

# *The Case for Investing in Public Schools:*

*The Economic and Social  
Benefits of Public Schooling in  
Australia*

By Eliza Littleton, Fiona Macdonald, and Jim Stanford  
The Centre for Future Work at the Australia Institute

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# Summary

Education has long been recognised as a vital determinant of both personal life chances and broader economic and social performance. Public schools play a critical role in ensuring access to educational opportunity for Australians from all economic and geographical communities. Public schools are accessible to everyone. They provide a vital ‘public good’ service in ensuring universal access to the education that is essential for a healthy economy and society. However, inadequate funding for public schools – measured by persistent failure to meet minimum resource standards established through the Schooling Resource Standard (SRS) – are preventing students in public schools from fulfilling their potential. Since public schools account for the large majority of students from disadvantaged backgrounds, this underfunding of public education has amplified impacts on national scholastic, economic and social indicators. Chronic underfunding is contributing a decline in scholastic achievement in Australia that is visible across numerous indicators: including falling school completion rates, declining performance on standardised tests, and deteriorating relative performance in international achievement comparisons. Again, students from relatively disadvantaged socio-economic, regional, and Indigenous backgrounds are most harmed by the erosion of public school funding.

This report surveys Australian and international research regarding the broader economic, social, and fiscal benefits of strong schools and scholastic achievement. It then evaluates the scale of those benefits in Australia’s case, considering three broad channels of impact:

1. the immediate employment and economic activity associated with the operation of the public school system;
2. the enhanced labour market and productivity performance of students who complete their schooling; and
3. the broader social and fiscal benefits arising from the correlation between school completion and welfare, health, and crime.

First, public schools in Australia have an enormous immediate economic footprint. They enrol some 2.6 million students (about two-thirds of all school pupils), and directly employ about 285,000 full time equivalent staff. Including indirect economic impacts (felt upward through the supply chain that feeds public schools, and downstream via enhanced consumer spending), public schools support some \$45 billion in GDP, and a total of 365,000 jobs. Public education has been an important source of job creation, economic activity, and capital investment in recent years.

Second, public schools generate even larger economic benefits through the subsequent enhanced labour market experience of school graduates. Students who finish Year 12 are on average more employable, more productive, receive higher earnings, and pay more taxes than those who do not finish school. Year 12 graduates earn \$10,000 more per year than early school leavers: a 21% wage premium that cumulates to over \$400,000 in additional lifetime income. This does not include the even larger wage premia enjoyed by school graduates who then go on to higher university or vocational education. Businesses and employers, too, benefit from the enhanced productivity of school graduates. The gains in earnings and productivity of Year 12 completion boost Australia's GDP by another \$49 billion per year.

Third and perhaps most importantly, the enhanced life chances provided to public school students as a result of their access to universal, high-quality education generate very important benefits and savings experienced throughout society. Australian and international research confirms that school graduates are healthier; they are less likely to need public income supports; and they are less likely to be involved in the criminal justice system. These outcomes are hugely beneficial for those individuals, their families, and their communities. But they also have enormous impacts on the economy, and on government budgets – including by reducing the call on government-funded health care, income programs, and police and justice systems. This third category of impacts is more diffuse and harder to quantify than the direct economic and labour market impacts discussed in the first two points, but they are likely even more important in the long run. The value of public education in contributing to a society that is healthy, inclusive, productive, safe, and fair cannot be overestimated.

In addition to describing these three broad classes of economic benefits from public education, this report also simulates the incremental economic gains resulting from stronger support for Australian public schools to meet minimum resource benchmarks established through the SRS process. We estimate those benefits would ultimately more than offset the incremental spending required to fully meet the SRS. Key findings include:

- Additional funding of \$6.6 billion per year to public schools to meet the SRS would constitute a 15% increase in total public school funding.
- These additional resources would help to reverse the recent decline in school completion rates: regaining 2017 completion rates in a low-case scenario, and lifting completion rates further (in line with historic trends) in a high-case scenario.
- Via increased direct employment and economic activity, improved earnings and productivity for school graduates, and reduced fiscal and social costs from early school-leaving, these improvements in funding and school completion would

drive economic and fiscal benefits totalling \$17.8 to \$24.7 billion per year (in 2022 dollar terms) after 20 years.

- That economic payoff is two to four times larger than the annual fiscal cost of fully meeting the SRS for public schools.
- Economic benefits would grow further in subsequent years, as successive cohorts of better-educated school graduates feed through into the overall population.
- Governments themselves benefit significantly from the increased economic activity, higher tax revenues, and reduced fiscal costs associated with better-resourced schools and improved school attainment. In the low-case scenario, these fiscal benefits total \$9 billion per year after 20 years (in 2022 dollar terms), enough to fully offset the ongoing fiscal commitment required to ensure full SRS funding. In the high-case scenario, these benefits are even larger, totalling around \$14 billion per year. In either case, investments in meeting the SRS are ultimately returned to government through the fiscal benefits of a healthier, more productive, and more equal society.

The primary motivations for adequately and properly funding public schools are to enhance the life chances of the students who attend them, to reduce economic inequality and segregation, and to ensure that young people's trajectories are less predetermined by the socio-economic status of their parents than is presently the case. However, in weighing the costs and benefits of incremental fiscal support for public schooling, it is vital that governments fully consider the significant and far-reaching benefits of stronger public education for economic activity, future productivity and earnings, and the long-run health and well-being of our communities. Continuing to underfund public schools in the interest of short-run fiscal savings is hardly a good investment, once the far-reaching and significant costs of poor school achievement are taken into account. These hard economic arguments for improving public school funding, and meeting the minimal benchmarks for school resourcing established in the SRS, should cement the case for providing adequate resources to Australian public schools.

The rest of this paper is organised as follows. The next section reviews the main parameters of public schooling in Australia: including the scale, composition, and fiscal dimensions of the public school system. The following section reviews previously published research on the broader economic, labour market, social, and fiscal benefits of strong school achievement. The paper then considers three major dimensions of the benefits of public schools: their immediate economic footprint, their contributions to better labour market and productivity outcomes, and their broader spillover impacts on social outcomes (such as health, welfare, and crime). Finally, on that basis the

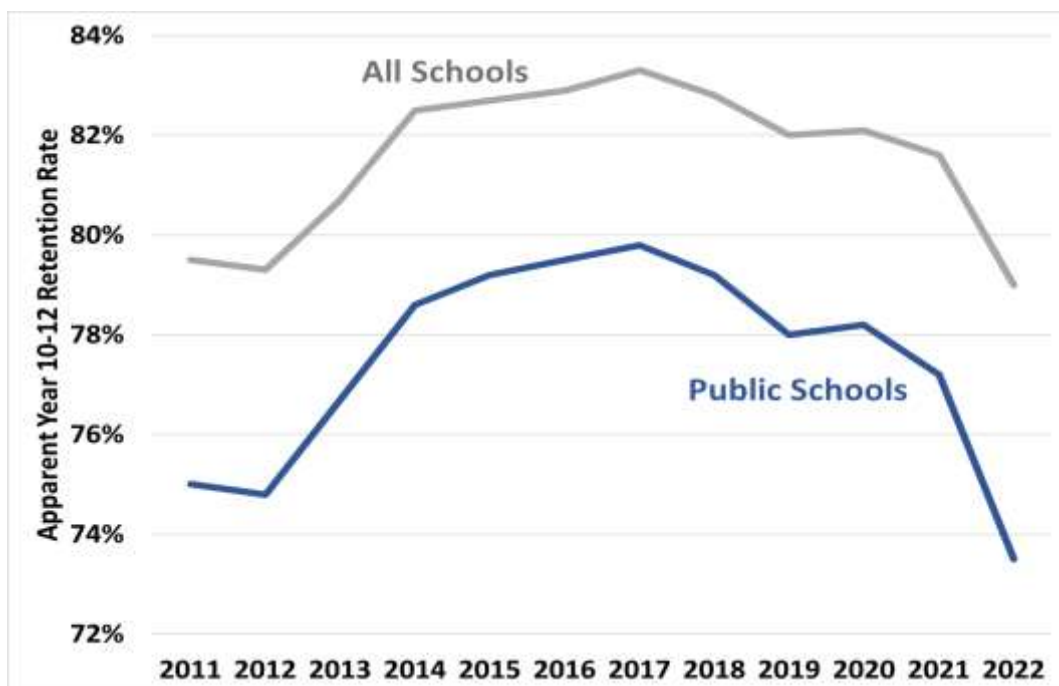
paper simulates the combined economic benefits of improving public school funding in Australia to meet the SRS. It shows that the total economic benefits arising from adequate public school resourcing would be two to four times larger than the cost of meeting the SRS, and that fiscal gains associated with those economic benefits would ultimately offset the cost to government of improved public school funding.

# Public Schools in Australia

Schools are a vital component of Australia’s economic and social infrastructure. In 2022, over 4 million students were enrolled in close to 10,000 different primary and secondary schools.<sup>1</sup> About two-thirds of students attend public schools, which are established and operated to ensure that children from all socio-economic, racial and Indigenous, and regional backgrounds are able to access high-quality schooling – and the personal, economic, and social benefits which that schooling can unlock.

While Australia has a high-quality education system by international standards, evidence is accumulating that school achievement is faltering, and schools are facing increasing financial and social stress. After years of steady progress, apparent school retention rates (an approximate measure of school completion) have been declining gradually since 2017, and fell more steeply in 2022 (see Figure 1). Apparent public high school retention fell by 6.3 percentage points from 2017 through 2022. Overall retention across all schools declined during this time by 4.3 percentage points.

**Figure 1. Apparent High School Retention (% Eligible Population)**



Source: ABS Schools 2022, Table 64a.

<sup>1</sup> Data in this section from ABS Schools 2022, <https://www.abs.gov.au/statistics/people/education/schools/2022>.



Additional concerns about student achievement are raised by standardised test scores reported through the NAPLAN system. Most recent time series results for Year 9 students in 2022 showed a decline in mean achievement, and a statistically significant reduction in the proportion of students meeting national minimum standards (Australian Curriculum, Assessment and Reporting Authority, 2022b, p.vii). Recently released 2023 NAPLAN results<sup>2</sup> have been restructured and do not allow a comparison to previous years' data, however those results confirm that a significant proportion of students (around 10%) need additional support to meet minimum expectations, and that students in rural and regional communities, and those from Indigenous backgrounds, face particularly daunting challenges in meeting minimum standards.

By international standards, too, Australia's educational attainment is deteriorating. Australia's average performance on international student test scores has been falling. According to the OECD's Programme for International Student Assessment (PISA), average scores for 15-year-old Australian students have been falling in reading since 2000, in mathematics since 2003, and in science since 2012 (OECD, 2019). While Australia's average scores are still slightly better than the average for all OECD countries (including its Eastern European and Latin American members), our long-held educational advantage relative to other countries is disappearing. And educational inequality is relatively severe in Australia – a factor which has been shown to contribute to falling average achievement.<sup>3</sup> As illustrated in Figure 2, Australia has one of the most privatised and unequal school systems in the industrial world: the proportion of students in public schools was fourth lowest among the 33 OECD countries reporting consistent data in 2018 (OECD, 2019).

