Income-contingent Financing of Student Charges for Higher Education: Assessing the Australian Innovation

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Introduction

There is a general consensus among economists that higher education financing policy faces a problem of 'capital market failure'. This means that commercial banks will be reluctant to underwrite loans for education, training or other human capital investments because there is no collateral that could be sold in the event of default on such loans. There are many approaches to this problem internationally. The most common involve targeted assistance for educationally qualified students from poor households, which usually takes the form either of means-tested fee exemptions or the provision of grants or subsidized bank loans to qualifying students. It is argued below that there are important weaknesses with both types of policy.

At least since the 1950s, the economics literature has offered a different solution: income contingent loans (ICLs). Economists such as Friedman (1955) have argued that the capital market problem can be addressed by making the payment of tuition fees or other higher education charges dependent on students' future incomes, rather than current family income. The economic rationale for this alternative to higher education financing is considered briefly later in this article.

In Australia in 1989, for the first time in the world, a broadly based income contingent loan policy for the payment of higher education charges was adopted when the government introduced the Higher Education Contribution Scheme (HECS). This can be seen to be a watershed in terms of the relationship between economic theory and education policy. Fourteen years later it is timely to review Australia's experience with income-contingent charging for higher education. That is the purpose of this article.[1] A conceptual discussion in the second section explores briefly the reasons why an income-

contingent charging system is conceptually superior to alternative approaches to higher education financing. This is followed, in the third section, by a description of the circumstances leading to the adoption of HECS in Australia. The fourth section considers issues of operation of the scheme, focusing on the nature and time stream of students' repayments. The effects of HECS, most importantly with respect to the access of disadvantaged students, are considered in the fifth section. Enough time has now elapsed for useful judgements to be made about the apparent success of the scheme, and the concluding discussion explores the potential for such approaches to be adopted elsewhere. It is apparent that the Australian policy has been very successful, but a major qualification is offered with respect to its adoption in other institutional contexts.

Conceptual issues: what is the right form of government assistance?

Governments have many choices concerning how to finance higher education. In what follows it is assumed, first, that there is a case for public subsidies for higher education, but, second, that there should also be a private contribution through some form of charging, and subsidies should be less than the full marginal costs of higher education.[2] Given these assumptions, the basic question addressed is: what form of government assistance should be provided to prospective students who are unable to pay?

The essential reason that governments are involved in this process is that, in the absence of intervention, the capital market will not offer loans to finance the participation of the poor. This is the critical issue defining the role of the public sector in higher education financing. There are three broad approaches: up-front fees with means-tested scholarships; up-front fees with government-subsidized bank loans; and universally available income-contingent loans. What now follows summarizes the benefits and costs of these alternatives.

Up-front fees with means-tested scholarships

A government could react to the capital market problem by offering exemptions from payment (fee scholarships) to some prospective students. Eligibility can take many forms, with the most common being based on means tests of family income. While such an approach has the potential to assist some poor prospective students, it is not necessarily good policy, for two reasons. First, some prospective students not qualifying for exemption may face a situation in which their families will not be prepared to pay the fees, for example, if there are disagreements between family members concerning the value of

undertaking higher education. Means testing of eligibility implies that some individuals interested in, and with the capacity to benefit from, higher education will be excluded. A second policy shortcoming of selective fee exemption relates to lifetime income distribution. The majority of students will eventually be in receipt of relatively high lifetime incomes. Fee exemptions can therefore be seen as regressive: any form of fee exemption offers important benefits to those subsidized, the majority of whom are considerably more advantaged than the average taxpayers providing the subsidy. Indeed, the case for a charge rests on this basic equity issue.

Up-front fees with government-subsidized bank loans

A different solution to the capital market problem is used in many countries (for example, Canada and many parts of the US) and involves government-assisted bank loans which are available to students from low-income families. Public sector subsidies in these countries take two forms: payment of interest on the debt before a student graduates; and guaranteed repayment of the debt to the bank in the event of default.

