



THE UNIVERSITY OF  
**WESTERN  
AUSTRALIA**

Committee for



# FACTBase

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## The Relationship Between Human Capital and Employment in Greater Perth and Western Australia

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## Contents

- 3 Introduction
- 5 Greater Perth's Human Capital Base
- 9 Benefits of Human Capital
- 11 Spatial Disparity in Human Capital Within Greater Perth
- 14 Human Capital for the Future
- 17 Summary and Conclusion
- 18 References
- 20 About FACTBase

## Summary of Key Findings

- Human capital is a central ingredient of competitive cities and has been associated with higher rates of productivity, creativity, innovation, social wellbeing and quality of life.
- A positive relationship was evident between human capital and labour force participation, employment and income in Greater Perth in 2016.
- Human capital in Greater Perth declined from 2011 to 2016 compared to other major metropolitan regions in Australia, particularly Melbourne and Sydney. Despite this, disparities between the human capital scores of Australia's capital cities have fallen and the proportion of the population with a higher education qualification has increased.
- There has been a continued shift towards non-university qualifications in Greater Perth, particularly certificate III and IV, advanced diploma and associate degree level qualifications. This has been linked to the most recent mining sector associated boom between 2004 and 2015, when labour demand and the associated skill profile of the Greater Perth workforce shifted away from tertiary educated workers towards trades and technicians.
- The proportion of young people (those aged 15 to 29) choosing to enrol in higher education in Western Australia has declined compared to other states, particularly the non-mining and service economy States of New South Wales and Victoria.
- Study choices in Western Australia are responsive to short- and medium-term economic conditions, industry and employment trends, and sector reputation.
- Importing qualified and skilled workers from overseas or interstate has been an important element of human capital development in Western Australia and Greater Perth.
- In Western Australia, there has been a shift away from enrolment in mining-associated disciplines towards enrolment in the service sector disciplines of health and education. This occurred despite the ongoing importance of the mining sector to the State's economy and continued growth in employment in the mining sector from 2015 to 2020.
- Local Government Areas (LGAs) and Statistical Area Level 2s (SA2s) in central to middle urban areas are most likely to record strong, positive human capital scores, particularly those incorporating or immediately adjacent to tertiary education institutions.
- There are areas of long-term human capital disadvantage within Greater Perth. These areas are predominately LGAs and SA2s within the south and south-west areas of the region, including Mandurah, Rockingham, Kwinana, Armadale, Serpentine-Jarrahdale and Murray.
- Government and industry intervention will be needed within Western Australia to ensure that human capital development retains pace with other major capitals and states and is adequate to meet future industry needs. Incentives to encourage higher education enrolment among youth and people from lower socioeconomic quintiles may also be required.

## Introduction

In the global knowledge economy, the skills, learning, talents and attributes of a population – termed human capital – have become key to the ability of people to earn a living and of nations and cities to achieve long-term economic growth and development (Organisation for Economic Co-operation and Development [OECD], 2007). In this context, knowledge has higher economic value to countries and cities than ever before and, as highlighted by Ramcharan (2004, p. 309), “No country has achieved sustained economic development without substantial investment in human capital”. Human capital has also been identified as a central ingredient of competitive cities, with ‘smart’ cities credited as being more creative and innovative and with delivering a comparatively high quality of life and social wellbeing (Tonts, 2010).

Higher rates of human capital have been positively associated with the productivity, prosperity and resiliency of cities; labour force participation; income; home ownership; and even lower rates of youth mortality (Blakely, 2001, Eraydin et al., 2010; Huddleston, 2015 Huddleston & Huddleston, 2012; Tamura, 2006). As a result, investment in human capital sits at the heart of strategies to enhance economic prosperity, fuller employment, social equality and cohesion.

Human capital is gained through an accumulation of formal education, work experience and skill development. Measuring human capital can therefore be challenging. At a national and regional level, measures primarily focus on quantifying human capital through rates and levels of education participation and qualifications (Tonts, 2010). Language proficiency has

also been established as an important component of human capital, with the ability to speak the language of the host nation an important indicator of labour force participation (Huddleston, 2012).

This bulletin has been prepared for the Committee for Perth’s *Future of Work* research project, which aims to equip Western Australia and its people for the future world of work. It builds on the analysis and findings of previous FACTBase research, including FACTBase Bulletin 14 – *Australia’s Smart Cities: A Preliminary Assessment*; FACTBase Bulletin 25 – *Perth’s Human Capital Base*; and FACTBase Bulletin 42 – *Perth’s Human Capital Base: An Essential Element for the Region’s Continued Growth and Competitiveness*. This bulletin aims to identify trends in human capital within Greater Perth since 2001 and considers how changes in human capital are linked to trends in economic growth, employment and industries of employment. It also considers current human capital and higher education characteristics and the potential impacts on the future of work, the workforce and the workplace in Greater Perth and Western Australia.

In FACTBase Bulletin 14, Tonts (2010) articulated the positive effects of human capital on economic development and wellbeing, as well as its importance to metropolitan Perth’s continued growth and competitiveness. The bulletin examined Greater Perth’s human capital based on the number of people with a bachelor’s degree or higher, and identified significant growth in the share of people with a bachelor’s degree or higher in the ten years from 1996 to 2006. Subsequently, in FACTBase Bulletin 25, Huddleston

and Huddleston (2012) measured Greater Perth’s human capital base using 2001 and 2006 census data. The bulletin highlighted the relative stability of Greater Perth’s human capital base yet also identified a concentration of low-ranking areas south of central Perth, including Kwinana, Mandurah, Murray, Rockingham and Waroona.

In FACTBase Bulletin 42, Huddleston (2015) updated the measures of human capital in Greater Perth and found that human capital in the region declined between 2006 and 2011 in comparison to other Australian capitals, particularly when compared to Greater Melbourne and Sydney. The bulletin also identified persistently low human capital scores in statistical local areas to the south and south-east of Perth. Huddleston (2015) found that Greater Perth’s early twenty-first century resource sector ‘boom’ likely contributed to the decline in domestic human capital over the 2006–2011 period due to an increase in workers with trade or other qualifications being engaged in higher income employment than university qualified workers.