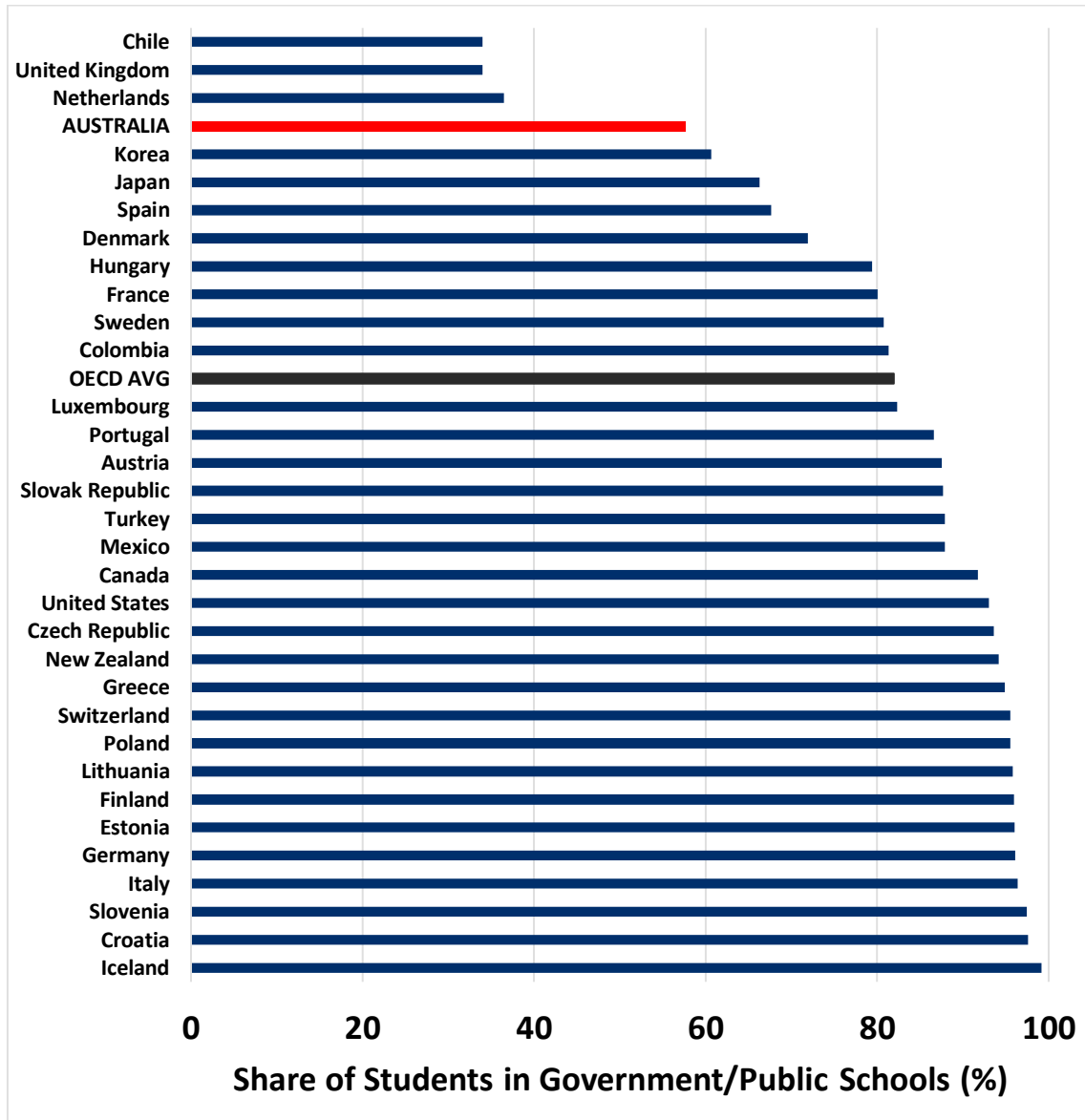
The growing footprint of private schools exacerbates educational inequity, undermines public support for universal education, and suppresses overall achievement across the system – since students who are more likely to need extra support are concentrated in increasingly disadvantaged public institutions. Indeed, almost one-third of all students enrolled in public schools come from disadvantaged socio-economic backgrounds – 2.5 times the share of disadvantaged students at private schools (Productivity Commission, 2023, Table 4A6). Improving funding for public schools will be essential for halting and eventually reversing the bifurcation in Australian schooling between public and private education, and supporting all students (not just those whose parents can afford private tuition) to attain the academic skills and capacities necessary to succeed in life.

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<sup>2</sup> Australian Curriculum, Assessment and Reporting Authority (2023).

<sup>3</sup> Rorris (2016, p.4) shows that the top-performing countries according to PISA scores also have much less inequality between advantaged and disadvantaged schools than Australia.

**Figure 2. Public School Enrolment as Share Total (OECD, 2018)**



Source: OECD PISA Database, 2018.

At present public schools in Australia are funded through a combination of state/territory government funding, Commonwealth government funding, fees and charges, other parental or private contributions, and other private income. About three-quarters of public school funding comes from state or territory governments (which own and administer the schools), and about one fifth from the federal government.

Recurrent government funding for schools is determined with reference to the Schooling Resource Standard (SRS), established in 2012 following recommendations from the Gonski review of school funding (Gonski et al., 2011). The SRS is an estimate

of the total public funding a school needs to meet the basic educational needs of its students. The goal is to ensure that at least 80% of students achieve learning outcomes above national minimum standards in NAPLAN for reading and numeracy.

Although a joint federal-state commitment to the SRS funding model has been in place for over a decade, 98 per cent of public schools are still funded below this standard (Rorris, 2020). The current aggregate shortfall for public schools is estimated at \$6.6 billion in 2023. This includes an amount of over \$2 billion per year embodied in a notional ‘capital depreciation tax’ charged against public schools. This ‘tax’ is treated as a form of state government funding for public schools, and hence deducted from the current resources they would otherwise be expected to contribute to public schools under the agreed SRS system. However, this ‘tax’ does not represent real current resources for teaching and other supports; hence it effectively permits an additional degree of underfunding relative to the SRS (Rorris, 2021). Private schools, of course, are not charged any such ‘tax’.

Total expenditure for public schools in 2021 was approximately \$44 billion, funded through a combination of direct Commonwealth and state/territory government support, student fees, and other sources of income.<sup>4</sup> Capital expenditure (including investments in land, buildings and other assets and equipment) for public schools in 2021 totalled another \$5 billion.

In December 2022, state and federal Education Ministers agreed to establish a panel to inform the next National School Reform Agreement (NSRA): the joint agreement between the state/territory and Commonwealth governments guiding school funding arrangements.<sup>5</sup> This panel will deliver its final report later in 2023. Further review of funding arrangements was undertaken by the Productivity Commission, in its analysis of the NSRA (Productivity Commission, 2022). This report noted that the NSRA’s eight core initiatives have had little impact so far in improving school attainment among Australian students.

In sum, despite strong agreement that there is no greater determinant of a society’s economic and social progress than quality, accessible education, and growing evidence (surveyed below) about the direct correlation between school attainment and economic performance, Australia’s education system is being hampered by consistent underfunding of public schools relative to minimum agreed benchmarks. This is leading to declining scholastic attainment, with consequent damage to the life chances of many thousands of students – particularly those from disadvantaged socio-economic and family backgrounds.

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<sup>4</sup> Data in this section from Australian Curriculum, Assessment and Reporting Authority (2022a).

<sup>5</sup> See Department of Education (2023) for more details.

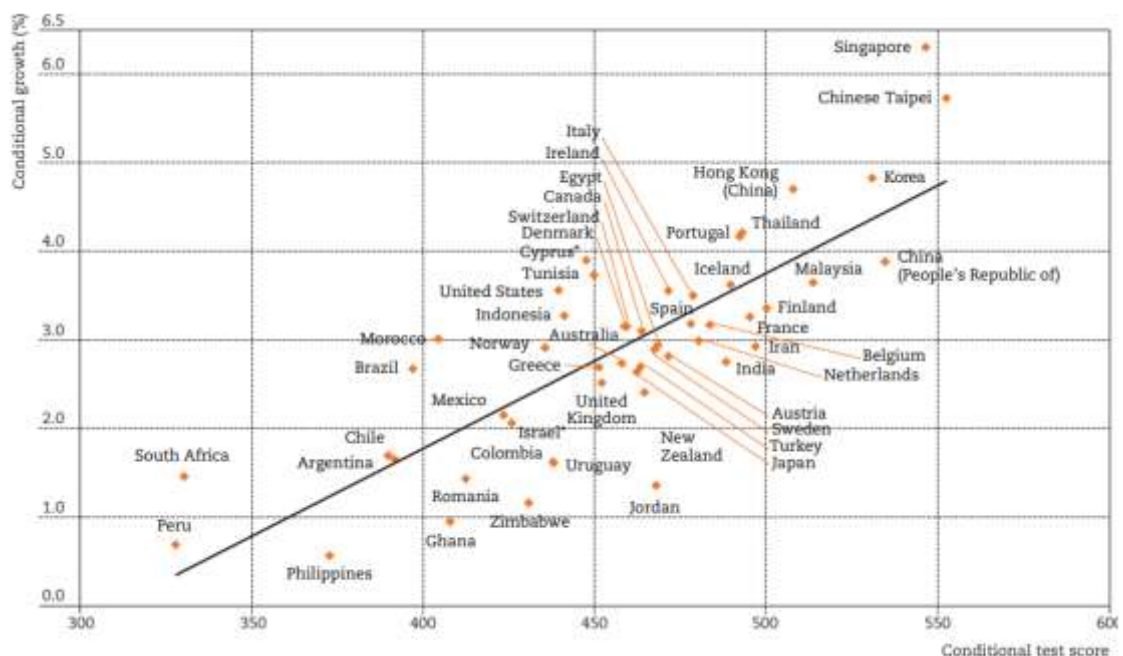
In an era of rapid technological change, intense global competition, and purported labour shortages, Australia must support every single young person to achieve their full scholastic potential – and to capture all the benefits that brings, including employment, earnings, well-being, and community and democratic participation. This can only happen with a strong, well-resourced and fully accessible public school system. Clearly, education and fiscal policy-makers need to better appreciate the economic and social importance of high-quality public education, and commit to ensuring that public schools are fully resourced to meet the needs of all their students. Public schools need more resources to deliver high-quality education to every student, regardless of their income, family background, racial or Indigenous status, or region.

# Previous Research on the Economic Benefits of Education

There is a substantial economic literature documenting the various impacts of schools and school funding on economic, social, and fiscal outcomes. This literature is vast and diverse, and cannot be fully summarised here. However, this section of the report will review the findings of several recent reports (from Australia, and internationally) that seem especially relevant for evaluating the all-round economic and social effects of public schools. These findings will then inform our own estimates of those benefits in subsequent sections.

A major multi-country study published by the OECD (Hanushek and Woessmann, 2015) provided compelling data on the link between school attainment and long-run economic growth. Regression analysis linked each country's standardised school test scores in math and science (collected and reported through the OECD's PISA system) with GDP growth rates.

**Figure 3. Knowledge Capital and Economic Growth Rates Across Countries**



Source: Hanushek and Woessmann (2015).

The relationship explains much of the inter-country variation in GDP growth (as illustrated in Figure 3). Australia ranks in the middle of the sample, both in terms of test scores and growth rates. Across countries, the OECD research suggests that attaining universal enrolment in secondary school, and ensuring that each student reaches basic PISA benchmarks (Level 1), would boost average annual economic growth by an average of 0.2%. Over a long time period, that difference cumulates into enormous increases in total output, earnings, and tax revenues for government. The OECD data indicate that close to 20% of Australian students do not meet basic skills benchmarks. Achieving basic skills for every student would lift Australia's average PISA score by 9.2%, and boost long-run economic growth by 0.18 percentage points.<sup>6</sup>

Holden and Zhang (2018) estimate the impacts on earnings and national GDP from closing educational attainment gaps between regional and urban schools in Australia. Average NAPLAN scores for school students in urban areas are 0.26 standard deviations higher than in non-urban schools. Citing evidence from U.S. research<sup>7</sup> on the correlation between test scores and future earnings of students (conducted in the context of racial education and earnings differences there), the authors estimate that fully closing that achievement gap would lift average earnings for workers who attended non-urban schools by 18%. On the basis of the share of non-urban school attendees and the aggregate share of labour income in national GDP, this implies an increase in GDP of 3.3%. The Holden and Zhang results are considering the specific benefits of lifting educational attainment in regional and rural schools, but the general methodology and findings are also applicable to improvements in overall attainment across the national school system.

