BACKGROUND PAPER FOR THE 2013 STATEMENT ON THE LONG-TERM FISCAL POSITION

MONTH/YEAR

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The Education Sector over the Long Term
The Education Sector over the Long Term

Executive summary

The Education Sector over the Long Term

Education plays a key role in improving the financial and social well-being of a nation and of individuals. The acquisition of knowledge and skills matters in order to improve our economic performance and achieve higher living standards for all New Zealanders.

As a society New Zealand places high value on formal education. Our education system performs well relative to our OECD counterparts.

Spending in the education sector is largely productive for a number of reasons, some of which are outlined in this paper. The primary narrative with regards to education expenditure in the context of the long-term fiscal outlook is different when compared to other large public expenditure areas, such as health and justice. In the health sector the increasing demand for health services is correlated with the size of the aging population. In the justice sector it is desirable to have less need for justice services and therefore work hard to lower demand. Conversely, in the education sector it is desirable to increase demand for high quality education and to increase aggregate and individual achievement levels.

While increasing demand and achievement levels are key objectives, and while education spending in aggregate is largely positive for economic growth and living standards, it is likely that we could achieve these objectives in more efficient ways, or better, in ways that will better support greater increases in student achievement.

Moreover, recent OECD analysis suggests that greater national wealth or higher expenditure on education does not guarantee better student performance. Among high-income economies, the amount spent on education is less important than how resources are used. Analysis reveals that the countries that are the strongest performers in PISA are not the wealthiest, nor do they allocate more money to education.​

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1 Does money buy strong performance in PISA?, PISA in Focus, Issue 13, OECD
2 National wealth is important up to a point. Among moderately wealthy economies whose per capita GDP is up to USD20,000, the greater the country’s wealth, the higher its mean score on the PISA reading test. PISA results suggest that above this threshold national wealth is no longer a predictor of a country’s performance in PISA. After a threshold of about USD35,000 per student, expenditure is unrelated to performance. For example, countries that spend more than USD100,000 per student from the age of 6 to 15, such as Luxembourg, Norway, Switzerland and the United States, show similar levels of performance as countries that spend less than half that amount per student, such as Estonia, Hungary and Poland.
Thus the goal in regards to education spending in the long-term fiscal context is ensuring value for money, and the achievement of higher returns to each public dollar invested. There may even be scope for governments in the future to reduce education spending in order to allow other spending areas to grow. There are likely to be ways of achieving a lower spending track without sacrificing educational outcomes. We can do this by identifying and reducing deadweight spending and tackling inefficiency.

**Education Expenditure**

Total spending in education was $12.4 billion in the 2012/13 year, or approximately 21% of total core crown expenditure (including student loans). Since the mid-1980s the proportion of core crown expenditure allocated to education has increased steadily, from approximately 12%. Total spending in education has increased by $6.3 billion, or 104%, since 2000/01. In real terms spending over the decade to 2011/12 increased by just under 45%.

Since 2001 government spending in ECE increased by just under 200% in real terms. The bulk of this funding increase has been driven by subsidies paid to ECE providers to lower the cost of participation to families, such as 20 Hours ECE. Participation rates however, measured as the percentage of new school entrants having previously participated in ECE, have not increased substantially since the introduction of the 20 Hours ECE policy.

Total government spending on tertiary education reached $3.991 billion in the 2011 year, up from $1.758 billion in 2000. This represents a real increase of 68%. The main components that make up the government’s share of investment in the tertiary sector include tuition subsidies, student allowances and student loans.

Since 2000 government spending in the compulsory schooling sector has increased by 69%, from $3.261 billion to $5.521 billion in 2012. In real terms, this represents a $1.115 billion, or a 25% increase. Most of the growth in funding in the schooling sector was a result of increases in teacher remuneration levels and increases in the quantity of teachers.

The table below outlines the drivers of material upward cost pressures in the education sector, since the early 2000s. The table also highlights potential cost drivers that have had no real material impact on pushing up spending.
<table>
<thead>
<tr>
<th>Sector</th>
<th>Cost Driver</th>
<th>Fiscal Impact</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Childhood Education</td>
<td>Demographics</td>
<td>-</td>
<td>Insignificant rise in birth rates late 2000s.</td>
</tr>
<tr>
<td></td>
<td>Participation rate</td>
<td>↑</td>
<td>Large increase in participation rate in the early 2000s, late 2000s growth categorised by the consumption of more hours rather than increased participation rates.</td>
</tr>
<tr>
<td></td>
<td>Subsidy level</td>
<td>↑</td>
<td>Average increase of $200m per year, subsidies make up 98% of ECE spending.</td>
</tr>
<tr>
<td></td>
<td>Targeting</td>
<td>-</td>
<td>Approximately 15% of spending is targeted to need.</td>
</tr>
<tr>
<td>Compulsory Schooling</td>
<td>Demographics</td>
<td>-</td>
<td>Small decline in school age children, particularly second half of 2000s.</td>
</tr>
<tr>
<td></td>
<td>Participation rate</td>
<td>-</td>
<td>Lower entry numbers off-set by higher retention in upper secondary, overall increase in numbers of 4.5%.</td>
</tr>
<tr>
<td></td>
<td>Cost of teaching</td>
<td>↑</td>
<td>Growth in teacher remuneration and an increase in teacher numbers.</td>
</tr>
<tr>
<td>Tertiary Education</td>
<td>Demographics</td>
<td>↑</td>
<td>Adult population grew year on year at higher rates than under 18 group (as 1990 birth bubble reached young adult age).</td>
</tr>
<tr>
<td></td>
<td>Participation rate</td>
<td>↑</td>
<td>Over 100,000 more students enrolling at the end of the decade compared to 2000, and from 2000 – 2005 there was a significant increase in lower level tertiary participation (this trend has now reversed).</td>
</tr>
<tr>
<td></td>
<td>Cost of study</td>
<td>↑</td>
<td>Tuition subsidies increased in real terms by 47% and new student lending by 39%.</td>
</tr>
<tr>
<td></td>
<td>Balance of public to private spending ratio</td>
<td>↑</td>
<td>Growth in government spending as a result of removing interest on student loans in 2006. Moderated by reductions in access to and levels of student support since 2009 and limited rises in tuition subsidies as fees rise.</td>
</tr>
</tbody>
</table>

**Projected Spending over the Long-Term**

Treasury projections show that, assuming little policy change, education spending as a percent of GDP will decline from around 6.1% in 2010, to more like 5.2% of GDP in 2060.

Whilst education spending as risen substantially since 2000, education is unlikely to be a particular area of spending pressure in the future. But it is unlikely to be a significant source of savings either. There are forces pulling in both directions: younger people, who are the recipients of almost all education spending, will shrink as a percentage of the population (although their actual numbers will grow slightly), and there is likely to be more adults take-up some form of tertiary study in the long term. These two trends are expected to almost cancel each other out.

