NineSquared

Economic Contribution of the Independent Higher Education Sector

For Independent Higher Education Australia

27 February 2026

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Our principals and staff are experienced, senior level practitioners who have worked in and advised government and private sector clients about a range of commercial and economic issues, primarily relating to transportation. Broadly, our expertise lies in the fields of transport and regulatory economics, policy development and analysis and advising on commercial arrangements between government and the private sector as well as arrangements between companies operating within regulated environments.

Our combined public and private sector experience mean that we are well placed to provide our clients with deep understanding of both the public and private sectors and the interface between them.

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IHEA INDEPENDENT HIGHER EDUCATION AUSTRALIA

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Key Findings.

Independent higher education is an important contributor to Australia's economic activity.

The sector contributes

$8.2 billion

to Australia's GDP

For every **$3** the sector directly contributes to GDP, it supports around **$1** of additional value added elsewhere in the economy

International students contribute

$7.6 billion

to Australia's GDP

Supports

18,906 FTEs

across the economy

196,000 students

61% International*

39% Domestic*

*Shares based on EFTSL

Contributes

$3.0 billion

in government tax revenue

Increases output by

$14.0 billion

Contributes

$13.1 billion

to total incomes

The sector contributes to the Australian economy through several major impact channels:

- institutional spending
- international student living expenses
- expenditure of visiting friends and family
- net increase in student labour supply
- graduate labour productivity uplift
- research driven productivity uplift

Executive Summary.

Australia's higher education system comprises both public universities and independent providers operating under a common national regulatory and quality framework. Independent higher education providers now educate almost 196,000 students, representing around 12% of total higher education enrolments, and have accounted for a larger share of enrolment growth in recent years. The sector plays a distinct role within the system, particularly in postgraduate education, industry-aligned training and international education, and is closely connected to Australia's skills base, labour market performance and economic growth.

This report quantifies the economic contribution of the independent higher education sector to the Australian economy in a single representative year, 2025. The analysis uses a computable general equilibrium (CGE) modelling framework to estimate economy-wide impacts, capturing direct, indirect and broader adjustment effects across industries, households and government.

Independent higher education makes a significant contribution to the Australian economy

The independent higher education sector is estimated to make a substantial positive contribution to Australia's economic activity in 2025. The modelling finds that sector activity:

- Contributes **$8.16 billion to Australia's Gross Domestic Product (GDP)**
- Supports **18,904 full-time equivalent (FTE) jobs** across the economy
- Contributes **$13.13 billion to total incomes**
- Supports **$14.04 billion in total economic output**[1]
- Contributes **$2.97 billion in government tax revenue**.

In GDP terms, this contribution comprises approximately $6.33 billion in value added generated directly by independent higher education activity, together with a further $1.83 billion generated elsewhere in the economy through flow-on effects. This implies a value-add multiplier of 1.29, meaning that **for every $3 the sector directly contributes to GDP, it supports around $1 of additional value added across the wider economy**.

These contributions extend well beyond just the provision of education services, supporting activity, employment and public revenue across a wide range of industries.

[1] Output and GDP are related but distinct economic measures and differ in magnitude. Output is a gross measure of production, capturing the total value of goods and services produced, while GDP measures value added by netting out the intermediate inputs used in production. This distinction is discussed further on page 22.

A range of economic impact channels underpin the results

The economic contribution estimates are based on a computable general equilibrium (CGE) model that captures the main pathways through which independent higher education activity affects the Australian economy. Specifically, the modelling incorporates:

- **Institutional spending**, including operating and capital expenditure by independent providers
- **International education-related expenditure**, including international student living expenses and spending by visiting friends and relatives
- **Labour market effects**, including labour supplied by international students while studying and reduced labour supply among domestic students undertaking study
- **Productivity effects**, including higher labour productivity associated with graduates and productivity spillovers arising from research activity within the sector

Together, these channels capture both expenditure-based impacts and longer-term labour market and productivity effects.

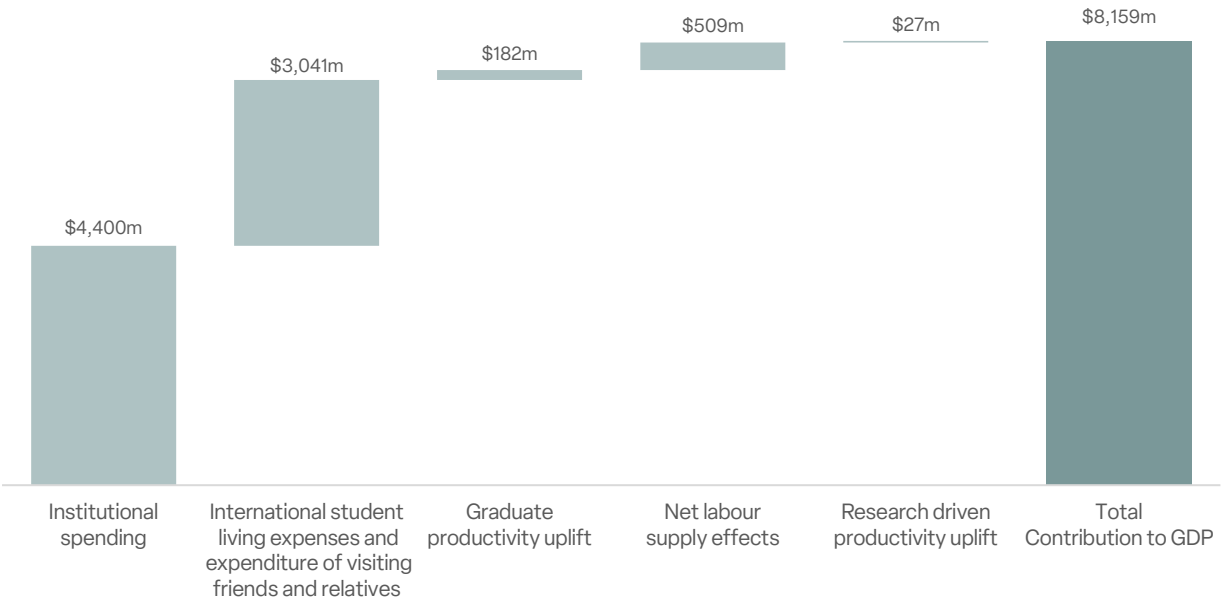
Institutional activity and international education drive the GDP contribution

The composition of the $8.16 billion GDP contribution is shown in Figure ES.1, which presents the incremental contribution of each impact channel.

Figure ES.1.

THE INDEPENDENT HIGHER EDUCATION SECTOR CONTRIBUTES TO GDP PRIMARILY THROUGH INSTITUTIONAL ACTIVITY AND INTERNATIONAL EDUCATION-RELATED EXPENDITURE

Incremental contribution to GDP by impact channel[2]



As shown in Figure ES.1, the largest share of the GDP contribution arises from institutional operating and capital expenditure, reflecting the scale of activity undertaken by independent higher education providers.

[2] Each incremental impact shown reflects not only the direct effect of the newly introduced channel, but also its interaction with previously modelled channels through adjustments in prices, wages, labour allocation, and production across the economy. These general equilibrium interactions are therefore embedded within the incremental results, rather than reported as a separate interaction effect.

International education-related expenditure, including spending by international students and their visiting friends and relatives, represents the second-largest contribution and highlights the sector's role as a source of export-related demand.

Net labour supply effects make a positive contribution, reflecting the participation of international students in the workforce, partially offset by reduced labour supply among domestic students while studying. Productivity effects, including graduate productivity uplift and research-driven productivity spillovers, add smaller but positive contributions to GDP.

International students account for over 90% of the sector's contribution to GDP

Overall, international students account for around 93 per cent of the independent higher education sector's total contribution to GDP. In 2025, the GDP contribution associated with international independent higher education students is estimated at approximately **$7.6 billion**, forming the majority of the sector's overall economic contribution.

Domestic students and research-driven productivity effects (not attributable to student type) account for a comparatively smaller share of the overall GDP impact.

