
ECONOMIC SIGNIFICANCE OF INDEPENDENT SCHOOLS TO THE NEW SOUTH WALES ECONOMY

A REPORT PREPARED FOR THE ASSOCIATION OF
INDEPENDENT SCHOOLS OF NEW SOUTH WALES
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EXECUTIVE SUMMARY

BACKGROUND

Independent schools, which are autonomous education providers that are not run by government, are an integral and growing part of the New South Wales (NSW) education system serving the diverse needs of communities and students across the state.

The Association of Independent Schools of New South Wales (AISNSW) is the peak body representing the independent schooling sector in NSW. AISNSW represents more than 385 schools (covering more than 465 campuses) in NSW, with over 191,000 student enrolments. Membership encompasses schools of many different types, sizes, religious affiliations and educational philosophies, including around 50 independent Catholic schools.

AISNSW, under the auspices of the AISNSW Institute, engaged AEC Group Pty Ltd (AEC) to analyse and quantify the importance of independent schools to NSW Gross State Product (GSP), employment and household incomes; the savings they deliver to governments and therefore tax payers; and the economic value that flows from the enhanced education outcomes achieved by independent school students.

In undertaking the analysis, AEC used Input-Output modelling techniques within an economic significance framework. This is a recognised and standard modelling approach to assess the economic contribution of an existing industry. Verified data from AISNSW for 2014 was used (the most recent year that validated data was available) as well as published financial year data from the Australian Bureau of Statistics (ABS) and other agencies to produce the estimates in this report for the 2013-14 year.

KEY FINDINGS

Economic Contribution of Independent Schools

In 2013-14 independent schools in NSW represented by AISNSW:

- **Contributed approximately \$7.68 billion to NSW Gross State Product (GSP)** through direct and flow-on contributions. This accounted for 1.7 percent of the total contribution to GSP by all industries in NSW for the year. Of note:
 - Independent schools' total contribution to GSP was **comprised of more than \$3.3 billion directly** through activities such as operations and capital expenditure of independent schools, and **more than \$4.3 billion through flow-on demand for goods and services** by independent schools for the delivery of their education services (e.g. utilities, teaching materials, equipment), subsequent flow-on production-induced activity for the production of these goods and services, and household consumption from independent school employees.
 - The direct contribution of independent schools was greater than the contribution of the accommodation industry in NSW (including all hotels, motels, serviced apartments, caravan parks and other accommodation establishments). It was also greater than the contribution made by the state's automotive repair and maintenance industry, as well as the air transport industry.
 - The total (direct and flow-on) contribution of independent schools exceeded that made by the entire Murray region of NSW (including the local government areas (LGAs) of Albury, Balranald, Berrigan, Conargo, Corowa, Deniliquin, Greater Hume, Jerilderie, Murray, Tumbarumba, Urana, Wakool and Wentworth), and was a similar contribution to key Greater Sydney LGAs such as Bankstown, Botany Bay, Liverpool, Penrith and Randwick.
- **Made significant contributions to the local and regional economies in which they operate.** For example, independent schools contributed:
 - \$6.15 billion (or 1.9 percent) to Greater Metropolitan Sydney Gross Regional Product (GRP), \$3.6 billion (or 2.3 percent) in incomes, and more than 41,000 FTE jobs (or 2.1 percent of total employment). This

included \$1.84 billion (or 1.9%) to Western Sydney GRP, \$1.05 billion (or 2.2%) to incomes, and almost 12,900 FTE jobs (or 1.9% of total employment).

- \$1.53 billion (or 1.2%) to regional NSW GRP, \$930.0 million (or 1.5%) to incomes, and more than 11,600 FTE jobs (or 1.3% of total employment).
 - More than 5 percent of total economic activity in the LGAs of Burwood, Forbes, Hornsby, Hunters Hill, Ku-ring-gai, Murray, Waverley, Wingecarribee and Woollahra.
 - Over 3 percent of total economic activity in the LGAs of Armidale Dumaresq, Ashfield, Camden, Greater Hume Shire, Marrickville, Mosman, North Sydney, Strathfield, The Hills Shire, Upper Hunter Shire and Warringah.
 - More than 2 percent of total economic activity in the LGAs of Bankstown, Bathurst Regional, Blue Mountains, Gosford, Hurstville, Lane Cove, Lismore, Liverpool, Maitland, Penrith and Orange.
- **Supported jobs for more than 53,000 full-time equivalent (FTE) employees**, which equated to around 1.8 percent of total jobs in NSW. This was comprised of 24,948 direct FTE employees at independent schools and approximately 28,077 FTE jobs supported through flow-on activity. This represents one full-time job for every 3.6 students enrolled at independent schools. The contribution of independent schools to employment was greater than the contribution to NSW employment made individually by each of the industries of heritage, creative and performing arts, postal and courier delivery services, as well as coal mining.
 - **Contributed approximately \$4.5 billion in employee wages and salaries**, which represented approximately 2.0 percent of total wages and salaries paid to workers in NSW. More than \$2.5 billion was paid by independent schools directly to school employees, representing approximately 75 percent of total independent schools' operational expenditure for the year. This is reflective of the large labour component in service delivery and the important role independent schools play in providing jobs and incomes to NSW. It is worth noting that **jobs in NSW independent schools are predominantly highly skilled, service sector positions which are key to growing the NSW economy**. A further \$100 million in employee wages and salaries was contributed through capital works and expenditure of overseas students and approximately \$1.9 billion was also paid to workers as a result of flow-on activity.

Savings to Governments and Tax Payers

There were more than 191,000 school children in NSW enrolled in independent schools that were entitled to, but did not take up a place in a government school. In 2013-14, NSW independent schools **saved the Australian and NSW Governments approximately \$2.1 billion in expenditure**. This comprised \$1.7 billion in recurrent education costs and \$398.8 million in infrastructure costs, representing a significant and ongoing saving to tax payers.

The Economic Value of Enhanced Educational Outcomes

Enhanced educational outcomes provided by independent schools can be linked to an estimated **contribution to growth in NSW GSP of around \$431.0 million in 2013-14**.

The quality of learning and teaching provided by NSW independent schools support students in achieving excellent outcomes across a range of educational measures:

- Students attending independent schools are estimated to have contributed to an increase of approximately 5.0 points in the mean PISA test score for NSW's overall student body in 2012. Whilst this is only an indicative estimate, based on national data from ACER (2013) (see section 4.1 for details), it is reflective of the enhanced education outcomes supported by independent schools.
- Students within independent schools completing the HSC accounted for 40 percent of those on the All Round Achievers list, 31 percent of all students who placed First in Course and 38 percent of those on the Distinguished Achievers list.

- Independent schools in NSW successfully cater for a diversity of students from a range of backgrounds. In 2014, 67 percent of independent schools were located in NSW communities with an SES score of 104 (lower range) or less. Schools generally fall within the SES range of 85 – 130.
- Compared with the NSW average across all schools, higher proportions of independent school students are accepted into bachelor-degree level studies and go on to further education or training after graduating.
- Independent schools in NSW have programs in place to deepen learning and raise uptake, engagement and achievement in key STEM curriculum areas within NSW.

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1. INTRODUCTION

1.1 BACKGROUND AND PURPOSE OF THE REPORT

Independent schools, which are autonomous education providers that are not run by government, have earned a reputation for providing high quality education services. They are an integral and growing part of the New South Wales (NSW) education system serving the diverse needs of communities and students across the state.

The Association of Independent Schools of New South Wales (AISNSW) is the peak body representing the independent schooling sector in NSW. It provides a wide range of services to member schools and administers and manages a range of government funded programs for all NSW independent schools. AISNSW is a non-profit body whose members are not-for-profit independent schools located in NSW.

AISNSW represents more than 385 schools (covering more than 465 campuses) in NSW, with over 191,000 student enrolments. Membership encompasses schools of many different types, sizes, religious affiliations and educational philosophies, including around 50 independent Catholic schools. A major focus of AISNSW's activities is to offer quality support to its member schools in the areas of governance, employment relations, compliance, professional development and professional educational consultancy services.

