Policy note

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GROUP OF EIGHT

Key points

As demand for higher education has grown, there has been a trend towards Science, Engineering and especially Health disciplines. These are among the most expensive fields to teach.

The shift towards more expensive fields, on top of bigger than expected growth across all fields, increases the potential cost of a demand-driven system.

In a demand-driven funding system, universities have less scope to cross-subsidise more expensive (as well as less popular) courses. Current base funding rates are less than the cost of delivery in all disciplines, with the biggest shortfalls in more expensive fields.

Without changes to funding, universities will have limited capacity and incentives to offer enough places in the fields that students want. The fundamental contradiction is that volume has been deregulated but price remains fixed.

Demand for higher education, by field

Over the period 2001-2011, the number of applications for university places increased by 17.8%, or just over 37,000. At the same time, the number of offers increased faster in percentage terms (20.5%), while absolute growth was slightly smaller at just under 35,000. Offer rates increased by just under two percentage points. In 2001, just over 40,000 applicants (or 19.3%) failed to get an offer. By 2011, the number of unsuccessful applicants had risen slightly to 43,000, while the share of all applicants without an offer fell to 17.4%.

Trends in applications by field of education

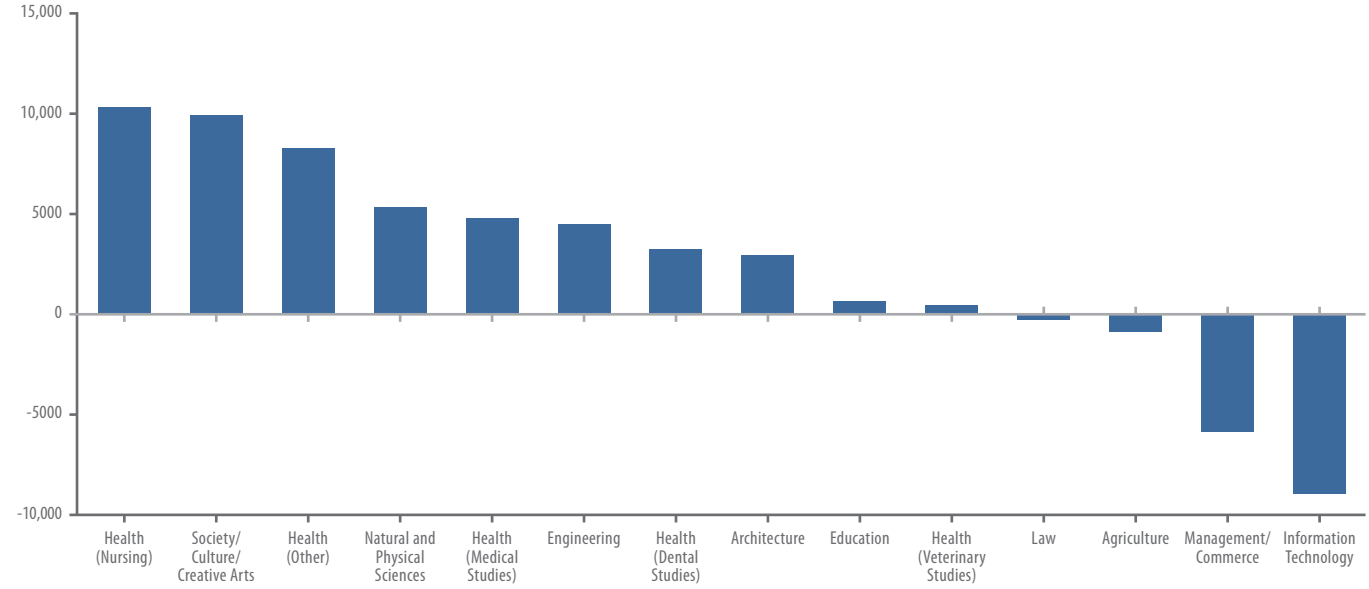
Trends in demand differed markedly by field. Health fields recorded some of the biggest increases. Across all Health fields, applications rose by 27,500 or 78%. Percentage growth was highest in Dentistry (502.1%) though absolute numbers were relatively small (3344 more applications). Nursing grew by 110.8% to record the biggest absolute growth in any field (10,441 applications). Applications for Medicine grew by nearly 5000 (64.9%) and Other Health was up by over 8000 (52.2%).

