



Australian Government

The value of international education to Australia



Prepared by Deloitte Access Economics



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About this report

In 2015, the Australian Government Department of Education and Training commissioned the Deloitte Access Economics to assess the value of international education to the Australian community. This assessment encompasses the sector's contribution to the Australian economy and its broader economic and social impact on regional communities, tourism and the calibre and productivity of Australia's workforce. For further information, please visit the website www.internationaleducation.gov.au.

About Deloitte Access Economics

Deloitte Access Economics (ACN: 149 633 116) is Australia's pre-eminent economics advisory practice and a member of Deloitte's global economics group. For more information, please visit the website www.deloitteaccesseconomics.com.au.

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The document must be attributed as the *Value of International Education to Australia*.

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Glossary

ABS	Australian Bureau of Statistics
ACPET	Australian Council for Private Education and Training
ANZSIC	Australian and New Zealand Standard Industrial Classification
ARC	Australian Retail College
AIHST	Australian Institute of Health Science and Technology
CRICOS	Commonwealth Register of Institutions and Courses for Overseas Students
DET	Commonwealth Department of Education and Training
DIBP	Department of Immigration and Border Protection
EDtECH	Education Technology
ELICOS	English Language Intensive Courses for Overseas Students
FTE	Full-Time Equivalent
GOS	Gross Operating Surplus
GVA	Gross Value Added
HSC	Higher School Certificate
IO	Input-Output
LGA	Local Government Area
MCEETYA	Ministerial Council on Education, Employment, Training and Youth Affairs
NCVER	National Centre for Vocational Education Research
NSV	Non-Student Visa
PC	Productivity Commission
TRA	Tourism Research Australia
TVA	Total Vocational Education and Training Activity
UNE	University of New England
VCE	Victorian Certificate of Education
VET	Vocational Education and Training
WHM	Working Holiday Maker

Executive Summary

This report has been commissioned by the Australian Government Department of Education and Training to assess the value of international education to the Australian community. This assessment encompasses the sector's contribution to the Australian economy and its broader economic and social impact on regional communities, tourism and the calibre and productivity of Australia's workforce.

The analysis encompasses international students studying at schools, vocational education and training (VET) providers, higher education providers and those studying English Language Intensive Courses for Overseas Students (ELICOS) courses.

The value of international education exports

- In 2014–15, the ABS valued exports from international education at **\$18.8 billion**, making it Australia's third largest export. The analysis presented in this report builds on this figure by examining and where possible quantifying avenues of export revenue not captured in the ABS statistics. These include:
 - education related expenditure by those on non-student visas studying ELICOS, which is estimated to contribute an additional \$205 million in export revenue;
 - tourism expenditure by visiting friends and relatives who come to Australia to visit an international student, which is estimated to be worth \$282 million;
 - revenue from offshore campuses which is estimated to be worth \$434 million in 2014, comprising \$382 million from higher education and \$53 million from VET; and
 - revenue from international students undertaking study tours at Australian public schools, which was estimated to be worth \$14 million in 2015.
- Collectively, these figures indicate that international education contributes an additional \$935 million in export revenue to Australia, taking the sector's overall export revenue to an estimated **\$19.7 billion** in 2014–15.
 - This should be seen as a conservative estimate of the additional export revenue from these sectors. Relatively little information is available on the offshore revenue earned by private providers.

The contribution of international education to the Australian economy

- This export revenue was estimated to support over **130,700 Full Time Equivalent (FTE) employees** in 2014–15, accounting for 1.3% of Australia's total employment.
- The contribution of international education to employment at a state and territory level is shown in Table i below, with international education supporting between 1.6% (Victoria) and 0.4% (NT) of all employment at a state and territory level.

Table 1: Contribution of international education to employment, 2014–15

State or Territory	Full Time Equivalent (FTE) jobs	Proportion of employment
New South Wales	46,903	1.5%
Victoria	39,169	1.6%
Queensland	21,474	1.1%
South Australia	8,430	1.3%
Western Australia	9,984	0.9%
Tasmania	1,474	0.8%
Northern Territory	444	0.4%
Australian Capital Territory	2,859	1.6%
Australia	130,744	1.3%

Source: Deloitte Access Economics.

Note: These figures include the contribution associated with visiting friends and relatives.

- While export revenue is a useful measure of the gross value of activity associated with international education, contribution to GDP is the most accurate measure of the net effects of international education on the Australian economy and on the living standards of Australians.
- After accounting for the fact that some of inputs to the goods and services consumed by international students and their visitors are imported, international education was estimated to contribute **\$17.1 billion to Australia’s GDP in 2014–15**. This figure includes:
 - \$12.1 billion in direct value added associated with fees paid to education providers and industries selling goods and services directly to students; and
 - \$5.0 billion in indirect value added for firms supplying intermediate inputs to education providers or other firms which sell goods and services directly to students.
- The industries which benefited most from indirect linkages to international education included Professional, Scientific and Technical Services (\$735 million in indirect value added), Finance (\$603 million), Non-residential Property Operators and Realtors (\$427 million) and Employment, Travel Agencies and Other Administration Services (\$345 million).

The contribution of international education at a regional level

- International students also make a significant direct contribution to many regional communities, **with at least 5% of international students living and studying in regional areas**.
- International students studying in metropolitan areas also make a significant indirect contribution to regional economies.
 - Using the Victorian tourism satellite accounting framework as a basis for estimation, Deloitte Access Economics estimates that for each dollar spent on goods and services by the average international student in Melbourne, \$0.30 of indirect gross value added is generated in regional Victoria as a result of demand for agricultural products and other linkages.
 - In total, expenditure by international students in Melbourne was estimated to contribute \$888 million in indirect value added and support 5,478 FTE jobs in regional Victoria.

The role of international education in enhancing the skills and productivity of the Australian workforce

- It is estimated that Australia's current stock of international students will contribute 130,000 skilled migrants to our workforce after they graduate. This represents a 3% increase in the share of Australia's current workforce with a tertiary education.
 - Deloitte Access Economics estimates that this increase in human capital would result in an increase to Australia's GDP of approximately \$8.7 billion.
 - While part of this reflects the benefits to Australians from having a more skilled population, it does not capture other potential spill overs from having former international students as part of Australia's workforce, including increased international collaboration and trade and investment links.

The broader social and cultural benefits of international education and strategies to raise community awareness of these benefits

- From the consultations conducted to inform this study it is apparent that an array of wider benefits — beyond those captured in the measures above — emanate from international education. These include:
 - economic benefits stemming from increased entrepreneurship, knowledge exchange and international collaboration;
 - economic benefits derived from trade and investment links and soft diplomacy (generated both in Australia and in source countries); and
 - social benefits flowing from improved cultural literacy, stronger cultural linkages and enhanced cultural capital (generated both in Australia and in source countries).
- While well established in some quarters, the significant role and contribution of international education to the Australian economy and society is not necessarily widely appreciated. As part of the stakeholder consultations, a range of strategies were identified to raise community awareness of the importance of international education. In particular:
 - the sector's messaging should focus more on the social and cultural benefits of international education rather than just its role as one of Australia's largest exports;
 - information and media campaigns should highlight the positive stories and achievements of former international students as well as the benefits of initiatives such as homestay to the local community;
 - community awareness campaigns should highlight the role of international students in creating a more diverse community; and
 - education providers and government should look to build more community interaction between international students and local communities.

Deloitte Access Economics



1 Introduction

Deloitte Access Economics has been commissioned by the Department of Education and Training (DET) to assess the value of international education to the Australian community, encompassing the sector's contribution to the Australian economy and its broader economic and social impact on communities, tourism and Australia's stock of human capital.

The report has drawn on both publicly available information and a series of stakeholder consultations. The objective of these consultations was to both bridge potential data gaps and to better understand the impact of international education on regional universities, the nature of linkages between the international education sector and other industries, and strategies that can potentially be used to help improve community awareness of the importance of international education to Australia.

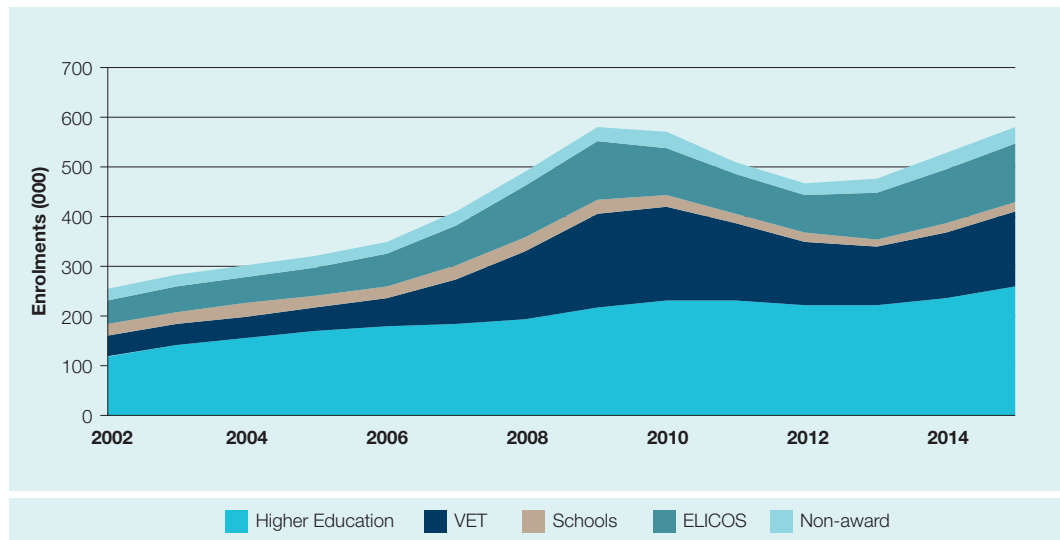
The analysis builds on existing studies in relation to the size and contribution of the international education sector in Australia by:

- quantifying the value of services and operations that are not currently captured in ABS data on international education service exports;
- analysing the value of economic contributions from the sector on Australia's regional communities and economies as well as Australia's tourism sector;
- evaluating the contribution that international student graduates make to Australia's skilled workforce; and
- identifying strategies to raise community awareness of the economic, social and cultural benefits of international education to Australia.

The report covers international students studying at schools, VET providers, higher education providers and those studying ELICOS courses.

Chart 1.1 below shows recent trends in international student enrolments by sector over time. From 2007 to 2009 international student enrolments grew rapidly. The decline in enrolments from 2009 to 2012 was driven by a range of factors including a higher Australian dollar, the global economic downturn, concerns about student safety, and more stringent requirements for student visas (PC, 2015a). The sharpest relative decline in student numbers came from the VET and ELICOS sectors, which lost 102,031 enrolments between 2009 and 2012.

Chart 1.1: International student enrolments over time



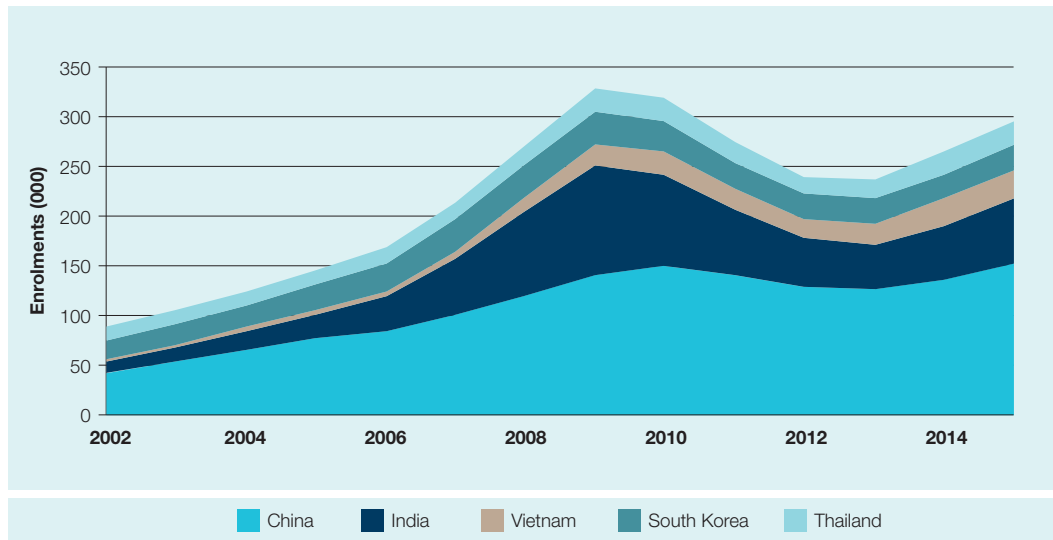
Source: DET and Deloitte Access Economics.

Since 2013, there has been a recovery in international student numbers. By 2015 there were 585,846 international student enrolments in Australia, the highest levels seen to date. All sectors except for VET and the school sector have seen enrolments now recover to exceed their levels in 2009. The impact on VET enrolments is likely to have driven in part by the replacement of the Migration Occupations in Demand List with the more limited Skilled Occupations List in 2010 as well as prospective changes to the General Skilled Migration visas in early 2010 which generated considerable uncertainty for international students.

There have also been some significant shifts in international student enrolments by source country since 2009. Chart 1.2 shows enrolments by the five largest nationalities over time. In 2015, Chinese students made up 26.6% of all student enrolments, Indian students 11.2%, Vietnamese students 4.6%, South Korean students 4.4% and Thai students accounted 4.2% of all enrolments.

Chart 1.2 shows that a substantial part of the increase in overall enrolment figures from 2007 to 2009 was driven by increases in the number of Indian enrolments, which declined after 2009. There was also a decline in Chinese enrolments after 2009, although enrolments from China have now returned to their previous peak. Enrolments of students from South Korea have also fallen since 2009, while enrolments from Vietnam have grown. Enrolments from Thailand have returned to the level they were in 2009.

Chart 1.2: Trends in student enrolments by nationality



Source: DET and Deloitte Access Economics

Thus while the international education sector plays a significant role in the Australian economy, there has been considerable volatility in enrolments in recent years overlaying the fact that an increasing number of countries are now competing for international students.

While Australia's export revenue from international education (which the ABS calculates was worth \$18.8 billion in 2014–15) is a relatively well-known statistic, to provide a fuller picture of the contribution of international education to Australian economy this report also estimates the value that this export revenue contributes to Australia's Gross Domestic Product (GDP). This requires excluding any supply chain transactions that do not contribute to Australia's GDP (e.g. the purchase of an imported good). The value-added contribution of international education to Australia's GDP is hence a lower figure and was estimated to be \$16.9 billion in 2014–15 (or \$17.1 billion after including additional tourism activity).

The remainder of this report is structured as follows:

- Chapter 2 examines the value of international education exports to Australia incorporating both information provided by the ABS and estimates of expenditure by international students on non-student visas and revenue from offshore campuses;
- Chapter 3 examines the economic contribution of international education and discusses linkages between international education and other industries;
- Chapter 4 examines the economic contribution of international education at a state and regional level;
- Chapter 5 examines the flow-on effects of international education in encouraging students' friends and relatives to visit Australia;
- Chapter 6 examines the contribution of international students to building Australia's skilled workforce; and
- Chapter 7 examines the broader benefits of international education and discusses potential strategies to raise community awareness of the importance of international education to Australia.

2 Quantifying the value of international education exports

International education is currently Australia's third largest export overall and its largest services export. This chapter discusses how international education exports are currently being captured by the Australian Bureau of Statistics (ABS), both under education related personal travel and elsewhere in the *International Trade in Goods and Services* publication. It also estimates the value of two other contributions of international education to exports not currently captured by the ABS under education related personal travel, namely, ELICOS courses provided to those on non-student visas and revenue from offshore campuses.

2.1 How international education is captured by the ABS

2.1.1 The four different modes of delivery

There are four modes through which the Australian education sector provides export services.

- **mode 1** is the cross border supply of education services, where a local provider located in Australia delivers education services to offshore international students/customers. This includes the delivery of distance education and correspondence courses, and royalties on education products;
- **mode 2** is the onshore consumption of education by international students, including both their expenditure on fees and other goods and services;
- **mode 3** is the offshore provision of international education, such as when an Australian university sets up a campus overseas; and
- **mode 4** is the presence of Australian educators overseas for a period under 12 months for the provision of education services. This would include guest lectures and fly-in quality assurance checks.

The ABS seeks to capture exports under modes 1, 2 and 4 in the series *International Trade in Goods and Services* (5368.0). However, this publication does not capture revenue from offshore campuses (mode 3). Experimental estimates of the value of service exports under mode 3 were last developed in 2002–03 (catalogue 5495.0 — Australian Outward Foreign Affiliates Trade, 2002–03). Revenue from offshore education is discussed further in section 2.3.

A more detailed description of each of the categories in the ABS *International Trade in Goods and Services* publication, including how export revenue is estimated by the ABS, can be found in Appendix A.



The export revenue for the Australian international education sector captured by the ABS over the 2014–15 period is summarised below in Table 2.1. Export revenue from the provision of international education services was \$18.8 billion, with mode 2 contributing approximately 97% at \$18.2 billion. Of the remainder, mode 4 makes up 2% at \$418 million, and mode 1, 1% at 185 million.

Table 2.1 Export value of international education captured by ABS, 2014–15

Mode	Category	(\$m)
1	Royalties on education	37
1	Correspondence courses	11
1	Education consultancy services	137
2	Education related travel	18,172
4	Educational services provided through registered educational institutions	341
4	Other educational services	77
Total		18,775

Source: ABS, 2015

2.1.2 International education exports not currently captured

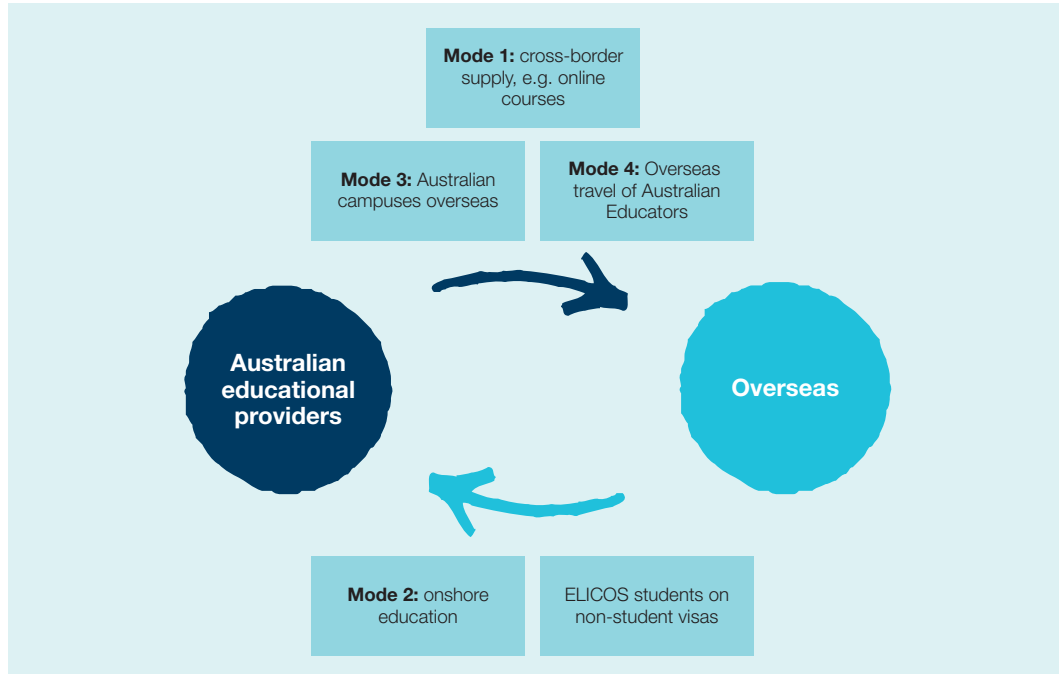
While the ABS captures most of the export revenue generated by the Australian international education sector, some aspects are not currently included:

- revenue of offshore campuses (mode 3); and
- expenditure on fees and living expenses by ELICOS students on non-student visas.

Furthermore, it should be noted that export revenue for modes 1 and 4 are based on survey responses. As a result, the estimates may be subject to sampling error — wherein the sampled institutions are not representative of the broader population.

Figure 2.1 provides a summary of the different modes of delivery. The boxes above the blue arrow indicate modes which are delivered to students overseas while the boxes below the green arrow indicate modes which involve students physically coming to Australia to study.

Figure 2.1: Different modes of international education delivery



Source: Deloitte Access Economics.

2.2 ELICOS students on non-student visas

This section will estimate the revenue from ELICOS students on non-student visas (NSV) over the financial year 2014–15, which is not captured under education related personal travel.

The ABS data series (catalogue number 5368.005) includes the expenditure of onshore international ELICOS students holding 570 ELICOS student visas (SV) on fees, and goods and services, under education related personal travel. In 2014–15, \$1,001 million in total revenue was received from SV ELICOS students. Of this, 54% is attributable to fees (\$544 million), with the remaining 46% (\$457 million) attributable to goods and services.

However, unlike students in other education sectors who are required to hold student visas to be admitted onshore for study, students enrolled in ELICOS may hold non-student visas, including visitor visas and working holiday maker (WHM) visas. Their expenditure on fees and living expenses is currently being attributed to personal related travel by the ABS.

ELICOS students on non-student visas—key findings

Deloitte Access Economics estimates an additional \$205 million in export revenue can be attributed to ELICOS students on non-student visas in 2014-15, comprising:

- \$112 million in education fees; and
- \$93 million in living expenses.

The methodology, assumptions, and limitations behind the estimated revenue figure are described in the sections below.

