



MINISTRY OF EDUCATION

Te Tāhuhu o te Mātauranga

What we get for what we spend
*Inputs, outputs and outcomes of the
Government's tertiary education
expenditure 2004-2013*

This report forms part of a series called Supporting the tertiary education system.

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MINISTRY OF EDUCATION

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What we get for what we spend

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SUMMARY

This report synthesises the inputs, outputs and outcomes of the Government's tertiary education expenditure over the period 2004-2013 in the five largest tertiary education funds. In total, these funds distributed over \$4 billion to providers and students in 2013.

Student Achievement Component (SAC) (\$2,018 million in 2013)

The SAC has exhibited increased efficiency over the last 10 years, as measured by the percentage of study load completed successfully. The largest gains in efficiency occurred when the Government increased its focus on performance by introducing the Education Performance Indicators (EPIs) and performance-linked funding. The gains were largest in the polytechnic, wānanga and private training establishment (PTE) subsectors, with universities having started from a higher base. The level of efficiency stabilised in 2012 and 2013.

Returns for provider-based qualifications have been maintained over time, although the impact of the Global Financial Crisis resulted in a slight drop in real earnings for new graduates. The higher employment rate of tertiary graduates compared with people with school qualifications and those with no qualifications was maintained between 2004 and 2013.

Industry training (\$138 million in 2013)¹

Between 2004 and 2013, industry training exhibited a period of substantial growth and then contraction in the number of trainees. The expansion in industry training during 2006 and 2009 was associated with a drop in efficiency in terms of the rate of successful credit attainment. Since 2010, the number of delivered Standard Training Measures (STMs) and the amount of Government expenditure on industry training have decreased significantly. This decline coincided with Tertiary Education Commission's operational review² of industry training and the onset of the Global Financial Crisis. Although the volume of industry training declined, the credit attainment rates improved, reflecting a smaller but more efficient system of training.

Student loans and student allowances (\$1,599 million allocated to student loans (new lending) and \$553 million allocated to student allowances in 2013)

After almost doubling between 2004 and 2012, expenditure on student allowances decreased in 2013, as eligibility changes impacted on the number of recipients. Government expenditure on student loans increased slightly in 2013, despite the number of borrowers falling slightly as a result of falling participation in tertiary education. Modelling of the behaviour of school leavers shows that, after controlling for school achievement, the relative access rate to tertiary education for school leavers from less affluent areas has been maintained.

Performance-Based Research Fund (PBRF) (\$262.5 million in 2013)

The introduction of the PBRF has been associated with an increase in the rate of citation of research from New Zealand universities. In addition, the volume of research degree completions and the rate of qualification completion have been improving. Since 2007, the base funding per point on all three PBRF components (Quality Evaluation, research degree completions and external research income) has declined in real terms. However, phased increases in the PBRF now taking place should help to offset this trend.

¹ The time frame analysed in this report does not capture the impact of the industry training policy review of 2013/14.

² This tightened performance requirements, so that funding was removed for those who were not achieving credits.

1 INTRODUCTION

This report is the third in an occasional series. It synthesises, in one document, the inputs, outputs and outcomes of the Government's tertiary education expenditure. Although much of this information is already available in other publications,³ in many cases outputs and outcomes are not directly linked to tertiary education funds for multiple-year periods. This can make it difficult to assess the performance of these funds over time.

Scope of the report

This report examines the outputs and outcomes of five of the largest funds used to allocate funding to the tertiary education sector. These funds are:

- Student Achievement Component (SAC)⁴
- Performance-Based Research Fund (PBRF)⁵
- Industry training
- Student loans (new lending)
- Student allowances.

Combined, these funds distributed over \$4 billion to tertiary education providers and students in 2013.⁶

The two previous editions focused on five-year windows of analysis. For this latest edition, we take a longer-term focus and examine 10 years of data.

It is important to note that the emphasis in this report is on comparing the trends in performance of the individual funds over time, rather than comparing different funds. This also applies to the subsector analysis of the Student Achievement Component (SAC), where the performance of each subsector should not be compared directly with the others. Direct comparison can be misleading because the subsectors teach qualifications at different levels and have different student populations.

Data

The data used in this report has been acquired from various sources, including the Ministry of Education, the Tertiary Education Commission, Statistics New Zealand and Thomson Reuters. Note that the Government expenditure in this report is presented on a GST-exclusive basis and the Consumers Price Index has been used to adjust government expenditure for inflation.

There are caveats that apply to some of the data used in this report. For example, some of the earnings returns for qualifications and employment rates data use Statistics New Zealand Household Labour Force Survey data, which applies to the resident population. This group includes more recent immigrants, who are likely to have acquired their qualifications overseas. In addition, this data does not allow us to identify which government fund led to the attainment of a qualification. For example, a graduate may have attained the qualification via industry training or SAC-funded education.

³ Such as the Ministry of Education's annual report on the tertiary system, *Profile and trends*, and the Tertiary Education Commission's *Annual reports*. The Tertiary Education Commission also publishes Education Performance Information for the Student Achievement Component and industry training at the following web page: www.tec.govt.nz/Learners-Organisations/Learners/performance-in-tertiary-education.

⁴ Including the Public Provider Base Grant (top-slice) but excluding research top-ups.

⁵ Including research top-ups.

⁶ We do not examine Youth Guarantee or Foundation-Focused Training Opportunities. The former has only been in place for a limited time and an evaluation of this fund is made in another series of publications. The latter fund ceased in 2013.

Structure of the report

For each fund, background information is presented on the objectives of each of the funds, as well as any substantive policy changes that have taken place over the period of this analysis. Any major planned changes to policy are also included. A data table of the inputs and outputs of tertiary education expenditure is then presented for each fund. This is complemented by written commentary and graphs. We also present a section that examines the employment outcomes for graduates from the tertiary education system.

2 STUDENT ACHIEVEMENT COMPONENT

Introduction

The Student Achievement Component (SAC)⁷ is the single largest item of tertiary education expenditure. It represents the Government's contribution to the direct costs of teaching and learning and other costs at tertiary education providers, and is driven by learner numbers. The total value of the SAC is determined by Government budget decisions. The Tertiary Education Commission makes the annual allocations to providers, based on the volume and mix of provision proposed in providers' investment plans. The funding rate for SAC delivery differs for different fields of study, broadly aligned with costs of delivery. Since 2013, part of the SAC has also been allocated via a tender process at levels 1 and 2.

Policy context

Since 2004, the Government has made several changes to the way funding is allocated via the SAC. Before 2008, most of the funding was demand-driven, and the focus for Government was on managing growth and limiting expenditure in areas not considered high priorities. This included, for example, funding private training establishments (PTEs) from a capped, ring-fenced pool from 2003 following significant growth in 2000-2002. From 2004 to 2007, caps were applied on growth in funding for certificate and diploma-level study at the remaining SAC-funded providers.

From 2008, the Government's focus was on driving greater performance and relevance of provision within the context of greater certainty of funding. This change saw a shift from the previous demand-driven model to one where the Tertiary Education Commission approved funding for providers through investment plans. Plans can be approved for up to three years, although most are approved for up to two years.

With the introduction of investment plans, the number of delivered EFTS can differ from what is actually funded by the Government. A tolerance band of between 97 percent and 103 percent operated on delivery of investment plan commitments between 2008 and 2012. This meant no funding was recovered as long as the value of enrolments was 97 percent or higher than the plan total. If the value of enrolments was greater than 100 percent, no additional funding was provided. This was changed to between 99 percent and 105 percent in 2013. If tertiary education organisations (TEOs) delivered outside of this tolerance level, funding could be clawed back by the Tertiary Education Commission. The tolerance bands are designed to limit over-delivery by TEOs to ensure the quality of provision is not affected and also to limit the impact of uncapped student numbers on the student support budget. The Government has allowed for flexibility to be applied to the tolerance bands of providers affected by the earthquakes in Christchurch in 2010 and 2011.

The Global Financial Crisis starting in 2008 required a significant response from the tertiary education sector, as people decided to take up or remain in study instead of moving into the labour market. This led to a period of strong growth in 2009 and 2010 in particular. As the economy continues to improve and the population of the core age group accessing tertiary education moves past its peak, demand for tertiary places is likely to continue to ease off over the next five years.

The Government's recent focus for the SAC is on improving the effectiveness of its investment. To encourage better performance, the Government began publishing provider-level performance

⁷ Note that, for data consistency, SAC funding excludes research top-ups funding and includes the Public Provider Base Grant.

information in 2010.⁸ From 2012, 5 percent of SAC funding has been contingent on providers meeting a set of performance benchmarks based on indicators such as qualification completion, successful course completion and student progression to further study.

Since 2011, the Government has also targeted funding rate increases into priority areas, such as higher-level study and some fields of science, technology, engineering and mathematics (STEM) study that data analysis shows are relatively under-funded.

From 2013, the SAC was split by level, with levels 1-2 focused on foundation education. Part of the level 1-2 appropriation has been opened up to tender and to provision by PTEs.

Commentary

Inputs

Between 2004 and 2013, SAC funding increased by 40 percent in nominal terms and 14 percent in real terms. However, the number of funded equivalent full-time students (EFTS) was just 1.7 percent higher in 2013 than in 2004. This indicates that the main drivers of increased expenditure in the SAC were increases in funding rates and a shift in the mix of provision towards higher-cost courses.

Average SAC funding per EFTS can be calculated using either the number of estimated funded EFTS as the denominator or the number of actual delivered EFTS. Both of these are presented in Figure 1(a), which shows the inflation-adjusted funding per EFTS. Between 2004 and 2013, average funding per delivered EFTS increased by around 13 percent in real terms, with most of the increase occurring between 2005 and 2007. Increases in funding rates following a funding category review in 2006 and an increase in the proportion of enrolments in higher-cost courses were factors in the increase.

The impact of over-delivery on per EFTS funding can be seen in 2009 and 2010, where funding per delivered EFTS was much lower than funding per funded EFTS. SAC funding per delivered EFTS decreased by 3.0 percent in real terms in 2009 when the amount of over-delivery peaked at 5.1 percent. Since 2010, the amount of over-delivery has reduced, and funded and actual delivered per EFTS funding has begun to track along similar paths once again.

Outputs

One way to measure the efficiency of SAC funding is to consider the rate of successfully completed study. In this analysis, we apply a different measure of successful study from the Tertiary Education Commission's course completion EPI measure. We consider all SAC-funded delivery (including PBRF-eligible courses) and we also report on delivery where the result of study was not known. We include the 'not known' results, as the introduction of the Tertiary Education Commission's EPIs has improved the quality of course completion data submitted by tertiary education organisations, since they have an incentive to make sure they report all completed courses. However, by including the not knowns (which were mainly an issue before 2009), we can get an idea of what might have occurred in the best case scenario, where all the not knowns may have been successful completions.

There have been clear improvements in the efficiency of delivery in the SAC. Figure 1(c) shows that since 2010 the percentage of successful study has been higher than the percentage of successful study in previous years, even when previous year figures are combined with the percentage of study where the outcome was not known or reported. For example, in 2012, the percentage of successful study (83 percent) was higher than the combined percentage of

⁸ Performance information is available on the Tertiary Education Commission's website at: www.tec.govt.nz/Learners-Organisations/Learners/performance-in-tertiary-education.

successful study and not known (around 79 percent) in each year between 2004 and 2008. So even if all the not knowns had successfully completed, which is highly unlikely, there was still a step up in performance by TEOs. This improvement in efficiency coincides with the Government's increased focus on the performance of TEOs through the publication of the Tertiary Education Commission's Education Performance Indicators, the introduction of performance-linked funding and the Tertiary Education Commission removal of funding for poorly performing courses.

Since 2011, the improvements in efficiency appear to have levelled off, with the rate in 2013 likely to be similar to that achieved in the two previous years.

In Figure 1(e) we show the dollar value of successful study per dollar of Government SAC expenditure. The value of successful study is calculated by multiplying the average funding per funded EFTS by the amount of completed study (in EFTS). As well as being influenced by the rate of successful completion, this measure is influenced by the amount of over-/under-delivery. An increase in over-delivery will increase the value of completions per dollar, other things remaining unchanged, and vice versa.⁹

In 2013, for every dollar of SAC expenditure, the Government got \$0.82 worth of course completions, a figure that is likely to end up slightly higher once completions data is further updated. This compares favourably with the period between 2004 and 2008, when the Government was getting around \$0.79 worth of value for each dollar of expenditure. As was the case for the rate of successful course completion, the value of completions levelled off between 2010 and 2013. However, this was in the face of declining over-delivery and overall demand for tertiary study.

In line with the improvement in course completion rates, the rate of qualification completion has also improved over time. Five-year qualification completion rates for students studying full-time improved from 67 percent in 2004 to 76 percent in 2013.¹⁰

Technical note:

Course completion status of actual EFTS delivered

This measure captures the volume of successful course-level study in each calendar year, weighted by the EFTS consumed in those courses. In this analysis, successful study includes those courses that were reported as being completed successfully and also those postgraduate courses for which thesis study is ongoing and no completion was expected. These postgraduate thesis students are not expected to complete within the calendar year of analysis as their enrolment may be spread over several years. However, these students are subject to milestone reporting at their institutions during the year and so their continued enrolment is treated as a 'success'.

There are situations where course-level results are still to be reported, extensions have been granted, the enrolment has been deferred or the course has not yet finished. In addition, only formal students are required to have course completions reported. Some providers report completion outcomes for non-formal students, while others do not. These categories are labelled in this analysis as 'not yet known'.

Finally, providers can label the course outcome as 'not successfully completed'.

Each of these three statuses is presented as a percentage of actual delivered EFTS. This gives a sense of the efficiency of the tertiary education system. This gives a minimum and maximum limit to the percentage of successful study in that year. The actual successful study percentage will lie somewhere between these two limits.

Dollar value of successful course-level study per dollar of Government funding

This is calculated by multiplying the average funding per funded EFTS by the successfully completed EFTS and then dividing this by the amount of SAC funding in that calendar year. This is calculated to get a sense of how much value the Government is getting for its expenditure. As above, two sets of data are presented: one for completed courses and ongoing thesis study and another that also includes the 'not yet knowns'. This gives a minimum and maximum limit to the value of successful study in that year.

This value is affected by the course completion rate, the value of average funded EFTS, and the amount of over- and under-delivery. An increase in over-delivery will increase the value of completions per dollar of expenditure, and vice versa.

⁹ Under-delivery will decrease the value of completions per dollar, but only a maximum of 3 percent (2008-2012) or 1 percent (2013 onwards) of funding for under-delivery is retained by providers. Therefore the effects are very limited, except at the TEOs with earthquake recovery exemptions.

¹⁰ The five-year full-time qualification completion rate of 76 percent in 2013 refers to the proportion of students who had started a qualification in 2008 and completed by 2013.

