Anticipating Future Skills Series 4: Working paper

Five-year Queensland employment projections to June 2026

Contents

EXECUTIVE SUMMARY

The Anticipating Future Skills (AFS) Series is an ongoing body of work by Jobs Queensland providing detailed and accessible employment projections to Queenslanders.

The AFS Series includes a set of new employment projections for regions, industries, occupations, and qualifications. It also contains projections for replacement employment to produce state-level total job openings for occupations and industries. The AFS is neither a supply nor a demand model but represents the best estimates of actual employment during the relevant period.

AFS data can be used in a range of ways, including supporting policy advice, industry and regional workforce planning or career guidance. The AFS contributes to Jobs Queensland's ongoing commitment to, and focus on, future skills for future work for a future Queensland.

AFS modelling is produced in collaboration with by the Centre of Policy Studies at Victoria University, using a computable general equilibrium (CGE) model. It brings together a collection of macroeconomic, demographic and employment data, including forecasts from government and industry bodies.

Besides the baseline or "business as usual" projections, the AFS includes modelling for three scenarios:

1. Digitalisation post-COVID: Examines the effects of generative Artificial Intelligence on selected occupations.
2. Changing skills profile: Investigates the impacts of changing growth rates of various qualifications.
3. Global headwinds: Explores the effects of global headwinds, such as demographic change in China, on employment.

Key baseline finding by 2025-26:

- more than 2.9 million Queenslanders will be employed. This will be an additional 207,000 workers in Queensland, an increase of 7.6 per cent compared with 2021-22.
- one in three new workers in Queensland are projected to be employed in Health Care and Social Assistance.
- more than 40 per cent of all new jobs in 2025-26 are projected to be in professional occupations.
- while 70 per cent of new jobs are projected to occur in the South East corner, many Queensland regions are projected to experience above average employment.
- the workforce will be more highly skilled, with 2.1 million qualified Queensland workers compared with 1.9 million in 2021-22.

This report presents an overview of the Anticipating Future Skills project and provides background information including the use of scenarios and methodology. Baseline findings are accompanied by high level analysis of the projections across industry, occupation and regions as well as qualification levels and fields.

A description, rationale and methodology are provided for each scenario as are high-level findings and analysis. The report also describes the methodology used to develop replacement demand and total job openings data.

The data in this report represents only a portion of the modelling that has been undertaken for this project and for those wishing to explore AFS data in greater depth, Jobs Queensland has published data dashboards, regional and industry profiles and a state overview at **www.jobsqueensland.qld.gov.au/afs.**

INTRODUCTION

As jobs and industries transform due to technological, demographic, and social change, it is vital that Queenslanders have access to the range of information to prepare for the future. Jobs Queensland's Anticipating Future Skills (AFS) Series is a highly respected and authoritative source of such information, valuable for career guidance, industry and regional workforce planning or preparing policy advice.

AFS is a set of employment projections for occupations, industries, regions and qualifications. The latest release, Series 4, covers the period between 2021-22 and 2025-26. AFS projections are modelled using a combination of economic, labour market and demographic data.

Series 4 comprises four scenarios:

- Baseline: "Business as usual" incorporating the most recent national and state data at time of modelling.
- Digitisation post-COVID: exploring possible effects of generative artificial intelligence by displacing occupations.
- Changing skills profile: modifying the future skills mix.
- Global headwinds: exploring the effects of global economic headwinds such as demographic shifts in large economies such as China.

In addition to projections for new employment, AFS also includes projected total job openings for both occupations and industries. These include estimates of future jobs resulting from replacement demand, which is created when individuals leave an occupation.

BACKGROUND

The Anticipating Future Skills Series is one of the approaches Jobs Queensland takes to meet its legislated function to provide strategic advice to the Queensland Government about future skills needs. Published since 2017, this is the fourth release in the Series.

The AFS is neither a supply nor a demand model but represents the best estimates of actual employment during the relevant period.

SCENARIOS

Understanding the type of skills necessary for work is challenging. The challenges include complex intersections of factors such as the type and number of jobs, economic growth, regulatory settings, demographic change, training rates and migration flows. When looking to anticipate the skills of the future, the interplay of factors is further complicated by the unknown changes in, and impacts of, technology, globalisation, and political and economic settings.

Economic modelling is useful for simplifying and predicting economic trends. It can provide a framework for dealing with high levels of complexity and uncertainty, but there is always uncertainty about the future. Scenarios, grounded in existing data and trends, is one method of dealing with this uncertainty.[1]

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[1] Schoemaker, P.J. H. (2004) Forecasting and Scenario Planning: The Challenges of Uncertainty and Complexity. In D.J. Koehler & N. Harvey (Eds.), *Blackwell Handbook of Judgment and Decision Making (pp.* 274 -296). New Jersey: John Wiley & Sons.

Scenarios depict plausible futures, although not necessarily 'the' future. Multiple scenarios can be used to present an arc in which the future may evolve and assist us to understand the underlying forces influencing the need for future skills.[2] When contrasted with a baseline or 'business as usual' scenario, the deviations of the alternative scenarios from the baseline can be examined to measure their impact.

The scenarios used in this report have been developed as three plausible futures, but the future is not guaranteed; the scenarios chosen are three out of a myriad.

Methodology

Modelling for the AFS is produced in collaboration with Centre of Policy Studies at Victoria University. It is based on the Victoria University Employment Forecasting (VUEF) model, a CGE model linked to several auxiliary programs (Figure 1).

The VUEF model brings together a collection of macroeconomic, demographic and employment data, including forecasts from government and industry bodies, into a single set of detailed national, state and regional employment forecasts.[3]

[2] Schoemaker, P.J. H. (1991). When and How to Use Scenario Planning: A Heuristic Approach with Illustration, *Journal of Forecasting,* 10:6, 549-564, Retrieved from ProQuest Central.

[3] For more information about VUEF, refer to Dixon, J. (2017) Victoria University Employment Forecasts. CoPS Working Paper No. G-277, October 2017. Melbourne: Victoria university. https://www.copsmodels.com/ftp/workpapr/g-277.pdf

Figure 1: VUEF system diagram
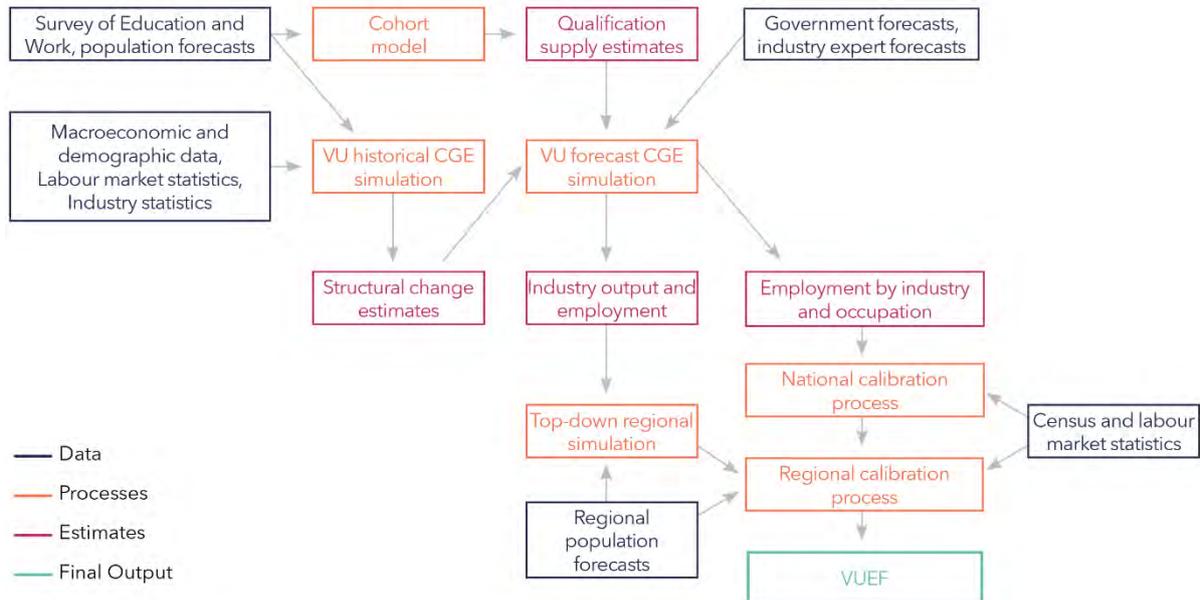
While the VUEF incorporates data from the Commonwealth Government such as population projections, the AFS modelling incorporates data from the Queensland Government, including budget employment forecasts. A list of the macroeconomic inputs used in the modelling is at Appendix A.

Testing and validation

As a simplified framework for describing the workings of the economy, an economic model is a useful tool. Models rely on historical data, accurate at a point in time, as well as numerous assumptions.

One of these assumptions is that Queensland Treasury employment forecasts consider known major projects and industry developments across the state that will have an impact on employment. However, this means that projects occurring after the release of the Queensland Budget may not be incorporated into these forecasts.

To ensure the AFS is credible and current, JQ undertook a series of workshops with employers, peak bodies, unions and government representatives. Stakeholders provided feedback on:

- the probability of the employment trends presented in draft projections.
- the accuracy of the projection trends for each scenario.
- industry developments that may substantially impact the draft projections.

The final modelling takes account of the feedback and advice received during these workshops.

Caveats

- These projections are high level, indicative and subject to change. The numbers should be used in conjunction with insights relating to employment trends in general. It is recommended the numbers are not considered in isolation.

- The published projections may be superseded by changes in:
  o any of the variables in the model
  o the relationships between the variables
  o government policies or actions, such as new infrastructure commitments
  o 'black swan' (unforeseen) events such as a pandemic or war.

- Some industries or occupations are more subject to volatility or more exposed to external shocks than others. For instance, the impact of drought on agriculture or commodity prices on mining is likely to be greater than for most other industries. The impact of this volatility can also be subject to greater variation at a regional level.

- Each qualification in AFS represents the highest qualification achieved by an individual, meaning the actual numbers of qualifications, particularly vocational qualifications, will be underrepresented.

THE BASELINE

The baseline scenario underpins AFS. It provides the "business as usual" projections against which the scenarios can be compared. The modelling for the baseline includes economic forecasts from the Queensland Government's 2023-24 budget, 2023 Queensland population projections, Australian Bureau of Statistics (ABS) quarterly labour force survey data and other statistical inputs. The figures in AFS accord with one person, one job and do not reflect fulltime, part time or casual status.

Key Findings

By 2025-26:

- it is projected that more than 2.9 million Queenslanders will be employed. This will be an additional 207,000 workers in Queensland, an increase of 7.6 per cent compared with 2021-22.
- one in three new workers in Queensland are projected to be employed in Health Care and Social Assistance.
- more than 40 per cent of all new jobs in 2025-26 are projected to be in professional occupations.
- while 70 per cent of new jobs are projected to occur in the South East corner, many Queensland regions are projected to experience above average employment.
- the workforce will be more highly skilled, with 2.1 million qualified Queensland workers.

Industries

The industries used in AFS are defined by the ABS in the Australian and New Zealand Standard Industrial Classification (ANZSIC).[4] ANZSIC is a hierarchical classification structure which is modified for AFS to devolve from 19 industry divisions to 214 industry groups.

The services industries now employ many more Queenslanders than primary industries such as Agriculture, Forestry and Fishing or Mining. Figure 2 shows both the number of people projected to be employed in each industry by 2025-26 (the bars), and the change in employment since 2021-22 (represented by the dots).

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[4] ABS. (2013). Australian and New Zealand Standard Industrial Classification
https://www.abs.gov.au/statistics/classifications/australian-and-new-zealand-standard-industrial-classification-anzsic/latest-release

By 2025-26, Health Care and Social Assistance will be both the largest employing industry as well as the fastest growing. To demonstrate the relative size of this industry compared with all others, almost 17 per cent of Queensland workers will work in Health Care and Social Assistance, compared with around 10 per cent for the next largest industry, Retail Trade.

Employment is projected to decline in two industries. Employment in Agriculture, Forestry and Fishing has been trending downwards nationally for several decades as agricultural production methods change.[5] The Information Media and Telecommunications industry expanded steadily until mid-2007 and then employment began to decline due to the impacts of technology. Industry subdivisions such as publishing have experienced significance contraction and remain vulnerable to emerging technologies such as artificial intelligence.

Figure 2: Baseline employment and growth, industry division, 2025-26

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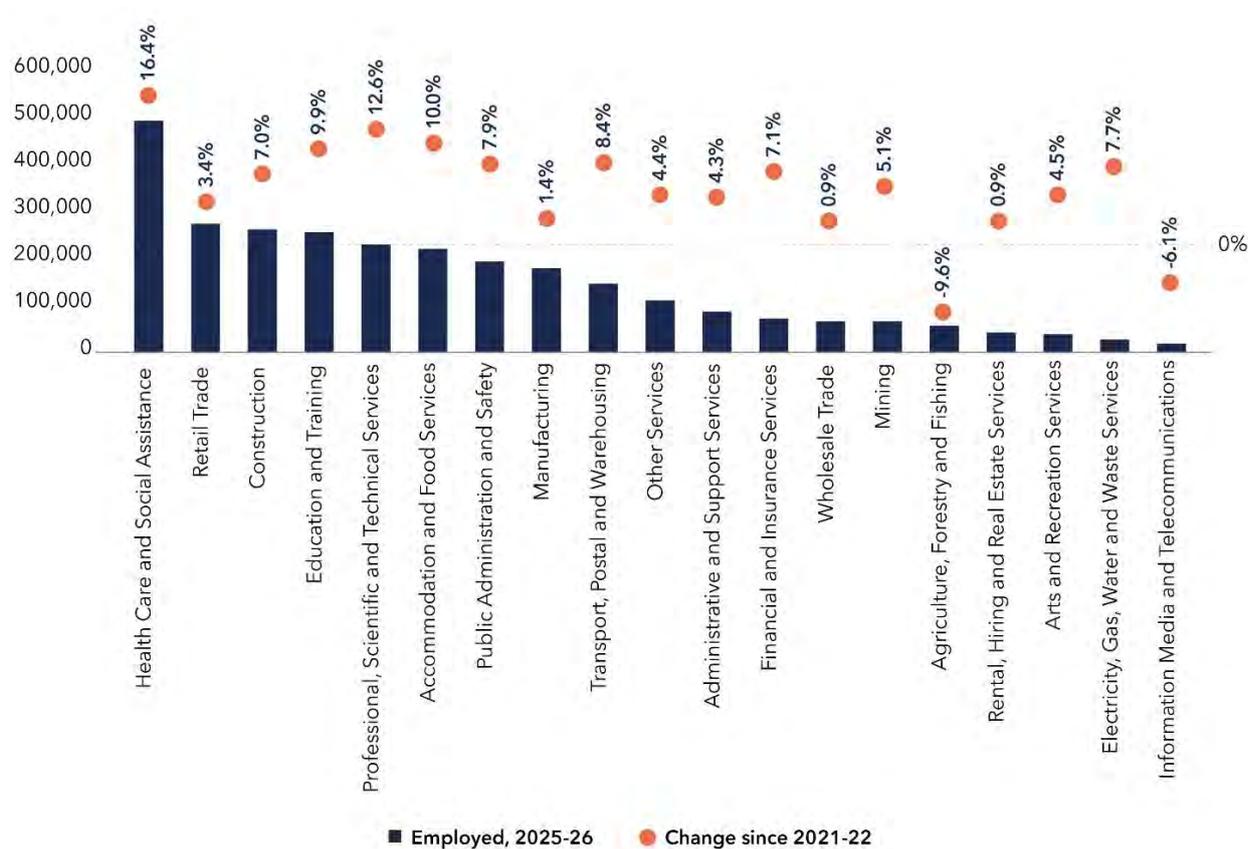
[5] Barr, N & Kancans, R. (2020). Trends in the Australian Agricultural Workforce: What can data from the Census of Population and Housing tell us about changes in agricultural employment? ABARES Research Report 20.19, Canberra, https://www.agriculture.gov.au/abares/research-topics/labour/australian-agricultural-workforce-trends#share-of-the-australian-economy

Occupations

AFS uses occupations defined by the Australian Bureau of Statistics (ABS) in the Australian and New Zealand Standard Classification of Occupations (ANZSCO).[6] ANZSCO is a hierarchical classification structure and in AFS it devolves from eight major groups to 358 unit groups. In 2022, the ABS updated a selected group of construction-related trades occupations and some emerging ones in ANZSCO but have not yet rolled these changes out to its labour force survey products, so AFS still uses the older classification.

