



**GROUP
OF EIGHT
AUSTRALIA**

Future Demand for Higher Education in Australia

Future Demand for Higher Education in Australia

Introduction

In 2010 the Group of Eight (Go8) released a background paper that explored estimates of future student demand for higher education in Australia. Since then the sector has experienced significant challenges, including the introduction of demand-driven funding, associated escalations in budget costs and growing debates around the quantity versus quality of graduates in an uncapped system. It has also seen the introduction of a new model of delivery at the universities of Melbourne and Western Australia, whereby specialisation occurs at postgraduate level following a generalist bachelors degree. These developments, together with the recent release of 2011 census data and revised population projections, make it timely to review the current state of progress against the national targets, and revisit possible scenarios of future demand.

Methodology

Two methods of projecting the 2020 and 2030 higher education student populations are used in this paper.

Method A is the more conservative. It takes a domestic participation rate, based on the proportion of the Australian population currently enrolled in universities and FEE-HELP approved Higher Education Providers (HEPs),¹ and applies this to the 2020 and 2030 age specific population projections. It does not take into account enrolments in private higher education providers or higher education courses through non-FEE-HELP approved TAFE colleges. As such, it provides a minimum likelihood scenario for future enrolments.

Method B is based on the Australian Bureau of Statistics' Survey of Education and Work, which takes into account a greater range of provider types as well as international students who remain in Australia for more than 12 months. It is therefore intended to provide a more comprehensive estimate of demand for higher education into the future.

Actual Attainment Versus the Attainment Target

In 2009 the government introduced a national attainment target, whereby 40% of Australian 25-34 year olds would be bachelor qualified or above by 2025.² This was done in response to the 2008 Review of Australian Higher Education, which had predicted a shortfall in meeting industry demand for higher education qualified graduates over the coming decade,³ while noting that Australian attainment rates had slipped relative to other OECD countries.⁴ A demand-driven approach to undergraduate higher education provision was adopted as the mechanism by which universities would be able to deliver greater numbers of bachelor graduates to meet the expected growth in employer needs.⁵

Current data suggest that Australia is well on the way to achieving this target. The degree attainment rate of 25-34 year old Australians rose by 11.2 percentage points between 2001 and 2013 (Figure 1), and an extrapolation of this trend into the future predicts that the 40% target could be achieved as early as 2015.

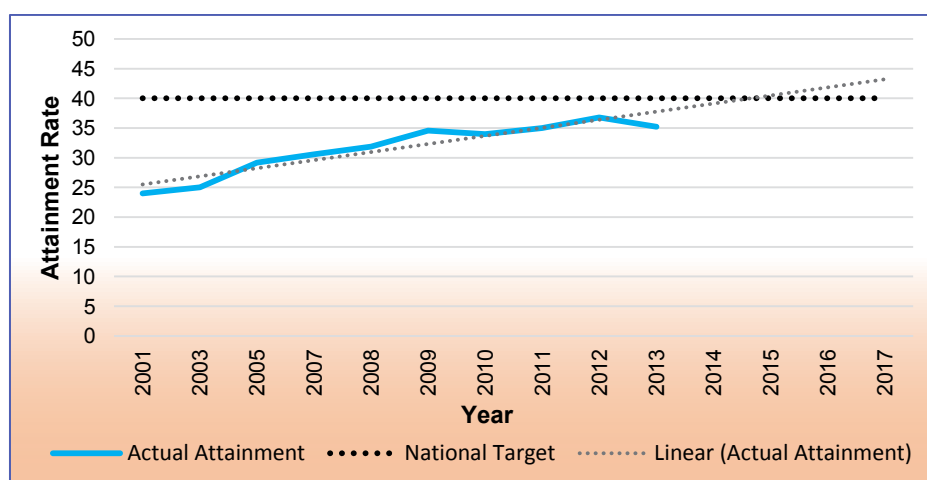


Figure 1: Attainment Rate of Australian 25-34 Year Olds, 2001-2013 (Bachelor Degree or Above).

Source: ABS, Education and Work

The likely impact on Australia's progress against OECD benchmarks is more difficult to determine.

Demand-driven funding was phased in over two years from 2010, with full implementation commencing in 2012. This means that the first wave of bachelor graduates are only just beginning to emerge, with the first full cohort not due to complete until the end of 2014 (assuming three years of full time study). However, despite the attainment rate of 25-34 year olds rising by 6 percentage points between 2006 and 2011, Australia has not kept pace with the highest performing OECD countries (Table 1). Our national ranking fell over this period, from ninth to eighth in the OECD.

Table 1: Percentage of the Population Aged 25-34 years that has attained Bachelor Degree or Above Qualifications: 2006-2011. Shaded column was reported in the 2008 Review.

	2006	2007	2008	2009	2010	2011
Australia	29	31	32	35	34	35
OECD Median	27	27	29	27	28	31
OECD - top 6 countries	32	33	35	37	38	39
United Kingdom	29	29	31	36	38	39
United States	30 [^]	31	32	32	33	33
Canada	29	29	30	30	31	31
Korea	33	34	35	38	39	39
Australia - ranking	9	9	10	8	7	8

Source: OECD Education at a Glance, Table A1.3a, 2006-2011.

[^] Does not match figure published in the Review, due to 2009 revision of source data.

It is useful to note how employer demand for graduates is tracking five years after the Review's release. In 2008, it was stated that "Work by Access Economics predicts that from 2010 the supply of people with undergraduate qualifications will not keep up with demand".⁶ However, recent findings from the Graduate Destination Survey (GDS) show full time employment rates for bachelor level graduates fell between 2008 and 2010, and have yet to recover (Figure 2). In 2013 around 10.6% of graduates who wanted full time work were unemployed, with a further 18% under-employed (in part time or casual work but seeking full time).⁷ This has been occurring at the same time as general unemployment figures have been trending upwards, from 5.1% in October 2010 to 5.8% in October 2013.⁸

This may partly be due to unanticipated effects from the Global Financial Crisis, which did not reach its peak until after the Review was published.⁹ However, it does suggest that the gap between demand for and supply of graduates may be delayed, or not end up as great as initially predicted.

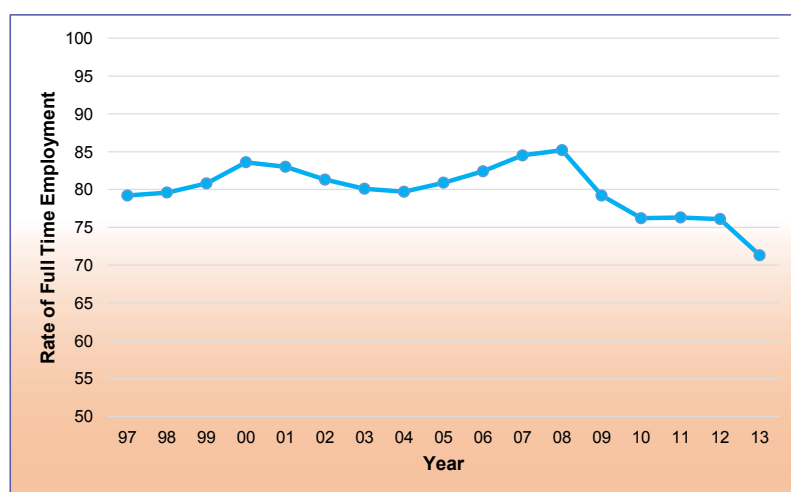


Figure 2: Rates of Full Time Employment, (Graduates Available for Full Time Employment), Bachelor Degree Graduates, 1997-2013. Source: Graduate Careers Australia, GradStats

Key Finding 1

Based on recent growth trends, Australia can expect to achieve its bachelor attainment target well ahead of the 2025 deadline. However, current employment trends suggest that predicted shortfalls in graduates may not be as great, or may take longer to appear, than initially anticipated.