This form of assistance seems to address the capital market failure problem in that banks will not be concerned with students' collateral because the government takes over all the risks and costs of default. However, there are several significant problems.

The first inadequacy of government-guaranteed bank loans relates to the fact that loan eligibility is typically means tested on the basis of family income. This raises the important issue, explained above, of the sharing of financial resources within families. This problem could be addressed by making the loans available to all prospective students, since then the sharing of financial resources within families becomes irrelevant to a student's capacity to pay fees. However, default guarantees to banks are expensive because of the relatively high probabilities of default,[3] and this has ensured that they are typically not universally available. It should be noted that the fact that governments guarantee default coverage is likely to minimize the effort that banks put into loan recovery, with this in turn leading to default rates that are higher than would otherwise be the case.

The second problem is that some prospective students qualifying for loan assistance will be unwilling to take out a loan. The major issue is that repayments in most student loan schemes are fixed on the basis of the time allowed for repayment, and are thus not sensitive to an individual's future financial circumstances. Thus borrowers who cannot meet these repayments will incur the penalties of default. The major penalty relates to the damage to the

graduate's credit reputation and thus his or her eligibility for other loans, such as a home mortgage.

Income-contingent loans

A third approach to the higher education financing problem involves the universal provision of income-contingent loans. This policy has several advantages over both scholarships and bank-subsidized loans. First, given universality, income-contingent loans avoid the intra-family sharing issue. Individuals interested in higher education can choose to participate without reference to either fee exemptions or bank loan eligibility. This has the advantage of avoiding the complexities of means testing on the basis of family income and assets. Second, since repayment arrangements depend on a prospective student's future capacity to pay, ICLs have no default risks for borrowers. This is the essential characteristic of income contingency – the considerable uncertainties associated with higher education investments are assumed by the lending agent, the government. Third, unlike other possible government interventions in education financing, income-contingent loans can be designed to be progressive in a lifetime income context. That is, such schemes can be organized in a way that results in graduates with relatively high future incomes repaying more than debtors with relatively low lifetime incomes. One way to make sure this happens is to charge less than a market rate of interest on the debt.

Income-contingent repayment arrangements are not always superior to alternatives. One major issue concerns administration and the collection mechanism, considered further below. An important point is that if a country's institutions are such as to preclude relatively efficient income-contingent collection of debt, then other approaches to financing are preferable, even though they may be conceptually inferior to ICLs.

Implications of different financing approaches

This summary of implications of different public sector financing approaches to higher education suggests that universal income-contingent collection of student charges has important advantages over the more usual forms of government assistance in this area. However, this is not to suggest that an income-contingent charge policy is always superior to scholarships or subsidized bank loan provision of student charging assistance. It should be noted that in some circumstances income-contingent loans for higher education might be very poor policy indeed – for example, when it is not possible to collect the debt. Nevertheless, the above discussion highlights the real possibility that income-

contingent loans for higher education have potentially desirable properties. In the light of this, it is appropriate to consider Australia's special experience with an income-contingent charge policy for higher education.

Australian university financing in historical context

1973 to 1986

Australian universities required students to pay fees until 1973. Even then, the vast majority of students were exempt through the receipt of scholarships awarded on the basis of academic merit. Fees were abolished in 1973 for all students, so 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 1986, with the institution of the Higher Education Administration Charge (HEAC), a small up-front fee of A$250 in 1987, a charge which had to be paid by all university students and 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 student fees, and thus set the scene for more radical reforms involving user charges.

The revenue raised from HEAC was trivial in comparison with the total costs of higher education – amounting to only around 3 per cent of teaching costs. In 1987 taxpayers still provided practically all the finance for higher education. At this time a conjunction of forces made it inevitable that the government would shift more of the costs of higher education to students. First, during the 1980s there was a significant increase in the proportion of pupils completing the final year of high school, but there was no 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 Chapman, 1997; and 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 income redistribution. Their view was that a system which did not charge higher education students was regressive: 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.

