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THE AUSTRALIAN UNIVERSITY STUDENT FINANCING SYSTEM: THE RATIONALE FOR, AND EXPERIENCE WITH, INCOME CONTINGENT LOANS

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THE AUSTRALIAN UNIVERSITY STUDENT FINANCING SYSTEM: THE RATIONALE FOR, AND EXPERIENCE WITH, INCOME CONTINGENT LOANS

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INTRODUCTION AND BACKGROUND

In 1989 the Australian government introduced an income contingent loan for the payment of public sector higher education[i] tuition charges, known as the Higher Education Contribution Scheme (HECS). The debt is repaid through the income tax system and, at the time, it was the first of its kind. Since then similar arrangements have been adopted in, among other countries, New Zealand (1991), South Africa (1991), the UK (2006), Thailand (2006) and Israel (planned for 2008). As well, there is currently active consideration of potential higher education financing reforms towards income contingent loans in Germany, Canada and a host of other countries. It is not an exaggeration to suggest that there is an on-going quiet revolution internationally in higher education financing towards the adoption of income contingent loans.

This paper examines the basis of income contingent loans for higher education financing, focusing on the Australian experience with HECS.[ii] A key aspect of the discussion is an analysis of the benefits in concept, and a difficulty in practice, of income contingent loans. A major issue for the adoption of HECS was the potential for the scheme to reduce the access of the disadvantaged to Australian higher education; an extensive review of the literature illustrates that this has not eventuated. As well, there is evidence to suggest that HECS has been associated with significant increases in the size of the higher education system and has proved to be administratively inexpensive.

An important issue explored in this paper concerns the benefits of income contingent loans with respect to consumption smoothing for borrowers. A hypothetical empirical exercise illustrates that, compared to the repayment of a similar bank loan, the burden of an income contingent loan for students, as measured by the proportion of a graduates' income that is required to service the debt, can be far less than is the case for the bank loan.

The analysis should not be taken to suggest that income contingent loans are a panacea to international higher education funding challenges. This is because in many countries there are important institutional difficulties to be overcome in the successful adoption of such approaches.

A BRIEF HISTORY OF THE INTRODUCTION OF HECS[iii]

1973 to 1986

Australian universities required students to pay fees until 1973 when they were abolished. But before then the vast majority of students had fee obligations exempt through the receipt of scholarships awarded on the basis of academic merit. Fee abolition meant that from the early 1970s to the late 1980s Australian Universities were financed without any direct contribution from students.

This policy stance changed significantly in 1987 with the institution of the Higher Education Administration Charge (HEAC), a small up-front fee on all university students of $(A)250 in 1987 terms, a charge which did not vary with respect to either discipline or course load. In symbolic terms the institution of HEAC was significant in that it represented government endorsement of the charging of fees, and thus set the scene for more radical reforms involving user-pays.

The revenue raised from HEAC was trivial in comparison to the total costs of higher education — amounting to around only three per cent of teaching costs. In 1987 it remained the case that taxpayers provided practically all of the finances for higher education. At this time a conjunction

of forces made it inevitable that the government would move financing arrangements towards increased contributions from students. These forces were as follows.

First, over the 1980s there was a significant increase in year 12 (the final year of high school) completion rates, but there was not a commensurate expansion in higher education places. This resulted in the political problem of large and growing queues of qualified prospective students.

Second, while this problem could have been solved with increased Commonwealth budget outlays, the Labor Government was intent on fiscal parsimony and not prepared to spend the additional taxpayer resources necessary to finance additional university places (see Edwards, 2001).

Finally, and perhaps most importantly with respect to the political process, at least two Cabinet Ministers, John Dawkins and Peter Walsh, were strongly in favour of student fees on grounds of redistribution. Their view was that a system which did not charge higher education students was regressive: after all, universities were paid for by all taxpayers, yet students both came from relatively privileged backgrounds and as graduates they received relatively high personal economic benefits. It is important to record that Peter Walsh and John Dawkins were then respectively in charge of the critical Ministries of Finance and Higher Education.

The Introduction of HECS

In 1987 John Dawkins invited the author of this paper to prepare a report outlining the costs and benefits of different approaches to the introduction of a user-pays higher education system for Australia. The report presented analyses of several financing mechanisms, including up-front fees with scholarships, up-front fees with government subsidized bank loans, and an income contingent charge system. The paper recommended the last of these, with repayments to be made via the direct tax system. Details were provided of how such a system might work, including possible fee levels and repayment parameters.

The Minister believed that this report would have a difficult reception, for three reasons. First, the ALP in government had abolished university fees in 1973, and this had happened under the larger-than-life Labor icon, former Prime Minister Gough Whitlam. Second, at that time the Labor Party Platform included a statement to the effect that '… all education should be free of charge'. Third, the income contingent payment system recommended was both radical and untested: there was no similar scheme internationally, and thus no empirical or political basis to assess its likely economic, social and administrative implications.

Minister Dawkins' response was to set up a committee chaired by a popular former State Labor Premier, Neville Wran, to examine the relative merits of potential options. It was clear from the Terms of Reference that the government's intent was to set the scene for the introduction of charges.

In May 1988 the Wran committee recommended that all Australian undergraduates should be required to pay a uniform charge, with the timing and level of payment being dependent on income. This became policy in 1989, with the income contingent feature of HECS being unique internationally. At that time the first repayment threshold was around $(A)50,000 per annum in 2007 terms.

Labor lost power in 1996, but the new Conservative government maintained the essence of HECS. However, in 1997, charge levels were increased by about 40 per cent on average, differential charges by course were introduced and the first income threshold at which graduates began to repay their loans was decreased to just under $30,000 per annum in 2007 terms. The last decision was reversed in 2005, at which time the government also allowed some price discretion and extended HECS to cover full-fee paying domestic students.

The Failure of Capital Markets for the Financing of Higher Education

Some might be tempted to ask why government intervention is required with respect to higher education financing. Why not impose charges at the point of entry and allow prospective students without access to the financial resources needed to pay the tuition borrow the finances from banks?

The problem is that commercial banks will not in general be interested in providing loans to finance human capital investments. The concern of a bank lending in these circumstances is that, unlike many other purchases from a prospective debtor, there is no saleable collateral in the event of default — such as would be the case for the housing capital market — and there is no slavery market in which to sell the human capital being developed. As well, and as recognized in Barr (2001) and Chapman (2006), investment returns from higher education are highly variable and uncertain. This implies a real risk to a bank with respect to default in the situation of former students receiving low incomes.

The governments of many countries (for example, the US, Canada and the Netherlands) address these problems by acting as a guarantor for student loans, and by paying the interest on the debt for the period before the borrower's graduation. A problem inherent in this approach is that because the loans are government guaranteed, defaults imply additional government subsidies, which can be very high.[v] What now follows examines other issues pertinent to a comparison between income contingent and bank loans.