2.2.1 Background

The ELICOS sector is an important part of Australian international education, accounting for 137,469 international enrolments from students on student visas in 2014.¹ While the sector had experienced a decline in enrolments over the 2009 to 2011 period, falling from a high of 138,450 enrolments to 95,252 enrolments, the sector has since been in recovery, averaging a growth rate of 13% per annum over the 2011 to 2014 period (DET, 2015a).

The sector is also important for its linkages to the other sectors of international education. DET (2015b) finds that of the students commencing Higher Education and VET studies in 2014, 29% and 36% of the respective cohorts were previously enrolled in ELICOS courses. Consequently, enrolments in the ELICOS sector are often used as leading indicators for future international commencements in the tertiary education sectors.

While progression to further studies is an important driver for many ELICOS students, there are also many other motivations for students choosing to study ELICOS courses in Australia. An English Australia survey (2012) found that while 56% of respondents were preparing for further studies, over 30% of ELICOS students studied to improve either 'future employment opportunities' or 'current employment' prospects. A further 10% had either personal interest in learning a new language or wanted to experience living in a different country.

Consultations with industry stakeholders similarly revealed that there is no single driver for ELICOS students studying in Australia on non-student visas. While some students are visiting Australia with the primary aim of tourism, studying English either for fun or to gain a better understanding of the culture, as is popular among students from European and South American source markets, it is by no means the sole driver.

Stakeholders also noted that some WHM visa holders who find their English to be inadequate for immediate work may choose to enrol in an ELICOS course to improve their employment prospects, while some pathway students find it easier to initially enter Australia on a NSV visa. They can then use the ELICOS course as a trial for deciding whether to pursue future studies in Australia. Austrade data on student visa grants (2014), finds that over 14% of all student visa grantees in 2013–14 last held a visitor or WHM visa. Although not all students would have taken an ELICOS course during their initial stay in Australia, it supports the evidence from the consultations that some students would prefer to experience the Australian education system and lifestyle prior to committing to further studies.

1 This enrolment figure only includes ELICOS students on student visas.

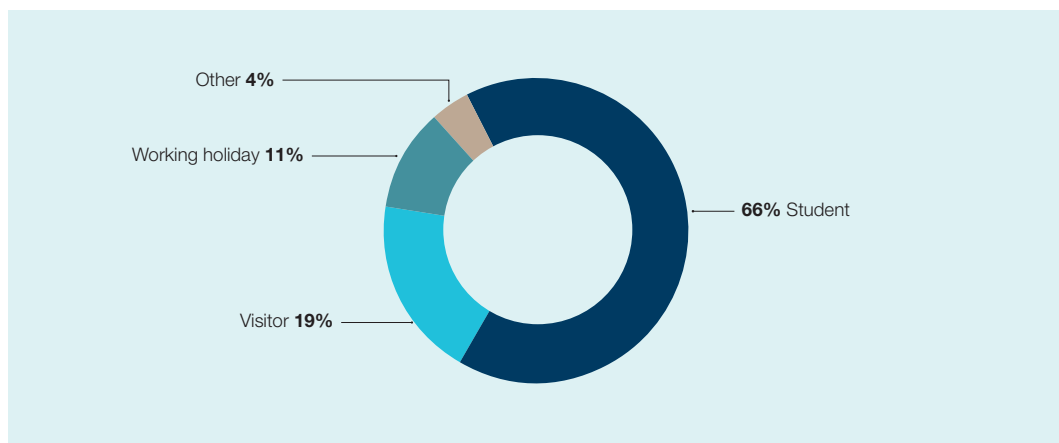


2.2.2 Estimates of NSV ELICOS revenue

While there is annual data on the SV ELICOS market, with student enrolment data from the DET and revenue from the ABS, there is limited data on the likely size and characteristics of the NSV ELICOS market. The annual *English Australia Survey of Major ELICOS Regional Markets* is the most up-to-date source of information with the widest coverage.

The English Australia (2015) survey of the ELICOS market finds that of responding colleges, enrolments from SV holders made up 66% of total enrolments in 2014, while those on visitor visas and WHM visas constituted 19% and 11% of enrolments respectively (Chart 2.1).²

Chart 2.1: ELICOS enrolments by visa type, 2014

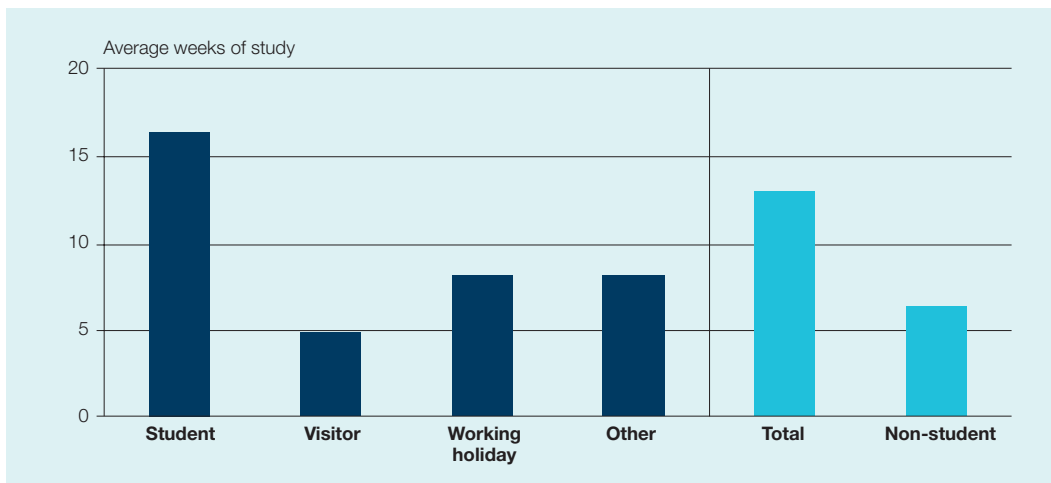


Source: English Australia, 2015

The English Australia survey also shows that NSV students have distinct profiles compared to their SV counterparts. For instance, they tend to study for shorter lengths of time (Chart 2.2), with the average SV enrolment standing at 16.3 weeks in 2014, compared to just 4.8 weeks for visitor visa enrolments. A weighted average of NSV lengths of stay of 6.3 weeks has been calculated based on the proportions of the different surveyed NSV types.

² The survey reports *student enrolments* and not *student numbers*. For instance, if SV students study for comparatively longer periods of time compared NSV counterparts and enrol in multiple courses, it may be the case that NSV *students* make up higher proportion of total ELICOS students than suggested by the enrolment data.

Chart 2.2: ELICOS average course study length by visa type, 2014



Source: English Australia, 2015

Since not all providers respond to the English Australia survey, the accuracy of the estimation results will be dependent upon how well the English Australia survey respondents reflect the overall ELICOS provider population. While the survey invited all 329 registered ELICOS institutions to participate, it had an overall response rate of 48% in 2015. The majority of responses (61%) were from English Australia member organisations, with the remaining 39% from non-members.

As the survey is skewed towards both English Australia members and big providers (with English Australia members reportedly covering 88% of total ELICOS enrolments in the sector), it is possible that responding providers may have different characteristics from non-responding providers, and attract SV versus NSV international students in different proportions.

Consequently, the consultation participants have emphasised the importance of a government led initiative for a mandatory national census of the sector to work out the total number of ELICOS students who enrol over a 12 month period.

However, given the limitations in the data, the English Australia survey data on the likely size and characteristics of the NSV ELICOS cohort for each state are applied to the population SV data to estimate the likely size of the NSV population, and their expenditure on fees and goods and services. This data includes:

- the proportion of SV to NSV enrolments;
- the average length of study; and
- the average expenditure on fees (and goods and services) per week

The full estimation methodology is given in Appendix B.

The estimated results for the 2014–15 export revenue from NSV ELICOS enrolments are presented below in Table 2.2. In total, approximately **\$205 million in export revenue is attributable to the NSV ELICOS sector over the 2014–15 period, received from 71,940 international enrolments.** Of this, \$112 million is attributable to fees, with the

remaining \$93 million attributable to student expenditure on goods and services.³ Although a sizeable proportion of ELICOS enrolments are from NSV students, standing at 34% of all enrolments in 2014 (English Australia 2015), their shorter lengths of study mean that they make up only 17% of total ELICOS export revenue.

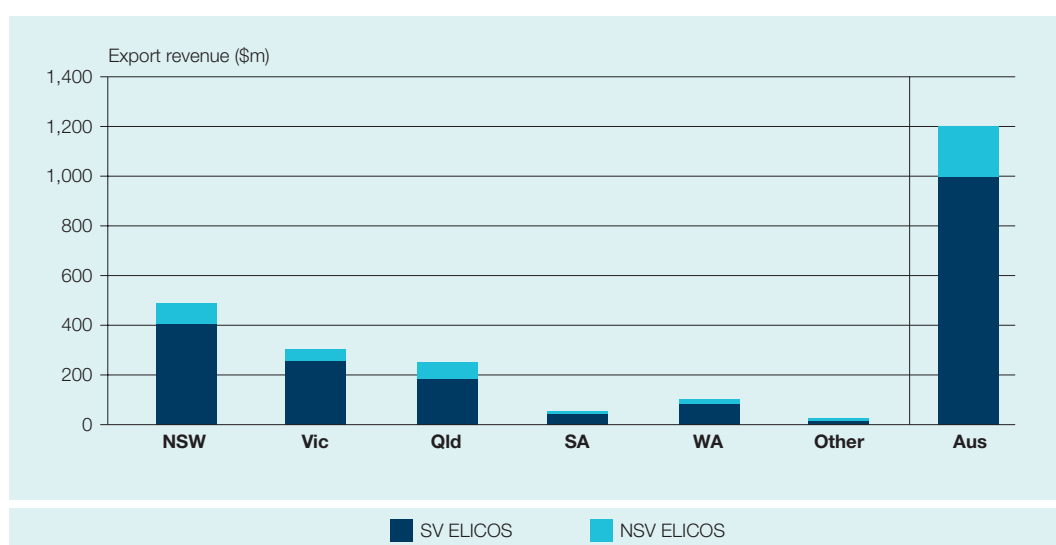
Table 2.2: Export value of NSV ELICOS enrolments, 2014–15

(\$m)	NSW	Vic	Qld	SA	WA	Other	Aus
Fees	40	22	36	1	11	2	112
Goods & Services	36	18	26	1	9	2	93
Total	77	40	62	3	20	4	205

Source: Deloitte Access Economics.

There are also some variations between states, with NSV international students gravitating toward popular tourist states. For instance in Queensland, NSV enrolments made up 25% of the ELICOS sector’s export revenue (Chart 2.3). This reflects observations by consultation participants that NSV international students (especially those on tourist visas) were more likely to choose destinations based on lifestyle, and were more likely to be attracted to metropolitan areas such as Sydney, Melbourne, or the Gold Coast. In contrast, participants noted that regional areas tend to attract SV students who were on pathway programs to enter their preferred universities in those regions.

Chart 2.3: ELICOS export revenue by source, 2014–15



Source: Deloitte Access Economics.

While ELICOS students are an important component of the non-student visa market, ELICOS students are not the only sector that educates those on non-student visas. In particular, the revenue from study tours, which are short-term programs that combine

³ All living expenses during the study period for NSV students are attributed to the international education sector. This is a simplifying assumption, and can be thought of as an upper-bound on the goods and services export revenue attributable to NSV ELICOS students. For instance, for a student who is primarily in Australia for sightseeing, it might not be appropriate to attribute their entire living expenses during their study period to the international education sector.

English language lessons with sightseeing and educational excursions (typically tourist visas) provided through the schools sector, is also not captured under education related personal travel. While the revenue from these students is likely to be smaller than that for ELICOS providers it is still significant. Consultation stakeholders suggest that the majority of study tour students are aged between 12 to 16, and stay in Australia for an average of two weeks.

Public schools, which account for the majority of study tours, hosted over 19,000 students in 2015. Based on the average student revenue for five states and territories, it is estimated that export revenue from the public school study tour sector nationally was approximately \$13.7 million in 2015.⁴ Additionally, the schools sector hosted professional visits for teachers from other countries.

2.3 Offshore revenue

While not as significant as onshore international education, in terms of student numbers and recent rates of growth, offshore delivery of international education is a significant component of international education services for Australia, with about one quarter of all international students located offshore (PC, 2015a).

Australia (in particular, Australian universities) has led the world in establishing new branch campuses of Australian institutions overseas and developing further offshore education services, including through online delivery modes (Macdonald, 2006).

Offshore international education includes formal schooling, VET and higher education, as well as non-accredited education programs at various levels. Most offshore international students (around 70 per cent) are studying in the higher education sector. In the VET sector, private VET providers have a higher proportion of international students onshore while the opposite is true for public VET providers (PC, 2015a). In schooling, a small number of independent and government schools deliver Australian high school curricula and certificates offshore, either through licensing and partnership arrangements or through 'in situ' branch campuses.

Offshore international education revenue—key findings:

Deloitte Access Economics estimates the value of international offshore education export income to be around \$434 million in 2014, this comprises:

- \$382 million from offshore higher education.
- \$53 million from offshore VET.

While there is some provision of international education in schools offshore, the value of these services is likely to be small.

2.3.1 Offshore higher education

In 2014 there were over 800 higher education programs offered by Australian universities offshore, delivered predominately offshore through 'in situ' branch campuses (Universities Australia, 2014). In 2014, there were:

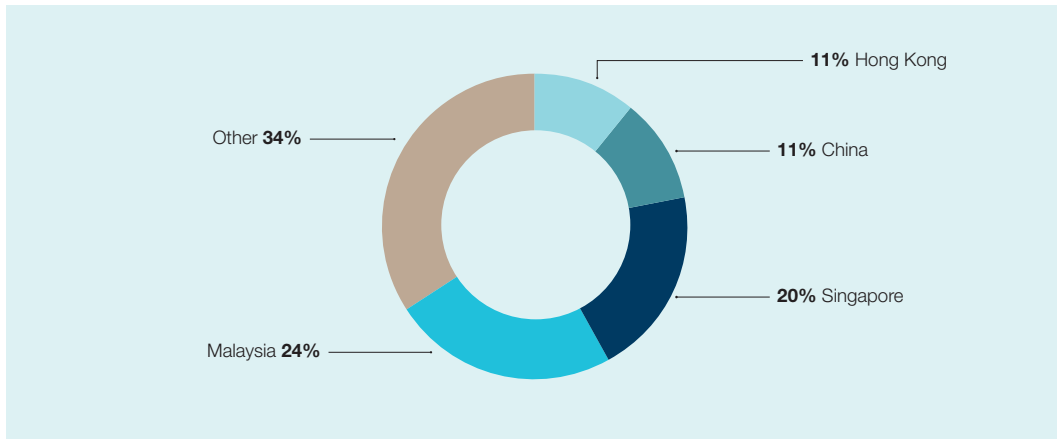
- 31 offshore Australian university campuses associated with 14 different Australian universities;
- 10 Australian universities providing offshore programs by distance; and

⁴ The five states and territories were New South Wales, Victoria, South Australia, Tasmania, and Australian Capital Territory.

- 14 universities delivering a complement of the offshore course within Australia (Universities Australia, 2014).

As shown in Figure 2.2, the largest source country for higher education offshore programs is Malaysia, with a total of nine campuses located there, from a total of five Australian universities. Singapore, China and Hong Kong also have a large Australian offshore higher education presence. Australian university offshore campuses are predominantly based in Asia, but there is also presence in the Middle East and Africa (DET, 2015e).

Figure 2.2: Top four source countries for offshore programs

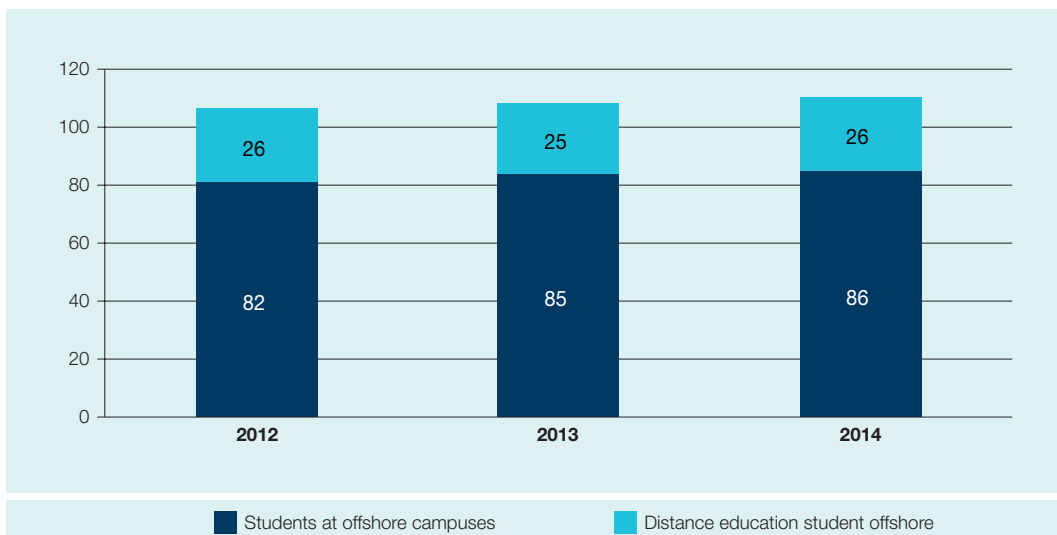


Source: Universities Australia, 2014

In 2014 there were just over 110,000 international students enrolled in Australian offshore higher education programs, with around 23% studying by distance, as shown in Chart 2.4.

Recent years have seen slow rates of growth in offshore international student numbers, with the total number of students growing by just over 1% in 2014, compared to over 8% growth for international students studying onshore (DET, 2015e). However, the offshore international education market continues to present a significant market growth opportunity for Australian universities and other higher education providers, in particular as capacity constraints in the delivery of onshore international education become more apparent with further growth in the sector.

Chart 2.4: Offshore higher education student numbers, 2012–2014



Source: DET, 2015e

In addition to the offshore Higher Education campuses established ‘in situ’ by institutions like Monash University (Malaysia) and University of Wollongong (United Arab Emirates), higher education institutions are working to expand their reach online, delivering offshore education through their own platforms such as Swinburne Online and Deakin Digital, and shared platforms, such as Open Universities Australia and OpenLearning.

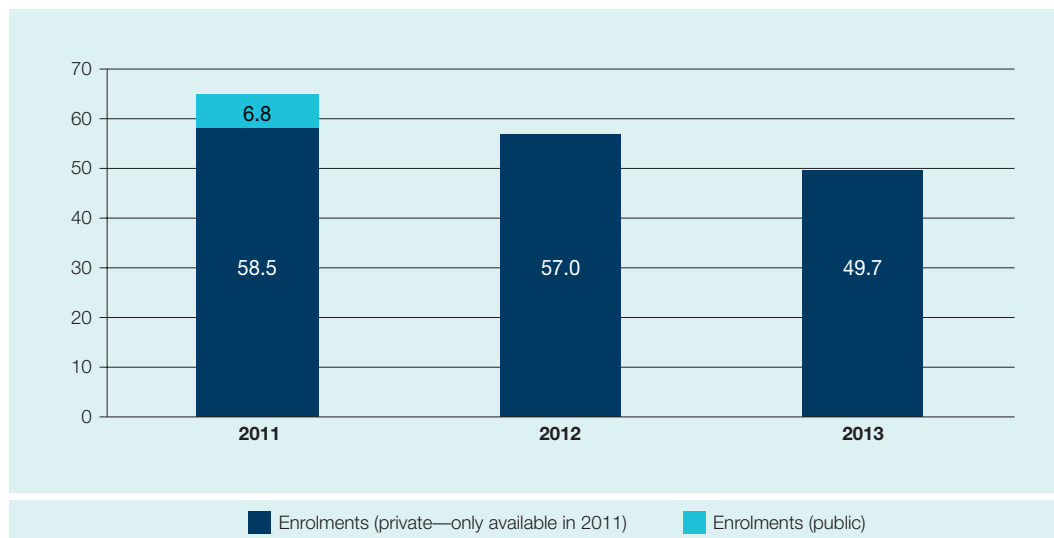
2.3.2 Offshore VET

Publically available information on international offshore VET is limited mostly to Australian public providers of VET. In contrast to the pattern of onshore international VET students, most offshore students appear to study in public VET institutions (PC, 2015a).

In 2013, there were 35 Australian providers offering nearly 500 courses in 31 countries, with China being by far the largest market. The total number of offshore public VET student enrolments in 2013 was around 50,000, though this number has fallen significantly in the past few years, with total enrolments reaching almost 65,000 in 2009 (DET, 2014).

While most VET providers operating offshore are public institutions, there are a number of private providers delivering offshore VET programs. For instance, the Australian Retail College (ARC) and the Australian Institute of Health Science and Technology (AIHST) are private VET providers specialising in industry-specific professional training. It was estimated that in 2011 there were approximately 6,800 students studying at private VET institutions offshore, based on a survey of Australian Council for Private Education and Training (ACPET) members (AEI, 2012), as shown in Chart 2.5.

Chart 2.5: Offshore VET student enrolments, 2011–2013



Source: NCVET, 2014 and AEI, 2012.

The National Centre for Vocational Education Research (NCVER) recently released the Total VET Activity (TVA) dataset. This new data source provides, for the first time, an estimate of the extent and nature of all accredited vocational education and training (VET) delivered in 2014 by Australian training providers.

Offshore activity was reported for the first time by the NCVER through the TVA dataset and offshore VET delivered by private providers was also collected for the first time. The TVA reported that there was a total of around 41,300 program enrolments delivered offshore in 2014. These enrolments involved a total of around 30,900 students, across TAFE, University, private training and enterprise providers, as shown in Table 2.3.