The ongoing changes in the Queensland labour market are reflected in the changes observed in occupations in the AFS. For instance, the addition of 14,392 Aged and Disabled Carers (ANZSCO) is related to the growth of the Health Care and Social Assistance industry (ANZSIC). This growth is influenced, in turn, by changes such as the socio-economic shifts of an ageing population, consumer demand, and significant policy agendas like the Australian Government's 2013 National Disability Insurance Scheme.

Another example is the increase in employment in the Professional major group. This is reflective of a range of factors, including technological advancements, changing societal norms and government policies promoting higher levels of education.[7] By 2025-26, 86,000 more Queenslanders will be employed in professional occupations, meaning almost one in four workers will be employed in a profession such as nursing, engineering or teaching.

Employment in Community and Personal Service Workers jobs are also projected to grow strongly, up by 11.5 per cent compared with 2021-22 (Figure 3). This major group includes occupations as diverse as dental hygienist, waiter, security officer and beauty therapist.

While the growth of Technicians and Trade Workers is projected to be below average, it is expected to remain the second largest occupational grouping, with one in seven Queenslanders employed in jobs such as electrician, carpenter, hairdresser, or veterinary nurse.

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[6] ABS (2021). ANZSCO - Australian and New Zealand Standard Classification of Occupations https://www.abs.gov.au/statistics/classifications/anzsco-australian-and-new-zealand-standard-classification-occupations/2021
[7] Commonwealth of Australia (2021). State of Australia's Skills 2021: now and into the future. https://www.nationalskillscommission.gov.au/reports/state-australias-skills-2021-now-and-future/executive-summary

Figure 3: Baseline employment and growth, occupation major groups, 2025-26
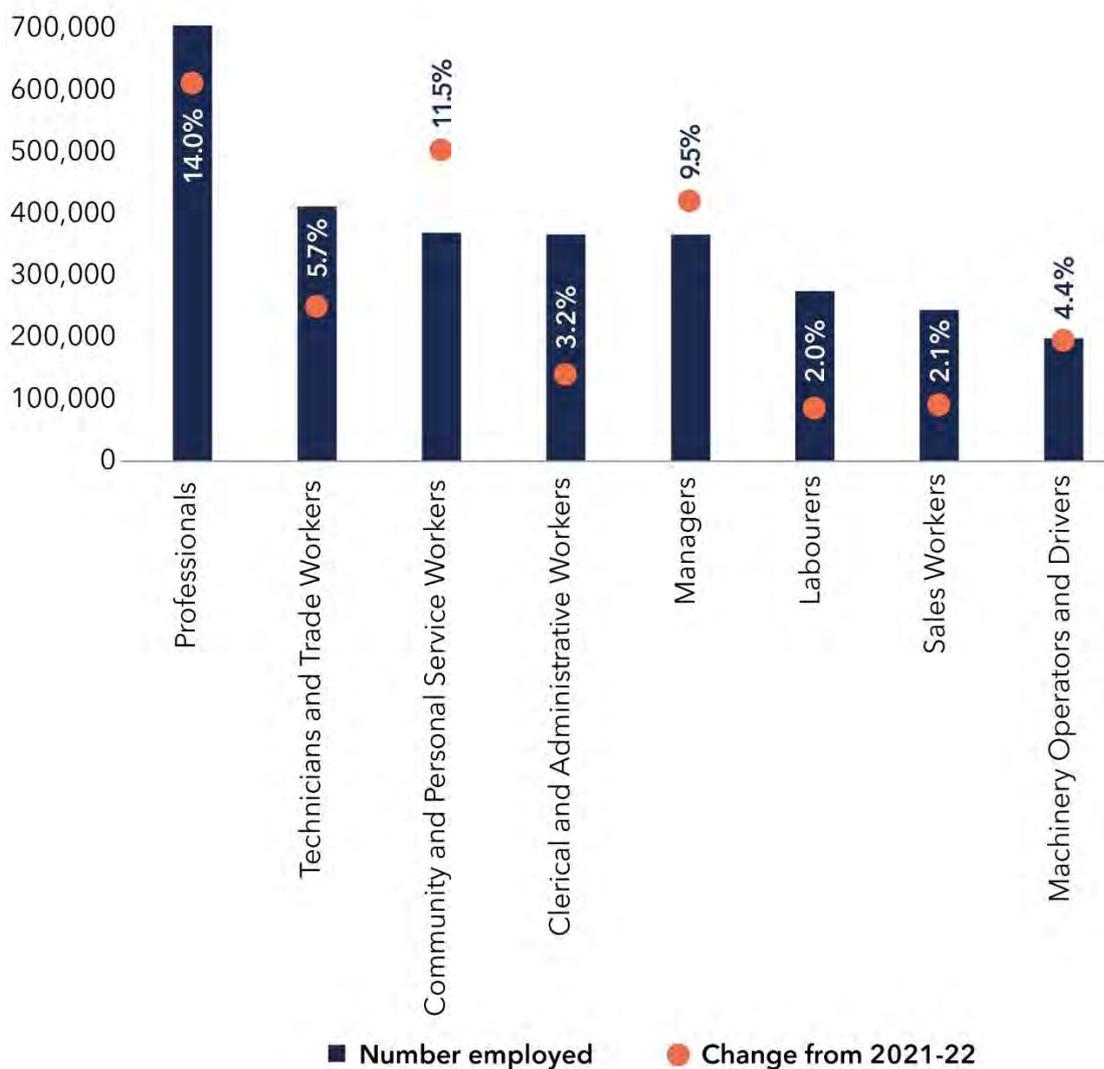
When it comes to occupational unit groups, the ten largest encompass a variety of entry level and senior roles, generalist and specialist jobs, and all skill levels. Most of these occupations are projected to expand between 2021-22 and 2025-26. The largest occupation, Sales Assistant (General) is projected to increase by six per cent, compared with Aged and Disabled Carers, which is projected to increase by 25 per cent.

Two of the occupations presented in Figure 4 are projected to decline slightly – Truck Drivers by one per cent and Retail Managers by three per cent.

Figure 4: Baseline employment, occupation unit groups, 2021-22 and 2025-26
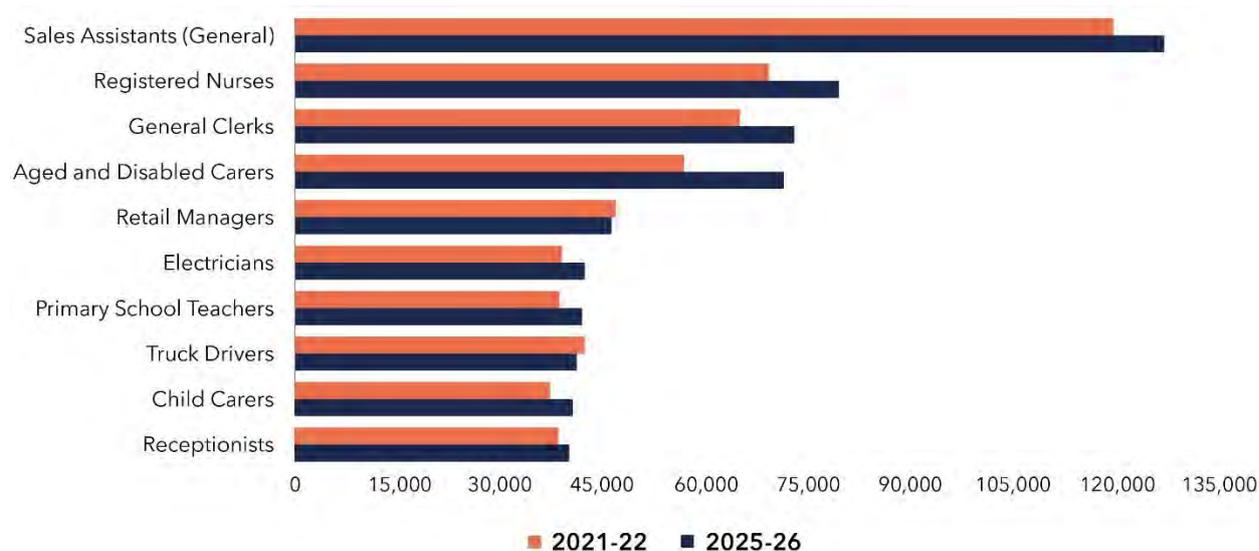
Regions

AFS uses Statistical Area Level 4 (SA4) regions, as defined by the Australian Bureau of Statistics (see Appendix B). There are 19 SA4s in Queensland but AFS combines the five Brisbane SA4s to reflect the relationship between high population density and service-delivery that forms a 'natural' labour market. The Outback Queensland SA4, which geographically covers 68 per cent of the state, has been disaggregated into its component SA3 regions (Far North, Outback-North and Outback-South).

While 70 per cent of new jobs are projected to occur in the southeast corner, many Queensland regions are still projected to experience above average employment growth (Figure 5). Wide Bay is projected to have the fastest growing employment, with more than half of its new jobs in two industries, Health Care and Social Assistance and Accommodation and Food Services.

Employment growth in the Gold Coast region is projected to slow compared to previous years, but not all industries will grow slowly. For instance, there will be more than 2,700 new workers in Accommodation and Food Services in the Gold Coast and 1,700 more in Education and Training by 2025-26.

A fall in employment is projected in the regions of Darling Downs-Maranoa and Outback South. This may be attributed to a number of factors. Recently released Queensland Government population projections forecast that both regions will grow by less than one per

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cent between 2021 and 2026, which hinders employment.[8] In addition, Agriculture, Forestry and Fishing is the largest employing industry in each region and employment in this industry is expected to decline.

Figure 5: Baseline employment and change, regions, 2025-26
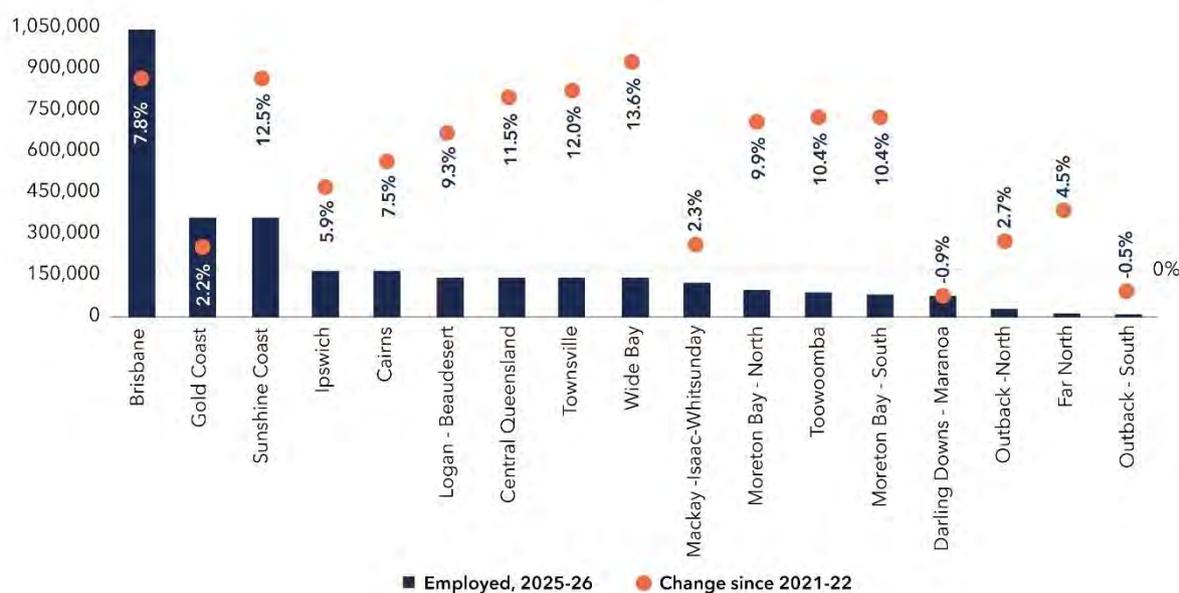
Qualifications

The qualifications referred to in AFS are based on the classifications defined by the ABS in the Australian Standard Classification of Education (ASCED).[9] ASCED comprises two classifications, both of which are hierarchical (Appendix C). Level of Education is defined as a "function of the quality and quantity of learning involved in an educational activity" and consists of Broad (9), Narrow (15) and Detailed (64) levels. For simplicity, AFS classes Secondary Education and below as "No post school" and has broken the broad Certificate Level into its narrow components.

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[8] State of Queensland. (2023). Queensland Government population projections, 2023 edition; Australian Bureau of Statistics, Regional population, 2021.
https://www.qgso.qld.gov.au/statistics/theme/population/population-projections/regions
[9] ABS (2001). Australian Standard Classification of Education (ASCED)
 https://www.abs.gov.au/statistics/classifications/australian-standard-classification-education-asced/latest-release

Field of Education is defined as the "subject matter of an educational activity."[10] It consists of 12 Broad fields which breaks into 71 Narrow fields, followed by 369 Detailed fields. Only the Broad and Narrow fields have been used in AFS.