Economic contributions extend across industries and the workforce

The economic activity supported by independent higher education extends well beyond education services. Employment and output gains occur across a broad range of industries, particularly in service-oriented sectors that are closely linked to institutional activity and student expenditure, including trade, government services, communications, business services and transport.

These patterns reflect the way higher education activity is embedded across the economy—through supply chains, household spending and workforce participation—rather than being confined to the education sector itself.

Beyond the modelled economic impacts

While this analysis quantifies a wide range of economic impacts, it does not capture all contributions associated with independent higher education. Broader social and economic benefits—such as improved labour market resilience, better health and wellbeing outcomes, stronger civic participation and positive intergenerational effects—sit outside the scope of the CGE modelling. These impacts are discussed qualitatively in the report and reinforce the broader contribution of independent higher education to Australia's long-term economic and social outcomes.

Introduction.

NineSquared, in partnership with Qaive, has been engaged by Independent Higher Education Australia (IHEA) to assess the economic contribution of the Independent Higher Education sector to the Australian economy. Independent higher education providers comprise private universities, university colleges and other non-public institutions operating within Australia's national quality framework and represent a growing and distinct component of the tertiary education system.

This report provides a rigorous, economy-wide estimate of the sector's contribution to GDP, incomes and employment, using a Computable General Equilibrium (CGE) modelling framework to capture the full set of direct and flow-on economic impacts associated with the sector.

The study considers various pathways through which independent higher education activity generates economic value. This includes the spending by institutions on both operating and capital budgets, which supports output and employment across a wide range of supplying industries. It also includes the living expenses of international students—along with spending by visiting friends and relatives—which represent a significant source of export revenue for Australia.

In addition to these expenditure-driven effects, the modelling incorporates labour market and productivity impacts that arise from higher education activity. These include higher labour productivity associated with education and upskilling; additional labour supply contributed by international students working while studying; temporary reductions in labour supply from students who reduce working hours to undertake study; and productivity benefits arising from research activity within the sector, recognising the role of university research in supporting long-term economic growth.

By evaluating these effects within a CGE framework, the modelling provides a comprehensive assessment of the total economic activity attributable to the independent higher education sector. The results presented in this report quantify the sector's contribution to national output, employment, incomes, and tax revenues, demonstrating the economic significance of independent providers within Australia's tertiary education system.

Beyond the quantified economic impacts, the independent higher education sector is also associated with a range of broader social and economic benefits that sit outside the scope of the CGE modelling. These impacts are not incorporated into the economic contribution results and are discussed separately for completeness, drawing on empirical research evidence.

This remainder of this report is structured as follows:

1. **Sector background** – an overview of the independent higher education sector and its key characteristics.
2. **Methodology** – a description of the CGE modelling framework and the overall approach used to estimate economic contribution.
3. **Development of economic shocks and data inputs** – detail on the impact channels assessed, data sources, key assumptions, and translation of sector activity into CGE model shocks.
4. **Economic contribution results** – estimates of the sector's contribution to GDP, employment, incomes, output, and tax revenues.
5. **Broader social benefits** – a qualitative summary of additional social and economic benefits associated with higher educational attainment that sit outside the scope of the CGE modelling.

The Independent Higher Education Sector.

Australia's higher education system comprises a mix of public universities and independent education providers, all regulated under a common national quality framework. Within this system, independent institutions—including private universities, university colleges and other private higher education institutes—play an important and complementary role to that of public universities.

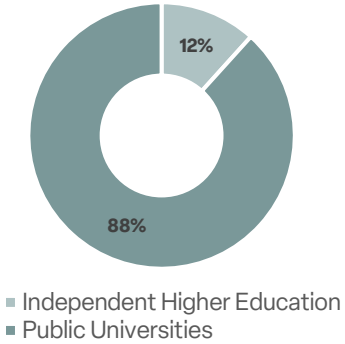
In 2024, just under 196,000 students were enrolled in one of Australia's 109 independent higher education institutions[3]. This equates to around 12 percent of the total higher education enrolments in Australia. While smaller in student numbers, growth (based on student enrolments) in the independent higher education sector has outpaced growth in the public university sector since the Covid-19 pandemic with compound annual growth since 2020 of 5.6% in the independent sector compared to 0.2% in the public sector.

The sector covers a range of institutions from private, multi-faculty universities, such as Bond University and Torrens University, to smaller institutions that specialise in defined fields of education, have a strong focus on teaching and student experience and maintain close alignment with professional and industry requirements, often through external accreditation bodies. Independent providers typically operate without ongoing public funding for teaching and have limited access to Commonwealth Supported Places (CSPs) which has shaped course offerings and student cohorts.

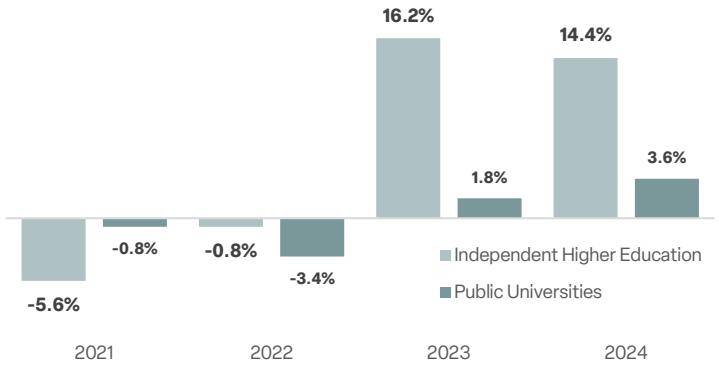
Figure 1.

THE INDEPENDENT HIGHER EDUCATION SECTOR ACCOUNTS FOR APPROXIMATELY 12% OF TOTAL HIGHER EDUCATION ENROLMENTS AND HAS EXPERIENCED RAPID GROWTH IN RECENT YEARS COMPARED WITH THE PUBLIC SECTOR.

Student enrolments by sector, 2024



Percentage growth in student enrolments, independent versus public sector



[3] All student enrolment data in this section is sourced from the Australian Government's Department of Education website Student Data - Department of Education, Australian Government, accessed 20 January 2026

Offerings and enrolments by discipline

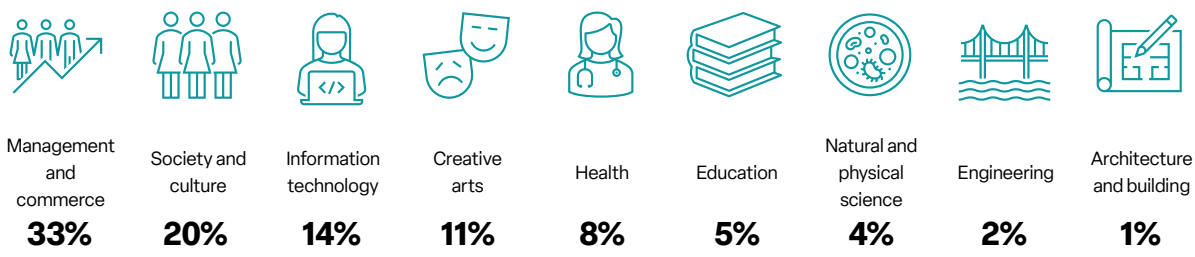
Independent higher education institutions offer accredited higher education qualifications across the Australian Qualifications Framework (AQF) levels 5 to 10, including undergraduate and postgraduate programs. In 2024, approximately 42 percent of Equivalent Full Time Student Load (EFTSL) in the sector was in postgraduate courses while 57% was at bachelor or diploma level. Around one third of EFTSL was enrolled in the Management and Commerce discipline with 20 percent in society and culture, 14 percent in information technology and 11 percent in creative arts.

Management and commerce and society and culture disciplines include professional postgraduate qualification pathways for lawyers (including practical legal training), as well as postgraduate qualifications supporting advanced professional practice in fields such as accounting, taxation and related disciplines. Enrolments in these programs are included in the EFTSL data outlined in this section.