Introduction of HECS

In 1987 John Dawkins invited one of the authors of this article 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 to the Minister in October 1987, 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 report recommended the last of these, with repayments being made through 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 Australian Labor Party in government had abolished university fees in 1973, and this had happened under the larger-than-life Labor icon, the 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.

Dawkins's 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 (Commonwealth of Australia, 1988) 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 introduction of a charge of A$2,250 per year (roughly 15 to 20 per cent of average unit costs). This could be paid either as an 'up-front' fee (in which case the charge was discounted) or students could defer payment until after graduation – when the charge would be collected on an income-contingent basis, through the tax system. This feature of the Higher Education Contribution Scheme (HECS) was at that time unique internationally. In 1989 the income threshold for repayment was A$27,700 per annum (around A$33,000 in 2001 terms). At this level of income graduates had to pay 2 per cent of their taxable income each year, with payments rising

to 3 or 4 per cent at higher levels of income. These proportions have since been increased, as shown below.

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 around A$23,000 per annum (see Chapman and Salvage, 1997 for an analysis of the effects of these changes).

HECS has been in operation now for thirteen years and it is thus timely to examine its operation and effects. In anticipation of what follows it is instructive to note that HECS is different in important respects from conventional higher education student loan schemes. These differences are now noted.

HECS compared with conventional student loan schemes

HECS as it now exists is a student loan scheme, and was motivated by the same sort of concerns as those which underpin higher education financial support mechanisms of other countries. However, HECS is operationally distinct, compared with student loan schemes in most other countries which offer what are often called 'mortgage-type' loans. The obvious difference between HECS and normal student loan schemes is that HECS repayments depend on former students' incomes. This is the defining characteristic of the policy.

Second, subsidized bank loan schemes of other countries[4] typically offer assistance to a minority of students with eligibility depending on a range of factors, including family income and age. In contrast, the availability of income-contingent payment of fees through HECS has no eligibility criterion – it is offered to all prospective students. That is, no means testing or other eligibility criteria are necessary. Students wishing to avoid the debt can pay the fee up-front and receive a discount (originally 15 per cent, later increased to 25 per cent). The effects of this on revenue are considered below.

Third, student loan systems in most countries generally offer financial assistance to students for two separate purposes: the payment of up-front tuition charges and income support. However, HECS is only about the repayment of deferred tuition charges.[5] This means that assessment of its effects should be undertaken without reference to the income support potential of income-contingent loan mechanisms. It should be recognized that such systems can easily be extended to cover income support (for an examination of this issue, see Chapman, 1992).

What HECS means for students

Charge levels

Students intending to enrol in Australian universities in 2001 faced tuition charges that varied by course. The bands are shown in Table 1.

Table 1
HECS costs by band, 2001

HECS band	HECS cost for each full-time year (A$)	Disciplines
Band 1	3,521	Arts, Humanities, Social Studies/ Behavioural Sciences, Education, Visual/Performing Arts, Nursing, Justice and Legal Studies
Band 2	5,015	Mathematics, Computing, other Health Sciences, Agriculture/Renewable Resources, Built Environment/ Architecture, Sciences, Engineering/ Processing, Administration, Business and Economics
Band 3	5,870	Law, Medicine, Medical Science, Dentistry, Dental Services and Veterinary Science

Source: Commonwealth Department of Education, Training and Youth Affairs, *HECS: Your Questions Answered, 2001.*

These charges mean that an arts graduate who completes his or her course in three years would incur a HECS debt of between A$10,000 and A$11,000, a science graduate a debt of just over A$15,000, and a law graduate (typically a four-year course) around A$20,000. These debts are indexed to inflation (the Consumer Price Index), and thus there is a zero real interest rate on the debt.