Income Contingent Repayment and Default Protection

Instead of allowing some prospective students access to a bank loan with a government guarantee, other countries (including Australia, New Zealand and the UK) have adopted income contingent loan systems, in which the former student repays the debt through the tax system,

with repayments being dependent on incomes. Making repayments conditional on future income has a special advantage over other typical debt repayment schemes, a point now explored.

One advantage of an income contingent repayment approach is that it avoids the basic problem of the usual type of loan offered by banks. Unlike income contingent loans, normal bank loans require repayments to be made over a specified period of time, for example, the term of the loan. Usually no weight is given to the consequences of a borrower's low income: the contract specifies that principle debt and interest payments have to be repaid within a given period of time.

The essential difference between income contingent and bank-style loans is that the income contingent variety serves to protect prospective students from the costs of the exigencies associated with the financial returns to educational investments. So income contingent loans offer a form of 'default insurance', such that former students do not have to bear the costs of reneging on their debt as a result of periods of low future incomes. This is quite different to a bank-style loan, in which the costs of defaulting exist and may be very high, particularly if the borrower is locked out of other borrowing markets (most notably for housing) through damage to credit reputations.

Default protection with income contingent repayment overcomes a fundamental problem for prospective borrowers inherent in other loan schemes. With income contingent approaches there is unlikely to be any concern about prospective students being unable to repay a loan or making repayment under financial duress.

Income Contingent Repayment and Consumption Smoothing

A related problem for students with bank loans concerns possible consumption difficulties associated with fixed repayments. If the expected path of future incomes has a high variance, a fixed level of a debt payment will be associated with a high variance of disposable (after debt repayment) incomes. The point can be illustrated with the following simple example, with much more detail being presented in Section 5 below.

Imagine that a student incurs a debt with fixed monthly repayments of $500 after graduation, say, for 5 years. If her monthly income is expected to be a constant amount of $5,000 after-tax, then the debt is also a constant proportion of income, in this case 10 per cent. It is more likely to be the case that she expects her income to increase over time, as a result of promotions for example, implying that the bank repayment would be expected to fall as a proportion of disposable income. For this example the bank loan should not be expected to significantly affect her welfare.

But in the event of misfortune, such as job loss, or sickness, the former student's income stream might be far less stable than for the above circumstances. For example, imagine that the student experiences a monthly after-tax income stream of $5,000 for the first year, but only $1,500 for the second year. In this case, her *ex post* loan obligations turn out to be 10 per cent of income initially, but then reach 33.3 per cent of income. The fixed loan repayment obligation is then associated with the likelihood of significant consumption hardships. Moreover, the uncertainty of future earnings has a greater potential to discourage loan take-up from those expecting to not have access to alternative finances in the event of low future incomes, and these people are more likely to be members of relatively disadvantaged groups.

However, with income contingent loan repayments the above difficulties are avoided. Imagine that the repayment rule is 12 per cent of income when monthly incomes are above $3,000, and zero otherwise. In the above example the former student pays $600 a month of her debt in the first year, but is not required to pay anything in the second year. That is, income contingent loan schemes offer insurance against consumption hardship, and this is because they are based on capacity to pay, not time as is the case with a bank–style loan.

An Important Administrative Concern

In Australia and other countries in which an income contingent loan system has been introduced, this has turned out to be a relatively simple matter from an administrative point of view. The reasons for this are that the public administration systems of these countries feature a strong legal

framework, a universal and transparent regime of income taxation and/or social security collection, and an efficient repayment mechanism. The last involves computerized record keeping of residents' vital financial particulars and, very importantly, a universal system of unique identifiers (often accompanied by an identity card).

Under these circumstances it is not complicated to identify and track individual citizens and their incomes over time and space. It is not expensive, moreover, to tack onto some existing tax collection mechanism an additional function: the collection of payments from ex-students, on the basis of a fixed proportion of income. In the developing world, however, the preconditions to allow income contingent loans are often lacking.

Chapman and Nicholls (2004) argue that the minimum conditions for a successful income contingent loan (Chapman 2006) seem to be:

i) accurate record-keeping of the accruing liabilities of students;
ii) a collection mechanism with a sound, and if possible, a computerised record-keeping system; and
iii) an efficient way of determining with accuracy, over time, the actual incomes of former students.

Some would argue that a further basic requirement for the introduction of an income contingent loan is a strong legal framework and functional judicial system. Indeed, it is hard, from a developed-world perspective, to imagine implementing a workable scheme outside this context.

It is worth emphasizing that of the three conditions noted above for the implementation of an income contingent loan, two apply also to the collection of any kind of loan. The exception involves determining with accuracy, over time, the actual incomes of former students. This seems to require an effective income tax system including a reliable, preferably universal, system of unique identifiers; accordingly this particular criterion is likely to be the most difficult institutional barrier to reform in developing countries.

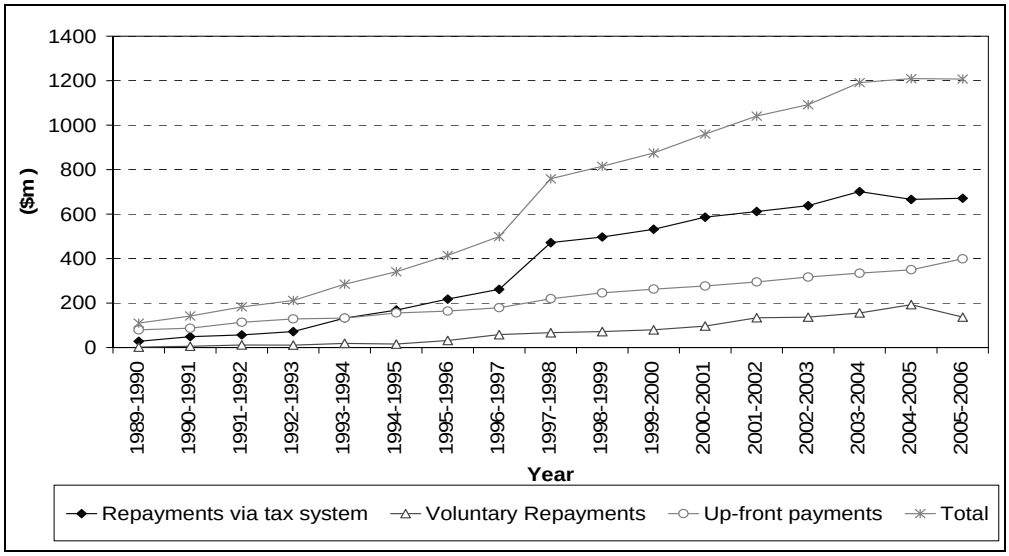
AUSTRALIA'S EXPERIENCE WITH HECS[vi]

At the time of the introduction of HECS close to nothing was known about the effects of income contingent loans, because the scheme was the first of its kind. This section describes and evaluates the Australian higher education experience under this financing mechanism.

HECS Revenue, Changes in the Size of the System and Administration Costs

As illustrated in Figure 1, HECS has been associated with considerable increases in revenue for the government, of the order of about $(A) 13 billion in total, with annual receipts currently being of the order of $(A)1.2 billion. In lieu of a real rate of interest the policy involves a discount for up-front payments (currently of 10 per cent), and it is clear from the figure that this feature has contributed quite significantly to total annual revenue. Essentially governments have used the revenue to both increase the size of the sector and to reduce considerably the proportion of the financing that is funded by taxpayers.