AISNSW engaged AEC Group Pty Ltd (AEC) to analyse and quantify the important contribution independent schools make to NSW in terms of their contribution to NSW Gross State Product (GSP), employment and household incomes; the savings they deliver to governments and therefore tax payers; and the economic value that flows from the enhanced education outcomes achieved by independent school students.

1.2 SCOPE OF THE REPORT

1.2.1 Geographic Scope

The scope of this report covers the economic significance of independent schools to NSW. Modelling was also undertaken to assess the economic contribution of independent schools to regional and local economies, across all local government areas (LGAs) as well as State and Federal Electorates.

1.2.2 Independent Schools Sector

For the purposes of this study, the independent schools sector is considered to represent the 385 independent schools in NSW (including independent Catholic schools that are not part of the Catholic system), across approximately 470 campuses. More than 191,000 students were enrolled in these schools in 2014.

1.3 METHODOLOGY

1.3.1 Measuring the Economic Contribution of Independent Schools

The estimates in this report were produced using Input-Output transaction tables and models developed by AEC, within an economic significance framework. This is a recognised and standard modelling approach to assessing the economic contribution of an existing industry.

Verified data from AISNSW for 2014 was used (the most recent year that complete and validated data was available) to produce the estimates in this report. Other data sources used include State and National Accounts and industry specific Australian Bureau of Statistics (ABS) and other agency data. The significance model was developed based on a 2012-13 Input-Output transaction table from the Australian Bureau of Statistics, which was then 'rebased' to 2013-14 using available data from the Australian Bureau of Statistics to be in line with AISNSW data.

The Input-Output significance model was used to produce estimates of the direct and flow-on contributions of independent schools to the NSW economy. Additional models were also developed to assess the contribution of independent schools to regional and local communities (LGA as well as State and Federal Electorates).

Measures used in this report include Gross State Product (GSP), Gross Value Added (GVA) activity, employment, and income (i.e. wages and salaries).

Appendix A presents a detailed description of the methodology. **Appendix B** provides definitions and explanations of the terms and measures used.

1.3.2 Quantifying the Savings to Tax Payers from Independent Schools

Estimates of tax payer savings were developed across two key components:

- Cost savings in terms of recurrent education costs, including expenditure on user costs of capital.
- Cost savings in terms of contributions made by parents to capital infrastructure and improvements.

To identify the cost savings in recurrent education costs, data from the Productivity Commission's Report on Government Services (Productivity Commission, 2016) regarding average Commonwealth and NSW Government expenditure per government school student in 2013-14 was used and applied to the number of independent school students. This was then compared to data from AISNSW (unpublished(1)) regarding the level of government funding received to provide a net difference in government funding required if independent school students were enrolled in government schools.

To estimate the capital cost saving, school income data from the Independent Schools Council of Australia (ISCA, 2015) was analysed to determine the total amount and proportion of capital contributions made by parents and the community to NSW independent schools.

1.3.3 Identifying the Benefits of Independent Schools' Enhanced Education Outcomes

Desktop research was undertaken to review academic studies, reports and the latest industry discourse on the enhanced educational outcomes provided by independent schools. This included a review of the academic benefits as well as the vocational, social and interpersonal development of students. It also examined AISNSW school programs focusing on teacher quality and the provision of education services by independent schools' in servicing the full spectrum of Australian society.

The enhanced educational outcomes provided by independent schools have economic impacts for NSW. Estimates of the benefits independent schools provide to NSW GSP are estimated using the difference in PISA scores between Australian independent schools and government schools and research identifying a relationship between education performance and economic growth (using PISA scores).

2. CONTRIBUTION TO THE NSW ECONOMY

This chapter describes the economic contribution of independent schools to the NSW economy.¹ It includes estimates of direct and flow-on contributions to other industries where relevant. The approach used in identifying the economic contribution, and measures used, are detailed in **Appendix A**.

2.1 DIRECT CONTRIBUTION OF INDEPENDENT SCHOOLS TO NSW

Independent schools directly contributed to the NSW economy through their provision of education services to more than 191,000 full time equivalent (FTE) students in 2014.

In providing these services, independent schools:

- Undertook operating activities and expenditure, including:
 - Employing staff, such as teaching staff, administrative/ clerical staff, and operations and maintenance staff.
 - Generating turnover (or revenue), including revenue from student fees and charges, income from excursions/ trips, and private and government grants and funding.
 - Purchasing goods and services for operational activities, for example on education/ class materials, and building and grounds maintenance.
- Made capital purchases and expended money directly on items such as land acquisition, building/ facility construction and other capital purchases.

Independent schools also contribute to the NSW economy through the attraction of fee-paying overseas school students. These students would otherwise not be expected to live in NSW during the course of their studies and provide additional economic benefits through their discretionary expenditure.

In addition to overseas students, domestic boarding students also contribute to the local economies in which they are staying. However, the activity of domestic boarders has been excluded as boarding students with a usual place of residence elsewhere in NSW represent a transfer of activity from one NSW locality to another, rather than generating an overall increase in economic activity in NSW. Living expenses of interstate boarding students does provide an increase in NSW economic activity that wouldn't otherwise occur, however, there was insufficient data available to identify the total number and expenditure of interstate boarders. Interstate boarders have therefore been excluded from the assessment. The effect of this exclusion will be to underestimate the value of the independent school sector in NSW, but this is expected to be quite small.

Estimates of the direct economic activity associated with each of the operational activities and capital expenditure of independent schools, as well as overseas student expenditure, are outlined below separately.

Operational Activities

Independent schools in NSW generated approximately \$4.0 billion in turnover and spent approximately \$853.5 million on goods and services for operational activities in 2013-14 (the majority of their expenditure is on labour). Subtracting independent schools' operational expenditure from turnover provides an estimate of the value independent schools' operational activities added to the NSW economy in 2013-14. This equates to approximately \$3.15 billion in gross state product (GSP) directly contributed by independent school operations.

Independent schools employed 23,961 FTE staff in 2013-14 comprised of (may not sum due to rounding):

- 393 FTE principals.
- 15,944 FTE general teaching staff.

¹ The estimates presented are likely an underestimate of the total contribution of independent schools as the financial data provided does not include independent school revenue and expenditure derived through some avenues, for example study tours. Living expenses of interstate boarding students within the NSW economy was also unable to be estimated due to insufficient data.

- 5,303 FTE administrative/ clerical services staff.
- 1,382 FTE building operations and maintenance staff.
- 938 FTE specialist support staff.

Staff at independent schools were paid a total of around \$2.51 billion in wages, salaries and other compensation in 2013-14. This equates to an average expenditure on salary and wages of approximately \$104,700 per FTE employee. As the majority of this expenditure was on teaching staff it highlights the sector's focus on the provision of high quality educators.

Capital Expenditure

Independent schools spent \$486.4 million on capital expenditure in 2013-14, including \$380.2 million for land and buildings works/ acquisitions and \$106.2 million in purchases of other capital items. Capital expenditure was allocated to relevant Input-Output transaction tables as outlined in Table 2.1. Whilst this is expected to vary year to year, it is provided as an indicative estimate for this study.

Table 2.1. Capital Expenditure of Independent Schools by Industry, 2013-14

| Expenditure Item/ IO Industry | % of Expenditure Item | Estimated Capital Expenditure (\$M) |
|---|-----------------------|-------------------------------------|
| Land and Buildings Capital Expenditure | - | \$380.2 |
| Non-Residential Building Construction | 70% | \$266.2 |
| Heavy and Civil Engineering Construction | 30% | \$114.1 |
| Other Capital Expenditure | - | \$106.2 |
| Wholesale Trade | 100% | \$106.2 |

Note: Totals may not sum due to rounding.
Source: AISNSW (unpublished(1)), AEC.