Estimating Future Demand for Higher Education: Method A

Method A uses current published domestic higher education enrolments in universities by age and level of study to estimate future demand.

According to this method, demographically-driven demand for higher education is projected to grow by the following numbers (see also Figure 3):

1. An additional 50,000 undergraduate enrolments by 2020, and 156,000 by 2030
2. An additional 25,000 postgraduate coursework enrolments by 2020, and 50,000 by 2030
3. An additional 6,000 higher degree by research enrolments by 2020, and 13,000 by 2030.

In total, this would see demand for an additional 81,000 places in 2020 and 219,000 places in 2030.

A full set of data projections are provided in Appendix 2.

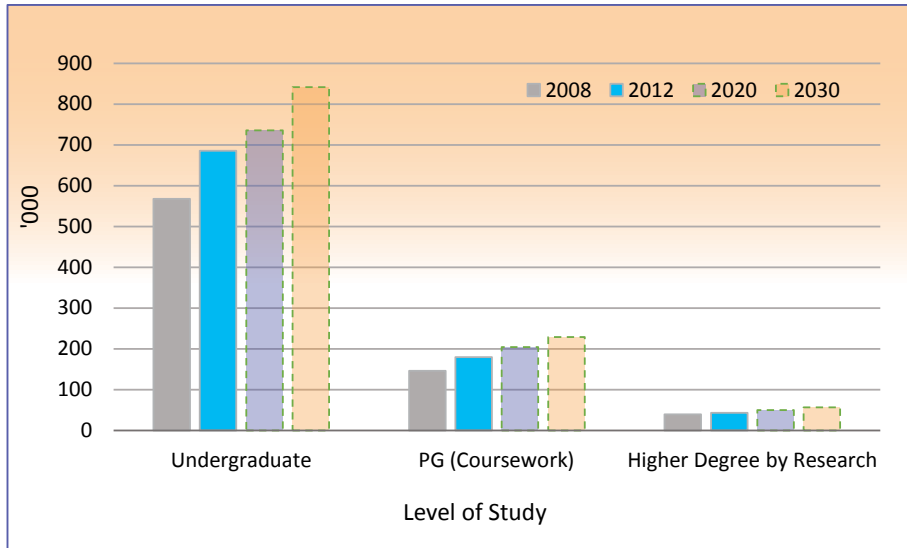


Figure 3: Projected Higher Education Enrolments (student numbers) by Level of Study, 2012-2030 (Method A). Solid columns indicate actual data; transparent columns with dotted borders indicate projected data. *Source:* ABS Population projections (Cat 3222.0); Departmental Student Statistics Collection.

Figure 4 compares forward estimates of undergraduate commonwealth supported places (CSPs) as reported in Commonwealth budget statements over the last few years against the projections created using Method A. They show that current departmental estimates of required CSP places (2013/14) could accommodate the growth projected by Method A.

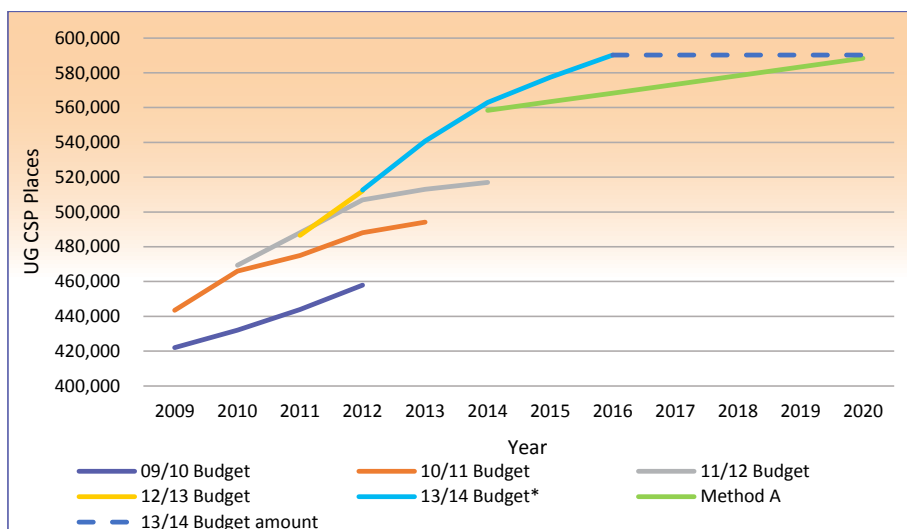


Figure 4: Budget Projections of Undergraduate CSP Places versus Projects using Method A. An average undergraduate study load of 0.8 has been assumed in the student to EFTSL conversion. *The 13/14 Budget line includes the additional places announced on the 22 November 2013. *Source:* Departmental Budget Statements.

Key Finding 2

2013/2014 Budget projections for undergraduate CSP places are sufficient to accommodate the projected growth in EFTSL to 2020 using Method A.

Estimating Future Demand for Higher Education: Method B

Method B was conducted using five different scenarios, intended to model the impact of different participation rates by cohort. The detailed tables used in these projections are provided in Appendix 3.

The scenarios are as follows:

- **Scenario B1** – assumes that the 2013 participation rates by age group and level remain constant;
- **Scenario B2** – assumes a 2 per cent increase in the 2013 participation rate across all age groups and levels of study;
- **Scenario B3** – assumes a 2 percentage point increase in the overall tertiary education participation rate (apportioned by B1 age group and level of study proportions);
- **Scenario B4** – assumes a doubling of postgraduate participation rates for persons aged 25 – 64 years; and
- **Scenario B5** – assumes different growth rates in bachelor, diploma and postgraduate level courses.

The results of these projections are summarised in Table 2 below.

Table 2: Growth in Demand (student numbers) under each Method B scenario.

	Adv Dip/ Diploma [^]		Bachelor		Postgraduate		Total Tertiary		Overall Tertiary Part. Rate
	2020	2030	2020	2030	2020	2030	2020	2030	2030
B1	23,701	61,776	41,700	159,246	26,619	63,704	92,020	284,726	8.94%
B2	30,037	68,874	58,982	178,879	33,169	70,997	122,188	318,749	9.12%
B3	102,900	148,900	255,600	400,600	108,100	154,100	467,035	703,037	11.14%
B4	23,701	61,776	41,700	159,246	278,268	342,258	343,669	563,280	10.41%
B5	7,570	24,371	83,950	254,334	129,173	292,862	220,693	571,568	10.45%

[^]Includes Diplomas and Advanced Diplomas undertaken in VET colleges

Appendix 4 compares the original 2010 projections using the above methodology with the actual data for 2013 (as reported in the survey of Education and Work). This shows that the closest estimate was provided by Method B4 (~1,400,000 compared to an actual figure of 1,416,000, or within 1.2%).

Method B4 is based on the assumption that the participation rate for postgraduate study will double for those aged 25 or above, while the rate for all other ages and levels of study is held constant. This would see a more rapid rise in postgraduate enrolments than undergraduate over the coming years (Figure 2). The current model of demand-driven funding, in which unlimited growth is funded only at bachelor level, might suggest that this scenario is unlikely. However, the latest release of application data suggests that growth at undergraduate level may be slowing (Table 3), at the same time as the rate of full time employment for bachelor degree graduates has stalled (Figure 2). This could drive a need for postgraduate study to gain competitive employment advantage.

Table 3: Undergraduate Applications to Tertiary Admissions Centres, 2009-2013

	2009	2010	2011	2012	2013
Applications	249,743	266,996	267,210	273,167	275,397
% Change		6.9	0.1	2.2	0.8

Source: Dept of Education, Undergraduate Applications, Offers and Acceptances, 2013

Key Finding 3

A comparison with previous projections suggested that Method B4 provided the closest estimate to the actual figures for 2013, suggesting this may provide the closest projection of future demand. Under this scenario it is projected that overall tertiary demand will rise by 344,000 students by 2020 and 563,000 students by 2030 (Figure 5).