Repeating the table above, changes to material cost drivers in the table below could help to ensure the Crown’s investment in education reflects value for money and higher return principles. The indicative scenarios allow spending to be reprioritised towards those who need it the most, and reflecting greater public returns to the government’s investment, whilst aiming to improve educational outcomes. The scenarios have not been quantified to show actual fiscal impact.

The table does not include changes to the material cost-drivers within the schooling sector. There are options for reprioritising funding within the schooling sector that would in all likelihood increase the efficiency of spending at the margins.
Technological

Advancements will include productivity gains, for example, through options around sharing resources and services. However, at this point there is unlikely to be policy changes substantial enough to impact the expenditure track in this sector in a material way. For this reason, we have not included a specific schooling sector policy scenario.

The table does not include changes to demographics or the participation rate within each sector, as the impact of these factors have been included in long-term projections already. Thus, spending scenarios do not include or assume additional changes to these factors into the future.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Cost Driver</th>
<th>Fiscal Impact</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Childhood Education</td>
<td>Demographics</td>
<td>-</td>
<td>Smaller reduction - some retention of universal subsidies (e.g. for under 2’s) with top-up subsidies for disadvantaged children, place limits on annual growth in subsidy levels.</td>
</tr>
<tr>
<td></td>
<td>Participation rate</td>
<td>-</td>
<td>Higher reduction - remove universal subsidies and target all funding across all age groups based on income, place limits on hours subsidised.</td>
</tr>
<tr>
<td></td>
<td>Subsidy level</td>
<td>↓</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Targeting</td>
<td>↓</td>
<td></td>
</tr>
<tr>
<td>Tertiary Education</td>
<td>Demographics</td>
<td>-</td>
<td>Smaller reduction - adjust the Crown’s contribution to the cost of study (adjust the public/private expenditure ratio from the current 30:70) by reducing the governments share of tuition costs, re-introducing interest on student loans, and increasing targeting of student allowances.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Higher reduction – the same as above and additional options around limiting access to student allowances and loans based on criteria such as maximum eligible years of study or number of qualifications, or maximum age of eligibility.</td>
</tr>
</tbody>
</table>

Note that some of these changes have already been made, through recent Budgets, and are already beginning to have an impact.
Introduction

Education and Living Standards

Education plays a key role in improving the financial and social well-being of a nation and of individuals. The acquisition of knowledge and skills matters in order to improve our economic performance and achieve higher living standards for all New Zealanders.

The Treasury has adopted a Living Standards Framework to guide and inform its advice on economic and social policy. The framework emphasises the need to consider how different policy choices could have different impacts on different groups of people, and to have a range of measures or indicators of wellbeing and living standards, rather than singular measures of economic performance, such as growth in GDP per capita.

Treasury’s Living Standards Framework is centred on four main capital stocks - financial/physical, natural, social and human, and five policy dimensions, as follows:

The impact of policy across key living standards dimensions

Economic Growth

Increasing the stock of human capital in New Zealand has a positive impact on economic growth. There is a quantified link between qualifications, individual wage returns, and GDP growth, although the size of this effect is hard to pin down and varies across countries and according to the methodology used.\(^4\)

Increased demand for education means that more people are skilled to higher levels. While New Zealand has had poor growth in labour productivity, labour quality (qualifications/skills and age/experience) has increased significantly. Almost half of labour productivity growth from 1988 - 2005 was due to increased labour quality.\(^5\)

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\(^5\) Lewis et al, 2008
estimates that 70% of the increase in labour quality between 1988 and 2008 was attributable to higher qualifications (with the remainder due to demographic changes).  

The quality of education outcomes achieved (as measured by test scores and qualifications) is increasingly regarded as more important for economic growth than the quantity of time spent in education (which may be of variable quality). While years of education does not appear to be positively related to economic growth, studies show a positive causal relationship between test scores and GDP per capita.

Treasury modelling indicates that a 25 point increase in average PISA results for New Zealand would align our educational performance with that of the top performing OECD nations, and would contribute to growth in GDP within a range of between 4% and 15% by 2070 (or an annual growth rate of between 0.1 and 0.4%).

Sustainability for the Future

Education has strong inter-generational effects, with parental education being a strong predictor of children's educational outcomes.

Moreover, the shift in the nature of jobs towards the service end of the spectrum and rapid technological change are trends that favour higher levels of skill. As a society we need to increase our level of skill not only to sustain our current living standards, but also to increase our living standards to support the New Zealand of tomorrow.

Increasing Equity

There is a link between qualifications and individual wage returns. Generally those with higher levels of qualifications earn higher levels of income and lower the risk of sustained unemployment. Labour market attachment is important for on-going skill acquisition and sustaining income levels sufficient for a minimum standard of living.

Increasing the education levels of lower socio-economic groups helps to reduce inequality within a society.

Social Infrastructure

The benefits of education and skills accrual include increased social cohesion, improved health, reduced crime, and higher levels of civic engagement. The flow of economic and social benefits from human capital development accrues both to the individual and to firms, communities and wider society. Even if the human capital is under-utilised in the labour market, it still contributes to higher living standards (such as raising children and participating in voluntary activities).

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8 Quantification of economic returns to skills, Treasury report, 2011
Managing Risks

Higher levels of skill helps to withstand economy wide and/or individual shocks, as higher educated people are more mobile and employable. These people are also more likely to have savings or assets to fall back on to withstand any short-term shocks.

Expenditure in Recent Years

Government spending on education in 2011/12 was 5.8% as a percent of GDP. This is down from a peak of 6.1% in 2010, having risen from 5.1% in 2000/01.

Figure 1: Core crown expenditure by education sector as a percent of GDP 1996 to 2011

Currently, New Zealand contributes a higher proportion of total core crown funding towards all of education than most other OECD countries. While most countries have increased the relative share of crown funding allocated to education, in 2009 the OECD average total public spending was 13.0%, compared to 21.2% for New Zealand. Since the mid-1980s the proportion of core crown expenditure allocated to education has increased steadily, from approximately 12%.

Total spending equated to $12.4 billion for the 2012/13 year. Total spending in education has increased by $6.3 billion, or 104%, since 2000/01. In real terms spending over the decade to 2011/12 increased by just under 45%.

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10 Education at a Glance 2012, OECD. Note that these figures include public subsidies to households for tertiary fees and living costs (scholarships, grants, loans). Student loans are recorded in New Zealand Crown account as assets, not expenses. Given some other countries provide low cost tertiary education instead of loans (e.g. Western Europe), this may point to the New Zealand data, as it relates to a genuine expense level, being overstated compared to others. Analysis to the extent that this may be the case has not been completed for the purposes of this report.
A Snap Shot of Education Performance in the Middle Years

As a society New Zealand places high value on formal education and understand its importance in relation to the acquisition of knowledge and skills. As the table below demonstrates, our education system performs well relative to our OECD counterparts. The Programme for International Assessment (PISA) provides comparable data on the knowledge and skills of 15 year olds students, the age at which most students are nearing the completion of compulsory schooling.

