



Economic Impact of the Regional Universities Network

Regional Universities Network

August 2020

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Executive Summary

The Regional Universities Network (RUN) is a network of seven universities based in regional Australia with a shared commitment to playing a transformative role in their regions.

In 2020, the RUN engaged Nous Group (Nous) and Victoria University's Centre of Policy Studies (CoPS) to estimate the economic impact of RUN member universities on regional Australia. The study uses CoPS' multiregional Computable General Equilibrium (CGE) model of the Australian economy to quantify RUN member universities' impact on real GDP, employment and real wage levels in their regional campus areas. CGE modelling is more conservative – but more reliable – than the results that would be generated by input output multiplier analysis.

Due to data availability, the base year for this study is 2018. Accordingly, whilst COVID-19 is currently affecting universities, the results of this study reflect the economic contribution the RUN makes in a normal year of operations. It excludes universities' metropolitan campuses and any vocational education activity, which some RUN members (CQU and Federation) provide.

In 2018, RUN member universities contributed \$2.4bn to their regional economies and created 11,300 jobs. This represents a 41 per cent increase in RUN's contribution to real GDP since 2015, and an 82 per cent increase in the number of jobs RUN universities create.

In addition to their contribution to real GDP, RUN member universities increase the productivity of regional labour markets. Nearly 7 out of 10 RUN graduates go on to work in regional Australia¹ – many in industries such as Healthcare and Social Assistance, and Education and Training, which experience the greatest demand for workers.

RUN universities also increase the earnings potential of their graduates. Undergraduates from all RUN member universities can expect to earn \$235,000 more over the course of their lifetime than non-degree holders in RUN member universities' campus regions.

RUN universities contribute
\$2.4b
to real GDP
in regional
Australia

RUN universities create
11,300
jobs in regional
Australia

**7 out
of 10**
RUN graduates
go on to work
in regional
Australia

¹ Regional Australia is defined as any postcode area within a regional RUN Campus SA3 region, or any postcode area outside the Australia Bureau of Statistics' Greater Sydney, Greater Melbourne, Greater Brisbane and Greater Perth Statistical Areas.

2015

\$1.7b
REAL GDP

JOBS
6,200

6 RUN
unis
grow

CSU
joins
RUN

2018

\$2.4b
REAL GDP
+41%

11,300
+82%
JOBS

RUN increases
real wages
by
1.3%



\$2.5bn
university expenditure
\$690m
student expenditure



7 of 10
RUN graduates
work in regional
Australia

RUN graduates earn
\$235,000
more in lifetime earnings

Nearly
63,000



students study at RUN's
regional campuses¹

¹This figure only accounts for students that study internally or multi-modally at RUN member universities' campuses included in the study

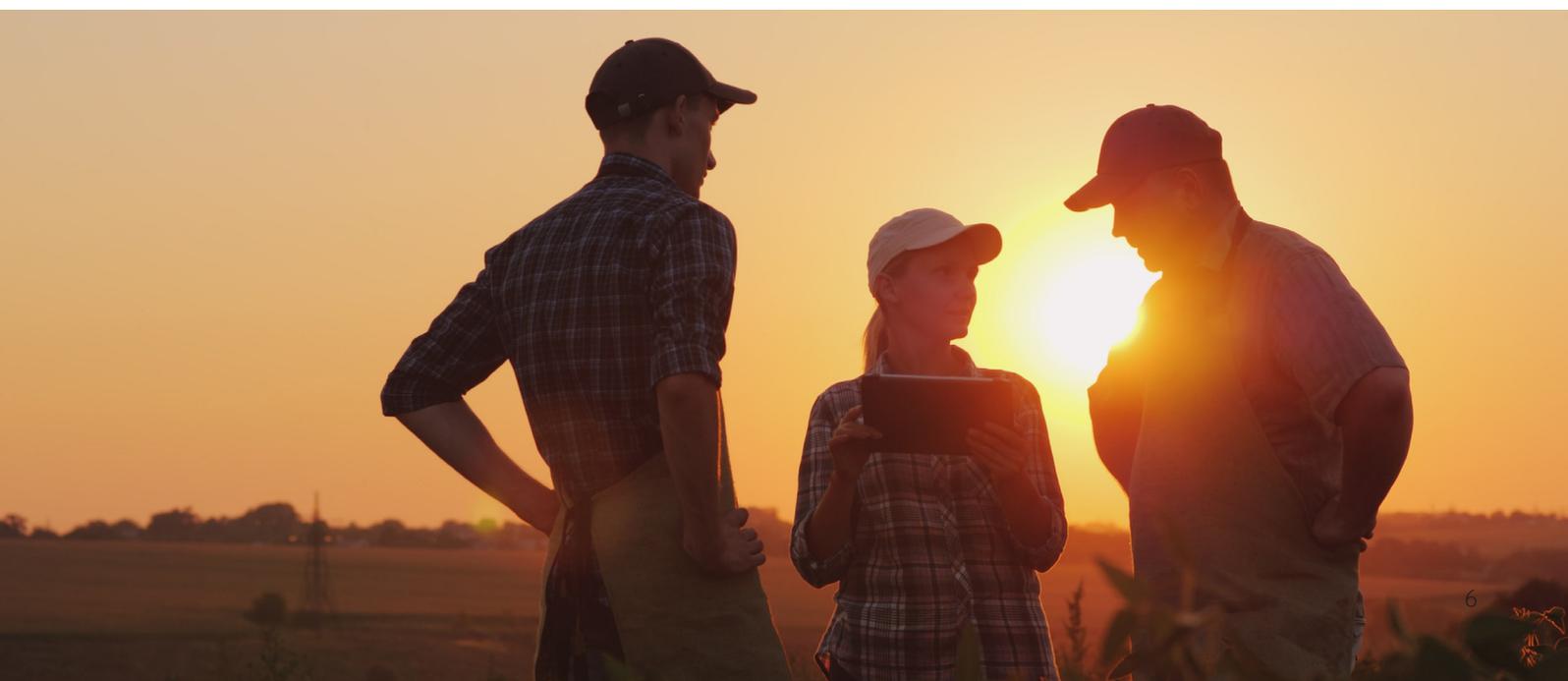
In addition to the base-case modelling, Nous and CoPS undertook scenario modelling, to estimate the RUN's economic impact under a series of different policy settings.

The scenario analysis indicated the following:

- If research funding to RUN doubled, an additional 600 jobs would be generated and \$94m more would be contributed to real GDP.
- If 6,000 more students from regional, rural and remote NSW, Victoria and Queensland attended RUN universities, an additional 690 jobs would be generated and \$122m more contributed to real GDP.
- If each university received a once-off capital investment valued at \$50m, an additional 900 ongoing jobs (not including one-off construction jobs) would be generated, and \$140m more contributed to real GDP.
- By increasing the local population's sensitivity to the university's economic impact, i.e., simulating a higher population to live in the region that might otherwise be the case, RUN's impact increases to \$2.9bn in real GDP and 15,700 jobs.

Glossary

Terms	Abbreviation
Computable General Equilibrium	CGE
Centre of Policy Studies, Victoria University	CoPS
Central Queensland University	CQU
Charles Sturt University	CSU
Federation University	Federation
Full-time equivalent	FTE
Gross Domestic Product	GDP
Regional Universities Network	RUN
Southern Cross University	SCU
The University of New England	UNE
University of the Sunshine Coast	USC
The University of Southern Queensland	USQ
Vocational Education and Training	VET



Introduction and overview of the study

RUN member universities bring higher education and research to Australia's regions

Established in October 2011, the Regional Universities Network (RUN) is a network of seven universities based in regional Australia. Its members are: Central Queensland University (CQU); Charles Sturt University (CSU); Federation University Australia (Federation); Southern Cross University (SCU); the University of New England (UNE); University of the Sunshine Coast (USC) and the University of Southern Queensland (USQ).

RUN universities operate in over 60 locations, have a total revenue exceeding \$2.5bn, and have over 11,000 FTE of staff. Individually, RUN member universities play an important role delivering higher education to around 170,000 higher education students¹ in 2018– about 12 per cent of all university students nationally². In doing so, RUN member universities contribute to the economic, social and cultural prosperity of regional Australia. RUN member universities not only produce, attract and retain a broad range of skilled professionals in regional areas, but also conduct research and train over 2,600 higher degree by research candidates each year.

Collectively, the RUN member universities collaborate to pursue the following objectives:

1. To provide policy advice to government, particularly with regard to tertiary education and regional development.
2. To strengthen and promote the contributions of regional universities to regional and national development.
3. To build institutional capacity and sustainability through the sharing of best practice in educational delivery, training, research and organisational management, particularly with reference to regional contexts.

60
LOCATIONS

\$2.5bn+
REVENUE

11,000
FTE STAFF

170,000
HIGHER ED
STUDENTS

2,600
RESEARCH
CANDIDATES

¹ 170,000 students include students from RUN's metropolitan campuses

² Base from Universities Australia, Key Facts & Figures, 1.4 million students nationally. Obtained 10th August 2020 from <https://www.universitiesaustralia.edu.au/stats-publications/>

The study uses CGE modelling to robustly quantify the economic contribution RUN member universities make in regional Australia

The RUN engaged Nous to undertake an economic impact study to quantify the impact of RUN member universities on their regional economies. We have worked with the Centre of Policy Studies (CoPS) at Victoria University to model the economic impact of the RUN member universities' regional campuses.