Table 2.3: Students at overseas delivery locations by provider type, 2014

Provider type	Number of students	Number of enrolments
TAFE	24,135	34,625
University	3,495	3,525
School	-	-
Community education provider	0	5
Enterprise provider	90	25
Private training provider	3,160	3,110
Total	30,880	41,290

Source: NCVET (2015)

The NCVET notes in their *Total VET students and courses 2014* publication that the TVA collection misses some data on offshore VET activity for a number of training providers. This is due to both reporting exemptions that were operating in the first year of mandatory reporting for the TVA initiative and a number training providers failing to report offshore activity for 2014. Indeed, the NCVET has indicated that compared to data contained in previous report on public offshore VET activity (see: DET, 2014) the 2014 TVA comprises data from around half of the TAFE institutes who had offshore activity in 2014.

Further, as data from private training providers' offshore operations has not been previously been collected by the NCVET, it is not known how many private providers are missing data on offshore VET activity in 2014.

By combining the information included in previous reports on public offshore VET activity (DET, 2014) and data on offshore private providers (including universities) in the recently published TVA dataset it is possible to provide an approximate estimate the total number of VET course enrolments offshore in 2014.

The estimated number of course enrolments in public VET offshore in 2013 was 49,740. Assuming that this figure remained constant in 2014 and combining it with the estimated 6,665 non-TAFE enrolments from the TVA dataset outlined above, the total number of offshore VET enrolments in 2014 is estimated to be around 56,405.⁵

2.3.3 Offshore schooling

Offshore activity is not limited to Higher Education and VET sectors. In particular, Australian providers are also active in the Schools and English language learning sectors, and increasingly in the provision of education technology solutions.

Some international schools are licensed to deliver VCE, HSC, etc. programs and pay service fees to partner schools and government organisations in Australia (the income from which is currently captured under Mode 1 measures of international education export income).

⁵ It should be noted that the non-TAFE enrolment component of this figure is likely an underestimate of the total offshore VET activity due to the reporting exemptions provided to some private VET providers as part of the first year of data collection for the NCVET's TVA initiative. However, the public TAFE enrolment figure for 2013 may be an overestimate for 2014 due to a trend in declining enrolments in recent years.



Some Australian schools have branch campuses overseas and therefore earn export incomes and (potentially) profits from these operations. However, consultations have indicated that there does not appear to be systematic data collected on this and relatively few schools operate branch campuses overseas.

In summary, export revenue from offshore school is likely to consist of revenue from a small number of independent school branch campuses located overseas and fees from licensing and delivering state based curriculum (e.g. the Victorian Certificate of Education (Victoria) or High School Certificate (NSW)) overseas. The value of these services is likely to be relatively small.

2.3.4 Estimates of offshore revenue (Higher Education and VET)

As has been noted in previous sections of this report, income earned by universities and VET providers delivering offshore higher education programs is not captured in the current measure of international education export services within the ABS catalogue 5368.0 — *International Trade in Goods and Services, Australia*.

These services, defined as the mode 3 delivery of international education, generate revenue primarily in the form of student tuition fees, of which some portion accrues to Australia in the form of export income. The last attempt to capture the activity of foreign affiliates, including offshore university campuses, by the ABS was in 2002–03 (catalogue 5495.0 — Australian Outward Foreign Affiliates Trade, 2002–03).

The value of mode 3 export income is limited to offshore international education services that are delivered by branch campuses of Australian institutions (which serve international students who study on-campus and 'in situ'). That is, income earned from 'in situ' offshore delivery arrangements delivered through partnerships and the delivery of online courses which are provided through franchising arrangements (i.e. rights to course content etc.) are captured in mode 1 measures of the cross border supply of education services. These are subsequently captured in personal, cultural and recreational services' in ABS catalogue 5368.0 — *International Trade in Goods and Services, Australia*.

While there is no authoritative measure of fee revenue for students at Australian campuses located overseas in all education sectors, in 2014 Australian public universities did include information on revenue received offshore in their annual reports.

To analyse the potential size of fee revenue from students located offshore, Deloitte Access Economics aggregated information from all public universities provided in their annual reports. This information indicated that universities had offshore revenue of \$216 million for the parent entity (typically the university itself). However, many universities deliver offshore programs through jointly controlled entities that only appear in the consolidated financial accounts. This analysis showed that at a consolidated level (which accounts for the fact that many offshore operations are jointly controlled entities of the parent university), Australian public universities received fee income of **\$382 million from offshore students.**⁶ This figure includes a small amount of revenue that dual sector universities receive from teaching VET courses.

Estimating the total export income earned by offshore VET providers is more challenging, as there is little available information of the average value of offshore student fees. Deloitte Access Economics has estimated the value of offshore revenue for VET providers based on publicly available information on revenue provided by TAFEs in Victoria.

Information in the Victorian Auditor-General's report on the TAFE sector indicated that TAFEs had offshore revenue of \$33.7 million in 2013. The DET (2014a) data indicated that Victoria accounted for 38,659 of the 49,740 offshore public VET enrolments in 2013, representing 78% of the total. Excluding enrolments at Victorian dual-sector providers (which would already be captured in the higher education data), Victorian providers accounted for 33,576 of the 44,657 offshore public VET enrolments nationally.

To estimate public VET revenue in 2013, Deloitte Access Economics scaled up revenue for Victorian public VET providers based on their ratio of national enrolments. This resulted in an estimate of offshore revenue for public sector VET providers of \$45 million in 2013. If enrolments at private providers are assumed to have similar course fees, the total revenue of the offshore VET sector is estimated to have been approximately \$52 million in 2013. Information in annual reports indicated that revenue for Victorian TAFEs was approximately \$1 million higher in 2014 than 2013, so the size of the VET offshore education sector may have grown slightly in 2014 (possibly partly in response to the fall in the Australian dollar) to approximately \$53 million.

In total, the revenue earned from offshore delivery of higher education and VET by Australian providers is estimated to be **\$434 million in 2014.**

It should be noted that this figure should be treated as an indicative estimate of the value of offshore higher education and VET export income and is intended to be used as an interim estimate until comprehensive census data from Australian VET providers is made available. Export income from offshore (mode 3) international education is limited to the value of fees, as students studying offshore generally do not purchase goods or services in Australia during the course of their studies.

Additionally, while this estimated income from offshore student fees is attributable to the consolidated parent entity university located in Australia, only some portion of this income will ultimately flow back to Australia and contribute to total national income (i.e. GDP). The economic contribution made by offshore education is discussed further in the following sections of this report.

⁶ This figure is likely to include revenue from students studying online. It should also be noted that this figure does not include non-student revenue (i.e. research and consultancy revenue) and that there may be other offshore entities owned by universities which may not have been identified in the annual reports of universities in 2014. Further, some non-university higher education providers may also have offshore facilities. As such, this total figure may represent an underestimate of the total revenue earned through offshore international education (mode 3) delivered by Australian higher education providers.

3 The economic contribution of international education

While export revenue is a useful metric, it does not represent the level of economic activity occurring within the economy. Many goods and services purchased by international students or educational institutions are directly imported from overseas or are made up of imported components which do not contribute to Australia's GDP or, therefore, living standards.

A contribution analysis of the international education sector is able to capture the full economic footprint of the sector, through quantifying measures such as value added and employment within the national accounting framework. In particular, value added provides the most appropriate measure of the sector's contribution to GDP, which is slightly lower than overall export revenue. This reflects the fact that some of the supply chain of goods and services consumed by international students consists of imported goods.

In particular, this chapter values the contribution of international education to the Australian economy over the financial year 2014–15 by:

- delivery mode (Modes 1, 2, 3 and 4); and
- sector of onshore education services (Higher Education, VET, Schools, ELICOS).

The **direct contribution** of the sector measures the value added created directly as a result of expenditure on fees and other goods and services to international students. The direct value added consists of the returns to labour in the form of wages and salaries, and the returns to capital in the form of Gross Operating Surplus (GOS) directly from expenditure on fees and goods and services. Expenditure on goods and services also directly contributes to employment in the economy.

The second aspect involves measuring the **flow-on, or indirect contribution** of the sector's activities in terms of value added and employment. The industries indirectly affected and the amount of flow-on activity generated is driven by the industry-specific input requirements needed to produce a dollar of output in a particular industry. The total economic contribution to the economy is the sum of the direct and indirect economic contributions.

The direct and indirect contribution of the sector will be estimated based on the input-output (IO) framework from the Australian Bureau of Statistics (ABS), which shows how the sectors of the economy employ labour and capital, use resources and purchase inputs from other sectors and overseas, over a given year.⁷ More details on the contribution framework and the methodology used to calculate the economic contribution are provided in Appendix C and Appendix D.

⁷ ABS catalogue 5209.0.55.001 Australian National Accounts: Input-Output Tables, 2012–13.

Economic contribution of international education — key findings:

Deloitte Access Economics estimates that international education (modes 1, 2 and 4) made a total contribution of \$16.9 billion to Australia in the financial year 2014–15, equivalent to 1.0% of GDP and supported approximately 128,000 FTE jobs.

3.1 Contribution by mode of delivery

This section quantifies the direct and indirect economic contribution of the international education sector's operations (including modes 1, 2, 4 and NSV ELICOS students) to the Australian economy.

The direct economic contribution of the sector is the value added to the economy from the income earned by the sector's labour and capital over a given period. With total income from providing international education services equalling \$19.0 billion, the direct value added at the Australian level was equal to \$11.9 billion. Of this, wages were equal to \$7.4 billion, while GOS, was equal to \$4.6 billion. The revenue also directly supported approximately 92,700 full-time equivalent (FTE) jobs in the Australian economy.

The indirect component of international education's economic contribution is driven by the international education sector's expenditure on intermediate inputs in Australia. In financial year 2014–15, indirect value added was approximately equal to \$4.9 billion, and international education indirectly supported an additional 35,600 FTE jobs.

The combination of the direct and indirect contributions provides the total economic contribution. **For 2014–15, the international education sector's total economic contribution to Australian GDP was \$16.9 billion, equal to approximately 1.0% of gross domestic product (GDP). The sector also supported a total of approximately 128,000 FTE jobs, equivalent to 1.3% of employed persons in Australia.**

The contribution of international education to GDP was approximately a fifth of that of the education sector as a whole, with education sector revenue contributing \$75.5 billion in GDP to Australia in 2014–15 (ABS 2015c).

An overview of the export revenue to the Australian international education sector derived in the previous chapter, and the contribution results are given below in Table 3.1.



Table 3.1: Contribution summary of international education services, 2014–15

	Mode 1	Mode 2*	Mode 4	NSV ELICOS	Total
Export revenue					
(\$m)	185	18,172	418	205	18,980
Direct contribution					
Valued added (\$m)	139	11,400	314	120	11,974
GOS	14	4,492	31	56	4,593
Wages	125	6,908	283	64	7,381
Employment (FTE)	1,120	87,110	2,531	1,978	92,739
Indirect contribution					
Valued added (\$m)	35	4,733	79	62	4,908
GOS	15	2,201	35	30	2,281
Wages	20	2,531	44	32	2,628
Employment (FTE)	260	34,367	588	431	35,646
Total contribution					
Valued added (\$m)	174	16,133	393	182	16,882
GOS	29	6,693	66	86	6,874
Wages	145	9,440	327	96	10,008
Employment (FTE)	1,380	121,478	3,119	2,408	128,385

Source: Deloitte Access Economics.

*Mode 2 total includes the contribution from New Zealand and AusAID/Defence students, but does not include the contribution from NSV ELICOS students.

3.1.1 Offshore international education (mode 3)

Estimating the economic contribution from offshore international education poses a number of unique challenges, both conceptually and with respect to the available information on the operations of offshore institutions.

Due to data limitations regarding the offshore operations of VET providers and schools this section considers only the economic contribution of Australian universities' offshore campus operations.

The value-added contribution of offshore international higher education is the sum of the:

- wages paid to workers who reside in Australia but support the campus's offshore operations;
- gross operating surplus (GOS)⁸ on the campus's operations that returns to Australia;
- indirect value-added by the use of intermediate inputs imported from Australia and the payment of any production taxes in Australia.

⁸ Also defined as 'earnings before interest, tax, depreciations and amortization' (EBITDA)

Anecdotal evidence provided by consultations with members of the higher education sector has revealed that Australian universities establish offshore campuses for a variety of commercial reasons. While some are expected to be profitable ventures on their own account, others serve a more strategic purpose to attract greater numbers of students to higher margin onshore programs in Australia and operate at zero or negative margins. As a result, there is a great deal of observed variation in the profits made by offshore operations of Australian universities.

To estimate the economic contribution made by offshore international higher education Deloitte Access Economics has estimated the value of GOS in 2014 for a small number of Australian universities with offshore campuses. This analysis revealed values of GOS that range from -4% to +26% of total fee revenue.

The operational methods of offshore campuses also differ across universities, with some universities relying occasionally on Australian academics and administrative staff to support offshore operations, while others rely almost exclusively on local workers overseas.

Overall, it is not possible to accurately determine the extent to which Australian university offshore campus operations draw upon labour and intermediate inputs from Australia, and therefore make further contributions to value-added domestically. At most, only a small proportion of fee revenue from offshore study is likely to result in value added in Australia since most wages will be paid to foreign staff and the majority of intermediate inputs sourced by offshore campuses are likely to be procured locally.

A survey of private VET providers was fielded as part of the project to assess the value added by offshore activity. Unfortunately, too few responses were received to report the results although evidence from those who did respond suggested that only a small proportion of wages were paid to Australian residents and the vast majority of intermediate inputs were sourced from overseas. To illustrate how the value-added to Australian GDP of offshore university operations may be measured relative to onshore activity, Table 3.2 provides some assumptions on how \$1 of fee revenue translates to wages, GOS, indirect activity from purchases of intermediate inputs and total value added for onshore and offshore study.

The second column is based on an analysis of the university sector by Deloitte Access Economics for Universities Australia in 2015. The second column is based on assumptions drawing on an analysis of university financial reports detailing offshore activity. The analysis of university financial reports found the gross operating surplus of offshore campuses varies considerably by campus with some making net losses and others making significant profits.

Since most expenditure on intermediate inputs and wages is likely to occur locally, the overall impact of offshore campus revenue on value added in Australia is quite small. As a result, while over 90% of onshore fee revenue is likely to translate to value added locally, only a small proportion of offshore fee revenue is likely to translate to value added locally and this will largely depend upon the gross operating surplus earned by offshore university operations.

While further research is needed to obtain more accurate estimates, offshore revenue is likely to have a much smaller impact on value added in Australia than onshore revenue.

Table 3.2: Illustration of how \$1 of revenue translates to value added for onshore and offshore university operations

Scenario:	Onshore study	Offshore study at an Australian campus overseas
Wages in Australia	0.51	0 to 0.1
GOS in Australia	0.16	-0.04 to 0.26 (based on financial results)
Indirect value added and production taxes in Australia	0.25	0.01 to 0.05
Total value added	0.93	-0.03 to 0.41

Source: Deloitte Access Economics report for Universities Australia 2015, Deloitte Access Economics assumptions and analysis of offshore activity in various university Financial Reports.

While the above analysis demonstrates that offshore international education is associated with smaller levels of economic activity in Australia than onshore international education, it is a sector that has the potential to grow in the future as Australian university business models mature. Further, given that the majority of the value of GOS from these operations is ultimately repatriated to Australia, offshore international education represents a significant windfall to national income.

Importantly, this windfall occurs without the utilisation of scarce capital and labour resources in Australia and is generally uninhibited by supply and capacity constraints which may exist locally in Australia. Hence, while the multiplier on fee revenue offshore to value added in Australia is lower than for onshore revenue, their economic contributions should be seen as being distinct in nature.

There are opportunities for significant value added contributions to be made by international education offshore as the sector continues to grow into the future, uninhibited by supply constraints that may arise locally for onshore delivery. Indeed, it should be noted that revenue growth in one sector does not generally inhibit growth in the other.

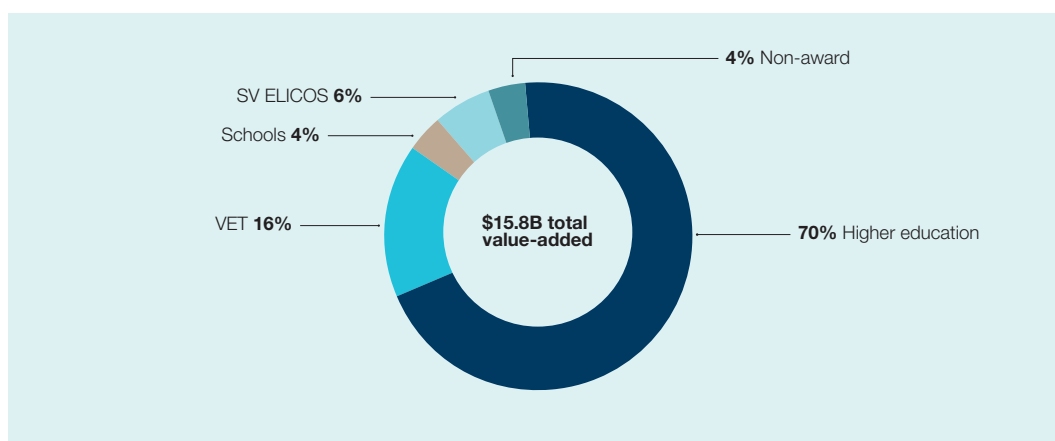
3.2 Contribution by sector

ABS data at the national level breaks down total export revenue of \$18.2 billion from education related personal travel into fees, and goods and services for the relevant education categories. In particular, this section will focus on the contribution of the Higher Education, VET, Schools, SV ELICOS and non-award sectors.⁹ In 2014–15, Higher Education was the single largest contributing sector to Australia as measured by economic contribution, with total value added equal to \$11.1 billion. It also supported approximately 76,700 FTE jobs. The contribution of the Higher Education sector is approximately 70% of the total mode 2 contributions, despite making up only 46% of total student enrolment numbers (DET 2014). The sector's significant contribution is driven by a combination of average higher fees, and longer lengths of stay by students. This is followed by the VET sector, which makes up 21% of student enrolments and 16% of total contributions.

While SV ELICOS makes up a 23% of total student enrolments, it contributed to only 6% of total contributions (Chart 3.1). The result is driven by the relatively shorter lengths of the average enrolment, and lower average fees compared to the tertiary sectors.

⁹ New Zealand and AusAid/Defence student expenditure on fees and goods and services have been excluded.

Chart 3.1: Total value added by education sector, 2014–15



Source: Deloitte Access Economics.

Table 3.3 gives the breakdown of contribution results by education sector in financial year 2014–15.

Table 3.3: Contribution summary by sector, 2014–15

	HE	VET	Schools	SV ELICOS	Non-award	Total*
Export revenue						
(\$m)	12,453	2,923	689	1,001	723	17,788
Direct contribution						
Valued added (\$m)	7,841	1,787	454	588	483	11,154
GOS	3,071	655	131	276	127	4,260
Wages	4,617	1,133	323	312	356	6,741
Employment (FTE)	52,688	14,199	4,863	9,626	3,807	85,182
Indirect contribution						
Valued added (\$m)	3,237	765	163	302	169	4,638
GOS	1,480	373	78	145	80	2,156
Wages	1,757	392	86	157	89	2,482
Employment (FTE)	23,990	5,265	1,153	2,105	1,193	33,706
Total contribution						
Valued added (\$m)	11,079	2,553	618	890	652	15,791
GOS	4,551	1,028	209	420	207	6,415
Wages	6,374	1,525	409	469	445	9,223
Employment (FTE)	76,677	19,463	6,016	11,731	5,000	118,888

Source: Deloitte Access Economics.

Note: Total does not include the contribution of New Zealand and AusAID/Defence students, and consequently is not equal to the Mode 2 total given in Table 3.1.

3.3 Industries best placed to leverage off future growth in international education

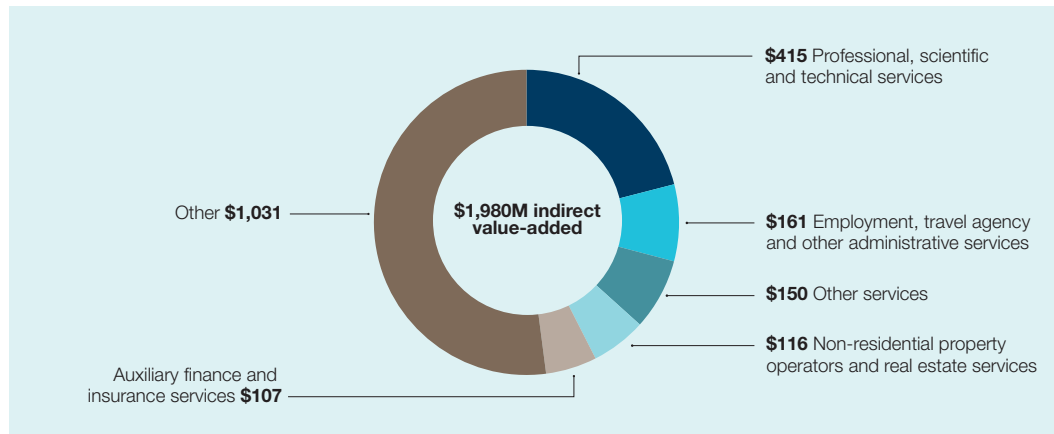
The following section explores the indirect contribution in detail, focusing on the industries that are supported by the international education sector, and would likely benefit from an expansion in the sector's activities.