Figure 1
Inputs and outputs of the Student Achievement Component fund

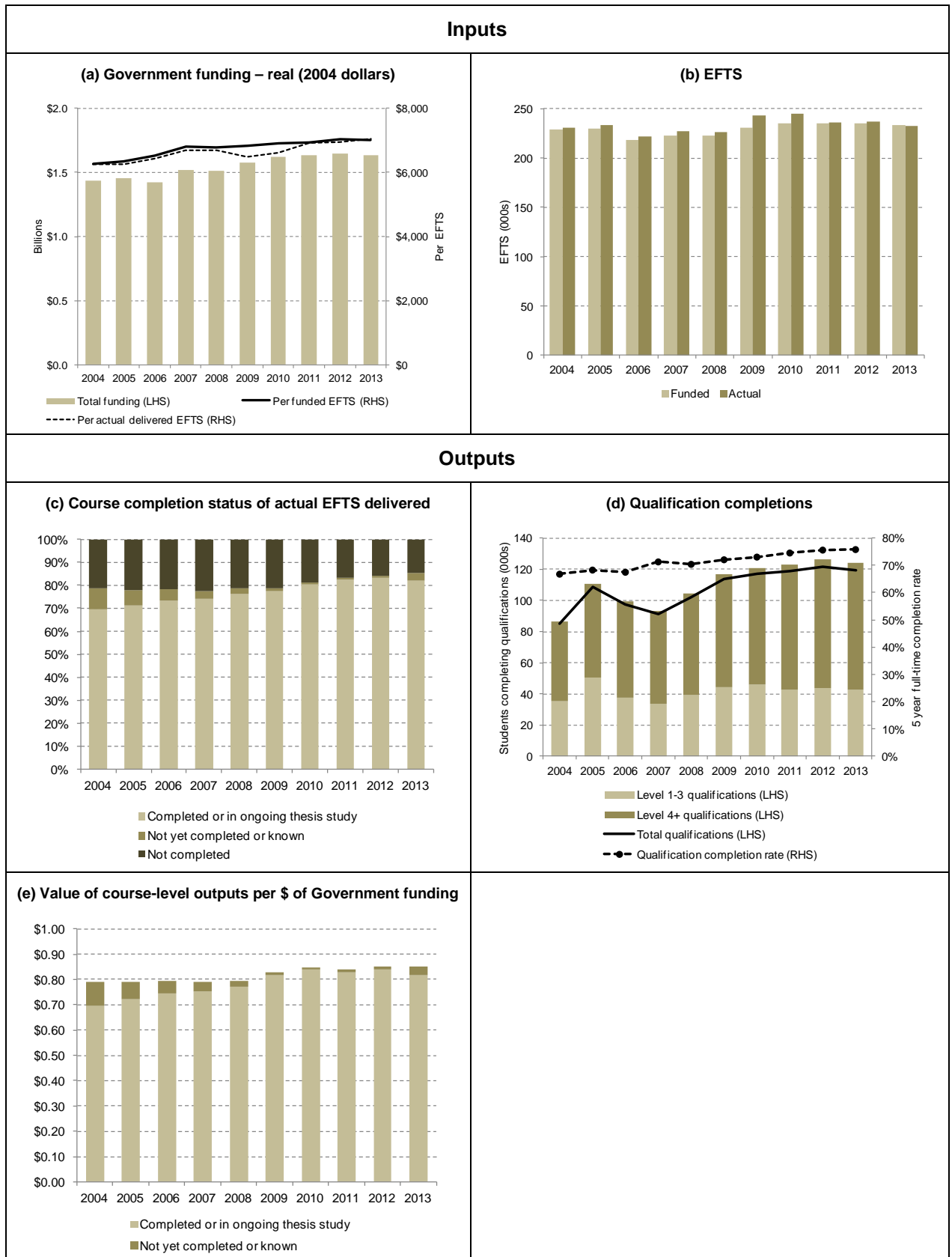


Table 1

Inputs and outputs of the Student Achievement Component fund

Type	Measure		Year										% change		
			2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004-13	2008-13	2012-13
Inputs	Government funding (\$ millions)	Nominal	\$1,438	\$1,501	\$1,516	\$1,654	\$1,712	\$1,822	\$1,908	\$1,970	\$2,011	\$2,018	40%	18%	0.4%
		Real	\$1,438	\$1,457	\$1,423	\$1,517	\$1,510	\$1,574	\$1,619	\$1,632	\$1,648	\$1,636	14%	8.3%	-0.7%
	Equivalent full-time students (000s)	Funded	229.3	230.0	218.5	222.6	223.0	230.9	234.8	235.0	234.8	233.3	1.7%	4.6%	-0.6%
		Delivered	230.3	233.2	221.5	227.0	225.9	242.8	245.2	236.1	237.4	232.5	0.9%	2.9%	-2.1%
		% over-/under-delivery	0.5%	1.4%	1.4%	2.0%	1.3%	5.1%	4.4%	0.5%	1.1%	-0.3%			
	Per EFTS funding	Funded – nominal	\$6,269	\$6,525	\$6,937	\$7,430	\$7,677	\$7,891	\$8,126	\$8,382	\$8,565	\$8,653	38%	13%	1.0%
		Funded – real	\$6,269	\$6,333	\$6,514	\$6,814	\$6,772	\$6,817	\$6,898	\$6,943	\$7,020	\$7,013	12%	3.6%	-0.1%
		Actual – nominal	\$6,241	\$6,436	\$6,843	\$7,286	\$7,577	\$7,507	\$7,782	\$8,342	\$8,469	\$8,683	39%	15%	2.5%
		Actual – real	\$6,241	\$6,246	\$6,425	\$6,682	\$6,684	\$6,485	\$6,605	\$6,910	\$6,941	\$7,037	13%	5.3%	1.4%
	Outputs	EFTS of completions (000s)	Success only	159.8	166.2	162.8	167.8	171.8	188.5	197.2	195.1	197.5	190.2	19%	10.7%
Success & not yet known			181.4	182.0	173.5	176.0	177.4	191.3	199.2	197.1	199.3	198.3	9%	11.7%	-0.5%
EFTS of completions as % of total delivered EFTS		Success only	69%	71%	74%	74%	76%	78%	80%	83%	83%	82%			
		Success & not yet known	79%	78%	78%	78%	79%	79%	81%	83%	84%	85%			
Value of successful study per \$ of government funding		Success only	\$0.70	\$0.72	\$0.75	\$0.75	\$0.77	\$0.82	\$0.84	\$0.83	\$0.84	\$0.82			
		Success & not yet known	\$0.79	\$0.79	\$0.79	\$0.79	\$0.80	\$0.83	\$0.85	\$0.84	\$0.85	\$0.85			
Students completing qualifications (000s)		Level 1-3	35.4	50.8	37.8	33.4	39.4	44.1	46.1	42.6	43.8	42.8	21%	8.8%	-2.2%
		Level 4+	51.1	59.9	61.8	59.9	64.8	72.5	74.6	80.2	82.3	81.1	59%	25%	-1.4%
		Total	84.9	108.4	97.4	91.5	101.9	113.5	117.1	118.6	121.7	119.3	40%	17%	-2.0%
5-year qualification completion rate		Full-time	67%	68%	67%	71%	70%	72%	73%	75%	76%	76%			

Source: Ministry of Education and Tertiary Education Commission

3 STUDENT ACHIEVEMENT COMPONENT BY SUBSECTOR

3.1 Universities

Introduction

This section disaggregates the previous chapter by subsector. We treat Telford Polytechnic, now a division of Lincoln University, as being part of the university subsector for the entire period. Similarly, we also treat the colleges of education as part of the university subsector.

Inputs

Between 2004 and 2013, SAC funding to universities increased by 54 percent in nominal and 25 percent in real terms. Funded EFTS increased by 8.1 percent and delivered EFTS by 6.2 percent during the same period, so the increase in SAC funding has been driven in part by increased student enrolments, and in part by increases in base funding rates and a shift to enrolments in higher-cost courses.

University enrolments peaked in 2010, as the Global Financial Crisis and a population bulge led to higher participation. In 2010, delivered EFTS reached 122,000 and were 3.4 percent above the funded EFTS level. One impact of the over-delivery at this time was that average funding per delivered EFTS decreased by 3.1 percent in real terms in 2009.¹¹ However, as over-delivery abated, the average funding per delivered EFTS increased by 8.8 percent in real terms between 2010 and 2013.

Outputs

The university subsector has exhibited the smallest increase in the rate of successful study over time, but it began from a higher base than the other subsectors. Between 2011 and 2013, the rate of successful study was around 86 percent. This compares with a combined successful and not known rate of around 84 percent between 2005 and 2009. The successful study rate has been relatively constant since 2011, suggesting that the modest gains in efficiency have levelled off.

In the universities, the value of successful course completions per dollar of SAC expenditure reached a peak of around \$0.87 in 2010, driven by the high levels of over-delivery and the modest improvements in rates of successful study. As the over-delivery has abated in subsequent years, the dollar value of completions has declined to around \$0.85 in 2013, but is still slightly above the levels seen in the years prior to 2009.

The number of students completing qualifications has increased over time, especially at level 4 and higher levels, which were 40 percent higher in 2013 than in 2004. The number of students completing level 1-3 qualifications declined by 65 percent over the same period, reflecting a shift away from non-degree of provision at the Auckland University of Technology.¹²

The five-year full-time qualification completion rate increased from 71 percent in 2004 to reach 78 percent in 2007 and has remained around that level in the following years.

¹¹ Although over-delivered provision does not attract government funding, students still pay the tuition fees charged by institutions, so universities receive some income from these enrolments. Over-delivered provision is likely to have a lower marginal cost, i.e. overheads for courses have been covered, which means that the costs to the institution of offering such places are lower.

¹² This reflects the transition of the Auckland University of Technology from a polytechnic to a university after it was granted university status in 2000.

Figure 2
Inputs and outputs of the Student Achievement Component fund – Universities

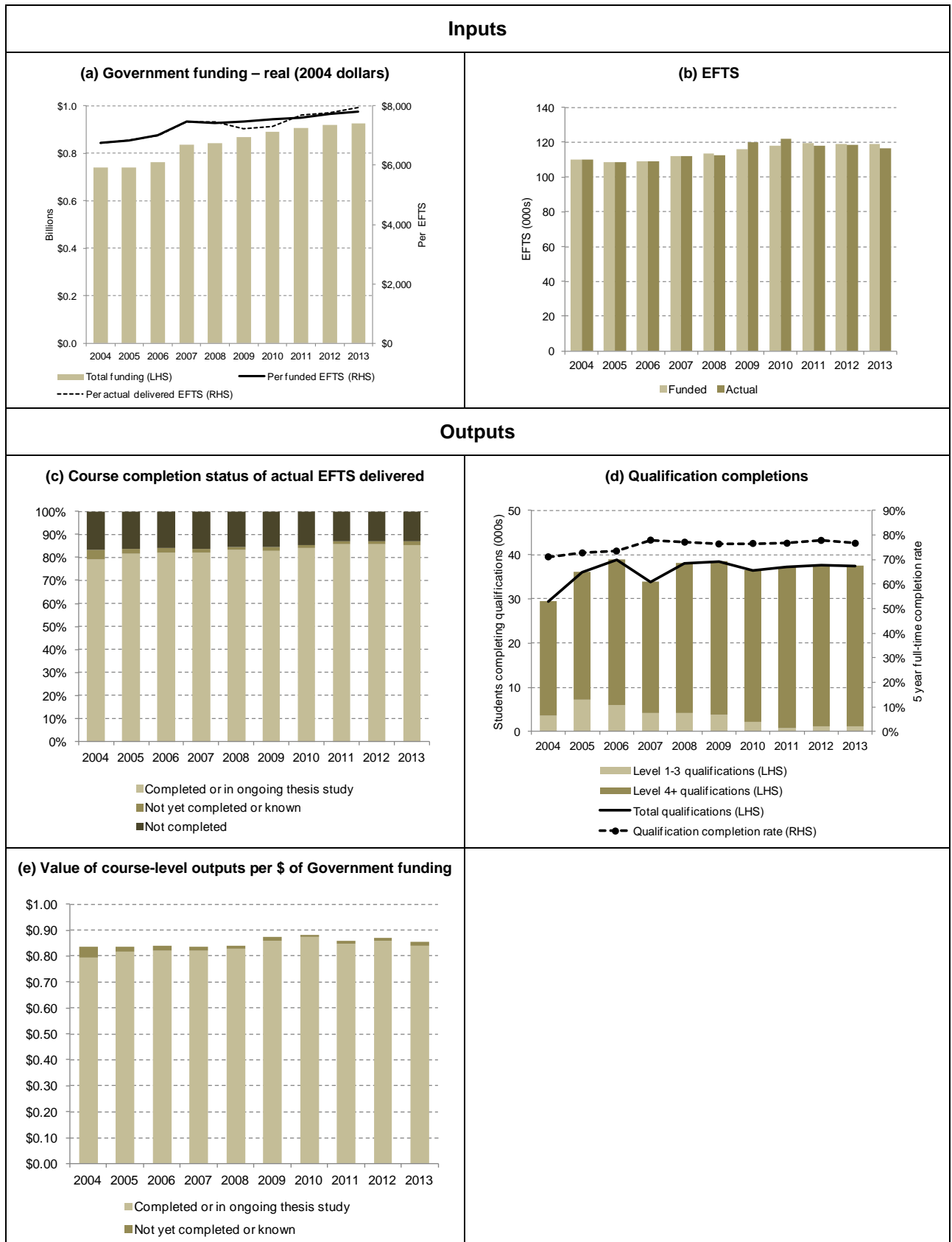


Table 2

Inputs and outputs of the Student Achievement Component fund – Universities

Type	Measure		Year										% change		
			2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004-13	2008-13	2012-13
Inputs	Government funding (\$ millions)	Nominal	\$742	\$764	\$812	\$910	\$953	\$1,005	\$1,048	\$1,095	\$1,120	\$1,142	54%	20%	1.9%
		Real	\$742	\$741	\$762	\$835	\$841	\$868	\$890	\$907	\$918	\$926	25%	10.1%	0.8%
	Equivalent full-time students (000s)	Funded	109.9	108.4	108.9	111.8	113.2	116.2	118.0	119.4	118.7	118.8	8.1%	4.9%	0.1%
		Delivered	109.9	108.4	108.9	111.8	112.7	120.1	122.1	117.9	118.5	116.7	6.2%	3.5%	-1.5%
		% over-/under-delivery	0.0%	0.0%	0.0%	0.0%	-0.5%	3.3%	3.4%	-1.2%	-0.2%	-1.8%			
	Per EFTS funding	Funded – nominal	\$6,750	\$7,045	\$7,455	\$8,140	\$8,417	\$8,648	\$8,881	\$9,167	\$9,436	\$9,612	42%	14%	1.9%
		Funded – real	\$6,750	\$6,838	\$6,999	\$7,466	\$7,426	\$7,471	\$7,539	\$7,593	\$7,734	\$7,790	15%	4.9%	0.7%
		Actual – nominal	\$6,750	\$7,045	\$7,453	\$8,140	\$8,457	\$8,368	\$8,587	\$9,282	\$9,454	\$9,789	45%	16%	3.5%
		Actual – real	\$6,750	\$6,838	\$6,998	\$7,466	\$7,461	\$7,229	\$7,289	\$7,688	\$7,749	\$7,933	18%	6.3%	2.4%
	Outputs	EFTS of completions (000s)	Success only	87.1	88.5	89.5	91.9	93.6	99.7	102.9	101.0	101.8	99.6	14%	6.4%
Success & not yet known			91.7	90.7	91.6	93.6	95.1	101.4	104.2	102.4	103.3	101.6	11%	6.9%	-1.6%
EFTS of completions as % of total delivered EFTS		Success only	79%	82%	82%	82%	83%	83%	84%	86%	86%	85%			
		Success & not yet known	83%	84%	84%	84%	84%	84%	85%	87%	87%	87%			
Value of successful study per \$ of government funding		Success only	\$0.79	\$0.82	\$0.82	\$0.82	\$0.83	\$0.86	\$0.87	\$0.85	\$0.86	\$0.84			
		Success & not yet known	\$0.83	\$0.84	\$0.84	\$0.84	\$0.84	\$0.87	\$0.88	\$0.86	\$0.87	\$0.86			
Students completing qualifications (000s)		Level 1-3	3.6	7.2	6.0	4.3	4.3	3.8	2.1	0.8	1.3	1.3	-65%	-70%	2.1%
		Level 4+	25.8	28.9	33.0	29.5	33.8	34.7	34.4	36.5	36.5	36.2	40%	7.1%	-0.8%
		Total	29.4	36.0	38.8	33.7	37.9	38.4	36.4	37.2	37.7	37.4	27%	-1.4%	-0.7%
5-year qualification completion rate		Full-time	71%	73%	73%	78%	77%	76%	77%	77%	78%	77%			

Source: Ministry of Education and Tertiary Education Commission

3.2 Polytechnics

Inputs

Between 2004 and 2013, SAC funding to polytechnics increased by 31 percent in nominal and 6.5 percent in real terms. In 2013, funded EFTS were 1.3 percent higher than in 2004, while delivered EFTS were 1.6 percent lower. This means that the increase in SAC funding has been driven mainly by increases in base funding rates and a shift to enrolments in higher-cost courses.