Figure 1: HECS Revenue: 1989–90 to 2005 (AUD$)

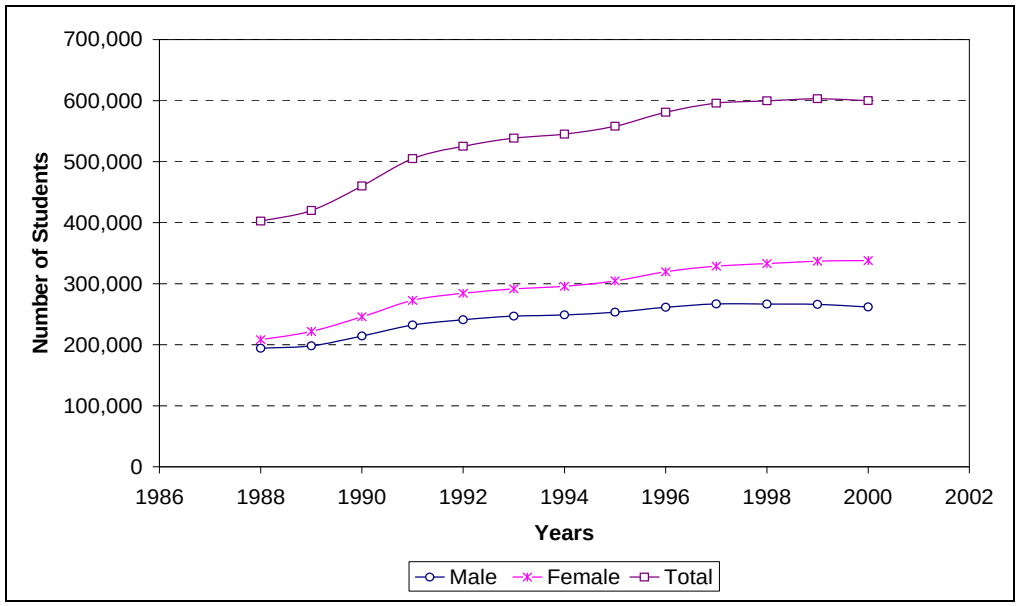


Note: The figure for 2005–06 is a government estimate. Up-front payments are based on annual figures from 1989 through to 2005, rather than financial year amounts.

Source: Commonwealth Department of Education, Science and Technology, as reported in Higher Education Report 2005.

Arguably a major consequence of the substantial revenue received from HECS is that the government increased the number of places available, with the number of domestic students being shown for the period 1988 to 2000 in Figure 2. The data show a very large increase in the total number of domestic students since the introduction of HECS in 1989. In twelve years, female numbers had grown by 63 per cent from 208,309 to 337,981, with the male figures increasing by 35 per cent, from 194,334 to 261,897.

Figure 2: Student Numbers (Full Time Equivalent), 1988 to 2005



Source: Commonwealth Department of Education, Science and Technology, Students (2000–2005) [Full Year]: Selected Higher Education Student Statistics; and Selected Higher Education Student Statistics 1999 and 1997.

In administrative terms the costs of running HECS, for the Australian Taxation Office and the universities together, have been estimated by Chapman (2006) to be of the order of $(A)60 million per year, which is less than 5 per cent of the annual receipts from the scheme.

Studies of the Participation of Disadvantaged Groups

The biggest policy and political concern with respect to the introduction of HECS was whether or not imposing a charge on students to be repaid in this way would have adverse consequences for the participation of poor prospective students. In the two instances in which the policy was changed after 1989, that is in both 1997 and 2005, the same issue has arisen. There have been a large number of different investigations into this matter.

For example, Aungles *et al*. (2002) used the local area socio-economic averages concerning education and occupation, as did Andrews (1999), to explore the possibility of there being an effect on commencements of the relative disadvantaged from the very significant increases in HECS changes in 1997. In general, they found that the share of university commencements of students from low socio-economic backgrounds did not change. However, there was apparently an effect of differential HECS on subject choice, with a decrease in enrolments of low socio-economic status males in courses in which the HECS charge increased most. The actual numbers involved were very small (less than 200 people) and these individuals were not discouraged from attending university *per se*, they simply changed their course choice. Chapman and Ryan (2005) report a similar effect in direction for this group using a measure of family wealth, but it was not found to be statistically significant.

Other studies have used individually based socio-economic status measures in analysis of Australian higher education participation. Long, Carpenter, and Hayden (1999) and Marks, Fleming, Long and McMillan (2000) used four and five panels of longitudinal data respectively to identify how education participation changed in Australia from the 1980s to the late 1990s. Long *et al*. (1999) used parental education and occupation to identify differences in education participation by socio-economic status, as well as an indirect wealth index constructed from responses by individuals to questions about the presence of material possessions in their houses. They found no apparent effect of HECS on the access of the poor.

Chapman (1997a) analyzed university participation among 18 year olds in the last two cohorts analyzed by Long *et al*. (1999) and also concluded that the introduction of HECS had not

affected university participation by students from disadvantaged backgrounds. Chapman's approach had the advantage of measuring university participation in 1988 for the third cohort, prior to the introduction of HECS. However, not everyone aged eighteen in these data had completed school when surveyed in the relevant years, so the estimates understated university participation among young Australians.

Marks *et al*. (2000) measured participation by the proportion of individuals in higher education in 1999 that had been in Year 9 in 1995. This measure differed from that used for the earlier cohorts by Long *et al*. (1999). The wealth measure used by Marks *et al*. (2000) for the last panel also differed from the earlier ones. This research confirmed the positive impact of wealth on higher education participation. However, in general, their results suggested that socio-economic status was less important in determining higher education participation in the 1999 data than had been the case in the earlier panels.

Marks and McMillan (2006) analyze university participation within ranges of the entrance scores used by universities to select students for undergraduate courses in 1999. They find that within these entrance score ranges, individuals whose parental occupational backgrounds are non-professional are as likely to participate in university as those whose parental occupational backgrounds were professional. They conclude that since occupational origins have little influence on university participation once entrance scores are taken into account, HECS has not deterred students from less privileged backgrounds from attending university.

Cardak and Ryan (2006) produced similar results. They found that students from the most disadvantaged social backgrounds entered university at similar rates to those from the most advantaged backgrounds who had the same university entrance scores as them. Their university participation rates were much lower than those from the most advantaged backgrounds because they were less likely to obtain an enter score and obtained a much lower one on average where they did. Among students with the same levels of school achievement in year 9, those from more advantaged backgrounds were able to convert that achievement into substantially higher university entrance scores by the end of their schooling than otherwise similar students from poorer backgrounds.

