

Income Contingent Loans for Mature Aged Training

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Abstract

It is arguably the case that insufficient income support is restricting the educational choices of mature aged persons with dependants and other financial burdens. Removing financial barriers to further education may improve the opportunities for mature aged persons to re-skill, enabling transitions to specific areas of labour force demand. There is evidence, albeit indirect and suggestive only, of unmet demand for additional financial assistance to facilitate higher education investments of the mature aged. Survey data may be interpreted to indicate that an important policy issue exists, and this is the motivation for our exercise. As a possible solution to unmet demand we analyse, explain and promote the idea that the Higher Education Contribution Scheme (HECS) mechanism could be used to supplement significantly the income available for mature aged human capital investment. The major contribution of this work is the illustration of the consequences of a HECS-type policy for mature aged training, in two main regards: the structure of loan repayments for particular hypothetical families; and the implications of our scheme design for government outlays, revenues and implicit taxpayer subsidies. A broad conclusion is that there seems to be a real possibility for the design of a scheme in this area that offers considerable and fair opportunities for additional participation of mature aged trainees with no or little costs to taxpayers.

1. Introduction

There are two aspects to the higher education financing issue for students, the payment of tuition and the need of some students for income support throughout the process of investment in the acquisition of human capital. Capital market failure is a fundamental aspect to the process, and the essential reason that government intervention is needed. But if the right approaches are not adopted, or the appropriate levels of subsidy or support are not available for prospective students, the system will not deliver suitable enrolment outcomes.

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We consider below the evidence for the proposition that there is unmet demand by the mature aged in Australia for additional higher education financial assistance. The data are indicative and not conclusive, but they suggest the possibility that there is an important underlying policy issue.¹

If it is as we conjecture, that there are indeed too few mature aged individuals willing or able to access higher education because of poor policy design, this results in two significant adverse policy outcomes. One, in a long run context, the system will be undereducated compared to a situation in which the policy settings are correct, which results in an inability to deliver the socially optimal amounts of human capital investments. Two, at different times over the business cycle inadequate quantities of educated labour amongst specific professions could result in relatively severe skills shortages, such as those apparently emerging before the recent onset of the global financial crisis. A major consequence from this is that wage inflationary pressures can emerge with undesirable monetary policy reactions, leading to lower levels of output than could otherwise have been achieved.

It is argued in this paper that while the HECS arrangements are generally well designed for the payment of tuition, the income support levels available for Australian potential higher education mature aged training are insufficient to promote the apposite level of investments. We argue that for individuals with dependants, and other financial obligations such as mortgages, Austudy grants are inadequate and some additional form and level of assistance is needed. We analyse, explain and promote the idea that the HECS mechanism could be used to supplement significantly the income available for mature aged human capital investment.

In what follows we offer a conceptual explanation of the issues, but the major contribution of the exercise relates to the illustrations of the consequences of a HECS-type policy for mature aged training in two main respects: the structure of loan repayments for particular hypothetical families; and the implications of our scheme design for government outlays, revenues and implicit taxpayer subsidies. A broad conclusion is that there seems to be a real possibility for the design of a scheme in this area that offers considerable and fair opportunities for additional participation of mature aged trainees with no or little costs to taxpayers.

2. Government Involvement in Higher Education Financing: Conceptual Issues

Why Government Intervention is Necessary in Higher Education Financing

Barr (2001), Friedman (1955), and others (see, Chapman, (2006) for a comprehensive list) recognise that, left to itself, the higher education system will not be able to deliver either fair or efficient outcomes. This is a market characterised by significant uncertainties for students, and high risks for prospective lenders. And because there is no collateral in the event a student borrower defaults, banks will not be interested in the provision of loans to help disadvantaged prospective students cover tuition and income support needs. Government intervention is necessary.

¹ While it is acknowledged that Australia does not have a paucity of mature-aged students compared with the OECD average, tertiary educational attainment remains below that of the US for all mature age generations (Tunny, 2006). Regardless of the specific Australian circumstances, the policy suggestion proposed in this paper may be of interest internationally.