Table 1: New Zealand 2003, 2006, 2009 PISA Results in Reading, Maths and Science

<table>
<thead>
<tr>
<th>Subject</th>
<th>2003</th>
<th>OECD Average</th>
<th>2006</th>
<th>OECD Average</th>
<th>2009</th>
<th>OECD Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading</td>
<td>521</td>
<td>494</td>
<td>521</td>
<td>492</td>
<td>521</td>
<td>493</td>
</tr>
<tr>
<td>Maths</td>
<td>523</td>
<td>500</td>
<td>522</td>
<td>498</td>
<td>519</td>
<td>496</td>
</tr>
<tr>
<td>Science</td>
<td>521</td>
<td>500</td>
<td>530</td>
<td>500</td>
<td>532</td>
<td>501</td>
</tr>
</tbody>
</table>

However, despite increased expenditure in the education sector over the last decade our results in PISA have stagnated over the same period (with the exception of science in the earlier part of the decade).

In addition high PISA averages mask underlying problems with our education system. When PISA scores are segmented by ethnicity for instance, European children, on average, achieve significantly higher PISA results compared to Māori and Pasifika children.

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11 The spike in tertiary education spending in 2005/06 was as a result of a one-off revaluation of the student loan scheme. This was due to a simultaneous shift to IFRS accounting and the removal of interest on student loans, and amounted to an expense of $1.4 billion. The second spike relates to a $700 million impairment to the student loan scheme. Much of the reduction in tertiary spending since 2009 is as a result of changes to loan policy, which have improved the value of the student loan scheme.

12 PISA provides comparable data on the knowledge and skills of 15 year olds students, the age at which most students are nearing the completion of compulsory schooling. PISA was launched in 1997, with the first survey taking place in 2000, and every three years since. More than 70 countries take part.

13 Source: OECD (www.oecd.org/pisa)
The table below shows that on average, Māori and Pasifika children are achieving at levels below their New Zealand European peers, and below OECD averages. Despite our high average performance we have some of the greatest educational disparities in the OECD.

**Table 2: Average PISA Score by Ethnicity 2009**

<table>
<thead>
<tr>
<th>Group</th>
<th>Reading</th>
<th>Maths</th>
<th>Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>OECD Average</td>
<td>493</td>
<td>496</td>
<td>501</td>
</tr>
<tr>
<td>New Zealand</td>
<td>521</td>
<td>519</td>
<td>532</td>
</tr>
<tr>
<td>Māori</td>
<td>478</td>
<td>476</td>
<td>487</td>
</tr>
<tr>
<td>Pasifika</td>
<td>448</td>
<td>446</td>
<td>448</td>
</tr>
<tr>
<td>Asian</td>
<td>522</td>
<td>529</td>
<td>530</td>
</tr>
<tr>
<td>European</td>
<td>541</td>
<td>537</td>
<td>555</td>
</tr>
</tbody>
</table>

On average across OECD countries 20% of students drop out of school before successfully completing upper secondary education. In New Zealand in 2010, 28.2% of school leavers had not attained at least NCEA Level 2 or an equivalent qualification. However, because of increased opportunities for young people to study towards qualifications outside of school settings, 74.3% of 18 year olds had attained at least NCEA Level 2 in 2011. According to the National Qualifications Framework, this qualification “enables access to the foundation skills required for employment”, and “provides a foundation for further study and knowledge”.

While progress has been made since the introduction of NCEA in 2004, higher proportions of Māori and Pasifika continue to leave school without at least NCEA Level 2.

**Figure 3: Percent of children based on ethnicity, leaving school without obtaining NCEA Level 2, 2005 - 2010**

In New Zealand we also have a higher than average positive relationship between non-achievement and low socio-economic status, compared to our OECD counterparts. As the figure below demonstrates, the link between student performance and socio-economic background is strong (16.6% of variation). There is still 83.4% of the variation in student performance explained by other factors however the amount explained by socio-economic

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14 Source: OECD (www.oecd.org/pisa)
15 www.educationcounts.govt.nz
status is higher in New Zealand compared to other countries. The data appears to indicate that there is something about New Zealand that seems to be providing lower social mobility to the more disadvantaged within our population.

**Figure 4: 2009 PISA performance in reading against student economic, cultural and social status (ESCS) for all New Zealand students sampled (each circle represents one student)**

In an environment of fiscal constraint, it is prudent to assess whether expenditure is allocated to where it is most likely to achieve the highest return in terms of increasing educational attainment and contributing towards economic growth and societal well-being. Reflecting on factors such as an aging population, the rapidly changing nature of jobs, and importantly, the changing composition of the workforce, may require a ‘stock take’ of current policy and fiscal settings to ensure our limited resources are being invested to maximise our human capital development.
Government Investment in the Early Childhood, Schooling and Tertiary Sectors

Government Investment in Early Childhood Education

Since 2001 government spending in the ECE sector has increased by 200% in real terms. Between 2001 and 2012 Vote Education ECE funding increased by $1,038.4 million to a total of $1.4 billion. An additional $180 million is spent on ECE through Vote Social Development. Growth in ECE expenditure as a percent of GDP in the decade to 2010 increased from 0.30% to 0.70%.

The bulk of this funding increase has been driven by universal subsidies paid directly to ECE providers to lower the cost of participation to families, such as 20 Hours ECE (formerly 20 Hours Free ECE). Since its introduction in 2007 20 Hours ECE has been the single largest contributor to growth in expenditure.

Total participation subsidies increased on average by just under $200 million each year to the end of the 2010/11 financial year. As a percentage of GDP, total ECE participation subsidies increased to 0.60% by 2010, up from 0.24% in 2000. ECE participation subsidies now make up almost 98% of total Vote Education expenditure on ECE, rising steadily from 86% in 2001/02.

Figure 5: Vote Education expenditure and participation subsidies in ECE, 2000/01 – 2011/12

The Rationale for Government Investment

Traditionally the primary reason for government subsidisation of ECE fees paid by parents was to make pre-school care more accessible and affordable, thereby encouraging...

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16 www.educationcounts.govt.nz
17 www.educationcounts.govt.nz
18 Participation subsidies comprise under 2s, 2 and over (a non 20 Hours subsidy as well as a 20 Hours ECE subsidy for 3 and 4 year olds), Equity Funding, playgroups and payments to the Correspondence School (ECE).
19 www.educationcounts.govt.nz
greater levels of labour market participation. This was seen as particularly important for low and middle income families, for whom the costs of childcare can be a barrier to entering and remaining in the paid workforce.

Labour force attachment is an important objective of governments worldwide, as the benefits of increasing labour force participation flow into the economy, to the government, to communities, and to individual families. The fiscal benefits flowing to governments include increased levels of tax revenue and some reduction in spending within the welfare and justice systems. Workforce attachment is an important way in which people informally acquire the skills that are required for workforce activity, contributing to labour force productivity and thus economic growth. Skills can become obsolete when people are out of the labour force for extended periods of time. Evidence also suggests labour market participation is one of the best ways to increase family resources, with positive impacts on living standards.