Chapman and Ryan (2005) analyze the access effects of HECS using three of the longitudinal panels of data used in the Long *et al*. (1999) and Marks *et al*. (2000) studies. They use a consistent definition of university participation across these three cohorts. Chapman and Ryan (2005) analyze the participation in higher education of 18 year olds in the first year they could potentially attend university. Thus for the first two cohorts they estimated the participation in higher education in 1988 and 1993 of individuals who should have reached Year 12 in 1987 and 1992 respectively. For the 1999 cohort analyzed in Marks *et al*. (2000), Chapman and Ryan analyzed higher education participation among 18 year olds.

Chapman and Ryan concluded that the introduction of HECS did not affect the access of the disadvantaged, in terms of enrolments. They found that the socioeconomic composition of the higher education student body changed somewhat between 1988 and 1993 in Australia, with the main change being the relative increase in participation by individuals in the middle of the wealth distribution.

In the period after significant modifications to HECS all socio-economic groups experienced the same proportionate increases in participation. Further, while there was an across-the-board decrease in the intentions of secondary students concerning university participation in 1996 after the announcement of the changes, in the next year (for all socio-economic groups) enrolment intentions rebounded to their previous levels. Finally, for those who had not intended to participate in university, no differences associated with socio-economic background were found in the proportion that eventually did participate.

More generally, Chapman and Ryan (2005) concluded that changes in overall university participation appeared to reflect different behaviour across genders rather than across socio-economic groups, with the exception that growth was highest among the middle of the wealth distribution.

The conclusions from the Australian research with respect to socio-economic mix and access are as follows:

i) The relatively disadvantaged in Australia were less likely to attend university even when there were no student fees. This provides further support for the view that a no-charge public university system (that is, financed by all taxpayers) is regressive;
ii) The introduction of HECS was associated with aggregate increases in higher education enrolments;
iii) HECS was associated with decreases in the participation of prospective students from relatively poor families (although the percentage point increases were higher for less disadvantaged students, especially in the middle of the wealth distribution);
iv) There was a small decrease in the aggregate number of applications after the 1997 changes, but no apparent decreases in commencements of members of low socio-economic groups, except perhaps for a small number of males into courses with the highest charges; and
v) The significant changes to HECS introduced in 1997 were associated generally with increases in the participation of individuals to 1999, irrespective of their family wealth. Even so, the growth in participation has slowed since then.

It appears that there have been few consequences for the accessibility to higher education for students from relatively disadvantaged backgrounds, at least as represented by enrolments. Broadly speaking, the socio-economic make-up of the higher education student body was about the same in the late 1990s and early 2000s as it was before HECS was introduced. This might have also happened with other financing approaches, of course .

A Caveat

A qualification to the above conclusions is warranted. It is that the findings with respect to revenue, the number of places and student access cannot be traced directly to the fact that HECS is an income contingent loan *per se*. Much of the 1989–2007 Australian higher education experience might well have resulted from the introduction of charges financed in other ways, such as up-front fees with scholarships, or bank loans. As well, before it is decided that income contingent loans constitute a broad panacea for higher education financing it is critical to reinforce that the institutional and administrative arrangements need to be appropriate to allow such schemes to be implemented, and in many developing countries this will not be the case.

A Comment on the Form of the HECS Interest Rate

A proper understanding of the way HECS operates is to note that after it is incurred a HECS debt is adjusted only for changes in the CPI, implying that the real rate of interest is zero. However, this is not in reality the case, a point now explained. The nature of the rate of interest on the charge is important. HECS has a form of a real rate of interest, but it rarely gets reported as such. This comes from the 20 per cent discount for the up-front payment, meaning that those who choose to pay later are initially in debt to the tune of 25 per cent more than those who take the discount.

Calculations from Chapman and Kiananan (2008) reveal that (assuming a real discount rate of 3 per cent) there is very little interest rate subsidy associated with this form of a real rate of interest when it comes to the sizes of debts typically incurred in public sector undergraduate courses. The story is very different when the scheme is transferred to the private sector however, and it is in this context that the current form of the real interest rate on HECS needs to be revisited.

HECS REPAYMENTS AND CONSUMPTION SMOOTHING

This section examines issues associated with the repayment of HECS. With the use of cross-sectional age earnings profiles the time paths and length of HECS' repayments are shown for hypothetical male and female graduates working full-time, and these are compared to the repayment of an equivalent bank loan under typical arrangements. In terms of the welfare of borrowers it is shown that there is a close similarity between the two types of loans for full-time workers, as represented by the proportion of earnings required to repay the different debts.
However, through the construction of a hypothetical graduate who experiences substantial variation in earnings the differences in the effects of the two types of loans become very clear.

This exercise highlights the critical importance with income contingent loans of the feature of consumption smoothing.

HECS Repayments for Full-Time Workers

To illustrate typical repayment scenarios for HECS debtors, three things are required:

i) Information concerning the HECS repayment rates;
ii) The construction of a hypothetical study, debt and working path; and
iii) Data concerning graduate earnings by age and sex.

Table 1 presents the repayment rates in operation in 2004/05.

Table1: HECS Income Thresholds and Repayment Rates: 2004/05

HECS repayment incomes in the range: (A$) per year	per cent of income applied to repayment
Below $35,000	Nil
$35,001–$38,987	4.0
$38,988–$42,972	4.5
$42,973–$45,232	5.0
$45,233–$48,621	5.5
$48,622–$52,657	6.0
$52,658–$55,429	6.5
$55,430–$60,971	7.0
$60,972–$64,999	7.5
$65,000 and above	8.0

Source: Australian Taxation Office, *Repaying your HECS Debt 2004–05* Commonwealth Government, Canberra

The information available in Table 1 should be interpreted in the follow context. When students incur a debt it is recorded in conjunction with their unique tax files numbers in the Australian Tax Office. From the Table, in 2004/05 no repayments were required if the income of the former student fell below $35,000 per annum, and above this level progressive proportions of income are subtracted from income until the debt is paid in full. For example, in a year in which the graduate earns $43,000 she will pay .05x$43,000 = $2,150 off her debt.

It is instructive to illustrate the effect of these charge levels and repayment parameters on the after-tax incomes of graduates by age. In what follows the 2004/05 HECS repayment parameters have been applied for male and female students, assuming: they begin a four year Science degree at age 18 which incurs an annual charge of $5,367 (or $21,468 in total) graduating at age 22; and, after graduation take a full-time job earning the average income by age of graduates of their sex. The income data are taken from earnings functions estimated from the 2003 Household, Income and Labour Dynamics of Australia survey (HILDA), updated to 2004/05 dollars, and as reported in Chapman (2006).

The results for males and females respectively are shown in Figures 3 and 4 which present taxable incomes before and after HECS repayments for the higher education investment

scenarios described above. The data show that both male and female science graduates earning average graduate incomes for full-time workers will repay their total HECS debt about 10 years after graduating, or at about age 31 for our hypothetical students.

