ARE UNIVERSITY STUDENTS PAYING TOO MUCH FOR THEIR EDUCATION IN AUSTRALIA?

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The Review of Australian Higher Education, released in December 2008, saw a need to 'provide sufficient funds to support the numbers [of students] we agree should be participating; [and to] ensure that the benefits of higher education are genuinely available to all' (Bradley Review 2008: xiii). The Minister for Education, Julia Gillard, subsequently announced that the Australian government wanted to boost participation in higher education by supporting people from disadvantaged backgrounds. The government aims to lift low socio-economic status (SES) enrolments by 55,000 in 2020 (2009-10 Budget).

This article examines the current Higher Education Contribution Scheme (HECS) in Australia and its impact on higher education. It suggests that Australia's current higher education funding model does not sufficiently encourage students to pursue higher education. In many cases students' payments are greater than the real costs of their courses or benefits they are likely to receive. We propose a different structure in the levels of contributions to higher education funding that may be more successful at achieving the goals identified by the Bradley Review and Gillard, thereby creating a more equitable system that would provide more opportunities to access higher education in Australia.

Background

The Higher Education Contribution Scheme (HECS) was conceived by the Wran Committee, set up by the Federal government in 1988. The

government of the time – an ALP government led by Bob Hawke – followed its recommendation of abolishing the policy of 'free education' and, in 1989, implementing the *Higher Education Funding Act 1988*. The objects outlined in *Sect 2A* of this Act were to:

a. support a higher education system that:
   - is characterised by quality, diversity and equity of access;
   - contributes to the development of Australia's cultural and intellectual life;
   - is appropriate to meet Australia's social and economic needs for a more highly educated and skilled population;

b. strengthen Australia's knowledge base and enhance the contribution of its research capabilities to national economic development, international competitiveness and attaining social goals.

The movement away from 'free education' and introduction of HECS saw a reduction in the proportion of higher education funding provided by the Commonwealth Government and shift to a greater contribution by students. Table 1 shows that, in 1981, during the period of 'free' higher education, the contribution made by the Commonwealth Government towards the funding of universities was 82.9 percent of total university income. After HECS was introduced in 1989 the Commonwealth Government's contribution fell to 66.7 percent of total university income. Meanwhile, the contributions made by students as a proportion of total university income rose from 2.3 percent in 1981 to 16.3 percent in 1989.

Table 1: Sources of university income before and after the introduction of HECS

Source of income	1981 (%)	1989 (%)
Student contributions	2.3	16.3
Commonwealth government	82.9	66.7
State government	1.0	4.6
Other income sources	13.7	12.4

Source: Modified from Jackson (2001: 2-3).

In 1989 the government introduced an income contingency scheme as part of the higher education funding model. The income contingency scheme provided students with the capacity to defer their payment of university fees until they were earning income, usually on completion of their degree. The students were required to pay their fees through the taxation system when their incomes reached a certain threshold. The introduction of the income contingency scheme in the form of HECS provided students with the options of either paying 'full up-front', or deferring all or part of their HECS with the option of 'partial up-front' payment.

Students deferring part or all of their HECS liability were required to 'take out a loan' with the Commonwealth Government. Students who paid 'full up-front' received a 25 percent discount, as did students with a 'partial up-front payment' of $500 or more. Only when the income of HECS debtors reached the compulsory repayment threshold were they required to repay the loan. The initial threshold was $27,000 and the graduates were required to pay two percent of their taxable income each year until the debt was repaid. Graduates earning higher levels of income were charged up to four percent of their annual income. While this may have seemed modest at first, the level of HECS fees and the repayment levels have risen substantially since then. The minimum repayment charge had risen to four percent of annual income by 2010, with some graduates required to pay up to eight percent per annum.