Internationally there are two approaches to the problem. The first is the provision of bank loans with a government guarantee, usually to a subset of students, and this is the approach adopted in the USA and Canada, among others. The second is income contingent loans (ICLs).

Government guaranteed bank loans have the significant benefit of removing the cost to the lender of default. They also allow private sector financing of important aspects of the higher education system. However Chapman (1997) argues that a government guarantee for bank loans does not address an important aspect of the higher education financing process. This is that while the lender is protected from the costs of default by the government guarantee, the borrowers – students – are not.

This means that students taking out bank loans might not be able to meet their repayment obligations and, in an extreme situation, could be declared bankrupt. Such an outcome has a very serious consequence: it necessarily adversely affects a former student's credit reputation, and thus access to or the price of other loans, such as to finance the purchase of a house.

A related concern is that bank loans are characterised by repayments of set amounts over a given time period. This means that, independently of a borrower's ability to meet the repayment obligation, in periods of future economic difficulty a borrower could experience economic hardships in order to meet the commitment.

ICLs, on the other hand, have two important benefits compared to government guaranteed bank loans, both related to risk management for borrowers. The essential point is that with an ICL, if the borrower's circumstances are adverse in a particular period, no loan payments are required. This results in the fundamental benefit of an ICL, the availability of insurance, providing both default-protection and consumption smoothing (Chapman, 2006).

Adverse Selection and Moral Hazard with ICLs

In all ICL applications, including for mature aged income support, there are significant economic and administrative issues that have to be addressed to ensure successful policy implementation. The most important of these are: so-called 'adverse selection'; so-called 'moral hazard'; and, the design of loan collection arrangements. These are now considered briefly.

Adverse selection in the context of ICLs is the notion that if agents are offered choices as to whether or not they take a loan to be repaid contingent on future financial success, the take-up should be higher for those expecting to do poorly. Adverse selection thus has the potential to undermine the basis of an ICL, potentially resulting in low repayments and heavy subsidies to the least efficient and least deserving of those targeted for assistance. ICLs have a relatively high potential to resolve the adverse selection problem if arrangements can be made compulsory by law (Chapman, 2006).

However, in many possible ICL applications compulsion is not possible. Accordingly, for an ICL to be associated with reasonable repayments, there needs to be a vetting procedure, a qualification process, for loan applicants to ensure that the chances of non-repayment are not too high. Our discussion below emphasises the nature of the adverse selection problem in respect of mature aged training income support, and we have designed the policy to take explicit account of the issue.

Moral hazard in the context of ICLs is the notion that debtors might be able to avoid repayments through unethical behaviours, such as tax (and thus ICL obligation)

evasion. A different type of moral hazard might take the form of labour market or business effort, since debt repayments will be lower if an individual or enterprise is relatively unsuccessful. Again, our proposed scheme takes these potentials into account in ways that are explained.

3. The Policy Issue

Background

A specific example of increasing human capital investments to socially optimal amounts, and addressing potential skills shortages in particular professions, would be to target policy assistance to those with professional qualifications, particularly if they have experience in a complementary industry. For example, it is likely that a tertiary qualified mathematician with ten or more years of experience in that profession could be re-trained as an engineer without the need to enrol in a four-year degree course. Moreover, experienced professionally qualified persons are likely to be amenable to a learning timeframe that is more rapid than that faced by a typical tertiary student.

However, full-time professionals aged in their 30s or early 40s who are contemplating career change are likely to have significant fixed costs such as mortgages and the payment of the school fees of their children. A person in these circumstances seeking to gain new qualifications will need to finance both 'living' expenses and education fees, with the former constituting the major cost.

As is the case with other students, a person in these circumstances will not be able to borrow from a financial institution against future enhanced human capital because this investment process is not associated with saleable collateral in the event of default. Moreover, it is possible that a risk averse person would choose to remain employed in their current position rather than risk previously accumulated assets against the uncertainties of both completing their study and succeeding in a new career.

