Feasibility and design of a tertiary education entitlement in Australia

Modelling and costing a universal income contingent loan

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Table of contents

Overview 5
1. Introduction 9
1.1. Entitlement components and income contingent loan costs 9
2. An ICL for tertiary education 12
2.1 The case for an ICL 12
2.2 The case for improving the design of HELP 15
3. Designing the Income Contingent Loan 19
3.1 Loan amounts 19
3.2 Loan indexation 21
3.3 Loan surcharge 23
3.4 Repayment thresholds and repayment rates 24
3.5 Discounts for voluntary and upfront payments 27
3.6 Summary of options for modelling 28
4. Costing the Income Contingent Loan 29
5. Results 37
5.1 Subsidy estimates under current HELP rules 37
5.2 The impact of ICL scheme design options on subsidy estimates 45
5.3 Uncertainties and sensitivity of ICL estimates 57
6. Summary of results and discussion 59
Attachment 1 Additional figures 68
References 73

Overview

This report presents the outcomes of modelling of the potential costs of an income contingent loan (ICL) that would form a core element of a tertiary education entitlement, as proposed in the Mitchell Institute paper 'Financing tertiary education in Australia – the reform imperative and rethinking student entitlements' (Noonan and Pilcher 2015).

In this report, we consider ICL design options and associated cost implications of a single universal ICL scheme that could apply to tertiary qualifications which, importantly, includes Certificate III and IV. As argued in the Noonan and Pilcher paper, upfront fees for Certificate III and IV inhibit participation and are inequitable; they also result in a waste of educational opportunities for the nation. If designed properly, an ICL is a superior option to upfront fees. ICLs can provide an opportunity for participation regardless of current financial means, and offers insurance against poor educational and employment outcomes since repayments are dependent on future income. The fact that the HELP system has worked well in Australia for over 25 years is an important institutional and policy consideration in this regard.

However, when compared to university graduates, Certificate III and IV completers have low incomes and, for women, low employment outcomes, which raise questions about the potential for debt recovery through an ICL. This discussion is assisted by the following definitions: an ICL subsidy ratio can be thought of as the *proportion* of the loan amount that is not expected to be repaid to the Government, whereas the ICL subsidy (or ICL subsidy amount) is the *dollar amount* that is expected to not be repaid (in present value terms). We demonstrate that under current HELP rules if ICL were extended to Certificate III qualifications, ICL subsidy ratios may reach perhaps as high as 60 per cent for female Certificate III debtors.

Modifications to repayment thresholds and rates, loan indexation, and loan surcharges were modelled. The results demonstrate that the choice of ICL parameters has a significant impact on the magnitude of ICL subsidies, and the distribution of costs among debtors. The key points are as follows:

- Reducing the minimum **repayment threshold** to $40,000 would reduce ICL subsidies for all qualifications, but would have the greatest impact on Certificate III and IV completers due to their lower expected incomes. Although reducing the minimum threshold would put pressure on the disposable incomes of a larger number of debtors, the repayment burden could be kept low by reducing repayment rates below the current minimum of 4 per cent.

- Imposing a **loan surcharge** is a progressive way to share ICL costs among debtors. Lower income earners repay their debt slowly or not at all, and would receive higher subsidies than high income earners who repay their debt, plus the surcharge, quickly and in full. Loan surcharges would be effective in reducing ICL subsidies for Certificate III and IV males, but would have a relatively small impact on reducing subsidies for Certificate III women under current repayment threshold rules, because a large proportion fall below the minimum repayment threshold over their lifetimes.

- There is an interest rate subsidy associated with HELP debt because the government's cost of borrowing exceeds price inflation. Increasing **loan interest rates** above price inflation growth would reduce ICL subsidies, but if the interest rate charged is excessive this could cause financial hardship for moderate and lower income earners. While a number of interest rate options are modelled, a hybrid arrangement that charges CPI indexation to lower income earners and bond rate indexation to those with higher incomes, would likely be more progressive and less costly than universal CPI indexation. The modelling demonstrates that changing loan interest rates would have relatively little effect on loan recovery for Certificate III or IV debtors, but could have a substantial impact on curtailing costs if loan amounts are large or increasing.