In more recent years much research has been produced that demonstrates that there are long-term positive educational effects for children who participate in high quality early childhood education. This is particularly the case for children from disadvantaged backgrounds.

“Skill begets skill; learning begets learning. Early disadvantage, if left untreated, leads to academic and social difficulties in later years. Advantages accumulate so do disadvantages.” James Heckman

Research shows that differences in levels of cognitive and non-cognitive skills by family income and other family characteristics emerge early and persist. Evidence suggests that the negative impact of disadvantaged family environments can be partially compensated for through early interventions. There is a large body of international and New Zealand evidence which has consistently found that ECE participation is positively associated with gains in mathematics and literacy, school achievement, intelligence tests, school readiness, reduced grade repetition in secondary school, and reduced special education placement. Investment in early human capital development increases returns to later investment.

The returns from high quality ECE participation are greater than any investment in the later stages of the skill development cycle. Most of the economic evaluations of ECE programmes have shown that the benefits of public spending exceed the costs. The findings show that for every dollar invested, the resulting returns fall within the range of $3 to $16. The rate of return on each dollar invested in high quality ECE is at the higher end for children from disadvantaged backgrounds relative to children from high socio-economic backgrounds.

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20 Improving the Transition Reducing Social and Psychological Morbidity During Adolescence, Prime Minister’s Chief Science Advisor (2011)
22 ECE Taskforce Report 2011
OECD PISA analysis, using 2009 PISA data, demonstrated that in practically all OECD countries 15 year olds who had attended some ECE outperformed students who had not. The difference between students who had attended for more than one year and those who had not attended at all averaged 54 score points in the PISA reading assessment – or more than one year of formal schooling (39 score points). While most students who had attended ECE had come from advantaged backgrounds, the performance gap remains even when comparing students from similar backgrounds. After accounting for socio-economic background, students who had attended pre-primary school scored an average of 33 points higher than those who had not. In New Zealand the score point difference associated with attending ECE for more than one year, after accounting for socio-economic background, was 39 points, the equivalent of one year of formal schooling.

**The Impact of Recent Government Investment**

Subsidisation of ECE fees now focuses on the dual objectives of increasing and retaining labour market participation levels, and increasing participation rates of children for educational purposes.

**Impact of Investment on Price**

The 20 Hours ECE subsidy introduced in 2007 is universal. All families with children aged 3 and 4 that attend ECE are entitled to receive the subsidy regardless of their income levels.

As demonstrated by the figure below, the effect of the 20 Hours ECE subsidy was to reduce the cost of ECE for families and increase the cost to the government. This transfer of cost to the public sector results in a deadweight cost - families that were already paying the higher cost for sending their children to ECE continue to do so at a lower personal cost.

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24 Does participation in pre-primary education translate into better learning outcomes at school? Pisa in Focus 2011/1 (February), OECD 2011
The figure below shows that a higher proportion of government funding is transferred to families in the higher income brackets. This is likely to be as a result of higher income families using more hours of ECE than lower income families. This relationship is demonstrated by the second figure below.

Figure 8: Annual public expenditure on ECE by household income and age of child

25 2009 Childcare Survey, Statistics New Zealand
Figure 9: Weekly hours in ECE per child, by household income and age of child

(Estimated distribution of expenditure ($m 2012/13, scaled from 2009)

Participation

Participation rates however, measured as the percentage of new school entrants having previously participated in ECE, have not increased substantially since the introduction of the 20 Hours ECE policy.

Figure 10: Increase in ECE Expenditure relative to participation rates, 2005 – 2010

Most of the gains in participation over the last decade or more, particularly for Māori and Pasifika children, were made in the early part of the 2000s. The introduction of 20 Hours ECE has had only a marginal impact on participation rates overall.

26 2009 Childcare Survey, Statistics New Zealand
Government Investment in the Compulsory Schooling Sector

Since 2000 government spending in the compulsory schooling sector has increased by 69%, from $3.261 billion to $5.521 billion in 2012. In real terms, this represents a $1.115 billion, or a 25% increase. As a percent of GDP, education spending in the schooling sector has sat at 2.7% for most of the previous decade.

Funding to the schooling sector is made up of three main components:

- Teacher salaries (approximately 66% of spending in 2010). In 2010 dollar terms the total teacher salary budget has increased by 34% since 2000.
- Operations grant (approximately 22% of spending in 2010). In 2010 dollar terms the total operations grant spending has increased by 23% since 2000.
- Property grants (approximately 12% of spending in 2010). In 2010 dollar terms total property grant spending has increased by 50% since 2000.

As the graphs below demonstrate material growth in total real spending can be attributed to increased expenditure on aggregate teacher salaries. As a percent of GDP teacher salaries have fluctuated between 1.6% and 1.8% over the previous decade.

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27 Treasury BAEP model for education
In real terms the total remuneration of teachers grew by just under $0.900 billion, from $2.5 billion in 2000 to $3.4 billion by 2010. This makes up 80% of the overall real increase in spending in the schooling sector. There is some evidence to suggest that some of the salary growth was a ‘catch-up’ on relatively low salary levels in previous decades.

As the figure below demonstrates, the salary for the education workforce, as measured by the Labour Cost Index, has grown at a higher rate than for the central government sector and the whole economy.

Figure 13: Growth in Labour Cost Index for the Education Sector, Central Government and the Whole Economy (1000 = June 2001)

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28 www.educationcounts.govt.nz
29 Total remuneration for ‘teachers’ here include the salaries of all school staff, including principals and other school management roles, resource teachers, guidance counsellors, therapists and community educators, in State and State-Integrated schools.
30 The salary and wage rates component of the LCI measures movements in base salary and ordinary time wage rates, and overtime wage rates.
Salary growth in the education sector now appears to be more in line with the rest of the public sector.

Aggregate teacher salary costs have increased not only due to an increase in salary levels, but to an increase in the number of teachers employed in the system over the same time frame (approximately 30% of the growth in real salary expenditure). Between 2001 and 2009 almost 5,700 full-time time teaching equivalents (FTTEs) were employed over and above roll growth. The number of children within the schooling system over the same period did not substantially change. Overall the increase in numbers was 4.5% to 2011. The number of primary school age children declined over the 2000s while more children were staying on school in upper secondary.\(^{31}\)

The increase in the size of the workforce was largely as a result of specific policies such as a reduction in maximum average class sizes and to accommodate additional minimum non-contact hours (or classroom release time) for teachers in both primary and secondary school settings.

