

What Are The Alternatives To Student Loans In Higher Education Funding?

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ABSTRACT

In a period of student loan scandals and U.S. financial market instability impacting on the cost and availability of student loans, this paper looks at alternative models of higher education funding. In this context, it also considers the level of financial support that the government should provide to higher education.

Keywords: college, student loans, higher education funding, labor markets, tertiary education levy, HECS, income contingent scheme, economics, human capital, private rate of return, social rate of return

INTRODUCTION

Two thirds of U.S. college 4-year undergraduate students graduate with some level of debt. In 2004 the average student loan debt among graduating seniors was \$19,237 (excluding PLUS loans but including Stafford, Perkins, state, college and private loans) (FinAid 2008). In addition graduate and professional students borrow even more for a graduate degree with debts in the range from \$27,000 to \$114,000. In recent years the financing of higher education has faced a number of challenges in the U.S. In 2007 the student financial aid scandal exposed large financiers providing money and fringe benefits, such as cruises and stocks, to colleges and top officials to push their loans. At New York's Columbia University, the head of financial aid was suspended after allegedly netting \$100,000 on stock in a loan company recommended to students. Despite students already having difficulties in affording higher education, in 2008 the impact of the low-doc housing market crisis spread to the market for student loans.

Over the last decade, the cost of a college education in the U.S. has dramatically exceeded the growth of federal grants and loan limits in the Stafford Loan program. Increasingly, credit based non-federal or 'private' student loans have been required to close the gap between state and federal financial aid, scholarships, limited family resources and the actual cost of attending college. Jack Remondi (2008) Vice Chairman and Chief Financial Officer of the largest provider Sallie Mae, states that the availability of these loans often means 'the difference between attending or not attending the college of a student's choice.' Demand for federal and non-federal loans is on the rise. The U.S. Department of Education estimates that approximately 7 million borrowers will need more than \$68 billion in federal loans with private education loans contribution a further \$20 billion in 2008.

Over 75% of federal student loans are financed by non-bank, specialty finance companies like Sallie Mae. Remondi (2008) argues that 'the financing of federal student loans is reliant on a well-functioning and well-priced credit market....This is not the environment in which we operate today.' This has created a situation where every loan funded in the Federal Family Education Loan Program (FFELP) will be made at a loss. As a result of this there is expected to be a major shortfall in access to student loans.

Further to this, FinAid (2008) has reported that more than 170 unduplicated lenders have suspended federal and/or private loan programs, including Sallie Mae. If loans can be attained, it is likely to be under conditions of greater security and increased cost. FinAid states that the volume of federally-guaranteed student loans is down by 57% year over year and the cost of funds has increased by 137 basic points.

The largest impact is likely to be on students from lower socio-economic backgrounds. Patricia Maguire, the President of Trinity Washington University, (2008) states that students at Trinity have a median family income of around \$30,000 and rely heavily on federal student loans and private loans to fund their education. Nearly 90% of Trinity's students are Black, Hispanic, Asian or international in their immediate family identities. Maguire argues that a reduction in the availability of loans or an increase in the costs would be "catastrophic for their academic careers and their life goals." This is supported by King and Bannon (2002 p. 2) who state that "55% of African-American and 58% of Hispanic student borrowers graduate with unmanageable levels of debt".

In light of this situation, this paper looks at two alternative methods of funding higher education and models the cost of implementing the strategies for students compared to the current student loans model in the U.S. These two alternative higher education funding options are the income contingent scheme that operates in Australia, and a new model, a Tertiary Education Levy, developed by the authors of this paper¹. The paper will also consider the relative proportion of higher education costs that should be borne by the individual and the government.

AN INCOME CONTINGENT SCHEME

Income contingent schemes operate in a number of OECD countries in one form or another including Australia, Netherlands, New Zealand, Sweden and the United Kingdom. According to Chapman (2001 pp. 1-6)² Australia's Higher Education Contribution Scheme (HECS) was the world's first income contingent charge. The basic features of the income contingent scheme, as distinct from the student loans scheme as applies in the U.S., are that the students pay a varying proportion of the costs of their courses and they borrow the tuition fees from the government. The students do not begin to repay the debt till they have graduated and reached a certain income threshold. The income threshold in Australia was the average income of a first year graduate. Once they exceeded that threshold the graduate has to pay back a certain proportion of their income to the government through the taxation system (Table 1). Students had the option of either paying their HECS fees in 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 HECS were required to take 'out a loan' with the Australian Government. Students who paid in full 'upfront' received a 25 % discount, as did students with a 'partial up-front payment' of \$500 or more. The debt was indexed to the inflation rate without any interest charges.