The modelling has been undertaken using CoPS' multiregional Computable General Equilibrium (CGE) model of the Australian economy, VU-TERM. The economic impact is modelled by estimating what would happen to the regional economy in the long run if RUN campuses did not exist in their local regions.

By modelling the impacts of the resulting reallocation of resources, the model produces accurate and appropriately conservative results (compared, for example, with Input-Output multipliers which would give larger but less reliable results).

The economic model considers the impacts of RUN member universities on both the demand and supply sides of the economy. On the demand side, the model estimates the impact of student and university expenditure on each campus' regional economy. On the supply side, the model considers how RUN member universities' teaching and research activities influence the productivity of regional labour markets, as well as industry more broadly. Further detail about each of these effects is provided in Table 1.

Table 1: The three effects RUN member universities have on their regions

Effect	Key inputs	Explanation
Demand	Student expenditure University expenditure	The model calculates student and university expenditure to estimate the impact that students and the universities themselves have on demand for goods and services in their local economies.
Supply – labour productivity	Number of RUN graduates that work in the regional campus' SA3	A majority of graduates of RUN member universities go on to work in regional Australia. The increased skill levels of graduates increase the productivity of the regional workforce. The model quantifies the increased labour productivity by applying a region-specific average wage premium to each RUN graduate working in the region according to award type.
Supply – industry productivity	Research income Value of time spent on research by academic staff	By developing new ideas and technologies, particularly in areas relevant to regional economies (such as agriculture and mining), RUN member university research enhances industry productivity across the economy. The model quantifies the increased industry productivity by estimating the returns to the total value of research activity undertaken at each RUN member university.

The model estimates the economic impact of RUN member universities in terms of their impact on four key macroeconomic variables within their regional campus SA3 regions.

These being: real GDP, jobs, average real wages and real private consumption. Table 2 provides a detailed overview of the economic impacts generated by the model.

Table 2: The main outputs of the economic model

Model outputs	Definition
Real GDP	The inflation-adjusted value of all goods and services produced within each universities' regional campus SA3 regions, due to the presence of the university. This includes goods and services directly produced by the university and those produced indirectly due to the economic impact of the university.
Jobs	The number of full-time equivalent jobs created within each universities' regional campus SA3 regions, due to the presence of the university. This includes both direct employment with the university, and jobs in other industries created due to the economic impact of the university.
Average real wages	The change in average wages adjusted for inflation within each university's regional campus SA3 regions, due to the presence of the university.
Real private consumption	Total consumer expenditure on goods and services adjusted for inflation within each university's regional campus SA3 regions, due to the presence of the university.

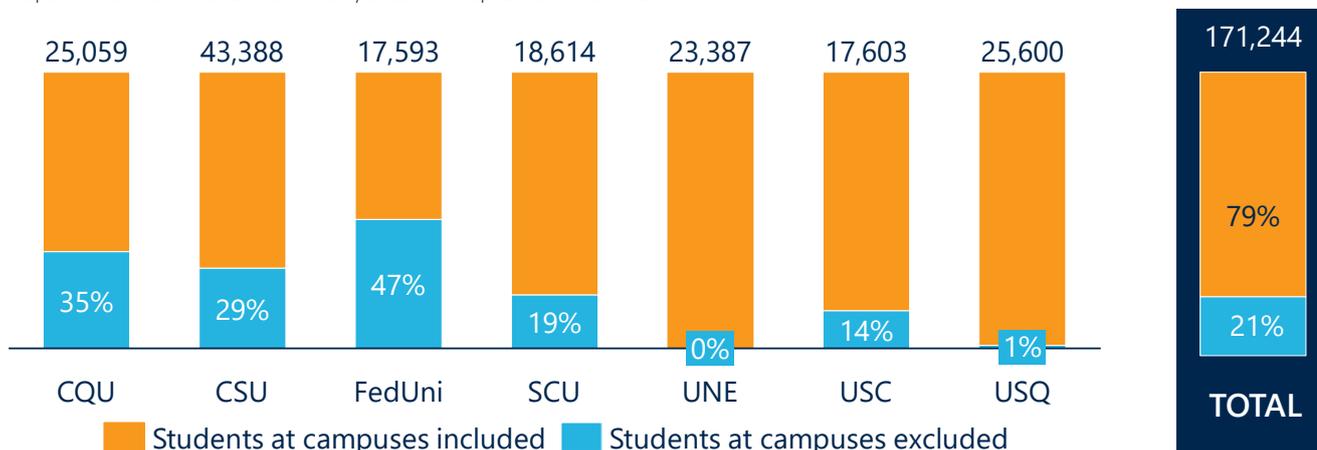
The study focuses on the contribution made by the RUN member universities' regional campuses

This report focuses on the economic contributions made by the RUN member universities' regional campuses to their local economies. Altogether, the campuses included in the study account for the majority of RUN student enrolments—approximately 80 per cent—as well as the majority of RUN member university expenditure. Nevertheless, a significant proportion of activity occurs at RUN member universities' metropolitan campuses, which have been excluded from the study.

Table 3 overleaf presents the RUN campuses included in the study. Figure 1 presents the proportion of RUN member university students captured in the model, by RUN member university.

Federation and CQU operate as dual sector institutes, offering both vocational education and training through a TAFE operation, as well as higher education through the university. This model excludes students in the TAFE operation, focusing only on the contributions from the university component. Accordingly, the full economic impact for both of these universities is higher than reported by the model.

Figure 1
Proportion of RUN member university students captured in the model¹



Source: 2018 Enrolments Data as reported to the Department of Education, Skills and Employment, supplied by RUN

¹ Enrolment data for UNE lists all student enrolments at UNE's Armidale campus. The data did not list enrolments at UNE's other campuses that were excluded from the study.

Table 3: RUN Campuses included and excluded in the study

University	Campuses included	Campuses excluded
Central Queensland University (CQU)	Rockhampton Mackay Gladstone Bundaberg Emerald Townsville Cairns	Brisbane, Sydney, Melbourne, Adelaide, Perth, Noosa Study hubs and centres: Yeppoon, Biloela, Cooma, Busselton, Geraldton, Karratha and Broome
Charles Sturt University (CSU)	Bathurst Dubbo Orange Albury-Wodonga Wagga Wagga Port Macquarie Goulburn	Canberra Manly Parramatta
Federation University (Federation)	Ballarat Berwick Churchill	Horsham, Brisbane Study hubs and centres: Kuala Lumpur
Southern Cross University (SCU)	Lismore Gold Coast Coffs Harbour	Study hubs and centres: Grafton, Byron Bay, Sydney, Melbourne and Perth
University of New England (UNE)	Armidale	Study hubs and centres: Tamworth, Taree, Coonabarabran, Narrabri, Moree, Inverell, Tenterfield, Glen Innes, Gunnedah, Guyra, Cooma and Future Campus Parramatta
University of Southern Queensland (USQ)	Toowoomba Springfield/ Ipswich	Study hubs and centres: Sydney and Stanthorpe
University of the Sunshine Coast (USC)	Sunshine Coast Campus Gympie Fraser Coast Caboolture	South Bank Study hubs and centres: Fraser Island, Sydney and Melbourne

7 out of 10
RUN graduates
work in
regional Australia



Results

RUN member universities contribute to real GDP and support jobs growth within their regions, primarily by attracting student and university expenditure to the regions. In addition, RUN member universities grow Australia's regional workforce and increase its productivity, and contribute to industry productivity by generating high quality research.

Economic activity is reported below for several metrics including regional GDP, wages and employment.

Figure 2
Contribution to real GDP across each university's campus SA3 regions, by RUN member university