In estimating the direct economic contribution of this capital expenditure, standard Input-Output production functions for the industries outlined in Table 2.1 were assumed, using a NSW transaction table developed as outlined in **Appendix A**. Based on these production functions, independent schools' capital expenditure is estimated to have directly generated the following economic activity for NSW businesses in 2013-14:

- \$169.0 million in GSP.
- \$90.6 million in incomes.
- 818 FTE jobs.

Overseas Student Expenditure

Independent schools attract international students to study in NSW in a range of individual or group programs. Independent schools received \$25.5 million in revenues from overseas students in 2013-14, through student fees and charges as well as for boarding. Overseas students also spend money in the broader NSW economy (i.e. outside of expenditure for school tuition and boarding).

Information identifying the expenditure of overseas students in the broader NSW economy is not available. In order to develop an indicative estimate of their expenditure on goods and services, data from the ABS (2015d) regarding expenditure of international school students on tuition fees compared to goods and services was used. This data indicates around 55 percent to 60 percent of overseas school student expenditure between 2000 and 2014 was on goods and services, compared to 40 percent to 45 percent on tuition fees.

The above estimates include overseas students at all schools, not just independent schools. For the purposes of this assessment a more conservative 50 percent of overseas independent school student expenditure has been assumed to be for tuition fees and boarding (with the remainder on goods and services). This equates to independent school overseas student expenditure on goods and services, other than tuition and boarding, in the NSW economy of \$25.5 million in 2013-14. Expenditure of overseas students on tuition and boarding is not included in this section as this represents revenue of independent schools and is therefore already captured within the operational activity of independent schools estimated above.

To allocate expenditure on goods and services to Input-Output industries, average expenditure splits from the most recent household expenditure survey (ABS, 2011a) was used and allocated to the most relevant Input-Output industry. Expenditure on education and housing costs were excluded, as this expenditure is already accounted for in tuition fees and boarding. A summary of expenditure by overseas students is presented in Table 2.2.

Table 2.2. Expenditure on Goods and Services by Independent School Overseas Students, 2013-14

| IO Industry | % of Expenditure | Estimated Expenditure (\$M) |
|---|------------------|-----------------------------|
| Retail Trade | 60.7% | \$15.5 |
| Accommodation | 1.7% | \$0.4 |
| Food and Beverage Services | 7.4% | \$1.9 |
| Road Transport | 0.6% | \$0.1 |
| Rail Transport | 0.1% | \$0.0 |
| Water, Pipeline and Other Transport | 0.0% | \$0.0 |
| Air and Space Transport | 2.0% | \$0.5 |
| Postal and Courier Pick-up and Delivery Service | 0.2% | \$0.0 |
| Motion Picture and Sound Recording | 0.2% | \$0.1 |
| Broadcasting (except Internet) | 0.6% | \$0.1 |
| Internet Services, Publishing and Broadcasting, and Data Processing | 0.9% | \$0.2 |
| Telecommunication Services | 3.7% | \$0.9 |
| Auxiliary Finance and Insurance Services | 6.4% | \$1.6 |
| Rental and Hiring Services (except Real Estate) | 2.3% | \$0.6 |
| Professional, Scientific and Technical Services | 1.1% | \$0.3 |
| Building Cleaning, Pest Control and Other Support Services | 0.3% | \$0.1 |
| Public Administration and Regulatory Services | 0.7% | \$0.2 |
| Health Care Services | 3.6% | \$0.9 |
| Heritage, Creative and Performing Arts | 0.8% | \$0.2 |
| Sports and Recreation | 1.5% | \$0.4 |
| Gambling | 0.6% | \$0.1 |
| Automotive Repair and Maintenance | 2.2% | \$0.6 |
| Other Repair and Maintenance | 0.3% | \$0.1 |
| Personal Services | 1.3% | \$0.3 |
| Other Services | 0.7% | \$0.2 |
| Total | 100% | \$25.5 |

Source: ABS (2015d; 2011a), AISNSW (unpublished(1)), AEC.

In estimating the direct economic contribution of this expenditure on goods and services by overseas students, standard Input-Output production functions for the industries outlined in Table 2.2 were assumed, using a NSW transaction table developed as outlined in **Appendix A**. Based on these production functions, expenditure on goods and services by independent school overseas students is estimated to have directly generated the following economic activity for NSW businesses in 2013-14:

- \$14.1 million in GSP.
- \$9.1 million in incomes.
- 170 FTE jobs.

Summary of Direct Contribution of Independent Schools to NSW

A summary of the direct economic contribution of independent schools to the NSW economy in 2013-14 is presented in Table 2.3. In total, independent schools directly contributed more than \$3.3 billion to NSW GSP.

Importantly, independent schools are largely a labour driven service provider, directly supporting 24,948 FTE jobs in 2013-14. Around 75 percent of total operational expenditure by independent schools in 2013-14 was spent on staff wages and salaries (\$2.51 billion), with a further \$99.8 million in incomes delivered through capital

expenditure and expenditure of overseas students. These incomes represented approximately 78 percent of independent schools' total direct contribution to GSP. This is indicative of the important role independent schools play in providing jobs for NSW workers.

Table 2.3. Direct Contribution of Independent Schools to NSW, 2013-14

| Economic Contribution | Gross State Product (\$M) | Incomes (\$M) | Employment (FTEs) |
|----------------------------------|---------------------------|------------------|-------------------|
| Operational Activity | \$3,147.5 | \$2,508.3 | 23,961 |
| Capital Expenditure | \$169.0 | \$90.6 | 818 |
| Overseas Student Expenditure | \$14.1 | \$9.1 | 170 |
| Total Direct Contribution | \$3,330.6 | \$2,608.1 | 24,948 |

Notes: Totals may not sum due to rounding.

Source: ABS (2015a and d; 2011a), AISNSW (unpublished(1) and unpublished(2)), AEC.

2.2 FLOW-ON CONTRIBUTION OF INDEPENDENT SCHOOLS TO NSW

The flow-on (or indirect) contribution of independent schools to NSW has been estimated using Input-Output models, as outlined in **Appendix A**. In undertaking the modelling, direct operational activity, capital expenditure and expenditure on goods and services by overseas students outlined in section 2.1 was allocated to relevant industries in the Input-Output model:

- For operational activity, this process is based on estimating the inter-industry purchases of goods and services by independent schools, which was done using financial data for independent schools (AISNSW, unpublished(1)) broken down to 114 Input-Output industries using the structure for the "Primary and Secondary Education Services (incl Pre-Schools and Special Schools)" industry.
- For capital expenditure and expenditure on goods and services by overseas students, standard industry purchasing patterns were applied for expenditure by industry outlined in Table 2.1 and Table 2.2.

The above process provides the multipliers used for estimating type I flow-on activity (or production induced impacts).

Financial data for independent schools (AISNSW, unpublished(1)) was also used to estimate the total purchases of independent school services by households. This is used in developing multipliers for estimating type II flow-on activity (or household consumption induced impacts).

In total, independent schools are estimated to have contributed approximately \$4.35 billion to NSW GSP through flow-on activity in 2013-14, including both production induced (type I) and consumption induced (type II) impacts (Table 2.4). Flow-on activity supported more than 28,000 FTE jobs in NSW in 2013-14, paying \$1.87 billion in wages, salaries and other employee compensation for the year.

Table 2.4. Estimated Flow-On Contribution of Independent Schools to the NSW Economy, 2013-14

| Economic Contribution | Gross State Product (\$M) | Incomes (\$M) | Employment (FTEs) |
|--|---------------------------|------------------|-------------------|
| Production Induced (Type I Flow-On) Contribution | \$798.8 | \$423.5 | 5,674 |
| Consumption Induced (Type II Flow-On) Contribution | \$3,548.4 | \$1,450.6 | 22,402 |
| Total Flow-On Contribution | \$4,347.2 | \$1,874.1 | 28,077 |

Notes: Totals may not sum due to rounding.

Sources: ABS (2016a, b and c; 2015a, b and c; 2013; 2011a), AISNSW (unpublished(1) and unpublished(2)), AEC.