Table 1: Repayment rates and Income threshold for Australia in 2004-2005

Repayment Rate	HECS Repayment Income (HRI ^a) 2004-2005
Nil	Below \$35,001
4% of HRI	\$35,001–\$38,987
4.5% of HRI	\$38,988–\$42,972
5% of HRI	\$42,973–\$45,232
5.5% of HRI	\$45,233–\$48,621
6% of HRI	\$48,622–\$52,657
6.5% of HRI	\$52,658–\$55,429
7% of HRI	\$55,430–\$60,971
7.5% of HRI	\$60,972–\$64,999
8%	\$65,000 and above

a HECS related measurements are in Australian dollars unless stated otherwise. One Australian dollar was approximately equivalent to 75 cents U.S. in 2005.

Source: Modified from Australian Taxation Office (ATO) 2005

An income contingent scheme was considered superior to its alternatives in Australia by the Wran Committee in 1988 and according to Chapman (2001 p. 2) was later recommended by the World Bank. The first of two main approaches considered inferior to the income contingent system, was a system of 'up-front fees and no

¹ This model was developed by Anthony Stokes and Sarah Wright. If someone else has developed a similar model we are not aware of it but will be happy to give credit where due.

² A fundamental aspect of the existing literature is the several reports written or co-written by Professor Chapman, who was an architect of the original HECS system.

government assistance'. This system was disregarded on the premise that students would be required to have immediate resources which for several students would create the need for borrowed funds. The likelihood of a student gaining a loan for higher education costs would be minimal, as human capital would not be sufficient collateral, and students may not necessarily be in a position to re-mortgage a house or their parents' house.

The other alternative, 'up-front fees with government-assisted bank loans', may also have provided little assistance to students, as students would be required to pay interest and be means-tested for the loan. Even if allowances were made for students who would not normally have passed the means test, the possibility of students defaulting on the loans would still exist and as a result create potential poor credit histories and debt. This system was also rejected as the possibility that students could default a loan would be costly for both the government and taxpayers. Chapman (2001 p. 5) argues that an income contingent system avoids the problems associated with the above two alternatives, firstly, by featuring an 'efficient collection mechanism' and secondly, through deferred income repayments.

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 in Australia is based on the cost of the course and the future income the student will receive. While this appears to be a fair and efficient system, 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: The student contribution, government contribution, salary and unemployment rate for various university graduates for 2006 in Australian dollars

HECS	Student contribution (HECS) (\$)	Commonwealth Government contribution (\$)	Median starting salary ^(a) (\$)	Average annual cash earnings ^(b) (\$)	Unemployment rate ^(c)
Band 3					
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 2					
Accounting	6979	2466	37,000	61,490	5.9
Agriculture	6979	16,299	38,700	64,854	7.9
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
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 1					
Journalist	4899	4156	37,000	64,532	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, 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).

Note: The income data in Table 2 are derived from a combination of sources. This is because no single source provided the income data for all occupations.

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

In the case of students becoming dentists or lawyers they pay Band 3 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.

Under the current HECS system some university students, such as law students, are paying fees equal to 84% of the total course costs, while students becoming doctors and dentists are paying fees equal to 35% of the total course costs.

Furthermore, the current higher education HECS funding system in Australia is characterised by both horizontal and vertical inequity. For instance, university graduates earning the same level of income, such as high school teachers, are repaying different levels of HECS debts depending on their major. In 2008 history and literature teachers pay Band 1 HECS levels, whereas business studies and economics teachers pay the highest level Band 3 HECS rates. 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 Private Rate of Return (PRR) to a university degree for different groups of university graduates shown in Table 3. This table also shows that the return to society from higher education, the Social Rate of Return (SRR), in a number of cases is greater than the return to the individual. (See Appendix for details of the calculations of the Private Rate of Return and Social Rate of Return).