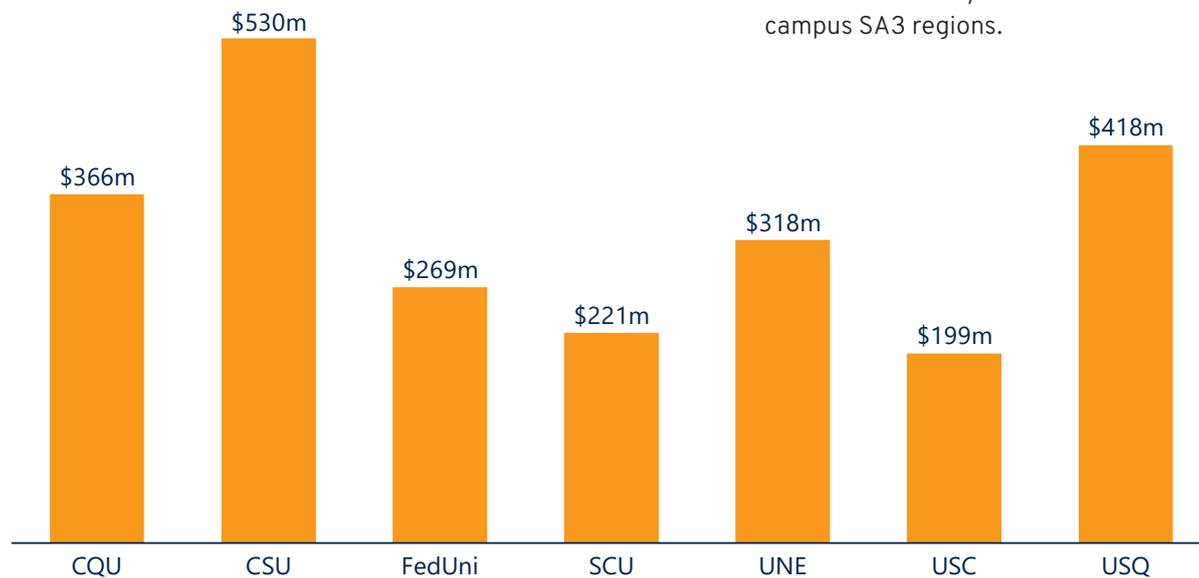
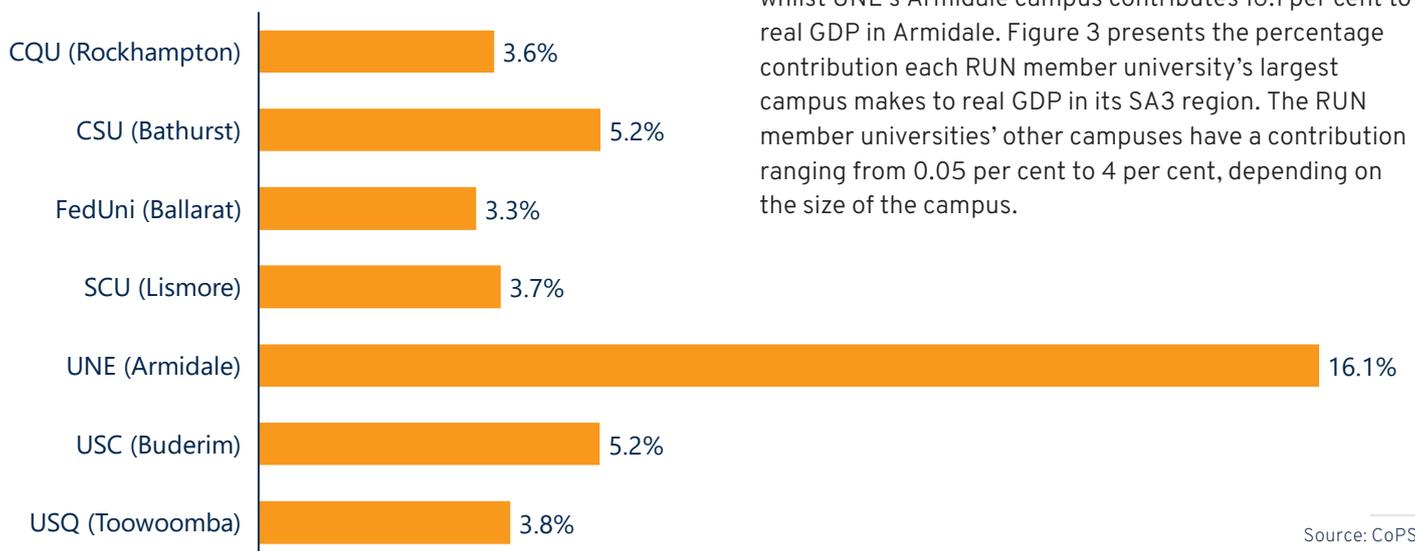


Figure 3
Percentage contribution to real GDP of each RUN member university's largest campus in its campus SA3 region



RUN member universities are a major contributor of economic activity in regional Australia

RUN member universities contributed \$2.4bn to real GDP in regional Australia in 2018

RUN member universities contributed \$2.4bn to real GDP in regional Australia in 2018. This represents an increased contribution to real GDP of nearly \$700m since 2015 (or 41 per cent). Individually, each RUN member university contributes between \$199m, and \$530m to real GDP in its regional campus areas. Figure 2 shows each RUN member university's contribution to real GDP in its campus SA3 regions.

The main campuses of each RUN member university contribute to a significant proportion of GDP in their regions. For instance, CQU's Rockhampton campus contributes 3.6 per cent to real GDP in Rockhampton, whilst UNE's Armidale campus contributes 16.1 per cent to real GDP in Armidale. Figure 3 presents the percentage contribution each RUN member university's largest campus makes to real GDP in its SA3 region. The RUN member universities' other campuses have a contribution ranging from 0.05 per cent to 4 per cent, depending on the size of the campus.

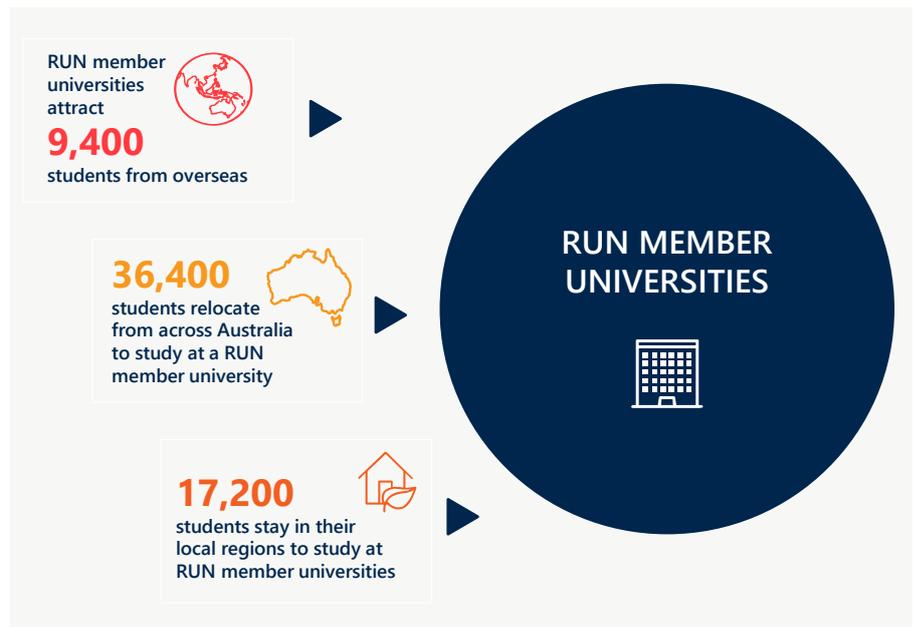
RUN member university students spent more than \$690m in their local regions in 2018

Student expenditure is a key contributor to real GDP as it drives demand for goods and services in regional campus areas.

In 2018, 135,400 students were enrolled at RUN's regional campuses across all study modes¹. Of these students, 45,800 re-located to RUN campus areas to study, either internally or multi-modally. 9,400 of these students were from overseas, whilst 36,400 moved from outside RUN's SA3 regions. A further 17,200 students stayed in their local region to study internally at a RUN member university.

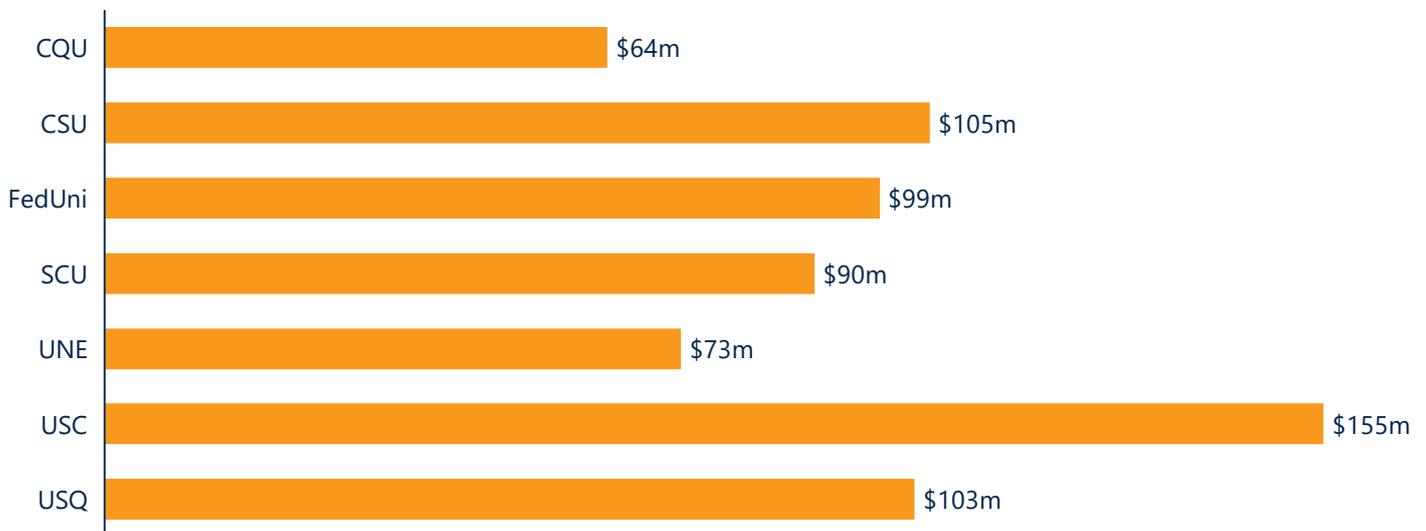
In total, RUN university students spent approximately \$690m in regional areas in 2018. This equates to roughly \$6,800 per student (EFTSL) of spending that is directly attributable to the presence of RUN member universities. Figure 5 shows the total value of student expenditure for each RUN member university in 2018. Further detail about how student expenditure is calculated is available in the appendix.