- Combinations of different options are shown to reduce ICL costs across all tertiary qualifications relative to the current HELP scheme. For example, application of a minimum repayment threshold of $40,000 (with a 2 per cent repayment rate) *plus* a loan surcharge of 10 per cent, could reduce subsidy ratios by approximately 15 per cent relative to the current HELP system. Including a progressive hybrid interest rate arrangement would reduce ICL subsidies further.[1]

If upfront payments for Certificate III and IV qualifications were replaced by an ICL, then subsidies would clearly increase if there were no increase in tuition charges (see below). The results in this report demonstrate that there are a range of HELP scheme modifications that could offset increased ICL subsides that would arise from inclusion of Certificate III and IV debtors, yet which would preserve the insurance features of contingent loans that facilitate participation, individual affordability and equity.[2]

[1] All subsidy results reported here are based on an assumed Government cost of borrowing of 5 per cent per annum.

[2] In addition to the HELP changes that we have modelled in this report, there are other reform options suggested by Norton and Cherastidtham (2014), Highfield and Warren (2014), and others, that warrant consideration in any comprehensive review of HELP.

We qualify this conclusion by noting that any consideration of reform to the HELP system should not be made in isolation. While overall tertiary education subsidies can be altered by changing ICL scheme rules, the decision as to the size of acceptable ICL subsidy levels needs to acknowledge and differentiate between subsidies that take the following two forms.

The first form of government subsidy is related to the tuition charge imposed on students, since if the charge is less than the full costs of educating a student, the gap is covered by taxpayers. The second involves what is the essential motivation for this paper, namely ICL subsidies that arise from unpaid debt and because loans are indexed to CPI.

A critical point is that even ICL arrangements with relatively high ICL subsidies can be associated with policies that have overall lower total subsidies if government outlays (and thus tuition charges) are adjusted to take these into account. *Consequently, consideration of reforms to HELP need to be made in a broader framework where overall state and federal government funding of tertiary education is considered.*

It needs to be recognized that there are necessarily consequences for students if subsidies are reduced. Although income contingency ensures that a debtor's loan repayments in any year are a fixed percentage of their income, reducing ICL subsidies or direct subsidies and thereby passing more costs to students must mean lower lifetime disposable income for those affected. Achieving an acceptable and appropriate balance between student costs and public outlays is a challenging and critical issue.

This report examines the sharing of tertiary costs between students and all taxpayers, with a particular emphasis on ICL subsidies. Although not modelled, we note that course providers receive student fee income from the government under the HELP system, but risks are passed to students and taxpayers. As a final comment, we suggest that any discussion involving the creation of an income contingent tertiary education entitlement would be enriched through the consideration of measures that would make course providers more accountable for the fees charged and quality of education provided.

1. Introduction

This report presents the outcomes of modelling of the potential costs of an income contingent loan that would form a core element of a tertiary education entitlement, as proposed in the Mitchell Institute paper 'Financing tertiary education in Australia – the reform imperative and rethinking student entitlements' by Noonan and Pilcher (2015) (henceforth referred to as the 'Noonan and Pilcher paper'). This report was commissioned by the Mitchell Institute, and is prepared by Tim Higgins and Bruce Chapman.

The tertiary education entitlement is intended to be a coherent and practical Australia-wide system that provides *guaranteed funding support for tertiary education to a particular qualification level through course subsidies and access to an income contingent loan*. (Section 1.5, Noonan and Pilcher paper).

For the purpose of this report, and consistent with Section 1.4 of the Noonan and Pilcher paper, we define the tertiary entitlement as including qualifications at Certificate III level and above, and we regard Certificate I and II qualifications as pre-tertiary.

In Section 2 we summarise the case for a single universal income contingent loan (ICL) and discuss some of the potential shortcomings of applying the existing HELP scheme to lower level VET qualifications. In Section 3 we describe alternative ICL scheme design options, with detailed discussion of parameters including loan amounts, indexation, repayment thresholds, repayment rates, and risk sharing arrangements among student and taxpayer. Section 4 briefly sets out the ICL modelling and costing methodology, including key assumptions. In Section 5 we present the results of the modelling, reporting ICL subsidy ratio estimates for different qualification levels under a variety of scheme design options. Section 6 concludes with a summary of the key results and discussion.