Figure 3: Earnings before and after HECS: Males (Aust$2004)

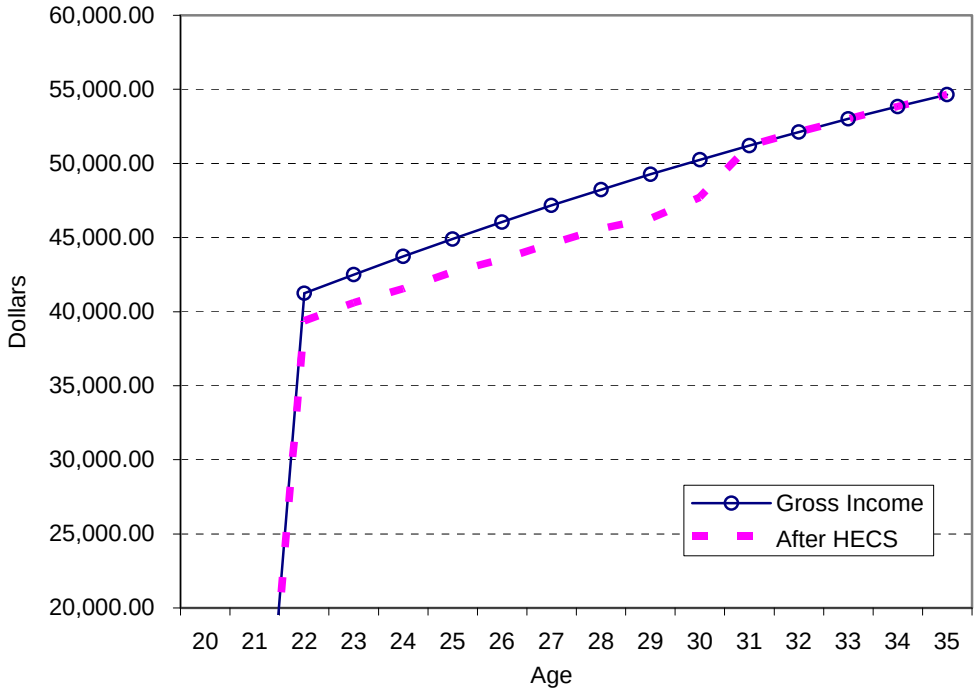
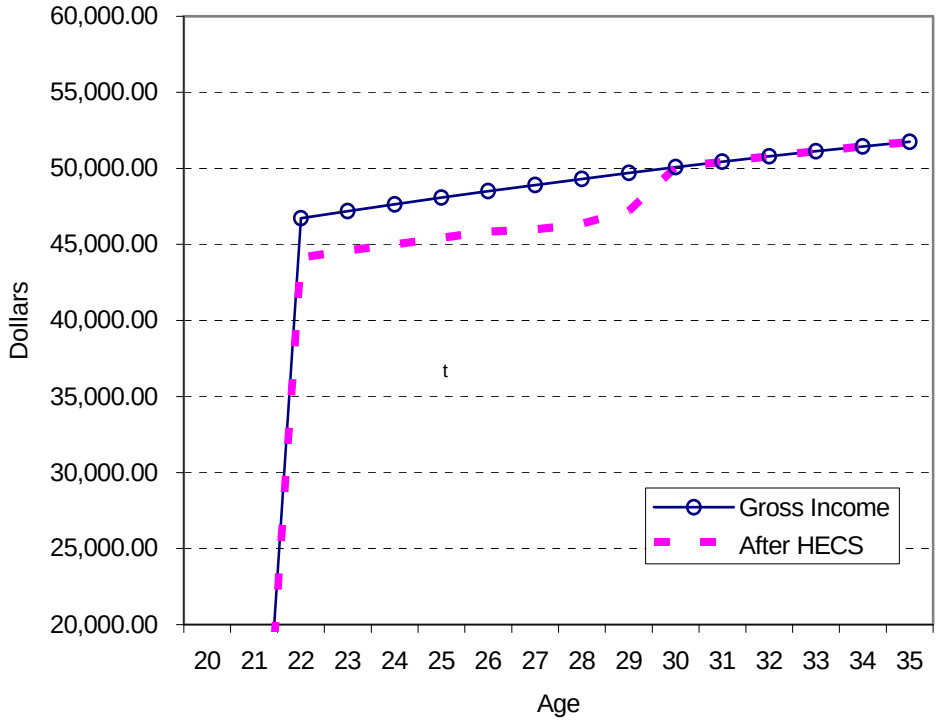


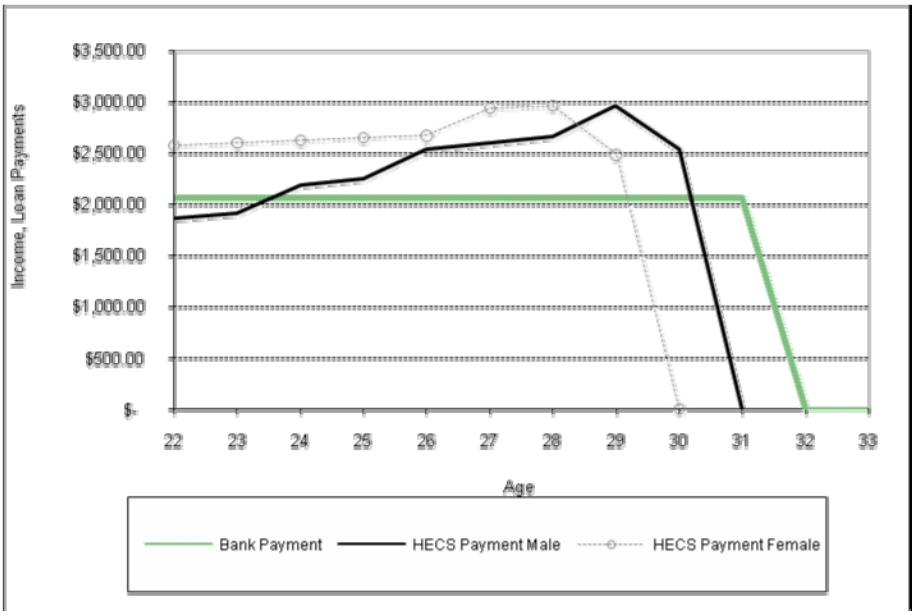
Figure 4: Earnings before and after HECS: Females (Aust$2004)



To help motivate the important discussion below concerning the consequences of income contingent loans with respect to consumption smoothing it is instructive to compare the HECS repayment experience illustrated above for full-time earnings with what would have been the case with a bank loan of the same amount repaid on the basis of time.[vii] In what now follows we compare these repayments with what would be forthcoming from a bank loan of the same amount, repaid over a 10 year period. The dollar amounts by age and sex are illustrated in Figure 5.

The data from Figure 5 suggest that in absolute dollar terms the payment of bank loans and HECS per annum are roughly the same, for both men and women: just over $2,000 per year for 10 years with the bank loan, and about $2,500 per year for HECS payments for 8–9 years.

Figure 5: HECS payments and bank payments with full-time employment



Again, to further help motivate the consumption smoothing discussion we can express these repayments as a proportion of earnings for male and female graduates expecting to earn the average salaries for full-time workers. The data are shown in Figures 6 and 7.