Figure 4
Number of internal students by home residence for all RUN member universities



Source: RUN enrolment data 2018, reported to DESE, as supplied by RUN; Enrolment data excludes metropolitan campuses and vocational education.

Figure 5
Student expenditure by RUN member university, 2018



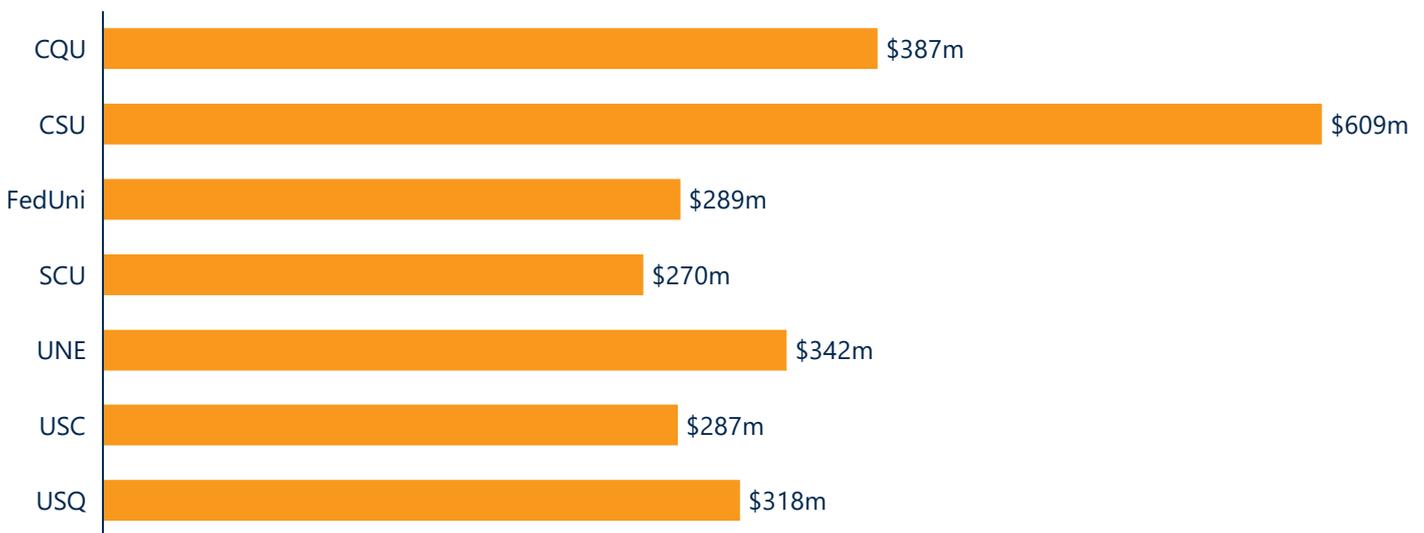
Source: Student expenditure by CoPS based on RUN enrolment data 2018, reported to DESE, as supplied by RUN; Enrolment data excludes metropolitan campuses and vocational education.

¹ Three study modes are considered: internal, external and multi-mode. A student enrolled for internal study attend classes taught on-campus. A student enrolled for external study has their instruction delivered online and/or away from campus. Multi-mode refers to a mixture of both internal and external study modes.

RUN member universities spent \$2.5bn in 2018

RUN member university expenditure plays an important role supporting employment in regional campus areas. In 2018, RUN member universities had a total combined expenditure of \$2.5bn—most of which was spent in their regional campus areas. Figure 6 shows each RUN member university's total expenditure for 2018.

Figure 6
Total university expenditure, by RUN member university, 2018



Source: RUN financial data 2018, from DESE. Financial data excludes vocational education operated by RUN members.

RUN member universities grow Australia's regional workforce and enhance its productivity

RUN member universities strengthen Australia's regional labour markets by providing high quality education that produce highly skilled graduates. Many RUN graduates go on to work in regional Australia—almost half of whom work in key industries projected to grow rapidly in the near future. By lifting the skills of RUN graduates, employers of RUN graduates have more highly skilled employees resulting in a more productive workforce. This productivity gain is quantified in the model by estimating the impact on average real wage levels in RUN member university campus regions.

Figure 7
RUN is a major source of employment and skilled labour in regional Australia

RUN is an integral part of the economic fabric of regional Australia – acting as a major source of employment and skilled labour.

11,300 jobs through direct employment and indirectly through its economic impact

7 out of 10 RUN undergraduates stay in regional Australia for work

RUN Bachelor holders can expect **\$235,000** in additional income over someone not attending university

6 out of 10 of RUN graduates find employment in health, education and professional services in regional Australia

RUN universities support higher wages, increasing real wage levels by **1.3%** in regional Australia

RUN delivers the skills training and qualifications that regional Australia needs

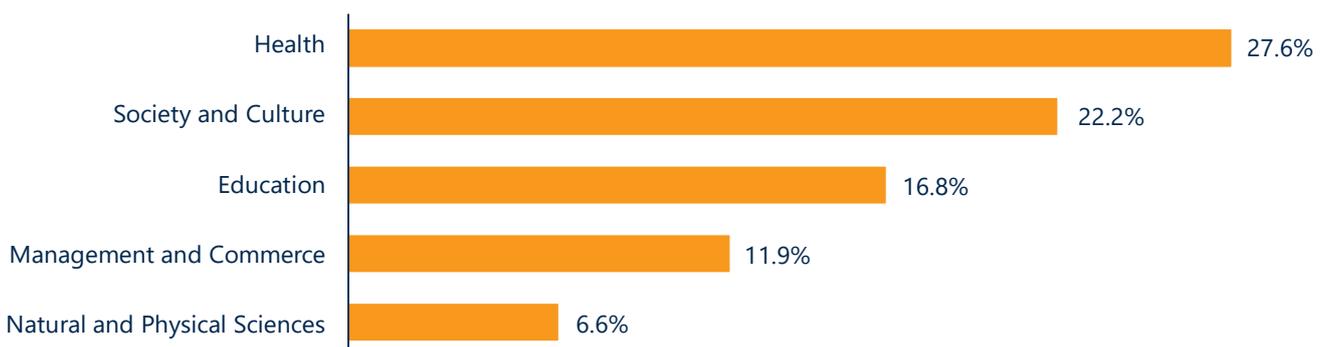
RUN plays an important role in filling the demand pipeline for key industries in regional Australia. RUN graduates find employment in sectors projected to grow rapidly over the next five years. In 2019, more than 60 per cent of RUN graduates went on to work in the Health Care and Social Assistance, Education and Training, and Professional, Scientific and Technical services industries. These being the top three industries expected to experience the greatest employment growth over the next five years in regional Australia¹.

¹ The employment projections do not take account of any impacts caused by COVID-19.

Source: 2019 Regional Projections - five years to May 2024, available through the Labour Market Information Portal, DESE. Graduate Outcomes Survey data, 2017 - 2019, QILT, supplied by RUN

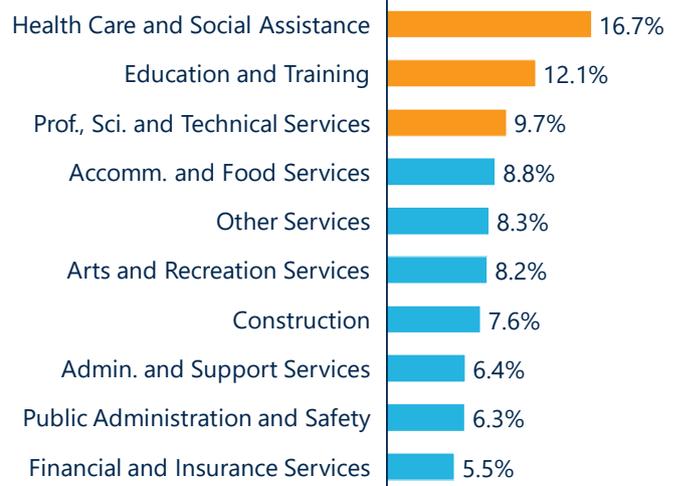
RUN also plays an important role in providing skills training for key industries in regional Australia. Over 40 per cent of students were enrolled in Health and Education courses in 2018. Figure 8 shows the top 5 fields of education that among RUN undergraduate enrolments in 2018.

Figure 8
The top 5 fields of education of RUN undergraduate enrolments, 2018

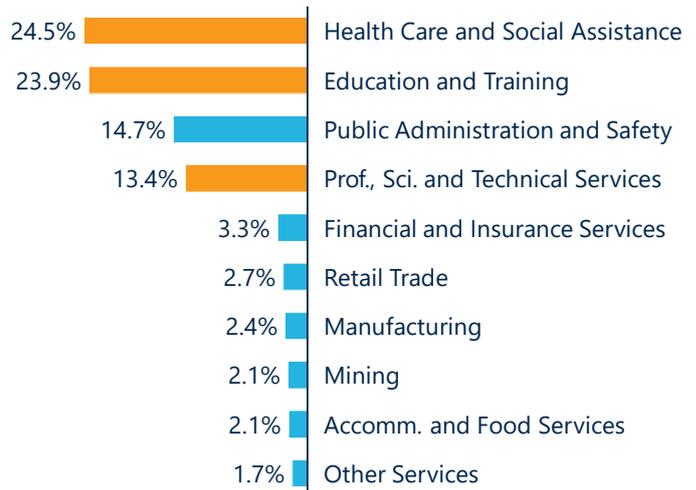


Source: RUN Enrolment data 2016 - 2018, as reported to DESE, supplied by RUN

Projected employment growth in regional Australia, by industry, 2019-24



Top 10 industries of RUN graduate employment, 2017 - 2019



RUN is a major source of skilled labour with 7 out of 10 RUN graduates working in regional Australia¹

A significant proportion of RUN university graduates stay in regional Australia after graduation for work. Between 2017 and 2019, 69 per cent of domestic employed RUN bachelor-level graduates, and 55 per cent of domestic employed RUN post-graduate level graduates worked in regional Australia.