Since the introduction of investment plans in 2008, the polytechnic subsector has exhibited under-delivery in five out of the last six years. The one year of over-delivery in 2009 (1.3 percent) coincided with the onset of the Global Financial Crisis.

The number of delivered EFTS in the polytechnic subsector has exhibited relatively large variation throughout the 2004-2013 period. In five of the 10 years, there were changes in delivered EFTS of more than 5 percent. One of the years this occurred was 2013, when delivered EFTS declined by 5.7 percent from the previous year. The introduction of the level 1-2 tendering process was a contributing factor in this drop as other subsectors were successful in the tendering round.

Although average SAC funding per delivered EFTS was 8.2 percent higher in real terms in 2013 compared with 2004, this was strongly influenced by growth in funding in the early and mid-parts of this period. Between 2011 and 2013, average SAC funding decreased by almost 2 percent. During this period, government has been operating within fiscal constraints, and funding increases have been targeted at higher-level and STEM areas that make up a relatively small part of polytechnic provision.

Outputs

Polytechnics exhibited some of the largest gains in efficiency between 2004 and 2013. The rate of successful study in 2013 (79 percent) was much higher than the rate of successful study and unknown combined in 2009 (72 percent). As was observed in the university subsector, the improvement in the rate of successful study appears to have reached an end, with the rate stabilising at around 79-80 percent between 2011 and 2013.

This increase in efficiency resulted in a significant gain in the value of course completions per dollar of SAC expenditure. The value of completions per dollar of expenditure increased from around \$0.68 in 2008 to reach close to \$0.80 in 2013.

Overall, the number of students completing qualifications increased by around 50 percent, with the growth in level 4 and higher (60 percent) outstripping growth in level 1-3 qualifications (43 percent).

The five-year full-time qualification completion rates have been rising over time. In 2013, the completion rate was 72 percent, compared with 61 percent in 2004.

Figure 3
Inputs and outputs of the Student Achievement Component fund – Polytechnics

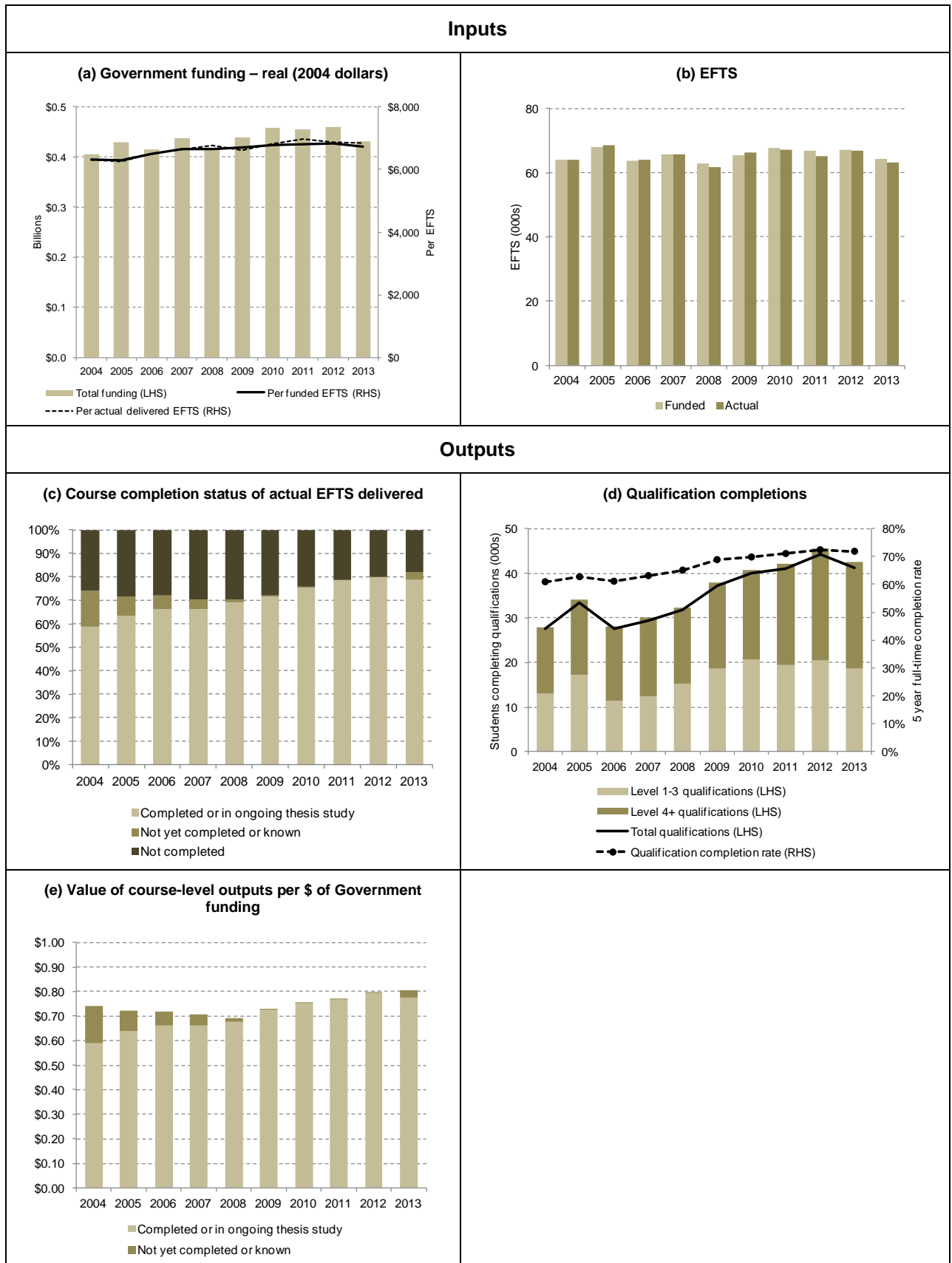


Table 3

Inputs and outputs of the Student Achievement Component fund – Polytechnics

Type	Measure		Year										% change		
			2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004-13	2008-13	2012-13
Inputs	Government funding (\$ millions)	Nominal	\$405	\$442	\$442	\$476	\$473	\$508	\$540	\$548	\$560	\$532	31%	12%	-5.1%
		Real	\$405	\$429	\$415	\$436	\$417	\$438	\$458	\$454	\$459	\$431	6%	3.3%	-6.1%
	Equivalent full-time students (000s)	Funded	64.1	68.1	63.8	65.7	62.9	65.5	67.6	66.7	67.2	64.2	0.1%	2.1%	-4.4%
		Delivered	64.1	68.5	63.9	65.8	61.6	66.4	67.3	65.2	66.9	63.1	-1.6%	2.4%	-5.7%
		% over-/under-delivery	0.0%	0.7%	0.0%	0.1%	-2.0%	1.3%	-0.5%	-2.2%	-0.4%	-1.7%			
	Per EFTS funding	Funded – nominal	\$6,316	\$6,493	\$6,922	\$7,245	\$7,525	\$7,744	\$7,984	\$8,219	\$8,342	\$8,286	31%	10%	-0.7%
		Funded – real	\$6,316	\$6,302	\$6,499	\$6,645	\$6,639	\$6,690	\$6,777	\$6,808	\$6,837	\$6,716	6%	1.2%	-1.8%
		Actual – nominal	\$6,316	\$6,449	\$6,919	\$7,235	\$7,679	\$7,643	\$8,023	\$8,403	\$8,376	\$8,428	33%	10%	0.6%
		Actual – real	\$6,316	\$6,259	\$6,496	\$6,635	\$6,774	\$6,603	\$6,810	\$6,960	\$6,865	\$6,830	8.2%	0.8%	-0.5%
	Outputs	EFTS of completions (000s)	Success only	37.8	43.4	42.3	43.5	42.5	47.4	50.8	51.3	53.4	49.8	32%	17%
Success & not yet known			47.5	49.0	45.9	46.4	43.5	47.7	51.0	51.4	53.5	51.7	9.0%	19%	-3.4%
EFTS of completions as % of total delivered EFTS		Success only	59%	63%	66%	66%	69%	71%	76%	79%	80%	79%			
		Success & not yet known	74%	72%	72%	71%	71%	72%	76%	79%	80%	82%			
Value of successful study per \$ of government funding		Success only	\$0.59	\$0.64	\$0.66	\$0.66	\$0.68	\$0.72	\$0.75	\$0.77	\$0.79	\$0.78			
		Success & not yet known	\$0.74	\$0.72	\$0.72	\$0.71	\$0.69	\$0.73	\$0.75	\$0.77	\$0.80	\$0.81			
Students completing qualifications (000s)		Level 1-3	12.9	17.2	11.5	12.5	15.2	18.7	20.7	19.4	20.4	18.6	43%	22%	-8.9%
		Level 4+	14.9	17.0	16.6	17.5	17.0	19.1	20.0	22.6	25.1	23.9	60%	40%	-4.7%
		Total	27.5	33.5	27.5	29.5	31.8	37.2	39.9	41.1	44.2	41.2	50%	30%	-6.9%
5-year qualification completion rate		Full-time	61%	63%	61%	63%	65%	69%	70%	71%	72%	72%			

Source: Ministry of Education and Tertiary Education Commission

3.3 Wānanga

Inputs

Between 2004 and 2013, SAC funding to wānanga declined by 6.9 percent in nominal terms and 25 percent in real terms. The main factor in the decrease in funding was a reduction in delivered EFTS of 25 percent. Most of these occurred between 2004 and 2006 and resulted from reviews of the relevance and performance of certificate and diploma provision and from organisational changes at Te Wānanga o Aotearoa. Since 2009, delivered EFTS have remained relatively stable.

On a per delivered EFTS basis, average SAC funding increased by 5.2 percent in real terms between 2009 and 2011. However, since then, per EFTS funding has dropped by 3.1 percent in real terms. Like polytechnics, funding increases have been targeted at higher-level and STEM areas that make up a minority of wānanga provision.

Outputs

As in the polytechnic sector, the successful study rate at wānanga has increased significantly over time. In 2012, the successful study rate was 81 percent, compared with a rate of 73 percent for successful study and unknown combined in 2009. As in other subsectors, the improvement in efficiency appears to have reached an end, with relatively stable performance in this metric over the last two years.

As the successful study rate has increased, the value of course completions per dollar of SAC expenditure has also increased. In 2012, the value of completions per dollar of SAC expenditure was \$0.80, compared with an average of around \$0.74 between 2004 and 2009.

The number of students completing qualifications increased by 28 percent between 2004 and 2013, while the rate of qualification completions has generally been rising over time. The five-year full-time qualification rate was 76 percent in 2013, compared with 63 percent in 2004.

Figure 4
Inputs and outputs of the Student Achievement Component fund – Wānanga

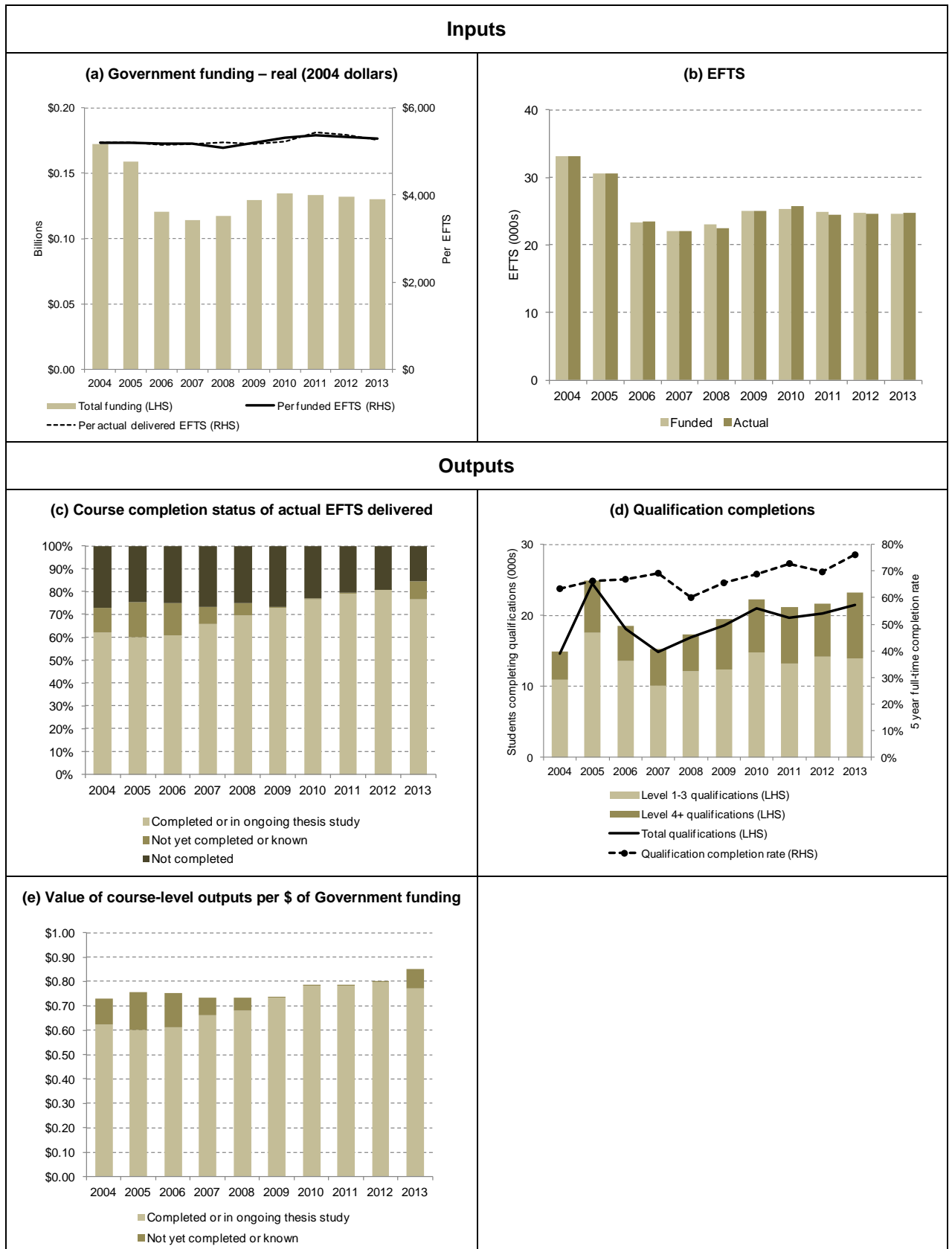


Table 4

Inputs and outputs of the Student Achievement Component fund – Wānanga

Type	Measure		Year										% change		
			2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004-13	2008-13	2012-13
Inputs	Government funding (\$ millions)	Nominal	\$173	\$164	\$129	\$124	\$133	\$150	\$159	\$161	\$161	\$161	-6.9%	21%	-0.4%
		Real	\$173	\$159	\$121	\$114	\$117	\$130	\$135	\$133	\$132	\$130	-25%	11%	-1.5%
	Equivalent full-time students (000s)	Funded	33.1	30.5	23.3	22.0	23.0	25.0	25.3	24.9	24.8	24.5	-26%	6.7%	-0.9%
		Delivered	33.1	30.5	23.4	22.0	22.5	25.1	25.8	24.5	24.6	24.7	-25%	9.6%	0.6%
		% over-/under-delivery	0.0%	0.0%	0.4%	0.0%	-2.1%	0.5%	2.0%	-1.4%	-0.9%	0.6%			
	Per EFTS funding	Funded – nominal	\$5,206	\$5,363	\$5,511	\$5,643	\$5,772	\$6,014	\$6,269	\$6,476	\$6,506	\$6,542	26%	13%	0.6%
		Funded – real	\$5,206	\$5,205	\$5,174	\$5,176	\$5,092	\$5,196	\$5,322	\$5,364	\$5,333	\$5,302	1.8%	4.1%	-0.6%
		Actual – nominal	\$5,206	\$5,363	\$5,487	\$5,643	\$5,893	\$5,982	\$6,149	\$6,567	\$6,564	\$6,501	25%	10%	-1.0%
		Actual – real	\$5,206	\$5,205	\$5,152	\$5,176	\$5,199	\$5,168	\$5,219	\$5,440	\$5,380	\$5,268	1.2%	1.3%	-2.1%
	Outputs	EFTS of completions (000s)	Success only	20.6	18.3	14.2	14.5	15.7	18.3	19.8	19.4	19.8	18.9	-8.2%	21%
Success & not yet known			24.1	23.1	17.6	16.2	16.9	18.4	19.9	19.5	19.8	20.9	-13%	24%	5.1%
EFTS of completions as % of total delivered EFTS		Success only	62%	60%	61%	66%	69%	73%	77%	79%	81%	77%			
		Success & not yet known	73%	76%	75%	73%	75%	73%	77%	80%	81%	84%			
Value of successful study per \$ of government funding		Success only	\$0.62	\$0.60	\$0.61	\$0.66	\$0.68	\$0.73	\$0.78	\$0.78	\$0.80	\$0.77			
		Success & not yet known	\$0.73	\$0.76	\$0.75	\$0.73	\$0.73	\$0.74	\$0.79	\$0.79	\$0.80	\$0.85			
Students completing qualifications (000s)		Level 1-3	11.0	17.6	13.5	10.1	12.2	12.4	14.8	13.2	14.1	13.9	27%	14%	-1.8%
		Level 4+	3.9	7.3	4.9	5.2	5.1	7.0	7.5	7.9	7.5	9.3	136%	84%	24%
		Total	14.6	24.5	18.1	14.9	16.9	18.6	21.0	19.7	20.2	21.5	47%	28%	6.5%
5-year qualification completion rate		Full-time	63%	66%	67%	69%	60%	66%	69%	73%	70%	76%			

Source: Ministry of Education and Tertiary Education Commission

3.4 Private training establishments

Inputs

After being relatively stable for the preceding five years, total SAC funding to private training establishments (PTEs) rose by 8.9 percent in nominal terms and 7.7 percent in real terms in 2013. Two factors in this increase were the success of PTEs in the level 1-2 tender, which led to higher student enrolments, and increases in PTE funding rates to equalise them with tertiary education institution (TEI) funding rates.

