

# Future demand for Higher Education in Australia

August 2010

*This is an updated version of Go8 Backgrounder 10 previously released in June 2010. A number of amendments have been made due to errors found in the base participation rates used in the modelling for Method B. The key findings have not significantly altered.*

## Introduction

This paper produces two sets of estimates of future student demand for higher education in Australia. The two sets of estimates allow us to consider the capacity of the university sector to accommodate future growth in student numbers (including staff and facilities), and to identify the costs involved, including for the Government which has undertaken to fund student demand at the undergraduate level and postgraduate coursework level for programs leading to a first professional qualification.

The first projection method, **Method A**, uses Department of Education, Employment and Workplace Relations (DEEWR) data on university and FEE-HELP approved Higher Education Provider (HEP)<sup>1</sup> enrolments (student numbers) by age and level of study. The student number data have been set against the Australian Bureau of Statistics (ABS) age estimates of the current Australian population to give a domestic participation rate for each age group. Those participation rates have been applied to the ABS *Series A* estimates of the Australian population to 2020 and 2030 to generate projected higher education enrolments driven by demographic growth alone.

Method A is a conservative approach in that it counts only university and HEP enrolments, not broader tertiary education participation, such as students enrolled with other private higher education providers and those undertaking higher education courses through non-FEE-HELP approved TAFE colleges. Its usefulness is twofold: in establishing a minimum requirements threshold estimate; and in providing a basis for calculating the potential costs to the Commonwealth in funding growth in higher education places.

The second approach to estimating future student demand, **Method B**, uses ABS estimates of participation in education and training through its annual survey of *Education and Work*. Rates of participation (enrolment in a course of study leading to a qualification), by age group and level of study, were computed from the survey data and applied to the ABS *Series A* population projections to 2020 and 2030.

Method B is more expansionary than Method A in that it captures participants across the range of education and training institutions, public and private, funded and unfunded. It also includes those international students who were resident in Australia for 12 months or more<sup>2</sup>. Its utility is in providing a higher estimate than can be derived from Method A, and identifying the impact of changes to participation rates by age and level of study.

An explanation of why the ABS *Series A* population projection has been used in this analysis is at **Attachment 1**.

## Educational participation and attainment data

In order to make assumptions about likely education participation rates in the future we need to understand recent trends.

**Table 1** shows trend rates of participation in formal education by age group from 2001 to 2009 based on ABS, *Education and Work* survey (May 2009) data. Even including 2009, when there may have been some sheltering from recession, the trend lines are mostly flat. Participation among the school leaver cohort is particularly flat. A slight increase is evident (although within relative standard error bars) among the age groups 20-24, 25-34 and 35-44, which may reflect growing participation in higher studies, both for employment entry in a range of professions, and for career progression of persons in employment.

<sup>1</sup> The number of students studying with FEE-HELP approved higher education providers equates to 4.3 percent of total student enrolments used in Method A.

<sup>2</sup> We are assuming international students account for approximately 20 percent of enrolments under Method B.

**Table 1: Trends in rates of study for an education qualification, persons by age group, Australia (%)**

Age Group	2001	2003	2005	2006	2007	2008	2009
15-19	77.4	77.5	76.0	77.5	77.8	78.8	77.0
20-24	34.8	37.5	38.9	36.9	37.4	39.8	39.9
25-34	13.2	14.3	13.9	13.3	14.2	14.1	14.5
35-44	8.4	8.7	8.3	8.3	8.5	8.5	9.1
45-64	4.2	4.5	4.4	4.3	4.7	4.7	5.2
<b>Total</b>	<b>18.1</b>	<b>18.6</b>	<b>18.2</b>	<b>17.9</b>	<b>18.3</b>	<b>18.6</b>	<b>18.9</b>

Source: ABS, *Education and Work*, May 2009 (6227.0).

The participation rate for 20-24 year olds rose by 5 percentage points from 2001 to 2009, at an average annual rate of increase of 0.62 percentage points. If we assume a continuing slightly lower trend rate of growth of some 0.55 of a percentage point per year in degree study by the 20-24 years cohort, and 0.15 of a percentage point per year for the 25-34 years cohort, driven in part by labour market pull factors, then it is probable that the Government's 40 percent target<sup>3</sup> could be reached naturally, well before 2025, allowing for enrolment pipelines, and without accounting for the contribution of degree qualified immigrants. Indeed, simple continuation of the trend growth in degree attainment (see **Table 2**) would see the target for the 25-34 group exceeded by 2015. A more targeted immigration program could even bring that date forward.

**Table 2: Trends in rates of educational attainment (Bachelor Degree or above) of the Australian population, persons by age group (%)**

Age Group	1999	2001	2003	2005	2007	2008	2009
15-19	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20-24	13.9	14.1	14.8	15.6	15.8	16.2	16.9
25-34	20.2	24.0	25.0	29.2	30.6	31.9	34.6
35-44	19.1	19.8	21.3	22.6	24.6	27.0	27.2
45-54	17.9	19.2	20.6	21.4	22.3	23.0	23.8
55-64	10.5	13.3	14.4	15.6	17.5	18.6	20.0
<b>Total</b>	<b>15.4</b>	<b>17.0</b>	<b>18.1</b>	<b>19.6</b>	<b>20.8</b>	<b>21.9</b>	<b>23.0</b>

Source: ABS, *Education and Work*, May 2009 (6227.0).

### Key finding 1

A continuation of the recent trend growth in degree attainment would see the Government's 40 percent target for the 25-34 group exceeded by 2015. An immigration program more targeted to higher level qualifications and skills, as has been proposed, could even bring that date forward.

## Outcomes of the Go8 demand projection modelling

The two sets of estimates (Method A and B) allow us to consider the capacity of the university sector to accommodate future growth in student numbers (including staff and facilities), and to identify the costs involved, including for the Government which has undertaken to fund student demand at the undergraduate level. Taken together, the two methods present a reasonable range of estimates for analytical purposes. The results are summarised below.

### Estimating projected enrolments under Method A:

#### *Using actual higher education enrolments by age and level of study*

The Method A growth projection for undergraduate enrolments (student numbers) in universities and HEPs is modest for the decade to 2020, assuming constant participation rates. It suggests that the demand increment could be absorbed at marginal costs. Postgraduate enrolments growth is also modest but they would be higher with any rise in the participation rate, which we anticipate. With regard to Higher Degrees by Research the challenge will be to maintain the current participation rate, given that the domestic student flow rate into research Masters and Doctorates has been slowing over the last decade.

<sup>3</sup> The Government has set a target that by 2025, 40 percent of all 25-34 year olds will hold a qualification at bachelor level or above. (Australian Government, 2009)

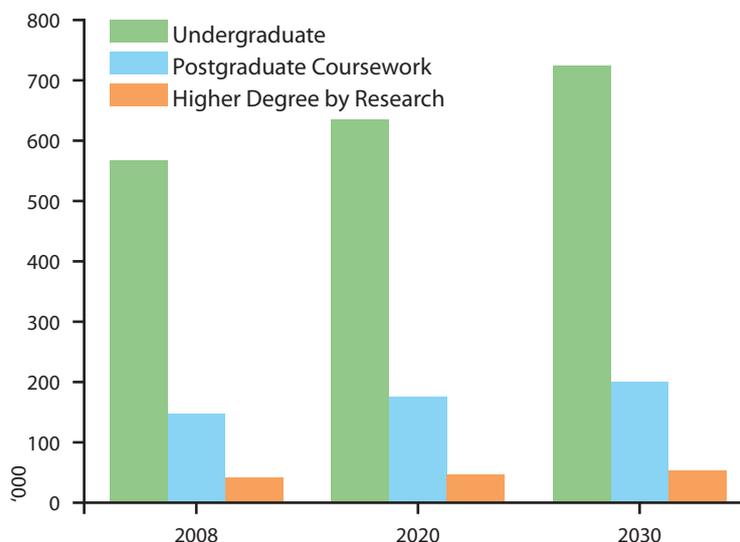
A summary of the enrolment increases (based on student numbers) in universities and HEPs under Method A is:

Demographically-driven demand for higher education places is projected to grow by some 108,000 (14.3%) to 2020 and 223,000 (29.6%) to 2030, assuming no change to latest available (2008) rates of participation or mix of enrolments by level of study.