An important implication of Holden and Zhang's results is that there would be a significant fiscal payback to government from this boost in GDP. Since the broad government sector (at all levels) automatically collects around one-third of incremental GDP in additional tax and other revenues, closing the urban-regional education gap would boost government revenues by over 1% of GDP. This provides an important fiscal motive and resource base for governments to address educational inequality.

Another approach to estimating the benefits of school attainment for economic growth was taken by Deloitte Access (2016). This research presented two separate calculations of the benefits of stronger school outcomes for growth: a bottom-up approach (based on aggregating the improved employment and earnings of school graduates across the whole economy), and a cross-country correlation approach based

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<sup>6</sup> See Hanushek and Woessmann (2015), Table 5.3.

<sup>7</sup> See Fryer (2017).

on analysis of growth rates and educational attainment across the set of industrial countries.<sup>8</sup> The bottom-up approach suggests that a 1% improvement in educational outcomes (as reflected in standardized test scores) would raise average earnings by 0.12% (including add-on effects resulting from school completers' pursuit of subsequent higher education). It would boost aggregate GDP (after an adequate time lag to allow labour supply to fully turn over with the population of better educated graduates) by 0.16%. In contrast, the cross-country methodology yields an estimate of the benefits of a 1% improvement in educational attainment roughly twice as large as the bottom-up approach – with a long-run acceleration in annual GDP growth of up to 0.33% from a 1% improvement in school attainment. The authors suggest these larger estimates of benefits may be due to the fact that international cross-sectional comparisons capture a broader set of determining factors linking educational attainment to economic performance (beyond the specific earnings-boosting channel simulated in their bottom-up analysis).

Del Rio et al. (2023) have estimated the economic impact of improved literacy outcomes in the ACT on the basis of resulting gains in school completion, and subsequent improvements in lifetime earnings. Citing previously published evidence<sup>9</sup> regarding the impact of school completion on earnings, and applying reasonable assumptions regarding lifetime working tenure, they find that modest investments in enhanced and targeted literacy interventions in schools generate an 18-to-1 payoff in ultimate employment earnings for participating students.<sup>10</sup> Again, through the normal collection of government revenues, close to one-third of that benefit flows back to the general government sector. In this case, those positive revenue impacts more than outweigh the modest cost of the initial literacy investments, meaning that this type of intervention literally 'pays for itself' in overall fiscal return to government.

A recent Canadian study combined macroeconomic modelling of the employment and income effects of expanded public school funding in the province of Ontario, with simulations of the reductions in fiscal costs resulting from improved high school completion rates (McArthur-Gupta 2019). The macroeconomic analysis estimated a total economic multiplier of 1.3-to-1 arising from new school spending. Direct increases in output and employment from expanded school funding in turn generate indirect stimulus through industries which supply the education sector, and induced

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<sup>8</sup> This second component of their research draws on the findings of the OECD research discussed above.

<sup>9</sup> Leigh and Ryan (2008).

<sup>10</sup> Presumably other factor incomes would also be boosted by the enhanced productivity of the students who benefit from these programs, since labour income accounts for only a portion of total GDP. If these impact were included (as in Holden and Zhang 2018, and other studies), then the final impact on total GDP would be greater still.

increases in downstream consumer demand resulting from higher household incomes. Thus every dollar of school funding supports an increase in total GDP of some \$1.30 (a significant proportion of which returns to government in the form of incremental tax revenues).<sup>11</sup>

This study also simulated the impact of improved high school graduation rates (assumed by the authors to rise by 3.7 percentage points as a result of improved funding) on three areas of public service expenditure: income supports, health costs, and incarceration. Citing research findings from broader published literature regarding the correlation between school completion and health, family income, and crime and justice expenses, they estimate incremental reductions in government spending in those three areas from increased school completion. These benefits cumulate over time as the proportion of school graduates grows (as the higher school graduation rate filters through the total working population). Fiscal savings reach \$3.5 billion per year (\$C) after 20 years.<sup>12</sup> Those broader social and fiscal effects represent a gain to improved school completion bigger than the indirect and induced effects simulated from the macroeconomic model.

Numerous other published studies have also documented positive impacts of better school attainment on employment outcomes of graduates, productivity, lifetime earnings, and hence GDP – including Heckman and Master (2007), Rorris (2016), and Department of Education (2017, 2021).

An especially comprehensive effort to estimate the fiscal costs to government of early school leaving in Australia was undertaken by Lamb and Huo (2017). Their work draws on previous research conducted in the U.S. by Belfield et al. (2012). The authors identified several streams of benefits arising from stronger educational attainment and school completion. These include the positive impacts of school completion on labour market outcomes (participation, employment, and earnings) surveyed above. The authors then cast their net more broadly, to consider some of the broader social and fiscal consequences of poor school outcomes. Like McArthur-Gupta (2019) above, they considered three specific major categories of such effects: extra spending on income support payments, extra health expenses, and extra spending on incarceration and policing. The authors generate bottom-up estimates of the total costs of those categories of social spending, which they then aggregate into total annual costs for each cohort of early school leavers.<sup>13</sup> Over time, those expenses cumulate into

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<sup>11</sup> These results are closely similar to those reported below using Australian data.

<sup>12</sup> This is equivalent to about 0.4% of Ontario GDP in the starting year of the simulation.

<sup>13</sup> Lamb and Huo also include an additional category of fiscal impact, an assumed deadweight burden postulated to result from the taxes needed to fund those previous fiscal costs; the theory regarding



substantial amounts, as school leavers experience inferior income, health, and social outcomes throughout their remaining lives. We cite this work extensively (as well as that of McArthur-Gupta, 2019) in our own analysis of the broader social and fiscal benefits of stronger school outcomes below.

Many other studies have considered in detail various of those broader social and fiscal impacts of stronger education outcomes. On the topic of welfare spending, for example, the Commonwealth's Department of Education (2017) shows that people who did not complete Year 12 are far more likely (11.3%) to collect Newstart benefits while not working or studying in any given year, compared to the overall population (6.3%). In addition to the impact of employment experience on income support programs (like Newstart), additional flow-through fiscal effects can also be anticipated from the need for greater employment counselling and support services by the unemployed, and reduced superannuation accumulations over lower-wage workers' careers (resulting in a greater call on publicly-funded Age Pension expenses). Other research affirming the negative impacts of early school leaving on welfare costs and other income support programs includes Preston and Green (2003), Mitra (2011), and Belfred, Levin and Rosen (2012).

Studies linking educational attainment to health outcomes are equally numerous and compelling. Better education can improve health outcomes through numerous channels. High school graduates are more aware of, and able to understand, information about health risks, symptoms and treatments. Their higher earnings are strongly associated with better health outcomes, and they can afford to properly respond to health problems sooner. Kaestner (2020) reports significantly higher mortality rates among groups which did not finish high school. People with lower reading levels have been found to be 1.5 to 3 times more likely to have an adverse health outcome than people who read at higher levels (DeWalt et al. 2004, p. 1236). Lamb and Huo (2017) report a much higher incidence of long-term health conditions among early school leavers. Other research, such as Conti et al. (2010), Zimmerman and Woolf (2014), and Cutler and Lleras-Muney (2010), provides further confirmation that better school outcomes are reliably reflected in better health as graduates progress through their lives.

School education is also shown by numerous studies to have a very positive impact in reducing the incidence of crime and criminal justice expenses. Lamb and Huo (2017) report that early school leavers are seven times more likely to be criminal offenders, and 8 times more likely to be imprisoned, than those who finish Year 12. This results in

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these deadweight costs is controversial, and we do not include this type of impact in our simulations below.

significant incremental police and justice costs for each cohort of early leavers who enter the labour market. Rorris's (2016) analysis of Australian incarceration data shows that the incidence of imprisonment is four times greater for people who did not finish Year 12, than for the general population. Lochner and Moretti (2014) present quantitative evidence showing that a 1% increase in high school completion rates is associated with a reduction of 100,000 criminal incidents in the U.S. per year, with large fiscal savings. Machin et al. (2011) provide similar findings for the U.K.

Another class of economic and spillover benefits from higher school achievement (or, alternately, spillover costs from poor school completion) considers the inter-generational transmission of poor education outcomes. As Goss et al. (2016) report, students whose parents had low education levels, themselves experience significant learning gaps as they progress through school. They estimate learning gaps of 10 months for students with less educated parents by Year 3, growing to 2.5 years by Year 9. Through this generational pass-through effect, all of the negative social and fiscal consequences of low-quality and incomplete schooling are transmitted and amplified through time.

Ample evidence confirms this connection between lower familial socio-economic status and educational achievement for students, reinforcing the inter-generational transmission of poor educational outcomes. For example, data summarised by Rorris (2016) highlights the elevated incidence of educational underachievement among students whose parents are unemployed: they are 13-15% more likely not to meet minimum standards in literacy and numeracy. Since their own poor education outcomes help to explain the unemployment of the parents, this is another channel through which inadequate schooling generates important and lasting economic consequences. Analysis of recent NAPLAN test scores provides further evidence of this generational pass-through of poor educational attainment and resulting economic disadvantage. Children of parents who had not completed high school, and those of parents in lower occupational categories, revealed significantly lower achievement on standardised tests (Australian Curriculum, Assessment and Reporting Authority, 2023).

A similarly self-reinforcing, cumulative consequence of better educational attainment can be experienced over an individual's lifetime learning trajectory. An initial underinvestment in education, with resulting poor educational outcomes for students, can be amplified over time as those students progress (or fail to progress) through subsequent education. According to the so-called 'Matthew Effect' (see Stanovich 1986, Del Rio et al. 2023), students with an initial disadvantage in reading tend to demonstrate poorer educational outcomes across all topics over their longer-term educational trajectories. This finding particularly reinforces the need for high-quality

and well-resourced education provision in children's early years (including both early child education and care, and strong primary school education).

Across all of these channels of economic, social, and fiscal well-being, therefore, it is clear that a society with higher educational outcomes among its population, with widespread attainment of fundamental benchmarks of academic capability, will benefit from a rich variety of positive outcomes. These societies are more employed, more productive, generate higher incomes and GDP, support strong fiscal outcomes, are healthier, and safer. Given the multi-dimensional, indirect, and long-term nature of many of these effects, it is a challenge to track and measure them – but a growing body of scientific literature confirms their existence and importance. Any decision-making regarding fiscal investments in Australia's school system must certainly take these broader impacts into full account.

# The Economic Footprint of Public Schools

This section of the report considers and estimates the various channels of current economic activity generated by government spending on public schools. The public school system has an immediate and major direct impact on employment, incomes, and GDP as a result of employing hundreds of thousands of teachers and other education workers, and paying billions in wages and salaries. But this spending also contributes to broader benefits that spread across all parts of the economy, via two additional channels. First, the purchase of goods and services by the school system creates additional indirect jobs in upstream supply sectors. Second, the incremental consumer spending stimulated by the employment of teachers and other school workers (and workers in upstream supply firms) also supports further incremental economic activity in downstream consumer goods and services industries.

## DIRECT ECONOMIC FOOTPRINT

Australia's public school system constitutes a major economic industry, generating hundreds of thousands of jobs and billions of dollars in economic activity. Table 1 summarises the direct economic footprint of public schools in Australia in 2021-22.

<b>Table 1</b>	
<b>Direct Economic Footprint of Public Schools</b>	
Public schools	6,699
Enrolled students	2,605,826
Direct employment (FTEs)	283,590
Total revenues	\$44.1 billion
Wages and salaries paid	\$32.0 billion
Supplies and inputs purchased	\$9.9 billion
Capital spending	\$5.1 billion
Total value-added (GDP)	\$35.0 billion
Sources: Calculations from ABS (2023) Schools, 2022, Table 90a; ACARA (2022); ABS (2023) Australian National Accounts: Input-Output Tables, Table 8.	

Public schools enrolled some 2.6 million primary and secondary school students, constituting close to two-thirds of school goers. The remaining 1.4 million students were enrolled in private schools (Catholic and 'independent').

