

# CHAPTER 6

## SKILLS





## Key points

- In 2016, Professionals were the largest occupational group (328,587), followed by Clerical and administrative workers (221,379) and Technicians and trades workers (184,255) in the 12 LGAs of SEQ. The Brisbane LGA had the highest proportion of Professionals (27.0 per cent), followed by the Sunshine Coast (20.0 per cent) and Toowoomba (19.5 per cent) LGAs.
- Professionals was the largest occupation in every BCARR ring, comprising 21.1 per cent of the SEQ total occupations in 2016. Inner Brisbane has the highest proportion of both Managers and Professionals occupations in the region, at 14.5 and 35.1 per cent respectively.
- From 2016 to 2021, Professionals were the single biggest occupational contributor to SEQ's employment growth, with an increase of 82,200 employed persons, representing 43.9 per cent of the total increase in employed residents for SEQ.
- From 2016 to 2021, the number of Machinery operators and drivers in SEQ increased by 22.4 per cent, Professionals by 21.0 per cent and Managers by 19.5 per cent.
- From 2016 to 2021, most Brisbane Statistical Area Level 4s (SA4s) have positive changes in Professionals and Managers except Brisbane-East. The Gold Coast SA4 has the largest increases in Managers (13,700) and Professionals (21,600), followed by Brisbane Inner City SA4.
- In 2016, together the 12 LGAs had 30.2 per cent of the working population with a Bachelor's degree or higher qualification.
- Overall, Greater Brisbane had 33.1 per cent of its working population with a Bachelor's degree or higher qualification in 2016. The Inner Brisbane ring has 48.4 per cent of its working population with a Bachelor's degree or higher qualification. This shows the significance of the ring to SEQ's knowledge economy.
- Similar to national trends, Queensland is becoming more educated, with almost two million workers possessing a post-school qualification. By 2024–25, the Postgraduate degree qualifications are projected to experience the highest growth at 26.9 per cent, followed by Bachelor's degree (15.9 per cent) and Graduate diploma and graduate certificate (14.2 per cent).
- In Queensland, Professionals, the largest major occupational group, are projected to increase by 16.1 per cent by 2024 (compared to 2019), followed by Community and personal service workers (14.3 per cent) and Managers (12.1 per cent).

## 6.1 Introduction

This chapter analyses the skilled workforce of SEQ, including occupational snapshots, changes in the occupational mix from 2016 to 2021, educational attainment snapshots, national projections of occupations and skills, and an assessment of changes in SEQ skills based on recent trends and prospects. The skilled workforce is identified as one of the enablers of economic growth in the SEQ Economic Foundations Paper, along with land availability, access to market and population growth (Queensland Government 2018a).

This chapter uses ABS Census of Population and Housing Place of Work data for 2016 for the occupational and educational snapshots. Most of the spatial analysis is based on the following geographies: the 12 LGAs, the SEQ BCARR rings and sub-regions and SA2s, similar to other chapters. Only the changes in occupational mixes are provided at the SA4 scale due to data availability.

## 6.2 Occupations of the workforce

This section analyses the skills of the workforce in the SEQ region, with both occupational and educational attainment data providing useful insight into available skills. A skilled workforce and knowledge economy are key determinants for economic growth and prosperity. Occupational diversity and changes over time are important measures of any skilled workforce. Educational attainment is a measure of human capital and the capacity of the knowledge economy (Tuli et al. 2019). Therefore, this chapter analyses these two indicators to understand the skilled workforce in SEQ.

### Occupational snapshot of SEQ in 2016: LGAs

Table 6.1 shows the occupational distribution across the LGAs of SEQ in 2016, based on the Australian and New Zealand Standard Classification of Occupations (ANZSCO). Box 6.1 provides an overview of this classification. Figure 6.1 and Table 6.1 show that Professionals were the largest occupational group, with 328,587 Professionals in 2016. The second and third largest occupations among the 12 LGAs were Clerical and administrative workers (221,379) and Technicians and trades workers (184,255).

### **Box 6.1: What are the Australian and New Zealand Standard Classification of Occupations (ANZSCO) classification and occupation major groups?**

ANZSCO is the skill-based classification used to categorise all occupations and jobs undertaken for profit in the Australian and New Zealand labour markets. It is used in the collection and dissemination of all official statistics on occupation and is a key tenet of Australia's statistical infrastructure. ANZSCO is applied to a range of data sets, including the Census of Population and Housing, that inform and support government policy settings and programs – from vocational education and training to skilled migration programs (ABS 2021). ANZSCO is a hierarchical classification system that categorises occupations according to one of 8 major groups and then into increasingly smaller sub-categories: sub-major group; minor group; unit group, before resulting in the specific occupation (ABS 2021). The 8 major groups are:

- Managers
- Professionals
- Technicians and trades workers
- Community and personal service workers
- Clerical and administrative workers
- Sales workers
- Machinery operators and drivers
- Labourers

These hierarchical levels have a corresponding reference number ('code') with a specific number of digits:

- major groups are represented by a single digit code
- sub-major groups by a 2 digit code
- minor groups by a 3 digit code
- unit groups by a 4 digit code
- occupations by a 6 digit code.

This chapter uses the major groups from the 2013 edition of ANZSCO. Appendix C, Table C.1 and C.2 has a full list of occupations that are included in the Managers and Professionals major groups at the 4 digit level.

The Brisbane LGA has the highest number of Managers (91,805) and Professionals (189,773) with a place of work in the LGA, followed by the Gold Coast LGA, which had 28,452 Managers and 43,355 Professionals in 2016. As discussed in the previous chapter, the Brisbane and Gold Coast LGAs have several major employment precincts, including knowledge and technology precincts. Therefore they have the highest number of Managers and Professionals too.