Bulletin 74, February 2021



## Greater Perth's Human Capital Base

Huddleston and Huddleston (2012) established a methodology to construct an index of human capital for Greater Perth that focused on abilities, knowledge and skills. The methodology was applied in FACTBase Bulletins

25 and 42 to calculate the Human Capital Index scores for Greater Perth, Greater Sydney, Greater Melbourne, Brisbane and Adelaide using data from the Australian Bureau of Statistics (ABS) 2001, 2006 and 2011

censuses. This bulletin replicates the methodology using 2016 ABS census data.<sup>1</sup> A summary of the indicators applied to calculate the Human Capital Index is provided in Table 1.

**Table 1: Human Capital Index Indicators**

Component indicator	
Qualifications	Proportion of persons aged 15 years and over with a certificate III or IV, advanced diploma or diploma, bachelor's degree, graduate diploma or certificate, or postgraduate degree
	Proportion of persons aged 15 years and over without extremely low education (in this case, those who had completed Year 10 to 12 or equivalent schooling)
Education	Proportion of persons attending technical or further educational institution or university, or other tertiary education
English language proficiency	Proportion of persons who speak English only
	Proportion of persons who speak another language and speak English well/very well

Source: Huddleston (2015)

The methodology was applied using 2016 greater capital city statistical area data for Greater Perth, Greater Sydney, Greater Melbourne, Brisbane and Adelaide. This data was compared to the findings for 2001, 2006 and 2011 as reported by Huddleston (2015), and it showed a decline in Greater Perth's human capital compared to the other major Australian metropolitan regions (Figure 1).

This analysis indicates that deviations in human capital between Australia's major metropolitan regions have been falling and rates of higher education attainment have increased in almost all jurisdictions. Despite this, Greater Perth's human capital fell in comparison to the other major Australian capitals in the 2011 to 2016 period. Human capital scores for Greater Melbourne,

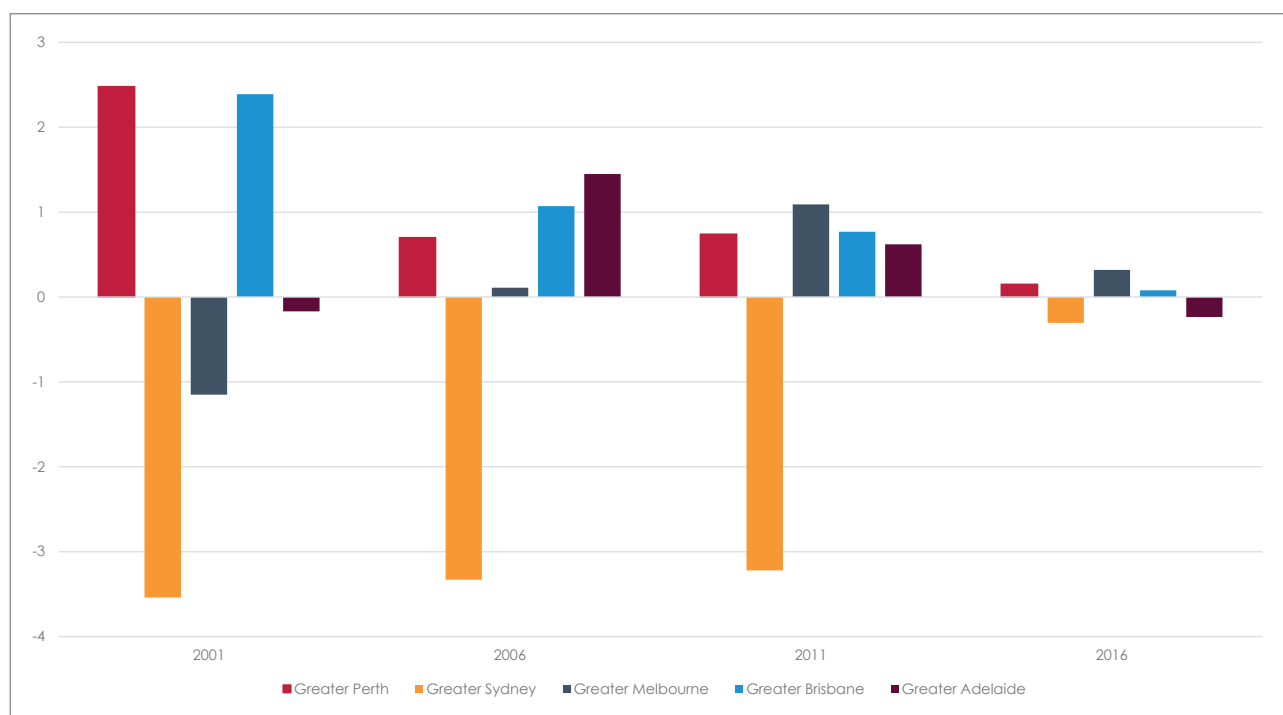
Brisbane and Adelaide also declined, while Greater Sydney's human capital score increased.

Greater Melbourne retained the highest score of the five major capitals, driven primarily by higher proportions of people with qualifications equal to or exceeding certificate III and IV. Greater Melbourne also recorded relatively high rates of enrolment in higher education institutions and a high proportion of the population who speak another language and speak English well/very well. Human capital growth in Greater Sydney reflects the same attributes, most notably with increasingly high proportions of education attainment, enrolment in higher education institutions, and bilingual residents with proficient English.

<sup>1</sup> As outlined in FACTBase Bulletins 25 and 42, principal components analysis was used to summarise an initial set of variables hypothesised to be important in the creation of the index. Z-scores were calculated for each of the variables, which were then summed up to generate the index for 2016. Higher scores indicate a higher human capital base while lower scores indicate a lower capital base.