This translates to roughly 37,000 RUN domestic graduates working in regional Australia from 2017 to 2019. This compares to only 24 per cent for non-RUN bachelor-level graduates and 27 per cent of non-RUN postgraduate-level graduates. See the appendix for more details on this analysis. Due to self-reported data in the survey, survey sample sizes, possible non-response bias, these figures are approximate.

Figure 11 shows the number of RUN member university graduates that went on to work in regional Australia between 2017 and 2019.

The number of graduates from RUN member universities that go on to work in regional Australia varies from 2,500 to 9,800. The average number of RUN graduates across all RUN member universities is 4,700.

¹ Regional Australia is defined as any postcode area within a regional RUN campus SA3 region, or any postcode area outside the Australian Bureau of Statistics' Greater Sydney, Greater Melbourne, Greater Brisbane and Greater Perth Statistical Areas.

Figure 9
Proportion of bachelor-level graduates from RUN member universities that work in regional Australia, 2017 - 2019

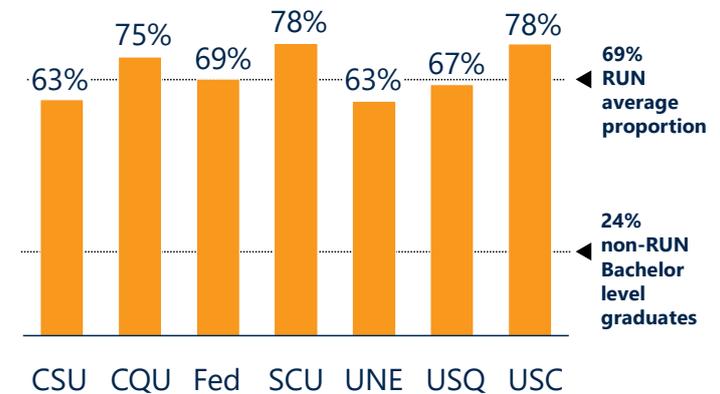
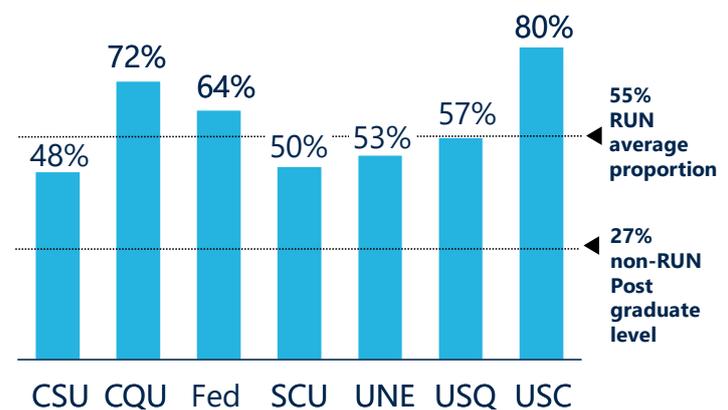
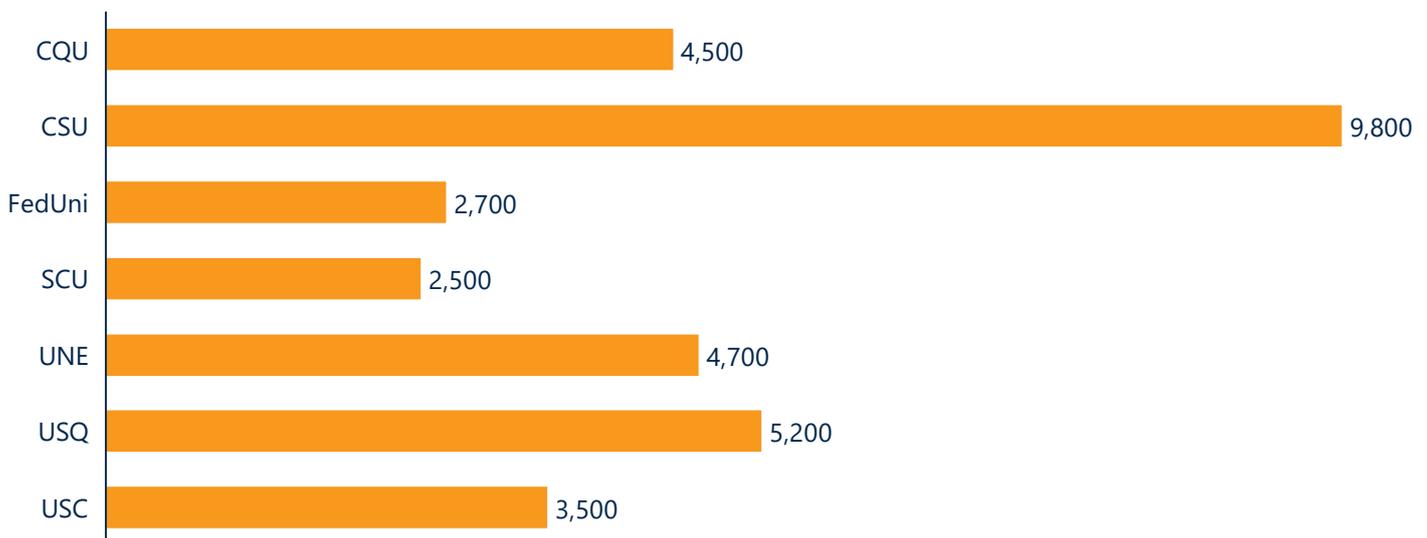


Figure 10
Proportion of postgraduate-level graduates from RUN member universities that work in regional Australia, 2017 - 2019



Source: Graduate Outcomes Survey data, 2017 - 2019, QILT, supplied by RUN

Figure 11
RUN graduates working in regional Australia by RUN member university, 2017 - 2019



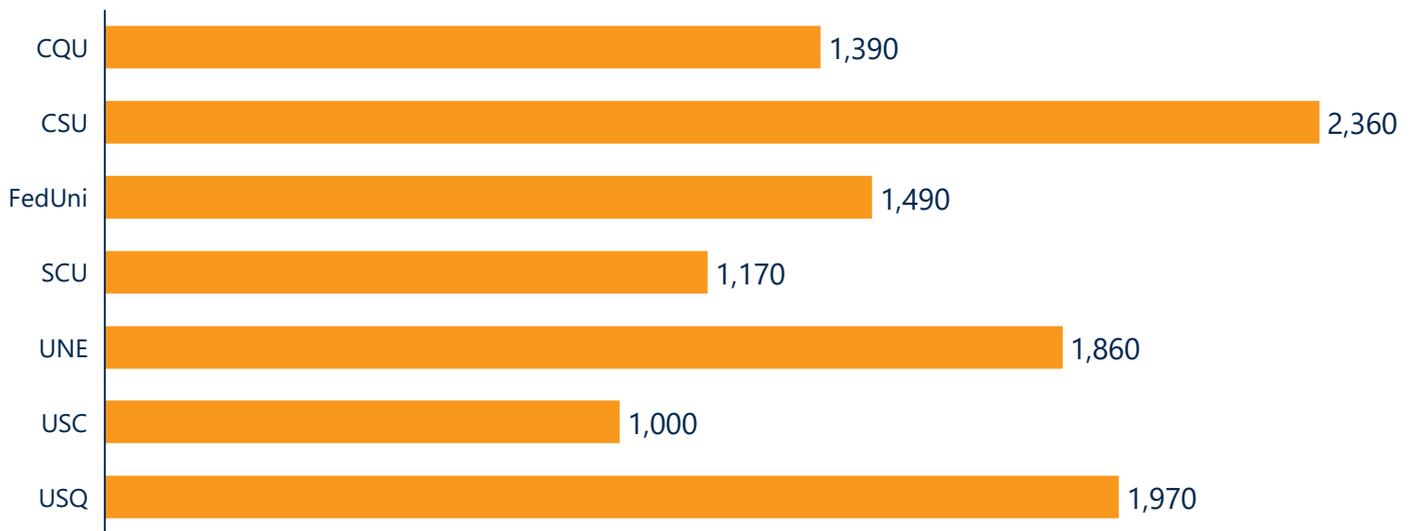
Source: Graduate Outcomes Survey data, 2017 - 2019, QILT, supplied by RUN

RUN generates substantial employment in their local communities – creating 11,300 jobs in regional Australia in 2018

RUN member universities are a core part of regional Australia’s economy. They create jobs in regional Australia through both direct and indirect employment. Directly, RUN member universities employ a range of staff across their campuses. Indirectly, the demand for goods and services created by RUN member universities’ staff and students helps to support jobs in other industries.

