

Submission to

Review of Australian Higher Education

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All that is spent during many years in opening the means of higher education to the masses would be well paid for if it called out one more Newton or Darwin, Shakespeare or Beethoven (Marshall 1890 p. 216).

Introduction

This submission is based on a shared experience of over 20 years working and participating in higher education as students, lecturers and administrators. In addition we have conducted considerable research in the areas of the impact of HECS on low socio-economic groups¹ and the efficiency and equity of higher education in Australia².

¹ Wright, S. J. (2005). *The impact of changes in HECS on students from low socio-economic backgrounds*. Sydney, Greenacre Educational Publications.

² Wright, S. J. (2008). *An investigation into the equity and efficiency of Australia's higher education system*. Sydney, Greenacre Educational Publications.

This submission will consider a number of the questions for discussion. We are only making comments in areas where we believe we have the expertise and knowledge to do so.

Questions for Discussion

Chapter 1 Higher education in modern Australia

1. How adequate is the statement of functions and characteristics of higher education in modern Australia?

The core functions listed in the discussion paper are too narrow. The two core functions listed are concerned more about the quantity of output from higher education rather than the quality of output of higher education. A high quality higher education system will not only attract more international students and research funding but will achieve higher levels of productivity in the economy. In recent years higher HECS fees and increasing places in higher education have lowered the overall quality of university entrants and as a result impacts on the quality of graduates from the university sector (Wright, 2008).

The discussion paper also tends to look at education from an individual benefit point of view. The greatest benefits of higher education are associated with the social benefits that are generated from this activity.

Most studies suggest that the social benefits, as measured by the Social Rate of Return³ (SRR) to higher education, in Australia are both positive and sizeable. According to Rizzo (2004) these social returns represent the lower bound return for society's investment in higher education. A significant non-pecuniary benefit to both the individual and society is consumption. For example, university students enjoy both classes and the social activities available on the campus and society enjoys participating in special lectures, athletics programs and using campus facilities. De Villiers and Nieuwoudt (2005) suggest that the non-pecuniary benefits to individuals with university degrees extend further to include better communication, more law abiding behaviour, and a greater contribution to the intellectual and cultural well being of the community. These benefits are non-excludible and suggest that to some degree higher education is a public good.

Baum and Payea (2004) suggest there are other non-pecuniary benefits that accrue to society from graduates with university degrees. These include:

³ SRR is a measurement of the overall financial costs and benefits of higher education to society as a whole.

- lower levels of unemployment and poverty;
- greater job security;
- a lower dependence on welfare and social programs;
- lower smoking rates;
- lower incarceration rates.

Table 1 shows the total Social Rates of Return to higher education for different regions of the world. The total Social Rate of Return is the sum of the monetary Social Rate of Return, non market private returns and non market education externalities. The non market private returns are the benefits that both the individual and their family receive from higher education, which are separate to the above listed externalities. These include better individual and family health, longevity, cognitive development of children and consumption benefits. The non market education externalities refer to the above list of externalities.

Table 1 The total Social Rates of Return to higher education

Region of the world	Monetary Social Rate of Return	Non market private returns	Non market education externalities	Total Social Rate of Return
Africa	11.3	9.0	4.0	24.3
Latin America	12.3	9.8	4.0	26.1
Asia	11.0	8.8	3.4	23.2
The OECD	8.5	6.8	2.5	17.8

Source: Modified from McMahon (2004)

The results show that monetary or conventional Social Rates of Return underestimate the benefits society receives from higher education. For example, the monetary Social Rate of Return is less than half the total Social Rate of Return for OECD nations. This suggests that the social benefits of higher education are considerable and must be considered in any evaluation of the functions and the impact of higher education in Australia.

Section 3.1 Meeting labour market and industry needs

4. How adequate are the mechanisms for aligning supply and demand of graduates? How do pricing and labour market signals impact on student choices?

There are a number of failings of the current mechanisms for aligning the supply and demand of graduates. A significant weakness of Australia's higher education system is that the students' decision making process is characterised by asymmetric information. The lack of

information available to future university students means university students are not thinking as informed rational consumers when making decisions, such as which institution to attend and which course to study. This partly explains why students often assume that the more prestigious universities have the highest level of quality teaching and why students are not enrolling in discipline areas where there are shortages of graduates.

The movement towards a free market will not equip students to demand quality courses but rather it will provide incentives for universities to offer poor quality courses. Akerlof's (1970) *Lemons Principle* suggests that in a market where there is a lack of information students will choose courses that are more expensive, assuming they will be of higher quality and universities will offer low quality courses, as it is more profitable. To avoid this, the Government needs to make more readily accessible to future university students results from the Course Experience Questionnaire (CEQ). Therefore, future students can consider factors such as the quality of teaching, the level of generic skills, overall student satisfaction and graduate full-time employment rates when deciding which university to attend.

The Productivity Commission (2007 p. 252) states that the Government needs to play a role in 'signaling to students areas where there are shortages and where there is likely to be oversupply'. Students will not be able to respond to changes in graduate employment opportunities if they are ill-informed. The Government should make the results from the Graduate Destination Survey (GDS) more accessible to students in schools and TAFE and the wider community. Therefore, future students can include in their decision making factors such as the level of unemployment and starting salaries when choosing which course to study.