**Figure 1: Human Capital Score by Greater Capital City, 2001–2016**



Data Source: ABS (2001, 2006, 2011, 2016)

The decline in human capital in Greater Perth relative to the other major capitals has been associated with the economic growth experienced in the early 2000s to mid-2010s. Australian and international evidence shows that when economies are strong due to resource sector growth, the process of human capital accumulation is often inhibited due to the increasing opportunity cost of studying. As a result, individuals prefer to enter the labour market and make use of the higher wages induced by the boom, particularly among young people (Bishop, 2019; Cascio & Narayan, 2015; Morissette et al., 2015).

During Australia's most recent mining boom, job growth led to skill shortages within key sectors, particularly in the mining and resource States of Western Australia and Queensland. In Western Australia, demand was most evident in trade-qualified and professional occupations associated with the mining and construction sectors. Strong demand was also reported

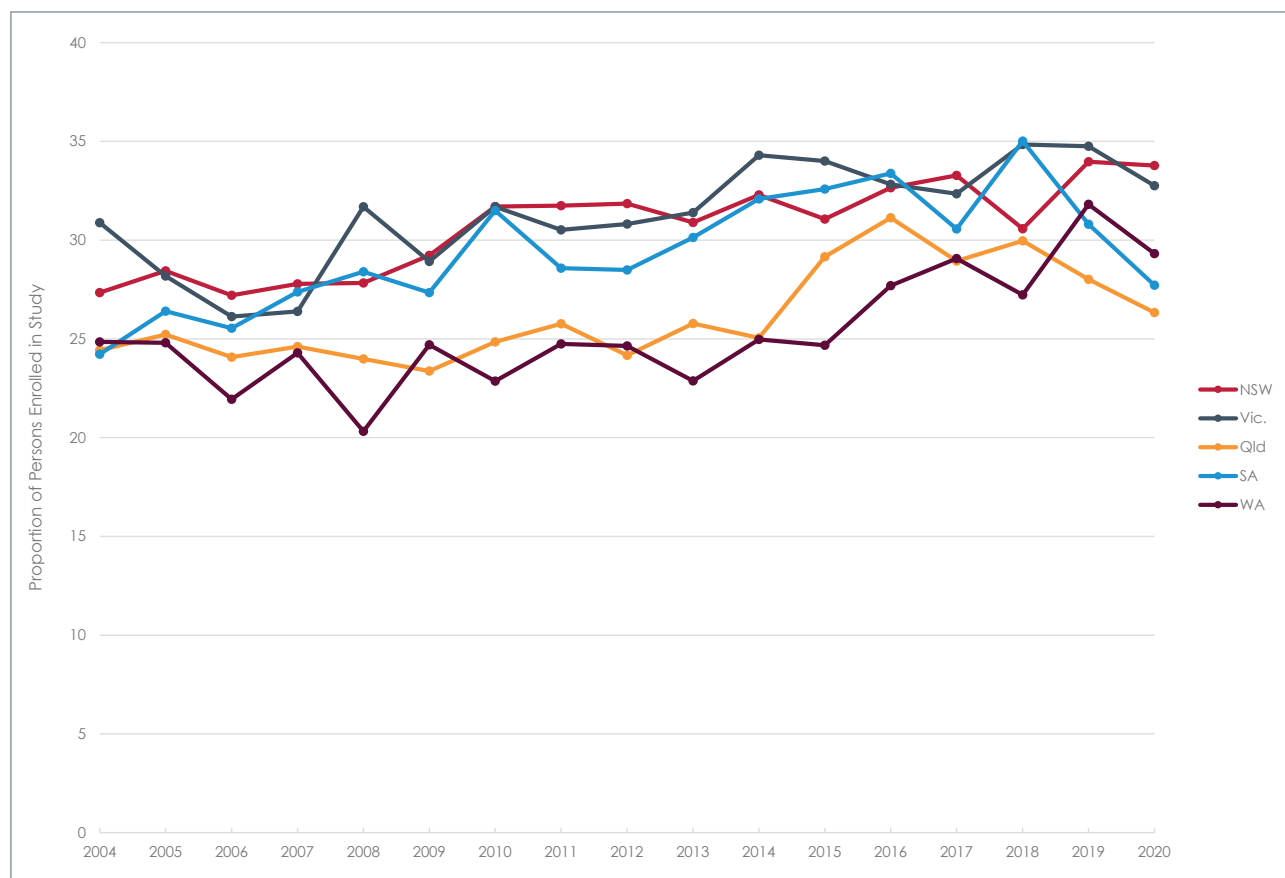
for unskilled labour, such as construction, manufacturing and health-related labourers and intermediate transport and production workers (ABS, 2005; Deloitte Access Economics, 2011).

As a result, during the early twenty-first century, and most notably between 2005 and 2015, workers in Greater Perth and Western Australia with non-university and other qualifications were often engaged in higher income activities than those with university-level qualifications (Huddleston & Huddleston, 2012). This further reduced the perceived benefits of enrolling in higher education, particularly university-level education, and resulted in declining rates of enrolment in higher education in mining states compared to non-mining states, notably New South Wales and Victoria (Bishop, 2019).

Evidence of this trend is apparent in current education enrolment statistics. Prior to the mining boom, the proportion of 15–24 year olds enrolled in full-time study was approximately

4% higher in non-mining states than mining states, yet all states exhibited consistent enrolment trends. During the mining boom, the rate of higher education enrolment in mining states fell to 10% below that of non-mining states (Bishop, 2019). The disparity was greatest among young people and full-time enrolments and peaked from 2012 to 2013 (Bishop, 2019; ABS, 2020). Figure 2 illustrates the proportion of persons aged 20–29 years enrolled in study in Western Australia, New South Wales, Victoria, Queensland and South Australia from 2004 to 2020.