The Rationale for Government Investment

The rationale for the increase in salaries over the last decade centred primarily around enhancing the status and attractiveness of teaching to graduates in order to both fill teacher shortages in specific subject areas, and to ensure a general flow of teachers coming into the profession to replace the aging workforce. Low salary levels, limited career progression options, increasing numbers of competing opportunities for graduates and early career teachers, and a general dissatisfaction with working conditions (such as workload related to the implementation of NCEA) were perceived as barriers to recruiting and retaining quality teachers.

In addition, teacher numbers were added into the system to lower the number of students in a class and to increased non-contact time for teachers, in order to improve the working conditions of teachers. The number of units allocated to schools (at a value of $4,000 per unit), were also significantly increased over this period, primarily to allow schools to

\(^{31}\) Note that this figure includes international, fee paying students and will include to some degree the effect of the age cohort working through the system following a comparatively high birth rate in the early 1990s.
design their own internal management structures. Units are paid to individual teachers as a top-up on the base salary scale, for taking on specific roles and responsibilities within a school.

The Impact of Recent Government Investment

As noted earlier, student achievement in New Zealand as measured by PISA demonstrates above average results relative to OECD counterparts. However, while we rank highly in relative PISA results, our results have remained stagnant for some time.

Over recent years, there has been an increase in the retention of children participating at the senior secondary level. The table below demonstrates that of the 55,300 enrolled in Year 11, in 2004 80% remained at school in Year 12 and 58% remained enrolled in school in Year 13. By 2009 the retention rate at Year 12 increased to 86% and at Year 13 to 67%.

It is worth noting that some of the higher retention rates can be attributed to the economic downturn and subsequent lack of employment opportunities following the Global Financial Crisis. However, the introduction of NCEA and a greater emphasis on vocational pathways for senior secondary students will also have had a positive impact on retention rates.

Table 3: Retention rates in Senior Secondary School, 2004 - 2009

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 11 Enrolment</td>
<td>55,300</td>
<td>56,791</td>
<td>60,132</td>
<td>59,897</td>
<td>59,790</td>
<td>59,855</td>
</tr>
<tr>
<td>Year 12 Retention</td>
<td>80%</td>
<td>82%</td>
<td>82%</td>
<td>82%</td>
<td>85%</td>
<td>86%</td>
</tr>
<tr>
<td>Year 13 Retention</td>
<td>58%</td>
<td>59%</td>
<td>59%</td>
<td>62%</td>
<td>67%</td>
<td>67%</td>
</tr>
</tbody>
</table>

From 2009 retention was measured slightly differently (because of the introduction of the new IT system ‘ENROL’) but retention has continued to increase:

Table 4: Percentage of domestic students staying on at school to age 17, 2009 - 2011

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students staying on at school to age 17</td>
<td>78%</td>
<td>79%</td>
<td>80%</td>
</tr>
</tbody>
</table>

The same data can be split by socio-economic status to gain a better understanding of whether different socio-economic cohorts are remaining in school longer. The table following demonstrates that Year 13 retention rates for lower decile schools are significantly lower than for the highest decile schools.

Table 5: Retention to Year 13 by Decile Band

<table>
<thead>
<tr>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Decile 1-3</td>
<td>51%</td>
<td>50%</td>
<td>50%</td>
<td>53%</td>
<td>61%</td>
<td>61%</td>
</tr>
<tr>
<td>Decile 4-7</td>
<td>54%</td>
<td>56%</td>
<td>57%</td>
<td>60%</td>
<td>65%</td>
<td>66%</td>
</tr>
<tr>
<td>Decile 8-10</td>
<td>65%</td>
<td>66%</td>
<td>68%</td>
<td>71%</td>
<td>75%</td>
<td>76%</td>
</tr>
</tbody>
</table>

32 NZAID students (foreign students sponsored by the New Zealand Agency for International Development – a branch of MFAT) and foreign fee paying students are excluded.
Although an improvement is shown between 2004 and 2010, the table below shows that just over half of Māori children enrolled as Year 11 students in 2009 remained in schooling in Year 13. This compares to higher retention rates for other cohorts by ethnicity.

**Table 6: Retention to Year 13 by Ethnicity**

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>European/Pakeha</td>
<td>60%</td>
<td>61%</td>
<td>61%</td>
<td>64%</td>
<td>69%</td>
<td>69%</td>
</tr>
<tr>
<td>Māori</td>
<td>42%</td>
<td>43%</td>
<td>44%</td>
<td>47%</td>
<td>52%</td>
<td>54%</td>
</tr>
<tr>
<td>Pasifika</td>
<td>63%</td>
<td>63%</td>
<td>63%</td>
<td>65%</td>
<td>70%</td>
<td>71%</td>
</tr>
<tr>
<td>Asian</td>
<td>73%</td>
<td>73%</td>
<td>76%</td>
<td>74%</td>
<td>77%</td>
<td>77%</td>
</tr>
</tbody>
</table>

**Table 7: University Entrance attainment by ethnicity, 2004 - 2011**

<table>
<thead>
<tr>
<th></th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>European/Pakeha</td>
<td>70%</td>
<td>69%</td>
<td>72%</td>
<td>73%</td>
<td>71%</td>
<td>69%</td>
<td>72%</td>
<td>74%</td>
</tr>
<tr>
<td>Māori</td>
<td>46%</td>
<td>44%</td>
<td>47%</td>
<td>50%</td>
<td>46%</td>
<td>42%</td>
<td>47%</td>
<td>49%</td>
</tr>
<tr>
<td>Pasifika</td>
<td>38%</td>
<td>35%</td>
<td>34%</td>
<td>39%</td>
<td>32%</td>
<td>35%</td>
<td>35%</td>
<td>36%</td>
</tr>
<tr>
<td>Asian</td>
<td>64%</td>
<td>69%</td>
<td>71%</td>
<td>73%</td>
<td>73%</td>
<td>70%</td>
<td>74%</td>
<td>74%</td>
</tr>
</tbody>
</table>

**Government Investment in the Tertiary Sector**

Total government spending on tertiary education reached $3.991 billion in 2011 year, up from $1.758 billion in the 2000. This represents a real increase of 68%. In 2011 total government funding of tertiary education accounted for 2.0% of GDP (including new student lending), up from 1.7% in 2000.

From a funding perspective, the main components that make up the governments share of investment in the tertiary sector include:

- Tuition subsidies - in real terms tuition subsidies have risen by 47% between the 2001/02 and 2010/11 years.
- Student allowances (income tested) - in real terms student allowances payments rose by 22% over the same period.
- Student loans (new lending each year) - new lending in student loans increased by 39% in real terms over the decade, from $1.13 billion in 2001/02 to $1.56 billion in 2010/11.

**Figure 15: Real growth in expenditure on tertiary education by main spending area**
The nominal value of the student loan scheme was around $13.0 billion in 2012 and is expected to reach $15.1 billion by 2015. The graph below shows a marked increase in student borrowing following the introduction of interest free student loans in 2006.