Existing Income Support

Australian residents aged 25 or over who choose to undertake study at an approved education institution may be eligible to receive Austudy. The January 2009 rate of Austudy for a partnered parent with dependent children is \$407.80 per fortnight, equivalent to an annual income of around \$10,600. Importantly for our policy discussion, a partnered parent with dependent children receives only \$18 per week more than a single person without dependants who also qualifies for Austudy.

While parents with dependent children are generally entitled to additional assistance under the Family Tax Benefit system, because of the relative generosity of the income test a single income earner with one or more dependants whose income was at, or below, 72.5 per cent of Average Weekly Ordinary Time Earnings (AWOTE) (May 2008) would be in receipt of the maximum amounts of family assistance. Hence no additional family assistance would be available for a person in these circumstances who chooses to take a year off paid employment to study. If a single income earner with one or more dependants had earnings equivalent to AWOTE (around \$58,800 per year), additional family assistance of only \$62 per week would be available while studying.

Reflecting Australia's tightly targeted income support system, Austudy eligibility is also subject to personal and family income tests, an assets test and a liquid assets test.² Rules are such that payment of Austudy ceases fully when private income reaches \$1060.34 pf (\$27,569 pa). Clearly, if income replacement is the major hurdle

for someone contemplating a professional career change, the existing income support system available to students is unlikely to be sufficient to overcome that barrier.

Because persons choosing to change careers in, say, their 40s would have a significantly smaller future earnings profile (and may already have benefited from subsidised tertiary costs) it is more problematic to mount a case for additional public subsidy via the student income support system than for younger students with a potentially full career ahead of them. As such, the proposal in this paper is that up-front government assistance via a contribution to income maintenance could be required to be repaid by the individual receiving the assistance. That is, the benefit to the individual is that society will facilitate the career change choice through financial assistance, but a case exists for some form of an interest charge on the loan that might equate to the Government's opportunity cost of funds.

Is There Unmet Demand for Additional Income Support for Mature Aged Prospective Students?

For this policy issue it is important to establish whether unmet demand for higher education financial assistance exists for the mature aged. If, in the first instance, the target population is professionally qualified individuals, then constraining data exploration to tertiary (and possibly vocational) graduates is appropriate. An extant data source that may shed light on potential demand for further education among graduates is the 2005 Survey of Education and Training from the Australian Bureau of Statistics. Analysis of the associated Confidential Unit Record File (CURF) indicates that in 2005 there were approximately 145,000 individuals aged 30 to 49 who were studying for university qualifications and who had previously completed tertiary qualifications (ABS, 2005). The equivalent estimate for university and TAFE graduates who are undertaking additional university or TAFE study, is close to 450,000.

The critical issue concerns the extent to which there might be take-up of additional income support if policy reform allowed this. The closest statistic available indicating this potential take-up is the number of people with university qualifications who wanted to undertake further study for an educational qualification, but said that they didn't do so due at least partly to financial reasons. Using the 2005 CURF, approximately 125,000 persons aged between 30 and 49 are estimated to be in this category. There is a closer indication of potential unmet demand using the same data source, and this relates to the number of persons who said they wanted to undertake further study but didn't and gave as their *main* reason financial factors: for the 30-49 year old category of graduates this number was 67,000.

While these are apparently large numbers when considered in the context of the overall size of the tertiary education sector it is wise to be cautious in their use for projecting potential take-up of a new tertiary education financial instrument, for several reasons. First, it is possible that the amount offered through an ICL would be insufficient to overcome the financial barrier, restricting further study for some. Second, it may be the case that the additional study intended from some respondents

² Eligible recipients of Austudy can earn up to \$236 per fortnight (equivalent to \$6136 per annum) before the payment is reduced by 50 cents for each dollar earned between \$236 per fortnight and \$316 per fortnight and then reduced by 60 cents for each additional dollar earned. The assets test allows home owners to have assets (excluding the home) of \$243,500 before Austudy payments start to be reduced (for non-homeowners, the asset threshold is \$368,000). Eligibility for Austudy may be subject to deferment if a couple have liquid assets in excess of \$5,000.

pertains to study for reasons primarily of personal satisfaction rather than to improve existing skills or re-skilling for employment purposes. Although we are unable to glean this information for persons with existing degrees, related statistics from the same survey show that nearly 90 per cent of persons aged 30 to 49 who were studying for a university or TAFE qualification in 2005 were doing so to improve work prospects. In summary, the data imply broadly that there is a significant potential demand for additional financial study assistance for the mature aged.