**Figure 2: Proportion of persons aged 20–29 years enrolled in study in Western Australia, New South Wales, Victoria, Queensland and South Australia, 2004–2020**



Source: ABS (2020a)

Despite this, the proportion of the working age population with a certificate III and IV or higher qualifications within Greater Perth increased (ABS, 2011, 2016). A key explanation for this is that Western Australia imported skilled workers into the State through interstate and overseas migration, with overseas migration playing an important role in Western Australia compared to other States such as Queensland. Labour force needs were also met at a local level through higher rates of employment and labour force participation, particularly among females.

Skilled migration, combined with trends towards education in occupations associated with the mining sector, generated a shift in the skill profile of the Greater Perth workforce over this period away from tertiary educated workers towards trades and technicians. For example, mining industry workers accounted for 25% of the 457 visas<sup>2</sup> granted in Western Australia in 2012, compared to just 3% for the rest of Australia. Similarly, 21% of the 457 visas granted in Western Australia in 2012 were for construction industry workers, compared to 8% for the remainder of Australia (Department of Immigration and Citizenship, 2013).

<sup>2</sup> The Temporary Work (Skilled) (Subclass 457) visa program is a demand-driven visa program that enables Australian employers to sponsor genuinely skilled workers to fill vacancies where an appropriately skilled Australian cannot be found to fill the position. The Subclass 457 visa program aims to support and complement existing domestic education, training and skills development by allowing businesses to sponsor overseas workers over the short term to address confirmed labour needs while they invest in training and skills development of Australian citizens or permanent residents to meet longer-term needs.



**Table 2: Location Quotients, Highest Education Qualification by Capital City, 2016**

Level	Greater Sydney	Greater Melbourne	Greater Brisbane	Greater Adelaide	Greater Perth
Doctoral degree	0.95	1.07	0.97	1.08	0.91
Master's degree	1.27	1.06	0.77	0.68	0.69
Graduate diploma	0.81	1.25	0.94	0.97	0.97
Graduate certificate	0.83	1.00	1.30	1.03	1.01
Bachelor's degree	1.08	1.05	0.88	0.85	0.92
Advanced diploma and associate degree	1.05	1.02	0.82	0.97	1.05
Diploma	0.97	1.02	1.09	0.95	0.96
Certificate III & IV	0.87	0.93	1.17	1.17	1.17
Secondary education – Years 10 and above	0.96	0.96	1.05	1.12	1.05
Certificate I & II	0.89	0.92	0.98	1.16	0.77

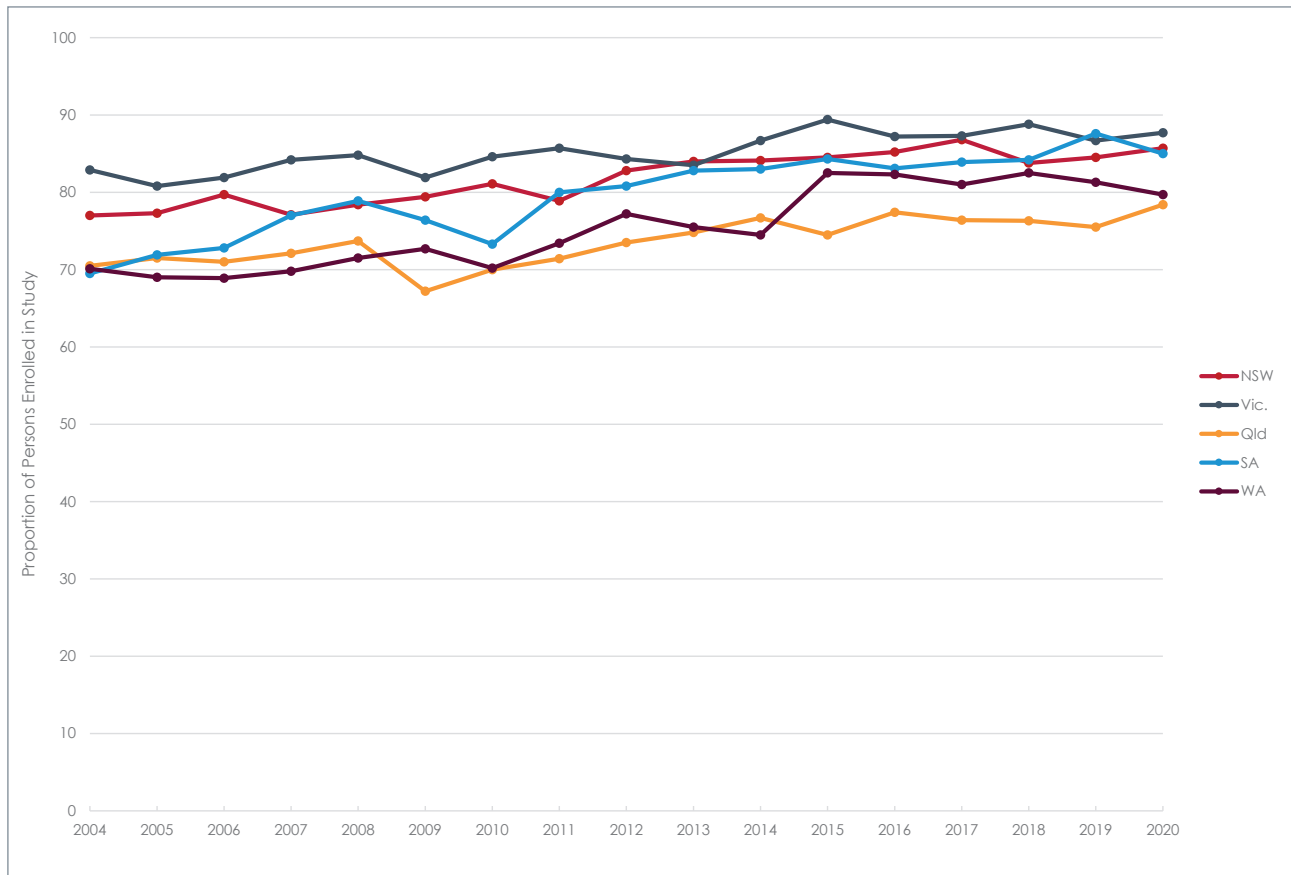
Source: ABS (2016)

After 2012, investment in mining and resources slowed and there was a shift towards more the capital-intensive extractive phase of the industry's development, which was associated with a corresponding decline in demand for workers in mining and construction, and

reduced rates of economic and population growth in the State. However, the 2012 to 2015 decline in mining and associated employment generated growth in enrolments in higher education among almost all age profiles, particularly among people aged 15 to 29 years (Figures 2 and 3).