Data from the Australian Curriculum, Assessment and Reporting Authority (ACARA, 2022a) reports 283,590 full-time-equivalent employment positions in public schools in 2022. Since many school workers are employed part-time, the total number of people working in public schools is significantly higher than this, especially in administration and support roles. Over two-thirds (68%) of FTEs were teaching positions, while the remaining 32% performed various administration and support function roles. Just over 63% of teaching staff in Australia work at public schools, which is slightly lower than the public system's share of student enrolments. More notably, only 43.8% of specialist support staff are employed at public schools, far lower than the public system's share of students. This is despite the fact that public schools enrol a disproportionately large share of disadvantaged students (who are more likely to need specialist support).

As major employers, public schools pay wages and salaries which contribute further to economic activity. Exact aggregate data on wages and salaries paid by the public school system are not available. However, an estimate can be derived from ABS input-output data on the total output of the combined primary, secondary, and pre-school educational system (both public and private), and separate data on total expenditures of public schools (which totalled \$44 billion in 2021 according to the ACARA data). Public school spending accounts for some 59% of total expenditure on the broader school system, and this suggests total compensation paid to public school staff of about \$32 billion.

The wages and salaries paid to public school staff are then used in short order to purchase goods and services for personal consumption. This contributes further to overall aggregate demand, economic growth, and stronger business conditions in downstream consumer industries (as will be explored in more detail below).

An important dimension to keep in mind in considering the economic and social impacts of public schools is that the large majority of staff at these schools are women. According to ACARA (2022) data, 77% of staff at public schools are women (including 73% of teaching staff and 84% of non-teaching staff). Since the workforce is so highly feminized, there are important gendered benefits the adequate resourcing of public schools.

Labour compensation accounts for the bulk of total expenses in the public school system, and thus constitutes the largest share of value-added in education. ABS input-output data indicates that labour compensation accounts for about 90% of total direct

value-added within schools. The remainder consists of small amounts of gross operating surplus (including depreciation of buildings and capital), mixed income, and indirect taxes paid to government. We estimate the total GDP of public schools in Australia at \$35 billion, on assumption that the overall labour intensity of expenditure in the public school system is broadly equivalent to the average for the overall primary, secondary and pre-school system as reported in the input-output data.

The primary and secondary education sectors have been important spurs to economic growth and job-creation in Australia in recent years. Public schools have created tens of thousands of new jobs as they expanded to meet the needs of a growing population, and contributed consistently to economic growth including through periods of recent instability (such as the Global Financial Crisis and the Covid pandemic).

## UPSTREAM SUPPLY CHAIN PURCHASES

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The economic footprint of public schools in Australia extends well beyond the direct expenditure on schools and salaries for school staff. Public schools also purchase massive quantities of supplies and services from a wide range of other businesses and sectors. These include purchases of supplies and equipment for teaching; construction and maintenance materials and services; and a range of other utility, business and administrative services.

These purchases extend the economic impact of public schools' activity through all sectors and regions of the national economy. We refer to these expenditures on goods and services from the school systems supply chain as *upstream* or *indirect* benefits.

An estimate of the upstream supply chain benefits can be derived from ABS data on input-output linkages between different industries in Australia's economy. The ABS input-output database does not provide separate data for public schools, which are consolidated within the broader *Primary and Secondary Education Services* category (which includes pre-schools). Based on the assumption that the quantity and mix of supply purchases is broadly similar for public schools as for the overall sector, the upstream purchases of public schools can be estimated a proportion of total schools' purchases.

The public school share of this overall education sector supply chain is then estimated on the basis of proportional enrolment sizes. As with the estimates of public school labour compensation above, this is a conservative approach in that it assumes equivalent input purchases per student across all areas of the combined primary, secondary, and pre-school education sector; in reality, input purchases are likely

proportionately smaller in preschool settings, in which case the data below understate the true upstream impact of public school spending.

ABS input-output data indicates that primary and secondary schooling institutions purchase inputs and supplies from over 100 different industry groupings. This supply chain reaches into every major sector and region of the national economy. Table 2 groups these input purchases into 15 major categories, describing the overall supply chain of the public school system. Together, all these upstream sectors receive almost \$10 billion worth of sales per year from public schools, contributing substantially to their own output, employment, and profits.

<b>Table 2</b>		
<b>Estimated Public School System Supply Chain</b>		
<b>(2020-21)</b>		
<b>Supply industry</b>	<b>Purchases by public schools (\$m)</b>	<b>Supported employment</b>
Agriculture	\$41.78	145
Mining	\$81.94	38
Manufacturing	\$597.69	1,131
Utilities	\$213.95	191
Construction	\$295.09	739
Trade	\$893.17	1,488
Hospitality Services	\$185.39	1,707
Transport	\$722.63	2,326
Information Services	\$839.51	1,560
Property and Finance <sup>1</sup>	\$1,917.64	5,072
Computer and Technical	\$1,405.86	6,147
Administration Services	\$784.87	6,667
Public and Safety	\$969.26	7,787
Education Services	\$281.65	2,630
Health	\$68.84	561
Arts and Recreation	\$433.99	2,778
Other Services	\$213.95	1,550
<b>Total Supply Purchases</b>	<b>\$9,947.19</b>	<b>29,244</b>
Source: Author's calculations based on ABS catalogues.		
1. Includes only property, insurance and current financial services, not lending activity.		

Moreover, since the additional business activity generated strengthens the size and viability of those supplying firms, thousands of additional jobs in those other industries are supported by public school activity. Table 2 also outlines the number of jobs supported in these supply industries as a result of their sales to public schools. These are calculated based on the average employment content ratios prevailing in each of the major supplying industries. Across the entire set of supply chain industries, some 29,244 jobs are supported by the ongoing supply purchases of the public school system. This figure only includes first-order impacts from the supply purchases of public schools. Since those supply industries will in turn make additional purchases from their own supply chains, the ultimate indirect impact of public school spending on the upstream supply chain will be even greater than described in Table 2.

We estimate the total labour compensation paid out in those upstream jobs at \$1.7 billion per year, on the basis of average salaries in the various major industry groups listed in Table 2.<sup>14</sup>

## DOWNSTREAM LINKAGES AND CONSUMER SPENDING

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When employees of the public education sector, along with employees supported upstream in the supply chain, spend their income on goods and services, the economy receives an additional economic benefit in the form of new jobs and activity generated in industries supplying that consumer demand. The activity in consumer industries stimulated by expenditure from workers in schools and upstream suppliers is referred to as *induced or downstream* effects.

The wages and salaries supported by public schools and their suppliers total some \$33.7 billion per year, including \$32 billion paid to people directly employed by the schools (from Table 1 above), along with an additional \$1.7 billion corresponding to the incomes of workers employed in the public school system's supply chain.

On average Australian consumers spend four-fifths of their disposable income on final consumption spending (after deducting taxes and personal savings).<sup>15</sup> Then, for every five dollars spent on consumption, over one dollar is spent on imported goods and services (22%).<sup>16</sup> This implies that around 65 cents in each dollar of incremental income is spent on Australian made goods and services.

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<sup>14</sup> Author's calculations based on 8155.0 ABS Table 1, average wages and salaries by industry.

<sup>15</sup> Author's calculations based on 5206.0 ABS, Table 20.

<sup>16</sup> Author's calculations based on 5206.0 ABS, Table 3.



Based on this estimate, the \$33.7 billion in employment income generated by public schools and their supply chain translates into an additional \$21.9 billion in consumer spending on domestic goods and services. On the basis of average employment ratios across the broad range of produced goods and services that consumers purchase, this supports an additional 49,538 jobs. Note that this includes only first-round employment effects from this downstream consumer spending. Additional jobs will in turn be stimulated as those consumer goods and service industries increase their purchases from their own supply chains, but those impacts are not included here – and hence this is a conservative estimate of the total downstream activity supported by spending on Australian public schools.

## TOTAL EMPLOYMENT IMPACTS

Table 3 summarises the combined employment impacts arising from the direct production activity of public schools, their upstream linkages (through supply industries) and their downstream linkages (through the range of consumer goods and service industries). In total, some 362,372 positions are supported directly and indirectly, thanks to the economic stimulus provided by the activity of Australia’s public school system.

<b>Table 3</b>	
<b>Combined Upstream and Downstream Linkages</b>	
A. Direct employment (FTEs)	283,590
B. Employment in first-tier suppliers	29,244
C. Employment in first-round consumer spending	49,538
<b>Total Employment (A + B + C)</b>	<b>362,372</b>
Source: Author’s calculations based on ABS data.	

The ratio of total supported employment through all three of the channels indicated in Table 3, to the direct employment in the school system alone, is 1.28-to-1. In other words, for every 100 Australians employed directly in the public school system, there are another 28 Australians employed either in upstream supply industries selling output to public schools, or in downstream consumer industries dependent on spending by employed school workers (and workers in the supply chain). In this regard, government fiscal support for public schools matters to much more than just those

who work in schools. Close to 80,000 other Australians earn their livelihoods as a result of the activity of public schools.

Given the labour intensity of production in schools, It is reasonable to expect a similar scale of combined multiplier impact (1.28-to-1) on Australian GDP from public education spending.<sup>17</sup> In this case, the total GDP supported by the public school system is almost \$45 billion.

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<sup>17</sup> This is consistent with other published literature finding fiscal multiplier effects well above 1 for spending on education and other labour-intensive public services, including De Henau and Himmelweit (2020), De Ridder et al. (2020), Raga (2022), and Muratori et al. (2023). The study by McArthur-Gupta (2019) generates estimates of total multiplier impacts from public school spending of 1.3-to-1.

# Labour Market and Productivity Benefits

Perhaps the most important channel of economic benefits arising from the provision of public school education, is the lasting impact on the employment and earnings capacities of the students who are educated in public schools. High-quality primary and secondary schooling prepares children for their future lives by providing vital foundational skills required to participate in further education or training, enter the workforce, and participate wholly in community and democratic life (Productivity Commission, 2023).

A strong public school system underpins the skills and qualifications of Australia's workforce. It is at primary and secondary school that students acquire the foundations of learning in literacy, numeracy and digital skills which are prerequisites for higher levels of education – including university and vocational education. This generates powerful benefits in the form of better labour market outcomes. School graduates have higher labour market participation than those who leave school early; stronger employability; higher earnings; and higher productivity. These outcomes benefit employers as well as workers, through increased productivity and profit. They also generate increased revenues for governments.

The importance of quality public education will only grow in future decades with the changing skill requirements of the economy. The relative shrinkage of the number of jobs in the national economy which perform routine tasks means that most workers will need higher skill levels to adapt to new jobs with more complex demands. High-quality school education and achievement will be critical for reaping the economy-wide benefits of innovation and digital technologies. By 2026 more than nine in ten new jobs are projected to require post-school education (National Skills Commission, 2022).

Developing strong foundational skills at school is vital in this context. Young people who graduate from school without foundational skills will find it increasingly difficult to find secure work (Productivity Commission, 2023). These trends have prompted a growing recognition of the need to improve the quality of school education, and support stronger educational outcomes (including higher completion rates and stronger cognitive skills) among school students.

## PARTICIPATION AND EMPLOYABILITY

Education has a substantial impact on employment prospects. The skills, knowledge, and experience that people learn at public schools contribute directly to their employability and earnings capacity. For many, it also lays the groundwork for further post-secondary education, with further benefits for employability and earnings.

As summarised in Table 4, workers who complete Year 12 have a substantial advantage in all labour market outcomes, compared with those who did not complete high school. As of March 2023 (most recent data at time of writing), the labour force participation rate of workers with Year 12 as their highest education was 12.9 percentage points higher than those who did not complete secondary schooling. The unemployment rate of those with Year 12 was also significantly lower than for early school leavers: just 3.2% compared to 5.6% for those who did not finish high school. Thanks to both stronger labour force participation and lower unemployment, those who completed Year 12 enjoy a doubly strong advantage in overall employment: the employment rate (measuring employment as a share of the total working age population) was 13.9 percentage points higher than for those with incomplete schooling.