2.3 TOTAL CONTRIBUTION OF INDEPENDENT SCHOOLS TO NSW

Including direct and flow-on activity, independent schools are estimated to have contributed approximately \$7.68 billion to NSW GSP in 2013-14, representing 1.7 percent of the total contribution to GSP by all industries in NSW for the year. For every dollar of gross product directly produced by independent schools (through operational activity, capital expenditure and overseas student expenditure), an additional \$1.31 is produced elsewhere in the NSW economy through supply chain and household consumption impacts.

Activities of independent schools also supported over 53,000 FTE jobs in 2013-14, including direct and flow-on activity, paying a total of \$4.48 billion in total employee compensation. This equated to 1.8 percent of total jobs and 2.0 percent of total employee compensation in NSW in 2013-14. It is worth noting that jobs in NSW independent schools are predominantly highly skilled, service sector positions. These jobs contribute to skilling the future of NSW not only by educating students but also by employing people in a highly skilled service industry where the majority of expenditure is spent on employing NSW residents. Approximately 75 percent of operational expenditure at independent schools is allocated to staff salaries.

Table 2.5. Estimated Direct and Flow-On Contribution of Independent Schools to the NSW Economy, 2013-14

| Economic Contribution | Gross State Product (\$M) ^(a) | Incomes (\$M) | Employment (FTEs) |
|--|--|------------------|-------------------|
| Values | | | |
| Direct Contribution | \$3,330.6 | \$2,608.1 | 24,948 |
| Production Induced (Type I Flow-On) Contribution | \$798.8 | \$423.5 | 5,674 |
| Consumption Induced (Type II Flow-On) Contribution | \$3,548.4 | \$1,450.6 | 22,402 |
| Total Contribution | \$7,677.8 | \$4,482.2 | 53,025 |
| Percent of NSW Total Economy | | | |
| Direct Contribution | 0.7% | 1.2% | 0.8% |
| Production Induced (Type I Flow-On) Contribution | 0.2% | 0.2% | 0.2% |
| Consumption Induced (Type II Flow-On) Contribution | 0.8% | 0.6% | 0.8% |
| Total Contribution | 1.7% | 2.0% | 1.8% |

Notes: Totals may not sum due to rounding. (a) The percent contribution presented is reflective of the contribution of independent schools as a percent of total contribution to GSP by all industries in NSW. Non-industry based contributions to GSP (e.g. taxes and subsidies on products levied on households rather than industry) are not included in this percent estimate.

Sources: ABS (2016a, b and c; 2015a, b and c; 2013; 2011a), AISNSW (unpublished(1) and unpublished(2)), AEC.

2.4 REGIONAL CONTRIBUTION OF INDEPENDENT SCHOOLS

Independent schools are key contributors to many of the largest local and regional economies in NSW, providing high quality education options in many of the most populous areas of NSW. The contribution of independent schools to many of these regions is greater proportionally than to NSW as a whole.

This is most noticeable within the Greater Metropolitan Sydney region². Across the entire region, independent schools contributed \$6.15 billion (or 1.9 percent) to Greater Metropolitan Sydney Gross Regional Product (GRP), \$3.6 billion (or 2.3 percent) in incomes, and more than 41,000 FTE jobs (or 2.1 percent of total employment) in 2013-14. Three LGAs within Greater Metropolitan Sydney recorded a contribution to GRP, incomes and employment from independent schools of over 10 percent in 2013-14 (Ku-ring-gai, Hunters Hill and Woollahra). The LGAs of Waverley, Burwood and Hornsby recorded over 5 percent contributions by independent schools to these economic measures, while a further 15 LGAs recorded more than 2 percent contributions from independent schools to each of these measures.

² For the purposes of this study, regions have been defined based on Australian Bureau of Statistics Statistical Divisions (and Statistical Sub-Divisions), using aggregates of local government areas (ABS, 2011). The Greater Metropolitan Sydney region has been defined as encompassing the same geography as the Sydney Statistical Division.

Western Sydney³ is a key region for the independent schools sector within Greater Metropolitan Sydney. Independent schools contributed \$1.84 billion (or 1.9%) to Western Sydney GRP, \$1.05 billion (or 2.2%) to incomes, and almost 12,900 FTE jobs (or 1.9% of total employment).

Independent schools are also important contributors to regional NSW. Independent schools contributed \$1.53 billion (or 1.2%) to regional NSW GRP, \$930.0 million (or 1.5%) to incomes, and more than 11,600 FTE jobs (or 1.3% of total employment). Within regional NSW, key regions in which independent schools are strong economic contributors include:

- The Hunter region to the north of Greater Sydney, where independent schools contributed \$363.2 million to GRP, \$223.3 million in incomes and more than 2,700 FTE jobs (or around 1 percent of total for each of these measures). Within the Hunter region, the LGAs of Upper Hunter and Maitland recorded contributions of more than 2 percent to their economies across each of the economic measures.
- The Illawarra region to the south of Greater Sydney, where independent schools contributed \$357.8 million to GRP, \$209.0 million in incomes and more than 2,500 FTE jobs (or 1.8 percent contribution to GRP, 2.1 percent to incomes, 1.8 percent to employment). Within the Illawarra region, Wingecarribee LGA recorded the most significant contribution from independent schools, with more than 5 percent of its economy contributed through independent school activity. Wollongong LGA also recorded a strong contribution, of around 1.8 percent to 2 percent across each measure.
- The Mid-North Coast region, where independent schools contributed \$180.0 million to GRP, \$114.5 million in incomes and nearly 1,500 FTE jobs (or 1.5 percent contribution to GRP, 1.7 percent to incomes, 1.5 percent to employment). Within the Mid-North Coast region, the LGAs of Coffs Harbour, Bellingen, Kempsey and Greater Taree recorded contributions of around 1.5 percent to 2.5 percent to their economies across each of the economic measures.
- The Richmond-Tweed region, where independent schools contributed \$165.8 million to GRP, \$99.9 million in incomes and nearly 1,300 FTE jobs (or 1.7 percent contribution to GRP, 1.9 percent to incomes, 1.6 percent to employment). Within the Richmond-Tweed region, the LGAs of Lismore, Tweed and Byron recorded contributions of around 1.5 percent to 2.5 percent to their economies across each of the economic measures.
- Other LGAs that recorded contributions to their economies by independent schools of more than 3 percent for each of the economic measures include Forbes, Murray, Greater Hume, and Armidale-Dumaresq.

2.5 COMPARISON WITH OTHER INDUSTRIES

Economic modelling presented in the sections above highlights the important contribution independent schools in NSW make to the state economy. The significance of this contribution to the NSW economy can best be outlined through comparisons with other, recognisable NSW industries.

The following sections present comparisons of the direct contribution independent schools make to the NSW economy against other industries modelled within the significance model developed for this project.⁴ This section only presents the direct contribution of independent schools compared to the direct contribution of other industries. Flow-on contributions cannot be presented as this would introduce double counting across NSW economic activity (as flow-on contributions of independent schools represent direct activity of the industries it purchases from, and vice versa).

While a total of 115 industries were modelled, including NSW independent schools, the figures below present comparisons between independent schools and a selection of 24 other industries (to provide 25 in total). This was done in order to provide a meaningful and manageable presentation of data. The industries selected provide a cross section ranging in size from some of the largest contributors to the NSW economy to some of the smallest.

³ Western Sydney encompasses the local government areas of: Auburn, Bankstown, Blacktown, Blue Mountains, Camden, Campbelltown, Fairfield, Hawkesbury, Holroyd, Liverpool, Parramatta, Penrith, The Hills Shire and Wollondilly.

⁴ A total of 115 industries were modelled – the 114 industries classified in the Input-Output transaction table produced by the ABS (2015a) plus independent schools. Additional details are provided in in **Appendix A**.

2.5.1 Gross State Product

Total GSP in NSW was \$495.2 billion in 2013-14, of which \$462.4 billion was contributed by NSW industries. Of this, independent schools directly contributed more than \$3.3 billion. This was more than the contribution of key NSW industries such as accommodation, automotive repair and maintenance, air (and space) transport and rail transport. Overall, independent schools ranked 29th of the 115 industries modelled in terms of contribution to GSP.