Each qualification in AFS represents the highest qualification achieved by an individual. Given many workers acquire several qualifications across various levels (e.g. Bachelor Degree followed by a postgraduate qualification), the actual numbers of qualifications, particularly vocational qualifications, will be underrepresented.

By 2025-26, more than 2.1 million Queensland workers will have a qualification, compared with 1.9 million in 2021-22. The proportion of people with no post school qualification will continue to fall as older workers, the largest portion of this group, leave the workforce.

Qualification Levels

As previously stated, the number of Queensland workers with no post school qualifications will fall, with almost 5,800 fewer non-qualified employees by 2025-26. Less than one per cent of all Queensland workers will have a Certificate I or II level qualification as their highest qualification by 2025-26. This amounts to around 23,000 workers but represents a fall of 6,500 from 2021-22.

The fastest growth in qualifications is at the university level, with double-digit increases projected across qualifications from Bachelor Degree to Postgraduate levels. This means more than 680,000 Queensland workers will have a Bachelor Degree level qualification by 2025-26, second to Certificate III & IV qualifications at more than 686,000 (Figure 6).

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[10] ABS (2001). The Conceptual Basis of ASCED
https://www.abs.gov.au/statistics/classifications/australian-standard-classification-education-asced/2001/overview/conceptual-basis-asced

Figure 6: Baseline, qualification levels and change (%), 2021-22 to 2025-26
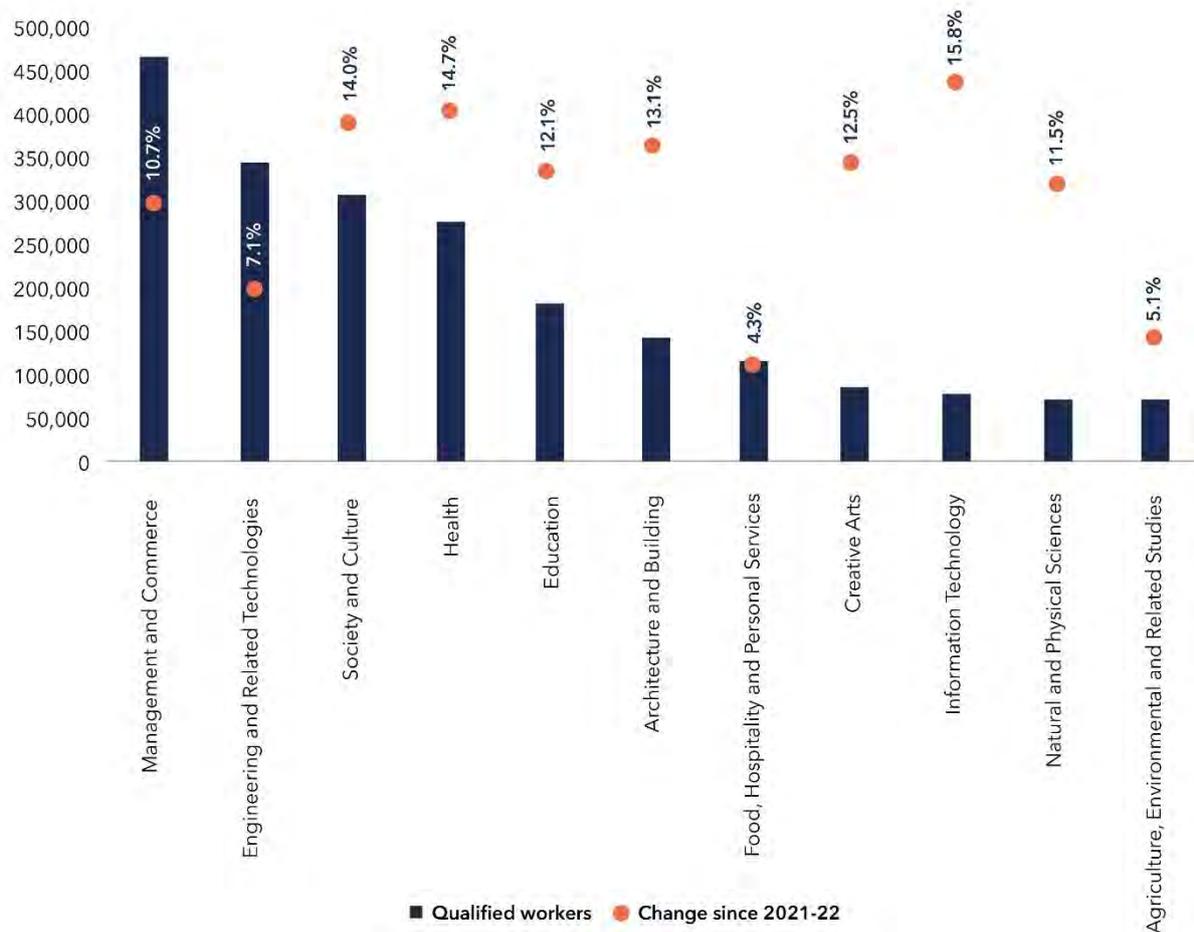
Qualification levels - new workers

While the Queensland workforce will generally become more qualified by 2025-26, a comparison with the qualification profile of new workers illustrates the changing nature of the Queensland labour market (Table 1).

For example, 9.9 per cent of the Queensland workforce will have a postgraduate degree by 2025-26, up from 8.7 per cent in 2021-22. However, an analysis of the qualifications profile of the 207,000 additional workers projected by 2025-26 shows that 24.3 per cent of those will be postgraduate qualified.

Similarly, almost 40 per cent of all new workers will have a Bachelor Degree qualification by 2025-26, compared with 23 per cent of the total Queensland workforce. These changes are reflected in the growth of Professional and other highly skilled occupations across this period.

Table 1: Qualification levels as proportion of Queensland workforce, 2025-26

Broad Qualification Levels	Proportion of workforce		
	2021-22	2025-26	New Jobs
Postgraduate Degree	8.7%	9.9%	24.3%
Graduate Diploma and Graduate Certificate	3.2%	3.5%	6.1%
Bachelor Degree Level	22.1%	23.4%	37.2%
Advanced Diploma and Associate Degree Level	11.9%	12.0%	12.4%
Certificate Levels III & IV	23.7%	23.5%	20.0%
Certificate Levels I & II	1.1%	0.8%	N/A
No Post-school	29.2%	27.0%	N/A

Qualification Fields

In this year's AFS, most broad qualification fields will increase at above-average rates (7.6 per cent) except for three:

- Food, Hospitality and Personal Services (up 4.3 per cent),
- Agriculture, Environmental and Related Studies (up 5.1 per cent) and
- Engineering and Related Technologies (up 7.1 per cent).

This does not mean that all narrow qualification fields in these classifications will grow at the same rate. For instance, civil, aerospace and maritime engineering are projected to increase by more than 10 per cent while slower growth is projected for fields such as manufacturing, automotive and geomatic engineering.

Given constant technological change and increased demand for health services, it is unsurprising that the fastest growing fields are those of Information Technology (up 15.8 per cent) and Health (up 14.7 per cent). Medical Studies, one of the components of the health field, is projected to increase by 27.7 per cent alone. In terms of volume, however, the largest increase will be in Management and Commerce, which is projected to increase by more than 45,000 workers.

With 471,000 workers projected to have a qualification in this field, Management and Commerce is also the largest qualification field, followed by 347,000 workers qualified in Engineering and Related Technologies (Figure 7).

Figure 7: Baseline, qualification fields and change (%), 2021-22 to 2025-26
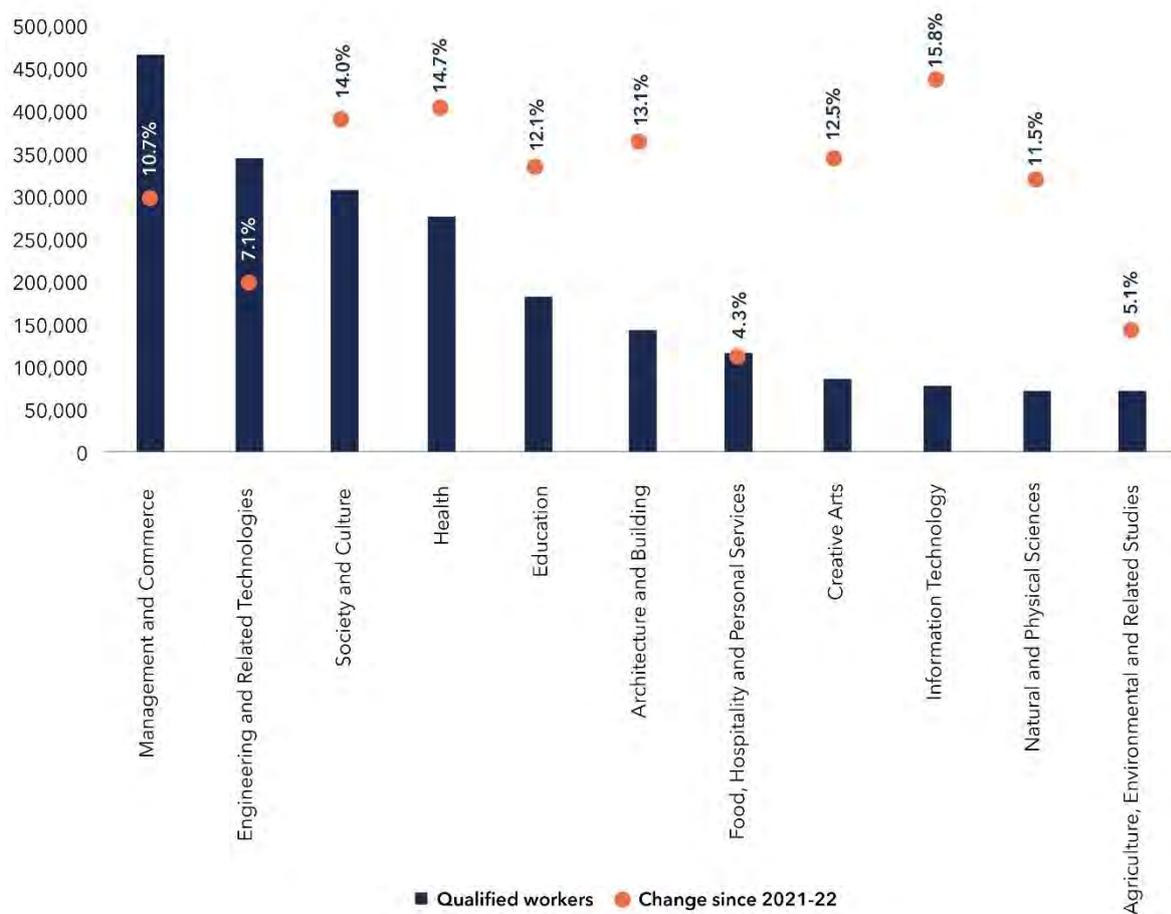
Qualification fields – new workers

The analysis of qualification levels and new jobs reveals some of the structural changes occurring in the Queensland labour market, such as the increase in new workers with postgraduate qualifications. By contrast, the changing composition of the labour market is not revealed as starkly when analysing qualification fields. However, some trends are still obvious, when comparing the proportion of qualification fields in the 207,000 new jobs compared to jobs overall (Table 2).

Table 2: Qualification fields as proportion of Queensland workforce, 2025-26

Broad Fields of Qualification	Proportion of workforce		
	2021-22	2025-26	New Jobs
Natural and Physical Sciences	3.2%	3.2%	3.3%
Information Technology	3.5%	3.6%	4.9%
Engineering and Related Technologies	16.9%	16.3%	10.9%
Architecture and Building	6.6%	6.7%	7.7%
Agriculture, Environmental and Related Studies	2.4%	2.2%	1.1%
Health	12.8%	13.2%	16.9%
Education	8.5%	8.6%	9.2%
Management and Commerce	22.2%	22.1%	21.3%
Society and Culture	14.2%	14.6%	17.9%

Almost 17 per cent of new workers will have Health-related qualifications, a greater proportion than the general workforce. Similarly, a larger proportion of new workers will have qualifications in Society and Culture than the workforce as a whole. This field includes subjects such as law, behavioural science, economics and political studies. Those workers with qualifications in these fields can be expected to work in professional or managerial occupations, which are projected to grow strongly.

The low growth in manufacturing impacts the proportion of workers with related qualifications in Engineering and Related Technologies. New workers are less likely to hold these qualifications than the Queensland workforce overall. This discrepancy is most evident in the narrow fields of Mechanical and Industrial Engineering and Technology, Automotive Engineering and Technology and Manufacturing Engineering and Technology.

Summary

Employment in Queensland is projected to grow strongly, with more than 2.9 million Queenslanders employed by 2025-26. The workforce will be more highly educated, with over 70 per cent of workers possessing a post-school qualification. More workers than ever before will be employed as Professionals and more workers than ever before will be employed in Health Care and Social Assistance.

Finally, many Queensland regions will experience solid employment gains outside of the South East corner.

SCENARIO ONE – DIGITALISATION POST-COVID

RATIONALE

The purpose of this scenario is to examine the effects of the use of generative artificial intelligence (AI) on employment. AI is the latest in a long line of technologies, from the printing press to robotics, that have provoked fears about mass unemployment. Despite these fears, history suggests that is more likely that jobs will be transformed by generative AI rather than displaced. [11] Here, AFS explores the consequences for Queensland employment if the adoption of generative AI[12] does prove to be as disruptive as feared, and therefore assumes that the technology would displace a range of selected occupations.

The potential of AI has been mooted for many years, but until recently its widespread use still appeared remote. The swift adoption of technology during the COVID-19 pandemic, however, proved just how fast technology could be integrated into daily use. The emergence of generative AI, an algorithmic process that creates content such as text, images video and code, suggests that this technology will also be swiftly adopted. For instance, the generative AI program ChatGPT acquired 100 million active users only two months after its launch in November 2022.[13] The success of this and other programs, such as image generating AI technology, combined with the rush of investment into this technology by companies such as Microsoft and Bing, has generated both excitement and concern.

Historically, these concerns have proven largely unfounded. Generally, the adoption of technology reduces production costs, which increases investment and outputs, leading to the stimulation of employment and the emergence of new jobs across the economy. This is not to say that technological adoption has not resulted in job losses. Occupations consisting of mostly routine and repetitive tasks, and are therefore highly automatable, have often been most at risk of redundancy. For example, the introduction of automated switchboards led to the obsolescence of switchboard operators.[14] But for the most part, those who have been displaced regain employment in other areas of the labour market.