Students will make decisions on the courses they choose based on the expected cost of their education and financial and personal benefits they will receive as a graduate of that course. It is argued that the level of HECS students pay is according to the cost of the course and the future income they will receive. Table 2 shows that this claim is flawed, as there are only a small number of courses where the student contributions accurately reflect both the cost of the course and the future income the graduate receives. In the case of students becoming dentists or lawyers they pay band three level of HECS. The dental student receives \$15,332 in Government funding annually to study the course and as a graduate earns one of the highest average salaries at \$97,365 per year. Students studying law pay the same level of HECS, as students becoming dentists, yet the cost to the Government is one tenth of the cost of providing dentistry (receive one tenth of the level of Government funding), while the average

income lawyers receive is \$27,768 per year less than the average income dentists receive. The effect of this is a distortion of the graduate labour market with universities providing places in areas of relatively higher funding and students selecting courses with relatively lower costs.

Table 2 The student contribution, Government contribution, salary and unemployment rate for various university graduates for 2006

HECS	Student contribution (HECS) (\$)	Commonwealth Government contribution (\$)	Median starting salary ^(a) (\$)	Average annual cash earnings ^(b) (\$)	Unemployment rate ^(c)
Band three					
Dentistry	8170	15,332	68,000	97,365	0.7
Law	8170	1499	42,000	69,597	4.0
Medicine	8170	15,332	48,000	111,634	1.0
Veterinary science	8170	15,332	38,000	57,762	0.6
Band two					
Accounting	6979	2466	37,000	61,490	5.9
Agriculture	6979	16,299	38,700	64,854	7.9
Business studies					
Human resources	6979	2466	40,000	61,672	5.9
Marketing	6979	2466	40,000	59,904	5.9
Computing	6979	7349	42,000	74,308	8.8
Economics	6979	2466	40,000	65,057	3.8
Engineering					
Mining	6979	12,232	46,000	104,794	0.0
Electrical	6979	12,232	46,000	79,123	8.0
Civil	6979	12,232	46,000	76,024	4.6
Mathematics	6979	4908	42,500	66,284	6.2
Physical science	6979	12,232	40,000	79,274	13.6
Surveying	6979	12,232	45,000	62,816	1.7
Band one					
Humanities					
Journalist	4899	4156	37,000	64,532	8.6
Librarian	4899	4156	37,000	59,675	8.6
Urban and regional planner	4899	4156	37,000	55,879	8.6
Social studies	4899	6598	42,000	54,865	5.3
Visual and performing arts	4899	9037	33,200	44,195	12.0
National priorities					
Education	3920	7251	43,400	62,088	2.6-2.9
Nursing (registered)	3920	9692	41,000	64,740	0.7

(a) The median starting salary for full-time graduates aged less than 25 (Graduate Careers, 2006).

(b) Average annual cash earnings for full-time non managerial employees for persons (ABS, 2006a cat. No. 6306.0)

(c) The percentage of graduates seeking full-time employment who are not working aged less than 25 (Graduate Careers, 2006).

Note: The income data in Table 6.20 are derived from a combination of sources. This is because no single source had the income data for all occupations.

Source: Commonwealth Government 2003, ABS (2006), Graduate Careers (2006b) and Macken (2006).

Chapman (2005) argues that the Government, when determining the level of HECS fees, needs to consider not only the cost of the course and the potential income of the graduate but other factors such as the unemployment rate.

For example, the Government contributes relatively more funding to courses in visual and performing arts than to the national priority area teaching, yet the initial graduate full-time unemployment rate for visual and performance arts graduates is 12 percent compared to teaching graduates at between 2.6 percent and 2.9 percent. Likewise, the Government allocates more funding to agriculture and physical science than to the national priority area nursing, despite the initial graduate full-time unemployment rate for agriculturalists being more than 11 times as great as the unemployment rate for nurses, and the unemployment rate for physicists 19 times as great as the unemployment rate for nurses. This suggests that the Government is encouraging agriculture, science and visual and performance arts graduates (with relatively high unemployment rates) by encouraging universities to offer places in these fields, which receive greater Government funding. The marginal costs of these courses are higher and the marginal revenue of the graduates are lower, demonstrating an inefficient allocation of resources.

The AVCC (2006) states 79 percent of all eligible applicants for teaching and 83 percent of all eligible applicants for nursing received an offer at university in 2006. However, there was a surplus of 185 places in agriculture and 2265 extra places in physical science that were not offered to applicants. This suggests that there were excessive places offered in agriculture and physical science and a shortage of places offered in both teaching and nursing. The Government could have alleviated the shortage of places in nursing, given 2408 eligible applicants missed out on a place in nursing in 2006, and could have reduced the shortage in teaching with 5074 eligible applicants missing out on a place in teaching in 2006, if funding was allocated more efficiently to match demand. In 2006 not only were there shortages of places offered in teaching and nursing but there were also a shortage of places offered in law and economics, at 3838 places and 3462 places respectively (AVCC, 2006). This suggests that in 2006 the Government could have provided a place for all eligible applicants wishing to study either law or economics, if funds were transferred from some of the lower demand but

higher funded courses. This would have been beneficial to society for economists and lawyers are more likely to receive full-time employment than agriculturalists or physicists and would have paid a greater amount of tax over their lifetime.