**Figure 3: Proportions of persons aged 15–19 years enrolled in study in Western Australia, New South Wales, Victoria, Queensland and South Australia, 2004–2020**



Source: ABS (2020a)

Combined, this evidence implies that an abundance of employment opportunities in Greater Perth and Western Australia, particularly in mining,

construction and associated sectors, during the early twenty-first century mining boom was a core factor influencing the education choices of residents,

and therefore the rate and profile of human capital growth in the State.

## Benefits of Human Capital

Human capital continued to deliver important societal and individual benefits in early twenty-first century Greater Perth, despite strong demand for workers of all skill levels (Tonts, 2010). At an individual level, correlations were established between rates of human capital and higher median age and home ownership in Greater Perth in 2006. However, a relationship was not found between human capital and income and Huddleston and Huddleston (2012) surmised that this reflected the availability of low-skilled yet relatively well paid

jobs at that time. Huddleston (2015) also established significant correlations between human capital and labour force participation in Greater Perth in 2011. Building on this work, this analysis has confirmed that in 2016, a positive relationship existed between human capital and labour force participation ( $R^2 = 0.3114$ ,  $p < 0.0025$ ), employment ( $R^2 = 0.4623$ ,  $p < 0.043$ ) and income ( $R^2 = 0.4209$ ,  $p < 0.082$ ) within Greater Perth.



## Spatial Disparity in Human Capital Within Greater Perth

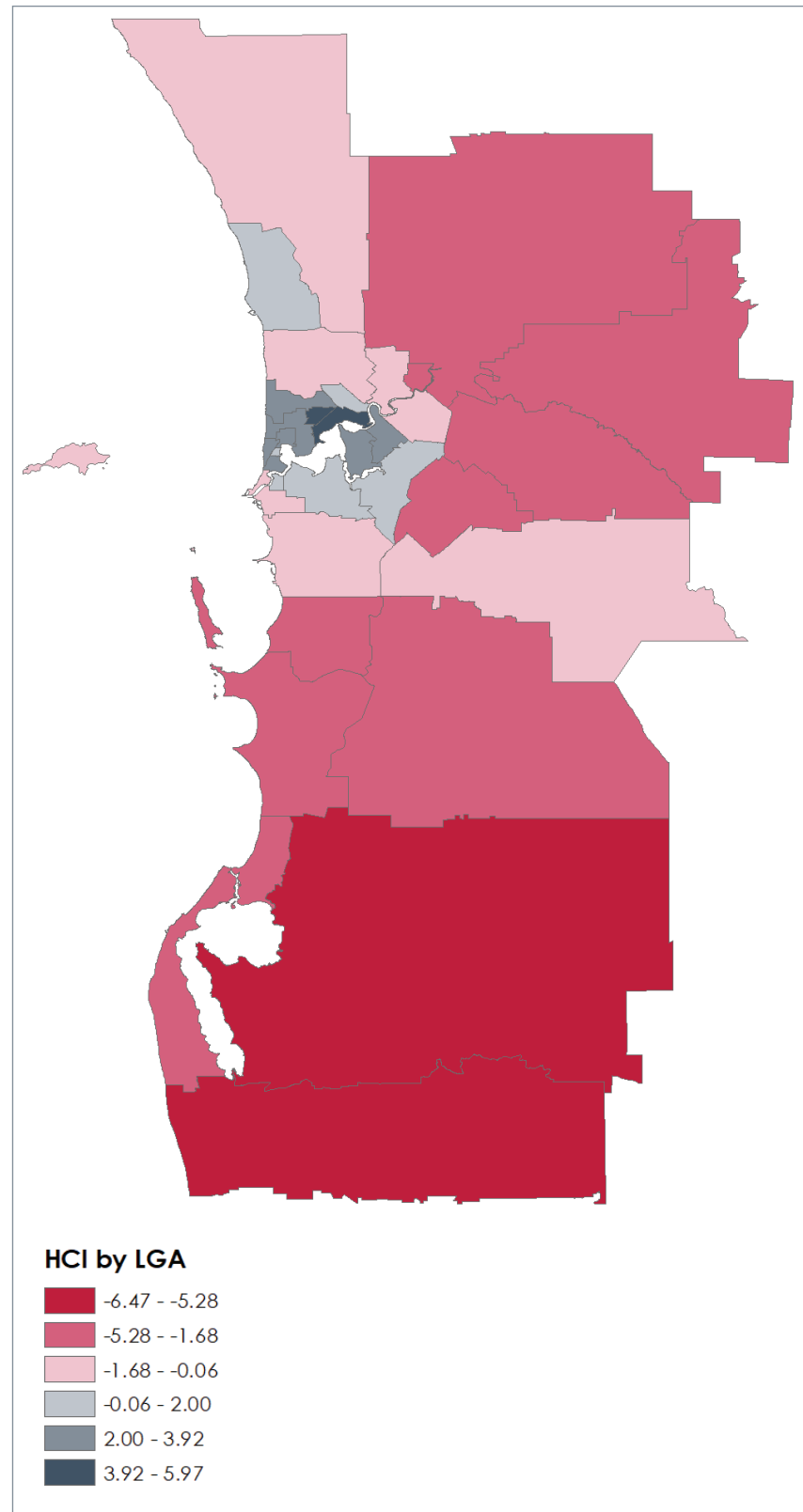
While industry and job growth provide relatively clear explanations for differences in human capital between the major capital cities, it is less able to account for disparities in human capital between statistical areas and LGAs within the Greater Perth region.