Table 3: The PRR and SRR to different occupations for males for 2004 and 2005

Year	PRR (80 %)	SRR (80 %)
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

Source: Wright 2008 Table 6.12

There are a number of weaknesses with both student loans and income contingent schemes, such as the one operating in Australia. Bookallil (2004) suggests that for many students their concern is not with the level of the repayments but rather the size of the debt. Bookallil (2004) suggests several students are debt-averse particularly from low income areas, discouraging them enrolling in university. This is supported by Halpin (2004 p. 23) who states a survey of secondary school students in the United Kingdom revealed that male school students had shown a 'sharp loss of interest' in university since the government's announcement to increase fees to 3000 pounds or \$7700 Australian dollars in 2006. Halpin suggests the percentage of male students who expressed that they were likely to go to university had dropped from 70% to 66% and 20% of the students who said they would not go to university cited worries of student debt. For students who had both parents unemployed this rose to 30%.

Numerous studies in Australia have also shown that students from low socio-economic backgrounds are debt averse (Aungles et al., 2002 and James, 2002). This is supported by a study conducted by Wright (2005) which showed that when HECS fees were increased in Australia between 1996 and 2001 the proportion of students attending university from lower socio-economic areas declined.

Karvelas (2004 p. 3) reported that a James Cook University survey of year 10 to 12 students, parents and teachers in 15 regional areas in Australia, also revealed students were worried about both an accumulating HECS debt and living away from home expenses.

Warren and Sitaraman (2008) point out that “about 20% of low income students (in the U.S.) with good test scores (strong predictors of college success) never even apply to college. Taking on loans that are double the family’s annual income is understandable daunting, so they become cautious, resigning themselves to less education and fewer lifetime opportunities- depriving themselves and America”.

THE TERTIARY EDUCATION LEVY (TEL) MODEL

An alternative model that overcomes many of the limitations of the student loans funding model in the U.S. and the income contingent scheme (HECS) model in Australia is the Tertiary Education Levy (TEL). It is based on the premise that 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. The model suggested here also considers the benefits that both the individual (PRR) and society (SRR) gain from higher education.

Table 4 compares the PRR and SRR of the U.S. to other comparable countries. It shows that unlike the other countries the SRR is higher than the PRR in the U.S. The PRR on average in OECD countries is 1.1 percentage points higher than the SRR for males and 2.3 percentage points higher than the SRR for females. In the U.S. the PRR is 1.9 percentage points lower than the SRR for males and 0.7 percentage points lower for females. This suggests that higher education is being underfunded in the U.S. compared to the financial benefits that society gains from it. OECD (2008) data shows that this is mainly a result of the much higher direct costs (tuition fees) of tertiary education in the U.S. at 20% for males and 20.7% for women compared to an OECD average of only 5.8% for males and 6.0% for females.

Table 4: 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
United Kingdom	14.3	14.5	12.6	12.9
United States	11.0	8.4	12.9	9.1
OECD Average ^b	12.2	11.4	11.1	9.1

a The data for Australia is taken from Wright 2008 Table 6.13

b From the countries reported in the OECD tables

Source: OECD 2008 Tables A 10.2, A 10.5

The TEL model is designed so that student contributions would then relate to both the Private Rate of Return that the university graduate receives and the Social Rate of Return that society receives. A government could 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) found 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, in Australia. These findings suggest that the contribution made by students should be set at a lower percentage of course costs, for example 30 %. 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 % 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:

$$\sum_{i=1}^m Y_{p_i} = C_{s_i} \frac{(1+r)}{26} + \sum_{i=1}^{m-1} RC_{s_i} (r)^{m-1} \quad (1.1)$$

t = TEL

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

C_s = sum of course costs in 2005 prices

r = the real rate of interest of three percent

m = 650 (26 weekly payments for 25 years)

RC_s = 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 model assumes a three percent real rate of interest (real 10 year bond rate in Australia) 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 *ABS Household Expenditure Survey (HES) and Survey of Income and Housing (HIS) 2003-04 Confidential Unit Record Files* for Australia, a levy of 3% would equal 31.5% of average course costs or \$13,900, and a 4% levy would equal 41.5% of average course costs or \$18,575. Overall university graduates would pay a levy of 0.21534% per \$1000 of course costs over a 25 year period.