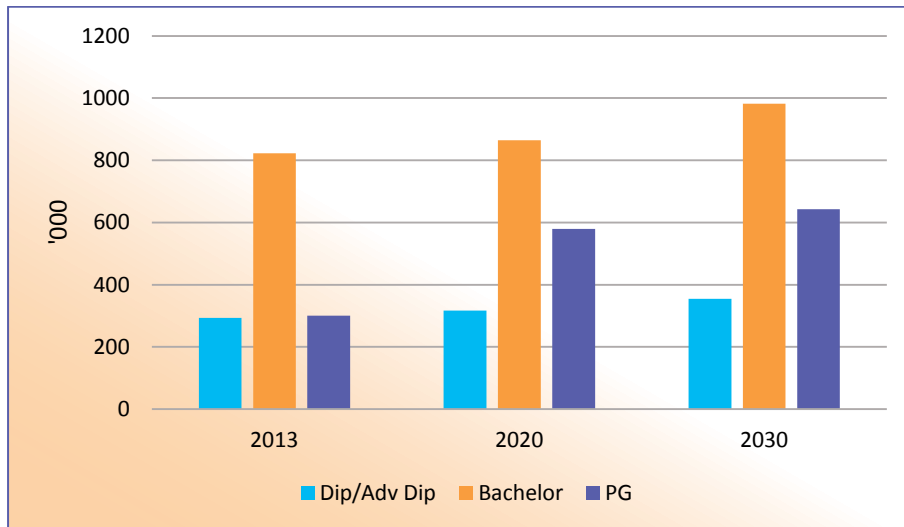


Figure 5: Projected Levels of Enrolment in Tertiary Education by Level of Study, 2013 to 2030, (Estimation Scenario B4).

State and Territory Differences

Although the overall population of Australia is projected to grow to around 19 million by 2030, considerable differences are anticipated by states and territories. Total growth is projected to decline in Tasmania (Figure 6), while growth in the school leaver population (persons aged 16 to 18 years) will be much greater in Western Australia, Queensland and the ACT than in other states (Figure 7). This is likely to mean that the demand for tertiary education may also vary across the states.

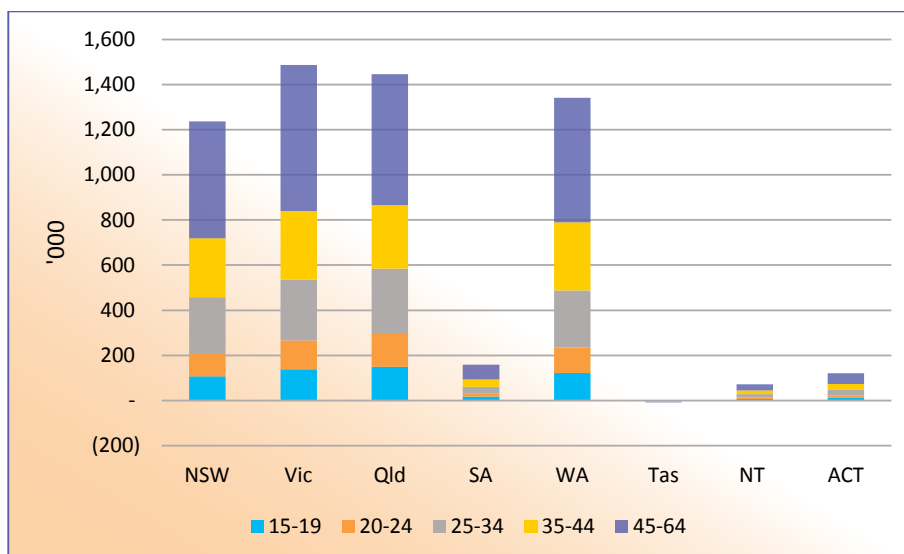


Figure 6: Growth in Population by Age Group, State and Territories, 2013-2040. Source: ABS, Population Projections (cat 3222.0), Series B

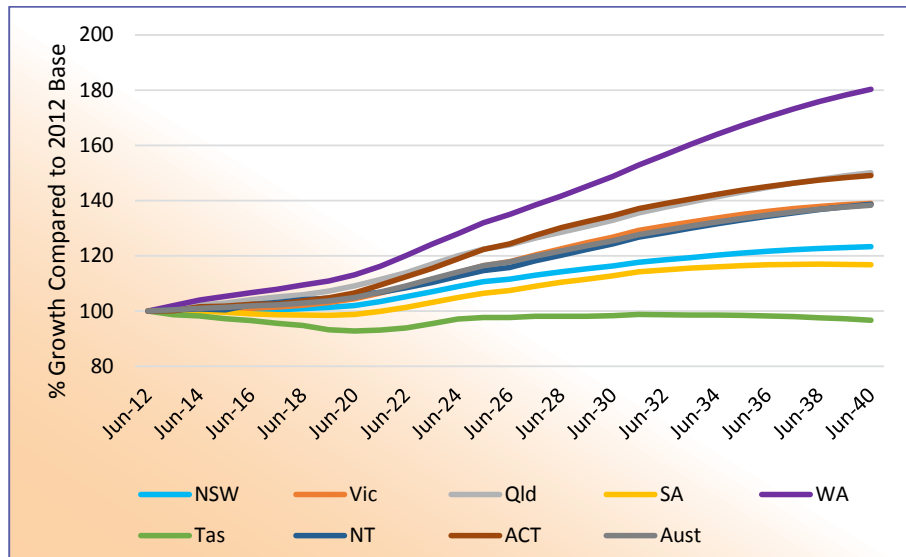


Figure 7: Projected Growth in Population aged 16 to 18 years by State and Territory, Australia, 2013-2040. Source: ABS, Population Projections (cat 3222.0), Series B.

In 2013, Victoria, New South Wales and the ACT already had a higher rate of degree qualification amongst its population than the national average level (Table 4). Conversely, Tasmania, South Australia and Queensland all have a lower rate of degree qualification than the national average.

Table 4: Proportion of the Population with a Degree, and Participation in Study, 2013

	NSW	Vic	Qld	SA	WA	Tas.	NT	ACT	Aust
Degree qualified (share of population 15-64 yrs)	26.2%	28.1%	20.3%	20.5%	22.5%	17.4%	22.9%	38.6%	24.6%
Share of population enrolled in a course of study (school & post school)	19.0%	19.1%	18.1%	20.1%	16.6%	19.6%	17.2%	21.7%	18.7%
Share of population attending a higher education institution	7.4%	7.9%	7.0%	7.5%	7.0%	6.7%	8.1%	11.3%	7.5%

Source: Education and Work, 2013

Key Finding 4

The expected variation in growth by state and territory may limit the degree to which growth in tertiary enrolments are distributed nationally.

Funding

Table 5 below summarises projected commonwealth grant scheme funding and allocated places out to 2016. It shows an average dollar per EFTSL figure of between \$10,522 and \$11,048.

Method B4 projects growth in bachelor students of 42,000 (~33,600 EFTSL) and 159,000 (127,200 EFTSL) to 2020 and 2030 respectively.¹⁰ Assuming a midpoint figure of \$10,442 per EFTSL, and also assuming that around 25% of this load will be taken up private domestic and international students, this would still represent a cost of \$263m by 2020 and \$996m by 2030.

Table 5: Budgeted Commonwealth Supported Places (EFTSL) and Funding

	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017
Budget (\$'000)	5,990,178	6,246,873	6,510,604	6,841,232	7,191,203
CSP Places (EFTSL)	569,300	600,300	623,500	638,200	650,900
Average cost per place	\$10,522	\$10,406	\$10,442	\$10,720	\$11,048

Source: DIICCSRTE Portfolio Budget Statement, 2013-14.