As noted above, means tested income support payments are also available to mature aged persons, but for a person employed in a profession the opportunity cost of full-time study in terms of foregone income would be significant. As such, mature age persons seeking to undertake further tertiary study tend to utilise other arrangements. These include forgoing leisure, rather than income, by continuing to work full-time and study part-time. Mature age persons will also seek support from their employers to undertake further study which can include payment of course fees and time away from work to study. Almost invariably, support from employers would involve a course of study that leads to a deepening of existing qualifications for the benefit of current employment, as distinct from a broadening of the individual's human capital to acquire new skills and qualifications that could enable transitioning to a new career. Related to this is that despite the approaches used by some – for example, foregoing leisure or utilising employer support – these methods are not sufficient to overcome the policy problem, which apparently remains given the evidence of unmet demand as indicated with the data described above. That is, with part-time study and full-time work there will be a loss of 'psychic' income given foregone leisure (see, Chapman, 1977).

Estimating the Financial Needs of Families

Modelling was undertaken to first estimate the financial needs of mature age persons intending to return to study. In order to establish financial needs, the disposable income for professionals engaged in full-time employment was compared with the disposable income that would be available if the mature aged person ceased work to study. The shortfall between these amounts was taken as the required income maintenance, or loan amount.

To establish the disposable income for professionals engaged in full-time employment, wage/salary income profiles for this population were first estimated. The income profiles were established for hypothetical individual labour force profiles on the basis of sex through the extraction of personal income data of degree holders in full-time work from the 2003-04 and 2005-06 ABS Income and Housings Costs Survey CURFs. These income data were then adjusted by changes in Average Weekly Earnings (AWE) to reflect 2008 levels. The income data were grouped into Low, Medium and High earnings categories by using the 16.5, 50 and 82.5 percentiles of income respectively. Using a productivity growth rate of 1.5 per cent as a proxy for growth in real wages, a dynamic cross-section was derived to project individual's wage income from 30 to 64 years of age. Current welfare, family assistance and taxation systems rules were applied to the wage/salary income profiles to determine disposable incomes.

In modelling the financial needs of potential mature aged professional students, it is instructive to use the case of families with dependent children. In particular, it is likely that a single income family represents the 'worst' case in that with dual income families there is potential for the other partner to cover some of the lost income of the student. Similarly, while many families do not have dependent children, it is likely

there is less discretionary income available to be spent on self-education in a family where dependent children are present. For illustrative purposes it was assumed that each family had a child under five years of age and (where eligible) qualified for the higher rate of Family Tax Benefit, Part B.³

Table 1 shows the income shortfall for a low-income professional with dependent children and a spouse, in the event that the professional ceases employment and undertakes further education. Shortfall amounts are given for cases when the spouse has: zero private income (NILF); part-time work (16 hours) at the minimum wage (P/T MinW); full-time work at the minimum wage (F/T MinW); part-time work (16 hours) at average weekly earnings (P/T AWE); and full-time work at the average weekly earnings (F/T AWE) – for ages 30, 35, 40 and 45 respectively.

The income shortfall in the scenarios ranges from approximately \$15,000 to close to \$40,000 per annum. Financial modelling of the proposal was based on the low-income professional range (that is, the 16.5 percentile), and the lowest shortfall from the scenarios considered. While the level of an individual's income would not necessarily restrict eligibility, for equity reasons and to limit costs and moral hazard, the maximum level of financial assistance should be that required by those on low-income professional wages.