The results are as follows. For both male and female graduates expecting to earn the average salaries of graduates of their sex, there is little difference between the borrowing regimes. With the bank loan, male and female graduates pay about 4 to 5 per cent of incomes per year for 10 years, and for HECS the proportions are 4.5 to 6 per cent per year for 8–9 years; it would be fair to describe these differences as minimal. In what now follows the critical issue of consumption smoothing is explored in an earnings context quite different to that illustrated above.

Figure 6: Debt repayments as a proportion of taxable income: full-time male graduate workers

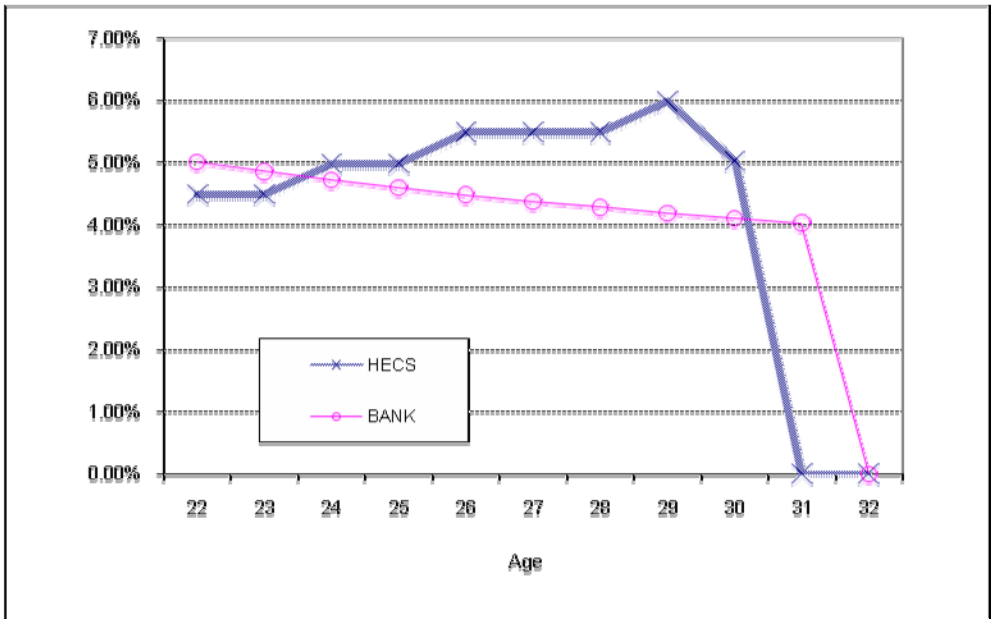
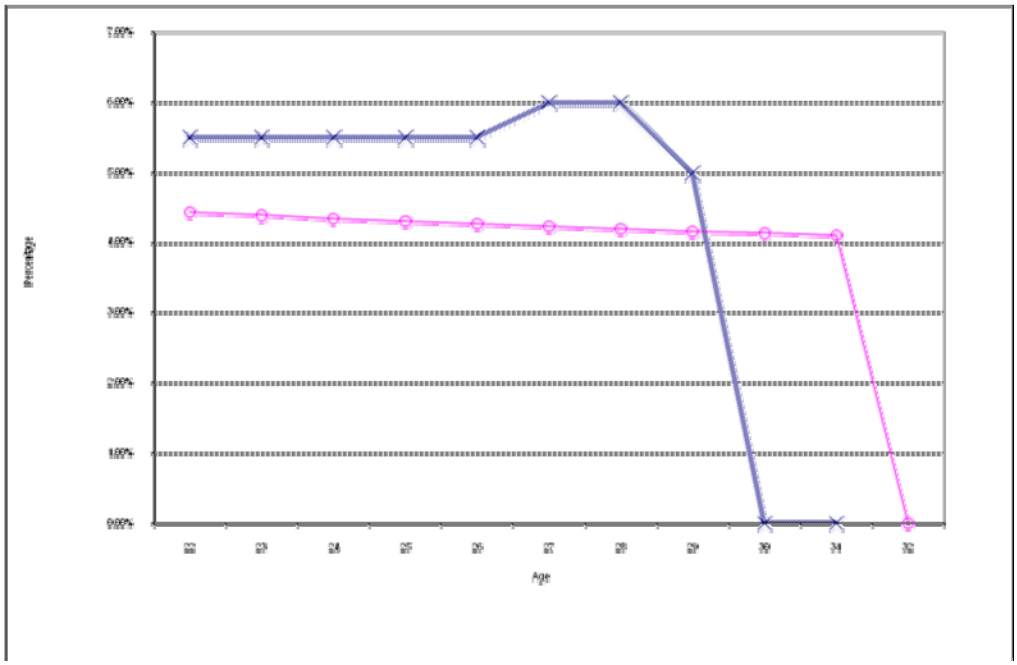


Figure 7: Debt repayments as a proportion of taxable income: full-time female graduate workers



HECS and Consumption Smoothing

In many cases HECS repayments will be significantly different to those illustrated above, and comparisons of the effects of the different loan arrangements becomes much more interesting when graduate incomes are assumed to change markedly over time. This can be illustrated through the construction of the following scenario. Imagine our graduates have a serious accident at age 25, which leads to job loss and a period of welfare dependency until they are aged 28. At age 29 it is assumed that they are sufficiently recovered to work part-time until age 32, where part-time work is assumed to be half the hours and thus half the earnings of a full-time worker. At age 32 they are fully recovered and resume full-time work, earning the same income as an average graduate with their level of full-time labour market experience. The assumed income streams are shown in Figure 8 and Figure 9, again taken from wage estimations using the HILDA survey and reported in Chapman (2006).

The above income streams will then be associated with substantially different loan repayments for HECS than was the case for the scenarios reported above for full-time workers. This raises the very obvious likelihood that compared to the bank loan considered above that there will be a very different experience in terms of repayment hardships for members of the groups with highly variable incomes. To illustrate the importance of the consumption smoothing point we begin with an illustration of the structure of repayments of both men and women graduates for each type of loan in absolute dollar terms, now shown in Figure 10.

The data from Figure 10 show that, because repayments are fixed over time, the dollar level of bank loan repayments does not change year to year, and is just over $2,000 per annum. However, things are very different for the income contingent loan since in periods in which the graduate's income falls below $35,000 there are no HECS payments. Thus, in our example, the periods in which the graduate is either on welfare or working part-time are associated with no loan related decreases in disposable income. Instead the borrower is required to repay the loan for additional years.