1.1. Entitlement components and income contingent loan costs

As outlined in the Noonan and Pilcher paper, the entitlement would have two core funding elements:

1. a direct subsidy – paid by either a state/territory government and/or the Commonwealth government, and based on eligibility to the entitlement; and

2. student contributions – initially paid by the Commonwealth to the provider with students taking out an ICL with the Commonwealth.

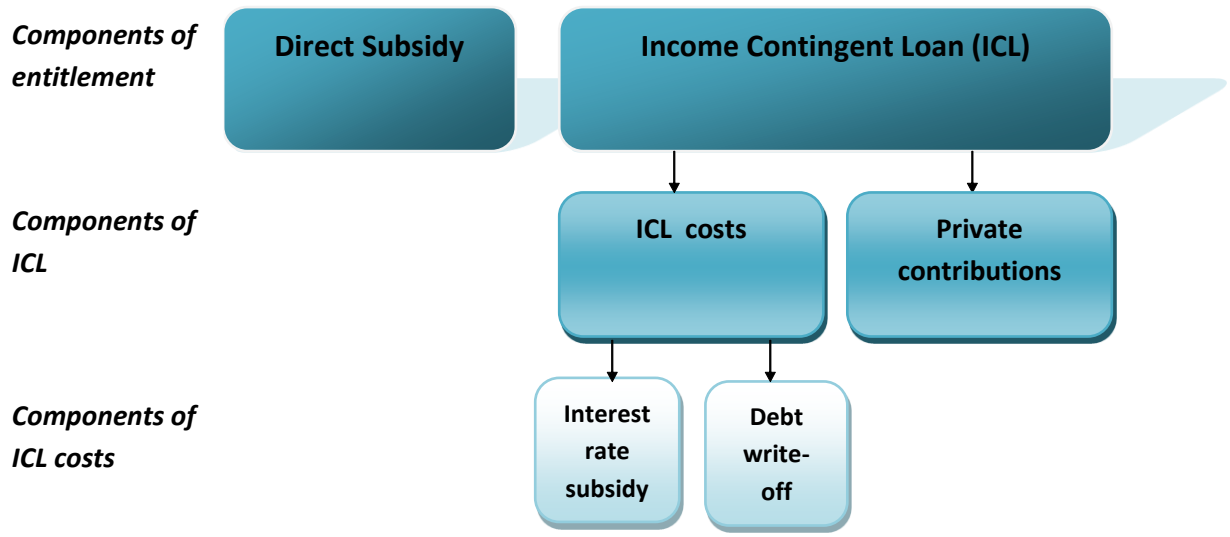
This report *does not* investigate options for the size of the direct public subsidy, nor do we attempt to model the implications of different public subsidies to Commonwealth and/or state/territory government finances.

Rather, this report explores the implications of different ICL scheme designs for the entitlement, and in particular we report on the potential ICL costs associated with the design options.

Under existing HELP rules, ICL indexation is below the Government's cost of borrowing (which results in an interest rate subsidy), there is debt forgiveness on death, and borrowers do not have to repay their debt while overseas.[3] These design features mean that provision of an ICL that retains these features would result in a level of public subsidisation. For the purposes of this paper we refer to these as the ICL costs or ICL subsidies.[4]

The essential relationships are presented in the figure below.

Figure 1. Components of tertiary entitlement



Under existing HELP arrangements the Commonwealth initially provides the finance to institutions in the form of an ICL to students. These outlays and the associated ICL costs are substantial, will grow as HELP fees rise, and would be expected to increase further if an ICL is extended to Certificate III and IV qualifications.

[3] However, recent policy has been announced whereby the Government intends to put in place a system designed to collect debt from borrowers who move overseas.

[4] The administrative costs of running the ICL scheme are excluded from the modelling and estimation of the ICL costs. Administrative expenses for the Australian Taxation Office associated with the collection of HELP loans are reported to be approximately 5 per cent per annum of the revenue received for HECS-HELP, a figure which is similar to that estimated for the England and Wales ICL system (Chapman, 2014).