Figure 2.1. Direct Contribution of Select Industries to Gross State Product, 2013-14 (\$ Billion)

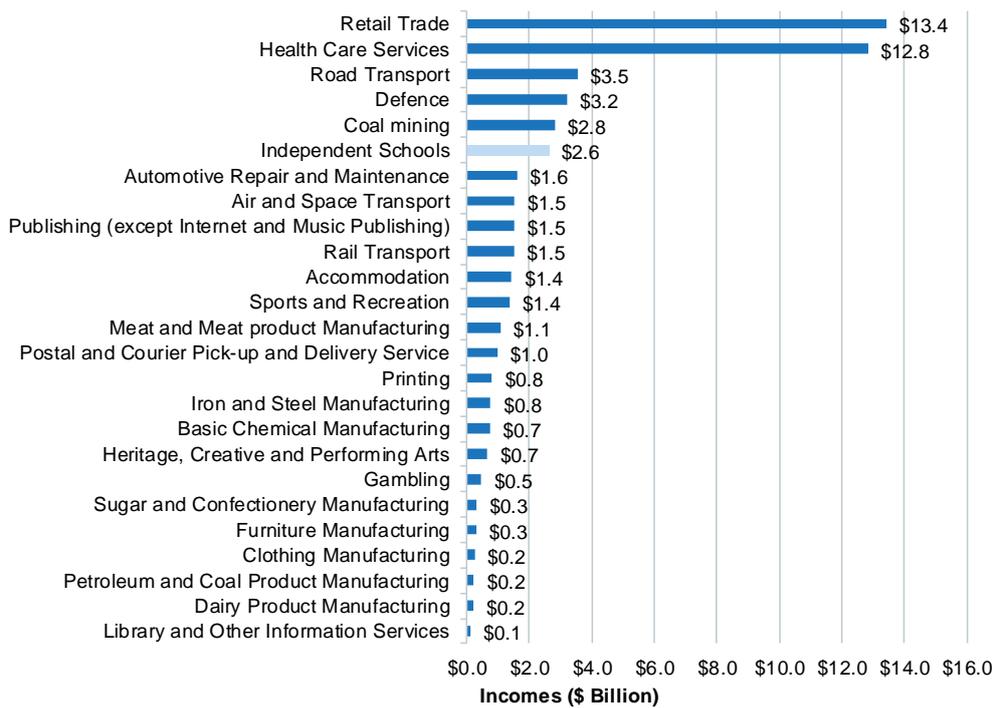


Sources: ABS (2016a, b and c; 2015a, b and c; 2013; 2011a), AISNSW (unpublished(1) and unpublished(2)), AEC.

2.5.2 Incomes

Independent schools contributed approximately \$2.6 billion in incomes to NSW workers in 2013-14, ranking the industry as the 23rd largest contributor overall to NSW employee incomes of the 115 industries modelled. Independent schools provided a greater quantum of incomes to NSW workers than industries such as automotive repair and maintenance, and air (and space) transport, publishing, rail transport, and accommodation.

Figure 2.2. Direct Contribution of Select Industries to Incomes, 2013-14 (\$ Billion)

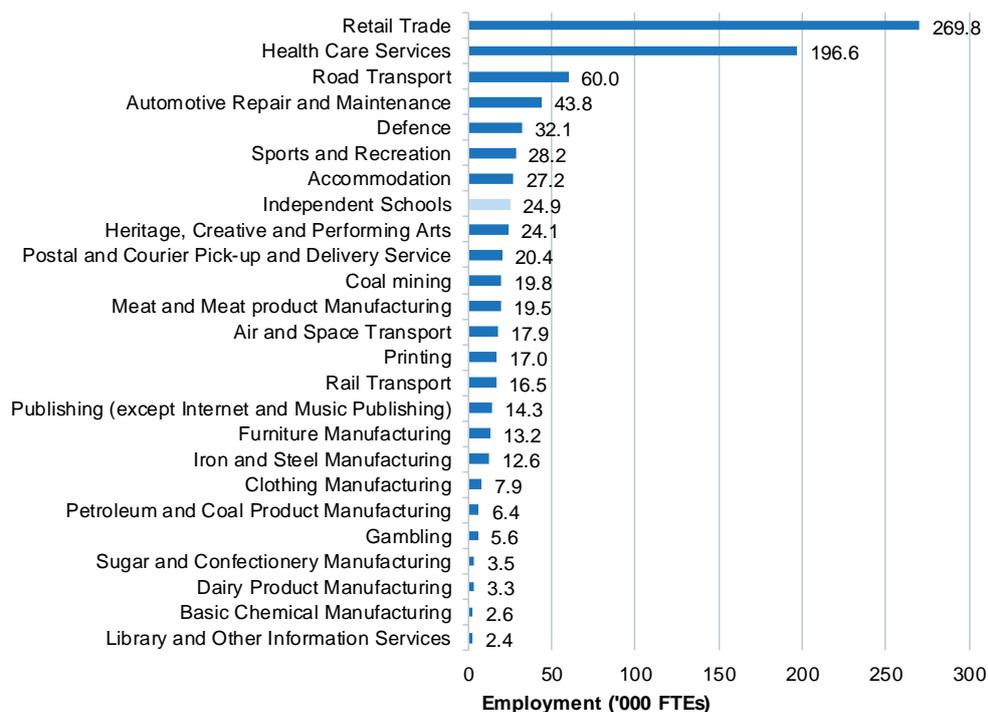


Sources: ABS (2016a, b and c; 2015a, b and c; 2013; 2011a), AISNSW (unpublished(1) and unpublished(2)), AEC.

2.5.3 Employment

There were nearly 3 million FTE workers in NSW in 2013-14, of which 24,948 were employed at independent schools. Independent schools were the 31st largest contributor overall to NSW jobs of the 115 industries modelled, employing more people than the industries of heritage, creative and performing arts, postal and courier delivery services, coal mining, and meat and meat product manufacturing.

Figure 2.3. Direct Contribution of Select Industries to Employment, 2013-14 ('000 FTEs)



Sources: ABS (2016a, b and c; 2015a, b and c; 2013; 2011a), AISNSW (unpublished(1) and unpublished(2)), AEC.

3. SAVINGS TO GOVERNMENTS AND TAX PAYERS

This chapter provides an indicative estimate of the savings independent schools deliver to state and federal governments, and therefore tax payers, as a result of the education services they provide to NSW students.

Students at independent schools are entitled to a place at a government school, however, almost all independent schools receive a lower rate of government funding per student than government schools. By providing tuition to independent school students who would otherwise be enrolled in a government school, independent schools deliver direct savings to governments, and therefore tax payers.

In estimating the savings generated by independent schools, two categories have been examined:

- Cost savings in terms of recurrent education costs, including expenditure on user costs of capital (which effectively refers to the cost for accessing capital assets, and can be considered to encompass the ongoing maintenance and upkeep of school assets).
- Cost savings in terms of contributions made by parents to capital infrastructure and improvements.

3.1 RECURRENT EDUCATION COSTS

In estimating the recurrent education cost savings delivered by independent schools, Productivity Commission (2016) data was used detailing the average recurrent costs to the Commonwealth and NSW Governments (including user costs of capital) per government school student. The data indicates approximately \$16,449 in government funding per government school student in NSW in 2013-14, with \$15,232 in funding per primary school student and \$18,253 per secondary school student.

Data from the National Schools Statistics Collection (2014 Commonwealth August Collection) (AISNSW, unpublished(2)) indicates there were 191,424 FTE school students at independent schools in 2014, of which 77,631 were primary school students and 113,793 were secondary school students. Applying the above average government expenditure per government primary and secondary school student provides an estimate in government funding required for recurrent education if independent school students were enrolled in government schools of \$3.26 billion for the year.