- i. For undergraduate degree enrolments the projected growth is 67,000 by 2020 and 155,000 by 2030.
- ii. For postgraduate coursework enrolments, the projected growth is 31,000 by 2020 and 53,000 by 2030.
- iii. For Higher Degrees by Research, the projected growth is 9,000 by 2020 and 15,000 by 2030.

The projected enrolment increases under Method A are depicted in **Figure 1**. A full set of the data projections under Method A including an age break down is at **Attachment 2**.

**Figure 1: Projected higher education enrolments (student numbers) by level of study, 2008 to 2030 (Method A)**



Comparing these projected growth figures to the 2010 Budgeted forward estimates for Commonwealth Supported Places figures in **Table 6** below and it would seem the Government can accommodate the increased demographically driven demand as funded places, if it is prepared to continue to fund the growth out to 2030. What is more uncertain is how it will respond to increases in participation rates, particularly as more courses which provide professional entry move to the postgraduate level.

#### Key finding 2

Based on Method A the Australian Government could accommodate the projected domestic undergraduate student growth within recurrent outlay parameters for higher education similar to those of its recent Budgets.

Method B, outlined below, is based on census data and provides us with a fuller picture of demand for higher education across all provider types, including international students who are present in Australia for more than 12 months. This allows us to more fully understand the likely future pressures on the system, such as staffing and infrastructure needs.

#### Estimating projected enrolments under Method B:

##### *Using ABS estimates of educational participation by age group and level of study*

Method B is based on 2009 rates of participation in educational programs leading to the award of a qualification at three levels: Diploma/Advanced Diploma, Bachelor, and Postgraduate as identified in the ABS *Education and Work* survey (May 2009). The rates by level of study and age group are shown in **Table 3**. **Table 3** disaggregates the overall education participation rates outlined in **Table 1**. As noted above in relation to **Table 1**, over the last decade there has been a trend rise in the rates of participation for the age groups 20 years and above. On this basis, a number of Method B scenarios have been prepared, each based on different assumptions about rates of participation in the future.

It should be noted the ABS survey of *Education and Work* includes those international student in Australia for a period of 12 months in the 18 months prior to the survey collection. The same method is applied to population measures and projections. Therefore, future participation estimate will include an assumed continuation of the current participation rates of international students, or an increase aligned with the various scenarios applied to domestic student participation.

**Table 3: Participation in higher education by age group and level of qualification, Australia, 2009**

Age Group	Population (Persons '000)	Enrolled for Diploma/ Advanced Diploma (Persons '000)	Diploma / Advanced Diploma participation rate (%)	Enrolled for Bachelor Degree (Persons '000)	Bachelor participation rate (%)	Enrolled for Postgraduate qualification (Persons '000)	Postgraduate participation rate (%)	Tertiary Education <sup>4</sup> participation rate (%)
15-19	1,445.2	39.0	2.70	188.8	13.06	1.0	0.07	15.83
20-24	1,512.7	64.9	4.29	348.2	23.02	51.0	3.37	30.68
25-34	2,968.0	62.0	2.09	108.3	3.65	106.5	3.59	9.33
35-44	3,052.9	45.1	1.48	51.1	1.67	53.5	1.75	4.90
45-64	5,184.4	42.9	0.83	29.9	0.58	45.3	0.87	2.28
<b>Total</b>	<b>14,163.1</b>	<b>253.9</b>	<b>1.79</b>	<b>726.4</b>	<b>5.13</b>	<b>257.2</b>	<b>1.82</b>	<b>8.74</b>

Source: ABS, *Education and Work*, May 2009 (6227.0).

The Go8 has modelled a number of possible scenarios using Method B because it allows us to project the impact of various participation rate options by age and level of study in addition to the impact of population growth.

Scenarios have been generated reflecting different assumptions about future participation rates:

**Scenario B1.** Assuming no increase in participation rates, demographically-driven domestic demand for tertiary education is projected to increase by 195,000 students by 2020 and 362,000 students by 2030. Demographically-driven domestic demand for Bachelor study, with no change to current rates and forms of student participation, is projected to increase over current levels by 99,000 by 2020 and 203,000 by 2030. The average annual increase in Bachelor demand is 9,900 students over the decade to 2020.

The following scenarios are based on the demographic demand increases assumed in scenario B1 with participation rate changes as outlined:

**Scenario B2.** Assuming an increase of 2 percent in projected tertiary education enrolments (for 2020 and 2030, apportioned by current age group and level of study proportions) the total demand would rise by 224,000 to 2020, and by 394,000 by 2030.

**Scenario B3.** Assuming an increase of 2 percentage points in the overall tertiary education participation rate (apportioned by current age group and level of study proportions) the total demand would rise by 575,000 to 2020, and by 777,000 by 2030.

**Scenario B4.** Assuming a doubling of postgraduate participation rates, (from 3.37% to 6.74% for 20-24 years, from 3.59% to 7.18% for 25-34 years, from 1.75% to 3.5% for 35-44 years and from 0.87% to 1.74% for 45-64 years) total domestic demand would rise by 446,000 by 2020 and by 637,000 by 2030.

**Scenario B5.** Assuming a growth of 0.25 of a percentage point in Bachelor level participation by 2020 and 0.50 of a percentage point by 2030 (offset by a reduction of 0.5 of a percentage point in 2020 and 1 percentage point in 2030 in Diploma/Advanced Diploma level participation by the 15-19 and 20-24 age groups), and 0.75 of a percentage point increase in 2020 and a 1.5 percentage point increase in 2030 of postgraduate participation rates for ages above 25 years, overall demand would rise by 323,000 to 2020 and by 644,000 to 2030.

*Table 4* summarises the outcomes for the different scenarios.

**Table 4: Growth in demand (student numbers) under each Method B scenario**

Scenario	Diploma/Ad.Dip.		Bachelor		Postgraduate		Total Tertiary		Overall tertiary participation rate
	2020	2030	2020	2030	2020	2030	2020	2030	2030
<b>B1</b>	44,000	78,000	99,000	203,000	52,000	82,000	195,000	362,000	8.74
<b>B2</b>	50,000	84,000	115,000	221,000	59,000	89,000	224,000	394,000	8.70
<b>B3</b>	122,000	164,000	318,000	443,000	135,000	162,000	575,000	777,000	10.74
<b>B4</b>	44,000	78,000	99,000	203,000	304,000	356,000	446,000	637,000	9.99
<b>B5</b>	27,000	40,000	141,000	296,000	155,000	307,000	323,000	644,000	10.03

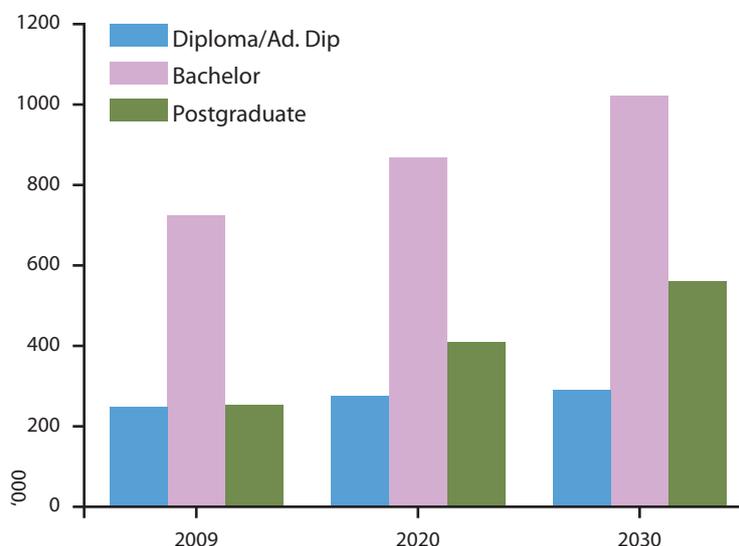
The data sets and graphs of projected outcomes under each scenario are at **Attachment 3**.

<sup>4</sup> Tertiary Education includes all higher education participation plus Diploma and Advanced Diploma courses undertaken in vocational education and training colleges.