The \$9.3 billion in export fee revenue from the provision of international education and education services to students and other users, indirectly supported \$2.0 billion in value added in other sectors:¹⁰ **On average, each dollar of revenue on international education fees supports \$0.21 of indirect value added in other industries.**

The top three indirect sectors that benefit are professional, scientific and technical services (\$0.04 for each dollar of revenue on international education fees), employment, travel agency and other administrative services (\$0.02), and other services (\$0.02).

Chart 3.2 shows the breakdown of indirect value added by the top five industries. Together, they account for approximately 48% of total indirect value added.

Chart 3.2: Indirect value added to GDP from international education fees, 2014–15



Source: Deloitte Access Economics.

A variety of sectors are also likely to be both **directly** and **indirectly** supported by onshore international student expenditure on goods and services, with direct value added not limited to one particular sector, as in the case with fees. A total onshore student expenditure of \$9.7 billion on living expenses in 2014–15 contributed \$5.2 billion in direct value added, and \$2.9 billion in indirect value added. **That is equivalent to \$0.56 and \$0.31 in direct and indirect value added to the Australian economy for every dollar of student expenditure on living expenses.**

The direct value-added from student expenditure on goods and services are concentrated in the following three sectors: ownership of dwellings; retail trade; and transportation (includes rail and road). In particular, each dollar of student expenditure on goods and services directly contributes to \$0.19 in value added to ownership of dwellings, \$0.14 to retail trade; and \$0.04 to transportation.

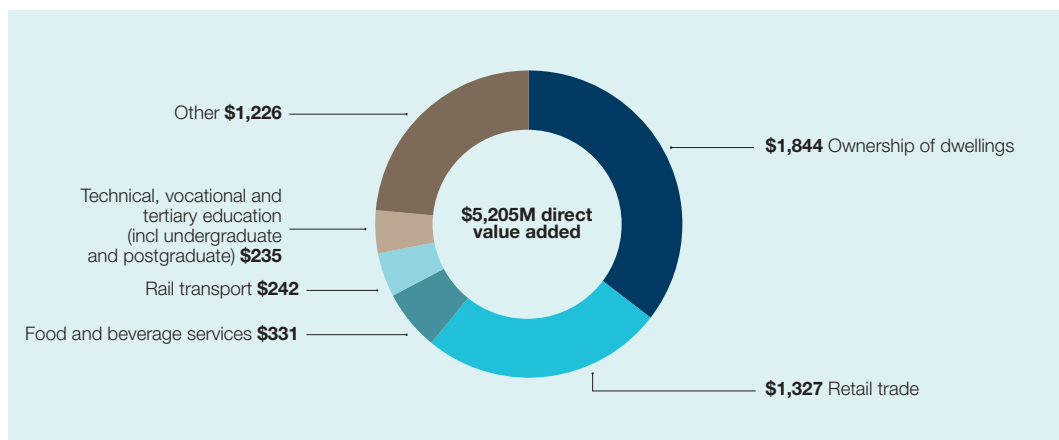
¹⁰ The \$9.3 billion includes total revenue from modes 1 and 4, and the fees from mode 2 provision of education (including New Zealand, AusAID/Defence, and NSV ELICOS).

This is largely consistent with the Universities Australia breakdown of total expenditure by categories, with a high total expenditure typically associated with a high value added. However, whereas retail trade was the largest sector by spending, it is the second largest by value added as it relies more on intermediate inputs than the dwellings sector.

The benefits of international education to these direct industries have also been recognised by consultation participants. In particular, they have emphasised the importance of international students to supporting the local rental and the property construction market, particularly in regional areas. Other consultation participants also noted the contribution of international students to the retail and tourism industries.

Chart 3.3 shows the breakdown of direct value added by the top five industries.¹¹ They account for 76% of the direct benefits from international student expenditure on goods and services.

Chart 3.3: Direct value added to GDP from living expenses, 2014–15



Source: Deloitte Access Economics.

The indirect value added from student expenditure on goods and services are concentrated in the sectors of finance, professional, scientific and technical services, and non-residential property operators and real estate services. Finance and construction services are important intermediate inputs for the provision of dwellings and consequently gain indirectly as a result of international students. Similarly, retail trade relies on both professional services and non-residential real estate services to run their businesses.

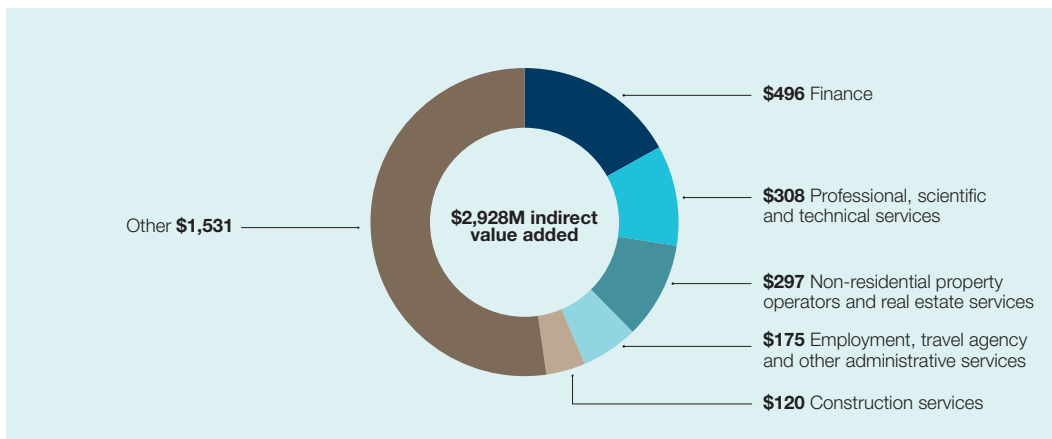
Each dollar of student expenditure on goods and services indirectly contributed to \$0.05 in value added in the finance sector, and \$0.03 in the professional services and non-residential property operators sectors respectively.

Chart 3.4 shows the breakdown of indirect value added by the top five industries. Collectively, they make up 48% of total indirect value added from international student expenditure on goods and services.

¹¹ Student expenditure in *the technical, vocational and tertiary education services* sector includes higher Education and VET international student expenditure on general course related expenses, course related field work, and graduation expenses, which are not covered under their expenditure on fees.



Chart 3.4: Indirect value added to GDP from living expenses, 2014–15



Source: Deloitte Access Economics.

Note: for comparison purposes, the sum of indirect benefits in Chart 3.2 (\$1,980M) and indirect benefits in Chart 3.4 (\$2,928M) is equal to total indirect contribution (\$4,908M) in Table 3.1.

The analysis here has been based on industry linkages associated with expenditure by international students and indeed these linkages were mentioned explicitly in a number of the stakeholder consultations. However, international students may create broader linkages with local industries through access to a skilled workforce, knowledge exchange, industry connections or trade facilitation. As part of the consultations, stakeholders were asked to comment on these potential industry linkages and to discuss which sectors could

benefit from closer linkages to international students going forward. The findings from these stakeholder consultations are summarised in the box below.

Stakeholder views on potential industry linkages

Addressing skill shortages

A number of stakeholders highlighted the role played by international students in addressing workplace shortages in certain sectors. In particular, a number mentioned the important role of international students in providing a casual workforce for the hospitality sector during the course of their studies and also providing a permanent workforce for the sector after graduating.

It was noted that if international students are able to get some work experience during or after their studies at major hotel chains, this experience is likely to be highly valued by hotels in their home country. Stakeholders noted that a number of major chains such as Accor were particularly interested in hiring international students particularly given their language skills and cultural connections to tourists from their home countries.

Other stakeholders noted that international students could play an important role in addressing skills shortages in areas such as nursing and aged care and accounting. Others mentioned that many restaurants and agricultural producers were reliant on casual work by international students.

Innovation

Some stakeholders also noted that international students could play an important role in helping to start small businesses and participate in start-ups in Australia. For example, muru-D, an incubator funded by Telstra has a significant focus on start-ups looking to overseas markets including China, creating significant opportunities for Chinese speaking students.

Tourism

Some stakeholders mentioned that many international students help support the tourism sector by returning to Australia for holidays or business meetings after graduating. The role of return visits by former students is discussed further in section 5.1.

Trade facilitation

Some stakeholders also noted that international students may play a role in facilitating trade between Australia and their home countries, noting that many Indonesian supermarkets sell a significant range of Australian products partly to cater for the preferences of international students who have previously studied here. This is consistent with findings in the academic literature. Genc et al (2011) undertake a meta-analysis of studies looking at the relationship between immigration and trade, finding that on average a 10% increase in immigrants increases the volume of trade by 1.5%.

4 The regional contribution of international education

This chapter examines the economic contribution of onshore international students on regional communities. The contribution of international education is analysed by state and territory level and also at a more detailed regional level through case studies of the contribution of international education to Armidale in NSW, and how expenditure in major capital cities such as Melbourne flows through to regional areas of Victoria. The chapter also analyses the relative distribution of international students in the higher education sector in Australia.

Economic contribution at a state and regional level — key findings:

Deloitte Access Economics estimates that onshore international students studying in Australia contributed between 0.3% and 1.3% to the gross state product (GSP) of their states/territories of enrolment in 2014–15.

The economic and social contribution of international students is also not limited to metropolitan areas. Deloitte Access Economics estimate that international students studying at the University of New England contributing a total of \$33 million to the local economy in 2014–15, equivalent to 2.5% of gross regional product.

Students who choose to study in metropolitan areas also make an indirect contribution to regional areas through supply chain linkages. Deloitte Access Economics estimates that for each dollar spent on goods and services by the average international student in Melbourne, \$0.30 of indirect gross value added is generated in regional Victoria.

4.1 Contribution by state

The international education revenue attributable to each state is estimated based on the methodology described in Appendix B. This includes revenue from international students studying onshore, and the Mode 1 and Mode 4 provision of international education services.¹² Table 4.1 shows the estimated total export revenue for each state and territory in the financial year 2014–15. New South Wales had the highest export revenue from international education in 2014–15, at \$7.0 billion, followed by Victoria at \$5.8 billion, and Queensland at \$2.9 billion. When factoring in the relative sizes of the state economies, international education revenue also made a considerable contribution to the Australian Capital Territory, at 1.1% of gross state product (GSP), compared to the national average of 1.0%.

¹² Mode 1 and 4 national revenue has been attributed to the states based on the proportion of higher education onshore enrolments in each jurisdiction.

Table 4.1: International education export revenue by category and state, 2014–15

State	Fees (\$m)	G+S (\$m)	Mode 1/4 (\$m)	Total (\$m)
New South Wales	3,088	3,711	206	7,005
Victoria	2,703	2,952	194	5,848
Queensland	1,402	1,369	92	2,862
South Australia	512	618	37	1,167
Western Australia	650	715	44	1,408
Tasmania	89	76	8	173
Northern Territory	33	23	3	58
Australian Capital Territory	241	197	20	459
Australia	8,717	9,659	603	18,980

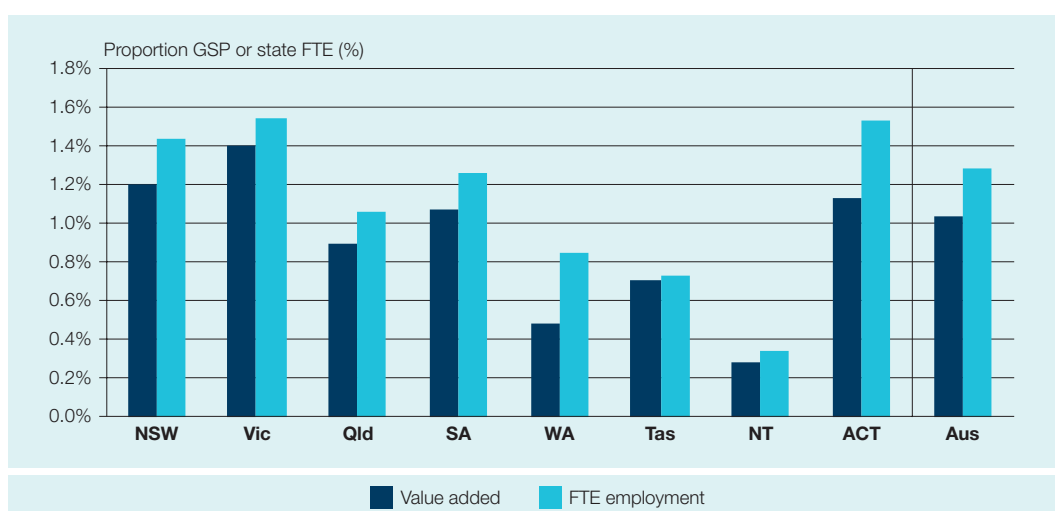
Source: Deloitte Access Economics.

Note: For comparison purposes, the Australian total is equal to the sum of Modes, 1, 2, 4, and NSV ELICOS revenue.

The estimated revenue is then apportioned to the relevant ANZSIC industries and put through the IO tables using the methodology described in Appendix D. Again, it is noted that to produce estimates at the state levels, a number of simplifying assumptions have been made, which may have some effect on the accuracy of the results.

Deloitte Access Economics estimates that onshore international students contributed between 0.3% and 1.4% to the GSP of each state over financial year 2014–15. International education also employed between 0.3% and 1.5% of the States’ workforces in FTE terms over the same period. International education is the most significant in Victoria, New South Wales, and the Australian Capital Territory, contributing approximately 1.4%, 1.2%, and 1.1% to their respective GSPs. Chart 4.1 shows the total contribution of onshore international education as a proportion of the total GSP and workforce in financial year 2014–15.

Chart 4.1: Relative total international education contribution to states, 2014–15



Source: Deloitte Access Economics.

Small regions are likely to retain less of the indirect contribution from international students studying there. For instance, take an international student studying in the Australian Capital Territory buying groceries from the local supermarket. Given that the Territory does not have a strong agricultural sector, it is likely that a high proportion of those products will be sourced from other states. Consequently, some of the value added associated with producing the groceries will leak out from the state.

The model quantifies the second round contribution to the state from international students *studying in other states* through attributing the 'leakages' to the other states and territories based on the size of their respective industries. Therefore, if Queensland has the biggest agricultural sector in Australia in the above example, it will receive the most additional benefits from the student's spending on groceries in the Australian Capital Territory. There is no distance or preference measure used, and the model does not capture that groceries suppliers in the ACT may source their produce primarily from New South Wales.



Table 4.2 shows the total contribution from international students to Australia, including spending by students in their state of study, and from other students studying in other states.

Table 4.2: Contribution of international education by state, 2014–15

State or Territory	Direct	Indirect	Total
Value Added (\$m)			
New South Wales	4,406	1,704	6,111
Victoria	3,657	1,377	5,034
Queensland	1,835	857	2,692
South Australia	742	320	1,062
Western Australia	891	449	1,340
Tasmania	108	73	181
Northern Territory	36	28	64
Australian Capital Territory	299	100	399
Australia	11,974	4,908	16,882
Employment (FTE)			
New South Wales	34,180	11,968	46,148
Victoria	27,539	10,533	38,073
Queensland	14,952	6,306	21,259
South Australia	5,837	2,532	8,369
Western Australia	6,981	2,873	9,854
Tasmania	879	561	1,440
Northern Territory	227	202	429
Australian Capital Territory	2,142	671	2,813
Australia	92,739	35,646	128,385

Source: Deloitte Access Economics.

Note: For comparison purposes, the Australian results are equivalent to the sum of Mode 1, 2, 4 and NSV ELICOS contributions.



4.2 Regional distribution of international students

This section outlines the drivers behind students choosing to study in a regional area, and their distribution in Australia.

Drivers

Research has shown that international students decide on their study destinations based on a variety of factors, including lifestyle, course availability, and cost of living and study (Hobsons, 2014; Mazzarol and Soutar, 2002).

The majority of international students in Australia are based in metropolitan areas. For instance, research by the City of Melbourne (2012) found that in 2010 international Higher Education students were less likely to study in regional Victoria, with only 3% of international students studying at a regional campus, compared to 15% of domestic students.

However, some international students do choose to study in regional areas. Consultation participants highlighted some of the important drivers for international students choosing regional education providers over metropolitan providers:

- **quality of research and teaching** in particular fields, such as agriculture or medicine, which is particularly relevant for postgraduate research students;
- **quiet lifestyle** in regional areas may be preferable for international students with families, or from conservative backgrounds; and
- regional areas tend to be perceived as being **safer** than metropolitan areas.

Industry stakeholders also noted that international students in regional areas tend to rate their experiences more positively, in the International Student Barometer, compared to international students in metropolitan areas.

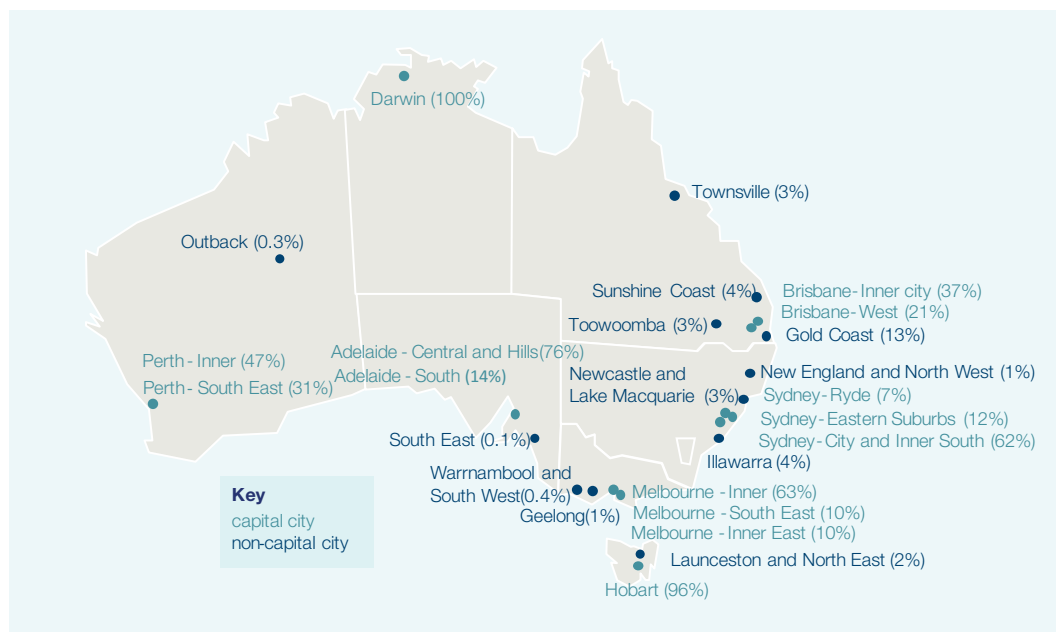
Distribution

Deloitte Access Economics was provided international student enrolment data by postcode for Australia as a whole from DET, taken as a snapshot in October 2015. **In total, approximately 5% of international student enrolments are based in regional Australia**, under the Australian Bureau of Statistics Australian Statistical Geography Standard — Statistical Areas Level 2 (ASGS – SA2) definition of regional areas.

Queensland has the highest proportion of its total international student enrolments in regional campuses, with 10% of students studying outside of the greater Brisbane and Gold Coast regions. This is followed by New South Wales, with 8% of the state's international student enrolments in regional areas.

The postcode data from the Department of Education and Training was also matched to ABS Statistical Area Level 4 (SA4) regions and classified based on whether each region was in a capital city or not. The biggest capital and non-capital SA4s by student enrolments as a proportion of each state's total international enrolments are presented below in Figure 4.1.

Figure 4.1: Biggest campuses by capital and non-capital SA4 regions, 2015



Source: Deloitte Access Economics.

Note: the total does not necessarily add up to 100% in all states as only SA4s with relatively large international student populations are included.

In South Australia, the SA4 outside of Adelaide with the largest proportion of the state's international students, South East, only makes up approximately 0.1% of total international enrolments in the state. This suggests that most of the international students studying in South Australia are based in Adelaide. In comparison, Tasmania has a higher proportion (4%) of the state's international students enrolled outside of Hobart. Launceston and North East is the most popular non-capital SA4, with 2% of students enrolled there.

In New South Wales, the three SA4s with the greatest proportion of international enrolments outside of Sydney are: (1) Illawarra, which is home to the University of Wollongong and the Illawarra Institute of TAFE; (2) Newcastle and Lake Macquarie, home to the University of Newcastle and the Hunter Institute of TAFE; and (3) New England and North West, home to the University of New England and the New England Institute of TAFE.

In Victoria, the three non-capital SA4s most popular with international students are: (1) Geelong, which has a Deakin University campus and a number of public and private schools that cater to overseas students; and (2) Warrnambool and South West, which has a Deakin University campus. Other regional SA4s with sizeable international student enrolments include the Mornington Peninsula and Ballarat.

Queensland has the largest proportion of international students in a non-capital SA4, with 13% of students based in the Gold Coast. The Sunshine Coast, Toowoomba, and Townsville are also popular destinations for international students.

4.3 Impact of international education on regional areas

While only a small absolute number of international students choose to study in regional areas, they can still make up a sizeable proportion of the local campus and community populations. To explore this theme further, this section provides a case study of the economic and social importance of international students at the University of New England to the Armidale region in NSW. **Deloitte Access Economics estimate that international students studying at the University of New England contributed a total of \$33 million to the local economy in 2014–15, equivalent to 2.5% of gross regional product.** In addition to the economic contribution of international students, stakeholders have emphasised the other positive non-economic contributions international students can make to their regional communities.

Further, international students studying and living in metropolitan areas are able to make a contribution to regional areas through indirect industry linkages. This section concludes by examining the extent to which expenditure on goods and services in Melbourne flows on to create value added in regional Victoria as a result of industry linkages.