Table 1 - Income Shortfall for Low-Income Professionals with Dependent Children

Males	Age 30	Age 35	Age 40	Age 45
Income prior to further education	\$43,900	\$53,300	\$54,100	\$50,500
Partner Income	shortfall			
NILF	\$17,200	\$21,500	\$21,800	\$20,200
P/T MinW	\$19,000	\$25,200	\$25,700	\$23,300
F/T MinW	\$22,600	\$28,800	\$29,300	\$27,000
P/T AWE	\$21,600	\$27,800	\$28,300	\$25,900
F/T AWE	\$31,700	\$37,900	\$38,400	\$36,100
Females	Age 30	Age 35	Age 40	Age 45
Income prior to further education	\$39,900	\$41,700	\$39,900	\$42,400
Partner Income	shortfall			
NILF	\$14,800	\$16,000	\$14,800	\$16,400
P/T MinW	\$17,200	\$18,000	\$17,200	\$18,300
F/T MinW	\$20,000	\$21,200	\$20,000	\$21,600
P/T AWE	\$19,000	\$20,200	\$19,000	\$20,600
F/T AWE	\$29,700	\$30,400	\$29,700	\$30,700

4. Designing, Modelling and Costing the Scheme

Scheme Design: Adverse Selection and Moral Hazard

Proposals such as the one described below need to be designed with the issues of adverse selection and moral hazard in mind, as stressed in section 2. There are several aspects of the scheme that have been motivated by these concerns. Apart from limiting access to the scheme to university graduates with previous employment history, there

³ Eligibility for the higher or lower rate of FTB(B) had only a very minor impact on disposable income differences in the modelling.

are two other filters that can be used to try and address the two concerns of adverse selection and moral hazard. These are to limit access to the ICL to specific skills training, for example training that has been formally identified as being associated with a skills shortage, and to impose an age limit on the scheme.

Because the policy is aimed at the mature aged and the modelling shows repayment periods can exceed a decade, it would be appropriate to put an age limit on access. Earnings profiles show that professional salaries fall off rapidly from around age 60 and the fall-off is at such a rate that salary levels would slip below current HECS-HELP repayment schedules. If the scheme is to remain cost effective, this suggests that levels of subsidy may need to decrease with age.

Loan Levels and Repayment Arrangements

The data presented in section 3 suggest that an ICL of \$15,000 would go some way to cover the disposable income shortfall that would be experienced by a low-income professional who substituted a year of earnings for a year of study. As noted earlier, given the shorter earnings profile of mature aged professionals who might take up this scheme it may be appropriate to seek full reimbursement of the value of the ICL including the cost of funds to government. One way to achieve this is to use a mechanism such as FEE-HELP that attempts to approximate the Government's (real) opportunity cost of funds through the application of a loan fee surcharge of 20 per cent, which is how FEE-HELP loans are currently designed.

It is worth noting in passing, that given that HECS-HELP has a 20 per cent discount applied for up-front payment, a case can be made that the appropriate loan fee should be 25 per cent, rather than the FEE-HELP rate of 20 per cent. This would mean that a person eligible for the \$15,000 ICL would be required to repay \$18,750 rather than \$18,000. Nevertheless, for the examples below a 20 per cent surcharge is assumed, since the simplest way to adopt the suggested proposal would be to use the existing FEE-HELP system. In addition to this surcharge, as with HECS-HELP, it is assumed for this exercise that the debt increases with inflation.

The time to repayment for individual debtors and the potential cost of the proposal are critically dependent on assumptions in addition to debt level and indexation, such as repayment rates and thresholds, and the future income of debtors, including the chance of successful transition to higher incomes following completion of study. HECS-HELP repayment rates and thresholds are assumed for the modelling undertaken here.

Whether other HECS-HELP or FEE-HELP debt already exists can extend the time until repayment and thus increase the costs of the proposal through higher implicit interest rate subsidies. Those taking up the ICL would need to finance tuition fees and may choose to do so via the HECS-HELP or FEE-HELP mechanism. This would involve an additional liability, assumed for this exercise to be \$10,000 (plus a 20 per cent surcharge).

Illustrating Repayment Profiles

Figures 1 and 2 provide examples of repayment schedules and income sources for a single income family with one dependent child (aged under five years) where income prior to study is in the middle of the bottom third of professional incomes (the 16.5th percentile). For figure 1 the primary earner is a 35 year old female. Following a year of study it is assumed she successfully moves to the 50th percentile of professional

incomes. For figure 2 the primary earner is a 40 year old male. Following a year of study it is assumed he successfully moves to the 25th percentile.