Table 2 only shows the percentage of persons seeking full-time employment who are not working. When persons seeking full-time work, but are working part-time or on a casual basis, are included in the unemployment rate, the unemployment rate for visual and performing arts for 2006 increases from 12 percent to 25.7 percent. Despite the high unemployment rate for artists the Government contributes a relatively high amount of funding to visual and performing arts courses and there remains a high demand to study courses in visual and performing arts. In 2007, the second highest number of eligible students missing out on a place in university was applicants wishing to study creative arts (AVCC, 2007). This suggests that there is a lack of information available to those wishing to study at university or they are making the decision for reasons other than future income and employment.

The lack of information available to future university students can also partly explain why there are shortages of mining engineers, and science and mathematics teachers. However, another reason for the shortage of mining engineers, and science and mathematics teachers is the allocation of funding by the Government based on courses, rather than occupations. While the Government contributes a considerable amount of funding to the areas of engineering, science and mathematics, there are no shortages in these areas across the board. Graduate Careers (2006) shows that while there was a zero unemployment rate for mining engineering in 2006, there was an unemployment rate of 7.4 percent for electronic and computer engineering. Four out of the eight fields of engineering had an unemployment rate for 2006 greater than the average initial graduate full-time unemployment rate at 5.5 percent (Graduate Careers 2006b). Therefore, the Government firstly, needs to allocate more funding to specific areas of engineering, such as mining engineering rather than allocate more places to engineering as a whole, and secondly, they need to respond to cyclical changes. The Government will fund 510 more places in engineering in 2007 and an extra 500 more places in 2008. However, unless these places are allocated to fields such as mining engineering, there will be a number of these university graduates unemployed and the shortage of mining engineers may continue. Therefore, while there is, at present, a need for extra Government funding in the area of mining engineering, in the future, this may not be the case. The Productivity Commission (2007) argues that while the shortage of mining engineers is largely a response to cyclical conditions, the shortage of science and mathematics teachers is a

response to structural conditions. The Productivity Commission argues that while there is a widespread shortage of mathematics and science teachers, there are no shortage of scientists and mathematicians. Table 2 shows that the initial graduate full-time unemployment rate for 2006 for mathematicians was 6.2 percent and physicists, 13.6 percent. This suggests that the Government needs to support university students studying teaching who choose science and mathematics majors, and not simply allocate more funding to science and mathematics courses. In addition to allocating extra funding to these areas, the Government also needs to provide future university students information on the areas of national shortage. This point is also raised by the Productivity Commission (2007 p. 252) who states that the Government needs to play a role in ‘signaling to students areas where there are shortages and where there is likely to be oversupply’. The current market of higher education is characterised by asymmetric information. The Government needs to be an active player in informing future university students where there are areas of low unemployment, otherwise students may enrol in courses that already have an oversupply of university graduates. For example, if the aim is to provide more mining engineers then there should be more places in that field and information on the benefits of that degree made readily available to the public.

Section 3.2 Opportunities to participate in higher education

8. Should there be a national approach to improving Indigenous and low SES participation and success in higher education?

While HECS has raised the contribution from students towards the cost of higher education, it has not ensured greater access and equity. There is a need for a national approach to improving Indigenous and low SES participation in higher education. Nelson (2004 p. 34) states ‘while in recent years the participation of some disadvantaged groups in higher education has increased, this has not been the case for all’. This was the result of the report, *Analysis of Equity Groups in Higher Education 1991 to 2002*, by the Centre for the Study of Higher Education (CSHE) that showed the participation of some equity groups had not improved, for example, low income students. DEST (2004 p. 34) states:

While there has been a small increase in the participation of mature aged (over 25 years) low SES students in higher education, overall the proportion of low SES students (of all ages) entering higher education has not increased since 1991. Their participation rate has remained around 15 percent throughout the past decade.

They are particularly under-represented in award courses and in courses leading to professional qualifications.

DEST (2006a) claim in the *2005-06 Annual Report* that the participation of students from low SES has not varied greatly between 2001 and 2005. However, the report's findings show that the number of students from low SES declined from 102,598 in 2001 to 102,394 in 2005 and the proportion of students of low SES declined 0.6 percentage points to 14.5 percent in 2005. The report also shows that the number of students receiving youth allowance had fallen from 458,053 in 2003-04 to 435,661 in 2005-06.

James (2002 Ch. 5) found appreciable social stratification in the values and attitudes of students towards higher education, concluding that the socio-economic background of students was a decisive factor influencing student participation in higher education. The main findings of James's (2002 pp. 33-34) study were that, 39 percent of low SES students believed that the costs of university may stop them from attending university compared to 23 percent of high SES students, while 41 percent of low SES students stated their family could not support them at university, with 36 percent stating they would have to support themselves.