There has been a history of significant over-delivery in the PTE subsector since the introduction of capped funding for this subsector in 2003. Changes in the scale of the over-delivery have had a significant impact on the average funding per delivered EFTS in this subsector. Figure 5(a) shows that the funding per delivered EFTS decreased by 13 percent between 2004 and 2009, as over-delivery increased from 4.7 percent to 29 percent. From its peak in 2009, over-delivery has fallen to reach 8.9 percent in 2013. This drop in over-delivery, combined with increases in base funding rates, resulted in the average funding per delivered EFTS increasing by 20 percent in real terms since 2009.

Outputs

As with polytechnics and wānanga, PTEs have increased the efficiency of their SAC delivery. The rate of successful study reached 82 percent in 2012, compared with an average rate of successful and unknown combined of 75 percent between 2004 and 2009. Once again, as in other subsectors, the improvement in efficiency appears to have reached its end, with the rate of successful study remaining stable for the last three years.

The value of course completions per dollar of SAC expenditure peaked at close to \$1.00 in 2010, driven by the improvement in successful study rates and the peak in over-delivery. Since then, the value has declined as the rate of over-delivery has decreased significantly. Nevertheless, the dollar value of completions remains higher than in each year between 2004 and 2008.

The five-year full-time qualification completion rate has been trending upwards over time and reached 82 percent in 2013, compared with a low of 67 percent in 2006.

Figure 5

Inputs and outputs of the Student Achievement Component fund – Private training establishments

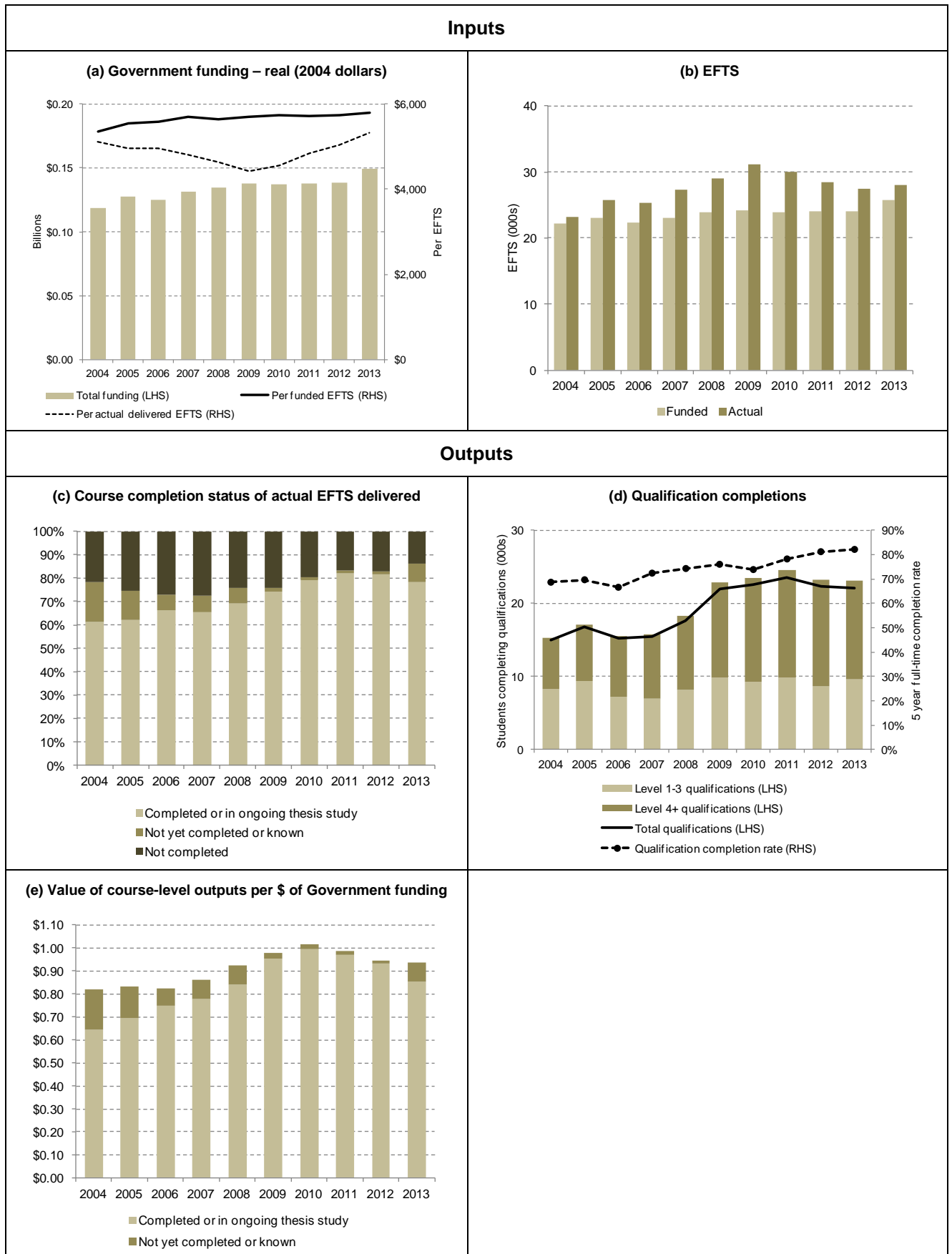


Table 5

Inputs and outputs of the Student Achievement Component fund – Private training establishments

Type	Measure		Year										% change		
			2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004-13	2008-13	2012-13
Inputs	Government funding (\$ millions)	Nominal	\$119	\$132	\$133	\$143	\$153	\$160	\$161	\$166	\$169	\$184	55%	21%	8.9%
		Real	\$119	\$128	\$125	\$131	\$135	\$138	\$137	\$138	\$138	\$138	\$149	26%	11%
	Equivalent full-time students (000s)	Funded	22.2	23.1	22.4	23.0	23.8	24.2	23.8	24.1	24.1	25.7	16%	7.8%	6.7%
		Delivered	23.2	25.8	25.3	27.3	29.0	31.2	30.0	28.4	27.5	28.0	21%	-3.7%	1.9%
		% over-/under-delivery	4.7%	12%	13%	19%	22%	29%	26%	18%	14%	8.9%			
	Per EFTS funding	Funded – nominal	\$5,343	\$5,711	\$5,952	\$6,213	\$6,397	\$6,592	\$6,765	\$6,904	\$7,005	\$7,154	34%	12%	2.1%
		Funded – real	\$5,343	\$5,543	\$5,589	\$5,698	\$5,643	\$5,695	\$5,742	\$5,718	\$5,742	\$5,798	8.5%	2.7%	1.0%
		Actual – nominal	\$5,105	\$5,108	\$5,278	\$5,237	\$5,251	\$5,126	\$5,371	\$5,839	\$6,148	\$6,570	29%	25%	6.9%
Actual – real		\$5,105	\$4,957	\$4,956	\$4,803	\$4,632	\$4,429	\$4,559	\$4,836	\$5,039	\$5,325	4.3%	15%	5.7%	
Outputs	EFTS of completions (000s)	Success only	14.3	16.1	16.7	17.9	20.0	23.1	23.7	23.3	22.4	21.9	54%	9.3%	-2.4%
		Success & not yet known	18.1	19.2	18.4	19.9	22.0	23.6	24.2	23.7	22.7	24.1	33%	9.6%	6.2%
	EFTS of completions as % of total delivered EFTS	Success only	61%	62%	66%	65%	69%	74%	79%	82%	82%	78%			
		Success & not yet known	78%	75%	73%	73%	76%	76%	81%	83%	83%	86%			
	Value of successful study per \$ of government funding	Success only	\$0.64	\$0.70	\$0.75	\$0.78	\$0.84	\$0.95	\$1.00	\$0.97	\$0.93	\$0.85			
		Success & not yet known	\$0.82	\$0.83	\$0.82	\$0.86	\$0.92	\$0.98	\$1.01	\$0.99	\$0.94	\$0.94			
	Students completing qualifications (000s)	Level 1-3	8.3	9.4	7.3	6.9	8.2	9.8	9.3	9.9	8.6	9.7	17%	17%	12%
		Level 4+	7.0	7.7	8.3	8.9	10.1	13.0	14.2	14.7	14.6	13.4	91%	33%	-8.6%
		Total	15.0	16.7	15.2	15.5	17.6	22.0	22.6	23.5	22.3	22.0	47%	25%	-1.2%
	5-year qualification completion rate	Full-time	69%	70%	67%	72%	74%	76%	74%	78%	81%	82%			

Source: Ministry of Education and Tertiary Education Commission

4 INDUSTRY TRAINING

Introduction

Industry training is formal workplace-based training that leads to qualifications on the New Zealand Qualifications Framework (NZQF). Industry training is part subsidised by Government, and is mainly focused on levels 1-4 on the NZQF. It includes foundational education as well as more advanced training through apprenticeships, leading to certificates and skilled trades qualifications.

Industry training is supported and arranged by Industry Training Organisations (ITOs). ITOs are industry bodies, recognised by government to set standards and develop qualifications in respect of a particular industry or industries.

ITOs develop and arrange on-job and off-job training programmes leading to industry-relevant qualifications. Industry training usually includes a blend of on-job training and off-job learning, through part-time study or block courses, run by a polytechnic or another registered training provider. Funding is based on a Standard Training Measure (STM). An STM is defined as the amount of training that is required for a trainee to achieve 120 credits (or equivalent) in an approved, structured training programme.

To maintain an arm's length between ITOs' standard-setting function and training activity, ITOs are prohibited from directly providing training – training must be arranged through an employer or a registered provider.

In the past, two funds were used to allocate money for industry training – the Industry Training Fund and the Modern Apprenticeships Fund. We analyse these two funds together, as their separation has been removed from 2014.

Policy context

The major change to the operation of industry training during the period 2004-2008 was the move to a single STM funding rate in the Industry Training Fund. This was phased in over the period 2005-2007.

From 2009, the Government set higher performance expectations for ITOs. This included, for example, Tertiary Education Commission compliance audits of all ITOs, which revealed that a number of ITOs were claiming funding they were not entitled to. From 2011, new operational policies were introduced, which set a limit on funding for individual trainees of 70 credits per annum and required all funded trainees to have gained some credits.

In 2011, a major policy review of industry training began. Although the review found that the fundamental principles of the system were sound, there was room for significant improvement. As a result, changes were made which come into effect from 2014. These include:

- replacing Modern Apprenticeships with New Zealand Apprenticeships, which have higher educational content, increased funding and an improved regulatory framework
- boosting funding for industry training. Funding for non-apprentice training was boosted from \$2,919 to \$3,200 per STM
- setting clearer roles and performance expectations for ITOs
- giving some employers or employer groups direct access to funding.

Commentary

Inputs

Total funding increased by 52 percent in real terms between 2004 and 2009, before falling by 37 percent to reach a total of \$138 million in 2013. These fluctuations in expenditure reflect the changing volumes of delivery of industry training over the time period. Total delivered STMs increased by 43 percent between 2004 and 2009. However, the impact of the recession and the 2010 operational review by the Tertiary Education Commission saw the number of STMs fall by 40 percent between 2009 and 2013.

For long periods of this analysis, the STM rate paid for industry training remained constant in nominal terms. As a result, the per STM funding rate declined by 10 percent in real terms between 2004 and 2013. On an actual delivered STM basis, the funding per STM remained relatively constant in real terms, as a reduction in the scale of over-delivery offset the decline in the real value of the base STM funding rate.

The structure of the sector has changed dramatically over the last few years. There were 38 ITOs that received funding between 2005 and 2010. Since 2010, the number of ITOs receiving funding has reduced as mergers of various organisations have taken place. By January 2015, the number of ITOs had reduced to 11.

Outputs

Initially, the expansion in industry training delivery between 2004 and 2006 was mirrored by improving performance. During this time, the number of credits attained per trainee increased from 18.7 to 22.1 and the credit attainment rate also increased from 44 percent to 53 percent.

However, from 2007, continued expansion in delivery was associated with declining efficiency. This is reflected in a drop in the number of credits attained per trainee from 22.1 in 2006 to 19.8 in 2008. Similarly, the credit attainment rate dropped from 53 percent to 45 percent. During this time, the number of new trainees each year remained relatively constant, but the number of returning trainees continued to increase, indicating that trainees were not completing their training but were staying within the system.

A step change in performance of industry training occurred in 2010, which coincided with the operational review by the Tertiary Education Commission. Although the number of delivered STMs began to fall, the credit attainment rate increased from 47 percent in 2009 to 72 percent in 2013.

The introduction of the Tertiary Education Commission's Education Performance Indicators is likely to have improved the quality of ITOs' reporting of credit attainment. So part of the apparent increase in efficiency may be a result of the better reporting. However, as it is the denominator (in the form of STMs) that has decreased rather than credits attained increasing, this would suggest that much of the improvement in efficiency is real rather than just an artefact of better reporting.

These improvements have resulted in an increase in the value of credit attainment per dollar of Government expenditure. In 2009, the value of credits attained was \$0.45 per dollar of Government expenditure (including the brokerage fee). By 2013, this had increased to \$0.64 per dollar of Government expenditure.

Technical note:

Credit attainment rate

In this analysis, the credit attainment rate is calculated by dividing the volume of successful credits attained in a year by the volume of delivered STMs in a year. We convert STMs into credits when calculating the rate. This gives a sense of the efficiency of industry training.

Value of completed credits per dollar of Government funding

This is calculated by multiplying the average funding per funded STM by the volume of credits achieved (expressed in STMs) and then dividing this by the amount of the Government's industry training funding in that calendar year. This is calculated to get a sense of how much value the Government is getting for its expenditure.

This value is affected by the credit attainment rate, the funding rate for STMs, and the amount of over- and under-delivery. An increase in over-delivery will increase the value of credit completions per dollar of expenditure, and vice versa.