Repayment parameters

Students can choose either to pay their HECS charges at the time of enrolment or defer payment, in which case repayments are collected through the tax system. Those who choose to pay their HECS charges up-front receive a discount of 25 per cent, but the implications of this are not necessarily what they seem. Those opting to defer payment and repay the debt after graduation receive

interest rate subsidies equal to the real rate of interest for each year the debt remains unpaid. A consequence is that students who take the pay-later option will receive greater subsidies the longer it takes to repay the debt (that is, the lower their future income). (For an analysis of the extent of the subsidy see Edwards, 1988; Chapman and Chia, 1989; and Chapman and Salvage, 1997.)

The majority of students choose to defer payment of the HECS charge, and for them repayments commence when individual annual income exceeds a minimum threshold level. In the 2000–1 taxation year, this minimum threshold was A$22,346 per annum, or about 65 per cent of Australian average weekly earnings. Current repayment conditions are shown in Table 2.

Table 2
HECS income thresholds and repayment rates: 2001–2002

HECS repayment incomes in the range:	Percentage of income applied to repayment
Below A$23242	Nil
A$23242–24510	3.0
A$24511–26412	3.5
A$26413–30638	4.0
A$30639–36977	4.5
A$36978–38921	5.0
A$38922–41837	5.5
A$41838 and above	6.0

Source: Australian Taxation Office, Repaying your HECS debt 2000–2.

Typical graduate HECS repayments by age

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 2001 HECS repayment parameters have been applied for male and female students, assuming: they begin a four-year science degree at the age of eighteen, graduating at twenty-two; and after graduation take a full-time job earning the average income by age of graduates of their sex. The earnings function data have been derived from the Australian Bureau of Statistics 1995 Income and Household Survey, updated to 2001 Australian dollars. The results for males and females respectively are shown in Figures 1 and 2.[6]

Figure 1
Earnings before and after HECS: males, 2001 (A$)

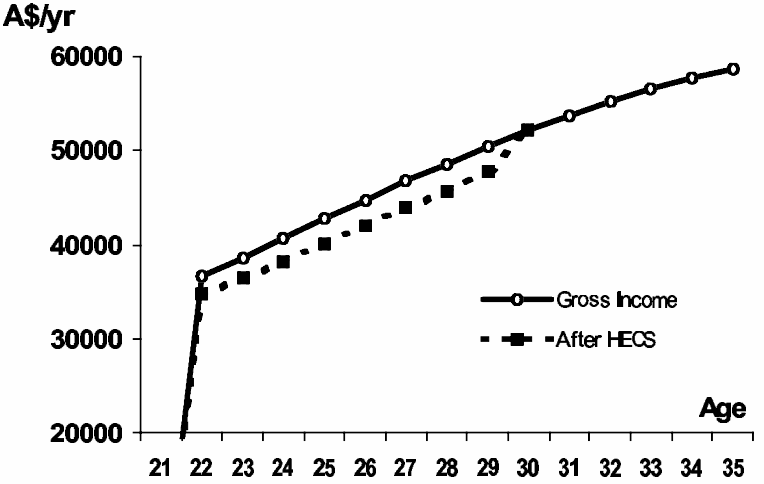
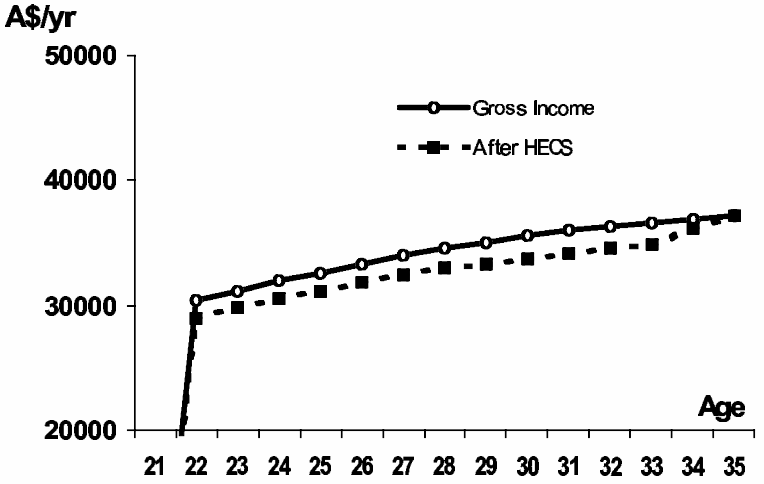