Wright (2005 p. 55) found that the participation of students from all socio-economic areas increased between 1996 and 2001, but the increase in student participation was the result of a greater number of university places offered by the Government and 'not a reflection of higher student demand for university education'. Wright showed that the increase in the participation of students from higher socio-economic areas (a relative income of 1.25) between 1996 and 2001 was nearly three times the increase in the participation of students from lower socio-economic areas with a relative income of 0.75. Instead of the changes in HECS promoting greater access to university for students from lower socio-economic areas, Wright (2005) argues that the changes in HECS resulted in a lower opportunity for students from lower socio-economic areas to participate in higher education. Wright (2005 p. 56) states that the 1996-97 budgetary increases in HECS 'has consequently led to greater inequality and the under representation of students from lower socio-economic areas to increase'.

In addition to the study by Wright (2005), Contractor and Noonan (2003) also suggest the *National Report on Australia's Higher Education Sector 2001*, showed that the proportion of university students from disadvantaged backgrounds had declined sharply since HECS fees were increased in 1996.

Furthermore, a study by Borg (2006) comparing university and TAFE students in New South Wales showed that TAFE provided equal access to post-school education based on socio-economics groups in 2001. University students from low socio-economic areas, however, were severely disadvantaged. This suggests that students from low socio-economic backgrounds are not opposed to post-school education but rather are deterred from the higher cost of university education. The Borg study did show, however, that when TAFE fees were increased in 2004, there was a considerable decline in TAFE enrolments.

In regards to Indigenous students, findings by Junankar and Liu (2003) provide evidence to suggest that it is not only worthwhile for society to invest in higher education but it is also worthwhile for society to particularly invest in the education of Indigenous Australians (Table 3). Junankar and Liu (2003 p. 170) state that investing in the education of Indigenous Australians will ‘lead to better nutrition, better living conditions, access to health services and hence a longer and healthier life (increased life expectancy)’

Table 3 The SRR to a three year and four year bachelor degree for both Indigenous and non-Indigenous Australians

	Male		Female	
	Three year bachelor degree	Four year bachelor degree	Three year bachelor degree	Four year bachelor degree
Non-Indigenous Australians	18.1	18.9	8.9	10.9
Indigenous Australians	18.2	18.8	13.5	15.0
Indigenous Australians ^a	19.1	21.0	15.5	17.6

^a The Social Rate of Return is adjusted for employment probability, life expectancy and the cost of crime.

Source: Modified from Junankar and Liu 2003

Junankar and Liu’s (2003) measurement of the SRR to higher education for Indigenous Australians includes calculating the life expectancy, employment probability and the cost of imprisonment for Indigenous Australians, when calculating the benefits to society from investing in higher education. Junankar and Liu (2003) estimate the income a graduate receives with varying levels of education from the *ABS Census of Population and Housing 1991*.

According to Junankar and Liu (2003) when the Social Rate of Return to a three year bachelor degree for Indigenous Australians is adjusted for employment probability, a life expectancy of

44 years of age, and the cost of imprisonment, the SRR for Indigenous males is 19.1 percent and for Indigenous females it is 15.5 percent. If Indigenous Australians study a four year bachelor degree, the return to society increases by 1.9 percentage points for males and 2.1 percentage points for females. The return to society from educating Indigenous males is no longer the same as the return for non-Indigenous males, with the return to society between 1.0 to 2.1 percentage points higher, than the return for non-Indigenous males. The return to society for educating Indigenous females is also higher with the return up to 74 percent greater than the return to society from educating non-Indigenous Australians.

9. If you support a national approach to improving Indigenous and low SES participation and success how do you see it being structured, resourced, monitored and evaluated?

The Government should increase the number and value of Commonwealth Scholarships and change the way in which they are distributed to institutions and students.

The Howard Government announced in the *2007-08 Federal Budget* that they would increase the number of new Commonwealth Scholarships⁴ from 8500 to 12,000 in 2008 (Treasury 2007). Bishop (2007) argues that these scholarships will provide low income students increased opportunities to go to university. Despite the Government's attempt to support a greater number of low income students, the vast majority of low income students are not being supported. According to DEST (2006b) 102,394 students from low SES were studying in 2005. This means that if the same number of students from low SES are studying at university in 2008, 88 percent of them will not receive a Commonwealth Scholarship from the Government.

However, these findings by DEST (2006b) only consider the number of students who have a place at university. According to Bishop (2007) two thousand of these new scholarships will be offered to students who did not qualify for a place at university. Bishop (2007 p.1) states:

Two thousand of the new scholarships will be offered to students who may not otherwise qualify for a higher education place, to study two year associate degrees as a pathway to full degrees.

⁴ Commonwealth Scholarships were formally named Commonwealth Learning Scholarships.

This raises the question as to why the Government would support students who have not been accepted into university over those who have.

Not only are low income students more likely to miss out on a scholarship than receive one, depending on which university they attend the likelihood of receiving a scholarship will vary (refer to Wright, 2008 Section 1.6.4). However, even if the Government was to increase the number of Commonwealth Scholarships and change the way they were distributed, it would still not encourage all low income students to attend university because of the eligibility criteria. In order to be eligible for a Commonwealth Scholarship you must already be enrolled in a university. This means that under the current higher education system the financial barriers to entry still remain for those who did not apply for university. Not only do low income students have to take the chance and enrol in a university in order to receive a scholarship, they may also have to forgo student choice. The maximum life of a Commonwealth Scholarship is four years. This means low income students are less likely to choose degrees, such as dentistry and medicine or combined degrees and honours.