The movement towards a user pays higher education system was accelerated by the Coalition government's 1996-97 budgetary changes. The establishment of a three tier HECS system consequently increased the average cost of higher education for students by approximately 40 percent. Despite this shifting of the cost of higher education to students, the government's *Higher Education Review 2002* found a 'broad consensus that the current arrangements for funding universities were not sustainable' (DEST 2004: 3). In response to the *Higher Education Review 2002,* the Australian government announced in *Our Universities: Backing Australia's Future Package 2003-04* that it would continue the partial deregulation of Australia's higher education system. The first part of this package was establishing Student Learning Entitlements. This limited student access to Commonwealth supported places to only seven

years of full-time study. After the seven years of full-time study was completed, the student had to pay full fees for any further tertiary study. This returned higher education to a situation where a person's available income or funds would influence their opportunity to gain tertiary qualifications.

The second part of the package was the introduction of institutional price autonomy. This allowed universities to set their own fees up to a ceiling that would be 25 percent higher than the standard HECS fees in 2005. This was designed to give universities greater freedom to set their fees and to increase competition in the marketplace for educational services. However, the generally under-funded universities responded in the next two years by universally charging an extra 25 percent across the range of courses. The exceptions were Nursing and Education which the government had identified as national priorities and for which it had set lower fee limits. The drive for competition therefore produced a general increase in HECS that added to the debt burden to be faced by students. This created a disincentive to pursue higher education, especially by those from lower socio-economics backgrounds, and acted to reduce the financial burden on the government for providing tertiary education. While this was financially beneficial for the government, it did not encourage access and equity to higher education.

Impact of HECS on higher education in Australia

Although the income contingent system was the preferred policy at the time, the way that it has been implemented and changed over the years has reduced its effectiveness in meeting the goals of quality, diversity and equity of access. The Bradley Review (2008:9) stated that 'the drop in Australia's performance on attainment of undergraduate or higher qualifications compared with other OECD countries is cause for concern. Australia has slipped from 7th in 1996 to 9th in 2008 in terms of attainment among 25 to 34 year olds'.

While HECS has raised the contribution from students towards the cost of higher education, it has not ensured greater access and equity. Between 2001 and 2005 the number of commencing domestic students

from low socio-economic backgrounds actually declined from 41,457 to 39,379, despite an increase in the overall number of commencing students (DEEWR 2009). The proportion of commencing domestic students from low socio-economic backgrounds fell from 16.2 percent of the student population in 2001 to 15.3 percent in 2005. The decline was especially noticeable in 2005 following the 25 percent increase in HECS fees. The *2005-06 DEST Annual Report* further emphasised the financial pressures facing students, with the number of students receiving youth allowance falling from 458,053 in 2003-04 to 435,661 in 2005-06.

A study by Wright (2005), measuring the effects of HECS increases in the period 1996 to 2001, showed that higher HECS fees led to a decline in the proportion of students from low socio-economic backgrounds in the Sydney region who attended university. Wright showed that, despite the overall increase in the number of students attending university, the increased participation of students from higher socio-economic areas (with annual incomes in the top 25 percent of households) between 1996 and 2001 was nearly three times the increase in the participation of students from lower socio-economic areas (with annual incomes in the bottom 25 percent of households).

These results are supported by James (2002: Ch.5) who 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: 33-34) study were that 39 percent of students from low socio-economic backgrounds believed that the costs of university may stop them from attending university, compared to 23 percent of students from high socio-economic backgrounds. In addition, 41 percent of students from low socio-economic backgrounds stated that their family could not support them at university, with 36 percent stating they would have to support themselves.

The situation for Indigenous students also continues to be deeply problematic, there being no improvement in terms of access to higher education in the period from 2001 to 2005. Indeed, the number of commencing domestic Indigenous students declined from 4128 to 3748.

The overall percentage of students who are Indigenous fell from 1.61 percent in 2001 to 1.46 percent in 2005.

Another weakness of the HECS system relates to the level of contribution that students make. It is argued (*e.g.* by Chapman 2001) 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.