	Population (000)	Labour Force (000) and Participation Rate (%)	Employment (000) and Employment Rate (%)	Employment at Incomplete School Employment Rate (000)	Difference (000)
Year 12 Completion	1,782	1,444 (81.0%)	1,397 (78.4%)	1,213	184
Less than Year 12	1,540	1,049 (68.1%)	990 (64.3%)		

Source: Author's calculations based on ABS (2023) *Labour Force Australia, Detailed*, LQ1.

It is possible to estimate the increased participation and employability effects of completing secondary schooling in the following manner. Applying the employment rate of those who did not finish secondary education to the population of those with Year 12 as their highest education, it can be estimated that finishing school translates into additional employment for 184,000 Australians.

Not all that improvement in employability can be ascribed to the benefits of public school received by those who participated. In some cases, there are other underlying factors which explain both lower education and lower labour force participation and employability by varying groups of Australians, including individual demographic descriptors and geographic factors. Nevertheless, there is an aggregate employment advantage that is clearly associated with completing school.

This analysis does not consider another tier of benefits from school completion, in that it opens opportunity for subsequent higher education which in turn drives further employability advantages. Obviously, students must finish higher school before enrolling in university and many vocational programs. The credential and confidence they gain from high school completion sets the stage for that further education, which in turn could be considered to be partly the result of schooling. However, the analysis above only considers the direct labour market differences between those who complete Year 12 as their highest level of education, compared to those who do not complete high school.

## EARNINGS

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Higher levels of education not only correspond with higher levels of employment, but also higher wages. While those with post-secondary education enjoy the biggest wage premiums, even people who have finished Year 12 still enjoy higher wages than those who do not complete secondary schooling. For many workers, a longer time spent in education developing their human capital translates into a greater capacity to learn and solve complex problems, which are generally associated with productivity gains and occupational advantages in the labour market (Deloitte Access, 2016).<sup>18</sup> Many of the basic skills and foundational knowledge needed to complete tertiary education are developed in primary and secondary school.

Figure 4 illustrates the pattern of average annual income for 25 to 59 year olds, depending on educational level.<sup>19</sup> It is clear that higher educational qualifications lead to higher annual earnings. People with post-graduate or bachelor degrees tend to earn above average annual earnings for most of their working life, while people who did not finish secondary education are likely to earning below average annual income throughout their working life.

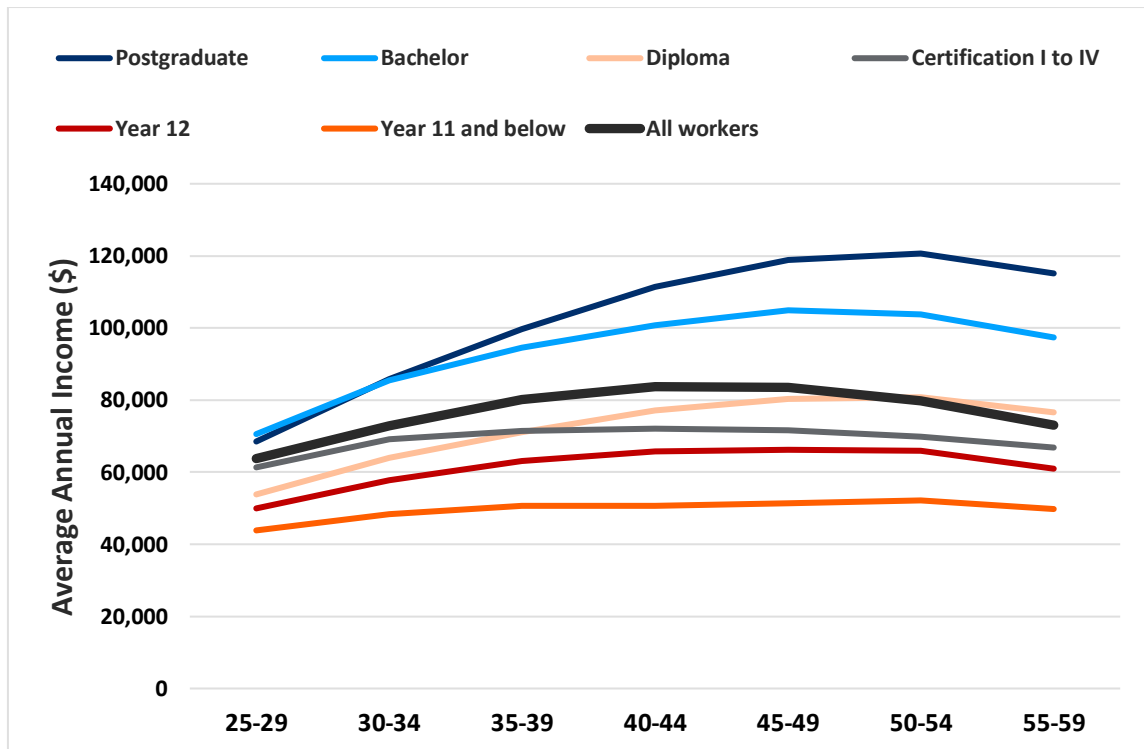
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<sup>18</sup> It must also be noted that the positive relationship between educational qualifications and wages is also highly dependent on demographic factors and is industry specific.

<sup>19</sup> Author's calculations based on 2021 census data. Income includes income from all sources not just wages and salaries.

In early working life, for employees between 25 and 30, average annual income across education levels ranges between \$43,800 and \$70,000. Those who did not complete Year 12 on average earn the least, and those with a bachelor degree earn the most. After age 30 those with postgraduate degrees earn the most, and workers with diplomas come to earn more than those with Certificates I to IV. However, regardless of age, those who do not finish secondary school earn the least.

**Figure 4.: Average Annual Employment Income by Educational Level, ages 25 to 59, 2021**



Source: Author’s calculations based on ABS (2021) *2021 Census – employment, income and education*.

The earnings gap between school early leavers and better educated workers is widest from ages 45 to 55. Workers with higher credentials enjoy a steeper income growth trajectory as they advance through their professional careers. Average incomes of people with postgraduate degrees increase by 68% between the ages of 25 and 59, whereas people who did not finish Year 12 experience only a 13.5% increase in their incomes over this long stretch of their working lives.

The earnings advantage of finishing high school can be estimated based on average annual earnings for people who finished Year 12, compared to those with Year 11 or below. This indicates an average earnings premium (over all age groups) of around \$10,700 per year. That suggests a 21.4% premium for those who finished Year 12, but

did not go on to further study. This is broadly consistent with the figures identified in other studies (such as Wilkins and Lass, 2018).<sup>20</sup>

Across the full population of employed workers with Year 12 education (1.4 million Australians as of March 2023), this wage premium for employed workers translates into incremental aggregate earnings of \$14.9 billion per year. That figure, however, does not account for the impact of improved employability for Year 12 graduates, relative to early school leavers. Total labour compensation for the school completers group is \$27.5 billion greater than if they had similar employment rates and earnings as early leavers. Of course, not all of that aggregate gain is attributable to public schools: some workers with just Year 12 graduation attended private schools (although a larger proportion of private school graduates goes on to higher education than is the case for public school graduates). Even adjusting the aggregate earnings improvement for Year 12 graduates for the proportion of current workers with Year 12 education that attended public school (likely in excess of 80%<sup>21</sup>), the extra earnings received by high school graduates (compared to early leavers) represents a flow of income equal to at least \$22 billion per year, or almost 1% of national GDP. The additional consumer spending power facilitated by those superior earnings in turn supports additional downstream economic activity in Australia (analogous to the induced downstream benefits described above).

Keep in mind that completing high school is a stepping stone for further education, which in turn drives even greater employment earnings over graduates' working life. Students who complete Year 12 gain both the credential and in many cases the confidence to then continue on to further education – with further positive impact on their average earnings. This is a potentially important second tier of impact from higher school completion, but we do not consider it in this analysis. Instead, we limit our estimate to the direct wage premium associated solely with completing Year 12; in this regard, too, the estimates reported here should be considered conservative.

The 21.4% wage premium for finishing Year 12 can be aggregated over a lifetime to estimate the additional life-time earnings of completing school level education. We estimate lifetime earnings increments on the basis of annual employee income by five-

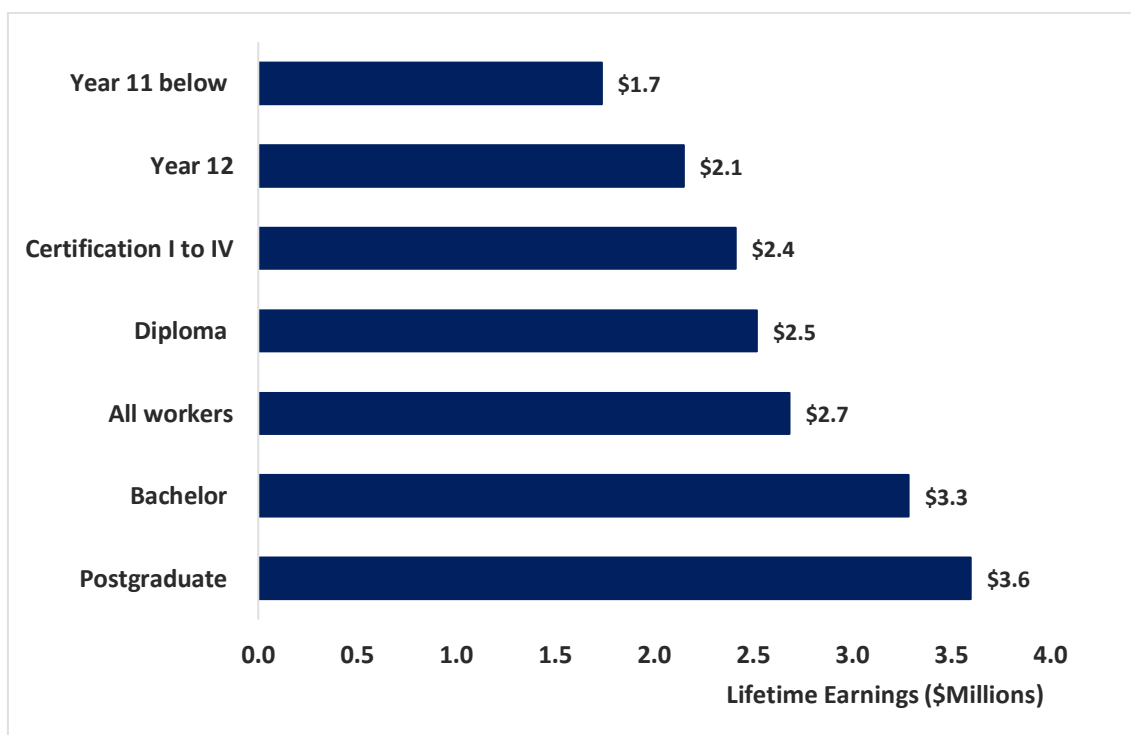
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<sup>20</sup> Wilkins and Lass concluded that completion of high school is associated with a 17.2% increase in earnings for men and a 19.4% increase in earnings for women.

<sup>21</sup> ABS enrolment data indicates that an average of 72% of school graduates since 1960 attended public schools; we can assume that the public school proportion of those who finished Year 12 but did not go to further education is significantly higher.

year age groups for people aged 25-59 years, expressed in 2021 dollar terms.<sup>22</sup> The value of completing school is striking: a person with Year 12 as their highest education will earn \$414,000 more over their lifetime than someone who has not completed Year 12. That is a 24% increase in lifetime earnings (see Figure 5). This estimate captures only the direct impact of higher earnings for employed workers with Year 12 completion; it does not include the greater likelihood that those workers will participate in the labour force and be employed, and hence should also be considered conservative.

**Figure 5: Lifetime employee income by educational attainment, ages 25-29, 2021**



Source: Author's calculations based on ABS (2021) *2021 Census – employment, income and education*

Further education contributes even more to lifetime earnings. A person with a postgraduate degree will earn \$3.6 million over their lifetime, almost 2 times the projected lifetime earnings (\$1.7 million) of someone who did not complete secondary school. Again, we do not consider the further enhancement to lifetime incomes of workers who then go on to post-secondary education or training.