It is not only important for the Government to increase the number of scholarships, it is also important for the Government to raise the value of scholarships. The cost of moving and living away from home far exceeded the value of both scholarships. Although the Government announced in the *2007-08 Federal Budget* that they would increase the number of new Commonwealth Scholarships, there is no increase in the real value of either scholarship. In 2008 the value of CECS will be \$2162 and the value of CAS \$4324 or \$41.58 and \$83.15 per week, respectively. Wright (2008) estimated that in 2005 a student living in Sydney who was fortunate enough to receive both a CECS and a CAS, along with the maximum youth allowance payments and maximum rental assistance for shared accommodation, would still have outstanding expenses of \$2795.38 per annum. Therefore, assuming that the real cost of living has not increased since 2005 a student receiving both scholarships would still not have sufficient funds to study at a university in Sydney.

The value of CECS for 2008 should be raised from \$2161 per year to \$2603 per year. This is equal to the student outlay for books, tuition and extra travel adjusted from the Borland (2002) estimates for 2001, adjusted to 2008 using the Tertiary Education Index (refer to Wright, 2008 Section 4.1.2). The value of CAS for 2008 should be raised by \$2545 to \$6869 per year. This is the outstanding expenses of \$2795.38 per annum adjusted by the CPI minus the increase in the value of CECS.

Despite the need for greater public funding of universities, an increase in Government funding alone will not encourage students from lower socio-economic backgrounds to study at university. The Australian Government should reform youth allowance to reduce the financial burden on students and their families from low socio-economic backgrounds.

Youth allowance is provided to students aged between 16 and 24 whose parental income is \$30,750⁵ or less (Centrelink, 2007). Not only is the parental income threshold significantly low, students are not considered independent unless they are 25 years of age. This age of independence seems unrealistic when youth allowance is provided to students aged between 16 and 24 years⁶. The Government should reduce the age of independence from 25 years to 22 years, the age of independence of the mid 1990s. According to Universities Australia (2007), the *Social Security Act 1991* states that the age of independence 'will be progressively reduced over time'. Universities Australia (2007) argue that this provision has been in place for nine years but the age of independence has not yet been reduced. Reducing the age of independence to 22 years would reduce the financial burden for a greater number of students.

To further reduce the financial burden on low income students the 'income test free area' should be indexed to the CPI. Students receiving youth allowance can only earn \$236 per fortnight before their youth allowance payments are affected. Students lose 50 cents in every dollar for each dollar earned between \$236 and \$316 per fortnight and for every dollar earned over \$316 per fortnight the student loses 60 cents. Andrews (2005b p. 3) states that this 'income test free area' is generous. However, this 'income test free area' of \$236 per fortnight has been at the same level since 2001. This means that instead of the Government increasing the level of income support for low income students, in real terms these students are worse off today than what they were in 2001. This 'income test free area' should be indexed to the CPI to maintain its value in real terms. Furthermore, this 'income test free area' is not generous when you take into account the higher rate of tax low income students pay. The maximum youth allowance fortnightly payment for students 18 years and over and living at home is \$229.10 (Centrelink, 2007). Students receiving the maximum youth allowance fortnightly payment cannot claim the tax free threshold when working, as their youth allowance payments nearly equate to the tax free threshold.

⁵ Adjustments are made to this threshold for each dependent child other than the student applying for youth allowance.

⁶ If students were receiving youth allowance before turning 25 and are doing the same tertiary course, they can still receive youth allowance, otherwise students 25 years and over receive Austudy.

Section 3.8 Resourcing the system.

28. What incentives or unintended consequences are there in the current arrangements for higher education funding?

The current arrangements for higher education funding, specifically the level of HECS and the Government's relative contribution to higher education, has had a number of adverse effects.

Over time, not only have the increases in HECS reduced the quantity of higher education demanded from students from low socio-economic areas but they have also reduced the quality of students entering university. This is reflected in an increased percentage of home state year 12 students with a high Interstate Transfer Index (ITI) not accepting university offers. The AVCC (2006b, 2007) states in 2004, 96 percent of home state year 12 students with an ITI of 90.05+ applied for a place at university, 96 percent of those received an offer and 83 percent had accepted their offer. By 2007, 93 percent of home state year 12 students with an ITI of 90.05+ applied for a place at university in 2007 and even though 92 percent of these students received an offer, only 78 percent accepted their offer. Meanwhile, the proportion of home state year 12 students being accepted into university with an ITI of between 50.05 and 60.00 increased. In 2004, 60 percent of home state year 12 students with an ITI of between 50.05 and 60.00 applied for a place at university. Of these students, 17 percent received an offer and 12 percent accepted their offer. In 2007, 63 percent of home state year 12 students with an ITI of between 50.05 and 60.00 applied for a place at university. Of these students, 36 percent received an offer and 25 percent accepted their offer. This suggests that the number of home state year 12 students with an ITI of between 50.05 and 60.00 studying at university has more than doubled in three years. In addition, the proportion of home state year 12 students with an ITI less than 50 receiving and accepting an offer has also increased. McInnis and Hartley (2002) found that there is a positive relationship between a student's grade point average at university and their university entrance score, suggesting that this trend would produce a lower quality of graduates.