The study indicates that RUN member universities create and support over 11,300 jobs in their regions. This is equivalent to an average of 1,600 jobs across all RUN member universities and an average 375 jobs across all of RUN’s campus regions. Figure 12 presents the number of jobs each RUN member university supports across its campus SA3 regions.

Figure 12
Number of jobs created by RUN member universities in their campus regions, 2018



Source: CoPS

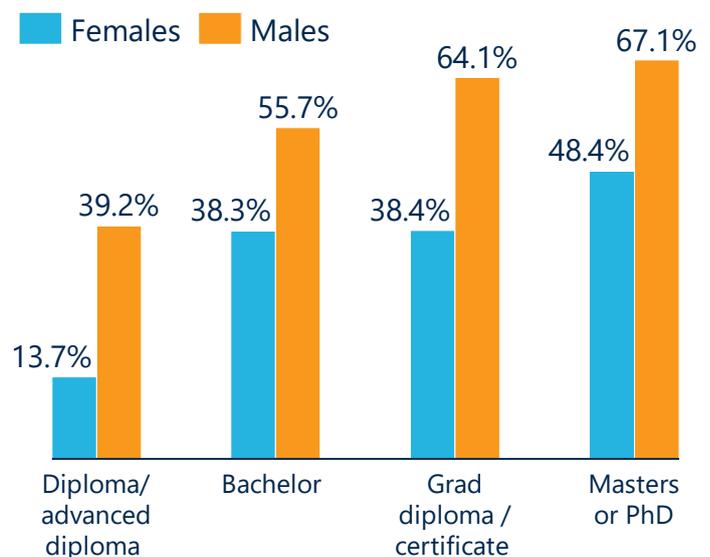
RUN graduates are highly sought after and have increased lifetime earnings

Universities are crucial in developing the skills and knowledge of the labour force, manifested by their tertiary qualification.

As RUN member university graduates go on to work, the skills and knowledge they obtain through their RUN education results makes them highly sought-after. This is reflected in the wage premia university graduates earn compared to those that did not go to university. This wage premia translates to an average additional lifetime earnings of \$235,000 for a RUN bachelor’s degree holder compared to someone that did not attend university. Details about how the additional lifetime earnings were calculated can be found in the appendix.

Figure 13 shows the wage premia enjoyed by a university graduate by qualification and gender compared to someone with just a Year 12 certificate.

Figure 13
Wage premia by qualification and gender



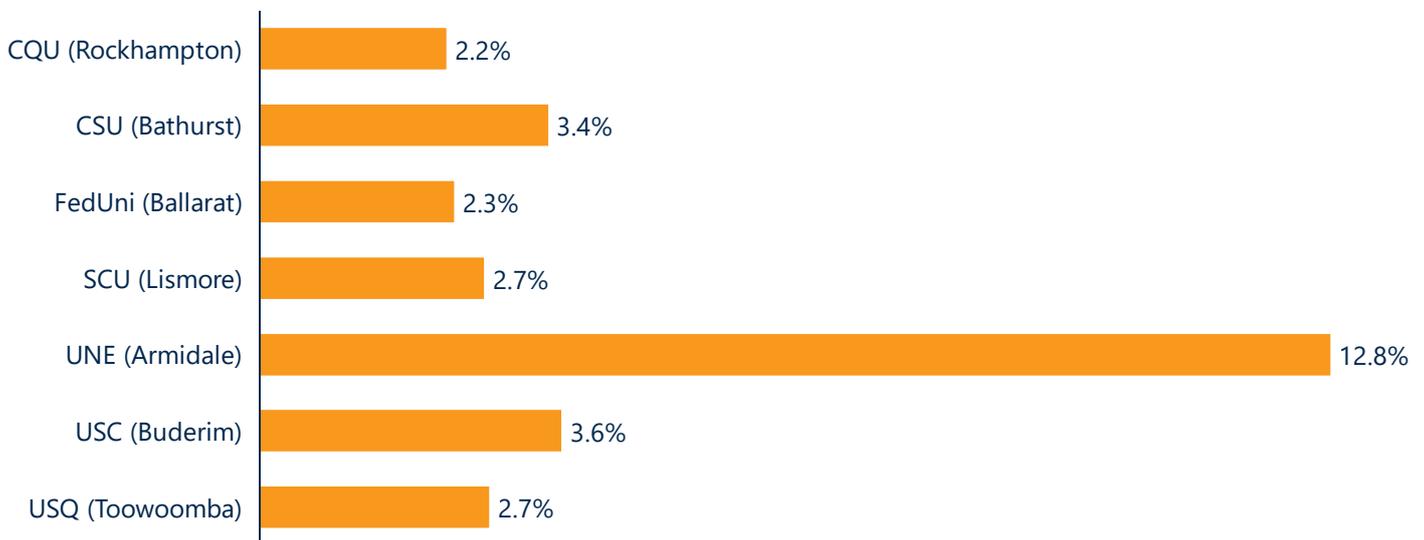
Source: Table 7.4: Effects of education on employment and earnings, 2012 and 2016 HILDA State Report 2018, Wilkins

RUN universities support higher wages in regional Australia

By employing highly skilled staff and supplying employable graduates, RUN member universities contribute directly to increased regional real wage levels. These real wage increases do not accrue exclusively to RUN member university employees or graduates. The higher level of economic activity generated by RUN member universities also contribute indirectly to increases in wage levels. Hence, all employees in the region benefit from real wage increases.

Across all campus regions, RUN increases real wages by 1.3 per cent. Figure 14 shows the impact each RUN member university has on real wages, in its largest campus region. It highlights the range of real wages impact varies by campus from 2.2 per cent to 12.8 per cent. As Armidale has the largest university activity as a share of total regional economic activity, UNE has an outsized impact on real wages compared to the other universities.

Figure 14
Impact of RUN member universities on real wages in their largest campus regions, 2018



Source: CoPS



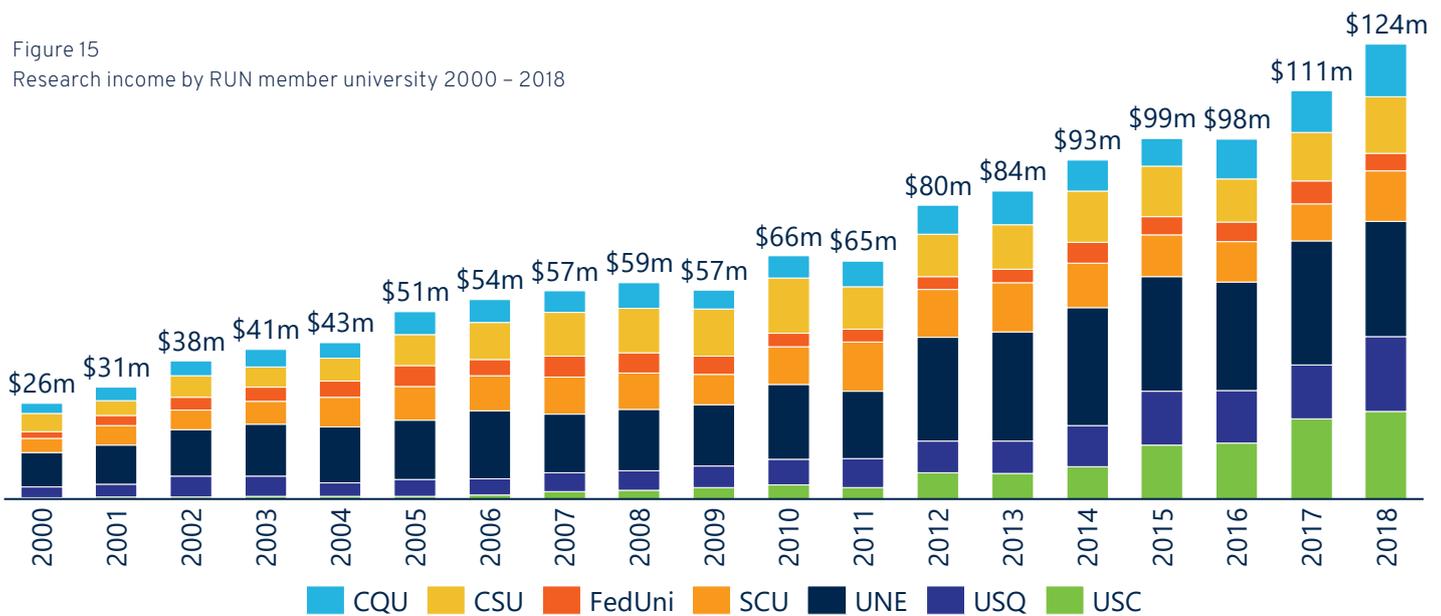
Across all campus regions, RUN increases real wages by 1.3 per cent

RUN member universities' world class research enhances industry productivity across Australia

By developing new ideas and technologies, particularly in areas relevant to regional economies (such as agriculture and mining), RUN member university research enhances industry productivity across the economy. The model measures the increased productivity based on the sum of research income, and the value of time spent undertaking research activity by academic staff, to derive the economic impact of RUN research activity. In 2018, RUN member universities received \$124m in research income and the value of academics' time was valued at \$148m.

RUN's research income has grown significantly over the years. Across all RUN member universities, the annual growth rate in research income was 9 per cent. Figure 15 presents the research income by RUN member university from 2000 to 2018.