Figure 1 - Repayment Schedule for 35 Year Old Single Income Female With One Dependant, Transitioning From the 16.5th Percentile to the 50th Percentile of Income Following Study

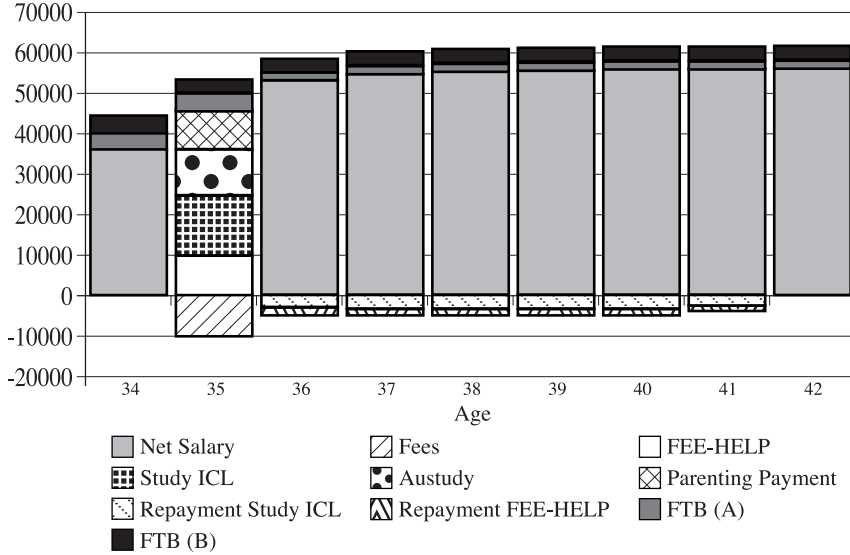
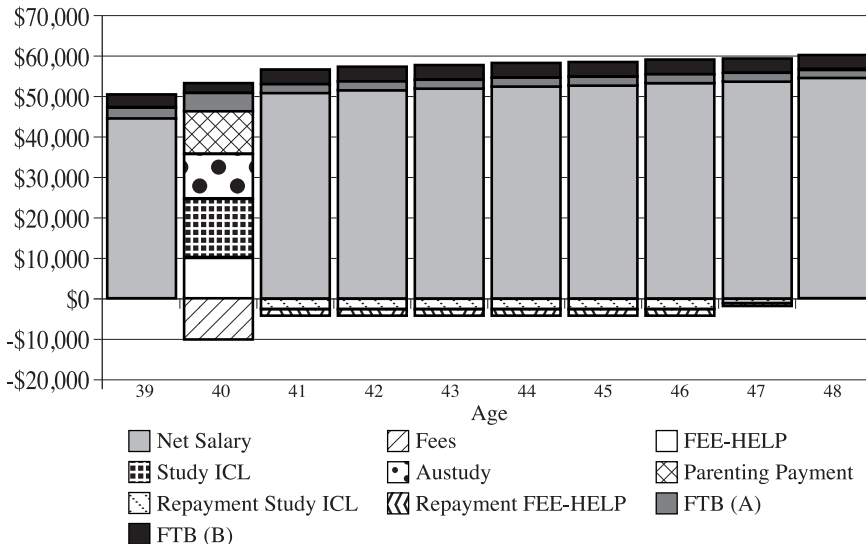


Figure 2 - Repayment Schedule for 40 Year Old Single Income Male With One Dependant, Transitioning From the 16.5th Percentile to the 25th Percentile of Income Following Study



The time to repayment is between six and seven years for these scenarios. Notably, if we assume that there is zero HECS debt initially then the time to repayment reduces to approximately four years in both cases. As is the case for all income contingent schemes, the time until repayment can vary markedly for different incomes. Table 2 illustrates the repayment times applicable to various groups by age and sex for an income support ICL of \$15,000 and a HECS-HELP repayment of \$10,000, both with 20 per cent surcharges.