Table 2: Student contribution, government contribution, salary and unemployment rate for various university graduates for 2006

HECS	Student contribution (HECS) ($)	Cth govt. contribution ($)	Median starting salary ($)[a]	Avg annual cash earnings ($)[b]	Unemp. 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
Maths	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

Notes:

(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, 2006 cat. No. 6306.0)

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

Sources: Commonwealth Government (2003), ABS (2006), Graduate Careers (2006) and Macken (2006). The income data in this table are derived from a combination of sources because no single source covers all occupations.

The Bradley Review (2008) found that the range of maximum student contributions has no strong policy or empirical basis. As Table 2 shows, students becoming dentists or lawyers 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 of funding law courses is one tenth of the cost of providing dentistry courses (*ie.* they 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 Bradley Review (2008) argues that 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 shows that some university students, such as law students, were paying fees equivalent to 84 percent of the total course costs, while students becoming doctors and dentists were paying fees equivalent to 35 percent of the total course costs. The Bradley Review (2008:162) recognised this problem and recommended 'that the Australian Government commission work on options for achieving a more rational and consistent sharing of costs between students and across discipline clusters in the context of triennial reviews of base funding for learning and teaching'.

The evidence suggests that the current system of HECS is not achieving the goals of equity and access to higher education either. Those with least capacity to pay for their higher education are being most disadvantaged. The increased fees and higher debt burdens act as disincentives to pursue higher education. Students from low socio-economic backgrounds and the Indigenous population are the ones who have been most affected by these changes. Students who do attempt to pursue higher education are discouraged from choosing some courses because of the high fee levels associated with those courses. However, the fee levels do not reflect the true costs of the courses. If they did, there would be the possibility of greater access to many courses, especially in the disciplines of law, accounting, business and economics. Greater access to higher education

would increase income and employment levels for the disadvantaged groups and overall increase living standards in the community.

Methodology for measuring the value of higher education

There are undoubted benefits to both individuals and society from undertaking higher education. Estimating the value of such benefits can be a guide to the relative contribution that individuals and the government should make in the provision of higher education. This study attempts this estimation, using an orthodox measure of the Private Rate of Return (PRR) and Social Rate of Return (SRR) to higher education. This allows a comparison of the return on higher education between different categories of university graduates in Australia and overseas.

Table 3: The OECD method of calculating the private and social costs and benefits of education

Private costs =	Forgone earnings + direct private expenditures + increased future taxes
Public costs =	Lost tax receipts during the training + public expenditures
Social costs =	Private costs + public costs
Private benefits =	Increases in earnings + higher probability of being employed
Public benefits =	Additional tax receipts
Social benefits =	Private benefits + public benefits

Source: Modified from OECD (2008)

The base rates of return in this study are calculated following the OECD approach shown in Table 3. The Private Rate of Return (also known as the Private Internal Rate of Return) is the financial rate of return on an individual's investment in higher education, expressed as an interest rate. The Private Rate of Return to a university degree is the annual percentage return the graduate receives over their working career. An individual could invest their money in government bonds and potentially earn around six percent: so, if the PRR is above this level, then it could be considered that the graduate has made a worthwhile decision, from a purely financial point of view, to undertake higher education.

The Social Rate of Return (also known as the Public Internal Rate of Return) measures the return to society as a whole from both private and public investment in higher education, also expressed as an interest rate. The monetary return is the extra income earned by a university graduate compared to someone who has no qualifications beyond school year 12, but added to this are the costs to society that include both the opportunity cost to the individual and the net cost to the government. The net cost to the government is calculated by comparing the costs to the government of financing educational provision and the tax revenue foregone while students are studying with the extra tax revenues generated because graduates usually have higher taxable incomes.