Figure 2.

MANAGEMENT DISCIPLINES ACCOUNT FOR A THIRD OF FULL TIME STUDENT LOAD BUT THE SECTOR OFFERS A WIDE RANGE OF SUBJECT MATTER AND DISCIPLINES TO STUDENTS.

Percentage of EFTSL by broad discipline



Domestic and international enrolments

A key feature of the independent higher education sector is that a higher proportion of its student cohort is made up of international students. In 2024, 47,914 students in the sector were classified as domestic students[4] while 76,148 were overseas students.[5] The proportion of overseas students in 2024 (61%) increased from the previous year (55%), driven by a 27% increase in the number of overseas students enrolling in the sector compared to just a 3% increase domestic student enrolments. In contrast, overseas students in public universities totalled around 368,000 in 2024, accounting for around 35% of total student enrolments in the sector.

Of all overseas students studying in higher education in Australia in 2024, 17% enrolled in an independent higher education institution—well above the proportion that might be expected given the 12 percent market share of the independent sector. Given their share of enrolments and the higher fees paid by international students across the sector, the overseas market is an important element supporting the commercial nature of the independent sector. It also means, however, that the independent sector is

[4] Domestic students include students who were Australian or New Zealand citizens or who have Permanent Residency or were in Australia on a Humanitarian Visa.

[5] Note that these enrolment figures are based on EFTSL data for the independent higher education sector.

exposed to and influenced by government policy settings including international student visa and migration policy.

Regulatory and quality assurance framework

Australia's higher education sector operates under a unified national regulatory and quality assurance framework that applies consistently to both public universities and independent higher education providers. The Australian Qualifications Framework (AQF) sets the policy parameters for all regulated qualifications, defining learning outcomes and level specifications across the system. Oversight and enforcement of these standards is undertaken by the Tertiary Education Quality and Standards Agency (TEQSA), the independent national regulator responsible for ensuring provider compliance with the Higher Education Standards Framework (HES) and the Education Services for Overseas Students Act (ESOS). Together, these frameworks ensure that accredited higher education offerings—regardless of provider type—meet consistent national standards of quality and integrity.

Methodology.

The economic contribution of the Independent Higher Education sector has been estimated using the Qaive General Equilibrium Model (QGEM). The analysis assesses the economic contribution of the sector in a single representative year, 2025, reflecting the scale and structure of the sector as it currently operates.

CGE modelling provides an economy-wide analytical framework capable of capturing how industries, households, governments and global markets interact. CGE models are widely used internationally to assess the effects of major policy changes—including trade reforms, environmental regulation, fiscal measures and structural adjustments—because they allow prices, wages, production and consumption to adjust simultaneously across all sectors of the economy. In Australia, CGE models have a particularly long history of use and are routinely required in national and state government assessment processes.

Further explanation of QGEM—the CGE model used to undertake this analysis—is available in Appendix A.

To determine the economic contribution of the Independent Higher Education sector, the modelling compares two economic states: a counterfactual scenario in which the activities and legacy effects of the sector are absent, and a policy scenario in which these activities and effects are present. The difference between these two states represents the economic contribution attributable to the independent higher education sector. In implementation, the CGE model is calibrated to a baseline that reflects the counterfactual "without sector" economy, with sector activity introduced through a set of defined economic shocks to generate the "with sector" outcomes reported in this study.

A single-year framework has been adopted to provide a snapshot of the sector's current economic contribution, rather than a forecast of future activity or a projection of long-run growth paths. This approach is well suited to economic contribution analysis, as it captures the full stock of economic activity and accumulated productivity effects generated by the sector at a point in time, while avoiding the additional uncertainty associated with long-term behavioural or macroeconomic forecasting.

This approach enables us to capture the full, cumulative impact of the sector, including institutional spending, international student activity, and the productivity uplift from all graduates currently active in the workforce, amongst other impacts. The CGE analysis is confined to impacts that can be robustly quantified within a CGE framework. Broader social and economic benefits associated with higher education are not incorporated into the modelling and are discussed separately.

A summary of the economic impacts captured in this analysis is outlined below:

- **Institutional spending (operating + capital):** Total spending by independent higher education providers across operating items (e.g., wages, procurement) and capital items (e.g., construction, equipment, maintenance)
- **International student living expenses:** Expenditure by international students on accommodation, food, transport, retail and other living costs
- **Visiting friends and relatives (VFR) expenditure:** Spending by friends and relatives visiting international students in Australia

- **Additional labour supply from international students:** Labour supplied by international students working while studying in Australia
- **Reduced labour supply while studying:** Temporary reduction in hours worked by domestic students while undertaking study
- **Graduate labour productivity uplift:** Higher labour productivity arising from education of students (accumulated skills of graduates active in the workforce)
- **Research driven productivity uplift:** Higher productivity arising from university research undertaken at independent higher education institutions

These impacts are explored in further detail in the following section of the report.

Development of Economic Shocks and Data Inputs.

This section describes how the economic shocks applied in the CGE model were developed and parameterised. For each impact channel, we outline the data sources used, the key assumptions applied, and the manner in which the estimated impacts were translated into shocks to be used as CGE modelling inputs.

Institutional Spending

Independent higher education providers contribute to economic activity through their ongoing operating and capital expenditure. This includes spending on wages and salaries, goods and services, and investment in buildings, equipment, and maintenance. These expenditures support output and employment directly within the sector and indirectly through supply-chain linkages.

In this analysis, institutional spending reflects the scale of activity undertaken by independent higher education providers in the most recent full year, 2025.

Data sources and key assumptions

Estimates of institutional operating and capital expenditure were informed by provider-level financial information published by the Department of Education and providers themselves.[6] Where financial data for providers were not publicly available, benchmarks, such as average expenditure per student observed across comparable providers, were used to inform estimates. Expenditure was classified into operating and capital components and mapped to relevant industries within the CGE model. On this basis, total combined expenditure of the independent higher education sector in 2025 was estimated at $5.04 billion.

Translation into CGE model shocks

Institutional spending by independent higher education providers was implemented in the CGE model as a positive final demand shock, representing the introduction of operating and capital expenditure into Australian industries relative to a counterfactual baseline in which the sector does not operate. Operating expenditure was introduced as additional demand for labour and intermediate inputs, while capital expenditure was introduced as additional demand for construction and other investment-related goods and services.

The model therefore compares an economy without independent higher education activity to one in which institutional spending occurs, allowing the economy-wide impacts attributable to institutional expenditure by the sector to be estimated.

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[6] Australian Government Department of Education, *Finance 2024: Financial Reports of Higher Education Providers*; publicly available financial statements published by independent higher education providers.

International Student Living Expenses

International students enrolled with independent higher education providers contribute to the Australian economy through their consumption expenditure on goods and services while studying in Australia, including on accommodation, food, transport, retail goods, and personal services. This expenditure supports output and employment across a wide range of Australian industries both directly and throw flow-on impacts to downstream industries.

The analysis captures the economic contribution of international student living expenses of independent higher education students enrolled in 2025.

Data sources and key assumptions

Average weekly expenditure per international student was sourced from the Reserve Bank of Australia and estimated at $1,818 per week.[7] For the purposes of this analysis, expenditure was measured net of tuition fees, resulting in an average weekly living spend of $1,080. This treatment ensures consistency with the modelling framework and avoids double-counting, as tuition fees are recorded as institutional revenue and are subsequently reflected in institutional operating expenditure.

To allocate living expenditure across consumption categories, data from the International Visitor Survey published by Tourism Research Australia were used for visitors who identified their primary purpose of travel as 'education'.[8] These category shares were applied to estimated average living expenditure and scaled using total international enrolments at independent higher education institutions. On this basis, total annual living expenditure by international students associated with independent providers was estimated to be $5.6 billion in 2025. The distribution of this expenditure across categories is presented in Figure 3.

Figure 3.