By comparison, independent schools received an estimated \$1.56 billion in combined Commonwealth and NSW Government funding for recurrent education expenses in 2013-14 (AISNSW, unpublished(1)). This equates to a difference of \$1.7 billion in government funding received by independent schools for recurrent education expenses compared to what governments would pay if independent school students were enrolled in government schools. This is representative of the savings to tax payers provided by independent schools in terms of recurrent education costs.

3.2 CAPITAL EXPENDITURE

Independent schools provide education facilities and infrastructure that is primarily paid for through private contributions, reducing the overall tax burden on NSW households that would otherwise be incurred if all school infrastructure was required to be paid for in full by public funds from the NSW and Australian Governments.

Data from the Independent Schools Council of Australia (ISCA, 2015) indicates approximately 82 percent of independent school capital funding is provided by parents and the community at a national level.

Independent schools spent \$486.4 million on capital expenditure in 2013-14 (AISNSW, unpublished(1)). Assuming the national proportion of 82% paid by parents and the community is consistent for NSW, this would equate to a total of \$398.8 million in capital expenditure funded by parents and the community. This is representative of the savings to NSW and Australian Governments resulting from private funding for the provision of independent schools.⁵

3.3 SUMMARY OF SAVINGS TO GOVERNMENTS AND TAX PAYERS

Independent schools are estimated to have saved tax payers a total of approximately \$2.1 billion in 2013-14, through a combination of savings of \$1.7 billion in recurrent education costs and \$398.8 million in capital costs.

⁵ Some voluntary contributions by parents and the community for capital development can provide a tax benefit for those individuals. As a result, it is possible the saving to government may be modestly overstated.

4. THE ECONOMIC VALUE OF ENHANCED EDUCATIONAL OUTCOMES

Research by the OECD (2010) indicates that the enhanced educational outcomes provided by independent schools can be linked to a contribution to growth in NSW GSP of around \$431.0 million in 2013-14 (see Appendix C).

Also, the quality of learning and teaching provided by NSW independent schools support students in achieving excellent outcomes across a range of educational measures:

- Students attending independent schools are estimated to have contributed to an increase of approximately 5.0 points in the mean PISA test score for NSW's overall student body in 2012. Whilst this is only an indicative estimate, based on national data from ACER (2013) (see section 4.1 below for more details), it is reflective of the enhanced education outcomes supported by independent schools.
- Australian independent schools recorded a mean PISA test score of 559 for scientific literacy, 551 for reading literacy and 541 for mathematical literacy (ACER, 2013). These scores were well above the overall mean PISA test scores for all Australian schools, as well as the OECD average (Table 4.1).
- Only school students in Shanghai-China recorded higher mean PISA scores for scientific and reading literacy than Australia's independent schools, while only five countries scored higher mathematical literacy scores (ACER, 2013).
- Students within independent schools completing the HSC accounted for 40 percent of those on the All Round Achievers list, 31 percent of all students who placed First in Course and 38 percent of those on the Distinguished Achievers list (AISNSW, 2015a).
- Independent schools in NSW successfully cater for a diversity of students from a range of backgrounds. In 2014, 67 percent of independent schools were located in NSW communities with an SES score of 104 (lower range) or less (AISNSW, 2015b). Schools generally fall within the SES range of 85 – 130.
- Higher proportions of independent school students are accepted into bachelor-degree level studies and go on to further education or training after graduating.
- Independent schools in NSW have programs in place to deepen learning and raise uptake, engagement and achievement in key STEM curriculum areas within NSW.

Table 4.1. PISA Scores, Australian Independent Schools versus Australian and OECD Means, 2012

| PISA Scores | Science | Reading | Mathematics |
|-------------------------------------|---------|---------|-------------|
| Australian Independent Schools Mean | 559 | 551 | 541 |
| Australian Schools Mean | 521 | 512 | 504 |
| OECD Schools Mean | 501 | 496 | 494 |

Source: ACER (2013).

4.1 CONTRIBUTION TO ECONOMIC GROWTH

Education is a fundamental building block for economic growth. It empowers new generations to build upon the collective knowledge, infrastructure and technology of society, and advance economies and communities through new and innovative practices.

The contribution independent schools make to NSW economic growth through enhanced education outcomes was estimated based on research by the OECD (2010), which found a causal relationship between academic performance and economic growth (using standardised PISA test scores⁶ against economic performance over 40 years across 23 OECD countries), and results of the 2012 PISA scores (ACER, 2013) for Australian independent

⁶ PISA tests 15-years olds on Reading, Mathematics and Science.

schools compared to Australian government schools⁷. The approach (and findings) to estimating economic growth is presented in **Appendix C**.

Without independent schools, it can be indicatively estimated the mean PISA score in NSW would have been 5.0 points lower than that recorded in 2012. Based on the OECD's findings, a 5.0 point reduction in PISA scores can be equated to a reduction in NSW growth of approximately 0.09 percentage points, which is equivalent to approximately \$431.0 million in GSP for 2013-14. Whilst this is only an indicative estimate, based on national data from ACER (2013) and OECD research regarding links between PISA scores and economic growth (see **Appendix C** for more details), it is reflective of the enhanced education outcomes supported by independent schools.

This economic benefit is estimated to be provided annually by the enhanced education outcomes delivered by independent schools. They also deliver legacy benefits with the increased activity and productivity delivered by enhanced education outcomes being carried forward to subsequent years.

4.2 MEASURES OF ACHIEVEMENT

The results achieved by students within independent schools in NSW is strong evidence of the quality teaching and learning provided by independent schools. In 2015, almost 15,700 students from independent schools completed the HSC, accounting for 23 percent of all NSW students. Independent school students:

- Accounted for 40 percent of those on the All Round Achievers list. This list is made up of those students who received a top band result across 10 or more units of study.
- Represented 31 percent of all students who placed First in Course.
- Accounted for 38 percent of those on the Distinguished Achievers list (AISNSW, 2015a).

Independent schools in NSW successfully cater for a diversity of students from a range of backgrounds. In 2014, 67 percent of independent schools were located in NSW communities with an SES score of 104 (lower range) or less (AISNSW 2015b). Whilst variations in academic performance generally relate to individual student characteristics as well as the characteristics of schools and school systems, schools with a high degree of autonomy, such as independent schools, generally have been shown to achieve higher levels of performance in academic outcomes, even after adjusting for students' socio-economic background (Woessmann, 2007).

Independent schools in NSW have a strong record of post Year 12 educational attainment. The NSW Secondary Students' Post-School Destinations and Expectations 2014 Report (ANU Social Research Centre, 2014) found that 64.6 percent of students from the independent sector had entered a Bachelor degree. This was compared to fewer than half (46.8 percent) of Year 12 completers from government schools and 58.1 percent from Catholic schools⁸. Overall, 78.6 percent of students from the independent sector were enrolled in either a Bachelor degree, VET course or other form of post-school apprenticeship or training.

⁷ Assuming the difference between national independent schools and state schools PISA scores applies to NSW.

⁸ This study does not account for the influence of other factors, such as parental SES which has been found to have a strong relationship to these outcomes.

Table 4.2. Main Post-School Destination of Year 12 Completers by School Sector in NSW

| PISA Scores | Government Sector | Catholic Sector | Independent Sector |
|----------------------------------|-------------------|-----------------|--------------------|
| Base (n): All Year 12 completers | 1,790 | 972 | 819 |
| Bachelor degree | 46.8% | 58.1%* | 64.6%* |
| VET Cert IV+ | 8.2% | 6.0% | 6.2%* |
| VET Cert I-III | 4.8% | 2.6% | 1.6%* |
| Apprenticeship | 4.5% | 6.6% | 3.5% |
| Traineeship | 4.8% | 4.6% | 2.7% |
| F/T Work | 6.4% | 6.9% | 6.9% |
| P/T Work | 14.7% | 10.4% | 7.5%* |
| Looking for work | 7.2% | 2.8%* | 3.5%* |
| NILFET | 2.6% | 2.0% | 3.4% |

Note: * Indicates result is significantly different to Government schools sector ($p < .01$).
Source: ANU Social Research Centre (2014).