Table 2 - ICL Repayment Times (Years) for Males and Females, Aged 30-45 at Selected Income Levels

<i>Graduate Income Percentile Post-ICL</i>	<i>16.5</i>	<i>25</i>	<i>50</i>	<i>75</i>	<i>82.5</i>
Males					
30	10	8	5	4	4
35	9	7	5	3	3
40	10	7	5	3	3
45	10	7	5	3	3
Females					
30	17	11	7	5	4
35	16	11	6	5	4
40	15	10	6	5	4
45	13	9	6	5	4

Aggregate Costings and Taxpayer Subsidies

In addition to the assumptions given above, estimates of aggregate costings require assumptions concerning take-up rates. For our aggregate costings we assume an equal number of 30 year old, 35 year old, 40 year old and 45 year old male and females accessing the ICL proposal. A real discount rate of three per cent real per annum is assumed to be the cost of borrowing for the government as loan provider.⁴

The aggregate costs estimated here are based on discrete income percentiles extracted from the ABS CURF data. Even at the lowest of these percentiles considered (the 16.5th percentile) the income exceeds the lowest repayment threshold, and thus the debt would be repaid. In reality, some incomes will fall below the threshold, and there is a need to incorporate this possibility when costing the proposal. With this in mind, we have assumed a doubtful debt component for the aggregate costs. A recent doubtful debt estimate for HECS-HELP is close to 20 per cent (DEST, 2007, p. 405). Persons eligible for this proposed ICL scheme will have already successfully completed a degree course and have an employment history, thereby improving the likelihood of future success in study and employment. Consequently, an assumption of a doubtful debt of 10 per cent is regarded as conservative, though costings are particularly sensitive to the doubtful debt assumption.

A conservative aggregate costing is based on the following assumptions: a

⁴ The assumption of a three per cent (real) discount rate is consistent with the average gap between nominal 10-year government bond yields and CPI over the past decade (RBA, 2009a and 2009b). A three per cent (real) discount rate and a 20 per cent loan fee (surcharge) are also consistent with costing of other proposed ICLs. See, for example, Chapman and Higgins (2009) in this volume. Note that the choice of discount rate has a significant impact on costs.

three per cent (real) per annum discount rate; an income support ICL of \$15,000 with a 20 per cent loan surcharge; a FEE-HELP debt of \$10,000; doubtful debt of 10 per cent with the remaining 90 per cent of applicants from the median of the bottom third of incomes (16.5 percentile). Tables 3a and 3b show examples of disaggregations of the implicit taxpayers' subsidies associated with the scheme for a variety of doubtful debt and income transition assumptions following additional study. Table 3a presents the future earnings assumptions for loan recipients following completion of further study for five different scenarios (where loan recipients are assumed to have income at the 16.5 percentile prior to further study). Table 3b gives the subsidies for males and females of different ages for each of the five scenarios from Table 3a.

Table 3a - Post-Study Earnings Assumptions for Different Scenarios (Values are Expressed as a Proportion of Loan Recipients)

Scenario	Doubtful debt (per cent)	Earning at the same income* (per cent)	Earning at the 25 percentile (per cent)	Earning at the 50 percentile (per cent)	Earning at the 75 percentile (per cent)	Earning at the 82.5 percentile (per cent)
1	10	90	0	0	0	0
2	10	50	10	10	10	10
3	10	30	15	15	15	15
4	5	95	0	0	0	0
5	5	20	20	20	20	15

* Loan recipients are assumed to be at the 16.5 percentile income prior to further study.

Table 3b: Implicit taxpayer subsidies for the income scenarios from Table 3a (per cent). Loan of \$15,000 and HECS-HELP debt of \$10,000.