Table 6.1: Snapshot of occupations by place of work in the LGAs of SEQ in 2016

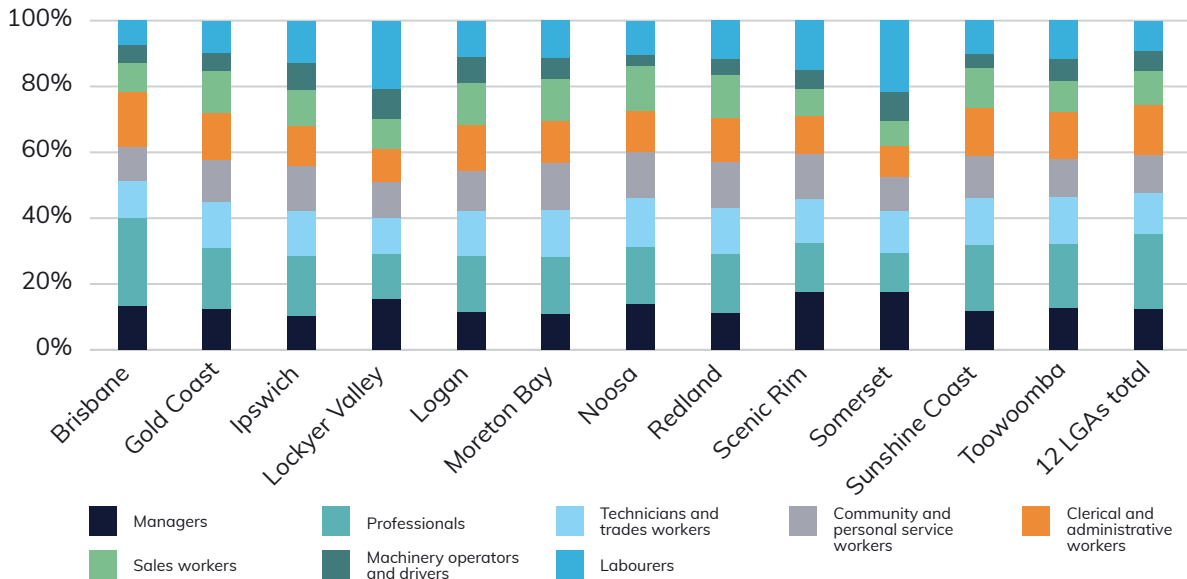
| LGAs                  | Managers | Professionals | Technicians and trades workers | Community and personal service workers | Clerical and administrative workers | Sales workers | Machinery operators and drivers | Labourers | Total     |
|-----------------------|----------|---------------|--------------------------------|--|-------------------------------------|---------------|---------------------------------|-----------|-----------|
| <b>Brisbane</b>       | 91,805   | 189,773       | 78,413                         | 72,107                                 | 117,973                             | 60,442        | 40,031                          | 52,111    | 702,655   |
| <b>Gold Coast</b>     | 28,452   | 43,355        | 32,110                         | 29,062                                 | 33,172                              | 29,716        | 12,592                          | 23,123    | 231,582   |
| <b>Ipswich</b>        | 6,198    | 11,239        | 8,269                          | 8,540                                  | 7,348                               | 6,570         | 5,065                           | 7,975     | 61,204    |
| <b>Lockyer Valley</b> | 1,695    | 1,505         | 1,222                          | 1,188                                  | 1,130                               | 988           | 994                             | 2,306     | 11,028    |
| <b>Logan</b>          | 9,863    | 14,929        | 12,102                         | 10,680                                 | 12,238                              | 11,194        | 6,752                           | 9,836     | 87,594    |
| <b>Moreton Bay</b>    | 11,933   | 19,359        | 15,979                         | 15,550                                 | 14,462                              | 14,225        | 6,851                           | 12,892    | 111,251   |
| <b>Noosa</b>          | 2,727    | 3,460         | 2,938                          | 2,805                                  | 2,439                               | 2,705         | 650                             | 2,103     | 19,827    |
| <b>Redland</b>        | 4,475    | 7,166         | 5,534                          | 5,694                                  | 5,247                               | 5,260         | 1,929                           | 4,697     | 40,002    |
| <b>Scenic Rim</b>     | 2,146    | 1,801         | 1,633                          | 1,677                                  | 1,378                               | 1,015         | 727                             | 1,820     | 12,197    |
| <b>Somerset</b>       | 1,051    | 710           | 767                            | 621                                    | 556                                 | 467           | 524                             | 1,305     | 6,001     |
| <b>Sunshine Coast</b> | 12,916   | 21,889        | 15,545                         | 13,983                                 | 15,689                              | 13,291        | 4,956                           | 10,977    | 109,246   |
| <b>Toowoomba</b>      | 8,595    | 13,381        | 9,749                          | 7,899                                  | 9,741                               | 6,514         | 4,588                           | 8,019     | 68,486    |
| <b>12 LGAs total</b>  | 181,864  | 328,587       | 184,255                        | 169,817                                | 221,379                             | 152,387       | 85,649                          | 137,167   | 1,461,105 |

Note: The 12 LGAs total differs from the total for SEQ, as the rural areas of Toowoomba LGA are excluded from the definition of SEQ. Excludes persons with occupation not stated or inadequately described.

Source: BCARR analysis of ABS Census of Population and Housing, 2016

Figure 6.1 shows the proportional distribution of occupations in the 12 LGAs in 2016. The 12 LGAs have 22.5 per cent Professionals, 15.2 per cent Clerical and administrative workers, 12.6 per cent Technicians and trades workers and 12.4 per cent Managers. The Scenic Rim and Somerset LGAs have the highest proportion of Managers at 17.6 and 17.5 per cent, respectively. In Scenic Rim, Somerset and Lockyer Valley LGAs, over 40 per cent of Managers are Farmers and farm managers, showcasing the agriculture and rural characteristics of the areas. The Brisbane LGA has the highest proportion of Professionals (27.0 per cent) with a place of work in the LGA, followed by the Sunshine Coast (20.0 per cent) and Toowoomba (19.5 per cent) LGAs.

**Figure 6.1: Occupational mix of employment by place of work across the LGAs of SEQ in 2016**



Note: The 12 LGAs total differs from the total for SEQ, as the rural areas of Toowoomba LGA are excluded from the definition of SEQ. Excludes persons with occupation not stated or inadequately described.

Source: BCARR analysis of ABS Census of Population and Housing, 2016

## Occupational snapshot of SEQ in 2016: sub-regions

Table 6.2 shows the occupational distribution in BCARR rings and sub-regions in 2016. Professionals are the largest occupational group in SEQ, with 327,326 Professionals in 2016. Clerical and administrative workers (220,411) and Technicians and trades workers (182,455) are the second and third largest occupations in SEQ. The Middle Brisbane ring has the highest number of Managers (47,301) among the rings and sub-regions. The Inner Brisbane ring has the highest number of Professionals (107,777), followed by the Middle Brisbane ring, which had 81,983 Professionals in 2016.

Professionals was the major occupational group in the Rest of SEQ region, with 84,849 Professionals in 2016. The other major occupations in Rest of SEQ were Clerical and administrative workers (63,114), Technicians and trades workers (62,179) and Community and personal service workers (56,284). Within the Rest of SEQ, the Gold Coast sub-region has the highest number of Professionals (43,371), Managers (28,431) and Clerical and administrative workers (33,182), followed by Sunshine Coast and Toowoomba.

Figure 6.2 shows the proportional distribution of occupations in BCARR rings and sub-regions in 2016. Professionals was the largest occupation in every ring, comprising 21.1 per cent of the SEQ all occupations total. Inner Brisbane has the highest proportion of both Managers and Professionals occupations in the region, at 14.5 and 35.1 per cent, respectively. Inner Brisbane also has the highest proportion of Clerical and administrative workers (20.0 per cent). The Outer Brisbane ring has the largest proportion of Technicians and trades workers, which is 14.0 per cent.

Table 6.2: Snapshot of occupations by place of work in the BCARR rings and sub-regions of SEQ in 2016