Across all Health fields, applications rose by 27,500 or 78%.

The other fields recording big increases were Society & Culture/Creative Arts (up by 10,004 or 15.2%), Natural and Physical Sciences (up by 5431 or 38.2%) and Engineering (up by 4578 or 38.0%).

A few fields recorded declines in demand. Applications for IT fell by nearly 9000, or 60.9%. Management and Commerce – one of the biggest fields – fell by 5760, or 15.4%. Agriculture declined by 17.5%, though the decrease was small in absolute terms (only 827 applications). Finally, there was a small decline in Law (231 applications, or 2.1 per cent). Figure 1 shows changes in the number of applications by field.

Figure 1. Change in applications by field of education, 2001 to 2011



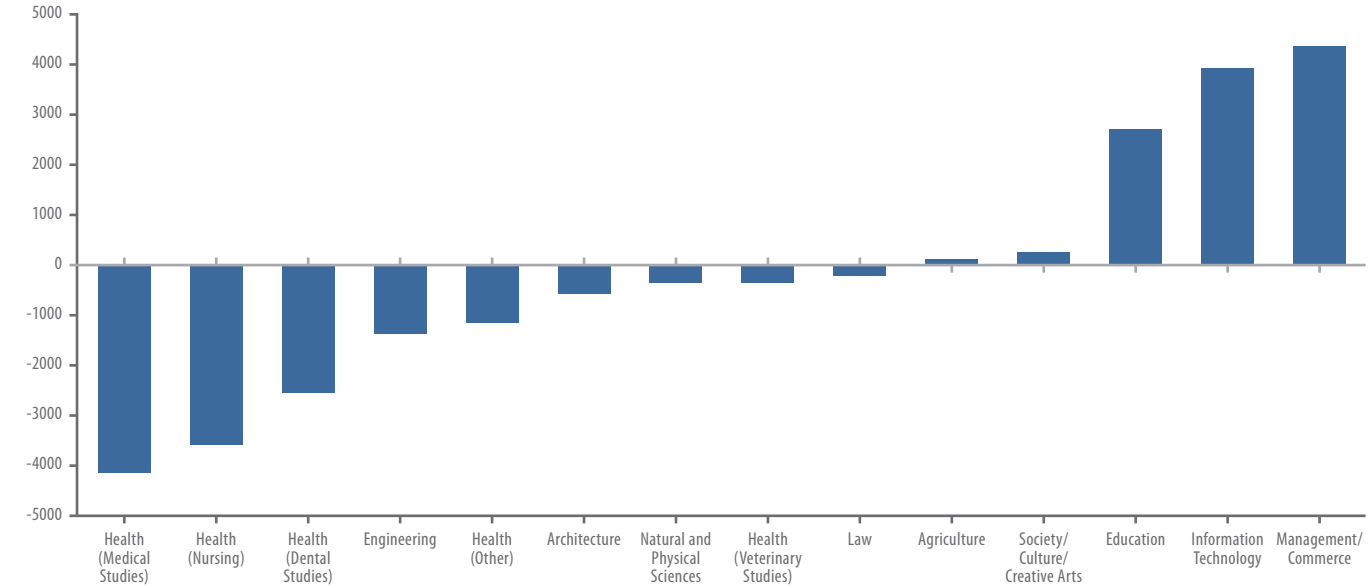
Source: DIISRTE (2012), *Undergraduate Applications, Offers and Acceptances 2011*

Trends in offers by field of education

Changes in offers followed changes in applications, for the most part. Growth in offers was much lower than growth in applications in the very high demand fields of Medicine and Dentistry. Growth in offers also trailed growth in demand in Nursing, and to a lesser extent, in Engineering. Offers grew much faster than demand in Education, and slightly faster in Society & Culture/Creative Arts.