Secondly, as shown in Table 2 there is considerable differences in the student contributions and burden depending on the courses and subjects that they choose. In 2008 students of law, accounting, economics and commerce are contributing 84 percent of course costs whereas students in agriculture contribute 28 percent and nursing students 27 percent respectively. As

discussed earlier Table 2 shows that the student contribution to education is not linked under the current system to the cost of the course or the return the student gets from studying or the benefit to society from higher employment and productivity levels. This displays both horizontal and vertical inequity. Students paying the same HECS bands can earn considerably different levels of income over their lifetime such as lawyers and doctors. In addition students in some lower band courses pay a smaller contribution towards their education but achieve a higher level of lifetime earnings such as computing professionals and mining engineers when compared to marketing graduates. In addition, university graduates earning the same level of income such as high school teachers are repaying different levels of HECS debts depending on their major. Similarly, university graduates with the same discipline areas such as economics teachers and economists, are repaying the same level of HECS debts for their discipline but are earning substantially different incomes. This is supported by the findings of variations in the PRR to a university degree for different groups of university graduates (Wright 2008 Ch. 4).

This situation is worsened as a result of widespread cross subsidisation of units inside universities. Funds are distributed to universities based on the Equivalent Full-Time Student Unit (EFTSU) formula of the Government and then allocated by universities to faculties to meet the needs of the units, such as wages and operating expenses. There is, however, a growing tendency that low cost disciplines, such as law and economics and commerce that attract relatively high HECS fees, end up cross subsidising more costly disciplines. This is supported by the Australian Law Students Association (ALSA) (2003) who argue that the band three fees of law students have been used to cross subsidise teaching in other disciplines, yet the quality of education and services for law students have not improved. Instead full year courses have been reduced to semester long courses, law schools have been merged into other departments and many services have ceased, such as research and learning centres to specifically study law. This goes against the theory of improved resource allocation where resources are allocated to those courses which are most cost-effective. In addition to law, Wroe (2005 p. 7) suggests teaching and education courses are seen by universities as 'cash cows', that is, courses that provide the necessary funds to subsidise medicine and engineering, rather than simply providing students with greater choice.

29. To what extent are the current funding models adequate to secure the future of Australia’s higher education sector? If there are better models, what are they?

As discussed above the current funding models are not providing incentives to encourage students to pursue the subjects and degrees that are most in need in the Australian economy. Australian higher education students should make a financial contribution to their studies that is based on both the cost of the course and the future income the university graduate will earn.

These contributions would then relate to the net private benefits, as measured by the Private Rate of Return⁷ (PRR), that the university graduate receives. The Government should introduce a Tertiary Education Levy (TEL), whereby university graduates would have the option to pay a levy based on the course costs and the income that they earn, rather than paying ‘up-front’. Wright (2008) suggests that not only is society receiving a relatively high rate of return on individuals investing in a university degree, but the Government is also profiting in some areas of higher education, such as commerce (Wright 2008 see Tables A.1 and A.2 in appendix). These findings suggest that the contribution made by students should be set at a lower percentage of course costs, for example 30 percent. The university graduate would pay the Tertiary Education Levy on the difference between the income they earn as a graduate and the median income of all employees (20-25 years of age). In this example it is suggested that all students should pay 30 percent of their course costs. By having a set percentage of course costs this would encourage decision making by students that would more accurately reflect the actual cost of their courses.

The formula for calculating the Tertiary Education Levy (TEL) is:

$$\sum_{i=1}^m t \frac{Yp_i}{26} = Cs_i \frac{(1+r)}{26} + \sum_{i=1}^{m-1} RCs_i \left(\frac{r}{26}\right)^{m-1} \tag{1}$$

t = TEL

Yp = income premium. The annual income a graduate earned (up to \$100,000) minus \$30,000 (threshold), at 2005 prices

Cs = sum of course costs in 2005 prices

⁷ PRR is a measurement of the overall financial costs and benefits of higher education to an individual who has undertaken further education.

r = the real rate of interest of three percent

m = 650 (26 weekly payments for 25 years)

RCs = remaining course costs. This is equal to the residual of the course costs from the previous fortnight plus interest charges from the previous fortnight minus the graduate repayments from the previous fortnight.

The TEL model follows a basic reducible interest rate formula where the costs are repaid fortnightly over a 25 year period.

The TEL model assumes a three percent real rate of interest (real 10 year bond rate) and a maximum of 25 years of earnings to pay the levy. Under the TEL model the more a graduate earns the more the graduate will pay for their education. However, there could be a cap on the levy a graduate pays, for example up to an income of \$100,000 in any year. The graduate would pay the levy on a fortnightly basis.