Figure 2
Earnings before and after HECS: females, 2001 (A$)



The data of Figures 1 and 2 illustrate the following: male science graduates earning average graduate incomes will repay HECS in about eight or nine years; equivalent females will repay HECS after about 12 years. The above data are offered to illustrate typical HECS repayments. Of course, there will be a large variation in repayment profiles given that annual contributions depend on individual graduates' incomes. Micro-simulation analysis of repayment profiles of HECS illustrates this point (see Harding, 1995).

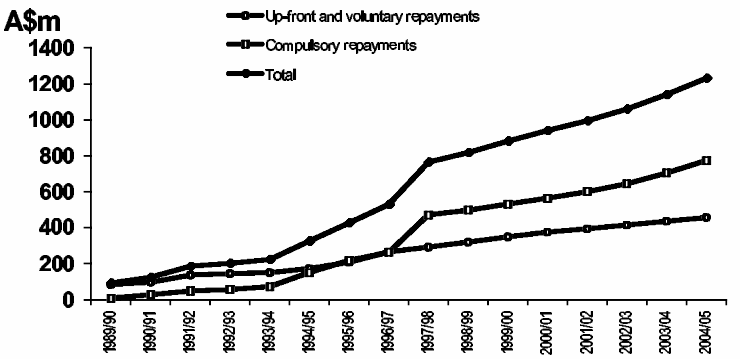
The effects of HECS

In terms of policy assessment there are two critical questions: what are the consequences of HECS for the level and stream of government revenue; and what are the implications of the scheme for access to higher education of the socially disadvantaged. These are now considered in turn.

HECS revenue

The first issue relates to the stream of revenue received by the government from HECS. As noted above, students have the choice of paying their HECS charges upon enrolment, or through the tax system. Figure 3 shows the revenue received by the government from 1989 to 1999, and projections of future payments to 2005.

Figure 3
Actual and projected HECS revenue: 1989–2005 (A$)



Source: Commonwealth Department of Education, Science and Technology.

Up-front ('voluntary') payments and repayments through the tax system ('compulsory') are shown separately in the figure. It is of interest that even in the first year of HECS around A$100 million was raised from up-front payments encouraged by the (then) 15 per cent discount. The policy implications of this are significant: it shows that the introduction of an income-contingent charge scheme can provide substantial revenue to governments quite quickly.

Not surprisingly, repayments through the tax system were modest in the early years of the operation of HECS. This is because very few graduates earned incomes high enough to require repayment. However, income-contingent repayments increased substantially as more graduates became eligible for repayment, thresholds were lowered and a higher proportion and number of graduates faced higher repayment rates. Taken together, up-front fees and income-contingent repayments through the tax system now represent a very significant and growing proportion of the cost of higher education in Australia. In 2001 students provided over A$800 million, which is around 20 per cent of the total recurrent costs. In 2005 it is projected that this proportion will rise to over 30 per cent.

Effects of HECS on access for the disadvantaged: previous research

HECS was designed to minimize the extent to which the imposition of a charge would preclude the participation of poor prospective students. This is a critical issue for policy. Fortunately, there is now considerable evidence on the effects of HECS on the access of the disadvantaged to higher education. Two approaches have been used in the existing literature. The first has been to ask prospective students about the factors shaping their higher education participation decisions. Chapman (1997) summarizes a number of studies which typically show that HECS has not been a dominant factor influencing individual decision-making, either in aggregate or for students from disadvantaged backgrounds. The second approach to assessing the impact of HECS on the participation of the poor has been to test statistical relations on the question of whether or not higher education participation behaviour differed between socio-economic groups after HECS was introduced, and after the changes introduced in 1997. Some of these analyses are now described briefly.