This study compares the average income of a year 12 graduate with that of a university graduate, drawing from data in the ABS *Household Expenditure Survey (HES) and Survey of Income and Housing (SIH) 2003-04 Confidentialised Unit Record Files (CURF)* at person level. The study uses person level, rather than income unit level, data as it considers the employment participation of university graduates and year 12 leavers with no non-school qualifications. The ABS *Household Expenditure Survey (HES) and Survey of Income and Housing (SIH) 2003-04 CURF* contains a sample of dwellings surveyed throughout Australia from July 2003 to June 2004. The sample includes male and female wage and salary earners aged 18-60 and working part time and full time.

The findings show considerable variation in the Private Rates of Return to a university degree for different groups of university graduates. These

results are shown in Table 4. In a number of cases the benefits to society (SRR) outweigh the benefit received by the individual (PRR). This is especially so in the disciplines with the highest HECS fees (such as economics) and in professions with higher incomes (such as economists/financiers). It can also be seen that the increase in HECS fees by 25 percent in 2005 reduced both the PRR and SRR in most occupations, except for nursing where the increase in fees did not occur.

Table 4: The estimated Private Rate of Return and Social Rate of Return for males in different occupations, 2004 and 2005

	PRR	SRR
2004		
Economist/financier	14.50	15.69
Nurse	8.58	7.68
Secondary teacher-humanities	6.79	7.13
Secondary teacher-economics	6.49	7.13
Secondary teacher-science	6.49	5.80
2005		
Economist/financier	14.20	15.13
Nurse	8.62	7.58
Secondary teacher-humanities	6.75	6.95
Secondary teacher-economics	6.37	6.89
Secondary teacher-science	6.37	5.61

Determining the relative contributions in higher educational funding

It is important to consider the relative benefits that occur as a result of undertaking higher education for the individual and society as a whole.

The Private Rate of Return is the individual's reward for pursuing their higher education. This is the individual's financial gains from higher education and does not consider the non-financial benefits of their education. For example, university students may enjoy both classes and the social activities available on the campus, but this is not reflected in the PRR.

The Social Rate of Return shows the net benefits that society as a whole gains from higher education. Like the PRR, the SRR reflects only the financial outcomes, not the more indirect benefits from cultural enrichment or value-transformation that higher education is commonly said to foster. The key variables that are taken into account are the extra tax revenues generated by university graduates and the costs to the public purse of providing for their education.

It is generally considered that the individual should bear some of the cost for their education but the benefits society receives also need to be considered in determining the appropriate balance of higher education funding between students and the government. According to Topel (2005), if the SRR is greater than the PRR, then there is an underinvestment of government funding. Another way of looking at this is that the contributions made by the students may be too high relative to the contribution made by the government.

Table 5 compares the PRR and SRR for degrees in Australia, on average, to other comparable countries for 2004. It shows that the gap between the PRR and SRR for an average degree in Australia for 2004 is 0.4 percentage points for males and 1.5 percentage points for females. This pattern is similar in other countries in that the PRR exceeds the SRR in all the cases shown. On the basis of this evidence, it is reasonable to conclude that individuals personally benefit more from higher education than society as a whole, so that personal contributions to meeting the costs are appropriate.

However, it is also important to note that the gap between the PRR and SRR for an average degree in Australia is smaller than the gap found in other countries. For example, the gap between the PRR and SRR for males and females for the OECD is 1.1 percent and 2.3 percent

respectively. In some countries the gaps are considerably higher, with the Czech Republic being the highest at 11.4 percent and 10.5 percent for males and females respectively. This suggests that higher education is being underfunded in Australia compared to many other countries. OECD (2008) data shows that this is mainly a result of the much higher direct costs (tuition fees) of tertiary education in Australia compared to other countries.