Table 5 compares the fortnightly repayments for an average male university graduate who defers their HECS repayments and TEL for 2005. Table 5 shows that the fortnightly repayments for an average male university graduate are higher under the income contingent scheme, 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.

The highest fortnightly repayment under TEL is \$52.64 at a 3% levy or \$70.18 at a 4% 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.

Table 6 shows the average student loan repayment per fortnight based on the average debt of a 4 year qualified college graduate in the U.S. It is assumed the debt is repaid over 10 years or 15 years at real interest rate levels of 2.5% or 5.5%. Comparing Tables 5 and 6 it can be seen that the TEL model has much lower repayment levels especially for low income earning graduates. The average first year graduate would pay \$13.29 a fortnight in Australia, while the average U.S. student with a ten year loan would pay at least \$121 a fortnight. The TEL repayments only rise with the graduates' capacities to pay, as the graduates' incomes rise with experience in the workforce or promotion. The TEL model graduate does not have a debt. They make repayments based on the cost of the course and income earned but if they do not earn the income threshold they do not make repayments. There is less fear or concern for debt in the TEL model compared to student loans or HECS. There is also less financial burden on the graduate. The graduates who gain the most from their education will potentially pay the most. The graduates who gain the least will potentially pay the least. It is suggested in this TEL model that at the end of the 25 year repayment period there is no debt owing or further payments required.

Table 5: The level of repayments for an average male university graduate for both HECS and TEL based on 2005 income levels in Australian dollars

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

Table 6: The average student loan repayment per fortnight in the U.S. in Australian dollars^a based on 2005 debt levels

Period of loan repayment	4 year graduate debt	2.5% real interest rate	5.5% real interest rate
10 years	\$25866 (\$19400 U.S.)	\$121 (\$91 U.S.)	\$140 (\$105 U.S.)
15 years	\$25866 (\$19400 U.S.)	\$87 (\$65 U.S.)	\$105 (\$79 U.S.)

a Based on 2005 exchange rate of one Australian dollar equalling 0.75 U.S. dollar

SOME OF THE POSSIBLE IMPLICATIONS OF THE TEL MODEL

a) Encouragement for students from low socio-economic backgrounds

Unlike student loans and HECS, TEL students are not faced with a debt. Under the student loans model students accrue a debt from the time they enrol in university and they must repay their debt when they graduate even if they do not gain a financial benefit from their college studies. There is a risk in investing in higher education. The student will be able to calculate their debt but they will not be able to measure their expected income with such certainty. As the OECD (2008: 187) points out “it is difficult to foresee one’s labour market experience, tenure with a specific firm, whether one will work part-time, for a big firm, in the public sector, or in a job which does not call for one’s skills.” Moss (2007 p. 2) points out that students “can ill afford any substantial delays in finding a job or any significant interruptions once their careers have commenced. They also may find it financially difficult or impossible to pursue less remunerated career options, such as teaching.” As previously mentioned studies have shown that students from low socio-economic backgrounds are debt averse (Aungles et al., 2002 and James, 2002). Wright (2008) reported that increases in HECS in Australia 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 students within the top 10% of tertiary

entrance scores turning down university offers and a resultant increase in the proportion of students with low tertiary entrance scores being accepted into university in Australia. Under TEL students from low socio-economic backgrounds will not incur a debt but rather pay a levy (equivalent to 30% 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 student loans or HECS system, graduates who earn a higher income will pay more for their university education. For example, under the student loans and HECS models both an economist and an economics high school teacher pay the same level of 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 in Australia's higher education system. Similar problems exist in the U.S., the American Association of State Colleges and Universities (AASCU) (2006) state nearly one in four American graduates who become teachers and approximately two out of five graduates who become social workers have unmanageable debt. AASCU (2006 p. 2) argue "in the next ten years the country will need two million new teachers, but high student debt levels and low earning potential could discourage students from pursuing teaching or other public service careers". In order to encourage individuals to study teaching, social work and nursing the government needs to lower the repayment levels so that the return on these occupations would increase. Under the TEL model the government could reduce the true cost of the course by lowering the levy, for example, from 3% to 2% of the income premium for teachers, nurses and social workers. This would then provide an extra incentive for individuals to follow certain targeted professions.