### Key Finding 3

Using Method B we believe Scenario 5 provides the most useful projection, with a gradual increase in the participation level at Bachelor level by 0.5 percentage point to 2030 (0.25 percentage points in 2020) offset by a gradual 1 percent decline in Diploma/Advanced Diploma level participation for 15-19 and 20-24 year olds (0.5 of a percentage point in 2020). Postgraduate participation would increase more sharply with 0.75 percentage point increase in the participation rate by 2020 and a 1.5 percentage point increase by 2030 for those over 25 years. Under this scenario it is expected that overall tertiary education demand will rise by 323,000 students to 2020 and by 644,000 students to 2030. These projected enrolments are depicted in *Figure 2* below.

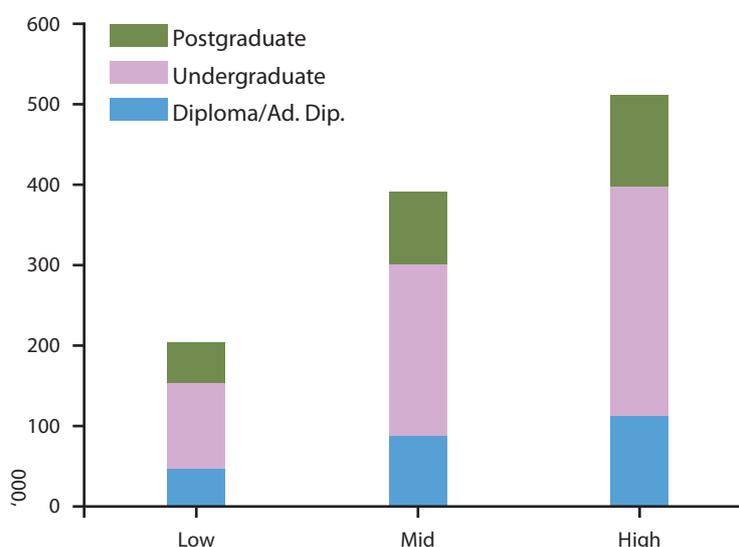
Figure 2: Projected levels of enrolment in tertiary education by level of study, 2009 to 2030 (Estimation Scenario B5)



### Validation of Go8 demand projections

According to Access Economics projections<sup>5</sup> undertaken for the Skills Australia *Workforce Futures* study<sup>6</sup>, student enrolment growth to 2025 is expected to range from 1.08 to 2.31 percent per annum for postgraduates and from 0.84 to 2.08 percent per annum for undergraduates. Diploma/Advanced Diploma enrolment growth will range from 1.04 to 2.27 percent. See *Attachment 4* for details. Plotting these growth scenarios against the 2009 participation figures (254,000 Diploma/Advanced Diplomas, 726,000 Bachelors and 257,000 Postgraduates) used in the Method B modelling we see overall growth in student numbers to 2025 of 202,000 students under the low growth scenario, 389,000 under the mid growth scenario and 511,000 students under the high growth scenario. See *Figure 3*.

Figure 3: Growth in higher education participation using Access Economics growth projections, 2025



<sup>5</sup> Access Economics. (2009). *Economic Modelling of Skills Demand*. Skills Australia, p.27.

<sup>6</sup> Skills Australia. (2009). *Workforce Futures: Towards an Australian Workforce Development Strategy*. Canberra: Skills Australia.

The Go8 Method B Scenario 5 projections fall between the Skills Australia mid and high growth scenario, if the Access Economic projections are extended out to 2030. The key difference is that Access Economics is predicting significant growth in participation at the Diploma/Advanced Diploma level, while Scenario B5 assumes a decline, as the Go8 believes the Government’s incentives for Bachelor degree study are likely to induce substitution. The B5 scenario also has a much greater proportion of the new enrolments at the postgraduate level in the out-years, assuming that competition in labour markets will encourage the stock of Bachelor degree qualified workers to upskill, including new migrants, who are typically at an age and education level to undertake postgraduate study.

The Access Economics study also points to recent trends in skills deepening and multiple qualification holding, driven by the changing nature of labour demand and the drive to improve productivity growth. That paper also notes that the expected “stronger than average growth for higher level qualifications reflects skills deepening over time, along with generally higher qualification requirements for those occupations with higher than average growth prospects”.

## Resource Implications

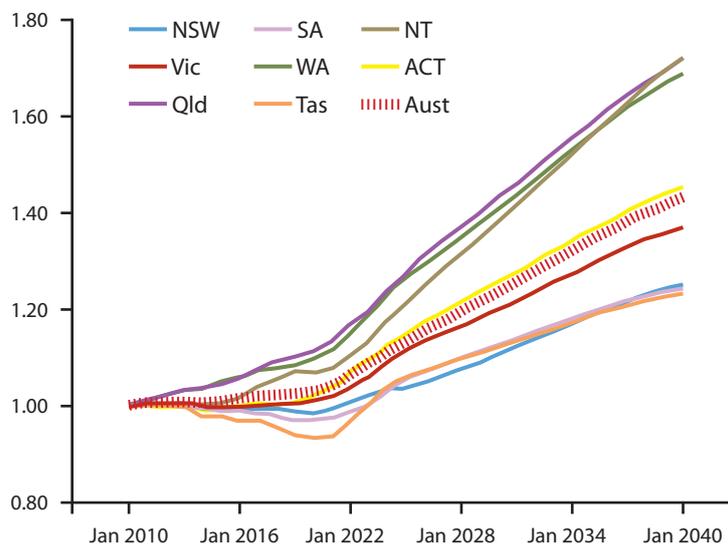
Demographically-driven increases in student demand, along with further rises in participation rates, will place additional pressures on university capacities and government finances. Likely further labour-market induced increases in demand for postgraduate qualifications will exacerbate the pressures, and raise questions about the cost-effectiveness of different supply solutions.

These pressures will begin to be felt more intensively from around 2015, when the ‘new baby boomers’ complete secondary schooling.

### State and Territory differences in population growth and tertiary education participation

Considerable differences are evident among the States and Territories, reflecting variances in rates of growth and participation as illustrated in **Figure 4** for the age group 16-18 years. The school leaver boom will hit harder and earlier in Queensland, Western Australia and the Northern Territory than elsewhere. In the other states, school leaver demand will remain relatively flat over the decade to 2020.

**Figure 4: Projected growth of the population aged 16 to 18 years by State and Territory, Australia, 2010 to 2040**



Source: ABS, *Population Projections, Australia, 2006 to 2101. Series A.*

A detailed breakdown of the growth projections for 16-18 year olds by state and territory is at **Attachment 5**.

There will be urban and regional differences as well. Sydney, Melbourne and Perth are projected to increase their shares of their state populations, whereas in Queensland the regional cities as well as greater Brisbane will experience growth.

As shown in **Table 5**, Victoria has a degree qualified population stock more than 3 percentage points above the Australian average level, whereas Queensland’s degreed population is 4.5 percentage points below the national average and 7.6 points behind Victoria. Similarly, Queensland has a lower than average rate of overall educational participation and a lower than average rate of higher education participation. It is reasonable to expect that Queensland will lift its participation rate closer to the national average over the years ahead.

**Table 5: Proportion of the population with a degree, and participation in study, 2009**

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Aust
Degree qualified share of population aged 15-64 (%)	24.7	26.1	18.5	19.0	20.9	17.1	19.9	39.3	23.0
Share of population enrolled in a course of study (school and post-school) (%)	19.9	19.4	17.3	18.5	17.3	19.3	16.1	23.3	18.9
Share of population attending a higher education institution (%)	7.6	7.4	6.6	6.7	6.7	6.2	6.2	12.0	7.2

Source: ABS, *Education and Work*, Australia, May 2009.

### Funding

In the 2009 Budget, the Australian Government provided \$491 million over four years for 50,000 additional undergraduate places or Equivalent Full-Time Student Load (EFTSL). The 2010 Budget revised this estimate to be consistent with the estimated levels of over-enrolment for 2010 and 2011. The additional funding allocated for Commonwealth Supported Places and the move to a student demand-driven funding system from 2010 is \$1.3 billion over the 2010 Budget period. DEEWR is now assuming Commonwealth funded load to increase by nearly 40,000 places (EFTSL) per year on average from 2011 over the previous Budget estimates. See **Table 6** for more detail.