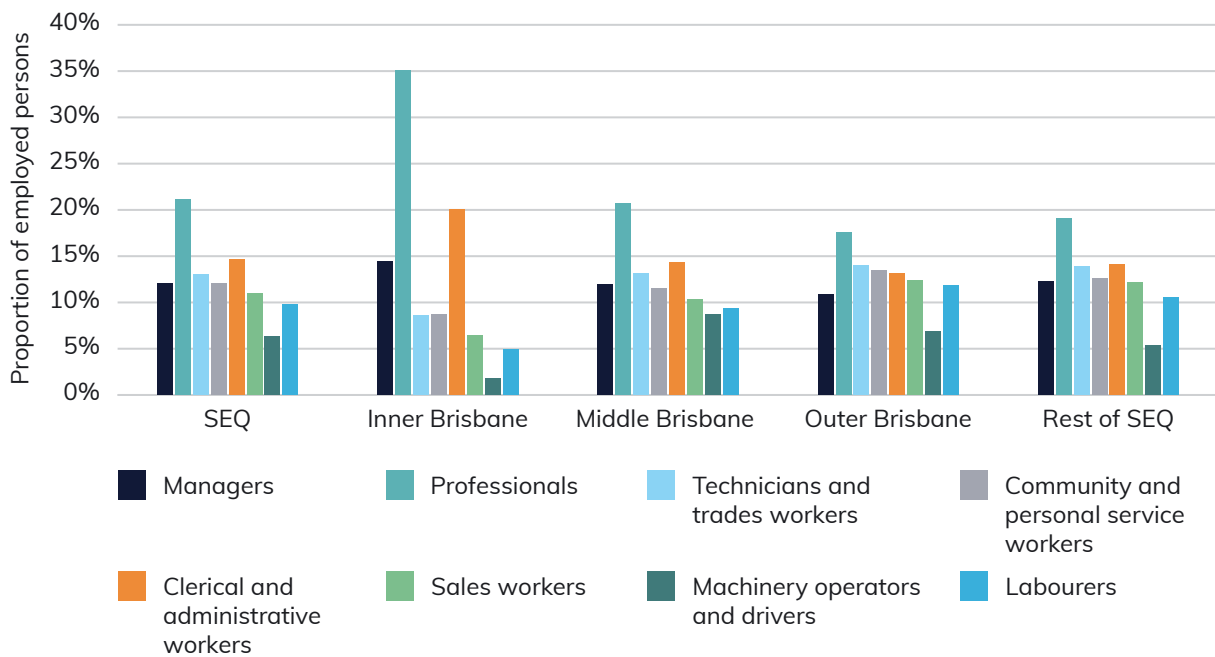
| BCARR rings/sub-regions              | Managers | Professionals | Technicians and trades workers | Community and personal service workers | Clerical and administrative workers | Sales workers | Machinery operators and drivers | Labourers | Total     |
|--------------------------------------|----------|---------------|--------------------------------|--|-------------------------------------|---------------|---------------------------------|-----------|-----------|
| <b>INNER Brisbane*</b>               | 44,464   | 107,777       | 26,367                         | 26,634                                 | 61,428                              | 19,657        | 5,486                           | 15,190    | 307,003   |
| <b>MIDDLE Brisbane – TOTAL*</b>      | 47,301   | 81,983        | 51,994                         | 45,404                                 | 56,526                              | 40,748        | 34,540                          | 36,875    | 395,371   |
| <b>Middle East</b>                   | 5,158    | 5,773         | 6,257                          | 3,347                                  | 5,569                               | 3,061         | 4,851                           | 5,270     | 39,286    |
| <b>Middle North</b>                  | 12,991   | 20,363        | 15,298                         | 11,889                                 | 16,585                              | 12,338        | 9,946                           | 11,322    | 110,732   |
| <b>Middle South</b>                  | 18,213   | 34,811        | 18,827                         | 16,067                                 | 23,375                              | 15,822        | 13,850                          | 12,210    | 153,175   |
| <b>Middle West</b>                   | 10,939   | 21,036        | 11,612                         | 14,101                                 | 10,997                              | 9,527         | 5,893                           | 8,073     | 92,178    |
| <b>OUTER Brisbane – TOTAL</b>        | 32,503   | 52,717        | 41,915                         | 40,547                                 | 39,343                              | 37,296        | 20,617                          | 35,479    | 300,417   |
| <b>Ipswich</b>                       | 6,190    | 11,257        | 8,269                          | 8,538                                  | 7,370                               | 6,570         | 5,071                           | 7,994     | 61,259    |
| <b>Redland</b>                       | 4,475    | 7,172         | 5,535                          | 5,691                                  | 5,244                               | 5,264         | 1,920                           | 4,707     | 40,008    |
| <b>Logan</b>                         | 9,877    | 14,919        | 12,095                         | 10,704                                 | 12,242                              | 11,190        | 6,759                           | 9,832     | 87,618    |
| <b>Moreton Bay</b>                   | 11,961   | 19,369        | 16,016                         | 15,614                                 | 14,487                              | 14,272        | 6,867                           | 12,946    | 111,532   |
| <b>TOTAL – GREATER BRISBANE</b>      | 124,268  | 242,477       | 120,276                        | 112,585                                | 157,297                             | 97,701        | 60,643                          | 87,544    | 1,002,791 |
| <b>Rest of SEQ</b>                   | 54,682   | 84,849        | 62,179                         | 56,284                                 | 63,114                              | 54,103        | 23,777                          | 47,085    | 446,073   |
| <b>Gold Coast</b>                    | 28,431   | 43,371        | 32,098                         | 29,061                                 | 33,182                              | 29,694        | 12,604                          | 23,114    | 231,555   |
| <b>Sunshine Coast</b>                | 12,806   | 21,729        | 15,415                         | 13,942                                 | 15,588                              | 13,243        | 4,927                           | 10,903    | 108,553   |
| <b>Noosa</b>                         | 2,833    | 3,630         | 3,070                          | 2,845                                  | 2,540                               | 2,764         | 664                             | 2,175     | 20,521    |
| <b>Toowoomba (urban part)</b>        | 5,719    | 12,094        | 7,970                          | 6,947                                  | 8,736                               | 5,932         | 3,327                           | 5,462     |           |
| <b>Scenic Rim</b>                    | 2,144    | 1,803         | 1,636                          | 1,675                                  | 1,375                               | 1,012         | 734                             | 1,822     | 12,201    |
| <b>Lockyer Valley</b>                | 1,694    | 1,507         | 1,221                          | 1,189                                  | 1,134                               | 987           | 999                             | 2,309     | 11,040    |
| <b>Somerset</b>                      | 1,055    | 715           | 769                            | 625                                    | 559                                 | 471           | 522                             | 1,300     | 6,016     |
| <b>TOTAL – SOUTH EAST QUEENSLAND</b> | 178,950  | 327,326       | 182,455                        | 168,869                                | 220,411                             | 151,804       | 84,420                          | 134,629   | 1,448,864 |

Notes:

\* The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications. ^ The SEQ total differs from the 12 LGAs total in the preceding table, which includes the whole of Toowoomba LGA. This table includes only the urban parts of Toowoomba LGA.

Employment total differs from that in Table 5.3 because this table excludes persons with occupation not stated or inadequately described.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

**Figure 6.2: Snapshot of occupations by place of work in the BCARR rings of SEQ in 2016**

Note: Excludes persons with occupation not stated or inadequately described.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

## Changes in the occupational mix, 2016 to 2021

Using the ABS *Labour Force Survey*, Chapter 5 reported that the number of employed residents of SEQ increased by 186,800 persons between 2016 and 2021, representing an average annual growth rate of 2.1 per cent (see Table 5.6). In terms of occupations, Professionals were the single biggest contributor to this growth, with an increase of 82,200 employed persons, representing 43.9 per cent of the total increase for SEQ. There were also significant increases in the number of Managers (40,200) and Machinery operators and drivers (22,800).

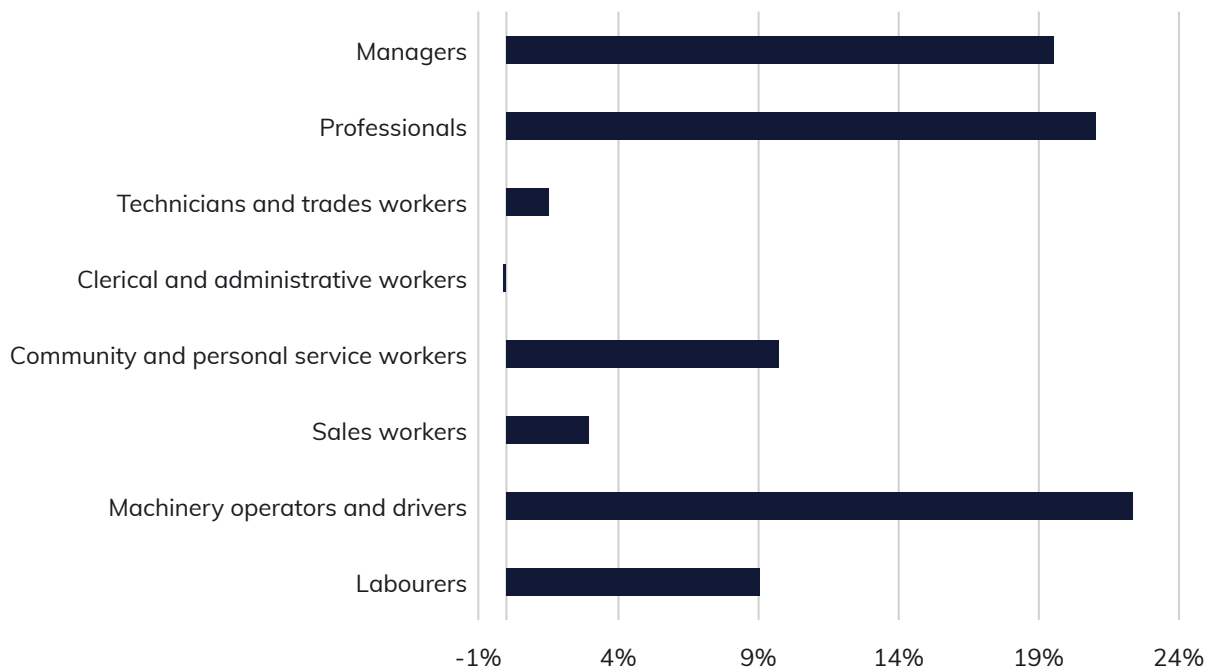
In terms of the overall occupational mix in SEQ, the biggest changes between 2016 and 2021 were:

- Professionals increased their employment share by 2.0 percentage points from 22.4 to 24.4 per cent
- The employment share of Clerical and administrative workers declined from 15.1 to 13.6 per cent
- The employment share of Technicians and trade workers declined from 14.9 to 13.7 per cent.