The federal funding framework for postgraduate coursework provision is still under review. Although the capacity to charge domestic fees for students at this level means that not all of this growth need be incurred by the commonwealth, some additional outlay may still be required.

Key Finding 5

If 75% of the anticipated growth in bachelor level places under the B4 scenario were to be absorbed by the commonwealth, at an assumed rate of \$10,442 per EFTSL, the cost could amount to an additional \$263m by 2020 and \$996m by 2030.

Staffing

Additional students are likely to require additional staff to teach them. Table 6 projects possible growth in academic staff, assuming a staff / student ratio of 20:1 for undergraduate, 10:1 for postgraduate and 16:1 overall.

Table 6: Estimated Teaching Staff required for Projected Higher Education Enrolment Growth

Method B4	Projected Student Numbers	EFTSL	SSR	Additional FTE Required
Bachelor growth to 2020	41,700	33,360	20:01	1,668
Bachelor growth to 2030	159,246	127,397	20:01	6,370
Postgraduate growth to 2020	278,268	139,134	10:01	13,913
Postgraduate growth to 2030	342,258	171,129	10:01	17,113
Total growth to 2020 [^]	319,968	172,494	16:01	10,781
Total growth to 2030 [^]	501,504	298,526	16:01	18,658

[^]Includes bachelor and postgraduate growth only

In 2008 Professor Graeme Hugo noted that the "academic workforce is significantly older than the total workforce",¹¹ and that this would drive a "crunch" in academic retirements, of possibly up to a third of the 2008 workforce, due to hit the sector around 2018.¹² A more recent commentary by the LH Martin Institute suggested that the phasing into retirement may be more gradual than originally anticipated,¹³ but will still need to occur at some point. This could drive the need for additional academics over and above the figures quoted in Table 6.

This has implications for the provision of higher degree research places. A traditional academic role involving teaching and research usually requires PhD level qualifications, a pipeline of full time study of at least 7 ½ years.¹⁴ Departmental student data shows that PhD completions have been rising across the sector over the last few years at the same time as the domestic proportion has been decreasing.

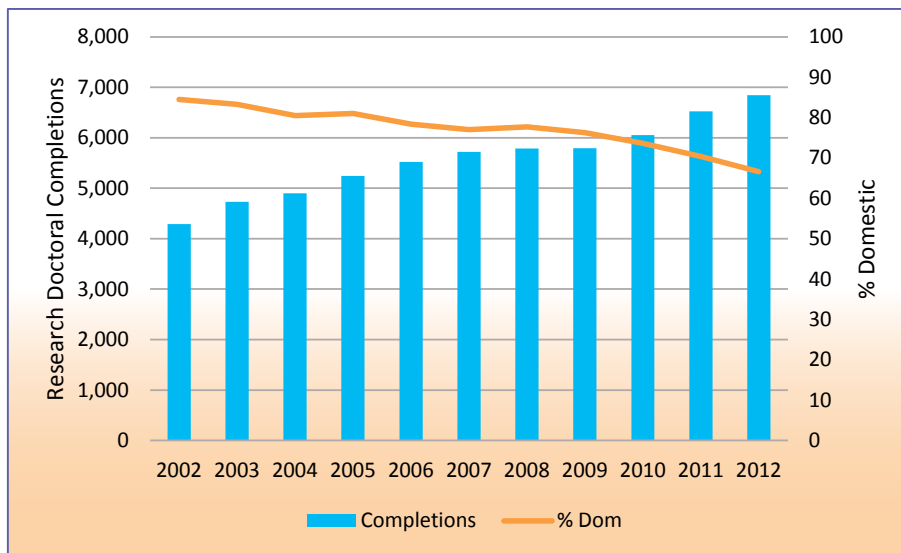


Figure 8: Research Doctoral Completions, 2002-2012. *Source: Departmental Student Statistics.*

Although some international PhD students will seek employment in Australia after graduation, some will also return to their home countries. And as international competition for academic talent grows, Australia may see many of its home grown doctoral graduates seeking work offshore, especially if budgets for university research and teaching are tight.

Key Finding 6
 Additional higher education enrolments are likely to require additional academic staff to teach them. Australia may need to focus some attention on the doctoral training pipeline and on incentives to attract and retain academic talent, or face academic workforce shortages in the years to come.

Conclusion

Over the next twenty years, demand for higher education places are likely to experience significant growth, if only due to demographic change. Australia needs to urgently consider how best to meet the needs of these additional students, as well as address how best to match higher education training to the needs of the Australian workforce. Attention will also need to be given to ensuring a pipeline of academic staff is ready and prepared to fill the expected gaps in the workforce as the current wave of senior academics begin to retire.

Appendix 1: Population Projection Assumptions

This paper uses Australian Bureau of Statistics population projections, based on 2011 census data (as published in November 2013). These are produced in three series, using different assumptions regarding fertility and net overseas migration (NOM) rates (Table A1). Actual fertility rates and NOM for the past six financial years are shown in Table A2.

Table A1: Comparison of Assumptions Underlying ABS Projections Series

	Total fertility rate (babies per woman)	Net overseas migration (persons)	Life expectancy at birth	
			Males	Females
Series A	2.0	280,000	92.1	93.6
Series B	1.8	240,000	85.2	88.3
Series C	1.6	200,000	85.2	88.3

Source: ABS, Population Projections, Australia, 2012 (base) to 2101

Table A2: Actual Fertility Rates and Net Overseas Migration (NOM)

Financial Year	Fertility Rates	Net overseas migration ('000)
2006-07	1.908	232.8
2007-08	1.959	277.3
2008-09	1.963	299.9
2009-10	1.888	196.1
2010-11	1.927	180.4
2011-12	1.927	223.1

Source: ABS, Australian Demographic Statistics, March 2013

Although fertility rates have been tracking close to Series A projections over the last few years, NOM numbers have slowed. In the 2011-12 financial year, net overseas migration amounted to 223,000 persons, only 80% of the NOM assumption included in the Series A projection. For this reason, Series B has been chosen as the basis for the Method A projections.

Appendix 2: Method A

Method A uses the latest actual student numbers, as published by the Education Department, to calculate the current proportion of the population enrolled in higher education study by age group.

Table A3: Projections of Domestic Demand for University Undergraduate Places

Age Group	2012			Students		Increase 2012-2020	Increase 2012-2030
	Students	Population	Student %	2020	2030		
15-19	242,985	1,458,983	16.7%	254,966	304,924	11,981	61,939
20-24	274,072	1,624,172	16.9%	286,062	322,238	11,990	48,166
25-29	65,833	1,694,665	3.9%	71,975	75,158	6,142	9,325
30-39	58,494	3,144,610	1.9%	71,314	77,604	12,820	19,110
40+	44,077	10,499,687	0.4%	51,093	61,950	7,016	17,873
Total	685,461	18,422,117	3.7%	735,410	841,873	49,949	156,412

Table A4: Projections of Domestic Demand for University Postgraduate Coursework Places

Age Group	2012			Students		Increase 2012-2020	Increase 2012-2030
	Students	Population	Student %	2020	2030		
15-19	97	1,458,983	0.0%	102	122	5	25
20-24	36,131	1,624,172	2.2%	37,712	42,481	1,581	6,350
25-29	41,600	1,694,665	2.5%	45,481	47,492	3,881	5,892
30-39	53,295	3,144,610	1.7%	64,976	70,707	11,681	17,412
40+	49,143	10,499,687	0.5%	56,966	69,070	7,823	19,927
Total[^]	180,266	18,422,117	1.0%	205,236	229,871	24,970	49,605

[^] 36 PG coursework students recorded in the Education Department total student numbers for 2012 were unable to be included due to suppression of data by age group.