**Figure 16: Real expenditure growth in new student lending, 2001/02 – 2010/11 (billions)**

Since the Student Loan Scheme began, students have borrowed a total of $17 billion. Changes to improve the value of the Student Loan Scheme have reduced the amount of new lending the Crown writes down from 47.4 cents in the every dollar (in 2010) to 39.1 cents in every dollar lent (in 2013).

**The Rationale for Government Investment**

There is a tension between increasing labour market participation for people with low levels of education and skills and increasing labour market productivity. Increasing levels of qualifications should have a positive impact on labour market productivity, which flows into increased economic growth and living standards.

Research shows a quantified link between qualifications, higher wages, and GDP growth, although the size of this effect is hard to pin down and varies across countries and according to the methodology used. There is a positive association between higher qualifications and measures of non-cognitive skills (such as interpersonal and communication skills and traits such as persistence, self-discipline, adaptability), labour market participation, and participation in ongoing education and training.

There are also wider public benefits from improving skill levels regardless of impact on productivity and economic growth. These benefits are likely to include increased social cohesion, improved health, reduced crime, higher levels of civic engagement, and positive

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34 Lifting educational attainment is not the only way to lift the skills and capabilities of adults, workforce attachment is a key way in which to improve human capital. A wider range of non-cognitive skills and personal development that benefit society are also critical skills that are learned on-the-job. However, lifting qualification levels for individuals raises the likelihood that individuals will secure and retain employment over time.
inter-generational effects. Some individuals with high levels of under-utilised skills often contribute to society in other beneficial ways, such as raising children and participating in voluntary activities.

Thus the government invests in tertiary education to ensure, first, equitable access for individuals who would otherwise not be in a position to afford to participate, but for whom the private benefits are significant. Second, there are wide ranging public benefits from higher aggregate levels of qualifications and skills. The government’s objective is to mitigate the risk that cost will be a barrier to accessing tertiary level education, particularly for individuals from low income families. If individuals were required to pay the full cost of their tertiary education the level of participation in higher education would likely be below the efficient level and reduce productivity.

**The Impact of Recent Government Investment**

Below is an assessment of the impact on government investment measured by participation, retention and completion rates.

*Participation*

The number of people participating in tertiary education has increased steadily for many years, with rapid growth occurring during the first half of the 2000s. In the year 2000 numbers exceeded 300,000 for the first time and by 2004 the number of people participating in tertiary level study exceeded 400,000.

*Figure 17: Participation, 1999 – 2010, both public institutions and private training establishments*

With the exception of Pasifika students, the participation of European, Māori and Asian students peaked in 2004 and 2005 before declining for most of the second half of the 2000s. This was as a result of policy and funding changes aimed at reducing the enrolment numbers of older students, and enrolments in lower level qualifications. All ethnic groups with the exception of European students saw the participation rate begin to increase again by 2009.

The highest growth in terms of qualifications completed occurred at the Diploma level (level 5-7), at just under 35% between 2003 and 2010. The lowest growth since 2003 occurred at the Bachelors and Graduate Certificate/Diploma level, at 5.5% and 5.4% respectively.
More New Zealanders have gained a qualification at Bachelors level or higher, up to 17% from 12% since 2003.

In New Zealand a high proportion of students are enrolled in tertiary study below degree level. We sit second only to Canada and significantly ahead of Australia, the United States and the United Kingdom. Sub-degree qualifications are generally less costly to the government and the individual, but are also associated with lower earnings premiums (and therefore lower public and private returns on investment) compared to degree level and above qualifications.
Projected Spending Scenario and Trends Shaping Spending Choices

Projected Spending over the Long-Term

Treasury projections show that, assuming little policy change, education spending as a percent of GDP will decline from around 6.1% in 2010, to more like 5.2% of GDP in 2060.

Figure 20: Expenditure in education sector by component (the Cross Pressures track) as a percent of GDP, 1996 – 2060

While education spending has risen substantially since 2000, education is unlikely to be a particular area of spending pressure in the future. It is unlikely to be a significant source of savings either. There are forces pulling in both directions: younger people, who are the recipients of almost all education spending will shrink as a percentage of the population (although their actual numbers will grow slightly), and there is likely to be more adults taking up tertiary study in the future. These two trends are expected almost to cancel each other out.

Greater Returns on Education Investment

The primary narrative with regards to education expenditure in the context of the long-term fiscal outlook is different when compared to other large public expenditure areas, such as health and justice. In the health sector significant upward expenditure pressure is correlated with the aging population. Changing demographics will drive increases in demand. In the justice sector it is desirable to reduce societal demand for justice services. Conversely, in the education sector it is desirable to increase demand for high quality education.

While increasing demand and increasing achievement levels are key objectives and while education spending in aggregate is largely positive for economic growth and living standards, this does not mean spending within parts of the education sector could not be spent more efficiently.

Thus the objective in regards to education spending in the long-term fiscal context is ensuring value for money and higher returns to each public dollar invested. We can do this through removing deadweight spend, tackling inefficiency and adjusting the balance between government spending and private spending (the private/public spending ratio).
In addition expenditure in the education sector should reflect the importance of the early years as key determinants of skill development. Well-targeted, quality early educational interventions tend to have better returns on the public’s investment, than remedial interventions later in the life-cycle. The benefits of early intervention must also be sustained through-out schooling life so as not to dissipate the gains made by ECE participation.

We also need to be cognisant of the trends that may shape spending choices in education. Emerging trends, discussed below, require funding choices to be dynamic and flexible rather than static.

**Reflecting Overarching Trends that will Shape Spending Choices**

*Longer working lives:* Over time people continue to live increasingly longer, healthier lives. As a result more people will remain in the labour market for longer periods of time. In 2006 half of the labour force was projected be older than 42 years by 2011, compared with a median age of 40 years in 2006 and 36 years in 1991. By 2061 the median age is projected to reach 43.7 years.

The labour force aged 65 years and over is projected to increase from an estimated 62,000 in 2006, to 240,000 in 2031 and 300,000 during the late 2050s. This will mean that the plus 65 age group will make up 10% of the total workforce.

*Figure 21: Projected labour force participation by age cohort, 2011 - 2061 (000)*

We expect the demographic shift in the composition of the workforce to drive higher adult participation rates in tertiary, as people up skill and re-skill themselves in anticipation of longer careers, as different career opportunities emerge, and as some jobs become less relevant or obsolete. Life-long learning, frequent career changes and re-inventing oneself is expected to become the norm.

*Nature of jobs:* Jobs will continue to shift towards the service end of the goods/services spectrum, thus continuing to drive a need for increasing levels of qualifications. Research on the nature of employment has shown that up to 70% of jobs now require specialised knowledge and skills, as compared to only 5% at the dawn of last century.