It is generative AI's capacity to go beyond the routine and repetitive that is the major source of contemporary anxiety. Its ability to rapidly generate content, designs and code threatens to

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[11] Jobs Queensland. (2019). The Future of Work Literature Review.
https://jobsqueensland.qld.gov.au/resources/reports-and-plans/
[12] Further references to AI in this document relate to generative AI.
[13] Ortiz, S. (21 July 2023). What is ChatGPT and why does it matter? Here's what you need to know. ZD NET Innovation. https://www.zdnet.com/article/what-is-chatgpt-and-why-does-it-matter-heres-everything-you-need-to-know/
[14] Pettinger, T. (2022). The Luddite Fallacy. Economics Help.org.
https://www.economicshelp.org/blog/6717/economics/the-luddite-fallacy/

intrude on some creative and technical professions, which have previously been considered exempt from technological encroachment.[15]

Methodology

The first step in developing this scenario was to determine which occupations may be most susceptible to displacement by AI, and to what degree. The CGE model underpinning AFS uses an input-output table to capture the linkages between industries i.e. to account for the additional inputs that may be required from other industries when an industry expands. This table is supplemented with labour force statistics to produce employment estimates at the ANZSCO minor group level, and it is at this level that the shock in this scenario is applied.

To determine those occupations most at risk, we conducted a review of recent reports and research, and revisited feedback provided by stakeholders during testing and validation. For example, representatives from the Arts and Recreation industry stated that the introduction of generative AI had the potential to accelerate the decline in the number of Ticket Salespersons as their tasks are highly automatable.

We also considered the likelihood of AI being adopted quickly enough for occupational displacement to occur within the five-year span of this modelling. Part of this consideration included identifying those industries and industry sectors where social, regulatory or political factors might impede the uptake of AI. For instance, Hospitals (a unit class of Health Care and Social Assistance) is a highly regulated and patient-oriented industry. When compared with a market-based unit class such as Call Centre Operations, which is looking to reduce costs, the appetite for the uptake of generative AI may be much lower. The assumption is that those occupations employed predominantly in Health Care and Social Assistance (e.g. medical imaging professionals) are likely to be impacted by AI at a much slower rate than other occupations common across industries (e.g. accountants).

Once occupations were identified, impact ratios of two, five, ten and 15 per cent were applied to the employment numbers of each one to take into account the possible degree and speed of displacement. For example, Keyboard Operators received a 15 per cent weighting in recognition of this occupation's long decline since August 2000 and of research suggesting heavy implications of AI on clerical roles.

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[15] Vazquez, H. C. (2023). Artificial neuropsychology: Are large language models developing executive functions? Ithaca: Cornell University Library, arXiv.org. Retrieved from https://login.grailproxy.slq.qld.gov.au/login?qurl=https%3A%2F%2Fwww.proquest.com%2Fworking-papers%2Fartificial-neuropsychology-are-large-language%2Fdocview%2F2811358632%2Fse-2%3Faccountid%3D177678

In instances where unit group occupations (e.g. Court and Legal Clerks) were identified as potentially subject to some level of displacement, a proportional displacement rate was applied. In the example in Figure 8, the occupations of Law Clerk and Trust Officer were identified as at high risk of displacement from AI, and therefore allocated a displacement rate of 15 per cent each. Law Clerk makes up 65 per cent of the Unit Group (Court and Legal Clerk), which in turn comprises 93 per cent of the Miscellaneous Clerical and Administrative Workers. This is the level at which the shock is implemented, and it is at this level that the final displacement rate is calculated and applied.

Figure 8: Example of proportional relationship between occupational classifications
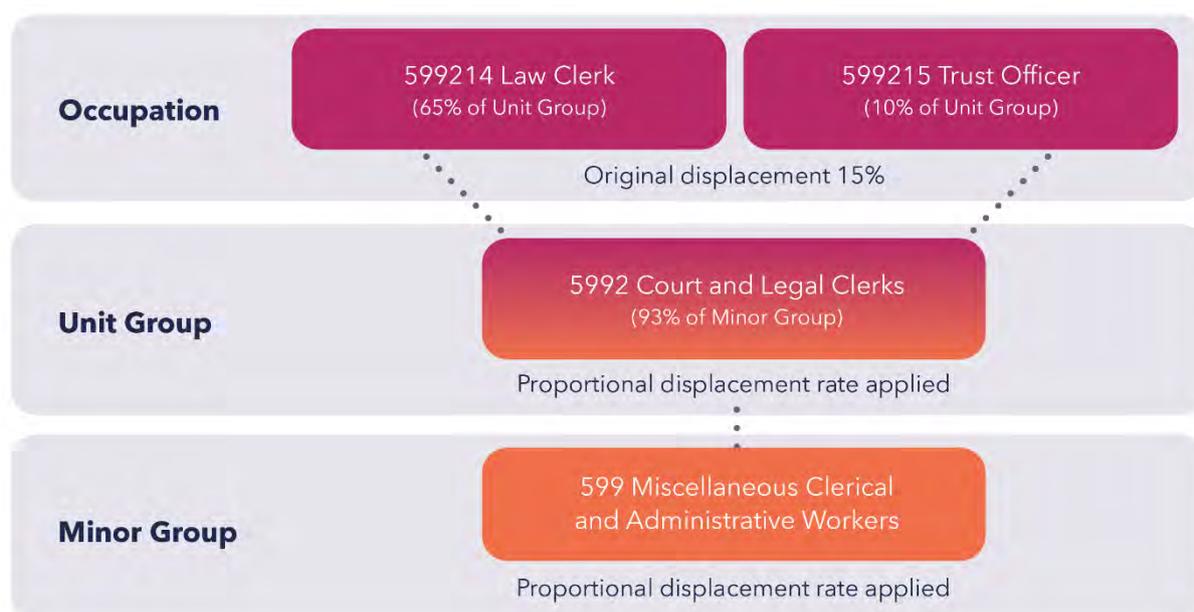
As previously stated, one assumption in this scenario is that some industries are less liable to adopt AI than others, with public industries gauged to be less likely than the market sector industries.[16] For this reason, no impact ratio was applied to the proportion of Personal Assistants employed in the subdivision of Public Administration. Other occupations have had impact ratios applied only to the proportion of people employed in a specific industry (e.g. Product Quality Controllers in Manufacturing).

A detailed breakdown of the occupations and associated displacement impact ratios can be found in Appendix D.

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[16] ABS defines market sector to include all ANZSIC industries except for Public Administration and Safety; Education and Training and Health Care and Social Assistance.

Macroeconomic effect

The widespread adoption of AI across selected occupations has various effects across the economy. As the Australian economy becomes more internationally competitive, exports increase, to be almost 3.5 per cent higher by June 2026 compared with the baseline. Productivity improves, leading to increased GDP (up 1.0 per cent) and investment (up 1.3 per cent) but employment growth in this scenario falls by around 0.6 per cent compared with the baseline. There is relatively little change in domestic or government spending.

In this scenario, the uptake of AI is modelled as being faster than anticipated by today's investors, and, over the forecast horizon, investment and wages do not completely adjust. There are some job losses that are not regained within the forecast period. However, employment is expected to recover after the forecast period and we do not foresee AI leading to permanently elevated levels of unemployment.

Key Findings[17]

Under this scenario:

- it is projected that there will be 2.89 million Queenslanders employed compared with 2.91 million workers in the baseline.
- export oriented industries will expand while industries with significant proportion of sales or clerical workers will contract.
- the greatest impact on employment is in entry-level occupations, however some management and professional occupations are notably affected.
- employment in regions with significant agriculture, mining and manufacturing industries fare better than regions.
- there is little aggregate effect on qualification levels and fields.

Industries

The industry results reflect both the macroeconomic effects of this scenario and its impact on different occupations. Unsurprisingly, export-oriented industries such as Agriculture, Forestry and Fishing, Mining and Manufacturing are projected to expand under this scenario, due to their increased international competitiveness (Table 3). Employment in Construction rises due to the increase in investment activity; this expansion benefits the economy overall by increasing capital.

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[17] JQ acknowledges that both the selection of occupations and the degree to which they may be displaced is subjective and subject to challenge. The results should be viewed in this light.

The expansion of employment in these industries, however, is not enough to overcome the reduction in employment in other industries which contain large numbers of workers displaced by the AI shock.

The industry in which employment is most negatively affected by this scenario is Retail Trade, projected to be almost 10,500 workers lower than the baseline due to the displacement of sales assistants, checkout operators and a host of other occupations. However, industry shareholders actually benefit from this scenario, due to lower labour costs.

Employment in Health Care and Social Assistance grows more slowly, due to the impact of the scenario on non-clinical staff. This industry employs a high number of clerical and financial staff, and employment in occupations such as receptionist, general clerk, accounting clerks, payroll clerks and bookkeepers are all reduced under this scenario. There is also some displacement of managers, including office and practice managers.

Given its occupational composition, Public Administration and Safety is projected to be 3,742 workers smaller under this scenario compared with the baseline. As with healthcare, it is the clerical and administrative occupations in this industry most vulnerable to the AI shock, with General Clerks, Contract, Program and Project Administrators and Information Officers each projected to be smaller by more than 400 workers each.

Table 3: Difference in industry employment between baseline and scenario one

Industry	Employed in 2025-26		
	Scenario One	Baseline	Difference
Health Care and Social Assistance	483,522	487,597	-4,075
Retail Trade	264,985	275,465	-10,480
Construction	264,780	263,727	1,053
Education and Training	257,544	257,052	492
Professional, Scientific and Technical Services	229,975	231,108	-1,133
Accommodation and Food Services	222,212	220,768	1,444
Public Administration and Safety	192,807	196,549	-3,742
Manufacturing	184,258	182,038	2,220
Transport, Postal and Warehousing	152,492	151,566	926
Other Services	114,770	114,906	-136
Administrative and Support Services	90,687	90,796	-109
Financial and Insurance Services	76,850	78,037	-1,187
Mining	71,978	71,326	652
Wholesale Trade	71,182	71,883	-701
Agriculture, Forestry and Fishing	64,871	63,426	1,445
Rental, Hiring and Real Estate Services	49,259	49,775	-516
Arts and Recreation Services	46,707	47,068	-361
Electricity, Gas, Water and Waste Services	34,937	34,963	-26
Information Media and Telecommunications	25,289	25,372	-83

Regions

Given most regions have relatively diverse labour markets, the regional impacts under Scenario One are relatively minor. All but two regions are projected to experience slightly slower employment growth, with Brisbane projected to lose the largest number of workers (almost 6,000) compared with the baseline (Table 4).

Employment in Logan-Beaudesert and Moreton Bay-South is projected to have the largest relative fall to be 0.7 per cent lower than the baseline. Both regions have high proportions of industries that service domestic populations (such as Retail Trade and Health Care and Social Assistance) while less than 10 per cent of their industry base is export-focussed.

Compared with the baseline, employment in the Darling Downs – Maranoa region is projected to gain workers under this scenario. This reflects the positive effects of Scenario One on the Agriculture, Forestry and Fishing industry, which currently makes up 21 per cent of the region.

Table 4: Difference in regional employment between baseline and scenario one

Region	Employed in 2025-26		
	Scenario One	Baseline	Difference
Brisbane	1,024,207	1,030,194	-5,987
Gold Coast	346,655	348,444	-1,789
Sunshine Coast	202,658	203,940	-1,282
Ipswich	156,955	157,674	-719
Cairns	141,901	142,446	-545
Logan - Beaudesert	141,157	142,093	-936
Central Queensland	138,512	138,831	-319
Townsville	133,677	134,375	-698
Wide Bay	132,637	133,252	-615
Mackay - Isaac - Whitsunday	114,381	114,384	-3
Moreton Bay - North	93,667	94,207	-540
Toowoomba	85,005	85,456	-451
Moreton Bay - South	73,447	73,983	-536
Darling Downs - Maranoa	70,331	70,207	124
Outback - North	22,295	22,310	-15
Far North	12,580	12,590	-10
Outback - South	9,040	9,036	4

Occupations

Given the high number of clerical and sales occupations identified as vulnerable to AI in this scenario, it is unsurprising that employment in Clerical and Administration Workers and Sales Workers is strongly impacted. (Figure 9). The scenario's macroeconomic effects, such as increased exports, contribute to the stronger growth of Technicians and Trades Workers, Labourers and Machinery Operators and Drivers.

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Figure 9: Difference in employment between baseline and scenario one – major occupation group
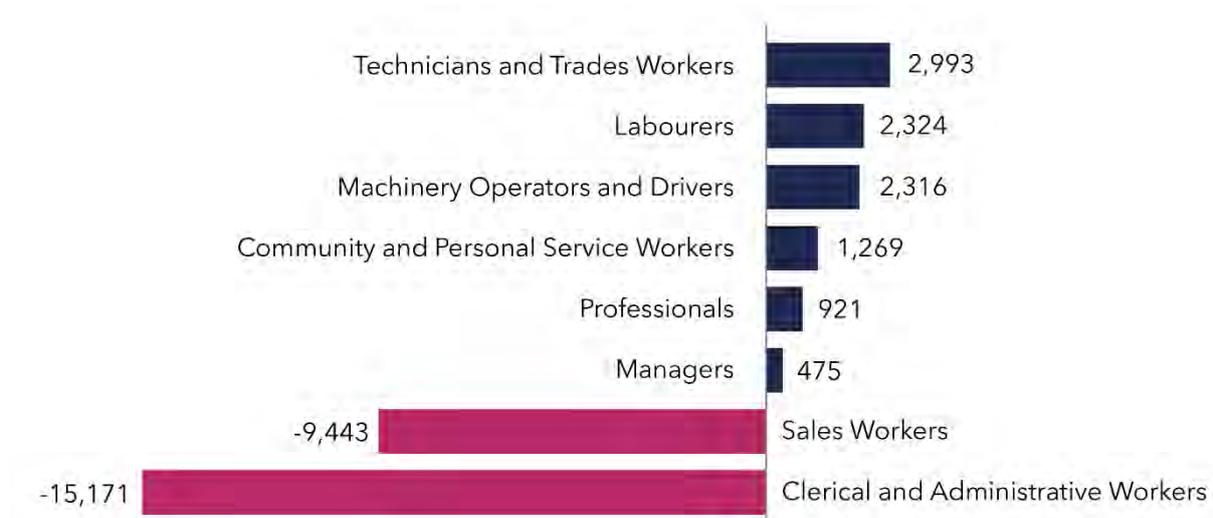
Occupation Minor Group

An examination of the scenario's effects at a disaggregated level reveals the extent to which some occupations are negatively affected, while employment in others increases compared with the baseline (Table 5).

Many of the occupations most negatively affected in this scenario are considered entry level, such as Sales Assistants and Salespersons, which is almost 7,000 workers smaller in this scenario. The impact on several managerial occupations, however, indicates the potential for AI to disrupt the labour market due to its ability to generate content. While not listed in the table, professions are not immune, with employment of Accountants projected to fall by 1,200 people.