Figure 6
Inputs and outputs of industry training

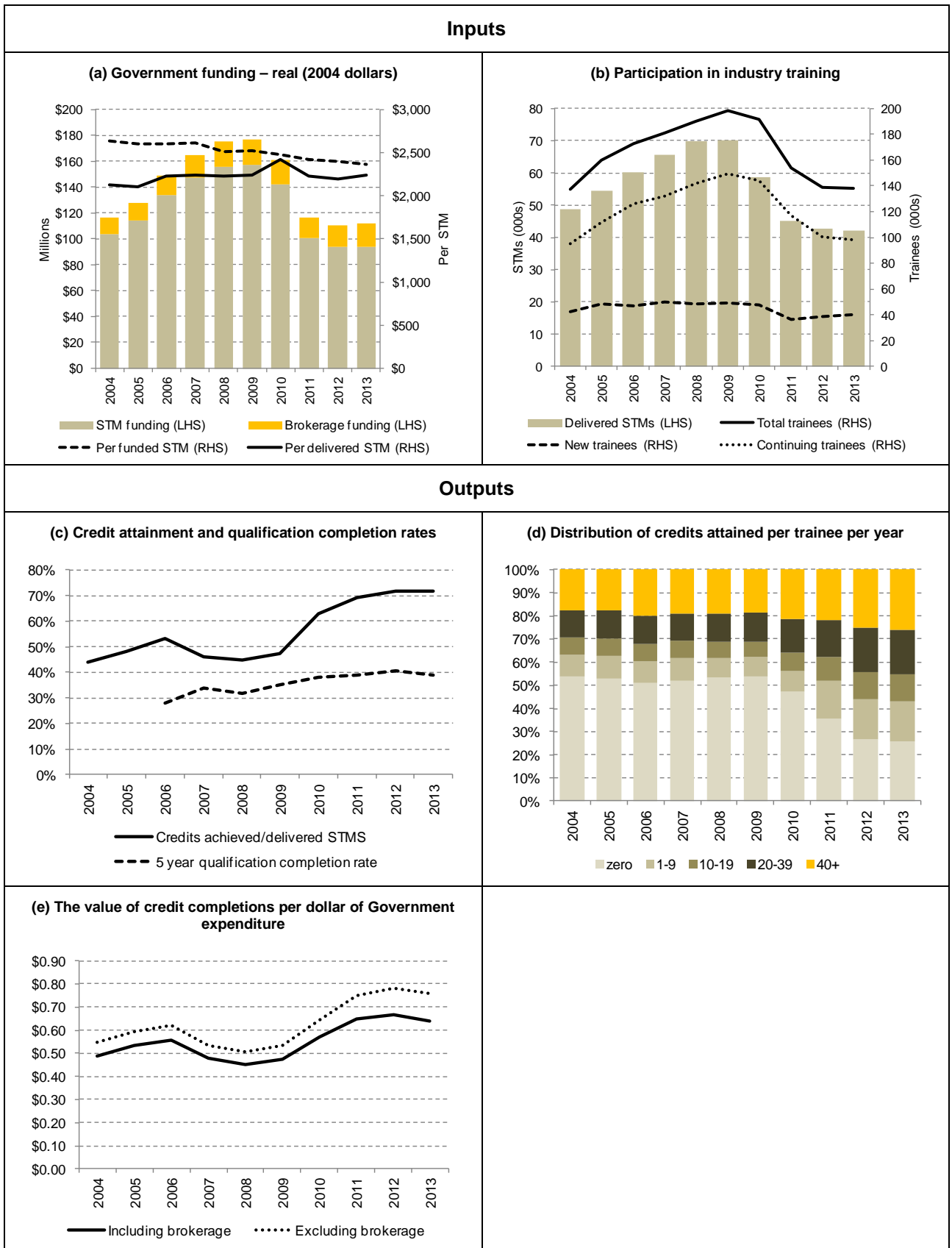


Table 6

Inputs and outputs of industry training

Type	Measure		Year										% change			
			2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004-13	2008-13	2012-13	
Inputs	Government funding (\$ millions)	STM	\$104	\$118	\$142	\$161	\$176	\$182	\$167	\$121	\$115	\$116	12%	-36%	1.0%	
		Brokerage	\$12	\$14	\$16	\$19	\$22	\$23	\$22	\$19	\$20	\$22	76%	-5.4%	8.9%	
		Total	\$116	\$132	\$159	\$179	\$198	\$205	\$189	\$140	\$135	\$138	19%	-33%	2.2%	
		STM – real	\$104	\$114	\$134	\$147	\$155	\$157	\$142	\$100	\$94	\$94	-9.3%	-40%	-0.1%	
		Brokerage – real	\$12	\$14	\$15	\$17	\$20	\$20	\$19	\$16	\$16	\$18	43%	-11%	7.7%	
		Total – real	\$116	\$128	\$149	\$164	\$175	\$177	\$161	\$116	\$111	\$112	-3.8%	-37%	1.0%	
		Number of ITOs (funded)	39	38	38	38	38	38	38	38	33	20	-49%	-47%	-39%	
	Trainees (000s)	New	42.6	48.3	46.6	49.6	48.1	49.3	47.8	36.7	38.3	40.5	-5.0%	-18%	5.6%	
		Returning	94.9	111.3	126.2	131.8	142.0	149.4	143.9	117.1	100.2	97.9	3.1%	-35%	-2.3%	
		Total	137.5	159.6	172.8	181.3	190.1	198.7	191.7	153.8	138.5	138.3	0.6%	-30%	-0.1%	
	STMs (000s)	Funded	39.4	43.9	51.4	56.5	61.9	62.2	57.3	41.5	39.4	39.7	1.0%	-36%	1.0%	
		Actual	48.7	54.4	60.1	65.7	69.8	70.1	58.8	45.1	42.8	42.1	-14%	-40%	-1.7%	
		Over-delivery	24%	24%	17%	16%	13%	13%	2.6%	8.5%	8.8%	5.9%				
	Funding per STM	Funded – nominal	\$2,635	\$2,682	\$2,771	\$2,844	\$2,845	\$2,919	\$2,919	\$2,919	\$2,919	\$2,919	11%	0.0%	0.0%	
Funded – real		\$2,635	\$2,603	\$2,602	\$2,609	\$2,510	\$2,522	\$2,478	\$2,418	\$2,392	\$2,366	-10%	-6.2%	-1.1%		
Actual – nominal		\$2,128	\$2,162	\$2,369	\$2,446	\$2,523	\$2,589	\$2,844	\$2,690	\$2,682	\$2,757	30%	6.5%	2.8%		
Actual – real		\$2,128	\$2,098	\$2,225	\$2,243	\$2,226	\$2,236	\$2,414	\$2,228	\$2,198	\$2,234	5.0%	-0.1%	1.6%		
Outputs	Credits completed (millions)		2.6	3.1	3.8	3.6	3.8	4.0	4.4	3.7	3.7	3.6	40%	-9.0%	-2.1%	
	Credit attainment rate		44%	48%	53%	46%	45%	47%	63%	69%	72%	72%				
	Average credits per trainee		18.7	19.6	22.1	20.0	19.8	20.0	23.1	24.4	26.7	26.1				
	Distribution of completed credits per trainee	0		54%	53%	51%	52%	53%	54%	47%	36%	27%	26%			
		1-9		9%	10%	9%	10%	8%	8%	9%	16%	17%	17%			
		10-19		8%	7%	7%	7%	7%	7%	8%	11%	12%	12%			
		20-39		12%	12%	12%	12%	12%	13%	15%	16%	19%	19%			
		40+		18%	18%	20%	19%	19%	18%	21%	22%	25%	26%			
	Value of credits completed per dollar of Government expenditure	Including brokerage		\$0.49	\$0.53	\$0.56	\$0.48	\$0.45	\$0.47	\$0.57	\$0.65	\$0.67	\$0.64			
		Excluding brokerage		\$0.55	\$0.59	\$0.62	\$0.53	\$0.51	\$0.53	\$0.65	\$0.75	\$0.78	\$0.76			
	Qualifications completed (000s)		20.0	25.8	35.0	29.4	35.9	43.5	50.7	53.7	48.4	54.3	171%	51%	12%	
5-year qualification completion rate				28%	34%	32%	35%	38%	39%	40%	39%					

Source: Ministry of Education and Tertiary Education Commission

5 EMPLOYMENT OUTCOMES OF TERTIARY EDUCATION

Introduction

In the previous sections, we examined the inputs and outputs of provider-based and industry training-based tertiary education. Now we examine the employment outcomes of tertiary education. First, we look at the destinations and earnings of young domestic graduates from provider-based tertiary education. Then we examine the employment rate and earnings premiums for the resident population aged between 25 and 34.

In this analysis, our focus is on how earnings premiums and employment rates of tertiary graduates have changed over the last 10 years.

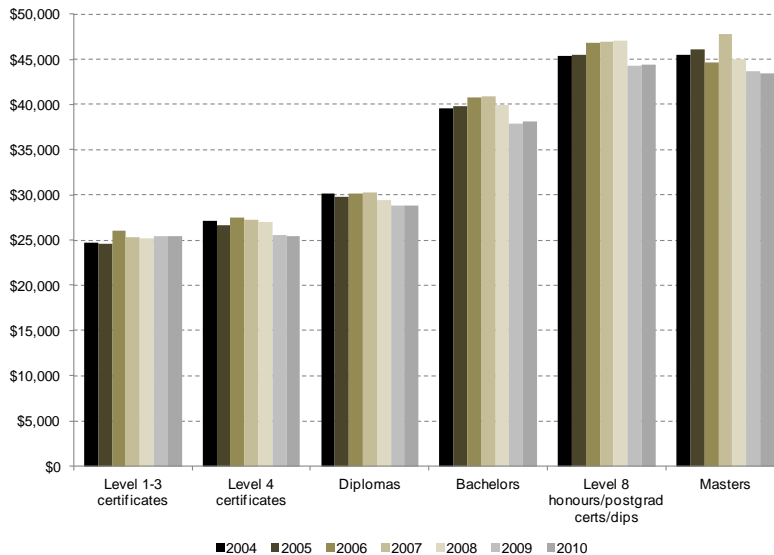
Analysis

Post-study earnings and destinations for young domestic graduates¹³

The earnings of young graduates one year after study by level of qualification are presented in Figure 7.¹⁴ The data shows the usual pattern of higher earnings for those with higher qualifications. It also shows the impact of the Global Financial Crisis on earnings, with all qualification levels above level 1-3 certificates exhibiting a decrease in real earnings. However, the premium over level 1-3 certificates was still considerable for most levels of higher qualifications.

Figure 7

Inflation-adjusted earnings for young domestic graduates by leaving cohort one year post-study by level of qualification



Note: The earnings are annual, gross and in 2012 dollars. Only graduates classified in the employment destination are included in these results.

Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation

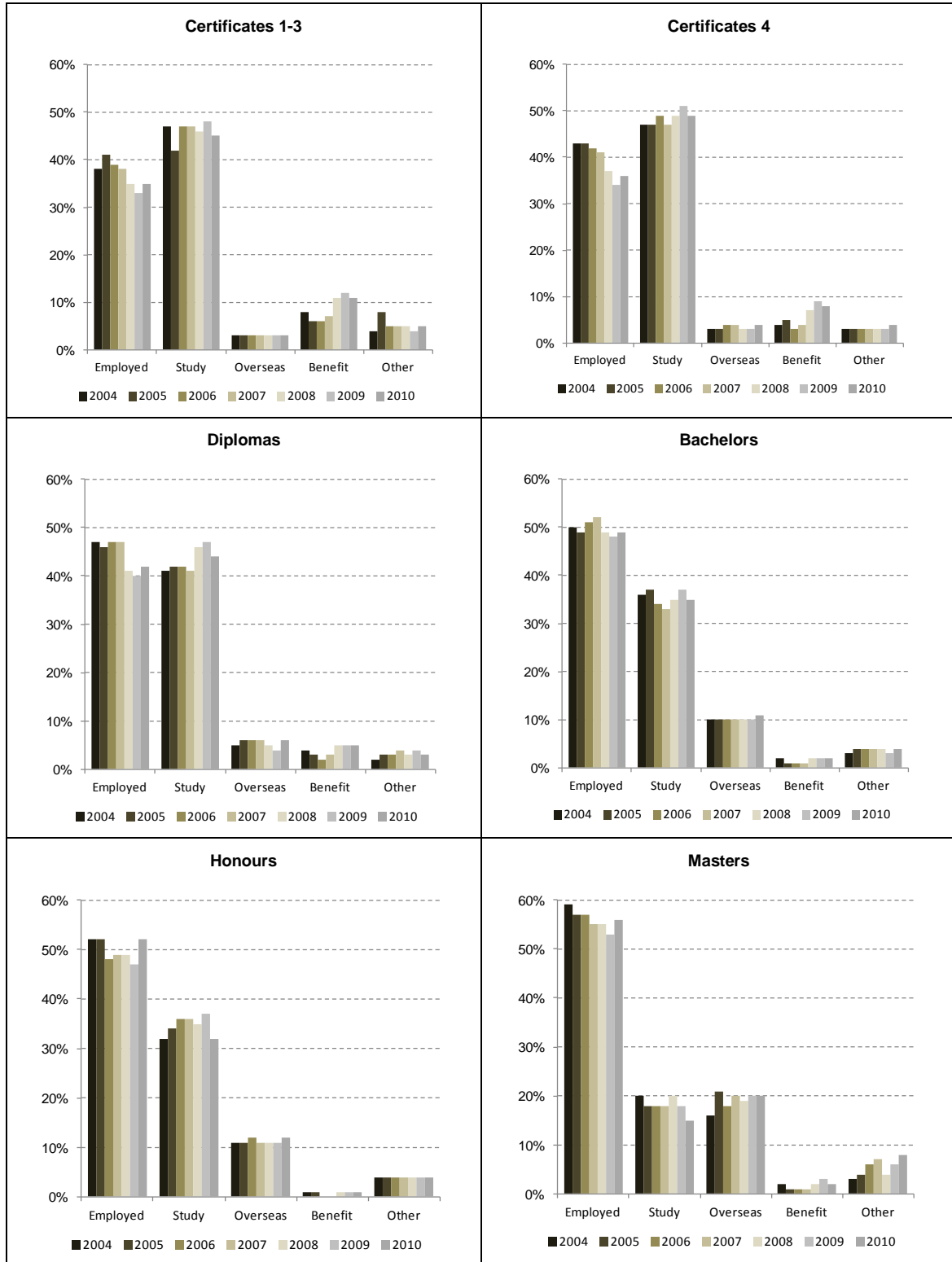
The destinations of young graduates from provider-based study are presented in Figure 8 by level of study. This data classifies the destination of graduates one year after study into five categories: **employed**, in further **study**, **overseas**, on a **benefit**, or **other**.

¹³ The data in this section is sourced from the Integrated Data Infrastructure.

¹⁴ The age cut-offs and methodology used to generate the employment and earnings data can be found in Park (2014).

The data shows that at the certificate level the impact of the recession on young graduates was a decrease in the employment rate, with an associated increase in the benefit rate. At the diploma/bachelors level, a drop in employment rates was associated with an increase in further study.