It is critical that estimates of ICL costs are included in an assessment of the viability of the entitlement. There are a number of risks in the public financing of ICL, including the potential for intentional income manipulation in order to avoid repayments, generous loan conditions that might influence student choices and/or course providers charging excessive fees and providing poor education services. These and other risks are discussed in Section 2.2.

ICL costs are difficult to estimate, and the costs for individual borrowers will not be known until far into the future. As a consequence the precise level of public subsidy is not transparent.

The basic mathematics is as follows. Consider that the direct public subsidies provided to each student is $*x*, and that the public costs associated with the ICL can range from close to zero (for a person who pays their loan almost immediately, thereby leaving the Commonwealth with a small amount of forgone interest) to the full loan amount (for a person who doesn't repay any of the loan). The *true* subsidy paid to the student will then vary from $*x* to an amount far greater than $*x*, but this amount is uncertain for individual student debtors. The subsidy depends on whether a student repays their debt and, if so, how fast they repay.

Since ICL costs only become apparent for each student over their lifetime, it is not practical that these should form part of the entitlement for individual students. However, these costs are still a part of the total state/territory and Commonwealth government outlays on tertiary education.

The size of ICL costs, and the risks noted above and detailed below, could potentially jeopardize the viability and sustainability of a single universal ICL for Australian tertiary education. To that end, scheme design options are considered that have the feature of reducing the ICL subsidies. These, and other scheme options, are outlined in Section 3 and the costings are provided in Section 5.[5]

[5] Other critical issues that can impact on ICL costs include course fees and take up rates. While variability in loan sizes is explored to some extent in the modelling, implications of price deregulation are not explicitly considered in this report.

2. An ICL for tertiary education

2.1 The case for an ICL

Broadly, there are three options for funding tertiary education: it could be free to the student (or, in other words, fully subsidised by the taxpayer); it could be user-pays through student contributions; or it could be a mix of the two.

If subsidies are "too" large then there is a risk of an oversupply of tertiary education and inefficient resource allocation.[6] Furthermore, and easier to understand, is that although tertiary education generally benefits society and generates higher tax revenue, private lifetime financial and non-pecuniary benefits can be substantial[7] (particularly for university study), with those not undertaking tertiary education being more likely to be from poorer backgrounds. Thus, funding tertiary education exclusively via taxpayer finance is considered to be regressive[8], and there is therefore an equity argument for some level of student contribution (Barr, 2001; Chapman, 2006).

An important question: is there a role for government beyond the provision of the subsidy? An understanding of the issue is facilitated through consideration of what would happen without public sector involvement beyond the subsidy. That is, a government, convinced that there should be a subsidy, could simply provide a level of taxpayer support to education institutions, and leave any gap in financing to market mechanisms; presumably this would result in institutions charging students up-front on enrolment. However, there are major problems with this arrangement, traceable in most instances to the presence of risk and uncertainty. Educational investments are risky, because:

1. Enrolling students do not know fully their capacities for (and perhaps even true interest in) the tertiary course of their choice. This means that they cannot be sure that they will graduate with, in Australia, around 25 per cent of enrolling higher education students ending up without a university qualification.[9]

[6] Unfortunately, the economics of education literature does not provide much clarity in this area, essentially because it is extremely difficult to measure and even interpret estimates of the so-called "social spillovers" from tertiary education (Chapman and Lounkaew, forthcoming).

[7] There is compelling evidence that university graduates in Australia earn higher salaries over their lifetimes than non-graduates and that private rates of return - to higher education at least - are very high on average (Leigh and Ryan (2008); Norton (2012); and see Section 4 below). Recent figures from the OECD (2014) indicate that private net returns exceed public net returns, but determining the share of private and public benefits is a problematic exercise.

[8] A distinction between an ICL and traditional income tax (where individuals retroactively contribute to the costs of their education via the tax system) is that under the ICL scheme only those who undertake the qualification pay, rather than all taxpayers.

[9] Department of Education (2014).