Based on the income profile estimates from the *2003-04 Income and Housing Survey CURF* data set, a levy of three percent would equal 31.5 percent of average course costs or \$13,900, and a four percent levy would equal 41.5 percent of average course costs or \$18,575. Overall university graduates would pay a levy of 0.21534 percent per \$1000 of course costs over a 25 year period.

Table 4 compares the fortnightly repayments for an average male university graduate who defers their HECS repayments and TEL for 2005. Table 4 shows that the fortnightly repayments for an average male university graduate are higher under HECS than under TEL. Under the HECS system the average male university graduate will repay their HECS debt in nine years, whereas under TEL the male university graduate will pay a levy for 25 years. For the first 5 years a male student under TEL would pay an average fortnightly payment of between \$16.30 and \$21.73, compared to average fortnightly repayments of \$85.16 under HECS.

Table 4 The level of repayments for an average male university graduate for both HECS and TEL based on 2005 income levels

Years in the workforce after graduation	Income for an average university graduate	HECS fortnightly repayment	TEL fortnightly repayment (3% levy)	TEL fortnightly repayment (4% levy)
1	\$41,521	\$71.86	\$13.29	\$17.72
2	\$42,788	\$74.06	\$14.76	\$19.67
3	\$44,091	\$84.79	\$16.26	\$21.68
4	\$45,428	\$96.10	\$17.80	\$23.74
5	\$46,796	\$98.99	\$19.38	\$25.84
6	\$48,195	\$101.95	\$20.99	\$27.99
7	\$49,622	\$114.51	\$22.64	\$30.19
8	\$51,074	\$117.86	\$24.32	\$32.42
9	\$52,549	\$121.27	\$26.02	\$34.69
10	\$54,043		\$27.74	\$36.99
11	\$55,554		\$29.48	\$39.31
12	\$57,076		\$31.24	\$41.66
13	\$58,607		\$33.01	\$44.01
14	\$60,141		\$34.78	\$46.37
15	\$61,674		\$36.55	\$48.73
16	\$63,200		\$38.31	\$51.08
17	\$64,714		\$40.05	\$53.41
18	\$66,210		\$41.78	\$55.71
19	\$67,682		\$43.48	\$57.97
20	\$69,123		\$45.14	\$60.19
21	\$70,526		\$46.76	\$62.35
22	\$71,885		\$48.33	\$64.44
23	\$73,192		\$49.84	\$66.45
24	\$74,439		\$51.28	\$68.37
25	\$75,619		\$52.64	\$70.18

The highest fortnightly repayment under TEL is \$52.64 at a three percent levy or \$70.18 at a four percent levy, compared to \$121.27 per fortnight under HECS. The average male university graduate when earning an income of \$52,549 will pay \$121.27 per fortnight under HECS, whereas under TEL they would pay between \$26.02 and \$34.69 per fortnight.

Some possible implications of the TEL model include:

a) Encouragement for students from low socio-economic backgrounds

Unlike HECS, TEL students are not faced with a debt. Under the current HECS system students accrue a HECS debt from the time they enrol in university and they must repay their HECS debt when reaching the income threshold. Studies have shown that students from low

socio-economic backgrounds are debt averse (Aungles et al., 2002 and James, 2002). Increases in HECS have caused the quantity of higher education demanded to fall, in particular from students from low socio-economic backgrounds. This in turn has resulted in a fall in the quality of university graduates, shown by the increase in the percentage of home state year 12 students with a high Interstate Transfer Index (ITI) turning down university offers. Under TEL students from low socio-economic backgrounds will not incur a debt but rather pay a levy (equivalent to 30 percent of the cost of the course) over a 25 year period. Once the 25 years of the levy is completed no further payments are required. This should increase applicants, consequently lifting the standard of university graduates.

b) Embrace vertical and horizontal equity

The TEL model is characterised by both vertical and horizontal equity. Unlike the HECS system, graduates who earn a higher income will pay more for their university education. For example, under HECS both an economist and an economics high school teacher pay the same level of HECS fees for their discipline despite the economist earning a higher income. Under TEL, the economist would pay a levy based on their income and therefore pay more for the extra financial benefits that they gained from their university education. This would restore vertical equity. At the same time, TEL will also encourage horizontal equity. Graduates with the same course costs and the same income will pay the same level of TEL.

c) A lower levy for the national priorities areas

Due to the global shortage of nurses (Nowak, 2000 and Nowak and Preston, 2000) and the growing shortage of high school teachers (Preston, 2003, Stokes, 2005, Stokes and Wright, 2007) teachers and nurses have been made a national priority. However, under the current higher education system only the units in teaching and nursing are exempt from the 25 percent increase in HECS fees. As discussed earlier, HECS fees are not based on the type of course but rather the discipline of unit the student studies, therefore teachers and nurses have been affected by the 25 percent increase in HECS fees. In order to encourage individuals to study teaching and nursing the Government needs to lower the repayment levels so that the return on these occupations would increase (Stokes and Wright, 2008). Under the TEL model the Government could reduce the true cost of the course by lowering the levy, for example, from three percent to two percent of the income premium for teachers and nurses. This would then provide an extra incentive for individuals to become teachers and nurses. One of the problems

the Government faces is encouraging graduates in teaching and nursing to remain in the field. Wright (2008) shows that the PRR was higher for an individual with an education degree than for a high school teacher. This suggests that the return is greater for an individual with an education degree working in fields other than teaching. A significant shortcoming of the HECS system is that the cost of the course is tied to the qualification. Overcoming this weakness, the TEL model can have a levy linked to the occupation. Therefore, the Government could encourage graduates to remain in the fields of teaching and nursing by only reducing the levy for teachers and nurses. Therefore, if a graduate leaves the teaching profession, for example to become an economist, they would no longer be paying the lower rate of the levy. In the case of the economics teacher, who earns the same income as another high school teacher for example an English/history teacher, they will pay the same levy for their university education under TEL (unlike HECS). This will then result in an equivalent PRR for teachers across the various discipline areas.