Figure 8
Destinations of young domestic graduates by level of qualification



Source: Statistics New Zealand, Integrated Data Infrastructure, Ministry of Education interpretation

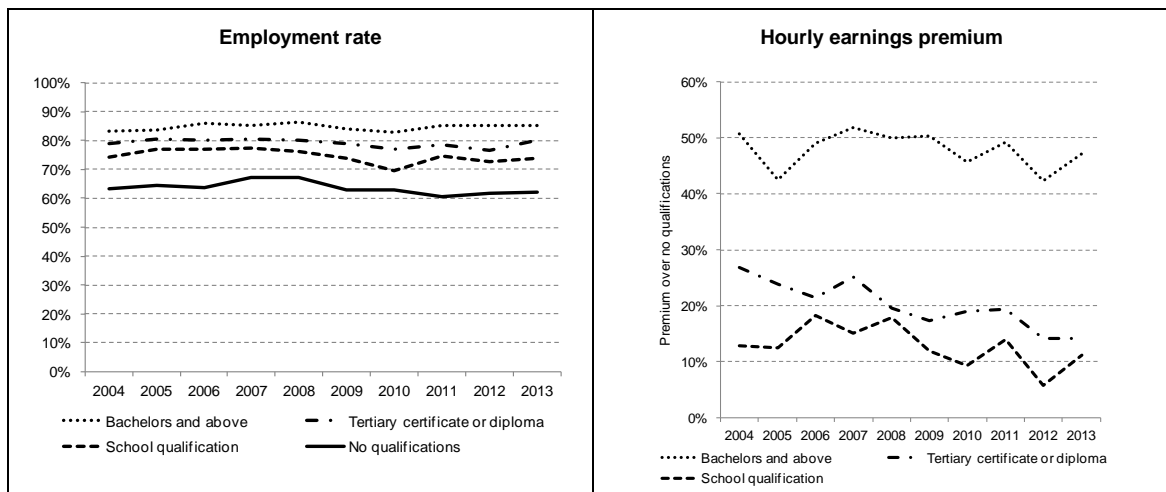
Employment rates and earnings premiums of the population aged 25-34

We also examine New Zealand Income Survey (NZIS) data to track employment and hourly wages of the resident population aged 25-34. We focus on this particular age group as they will include more recent graduates of the tertiary education system than the entire working age population. The NZIS data includes people who have completed their qualifications through tertiary education providers and also those who have completed them via industry training.

Figure 9 shows that people with higher qualifications have higher employment rates and this margin has been sustained over time. In 2013, the employment rate for people with a bachelors or higher qualification was 85 percent, compared with an employment rate of 62 percent for those with no qualifications, a gap of 23 percentage points. The gap in employment rate in 2004 was 20 percentage points.

In terms of earnings premiums, the NZIS data shows that the premium on hourly earnings for those with a bachelors or higher degree over those with no qualifications has exhibited variation but has generally tracked in a band of between 40 and 50 percent. The premium for tertiary certificates or diplomas (and to a lesser extent school qualifications) over those with no qualifications has tended to decline over time.

Figure 9
Employment rates and hourly earnings premiums for people aged 25-34



Notes: 1. The employment rate is based on the average of all four quarters in each year. 2. The hourly earnings premium is based on the June quarter.

Source: Statistics New Zealand Household Labour Force Survey and New Zealand Income Survey

6 STUDENT LOANS AND ALLOWANCES

Introduction

The two main components of the student support system are the Student Loan Scheme and the Student Allowances Scheme. Student loans allow eligible students enrolled in approved courses to borrow money to pay for compulsory tuition fees, course-related costs and living costs while studying. The loans are interest free while the students are living in New Zealand. Student allowances are paid to students on a means-tested basis to assist students with low incomes to participate in tertiary education. There is no requirement to pay back a student allowance.

Government wants the student support system to enable a wide range of people to access tertiary education, gaining knowledge and skills that enhance the economic and social well-being of New Zealand in a way that is affordable to taxpayers.

Policy context

In 2006, student loans were made interest free for borrowers residing in New Zealand. From 2006 to 2009, the parental income threshold for student allowances was raised each year and indexed to inflation. In 2007, the Government restricted student loan eligibility to courses that attracted Student Achievement Component funding. In 2009, the age for parental means testing of student allowances reduced from 25 to 24 and there was a one-off increase in the living costs component of student loans (\$5 per week), with the living cost component indexed to inflation thereafter.

Over the last five Budgets the Government has made several changes to student support to focus expenditure on need and introduce incentives to improve the performance of the tertiary education sector. The changes also aim to remove borrowing that increases debt to students without providing value to the student in the form of increased income. Some of the key changes are:¹⁵

- In 2011, an academic performance element and life-time entitlement was introduced to the Student Loan Scheme. A two-year stand-down period was introduced for permanent residents and Australian citizens before they can access student loans.
- In 2012, part-time, part-year borrowers became ineligible for the course-related costs entitlement. The student loan repayment threshold was also held at \$19,084 until 2015. The repayment threshold freeze has subsequently been extended until 31 March 2017.
- From 2013, borrowers aged 55 and over are only able to borrow for tuition fees. Student allowance eligibility was also removed for level 8 and above postgraduate qualifications and long programmes (other than bachelor with honours qualifications).
- On 1 April 2013, the student loan repayment rate was increased from 10 percent to 12 percent. Adjustments were also made to the repayment provisions for overseas borrowers and the ability to arrest serious student loan defaulters at the border. The student allowance life-time limit of 200 weeks was reduced for students aged 40 and over to a maximum of 120 weeks. Student allowance eligibility for those aged 65 and over was also removed. The stand-down period before permanent residents and Australian citizens could access student loans introduced in 2011 was increased from two years to three years from 1 January 2014.

¹⁵ A full list of policy changes to student support can be found at: http://www.educationcounts.govt.nz/_data/assets/word_doc/0004/144571/2013-Student-Loan-Scheme-Support-Changes.docx.

- From July 2015, sole parents taking up full-time study will receive at least the same level of accommodation support from student support as they would from the benefit system.

Commentary

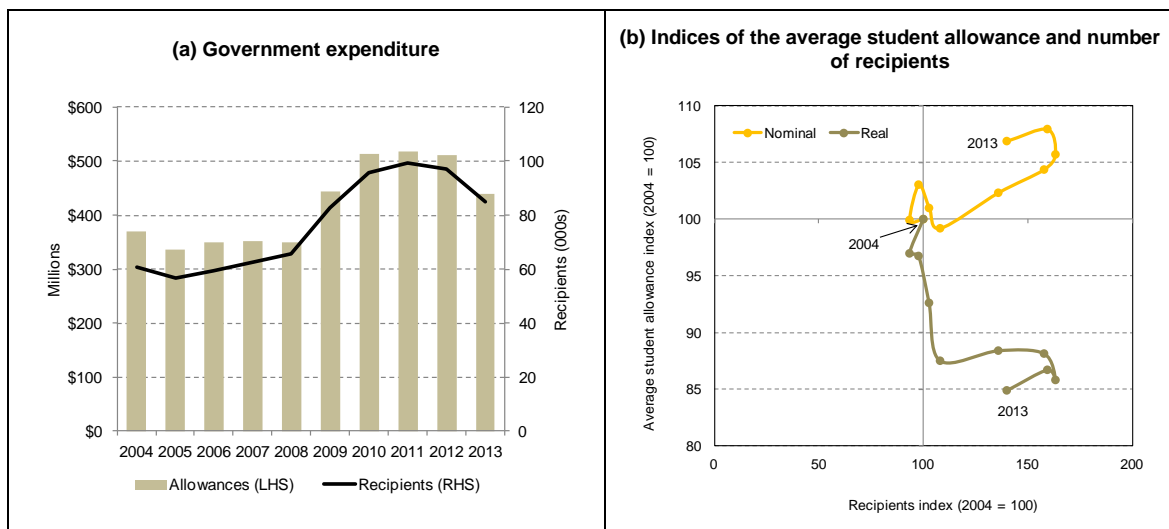
Student allowances

In the five-year period between 2004 and 2008, expenditure on student allowances remained relatively stable. This was followed by a rapid expansion in expenditure between 2008 and 2011 as a result of policy changes and also increased participation due to the Global Financial Crisis. Expenditure on student allowances increased by 48 percent in real terms over this time, while the number of recipients increased by 51 percent. In 2013, expenditure on student allowances decreased by 14 percent in real terms and the number of recipients by 12 percent as the restrictions on eligibility announced in Budget 2012 began to have an impact.

Figure 10(b) shows how the number of student allowance recipients and the average allowance value have changed over time. We present the data as indices, with the initial starting values in 2004 set as the base = 100. For example, the index value of 140 in 2013 for the number of participants means they were 40 percent higher than the base year in 2004. Expressing both the number of participants and the average allowance as indices makes it easier to demonstrate which of these have driven changes in expenditure. Both nominal and inflation-adjusted average student allowances tracks are presented in Figure 10(b).

Concentrating on the track showing the average allowance in real terms, the expansion in expenditure between 2008 and 2011 was driven by an increase in the number of recipients rather than an increase in the average allowance. The index value for the number of recipients increased from 108 in 2008 to 163 in 2011, compared with a slight decrease in the average student allowance index from 88 in 2008 to 86 in 2011. Similarly, the drop in expenditure in 2013 was mainly driven by a reduction in the number of recipients.

Figure 10
Student allowance expenditure and recipients

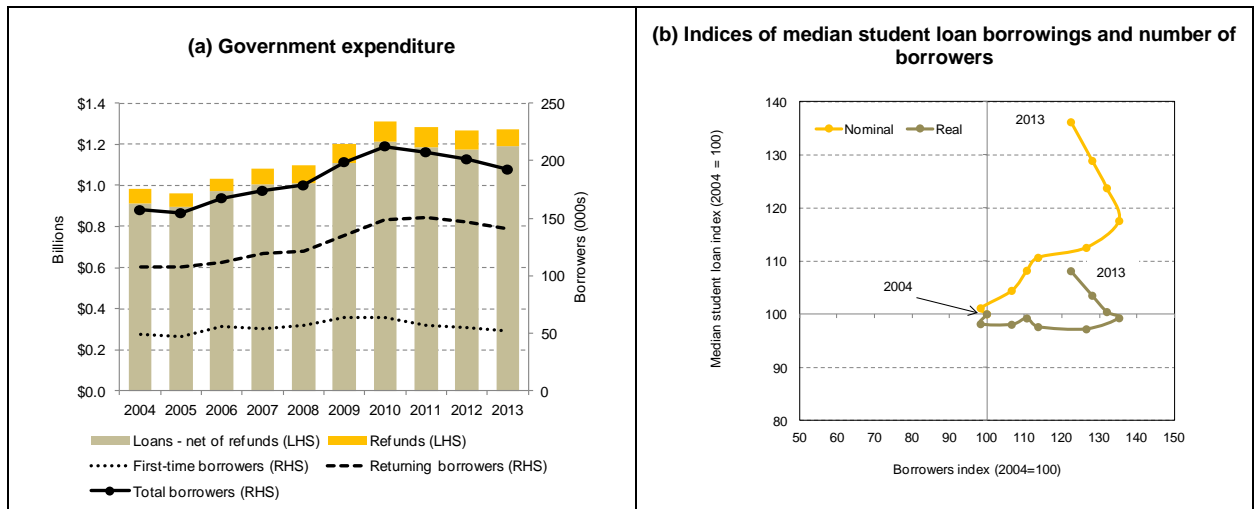


Student loans

Between 2004 and 2013, the amount of new borrowing net of refunds increased by 64 percent in nominal terms and 30 percent in real terms. The total amount borrowed net of refunds in 2013 was \$1.5 billion. The number of borrowers mirrored participation in tertiary education, peaking at around 212,000 in 2010 during the Global Financial Crisis.

The track of people taking loans and the median amount borrowed is presented in Figure 11(b). Focusing on the real average borrowing track, it is mainly the number of recipients that has driven the changes in the level of expenditure. The exception is 2013, where an increase in median borrowing offset that fall in borrowers.

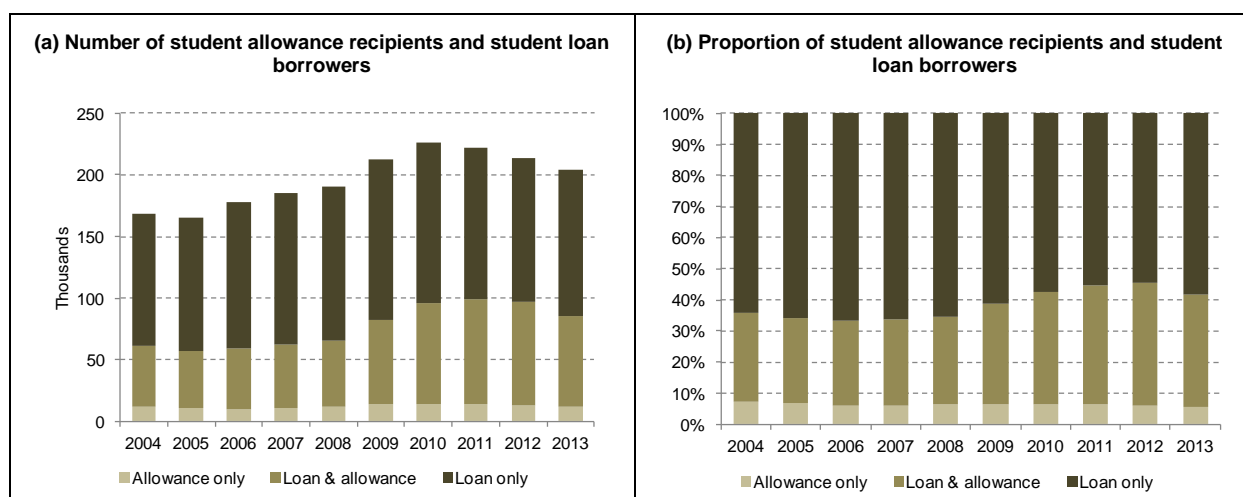
Figure 11
Student loan expenditure and borrowers



Student allowance recipients and student loan borrowers

The breakdown of student allowance recipients and student loan borrowers is presented in Figure 12. This shows that the proportion of students accessing student support who drew down student loans increased in 2013 after falling for the previous four years. The 2013 increase reflected the impact of reduced eligibility for student allowances.

Figure 12
Student allowance recipients and student loan borrowers

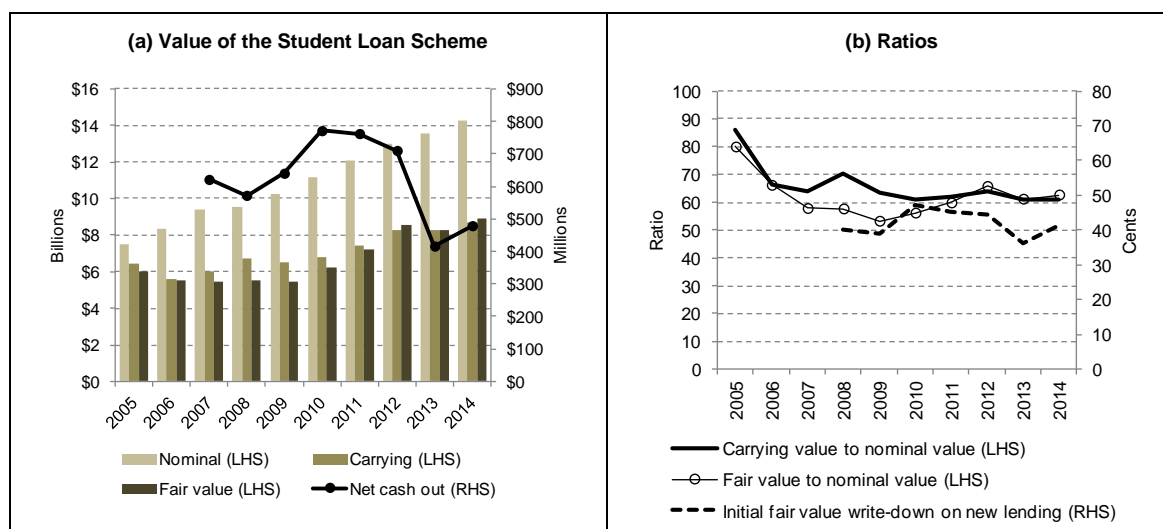


Financial performance of the Student Loan Scheme

The nominal value of the Student Loan Scheme was \$14.2 billion on 30 June 2014.¹⁶ Compared with earlier years, the net cash out reduced substantially in 2013 and 2014. This was due to an increase in repayments as borrowers took advantage of the bonus on voluntary repayment before it was removed in April 2013. Repayments continued to be high in 2014 as a result of an increase in the repayment rate for New Zealand-based borrowers.