The report also noted, of those students who left school prior to completing Year 12, those who gave the reason 'being disillusioned with school' were less likely to have attended an independent school.

In the government priority area of STEM (Science, Technology, Engineering and Maths), AISNSW launched the STEM Project in June 2014. This program aims to promote STEM to students in independent school in NSW by strengthening key partnerships with those working in STEM-related fields, providing STEM-related funding opportunities to for teachers along with subsidised professional learning programs for teachers. The ultimate objective of the project is to deepen learning and raise uptake, engagement and achievement in STEM curriculum areas within NSW independent schools.

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APPENDIX A: SIGNIFICANCE ASSESSMENT METHODOLOGY

The economic significance estimates in this report are produced using Input-Output transaction tables and models developed by AEC for the purposes of this assessment, combined with data from a range of sources, including State and National Accounts data, other industry data from the ABS, and data on AISNSW member schools from AISNSW. The Input-Output models were used to produce estimates of the direct and flow-on contribution of AISNSW schools to the NSW economy, NSW LGAs, and NSW State and Federal Electorate economies in terms of output, gross product, gross value added activity, employment and income (i.e., wages and salaries).

OVERVIEW OF IO MODELLING

Input-Output (IO) analysis demonstrates inter-industry relationships within an economy, depicting how the output of one industry is purchased by other industries, households, the government and external parties (i.e. exports), as well as expenditure on other factors of production such as labour, capital and imports. IO analysis shows the direct and indirect (flow-on) effects of one industry on other industries and the general economy. As such, IO modelling can be used to demonstrate the economic contribution of an industry on the overall economy and how much the economy relies on this industry or to examine a change in final demand of any one industry and the resultant change in activity of its supporting industries.

IO ASSUMPTIONS

The key assumptions and limitations of Input-Output analysis include:

- The inputs purchased by each industry are a function only of the level of output of that industry. The input function is generally assumed linear and homogenous of degree one (which implies constant returns to scale and no substitution between inputs).
- Each commodity (or group of commodities) is supplied by a single industry or sector of production. This implies that there is only one method used to produce each commodity and that each industry or sector has only one primary output.
- The total effect of carrying on several types of production is the sum of the separate effects. This rules out external economies and diseconomies and is known simply as the additivity assumption. This generally does not reflect real world operations.
- The system is in equilibrium at given prices. This is not the case in an economic system subject to external influences.
- In the static input-output model, there are no capacity constraints so that the supply of each good is perfectly elastic. Each industry can supply whatever quantity is demanded of it and there are no capital restrictions. This assumption would come into play depending upon the magnitude of the changes in quantities demanded.

Despite these limitations, IO techniques provide a solid approach for taking account of the inter-relationships between the various sectors of the economy in the short-term and provide useful insight into the quantum of final demand for goods and services, both directly and indirectly, generated by an industry.

SIGNIFICANCE ASSESSMENT VERSUS IMPACT ASSESSMENT

The framework employed in significance assessment **differs from that employed in economic impact analysis** in that economic significance assessment primarily seeks the contribution of an existing industry as opposed to the impact of a “stimulus” in a particular industry or in several industries (West, 1993). The usual approach of comparing what the economy would be with and without the industries whose contributions are to be assessed does not work because the inter-relationship between industries means whether or not the industries to

be assessed exist, there will still be demand for their outputs (e.g., a complete vehicle needs tyres so that whether or not the entire tyre manufacturer is closed down, the car manufacturer's demand for tyres still exists). From a modelling stance, this problem is solved by assuming that demand for outputs of the industries to be assessed will instead be met by imports.

MODEL DEVELOPMENT

The models used in this assessment are derived from sub-regional transaction tables developed specifically for this project. The process of developing a sub-regional transaction table involves developing regional estimates of gross production and purchasing patterns based on a parent table, in this case the 2012-13 Australian transaction table (ABS, 2015a).

Estimates of gross production (by industry) in the study areas (NSW, each LGA and each State and Federal Electorate) were developed based on the percent contribution to employment (by place of work) of the study areas to the Australian economy (ABS, 2013), and applied to Australian gross output identified in the 2012-13 Australian table.

Industry purchasing patterns within study areas were estimated using a process of cross industry location quotients and demand-supply pool production functions as described in West (1993).

In addition to the general limitations of Input-Output analysis, there are two other factors that need to be considered when assessing the outputs of sub-regional transaction table developed using this approach, namely:

- It is assumed the sub-region has similar technology and demand/ consumption patterns as the parent (Australia) table (e.g. the ratio of employee compensation to employees for each industry is held constant).
- Intra-regional cross-industry purchasing patterns for a given industry vary from the national tables depending on the prominence of the industry in the regional economy compared to its input industries. Typically, industries that are more prominent in the region (compared to the national economy) will be assessed as purchasing a higher proportion of imports from input industries than at the national level, and vice versa.

Input-Output tables utilise an aggregated system of industry classifications based on the ANZSIC system. In total, the 2012-13 Input-Output tables produced by the ABS (2015a) define 114 distinct industries. In assessing the contribution of AISNSW schools, the activities of AISNSW schools were extracted from its relevant Input-Output aggregated industry – “Primary and Secondary Education Services (incl Pre-Schools and Special Schools)”.

The separation of AISNSW schools from the “Primary and Secondary Education Services (incl Pre-Schools and Special Schools)” Input-Output industry was based on financial and employment data provided by AISNSW (unpublished(1) and unpublished(2)). This process resulted in separate AISNSW schools and non-AISNSW schools components of the “Primary and Secondary Education Services (incl Pre-Schools and Special Schools)” in the Input-Output transaction table, to facilitate the economic significance assessment of AISNSW schools in isolation. Once the transaction tables were complete, the significance model were developed through the development of coefficients as per West (1993).

SIGNIFICANCE ASSESSMENT APPROACH

Contribution to NSW

The significance assessment is initially undertaken for the 2012-13 financial year to be consistent with the Input-Output transaction tables utilised. These estimates are then “rebased” to 2013-14 values using:

- Data from the National and State Accounts (ABS, 2015b) to identify growth between 2012-13 and 2013-14 in gross product and gross value add for each industry of the economy.
- Data on the value of building work done (ABS, 2016a) and the value of engineering construction work done (ABS, 2016b) to estimate the proportion of overall construction sector growth attributable to building construction versus engineering.

- Data on labour productivity increases (ABS, 2015c) to identify changes in productivity per employee for each industry between 2012-13 and 2013-14. These estimates were then applied to 2013-14 production (estimated above) to identify 2013-14 employment for each industry.
- Estimates of incomes in 2013-14 were obtained assuming that the relationship between income and output in 2012-13 remains constant, which is consistent with the stylised fact of cost shares of output being close to constant over the long-term.

Data Consistency

Data provided regarding independent school revenues, expenditure and employment are for the 2014 calendar year. However, the Input-Output models and GSP data used are compiled and presented by financial years. While it is acknowledged there is a discrepancy in data sets, independent schools data was assessed and compared against 2013-14 economic data, and has been reported as reflecting the economic contribution of independent schools in 2013-14 throughout the report.

Contribution to NSW Regions

Regional allocation of the direct and flow-on effects is performed as follows:

- 1 Individual Input-Output transaction tables and significance assessment models were developed for each LGA and State and Federal Electorate (as described in the “Model Development” section of this Appendix). This approach produces regional estimates of direct and flow-on independent school contributions assuming each region operates in isolation, and therefore does not account for any inter-regional flow-on relationships.
- 2 To account for inter-regional flows of demand for goods and services between regions, the difference between the total NSW flow-on effects and the sum of flow-on effects for each region by industry (the “inter-regional” flow-on effects) has been redistributed to each region based on the proportion that each region contributes to total NSW activity in each industry (i.e., if the Sydney LGA accounts for 50% of total NSW output in retail trade, then 50% of the inter-regional retail trade flow-on effects have been allocated to Sydney LGA).