4.3.1 Case study — University of New England

The case study regional area of focus is the Local Government Area (LGA) Armidale Dumaresq located in Northern New South Wales. Education and Training is the biggest single industry (by employment) in the region, employing 21% of the local work force in 2011. This is due to the presence of the University of New England, which is the single biggest employer in the town of Armidale.

In 2014, 979 international students were enrolled at the University of New England, constituting 23% of total on campus students (DET, 2015d). Further, international students also represent a significant portion of the total local population, making up approximately 4% of the LGA population. This is higher than the State average, where international student enrolments make up 3% of the total New South Wales population.

Stakeholders have highlighted that regional universities are also more likely to attract research students to their fields of expertise, with 22% of international students in UNE completing a doctorate by research compared to just 6% for the state. A detailed Armidale case study can be found in Appendix E.

Economic contribution

This section estimates the direct and indirect economic contribution of international students at the UNE to the Armidale Dumaresq LGA using the assumptions and methodology outlined in Appendix E. Although consultation participants have noted that international students at the University often have children and will indirectly contribute to the local schools sector, this analysis does not include the expenditure associated with those additional international students.

Deloitte Access Economics estimates that **international students studying at the University and living in Armidale contributed a total of \$33 million in value added to the Armidale Dumaresq LGA in financial year 2014–15, equivalent to approximately 2.5% of GRP** (see Table 4.3). This is a higher proportion than the national average of 1.0%. International students also supported 243 FTE jobs in the LGA. In particular, their expenditure on goods and services make sizeable contributions to the owners of dwellings and the retail trade sectors.

Table 4.3: International Higher Education contribution to LGA, 2014–15

	Direct contribution	Indirect contribution	Total contribution
Value added (\$m)	27	6	33
GOS	11	3	13
Wages	16	3	20
Employment (FTE)	199	44	243

Source: Deloitte Access Economics.

In addition to the relatively large economic contribution that international students make to local communities, there are also broader social benefits that could potentially last beyond their studies.

Regional benefits of international education: other non-economic benefits

Consultation participants have emphasised the non-economic benefits that international students have brought to the Armidale regional community, believing them to be just as important as the economic ones. In particular, they have noted the following:

- in addition to contributing to the casual workforce during their studies, a proportion of international students are likely to stay and work within Armidale and the surrounding regions after their studies;
- some international students help out with local council events, run food stalls, and volunteer homework help at the local schools. They also participate actively in the annual Autumn festival; and
- university alumni can potentially build linkages with the local community and education sector once they return home. They are powerful advocates in attracting both future visitors and students to the region.

4.3.2 Modelling the impact of international student expenditure on economic activity in regional Victoria

In addition to the economic contribution of international students based in regional Australia, there are also indirect benefits that could flow to regional areas from students studying in metropolitan areas due to industry links, such as through food products and agriculture. Using Victoria as an example, this section utilises the Deloitte Access Economics Tourism Satellite Accounting (TSA) model to show how expenditure from onshore international students on goods and services in Melbourne could potentially lead to additional activity in the rest of Victoria. A description of the concepts used in the TSA model, and the similarities and differences to the IO model can be found in Appendix E.

Regional contribution

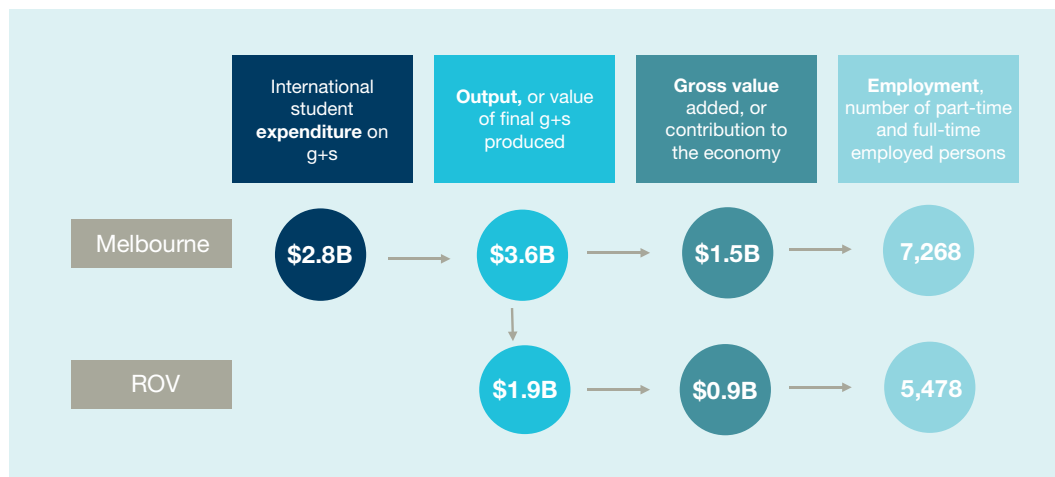
Onshore international students in Victoria spent approximately \$3.0 billion on goods and services in the financial year 2014–15.¹³ Based on Tourism Research Australia (2015) data on the proportion of visitor nights by ‘education’ visitors to the State in Melbourne, 96% or **\$2.8 billion of international student expenditure has been attributed to Melbourne.**

From the \$2.8 billion expenditure on goods and services in Melbourne, a total output of \$5.6 billion in direct and indirect output is expected to be generated in the Victoria region (Figure 4.2). Of this, 65% is expected to occur in Melbourne, and 35% in the rest of Victoria (ROV). **For every dollar an international student spends on goods and services in Melbourne, \$0.67 in total output is generated in regional Victoria.**

However, as output includes the value spent by industries on intermediate inputs, they overestimate the actual amount of economic activity taking place. Consequently, Gross Value Added (GVA) is the most accurate measure of contribution. In 2014–15, it is estimated that international student expenditure in Melbourne generated \$2.3 billion in total GVA in Victoria, with \$1.5 billion attributable to Melbourne, and \$0.9 billion to the rest of Victoria. **This is equivalent to a GVA of \$0.31 in regional Victoria for every dollar spent on goods and services by international students in Melbourne.** The indirect GVA outside of Melbourne is spread relatively evenly among the remaining regions.

Lastly, as a consequence of international student consumption of goods and services in Melbourne, a total of 12,746 jobs are supported in the Victorian economy. Of these, 5,478 are based in regional Victoria. **This is equivalent to approximately two jobs in regional Victoria for every million dollars of international student expenditure on goods and services in Melbourne.**

Figure 4.2: International student contribution by region, 2014–15



Source: Deloitte Access Economics.

¹³ Includes New Zealand, AusAID/Defence, and NSV ELICOS students.



Table 4.4 below presents the full set of results for the direct and indirect contributions in Melbourne and the rest of Victoria. Other contributions from international students in metropolitan areas, such as weekend visits to regional Victoria, have not been captured in the model.

Table 4.4: Contribution of Melbourne international student spending, 2014–15

	Direct	Indirect	Total
Expenditure (\$m)			
Melbourne	2,832	0	2,832
Rest of Victoria	0	0	0
Output (\$m)			
Melbourne	2,619	1,013	3,632
Rest of Victoria	0	1,924	1,924
GVA (\$m)			
Melbourne	1,023	462	1,485
Rest of Victoria	0	888	888
Employment			
Melbourne	6,947	320	7,268
Rest of Victoria	248	5,230	5,478

Source: Deloitte Access Economics.

5 Flow-on effects: visiting friends and relatives

International students do not just bring themselves to Australia but often bring a host of friends and relatives to visit them while they are here. The ABS captures travel expenditure by international students themselves under education related personal travel (which is discussed above) in its International Trade in Goods and Services publication but expenditure by visiting friends and relatives is captured under personal travel.

This section examines the economic contribution of international students to tourism as a result of encouraging family and friends to travel and visit them in Australia.

Economic contribution of visiting friends and relatives — key findings:

Deloitte Access Economics estimates that those who come to Australia to visit friends and relatives contributed a total of \$222 million in value added to the Australian economy as a result of tourism expenditure and supported the employment of 2,359 FTE jobs.

These figures are based on 109,103 travellers who came to Australia for a holiday or to visit friends and relatives who stated that a reason for their trip to Australia was to visit an international student friend or relative studying here. These visitors are a subset of the broader visitor population of 544,949 who visited an international student at some stage during their trip to Australia but may not have come to Australia for that reason.

5.1 Quantifying the links between international students and visiting friends and relatives

There have been a number of surveys on the number of visiting friends and relatives who visit an international student while in Australia. However, most surveys do not ask visitors whether they came to Australia:

- to visit an international student; or
- for other reasons but happened to visit an international student as part of their trip.

To determine the economic contribution of tourism expenditure which is *attributable* to international education, it is necessary to isolate visitors whose decision to come to Australia was motivated, at least in part, by a desire to visit an international student studying here.

To estimate how many visitors were motivated to come to Australia to visit an international student, information on how many visitors indicated that visiting an international student was a reason for their trip to Australia was used. When filling out the International Visitor Survey, visitors are first asked which *main reason for coming to Australia* they had entered



on their international visitor card (holiday, visiting friends and relatives, business, employment, education, other) and subsequently what other reasons they had for coming to Australia. The list of other reasons includes visiting an international student friend or relative in Australia.

In 2014–15, 124,069 visitors indicated that visiting an international student was a reason why they decided to come to Australia. Of these, 109,103 indicated their main reason for coming to Australia was either to visit friends and relatives or to have a holiday. The remainder indicated that their main reason was business, employment, education or other.¹⁴

To determine how many trips are attributable to international education, the analysis focuses on those whose main reason was either to visit friends and relatives or to have a holiday. It is assumed that those whose main reason for coming to Australia was business, employment, education or other are less likely to have been driven to come to Australia specifically to visit an international student. That being said, while it is unlikely that the presence of an international student friend or relative would lead to a business meeting or job being relocated to Australia, it is possible that some people may choose to attend a conference in Australia if one of their friends or relatives is studying here.

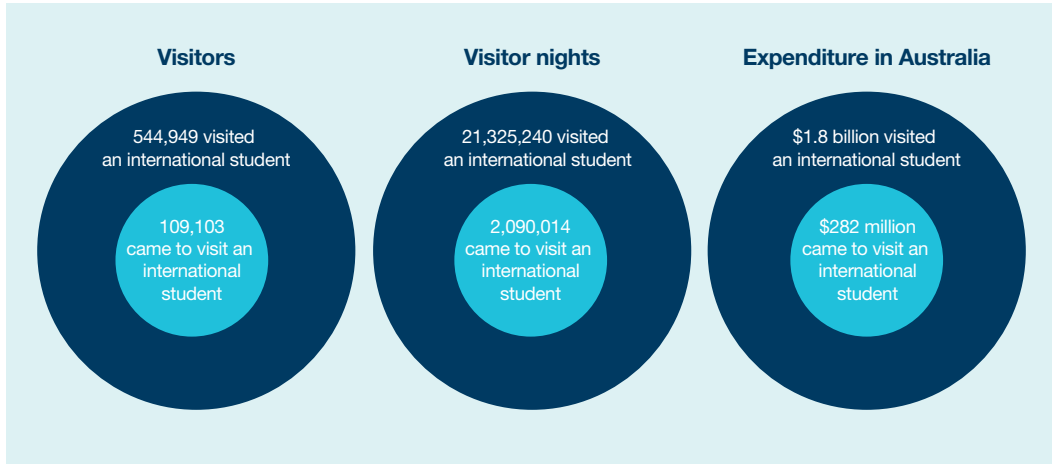
It should also be noted that the total number of visitors who visit an international student as part of their trip is much higher, although as noted above many of these visitors may have come to Australia for other reasons. Between 2012 and 2014, TRA included supplementary questions in the International Visitor Survey asking respondents whether or not they visited an overseas student studying in Australia during their trip. This data indicated that in the 2014 calendar year a total of 544,949 visitors who came to Australia visited an international student while they were here (excluding those whose primary purpose was education). These visitors stayed a total of 21.3 million visitor nights in Australia and spent a total of \$1.8 billion while they were here.¹⁵ More detailed information on the distribution of these visitors by state and territory is provided in Appendix F.

¹⁴ The other category is broken into exhibition, transit, immigration, purpose not completed, or other reasons.

¹⁵ Excluding expenditure on education which may be captured by students on non-student visas in chapter 2. For consistency with the rest of the document visitors who come to Australia to visit an international student are based on the 2014-15 financial year. The larger group who visited an international student is based on the 2014 calendar year which was the latest period for which this data is available.

Figure 5.1 shows how the number of visitors, visitor nights and expenditure of those who are assumed to have come to Australia to visit an international student is a strict subset of the broader population who visited an international student while in Australia based on the results of TRA's supplementary survey.

Figure 5.1: Visitors coming to Australia to visit an international student relative to those who visit an international student while they are in Australia



Note: Expenditure in Australia excludes expenditure on education.

Source: TRA and Deloitte Access Economics

In estimating the economic contribution, the analysis here focuses here on the subset of visitors who are assumed to have come to Australia to visit an international student and whose travel is reasonably attributable to the international education sector. This is likely to be a conservative approach given that total visitor numbers are much higher. The numbers in Figure 5.1 also do not include return visits by international students themselves to Australia. A recent study by Pyke et al (2013) found that 64% of Chinese international student alumni had travelled back to Australia in the last five years and the majority had travelled twice or more frequently. This highlights the future dividend that international education can bring to the tourism sector.

5.2 The economic contribution of visiting friends and relatives

The economic contribution from the \$282 million in export revenue attributable to VFR who come to Australia for the purpose of visiting an international student is shown in Table 5.1. The methodology of the estimation process can be found in Appendix F. Overall, these visitors were estimated to directly contribute \$123 million in value added to the Australian economy, including \$77 million in labour income and \$46 million in gross operating surplus.

Table 5.1: Contribution of friends and relatives visiting international students, 2014–15

Metric	Direct	Indirect	Total
Labour Income (\$m)	77	51	128
Gross Operating Surplus (\$m)	46	48	94
Value Added (\$m)	123	99	222
Employment (FTE)	1,644	714	2,359

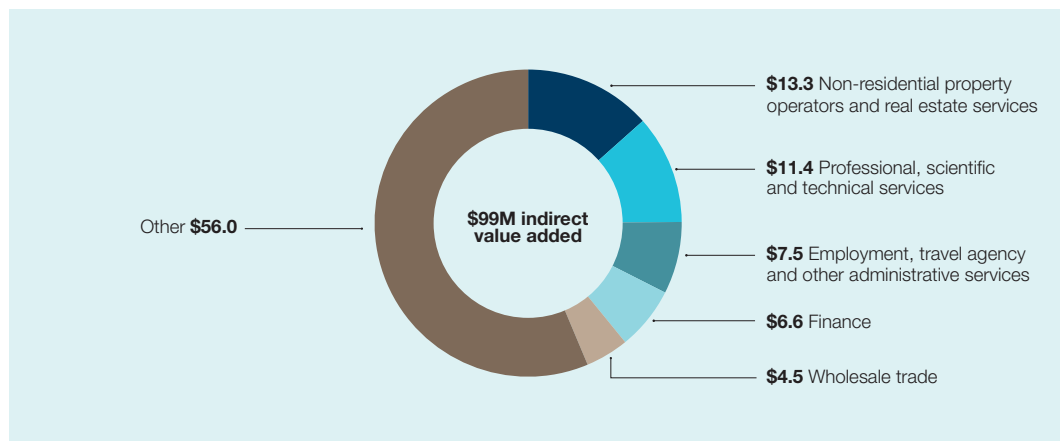
Source: Deloitte Access Economics

Tourism expenditure contributed the largest increase in direct value added to the retail trade sector (\$50 million), followed by food and beverage services (\$28 million) and accommodation (\$19 million).

This expenditure was also estimated to create \$99 million in indirect value added as a result of its impact on economic activity downstream for industries supplying goods and services to other sector. For example, purchases of food or drinks by visiting friends and relatives are likely to create additional demand for agricultural producers and soft drink manufacturers downstream.

Chart 5.1 below shows the industries that received the largest indirect contribution from tourism expenditure by visiting friends and relatives. The largest indirect value added is contributed by: non-residential property operators and real estate services (who may for example own or lease building used by retailers selling to tourists); professional, scientific and technical services; employment, travel agencies and other administrative services; finance and wholesale trade.

Chart 5.1: Indirect value added from tourism activity, 2014–15



Source: Deloitte Access Economics

Adding up both the direct and indirect economic contribution, the activity of visiting friends and relatives was estimated to contribute \$222 million to value added in Australia, consisting of \$128 million in labour income and \$94 million in gross operating surplus.

The expenditure of those visiting friends and relatives also supports employment in industries providing goods and services to tourists. It is estimated that the tourism expenditure of those visiting friends and relatives supported the employment of 1,644 FTE directly and 714 FTE indirectly in downstream sectors.

The contribution of visiting friends and relatives at a state and territory level is shown in Table 5.2 below. The state level estimates should be treated with a degree of caution (particularly for smaller states) because the sample size of those administered the International Visitor Survey in each state who also indicated a reason for their trip was to visit an international student was very small.

Overall, the state level results suggest the largest contribution of visiting friends and relatives was experienced in NSW and Victoria, who contributed \$73 million and \$94 million respectively, reflecting their substantial share of the international student population. Expenditure by tourists who visited an international student in 2014 also supported the employment of an estimated 755 FTE in NSW and 1,096 FTE in Victoria.

Table 5.2: Contribution of friends and relatives visiting students by state, 2014–15

State or Territory	Direct	Indirect	Total
Value added (\$m)			
NSW	41	32	73
Victoria	59	34	94
Queensland	8	15	23
South Australia	2	5	6
Western Australia	7	9	15
Tasmania	1	2	3
NT	1	1	2
ACT	3	2	5
Australia	123	99	222
Employment (FTE)			
NSW	534	220	755
Victoria	821	271	1,096
Queensland	114	104	215
South Australia	28	34	61
Western Australia	77	54	130
Tasmania	22	12	34
NT	10	5	15
ACT	33	12	46
Australia	1,644	714	2,359

Note: Combined state and territory totals are slightly lower than the national total as the national total includes visitor nights for those in 'transit'.

Source: Deloitte Access Economics.

6 The role of international education in developing a skilled workforce

Alongside the high quality of education services in Australia, a primary driver of student demand for Australian international education, particularly education onshore, is the prospect of post study work opportunities and the potential of permanent migration to Australia.

Indeed, the post-study employment opportunities made available to international skilled graduates play a key role in attracting international students to Australia. Favourable job opportunities for graduates is consistently ranked as of greater importance in international student host country choice than lower course fees, travel costs or other living expenses (Mazzarol and Soutar, 2002).

These migration opportunities for international students not only play an important role in attracting students to Australia and boosting export income, they also help to grow Australia's skilled workforce, boosting our national productivity and supporting output and growth in key industries and sectors. International student graduates and skilled migrants, on the whole, help to address skills shortages in Australia and can assist in smoothing structural changes in the economy by supplying key skills and expertise for growing industries.

International education and a skilled workforce — key findings:

Out of the current population of international students studying at the tertiary level, around 130,000 are likely to migrate to Australia after their studies, representing almost 3% of the current population with a tertiary education in Australia. Deloitte Access Economics estimates that if former international student graduates contribute to a 3% increase in the share of Australia's workforce with a tertiary education this would result in:

- an increase to Australia's GDP per capita of around 0.5%, equivalent to around \$8.7 billion in GDP for 2014.

Even if international student migrants do displace other skilled migrants, recent studies suggest that 30% of the total value added from international students migrants is driven by the fact that their education was completed in Australia rather than overseas.

Economic theory posits that skilled migration may have mixed effects on labour productivity. Higher levels of education are associated both with high personal productivity and a contribution to general productivity through research and development; however, on the other hand, there is a loss in productivity from applying a larger labour force to a fixed stock of natural resources, including mineral resources and land. Nonetheless, it has been empirically demonstrated that these productivity gains far outweigh the losses from skill migration (Independent Economics, 2015; PC, 2015b).



Skilled migrants, including international student graduates, have higher rates of labour force participation and are generally younger than resident Australians. Indeed, forecast increases to net skilled migration over the next 35 years have been estimated to boost labour participation, generating gains to national productivity that are equivalent to those made over the past 35 years by the increased participation in the workforce by women (Independent Economics, 2015; Cully, 2012).

This section briefly outlines estimates of the contributions to national income associated with the productivity benefits that international student graduates generate when they migrate permanently to Australia, as well as canvassing the specific value added by Australian education qualifications relative to those earned overseas. Further to these estimates, additional analysis of the benefits that international students make to international industry linkages and trade is considered.

6.1 The contribution of international students' human capital to the Australian economy

International students who graduate from Australian higher education institutions and subsequently migrate to Australia increase the educational attainment rate of Australia's population and boost the nation's supply of human capital. The human capital theory of education postulates that levels of educational attainment increases the knowledge and skills of workers, which in turn improves productivity in the workforce, labour force participation and employment. As such, it plays a key role in supporting productivity growth for all nations, the primary driver of improved living standards over time (Mankiw et al., 1992).

Improvements in educational outcomes have been widely recognised as a fundamental element in enhancing Australia's economic growth and boosting national income. Growth accounting analysis in the UK has indicated that the ongoing accumulation of skilled university graduates contributed to around 20% of all GDP growth in the UK from 1982–2005, a highly significant contribution. This same analysis found that a 1% increase in the share of the workforce with a university degree raises long run productivity by 0.2–0.5%. This means that at least one third of the 34% increase in the labour productivity growth that occurred between 1994 and 2005 can be attributed to the accumulation of skilled university graduates in the labour force (Holland et al., 2013).