**Table 6: Changes to Budget forecast for Commonwealth Supported Places**

Commonwealth Grants Scheme	2009-10	2010-11	2011-12	2012-13	2013-14
<b>Funding</b>					
2009 Budget Forecast funding (\$'000)	4,471,435	4,688,787	4,958,254	5,171,880	
2010 Budget Forecast funding (\$'000)	4,563,826	5,029,042	5,250,302	5,602,652	5,881,255
<b>Difference in funding 2009 to 2010 (\$'000)</b>	<b>92,391</b>	<b>340,255</b>	<b>292,048</b>	<b>430,772</b>	
<b>Places</b>					
<b>2009 Budget Forecast places (EFTSL)</b>					
Undergraduate	422,000	432,000	444,000	458,000	
Postgraduate coursework	21,000	23,000	23,000	23,000	
<b>2010 Budget Forecast places (EFTSL)</b>					
Undergraduate	443,540	466,022	474,986	488,016	494,210
Postgraduate coursework	25,297	30,194	31,660	31,790	31,870
<b>Difference in undergraduate places</b>	<b>21,540</b>	<b>34,022</b>	<b>30,986</b>	<b>30,016</b>	
<b>Difference in postgraduate coursework places</b>	<b>4,297</b>	<b>7,194</b>	<b>8,660</b>	<b>8,790</b>	

Source: DEEWR Portfolio Budget Statements, 2009 and 2010.

The Method A projection of future domestic undergraduate enrolments, based on demographic growth alone, estimates growth of 67,000 (46,900 EFTSL) to 2020 and 155,000 (108,500 EFTSL) to 2030. In this regard, the Government has more than sufficiently provided for growth over the short to medium term. However, that projection looks too conservative in the light of university enrolment behaviour in 2010, which has seen over enrolment of 9.9 percent above the previous 2010 targets for undergraduate and postgraduate places across the sector.

Our Method B Scenario 5 (B5) projection, based on demographic growth and expected participation rate increases in higher education, we see Bachelor degree enrolments growing by 141,000 (111,400 EFTSL) between 2009 and 2020 and by 296,000 (237,000 EFTSL) between 2009 and 2030. If 75 percent of that growth (accounting for the inclusion of private domestic and international students) were to be absorbed by the Commonwealth-funded university sector, at an average funding rate of \$9,500 per undergraduate place<sup>7</sup>, the cost would amount to an additional \$794 million by 2020 and \$1.7 billion by 2030 (in constant 2009 dollars).

Additionally, provision will need to be made for increases postgraduate participation. Government outlays would have to be maintained on the post-global financial crisis trajectory to absorb future undergraduate growth.

<sup>7</sup> In constant 2009 dollars. This is likely to increase to reflect real prices with the introduction of new indexation arrangements from 2012.

These figures do not include Government outlays on Commonwealth Supported Places for postgraduate coursework places as the policy on funding these places beyond 2011 is uncertain. In 2010 it is estimated that some 35 percent of postgraduate coursework level programs were funded as Commonwealth Supported Places. Changes in the entry requirements for different professions are leading to increases in funded participation at this level. It is expected that there will continue to be support for postgraduate coursework places that provide an entry level qualification into the professions.

#### Key Finding 4

If 75 percent of the anticipated growth in Bachelor degree enrolments under the B5 scenario (111,400 EFTSL between 2009 and 2020 and by 237,000 EFTSL between 2009 and 2030) were to be absorbed by the Commonwealth-funded university sector, at an average funding rate of \$9,500 per undergraduate place, the cost would amount to an additional \$794 million by 2020 and \$1.7 billion by 2030 (in constant 2009 dollars). The new indexation arrangements would see this figure increase substantially over this period.

While the projections suggest that the Commonwealth could sustain such a strategy up to around 2013-14, it would be an unsustainable approach beyond 2015, when school leaver flows will rise dramatically. It is also difficult to see how the Government will be able to fund significant participation increases, under a student demand-driven funding model, at these cost levels. A more diverse and cost-effective structure of supply will be required as demand expands, and it would be prudent to begin now to put that structure in place.

#### Key Finding 5

Given the likely increases in demographically-driven demand and higher education participation rates, a more diverse and cost-effective structure of supply will be required from 2015 to ensure quality is not diminished.

### Staffing

Both Method A and B projections point to the growing significance of postgraduate participation. In appreciating the overall resource requirements all levels of higher education, including international student demand, need to be included. For analysis purposes the probable scenario (B5) has been adopted.

As seen in **Table 7**, on that projection, assuming a slight improvement to average student staff ratios, over the next 20 years 26,463 net full-time equivalent (FTE) additional teaching staff will be required—on top of the need to replace those currently employed staff who will be retiring over the same period. Hugo (2008)<sup>8</sup> predicts that around one third of the current academic staff body will retire in the next two decades—equivalent to 11,400 FTE based on 2008 staffing levels in universities (Table A providers) of 34,225, including casuals but excluding research only staff.

**Table 7: Estimated teaching staff required for projected higher education enrolment growth**

Probable scenario (Method B5)	Projected student numbers	EFTSL (a)	Student staff ratios	Additional teaching staff required
Bachelor degree enrolment growth to 2020	141,151	111,509	20:01	5,575
Bachelor degree enrolment growth to 2030	296,428	234,178	20:01	11,709
Postgraduate degree enrolment growth to 2020	154,738	74,274	10:01	7,427
Postgraduate degree enrolment growth to 2030	307,373	147,539	10:01	14,754
Total Higher Education enrolment growth to 2020 (b)	295,889	207,122	16:01	13,003
Total Higher Education enrolment growth to 2030 (b)	603,801	422,661	16:01	26,463

(a) The domestic student to load (EFTSL) conversion factors (2008 data) are: Higher Degree by Research (0.66); Postgraduate Coursework (0.42); Bachelor (0.79); Other undergraduate (0.70); Total (0.70). For postgraduates in total a factor of 0.48 has been applied. (b) Includes Bachelor and Postgraduate degree enrolment only.

If the growth in enrolments were to be absorbed entirely by the university sector, nearly 40,000 additional full time equivalent tertiary educators would be required over the next 20 years to meet the expansion needs of the sector and replace those expected to retire. This estimate assumes a modest improvement in student staff ratios.

<sup>8</sup> Hugo, G. *The Demographic Outlook for Australian Universities' Academic Staff*, CHASS Occasional Paper, November 2008.

A start will be needed soon on building up that future supply, given the lead times involved in producing PhD graduates and providing them with the necessary early-career development to take on the full-range of academic staff responsibilities.

The projections for required staff are based on an average student staff ratios of 20 to 1 at the undergraduate and 10 to 1 at the postgraduate level or 16 to 1 overall. Professions Australia believes that changes to the student staff ratio, which have blown out to over 20 to 1 in recent years, have had an adverse effect on the quality of undergraduate teaching provided to students in Australian universities<sup>9</sup>.

#### Key Finding 6

In order to meet expected demand for higher education and replace retiring academics Australia will need to produce and/or attract through migration an extra 40,000 full time equivalent tertiary educators over the next 20 years to achieve an improved student staff ratio of 16:1.

#### *Higher Degree by Research Students*

With an ageing population profile, particular challenges will arise in maintaining the participation rate for research degree students. One challenge is that a much higher rate of PhD enrolment among the younger population will be needed to offset the growth in older age cohorts, but without diminishing the quality of research training. Another challenge is needs-driven; a higher level of research graduate output is required to replace the retiring academic and researcher workforce and to service the impending enlargement of tertiary education participation.

Australia is increasingly reliant on overseas sources of PhD enrolments as domestic commencements decline in many, especially science, technology, engineering and mathematics (STEM) fields. Government migration policy changes may help to attract more advanced human capital from overseas. But a researcher workforce strategy that is predicated disproportionately on international supply would be vulnerable to the intensifying competition for talent globally, as well as to change of circumstances in source countries. Hence, efforts will be needed to expand domestic PhD enrolments, and to improve employment conditions and security for early-career and mid-career researchers.

The projections for demand at the Higher Degree by Research level merely reflect the ageing of the population, and for PhD study the cohort to be attracted is primarily in age group 20-29 years. For the current overall HDR participation rate to be maintained in the future, a much more intensive rate of enrolment will be required from the younger cohorts. However, as shown in **Figure 5**, there has been patchy growth since 2001 in domestic HDR students. There has been negative or minimal growth in PhD commencements in the fields of information technology, engineering, architecture, education, and business and management. Meanwhile there has been a retreat from Masters by Research, except by international students in Engineering.