Figure 8: Earnings before and after HECS: Graduate males experiencing unemployment and part-time work ($A2004)

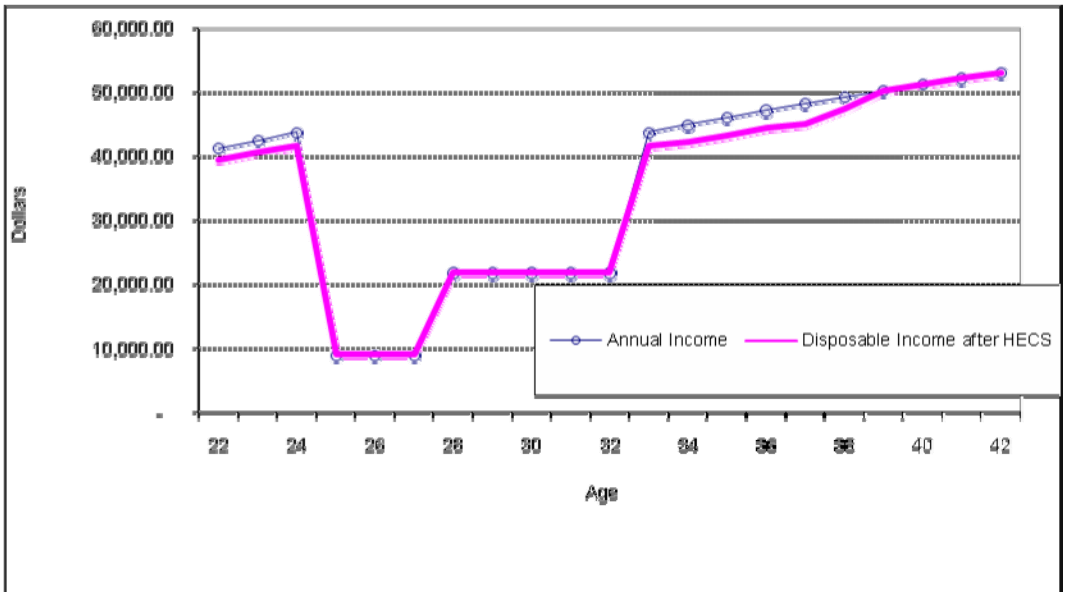


Figure 9: Earnings before and after HECS: Graduate females experiencing unemployment and part-time work ($A2004)

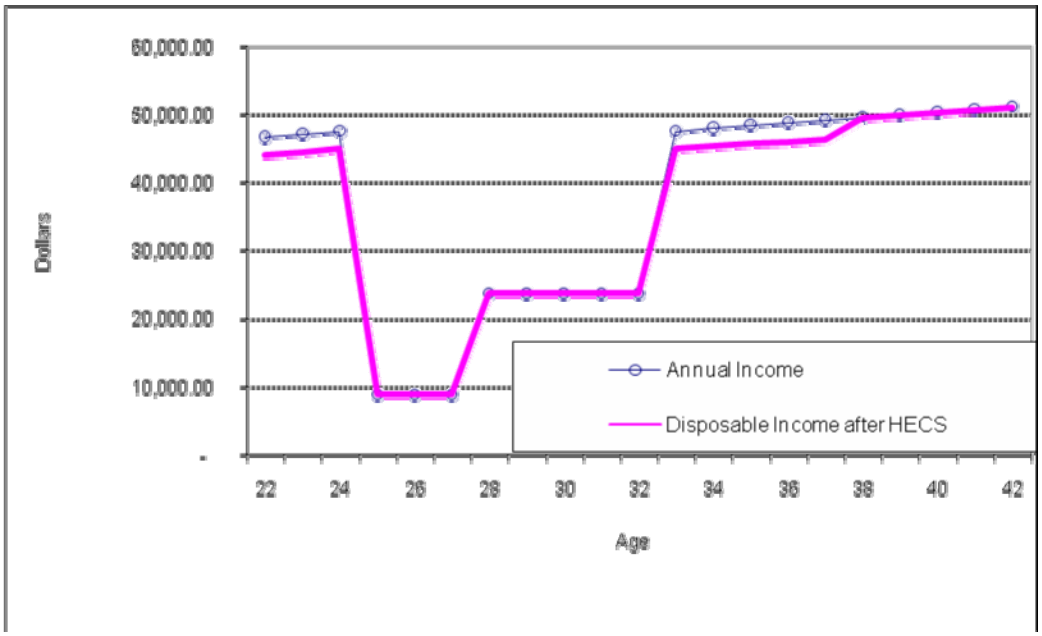
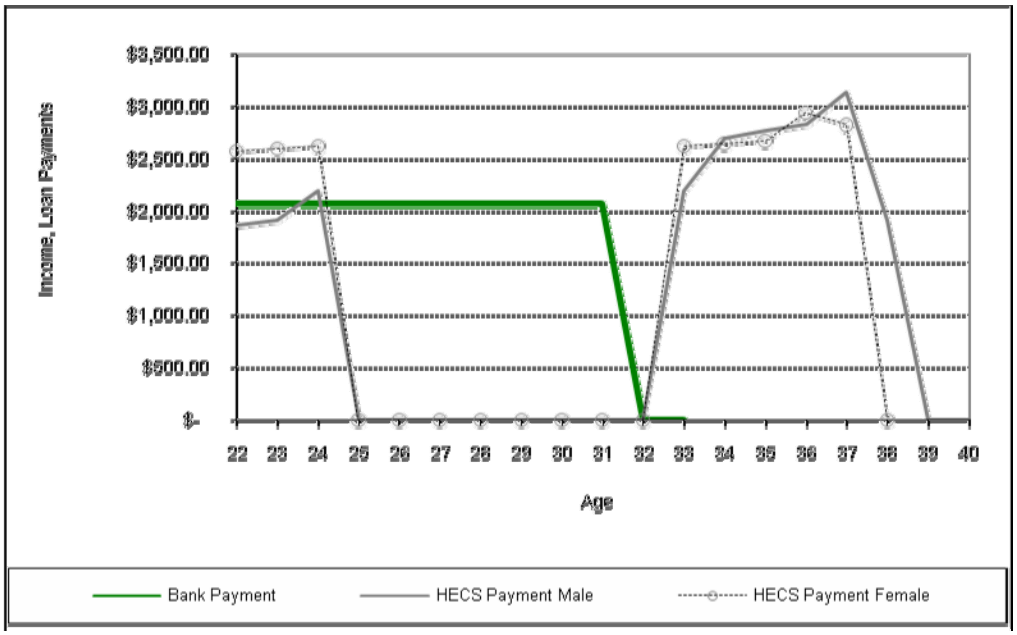


Figure 10: HECS payments and bank payments with unemployment and part-time work



That is, there are now payments of between $2,500 and $3,000 per year from age 33 to age 38 when incomes have risen to their full-time equivalents. Thus both male and female graduates experiencing low salaries from ages 25 to 31 pay considerably more for a bank loan in periods of low earnings than is the case for the repayment of the HECS debt. With the latter there are no repayments when incomes are low, this reflecting the critical benefit of an income contingent loan. What this means in terms of proportions of taxable incomes is illustrated in Figures 11 and 12.

