; and health care and social assistance 1.26, the highest. Interestingly, Adelaide has the highest proportion of

Figure 8: Joondalup-Edgewater SA2 Location Quotient Analysis, 2011 and 2016



Source: Australian Bureau of Statistics, 2012; Australian Bureau of Statistics, 2017.

Table 3: Location Quotients for Major Capital Cities in Australia, 2016

	Greater Perth	Greater Adelaide	Greater Brisbane	Greater Melbourne	Greater Sydney
Agriculture, Forestry and Fishing	0.274	0.434	0.362	0.251	0.165
Mining	1.889	0.342	0.573	0.117	0.136
Manufacturing	0.928	1.226	1.032	1.287	0.927
Electricity, Gas, Water and Waste Services	1.064	1.214	1.024	0.989	0.739
Construction	0.973	0.730	0.839	0.818	0.808
Wholesale Trade	0.979	1.032	1.053	1.309	1.288
Retail Trade	1.055	1.133	0.994	1.089	0.966
Accommodation and Food Services	0.981	0.994	0.963	0.993	0.986
Transport, Postal and Warehousing	0.977	0.893	1.228	1.110	1.068
Information Media and Telecommunications	0.676	0.887	0.845	1.366	1.692
Financial and Insurance Services	0.794	0.906	0.945	1.343	1.833
Rental, Hiring and Real Estate Services	1.137	0.878	1.221	1.073	1.169
Professional, Scientific and Technical Services	1.039	0.896	1.114	1.323	1.390
Administrative and Support Services	0.885	0.944	0.932	0.995	0.964
Public Administration and Safety	1.018	1.192	1.114	0.807	0.852
Education and Training	1.085	1.059	1.089	1.058	0.947
Health Care and Social Assistance	1.025	1.260	1.067	0.992	0.926
Arts and Recreation Services	1.094	0.912	0.902	1.297	1.006
Other Services	1.088	1.069	1.011	0.009	0.943

Source: Australian Bureau of Statistics, 2017.

people aged over 65 years in its community compared to all five major city regions at 17.25% in 2016, up from 15.09% in 2006 (Australian Bureau of Statistics 2017), which may be driving the demand for health care services. At the time of the 2016 Census, not all major car manufacturers had closed and as a result, Adelaide still registered a high level of manufacturing in its economic base. This may also be related to the State's relatively high share in marine and defence manufacturing and supportive industries.

As was found in Tonts (2010), the industries driving Brisbane's economic base remain the same, that is, rental, hiring and real estate, 1.22; transport, postal and warehousing, 1.22; professional, scientific and technical services, 1.11; and public administration and safety, 1.11. The data suggests that not much has changed in the economic base of Brisbane since 2006, and this is mostly a reflection of where the Greater Brisbane economy has been expanding in more recent years and where the Brisbane City Council is pitching Brisbane as "Australia's New World City" (Brisbane City Council, 2012). Brisbane has seen significant property development over the past 10 years.

Greater Melbourne and Greater Sydney have the most diverse economic base, having seven industries with location quotients greater than 1.1 in Melbourne and five in Sydney. This emphasises the strength of these cities, both in their own right and as part of the national economy. The size of their population bases is also a key factor to be considered, as population density brings

greater economic opportunity, competition and consumption. It also highlights the depth and breadth of their economic bases and in particular identifies the economic strength that comes from moving to a knowledge based economy.

Melbourne's most propulsive industry is information media and telecommunications at 1.37, closely followed by financial and insurance services at 1.34, arts and recreation at 1.30 and manufacturing, 1.29. This analysis reinforces the long-term recognition of Melbourne as a hub for information and communication, financial services and culture and the arts. An impressive aspect to Melbourne's economic base is that the top six performers all record a location quotient greater than 1.2 – a very strong result.

Greater Sydney's strength in its economic base is drawn from the three key areas, financial and insurance services, 1.83; information, media and telecommunications, 1.69; and professional, scientific and technical services, 1.39. This result is similar to that discovered in Tonts (2010) and reinforces the strength of the diversification in this city.

Conclusion

This analysis confirms that the Greater Perth economic base is dominated by the mining industry and the construction industry. As acknowledged previously in this Bulletin, there are aspects of these two industries that are inherently linked, so the prevalence of both is to be expected. This is also apparent when looking at key employment SA2 areas as well. However, something that should be considered and potentially exploited is to look to the strengths of local economies when developing local and broader economic development strategies.

The opportunity for Greater Perth is to harness its dominant strengths in mining and resources and look to develop further the emerging Bright Lights Industries such as the arts and recreation services, education and training and professional, scientific and technical services going forward. Developing and expanding the Greater Perth economy to be more knowledge based will be an important aspect to driving future diversity of the regional economy.

At the very least, this analysis reaffirms from Tonts et al. (2017) that the future is bright, but we need to make some very clear decisions now to secure Greater Perth's economic future going forward.

Appendix A: Calculating a location quotient

Location quotients are calculated as follows:

$$LQ_{ir} = (E_{ir}/E_r)/(E_{iN}/E_N)$$

Where:

E_{ir} = employment in sector i in region r

E_r = total employment in region r

E_{iN} = employment in sector i in the national economy

E_N = employment in the national reference economy

A location quotient of greater than 1.0 suggests a local or regional advantage (or concentration of employment) in that sector. A location quotient of less than one suggests that the sector is not a 'propulsive' industry within the local economy.

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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.

The Committee for Perth is a member-funded organisation and we acknowledge our Gold Members:



A complete list of current members is available at www.committeeforperth.com.au

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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.

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