<sup>22</sup> Postgraduate includes postgraduate degree, graduate diploma and graduate certificate. Diploma includes advanced diploma. Lifetime earnings estimates are derived from all employees, including those working part-time.



It is important to note that while educational attainment is one of the primary drivers of earnings, other factors are also influential including years of experience, the type of occupation and industry or work, union representation, and other individual and sectoral characteristics.

## PRODUCTIVITY

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The higher wages received by workers who finish Year 12, and are equipped with quality public schooling, are underpinned by their higher productivity resulting from that education. Ample research confirms that education is an important driver of productivity and economic growth (OECD, 2021; Productivity Commission, 2023).

Not all productivity growth is received by workers in the form of higher wages (via the labour compensation share of total income). An additional share of incremental output per worker is paid to other factors of production, including via increased business profits and mixed income. Therefore, some of the economic benefits arising from the productivity of public school graduates are captured in higher profits at the businesses they work for.

In fact, for decades in Australia, productivity growth has usually outstripped real wage growth – in part due to workers’ declining collective bargaining power. The result is that the labour share of national income (wages, bonuses, and superannuation entitlements) has declined from peak levels reached in the mid-1970s. According to ABS data, the share of labour compensation in total GDP in 2022 reached a post-war low of 45.1%.<sup>23</sup>

It is possible to estimate the value of productivity benefits generated by public school Year 12 graduated workers but captured by businesses, by treating the wage premium for public school graduates as the labour share of productivity benefits of that education. This assumes that business captures a similar proportional profit share of total output (flowing to both incorporated and unincorporated firms), and governments receive a similar share in indirect taxes, as is the case for overall GDP.

Thus, the combined additional income generated by the enhanced productivity of Year 12 graduates (compared to early school leavers) is more than twice as large as the amount paid to workers in higher wages. As noted above, we estimate the aggregate incremental earnings of public school Year 12 completers as at least \$22 billion per year. This corresponds to total incremental GDP produced by those workers of almost \$50 billion – reflecting both higher employment and higher productivity. The rest of that sum is received by corporations, small businesses, and government in the form of

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<sup>23</sup> Authors’ calculations from ABS Australian National Accounts, Table 7.

other income flows (corporate surpluses, mixed income, and indirect taxes). That total GDP impact is equal to 2% of Australian GDP in 2022.

## COMBINED BENEFITS

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In sum, students who complete Year 12 at public schools move into the labour force with better employment prospects and more skills. This drives higher earnings for these workers compared to those who do not complete secondary school. Broader benefits are also generated in the form of higher productivity, higher business profits and stronger tax revenues for governments.

<b>Table 5 Public School Graduates' Labour Market and Productivity Benefits</b>	
Increased Employability	184,000 jobs
School Graduate Earnings Premium	\$22 billion
Productivity Benefits to Employers	\$27 billion
Total GDP Gain	\$49 billion
Source: Author's calculations as described in text.	

Table 5 provides a summary of the annual benefits generated through the superior employment, productivity, and earnings of Year 12-graduating public school-trained workers in Australia. The total combined annual increment in GDP is \$49 billion. This is a conservative estimate, since secondary school completion provides graduates with foundational skills to enter post-school qualifications (such as vocational and university education). In turn, these qualifications attract even higher wage premiums, and support even stronger participation and employment outcomes.

# Broader Fiscal and Social Benefits

High-quality, well-resourced public school education also supports a suite of wider fiscal and social benefits. As reviewed in the literature survey above, there is abundant evidence that people with more education tend to experience better health outcomes, are less likely to depend on income supports and other social programs through their lives, and are less likely to have interaction with the criminal justice system. As health, welfare, and criminal justice costs are covered by state, territory, and federal budgets, the savings derived from a well-educated working population benefit governments and the broader population of taxpayers – in addition to the direct benefits of improved health and security for high school graduates.

There are many other, broader social benefits supported by high-quality public education: including greater social cohesion, less inequality, and stronger democratic participation. These social and fiscal benefits could be even more significant. It will require ongoing research to better understand and quantify them.

These broader social and fiscal benefits of improved schooling are most evident for students from lower socio-economic families, and this constitutes another important channel through which improved public schooling improves social equality. Public school students are more likely to come from lower socio-economic backgrounds compared with private schools.

The importance of quality public schooling is critical for students from Aboriginal and Torres Strait Island communities. School completion rates are significantly lower for Indigenous students than non-Indigenous students. In 2021, 68% of young Indigenous adults (aged 20 to 24) had completed high school, compared to 91% of non-Indigenous people in the same age group (Australian Institute of Health and Welfare, 2023). That 23-point gap in completion cascades into continuing disadvantage in employment, incomes, and health throughout Indigenous peoples' lives, with negative consequences for national economic performance as well. In 2022, 82% of Aboriginal and Torres Strait Island students attended public schools.<sup>24</sup> Over 8% of all students in public schools are Indigenous, compared to 3% in private schools. Well-resourced public schools are thus essential for improving school attainment among Indigenous youth. Research has pointed to the need for better resourcing in schools including facilities, teachers, and tailored supports such as individual tutoring and mentoring in

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<sup>24</sup> Productivity Commission (2023), Table 4A.5.

boosting school completion among Indigenous youth (Australian Institute of Health and Welfare, 2023).

Understandably, attempting to quantify these wide-ranging and long-lasting benefits is challenging, given their heterogeneous nature and long-run effect. Nevertheless, rigorous research (some representative examples of which were cited above) confirms that these benefits are both substantial and verifiable. In the following section of this paper, we broadly quantify three specific channels of broader spillover benefits (on income support payments, health costs, and crime and justice expenses) held to arise from improved public school funding, on the basis of findings in the broader literature surveyed above.

# Benefits of Adequate Funding of Public Schools

The Schooling Resource Standard (SRS) framework estimates the scale of resources required for schools to meet a benchmark of student achievement, based on recommendations in the 2011 review of school funding led by David Gonski (Gonski et al., 2011). That benchmark is set to allow every school to assure that at least 80% of their students meet basic standards of literacy and numeracy, sufficient to fully participate in economic, social and democratic life.<sup>25</sup>

Analysis by Rorris (2020) shows that while private schools are resourced (including through the public subsidies they receive) well beyond the amounts required to meet the SRS, public schools are underfunded by a considerable margin. Resources currently committed by state and Commonwealth government fall short of public schools' SRS requirements by an estimated total of \$6.6 billion in 2023 (Rorris, 2020). That amount includes \$2.1 billion in foregone funding resulting from an allowance to state governments for a 4% Capital Depreciation Tax. This notional 'tax' (which does not apply to private schools) was a concession to state governments in previous fiscal negotiations. Purportedly it compensates state governments for the capital they invested in schools; in practice, it simply diverts an additional margin of funding away from the concrete priorities of teaching and support for students.

This funding shortfall prevents public schools from providing the teaching and other supports essential if the goal of basic skills proficiency for 80% or more of students is to be achieved. It must be stressed that this 80% benchmark (and corresponding SRS funding budgets) does not constitute a utopian best-case scenario. To the contrary, it reflects the judgment of educators that this is the minimum level of student achievement essential for a modern industrial country to attain and preserve the basic requirements of economic and social success. OECD and other international data confirm that many other industrial countries achieve basic skills metrics superior to that 80% benchmark (with consequent benefits for their economic performance), and so the SRS must be understood as a relatively modest commitment.

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<sup>25</sup> That standard of ensuring basic skills is similar to the benchmarks postulated by Hanushek and Woessmann (2015) in their OECD research on the links between educational achievement and economic growth.

Research strongly confirms that expanded fiscal support for public schools will indeed translate into improved student and educational outcomes. Concrete improvements such as smaller class sizes, greater availability of support staff and specialists, better physical stock and equipment, and other resource additions will enhance the quality of education, allow for more tailored supports for students who need them, and result in improved outcomes (measured by test scores, completion rates, and other indicators). Baker (2016) provides a broad survey of published literature affirming the strong connection between better funding and better scholastic outcomes. Krueger and Whitmore (2000) used innovative quantitative techniques to confirm the chain of causation between better funding, smaller class sizes, and improved outcomes for students. Jackson, Johnson and Persico (2016) estimated that a 10% increase in school funding generated results equivalent to an extra 0.27 years of schooling per student, with demonstrable impacts on students’ subsequent employment and wage outcomes (especially among students from poorer families). Cobbold (2019) provides a bibliography of research confirming concrete improvements in student outcomes resulting from better funding.

The correlation between per capita funding of different classes of schools in Australia (public, Catholic, independent) and their differential completion rates (see Table 6) adds further credence to the conclusion that better funding will indeed have a strong and positive impact on educational attainment.

<b>Table 6</b>		
<b>School Funding and High-School Retention</b>		
<b>By Class of School, 2021</b>		
<b>Class of School</b>	<b>Total Gross Funding per Student</b>	<b>Apparent Year 10-12 Retention</b>
Public	\$16,739	77.2%
Catholic	\$19,075	85.4%
Independent / Private	\$24,449	90.8%
Source: ACARA (2022), ABS Schools Table 64a.		

Complaints by fiscal hawks that better funding for schools amounts to just “throwing money” at the problem are firmly refuted by this evidence. Yes, those funds must be well-managed and administrators and principals must be accountable for their performance. But underfunding of public schools is clearly a key factor behind Australia’s deteriorating education outcomes.

“Recent research into the causal effects of public school spending on student outcomes is compelling and, in general, consistent in showing that large permanent changes in public school funding can impact student outcomes over the medium and long terms.” (McArthur-Gupta, p.11)

Fully meeting the SRS for public schools (including offsetting the diversion of teaching resources through the depreciation tax) implies an increase in total funding for public schools of 15%, compared to base-case total revenues of public schools. A sustained commitment to full funding of the public school system will produce significant economic, social and fiscal benefits for Australia. These include:

1. A proportionate increase in the current economic footprint of the education sector in Australia (including direct, indirect and induced employment and income effects).
2. An expansion over time (as high school completion rates rise, and the labour market capabilities of graduating students improve) in the wage and productivity benefits associated with a better-educated workforce.
3. Broader social, health, and fiscal spillover benefits enjoyed throughout society (including by governments themselves) as a result of higher incomes, higher employment, better health, better social inclusion, and reduced crime.

This section of the report provides broad quantitative estimates of these three classes of benefits.

## **AN EXPANDED ECONOMIC FOOTPRINT**

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A 15% improvement in funding for public schools would support increased employment and retention of teachers, reduced class sizes, expanded supplementary supports (such as counselling and extra-curricular activities), and all the other dimensions of high-quality education. Earlier sections of this report described the current economic footprint of public schools, including the number of current employees, the resulting indirect demand for purchases from businesses which provide inputs and materials to the education sector, and the induced demand for the full range of consumer goods and services arising from the additional jobs and income enjoyed as a result of expanded direct and indirect employment.

Using the same analysis and parameters, we can simulate the economic impact of a \$6.6 billion annual increment in public school funding, experienced across those same three broad channels: direct, indirect, and induced. We assume that the proportional allocation of increased spending (across teacher compensation, other staff

compensation, and inputs and facilities) is similar to the starting proportions, and that increased labour compensation is reflected proportionately in increased employment (to pursue the goals of smaller class sizes and great availability of supplementary supports for students). This significant increment in new public education funding results in significant growth in all dimensions of the public school system’s economic footprint. These impacts are summarised in Table 7.

<b>Table 7</b>		
<b>Expanded Economic Footprint from Full Funding</b>		
<b>Expanded Funding</b>		
		<b>\$billion</b>
Increase in Funding to Meet SRS	15%	\$6.6
<b>Expanded Economic Footprint</b>		
	<b>Jobs</b>	<b>GDP (\$billion)</b>
Direct Activity in Education Sector	42,539	\$5.3
Indirect Activity (Upstream Suppliers)	4,387	\$0.5
Induced Activity (Downstream Spending)	7,431	\$0.9
<b>Total</b>	<b>54,356</b>	<b>\$6.7</b>
Source: Calculations from Tables 1-3.		