Figure 11: Debt repayments as a proportion of taxable income with unemployment and part-time work: Graduate males

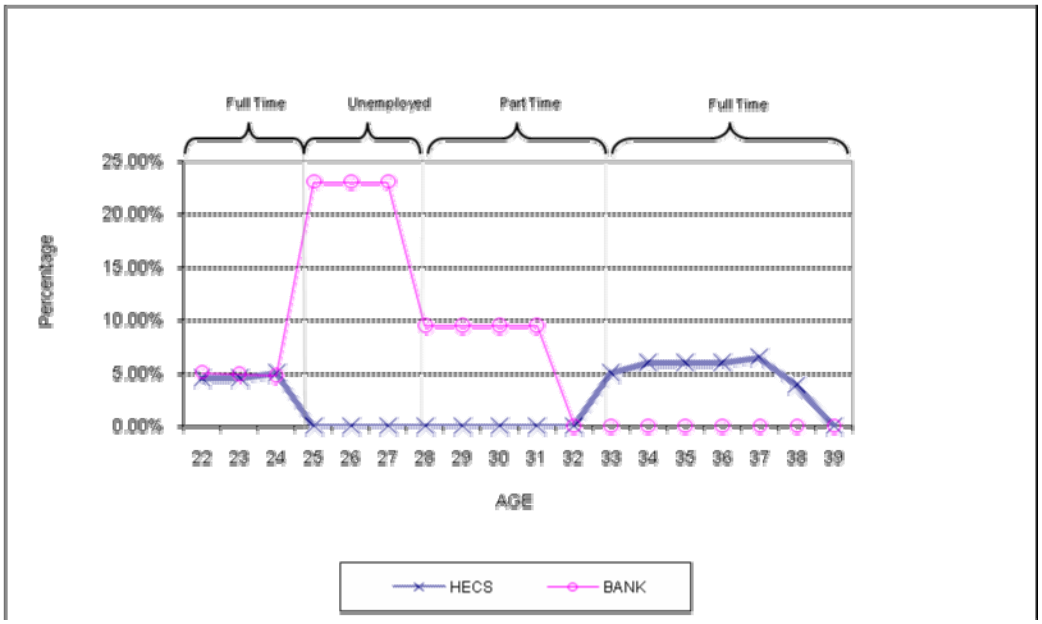
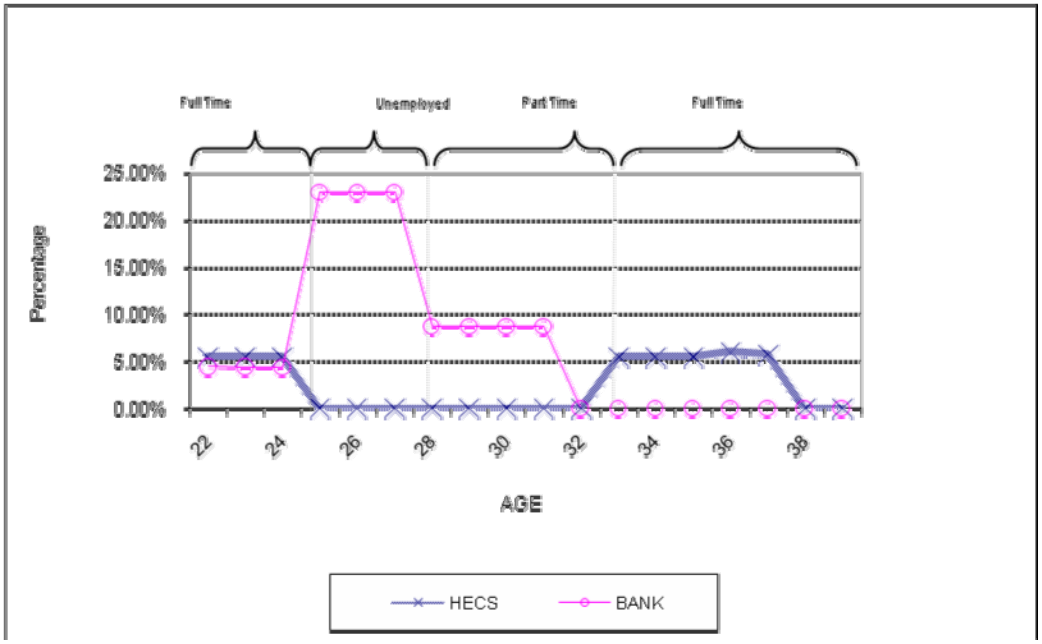


Figure 12: Debt repayments as a proportion of taxable income with unemployment and part-time work: Graduate females



Modelling the consequences of HECS, under various future income streams, highlights the clear disadvantage of the bank loan. Repayment obligations of the latter, as a proportion of incomes, fluctuate between 5 and nearly 25 per cent, but HECS repayments do not exceed 6 per cent of taxable incomes at any stage.

The extreme situation is for the period in which the graduate is jobless and receiving only unemployment benefits. In those years the bank loan takes around 24 per cent of taxable income for both males and females. As well, when graduates are working half time the proportion of income going to repay the bank debt is still almost 10 per cent. In contrast, HECS payments are zero in the periods of low incomes, and are not more than 6 per cent even when graduate incomes recover. The consequence for HECS debtors, of course, is that while the bank loan is repaid fully in 10 years (at age 31), graduates experiencing periods of low income take until age 38 to repay their HECS debts.

In summary, the exercises reveal that compared to the repayment of a bank loan, HECS delivers important potential consumption smoothing benefits. For situations in which former students experience very low incomes the repayment of normal loans results in very high proportions of incomes being obliged to pay debt, and thus being unavailable for consumption. HECS has no such implication, and this is a critical benefit of an income contingent loan.

CONCLUSION

The Australian higher education financing system incorporated an income contingent loan for the payment of tuition in 1989 through the income tax system, and this was the first time that such an approach to student financing had been used internationally. This paper has: analysed the rationale for income contingent loans; documented Australia's experience with HECS; and illustrated the major benefits of consumption smoothing of income contingent loans.

The two major points are as follows. One, even though HECS meant that students would now be paying for some part of higher education, extensive research into the implications of the scheme for the access of the poor to universities reveals that there have been no discernible effects. Two, through a hypothetical exercise using the HECS rules and contemporary Australian data, it is shown that for those graduates receiving low incomes at some part of their lives there is a considerable potential for the system to provide consumption smoothing.

As noted at the beginning, and reinforced in the discussion concerning the administrative bases required for the institution of an income contingent loan, the main policy conclusions of the paper need to be handled with care. This is because in some countries the institutional framework might be currently inappropriate to allow efficient, even workable, collection of income contingent loans. If this is the case a fruitful policy reform would seem to involve improvements in public sector management.

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ENDNOTES

[i] Practically all Australian universities are in the public sector.

[ii] For simplicity the discussion does not include consideration of the period since 2005, when the scheme was made much more complex. The essential aspect of HECS, income contingent repayment of the debt, remains. For analysis of the likely effects of the changes introduced in 2005, see Beer and Chapman (2004).

[iii] The discussion of this section is based on description from Chapman and Ryan (2002).

[iv] Much of the discussion in this section follows that of Chapman, Rodrigues and Ryan (2007).

[v] See Harrison (1995) for data on US student loan defaults.

[vi] Some of the analysis of this section follows discussion in Chapman (2006).

[vii] For details of the hypothetical bank loan arrangement see Chapman (2006).