Huddleston (2015) and Huddleston and Huddleston (2012) examined and mapped human capital within the Greater Perth region. They identified general stability in the human capital base across the metropolitan region. Nevertheless, they also found a concentration of low-ranking areas south of central Perth, including Kwinana, Mandurah, Murray, Rockingham and Waroona.

For the purpose of this bulletin, human capital scores were calculated by ABS geographic statistical area, Statistical Area Level 2 (SA2) and LGA area using both ABS 2011 and 2016 census data. The human capital scores confirm that human capital within Greater Perth has remained relatively stable, yet they also reveal sustained geographical patterns of human capital attainment across the region, including long-term trends of low human capital in some locations.

At the local authority level, LGAs with high human capital scores are primarily found clustered in areas immediately surrounding central Perth and key tertiary education precincts, and to the west and north of the city centre. LGAs with low human capital scores were primarily concentrated in the south-west and south-east of the region, but were also identified in the north-east (Figure 4).

**Figure 4: Human Capital Index Score by Local Government Authority**



Data Source: ABS ( 2016)



Some LGAs with a low human capital base have exhibited a consistently low base since 2001. This includes the LGAs of Mandurah, Rockingham, Kwinana, Armadale, Serpentine-Jarrahdale and Murray. Yet, with the exception of the Shire of Murray, all of these LGAs recorded small, positive gains in human capital of between 0.11 points (Rockingham) to 1.2 points (Kwinana) between 2011 and 2016.

Similar geographic patterns were evident when human capital scores were calculated by SA2, although variability between the scores was higher, which reflected the heightened differences between the land use and population characteristics of the areas when examined at a larger scale. Notably, industrial-commercial SA2s and SA2s with extremely low-population bases (less than 100 residents) dominate the lowest scoring SA2s. When these low-population SA2s are excluded from the analysis, the 20 lowest ranked SA2s were concentrated in outer suburban locations (Table 3). SA2s located in south-western or south-eastern

locations comprised 60% of these low-ranking SA2s, while 25% were in north-western or north-eastern locations.

By contrast, SA2s with the highest human capital scores were primarily situated in central to middle urban locations including the Perth City Centre and adjacent areas. As with the LGAs, statistical areas containing or immediately adjacent to a major university campus were also likely exhibit higher human capital scores. The twenty SA2s with the highest and lowest human capital scores are listed in Table 3 (excludes SA2s with very low populations).

**Table 3: Highest and Lowest Ranked SA2s by Human Capital Score**

Highest ranking SA2s		Lowest ranking SA2s	
Nedlands – Dalkeith – Crawley	7.11	Swan View – Greenmount – Midvale	-0.73
Bentley – Wilson – St James	5.80	Yanchep	-0.73
Manning – Waterford	4.24	High Wycombe	-0.75
Cannington – Queens Park	3.98	Warnbro	-0.76
Perth City	3.92	Dawesville – Bouvard	-0.80
Murdoch – Kardinya	3.74	Carabooda – Pinjar	-0.86
Victoria Park – Lathlain – Burswood	3.64	Armadale – Wungong – Brookdale	-0.97
Winthrop	3.54	Rockingham	-1.04
Como	3.54	Two Rocks	-1.08
Wembley – West Leederville – Glendalough	3.11	Calista	-1.09
Riverton – Shelley – Rossmoyne	3.07	Cooloongup	-1.17
Maylands	3.01	Mandurah	-1.18
Bateman	2.95	Bullsbrook	-1.24
Willetton	2.87	Parmelia – Orelia	-1.26
Joondalup – Edgewater	2.84	Mandurah – East	-1.31
Mount Lawley – Inglewood	2.81	Greenfields	-1.39
South Perth – Kensington	2.80	Mandurah – South	-1.45
Subiaco – Shenton Park	2.77	Pinjarra	-1.80
East Victoria Park – Carlisle	2.74	Serpentine – Jarrahdale	-1.82
Applecross – Ardross	2.69	Chidlow	-4.05