Table A5: Projections of Domestic Demand for University Higher Degree by Research (HDR) Places*

Age Group	2012			Students		Increase 2012-2020	Increase 2012-2030
	Students	Population	Student %	2020	2030		
15-19	0	1,458,983	0.0%	-	-	-	-
20-24	4,797	1,624,172	0.3%	5,007	5,640	210	843
25-29	9,679	1,694,665	0.6%	10,582	11,050	903	1,371
30-39	11,963	3,144,610	0.4%	14,585	15,871	2,622	3,908
40+	15,902	10,499,687	0.2%	18,433	22,350	2,531	6,448
Total[^]	42,341	18,422,117	0.2%	48,607	54,911	6,266	12,570

* HDR includes research degrees at Doctoral and Masters levels.

[^] 85 HDR students recorded in the Education Department HDR total student numbers for 2012 were unable to be included due to suppression of data by age group.

Table A6: Projections of Domestic Demand for All Domestic University Places

Age Group	2012			Students		Increase 2012-2020	Increase 2012-2030
	Students	Population	Student %	2020	2030		
15-19	243,082	1,458,983	16.7%	255,068	305,046	11,986	61,964
20-24	315,000	1,624,172	19.4%	328,780	370,359	13,780	55,359
25-29	117,112	1,694,665	6.9%	128,039	133,700	10,927	16,588
30-39	123,752	3,144,610	3.9%	150,875	164,182	27,123	40,430
40+	109,122	10,499,687	1.0%	126,492	153,370	17,370	44,248
Total^	908,068	18,422,117	4.9%	989,254	1,126,656	81,186	218,588

^ 121 students recorded in the Education Department total student numbers for 2012 were unable to be included due to suppression of data by age group.

Appendix 3: Method B

The population projection figures shown in Table B1.1 have been used as the basis for all calculations in Method B. Current population figures (2013) were taken from the ABS Survey of Education and Work. ABS Series B population projections were used to create the projections by age group for 2020 and 2030. Method B is more comprehensive than Method A, as the Survey of Education and Work takes into account participations across a broader range of education and training institutions, as well as international students who have been in Australia for more than 12 months.

Table B1.1: Population Assumptions

Age Group	Persons ('000)			Total Pop Increase	
	2013*	June-2020^	June-2030^	Diff 2020	Diff 2030
15-19	1,468.6	1,530.9	1,830.9	62.3	362.3
20-24	1,661.9	1,695.2	1,909.6	33.3	247.7
25-34	3,399.5	3,798.8	3,984.1	399.3	584.6
35-44	3,223.1	3,564.6	4,252.7	341.5	1,029.6
45-64	5,735.9	6,310.6	7,040.3	574.7	1,304.4
Total	15,489.0	16,900.0	19,017.7	1,411.0	3,528.7

* Taken from ABS Survey of Education and Work, May 2013

^ Taken from ABS population projections (Population Projections, Australia, 2012 (base) to 2101, Nov 2013), (Cat 3222.0)

The full set of Method B scenario modelling tables are provided on the following pages.

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

Age Group	Participation Rate (2013)	Education Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	80.9%	1,188	1,239	1,481	50	293
20-24	41.1%	683	697	785	14	102
25-34	14.5%	493	551	578	58	85
35-44	9.4%	303	335	400	32	97
45-64	4.0%	229	252	282	23	52
Total	18.7%	2,896	3,070	3,523	174	626

NB: Columns may not add exactly due to rounding

Age Group	Participation Rate (2013)	Diploma Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	2.2%	33	34	41	1	8
20-24	4.3%	71	72	81	1	11
25-34	2.7%	92	103	108	11	16
35-44	1.7%	56	62	74	6	18
45-64	0.7%	42	46	51	4	10
Total	1.9%	293	317	355	24	62

Age Group	Participation Rate (2013)	Bachelor Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	14.7%	216	225	269	9	53
20-24	23.2%	385	393	443	8	57
25-34	3.9%	132	148	155	16	23
35-44	1.9%	61	67	80	6	19
45-64	0.5%	29	32	36	3	7
Total	5.3%	822	864	982	42	159

Age Group	Participation Rate (2013)	Postgraduate Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	0.6%	8	8	10	0	2
20-24	4.0%	66	67	76	1	10
25-34	3.1%	107	120	125	13	18
35-44	2.1%	68	75	89	7	22
45-64	0.9%	52	57	64	5	12
Total	1.9%	301	328	365	27	64

Age Group	Participation Rate (2013)	Tertiary Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	17.5%	256	267	320	11	63
20-24	31.4%	522	533	600	10	78
25-34	9.7%	331	370	388	39	57
35-44	5.7%	184	204	243	20	59
45-64	2.1%	123	135	151	12	28
Total	9.1%	1,416	1,508	1,701	92	285

Scenario B2 – Modelling a 2% increase in the number of students participating in Higher Education

	2020	2030
<i>Current Participation</i>	1,508	1,701
<i>2 percent increase</i>	1,538	1,735

Age Group	Participation Rate (2030)	Diploma Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	2.27%	33	35	42	2	9
20-24	4.35%	71	74	83	3	12
25-34	2.75%	92	105	110	13	18
35-44	1.77%	56	63	75	7	19
45-64	0.75%	42	47	52	5	11
Total	1.93%	293	323	362	30	69

Age Group	Participation Rate (2030)	Bachelor Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	14.97%	216	229	274	14	59
20-24	23.65%	385	401	452	16	66
25-34	3.96%	132	150	158	18	26
35-44	1.92%	61	68	82	8	21
45-64	0.52%	29	33	36	4	7
Total	5.42%	822	881	1,001	59	179

Age Group	Participation Rate (2030)	Postgraduate Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	0.56%	8	9	10	1	2
20-24	4.06%	66	69	77	3	11
25-34	3.21%	107	122	128	15	21
35-44	2.14%	68	76	91	9	23
45-64	0.92%	52	58	65	6	13
Total	1.98%	301	334	372	33	71

Age Group	Participation Rate (2030)	Total Education Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	17.80%	256	273	326	16	70
20-24	32.06%	522	543	612	21	90
25-34	9.93%	331	377	395	46	65
35-44	5.83%	184	208	248	24	64
45-64	2.19%	123	138	154	15	31
Total	9.33%	1,416	1,539	1,735	122	319

Scenario B3 – Modelling a 2 percentage point increase in total Higher Education participation rate

Age Group	Participation Rate (2030)	Diploma Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	2.77%	33	43	51	10	18
20-24	5.31%	71	90	101	20	31
25-34	3.36%	92	128	134	36	42
35-44	2.16%	56	77	92	21	36
45-64	0.91%	42	58	64	16	22
Total	2.32%	293	396	442	103	149

Age Group	Participation Rate (2030)	Bachelor Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	18.28%	216	280	335	65	119
20-24	28.88%	385	490	552	105	166
25-34	4.84%	132	184	193	52	61
35-44	2.34%	61	84	100	23	39
45-64	0.63%	29	40	44	11	15
Total	6.43%	822	1,078	1,223	256	401

Age Group	Participation Rate (2030)	Postgraduate Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	0.69%	8	11	13	2	5
20-24	4.96%	66	84	95	18	29
25-34	3.93%	107	149	156	42	49
35-44	2.62%	68	93	111	26	44
45-64	1.13%	52	71	80	19	28
Total	2.39%	301	409	455	108	154

Age Group	Participation Rate (2030)	Total Education Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	21.74%	256	334	398	77	142
20-24	39.16%	522	665	748	143	225
25-34	12.12%	331	462	483	131	152
35-44	7.12%	184	254	303	70	119
45-64	2.67%	123	169	188	46	65
Total	11.14%	1,416	1,883	2,119	467	703