d) An increase in the overall level of Government funding and an improvement in the allocation of resources

Under the TEL model the Government can determine the levy in regards to what level of contribution they want the students to pay as a proportion of total course costs. Australia is the only country in the OECD to experience a decrease in public expenditure on higher education as a proportion of GDP between the years 1995 and 2003. The relatively high Social Rate of Return on higher education overall and the SRR exceeding the PRR in areas such as commerce and economics (Wright 2008) suggests that the Government is not only underfunding higher education overall but profiting from areas in higher education. If the Government set the TEL at three percent for the average university graduate, the level of student contributions would be 31.5 percent of course costs. This would result in a shift in the cost of higher education to a level more comparable with other OECD nations. This would reduce the contribution made by all graduates except for nurses and agriculturalists who pay HECS fees equal to 29 percent and 27 percent of their total course cost, respectively. However, the Government could set a two percent levy for the national priority areas teaching and nursing, which would equate to 21.5 percent of total course costs. For some graduates the student contribution would be significantly lower. For example, in 2008 students studying both law and economics will pay HECS fees equal to 84 percent of their total course costs.

The TEL model would also improve the allocation of resources. Under the current HECS system the Government is contributing relatively more funding to students studying in the areas of agriculture, physical science and visual and performing arts, than to the areas such as teaching, nursing, law and economics, despite the relatively higher unemployment rates in agriculture, physical science and visual and performing arts. This in turn encourages universities to offer places in these discipline areas with relatively high unemployment rates. The TEL model would encourage students to consider the true cost of the course when choosing what degree to study at university, given the levy is based on the cost of the course. Therefore, graduates studying agriculture and visual arts will pay a higher levy than students studying economics and law. The Government should allocate relatively more funding to the areas of higher education that deliver the greatest returns to society. This will then improve the allocation of resources. Allocative efficiency exists when the fees students pay are related to both the marginal cost of the course and the Social Rate of Return. According to Chapman (2005 p. 4) the price of higher education is given by:

$$P_x = M_x - E_x$$

where P_x is the price of good or service x ;

M_x is the marginal cost of producing x ;

and E_x is the marginal value of the externalities associated with the production or consumption of x .

The TEL model will increase allocative efficiency by linking the fees closer to the real marginal cost of operating the course. Higher education funding has not been allocated efficiently to match demand or the needs of society. The TEL model is likely to not only encourage more students to enrol in areas such as teaching, nursing, law and economics, it will also tend to discourage the number of students enrolling in areas with higher unemployment rates that have been over subsidised under HECS such as agriculture, physical science and visual and performing arts.

e) Variations of the model

There are a number of possible variations that could be applied to the basic TEL model as described. These could include:

- (i) The TEL model could include the option where the graduate stops paying the levy once their repayment total is 30 percent of the course costs plus interest.
- (ii) The TEL model could include the option where the graduate could pay off their TEL fortnightly repayment at a higher rate per fortnight or as a lump sum and therefore pay back the cost of the course in less than a 25 year period.
- (iii) The TEL model could include travel and living expenses and other costs associated with tuition, such as textbooks. For example, an allowance of up to \$10,000 per annum for assisting poorer students to attend university.

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Appendix

Table A.1 The PRR and SRR to different qualifications for males for 2004 and 2005

Year	PRR (80 percent)	SRR (80 percent)
2004		
Creative Arts	-0.46	-0.64
Commerce	8.85	9.70
IT	10.62	10.27
Education	7.81	8.16
Engineering	8.45	7.47
Science	9.84	8.54
Society and Culture	8.30	8.67
2005		
Creative Arts	-0.50	-0.77
Commerce	8.57	9.31
IT	10.29	9.90
Education	7.76	7.96
Engineering	8.22	7.21
Science	9.53	8.24
Society and Culture	8.15	8.41

Table A.2 The PRR and SRR to different qualifications for females for 2004 and 2005

Year	PRR (80 percent)	SRR (80 percent)
2004		
Creative Arts	8.27	10.37
Commerce	12.62	16.99
IT	12.73	14.88
Education	11.84	14.41
Engineering	12.41	9.93
Science	12.76	13.23
Society and Culture	15.06	18.62
2005		
Creative Arts	7.93	10.04
Commerce	11.96	16.22
IT	12.07	14.28
Education	11.55	14.02
Engineering	11.68	9.55
Science	12.10	12.75
Society and Culture	14.49	18.00