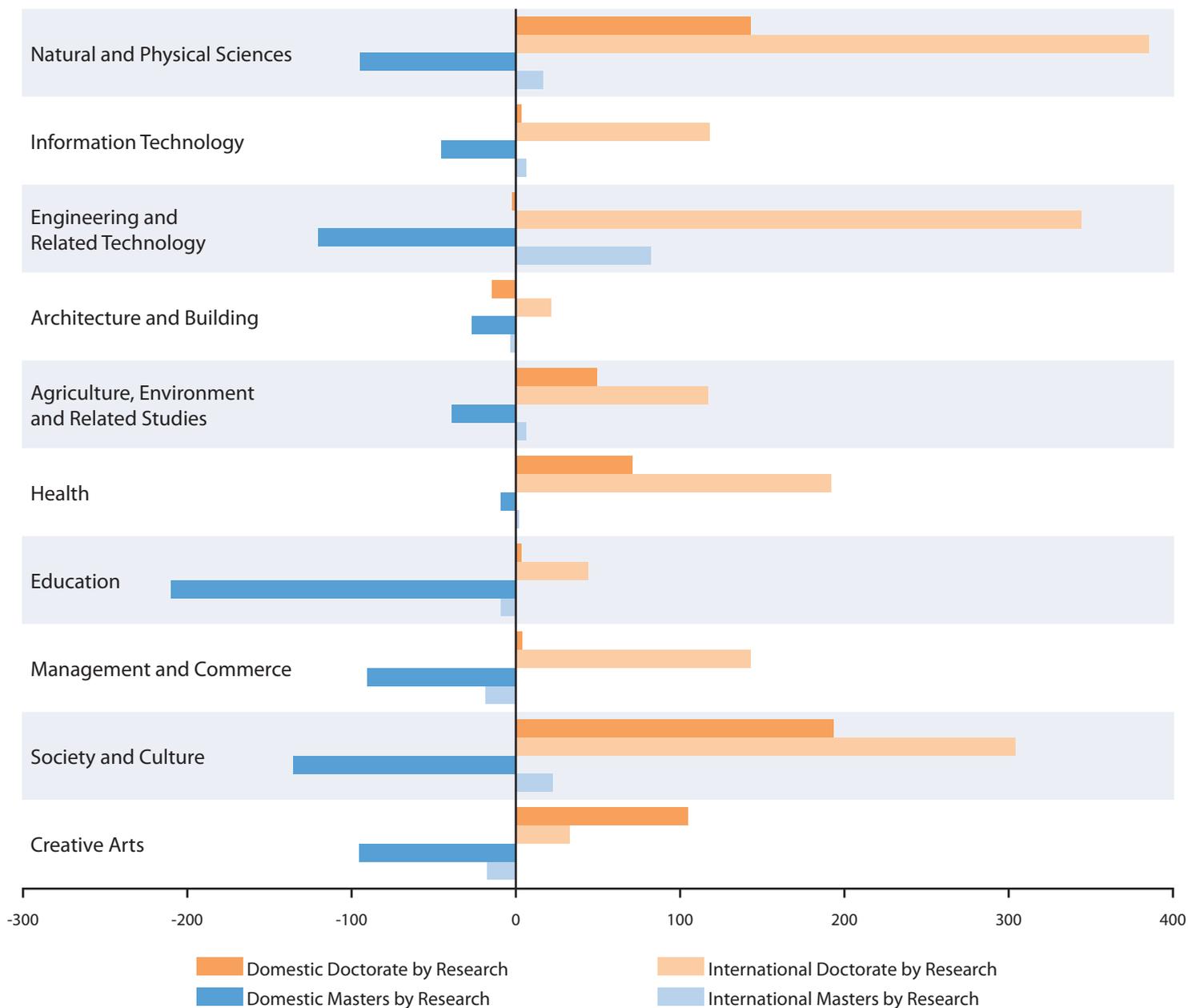
#### Key Finding 7

There has been little growth since 2001 in domestic HDR students, except for PhD commencements in natural and physical sciences, environmental studies, health, society and culture and creative arts.

An over-reliance on international HDR students will leave Australia vulnerable to the intensifying competition for talent globally and change of circumstances in source countries.

<sup>9</sup> Professions Australia. (February 2008). *Higher Education Policy: Delivering Australia's Future Professional Requirements*. Professions Australia.

Figure 5: Change in commencing students Higher Degree by Research by broad field, domestic and international, Australia, 2001 to 2008



## Conclusion

Over the next 20 years, demographically-driven demand and likely changes to higher education participation rates will pose significant new challenges for higher education policy and financing in Australia. Greater structural diversity and more flexible financing mechanisms will be necessary to meet the changing demand cost-effectively and without quality erosion. A major effort will be needed to attract and retain tertiary teachers. A start must be made now to build the staffing and physical infrastructure capacity required, given that school leaver demand alone will accelerate in just five years time.

It is important that the next generation of students are provided for well. They will form Australia's new knowledge workforce to sustain prosperity and drive social and environmental improvements in the future.

The Secretary to the Treasury, Dr Ken Henry, addressed the Queensland University of Technology Business Leaders' Forum on The Shape of Things to Come: long run forces affecting the Australian economy in coming decades, in October 2009. In addressing demographic change, Dr Henry noted that

*"our long term projection for Australia's population had increased from 28.5 million in 2047 to more than 35 million people in 2049. This 25 per cent increase in our 40 year projections reflects the combined effect of a higher net overseas migration and a recent pick up in the fertility rate of Australian women. Today's population is about 22 million. So we are now projecting an increase of 13 million people, or around 60 per cent, over the next 40 years. A population expansion of this order has a host of implications for the Australian economy and society."*<sup>10</sup>

The Australian Bureau of Statistics published the current set of population projections in 2008<sup>11</sup>. The next set of projections is not expected to be published until after data from the 2011 Australian Census of Population and Housing become available. The published population projections contain three series, based on different values for key parameters (See *Table A1*).

**Table A1: Comparison of assumptions underlying ABS projections series**

	Total fertility rate (Babies per woman)	Net overseas migration (Persons)	Life expectancy at birth Males (Years)	Life expectancy at birth Females (Years)
<i>Series A</i>	2.0	220 000	93.9	96.1
<i>Series B</i>	1.8	180 000	85.0	88.0
<i>Series C</i>	1.6	140 000	85.0	88.0

The Group of Eight prepared a Backgrounder in October 2008, estimating potential demand for places in higher education. That analysis used *Series B* projections<sup>12</sup>. Most recent demographic data show:

Financial year	Fertility rates	Net overseas migration (thousands)
2003-04	1.727	100.0
2004-05	1.768	123.8
2005-06	1.807	146.7
2006-07	1.883	232.8
2007-08	1.935	213.7
2008-09	1.978	285.3

These data show fertility above the *Series B* long term average assumption for the last four years, and increasing to close to the *Series A* level in the last two years. Net migration has been well above the *Series B* assumption for three years, and has increased to nearly 30% above the *Series A* assumption in 2008-09. ABS data show a population increase of 2.1% in the year to June 2009, with the natural increase contributing 36% of growth and net overseas migration contributing 64%. If the parameters maintain current levels shown by these data, the *Series A* population projections would provide a much more accurate indication of likely potential student numbers.

Recent statements by political leaders would indicate the possibility of net overseas migration levels being reduced. If that occurs, and if fertility levels decline, the selection of *Series A* or *Series B* population projections could be reviewed, probably at the time of the next release of ABS Population Projections expected in about 2013.

<sup>10</sup> K Henry, *The Shape of Things to Come: long run forces affecting the Australian economy in coming decades*. Address to the Queensland University of Technology Business Leaders' Forum, 22 October 2009.

<sup>11</sup> Australian Bureau of Statistics (Cat. No. 3222.0). *Population Projections Australia 2006 to 2101*. Released 4 September 2008.

<sup>12</sup> Group of Eight Backgrounder *Demographic impact on higher education enrolments*. October 2008 [www.go8.edu.au/storage/go8statements/2008/go8backgrounder7demogimpact.pdf](http://www.go8.edu.au/storage/go8statements/2008/go8backgrounder7demogimpact.pdf).