EXPENDITURE ON FOOD, DRINK & ACCOMMODATION ACCOUNTS FOR OVER TWO-THIRDS OF INTERNATIONAL STUDENT LIVING EXPENSES

Share of international student expenditure by category*

Food, drink & accommodation	Shopping	Other expenditure	Transportation	Tours	Entertainment
71%	**11%**	**7%**	**6%**	**3%**	**2%**

* Excludes expenditure on tuition and airfares

Translation into CGE model shocks

International student living expenses were implemented in the CGE model as a positive demand shock, representing the introduction of international student expenditure on goods and services into the Australian economy relative to a counterfactual baseline without international students. As this spending is

[7] Reserve Bank of Australia (2025). *International students and the Australian economy. Reserve Bank of Australia Bulletin*, July. https://www.rba.gov.au/publications/bulletin/2025/jul/international-students-and-the-australian-economy.html

[8] Tourism Research Australia. (2025). *International tourism results: International Visitor Survey*. Australian Government. https://www.tra.gov.au/en/international/international-tourism-results

funded from overseas sources, it is treated as export-related demand within the CGE framework, consistent with ABS and international statistical agency practice regarding the treatment of non-resident expenditure funded from overseas sources.

The modelling therefore compares an economy without international students to one in which international student living expenditure occurs, allowing the contribution of this expenditure to be estimated.

Expenditure of Visiting Friends and Relatives

Friends and relatives visiting international students generate additional economic activity through expenditure made while in Australia on goods and services such as accommodation, transport, food services, and retail goods. As with the expenses of international students themselves, the expenditure of visiting friends and relatives also supports output and employment across a range of Australian industries both directly and throw flow-on impacts to downstream industries.

The analysis captures the expenditure attributable to the expenditure of visiting friends and relatives of international students enrolled with independent higher education providers in 2025.

Data sources and key assumptions

Expenditure by visiting friends and relatives (VFR) was estimated by linking international student enrolments with observed patterns of visitation associated with international students studying in Australia. Historical data on visitor nights undertaken for the purpose of visiting an international student were used alongside corresponding international student enrolment data to establish a relationship between student numbers and the volume of associated visits.[9] This relationship was then applied to international enrolments at independent higher education providers in 2025 to estimate the total number of VFR visitor nights attributable to this cohort.

Estimated VFR visitor nights associated with international independent higher education students were combined with average expenditure per visitor night for visitors travelling for the purpose of visiting friends and relatives, as reported in the International Visitor Survey, to estimate total spending by expenditure category. On this basis, total expenditure by friends and relatives visiting Australia for the purpose of visiting international students associated with independent providers was estimated to be $21.2 million in 2025.

Translation into CGE model shocks

Expenditure by friends and relatives visiting international students was implemented in the CGE model as a positive demand shock, representing the introduction of visitor spending on goods and services such as accommodation, transport, food services, and retail goods relative to a counterfactual baseline without such visits. Consistent with international student living expenses, this expenditure is treated as export-related demand.

The model therefore compares an economy without visits associated with international students to one in which this expenditure occurs, allowing the contribution of visiting friends and relatives to be estimated.

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[9] Deloitte Access Economics (2015), *The value of international education to Australia*, commissioned by the Australian Government Department of Education and Training, p. 43 (drawing on Tourism Research Australia data). https://internationaleducation.gov.au/research/research-papers/Documents/ValueInternationalEd.pdf; Australian Government Department of Education, *Higher education student data*. https://www.education.gov.au/higher-education-statistics/student-data

Additional Labour Supply from International Students

International students enrolled with independent higher education providers contribute to the labour market by participating in paid employment while studying. Labour supplied by international students increases the availability of workers to Australian industries, particularly in service sectors where student employment is most common.

The analysis captures labour supplied by international independent higher education students working during 2025.

Data Sources and key assumptions

Labour supply from international students was estimated based on published estimates of average weekly hours worked while studying, reported as 15 hours per student.[10]

Applying this figure to the international student population yielded an estimated 1.49 million hours of labour supplied annually by international independent higher education students, equivalent to approximately 39,280 full-time equivalent (FTE) workers assuming a 38-hour working week.

Translation into CGE model shocks

Labour supplied by international students while studying was implemented in the CGE model as a positive effective labour supply shock, representing the introduction of labour input provided by international students to Australian industries relative to a counterfactual baseline in which this labour supply is absent.

This captures the role of international student employment in expanding labour availability, particularly in service-oriented sectors, and allows the economy-wide contribution of international student labour supply to be estimated.

Reduced domestic labour supply while studying

While international students contribute to labour supply, domestic students enrolled in higher education may reduce the effective supply of labour available to the economy during their period of study. This reflects a trade-off between participation in paid work and educational engagement. The reduction in working hours relative to full-time employment constitutes a decrease in available labour supply, operating in the opposite direction to labour contributed by international students.

The analysis incorporates this reduction in labour supply for domestic students enrolled in 2025.

Data Sources and key assumptions

Estimates of reduced labour supply among domestic higher education students were informed by data on student enrolment status, participation in paid work, and observed hours worked while studying. Domestic students were classified as full-time or part-time and segmented by engagement level, reflecting combinations of study and employment.

Average weekly hours worked for each engagement group were sourced from published student finance surveys.[11] Students not engaged in paid employment were assumed to supply no labour hours during the study period.

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[10] Reserve Bank of Australia (2025), *International students and the Australian economy*, RBA Bulletin, July.

[11] Universities Australia. (2018). *2017 Student Finances Survey.* https://universitiesaustralia.edu.au/wp-content/uploads/2019/06/180713-2017-UA-Student-Finance-Survey-Report.pdf

The distribution of student employment across industries was based on 2021 Census data for all students, using observed patterns of employment by ANZSIC industry.[12] These industry shares were applied to working domestic independent higher education students in 2025 to allocate labour supply and reductions consistently across industries.

Working hours were scaled using equivalent full-time student load (EFTSL) to reflect differences in study intensity across the domestic student cohort and to ensure that labour supply estimates were proportional to the level of study undertaken. Total working hours supplied by domestic independent higher education students in 2025 were estimated by aggregating scaled hours across engagement categories and industries.

To quantify the effective reduction in labour supply attributable to study, observed working hours were compared with a counterfactual in which domestic students are assumed to work full-time, based on a 38-hour working week. The difference between observed and counterfactual hours represents labour withdrawn from the economy due to study commitments. On this basis, domestic higher education enrolment in 2025 was estimated to be associated with a reduction in effective labour supply equivalent to approximately 1.03 million hours, or 27,116 full-time equivalent (FTE) workers.

Translation into CGE model shocks

Reduced labour supply associated with domestic students undertaking higher education was implemented in the CGE model as a negative effective labour supply shock, representing the reduction in labour hours available to the economy due to study commitments, relative to a counterfactual baseline in which these students work full-time.

The modelling therefore compares an economy in which domestic students are not studying and supply full-time labour to one in which higher education participation reduces labour supply, allowing the economy-wide impacts of reduced labour supply while studying to be estimated.

Graduate Productivity Uplift

Graduates from independent higher education providers contribute to the economy by increasing the productivity of the workforce. Higher education raises the skills, knowledge, and capabilities of workers, allowing them to produce more value per hour worked. This productivity effect represents a key long-run contribution of the sector.

In the context of this analysis, the graduate productivity uplift reflects the accumulated stock of graduates active in the workforce in 2025, rather than the productivity impact of a single graduating cohort.

Data sources and key assumptions

Estimates of graduate productivity effects were informed by labour market statistics on earnings by level of educational attainment and industry.[13] Earnings differentials associated with higher education qualifications were used as a proxy for relative labour productivity, reflecting differences in the value of output produced by workers with different levels of education.

Productivity differentials were calculated relative to an assumed counterfactual level of educational attainment. Specifically, holders of an Advanced Diploma, Diploma, or Bachelor degree were assumed to have otherwise attained a Certificate III or IV qualification in the absence of higher education, while holders

[12] Australian Bureau of Statistics. (2021). *Engagement in employment, education and training (EETP): Census of Population and Housing*.