Andrews (1999) measured changes in proportions of first-year higher education students from relatively poor backgrounds, as measured by the average income of their local area. His research showed that the share of students from the lowest income quartile did not change after HECS charges

and repayment conditions became less generous for students in 1997. Andrews also analysed attitudes to debt by individuals according to income, and concluded that patterns in Australia tend to reflect an urban/rural dichotomy rather than any variation by income. Andrews concluded that neither higher HECS charges nor the lowering of the income repayment thresholds affected the higher education participation of poor groups.

Other studies concerning the participation of the poor have utilized individually based income measures. Long, Carpenter and Hayden (1999) and Marks, Fleming, Long and McMillan (2000) use panels of longitudinal data from the Youth in Transition Survey, conducted by the Australian Council for Educational Research, to identify the extent to which education participation changed in Australia from the 1980s to the late 1990s. These studies use an indirect wealth index constructed from responses by individuals to questions about the presence of material possessions in their houses at around the age of fourteen.

Not surprisingly, the results of the above studies suggest that wealth is strongly positively related to individuals' higher education participation. While Long et al. (1999) found also that higher education participation differences by wealth widened initially, they suggest that this trend was evident in the earlier cohorts and not obviously related to HECS. The research by Marks et al. (2000) added a new cohort to the same panels employed by Long et al. Their research suggests that socio-economic status became less important in determining higher education participation in the late 1990s than was the case for earlier cohorts. That is, HECS did not seem to be associated with lower participation in higher education of relatively poor prospective students.

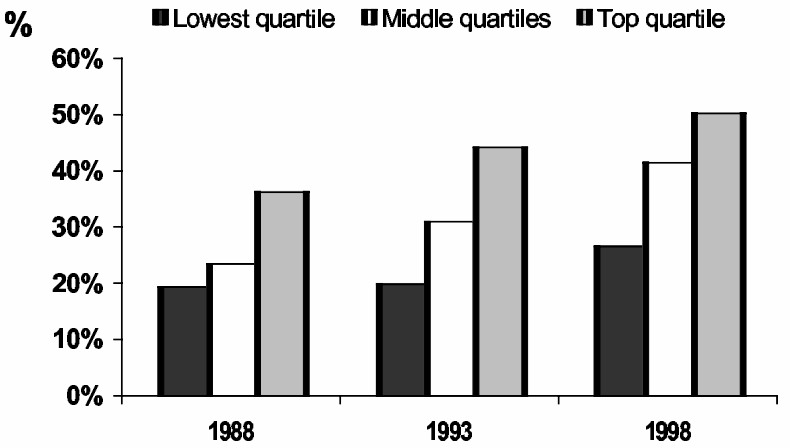
Effects of HECS on access for the disadvantaged: new evidence

There are a number of methodological and measurement questions in both the Long et al. and the Marks et al. exercises. These issues are considered in Chapman and Ryan (2002) in exercises using the same data sets. Background technical explanations are not apposite here: what matters for the current exercise is that our revisions allow additional insights into the effects of HECS on the access of poor prospective students, and these are now summarized.

With what is arguably an improved approach, Chapman and Ryan address the following questions. What was the level of university participation with respect to family wealth of eighteen-year-olds, before the introduction of HECS (as measured in 1988); some time after this (as measured in 1993); and after the marked changes to the scheme in 1997 (as measured in 1999)? For each year we considered only eighteen-year-olds, and these groups were classified into three

wealth categories: those from the bottom quartile; those from the top quartile; and those from the middle two quartiles. These classifications allowed measurement of the proportion of young people enrolled in higher education from different wealth backgrounds. Figure 4 shows the results.