Table 5: Private and Social Rates of Return to tertiary education (2004)

Country	Private Rate of Return		Social Rate of Return	
	Male	Female	Male	Female
Australia[a]	9.4	13.4	9.0	11.9
Canada	9.4	9.1	7.9	7.3
Czech Republic	29.1	23.8	17.7	13.3
Poland	22.8	18.6	17	12.8
Portugal	23.9	21.5	16.5	14.5
United Kingdom	14.3	14.5	12.6	12.9
OECD Average[b]	12.2	11.4	11.1	9.1

Source: OECD (2008, Tables A 10.2, A 10.5)

Notes:
a The data for Australia is calculated by this study
b From the countries reported in the OECD tables

Other net benefits of higher education to society

This study shows that the SRR to higher education in Australia is both positive and sizeable. However, as previously noted, these social returns only represent the financial returns to society from higher education.

Account also needs to be taken of the considerable non-monetary benefits that accrue to society from having a more educated population.

De Villiers and Nieuwoudt (2005) suggest that the non-pecuniary benefits to individuals with university degrees include better communication, more law abiding behaviour and a greater contribution to the intellectual and cultural well-being of the community. ABS data shows that there are other non-pecuniary benefits that accrue to Australian society from graduates with university degrees. These include:

- *Lower levels of unemployment and greater job security:* Through the two decades to 2003, the average unemployment rates for people with higher education qualifications were lower than those of people without such qualifications (3 percent and 6 percent respectively in 2003). During the economic downturn in the early 1990s people with higher education qualifications had greater job security and were less affected than those without post-school qualifications. In addition those with post-school qualifications had shorter periods of unemployment. The median duration of unemployment for people with higher education qualifications was 13 weeks compared to 18 weeks for those without such qualifications in 2003. Those with higher education qualifications were also more likely to be working full time (78 percent), compared to those without post-school qualifications (73 percent) (ABS 2004).

  Graduates also have longer periods in employment. Australian Census data for 2001 shows that females with no post-school qualifications worked, on average, for a total of 27 years, while males with no post-school qualifications worked, on average, a total of 35 years. Females with a university degree were working, on average, for 39 years and males with a university degree, on average, for 43 years (ABS 2001).

- *Lower levels of poverty and a reduced dependence on welfare and social programs:* The higher income levels of those with higher educational qualifications and the improved employment opportunities result in lower levels of poverty among this group than

among those without higher education qualifications. Welfare dependency is correspondingly less likely.

- *Lower levels of obesity:* In 2004-05, the overall adult obesity rate in Australia was calculated by the ABS at 18 percent. Adults with a degree, diploma or higher qualification were less likely to be obese than those with other or no post school qualifications. Around 20 percent of those without a non-school qualification and 19 percent with trade certificates were classified as obese, compared to only 13 percent of those with a degree, diploma or higher qualification (ABS 2009).

- *Greater health literacy:* Health literacy is defined as the fundamental skill to make informed decisions and assist in the provision of basic health. Improved health literacy not only reduces costs in the health system but also illness, chronic diseases and the rates of accidents and death. ABS data shows that, in 2006, people who had higher levels of educational attainment had higher rates of health literacy. Around 75 percent of people with a bachelors degree or above had health literacy rated as adequate or better, compared to only 50 percent who finished their formal education at year 12 and 16 percent with year 10 or below (ABS 2009).

Furthermore, studies measuring the effects of increased levels of education on economic growth suggest there are additional positive benefits of higher education that are generally ignored in measuring the SRR to higher education. According to the study by Mingat and Tan (1996), increasing investment in higher education in high income countries by an additional one percentage point of GDP delivers a Social Rate of Return of around 20 percent. This return is twice as great as conventional estimates, implying that conventional measurements of SRR measure only the lower bound of the returns to society. The true value of the Social Rate of Return is important in arguing the case for the level of higher education funding provided by the government and the relative contribution that should be expected from the student. In recent decades neoclassical economic theorists influencing many government decision makers are requiring financial justification for decisions on

spending. The studies reviewed in this article provide evidence to justify making changes in the balance of higher education funding in Australia.