The boost in exports which occurs in scenario one leads to employment of Farmers and Farm Managers declining more slowly compared with the baseline. Other occupations to benefit under this scenario are those engaged in Mining, Manufacturing and Accommodation and Food Services.

Table 5: Top 10 occupations impacted by scenario one compared with baseline

		Net loss	Change from Baseline		Net gain	Change from Baseline
1	Sales Assistants and Salespersons	-6,888	-4.2%	Farmers and Farm Managers	791	2.5%
2	Accounting Clerks and Bookkeepers	-3,797	-6.7%	Hospitality Workers	787	1.1%
3	Checkout Operators and Office Cashiers	-2,246	-8.1%	Cleaners and Laundry Workers	723	1.1%
4	Receptionists	-1,784	-4.4%	Mobile Plant Operators	486	1.4%
5	Office and Practice Managers	-1,558	-4.2%	Truck Drivers	478	1.2%
6	Logistics Clerks	-1,412	-4.8%	Stationary Plant Operators	464	1.5%
7	Call or Contact Centre Information Clerks	-1,371	-6.5%	Farm, Forestry and Garden Workers	458	1.6%
8	General Clerks	-1,362	-1.9%	Construction, Distribution and Production	431	0.7%
9	Advertising, Public Relations and Sales Managers	-1,336	-4.1%	Engineering Professionals	426	1.0%
10	Miscellaneous Clerical and Administrative Workers	-1,290	-4.7%	Mechanical Engineering Trades Workers	424	1.2%

Qualification Levels and Fields

There is negligible change in qualification levels and qualification fields between scenario one and the baseline. Given total employment is lower, the number of workers with post-school qualifications in scenario one is also lower than the baseline.

The effect is moderated due to the diverse range of occupations across which workers are employed. For example, many people with no post-school qualifications work in sales occupations. Employment falls in these occupations, but this cohort also supplies labour to farm occupations and other services in which employment increases.

Similarly, there was little change in qualification fields except for slightly smaller proportions of workers with qualifications in the following fields:

- Engineering and Related Technologies
- Health
- Management and Commerce
- Society and Culture

Summary

In summary, the implementation of the AI shock in scenario one reduces overall employment in Queensland by 15,000 jobs by 2025-26. The macroeconomic consequences of this shock mean trade-exposed industries gain employment while those which employ significant numbers of clerical or sales workers sheds staff. Employment in those regions with substantial agriculture, mining and manufacturing industries tends to be impacted less than those regions that rely on other industries.

To explore the effects of scenario one further, including exploration of the effects on qualification levels and qualification fields, visit the Jobs Queensland AFS Data Portal at **www.jobsqueensland.qld.gov.au/afs.**

SCENARIO TWO: CHANGING SKILLS PROFILE
RATIONALE

This scenario was influenced by the widespread workforce gaps that, in part, prompted the Queensland Workforce Summit in 2022 and the development of the Good People. Good Jobs: Queensland Workforce Strategy (QWS) 2022-2032.

The QWS identified a future need for workers with a variety of qualifications across a variety of industries, including:

- growing need for degree-qualified and experienced health, social and education workforce;
- strong demand for entry-level and VET-qualified workforce in health care and social assistance;
- increased demand for VET- and degree qualified engineering, technical and digital workforce.
- ongoing demand for entry-level workers in our consumer-facing service sectors; and
- demand for a VET-qualified workforce in skilled trades, traditional industry and utilities.[18]

The Skills Shortage Quarterly (June 2023) confirmed that competition among employers for skilled workers remains and competition may be higher for employers seeking workers occupations with VET pathways to work.[19]

These workforce gaps emerged as the qualification mix in the Queensland labour market continued a decades long evolution leading to an increase in qualified workers in the State. For instance, in 2006, 23 per cent of the state's workforce had a Certificate level qualification; by 2021, this had risen to 27 per cent. Similarly, 14 per cent of the workforce were Bachelor Degree qualified in 2006, compared with 20 per cent in 2021.

While the workforce becomes overall more qualified, the rates of change of qualification levels varies. Between 2006 and 2021, the number of workers with Certificate level qualifications increased by 56 per cent. Workers with Bachelor Degrees increased by 97 per cent and the Postgraduate-qualified workforce was up by 213 per cent.[20]

Not all this growth is attributed to industry demand. Commentators point to the introduction

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[18] Queensland Government. (2022). Good people Good jobs Queensland Workforce Strategy 2022-2032
[19] Australian Government. Jobs and Skills Australia (June 2023).
https://www.jobsandskills.gov.au/reports
[20] ABS (2022) Census of Population and Housing, Tablebuilder.
https://www.abs.gov.au/statistics/microdata-tablebuilder/tablebuilder

of demand driven higher-education funding in 2012, and the attributed value of VET, as other factors behind these rapid growth rates.[21]

AFS projections to 2025-26 show that the number of workers with university-level qualifications will continue to grow at high rates and that the gaps between workers with VET qualifications and workers with university qualifications will continue to narrow (Figure 10).

[21] Noonan, Peter. (2017). Different paths, shared vocation. Times Higher Education, (2297) Retrieved from https://login.grailproxy.slq.qld.gov.au/login?qurl=https%3A%2F%2Fwww.proquest.com%2Ftrade-journals%2Fdifferent-paths-shared-vocation%2Fdocview%2F1914571907%2Fse-2%3Faccountid%3D177678 and Billett, S. (2013). Towards a mature provision of vocational education. International Journal of Training Research, 11(2), 184-194. Retrieved from https://login.grailproxy.slq.qld.gov.au/login?qurl=https%3A%2F%2Fwww.proquest.com%2Fscholarly-journals%2Ftowards-mature-provision-vocational-education%2Fdocview%2F1470883571%2Fse-2%3Faccountid%3D177678

Figure 10: Change in qualification levels in Queensland, 2016-17 to 2025-26[22]
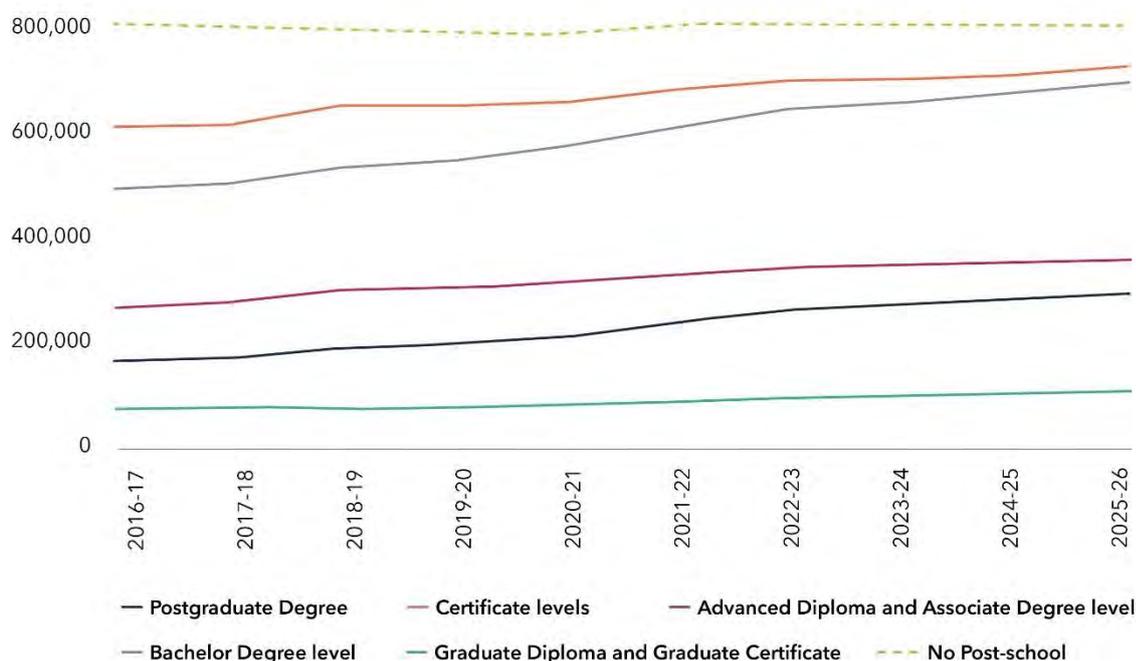
This dichotomy – a rapid increase in tertiary qualifications and ongoing shortages in workers with VET qualifications – prompted JQ to investigate the employment implications if qualification growth rates were changed to slow the growth of tertiary qualifications and accelerate the growth of VET.

Methodology

The scenario maintains all post school qualification levels at their current proportion of the Queensland workforce with post school qualifications. This means, for example, that the proportion of Bachelor Degrees remains constant rather than increasing as it does in the baseline.

Therefore, while the number of workers with university qualifications continues to grow, it does so at a slower rate, whereas the rate of growth of those with VET qualifications is higher than the baseline.

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[22] Jobs Queensland (2023). Derived from Anticipating Future Skills Series 1 to 4, four quarter average

As it is not possible to reverse the historical differences in the growth rates across qualification levels, the decision was made to impose the shock underpinning this scenario from the fourth quarter of 2023 (October to December) until the end of the modelling period. This shock is not imposed on those workers with no post school qualifications, which continues its downwards trend. Comparing Figure 10 with Figure 11 reveals the impact this scenario has on projected growth rates.

Figure 11: Change in growth in qualification levels in Queensland after shock
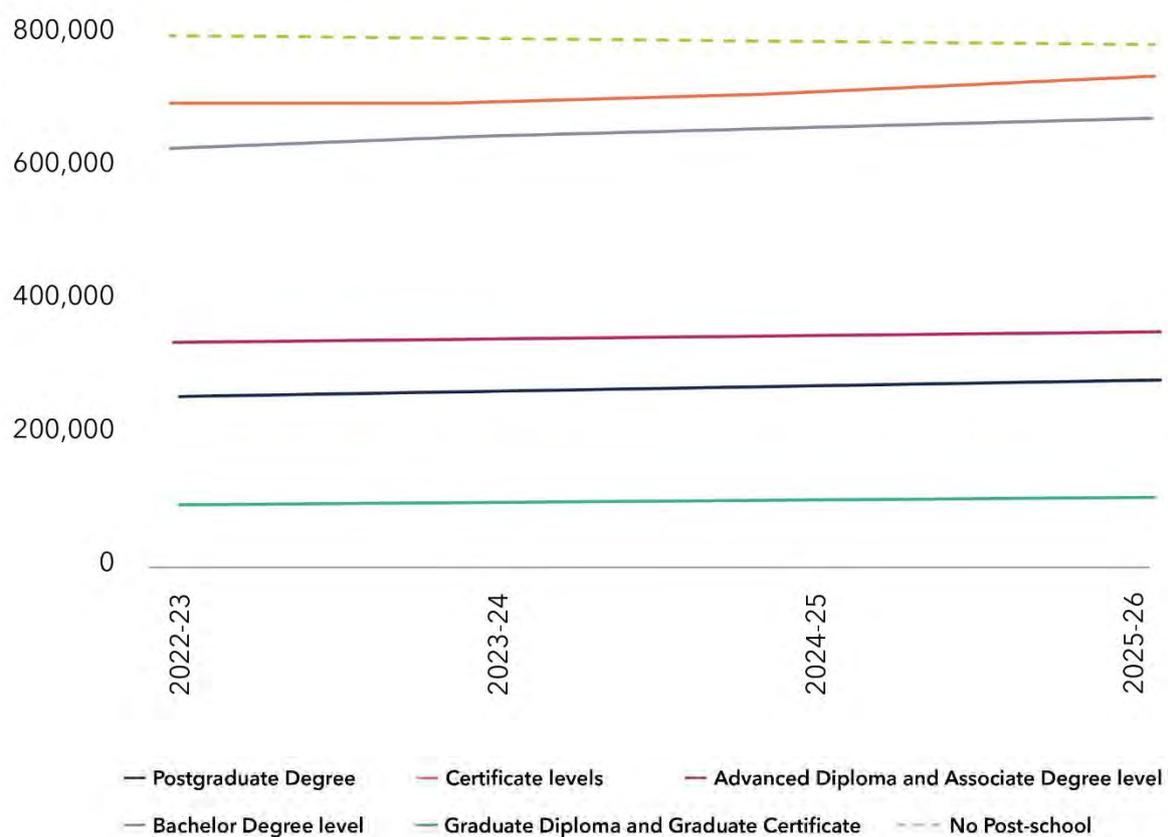
Key Findings

Under this scenario:

- it is the composition of the workforce, rather than aggregate employment, that changes.
- industries employing higher proportions of Professionals will have smaller workforces compared with the baseline.
- employment losses are greater for health and education professionals, but gains occur in engineering, construction and food trades.

Occupations and Industries

With little change in total employment, the impact of this scenario is very much about the changing composition of employment. For this reason, it is useful to discuss the results for industries and occupations in combination.

The effects of this scenario on an industry depend on its occupational composition. An industry such as Professional, Scientific and Technical Services, with a Managerial and Professional workforce of almost 70 per cent, will be more affected than an industry with a more balanced occupational composition, such as Wholesale Trade (see Table 6).

Table 6: Composition of two industries by Occupation Major

	Professional, Scientific and Technical Services	Wholesale Trade
Managers	13%	21%
Professionals	57%	11%
Technicians and Trades Workers	10%	9%
Community and Personal Service Workers	0%	0%
Clerical and Administrative Workers	16%	17%
Sales Workers	2%	17%
Machinery Operators and Drivers	0%	17%
Labourers	1%	7%
Total	**100%**	**100%**

Examining the impact of this scenario on occupations at the Major Group level reveals a reduction in the number of Professionals and Managers of 5,177 and 246 respectively compared with the 2025-26 Baseline figures. Employment in all other Occupation Major groups increases, with the largest gains in Technicians and Trades Workers (see Figure 12).