Figure 6.3 shows the percentage changes in the occupational mix from 2016 to 2021 in SEQ. The number of persons employed as Managers and Professionals have increased by 19.5 and 21.0 per cent over the past five years. Machinery operators and drivers have also increased by 22.4 per cent over this period. The number of Clerical and administrative workers residing in SEQ remained virtually unchanged between 2016 and 2021.

**Figure 6.3: Changes in the occupational mix by place of residence of SEQ from 2016 to 2021**



Source: BCARR analysis of ABS Cat. 6291.0.55.001 RQ2 – Employed persons by Labour market region (ASGS), Occupation major group (ANZSCO) and Sex, Annual averages of the preceding four quarters, Year to August 1999 onwards.

Figure 6.4 shows the changes in the occupational mix from 2016 to 2021 for SA4s of usual residence in SEQ. The Gold Coast SA4 has the largest increase in Managers and Professionals occupational groups in the last five years, at 13,700 and 21,600 employed persons, followed by Brisbane Inner City SA4. Most of the SA4s in Brisbane have positive changes in Professionals and Managers except Brisbane- East (decrease of 2,800 Managers). Toowoomba SA4 is the only area that has experienced negative growth in the Professionals occupation, which is a loss of 800 residents employed as Professionals between 2016 to 2021. Brisbane South has experienced a significant adverse change in Technicians and trades workers in this period (-3,400), as has Gold Coast (-2,200).

**Figure 6.4: Changes in the occupational mix by place of residence in the SA4s of SEQ from 2016 to 2021**



Source: BCARR analysis of ABS Cat. 6291.0.55.001 RQ2 – Employed persons by Labour market region (ASGS), Occupation major group (ANZSCO) and Sex, Annual averages of the preceding four quarters, Year to August 1999 onwards.

## 6.3 Educational attainment of the workforce

### Educational attainment snapshot of SEQ in 2016: LGAs

Table 6.3 provides a snapshot of educational attainment in the LGAs of SEQ by place of work in 2016. The 12 LGAs have 298,044 working population<sup>22</sup> with a Bachelor's degree, 40,832 with a Graduate diploma or graduate certificate level qualification and 88,693 with a Postgraduate degree, which taken together comprise 30.2 per cent of the working population. Any city with 30 per cent or more Bachelor's degrees is called a creative or knowledge city (Florida, 2003). This threshold was set nearly 20 years ago, and not many Australian cities were qualified as knowledge cities at that time. Over time, the Australian population has become more qualified, and only a few cities have reached that threshold.

Of the 12 LGAs, the Brisbane LGA has the largest number of people with Bachelor's degree (176,011), Graduate diploma or graduate certificate level qualification (23,750) and Postgraduate degree (58,895) qualifications, which is over 35 per cent of the working population. The Gold Coast LGA has the second-largest university-qualified working population, having 39,479 Bachelor's degrees, 4,717 Graduate diplomas or graduate certificates and 10,479 Postgraduate degrees. In the 12 LGAs, 33.4 per cent of the working population has their highest educational attainment at the Year 10 and above secondary school level.

### Educational attainment snapshot of SEQ in 2016: sub-regions

Table 6.4 presents a snapshot of educational attainment for the BCARR rings and sub-regions of SEQ. SEQ had a 296,826 working population with a Bachelor's degree, 40,607 with a Graduate diploma or graduate certificate and 88,535 with a Postgraduate degree. Together, this represents 30.4 per cent of SEQ employed persons with a bachelor degree or higher qualification.

The Inner Brisbane ring has the largest number of people with Bachelor's degrees (98,790), Graduate diploma or graduate certificate (13,721) and Postgraduate degree (32,902) qualifications. Inner Brisbane also has the most educated workforce in relative terms, with 48.4 per cent of employed persons having a Bachelor degree or higher qualification. The Middle South and Middle West sub-regions also have relatively educated workforces, with 32.4 and 32.8 per cent of their workforce having a Bachelor degree or higher qualification, respectively. Only these three SEQ sub-regions make the 30 per cent cutoff referred to above. Across SEQ, the sub-region with the lowest proportion holding a Bachelor degree or higher qualification was Somerset (16.4 per cent), followed by Lockyer Valley (18.5 per cent).

<sup>22</sup> Working population refers to when the data is based on Census, Place of Work.

**Table 6.3: Snapshot of educational attainment by place of work in the LGAs of SEQ in 2016**

| LGAs                  | Postgraduate degree | Graduate diploma and graduate certificate | Bachelor degree | Advanced diploma and diploma | Certificate III & IV | Secondary: Years 10 and above | Certificate I & II | Years 9 and below | No educational attainment | Total     |
|-----------------------|---------------------|---|-----------------|------------------------------|----------------------|-------------------------------|--------------------|-------------------|---------------------------|-----------|
| <b>Brisbane</b>       | 58,895              | 23,750                                    | 176,011         | 82,549                       | 121,859              | 207,883                       | 288                | 12,183            | 1,068                     | 684,486   |
| <b>Gold Coast</b>     | 10,479              | 4,717                                     | 39,479          | 29,733                       | 52,200               | 79,106                        | 129                | 6,149             | 298                       | 222,290   |
| <b>Ipswich</b>        | 2,491               | 1,437                                     | 9,537           | 6,728                        | 14,888               | 21,634                        | 57                 | 2,223             | 153                       | 59,148    |
| <b>Lockyer Valley</b> | 365                 | 181                                       | 1,411           | 932                          | 2,411                | 4,327                         | 9                  | 760               | 56                        | 10,452    |
| <b>Logan</b>          | 3,305               | 1,967                                     | 13,532          | 9,663                        | 20,995               | 31,687                        | 62                 | 2,872             | 290                       | 84,373    |
| <b>Moreton Bay</b>    | 3,511               | 2,600                                     | 16,551          | 12,497                       | 28,379               | 39,777                        | 73                 | 3,645             | 158                       | 107,191   |
| <b>Noosa</b>          | 672                 | 435                                       | 3,178           | 2,555                        | 4,806                | 6,820                         | 12                 | 471               | 11                        | 18,960    |
| <b>Redland</b>        | 1,387               | 888                                       | 6,212           | 4,793                        | 9,543                | 14,413                        | 26                 | 1,208             | 45                        | 38,515    |
| <b>Scenic Rim</b>     | 364                 | 271                                       | 1,572           | 1,341                        | 2,844                | 4,514                         | 5                  | 645               | 15                        | 11,571    |
| <b>Somerset</b>       | 108                 | 111                                       | 705             | 486                          | 1,433                | 2,333                         | 12                 | 446               | 19                        | 5,653     |
| <b>Sunshine Coast</b> | 4,132               | 2,813                                     | 18,750          | 13,774                       | 26,620               | 35,991                        | 67                 | 2,873             | 66                        | 105,086   |
| <b>Toowoomba</b>      | 2,991               | 1,661                                     | 11,104          | 7,202                        | 16,896               | 23,281                        | 54                 | 2,728             | 66                        | 65,983    |
| <b>12 LGAs total</b>  | 88,693              | 40,832                                    | 298,044         | 172,259                      | 302,865              | 471,769                       | 779                | 36,197            | 2,253                     | 1,413,691 |