In Australia, a recent study by Deloitte Access Economics found that a permanent 10% increase in the tertiary education attainment rate in Australia would increase labour productivity (measured as GDP per capita) in Australia by 1.5-2.0 percentage points. This same analysis estimated that the value that tertiary education human capital added to the productive capacity of Australia was around 12% of Australia's GDP or around \$200 billion in 2014 (Deloitte Access Economics, 2015a).

The Australian economy's demand for highly skilled tertiary graduates is increasing and so too is the calibre of education they require in the 21st century knowledge economy. Deloitte Access Economics has estimated that the demand for higher education qualifications will increase by 34% by the year 2025, equivalent to 2.1 million more university qualifications compared to current levels. In net terms, this means that Australia will require an additional 3.8 million university qualifications by 2025, which will result in an increase in the proportion of the working age population with a higher education qualification from 23% in 2015 to over 26% in 2025 (Deloitte Access Economics, 2015a).

While domestic education opportunities and related policies will play a primary role in supporting the required growth in Australia's human capital stock necessary to sustain economic growth, skilled migrants, including international student graduates from Australian universities, continue to be an invaluable source of skills, knowledge and expertise for Australia's skilled workforce.

A recent report from the Productivity Commission found that, as of August 2015, just under one third of those international student graduates with a student visa expiring between 1 July 2006 and 30 June 2011 had gone on to get a permanent or provisional visa and subsequently reside and are afforded work rights in Australia. Over this five year period, a total of around 290,000 persons were granted a permanent or provisional visa following the expiration of their student visa. From 2001 to 2011 the equivalent figure was just over 400,000 (PC 2015c).

In 2014, there were a total of almost 400,000 international students enrolled on student visas in higher education and VET programs in Australia. Following the historical average from 2006 to 2011, if one third of these students received a permanent or provisional work visa following the completion of their studies there would be, approximately, 130,000 additional tertiary educated persons available to the Australian workforce over the coming years.¹⁶

16 It should be noted that the estimated from PC, 2015b relate to all student VISA types, not just higher education and VET. Further, recent changes to post-study work entitlements by the federal government may mean that this rate of articulation to permanent or provisional visa status will be different in future years. However, the relative stability of this estimate over the period 2001 to 2011 implies that this estimate is a reasonable assumption to apply to graduates in future years.

These 130,000 graduates represent almost 3% of the current population with a tertiary education in Australia. Applying the above cited elasticity from Deloitte Access Economics (2015a), a 3% increase in the share of Australia's workforce with a tertiary education is estimated to result in an increase to Australia's GDP per capita of around 0.5%, equivalent to around **\$8.7 billion in GDP for 2014**.

Given that these 130,000 students will graduate in subsequent years to 2014, this figure should be interpreted as an illustration of the value that the current stock of enrolled international students will make to the Australia economy in the future (i.e. after they graduate); in other words, this figure should not be interpreted as the annual contribution that international student graduates make to the productive capacity of the Australian economy given not all of these students will graduate in a given year.

Further, this estimate should be interpreted as an illustration of the impact that international students have on national income through their contribution to Australia's skilled workforce. It likely represents an overestimate of the impact that these graduates will have on Australia's national income, as these graduates will only enter the workforce upon the completion of their studies, whereupon the proportional effect on Australia's tertiary education attainment rate would be slightly lower. Further, the nature of permanent or provisional visas held by these graduates may mean that some students leave Australia several years after graduation, and are therefore not permanent additions to Australia's skilled workforce.

On the other hand, it is worth noting that these estimates are based on the current stock of international students and that Australia's stock of tertiary educated graduates would include many former international students so the total impact of all international students in increasing Australia's human capital would be much larger.

Importantly, while the above analysis illustrates the significant contribution made by tertiary education human capital to Australia's skilled workforce and national income (GDP) it does not consider the value created by international student graduates specifically. In broad terms, Australia may grow its tertiary education attainment rates through (1) the further education of current residents, (2) permanent and provisional migration of international student graduates in Australia, or (3) permanent and provisional migration of skilled workers who obtain their educational qualification overseas.

While it is generally understood that international students do not displace education opportunities for domestic residents, the latter two of these sources may not be mutually exclusive in practice, which has implications for the estimation of the counterfactual contribution made by international student graduates who migrate to Australia.

To understand the counterfactual contribution made by international student graduates in particular, it is important to note that these skilled migrants may displace other skilled migrants who had earned their degree overseas, and would also have added to Australia's skill base. The following section considers in further detail the relative value-added contributed by skilled migrants who complete their higher education in Australia.

6.2 The relative value of Australian international education

Australia's skilled migration program allows for individuals to apply for permanent or provisional residency and work rights based on a range of criteria and under a variety of visa classes. In general, it is not possible to determine the extent to which international students displace skilled migrants who attain their education qualifications overseas, as there is no strict limit or quota on the number of skilled migration places that are generally made available over time. Further, there is no restriction currently in place on the number temporary post-study work visas (485 class visas) that are made available to international students.

International students are granted permanent and provisional residency rights on the basis of criteria relating to the nature and level of their educational qualifications, the industry that they are employed in (e.g. based on the skilled occupation list) and their English language proficiency, among other factors. Due to the select nature in which permanent migration rights are made available to international student graduates and other potential workers, it is not generally feasible to measure the counterfactual value generated by any given instance of migration (indeed, this value is endogenous to the design of the preferential migration system itself).

Nonetheless, it is possible to consider the value added from an Australian onshore education relative to higher education qualifications obtained overseas by considering the relative wage premiums that these respective qualification sources attract. This relative wage premium provides an indication of the additional value that international students bring by virtue of having obtained their education in Australia, compared to a similarly skilled migrant who earned their education qualification overseas.

Based on data from the Longitudinal Surveys of Immigrants to Australia, it has been estimated that immigrants who obtained their bachelor degree in Australia received a 6.1% wage premium relative to those who obtained their degree overseas (Chan et al, 2012). This 6.1% premium is on top of the 14.1% wage premium earned by all immigrants with a bachelor degree (representing a total premium from an Australian bachelor degree of 20.2% — relative to no post-schooling education).¹⁷

These results show that, for bachelor degree graduates, around 30% of the total value generated by the attainment of a bachelor degree qualification by international student graduates who migrate to Australia can be attributed to the specific value added by the fact that they obtained this bachelor degree in Australia, rather than overseas.¹⁸

As such, this 30% contribution can be considered as a lower bound estimate of the total value added by these international student graduates upon migrating to Australia.¹⁹ That is, in the conservative scenario where international students who migrate to Australia displace equally skilled migrants who obtain their qualifications overseas, the counterfactual contribution of their human capital to the Australian economy is around 30% of the total

17 These results are broadly consistent with results from similar studies of Australia's total population, such as Leigh (2008) and Wilkins (2015)

18 It should be noted that this same value is not present for postgraduate higher education qualifications in Chan et al. (2012).

19 It has been estimated that the public spill over value of higher education attainment is approximately equal in magnitude to the private market return to higher education (McMahon, 2009). As such, the total value of the economic contribution of higher education attainment generally moves in proportion with the private wage premium.

value of their contribution to GDP as illustrated in section 6.1 above (for students graduating with a bachelor degree).

This additional value generated by Australian education qualifications arises from the relatively high quality and standards of Australian education providers and the linkages that Australian education qualifications have with local industry. It should be noted that this estimated premium controls for other factors like English proficiency, marital status and work experience, thereby isolating the specific effect that an Australian qualification has on the effect of higher education on immigrants wage earnings.

6.3 Building industry links and opening up new markets for Australian businesses

As noted in section 3.3 of this report a number of Australian industries are well placed to benefit significantly from continued growth in international education in Australia. Through consultations with stakeholders, the value of international students, as employees of local businesses, was found to often encompass more than the human capital and educational skills that they possess.

In particular, international student graduates can bring unique cultural and language skills and experience to Australian industry that allows them to build and enhance existing markets and trade opportunities. These students are known to play key roles in facilitating relationships with trading partners, suppliers and customers in their home country and elsewhere.

International student graduates need not remain in Australia to play a role in facilitating these trade and industry linkages. Graduates who return to their home country are known to continue to maintain connections with Australian peers, university academics and other teaching staff, as well as employers with whom they have undertaken work experience. These connections have often proved invaluable in facilitating access to overseas markets for Australian businesses and providing opportunities for Australian industry to expand their footprint overseas.

An emblematic example of these linkages can be found in the graduates of the University of New South Wales' photovoltaic and solar energy program (i.e. the Master of Engineering Science and Doctoral research program in Engineering). Many graduates of this program hold senior engineering and management positions at solar panel manufacturing and design plants in China which have strong business and trade linkages with researchers and industry in Australia. These linkages that have resulted from the UNSW postgraduate research have played a key role in supporting Australia's solar panel industry (Deloitte Access Economics, 2015b).

7 The broader benefits of international education to Australian communities

One of the primary objectives of the consultations was to draw on the views of a range of stakeholders to identify some of the broader benefits of international education to Australia as well as strategies that could be used to raise community awareness of these benefits. While the sample of stakeholders consulted was relatively small and was not fully reflective of the sector as a whole, the consultations provide a useful evidence base for considering the sector's non-economic benefits.

Section 7.1 discusses some of the broader economic and social benefits to Australia based on the findings of the consultations and a literature review. Section 7.2 concludes by discussing a range of strategies identified in the stakeholder consultations to improve community awareness of the benefits of international education to Australia.

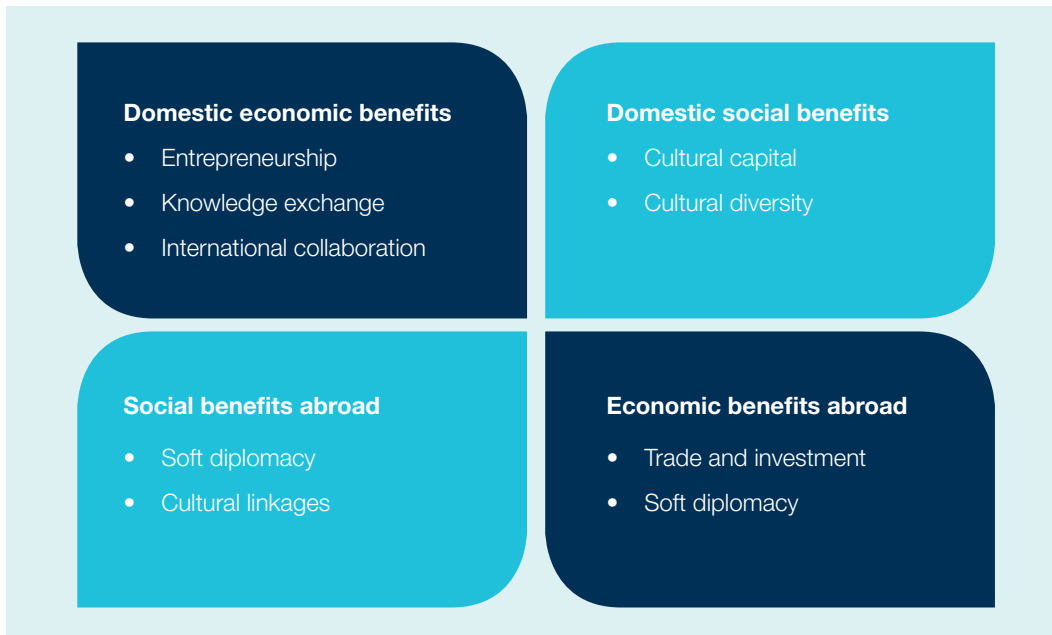
7.1 Broader economic and social benefits

In addition to the economic benefits described above, industry stakeholders also identified a host of other economic and non-economic benefits from international education. These benefits can be broadly classified into economic benefits at home and abroad and social/cultural benefits at home and abroad. Some examples of each of the benefits under each of these categories are provided in Figure 7.1 below.

While it is difficult to precisely quantify these broader benefits, their value to Australia is likely to be substantial and long-lasting. To illustrate the potential scale of these benefits, the following sections examine in greater detail the nature of benefits flowing from:

- cultural capital;
- soft diplomacy;
- entrepreneurship and knowledge sharing; and
- trade and investment.

Figure 7.1: Broader economic and social benefits of international education



Source: Deloitte Access Economics

7.1.1 Cultural capital

Stakeholders across all education sectors have acknowledged the ability of international education to encourage local students to engage with foreign cultures. Stakeholders noted that this engagement occurred at both an institutional level, through the internalisation of the curriculum and professional development for staff, and at a personal level, through individual interactions with students, host families, and the community.

However, multiple stakeholders have also noted that while exposure to international students is important, there is a need to ensure there is sufficient diversity in the international student population to maximise cultural linkages. These linkages may not occur in institutions which focus on just one or two source countries and have limited domestic student populations.

Global Citizenship Education, which aims to empower learners to be responsible global citizens, is now viewed as an integral part of the education curriculum, and one of the strategic areas of work for UNESCO's Education Programme (UNESCO, 2014). Recognising the importance of global citizenship, the Programme for International Student Assessment (PISA), a triennial international test of 15-year-old students from 70 countries around the world, will introduce a test for global competency in 2018.

The ability of international education to provide a more multicultural environment is also a significant benefit. Without multiculturalism, migrants could potentially face social marginalisation and be partially excluded from the wider society (Castles and Miller, 2009). Multiculturalism can also remove other barriers to employment, such as vulnerability to exploitation, racism, discrimination and intolerance.

For Australian students, greater cultural awareness through interactions with international students helps to develop meaningful cultural capital which, like human capital, helps to improve individuals' productivity in the workplace and their ability to meaningfully contribute to the community. Enhancements in the cultural capital of Australian domestic students can contribute to the development of a generation of globally engaged citizens who will help

to enhance trade and investment linkages, international relations and diplomacy, and the overall globalisation of Australia's economy and broader society. Many of these benefits are discussed in further detail below.

7.1.2 Soft diplomacy

Multiple stakeholders highlighted the intangible soft diplomacy benefits of international education (particularly at the tertiary level) which result from having a large population of international student graduates abroad. This creates important opportunities for the exchange of information, interaction and collaboration. This can yield benefits in areas ranging from research to trade and investment to foreign affairs.

A number of stakeholders mentioned the soft diplomacy benefits to Australia of the Colombo Plan. The Colombo Plan was launched in 1951 and sponsored students from neighbouring Asian countries to study in Australia. By 1985, some 40,000 students had been trained under the Colombo Plan (DET, 2015f). Many of these alumni have consequently held leadership positions in both industry and Government, particularly in Malaysia, Singapore and Indonesia, and continue to maintain both professional and personal connections to Australia.

Conversely, the Indian student crisis of 2009 showed that negative publicity in international education can have a damaging effect, impacting not only on the immediate commercial viability of the international education sector, but also on the longer term reputation of Australia (Byrne and Hall 2013).

Soft diplomacy benefits: alumni

Given Australia's long history of providing international education, starting with the Colombo Plan (Universities Australia, 2011), there is now a network of 2.5 million international alumni from the Australian higher education sector (Byrne and Hall, 2014). As they have risen to leadership positions in government and industry, they have become important long-term advocates for Australia.

For instance, the President of Singapore, Tony Tan, is an alumni of Adelaide University and has spoken publicly in Australia on the value of the Colombo Plan. Other notable Singaporean alumni have included former Prime Minister, Ong Teng Cheong, and the current Group President of the Government of Singapore Investment Corporation, Lim Siong Guan.

One stakeholder noted that at times more than half of the Indonesian Cabinet has been educated within Australia.

Other high profile examples have included the Australian National University building a network of influence among senior economists of the Asian region — in particular Indonesia, China, and Vietnam — that reaches into high levels of government decision-making (Davis and Mackintosh, 2011).

In order to maximise these soft diplomacy benefits it is also important that Australian students are encouraged to study abroad, particularly in source countries in our region. Recognising this, the Australian government has recently created the New Colombo Plan initiative to fund Australians to study overseas and undertake shore term internships, mentorships, practicums and research.

The potential benefits of outbound study have been recognised by other countries, with the United States committed to doubling the number of outbound students from 290,000 to 600,000 by 2018, with a particular focus on China (ICEF Monitor, 2015).

7.1.3 Entrepreneurship and international collaboration

A number of stakeholders noted that international education can help produce a bilingual workforce that can create greater opportunities for international economic cooperation as well as increase international research collaboration. Given the unprecedented opportunities available in the Asia Pacific region as the Trans-Pacific Partnership with the Pacific Rim countries, and North Asia Free Trade Agreements with Korea, Japan, and China, have been signed, Australia will need individuals with a cultural understanding of the region to best release the potential gains associated with recent agreements.

Stakeholders have also noted the ability of international students to engage in entrepreneurial activities. For instance, research has shown that migrants in Australia are more entrepreneurial than native-born counterparts, with the OECD estimating that in 2007–08, 11.5% of foreign-born workers are self-employed (a proxy for business ownership) compared to just 10.0% for native-born workers.²⁰ Even when accounting for differences in background and education, migrants skills make them more likely to become entrepreneurs. While most self-employed migrants only employ themselves, they have been increasingly contributing to total employment over the 1998 to 2008 period. In the OECD, this contribution to employment is equivalent to between 1.5-3% of the total employed labour force in most OECD countries (OECD, 2011).

Stakeholders also noted the importance of international education in creating lasting research relationships, particularly between researchers and their supervisors.

Jeong et al. (2013) finds that informal communication networks are significant in accomplishing international collaborations. International collaborative research produces research with greater impact than both domestically co-authored papers and single-authored papers (Oh et al, 2010), with the British Council (2012) suggesting that 80% of countries' research impact, as measured by average citations per document, is determined by their research collaboration rate. Consequently, international students in Australia, particularly postgraduate research students, can be important for generating better research.

In 2010, 43.8% of research articles by Australia were produced in collaboration with an international partner (British Council, 2012). While historically most of these collaborations would have been with other developed countries (Nadarajah, 2014), it is possible that as the research capabilities of Australia's key source markets increase over time, there will be future opportunities for collaboration. Investment in research and development is shifting towards Asia, with research and development expenditure in China, Australia's biggest source market

²⁰ International education is an important source of permanent residents and migration for Australia. Section 6.1 notes that just under a third of international students receive permanent or provisional visas to work in Australia subsequently.

for higher education international students, doubling from 2008 to 2012, and projected to become the largest in the world by 2019 (OECD, 2014).

7.1.4 Trade and investment

Multiple stakeholders have noted the positive impact of international education on trade and investment. This occurs both directly, through international students investing in Australia (or vice versa), and indirectly, through consumer preferences.

An IDP Education study (2008) of international graduates of the five Australian Technology Network universities found that over one fifth of graduates said that they managed or controlled an international supply chain involving an Australian business or industry. International education can also have positive trade and investment impacts for the source countries. Kim and Park (2010) found a positive relationship between country-specific bilateral foreign direct investment (FDI) and foreign-educated human capital using bilateral foreign direct investment (FDI) and foreign student data for 67 developed and developing countries over the period of 1963–1998. It is hypothesised that individuals educated in a particular country are more familiar with that country's language, business culture, and industry needs, and able to attract more FDI from that particular country.

At the indirect level, research by Oxford Economics (2007) has found that international students studying in London were likely to develop a preference for UK products. This has been supported both by stakeholder commentary, and the first-hand account of the then Austrade's Senior Trade Commissioner in Jakarta, Michael Abrahams to a parliamentary committee (Davis and Mackintosh, 2011):

The largest retailer in Indonesia has something like 70 stores across the archipelago and 2,500 Australian lines in their flagship supermarkets. That influence has not come from us to a large extent; it has come from the students who have come back and want their violet crumble bars and their cherry ripens and all those sorts of things.

This is consistent with the empirical literature on the relationship between immigration and trade. As noted in Chapter 4, Genc et al (2011) undertake a meta-analysis of studies looking at the relationship between immigration and trade, finding that on average a 10% increase in immigrants increases the volume of trade between countries by 1.5%.

7.2 Raising community awareness

Another objective of the consultations was to identify common community concerns about international education and strategies that could be used to raise community awareness of the broader benefits that international education provides.

On the whole, stakeholders did not feel there were substantial community concerns about international education in Australia. One community concern that was cited by three stakeholders was that some international graduates were not developing sufficient English language skills and that limited their scope to both succeed academically and interact with the broader community.

A couple of stakeholders noted that there were community concerns that international students may take places from domestic students and that it was important for information campaigns to help dispel this myth. Others noted there was a degree of concern about international students taking jobs from local students or creating accommodation shortages but did not see these concerns as particularly widespread.



A range of strategies to lift community awareness of the benefits of international education were identified through the consultations. These strategies can be broadly grouped under five themes:

- The sector's messaging should focus on the social and cultural benefits of international education rather than its role as one of Australia's largest exports
- Information and media campaigns should seek to highlight the positive stories and achievements of former international students
- Emphasising the deep international linkages that can arise from initiatives such as homestay for international students

- Community awareness campaigns should promote the role of international students in creating a more diverse community
- Education providers should look to forge stronger connections between international students and local communities.

Each of these themes is discussed in greater detail below.

The sector’s messaging should focus on the social and cultural benefits of international education rather than its role as one of our largest exports

The analysis in sections 7.1 to 7.4 highlighted the extent to which international education yielded a number of broader benefits to Australia beyond expenditure by students themselves. This was universally acknowledged by stakeholders and while a few stakeholders noted that not enough was being made of the fact that international education was Australia’s third largest export, the majority felt this was coming through and that there was a need for the sector’s messaging to focus on the social and cultural benefits of international education which were not coming across as clearly.

A number of stakeholders noted that linking international education to the \$18.8 billion in exports risked treating international students as a commodity and that placing a dollar value on education would not play well in some Asian markets. In general, stakeholders took the view that the sector’s messaging should seek to demonstrate the social and cultural benefits to the community of higher education such as the value of having a more international outlook and building greater cultural awareness to avoid the perception that international students were solely an export industry. It was felt that this would not only build community awareness of the sector but encourage greater interaction between the sector and the Australian community.