Figure 12: Difference in employment between baseline and scenario two – major occupation group

Occupation group	Value
Technicians and Trades Workers	2,262
Clerical and Administrative Workers	817
Community and Personal Service Workers	742
Machinery Operators and Drivers	589
Labourers	534
Sales Workers	373
Managers	-246
Professionals	-5,177
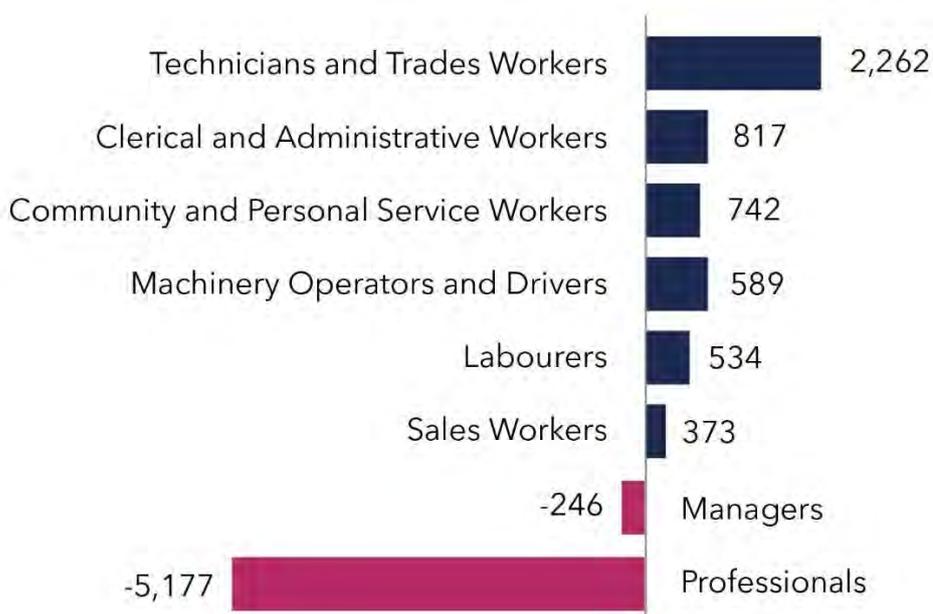
While these changes appear small in percentage terms, in practice it can amount to a notable change in employment numbers, particularly when applied to larger occupations (for instance, the 0.74 per cent fall in Professionals represents 5,177 workers). This is evident when analysing the effects of the scenario at the more granular hierarchies of ANZSCO which enables the identification of clear trends.

Occupation Minor Group and Industries

Under this scenario it is projected that there will be 865 fewer Midwifery and Nursing Professionals (87 per cent of these are registered nurses) compared with the baseline in 2025-26 (Table 7). Other health-related occupations are also projected to grow more slowly than in the baseline, including Medical Practitioners and Health Therapy Professionals. This has obvious implications for the Health Care and Social Assistance industry, with the main reduction in those workers employed in Hospitals, Medical and Other Health Services and Allied Health. The Health Care and Social Assistance industry would also, under this scenario, see reductions in other professional occupations in its workforce, such as legal and accounting professionals, compared with the baseline (See Table 8).

Given an industry comprises occupations across all qualification levels, however, parts of the

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Health and Social Assistance workforce would increase under scenario two. For instance, there would be an additional 317 more Personal Carers and Assistants in this scenario. The Health and Social Assistance industry also employs substantial numbers of clerical workers, and this workforce increases in scenario two compared with the baseline.

Table 7: Occupation minor groups – largest net loss and largest net gain under scenario two compared with baseline

	Occupation Minor Group	Net loss	Change from Baseline	Occupation Minor Group	Net gain	Change from Baseline
1	Midwifery & Nursing Professionals	-865	-0.94%	Mechanical Engineering Trades Workers	374	1.10%
2	Medical Practitioners	-588	-1.64%	Electricians	340	0.80%
3	Social & Welfare Professionals	-439	-1.09%	Personal Carers & Assistants	317	0.31%
4	School Teachers	-421	-0.46%	Sales Assistants & Salespersons	264	0.16%
5	Health Therapy Professionals	-368	-1.50%	General Clerks	233	0.32%
6	Business & Systems Analysts, & Programmers	-343	-0.89%	Building & Engineering Technicians	229	0.65%
7	Legal Professionals	-319	-1.38%	Fabrication Engineering Trades Workers	198	0.90%
8	Business Administration Managers	-306	-0.62%	Stationary Plant Operators	197	0.65%
9	Accountants, Auditors & Company Secretaries	-297	-0.80%	Receptionists	196	0.49%
10	Information & Organisation Professionals	-291	-0.79%	Education Aides	192	0.61%
11	Health Diagnostic & Promotion Professionals	-266	-1.10%	Construction, Distribution & Production Managers	181	0.28%
12	Natural & Physical Science Professionals	-209	-0.72%	Farmers & Farm Managers	175	0.56%
13	Engineering Professionals	-175	-0.40%	Bricklayers, & Carpenters & Joiners	174	0.47%
14	Tertiary Education Teachers	-169	-0.83%	Automotive Electricians & Mechanics	164	0.62%
15	Education, Health & Welfare Services Managers	-124	-0.60%	Food Trades Workers	139	0.33%

Education and Training is another industry that would experience both noticeable gains and losses under scenario two. Compared with the baseline, there would be fewer teachers but more Education Aides, and other workers such as General Clerks and Receptionists.

Table 8: Difference in industry employment between baseline and scenario two

Industry	Employed in 2025-26		
	Scenario Two	Baseline	Difference
Health Care and Social Assistance	486,391	487,597	-1,206
Professional, Scientific and Technical Services	230,452	231,108	-656
Education and Training	256,639	257,052	-413
Financial and Insurance Services	77,841	78,037	-196
Information Media and Telecommunications	25,315	25,372	-57
Accommodation and Food Services	220,729	220,768	-39
Administrative and Support Services	90,765	90,796	-31
Rental, Hiring and Real Estate Services	49,777	49,775	2
Arts and Recreation Services	47,071	47,068	3
Wholesale Trade	71,916	71,883	33
Other Services	114,953	114,906	47
Electricity, Gas, Water and Waste Services	35,028	34,963	65
Transport, Postal and Warehousing	151,713	151,566	147
Public Administration and Safety	196,764	196,549	215
Construction	264,037	263,727	310
Retail Trade	275,777	275,465	312
Agriculture, Forestry and Fishing	63,782	63,426	356
Mining	71,766	71,326	440
Manufacturing	182,598	182,038	560

Not surprisingly, employment in those occupations which require VET qualifications increase in scenario two, particularly engineering and construction trades (with flow on effects to the Manufacturing and Construction industries). Due to an increase in both trades occupations and Stationary Plant Operators (the occupation unit group containing Drillers, Miners and Shotfirers), employment in Mining increases. The increase in Sales Workers contributes towards positive employment growth in the Retail and Wholesale Trade industries.

An industry with slight change in aggregate employment, such as Rental, Hiring and Real Estate Services, experiences minor occupational changes. Under this scenario, the industry gains 36 more Real Estate Sales Agents but loses an equal number of professional workers including Land Economists and Valuers, Accountants and Finance Managers.

Regions

While employment in Brisbane workforce is projected to be almost 500 workers smaller under scenario two compared with the baseline, this reduction is insignificant given the size of the workforce (Table 9). The most significant changes occur in the smaller regions of Far North, Outback-North and Outback-South, which see increases in their workforces due to the positive effects of this scenario on employment in Mining and Agriculture, Forestry and Fishing. Employment in the Far North region also benefits from growth in Public Administration and Safety, a major employer in the region.

The Mackay-Isaac-Whitsunday region is projected to experience the largest net growth in employment of all regions. The gains in employment in its Mining, Retail Trade, Construction and Manufacturing industries outweigh any losses in Health Care and Social Assistance and Accommodation and Food Services.

Table 9: Difference in regional employment between baseline and scenario two

Region	Employed in 2025-26		
	Scenario One	Baseline	Difference
Brisbane	1,029,699	1,030,194	-495
Gold Coast	348,345	348,444	-99
Sunshine Coast	203,844	203,940	-96
Cairns	142,389	142,446	-57
Toowoomba	85,445	85,456	-11
Moreton Bay - South	73,981	73,983	-2
Townsville	134,374	134,375	-1
Moreton Bay - North	94,214	94,207	7
Logan - Beaudesert	142,113	142,093	20
Outback - South	9,058	9,036	22
Far North	12,621	12,590	31
Wide Bay	133,302	133,252	50
Outback - North	22,365	22,310	55
Ipswich	157,741	157,674	67
Darling Downs - Maranoa	70,276	70,207	69
Central Queensland	138,987	138,831	156
Mackay - Isaac - Whitsunday	114,563	114,384	179

Qualifications Levels

Unsurprisingly, slowing the rate of growth for Bachelor Degree level qualifications induces a smaller number of Bachelor Degree qualified workers by 2025-26 compared with the baseline (Table 10). Given the prerequisite to hold Bachelor Degree level qualifications to complete Graduate Diplomas and Postgraduate Degrees, this reduction has consequences for the growth of both qualification levels. The largest change is employment of workers who hold Postgraduate Degrees as their highest qualification. There are around 15,500 fewer of these workers than in the baseline.

These displaced workers are redistributed across the various levels of VET qualifications. The largest net impact is on workers with Certificate Levels III & IV qualifications. Under this scenario, there are an additional 16,900 of these workers compared with the baseline. In percentage terms, the greatest increase is in workers with Certificate Levels I & II qualifications, which increases by 25.5 per cent (or almost 6,000) under Scenario Two.

The number of workers with No Post School qualifications declines in this scenario compared with the baseline.

Table 10: Difference in qualification levels of workers between baseline and scenario two

Qualification Level	Employed in 2025-26		
	Scenario Two	Baseline	Difference
Postgraduate Degree	272,496	288,028	-15,532
Graduate Diploma and Graduate Certificate	99,337	100,886	-1,549
Bachelor Degree level	671,156	680,362	-9,206
Advanced Diploma and Associate Degree level	353,888	349,561	4,327
Certificate levels III & IV	703,015	686,114	16,901
Certificate levels I & II	28,971	23,084	5,887
No post-school	784,727	785,660	-933

Fields

The effects of Scenario Two on qualification fields are aligned with its affect across occupations and qualification levels.

Those fields that produce graduates likely to work in Professional and Managerial occupation groups, such as Information Technology, Health and Society and Culture have fewer workers compared with the baseline (Figure 13). The fields more likely to produce Trades and Technicians or Personal and Community Workers increase in this scenario.

Figure 13: Field of education, difference between baseline and scenario two
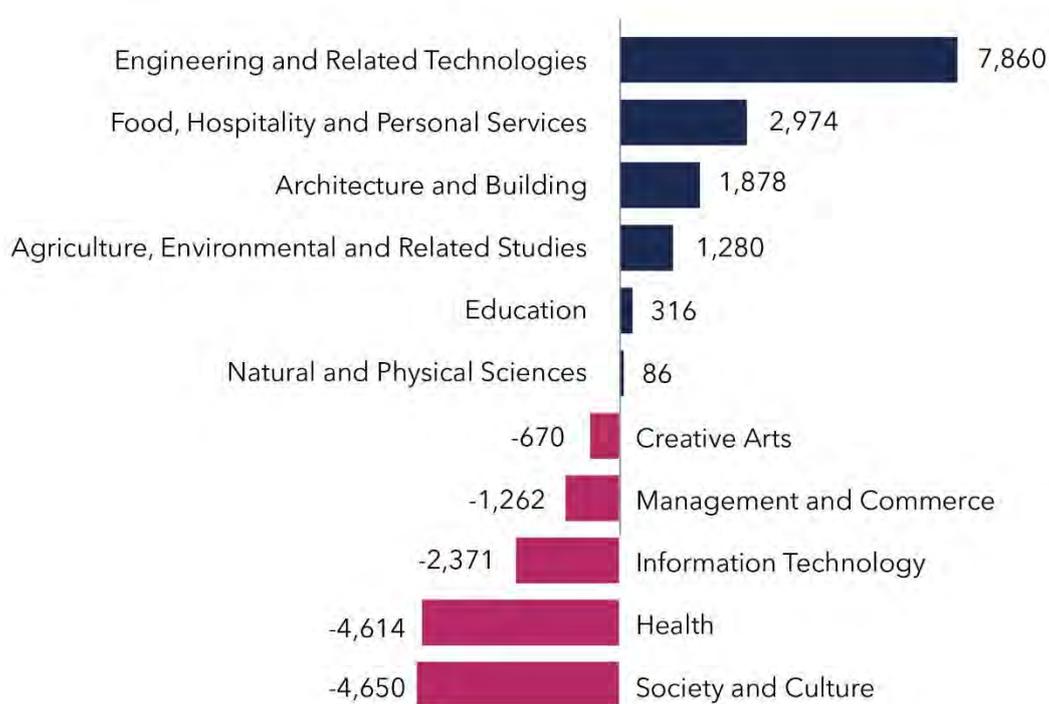
Narrow Fields

The largest increase is in workers with qualifications in Engineering and Related Technologies. The biggest net gains in the ten Narrow Fields comprising this Broad Field are projected to be in Electrical and Electronic Engineering and Technology, Mechanical and Industrial Engineering and Technology and in Automotive Engineering and Technology (Table 11).

Employment in Society and Culture is smaller by 4,650 workers, with the heaviest falls in the Narrow Fields of Law, Behavioural Science and Language and Literature. However, employment in the field of Human Welfare Studies and Services increases by more than 300 workers compared with the baseline.

The number of workers with Health qualifications declines across all Narrow Fields, with more than 1,600 fewer Nursing workers and 820 fewer workers with Medical Studies qualifications. However, the Narrow Field recording the greatest individual fall in employment in this scenario is Computer Science, with more than 1,800 fewer workers.

Table 11: Ten largest losses and gains by Narrow Field in Scenario Two compared with baseline

	Narrow Field	Net loss	Change from Baseline	Narrow Field	Net gain	Change from Baseline
1	Computer Science	-1,807	-0.94%	Electrical and Electronic Engineering and Technology	2,173	1.10%
2	Nursing	-1,619	-1.64%	Building	2,142	0.80%
3	Accounting	-1,398	-1.09%	Mechanical and Industrial Engineering and Technology	2,117	0.31%
4	Business and Management	-1,167	-0.46%	Food and Hospitality	1,997	0.16%
5	Law	-1,150	-1.50%	Automotive Engineering and Technology	1,741	0.32%
6	Behavioural Science	-1,126	-0.89%	Personal Services	977	0.65%
7	Medical Studies	-818	-1.38%	Manufacturing Engineering and Technology	864	0.90%
8	Studies in Human Society	-651	-0.62%	Office Studies	815	0.65%
9	Economics and Econometrics	-645	-0.80%	Horticulture and Viticulture	615	0.49%
10	Other Health	-600	-0.79%	Agriculture	531	0.61%

In many cases, this scenario results in a redistribution of qualified workers within the qualification field with large increases in VET-qualified workers and decreasing numbers of workers with university-related qualifications (Table 12). For instance, VET qualified workers in the Mechanical and Industrial Engineering and Technology field increase by almost 4,500 workers but university educated workers in the same field fall by 230.