Note: The 12 LGAs total differs from the total for SEQ, as the rural areas of Toowoomba LGA are excluded from the definition of SEQ. Excludes persons with educational attainment not stated or inadequately described, which is why the total differs from that in Table 6.1.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Table 6.4: Snapshot of educational attainment by place of work in the BCARR rings and sub-regions of SEQ in 2016

| BCARR rings/sub-regions              | Postgraduate degree | Graduate diploma and graduate certificate | Bachelor degree | Advanced diploma and diploma | Certificate III & IV | Secondary: Years 10 and above | Certificate I & II | Years 9 and below | No educational attainment | Total     |
|--------------------------------------|---------------------|---|-----------------|------------------------------|----------------------|-------------------------------|--------------------|-------------------|---------------------------|-----------|
| <b>INNER Brisbane*</b>               | 32,902              | 13,721                                    | 98,790          | 37,149                       | 38,772               | 76,064                        | 85                 | 2,695             | 301                       | 300,479   |
| <b>MIDDLE Brisbane – TOTAL*</b>      | 25,980              | 9,979                                     | 77,167          | 45,369                       | 83,048               | 131,781                       | 160                | 9,497             | 749                       | 383,730   |
| <b>Middle East</b>                   | 1,453               | 710                                       | 6,044           | 4,288                        | 9,921                | 14,199                        | 20                 | 1,193             | 63                        | 37,891    |
| <b>Middle North</b>                  | 4,982               | 2,496                                     | 19,888          | 13,658                       | 25,364               | 38,093                        | 41                 | 2,668             | 148                       | 107,338   |
| <b>Middle South</b>                  | 11,107              | 4,078                                     | 32,957          | 17,185                       | 29,783               | 49,616                        | 70                 | 3,597             | 354                       | 148,747   |
| <b>Middle West</b>                   | 8,438               | 2,695                                     | 18,278          | 10,238                       | 17,980               | 29,873                        | 29                 | 2,039             | 184                       | 89,754    |
| <b>OUTER Brisbane – TOTAL</b>        | 10,764              | 6,892                                     | 45,878          | 33,689                       | 73,838               | 107,606                       | 186                | 9,967             | 646                       | 289,466   |
| <b>Ipswich</b>                       | 2,510               | 1,448                                     | 9,550           | 6,746                        | 14,877               | 21,636                        | 51                 | 2,220             | 152                       | 59,190    |
| <b>Redland</b>                       | 1,384               | 879                                       | 6,212           | 4,780                        | 9,541                | 14,404                        | 23                 | 1,214             | 61                        | 38,498    |
| <b>Logan</b>                         | 3,333               | 1,966                                     | 13,544          | 9,654                        | 20,986               | 31,702                        | 58                 | 2,887             | 282                       | 84,412    |
| <b>Moreton Bay</b>                   | 3,537               | 2,599                                     | 16,572          | 12,509                       | 28,434               | 39,864                        | 54                 | 3,646             | 151                       | 107,366   |
| <b>TOTAL – GREATER BRISBANE</b>      | 69,646              | 30,592                                    | 221,835         | 116,207                      | 195,658              | 315,451                       | 431                | 22,159            | 1,696                     | 973,675   |
| <b>Rest of SEQ</b>                   | 18,889              | 10,015                                    | 74,991          | 54,856                       | 104,048              | 151,609                       | 257                | 13,093            | 512                       | 428,270   |
| <b>Gold Coast</b>                    | 10,473              | 4,703                                     | 39,500          | 29,747                       | 52,201               | 79,098                        | 125                | 6,161             | 310                       | 222,318   |
| <b>Sunshine Coast</b>                | 4,097               | 2,792                                     | 18,589          | 13,683                       | 26,454               | 35,792                        | 49                 | 2,859             | 54                        | 104,369   |
| <b>Noosa</b>                         | 702                 | 454                                       | 3,318           | 2,644                        | 4,951                | 7,022                         | 16                 | 485               | 13                        | 19,605    |
| <b>Toowoomba (urban part)</b>        | 2,774               | 1,514                                     | 9,900           | 6,038                        | 13,754               | 18,519                        | 36                 | 1,734             | 40                        | 54,309    |
| <b>Scenic Rim</b>                    | 365                 | 276                                       | 1,574           | 1,336                        | 2,842                | 4,514                         | 6                  | 644               | 18                        | 11,575    |
| <b>Lockyer Valley</b>                | 363                 | 170                                       | 1,403           | 929                          | 2,414                | 4,330                         | 14                 | 764               | 62                        | 10,449    |
| <b>Somerset</b>                      | 115                 | 106                                       | 707             | 479                          | 1,432                | 2,334                         | 11                 | 446               | 15                        | 5,645     |
| <b>TOTAL – SOUTH EAST QUEENSLAND</b> | 88,535              | 40,607                                    | 296,826         | 171,063                      | 299,706              | 467,060                       | 688                | 35,252            | 2,208                     | 1,401,945 |

Notes:

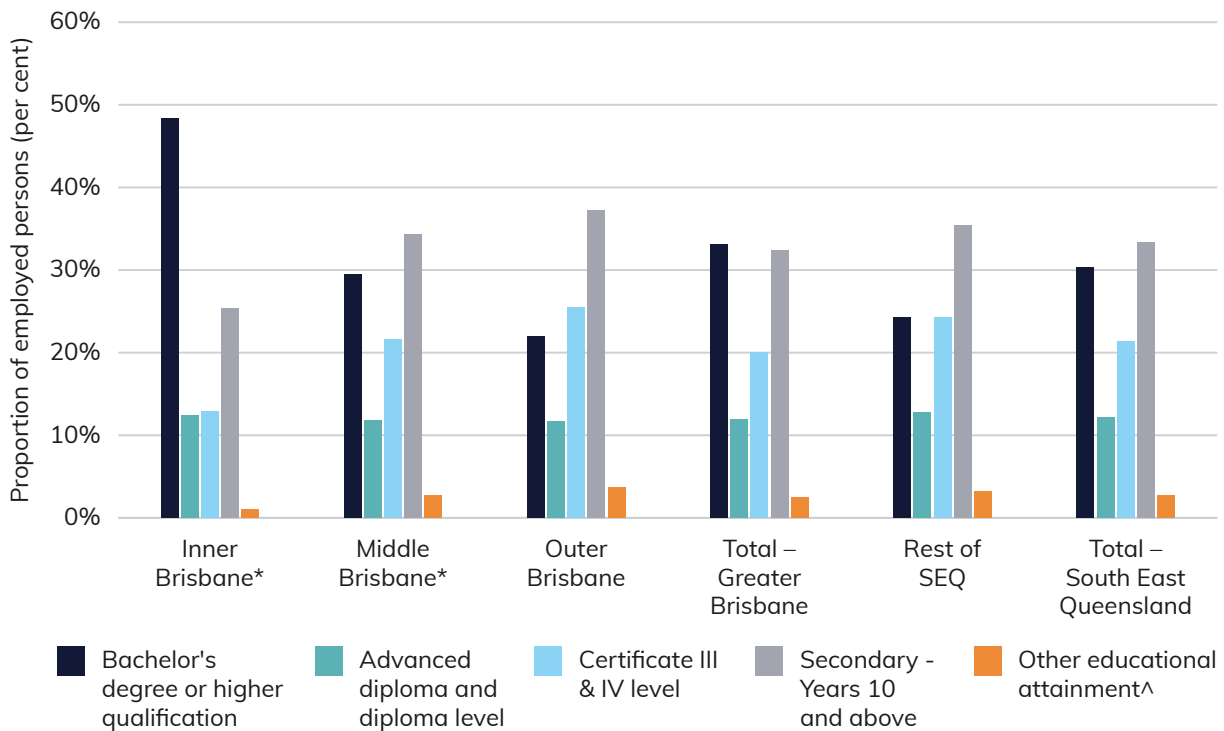
\* The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

^ The SEQ total differs from the 12 LGAs total in the preceding table, which includes the whole of Toowoomba LGA. This table includes only the urban parts of Toowoomba LGA. Excludes persons with educational attainment not stated or inadequately described, which is why the total differs from that in Table 6.2.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Figure 6.5 shows educational attainment across the BCARR rings in 2016. As previously noted, the Inner Brisbane ring has 48.4 per cent of the working population with a Bachelor’s degree or higher qualification. This knowledge-intensive workforce means Inner Brisbane is the key focal point of SEQ’s knowledge economy. The proportion of employed persons with a Bachelor’s degree or higher qualification tends to decline with distance from the CBD, standing at 29.5 per cent for the Middle Brisbane ring and 21.9 per cent for Outer Brisbane. However, the Rest of SEQ ring has a slightly higher proportion with a Bachelor’s degree or higher qualification than Outer Brisbane, at 24.3 per cent. Overall, Greater Brisbane has 33.1 per cent of its working population with a Bachelor’s degree or higher qualification.