In undertaking modelling for State and Federal electorates, while expenditure and employment data was available and used from AISNSW, other data required to undertake economic modelling for State and Federal Electoral divisions was not available from the Australian Bureau of Statistics. To undertake analysis for the State and Federal Electorates correspondence files (based on population counts) between State/ Federal Electorates and both Statistical Area 2 (SA2) and LGA geographic boundaries from the Australian Bureau of Statistics (ABS, unpublished) were utilised to convert ABS data at the SA2/ LGA geography to State/ Federal Electorates. All estimates of independent school activity at the State and Federal Electorate level are therefore subject to a softer confidence due to any inconsistencies introduced by transforming data using these correspondence files.

Note on Regional Estimates

Data provided by AISNSW (unpublished(1)) indicated financial data by head campus only. As such, all regional modelling has been undertaken based on where a school’s head campus is located. It is acknowledged that for schools with more than one campus, not all activity is undertaken at the head campus and as such there may be some discrepancies regarding the regional estimates presented and actual activity undertaken.

APPENDIX B: MEASURES USED IN MODELLING

The contribution of independent schools to the NSW economy is estimated across the following three key measures:

- **Gross Product:** Refers to the value of all outputs of an industry *including* taxes/ subsidies on its final products after deducting the cost of goods and services inputs in the production process. Gross State Product (GSP) is the measure of a State's total gross production.
- **Incomes:** Measures the level of wages and salaries paid to employees of each industry.
- **Employment:** Refers to the part-time and full-time employment positions supported by an industry, and is expressed in terms of full time equivalent (FTE) positions⁹.

Two additional measures are also referenced:

- **Industry output** (or turnover): Refers to the total dollar value of all goods and services produced during the year. This measure overstates the true economic contribution of the industry as it double counts the value of material and services inputs used in the production of an industry's goods and services.
- **Gross Value Added (GVA):** Refers to the value of output after deducting the cost of goods and services inputs in the production process. Value added thereby defines the true net contribution. It is a similar measure to gross product, but *excludes* taxes/ subsidies on final products.

The economic contribution is measured in terms of:

- **Direct impacts**, which represents the economic activity of the independent schools themselves, as well as activity from their capital expenditure and from overseas student expenditure.
- **Flow-on impacts**, which comprise the effects from direct expenditure on goods and services by independent schools and overseas students, as well as the second and subsequent round effects of increased purchases by suppliers in response to increased sales. Flow-on impacts are disaggregated to:
 - **Production Induced (Type I)**, which represent the production induced support activity as a result of expenditure by independent schools and overseas students on goods and services, and subsequent round effects of increased purchases by suppliers in response to increased sales.
 - **Household Consumption Induced (Type II)**, which represent the consumption induced activity from household expenditure on goods and services resulting from wages and salaries being paid to independent school employees and those within the independent schools' supply chain.

⁹ Where one FTE equates to one person employed full time for a period of one year.

APPENDIX C: CONTRIBUTION TO ECONOMIC GROWTH

The enhanced educational outcomes provided by independent schools have economic impacts for NSW. Estimates of the contribution to economic growth by independent schools in NSW were developed using research findings from the OECD (2010) and differences in PISA scores that can be attributed to independent schools per data from ACER (2013).

The approach used is consistent with that applied by Oxford Economics (2014) in their study of the contribution of independent schools to the British economy.

ACADEMIC PERFORMANCE AND ECONOMIC GROWTH

Research by the OECD (2010) found a relationship between academic performance and economic growth. The study, which examined standardised PISA test scores¹⁰ against economic performance over 40 years across 23 OECD countries (including Australia), found that a one standard deviation increase in PISA scores (which equates to 100 points on the PISA scale) correlates with a 1.74 percentage point increase in GDP growth.

This relationship was used to identify the contribution of independent schools in NSW to economic growth, by identifying the enhanced academic performance of independent schools compared to government schools.

DIFFERENCE IN PISA SCORES

Results of the 2012 PISA scores (ACER, 2013) show students from Australian independent schools on average recorded higher PISA scores than students from Australian government schools in each category (reading, mathematics and science), by an average score of around 54 points. Students from Australian Catholic schools recorded an average PISA score 26 points higher than Australian government schools.

However, it is important to recognise the effect that family and socio-economic background have on student performance. ACER present PISA scores accounting for variance in socio-economic background, and found:

- Australian independent schools outperformed government schools by around 34 points on average across reading, mathematics and science.
- Australian Catholic schools outperformed government schools by around 18 points on average across reading, mathematics and science.

In estimating the benefit to economic growth derived from independent schools (including independent Catholic schools), the difference in PISA scores of 34 points (for non-Catholic independent schools) and 18 points (for Independent Catholic schools) have been used to ensure results are not influenced by variance in socio-economic background of students between independent schools and government schools.

Table C.1. Difference in PISA Scores, Australian Independent Schools and Government Schools, 2012

| PISA Scores | Reading | Mathematics | Science | Average |
|--|---------|-------------|---------|---------|
| Non-Catholic Independent | | | | |
| Base Scores | 56 | 52 | 53 | 54 |
| Adjusted for Socio-Economic Background | 37 | 35 | 30 | 34 |
| Independent Catholic | | | | |
| Base Scores | 28 | 25 | 26 | 26 |
| Adjusted for Socio-Economic Background | 19 | 20 | 16 | 18 |

Source: ACER (2013).

¹⁰ PISA tests 15-years olds on Reading, Mathematics and Science.

In assessing the contribution of independent schools in NSW to economic growth, the difference in PISA scores (accounting for socio-economic background) between Australian independent schools, Catholic schools and government schools has been assumed to also apply in NSW.

OVERALL INCREASE IN NSW PISA SCORES BY INDEPENDENT SCHOOLS

Without independent schools, it can be assumed the 154,002 students enrolled at non-Catholic independent schools and 37,422 students enrolled at Independent Catholic schools would otherwise be educated in the NSW government school system. Based on ACER (2013) findings, it can further be assumed that the PISA scores received by these students enrolled at non-Catholic independent schools in NSW would otherwise be approximately 34 points lower on average if they were enrolled in government schools, and those enrolled at Independent Catholic schools in NSW would otherwise be approximately 18 points lower on average if enrolled in government schools.

Independent schools in NSW account for an approximate share of 16.2% of the total student body in NSW (13.0% at non-Catholic independent schools and 3.2% at Independent Catholic schools). It can thereby be estimated that if independent school students in NSW were enrolled at government schools, it would result in 13.0% of the overall student body in NSW receiving a PISA score 34 points lower than was actually recorded in 2012, and 3.2% receiving a PISA score 18 points lower than was actually recorded (or alternatively, by having independent schools, PISA scores received were 34 points higher than they would have otherwise been in 2012 for 13.0% of the overall student body in NSW, and 18 points higher than they would have otherwise been for 3.2% of the overall student body in NSW).

Without independent schools, the mean PISA score across all students in NSW can therefore indicatively be estimated to have been 5.0 points lower than that recorded in 2012 (i.e., 34 points multiplied by 13.0% of the overall student body in NSW plus 18 points multiplied by 3.2% of the overall student body in NSW). Whilst this is only an indicative estimate, based on national data from ACER (2013), it is reflective of the enhanced education outcomes supported by independent schools.

CONTRIBUTION TO ECONOMIC GROWTH

OECD's research findings regarding the change in economic growth of 1.74 percentage points for every 100 point increase on the PISA scale, combined with an estimated overall difference in the mean PISA score of 5.0 points as a result of NSW independent schools, suggests that without independent schools economic growth in NSW would be approximately 0.09 percentage points lower.

NSW recorded Gross State Product of \$495.2 billion in 2013-14 (ABS, 2015b). A reduction in economic growth of 0.09 percentage points is equivalent to approximately \$431.0 million in GSP for 2013-14. This economic benefit is estimated to be provided annually by the enhanced education outcomes delivered by independent schools. Even if the enhanced outcome was half that indicatively estimated above, it would still represent a significant contribution to GSP each year.

Independent schools also deliver legacy benefits with the increased activity and productivity delivered by enhanced education outcomes being carried forward to subsequent years.

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OUTCOME DRIVEN