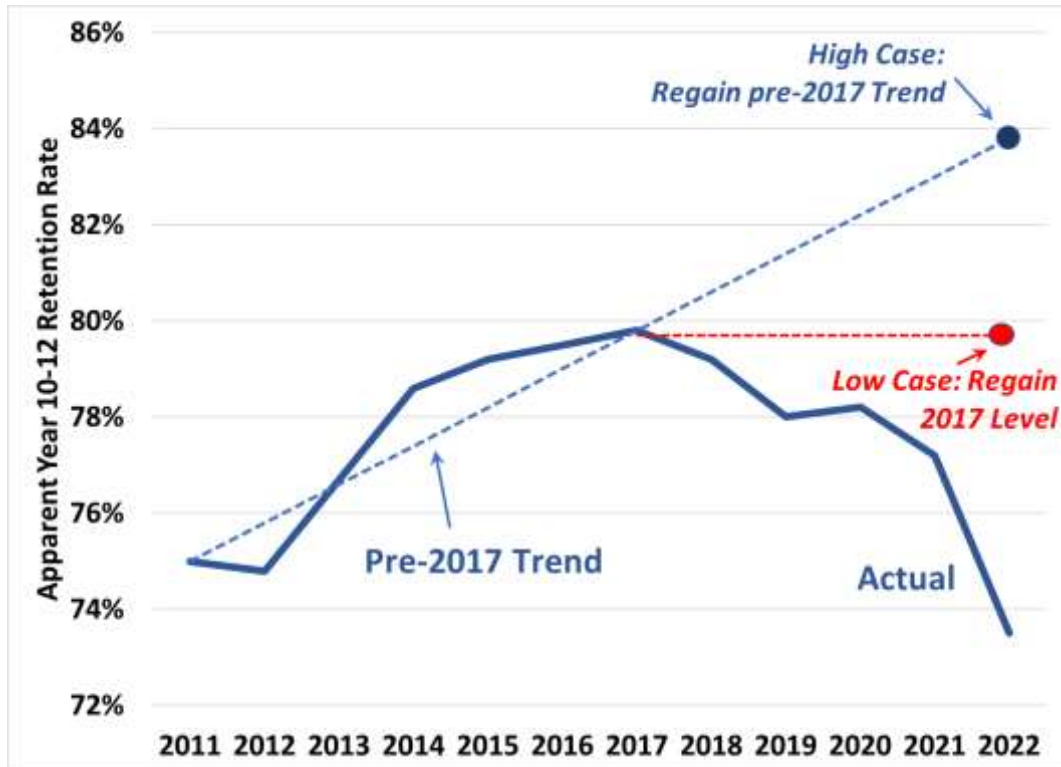
## **IMPROVED WAGES, PRODUCTIVITY AND GDP**

Another important category of economic benefits arising from adequate school funding is the resulting improvement in employability and earnings capacity of high school graduates. As documented above, employed workers whose highest completed education is Year 12 currently earn, on average, 21.4% more than school leavers who did not finish Year 12. Combined with the greater employability of high school graduates, this translates into an aggregate increase in earnings of \$27.5 billion per year across the labour market. Recall that this does not consider the additional earnings upside received by high school graduates who then go on to higher education and training; it only captures the income benefits of reaching Year 12. Thanks to the support they received to finish high school, some of those additional school completers would then opt to continue on to university and vocational training. It could be argued that a share of those resulting further income gains should be



attributed to the value of finishing high school; by excluding those higher-order effects, our estimate is conservative.

**Figure 6. Low and High Scenarios of Improved School Completion**



Source: ABS Schools (2022) and authors' calculations as described in text.

In simulating the labour market and broader economic benefits of stronger education funding, we consider two cases (depicted in Figure 6). A low case assumes that by improving school resourcing in line with the SRS, public schools are able to reverse the decline in high school completion rates that has occurred since 2017. As noted earlier, ABS data reports that the apparent high school retention rate<sup>26</sup> for public high schools in 2022 (73.5%) was several percentage points lower than in 2017, a worrisome sign of the financial and resourcing stresses facing schools. If meeting SRS funding allows

<sup>26</sup> See ABS Schools 2022, Table 64a, <https://www.abs.gov.au/statistics/people/education/schools/2022>. 'Apparent retention rates' are the aggregate proportion of the population of high school age children who successfully stay in school from Year 10 through Year 12. It differs from the 'actual' rate that would result from longitudinal data on the progress of each individual student. Retention rates are 'capped', meaning that retention rates for no cohort can be higher than 100% (which can occur due to measurement problems, especially in smaller populations).

public schools to regain their peak 2017 completion rate, this suggests an increase in the weighted average national completion rate of 3.8 percentage points.<sup>27</sup>

A more hopeful scenario would see enhanced funding for public schools lead to further increases in school completion rates over time. Indeed, steady progress in lifting public school completion rates had been demonstrated for many years until 2017. If that pre-2017 trend of rising high school completion had continued, rather than being reversed, the public school completion rate would have reached over 83 percent by 2022 (roughly matching the peak national completion rate recorded for all high schools in Australia in 2017). This in turn would lift the national average completion rate by 6.2 percentage points.<sup>28</sup> Therefore, we consider these two cases (restoring public school completion to its 2017 level, and restoring and catching up to the pre-2017 trend of rising school completion) as low and high case scenarios, respectively, in the simulations reported below.

At present, there are an average of 320,000 students in each school-age cohort in Australia.<sup>29</sup> These two cases thus imply increases in the number of Year 12 completions of about 12,000 in the low case (with a 3.8 percentage point increase in the completion rate) and almost 20,000 in the high case (6.2 point increase).

According to the analysis mapped out above, either of these scenarios would then lead to a substantial increase in earning capacity across the Australian labour market. Having between 3.8% and 6.2% more of each cohort of labour market entrants completing Year 12 (rather than leaving school early) sparks a significant and cumulating impact on average earnings. In the first year of this transition, the 21.4% wage premium applied to these incoming labour market entrants supports higher average earnings of \$10,670 per year per person. In the first year alone, that translates into additional aggregate labour income of between \$129 million and \$211 million. That wage premium grows in subsequent years, as high school graduates enjoy wages that rise much faster than their early-leaving counterparts.

Over time, as initial entrants move along their career trajectories, followed by other cohorts (also containing a larger share of school completers), the aggregate wage advantage cumulates. After 20 years, the cumulative impact of increased school completion generates an annual flow of additional wage income equal to between

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<sup>27</sup> This reflects the increase in the weighted average completion rate for all schools, applying the same implicit weightings of public and non-government schools implied in the ABS 2021-22 actual data. The simulations assume no change in completion rates at non-government schools.

<sup>28</sup> Again, these simulations assume no change in completion rates in private schools.

<sup>29</sup> Calculations from ABS National State and Territory Population, Table 59.

\$2.6 billion (low case) and \$4.2 billion (high case).<sup>30</sup> These impacts grow further over time.

Keep in mind, also, that higher earnings constitute only a portion of the total incremental gains produced by more capable, productive, and healthy workers. Following the logic outlined above (and applied similarly by Holder and Zhang, 2018, among others), the estimated earnings premia from better schooling must be escalated to reflect the greater incomes captured by other factors of production. Based on the aggregate labour share of GDP in 2022 of 45.1%, this implies parallel gains in profit (to incorporated businesses) and mixed income (to small businesses), with an amplified effect on overall GDP.

The likely gains to wages and total GDP of the gains in high school completion projected above are summarised in Table 8.

<b>Table 8</b>		
<b>Labour Market and Productivity Effects from Full SRS Funding</b>		
	<b>Low Case</b>	<b>High Case</b>
Assumed Increase in School Completion Rate	3.8% pts <sup>1</sup>	6.2% pts <sup>2</sup>
<b>Wage Effects</b>		
Increased Income per Annual Cohort	\$129 mil	\$211 mil
Cumulating Annual Increase After 20 Years	\$2.6 bil	\$4.2 bil
<b>GDP Effects<sup>3</sup></b>		
Increased GDP per Annual Cohort	\$286 mil	\$467 mil
Cumulating Annual Increase After 20 Years	\$5.7 bil	\$9.3 bil
Source: Authors' calculations as described in text.		
1. Assumes increase in high school completion rate in public schools to national avg.		
2. Assumes increase in high school completion rate in public schools to non-government school avg.		
3. Applies average labour compensation share of GDP for Australia in 2022 (45.1%).		

<sup>30</sup> These figures are expressed in 2022 dollar terms, since no inflation parameters have been applied in the analysis; in nominal terms, the wage increments will be much larger.

## SAVINGS ON WELFARE, HEALTH AND JUSTICE COSTS

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Another important but hard-to-quantify channel of benefits from stronger school funding, and subsequent improvements in student achievement and capabilities, consists of the various positive effects on societal well-being from a more educated, engaged population. These spillover benefits from stronger educational outcomes are diverse, multi-faceted, and long-term in nature – which makes them challenging to quantify. That does not mean they are unimportant, however, and they must be considered in any full social cost-benefit analysis of the merits of improved funding for public schools.

We reviewed above several studies of the economic benefits of public education. We noted two studies in particular that attempted a partial quantification of the broader impacts of stronger education outcomes on three particular social outcomes: use of income supports, health outcomes and costs, and the costs associated with crime, policing, and justice.

In the Australian context, Lamb and Huo's breakdown (2017) of these outcomes provides a useful comparator. Their accounting included some effects (such as higher wages) that have already been included in our analysis above; to avoid double-counting, those will be excluded here. They also estimated the costs of early school leaving for welfare costs, crime and justice expenses, and public health care. They estimated these to sum to \$98.2 million (in discounted 2014 present value terms) for each entering cohort of school completers. They separately estimated another external social cost of higher crime resulting from early school leaving (costs to victims of crime, damage, etc.), equal to another \$16.9 million per year. That makes for total cost per cohort across these three categories of \$114.1 million annually. Over a 20-year period (with successive cohorts gradually populating the whole labour force), that would cumulate to an annual fiscal cost of \$2.3 billion per year,<sup>31</sup> equivalent to 0.14% of Australian GDP in 2014 (the base year for the simulation). Those are the costs of all early school leaving. We have hypothesised that funding public schools in line with the SRS benchmarks would improve high school completion rates by 3.6 to 6.2 percentage points – equivalent to a decline in early leaving of between 20% and 30%. The proportional scale of estimated spillover fiscal savings from full SRS funding would thus fall between 0.025% and 0.04% of national GDP.

In the Canadian context, McArthur-Gupta (2019) used similar methodology to estimate the fiscal savings of reduced welfare, health, and criminal justice costs associated with

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<sup>31</sup> Measured in 2014 dollar terms.

higher high school completion rates. She assumed a 3.7 percentage point increase in high school completion rates in Ontario as a result of enhanced public school funding (similar to the low case scenario described above). The combined fiscal savings across those three specific areas of public services cumulated to \$3.5 billion per year after 20 years (as successive cohorts of better qualified high school completers entered the labour market). That is equivalent to 0.4% of Ontario GDP in 2019 (the base year for the simulation). In this case, also, we scale the estimated fiscal benefits to correspond to the two cases of reduced school leaving under full SRS funding (3.8 and 6.2 percentage points, respectively). This in turn produces low and high case estimates of fiscal savings on welfare, health, and criminal justice expenses of between 0.4% and 0.65% of GDP. The Canadian estimates from McArthur-Gupta (2019) are larger than the Australian estimates from Lamb and Huo (2017), reflecting methodological differences in the two studies and a more expansive inclusion of health costs in the Canadian study.<sup>32</sup>

We use these two studies to broadly bracket our own estimates of the broader social spillover savings from improved educational outcomes under a better-funded public school system. The results are summarised in Table 9.