**Figure 6.5: Employed persons by educational attainment by place of work in the BCARR rings of SEQ in 2016**



Notes:

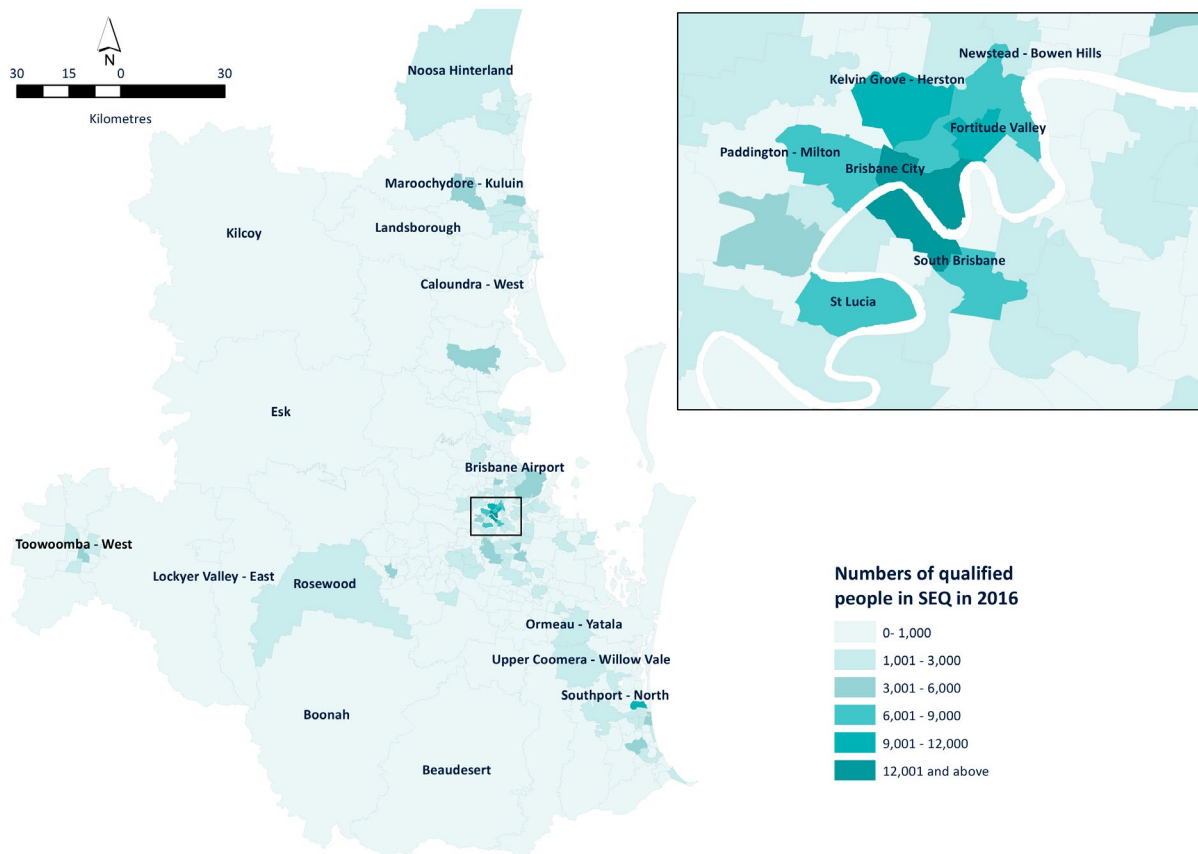
\* The Inner and Middle Brisbane Rings together comprise the City of Brisbane LGA. See Table 1.3 and Figure 1.2 in Chapter 1 for these classifications.

^ Other educational attainment includes: Year 9 and below, Certificate I and II level, and No educational attainment. Excludes persons with educational attainment not stated or inadequately described.

Source: BCARR analysis of ABS Census of Population and Housing, 2016.

Figure 6.6 shows the distribution of the university qualified (Bachelor degree and above) employed population who work in each of the SA2s of SEQ in 2016. The figure shows the university qualified workforce is heavily concentrated in the Inner Brisbane, Gold Coast and Sunshine Coast areas.

**Figure 6.6: University qualified employed persons by place of work in the SA2s of SEQ in 2016**



Note: University qualified was defined as employed persons with a highest educational attainment of a Postgraduate degree, Graduate certificate or graduate diploma or Bachelor degree qualification.  
 Source: BCARR analysis of ABS Census of Population and Housing, 2016.

## 6.4 Future projections of the skilled workforce

This section discusses the future projections of the skilled workforce, including national projections for occupations and skill levels and Queensland government projections for occupations and educational attainment. Box 6.2 explains the concept of skill levels. These occupation, education and skill level projections are important for understanding economic growth and prosperity in the future.

### Box 6.2: What is meant by skill levels?

Each ANZSCO occupation is assigned a skill level. The skill level reflects the range and complexity of the set of tasks undertaken in the occupation. These skill levels measure the level or amount of formal education and training, the amount of previous experience in a related occupation and the amount of on-the-job training required to competently perform the set of tasks required for that occupation (ABS 2021). The 5 broad skill levels used in ANZSCO are:

- Skill level 1 – Occupations that have a level of skill commensurate with a bachelor degree or higher qualification. At least five years of relevant experience may substitute for the formal qualification.
- Skill level 2 – Occupations that have a level of skill commensurate with NZQF Diploma or AQF Associate Degree, Advanced Diploma or Diploma. At least three years of relevant experience may substitute for the formal qualifications listed above.
- Skill level 3 – Occupations that have a level of skill commensurate with NZQF Level 4 qualification, AQF Certificate IV or AQF Certificate III including at least two years of on-the-job training. At least three years of relevant experience may substitute for the formal qualifications listed above.
- Skill level 4 – Occupations that have a level of skill commensurate with NZQF Level 2 or 3 qualification or AQF Certificate II or III. At least one years of relevant experience may substitute for the formal qualifications listed above.
- Skill level 5 – Occupations that have a level of skill commensurate with NZQF Level 1 qualification, AQF Certificate I or compulsory secondary education. For some occupations a short period of on-the-job training may be required in addition to or instead of the formal qualification.

### National projections by occupation and skills

Over the last 20 years, Australia has shifted towards a higher-skilled, more services-based economy which is reflected in the changing industry, occupational and skill mix of jobs (National Skills Commission 2021). Automation and computing have varying effects within occupations and industries, and the key skills that will be needed for future jobs are care, computing, cognitive and communication skills (National Skills Commission 2021).

Table 6.5 provides National Skills Commission (NSC) projections for all occupations for five years to November 2025. NSC projected that employment is expected to increase by 7.8 per cent in total in the 5 year period. Community and personal service workers are projected to see the largest growth in 5 years (14.7 per cent), followed by Professionals (13.2 per cent) and Managers (6.2 per cent). Sales workers (2.0 per cent) is projected to be the lowest growth occupation in the next 5 years, followed by Clerical and administrative workers (3.5 per cent). These two occupations are particularly subject to automation and are expected to shrink in most developed nations (Frey and Osborne 2013).

Table 6.6 shows the top 10 growth occupations by 4 digit level, regardless of skill levels. Waiters is the highest projected growth occupation to 2025 (with projected employment growth of



42.3 per cent), followed by Cafe and restaurant managers (35.0 per cent), ICT support and test engineers (34.0 per cent) and Computer network professionals (30.4 per cent). Other non ICT-related occupations with high growth projections are Midwives, Aged and disabled carers, and Audiologists and speech pathologists/therapists.