Figure 15
Research income by RUN member university 2000 – 2018



Source: Higher Education Research Data Collection, Research Income Data (1994 – 2018)

RUN's research excellence has grown rapidly. In 2018, RUN member universities had a cumulative 34 broad fields of research rated as "Above world standard" or "Well above world standard". This is a four-fold increase from 2012 where RUN member universities had a cumulative 8 broad fields of research rated as such.

RUN conducts world class research in¹:

- Mathematical Sciences
- Chemical Sciences
- Earth Sciences
- Environmental Sciences
- Agricultural and Veterinary Sciences
- Technology
- Medical and Health Services
- Psychology and Cognitive Sciences

34

broad fields of research rated as **ABOVE WORLD STANDARDS** or **WELL ABOVE WORLD STANDARDS** across all RUN member universities in 2018¹

Charles Sturt University

Enabling farmers achieve better economic and environmental outcomes

CSU partnered to deliver EverGraze - a national research, development and engineering program helping farmers minimise dryland salinity and increase profits through increased use of perennial pastures. Farmers who changed practice based on EverGraze achieved significantly improved economic and environmental outcomes. The total benefit from EverGraze was estimated at \$305.5m. With total project costs of \$33m, the estimated benefit-to-cost ratio was 9:1.

Partnering with the agricultural industry for improved commercial outcomes

CSU works with Farming Systems Group to foster research, development and extension opportunities to benefit the agricultural industry. This partnership has led to increased productivity, profitability and sustainability of the grains and red meat industries. It has also strengthened agribusinesses by removing trade barriers and increasing international engagement.

Central Queensland University

Achieving better health outcomes for thousands of Australians

With almost 400,000 participants, \$4m of investment over 18 years, and over 200bn steps registered, CQU's 10,000 steps program is one of the largest and most successful health promotion programs in Australia. Now a concept widely recognized around the world, the self-monitoring physical activity program encourages participants to take 10,000 steps every day.

Enabling greater innovation in farming

The Institute for Future Farming Systems works with end-users to develop non-invasive and precision agriculture technologies. For example, infrared technology was developed to scan mangos to assess ripeness and maximise shelf life, driving down costs for farmers.

University of New England

Unlocking the power of genetics in the agricultural industry

UNE's Animal Genetics Breeding Unit (AGBU) supports agricultural industries in identifying the best animals and plants to breed for commercial purposes. By combining large industry datasets with genetic analysis methodologies, AGBU has developed leading genetic evaluation software across a range of sectors. In Australia, it is estimated that the unit's beef and sheep genetics R&D has delivered approximately \$1.4bn gross benefit, adding \$45-50m of on-farm wealth per annum.

Fast-tracking development in literacy and numeracy skills

UNE's Quicksmart Program is an evidence-based program that fast tracks the development of middle school students with poor basic skills in literacy and numeracy. Program participants consistently achieve skill development in 30 weeks equivalent to that normally achieved over 2-3 years of schooling.

University of the Sunshine Coast

Pioneering solutions to reduce methane emissions

The Australian red meat industry set a target to be carbon neutral by 2030. USC researchers are helping achieve this goal by partnering with CSIRO, Meat and Livestock Australia and James Cook University to determine which species of seaweed could reduce methane production in livestock without compromising meat or milk production.

Coordinated care leading to improved healthcare for seniors

USC's Care Coordination through Emergency Department, Residential Aged Care and Primary Health Collaboration Program embodies nursing interventions for health improvements with Seniors, yielding significant enhancements and reduced costs in the treatment of frail older adults. The project attracted \$2.5M in end-user organisation support, and involved a wide variety of stakeholders in Sunshine Coast.

Federation University

Driving collaboration between industry and research

Located in the Gippsland Hi-Tech Precinct, Federation will manage the \$17.2m Morwell Innovation Centre from 2020. The centre will provide a central gateway for collaboration between educators, researchers, business leaders and industry. It will focus on the key growth sectors—health, food and fibre and new energy.

Advanced R&D in geotechnical and hydrogeological engineering

The Geotechnical and Hydrogeological Engineering Research Group combines a wealth of research experience in geo-mechanics, hydrogeology and soil science for the purposes of open-pit mine research. The group works closely with the Victorian Government and Latrobe Valley mining partners to provide a broad range of advanced research development and support to the Latrobe Valley brown coal mines.

University of Southern Queensland

Revolutionising manufacturing industries

USQ is recognised internationally for its R&D projects in automated fibre composites for civil infrastructure. USQ has partnered with Wagners Composite Fibre Technologies to focus on the development of pultrusion technologies that are revolutionising manufacturing industries. The partnership has created advanced structures which have captured new high value markets in the oil and gas and transport industries both in Australia and internationally.

Helping Australian farmers with novel technologies

USQ has a long-standing strategic partnership with Deere & Company in the USA to facilitate joint research initiatives in agricultural technologies. The partnership has enabled Australian farmers to be among the first in the world to benefit from research into machine vision technologies such as automated irrigation and driverless tractors.

Southern Cross University

Research that drives the development of policy in the horticulture sector

SCU's research on water quality for the Coffs Harbour City Council downstream of intensive blueberry farming has led to a better understanding of the adverse environmental effects associated with blueberry farming. The work has informed regulatory agencies' understanding of the impacts of horticulture on water quality and has encouraged the development of the Blueberry Code of Conduct by the peak bodies, Berries Australia and the Australian Blueberry Growers Association.

World-leading research to mitigate and remediate severe environmental threats

Acid sulfate soils (ASS) and monosulfidic black ooze (MBO) pose severe environmental threats, including the release of toxic metals and deoxygenation of water. SCU's novel research around ASS and MBO has led to novel remediation approaches for severely degraded sites. It has informed policy, changed environmental practices and provided benefits to local industries and communities. The researchers' work at East Trinity Bay in Queensland was hailed as the most effective large-scale clean-up of acid sulfate soils in the world.

The RUN has the potential to contribute additional economic benefits to regional Australia

RUN member universities play an important role in regional development, by undertaking research and delivering high quality education. To illustrate this role and highlight the additional benefits that could be delivered by member universities, the study estimated the economic impact of each RUN member university under a range of potential future scenarios. These scenarios were constructed to reflect changes in key government policy settings which would enable the RUN to deliver greater benefits to regional Australia.

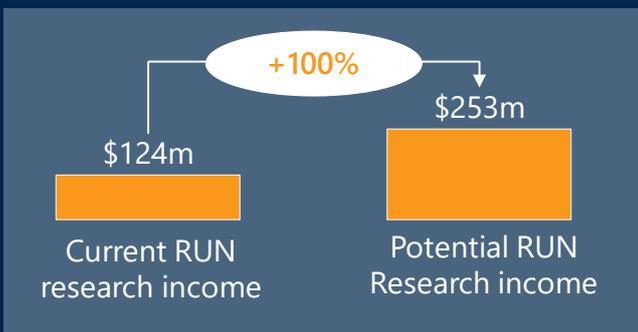
Specifically, the study considered the following scenarios:

1. The share of public research funding directed towards RUN doubles from its 2018 level of 2.99 per cent (\$124m) to 6 per cent (\$253m).
2. An additional 6,000 students from rural, regional and remote areas of NSW, Queensland and Victoria take up places at RUN universities.
3. Each member university receives a one-off increase in capital funding to the value of \$50m.

In addition to these scenarios, the study undertook sensitivity analysis to demonstrate the significant role that RUN universities play as anchor institutions within their regions. This analysis illustrates that member universities' economic impact is greatest in regions where the local population is higher due to the presence of a university than would otherwise be the case.

The image below provides an overview of the results of the scenario analysis.

SCENARIO 1: DOUBLING RUN'S RESEARCH INCOME



+\$94m IN REAL GDP **+600** JOBS

SCENARIO 2: INCREASED REGIONAL ENROLMENT



+\$122m IN REAL GDP **+690** JOBS

SCENARIO 3: INCREASED CAPITAL FUNDING



+\$140m IN REAL GDP **+900** JOBS

SENSITIVITY ANALYSIS: INCREASED POPULATION



\$2.9bn IN REAL GDP **15,700** JOBS



Increased investment in
regional universities
will grow GDP and jobs
in regional Australia

Doubling RUN's research income would generate an additional \$94m in real GDP and support 600 additional jobs in regional Australia

With the increase of world-class research being conducted at RUN member universities, including a four-fold increase in the number fields of research being rated being above world standards across RUN, RUN plays an important role in contributing to industry productivity in regional Australia.

In this scenario, RUN research income is increased from \$124m to \$253m. This increase doubles the RUN's total research income from 2.99 per cent to 6 per cent of all research income allocated to public universities and reflects the growth in world-class research being undertaken at RUN member universities. The additional \$129m in research income is distributed proportionally according to RUN's 2018 research income.

Lifting regional higher education participation rates would generate an additional \$122m in real GDP and create 690 additional jobs

Individuals from regional, rural and remote areas are "less than half as likely to gain a bachelor and above qualification by the time they are 35 years old, compared to individuals from metropolitan areas" (Naphine Review¹). Halving this disparity is the central target of the Australian Government's National Regional, Rural and Remote Tertiary Education Strategy.