Method A uses Department of Education, Employment and Workplace Relations (DEEWR) data on university and FEE-HELP approved HEP enrolments (student numbers) by age and level of study. The student number data have been set against the Australian Bureau of Statistics (ABS) current age estimates of the Australian population to give a (domestic) participation rate for each age. Those participation rates have been applied to the ABS Series A estimates of the Australian population to 2020 and 2030. Method A is a conservative approach in that it counts only university and HEP enrolments, not broader tertiary education participation such as students enrolled with other private higher education providers.

Not the majority of these enrolments are in universities (Table A providers), 4.27 percent are studying in FEE-HELP approved Higher education providers.

**Table A2.1: Projections of demographically-driven demand for university undergraduate places<sup>13</sup>**

Undergraduate	2008	2020	2030	Increase 2008-2020	Increase 2008-2030
15-19	200,670	210,715	252,099	10,045	51,429
20-24	227,641	252,963	280,852	25,322	53,211
25-29	51,278	62,860	64,674	11,582	13,396
30-39	51,155	61,770	68,608	10,615	17,453
40 and over	36,722	46,809	56,425	10,087	19,703
<b>Total</b>	<b>567,466</b>	<b>635,117</b>	<b>722,658</b>	<b>67,651</b>	<b>155,192</b>

**Table A2.2: Projections of demographically-driven demand for university postgraduate by coursework places<sup>13</sup>**

Postgraduate Coursework	2008	2020	2030	Increase 2008-2020	Increase 2008-2030
15-19	121	127	152	6	31
20-24	25,312	28,128	31,229	2,816	5,917
25-29	32,848	40,267	41,429	7,419	8,581
30-39	46,641	56,319	62,554	9,678	15,913
40 and over	41,400	52,773	63,613	11,373	22,213
<b>Total</b>	<b>146,322</b>	<b>177,614</b>	<b>198,977</b>	<b>31,292</b>	<b>52,655</b>

**Table A2.3: Projections of demographically-driven demand for university Higher Degree by Research places<sup>13</sup>**

Higher Degree by Research	2008	2020	2030	Increase 2008-2020	Increase 2008-2030
15-19	1	1	1	0	0
20-24	4,984	5,538	6,149	554	1,165
25-29	9,014	11,050	11,369	2,036	2,355
30-39	10,610	12,812	14,230	2,202	3,620
40 and over	15,061	19,198	23,142	4,137	8,081
<b>Total</b>	<b>39,670</b>	<b>48,599</b>	<b>54,891</b>	<b>8,929</b>	<b>15,221</b>

**Table A2.4: Projections of demographically-driven demand for higher education places<sup>13</sup>**

All higher education enrolments	2008	2020	2030	Increase 2008-2020	Increase 2008-2030
15-19	200,792	210,843	252,253	10,051	51,461
20-24	257,937	286,629	318,230	28,692	60,293
25-29	93,140	114,176	117,473	21,036	24,333
30-39	108,406	130,901	145,392	22,495	36,986
40 and over	93,183	118,780	143,179	25,597	49,996
<b>Total</b>	<b>753,458</b>	<b>861,330</b>	<b>976,526</b>	<b>107,872</b>	<b>223,068</b>

<sup>13</sup>. Places refers to student numbers rather than equivalent full-time student load (EFTSL).

*Method B* uses ABS estimates of participation in education and training through its annual Survey of Education and Work. Rates of participation (enrolment in a course of study leading to a qualification), by age group and level of study, were computed from the survey data and applied to the ABS *Series A* population projections to 2020 and 2030. *Method B* is more expansionary than *Method A* in that it captures participants across the range of education and training institutions, public and private, as well as international students who have been in Australia for more than 12 months.

The following figures have been used as the basis for all growth projections under *Method B*. They have been calculated using ABS *Series A* population projections.

Age Group	Projected Persons ('000)			Total population increase	
	2009 act	Jun-2020	Jun-2030	diff. 2020	diff. 2030
15-19	1,445	1,545	1,848	100	403
20-24	1,513	1,701	1,888	188	376
25-34	2,968	3,727	3,925	759	957
35-44	3,053	3,538	4,152	485	1,099
45-64	5,184	6,369	6,950	1,185	1,766
Total	14,163	16,879	18,764	2,716	4,601

The full data set produced for the scenario modelling is included in the following tables.

## Scenario B1: Estimated changes in student participation based on population change alone

Overall education participation ('000)						
Age Group	Part. Rate (2009)	2009	2020	2030	diff. 2020	diff. 2030
15-19	76.4	1104	1180	1412	76	308
20-24	38.8	587	660	733	73	146
25-34	13.8	410	514	542	105	132
35-44	8.2	250	290	340	40	90
45-64	4.0	207	255	278	47	71
<b>Total</b>	<b>18.2</b>	<b>2558</b>	<b>2899</b>	<b>3305</b>	<b>341</b>	<b>746</b>

Diploma participation ('000)						
Age Group	Part. Rate (2009)	2009	2020	2030	diff. 2020	diff. 2030
15-19	2.70	39	42	50	3	11
20-24	4.29	65	73	81	8	16
25-34	2.09	62	78	82	16	20
35-44	1.48	45	52	61	7	16
45-64	0.83	43	53	58	10	15
<b>Total</b>	<b>1.79</b>	<b>254</b>	<b>297</b>	<b>332</b>	<b>44</b>	<b>78</b>

Bachelor participation ('000)						
Age Group	Part. Rate (2009)	2009	2020	2030	diff. 2020	diff. 2030
15-19	13.06	189	202	241	13	53
20-24	23.02	348	392	435	43	86
25-34	3.65	108	136	143	28	35
35-44	1.67	51	59	69	8	18
45-64	0.58	30	37	40	7	10
<b>Total</b>	<b>5.13</b>	<b>726</b>	<b>825</b>	<b>929</b>	<b>99</b>	<b>203</b>

Postgraduate participation ('000)						
Age Group	Part. Rate (2009)	2009	2020	2030	diff. 2020	diff. 2030
15-19	0.07	1	1	1	0	0
20-24	3.37	51	57	64	6	13
25-34	3.59	107	134	141	27	34
35-44	1.75	54	62	73	8	19
45-64	0.87	45	56	61	10	15
<b>Total</b>	<b>1.82</b>	<b>257</b>	<b>310</b>	<b>339</b>	<b>52</b>	<b>82</b>

Tertiary Education participation* ('000)						
Age Group	Part. Rate (2009)	2009	2020	2030	diff. 2020	diff. 2030
15-19	15.83	229	245	293	16	64
20-24	30.68	464	522	579	58	115
25-34	9.33	277	348	366	71	89
35-44	4.90	150	173	204	24	54
45-64	2.28	118	145	158	27	40
<b>Total</b>	<b>8.74</b>	<b>1238</b>	<b>1433</b>	<b>1600</b>	<b>195</b>	<b>362</b>

\*Tertiary Education includes Diploma, Advanced Diploma, Bachelor and Postgraduate level courses.

## Scenario B2: Modelling 2 percent increase in the number of students participating in Higher Education

	2020	2030
<i>Current participation</i>	1433	1600
<i>2 percent increase</i>	1461	1632

Diploma participation ('000)						
Age Group	Part. Rate (2030)	2009	2020	2030	diff. 2020	diff. 2030
15-19	2.75	39	43	51	4	12
20-24	4.38	65	74	83	10	18
25-34	2.13	62	79	84	17	22
35-44	1.51	45	53	63	8	17
45-64	0.84	43	54	59	11	16
<b>Total</b>	<b>1.80</b>	<b>254</b>	<b>303</b>	<b>338</b>	<b>50</b>	<b>84</b>

Bachelor participation ('000)						
Age Group	Part. Rate (2030)	2009	2020	2030	diff. 2020	diff. 2030
15-19	13.33	189	206	246	17	57
20-24	23.48	348	399	443	51	95
25-34	3.72	108	139	146	30	38
35-44	1.71	51	60	71	9	20
45-64	0.59	30	37	41	8	11
<b>Total</b>	<b>5.05</b>	<b>726</b>	<b>842</b>	<b>947</b>	<b>115</b>	<b>221</b>

Postgraduate participation ('000)						
Age Group	Part. Rate (2030)	2009	2020	2030	diff. 2020	diff. 2030
15-19	0.07	1	1	1	0	0
20-24	3.44	51	58	65	7	14
25-34	3.66	107	136	144	30	37
35-44	1.79	54	63	74	10	21
45-64	0.89	45	57	62	11	17
<b>Total</b>	<b>1.84</b>	<b>257</b>	<b>316</b>	<b>346</b>	<b>59</b>	<b>89</b>

Tertiary Education participation* ('000)						
Age Group	Part. Rate (2030)	2009	2020	2030	diff. 2020	diff. 2030
15-19	16.15	229	249	298	21	70
20-24	31.29	464	532	591	68	127
25-34	9.51	277	355	373	78	97
35-44	5.00	150	177	208	27	58
45-64	2.32	118	148	161	30	43
<b>Total</b>	<b>8.70</b>	<b>1238</b>	<b>1461</b>	<b>1632</b>	<b>224</b>	<b>394</b>

Note: Modelling a two percent increase in the number of students participating in higher education in each of 2020 and 2030. The total participation rate falls slightly because of changes in the age composition of the total population over the projection period.