**Table 6.5: National Skills Commission projections for one-digit level occupations to 2025**

| Occupations<br>One digit level occupation | National Skills Commission Projections |  |   |          |
|---|--|--|---|----------|
|   | Employment level<br>– November 2020    | Projected<br>employment level –<br>November 2025 | Projected employment<br>growth – five years to<br>November 2025 |          |
|   | ('000)                                 | ('000)   | ('000)  | per cent |
| Community and personal service workers    | 1,272.7                                | 1,459.1  | 186.4   | 14.7     |
| Professionals                             | 3,331.4                                | 3,770.9  | 439.5   | 13.2     |
| Managers                                  | 1,599.2                                | 1,697.5  | 98.3  | 6.2      |
| Technicians and trades workers            | 1,770.5                                | 1,866.8  | 96.8  | 5.4      |
| Machinery operators and drivers           | 814.6                                  | 850.8  | 36.1  | 4.4      |
| Labourers                                 | 1,176.5                                | 1,228.6  | 51.7  | 4.4      |
| Clerical and administrative workers       | 1,763.1                                | 1,824.6  | 61.5  | 3.5      |
| Sales workers                             | 1,070.1                                | 1,091.8  | 21.8  | 2.0      |
| All occupations                           | 12,740.6                               | 13,732.3   | 991.6   | 7.8      |

Source: National Skills Commission Projections, 2021

**Table 6.6: Top 10 growth occupations, Australia, 5 years to November 2025**

| Occupation<br>4 digit level occupation          | National Skills Commission Projections |  |   |          |
|---|--|--|---|----------|
|   | Employment level<br>– November 2020    | Projected<br>employment level –<br>November 2025 | Projected employment<br>growth – five years to<br>November 2025 |          |
|   | ('000)                                 | ('000)   | ('000)  | per cent |
| Waiters   | 100.0                                  | 142.3  | 42.3  | 42.3     |
| Cafe and restaurant managers                    | 60.7                                   | 82.0   | 21.3  | 35.0     |
| ICT support and test engineers                  | 12.1                                   | 16.3   | 4.1   | 34.0     |
| Computer network professionals                  | 49.1                                   | 64.0   | 14.9  | 30.4     |
| Software and applications programmers           | 153.7                                  | 199.8  | 46.1  | 30.0     |
| ICT business and systems analysts               | 34.1                                   | 43.5   | 9.4   | 27.7     |
| Midwives  | 18.2                                   | 22.8   | 4.6   | 25.1     |
| Multimedia specialists and web developers       | 21.7                                   | 27.1   | 5.4   | 25.0     |
| Aged and disabled carers                        | 221.4                                  | 276.1  | 54.7  | 24.7     |
| Audiologists and speech pathologists/therapists | 14.5                                   | 18.0   | 3.5   | 24.1     |

Source: National Skills Commission Projections, 2021

Table 6.7 shows NSC's projection for the top 5 growth occupations (4 digit level) with skill level 1, which is equivalent to a Bachelor's degree or higher qualification. Four out of 5 of these occupations are ICT related. ICT support and test engineers is projected to increase by 34.0 per cent compared with the 2020 level, followed by Computer network professionals (30.4 per cent) and Software and applications programmers (30.0 per cent). Midwives are the only non ICT related occupation in the top five, which is projected to increase by 25.1 per cent in 2025 compared to the 2020 level.

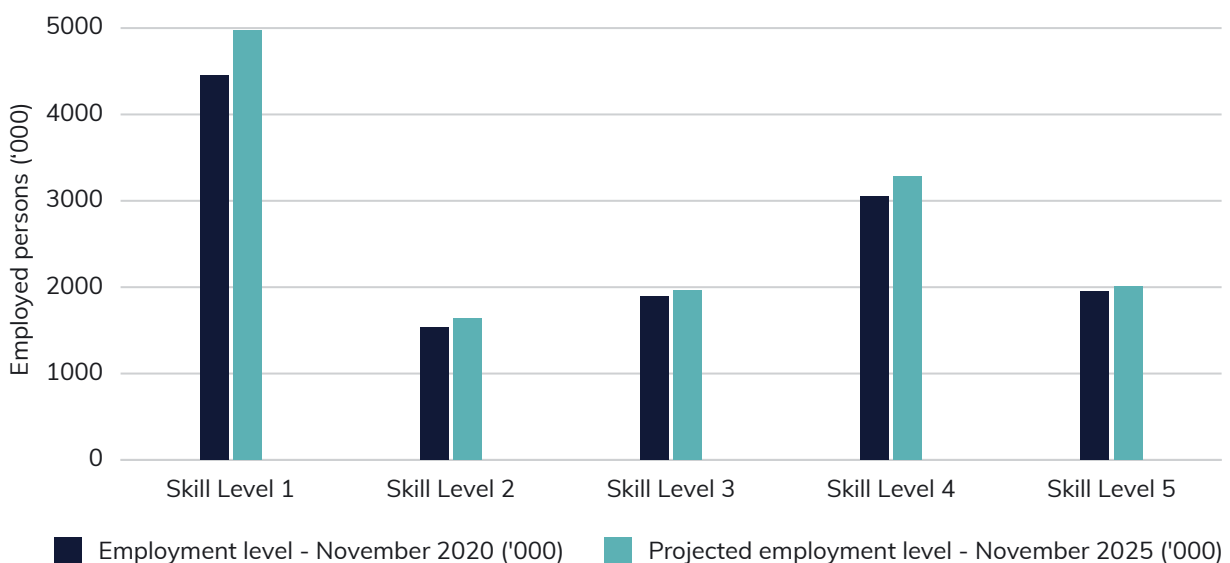
**Table 6.7: Top 5 growth occupations with skill level one, Australia, five years to November 2025**

| Occupations<br>4 digit level occupation and<br>skill level one | National Skills Commission Projections |  |   |          |
|--|--|--|---|----------|
|  | Employment level<br>– November 2020    | Projected<br>employment level –<br>November 2025 | Projected employment<br>growth – five years to<br>November 2025 |          |
|  | (' 000)                                | (' 000)  | (' 000)   | per cent |
| ICT support and test engineers                                 | 12.1                                   | 16.3   | 4.1   | 34.0     |
| Computer network professionals                                 | 49.1                                   | 64.0   | 14.9  | 30.4     |
| Software and applications<br>programmers                       | 153.7                                  | 199.8  | 46.1  | 30.0     |
| ICT business and systems analysts                              | 34.1                                   | 43.5   | 9.4   | 27.7     |
| Midwives   | 18.2                                   | 22.8   | 4.6   | 25.1     |

Source: National Skills Commission Projections, 2021

Figure 6.7 compares NSC projections for different skill levels in 2020 and 2025. Skill level 1, which is commensurate with a Bachelor's degree or higher qualification, is projected to increase by 11.8 per cent, which is around 523,000 extra employed persons in 5 years. Skill level 4 is expected to grow 7.7 per cent (102,300 employed persons), while skill level 2 is expected to grow 6.6 per cent (233,700 employed persons). Overall, the stronger growth of the skill level 1 occupations represents a shift towards a more highly skilled workforce.