Table 12: Selection of Fields of Qualifications showing redistribution effect

	Postgraduate Degree	Graduate Diploma and Graduate Certificate	Bachelor Degree Level	Advanced Diploma and Associate Degree Level	Certificate Levels III & IV	Certificate Levels I & II	Net gain/ loss across field
Nursing	-546	-234	-1,411	284	218	71	**-1,618**
Human Welfare Studies and Services	-461	-64	-245	115	641	319	**305**
Sport and Recreation	-13	-6	-61	-13	89	166	**162**

Summary

There is little change in aggregate employment between the baseline and Scenario Two. Instead, there is a redistribution of the workforce, with the numbers of workers with university-related qualifications declining at the expense of workers with VET-related qualifications. This has implications for industry workforces which are composed of high numbers of Professionals, such as Health Care and Social Assistance and Professional, Scientific and Technical Services. Other industries, such as Manufacturing, expand under this scenario as the available number of Trades and Technicians with engineering-related knowledge increase. This scenario demonstrates the difficulty in balancing the education and training needs of different parts of the economy.

SCENARIO THREE – GLOBAL HEADWINDS

While the previous scenarios are centred around futures which may be subject to some level of control by Queenslanders (via policy, regulation or personal or business choice), this scenario is designed to examine the way in which the Queensland labour market responds to events outside government and industry control.

One of these external events is exemplified by the major demographic changes predicted for one of the Queensland's major trading partners, China.[23] While this scenario is not based on China, circumstances such as these are worthy of exploration to examine the potential economic and employment impacts.

RATIONALE

There are many examples of global headwinds that could impact the Queensland economy and thus Queensland employment, for example, military conflict, drought or oil shortages. In this scenario, the headwind is indeterminate, but the impetus for exploring such a scenario was prompted by the below charts published by the United Nations. As pictured, both China's population growth and its working age population are expected to decline compared with forecasts of the rest of the world (Figure 14).[24]

Notably, its older population increases, and young population declines concurrently. Such demographic shifts are assumed to significantly disrupt the Chinese economy, including its capacity to continue as the world's largest supplier of manufacturing products. These disruptions will flow through and affect Queensland's economy.

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[23] The Queensland Government Statistician's Office shows that China was ranked first for imports and fourth for exports of Queensland commodities in 2021-22.
https://www.qgso.qld.gov.au/statistics/theme/economy/international-trade/overview
[24] United Nations Department of Economic and Social Affairs Population Division. (2022). World population Prospects https://population.un.org/wpp/Graphs/

Figure 14: Population projections by age, China vs World
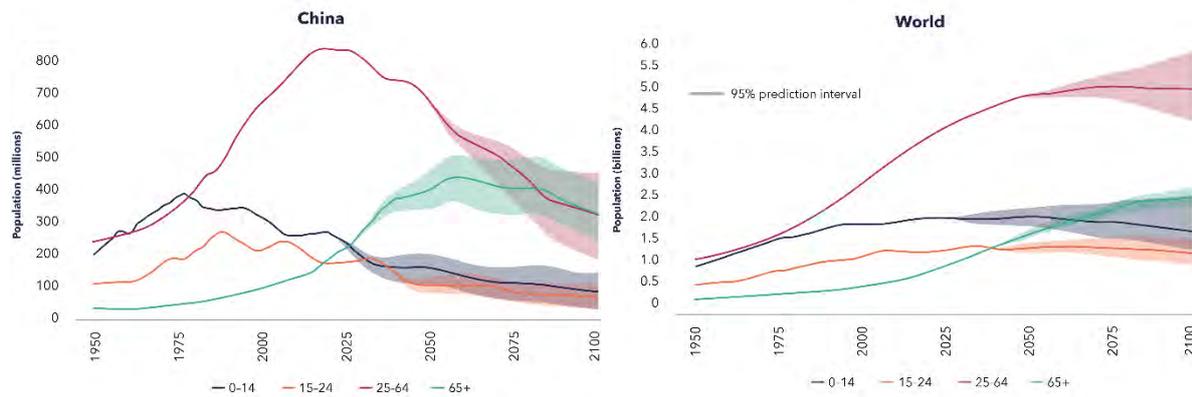
This is an entirely speculative scenario that explores the potential impacts of global headwinds, and their prospective effect on Queensland employment.

Methodology

Any significant global headwind is assumed to cause high levels of global uncertainty, loss of investor confidence (both domestically and internationally), lower household incomes and a subsequent loss of consumer confidence.

To simulate the effects of these changing sentiments, shocks are made to the baseline CGE model, starting from the third quarter (July to September) 2023. These include:

- a fall in investment of six percent
- an increase of 5 per cent in the price of imports
- falls in exports and household demand of three per cent and
- no immediate change in government demand (Figure 15).

This combination of changes induces a three per cent drop in Gross Domestic Product (GDP) and a corresponding fall in employment. The shocks remain in place for 12 months and then gradually begin to unwind as the economy begins to recover.
By 2025-26, employment has recovered however GDP remains lower than in the base case. Domestic spending, including spending on imports, has recovered to the extent that the trade balance is in deficit relative to the base case. Exports are lower and imports just slightly higher than in the baseline.

Figure 15: Macroeconomic shocks, scenario three, 2021-22 to 2025-26
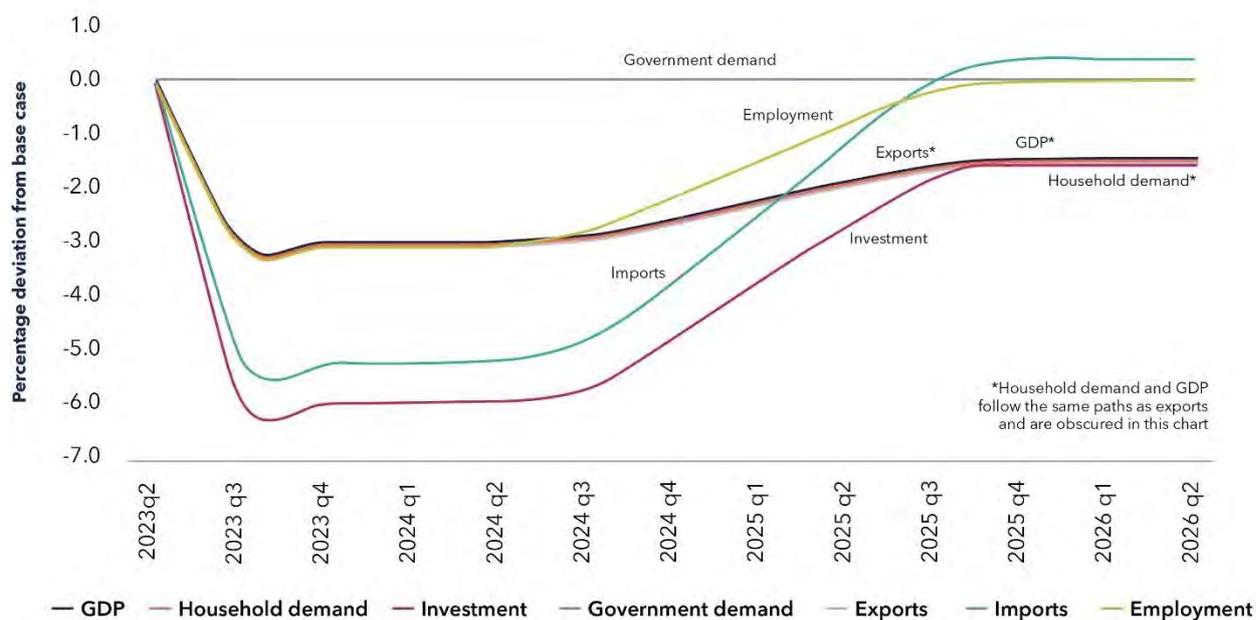
Key findings

Under this scenario:

- aggregate employment is smaller by almost 85,000 workers in 2023-24 but recovers to be around 3,000 workers lower by 2025-26.
- the weaker labour market leads to depressed wage growth, which eventually facilitates the recovery in employment and an improvement in Australia's international competitiveness.
- employment in publicly funded industries recovers from the initial shock more strongly than those in the market sector.
- employment in all but two regions remains lower than in the baseline by 2025-26.
- employment of Technicians and Trade Workers is the most heavily affected occupation major group.

Aggregate employment

The application of the shocks in this scenario lead to a softer domestic economy, with economic outputs failing to grow. Household spending, investment and exports all deteriorate, and unemployment reaches seven per cent. The effects of this scenario begin to appear from 2022-23 and have their strongest impact in 2023-24 before dissipating by the

end of the modelling period. Unemployment returns to four per cent and economic activity partially recovers.

This recovery results in an overall net loss of only 3,000 workers under this scenario compared with the baseline by 2025-26. However, this small difference is the result of a significant decline in employment seen in 2023-24, when there are around 84,500 fewer workers in this scenario than under the baseline (Figure 16).

Figure 16: Aggregate employment between 2021-22 and 2024-25, Baseline vs Scenario 3
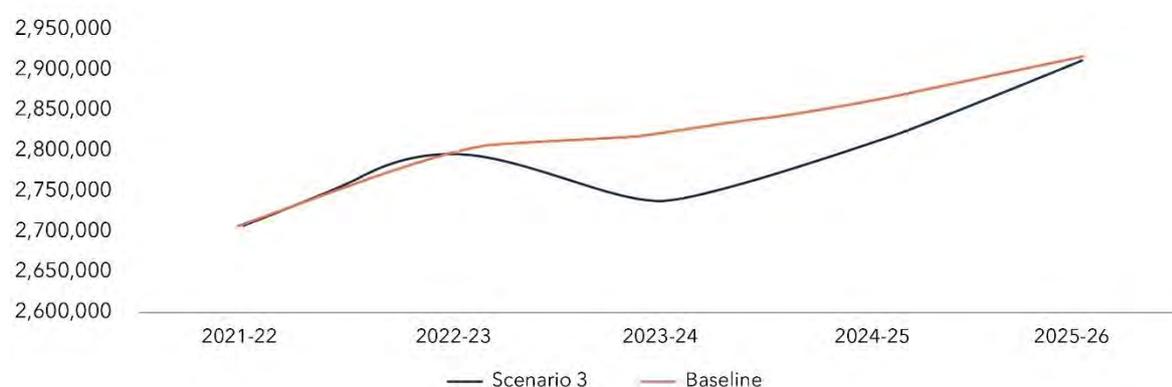
Industries

The impact of this scenario is immediate and widespread, with employment growth slowing across all industries. While employment in industries underpinned by public funding, such as Health Care and Social Assistance, Public Administration and Safety, and Education and Training does fall initially, employment under this scenario is higher in these industries by 2025-26 than in the baseline.

The decline in investment leads to employment in Construction falling by almost 10,650 workers in 2023-24. The industry struggles to recover, with a deficit of 2,945 workers in 2025-26 (almost half of which are in residential construction) compared with the baseline. Employment in Administrative and Support Services also remains below the baseline. Of the 2,876 jobs lost under this scenario in 2023-24, only 72 per cent have been recovered by 2025-26.

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The Professional, Scientific and Technical Services industry is almost 10,000 workers smaller under this scenario in 2023-24. Like Construction, it too does not fully recover by 2025-26, due to the implications on employment in three of its component industry groups:

- Architectural, Engineering and Technical Services,
- Legal and Accounting Services and
- Management and Related Consulting Services.

Overall, Mining is the industry which experiences the largest ongoing employment impacts due to the fall in exports. Employment is 1,980 workers lower under this scenario compared with the baseline in 2023-24 and remains 1,267 lower by 2025-26. It is the only trade-exposed industry not to make a full recovery. As a very capital-intensive industry, mining loses a relatively large amount of productive capacity during the assumed downturn in investment in 2023-24 and is less able to take advantage of cost-savings from weak wage growth (Table 13).

Table 13: Impact of scenario 3 on industry employment between 2023-24 and 2025-26 compared with baseline

Industry	2023-24	2024-25	2025-26
Construction	-10,649	-7,145	-2,945
Professional, Scientific and Technical Services	-9,708	-6,397	-1,075
Retail Trade	-8,102	-4,676	545
Accommodation and Food Services	-7,734	-4,986	-266
Manufacturing	-7,264	-4,338	254
Health Care and Social Assistance	-7,231	-4,166	897
Education and Training	-5,653	-3,214	668
Transport, Postal and Warehousing	-4,961	-2,908	274
Other Services	-3,665	-2,463	-671
Wholesale Trade	-3,383	-1,851	568
Administrative and Support Services	-2,876	-2,057	-816
Agriculture, Forestry and Fishing	-2,718	-1,515	177
Financial and Insurance Services	-2,691	-1,808	-488
Mining	-1,980	-1,725	-1,267
Rental, Hiring and Real Estate Services	-1,818	-1,117	-92
Electricity, Gas, Water and Waste Services	-1,243	-597	380
Arts and Recreation Services	-1,151	-710	-2
Public Administration and Safety	-916	-329	688
Information Media and Telecommunications	-831	-474	89

Regions

The degree to which regional employment is affected under Scenario Three depends on each region's industrial composition. Brisbane employment is almost 30,000 people smaller in 2023-24, as may be expected of the most populous region, but recovers 97 per cent of this growth by 2025-26 due to the diversity of its labour force (Table 14).

By 2025-26, employment in Mackay-Isaac-Whitsunday and Far North remains lower by 11 per cent and ten per cent respectively, due to the significance of mining to their labour markets and the repercussions of the scenario effects on this industry.

Townsville and Cairns are the only regions where employment is projected to be higher under this scenario compared with the baseline. Almost 40 per cent of Townsville's workers are employed in non-market industries, such as Public Administration and Safety, and Health Care and Social Assistance, which are projected to expand under Scenario Three.

Around one third of the Cairns workforce is employed in these non-market industries and ten per cent in Retail Trade, which is also projected to employ more people by 2025-26 in this scenario compared with the baseline. Mining, projected to experience ongoing impacts under Scenario Three, makes up less than one per cent of the Cairns workforce and therefore does not drag employment down as it does in other regions.

Table 14: Impact of scenario 3 on regional employment between 2023-24 and 2025-26 compared with baseline

Region	2023-24	2024-25	2025-26
Brisbane	-29,960	-18,575	-763
Gold Coast	-10,531	-6,623	-643
Sunshine Coast	-5,960	-3,685	-285
Ipswich	-4,402	-2,699	-89
Central Queensland	-4,176	-2,592	-144
Cairns	-4,141	-2,455	94
Logan - Beaudesert	-4,046	-2,557	-353
Wide Bay	-3,712	-2,270	-76
Townsville	-3,558	-2,080	230
Mackay - Isaac - Whitsunday	-3,539	-2,311	-376
Moreton Bay - North	-2,590	-1,621	-163
Toowoomba	-2,420	-1,503	-92
Darling Downs - Maranoa	-2,223	-1,395	-134
Moreton Bay - South	-2,200	-1,399	-195
Outback - North	-562	-356	-42
Far North	-314	-201	-31
Outback - South	-242	-152	-19

Occupations

Occupation Major Groups

While this scenario affects employment negatively across all occupation major groups, the largest net impact is on Professionals, which is almost 20,000 workers smaller in 2023-24 compared with the baseline (Table 15). However, employment fully recovers in this group by 2025-26 on the back of growth in industries such as Health Care and Social Assistance and Education and Training, which employ half of all Professionals.