Technological change has led to the creation of new products, services and markets, and changed the nature and location of work and the skills it requires. Technological change

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35 Statistics New Zealand, National Labour Force Projections 2006 (base) to 2061, Series 5M: Assuming medium fertility, medium mortality, long-range annual net migration of 10,000, and medium labour force participation, National Labour Force Projections 2006 (base) to 2061

36 *The Flat World and Education*, Linda Darling-Hammond, 2010
favours those with higher skills and has increased the returns to skills and contributed to wage inequality, reinforcing the importance of human capital as a key factor in ensuring social mobility.

The share of employment in services (as compared to the primary and manufacturing sectors) has risen in virtually all OECD countries and now comprises nearly three-quarters of all jobs in many countries, including New Zealand. The service sector includes welfare, medical, education, finance, insurance, communication and business services. Producing services tends to require relatively less natural capital and more human capital than producing agricultural or manufactured goods, with a resulting demand for more educated workers. Although service industries tend to be more human capital intensive, increases in labour productivity have been led by manufacturing industries in many countries, and the growth rate of productivity in some important service industries has been either very low or even negative, with implications for the productivity of the economy as a whole.

**Nature of education:** Education will be required to prepare an entire workforce that is comfortable with ideas and abstractions, good at both analysis and synthesis, self-disciplined, well-organised, able to learn quickly and adapt to frequent changes in the labour market as the shifts in the economy become ever faster and more dramatic. The workforce will need to comprise people who focus on central concepts, think critically, solve problems through cooperation, experimentation and debate, and reflect effectively so that they can use knowledge in new situations.

**Relative size and make-up of the workforce:** Notwithstanding a trend towards longer working lives, a decline in fertility rates and an aging population means that the size of the workforce relative to the whole population is shrinking. A slowly-growing or shrinking labour force directly affects economic growth through lower labour input, and indirectly affects it via the increased costs of pensions and healthcare. Offsetting the effects of the ageing population requires improved labour force participation and improvements in the quality and utilisation of human capital and other measures to lift labour productivity.

In New Zealand, the different fertility rates and life expectancies across different ethnic groups have implications for the ethnic composition of the population. Māori and Pasifika people having younger age structures, and over time will comprise an increasing proportion of the working age population. In 2006 the median age of the Māori population was just 23 years, compared with 38 years for the European/New Zealander/Other population. However, in general, Māori and Pasifika people make up a greater proportion of the lower skilled end of the job market. Without improvements in the education and skill level of these specific ethnic groups, labour productivity will decline.

The pool of available staff in the under 40 age bracket is already shrinking. This trend will continue. Businesses will need to work increasingly hard to attract and retain the best and brightest employees under 40 – they will become a scarce and prized resource.

**Globalisation of labour markets:** Labour markets are increasingly globalised, with significant flows of people between countries, and the movement of jobs offshore. While New Zealand is reliant on immigration to make up for the loss of New Zealand nationals migrating abroad, other countries need immigration to counter the effects of an aging population on their workforce. It is likely that in the future as working age populations decline in many OECD countries, and opportunities for high-skilled employment in developing countries increase, New Zealand will face increased competition to attract skilled immigrants. Our ability to meet world prices for skilled labour will become increasingly important.
Policy Scenarios

The two main areas where spending reprioritisation could have a material impact on overall spending, and without negatively impacting on educational outcomes, include:

- **Cost of universal subsidies in ECE** – a shift towards targeting subsidies to low income families and vulnerable children and potentially some reduction in subsidy levels;

- **The public to private spending balance in tertiary** – adjust the Crown’s contribution to the overall cost of study to better reflect private returns to tertiary level study.

Changes to material cost drivers could help to ensure the Crown’s investment in education reflects value for money and higher return principles. The indicative scenarios below allow spending to be reprioritised towards those who need it the most whilst maintaining or improving educational outcomes. The scenarios have not been quantified to show their actual fiscal impact.

The schooling sector does not form part of our policy scenario analysis. There are options for reprioritising funding within the schooling sector that would in all likelihood increase the efficiency of spending at the margins. Technological advancements will induce productivity gains for example, through options around sharing resources and services.

Given the proportion of education spending allocated to teacher salaries, containing remuneration growth may help to contain costs over the medium term. However there is some evidence that suggests that remuneration growth to the levels seen recently was a ‘catch-up’ on low salary levels and remuneration growth in the one or two decades prior to the 2000s. On this basis you would not expect high rates of remuneration growth to continue. More recent data shows teacher salary growth is now more in line with public sector salary growth.

Moreover, too stringent a focus on containment of salary levels may be detrimental to the attractiveness of the profession and may thereby undermine efforts to attract high quality graduates into teaching.

Another way to help manage remuneration growth may be to reduce the size of the workforce and use the money saved to invest in the quality of teaching, a key government priority. Remuneration could be designed to differentiate between teachers based on demonstrated knowledge and expertise. At the moment the teaching workforce is treated as a homogeneous workforce and there are few incentives to demonstrate expertise and to continually develop.

However differentiated salary levels or scales for teachers demonstrating higher levels of knowledge and expertise would likely cost more compared to the current salary structure. In addition there would need to be an upfront and potentially sustained investment in raising the capability of the education workforce to deliver on such a step-change. In this context it is unlikely that the size of the workforce could be reduced enough to offset increases in aggregate remuneration costs (and without impacting negatively on the attractiveness of the profession). Thus, there is some uncertainty around the fiscal impact of a system-level shift towards raising the quality of teaching.

The assessment overall is that there is unlikely to be policy scenario changes substantial enough to impact the expenditure track in the schooling sector in a material way.

The scenarios below do not include changes to demographics or the participation rate within each sector, as the impact of these factors have been included in long-term...
projections already. Thus, spending scenarios do not include or assume additional changes to these factors into the future.

**Scenario: Rebalance ECE Subsidies away from Universal Provision**

To make a real difference in the educational achievement of the population, we need to intervene at earlier points for those who are at the greatest risk of not achieving. We know that people from lower socio-economic backgrounds are less likely than those from higher socio-economic groups to achieve higher school level qualifications. Partially as a result of this, they are also less likely to progress to study at higher levels. By incentivising participation in ECE by lower socio-economic groups, this is likely to raise achievement at school and tertiary levels. This will support New Zealand’s economic growth through higher labour productivity.

It is also important to note here that early investment in childhood education must be sustained throughout the schooling years. There is some suggestion that the advantages of ECE can dissipate if not reinforced by high quality schooling.

Treasury modelling of the growth effects of improving New Zealand students’ educational performance indicates the type of improvement we could expect as a result of improved participation in ECE. For the lowest income groups, the change in score is most significant for those in income bracket one, with an improvement of around 60 points as a result of one year’s participation in ECE. The effect is slightly less but still substantial for those in income bracket two, with an improvement of 40 points.