Scenario	Average subsidy	Males					Females			
		30	35	40	Age		35	40	45	
1	11.6	8.1	6.0	7.6	7.9	16.2	17.3	17.6	11.8	
2	7.0	4.9	3.1	4.0	4.3	10.5	10.8	11.0	7.5	
3	4.7	3.3	1.7	2.3	2.5	7.7	7.5	7.7	5.4	
4	6.6	3.0	0.8	2.5	2.8	11.6	12.7	13.0	6.9	
5	-1.7	-2.9	-4.5	-4.1	-3.8	1.1	0.6	0.8	-1.0	

Some broad results from table 3b are taxpayer subsidy rates from the scheme of:

- (i) 11.6 per cent on average for those who gain no additional earnings from study (comprised of between about six and eight per cent with respect to males and 12 and 18 per cent with respect to females); and
- (ii) -1.7 per cent on average for those who generally gain important increases in earnings from study (comprised of between -3 and -4 per cent with respect to males and between -1 and 1 per cent with respect to females).

The results are sensitive to many parameters. For example, the analysis shows that successful transitions for half of the 16.5th percentile to the 25th percentile reduces

the subsidy rate from 11.6 per cent to 8.8 per cent. Continuing with this example, if the doubtful debts are then halved to 5 per cent, the subsidy rate reduces from 8.8 per cent to 3.7 per cent⁵, and if the ICL loan fee is then increased from 20 per cent to 25 per cent this reduces the subsidy further, to zero.

The bottom line from the subsidy analysis is that for broad boundaries of the likely parameters, the suggested ICL policy reform is associated with what can reasonably be described as low levels of implicit taxpayer subsidies.

5. Conclusion

The analysis in this paper shows that an income support ICL for mature aged professionals is viable, certainly from the perspective of likely taxpayer subsidies. Nonetheless, financing of the scheme would involve an initial budgetary cost. Both the design of the scheme and the groups to be targeted are matters of policy determination, with the paper presenting a simple model in order to introduce the policy proposal and outline its potential feasibility. In our illustration, professional skills have been targeted not because the returns from higher education can be high, but to illustrate the likely viability of such schemes while minimising administrative complexity through utilising existing mechanisms, namely the existing FEE-HELP scales and income tax system collection.

Clearly, the scheme would not have to be limited to bachelor degrees and above, and it could be extended to all persons with skills who are interested in increasing their skill base. On the basis that returns to these increased skills are likely to be lower than those obtained by tertiary educated professionals, it might be appropriate to introduce a repayment schedule that commences at an income level lower than that currently in operation. The ICL would still be repaid through the tax system and if the government wished to encourage the take-up of particular skills, repayment could be made subject to a different surcharge level, even a zero level.

Certain subpopulations may have greater demand for mature aged training and may benefit more so than others from such a scheme. As an example, indigenous persons are faced with high opportunity costs in studying due to extended family commitments, yet would benefit considerably from skill development as many come from a low human capital and economic base (Hunter and Schwab, 2003). An income contingent loan offering both default protection, and importantly income smoothing, may help to reduce the obstructions to mature aged skill development for this group. In this case the scheme would not be limited to persons with existing qualifications, hence scheme design would need to be reconsidered in order to guard against adverse selection and moral hazard.

Regardless of the targeted population, an income contingent loan scheme for mature aged training could conceivably be extended to age groups beyond 50 years if, for example, a default repayment could be collected from the estate of an applicant upon death. Further work is needed to determine the costs and benefits of proposed repayment schemes of this nature. For example, repayment could be taken: out of superannuation lump sums; as a percentage of retirement income; out of remaining assets upon death; or, with some combination of the above. While current average

⁵ Whereas doubling the doubtful debt increases the subsidy from 8.8 to 18.9 per cent.

retirement benefits are relatively low, it needs to be borne in mind that Australia's three pillars system of retirement income has not yet reached maturity, that returns to graduates are higher than the average of the general population and, *ceteris paribus*, so will be their retirement incomes.

Moreover, it is important not to overlook the supply side of these types of schemes. Clearly, the quality of the skills re-training will have a large bearing on successful, or otherwise, transition outcomes. While we believe that there are many high quality courses available at higher education institutions in Australia, under this scheme pressure could be brought to bear on universities and education bureaucracies to consider offering more intensive learning modules. Additionally, some progressive businesses may even choose to partly subsidise such transitions for existing and prospective staff.

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