In this scenario, 6,000 more students from regional, rural and remote areas of NSW, QLD and Victoria go to university each year, and they choose to attend RUN universities. This increase in RUN enrolments is equivalent to meeting the strategy's target to lift regional participation rates.

The additional students in this scenario are distributed across RUN member universities proportional to each RUN member university's total enrolment. Within each RUN member university, the study modes of the additional students are assigned proportionally to each university's enrolment by study mode. All students are also assumed to be studying full-time.

Economic impact from doubling RUN's research income

	Scenario Result	Difference from base modelling
REAL GDP	\$2.5b	+\$94m
JOB (FTE)	\$11,900	+600

Economic impact from increased RUN enrolments

	Scenario Result	Difference from base modelling
REAL GDP	\$2.5b	+\$122m
JOB (FTE)	\$12,000	+690

¹ National Regional, Rural and Remote Tertiary Education Strategy, p. 6 – 11

Increased capital funding would generate an additional \$140m in real GDP and create 900 additional jobs

University infrastructure and facilities play an important role in regional areas, often doubling as community assets. Furthermore, identifying opportunities to establish research infrastructure was highlighted in the Napthine Review as a key measure through which to ‘strengthen the role of tertiary education providers in regional development and grow Australia’s regions.’¹

In this scenario, each of the seven RUN member universities receive a once-off increase in capital funding, valued at \$50m. The additional GDP and jobs supported by the additional capital stock of \$350m shown in Table 6 reflect the long-term economic impact to RUN’s campus regions. For example, they do not reflect the temporary creation of construction jobs in campus regions when RUN member universities use the investment to construct new facilities.

¹ National Regional, Rural and Remote Tertiary Education Strategy, p. 7, available: [here](#).

Increased population impact increases RUN’s economic impact to \$2.9b in real GDP and 15,700 jobs in regional Australia

RUN member universities act as anchor institutions within their regions, affecting the size of the local population. As universities grow over time, more people are attracted to the region by university jobs available, which in turn supports employment in other industries. Similarly, if the university reduces in size, or a campus did not exist, people may be more likely to leave town rather than stay and look for alternative employment. The extent to which people are attracted to the region, or likely to leave, as a result of changes in the size of the university, can be defined as the sensitivity of the local population to changes in employment. Accordingly, the more sensitive the region’s population is to changes in local labour market conditions, the greater the member universities’ economic impact will be.

Economic impact from increased capital stock		
	Scenario Result	Difference from base modelling
REAL GDP	\$2.5b	+\$140m
JOB (FTE)	\$12,200	+900

Economic impact due to increased sensitivity of local labour markets in regional areas		
	Scenario Result	Difference from base modelling
REAL GDP	\$2.9b	+\$500m
JOB (FTE)	\$15,700	+4,400

RUN member universities support their regional communities

In addition to its economic impact, RUN member universities deliver a range of additional benefits to their regional communities including sharing campus infrastructure and institutional resources.

Charles Sturt University

Large provider of community health

CSU provides publicly accessible clinics across multiple campuses that benefit local communities and provide teaching and research resources. These services include allied health services in podiatry and speech pathology and extensive veterinary services including a large-animal hospital and a veterinary diagnostics laboratory. CSU also houses a professional dental and oral health clinics offering the latest technology and mobile dental equipment that delivers dental care to vulnerable community members. Students are supervised by qualified professionals to ensure patients receive the highest standards in care and service.

Central Queensland University

Providing vital support in times of crises

CQU provides vital support to the community during times of crises with the two most recent being the 2019 Townsville flood and the 2019/20 bushfire crisis. Through a variety of fundraising events, student and staff support, and education initiatives, CQU responded to these crises with both short-term and longer-term recovery initiatives. During the bushfire crisis, CQU's Noosa campus was made available so that disability support organisations could host clients who had been evacuated from their homes and CQU opened its residential college in Central Queensland to house emergency services personnel.

Federation University

Supporting mental health

In collaboration with the Ballarat Health Services (BHS), and the mental health organisation Prevention United, Federation runs the wellbeing initiative Track and Change, an online monitoring and support system that aims to improve the mental wellbeing of workers in residential aged care services. Funded by Workforce Victoria, the project involves project partners working collaboratively with staff and management at BHS to identify workplace demands on mental wellbeing using an online support system to monitor and support worker mental wellbeing over time.

RUN member universities also provide a range of programs including environmental conservation and cultivating entrepreneurship in regional Australia.

Southern Cross University

Cultivating social innovation and entrepreneurship

SCU supports social innovation and social entrepreneurship through its Enterprise Lab network at the Lismore and Gold Coast campuses. The network cultivates collaboration between entrepreneurs, researchers, students and mentors. It has held over 45 events across the Northern Rivers region, engaging with approximately 1,400 community members, students and partners.

University of the Sunshine Coast

Rescuing dogs for conservation

The USC Detection Dogs for Conservation is a not-for-profit founded in 2015 that rescues dogs from animal refuge shelters, trains, tests and deploys them for conservation in Australia. During the 2019 bushfire crisis, the team was deployed to search for injured and displaced wildfire, particularly koalas. As fire-ravaged areas recover in 2020, the team is continuing to monitor the safety of koalas.

University of Southern Queensland

Supporting local frontline healthcare workers during COVID-19 pandemic

USQ collaborated with local businesses and industry to manufacture face shields for local frontline healthcare workers during the COVID-19 pandemic. USQ worked with local manufacturers to produce face shields using 3D technology for local healthcare workers at Darling Downs Health, Oakey Hospital, Aged Care and GPs in Dalby and wider areas.

University of New England

Supporting tech start-ups in rural NSW

Created with NSW Government funding in 2016, UNE's Smart Region Incubator supports technology-based start-ups in rural NSW by facilitating connections between regional businesses, academic business research, business mentors, and corporate and community partners. It is home to 25 agri-tech companies and supports 60 start-ups with a goal to double the number of start-ups in the region to 150, generating a total of 250 jobs in the region.

Appendix: Additional information

A.1 CGE Modelling

The economic modelling was undertaken by the Centre of Policy Studies (CoPS) at Victoria University using their multi-regional CGE modelling, VU-TERM. The specific implementation of VU-TERM used for the present study is informed by shocks derived from data provided by Nous Group which detail various aspects of the activity RUN member universities including enrolment, employment of graduates and research income, among others. The most recent year for which data are available for all required descriptors is 2018. More information about the CGE models that CoPS uses can be found on their website.¹

A.2 Estimating student expenditure

Total student expenditure is calculated by weighting student expenditure patterns according to their mode of study and home postcode. This produces an estimate of how much a student's expenditure is directly attributable to the presence of the university, as opposed to expenditure they would have made otherwise. For example, a student who studies on campus and already lives in the region where the university is located is given a weighting of 10 per cent as it can be assumed that they were already spending most of their money in the region. On the other hand, an international student is given a weighting of 100 per cent as they would not otherwise be living in the region at all.

Table 4: The weightings applied by student type.

Weighting	Student type
Weighting of 10%	Inter-state external Intra-region internal Intra-region external
Weighting of 60%	Intra-state internal
Weighting of 80%	Inter-state internal
Weighting of 100%	Overseas

¹ <https://www.copsmodels.com/models.htm>

² The economic impact of the Group of Eight universities (page 80, 81)

³ The Intergenerational Report (2015) published by The Treasury of the Australian Government projects a long-term (40-year) nominal wage growth of 4% (page 30). The real growth rate was calculated by adjusting this for the Reserve Bank of Australia's 2-3% inflation target (<https://www.rba.gov.au/inflation/inflation-target.html>)

⁴ The Office of Best Practice Regulation requires an annual real discount rate of 7 per cent for the calculation of net present values. See page 7 of Cost-Benefit Analysis, Department of the Prime Minister and Cabinet (<https://www.pmc.gov.au/sites/default/files/publications/cosst-benefit-analysis.docx>)

A.3 Estimating graduate employment

The Graduate Outcomes Survey reports information on employment of graduates including postcode, salary and industry of employment by university. It is used to estimate the number of graduates that work in regional Australia. By assuming graduates that respond to the Graduate Outcomes Survey are representative of all graduates at their universities, graduate employment is estimated by weighting results from the Graduate Outcomes Survey for non-responses based on completion data by university.

A.4 Estimating the additional lifetime earnings for RUN Bachelor graduates

The additional lifetime earnings represent the additional earnings a 22-year old RUN bachelor's degree holder can expect to earn on average relative to a 22-year old who does not go to university. We estimate this by comparing the net present value of future earnings up to age 65 of a 22-year old RUN bachelor's degree holder to that of a 22-year old who did not go to university.

1. We estimate the average income employed persons aged 21-23 years in RUN campus SA3 regions from the Census 2016.
2. While Wilkens (2018) presents aggregate wage premiums to higher education qualifications across individuals over all ages, it is expected that these returns vary significantly over individuals' working lives. By combining these wage premiums and work from London Economics—who derived the aggregate marginal earnings by age band for a range of education qualifications²—we derive a distribution of earnings returns to Bachelor qualifications for RUN graduates by age band. We use this distribution to inflate the baseline to produce average income by age band.
3. We adjust these age-income profiles for the fact that income would be expected to increase in real times at an assumed rate of 1.5% per annum³.
4. We discount the future stream of future income to generate its net present value using a standard real discount rate of 7%⁴.