While most economists agree that there are public benefits from higher education, they disagree on the size of these benefits. Researchers have attempted to measure some non-market effects of education, but only McMahon (2004) has attempted comprehensive measurement of the total value of benefits from education. The total Social Rates of Return to education in McMahon's study (shown in Table 6) are based on cross-country data from 78 countries over 40 years.

Table 6: 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
OECD	8.5	6.8	2.5	17.8

Source: Modified from McMahon (2004)

Table 6 shows these total Social Rates of Return to higher education, grouped according to different regions of the world. The total Social Rate of Return is calculated as the sum of the monetary Social Rate of Return, non-market private returns and non-market education externalities. It is the inclusion of the non-market returns, omitted from the Australian measures described earlier in this article, that is distinctive. The non-market private returns are the benefits that both the individual and their family receive from higher education; including better individual and family health, longevity, cognitive development of children and higher consumption levels. The non-market education externalities refer to effects such as lower population growth, improved human rights, lower crimes rates and reductions in poverty.

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. The gap is even wider in less developed regions, suggesting an even greater benefit of education to society in these regions.

The research results of Mingat and Tan (1996) and McMahon (2004) indicate that conventional monetary measurements of Social Rates of Return show only about half the real level of return that is received by society. This suggests that, in measuring the relative benefits of higher education to the individual and society, this higher rate should be considered when making decisions about higher education funding. In light of the measurements of PRR and SRR received here, it can be concluded that the return to society is much higher than the return to the individual. The relative contributions made by the student and the government should be altered to reflect this result.

Australian educational funding policies have been moving in the other direction. OECD (2006) data shows that Australia was the only country to experience a decrease in public expenditure on higher education as a proportion of GDP between the years 1995 and 2003. This shortfall has been met to some degree by the government increasing the level of contributions made by students. The evidence reviewed in this article provides a case for that trend to be reversed and a more equitable higher education contribution formula devised.

A new formula for higher education funding in Australia

Not only is society receiving a relatively high rate of return on individuals investing in a university degree, but the government gains net benefit in some areas of higher education, such as commerce, where the additional tax receipts exceed the costs of educational provision. These findings suggest that the contribution made by students should be set at a lower percentage of course costs.

If the full benefits of higher education are acknowledged, as shown in McMahon's estimates in Table 6, then a general case can be made for free tuition because the Social Rates of Return would exceed all private benefits of higher education even with a zero fee structure. To demonstrate this, we have included a calculation of the PRR in an environment of no HECS fees. Table 7 shows the PRR for both males and females for 2005 with HECS and no HECS charges (*i.e.* free tuition). The PRR with no HECS fees is still significantly lower than the benefits to society as measured by McMahon.

Table 7: The Private Rate of Return to a three year degree for males and females for 2005 HECS and no HECS fees

	Private Rate of Return (PRR)	
	HECS	No HECS
Male	9.08	11.45
Female	12.69	16.81

The results in Table 7 show that the PRR to higher education is highest when there are no HECS fees – at 11.45 percent for males and 16.81 percent for females in 2005. Supplementary calculations also show that, as the level of student contributions increase, the PRR to a university degree falls. If there were no HECS fees, the PRR to a university degree would increase 32 percent for females and 26 percent for males. This finding – that the PRR to a university degree increases when there are no HECS fees – is supported by both the studies by Miller (1982) and Borland (2002). Miller (1982), who measured the PRR to a university degree under a system of 'free education', calculated the PRR to be significantly higher at 21.10 for males and 21.20 for females.

Meanwhile, Borland (2002) calculated the PRR to a university degree for males in 2001 to be 18.50 percent if there were no HECS fees. Combining this current study with those of Miller and Borland suggests

that there has been a decline in the personal rate of return to a university degree in the last two decades. This has reduced the incentive for students to pursue higher education. So it is important to consider policy recommendations that might attempt to reverse this trend.