Figure 2 shows the difference between change in offers and change in applications. For the most part, a negative difference simply reflects growing demand, while a positive difference reflects declining demand, since shifts in supply have been constrained. It will be interesting to see how this relationship holds up from 2012 in a demand-driven system, under which universities have greater freedom to align supply with demand. There is a striking symmetry between each end of Figure 2, though the negative figures in the middle of the graph reflect the shortfall of 2500 offers across all fields, compared to growth in applications. However, it should be noted that two of the biggest negatives on the left of Figure 2 are Medicine and Dentistry. These are high prestige, extremely competitive fields, where supply is unlikely ever to match demand. Furthermore, Medicine is specifically excluded from the demand-driven system.

Figure 2. Difference between change in offers and change in applications, 2001 to 2011



Source: DIISRTE (2012), *Undergraduate Applications, Offers and Acceptances 2011*

Trends in Commonwealth-support load by funding cluster

Consistent with shifts by field of education in the applications data, there have been some significant changes in share of full-time equivalent (FTE) Commonwealth-supported student numbers by funding cluster since 2001 (Table 1).

Table 1. Change in share of Commonwealth-supported load, by funding cluster, 2001 to 2010

Cluster	% of total load		Change
	2001	2010	
Cluster 1 - Law, Accounting, Administration, Economics, Commerce	20.8%	19.3%	-1.55
Cluster 2 - Humanities	7.3%	5.4%	-1.92
Cluster 3a - Maths, Stats	6.7%	7.1%	0.43
Cluster 3b - Behavioural Science, Social Studies	10.8%	9.5%	-1.34
Cluster 3c - IT, Built Environment, other Health	10.2%	7.5%	-2.71
Cluster 4 - Education	10.0%	11.2%	1.20
Cluster 5a - Clinical Psychology, Languages, Visual & Performing Arts	9.5%	10.1%	0.61
Cluster 5b - Allied Health	2.0%	3.1%	1.16
Cluster 6 - Nursing	3.8%	5.6%	1.82
Cluster 7a - Science	9.5%	10.1%	0.59
Cluster 7b - Engineering, Surveying	5.7%	6.0%	0.36
Cluster 8a - Agriculture	1.6%	1.4%	-0.20
Cluster 8b - Medicine, Dentistry, Veterinary	2.2%	3.8%	1.56
Total	100.0%	100.0%	

Source: DIISRTE Higher Education Student Statistics

Figures may not sum due to rounding.

Funding implications of shift to more expensive fields

Comparing Commonwealth-supported load at 2001 and 2010 by cluster shows that base funding (excluding extra loadings within the Commonwealth Grant Scheme) increased from $6.6 billion in 2001 to $8.2 billion in 2010 (at constant 2011 values). The increase was 24.3%, compared to an increase in load of 20.6%. A shift in enrolments to more expensive fields explains the difference. The shift in fields contributes around $240 million to the increase in base funding.

If current trends were to continue (or intensify), there would be a sizeable increase in aggregate base funding, over and above the effect of growth in overall enrolments. Extrapolating from projections of Commonwealth-supported load in the 2011-12 DEEWR Portfolio Budget Statements suggests that there are likely to be around 665,000 FTE Commonwealth-supported students in 2020, compared to just over 500,000 in 2010[1]. If shares of Commonwealth-supported load by cluster were to remain at 2010 levels, aggregate base funding (in constant 2011 dollars) would increase by about $2.7 billion from $8.2 billion in 2010 to $10.9 billion in 2020. However, if trends in share of total load by cluster observed between 2001 and 2010 were to continue, a net shift in enrolments to more expensive clusters will add a further $356 million to the increase in aggregate base funding (or a further 13%). Table 2 shows details.