Information and media campaigns should seek to highlight the positive stories and achievements of former international students

A large number of stakeholders noted that campaigns to raise community awareness of international education should focus on highlighting positive stories of former and current international students. Stakeholders felt that this would help the community better relate to the sector and its achievements.

For example, one stakeholder noted that similar to recent media campaigns in relation to refugees, the government or educational providers could provide case studies of successful international students who had been involved in community activities or in starting up businesses employing local workers. Another stakeholder highlighted the You Tube clip ‘I’m not Australian, but I have an Australian story’ developed by the Council of International Students in Australia as an example of the type of media that could be used to raise community awareness of international students in Australia, noting that it also covered some of the challenges facing international students.

A number of stakeholders also pointed to the prominence of former Colombo Plan alumni such as the President of Singapore and the fact that many Indonesian cabinet members had been educated in Australia to highlight the importance of alumni in promoting Australia to the world. There was also view that Australian institutions could do more to strategically engage with alumni who were generally the best advocates for Australia.

Other stakeholders pointed to the initiative undertaken by StudyNSW to provide annual international student awards to highlight particular international students who have contributed in a significant way to their local communities.

Emphasising the deep international linkages that can arise from initiatives such as homestay for international students

A number of stakeholders representing the school sector noted the benefits of homestay in helping to forge deeper cultural connections between local communities and international students. They noted that media campaigns could also highlight the positive stories of home stay parents who often form a deep connection with students and their families, in some cases travelling to the student's home country to attend their wedding and other family events.

Community awareness campaigns should promote the role of international students in creating a more diverse community

A number of stakeholders noted that more could be done to highlight to the community the value that international students played in creating a more diverse community. Stakeholders noted that community awareness could potentially be improved through initiatives such as holding an International Student Day and inviting local communities to events on university campuses.

Many stakeholders noted that the benefits of international education in terms of cultural diversity could be embedded or linked to existing government marketing campaigns focusing on related areas such as the benefits of multiculturalism to Australia.

Stakeholders also pointed to the importance of involving international students in local events to highlight their contribution to the community. In Armidale, international students are involved in Harmony Day and the Autumn Festival while international students helped set up the popular Regional Indian Festival in Townsville.

Education providers should seek to forge closer connections between international students and local communities

A number of stakeholders noted the importance of forging closer connections between international students and local communities to lift community awareness of the sector. For example, stakeholders noted that there was a need for universities to continually try and increase interaction between domestic and international students (as many events were simply organised for international students), and also to hold events linking international students to unions, chambers of commerce or employer associations to highlight the potential to hire international students after graduation.

Some stakeholders noted that trying to maintain a diverse international student population (in terms of source countries) would help achieve a greater level of integration with the local community.

Other stakeholders noted the success of sporting events at creating connections between international students and local communities such as membership arrangements with football clubs or beach soccer or cricket tournaments. Others noted the importance of informal connections such as homestay arrangements in both helping international students adjust to life in Australia but also lifting community awareness of the presence of international students in Australia. In particular, homestay was seen as playing an important role in providing exposure to other cultures for children in host families.

On the whole, stakeholders indicated that forging closer connections would benefit both the international student experience and local community awareness of the sector.

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Appendix A: ABS treatment of international education services

The Australian Bureau of Statistics (ABS) captures the provision of international education services under Modes 1, 2, and 4 at the national level in catalogue 5368.0 — *International Trade in Goods and Services, Australia*.

Mode 1 refers to the cross border supply of education services and includes:

- **royalties on education** includes the licence fees, royalty payments, copyrights, and associated fees received by Australian education institutions for the provision of educational material, such as manuscripts, original works, education courses, and academic materials;
- **correspondence courses** covers transactions relating to the provision of correspondence courses conducted at overseas institutions and courses conducted by non-residents at Australian institutions; and
- **education consultancy services** include transactions relating to the consultancy of education institutions and material, such as management services, professional services and education administration.

The ABS estimates mode 1 export revenue of the education sector through sampling a cross section of Australian education providers for their revenues from the provision of cross border services. An estimate of the sector total is then arrived at by weighting the surveyed responses.

Mode 2 covers the onshore consumption of education by international students, including both their expenditure on fees and living expenses. The ABS also provides a detailed breakdown of Mode 2 international education services by state and education sector in catalogue 5368.0.55.004 — *International Trade in Services by Country, by State and by Detailed Services Category*.

Export revenue under mode 2 is captured under the Education related personal travel category in the *International Trade in Goods and Services* publication. It is broken down into:

- fees based on the registered institution course fees data derived by DET from the Department's Commonwealth Register of Institutions and Courses for Overseas Students (CRICOS) database; and
- *expenditure on goods and services*, estimated from the number of international students on student visas from the Department of Immigration and Border Protection and ABS data on Overseas Arrivals and Departures, with estimates of per student expenditure on goods and services (living expenses) from the *Universities Australia 2010 Survey of International Student Spending*.

Mode 4 covers the presence of Australian educators overseas for a period under 12 months for the provision of education services. It includes:

- educational services, such as management services related to the provision of education services, professional education services provided abroad, provision of correspondence courses, and teaching by employees of the Australian business in courses provided at institutions abroad. This excludes services provided in Australia to foreign students and services provided abroad by overseas campuses of the Australian business;
- **educational services provided through registered education institutions** covers transactions of courses conducted at overseas institutions and courses conducted by nonresidents at Australian institutions.

The ABS estimates export revenue from mode 4 by sampling the sector (in a similar manner to mode 1).

Appendix B: Non-student visa ELICOS student revenue

The revenue from non-student visa (NSV) ELICOS students has been estimated using ABS data on student visa (SV) ELICOS student revenue, DET data on SV ELICOS enrolments, and English Australia survey data on the likely size and characteristics of the NSV ELICOS cohort for each state including:

- the proportion of SV to NSV enrolments;
- the average length of study; and
- the average expenditure on fees (and goods and services) per week.

These are applied to the population SV data to estimate the likely size of the NSV population, and their expenditure on fees and goods and services.

Number of non-student visa enrolments

Assuming the DET student enrolment figures over the year 2014 to represent the true SV population, the English Australia survey proportion of SV to NSV enrolments for each state is applied to estimate the number of NSV enrolments in each state.

While the results of the English Australia survey are broken down at state levels for New South Wales, Victoria, Queensland, South Australia and Western Australia, there is no disaggregated data for Tasmania, the Northern Territory, and the Australian Capital Territory due to their small sample sizes. Indeed, in the 2015 survey, only one college from Tasmania and the Northern Territory participated, and there were no responses from Australian Capital Territory based organisations. For these states, the national average of the SV to NSV enrolment ratio is used. This implies that the unrepresented states attract NSV and SV enrolments in the same proportions as the rest of the country. This may not necessarily be the case, with a consultation participant noting that regional centres are likely to have a relatively higher proportion of SV students. This means that the national average could be an overestimation of the number of NSV students in those states.

Deloitte Access Economics estimates that there were approximately 71,940 NSV international enrolments in the ELICOS sector in 2014. The biggest NSV ELICOS market is New South Wales, which had 25,580 enrolments in 2014, followed by Queensland and Victoria, with 23,620 and 12,660 enrolments respectively.

Average number of weeks studied by SV and NSV enrolments

The English Australia survey provides the average student weeks for both NSV and SV enrolments for the states of New South Wales, Victoria, Queensland, South Australia and Western Australia. For the unrepresented states, the national average for SV and NSV enrolment lengths were used, similar to the SV to NSV enrolment proportions.

The survey data shows that the average SV enrolment length in 2014 was longest in South Australia, standing at 18.5 weeks, compared to just 15.5 weeks in New South Wales. While for NSV enrolments, the average enrolment period was longest in Victoria at 7.6 weeks, compared to just 5.8 weeks in Western Australia.

Average fees (and living expenses) per week

The ABS export revenue from SV ELICOS students is estimated at the state and territory level by apportioning the sector total (\$544 million over the 2014–15 period) across the states by the 2014 DET enrolment figures. For instance, if enrolments in New South Wales made up 40% of total SV ELICOS students, it is assumed that the revenue from fees is also equal to 40% of the national total, or approximately \$217 million in dollar terms. This assumes that average fees for each SV ELICOS enrolment is the same across the states. Note that the fee revenue from the other education sectors is similarly apportioned between the states.²¹

For each state, the estimated fees are subtracted from the ABS state data on the total education related personal travel export revenue in each state, and attributed to student expenditure on goods and services.²² To ensure that both the state total revenues and national sector revenues add up, student expenditure on goods and services have been adjusted to reflect the different price levels between the states.

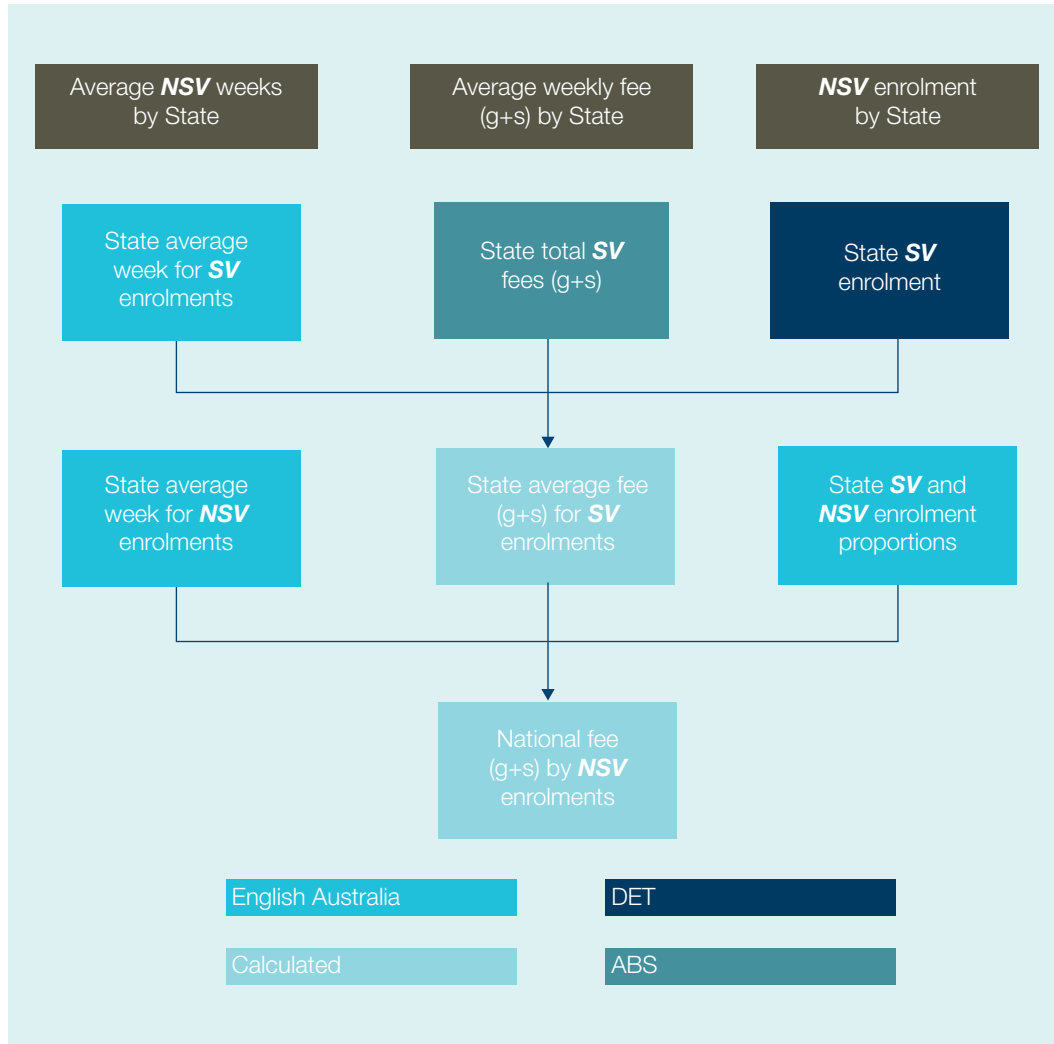
The estimated fees and expenditure on goods and services are divided by the average number of enrolment weeks for SV to find out the average expenditure on fees, and goods and services per week for each state. This assumes that NSV students spend similar amounts on their fees and other goods and services as their SV counterparts. Consultation participants have revealed that this may not necessarily be the case, with those students who have enrolled through agents or studying longer term likely to be paying discounted fees. This suggests that it is possible that NSV students, who study for shorter periods of time on average, are paying higher fees per week compared to their SV counterparts. Similarly, for NSV students who are also concurrently sightseeing during their studies, it is possible that they are spending more on other goods and services as well. However, due to limitations in the data, this report is unable to account for these differences.

21 For the sector New Zealand which had no enrolment data, the national total fee was apportioned based on state enrolments in Higher Education.

22 Expenditure from AusAID/Defence students is also taken away from the total state figures, assuming an equal 1% share (national average) across all the states and territories.

A flow diagram of the relationship between the data elements is shown below in Figure B.1.

Figure B.1: Process diagram for estimating export revenue for NSV ELICOS students



Source: Deloitte Access Economics.

Appendix C: Economic contribution modelling framework

Economic contribution studies are intended to quantify measures such as value added, exports, imports and employment associated with a given industry or firm, in a historical reference year. The economic contribution is a measure of the value of production by a company or industry.

Value added

The measures of economic activity provided by a contribution study are consistent to those provided by the Australian Bureau of Statistics. For example, *value added* is the contribution the sector makes to *total factor income* and gross domestic product (GDP) and gross territory product.

There are a number of ways to measure GDP:

- **Expenditure approach** — measures the expenditure; of households, on investment, government and net exports
- **Income approach** — measures the income in an economy by measuring the payments of wages and profits to workers and owners

Below is a discussion measuring the value added by an industry using the income approach.

Measuring the economic contribution — income approach

There are several commonly used measures of economic activity, each of which describes a different aspect of an industry's economic contribution:

- **Value added** measures the value of output (i.e. goods and services) generated by the entity's factors of production (i.e. labour and capital) as measured in the income to those factors of production. The sum of value added across all entities in the economy plus net taxes less subsidies on products equals gross domestic product. Given the relationship to GDP, the value added measure can be thought of as the increased contribution to welfare.

Value added is the sum of:

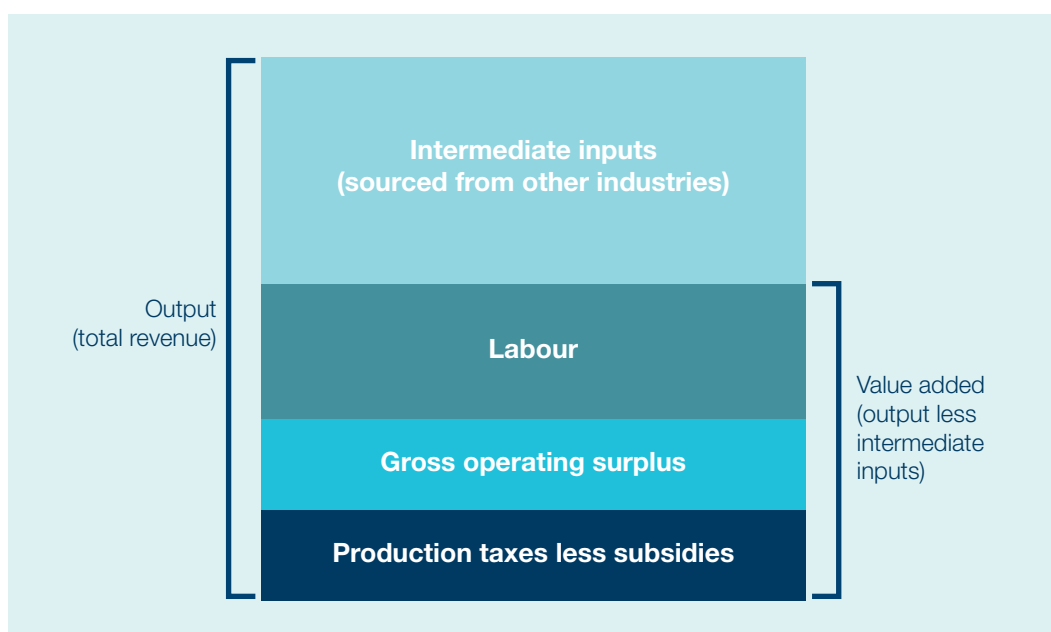
- Gross operating surplus (GOS). GOS represents the value of income generated by the entity's capital inputs, generally measured as the earnings before interest, tax, depreciation and amortisation (EBITDA).

- Tax on production less subsidy provided for production. Note: given the returns to capital before tax are calculated, company tax is not included or this would double count that tax. In addition it excludes goods and services tax, which is a tax on consumption (i.e. levied on households).
- Labour income is a subcomponent of value added. It represents the value of output generated by the entity's direct labour inputs, as measured by the income to labour.

Figure C.1 shows the accounting framework used to evaluate economic activity, along with the components that make up *output*. Output is the sum of value added and the value of intermediate inputs used by the company. Net taxes on products are not included in value added but are included in GDP.

The value of intermediate inputs can also be calculated directly by summing up expenses related to non-primary factor inputs.

Figure C.1: Economic activity accounting framework



Source: Deloitte Access Economics.

Contribution studies generally outline employment generated by a sector. Employment is a fundamentally different measure of activity to those above. It measures the number of workers that are employed by the entity, rather than the value of the workers' output.

Direct and indirect contributions

The **direct** economic contribution is a representation of the flow from labour and capital in the company.

The **indirect** contribution is a measure of the demand for goods and services produced in other sectors as a result of demand generated by an industry or firm. Estimation of the indirect economic contribution is undertaken in an IO framework using Australian Bureau of Statistics IO tables which report the inputs and outputs of specific sectors of the economy (ABS 2015a).

The total economic contribution to the economy is the sum of the direct and indirect economic contributions.

Other measures, such as total revenue or total exports are useful measures of economic activity but these measures alone cannot account for the contribution made to GDP. These measures overstate the contribution to value added because they include activity by external companies supplying inputs, in addition they do not discount the inputs supplied from outside Australia.

Input-output analysis

Input-output tables are required to account for the intermediate flows between sectors. These tables measure the direct economic activity of every sector in the economy at the national level. Importantly, these tables allow intermediate inputs to be further broken down by source. These detailed intermediate flows can be used to derive the total change in economic activity associated with a given direct change in activity for a given sector.

A widely used measure of the spill-over of activity from one sector to another is captured by the ratio of the total to direct change in economic activity. The resulting estimate is typically referred to as 'the multiplier'. A multiplier greater than one implies some indirect activity, with higher multipliers indicating relatively larger indirect and total activity flowing from a given level of direct activity.

The IO matrix used for Australia is derived from the ABS 2012–13 IO tables (2015a). The industry classification used for IO tables is based on ANZSIC, with 114 sectors in the modelling framework.

Appendix D: Student contribution estimation methodology

To model the economic contribution from student expenditure on fees and living expenses, different approaches were taken, depending on the sector and the type of revenue (fees versus goods and services), to take advantage of the available data.

Mode 1 and 4

The revenue from the mode 1 and mode 4 provision of international education are assigned to the Australian and New Zealand Standard Industrial Classification (ANZSIC) industry 'Technical, Vocational and Tertiary Education Services'. While there are likely to be some Schools and ELICOS providers also providing cross border education services (such as through licencing agreements for the delivery of HSC and VCE approved programs in secondary schools), most of the activity is likely to be concentrated in the Higher Education and VET sectors.

By assigning the revenue to the tertiary education sector, it assumes that the provision of education services through modes 1 and 4 have the same production structure as the overall tertiary education sector. This may not necessarily be the case, with the provision of distance education (mode 1) potentially having a different production structure to traditional onshore provision. It is also possible that the mode 1 and mode 4 provisions of services have a lower indirect contribution, and be linked to different upstream industries, compared to onshore provision. For instance, distance education does not require as much physical campus space and thus will require less expenditure on building repairs and maintenance.

However, as there is no representative education provider operating solely in either mode 1 or mode 4, Deloitte Access Economics is unable to estimate a more accurate contribution from company financial statements, and these estimates represent a first approximation. Nevertheless, as the ABS industry structure of the tertiary education sector is based on the sector's overall production in Australia, it should include both their mode 1 and mode 4 production revenues and expenditures. Once the onshore activity has been considered, the overall results should reflect the mix of activities undertaken in the tertiary sector.

Mode 2

Fees

The fees of each education sector are assigned to the relevant ANZSIC industries.²³ The Schools are put under the ‘*Primary and Secondary Education Services (incl Pre-Schools and Special Schools)*’ sector; and ELICOS (including both SV and NSV) under ‘*Arts, Sports, Adult and Other Education Services (incl community education)*’. These are listed below in Table D.1

Table D.1: IO categorisation by education provider mode and sector

Mode/Sector	IO category
Mode 1	Technical, Vocational and Tertiary Education Services
Mode 2	
<i>Higher Education</i>	Direct calculation
<i>VET</i>	Technical, Vocational and Tertiary Education Services
<i>Schools</i>	Primary and Secondary Education Services
<i>SV ELICOS</i>	Arts, Sports, Adult and Other Education Services
<i>NSV ELICOS</i>	Arts, Sports, Adult and Other Education Services
<i>Non-Award</i>	Technical, Vocational and Tertiary Education Services
<i>New Zealand</i>	Technical, Vocational and Tertiary Education Services
<i>AusAID/defence</i>	Technical, Vocational and Tertiary Education Services
Mode 4	Technical, Vocational and Tertiary Education Services

Source: Deloitte Access Economics.