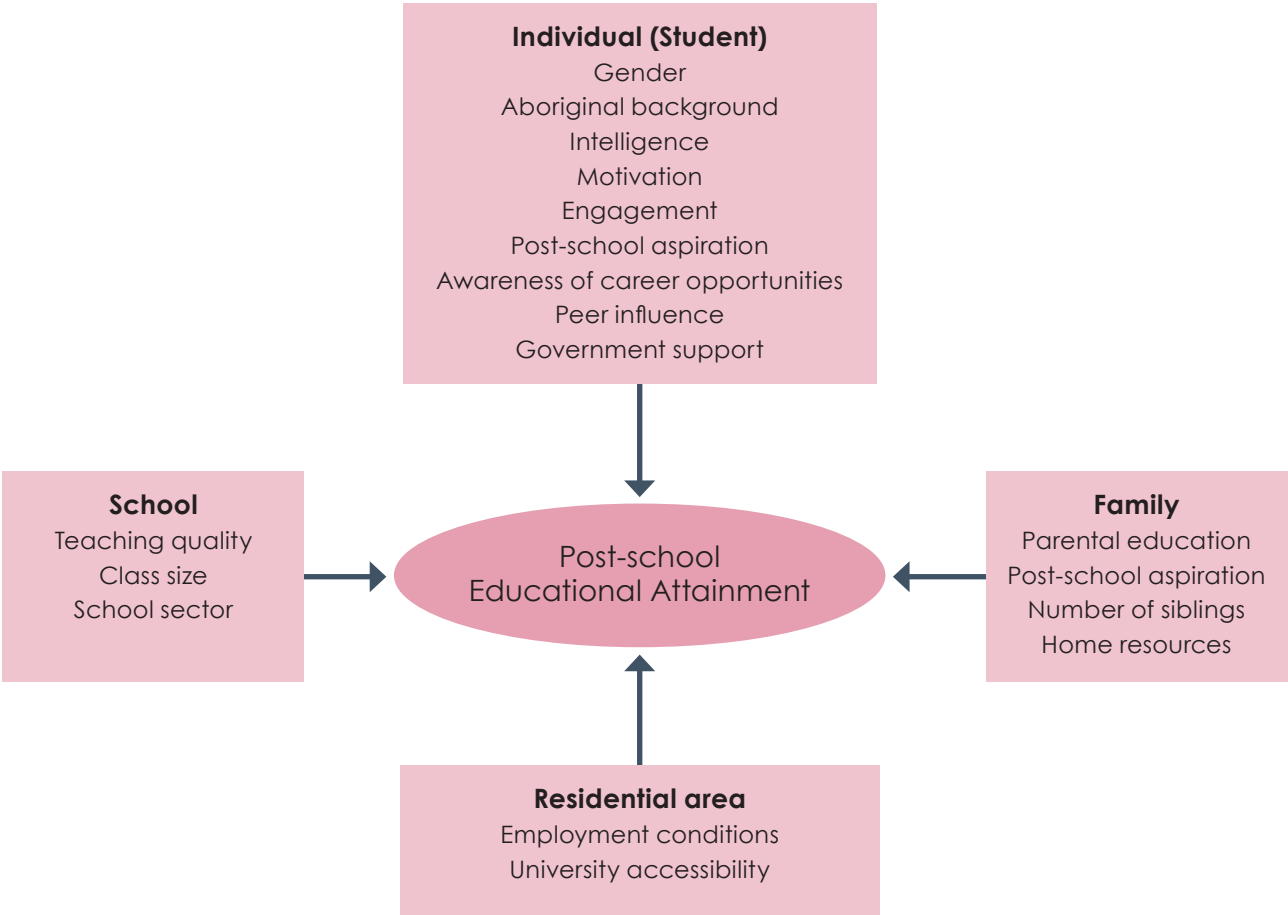
Source: ABS (2016)

The literature indicates that the reasons for geographic disparities in educational attainment within regions in Australia are multiple and complex. Rowe et al. (2014) found that the choices of Australian youth to work, enrol in university or undertake

vocational study are linked to characteristics of the individual (student), family, school and residential area, as summarised in Figure 5. Australian research has also identified socioeconomic background as a factor in educational achievement,

with students from the highest socioeconomic quartile found to perform, on average, at a level approximately three years higher than their counterparts from the lowest quartile (Thomson, 2018).

Figure 5: Factors Influencing Education Choices



Source: Rowe (2014)

## Human Capital for the Future



In addition to influencing higher education enrolment, Huddleston (2015) found that the heightened role of the resource sector in Greater Perth's economy during the early twenty-first century was reflected in the field of study chosen by the region's students. For example, in 2011, Greater Perth exhibited a stronger concentration of students enrolled in natural and physical sciences (location quotient: 1.20) and engineering and related technologies (location quotient: 1.14) than the other major Australian capitals.

However, the deceleration of employment growth in the mining sector from 2012 to 2015 and in the construction sector from 2015 onwards accompanied by growth in employment in the health industry and education sector, has impacted on study choices in Greater Perth and Western Australia.

By 2019, natural and physical sciences remained a field of education specialisation in Greater Perth, yet was less significant than concentrations

of students studying health and education (Department of Education, Skills and Employment [DESE], 2020). Notably the proportion of students enrolled in engineering and related technologies in Greater Perth fell below the national average (DESE, 2020). By contrast, the comparative proportion of engineering students in New South Wales and Victoria increased, perhaps reflecting the mining sector redundancies following the end of the mining and construction boom in Western Australia followed by a boom in infrastructure and construction in Greater Sydney and Melbourne (Garvey, 2018).

This shift away from education in mining-related disciplines is consistent with an Australian and global fall in students choosing mining-related courses such as mining engineering over the past five years. In Australia, the Minerals Tertiary Education Council identified a 'drastic decline' (-73%) in first year enrolments in mining engineering between 2015 and 2018, and the number of graduates across

Australia is predicted to fall from a high of 262 in 2014 to just 53 by 2021 (Mineral Tertiary Education Council, 2018). Multiple reasons have been identified for this decline. They include the cyclical nature of the mining industry, and the associated hiring and redundancy cycle, which are perceived as major barriers both in attracting undergraduates into mining-associated disciplines and retaining graduates in the sector long-term; and increased competition from other sectors such as the health science and technology sectors, which currently have significant appeal to science, technology, engineering and mathematics graduates (Mineral Tertiary Education Council, 2018; Sichinava & Goetsch, 2019).

However, in Western Australia, it is apparent that the decline in study in mining-related disciplines is not a direct reflection of the current importance of the sector to the State. As illustrated in Table 5, with a location quotient of 4.48, mining remains a strong and unique sector of economic specialisation in Western Australia. After declining from 2012 to 2015, employment in the mining sector has also increased over the past five years, with the sector employing 7% of Western Australia's labour force in 2015 and 9% in 2019 (ABS, 2020a).

This indicates not only that education choices are highly responsive to economic and labour market conditions, including employment opportunities, but also that student and graduates make study and employment choices that are responsive to factors such as perception of industry reputation, global inter-sector competition, employment conditions and long-term employment stability.