Figure 4
Proportion of 18-year-olds undertaking a degree by family wealth



The data of Figure 4 should be interpreted as follows. For each of the years 1988, 1993 and 1999 the bars show the proportion of those aged eighteen who were enrolled in higher education from the three wealth categories. There are three significant results. First, before the introduction of HECS, there was a clear relationship between enrolment in higher education and measures of family wealth. Specifically, the proportions enrolled from the lowest, middle and highest groups were respectively around 19, 24 and 36 per cent. Second, the data show that higher education participation rates did not fall for students from any family wealth group after the introduction of HECS. Even so, the increase in the proportion of young people attending university was clearly larger for those from the middle and highest wealth groups. Third, the large changes to HECS introduced in 1997 had no adverse effects on participation for members of any wealth group; indeed, there were large higher education participation increases for those from all family wealth backgrounds.

The conclusions from both the previous and new research are as follows:

1. 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.
2. The introduction of HECS was associated with aggregate increases in higher education participation.
3. HECS did not result in decreases in the participation of prospective students from relatively poor families, although the absolute increases were higher for relatively advantaged students.
4. The significant changes to HECS introduced in 1997 were associated with increases in the participation of individuals irrespective of their family wealth.

Summary and a caution

Government intervention is required in the financing of higher education. Without public assistance there will be adverse economic and social consequences: talented poor prospective students will be unable to finance the payment of fees and this necessarily means both economic waste and the perpetuation of inter-generational inequalities. This is generally accepted and has resulted in various forms of government financial assistance. Some countries choose to subsidize fully the costs of higher education, while others offer government-assisted bank loans to a proportion of potential higher education participants. It has been argued above that, for reasons of equity and efficiency, these approaches have significant weaknesses. Economic theory illustrates that, conceptually, the preferred approach is income-contingent charging.

Such a system was adopted in Australia in 1989, and this country's experience is thus of significant policy interest. The major results are as follows. First, HECS has raised, and continues to raise, considerable revenue. This has been used to help finance a large expansion in Australian higher education. Second, there have apparently been no adverse consequences for the participation of relatively disadvantaged prospective students. Indeed, the participation of young people has expanded for members of all socio-economic groups.

These findings strongly promote the case for other countries to adopt similar arrangements. Indeed, since 1989 this has happened in different forms in New Zealand, the UK, Ghana and Namibia, and is currently under active consideration in others (for example, Ethiopia, Hungary, Malaysia and Rwanda). Income contingency seems to be here to stay.

Nevertheless, there remains an important qualification, which is related to administration. An income-contingent loan approach requires that a government is able to do at least two things efficiently. First, individual students' incomes need to be recorded accurately over time. This requires a mechanism involving a unique income identification system. This need not necessarily be the same as that used in Australia (income taxation), but some mechanism is necessary. Second, there has to be an efficient collection mechanism. That is, if there are simple ways for former students to avoid repayment obligations, income-contingent approaches will not work. The advantages of income contingency for policy are such as to suggest that major energies need to be directed to overcoming these critical administrative challenges.

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Notes

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[1] While a similar exercise is reported in Chapman (1997), the current article offers both an update of that analysis, specifically with respect to the effects of policy changes introduced in 1997, and new research concerned with the access of the disadvantaged to higher education

[2] The basis for this case is well-known and is explained further in Chapman (1997).

[3] The evidence on default rates from such loans illustrates the associated government costs. For example, Harrison (1995) shows that in the US around 10–30 per cent of student loans for college education are defaulted, and that the percentage increases to around 50 for two-year proprietary school borrowers (that is, those taking private vocational courses).

[4] See, for example, the description of the Canadian system in Finnie and Schwartz, 1996.

[5] There is a separate system of support for students' living costs – called AUSTUDY.
[6] Bruce Chapman and Tony Salvage prepared the estimates for this article.

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