[13] Australian Bureau of Statistics (ABS), Employee Earnings, August 2025, Catalogue No. 6337.0.

of a Graduate Certificate, Graduate Diploma, or Postgraduate degree were assumed to have otherwise attained a Bachelor degree. This approach reflects plausible alternative education pathways and avoids overstating productivity effects.

Data on earnings by level of education were combined with estimates of the stock of independent higher education graduates active in Australia in 2025 to estimate their contribution to aggregate workforce productivity by industry in that year. As no single data source provides a direct estimate of the total stock of independent higher education graduates in Australia, the graduate stock was estimated using historical completion data extending back to 1999, together with assumed retention rates for domestic and international graduates remaining in Australia.

Translation into CGE model shocks

The graduate productivity effect was implemented in the CGE model as a positive labour-augmenting productivity shock, representing the introduction of productivity gains embodied in the stock of graduates from independent higher education providers relative to a counterfactual baseline without these gains.

The modelling therefore compares an economy without the productivity benefits of independent higher education graduates to one in which these productivity effects are present, allowing the economy-wide contribution of graduate productivity uplift to be estimated.

Research driven productivity uplift

Independent higher education providers that operate within the university sector contribute to the Australian economy through university research activity, which generates new knowledge, methods, and innovations. Over time, this accumulated research knowledge supports productivity improvements across the economy through spillovers to firms, workers, and institutions beyond the originating universities.

In this analysis, university research activity undertaken by independent institutions operating in the university sector is used as a proxy for the research activity of the independent higher education sector as a whole, reflecting the dominant role of these institutions in generating research outputs within the sector. The university research-driven productivity uplift therefore captures the long-run productivity benefits generated by the stock of research knowledge accumulated by independent higher education institutions active in the economy in 2025.

Data sources and key assumptions

Estimates of university research-driven productivity effects were informed by observed annual research expenditure by independent higher education providers operating in the university sector.

To translate annual research expenditure into an estimate of accumulated research knowledge, a steady-state approach was adopted. Under this approach, the observed annual level of research spending is assumed to be sufficient to maintain a stable stock of economically useful research knowledge once ongoing knowledge obsolescence is taken into account. A knowledge depreciation (obsolescence) rate of 10 per cent per year was assumed, reflecting the gradual erosion of the economic value of research over time as technologies, practices, and knowledge evolve.[14] On this basis, the long-run research knowledge stock associated with independent higher education providers operating in the university sector was estimated at approximately $83.3 million.

[14] Industry Commission 1995, *Research and Development*, vol. 3, Appendices, Report no. 44, Australian Government Publishing Service, Canberra.

An assumed rate of return of 35 per cent was applied to this knowledge stock to estimate the annual economy-wide productivity benefit attributable to university research activity.[15] This rate reflects the presence of productivity spillovers that extend beyond the originating universities and contribute to higher productivity across a wide range of industries. Applying this rate of return yields an estimated university research-driven productivity benefit of approximately $29.2 million in 2025.

Translation into CGE model shocks

The university research-driven productivity uplift was implemented in the CGE model as a positive total factor productivity (TFP) shock, representing the introduction of economy-wide efficiency gains arising from university research activity undertaken by independent higher education providers relative to a counterfactual baseline without these spillovers.

The TFP shock captures the productivity spillovers generated by accumulated university research knowledge, improving the efficiency with which labour and capital are jointly transformed into output across the economy and allowing the productivity contribution of research activity to be estimated.

[15] This assumption is based on the economy-wide rate of return to publicly funded research adopted in *Impact assessment of ARC-funded research – Final technical supplement*, prepared by ACIL Allen Consulting for the Australian Research Council (April 2023), drawing on the empirical literature on returns to public R&D.

Economic Contribution Results.

This section presents the estimated economic contribution of the independent higher education sector to the Australian economy in a single representative year, 2025. The results are derived from the CGE modelling framework and impact channels described in the preceding sections of this report.

Headline economic contribution

The Independent Higher Education sector in Australia is estimated to have contributed over **$8.16 billion** to the Australia's GDP in 2025.

Of this contribution, around $6.33 billion reflects direct value added generated by the sector, with a further $1.83 billion generated elsewhere in the economy through flow-on effects. This implies a value-add multiplier of 1.29—that is, **for every $3 the sector directly contributes to GDP, it supports around $1 of additional value added elsewhere in the economy**.

The sector is also estimated to have:

- Supported **18,904** full-time equivalent (FTE) jobs
- Contributed **$13.13 billion** to total incomes
- Supports **$14.04 billion** in total output
- Contributed **$2.97 billion** to government tax revenue.

Contribution to GDP

In 2025, the Independent Higher Education sector is estimated to have contributed over **$8.16 billion** to Australia's GDP. GDP is the primary indicator used to assess economic contribution because it captures net value added rather than gross turnover.

Taken as a whole, this contribution reflects value added generated directly by independent higher education activity, as well as value added generated elsewhere in the economy through broader flow-on and adjustment effects. On this basis, approximately $6.33 billion of the GDP contribution reflects direct value added associated with the sector, with a further $1.83 billion generated across the wider economy. This corresponds to an implied value-add multiplier of 1.29—meaning that **for every $3 the sector directly contributes to GDP, it supports around $1 of additional value added elsewhere in the economy**.

Box 1.

ECONOMIC METRICS EXPLAINED

The economic contribution results in this section are reported using the following standard economic measures.

Gross Domestic Product (GDP)

GDP measures the total value added generated within the economy. It is equal to the value of output less intermediate inputs, plus taxes on production and imports, less subsidies on production. By excluding intermediate goods and services, GDP measures value added and avoids the double counting that can arise when output is used to assess economic contribution.

Output

Output measures the gross value of goods and services produced by an industry or sector. It reflects expenditure on labour, capital, and intermediate inputs of goods and services, including those sourced from other domestic industries and from overseas. Output therefore represents the total value of sales generated across the economy.

Employment (full-time equivalent, FTE)

Employment impacts are reported on a full-time equivalent (FTE) basis. FTE employment converts part-time and casual employment into an equivalent number of full-time jobs based on standard full-time hours. This provides a consistent measure of labour input and allows for meaningful comparison across industries with different working patterns.

Income

Income measures the change in total income generated across the economy. It reflects income earned through wages and salaries, returns to capital, and other payments arising from economic production.

Tax Revenue

Tax revenue measures public revenue earned through taxes on income, production, and imports, as captured within the CGE model. Changes in tax revenue reflect the expansion of tax bases associated with higher employment, output, incomes, and consumption.

What the GDP result represents

The GDP impact reflects the additional value created in the Australian economy as a result of independent higher education activity, after accounting for the use of intermediate goods and services. It therefore provides a measure of how much the sector contributes to Australia's overall level of economic production.

The increase in GDP arises from:

- Direct production within education services and other industries
- Flow-on activity through supply chains and household spending
- Broader economy-wide effects, including labour market and productivity interactions captured within the CGE framework.