Scenario B4 – Modelling a higher rate of participation at postgraduate level by doubling the 2013 participation rates for people aged 25 or more, while holding 15-19 and 20-24 and all other categories at 2013 levels

Age Group	Participation Rate (2030)	Diploma Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	2.2%	33	34	41	1	8
20-24	4.3%	71	72	81	1	11
25-34	2.7%	92	103	108	11	16
35-44	1.7%	56	62	74	6	18
45-64	0.7%	42	46	51	4	10
Total	1.9%	293	317	355	24	62

Age Group	Participation Rate (2030)	Bachelor Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	14.7%	216	225	269	9	53
20-24	23.2%	385	393	443	8	57
25-34	3.9%	132	148	155	16	23
35-44	1.9%	61	67	80	6	19
45-64	0.5%	29	32	36	3	7
Total	5.3%	822	864	982	42	159

Age Group	Participation Rate (2030)	Postgraduate Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	0.6%	8	8	10	0	2
20-24	4.0%	66	67	76	1	10
25-34	6.3%	107	239	251	132	144
35-44	4.2%	68	150	179	82	111
45-64	1.8%	52	114	128	62	76
Total	3.38%	301	579	643	278	342

Age Group	Participation Rate (2030)	Tertiary Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	17.5%	256	267	320	11	63
20-24	31.4%	522	533	600	10	78
25-34	12.9%	331	489	513	158	182
35-44	7.8%	184	278	332	94	148
45-64	3.0%	123	192	215	70	92
Total	10.4%	1,416	1,760	1,980	344	563

Scenario B5 – Assumes the following adjustments in participation rate:

- **Bachelor:** an increase of 0.25 of a percentage point in 2020 and again in 2030
- **Diploma:** -0.5 of a percentage point in 2020 and again in 2030 (ages 15 to 24 only)
- **Postgraduate:** an increase of 0.75 of a percentage point in 2020 and again in 2030 (ages 25 years and over)

Age Group	Participation Rate (2030)	Diploma Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	1.23%	33	26	22	-6	-10
20-24	3.27%	71	64	62	-7	-9
25-34	2.70%	92	103	108	11	16
35-44	1.73%	56	62	74	6	18
45-64	0.73%	42	46	51	4	10
Total	1.67%	293	301	317	8	24

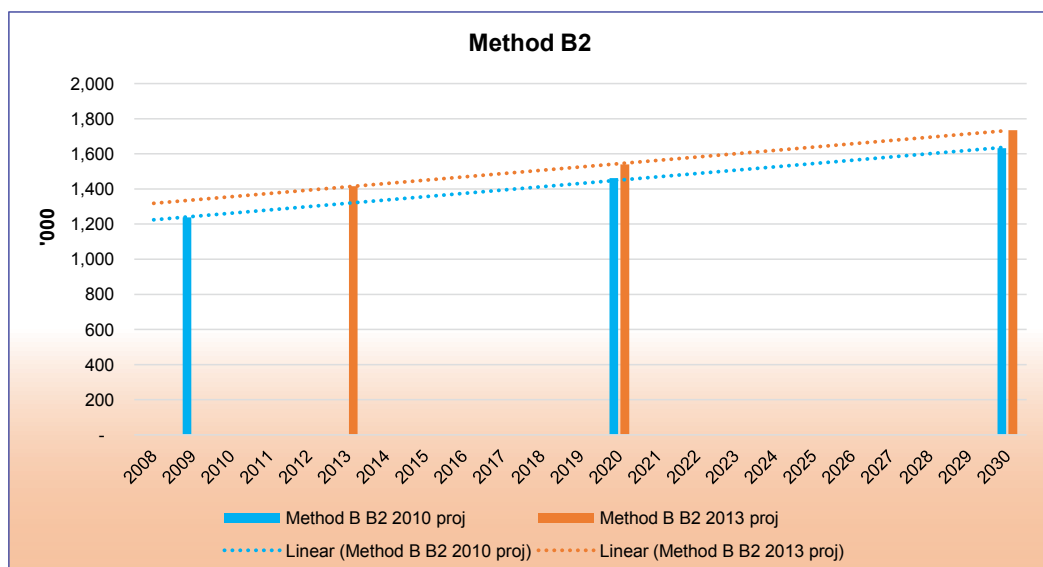
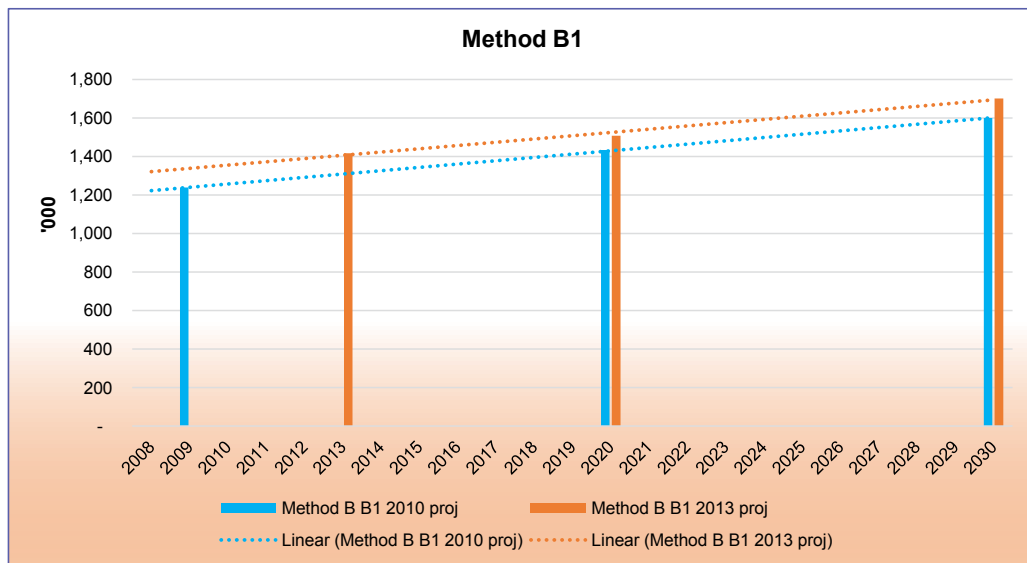
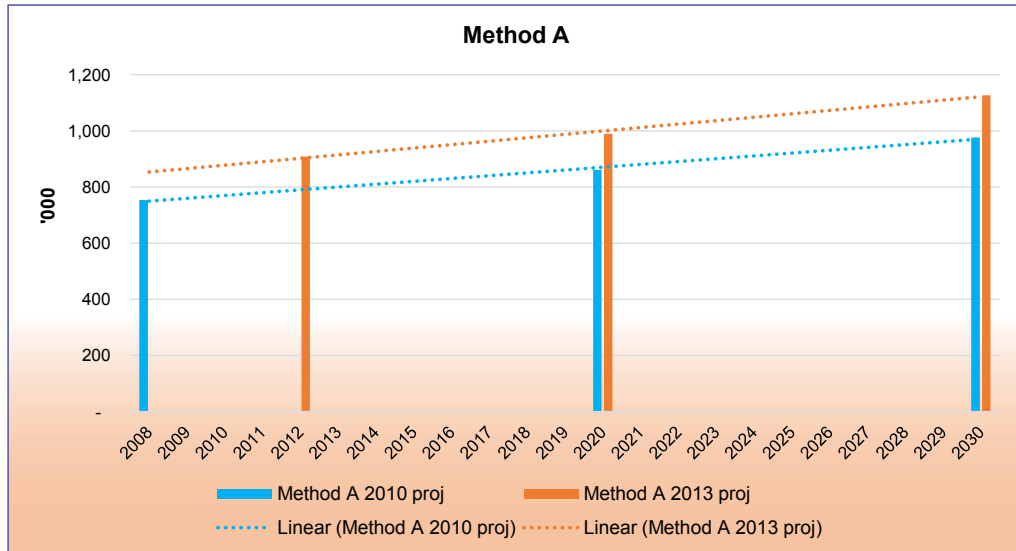
Age Group	Participation Rate (2030)	Bachelor Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	15.2%	216	228	278	13	62
20-24	23.7%	385	397	452	12	67
25-34	4.4%	132	157	175	25	43
35-44	2.4%	61	76	101	15	41
45-64	1.0%	29	48	71	19	42
Total	5.7%	822	906	1,077	84	254