The initial write-down on new borrowing increased from 36.19 cents in 2013 to 41.35 cents in 2014, meaning the Government's cost of lending increased.

Figure 13
Value of the Student Loan Scheme



¹⁶ This compares with a fair value of \$8.9 billion and a carrying value of \$8.7 billion.

Access to tertiary education

In this section, we look at the transition of school leavers to tertiary education. In particular, we are interested in the relative participation in tertiary education by students from different socioeconomic backgrounds. To do this, we look at the rates of participation in tertiary education of students who went to school in affluent areas and compare them with those from less affluent areas. We use the decile of the last school attended to categorise whether students have come from an affluent area (decile 8-10) or a less affluent area (decile 1-3).¹⁷ It should be noted that school decile is an attribute of the school and not of the individual student.

We look at the transition to tertiary education in general, as well as transition to bachelors or higher study.

Because the tertiary education choices of students vary depending on their level of school achievement, we control for this factor in our analysis.

Method

We applied statistical modelling (in the form of logistic regression) to calculate the probability of participating in tertiary education for students with different levels of school achievement and from schools of different decile groupings. As mentioned earlier, the transitions of school leavers are influenced by their school achievement. Therefore, probabilities have been calculated where the achievement score of a student is at the average achievement score, 0.5 standard deviations from the average score and 1 standard deviation from the average achievement score.

Results

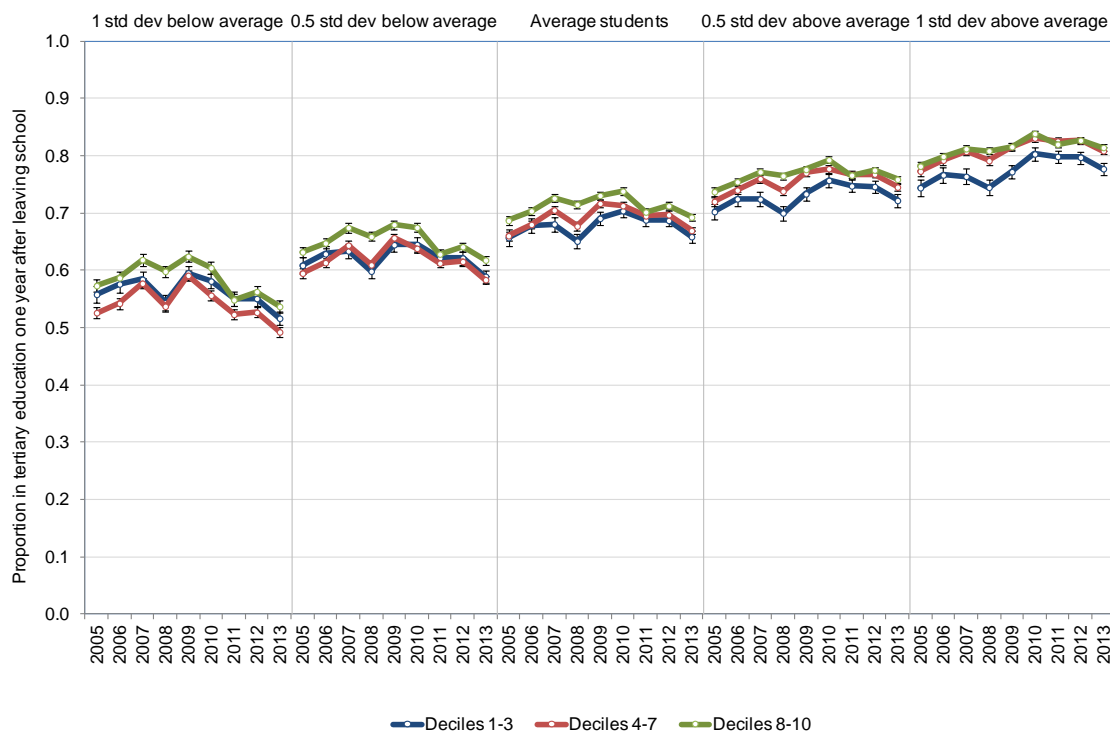
Figure 14 shows the predicted rate of participation in tertiary education for a student with at least NCEA level 2 for the years between 2005 and 2013. It shows that for a student with an achievement score 1 standard deviation below the average score their predicted probability of going to tertiary study was 0.52 if they went to a decile 1-3 school in 2013. This compares with a probability of 0.54 for students who went to a decile 8-10 school.

Although the rate of participation has dropped in the last few years at all levels of school achievement, mostly as a result of the economy moving out of recession, the relative gap in participation between the decile groupings has not changed over time. For example, in 2013, the proportion of students with an average achievement score from a decile 1-3 school going on to tertiary study was 0.66. This compares with a value of 0.69 for a student from a decile 8-10 school. The gap in these proportions of 0.03 is the same as was exhibited in 2005. This suggests that relative access to tertiary education for students from low-decile schools has been maintained over time.

¹⁷ The deciles used in this analysis are based on data from the 2006 Census. Deciles allocated to schools were updated in 2014 based on the 2013 Census.

Figure 14

Probability of enrolling in tertiary education one year after leaving school by school achievement and decile of last school attended



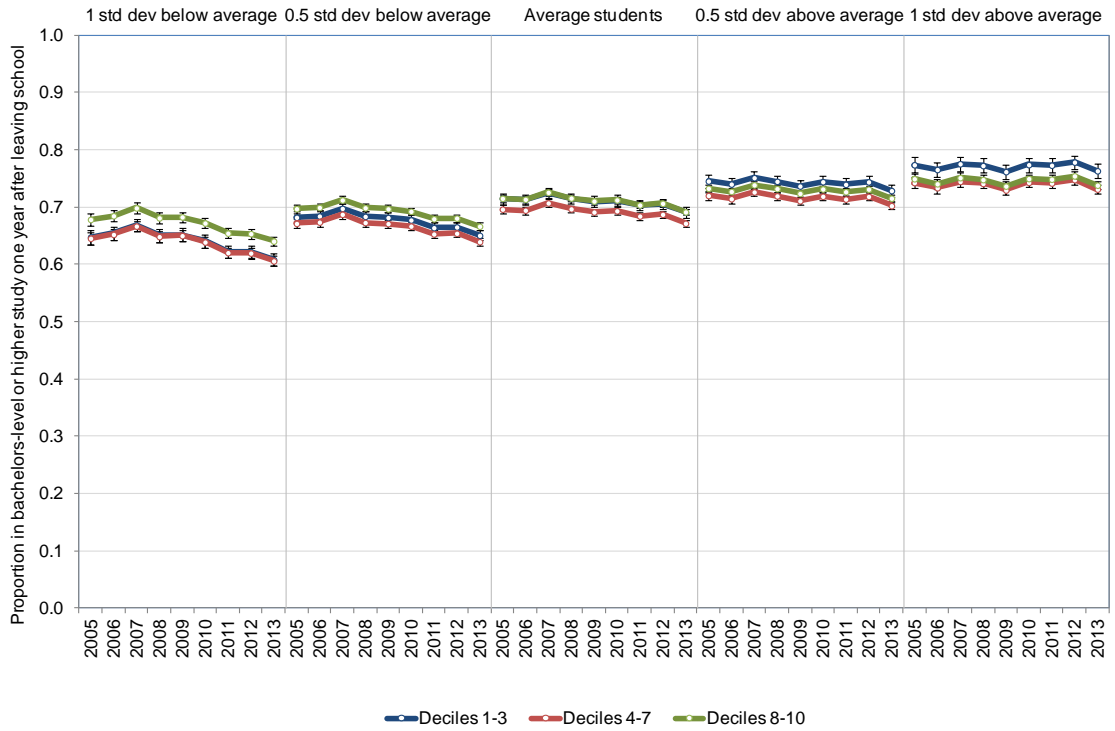
Note: The error bars indicate 10 percent confidence intervals.

Figure 15 shows the predicted rate of participation in bachelors-level or higher tertiary education for a student with at least NCEA level 3 and who met the University Entrance (UE) requirement for the years between 2005 and 2013. It shows that for a student with an achievement score 1 standard deviation below the average, their modelled probability of going on to bachelors or higher study was 0.60 if they went to a decile 1-3 school in 2013. This compares with a probability of 0.64 for a student from a decile 8-10 school.

The results show that the relative gap in participation between the decile groupings has not changed over time. For example, in 2005, the proportion of students with an average achievement score from a decile 1-3 school going on to bachelors or higher study was 0.71. This compares with a value of 0.72 for a student from a decile 8-10 school. In 2013, the proportion of students going on to bachelors or higher study was the same for both decile groupings. This suggests that relative access to bachelors or higher tertiary education for students from low-decile schools has been maintained over time.

Figure 15

Probability of enrolling in bachelors-level or higher tertiary education one year after leaving school by school achievement and decile of last school attended



Note: The error bars indicate 10 percent confidence intervals.

Table 7

Inputs and outcomes of student allowances and student loans

Type	Fund	Measure		Calendar year										% change		
				2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004-13	2008-13	2012-13
Inputs	Student loans	Amount loaned in year (\$m)	Nominal	\$984	\$990	\$1,100	\$1,180	\$1,241	\$1,389	\$1,551	\$1,583	\$1,574	\$1,599	63%	29%	1.6%
			Real	\$984	\$961	\$1,033	\$1,082	\$1,095	\$1,200	\$1,310	\$1,285	\$1,264	\$1,270	29%	16%	0.4%
		Amount loaned net of refunds	Nominal	\$911	\$921	\$1,034	\$1,098	\$1,147	\$1,284	\$1,438	\$1,459	\$1,460	\$1,497	64%	30%	2.5%
			Real	\$911	\$894	\$971	\$1,007	\$1,012	\$1,109	\$1,214	\$1,184	\$1,172	\$1,189	30%	17%	1.4%
		Borrowers with MSD (000s)	All	157.0	154.4	167.4	173.8	178.5	198.7	212.5	207.3	201.2	192.3	22%	7.7%	-4.4%
			First-time	49.6	46.9	56.0	54.3	57.0	64.2	63.5	57.0	54.8	51.7	4.4%	-9.3%	-5.7%
	Total		62%	60%	65%	67%	69%	71%	74%	74%	73%	74%				
	Uptake rate	Full-time	74%	69%	73%	75%	76%	79%	82%	82%	82%	84%				
		Part-time	35%	39%	45%	45%	48%	48%	50%	50%	43%	42%				
	Median amount borrowed	Nominal	\$5,424	\$5,485	\$5,663	\$5,868	\$6,000	\$6,101	\$6,375	\$6,709	\$6,988	\$7,382	36%	23%	5.6%	
		Real	\$5,424	\$5,323	\$5,317	\$5,382	\$5,293	\$5,271	\$5,384	\$5,446	\$5,613	\$5,863	8.1%	11%	4.5%	
	Student allowances	Expenditure (\$m)	Nominal	\$370	\$345	\$373	\$384	\$397	\$514	\$609	\$638	\$636	\$553	50%	40%	-13%
			Real	\$370	\$335	\$350	\$352	\$350	\$444	\$515	\$518	\$511	\$440	19%	26%	-14%
		Recipients (000s)	60.8	56.8	59.4	62.5	65.7	82.6	95.9	99.3	96.9	85.1	40%	30%	-12%	
	Average allowance	Nominal	\$6,084	\$6,079	\$6,269	\$6,144	\$6,035	\$6,226	\$6,350	\$6,431	\$6,567	\$6,503	6.9%	7.8%	-1.0%	
		Real	\$6,084	\$5,900	\$5,886	\$5,635	\$5,324	\$5,378	\$5,363	\$5,221	\$5,275	\$5,165	-15%	-3.0%	-2.1%	
	Student loans & allowances	Total student support expenditure (\$m)	Nominal	\$1,354	\$1,335	\$1,472	\$1,564	\$1,638	\$1,904	\$2,160	\$2,221	\$2,210	\$2,152	59%	31%	-2.6%
Real			\$1,354	\$1,296	\$1,382	\$1,435	\$1,445	\$1,645	\$1,824	\$1,803	\$1,775	\$1,709	26%	18%	-3.7%	
Mix of student loan and student allowance recipients (000s)		Allowance only	11.9	11.4	10.3	11.4	12.2	13.9	14.0	14.3	12.9	11.5	-3.3%	-5.2%	-11%	
		Loan & allowance	48.9	45.4	49.1	51.1	53.5	68.7	81.9	85.0	84.0	73.6	50%	37%	-12%	
		Loan only	108.2	109.0	118.3	122.7	125.0	130.0	130.6	122.3	117.2	118.7	10%	-5.1%	1.3%	
All	169.0	165.8	177.8	185.1	190.7	212.7	226.5	221.6	214.1	203.8	21%	6.9%	-4.8%			
Average student support expenditure per recipient	Nominal	\$8,010	\$8,055	\$8,283	\$8,448	\$8,588	\$8,952	\$9,536	\$10,022	\$10,324	\$10,560	32%	23%	2.3%		
	Real	\$8,010	\$7,817	\$7,777	\$7,748	\$7,576	\$7,734	\$8,053	\$8,136	\$8,293	\$8,388	4.7%	11%	1.1%		
Outcomes	Student loan debt	Borrowers with IRD (000s)		418.8	445.1	470.5	499.3	530.3	561.8	587.5	621.2	701.2	711.0	25%	34%	4.6%
		% of cohort who last studied 10 years before who have repaid loans		63%	60%	56%	48%	45%	47%	50%	51%	51%				
		Median loan balance with IRD	Nominal	\$9,977	\$10,404	\$10,652	\$11,087	\$10,883	\$11,090	\$11,399	\$11,880	\$12,849	\$13,307	7.0%	22%	2.8%
		Real	\$9,977	\$10,097	\$10,001	\$10,168	\$9,601	\$9,581	\$9,626	\$9,644	\$10,322	\$10,569	-3.8%	10%	0.5%	
							As at end of June									
					2005	2006	2007	2008	2009	2010	2011	2012	2013	2014		
	Value of the Student Loan Scheme	Nominal value (\$m)		\$7,499	\$8,370	\$9,413	\$9,573	\$10,259	\$11,145	\$12,070	\$12,969	\$13,562	\$14,235			
		Carrying value (\$m)		\$6,465	\$5,569	\$6,011	\$6,741	\$6,533	\$6,790	\$7,459	\$8,291	\$8,288	\$8,716			
		Fair value (\$m)		\$5,994	\$5,537	\$5,443	\$5,521	\$5,464	\$6,261	\$7,221	\$8,527	\$8,298	\$8,924			
		Value ratios	Carrying to nominal	86.2	66.5	63.9	70.4	63.7	60.9	61.8	63.9	61.1	61.2			
	Fair to nominal	79.9	66.2	57.8	57.7	53.3	56.2	59.8	65.7	61.2	62.7					
	Initial fair value write-down on new lending	Cents				40.25	39.15	47.39	45.25	44.62	36.19	41.35				
Net cash out	(\$ millions)				\$621	\$572	\$640	\$771	\$762	\$710	\$416	\$479				

7 PERFORMANCE-BASED RESEARCH FUND

Introduction

The primary objectives of the PBRF are to:

- increase the quality of basic and applied research at New Zealand's degree-granting TEOs
- support world-leading teaching and learning at degree and postgraduate levels
- assist New Zealand's TEOs to maintain and lift their competitive rankings relative to their international peers
- provide robust public information to stakeholders about research performance within and across TEOs.

In doing so, the PBRF will also:

- support the development of postgraduate student researchers and new and emerging researchers
- support research activities that provide economic, social, cultural and environmental benefits to New Zealand, including the advancement of mātauranga Māori
- support technology and knowledge transfer to New Zealand businesses, iwi and communities.

The PBRF was introduced over a transition period between 2004 and 2007, where it progressively replaced research top-ups as the allocation method for research funding. Research top-ups allocated funding to providers based on the number of domestic enrolments at bachelors level and higher. For the purposes of trend analysis of research performance, the funding allocated via the PBRF and the research top-ups has been combined in this analysis.