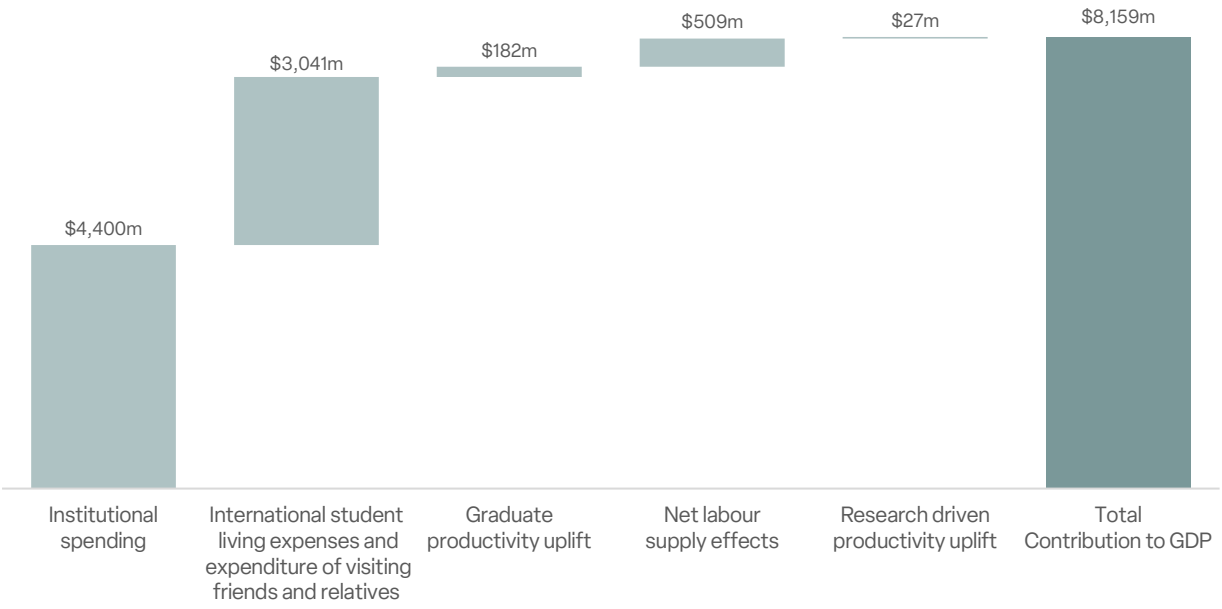
Incremental contribution to GDP by impact channel

To provide insight into the contribution of different impact channels to the headline result, the GDP contribution is examined by progressively adding each channel to the modelling. The change at each step shows how the overall contribution increases as additional channels are included, as shown in Figure 4.

Figure 4.

THE INDEPENDENT HIGHER EDUCATION SECTOR CONTRIBUTES TO GDP PRIMARILY THROUGH INSTITUTIONAL ACTIVITY AND INTERNATIONAL EDUCATION-RELATED EXPENDITURE

Incremental contribution to GDP by impact channel[16]



As shown, the largest contribution to GDP arises from institutional spending, which accounts for approximately $4.4 billion of the total GDP contribution. This reflects the large institutional spend associated with independent higher education operations.

Meanwhile, international student-related household expenditure, including student living expenses and expenditure by visiting friends and relatives, contributes a further $3.0 billion to GDP, highlighting the importance of international education-related consumption in supporting broader economic activity.

Productivity-related effects contribute more modest but positive additions to GDP. Graduate productivity uplift is estimated to have added approximately $182 million in 2025. Graduate productivity is linked to the number of graduates and will continue to grow in size each year as graduate numbers increase over time. Research-driven productivity uplift contributes a smaller incremental increase of around $27 million.

Net labour supply effects associated with higher education participation contribute around $509 million to GDP, reflecting the combined effect of additional labour supplied by international students and reduced labour supply from domestic students while studying.

GDP contribution by student type

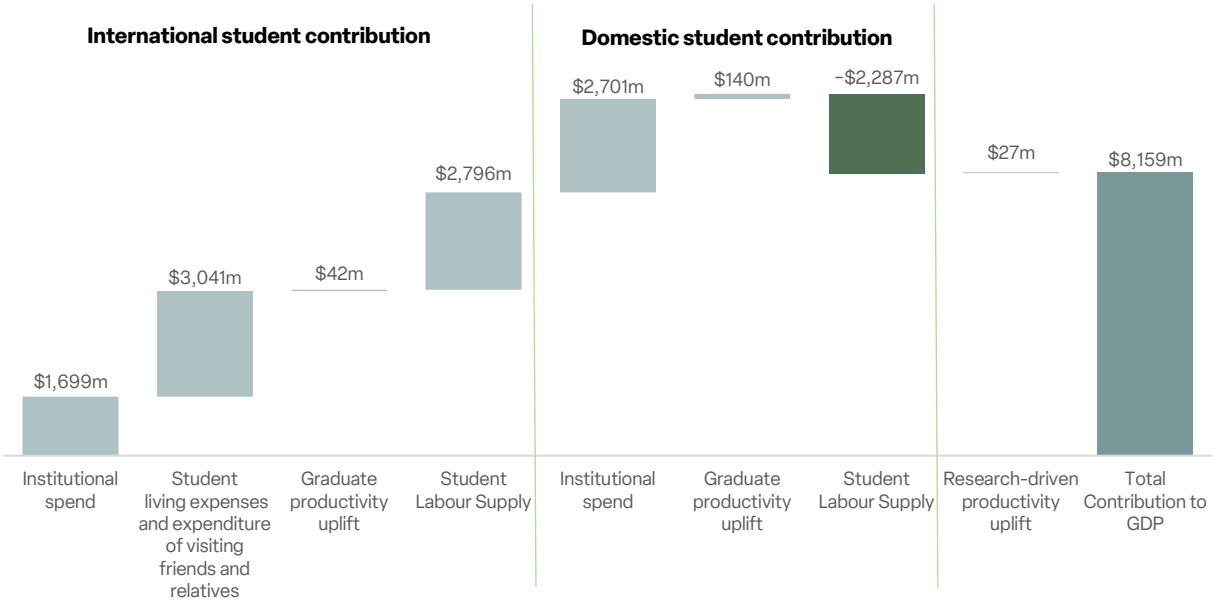
To provide insight into how the headline GDP contribution is distributed across student cohorts, the total contribution is disaggregated by student type. This decomposition separates international student, domestic student, and research-driven productivity contributions (not attributable to student type), as shown in Figure 5.

[16] Each incremental impact shown reflects not only the direct effect of the newly introduced channel, but also its interaction with previously modelled channels through adjustments in prices, wages, labour allocation, and production across the economy. These general equilibrium interactions are therefore embedded within the incremental results, rather than reported as a separate interaction effect.

Figure 5.

INTERNATIONAL STUDENTS ARE THE PRIMARY DRIVERS OF THE INDEPENDENT HIGHER EDUCATION SECTOR'S GDP CONTRIBUTION

Decomposition of GDP contribution by student type and impact channel



As shown, the contribution of **international independent higher education students** is estimated to be **$7.6 billion** in 2025, representing approximately **93% of the sector's total contribution to GDP**. This estimate reflects the portion of total value added generated by the independent higher education sector that is attributable to international student-related activity across the range of impact channels captured within the CGE modelling framework.

This large contribution is primarily driven by the following factors:

- International student living expenses and the expenditure of visiting friends and relatives is a major impact channel, contributing over one-third of the independent higher education sector's total contribution to GDP.
- A majority of total institutional spending is attributable to international students. While institutional expenditure cannot be precisely apportioned by student type, enrolment data measured on an equivalent full-time student load (EFTSL) basis indicate that international students account for approximately 61% of total enrolments. On this basis, it is estimated that the same share of institutional spending (and the associated GDP contribution generated through this impact channel) is attributable to international students.
- The contribution of international students to labour supply while studying is substantial, with international students estimated to supply approximately 39,280 FTE workers to the Australian labour market. While the net labour supply impact of both international and domestic students combined is estimated at around 12,164 additional FTEs, the gross labour supply provided by international students is significantly larger when not offset by reduced labour supply from domestic students while studying.
- Graduate productivity uplift associated with international students makes a relatively small contribution to GDP. This reflects relatively low rates of international graduate retention in

Australia, resulting in only a minor contribution to the total GDP impact attributable to international independent higher education students.

The remaining **7%** of the sector's total GDP contribution is therefore attributable to **domestic independent higher education students** and **research-driven productivity effects**. The GDP contribution associated with domestic independent higher education students is estimated to be approximately **$554 million** in 2025, reflecting their contribution through institutional activity, household expenditure, labour supply effects (noting the large negative contribution of this effect to GDP), and graduate productivity uplift.

The contribution from **research-driven productivity uplift**, estimated at approximately **$27 million** in 2025, is reported separately and is treated as agnostic to student type. These benefits arise from institution-level research activity and economy-wide knowledge spillovers and therefore cannot be robustly attributed to either domestic or international students, while remaining included in the headline GDP contribution.