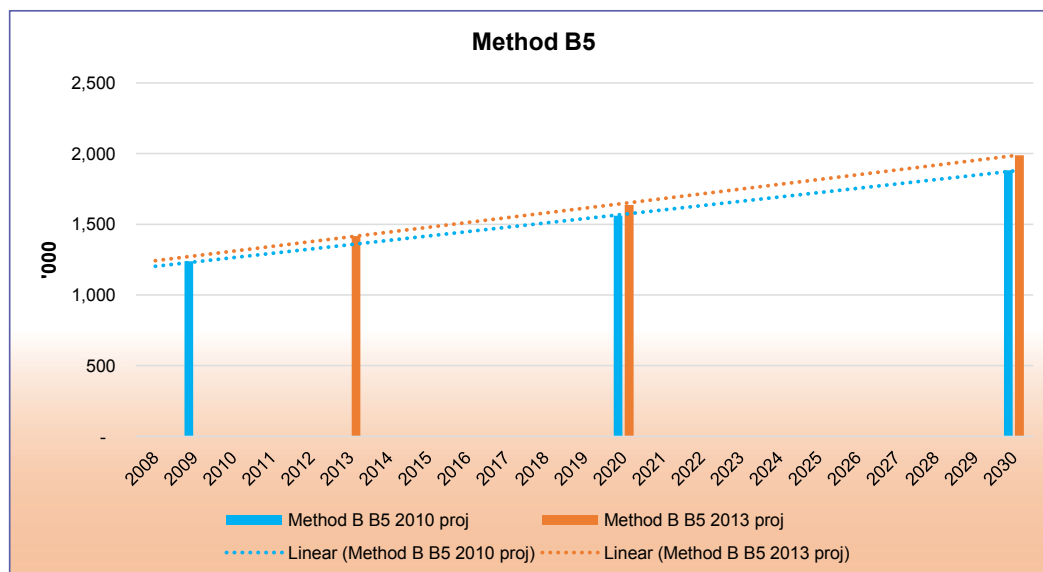
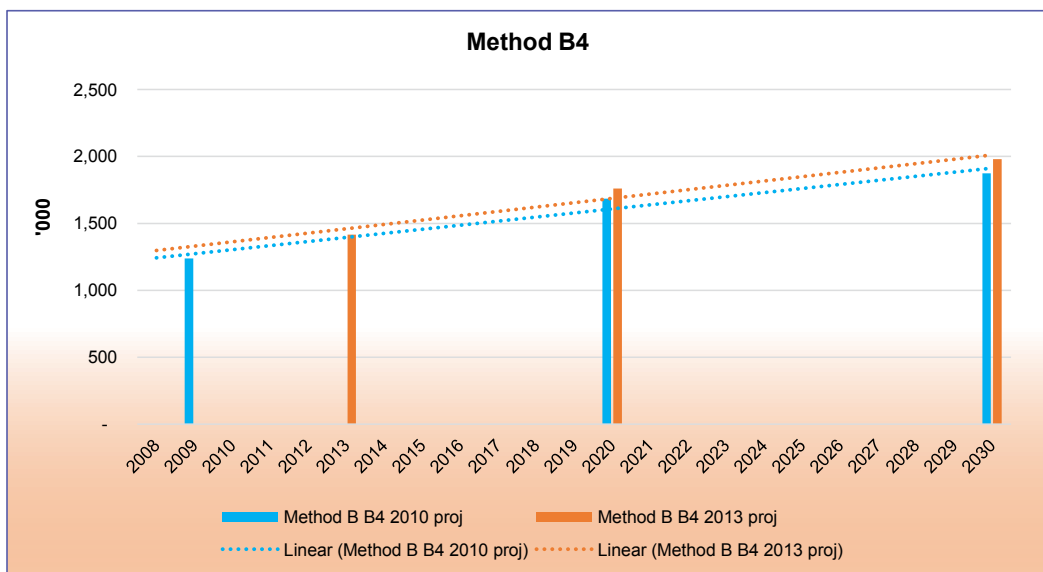
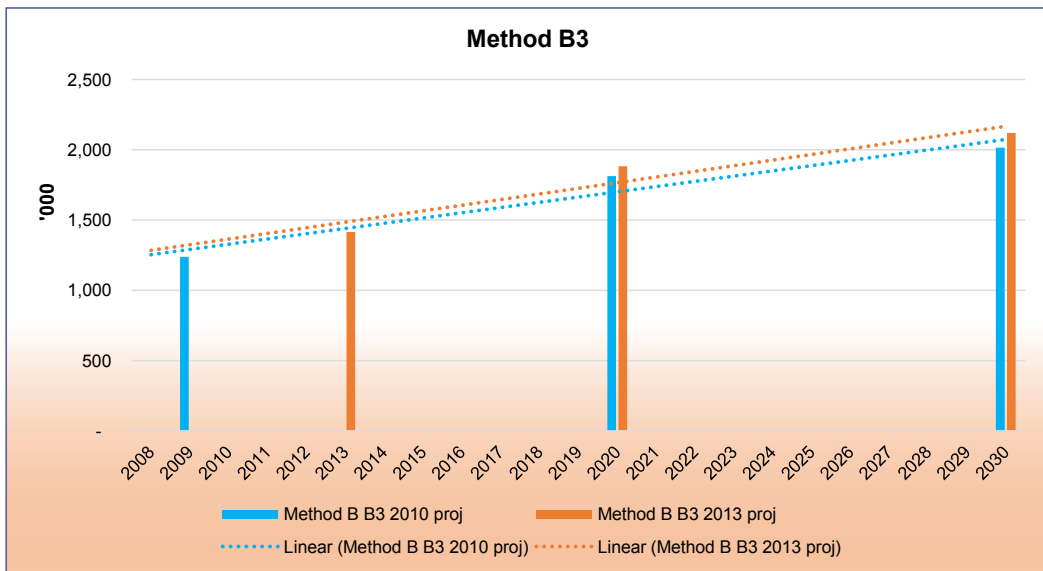
Age Group	Participation Rate (2030)	Postgraduate Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	0.6%	8	8	10	0	2
20-24	4.0%	66	67	76	1	10
25-34	4.6%	107	148	185	41	78
35-44	3.6%	68	102	153	34	85
45-64	2.4%	52	105	169	53	117
Total	3.1%	301	430	594	129	293

Age Group	Participation Rate (2030)	Tertiary Participation ('000)			Diff 2020	Diff 2030
		2013	2020	2030		
15-19	17.0%	256	263	310	7	54
20-24	30.9%	522	529	591	6	68
25-34	11.7%	331	408	467	77	137
35-44	7.7%	184	239	328	55	144
45-64	4.1%	123	198	292	75	169
Total	10.5%	1,416	1,637	1,988	221	572

Appendix 4: Comparison of Projections: 2010 and 2013

The following graphs compare the projections made in 2010 with those using updated ABS data. In each of the graphs below, the blue columns show the original projections made in 2010, with the blue dotted line representing the growth trend. The orange columns show the updated projections, with the orange line representing the growth trend.