1 Group of Eight (2011), 'Higher education supply and demand: What do applications and offers data tell us?', Paper presented at Australasian Association for Institutional Research Annual Conference, Gold Coast, 11 November, 2011; DEEWR (2011), *Portfolio Budget Statement 2011-12*, Table 2.3.1, p.92

Table 2. Projected increase in Commonwealth-supported load and aggregate base funding ($m) to 2020

Cluster	2010 CSP load	Projected 2020 load (2010 shares by cluster)	Projected 2020 load (projected 2020 shares by cluster)	2010 aggregate base funding	Projected 2020 aggregate base funding (at 2010 shares by cluster)	Projected 2020 base funding (at projected 2020 shares by cluster)
Cluster 1 - Law, Accounting, Administration, Economics, Commerce	96,498	128,308	116,857	1,049	1,395	1271
Cluster 2 - Humanities	27,049	35,966	21,789	282	375	227
Cluster 3a - Maths, Stats	35,504	47,208	50,355	587	781	833
Cluster 3b - Behavioural Science, Social Studies	47,499	63,157	53,223	677	900	758
Cluster 3c - IT, Built Environment, other Health	37,354	49,668	29,625	619	823	491
Cluster 4 - Education	55,933	74,371	83,249	817	1,086	1216
Cluster 5a - Clinical Psychology, Languages, Visual & Performing Arts	50,431	67,055	71,540	821	1,091	1164
Cluster 5b - Allied Health	15,582	20,719	29,269	290	385	544
Cluster 6 - Nursing	27,921	37,125	50,590	490	651	887
Cluster 7a - Science	50,503	67,151	71,487	1,168	1,553	1653
Cluster 7b - Engineering, Surveying	30,189	40,141	42,832	699	929	992
Cluster 8a - Agriculture	7,000	9,308	7,811	191	254	213
Cluster 8b - Medicine, Dentistry, Veterinary	19,030	25,303	36,857	545	724	1055
Total	500,493	665,475	665,475	8,233	10,947	11,304

Figures may not sum due to rounding.

It should be noted that the projections in Table 2 are not predictions of numbers of places that universities will actually deliver. While it is likely that student demand will continue to move towards more expensive courses, it seems unlikely that universities will be able to accommodate all of this growth in demand. In the fast growing Health fields, limited numbers of clinical places constrain universities' ability to meet demand, and issues of infrastructure and staffing will limit the student intake. As noted above, Medicine is excluded from the demand-driven system. Nevertheless, underlying labour market demand for Health professionals is extremely strong, and governments will come under political pressure if skill shortages in these areas worsen.

In a demand-driven system, it cannot be assumed that universities will be able to cross-subsidise expensive or small courses to the extent they previously could. This may threaten provision in underpriced disciplines.

Base funding and cost of delivery

There is another, more general constraint on supply, namely underfunding per place. As the Review of Higher Education Base Funding reported at the end of 2011, base funding rates are lower than costs. Funding shortfalls tend to be largest in the more expensive disciplines[2]. In a demand-driven system, it cannot be assumed that universities will be able to cross-subsidise expensive or small courses to the extent they previously could. This may threaten provision in underpriced disciplines[3].

2 Jane Lomax-Smith et al (2011), *Higher Education Base Funding Review: Final Report*, DEEWR, Canberra, pp.48-53

3 Lomax-Smith et al (2011), p. ix

A study of funding and costs carried out by Universities Australia during the Base Funding Review found that all Broad Fields of Education were underfunded. Costs (including costs of unfunded base research activity) ranged from 112% of base funding in Engineering, up to 158% in Health. Note that the figure for Health is a weighted average for the whole Broad Field: the funding gap is likely to be bigger for some fields within Health, such as Medicine and Dentistry.

Table 3 shows estimated funding gaps by Broad Field.