Employment supported by the sector

Independent higher education activity is estimated to have supported **18,904 FTEs** across the Australian economy in 2025.

Employment impacts occur through several channels:

- Direct employment within education providers and associated services
- Indirect employment supported through supply-chain linkages
- Induced employment generated by higher household spending arising from increased income.

The CGE framework captures how additional labour demand is met through adjustments in wages, hours worked, participation, unemployment, and reallocation of labour across industries, depending on model structure and closure assumptions. Employment impacts therefore represent the net change in labour input across the economy.

Contribution to total incomes

The production and employment activity supported by the Independent Higher Education sector translates into increased income generation across the economy.

In 2025, sector activity is estimated to contribute **$13.13 billion** to total incomes across the economy. This income is allocated as follows:

- Private expenditure: $9.02 billion
- Government expenditure: $3.06 billion
- Savings: $1.05 billion

Interpreting the income results

The increase in private expenditure reflects higher household income arising from increased employment, hours worked, and productivity. This indicates an increased capacity for household consumption.

The increase in government expenditure reflects higher public consumption enabled by additional government income generated through economic activity. Government expenditure represents the use of government income, rather than the taxation mechanisms through which that income is raised.

The increase in savings represents income not consumed in the current period, indicating additional capacity for investment and future consumption.

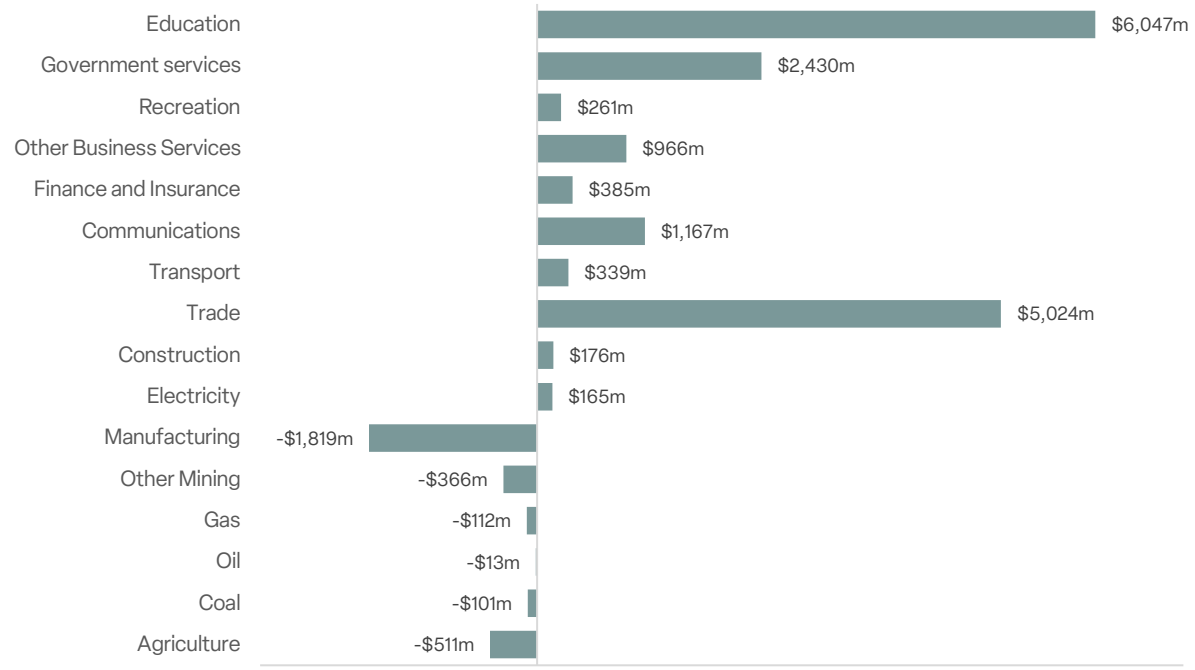
Contribution to output

The Independent Higher Education sector is estimated to have contributed around **$14.04 billion** to output across all industries in 2025. Industry output results are shown in Figure 5 below.

Figure 5.

INDEPENDENT HIGHER EDUCATION ACTIVITY DELIVERS A NET INCREASE IN ECONOMIC OUTPUT, DRIVEN BY SERVICE-ORIENTED INDUSTRIES WITH OFFSETTING DECLINES IN SOME TRADE-EXPOSED SECTORS

Economic contribution of the independent higher education sector by industry, 2025



The largest positive contribution to industry output is recorded in the education sector, at $6,037 million, reflecting the core activity of independent higher education providers. Large positive contributions are also seen in other service-oriented sectors closely linked to education activity and student expenditure, including:

- **Trade:** +$5,036 million
- **Government services:** +$2,430 million
- **Communications:** +$1,167 million
- **Other business services:** +$967 million.

More moderate positive contributions are observed in transport, finance and insurance, construction, recreation, and electricity. These outcomes reflect the direct, indirect, and induced effects associated with institutional spending, international student expenditure, and higher levels of household consumption supported by independent higher education activity.

Why some industries experience reductions in output

Offsetting negative output contributions occur in several trade-exposed industries, including manufacturing, agriculture, and mining. These results primarily reflect economy-wide adjustment

mechanisms captured within the CGE model, rather than direct negative effects of independent higher education activity. In particular, increased economic activity associated with the sector — especially export-oriented activity such as international student expenditure — places upward pressure on the real exchange rate. A higher exchange rate reduces the international competitiveness of trade-exposed industries, leading to lower export volumes and negative output contributions in those sectors. At the same time, labour and capital are reallocated towards service-oriented industries where demand associated with independent higher education activity is stronger.

Importantly, these negative contributions do not imply that the affected industries are intrinsically disadvantaged or that independent higher education imposes a direct cost on them. Rather, they reflect shifts in relative prices and resource allocation that occur as the economy adjusts to increased activity in education and related service industries.

Contribution to tax revenue

The independent higher education sector contributes substantially to public finances through its impacts on employment, incomes, production, and consumption across the economy. In 2025, the sector is estimated to have contributed **$2.97 billion** to Australian government tax revenues.

What the tax revenue result represents

The tax revenue result reflects the net increase in public revenue generated by economic activity supported by the sector, as captured within the CGE modelling framework. This includes revenue from personal income tax, company and production-related taxes, indirect taxes on household consumption, and taxes on imports.

The increase in tax revenue is driven by several reinforcing mechanisms:

- Expansion of the income tax base due to higher employment and labour income
- Increased taxable business activity, particularly in service-oriented industries
- Higher household consumption supported by increased incomes
- International education-related expenditure, which generates taxable activity across a range of domestic industries.

As with other results, the estimate represents an economy-wide net impact, incorporating both positive effects and offsetting adjustments as resources are reallocated across industries and prices adjust.

Broader Social Benefits.

In addition to the economic impacts captured within the computable general equilibrium (CGE) modelling framework, higher education is associated with a range of broader social benefits that are not captured within the model. These benefits are well established in the empirical literature and complement the modelled economic impacts. The table on the following page summarises key broader social benefits associated with higher education, together with indicative evidence and source.

Table 1.