Appendix 5: Projected Increase in 16-18 year olds by State

Table A5.1: Projected population for 16-18 year olds (Series B), by State and Territory, 2013-2040

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT	Australia
Jun-13	277,925	213,016	185,180	63,136	95,703	20,334	9,735	14,240	879,380
Jun-15	277,214	213,117	187,162	62,490	98,642	19,829	9,732	14,325	882,621
Jun-20	280,959	220,608	196,883	61,875	105,176	18,719	10,141	14,872	909,342
Jun-25	306,200	246,620	223,124	67,048	123,550	20,063	11,070	17,135	1,014,898
Jun-30	323,849	270,874	243,588	71,456	139,675	20,187	12,123	19,127	1,100,964
Jun-35	335,501	286,650	261,052	73,320	156,889	20,103	12,893	20,328	1,166,802
Jun-40	341,857	295,229	273,896	73,500	169,221	19,758	13,435	21,077	1,208,046

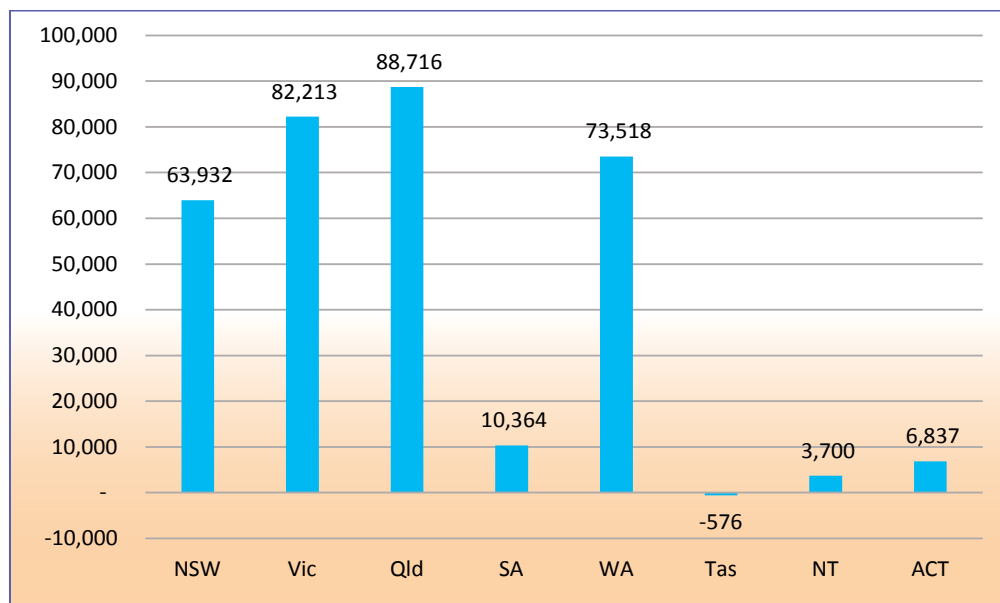


Figure A5.1: Absolute Growth in Population aged 16-18 years by State and Territory, 2013-2040

References

Australian Bureau of Statistics

Australian Demographic Statistics, March 2013, (Cat No: 3101.0), <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3101.0Mar%202013?OpenDocument>

Education and Work, May 2013, (Cat No: 6227.0), <http://www.abs.gov.au/AUSSTATS/abs@.nsf/allprimarymainfeatures/556A439CD3D7E8A8CA257242007B3F32?opendocument>

Population Projections, Australia, 2012 (base) to 2101, Nov 2013, (Cat 3222.0), <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3222.02012%20%28base%29%20to%202101?OpenDocument>

Australian Qualifications Framework, 2nd edition, (2013), <http://www.aqf.edu.au/wp-content/uploads/2013/05/AQF-2nd-Edition-January-2013.pdf>

Bentley, Peter (2013), Academia's Demographic Time Bomb, Insights Blog, LH Martin Institute, <http://www.lhmartininstitute.edu.au/insights-blog/2013/08/144-academias-demographic-time-bomb>

Bradley, Denise, Noonan, Peter, Nugent, Helen and Scales, Bill, (2008), Review of Australian Higher Education: Final Report, Canberra, Commonwealth of Australia, http://www.innovation.gov.au/HigherEducation/Documents/Review/PDF/Higher%20Education%20Review_one%20document_02.pdf

Department of Education, Employment and Workplace Relations

Portfolio Budget Statements 2009-2010
http://docs.education.gov.au/system/files/doc/other/portfolio_budget_statements_200910_outcome_3_a_growth_in_skills_qualifications_and_productivity_through_fund20090528.pdf

Portfolio Budget Statements 2010-2011
http://docs.education.gov.au/system/files/doc/other/portfolio_budget_statements_200910_outcome_3_a_growth_in_skills_qualifications_and_productivity_through_fund20100511.pdf

Portfolio Budget Statements 2011-2012
http://docs.education.gov.au/system/files/doc/other/portfolio_budget_statements_201112_outcome_3_a_growth_in_skills_qualifications_and_productivity_through_fund201105_1.pdf

Department of Education, Higher Education Statistics Collection

Student Collection, <http://www.innovation.gov.au/highereducation/HigherEducationStatistics/StatisticsPublications/Pages/Students.aspx>

Undergraduate Applications, Offers and Acceptances, 2013
<http://docs.education.gov.au/node/34529>

Department of Industry, Innovation, Climate Change, Science, Research and Tertiary Education

Portfolio Budget Statements 2013-14, Budget Related Paper No. 1.12, <http://www.innovation.gov.au/AboutUs/Budget/Pages/default.aspx>

Portfolio Budget Statements 2012-13, Budget Related Paper No. 1.13,
<http://www.innovation.gov.au/AboutUs/Budget/Pages/Budget2012-13.aspx>

Graduate Careers Australia, GradStats: Employment and Salary Outcomes of Recent Higher Education Graduates, Dec 2013, <http://www.graduatecareers.com.au/research/researchreports/gradstats/>

Hugo, Graeme, (2008), The Demographic Outlook for Australian Universities' Academic Staff, CHASS Occasional Paper, November, <http://www.chass.org.au/papers/pdf/PAP20081101GH.pdf>

Organisation for Economic Cooperation and Development (OECD), Education at a Glance, publications from 2008 to 2013, http://www.oecd-ilibrary.org/education/education-at-a-glance-2013_eag_highlights-2013-en

Endnotes

- 1 Calculated using 2012 student data, as published by the Departmental Student Statistics collection, against 2012 ABS population statistics.
- 2 <http://www.innovation.gov.au/highereducation/ResourcesAndPublications/ReviewOfAustralianHigherEducation/Pages/FutureDirectionsForTertiaryEducation.aspx>
- 3 Bradley et al (2008), Review of Australian Higher Education: Final Report, Canberra, Commonwealth of Australia, pp.15-16
- 4 Bradley et al, pp. 18
- 5 Bradley et al, p155
- 6 Bradley et al, p. xi
- 7 GradStats, 2013, Table 1a, p.4
- 8 ABS, Labour Force Australia, Cat 6202.0, <http://www.abs.gov.au/ausstats/abs@.nsf/mf/6202.0>
- 9 The timeline of the GFC published by SBS shows that the collapse of mortgage lenders Fannie Mae and Freddie Mac occurred on Sept 7, 2009, approximately 9 months after the publication of the Review: <http://www.sbs.com.au/news/article/2009/09/15/gfc-timeline>
- 10 Assumes a student to EFTSL conversion rate at UG level of around 0.8.
- 11 Hugo, p.15
- 12 Hugo, p.28, 7
- 13 <http://www.lhmartininstitute.edu.au/insights-blog/2013/08/144-academias-demographic-time-bomb>
- 14 Based on the guidelines as outlined in the Australian Qualifications Framework: ie., a bachelor level degree (level 7) of three years minimum; followed by a research master's degree of 1.5 years; followed by a doctoral level qualification of three years. It assumes a full time study load and no periods of intermission either within or between qualifications.