On the other hand, Technicians and Trades Workers is projected to be almost 14,000 workers smaller in 2023-24 compared with the baseline. Employment in this major group does not recover fully by 2025-26, due to the impact of Scenario Three on employment in Construction (which employs one-third of this group) and Other Services.

Employment of Labourers also remains below that of the baseline in 2025-26. Almost half of this major group are employed across Accommodation and Food Services, Administrative and Support Services, and Construction, each of which are projected to grow more slowly under Scenario Three than the baseline.

Table 15: Impact of scenario three on occupation major group level between 2023-24 and 2025-26 compared with baseline

Occupation Major Group	2023-24	2024-25	2025-26
Professionals	-18,393	-11,341	17
Technicians and Trades Workers	-13,799	-8,994	-2,162
Managers	-11,528	-7,090	-219
Clerical and Administrative Workers	-9,944	-6,067	-136
Labourers	-8,840	-5,515	-562
Sales Workers	-7,718	-4,609	151
Community and Personal Service Workers	-7,677	-4,728	115
Machinery Operators and Drivers	-6,681	-4,130	-285

Qualifications

Levels

In 2023-24, the number of workers with post-school qualifications declines across all levels in Scenario Three and fails to recover fully by 2025-26 compared with the baseline. By this time, there are 584 fewer workers with a Bachelor Degree. Of these, around 25 per cent is due to a reduction in Business, Human Resource and Marketing Professionals and a further 15 per cent of this difference from the baseline is due to a fall in Specialist Managers.

There are 934 fewer workers with a Certificate III or IV under Scenario Three compared with the baseline, and 61 per cent of this difference is due to fewer Construction Trades Workers. Fewer Electrotechnology and Telecommunications Trades Workers and Automotive and Engineering Trades Workers in Scenario Three also contributes to the difference between this scenario and the baseline in 2025-26.

Fields

Given the impact of Scenario Three on the Construction industry and Technicians and Trade Workers, it is unsurprising that the employment of workers with qualifications in the fields of Architecture and Building and Engineering and Related Technologies do not recover as strongly as other fields. In the latter Broad Field, it is the Narrow Field of Electrical and Electronic Engineering and Technology which is most impacted, with 288 fewer workers in 2025-26 than in the baseline (Table 16). However, in this scenario, employment in many of the Narrow Fields does not recover and there are fewer fields where employment exceeds that of the baseline by 2025-26.

Table 16: Largest losses and gains by Narrow Field in scenario three compared with baseline

	Narrow Field	Net loss	Narrow Field	Net gain
1	Electrical and Electronic Engineering and Technology	-288	Medical Studies	34
2	Building	-268	Aerospace Engineering and Technology	11
3	Teacher Education	-161	Maritime Engineering and Technology	7
4	Business and Management	-130	Other Engineering and Related Technologies	4
5	Accounting	-121	Performing Arts	3
6	Law	-100	Architecture and Urban Environment	1
7	Automotive Engineering and Technology	-84	Other Education	1
8	Banking, Finance and Related Fields	-81	Other Creative Arts	0
9	Food and Hospitality	-72		
10	Other Health	-63		

Summary

While aggregate employment is around 3,000 workers lower in 2025-26, the greatest effect of this scenario occurs when the shocks are first applied in 2023-24. This results in the loss of 85,000 workers over a short period, with the largest the decline in Construction workers. While employment of Professionals declines significantly through 2023-24, by 2025-26 it is Technicians and Trade Workers that remains heavily affected. Notably, employment in publicly funded industries recovers from the initial shock more strongly than those in the market sector.

TOTAL JOB OPENINGS[25]

While AFS projects new jobs that might arise from employment growth, this is not the only source of employment. Job opportunities for new entrants also arise through replacement demand, which results when workers permanently leave an occupation.

In some cases, the departure from an occupation might be associated with retirement, or simply an individual leaving one occupation for another (e.g. retail worker becomes a hairdresser). Thus, total job openings is the culmination of employment growth (where present) and replacement demand.

For the first time in the AFS Series, total job openings for industries have been included in the projections.

Replacement Demand

Jobs Queensland has commissioned replacement demand modelling to complement the AFS data. When combined with employment growth, replacement demand allows users to gain a more comprehensive understanding of total job openings for an occupation or industry at the State level.

In some cases, replacement demand is a greater source of job opportunities than employment growth. For example, when employment in an occupation declines, replacement demand will be the only source of job opportunities in that occupation.

Industries are composed of occupations at all skill levels and therefore, replacement demand for an industry can be reflective of any occupation in that industry, regardless of skill level. Due to this relationship, estimates for industry replacement demand are derived from the replacement calculated for each occupation. These figures should be treated with caution and should not be used to directly inform training needs for industries.

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25 Derived from methodology in Shah C (2020), Job openings and replacement demand in Queensland, 2019-2024, unpublished.

Methodology

Occupation

Replacement demand is calculated for each occupation using data from the ABS Labour Force survey. This survey provides details of age and gender which are used to determine net separations (i.e. the number of people that leave) for an occupation.

This is done by comparing a cohort within an occupation at one point in time to a later point in time (e.g. comparing 20-24 years-old cohort with their 25-29 years-old cohort after a five-year period). This then determines the total change for that cohort in that occupation. This comparison is repeated for each cohort between 15-19 years to 70+ years and the sum of the change for said cohorts is the total net separation rate for that occupation.

These methods are repeated for each occupation at the Minor group level to provide a net separation rate per occupation which informs the way in which future separations are calculated. These are then aggregated for the Sub-major and Major group levels.

Once determined, the forecast separation rates are applied to AFS data to produce estimates of replacement demand aligned to the change for each occupation projected by AFS.

Industry

While it is easy enough to project employment growth in an industry, projecting replacement demand is more complex and is calculated indirectly from occupational projections. Several occupations may contribute to employment in an industry.

It is assumed these occupations contribute replacement demand needs to this industry in the same proportions as they exist within the industry. For instance, if 10% of occupation A's workers are employed in industry X, then 10% of replacement demand need in occupation A will be assigned to this industry. The replacement demand in industry X will then be the sum of all such occupational contributions.

Job openings for new entrants in an industry are then calculated by adding projection of growth in employment to projection of replacement demand.

A note on aggregation

A 'bottom up' approach was adopted to derive forecasts of replacement demand and job openings at higher levels of occupation and industry groupings. This ensured that the totals were consistent at all levels of aggregation and aggregation bias was reduced.

Notably, job openings calculated using aggregated data can result in fewer job openings than actual. This is because growth in employment in one occupation can cancel out an equal decline in another occupation. For example, let there be two occupations, A1 and A2, in the same occupational group A (see table below).

Employment is forecast to decline in A1 from 100 to 90 and to grow in A2 from 100 to 110. This means the employment total in group A remains unchanged at 200. Thus, the number of job openings from growth in A1 will be 0 and in A2 they will be 10, giving a total of 10 job openings. If, however, we were to use aggregated data of group level A to calculate job openings, the result would be 0 because in aggregate the employment is unchanged at 200.

	Year 1		Year 2		Total Job Openings
A1	100		90		0
	+		+		+
A2	100		110		10
	=		=		=
Group A	200	-	200	=	**10**

Hence, job openings can be underestimated if aggregated data are used in the calculation.

APPENDICES

Appendix A: Key macroeconomic inputs

	2021-22 a	2022-23 b,c	2023-24 d	2024-25 d	2025-26 d	Source for forecast
National						
Population	0.4	1.1	0.9	1.3	1.5	Centre for Population forecasts
Employment	3.2	3.9	1.6	1.1	1.4	Reserve Bank of Australia (RBA) e
GDP	3.7	3.1	1.3	1.8	3	RBA
Household consumption	3.7	5.5	1.4	2.2	3.4	RBA
Government expenditure	6.8	1.8	1.1	2.1	3.5	RBA
Investment	6.2	-0.5	0.5	1.2	2.3	RBA
Exports	0.1	8.9	4.9	2.9	3.1	RBA
Imports	7.0	8.9	4.6	3.3	3.7	RBA
Terms of trade	11.7	-0.7	-4.0	-4.1	-3.4	RBA
Queensland						
Population						Queensland Government f
- total	1.2	1.9	1.6	1.6	1.5	
- aged 15+	1.4	2.2	1.9	1.9	1.8	
- aged 65+	3.6	4.2	3.8	3.6	3.5	
- aged 0-4	-0.6	1.2	1.2	1.2	1.3	
Employment	5.0	3.5	1.00	1.5	1.8	Queensland Treasury g
Dwelling investment	4.4	-5.0	5.5	0.8	2.7	Queensland Treasury h

a Data from ABS National Accounts, Labour Force Survey-Detailed and Estimated Resident Population are used for 2021-22

b Forecast data for all items except employment

c Quarterly Labour Force Survey - Detailed data used for employment

d Forecast

e RBA Statement on Monetary Policy, Forecasts, May 2023

f Queensland Government population projections, 2023 edition; Australian Bureau of Statistics, National, state and territory population, March 2022.

G Queensland economic forecasts/projections, annual percentage changes, Budget 2023-24

g Queensland dwelling investment and work in the pipeline, Quarterly, chain volume measure, seasonally adjusted, Budget 2023-24

Model Derivations:

Unemployment rate: Derived within the model as a function of employment and population.

Gross state product: Derived within the model as a function of employment and labour productivity index.

Wage price index: Derived within the model as a function of employment and labour productivity index.

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Appendix B: AFS Geographies

ABS Regions	AFS Regions
Brisbane - East	**Brisbane**
Brisbane - North	
Brisbane - South	
Brisbane - West	
Brisbane Inner City	
Cairns	**Cairns**
Darling Downs - Maranoa	**Darling Downs - Maranoa**
Central Queensland	**Central Queensland**
Gold Coast	**Gold Coast**
Ipswich	**Ipswich**
Logan - Beaudesert	**Logan - Beaudesert**
Mackay - Isaac – Whitsunday	**Mackay**
Moreton Bay - North	**Moreton Bay - North**
Moreton Bay - South	**Moreton Bay - South**
Queensland - Outback	**Far North**
	Outback-North
	Outback-South
Sunshine Coast	**Sunshine Coast**
Toowoomba	**Toowoomba**
Townsville	**Townsville**
Wide Bay	**Wide Bay**

Appendix C: 1272.0 Australian Standard Classification of Education (ASCED), 2001

Broad Level of Education

Postgraduate Degree	Advanced Diploma and Associate Degree level
Graduate Diploma and Graduate Certificate	Certificate level
Bachelor Degree level	No Post-school

Field of Education (Narrow and Detailed)

NATURAL AND PHYSICAL SCIENCES	Radiography
Mathematical Sciences	Rehabilitation Therapies
Physics and Astronomy	Complementary Therapies
Chemical Sciences	Other Health
Earth Sciences	**EDUCATION**
Biological Sciences	Teacher Education
Other Natural and Physical Sciences	Curriculum and Education Studies
INFORMATION TECHNOLOGY	Other Education
Computer Science	**MANAGEMENT AND COMMERCE**
Information Systems	Accounting
Other Information Technology	Business and Management
ENGINEERING AND RELATED TECHNOLOGIES	Sales and Marketing
Manufacturing Engineering and Technology	Tourism
Process and Resources Engineering	Office Studies
Automotive Engineering and Technology	Banking, Finance and Related Fields
Mechanical and Industrial Engineering and Technology	Other Management and Commerce
Civil Engineering	**SOCIETY AND CULTURE**
Geomatic Engineering	Political Science and Policy Studies
Electrical and Electronic Engineering and Technology	Studies in Human Society
Aerospace Engineering and Technology	Human Welfare Studies and Services
Maritime Engineering and Technology	Behavioural Science
Other Engineering and Related Technologies	Law

ARCHITECTURE AND BUILDING	Justice and Law Enforcement
Architecture and Urban Environment	Librarianship, Information Management and Curatorial Studies
Building	Language and Literature
AGRICULTURE, ENVIRONMENTAL AND RELATED STUDIES	Philosophy and Religious Studies
Agriculture	Economics and Econometrics
Horticulture and Viticulture	Sport and Recreation
Forestry Studies	Other Society and Culture
Fisheries Studies	CREATIVE ARTS
Environmental Studies	Performing Arts
Other Agriculture, Environmental and Related Studies	Visual Arts and Crafts
HEALTH	Graphic and Design Studies
Medical Studies	Communication and Media Studies
Nursing	Other Creative Arts
Pharmacy	FOOD, HOSPITALITY AND PERSONAL SERVICES
Dental Studies	Food and Hospitality
Optical Science	Personal Services
Veterinary Studies	

Appendix D: Detailed breakdown of occupations and associated displacement impact ratios

% Displacement	ANZSCO Code	Occupation
2%	2112	Music Professionals
	2346	Medical Scientists
	2512	Medical Imaging Professionals
	2539	Other Medical Practitioners
	2613	Software and Application Programmers
	3112	Medical Technicians
	3995	Performing Arts Technicians
	4422	Security Officers
	6121	Real Estate Sales Agents
5%	8393	Product Quality Controllers
	1336	Supply, Distribution and Procurement Managers
	1351	ICT Managers
	1494	Transport Services Managers
	5311	General Clerks
	5995	Inspectors and Regulatory Officers
10%	1311	Advertising, Public Relations and Sales Managers
	1492	Call or Contact Centre and Customer Service Managers
	2124	Journalists and Other Writers
	2211	Accountants
	3992	Chemical, Gas, Petroleum and Power Generation Plant Operators
	5111	Contract, Program and Project Administrators
	512	Office and Practice Managers
	5121	
	5122	
	5211	Personal Assistants
	5212	Secretaries
	5411	Call or Contact Centre Workers
	5421	Receptionists
	5911	Purchasing and Supply Logistics Clerks
	5999	Other Miscellaneous Clerical and Administrative Workers
	6112	Insurance Agents
	6211	Sale Assistants (General)
	8311	Food and Drink Factory Workers
15%	5321	Keyboard Operators
	551	Accounting Clerks and Bookkeepers

	5511	
	5512	
	5513	
	5412	Information Officers
	5523	Insurance, Money Market and Statistical Clerks
	561	Clerical and Office Support Workers
	5912	Transport and Despatch Clerks
	6311	Checkout Operators and Office Cashiers
	6393	Telemarketer
	6394	Ticket Salespersons
	5991	Conveyancers and Legal Executives
	5992	ANZSCO 599214 and 599215
	5994	Human Resource Clerks
	5997	Library Assistants