INDEPENDENT HIGHER EDUCATION DELIVERS BROADER ECONOMIC AND SOCIAL BENEFITS THAT EXTEND BEYOND DIRECTLY MODELLED IMPACTS

Broader economic and social benefits associated with higher educational attainment

Impact	Explanation	Evidence and sources
Employment stability and labour market resilience	Higher educational attainment is associated with stronger and more stable labour market outcomes, including higher labour force participation, lower unemployment, and greater resilience during periods of labour market weakness or structural change.	Australian integrated data analysis shows that individuals with post-school qualifications have higher labour force participation and lower unemployment rates than those without, with Treasury analysis finding that participation rates for individuals with no post-school qualifications are around 10 percentage points lower than for those with post-school qualifications.[17] OECD analysis also shows that adults with tertiary education consistently record lower unemployment rates than those with lower levels of education, with gaps widening during economic downturns.[18]
Civic participation and social engagement	Higher educational attainment is associated with stronger civic engagement, volunteering and community participation.	Integrated Australian evidence shows that higher-educated individuals are more likely to engage in volunteering, advocacy and community activities, and to report higher levels of trust and social participation. Evidence shows that reported tolerance to multicultural society also improves dramatically with educational attainment, increasing from 31 to 70% for *Year 11 and below* to *Postgraduates*, respectively.[19]
Health and wellbeing	Higher education is associated with better physical and mental health outcomes and healthier behaviours across the population.	Australian Government integrated data show that higher educational is associated with healthier behaviours, including never smoking, meeting exercise guidelines and responsible alcohol consumption, and is also linked to lower rates of mortality.[20] AIHW evidence also links higher levels of educational attainment with better health status, lower prevalence of disability and long-term health conditions, and improved wellbeing.[21]

[17] Australian Government, *Benefits of Educational Attainment – Employment and income support*, Integrated Data Research, Department of Education; Kennedy, S., Stoney, N. & Vance, L. (2009), *Labour force participation and the influence of educational attainment*, Economic Roundup, Issue 3, Australian Treasury.

[18] OECD (2025), *Education at a Glance 2025: How does educational attainment affect participation in the labour market?*, OECD Publishing. https://www.oecd.org/en/publications/2025/09/education-at-a-glance-2025_c58fc9ae/full-report/how-does-educational-attainment-affect-participation-in-the-labour-market_ae451464.html

[19] Australian Government, *Benefits of Educational Attainment – Civic engagement, tolerance and trust*, Integrated Data Research, Department of Education.

[20] Australian Government, *Benefits of Educational Attainment – Healthy Behaviour*, Integrated Data Research, Department of Education.

[21] AIHW, *Education and skills: from early childhood to tertiary education*. https://www.aihw.gov.au/reports/australias-welfare/early-childhood-to-tertiary-education

Impact	Explanation	Evidence and sources
Intergenerational outcomes	Higher parental educational attainment is associated with improved outcomes for children.	Higher parental educational attainment is associated with lower rates of developmental vulnerability and improved educational outcomes.[22] Across OECD countries, around 70% of young adults with at least one tertiary-educated parent attain tertiary education themselves, compared with only 25–30% of those whose parents did not complete upper secondary education.[23]
Reduced reliance on income support	Higher educational attainment is associated with lower reliance on income support payments and reduced welfare dependence over time.	Australian Government integrated data analysis indicates that reliance on income support declines markedly with higher levels of educational attainment. Around 11.3% of individuals whose highest qualification was Year 11 or below were in receipt of the Newstart Allowance, compared with 2.5% of those holding an undergraduate degree and 2.0% of those with a master's degree.[24]

[22] Australian Government Department of Education. 2021. *The First Five Years: What Makes a Difference?* First Five Years Project, Canberra. https://www.education.gov.au/download/19864/first-five-years-project-publication/43234/document/pdf

[23] OECD (2025), *Education at a Glance 2025: How does educational attainment affect participation in the labour market?*, OECD Publishing. https://www.oecd.org/en/publications/2025/09/education-at-a-glance-2025_c58fc9ae/full-report/how-does-educational-attainment-affect-participation-in-the-labour-market_ae451464.html

[24] Australian Government, *Benefits of Educational Attainment – Employment and income support*, Integrated Data Research, Department of Education.

Appendix A: QGEM Explained

CGE models are widely used tools for analysing the local, national global economic effects of policy changes, such as trade liberalization, environmental policies, and structural reforms. CGE models have a long history of usage in Australia (in particular), with frameworks of this type being demanded for use in a range of national and state approvals processes in particular.

The Qaive General Equilibrium Model (QGEM) is Qaive's in-house Computable General Equilibrium (CGE) model. QGEM is a multi-region, multi-sector model that captures interactions between economies, markets, and industries, focusing on the flow of goods, services, and factors of production across regions and sectors.

QGEM is highly flexible and can be used to assess a wide range of policy interventions, including:

- Trade policies (e.g., tariff changes, trade agreements)
- Environmental policies (e.g., carbon taxes, emission trading schemes)
- Fiscal policies (e.g., subsidies, taxes)
- Structural reforms (e.g., changes in labor market regulations)

The model provides detailed results on sectoral output, trade flows, factor prices, and welfare impacts across regions, making it useful for both global and regional policy analysis.

QGEM is built based on well-known and accepted functional forms, combined with parameters and data that constitute an approximation to the working structure of the global economy. The construction of QGEM draws initially on the GTAP7 model for the key structural definition, which has been further enhanced as described below.

Multi-Regional and Multi-Sectoral Structure

QGEM divides the global economy into multiple regions (typically countries or groups of countries) and sectors (for example, agriculture, manufacturing, services, etc.). Each region produces and consumes a variety of goods and services, which are exchanged both domestically and internationally. Trade flows between regions are captured, allowing for the analysis of the effects of trade policies, such as tariffs and quotas.

QGEM is based on the most recent iteration of the GTAP database, now in the 11th version with a base of 65 production sectors and 160 international regions, including 141 separately identified countries.

QGEM further extends the GTAP database by not only permitting highly flexible aggregations of the underlying 65 sectors and 160 regions, but also allowing both for custom disaggregation of sectors as required, and for disaggregation to include sub-national detail as required, including to structures such as state and territories, local government areas and commonwealth electoral divisions.

Input-Output Linkages

The model incorporates input-output linkages between sectors, meaning that each sector not only produces commodities but also consumes inputs from other sectors. For example, manufacturing may require agricultural products, energy, and services as inputs.

These linkages allow the model to capture the indirect effects of changes in one sector on others through supply chain relationships. As a consequence, a change in one sector (e.g., tariff reduction in agriculture) affects all other sectors and regions through changes in relative prices and income adjustments.

Factor Markets

Primary factors of production (such as labour, capital, land and the natural resource) are specified to have a range of mobility possibilities and supply assumptions, with prices (such as wages and rents) used to clear factor markets on a period-by-period basis.

Endowments are region specific, with the model allowing for changes to endowments over time depending on the endowment and the specification of the modelling exercise. Notably, capital stocks vary from period to period based on a depreciation and investment rates, while labour is determined by demographic inputs in the baseline and a comparative labour supply elasticity in policy simulations.

Implementation framework

A range of software platforms are used for CGE models, including the GEMPACK/RunDynam suite, GAMS and Gauss. QGEM is instead solved within a Python software framework, drawing on a number of off-the-shelf packages including Pandas for data manipulation and the scipy package for model solution.

In addition, the interface of the model is implemented in Microsoft Excel, enhancing usability and aiding in internal documentation of modelling, reducing the risk of modelling error, and allow for (for example) systematic sensitivity analysis.

Representation of Trade

QGEM adopts the Armington assumption, which differentiates products by their region of origin. This assumption means that products are imperfect substitutes based on where they are produced (e.g., wheat from Australia is considered different from wheat from Canada), with the strength of this assumption varying from product to product.

The adoption of this assumption allows for more realistic modelling of trade patterns and responses to policy changes, avoiding simple corner solutions.

The model also explicitly incorporates trade and transport margins, which represent the costs of moving goods between regions. These costs are crucial for understanding the true impact of trade policies and infrastructure changes on global trade patterns.

Consumer Preferences, Government and Savings

QGEM includes representation of households and governments through the implementation of a regional consumer agent and a regional government agent. Total factor income is allocated across the regional household, the regional government and savings according to a Cobb-Douglas (CD) specification.

Private demand is determined through a utility-maximizing behaviour framework subject to Constant Difference of Elasticities (CDE) function. The government agent again is represented as a utility maximising agent, subject to a Constant Elasticity of Substitution (CES) function.

The model calculates changes in welfare (e.g., equivalent variation) based on changes in consumption, income, and prices, allowing for the assessment of the distributional effects of policies across households and regions as required.