\*Tertiary Education includes Diploma, Advanced Diploma, Bachelor and Postgraduate level courses.

## Scenario B3: Modelling a two percentage point increase in total Higher Education participation rate

Diploma participation ('000)						
Age Group	Part. Rate (2030)	2009	2020	2030	diff. 2020	diff. 2030
15-19	3.40	39	53	63	14	24
20-24	5.40	65	92	102	27	37
25-34	2.63	62	98	103	36	41
35-44	1.86	45	66	77	21	32
45-64	1.04	43	67	72	24	30
<b>Total</b>	<b>2.23</b>	<b>254</b>	<b>376</b>	<b>418</b>	<b>122</b>	<b>164</b>

Bachelor participation ('000)						
Age Group	Part. Rate (2030)	2009	2020	2030	diff. 2020	diff. 2030
15-19	16.45	189	255	304	67	115
20-24	28.99	348	495	547	147	199
25-34	4.60	108	172	180	64	72
35-44	2.11	51	75	88	24	36
45-64	0.73	30	46	50	17	21
<b>Total</b>	<b>6.23</b>	<b>726</b>	<b>1044</b>	<b>1170</b>	<b>318</b>	<b>443</b>

Postgraduate participation ('000)						
Age Group	Part. Rate (2030)	2009	2020	2030	diff. 2020	diff. 2030
15-19	0.09	1	1	2	0	1
20-24	4.25	51	73	80	22	29
25-34	4.52	107	169	177	63	71
35-44	2.21	54	78	92	25	38
45-64	1.10	45	70	76	25	31
<b>Total</b>	<b>2.28</b>	<b>257</b>	<b>392</b>	<b>427</b>	<b>135</b>	<b>170</b>

Tertiary Education participation* ('000)						
Age Group	Part. Rate (2030)	2009	2020	2030	diff. 2020	diff. 2030
15-19	19.94	229	309	368	81	140
20-24	38.64	464	660	730	196	265
25-34	11.74	277	440	461	163	184
35-44	6.18	150	219	256	70	107
45-64	2.87	118	184	199	65	81
<b>Total</b>	<b>10.74</b>	<b>1238</b>	<b>1812</b>	<b>2015</b>	<b>575</b>	<b>777</b>

\*Tertiary Education includes Diploma, Advanced Diploma, Bachelor and Postgraduate level courses.

Scenario B4: Modelling a higher rate of participation at the postgraduate level by doubling the 2009 participation rates for the upper age groups, while holding 15-19 and 20-24 and all other categories at 2009 levels

Diploma participation ('000)						
Age Group	Part. Rate (2030)	2009	2020	2030	diff. 2020	diff. 2030
15-19	2.70	39	42	50	3	11
20-24	4.29	65	73	81	8	16
25-34	2.09	62	78	82	16	20
35-44	1.48	45	52	61	7	16
45-64	0.83	43	53	58	10	15
<b>Total</b>	<b>1.79</b>	<b>254</b>	<b>297</b>	<b>332</b>	<b>44</b>	<b>78</b>

Bachelor participation ('000)						
Age Group	Part. Rate (2030)	2009	2020	2030	diff. 2020	diff. 2030
15-19	13.06	189	202	241	13	53
20-24	23.02	348	392	435	43	86
25-34	3.65	108	136	143	28	35
35-44	1.67	51	59	69	8	18
45-64	0.58	30	37	40	7	10
<b>Total</b>	<b>5.13</b>	<b>726</b>	<b>825</b>	<b>929</b>	<b>99</b>	<b>203</b>

Postgraduate participation ('000)						
Age Group	Part. Rate (2030)	2009	2020	2030	diff. 2020	diff. 2030
15-19	0.07	1	1	1	0	0
20-24	3.37	51	57	64	6	13
25-34	7.18	107	267	282	161	175
35-44	3.50	54	124	146	70	92
45-64	1.75	45	111	121	66	76
<b>Total</b>	<b>3.27</b>	<b>257</b>	<b>561</b>	<b>614</b>	<b>304</b>	<b>356</b>

Tertiary Education participation* ('000)						
Age Group	Part. Rate (2030)	2009	2020	2030	diff. 2020	diff. 2030
15-19	15.83	229	245	293	16	64
20-24	30.68	464	522	579	58	115
25-34	12.91	277	481	507	204	230
35-44	6.66	150	235	276	86	127
45-64	3.15	118	201	219	83	101
<b>Total</b>	<b>9.99</b>	<b>1238</b>	<b>1684</b>	<b>1874</b>	<b>446</b>	<b>637</b>

\*Tertiary Education includes Diploma, Advanced Diploma, Bachelor and Postgraduate level courses.

Scenario B5: Modelling an increase in the participation rate at the Bachelors level by 0.25 of a percentage point for 2020 and 0.5 of a percentage point for 2030 and the postgraduate level participation of 25 years and above by 0.75 of a percentage point in 2020 and 1.5 percentage points in 2030; Diploma level is left flat at 2009 rates except for 15-19 and 20-24 year olds where there is 0.5 of a percentage point decrease in 2020 and a 1 percentage point decrease in 2030

Diploma participation ('000)						
Age Group	Part. Rate (2030)	2009	2020	2030	diff. 2020	diff. 2030
15-19	1.70	39	34	31	-5	-8
20-24	3.29	65	64	62	0	-3
25-34	2.09	62	78	82	16	20
35-44	1.48	45	52	61	7	16
45-64	0.83	43	53	58	10	15
<b>Total</b>	<b>1.57</b>	<b>254</b>	<b>281</b>	<b>294</b>	<b>27</b>	<b>40</b>

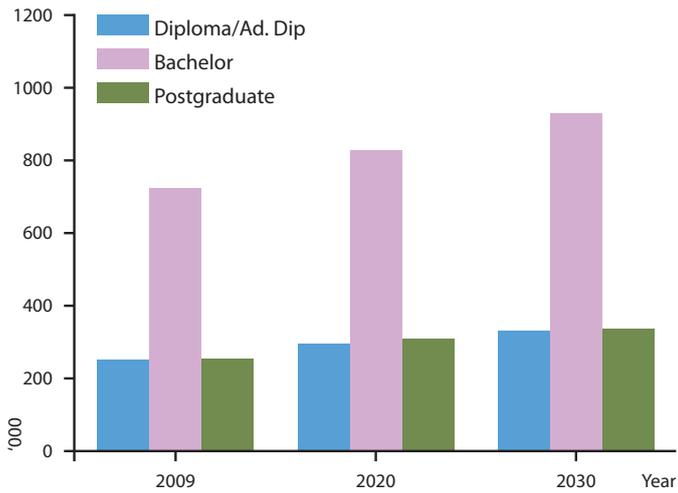
Bachelor participation ('000)						
Age Group	Part. Rate (2030)	2009	2020	2030	diff. 2020	diff. 2030
15-19	13.56	189	206	251	17	62
20-24	23.52	348	396	444	48	96
25-34	4.15	108	145	163	37	55
35-44	2.17	51	68	90	17	39
45-64	1.08	30	53	75	23	45
<b>Total</b>	<b>5.45</b>	<b>726</b>	<b>867</b>	<b>1023</b>	<b>141</b>	<b>296</b>

Postgraduate participation ('000)						
Age Group	Part. Rate (2030)	2009	2020	2030	diff. 2020	diff. 2030
15-19	0.07	1	1	1	0	0
20-24	3.37	51	57	64	6	13
25-34	5.09	107	162	200	55	93
35-44	3.25	54	89	135	35	82
45-64	2.37	45	103	165	58	120
<b>Total</b>	<b>3.01</b>	<b>257</b>	<b>412</b>	<b>565</b>	<b>155</b>	<b>307</b>