For mode 2 Higher Education, the revenue and expenses of the sector are taken from the *DET 2014 Finance Publication (2015c)*. The direct value added and employment multipliers are calculated directly from DET data and applied to the ABS estimates of fees from international students in Higher Education from the International Trade in Goods and Services publication.²⁴ DET financial data is used instead of the aggregate ‘Technical, Vocational and Tertiary Education Services’ industry as it gives a more accurate and up-to-date picture of the production structure of higher education institutions compared to the IO tables.

This method assumes that for the universities, a dollar from international students is the same as a dollar from any other sources, and does not make any distinction of what international student fees are likely to be spent on.

The universities’ expenditure on intermediate inputs draws on both the available DET data and past contribution studies by Deloitte Access Economics for the University of New

²³ Non-award, New Zealand, and AusAID/Defence are all assigned to ‘*Technical, Vocational and Tertiary Education Services*’, as it is assumed that the majority of students from those categories are likely to be enrolled in either a Higher Education or VET course.

²⁴ From the DET data, revenue from ‘Fee Paying Overseas Students’ in 2014 was equal to \$4.7 billion, compared to ABS data of \$5.7 billion over the same period. It could be the case that the DET figure is excluding some non-universities providing Higher Education, or some other non-fee revenue from students.

South Wales (2015b) and the University of Adelaide.²⁵ It finds that of the university sector's expenditure on intermediate inputs, the three biggest expenditure items are contract services (35%), travel and entertainment (11%); and repairs and maintenance (10%).

Adjustments are also made to account for the proportion of expenditure that is likely to occur within the individual states and in the rest of Australia, based on past analysis by Deloitte Access Economics. It finds that approximately 60% of expenditure on intermediate inputs will occur within the state that the university is located in, 30% within the rest of Australia, with the remaining 10% sourced directly from overseas.

Using proportions based on past studies, the simplifying assumption that each university has the same reliance on local, interstate, and international intermediate inputs, has been made. While it is likely that local services, such as building maintenance and utilities, are all sourced locally, it possible that larger states will rely relatively more on domestic businesses.

It is also assumed that each University spends the same proportion of total 'other expenditure' on different intermediate inputs. Universities with different focuses, such as research versus teaching, could potentially have different spending profiles.

The intermediate expenditure is then put through the Deloitte Access Economics IO model under the relevant industries.

Goods and services

For student expenditure on goods and services, the total ABS figure for each sector was apportioned to individual spending categories based on the Universities Australia (UA) 2010 *Survey of International Student Spending*. The survey, which received over 5,400 responses from international students across all the states and all the sectors, is also used by the ABS to construct its total international student expenditure on goods and services.

Under the IMF Balance of Payments framework that the ABS utilises, student expenditure on international airfares is not included under goods and services revenue from education related personal travel (IMF, 2009). Instead, it is attributed to the aviation sector directly. Given that international student expenditure on airfares is likely to directly support activity in the aviation sector, the following results are still a potential underestimation of the contribution from international students. Indeed, Tourism Research Australia (2015) reports that approximately 7% of total student expenditure on goods and services are likely to be on international airfares.

The UA survey expenditure categories are then assigned to the relevant IO or ANZSIC industries, and adjusted for both the price received by the domestic producers (basic price) by removing consumption taxes from the price paid by consumers (purchaser's price), and the proportion of expenditure that is likely to be directly imported. Both are derived using the ABS 2012–13 IO tables.

This is then used to model both the direct and indirect value added and employment contribution from the living expenses of students during their studies in Australia. By using the 2010 UA survey and the 2012–13 IO tables, it is implicitly assumed that:

- student consumption patterns haven't changed since 2010;

25 DET data used for the categories of 'repairs and maintenance', 'non-capitalised equipment', 'advertising, marketing and promotional expenses', while University of New South Wales proportions used to split 'other expenditure'.

- the production structure in the overall sectors have remained constant;²⁶ and
- the production structure is linear and an additional dollar of production will use the same resources as the average production in 2012–13.

The majority of expenditure of mode 2 expenditure on goods and services, are covered by the following three broad ANZSIC industries:

- **retail trade** at 28%, which includes student expenditure on groceries, clothing, household goods, and computers.
- **ownership of dwellings** at 26%, which includes student expenditure on rent or board for private accommodation. It does not include expenditure on private halls/student hostels, student houses, or colleges, which are counted under the ‘accommodation’ sector.²⁷
- **food and beverage services** at 7%, which includes student expenditure on meals, snacks, and drinks consumed away from home.

Other key industries where students spend money directly include the Road and Rail Transport, Sports and Recreation, and Accommodation sectors.

Multipliers

This section outlines the value added and employment multipliers from international student revenue (Mode 2). These results should not be interpreted as the likely value added or employment impacts likely to occur if the international education sector continues to expand. Indeed, given that the total resources in the sector are limited, further expansion in the sector is likely to come at the expense of other sectors. Consequently, the value added impact of an additional dollar of revenue in the higher education sector is likely to be smaller than the given multipliers.

Table D.2: Contribution multipliers for international students, 2014–15

	International education sector
Total enrolments	661,800
Export revenue (\$m)	18,980
Value added (\$m)	16,882
Total jobs (FTE)	128,385
Value added per \$m in export revenue	0.89
Employment per \$m in export revenue	6.76

Source: Deloitte Access Economics.

Note: Enrolments based on DET 2014 figures, while revenue and consequent contribution to value added and employment are based on financial year 2014-15 figures. Includes activity in the NSV ELICOS sector and includes the contribution from New Zealand and AusAID/Defence students.

²⁶ This is a reasonable assumption given that whole sectors are unlikely to change production processes over the short term.

²⁷ Attributed based on DET (2014b) research paper ‘2014 sample stocktake of international student accommodation in Australia’. It finds that approximately 84% of international students’ expenditure on rent falls under ‘ownership of dwellings’ with the remaining 16% under ‘accommodation’.

Appendix E: Regional contribution

Case study 1: Armidale

The case study regional area of focus is the Local Government Area (LGA) Armidale Dumaresq located in Northern New South Wales. As of the 2011 Census, the LGA population was 24,105 people, equivalent to approximately 0.3% of the then total state population.

Armidale Dumaresq has a broadly similar industry profile compared to Australia as a whole (see below in Table E.1), except for one key difference. The biggest single industry in the LGA is *Education and Training*, which employed 21% of the local population in 2011, compared to 8% for Australia as a whole. This is due to the presence of the University of New England, which is the single biggest employer in the town of Armidale.

Table E.1: Share of employment by industry, 2011

Industry	Armidale Dumaresq	Australia
Agriculture, Forestry and Fishing	6%	3%
Mining	0%	2%
Manufacturing	3%	9%
Electricity, Gas, Water and Waste Services	1%	1%
Construction	6%	8%
Wholesale Trade	2%	4%
Retail Trade	13%	11%
Accommodation and Food Services	9%	7%
Transport, Postal and Warehousing	2%	5%
Information Media and Telecommunications	1%	2%
Financial and Insurance Services	3%	4%
Rental, Hiring and Real Estate Services	1%	2%
Professional, Scientific and Technical Services	6%	7%
Administrative and Support Services	2%	3%
Public Administration and Safety	5%	7%
Education and Training	21%	8%
Health Care and Social Assistance	13%	12%
Arts and Recreation Services	1%	2%
Other Services	4%	4%

Source: 2011 Census of Population and Housing

University of New England profile

The University of New England (UNE), founded in 1938, is the oldest Australian University located outside of a state capital city. In 2014, 979 international students were enrolled in the University of New England, making up nearly 5% of the total 21,419 in student enrolments (DET, 2015d).

While a 5% international student share appears low compared to the national average of 18% (Productivity Commission, 2015a), their on-campus representation is greater. Indeed, given that the University has a sizeable distance education domestic cohort, when students under the 'external mode of attendance' are excluded, international students make up 19% of the total 'internal' and 'multi-modal' enrolment population (DET 2015d). When 'multi-modal' students are also excluded, international students make up 23% of 'internal mode of attendance' students at the University.

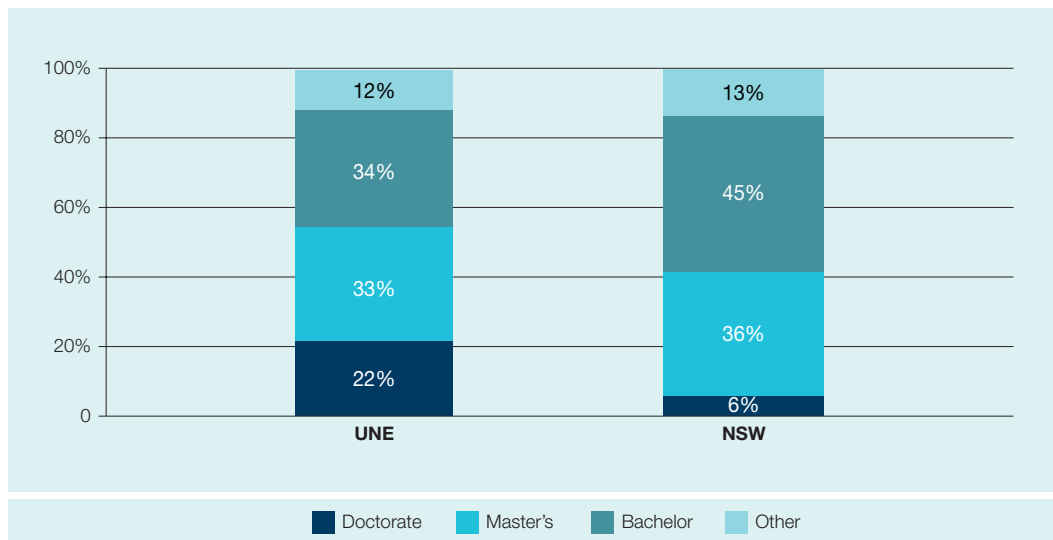
Further, international students also represent a significant portion of the total local population, making up approximately 4% of the LGA population. This is higher than the State average, where international student enrolments make up 3% of the total New South Wales population.

Regional benefits of international education: local community involvement

The smaller population in regional areas gives international students a greater chance of integrating into the local community and making a significant positive contribution. For instance, Dunya Alruhaim, who is studying Masters of Education at UNE, is involved in a number of community groups helping Arabic speaking women and families to settle into Armidale (ABC, 2015). Recognising her contribution to the community, she was awarded the 2015 New South Wales International Student of the Year Award under the Higher Education category (NSW Government, 2015).

As noted by consultation participants, regional universities are more likely to attract research students to their fields of expertise. In 2014, 22% of international students in UNE were completing a doctorate by research. This is significantly higher than New South Wales average of 6% (DET 2015d). There are also fewer undergraduate students at the UNE, with Bachelor students making up 34% of the international student population, compared to 45% for the State as a whole. Chart E.1 shows the level of course profile of international students in UNE compared to overall Higher Education institutions in New South Wales.

Chart E.1: International student enrolments by broad level of course, 2014



Source: DET, 2015d

The University also attracts students to different broad fields of education compared to the New South Wales Higher Education sector as a whole. In 2014, while Management and Commerce was the most popular specialisation for international students at UNE (making up 33% of total enrolments), it was lower than the state average of 49%. International students were significantly more likely to study in ‘Agriculture, Environmental and Related Studies’, ‘Health’, and ‘Education’ compared to overall international students in the State, while significantly less likely to choose ‘Engineering and Related Technologies’ compared to the State average (DET 2015d).

Economic contribution

The contribution methodology broadly follows those described in Appendix D. International student fees to the University are taken from the DET publication, and totalled \$13 million in 2014, or approximately 5% of the University’s total revenue. This is scaled up to account for differences between DET and ABS data sources according to the common New South Wales multiplier. The analysis assumes that University expenditure on intermediate inputs is in the same proportions as in past contribution studies by Deloitte Access Economics.

The analysis also assumes that international Higher Education student expenditure on goods and services are the same as New South Wales as a whole, with the average Higher Education student enrolment estimated to be spending \$27,758 per year on goods and services. Given that there is mixed evidence for whether average student living expenses would be higher or lower in Armidale, the above figure is an appropriate first estimation. For instance, consultation participants have noted that while accommodation is likely to be cheaper in Armidale, costs for groceries and transportation are likely to be higher. Further, past studies have found that the average international postgraduate (HDR) student spends 46% more on general living expenses than the average international undergraduate student (UA, 2012). Given the higher proportion of research doctorate international students at the University, it is another indicator that average living expenses may not necessarily be lower in Armidale.

Case study 2: Impact of international economic activity on regional Victoria

Tourism Satellite Accounting Framework

There are a number of intermediate concepts that are used in the TSA framework to determine the contribution of tourism expenditure to gross value added and employment. They include:

- **expenditure or consumption:** the total value of goods and services consumed by visitors in purchaser's prices;
- **output:** the total value of goods and services produced to meet visitor consumption in basic prices;
- **tourism gross value added (GVA):** the total labour income and revenue attributable to the industry, less net taxes paid on products and is measured in basic prices; and
- **employment:** the number of part-time and full-time employed persons.

Similar to the IO framework, the indirect contribution of tourism expenditure in the TSA framework are based on the upstream effects. For instance, when an international student eats out at a restaurant in Melbourne, the direct output would be approximately equal to the price received by the restaurant. However, the indirect output would capture the restaurant's purchase of meat and vegetables from food suppliers, and the food suppliers' purchase of those products from a farming company. Although the upstream sectors had no direct relation to the international student, they indirectly benefit from international student expenditure.

The TSA modelling results are not directly comparable to the contribution analysis results in section 3.1, as different multipliers, industry aggregations, and conversion factors from basic to purchaser's price, have been applied. However, it does offer a parallel framework that provides an additional geographic dimension for considering the indirect linkages and contribution from international education. These results should also not be compared to TSA tourism contribution, which only include the expenditure of students staying in Australia for under 12 months, and does not consider the expenditure of longer-term students, such as in higher education.

Assumptions

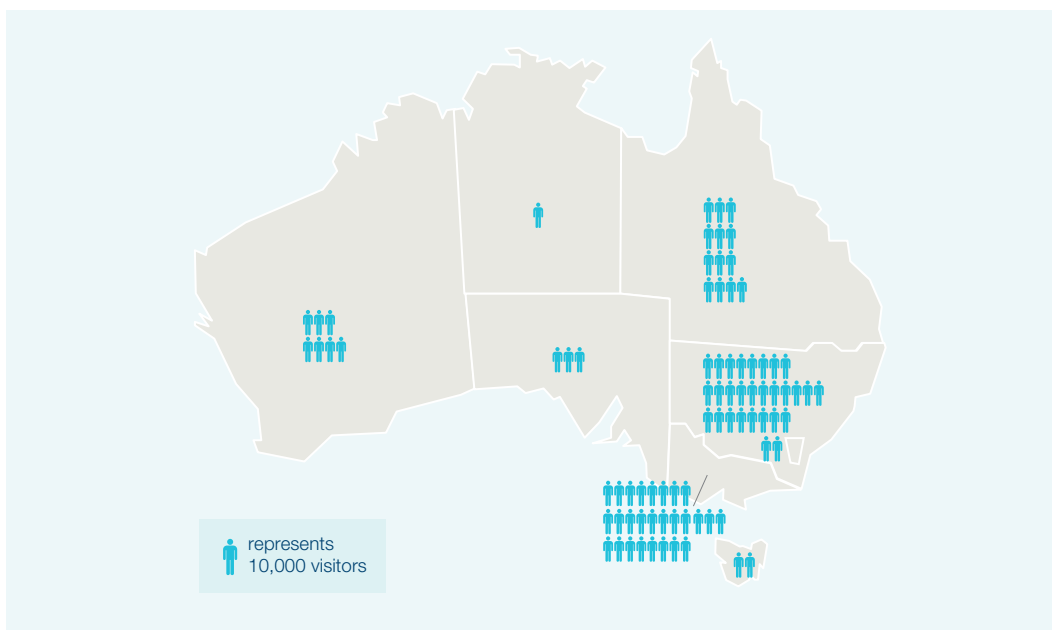
In attributing 96% of total onshore international student expenditure (\$2.8 billion) to Melbourne based on its share of student nights, it has been implicitly assumed that there is a similar cost of living in each of the tourism regions. It also assumes a constant proportion of students between the education sectors in each of the regions. This might not necessarily be the case, with the majority of Higher Education campuses in Victoria concentrated in the regions of Melbourne, Geelong, and Ballarat. International students in Melbourne are also assumed to have the same consumption bundle as international students in Australia as a whole.

Appendix F: VFR contribution estimation

Distribution of visitor nights for those visiting an international student

The relative distribution of those visiting a student by state and territory is illustrated in Figure F.1. Consistent with the distribution of international students, visitors were mainly based in NSW, Queensland and Victoria. These states collectively account for 80% of visitor nights for those who visit an international student while in Australia.

Figure F.1: Distribution of visitors visiting an international student, 2014



Source: TRA, Deloitte Access Economics.

Previous studies of the link between international students and visiting friends and relatives

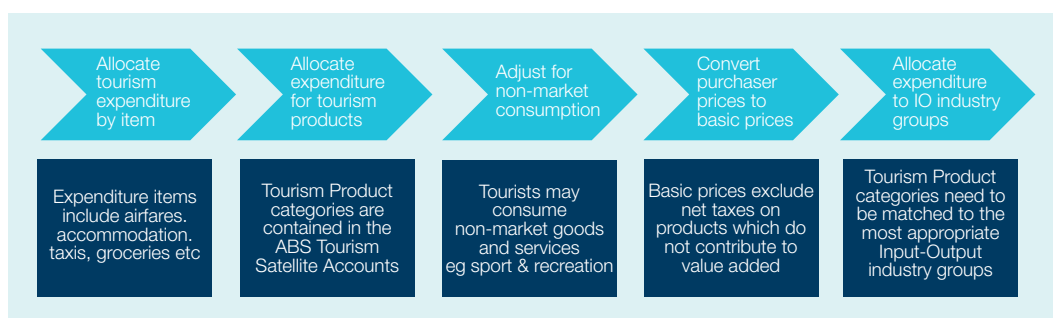
There have been a number of other studies of the links between international students and visiting friends and relatives, although relatively few of these studies have looked in detail at whether visiting an international student was a reason for the visitors' trip to Australia. A survey of international students by Tourism Research Australia (TRA 2007) found that for every two formal student visitors, approximately 1 family or friend visited them in Australia on their current trip. This estimate is actually quite conservative because the survey did not ask whether those who had a friend or family member visit actually had more than one friend or family member visit or were visited more than once.

Subsequent research has found that students are often visited by multiple friends and family or are visited on more than one occasion. A survey by Davidson et al (2010) on behalf of the Sustainable Tourism CRC found relatively higher levels of visitation by family and friends with students being more likely to be visited by two or more friends or family than they were to be visited by just one, and 4.5% stating they had been visited by 10 or more friends during their time in Australia. Another survey of international students in the ACT by Greenhill (2013) found that of those who indicated they had been visited by family or friends: 65% had been visited by friends or relatives more than once; and 40% had been visited more than twice.

Methodology for estimating the economic contribution of visiting friends and relatives

To estimate the economic contribution of those coming to Australia to visit an international student, a number of adjustments need to be made to the expenditure figure of \$282 million shown in Figure F.2. The five main stages in this adjustment process are illustrated in Figure 2 below.

Figure F.2: Adjustment process for the Input-Output modelling



Source: Deloitte Access Economics

The first stage involves breaking down aggregate tourism expenditure into different expenditure items such as airfares and accommodation. At the national level, information on this breakdown is provided by Tourism Research Australia. At the state and territory level, no estimates of aggregate expenditure or expenditure by item are available. Expenditure at the state and territory level was estimated by applying expenditure by visitor night for each source country to number of visitor nights spent in each state and territory by source country. Expenditure by item was then estimated based on the relative share of total expenditure on each item by visitors from each source country.

In the second stage, expenditure by item was mapped to the Tourism Product categories contained in the ABS Tourism Satellite Accounts based on a correspondence matrix developed by Deloitte Access Economics.

In the third stage, expenditure on recreational, cultural and sporting services was adjusted upwards to account for non-market consumption based on ratios contained in the ABS Tourism Satellite Account (2014).

Imputation is used by the ABS to adjust consumption by tourists for certain goods and services for which they do not make a payment such as non-market goods and services and goods and services provided by host family/friends including accommodation. However, in this context it is possible that some imputed expenditure associated with a visitor's host family or friends may be captured elsewhere in the expenditure of international students themselves. For this reason, only imputed expenditure ratios for recreational, cultural and sporting services are included here since expenditure on these items are likely to reflect expenditure on non-market goods and services.

In the fourth stage, expenditure by tourism product category was adjusted downward to convert purchaser prices to basic prices, by excluding net taxes on products. This reduced the total level of expenditure to \$252.6 million.

In the final stage, estimates of consumption by tourism product category by state and territory were allocated to the most appropriate Input-Output category in the ABS Input-Output Tables (2015b). This tourism consumption was then used in the Deloitte Access Economics Regional Input-Output model to estimate the impact expenditure by those visiting international students in Australia on value added and employment at a national and state level.

Limitation of our work (Deloitte Access Economics)

General use restriction

This report has been prepared solely for the use of the Australian Government Department of Education and Training. This report is not intended to and should not be used or relied upon by anyone else and we accept no duty of care to any other person or entity. The report has been prepared for the purpose of analysing the value of International Education to Australia. You should not refer to or use our name or the advice for any other purpose.