<b>Table 9</b>				
<b>Broader Social and Fiscal Effects from Full SRS Funding</b>				
	<b>Based on Lamb and Huo (2017)</b>		<b>Based on McArthur-Gupta (2019)</b>	
	<b>Low Case</b>	<b>High Case</b>	<b>Low Case</b>	<b>High Case</b>
<b>Cumulating Annual Savings After 20 Years (% GDP)</b>	0.025%	0.042%	0.40%	0.65%

Source: Calculations from sources as described in text.

## COMBINED EFFECTS OF ADEQUATE PUBLIC SCHOOL FUNDING

Across these three broad streams of impact, it is clear that the provision of adequate funding for public schools in Australia, enabling them to attain the minimal goal of equipping 80% of graduates with basic literacy and numeracy skills (essential for full

<sup>32</sup> McArthur-Gupta considered the increase in overall public health costs associated with lower income levels for school leavers, while Lamb and Huo considered only direct impacts on use of public hospitals and emergency departments.

economic and social participation), will generate substantial, multi-faceted and sustained economic and fiscal benefits. The most direct beneficiaries of this critical reform in school funding will be the tens of thousands of students, disproportionately from disadvantaged socio-economic backgrounds, whose opportunity for successful lives will be enhanced through decent school opportunities. They will access improved employment and earnings opportunities, and also will be less exposed to risks of health, welfare reliance, and crime. But the benefits of adequate school funding are shared broadly across society. Employers and investors benefit from improved labour supply and productivity. Communities benefit from stronger inclusion and cohesion. And government benefits from tens of billions of dollars in incremental tax revenue, and many billions in reduced fiscal costs.

Table 10 summarises the benefits across the three categories of impacts described above. The results are organised into the low case and high case scenarios defined earlier.<sup>33</sup> Given time for increased school completion to filter through the broader labour market and economy, the combined benefits of stronger school achievement will eventually be equivalent to between 0.73% and 1.01% of national GDP. In terms of 2022 price levels and economic scale, this amounts to an increment in national GDP of between \$17.8 and \$24.7 billion. The benefits resulting from improved public school funding, therefore, would be two to four times as large as the cost of enhanced funding to meet the SRS.

<b>Table 10</b>		
<b>Combined Economic Benefits of Full SRS Funding</b>		
	<b>Low Case</b>	<b>High Case</b>
Expanded Economic Footprint	0.28%	
Labour Market and Productivity Effects	0.23%	0.38%
Broader Social and Fiscal Savings	0.21%	0.35%
Total Effects	0.73%	1.01%
<b>Equivalent in \$bil (2022 GDP Benchmark)</b>	<b>\$17.8</b>	<b>\$24.7</b>
Source: Calculations from sources as described in text.		
1. Average of the estimates based on Lamb and Huo (2017) and McArthur-Gupta (2019) for low and high cases respectively.		

<sup>33</sup> The direct economic footprint category does not depend on assumptions about changes in high school completion rates, and hence there is only one case.

## FISCAL CONSIDERATIONS FOR GOVERNMENT

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An implication of these simulations of the broader economic effects of improved education funding is that there will be a substantial fiscal payback to governments from ensuring that public schools are able to meet basic benchmarks of student achievement. Government budgets are strengthened directly, dollar for dollar, by the fiscal savings associated with the broader spillover benefits identified in the third category of Table 10. But governments also benefit from the increases in national GDP arising from the first two categories in Table 10: new activity driven immediately by increased employment and value-added in the education sector (including its suppliers, and downstream consumer spending impacts), and then over time by the increased productivity and earning capacity of future cohorts of school completers.

The overall revenue of all levels of government in Australia amounted to 34% of national GDP in 2022: close to three-quarters of that was collected by the Commonwealth government, and the rest (net of transfers from the Commonwealth) by state and local governments. Over one-third of incremental GDP resulting from improved school funding and student achievement therefore is returned to government. The immediate return to government from its own direct expenditure thus offsets one-third of the expense of lifting school funding to meet the SRS. But the longer-run revenue gains driven by improved employment and earnings of school completers, supplemented by reduced expenditure for social welfare, health, and criminal justice expenses, together offset most or all of the increased fiscal support provided to public schools.

Table 11 summarises these fiscal paybacks to government from full SRS funding. Over one-third of the initial outlay of \$6.6 billion is quickly returned to the government sector in incremental revenues generated solely by the increased direct, indirect, and induced effects of growth in public schooling. More is eventually returned to government through revenues arising from higher productivity and earnings of the greater complement of Year 12 graduates, and broader social and fiscal savings arising from improved school attainment.

<b>Table 11</b>		
<b>Fiscal Implications for Government</b>		
<b>Expenses</b>		
Direct Spending to Address SRS Shortfall	\$6.6 billion	0.27% GDP <sup>1</sup>
<b>Revenues and Savings (%GDP)</b>		
	Low Case	High Case
Expanded Economic Footprint	0.10%	
Labour Market and Productivity Effects	0.09%	0.17%
Broader Social and Fiscal Effects	0.21%	0.35%
Total Effects	0.39%	0.57%
Equivalent in \$bil (2022 GDP Benchmark)	\$9.5	\$14.0
<b>Net Budget Impact (\$bil)</b>	<b>+\$2.9</b>	<b>+\$7.4</b>
Source: Calculations from sources as described in text.		
1. Relative to 2022 GDP.		

In the low-case scenario, after 20 years of improved school attainment and completion, total fiscal gains (both incremental revenues and reduced social expenditures) generated by improved school attainment and completion are estimated to reach \$9.5 billion (in 2022 dollar terms). That is more than the annual incremental expense required to meet the SRS. Over time, those benefits become even larger (as continuing cohorts of better-educated school graduates continue to lift average educational attainment across the labour market). The net long-run budgetary impact of lifting funding to meet the SRS is thus positive.

In the high-case scenario, in which school completion rates regain their pre-2017 trajectory, the combination of incremental revenues and savings on social expenses considerably exceed the government's outlays (by over \$7 billion per year after 20 years). In this case, increased funding to be consistent with the SRS (and the resulting gains in school completion) will significantly improve the overall fiscal balance of the government sector.

The timing of these budgetary impacts differs between the expenditure and revenue sides of the government's ledger. The investments in improved public school funding must occur up-front. Some of the resulting fiscal returns are experienced quickly: in particular, the new revenues arising from increased macroeconomic activity arising from better public school funding (both directly, and indirectly through upstream and



downstream spending effects). Fiscal gains from labour market outcomes and social program savings, in contrast, are achieved gradually over time – as each year’s increased complement of graduates facilitates an incremental turnover in the overall labour market.

By the fifth year, over 40% of that fiscal gain (worth some \$4 to 6 billion per year) will be received by government (including all of the macroeconomic benefits, and one-quarter of the labour market and social benefits). By the tenth year, over 60% would be flowing to government. This suggests that if governments had acted quickly to fund public schools in line with the SRS a decade ago when the system was first agreed (in 2012), then a majority share of the fiscal benefits described in Table 11 (worth between \$6 and \$9 billion) would already be flowing back to the government sector – already offsetting most or all of the cost of incremental SRS-compatible funding. This represents the large opportunity cost to government of its failure to quickly meet the agreed SRS. Moreover, the longer government waits to achieve SRS funding targets, the longer are the flow-back fiscal benefits delayed – and, more importantly, the worse does the emerging crisis in Australian education become.<sup>34</sup>

One complicating factor in the fiscal analysis above is the division of revenues and expenses between the federal and state governments. While the overall fiscal return to government from better school attainment is substantial, likely more than offsetting the investments required to achieve those stronger educational outcomes, the balance of fiscal gains and expenses differs between levels of government: the majority of school funding is undertaken by state governments, but the majority of tax revenues generated by a stronger economy is collected by the federal government. Mobilising better fiscal support for public schools, motivated in part by the economic and fiscal benefits that will entail, thus requires effective negotiation of fiscal sharing between the two levels of government. More specifically, the federal government has the most to gain from the improved macroeconomic, labour market, and social outcomes

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<sup>34</sup> Given the deferred time-frame for many of the fiscal benefits described above (in contrast to the upfront increase in expenditures for schools required to achieve those benefits), some researchers might suggest the application of discounted cash flow analysis in order to compare the flows of expenses and revenues in present-value terms (this approach is pursued, for example, by Del Rio et al., 2023). This assumes that the motive for a policy choice is to maximise the present value of the government’s fiscal position. Others (present authors included) would criticise the application of discounted cash flow analysis as a central criteria for evaluating human, social, and welfare programs, on the assumption that the government’s mandate is to maximise the well-being of the community, not the present value of its fiscal flows. Our point in showing that upfront expenses on public school quality are ultimately returned to government is to highlight the fiscal benefits of a healthier, more productive, more equal society – not to suggest that this is a good strategy for the government to maximise its fiscal balance.

described above, and hence should be prepared to make a more significant contribution to adequate resourcing of public schools.

# Conclusion

This report has described and quantified the macroeconomic, labour market, and social impacts of public schools in Australia. Public schools are a major driver of current employment and economic activity: both directly through school services themselves, and indirectly through upstream and downstream boosts to supply chains and consumer goods and services industries. Together this economic footprint adds \$45 billion per year to Australia's GDP. The superior employability and earnings potential of school graduates also generates enormous gains in the labour market, worth close to another \$50 billion per year of GDP. Finally, the spillover benefits of greater income security, better health, and reduced crime arising from school completion drive additional benefits that are substantial in both economic and human terms.

Chronic underfunding of public education is contributing to an erosion of student achievement, with negative implications for future personal, social, and economic well-being. Meeting the funding requirements of the SRS framework, specified over a decade ago, would result in a 15% improvement in public school funding. We have generated low-case and high-case simulations of the effects of that improved funding on school completion, with consequent economic, labour market, and fiscal benefits. The resulting gains would eventually be two to four times larger than the annual \$6.6 billion cost of fully meeting the SRS. And in turn, substantial fiscal benefits will flow back to government, offsetting the additional spending required to fully meet the SRS.

The methodology we used to estimate these economic and fiscal gains has been conservative. We measured only the benefits generated by supporting more students to finish Year 12, rather than leaving school early. We do not include the additional benefits generated by the portion of those students who would then go on to higher education (with amplified impact on their subsequent employment, earnings, and well-being). The impacts on GDP reported above are smaller than those in many other published studies (such as Holden and Zhang 2017 or Hanushek and Woessmann 2015). As noted by Deloitte (2016), other research has found that cross-country comparisons linking economic growth and other outcomes to improved school attainment generate larger estimated impacts than those using a bottom-up simulation methodology (such as we used here, based on explicitly modelling the gains from discrete numbers of additional school graduates). This is likely because those cross-country studies capture more of the diffuse spillover benefits of a better educated population for economic and social conditions. For all these reasons, our general conclusion – namely, that the total economic gains from improved school

completion are two to four times larger than the investments required to meet the SRS, and that the resulting paybacks to government offset the cost of those investments – likely understates the true value of improved education to Australia’s national economic and social condition.

In sum, upfront investments in improving public school funding to meet the SRS are ultimately returned to the government sector in the form of increased revenues, driven by a stronger and more inclusive economy, and reduced expenditures on social programs. The decision to meet minimal funding thresholds for public schools, therefore, cannot be evaluated solely as an additional cost. It must also be seen as a long-run investment, that will drive improved economic, social, and fiscal performance for all sectors of the economy – including government.

These projections, of course, are uncertain, multi-dimensional, and long-run in nature. But the challenges in quantifying the fiscal benefits to government from improved educational attainment by Australian students does not mean these impacts can be ignored in any consideration of the broader costs and benefits of education funding. The goals of equity and inclusion alone should be sufficient motivations for government to provide the incremental funding required to meet the SRS. But the fact that most or all of those outlays will ultimately be returned to government, as a side-effect of a fairer and more productive economy should certainly seal the deal in the minds of the government.

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