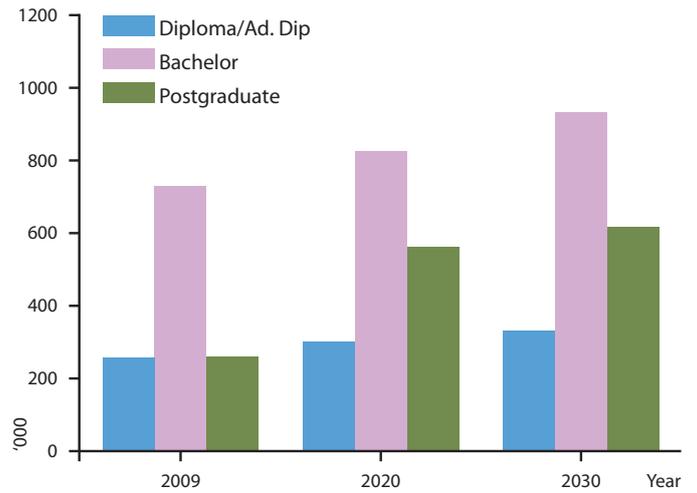
Tertiary Education participation* ('000)						
Age Group	Part. Rate (2030)	2009	2020	2030	diff. 2020	diff. 2030
15-19	15.33	229	241	283	12	55
20-24	30.18	464	518	570	53	106
25-34	11.33	277	385	445	108	168
35-44	6.90	150	209	287	59	137
45-64	4.28	118	209	297	91	179
<b>Total</b>	<b>10.03</b>	<b>1238</b>	<b>1561</b>	<b>1882</b>	<b>323</b>	<b>644</b>

\*Tertiary Education includes Diploma, Advanced Diploma, Bachelor and Postgraduate level courses.

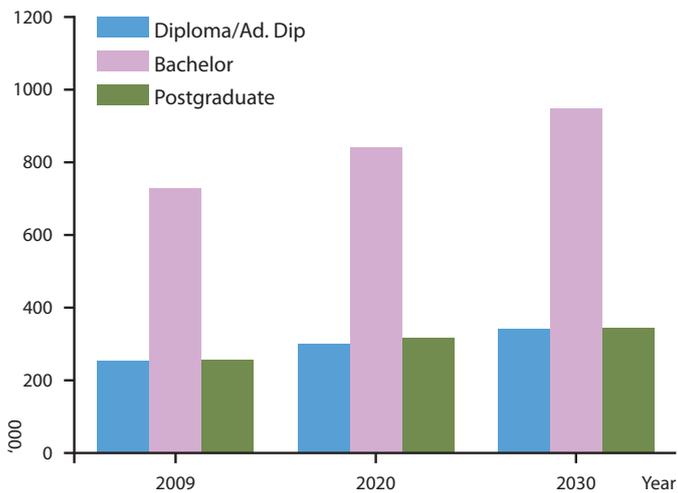
Scenario B1: Base with population increases only



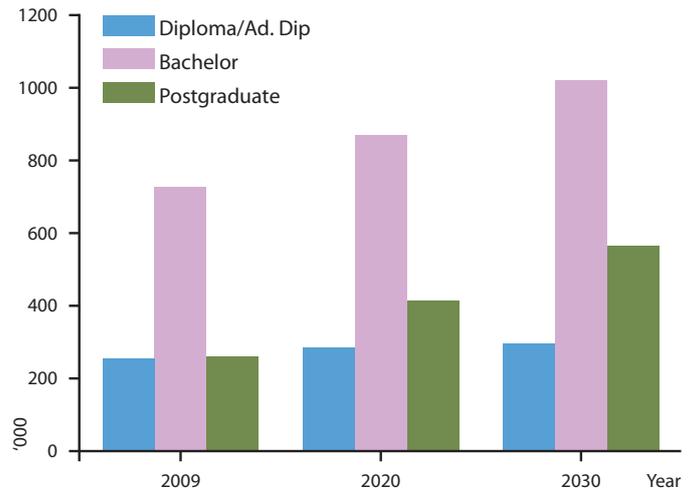
Scenario B4: Significant increase in participation in postgraduate studies in older age groups



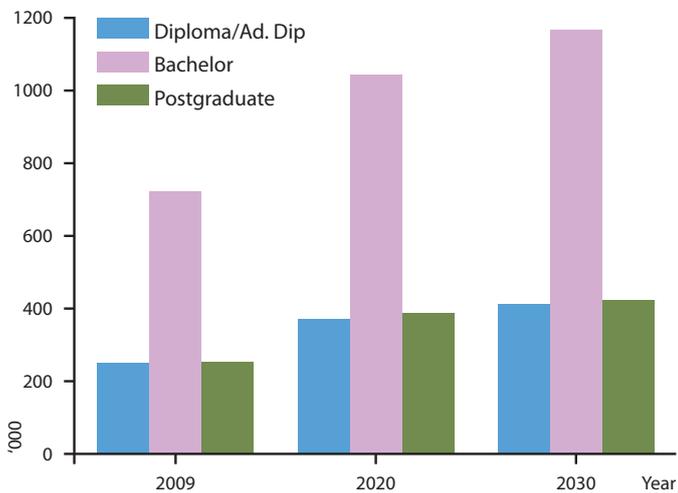
Scenario B2: Overall increase of 2 percent in tertiary enrolments



Scenario B5: Probable outcome: with a modest increase in undergraduate participation rates and higher increase in the postgraduate participation rates at the older age groups; this is offset by a decrease in the Diploma participation in younger age groups



Scenario B3: A 2 percentage point increase in the overall participation rate



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Table A4.1: Projected student enrolment growth by scenario (%)

Average growth period	2010-15	2015-20	2020-25	2010-25
Open doors (%)				
Postgraduate	1.88	2.50	2.56	2.31
Undergraduate	2.19	1.76	2.30	2.08
Diploma/Advanced Dip.	2.08	2.17	2.56	2.27
Certificate III/IV	1.95	2.06	2.58	2.20
Certificate I/II	1.74	2.01	2.86	2.20
<b>Total</b>	<b>1.99</b>	<b>2.01</b>	<b>2.55</b>	<b>2.18</b>
Low-trust globalisation				
Postgraduate	1.55	2.03	2.04	1.87
Undergraduate	1.65	1.33	1.87	1.62
Diploma/Advanced Dip.	1.63	1.72	2.08	1.81
Certificate III/IV	1.51	1.63	2.12	1.76
Certificate I/II	1.34	1.61	2.44	1.79
<b>Total</b>	<b>1.53</b>	<b>1.59</b>	<b>2.10</b>	<b>1.74</b>
Flags				
Postgraduate	0.80	1.24	1.21	1.08
Undergraduate	0.68	0.63	1.21	0.84
Diploma/Advanced Dip.	0.81	0.98	1.33	1.04
Certificate III/IV	0.74	0.93	1.42	1.03
Certificate I/II	0.65	0.97	1.80	1.14
<b>Total</b>	<b>0.72</b>	<b>0.89</b>	<b>1.41</b>	<b>1.00</b>

Source: Access Economics.

Table A5.1: Projected population for 16-18 year olds (*Series A*), by State and Territory, 2010 to 2040

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Jun-2010	285,203	216,004	188,557	64,522	93,003	20,641	10,028	14,437	892,510
Jun-2015	282,057	215,715	197,694	63,714	97,797	20,160	10,116	14,384	901,762
Jun-2020	281,071	218,459	210,000	62,803	102,167	19,234	10,730	14,740	919,306
Jun-2025	296,510	241,532	240,354	68,153	118,055	21,914	12,182	16,617	1,015,419
Jun-2030	316,168	259,889	270,351	72,704	131,405	23,187	13,893	18,165	1,105,865
Jun-2035	339,263	279,874	299,561	77,130	145,565	24,546	15,660	19,712	1,201,410
Jun-2040	357,541	296,172	324,758	80,175	157,481	25,396	17,279	20,980	1,279,882

Figure 5 shows the total projected growth in the 16-18 age group between 2010 and 2040.

Figure A5.1: Absolute growth in population aged 16-18 years by State and Territory, 2010 to 2040