Reducing student contributions and making course costs reflect actual costs

This article recommends a reduction in the level of student contributions. This reduction should reflect the relative cost of the course and benefits the graduates receive relative to the gains for society as a whole. If the findings of Mingat and Tan (1996) and McMahon (2004) are supported and applied to the measurements in this study of PRR and SRR, then there is a case for total removal of tuition fees. As a minimum, student contributions should be reduced significantly, perhaps to a level of 10 percent of the students' course costs. A 10 percent contribution rate for students would return the level of their educational costs to the average level that existed during the 1980s, as shown in Table 1. Having a set percentage of course costs would encourage decision making by students that would more accurately reflect the actual cost of their courses.

A policy of reducing student fees to 10 percent of the total course cost would be more likely to encourage students to enter university and a greater proportion of students from low socio-economic and Indigenous backgrounds to pursue higher education. This would reverse the recent trend whereby the policy of increasing HECS fees has led to a decline in the percentage of students from low socio-economic backgrounds and Indigenous backgrounds attending university. These problems arising from increased student fees have also been recognised by James (2002) and Wright (2005). James (2002) showed that the cost of education was a major factor in students' decisions to attend university, especially those from low socio-economic backgrounds. The introduction of a standard fee of 10 percent of the costs to courses would make some of the higher band courses more affordable to all students, thereby increasing opportunities for a wider range of students to pursue areas such as law, medicine, accounting, business and economics.

Conclusion

This article has shown that there are serious political economic concerns relating to Australia's higher education system. One is the participation of students from low socio-economic and Indigenous backgrounds. According to DEEWR (2008), the participation rate of students from low socio-economic backgrounds has remained around 15 percent throughout the past decade, despite representing 25 percent of Australia's population. This should be a concern for the Australian government which is targeting 55,000 places for students otherwise facing disadvantage in 2020. This study shows that increases in HECS charges over time have led to a decline in the proportion of students from low socio-economic areas and Indigenous backgrounds attending university. An improvement in equity of access to higher education in Australia requires a reduction in the cost of higher education to the student.

Measures of the costs and benefits that both individuals (PRR) and society (SRR) gain from higher education should be used in determining the level of student contributions. The government is under-funding university education overall in most fields of study. Mingat and Tan (1996) and McMahon (2004) estimate that the additional benefits to society of higher education are more than double the conventional measurements when all the benefits accruing to society are included. This further emphasises the public under-funding of universities in Australia relative to the benefits that higher education brings to society.

The relative contributions of students and the government need rebalancing. Higher education students should make a financial contribution to their studies based on a set proportion of the cost of running the course. While there may be some justification for having no fees at all for higher education, there is also a case for students making some contribution, as they obviously gain a benefit from their education. The suggestion made in this article is that this should be 10 percent of the course costs, reflecting the average level of contribution that occurred in the 1980s. The government should make a substantially greater contribution than it currently does because of the overall benefit that is received by society as a result of the outcomes of higher education. The

student should make a correspondingly smaller contribution. This policy shift would be likely to increase both equity and access to higher education in Australia.

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Appendix: Methodology for calculating the Rates of Return to higher education

The specific rates of return in this study are calculated using the following formula (Borland 2002: 2).

$$PV_C = \sum_{t=1}^{n} C_t/(1+r)^t \qquad (A.1)$$

$$PV_B = \sum_{t=n+1}^{m} B_t/(1+r)^t$$

$PV_B - PV_C = 0$ and solve for r

Where: C_t = opportunity costs for university degree in year t;
B_t = benefit of university degree in year t;
n = length of education;
m – n = years in workforce; and
r = rate of return.

The base rates of return in this study are calculated following the OECD approach in Table 3. The Private Rate of Return (also known as the Private Internal Rate of Return) is the rate of return on the individual's investment expressed as an interest rate. The Social Rate of Return (also known as the Public Internal Rate of Return) measures the return to society from both private and public investment in higher education as an interest rate. The monetary return is the gross wage premium, while the costs to society include both the opportunity cost to the individual and the cost to the government.