Table 3. Difference between base funding and cost of delivery by Broad Field of Education, 2011

Broad Field of Education	Base funding	Cost-funding ratio	Funding gap ($)
Natural and Physical Sciences	$23,124	1.25	$5,781
Information Technology	$16,564	1.42	$6,957
Engineering	$23,154	1.12	$2,778
Architecture	$16,564	1.21	$3,478
Agriculture	$27,298	1.47	$12,830
Health	$19,172	1.58	$11,120
Education	$14,606	1.16	$2,337
Management and Commerce	$10,873	1.56	$6,089
Society and Culture	$12,673	1.35	$4,436
Creative Arts	$16,274	1.31	$5,045

Source: Universities Australia (unpublished), *Review of University Cost Data*

Base funding for Health and Society and Culture are weighted averages based on share of load by funding cluster.

Averaged over all Broad Fields, the funding gap is about 33% of base funding. In dollar terms, the funding gap was $2.8 billion in 2010, up from $2.2 billion in 2001 (using 2011 base funding values in constant 2011 dollars). Of course, most of the increase is due to the overall increase in enrolments, but the shift in student demand to more expensive (and underfunded) fields has also played a part. Comparing 2010 domestic Bachelor load by Broad Field, with the Broad Field values that would have applied in 2010 if growth in demand had been uniform across fields since 2001, shows the shift in demand contributed over $100 million to the increase in the funding gap.

Growth in overall enrolments alone (with shares of enrolment by Broad Field held constant) would increase the funding gap by $900 million to $3.7 billion (in constant 2011 dollars) in 2020. Projecting trends in enrolment by field for 2001-2010 out to 2020 suggests a further increase of around $175 million due to shifts in enrolment to fields where the funding gap is largest. The total funding gap would be around $3.9 billion.

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It should be noted that projected cost increases cited above are based on historical trends in demand-supply interaction where supply was constrained. If universities were to expand their overall supply, and shift by cluster, in order to meet student demand, the cost increase, and the blowout in the funding gap, would be bigger.

In a system that is expanding towards universal provision, there are likely to be additional costs associated with teaching and supporting new students, many of whom will have lower levels of academic preparation than were expected in the past[4]. Current funding arrangements do not adequately recognise this issue. The Base Funding Review points out the potential negative impact on students and public policy inefficiency[5].

In addition to the issue of general academic preparation, the shift in student demand to science, engineering and health fields raises a further issue of preparation for university-level study in these disciplines. The Chief Scientist has recently reported to the Prime Minister on student participation in enabling disciplines. A future Go8 Policy Note will examine trends in participation in maths, science and other subjects in upper secondary school.

4 See Go8 Policy Note 3 (2012) 'University Admissions', www.go8.edu.au/government-_and_-business/go8-policy-_and_-analysis/2012/go8-policy-note-3-university-admissions

5 Lomax-Smith et al (2011), p.ix

Conclusion

The Bradley Review's recommendation of a demand-driven system of funding university places was made without explicit reference to labour market demand for particular skills and qualifications. It has been implemented without much regard for student demand by field of education. It is clear that the Government underestimated both students' and universities' reaction to the opening up of the system. For this reason, initial projections of the cost of a demand-driven system were understated.

Supply will continue to be more or less constrained – even in a demand-driven system – by the cost of delivering courses, which exceeds funding rates, especially in high demand courses. The Base Funding Review has warned the Government about this, but it seems unlikely that Government will be prepared to commit large amounts of extra funding to address the problem.

The fundamental contradiction is that while volume has been deregulated, price remains fixed. The most effective way to align supply and demand would be to allow greater variation in price, so that a sustainable rate of funding would make it financially feasible to offer the places students want, while maintaining quality in an expanding system.

It is clear that the Government underestimated both students' and universities' reaction to the opening up of the system. For this reason, initial projections of the cost of a demand-driven system were understated.