One of the problems the government faces in Australia is encouraging graduates in teaching and nursing to remain in the field. According to Wright (2008) 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 student loan and HECS systems 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 student loans and 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. The relatively high Social Rate of Return on higher education and the SRR exceeding the PRR in the U.S. (Table 4) suggests that the government is not only underfunding higher education overall but profiting from areas of higher education. The government should make a larger contribution to the cost of higher education in the U.S. This would not only lower the burden for students and increase access to higher education but would result in a shift in the cost of higher education to a level more comparable with other OECD nations. These improvements in education would then flow on to increased benefits to society and the national economy including higher productivity levels.

VARIATIONS OF THE TEL 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% 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.

CONCLUSION

This study has shown that there are serious concerns relating to the use of student loans in funding higher education. There are approximately 7 million borrowers in the U.S. needing more than \$68 billion in federal loans with private education loans contributing a further \$20 billion in 2008. Not only has the financial crisis created problems with 170 lenders suspending student loan programs but it has also caused an increased cost of borrowing funds. In addition, King and Bannon (2002 p.2) state that “55% of African-American and 58% of Hispanic student borrowers graduate with unmanageable levels of debt”. As a result of this it is important to consider alternative funding arrangements for higher education. The two models looked at here are the income contingent scheme, and a tertiary education levy.

Income contingent schemes operate in a number of OECD countries in one form or another including Australia, Netherlands, New Zealand, Sweden and the United Kingdom. The basic features of the income contingent scheme, as distinct from the student loans scheme as applies in the U.S., are that the students pay a varying proportion of the costs of their courses and they borrow the tuition fees from the government. The students do not begin to repay the debt till they have graduated and reached a certain income threshold. This model as applied in Australia as a Higher Education Contribution Scheme also has a number of limitations. Students are still faced with high levels of debt. Many students from low socio-economic backgrounds are especially debt adverse and less likely to pursue higher education. The HECS repayments the students make are also a financial burden for new graduates. Table 2 shows that the HECS system is inequitable and inefficient as the cost students pay do not reflect the real cost of running the courses or the future incomes of the graduates. In the case of students becoming dentists or lawyers they pay Band 3 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.

An alternative to these two schemes is a Tertiary Education Levy (TEL). The TEL model is based on the premise that 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. The model suggested here also considers the benefits that both the individual (PRR) and society (SRR) gain from higher education.

Table 4 shows that the PRR in the U.S. is lower than the SRR. The PRR on average in OECD countries is 1.1 percentage points higher than the SRR for males and 2.3 percentage points higher than the SRR for females. In the U.S. the PRR is 1.9 percentage points lower than the SRR for males and 0.7 percentage points lower for females. This suggests that higher education is being underfunded in the U.S. compared to the financial benefits that society gains from it. OECD (2008) data shows that this is mainly a result of the much higher direct costs (tuition fees) of tertiary education in the U.S. at 20% for males and 20.7% for women compared to an OECD average of only 5.8% for males and 6.0% for females.

These findings suggest that the contribution made by students should be set at a lower percentage of course costs, for example 30%. 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% 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 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 in Australia) 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. Tables 5 and 6 show that the average repayments for the graduate are much lower under the TEL model than student loans in the U.S. or the HECS system in Australia. This would reduce the unmanageable levels of debt associated with other models and is likely to encourage a greater proportion of students from low socio-economics backgrounds to pursue higher education.

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APPENDIX

Methodology For Calculating The Rates Of Return To Higher Education

Estimates of rates of return are based on the Mincer equation (Mincer 1958). The specific rates of return in this study are calculated using Formula A.1 (Borland 2002 p.2).

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

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

Then:

$$PV_B - PV_C = 0 \text{ and solve for } r.$$

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 A1. 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.

Table A1: 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