The size of the PBRF was originally linked to enrolments at degree level and higher, but is now determined by Budget decisions.

The PBRF funding allocation is based on three components: the Quality Evaluation (QE), research degree completions (RDC) and external research income (ERI). The QE uses peer review to assess the quality of research produced by staff at participating providers. The evaluations are scheduled to take place every six years, with the next round due in 2018. The Tertiary Education Commission publishes the results of the QEs at the provider level, which gives providers an additional reputational incentive to maximise their research quality.

The RDC measure allocates funding based on the weighted volume of doctoral and masters thesis completions, while the ERI measure allocates funding based on each participating provider's share of total ERI in the sector. The RDC and ERI components use data submitted annually by providers to the Tertiary Education Commission.

Between 2004 and 2014, the results of the QE were used to allocate 60 percent of the PBRF, with 25 percent allocated based on RDCs and 15 percent on ERI. From 2015, the weighting for the QE component is to be reduced to 55 percent and the ERI component increased to 20 percent.

Policy context

Since its introduction, the PBRF has been subject to regular reviews, with a number of adjustments made to the QE between 2004 and 2013. For the 2006 Quality Evaluation, the main change was the inclusion of two quality categories for new and emerging researchers (R(NE) and C(NE)) that were designed to take into account that they were at the start of their research careers.

For the 2012 Quality Evaluation, in addition to the 12 peer review panels, two expert advisory groups were introduced to provide expert input in the areas of 'Professional and Applied Research' and 'Pacific Research'.

There were no changes in the ERI component between 2004 and 2013, while the only change to the RDC component was the introduction of an additional weighting for these submitted in Te Reo Māori from 2006.

The PBRF policy was reviewed in 2013 with a view to improving its efficiency and effectiveness. The review determined that the overall structure of the PBRF should be maintained while:

- increasing the value of the ERI component from 15 percent to 20 percent, and placing a higher weighting on ERI from New Zealand industry, iwi and not-for-profit organisations, and overseas sources – to better value user perspectives of research quality and engagement in user-oriented research
- making changes to reduce the size of the Evidence Portfolios and simplify the process to assess them – to simplify the Quality Evaluation and reduce transaction costs for TEOs
- introducing a weighting for Evidence Portfolios from new and emerging researchers that receive a 'C' quality category – to increase incentives for TEOs to recruit, develop and retain new and emerging researchers. This will improve the sustainability of the tertiary education research workforce
- using fewer measures to report on performance in the Quality Evaluation, and ones that are robust and provide meaningful comparisons between tertiary education organisations – to strengthen reporting on research performance.

Commentary

Funding

The size of the total funding pool of research top-ups and the PBRF increased by 99 percent in nominal and 61 percent in real terms between 2004 and 2013. Much of this increase occurred between 2004 and 2010, as additional appropriations were made to increase the size of the PBRF. Between 2010 and 2012, the value of the PBRF remained at \$250 million in nominal terms and so decreased by 3.4 percent in real terms over this time. In 2013, PBRF funding began the first in a series of increases which will take its size to \$300 million in 2016.

Figure 16(b) shows the funding per point for each of the three components of the PBRF, where the points are those used to work out the share of funding to each participating TEO in each year. The data shows that for the RDC and ERI measure, participating institutions are receiving over 20 percent less funding per point in 2013 compared with 2007. This has resulted from increases in the number of RDCs and value of ERI at participating institutions outpacing increases in the size of the PBRF appropriation.

The drop in QE funding per point in 2013 reflects an increase in the number of funded Evidence Portfolios in the 2012 QE.

RDCs, ERI and funded Evidence Portfolios

The number of TEOs participating in the PBRF Quality Evaluations has varied each time. For consistency, the PBRF performance information reported in Table 8 is for universities only.

The three metrics used in allocating the PBRF are the number of funded Evidence Portfolios, the number of research degree completions and the amount of external research income attracted by participating tertiary education organisations. In this section, we examine changes in each of these three metrics at universities.

The volume of RDCs at universities has increased substantially since 2006. By 2012, the volume of RDCs was 64 percent higher than in 2006. A contributing factor to the increase in RDCs has been the introduction of the Government's international student PhD policy in 2005, where international PhD students pay the same tuition fees as domestic students.

External research income attracted by universities increased by 38 percent in real terms between 2004 and 2009. Since then, ERI has decreased by 10 percent in real terms. Around 75 percent of ERI in universities is sourced from Government.¹⁸ So any changes in the way the Government funds research can impact on the university ERI. An example of this is where the Government has transferred funding from contestable funds to the block grants for Crown Research Institutes. This has impacted on the ERI that universities can earn. Another factor that has contributed to the decline in ERI is the timing of contracts.

Finally, the number of staff rated as A or B in the PBRF QEs has increased over time. In 2003, 2,145 full-time equivalent staff were rated as A or B. This had risen by almost 50 percent to 3,187 in the 2012 QE.

Other metrics

The proportion of world indexed publications produced by New Zealand universities has been increasing. In the five-year window 2000-2004, 0.40 percent of the world's publications were from New Zealand universities, compared with 0.48 percent in the 2009-2013 window.

The academic impact of research, as measured by the number of citations per publication, has been rising for research produced by New Zealand universities. A relative impact value of 1 indicates the rate of citation of research by New Zealand universities is equal to the world average and a value greater than 1 indicates a rate of citation above the world average. The relative academic impact has increased from 0.97 in the five-year window 2000-2004 to reach 1.21 in the 2009-2013 window. The proportion of publications cited has also increased over the period, from 61 percent in 2000-2004 to 70 percent in 2009-2013.

Finally, we show the weighted average rate of inter-institutional collaboration for New Zealand universities. The data shows that the rate of collaboration has been increasing over time.

It should be noted that the Centres of Research Excellence fund began at a similar time to the PBRF. It is likely to have had a positive impact on the metrics referred to in this section.

¹⁸ Source: Statistics NZ R&D survey.

Figure 16
Funding and metrics associated with the Performance-Based Research Fund

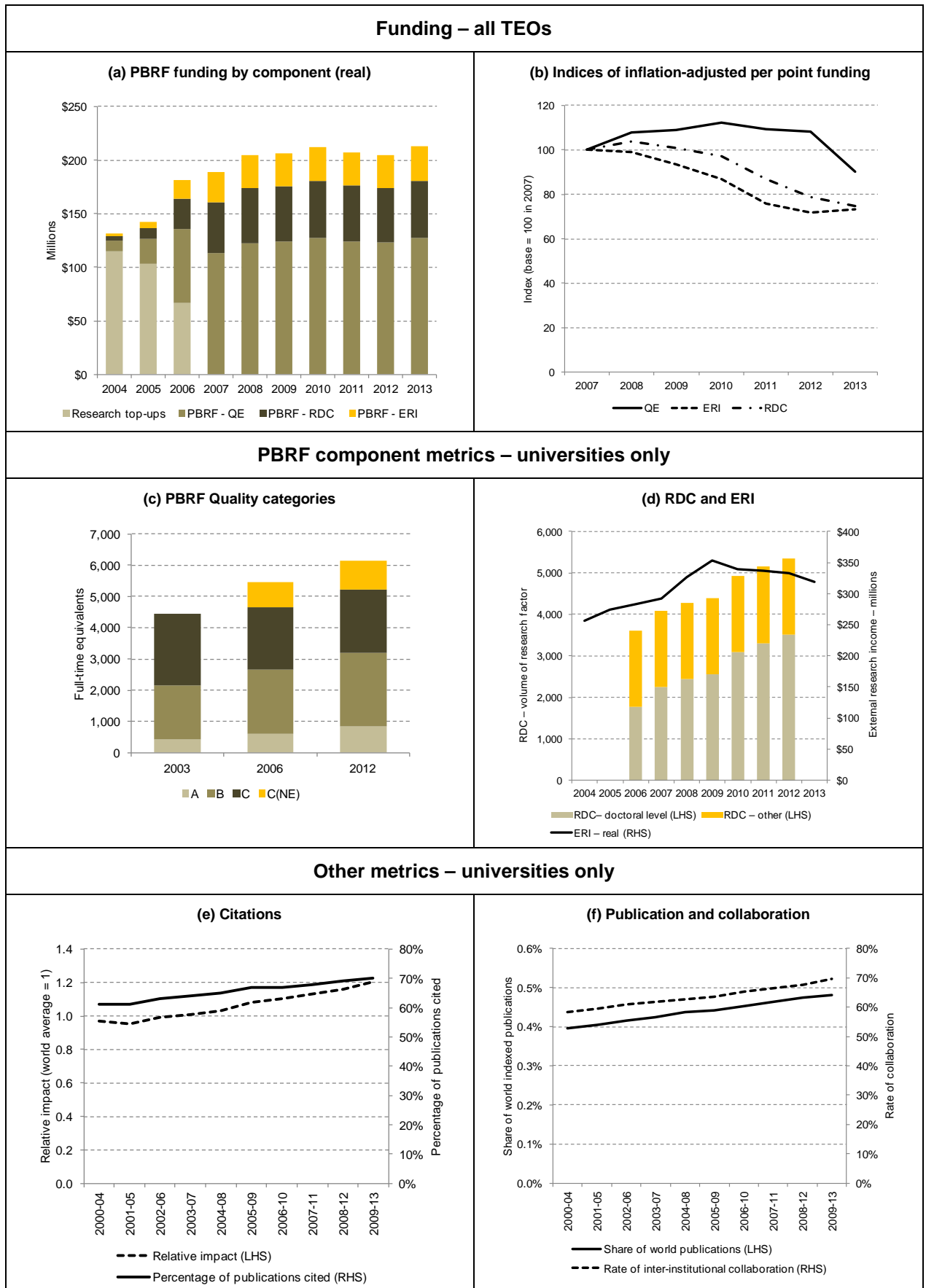


Table 8

Funding and metrics associated with the Performance-Based Research Fund

Type	Measure		Year										% change								
			2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2004-13	2007-13	2012-13						
Funding	Government funding (\$m) Nominal	Research top-ups	\$115.2	\$106.7	\$71.4																
		PBRF – QE	\$9.9	\$23.8	\$73.2	\$123.8	\$138.9	\$143.2	\$150.0	\$150.0	\$150.0	\$157.5									
		PBRF – RDC	\$4.1	\$9.9	\$30.5	\$51.6	\$57.9	\$59.7	\$62.5	\$62.5	\$62.5	\$65.6									
		PBRF – ERI	\$2.5	\$6.0	\$18.3	\$31.0	\$34.7	\$35.8	\$37.5	\$37.5	\$37.5	\$39.4									
		PBRF – total	\$16.5	\$39.7	\$121.9	\$206.3	\$231.6	\$238.7	\$250.0	\$250.0	\$250.0	\$262.5							27%		
		Total	\$131.8	\$146.4	\$193.3	\$206.3	\$231.6	\$238.7	\$250.0	\$250.0	\$250.0	\$262.5							99%	27%	5.0%
	Government funding (\$m) real	Research top-ups	\$115.2	\$103.6	\$67.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0									
		PBRF – QE	\$9.9	\$23.1	\$68.7	\$113.5	\$122.6	\$123.7	\$127.3	\$124.2	\$122.9	\$127.6									
		PBRF – RDC	\$4.1	\$9.6	\$28.6	\$47.3	\$51.1	\$51.5	\$53.0	\$51.8	\$51.2	\$53.2									
		PBRF – ERI	\$2.5	\$5.8	\$17.2	\$28.4	\$30.6	\$30.9	\$31.8	\$31.1	\$30.7	\$31.9									
		PBRF – total	\$16.5	\$38.5	\$114.5	\$189.2	\$204.3	\$206.2	\$212.2	\$207.1	\$204.9	\$212.7								12%	
		Total	\$131.8	\$142.1	\$181.5	\$189.2	\$204.3	\$206.2	\$212.2	\$207.1	\$204.9	\$212.7								61%	12%
	Share of funding	Universities	93.9%	94.8%	96.5%	97.5%	97.3%	97.3%	97.4%	97.3%	97.1%	97.3%									
		Other TEOs	6.1%	5.2%	3.5%	2.5%	2.7%	2.7%	2.6%	2.7%	2.9%	2.7%									
	Per point funding nominal	QE				\$6,101	\$6,849	\$7,058	\$7,393	\$7,394	\$7,394	\$6,221							2.0%	-16%	
		ERI				\$0,116	\$0,119	\$0,115	\$0,109	\$0,098	\$0,093	\$0,096								-17%	3.2%
		RDC				\$7,533	\$8,118	\$8,060	\$7,917	\$7,250	\$6,632	\$6,373								-15%	-4%
	Per point funding real	QE				\$5,596	\$6,042	\$6,098	\$6,275	\$6,124	\$6,060	\$5,042								-10%	-17%
ERI					\$0,106	\$0,105	\$0,100	\$0,092	\$0,081	\$0,077	\$0,078									-27%	2.0%
RDC					\$6,909	\$7,161	\$6,964	\$6,720	\$6,005	\$5,436	\$5,165									-25%	-5.0%
Component metrics	PBRF External research income (ERI) – universities	Nominal	\$256	\$283	\$301	\$319	\$370	\$409	\$400	\$407	\$407	\$394							53%	24%	-3.3%
		Real	\$256	\$274	\$283	\$292	\$326	\$353	\$340	\$337	\$334	\$319								24%	9.2%
	PBRF Research degree completions – universities	Doctorate level			1,765	2,240	2,440	2,552	3,093	3,308	3,510										
		Other			1,842	1,842	1,842	1,842	1,842	1,842	1,842										
	Total			3,607	3,925	4,260	4,443	4,980	5,551	5,933											
Qualification completion rates (all)	Doctoral degree 8-year completion rates	50%	49%	55%	58%	62%	63%	70%	68%	70%	70%										
	Masters 5-year completion rates (F/T)	63%	58%	65%	80%	80%	79%	80%	83%	84%	86%										
Other	% share of world indexed publications		0.40%	0.40%	0.41%	0.43%	0.44%	0.44%	0.45%	0.46%	0.47%	0.48%									
	Relative academic impact of indexed publications (world average = 1)		0.97	0.95	0.99	1.01	1.03	1.08	1.10	1.13	1.16	1.21									
Metrics	% of indexed publications cited		61%	61%	63%	64%	65%	67%	67%	68%	69%	70%									
	Rate of inter-institutional collaboration in indexed publications		58%	59%	61%	62%	63%	64%	65%	66%	68%	70%									

Source: Ministry of Education, Tertiary Education Commission, Thomson Reuters

8 STATISTICS NEW ZEALAND DISCLAIMER

The results in section 5 of this report that deal with earnings and destinations of young graduates are not official statistics. They have been created for research purposes from the Integrated Data Infrastructure (IDI) managed by Statistics New Zealand.

The opinions, findings, recommendations and conclusions expressed in this report are those of the authors not Statistics NZ.

Access to the anonymised data used in this study was provided by Statistics NZ in accordance with security and confidentiality provisions of the Statistics Act 1975. Only people authorised by the Statistics Act 1975 are allowed to see data about a particular person, household, business or organisation and the results in this report have been confidentialised to protect these groups from identification.

Careful consideration has been given to the privacy, security and confidentiality issues associated with using administrative and survey data in the IDI. Further detail can be found in the privacy impact assessment for the Integrated Data Infrastructure available from www.stats.govt.nz.

The results are based in part on tax data supplied by Inland Revenue to Statistics NZ under the Tax Administration Act 1994. This tax data must be used only for statistical purposes, and no individual information may be published or disclosed in any other form, or provided to Inland Revenue for administrative or regulatory purposes.

Any person who has had access to the unit-record data has certified that they have been shown, have read, and have understood section 81 of the Tax Administration Act 1994, which relates to secrecy. Any discussion of data limitations or weaknesses is in the context of using the IDI for statistical purposes, and is not related to the data's ability to support Inland Revenue's core operational requirements.

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Park, Z (2014) *What young graduates do when they leave study*, Ministry of Education: Wellington



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Te Tāhuhu o te Mātauranga