**Figure 6.7: National Skills Commission projections for skills in 2020 and 2025 in Australia**



Source: National Skills Commission Projections, 2021

## Assessment of changes in skills base in recent years and prospects

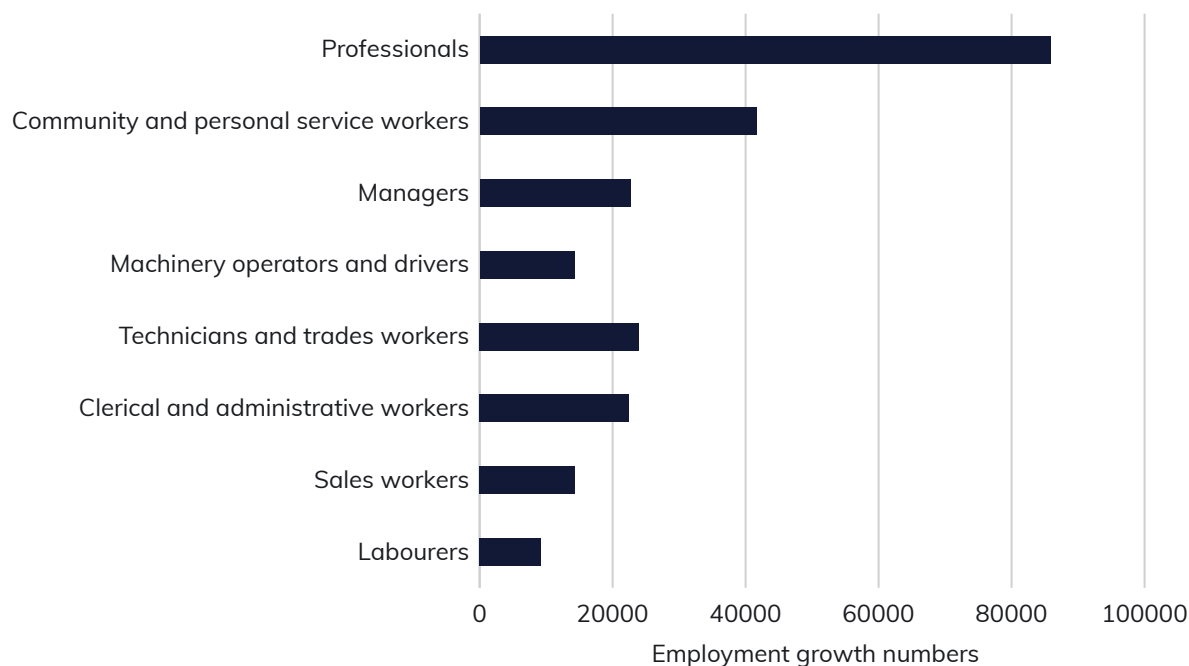
Like national trends, Queensland is becoming more educated, with almost two million workers projected to possess a post-school qualification (Queensland Government 2021a). According to Queensland Government projections, by 2024–2025, more than 2.8 million people are expected to be employed in Queensland, with 280,000 more employed persons expected to be added from 2020–2021 (a 10.9 per cent increase) under the baseline scenario (Queensland Government 2021a). More than 50 per cent of all new workers are projected to be employed in three industries:

- Health care and social assistance;
- Professional, scientific and technical services; and
- Education and training.

The highest growth industries in Queensland match with Australia's projection, previously shown in Figure 5.11. The projections presented in this section all relate to Queensland as a whole. SEQ makes up about two-thirds of the Queensland population. While SEQ currently has a more skilled workforce than Queensland as a whole, it is expected that the broad trends projected for Queensland will also be relevant for SEQ.

By 2024, it is projected that there will be almost 620,000 Professionals employed in Queensland, over 1.5 times more than the next largest major occupation of Technicians and trades workers. Professionals, the largest major occupational grouping, are projected to increase by almost 85,000 people or 16.1 per cent by 2024 (Figure 6.8). Community and personal service workers is projected to grow by 14.3 per cent or almost 42,000 workers. Another major occupation group of Managers is projected to increase by around 23,000 (12.1 per cent) compared to 2019.

**Figure 6.8: Projected major occupations employment growth numbers from 2019 to 2024 in Queensland**

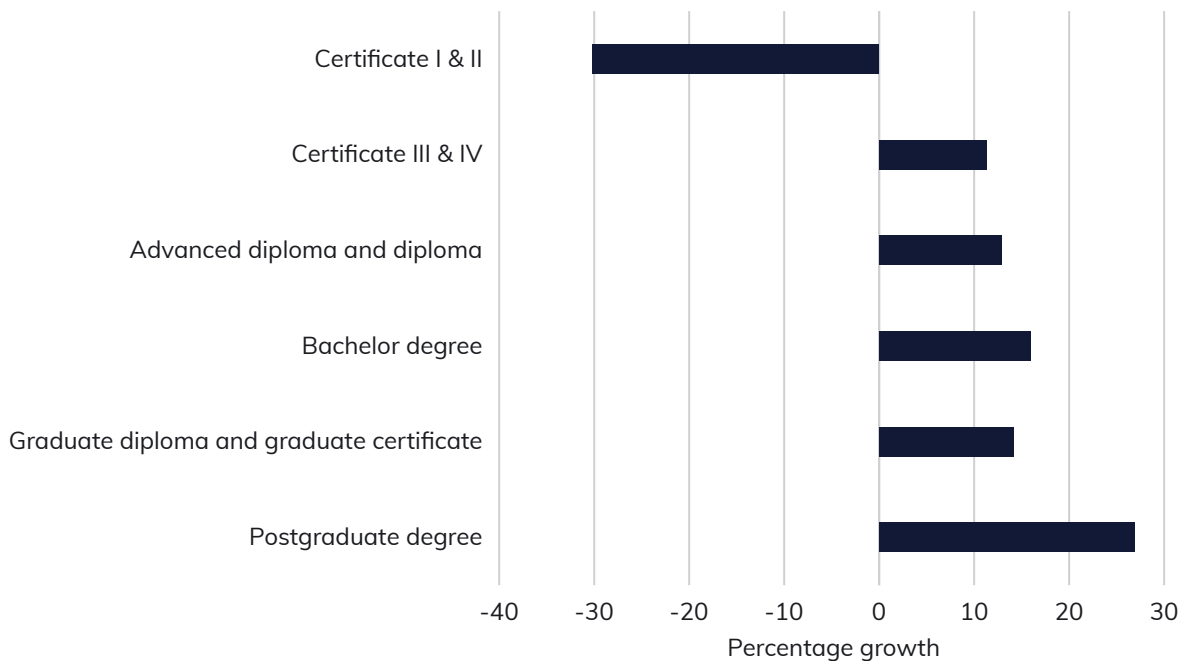


Source: Queensland Government, 2020

The Queensland workforce is becoming more educated, with the number of workers with a post-school qualification expected to increase by 13.9 per cent by 2024. Figure 6.9 shows that the Postgraduate degree qualifications are projected to experience the highest growth at 26.9 per cent, while Bachelor degree qualifications are projected to increase by a more moderate 15.9 per cent. Certificate level I and II qualifications are projected to decline in importance over the next few years.

Table 6.8 shows the qualification levels of the Queensland workforce in 2024–25 compared with 2020–21. It is projected that Queensland workers will become more educated, with 71.7 per cent having a post-school qualification by 2024–25, compared with 69.9 per cent in 2020–21 (Queensland Government 2021a).

**Figure 6.9: Projection of Queensland workforce by level of highest qualification from 2019 to 2024**



Source: Queensland Government, 2021

**Table 6.8: Change in qualification level (per cent) in Queensland workforce from 2020–21 to 2024–25**

|                | Postgraduate degree | Graduate diploma and graduate certificate | Bachelor degree | Advanced diploma and diploma | Certificate III & IV | Certificate I & II | No post-school |
|----------------|---------------------|---|-----------------|------------------------------|----------------------|--------------------|----------------|
| <b>2020–21</b> | 7.7                 | 2.9                                       | 3.0             | 11.9                         | 24.6                 | 1.1                | 30.1           |
| <b>2024–25</b> | 8.6                 | 3.0                                       | 22.4            | 12.2                         | 24.8                 | 0.8                | 28.3           |

Source: Queensland Government, 2021

Nationally, Community and personal service workers is the occupation that is projected to see the fastest rate of growth over the next five years, followed by Professionals and Managers. In Queensland, the Professionals major occupation group is projected to grow at the fastest rate to 2024, followed by Community and personal service workers and Managers.

## 6.5 Conclusion

This chapter has provided a snapshot of the skilled workforce in SEQ, including by occupational mix and educational attainment. It also discussed future projections of skills at the national and state level.

Inner Brisbane has the most qualified workforce within the SEQ region and has the highest number of Managers and Professionals among all occupations. Within the Rest of SEQ, Gold Coast has the largest increase in Managers and Professionals over the last 5 years, followed by Inner Brisbane.

Professionals are projected to increase by 16.1 per cent in Queensland to 2024, which is the largest increase in any major occupation group. Queensland is also projected to become more educated in future, with a large increase of people with Bachelor's degrees and higher qualifications.

In general, countries or cities with a greater portion of their population with higher educational qualifications and skilled workforces see faster economic growth than countries or cities with less-educated and less-skilled workers in the age of the knowledge economy (Tuli et al. 2019). With technological advancement, cities are becoming more competitive around the world. With a better-qualified and higher-skilled workforce, SEQ will be better prepared to adopt technological advancements.