*Figure 22: PISA Performance in Reading, by attendance in ECE and income bracket*[^37]

With consistent increased ECE participation by low socio-economic groups and more highly skilled and productive workers entering the labour force over time, Treasury

[^37]: It is important to note the following in relation to the modelling, however: PISA 2009 estimates that a high proportion of New Zealand students already attend ECE. However, separate New Zealand specific studies have indicated that ECE participation is lower than PISA suggests (particularly amongst low SES students), and consequently the returns from increasing ECE attendance amongst disadvantaged children may be higher than PISA 2009 suggests. The analysis represents only simple correlations. More substantial econometric analysis is needed to make firm judgements on the relationship between ECE and student outcomes. The data does not control for the quality of ECE services. Empirical evidence has shown that higher quality services produce markedly better outcomes. Roughly one third of PISA respondents were unable to supply information on income status and were excluded from this analysis.
modeling indicates that GDP in 50 years could be 10% to 15% higher than what would be expected without improvements in skills.

Focussing more funding towards lower income groups would be particularly useful in breaking the intergenerational link of underachievement which is a feature of New Zealand’s educational system. Targeted investment in ECE will mean children from lower socio-economic backgrounds are better able to participate in ECE and would therefore be more prepared for school, and will also build important non-cognitive skills such as resilience and perseverance.

From a distributional point of view, this scenario would see funding focussed away from higher income families to provide higher subsidies for lower socio-economic groups. This means that there is some potential for participation of children from middle and higher income brackets to reduce. Workforce participation by women in particular in middle and higher income families may also reduce, although we would not expect this to be significant. Participation levels are already high for these groups, and educational outcomes on average, are also much better. Therefore even if there was an impact on participation for some cohorts, it is unlikely to have a large effect on New Zealand’s overall educational achievement.

In the short-term there may be a negative impact on labour productivity by targeting subsidies to low income families. Income earners in the middle income brackets, who generally have higher levels of skills, may find ECE no longer affordable, and choose to leave the labour market. Over the long-term you would expect labour productivity to increase as the educational attainment of the lower skilled cohorts within the population decline.

In addition, the short-term impact of labour market displacement may be offset by efficiency gains made by the reducing the cost of payments made to families who would send their children to ECE even if they did not receive the subsidy (currently estimated to be $260m to $280m per annum).

 Degree of Change

The degree to which spending is adjusted depends on the level of fiscal adjustment desired in the future.

**Smaller reduction** - Some retention of universal subsidies (particular for the under 2’s age group where ECE provision is more expensive), and with top-up subsidies for disadvantaged children. There could also be some scope to limit annual growth in subsidy levels.

**Higher reduction** - Remove universal subsidies and target funding across all age groups based on income. There could also be some scope to limit the number on hours subsidised.

**Scenario: Reduce Financial Contribution by Government (relative to private contribution) to the Cost of Tertiary Education**

The Government funds tertiary education provision through the Student Achievement Component (SAC) and Tertiary Education Institution (TEIs) base investment. Students contribute to the direct costs of their studies through tuition fees which are charged by the TEIs.
The current ratio between private and public contributions to student tuition costs at Tertiary Education Institutes is around 30:70. This ratio does not include the public contribution to tertiary education through the student loan scheme.

The rationale for splitting the costs of study between individuals and the government is to reflect the private benefits of higher education for the individual (e.g. higher earnings, lower risk of unemployment, greater career opportunities) and the wider public benefits (e.g. higher productivity, more well-informed citizens, better health and lower crime rates).

Even though the current 30:70 split in the contribution to the cost of tertiary education is intended to reflect the public and private benefits, it is unclear if this ratio is accurate. There is considerable variation of private benefits of tertiary education depending on the level and the field of study. There is also some degree of uncertainty associated with particular public benefits. Rather than being an estimate, the current 30:70 split can be viewed as a social consensus on the level of government funding and the contribution individuals are expected to contribute towards their tuition fees.

Although private returns to tertiary education have been shown to be relatively small in New Zealand compared to other OECD countries, returns are still higher compared to holding only an upper-secondary qualification. This is particularly the case for degree level and higher qualifications where the private returns to education are higher again compared to sub-degree tertiary qualifications.

One scenario to help improve the governments return on investment in tertiary education could be to increase private contributions to the cost of study. If private contributions to the cost of tertiary study increase, this may incentivise more optimal choices for study by individuals, a greater matching of demand for skills with supply, and lower demand for courses of low value-add in terms of skill development.

An increase in tuition fees would lead to an increase in student loan borrowing if the borrowing settings remained the same because the government would, in effect, be paying for one third of the fee increase (based on the current cost of lending at around $0.39 per dollar lent). Thus, in order to limit this effect, it may be necessary to also reintroduce interest on student loans. By reintroducing some level of interest for New Zealand based borrowers, they would have increased incentives to borrow only as much as they need, or to access finance through other means, e.g. private savings, and to repay more quickly. This would reduce the number of new borrowers, and reduce the repayment time of loans. Both effects would have positive impacts on the value of the student loan scheme and would generate operating savings. The proposed changes to the interest level of student loans would reduce pressure on government funding to address future demand and cost pressures.

Reducing the number of students borrowing through the student loan scheme who do not need to borrow would decrease the subsidisation of students from higher socio-economic backgrounds and may incentivise higher private savings in order to pay for tertiary level study.

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38 Private returns to Tertiary Education, Why does New Zealand rate poorly? NZIER report to The Treasury, March 2012. This report put the lower private returns to tertiary education in New Zealand down to a number of issues. About half of the measured gap can be explained by the way the returns are measured rather than a demonstrated ‘real’ gap. The issues range from difficulties in matching New Zealand’s qualifications with international frameworks to the effect of exchange rates/discount rates. Low returns are also closely related to factors that are usually identified as reasons for generally poor economic performance such as low rates of innovation, low capital intensity and distance to markets.
It is possible that some prospective students may be deterred from enrolling in tertiary studies given the need to incur higher student loan debt to cover the increase in tuition fees. However, the available New Zealand research suggests that debt has generally little impact on the attitudes of young people towards tertiary study, and that socio-economic status, particularly financial circumstances, is not significant.\(^{39}\) International and New Zealand evidence on the relative impact of financial and non-financial barriers to tertiary education lends support to this view, although as the interest-free student loan scheme is both unique to New Zealand and relatively recent, the evidence is not conclusive.

If the private contribution to tertiary study was increased and included the reintroduction of interest on student loans, then more targeted student support may need to be considered for specific groups.\(^{40}\) There is currently limited targeting of student support and modest support for students from low socio-economic backgrounds.

**Degree of Change**

The degree to which spending is adjusted depends on the level of fiscal adjustment required.

**Smaller reduction** - adjust the Crown's contribution to the cost of study (adjust the public/private expenditure ratio from the current 30:70) by reducing the government's share of tuition costs, re-introducing interest on student loans, and increased targeting of student allowances.

**Higher reduction** – the same as above and additional options around limiting access to student allowances and loans based on criteria such as maximum eligible years of study or number of qualifications, or maximum age of eligibility.\(^{41}\)

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\(^{41}\) Note that some of these changes have already been made, through recent Budgets, and are already beginning to have an impact.