ENERGY



TELECOMMUNICATIONS



CHEMICALS



MANUFACTURING



AUTOMOTIVE



ENTERTAINMENT



BANKING



LOGISTICS



INSURANCE



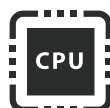
GOVERNMENT



HOSPITALITY



AEROSPACE



ELECTRONICS



RETAIL



LIFE SCIENCES



UTILITIES



PHARMACEUTICAL



RESOURCES



HIGH TECH



INFORMATION TECHNOLOGY

**Table 4: Location Quotient Field of Study by State, 2019**

Field of study	New South Wales	Victoria	Queensland	Western Australia	South Australia
Natural and physical sciences	0.99	0.96	1.10	1.04	0.91
Information technology	0.91	1.36	0.86	0.70	0.58
Engineering and related technologies	1.07	1.04	0.88	0.97	0.84
Architecture and building	0.96	1.20	0.76	0.84	1.06
Agriculture, environmental and related studies	0.95	1.00	1.27	0.87	0.79
Health	0.86	0.81	1.33	1.25	1.36
Education	0.89	0.91	0.97	1.71	1.00
Management and commerce	1.02	1.08	0.86	0.85	1.08
Society and culture	1.11	0.94	1.00	0.93	0.86
Creative arts	1.05	1.02	0.92	0.87	1.06
Food, hospitality and personal services	0.15	0.40	0.07	0.02	10.86
Mixed field programs	0.42	0.67	1.61	1.44	2.85

Source: DESE (2020)

**Table 5: Location Quotient Employment by Industry Sector by State, 2019**

Industry	New South Wales	Victoria	Queensland	Western Australia	South Australia
Agriculture, forestry and fishing	0.80	0.91	1.21	1.02	1.44
Mining	0.45	0.16	1.33	4.48	0.84
Manufacturing	0.92	1.24	0.92	0.86	1.82
Electricity, gas, water and waste services	0.71	1.28	1.10	1.39	1.13
Construction	0.96	1.07	1.05	0.97	0.89
Wholesale trade	1.13	1.04	0.84	0.95	0.99
Retail trade	1.01	1.03	0.99	0.92	1.06
Accommodation and food services	1.04	0.86	1.19	0.85	1.01
Transport, postal and warehousing	0.99	1.07	1.04	1.03	0.80
Information media and telecommunications	1.19	1.18	0.60	0.63	1.24
Financial and insurance services	1.43	1.09	0.66	0.58	0.64
Rental, hiring and real estate Services	0.92	0.98	1.35	0.93	0.71
Professional, scientific and technical services	1.54	1.03	0.86	0.92	0.78
Administrative and support services	0.97	1.05	1.01	0.95	1.13
Public administration and safety	0.92	0.79	0.95	0.99	1.10
Education and training	0.96	1.03	0.97	0.97	1.08
Health care and social assistance	1.01	0.99	1.02	0.90	1.09
Arts and recreation services	0.89	1.09	1.16	0.97	0.63
Other services	0.98	0.91	1.08	1.16	1.02

Source: ABS (2020b)

## Summary and Conclusion

This FACTBase Bulletin has identified five important trends associated with education and employment in Greater Perth and Western Australia, all of which have implications for jobs today and for the future of work in the region and the state.

The first of these trends is the continued decline in human capital within Greater Perth from 2011 to 2016 compared to the other major metropolitan regions in Australia. Despite this comparative decline, at a regional level, higher education attainment in Greater Perth increased from 2011 to 2016.

The second trend was a continued shift towards non-university qualifications from 2011 to 2016, particularly certificate III and IV, advanced diploma and associate degree level qualifications. This shift has been linked to the most recent mining sector associated boom from 2004 to 2015, when labour demand and the associated skill profile of the Greater Perth workforce shifted away from tertiary educated workers towards trades and technicians.

A third trend, also associated with early twenty-first century mining sector driven growth, is the decline in the proportion of young people (aged 15–29) in Western Australia choosing to enrol in higher education compared to other states, particularly the non-mining States of New South Wales and Victoria. Current literature indicates that declining higher education enrolments are a feature of periods of economic and job growth associated with the resource sector. This is due to more people choosing to enter the labour force rather than study, particularly young people.

The fourth trend is the disparity in levels of human capital within the Greater Perth region, and particularly the emergence of areas of long-term human capital disadvantage. This bulletin identified areas of lower human capital in fringe suburban areas to the north and south of Perth City Centre. However, LGAs and SA2s within the south and south-west of the region, including Mandurah, Rockingham, Kwinana, Armadale, Serpentine-Jarrahdale and Murray, are the most likely to be experiencing pervasive, low levels of human capital. Alternatively, there is a higher probability of LGAs and SA2s in central to middle urban areas recording strong, positive human capital scores, particularly those incorporating or immediately adjacent to tertiary education institutions.

The fifth trend is a shift in the disciplines of study in Western Australia from 2015 onwards, most notably the swing away from enrolment in mining-associated disciplines towards enrolment in the service sector disciplines of health and education. This occurred despite the ongoing importance of the mining sector to the State's economy and continued growth in employment in the sector from 2015 to 2020 and has been linked to increased competition from other sectors as well as concerns regarding the cyclical and difficult work conditions associated with mining sector employment.

This bulletin also affirmed that a positive relationship was evident between human capital and labour force participation, employment and income in Greater Perth in 2016.

Combined, the research and data indicate that along with broader societal benefits, human capital has a positive impact on employment in Greater Perth and Western Australia. Yet the findings of this bulletin also signify a need for intervention in human capital development within Western Australia to ensure that it retains pace with other major capitals and states; to address significant long-term geographic disparities in human capital; to encourage and incentivise higher education enrolment, particularly among young people and people from lower socioeconomic quintiles; and to link education enrolments with both the current and future needs of the economy and key industry sectors. Industry-led action may also be required to address reputational challenges associated with sectors such as mining.



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## About FACTBase

FACTBase is a collaborative research project between the Committee for Perth and The University of Western Australia. It aims 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:



\*Current as at 15 January 2021

A complete list of current members is available at [www.committeeforperth.com.au](http://www.committeeforperth.com.au)

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Gemma Davis is a research, policy and strategic planning professional with 20 years of experience working in Australia, New Zealand and the Republic of Ireland. Gemma has undertaken a wide range of research projects on behalf of the Committee for Perth over the past decade.

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