2. Even given that course completion is expected, students will not be aware of their likely relative success in the area of study. This will depend not just on their own abilities, but also on the skills of others competing for jobs in the area.

3. There is uncertainty concerning the future value of the investment. For example, the labour market – including the labour market for graduates in specific skill areas – is undergoing constant change. What looked like a good investment at the time it began might turn out to be a poor choice when the process is finished.

4. Many prospective students, particularly those from disadvantaged backgrounds, may not have much information concerning graduate incomes, due in part to a lack of contact with graduates (Barr, 2001).

These uncertainties are associated with important risks for both borrowers and lenders. The important point is that if the future incomes of students turn out to be lower than expected, the individual is unable to sell part of the investment to re-finance a different educational path. For a prospective private lender, that is, a bank, the risk is compounded by the reality that in the event of a student borrower defaulting on the loan obligation, there is no available collateral to be sold. Even if it was possible for a third party to own and sell human capital, its future value might turn out to be quite low, taking into account the above-noted uncertainties associated with higher education investments.

It follows that, left to itself – and even with subsidies from the government to cover the presumed value of externalities – the market will not deliver propitious tertiary education outcomes. Prospective students judged to be relatively risky, and/or those without loan repayment guarantors, will not be able to access the financial resources required for both the payment of tuition and to cover income support.

These capital market failures were first recognised by Friedman (1955) who suggested as a possible solution the use of a graduate tax or, more generally, the adoption of approaches to the financing of higher education involving graduates using their human capital as equity. The notion of human capital contracts developed from there and is best explained and analysed in Palacios (2004). A critical point for policy is that without some form of intervention, tertiary education financing will not deliver the most propitious outcomes in aggregate, nor can such markets left alone deliver equality of educational opportunity because those without collateral (the poor) will be unable to participate.

Consequently, in almost all countries, governments intervene in the financing of tertiary education. There are currently two major forms, now considered in concept.

The first type of higher education financing system involves government-backed loans provided by banks (or the government) and are conventional mortgage-type arrangements in which loan repayments are contracted to be repaid over a given time period. Currently this collection basis is used to help finance higher education in many countries, including the US, Canada, the Philippines and Thailand.

Even if students had access to government-backed conventional loans, participation would be inhibited because repayments are required regardless of income. This can lead to substantial repayment burdens (defined as the proportion of income required for loan repayment), which in turn leads to consumption hardship and higher default probabilities.

The second type of government loan intervention is an ICL, a financing system *inter alia* used in higher education in Australia (implemented first in 1989), New Zealand (1991), England and Wales (1998), Hungary (2001), South Korea (2011), the Netherlands (revised for 2016) and Malaysia (planned for 2016). ICL addresses the above problems of bank loans in two ways:

1. it provides a source of tuition finance for individuals who could not otherwise have access; and very importantly,

2. since repayments are dependent on income, repayment hardship and the risk of default are eliminated. In this way ICL provide a source of insurance against uncertain post-education outcomes. In contrast to a conventional loan, under an ICL the proportion of income required for repayments in any year cannot exceed the repayment rate set out in the scheme rules (in the case of HELP, this is 8 per cent of income).

Furthermore, and critically, HELP debt can be administered and collected efficiently in Australia because of the existence of the Australian Taxation Office, and the system of collection through individual tax returns and the PAYG system. The benefits of this transactional efficiency of ICLs are made clear in Stiglitz (2014).

The points raised above were integral to the original decision to offer an ICL for higher education and its subsequent extension to other higher education and some VET qualifications.[10] Yet the same problems identified above with respect to an absence of contingent loans also exist for Certificate III and IV VET qualifications the acquisition of which are not covered by the current ICL schemes.

[10] Although an ICL is available for vocational education courses through VET FEE-HELP, existing policy provides loans only for VET qualifications at the diploma level and above offered by approved providers, and, as part of trial concluding in December 2016, for a small number of Certificate IV courses. Trade Support Loans are also offered that cover certain Certificate III and IV courses that lead to qualifications specified in the Trade Support Loan Priority List. The maximum loan amount is $20,000, and debt is reduced by 20 per cent on completion of the apprenticeship. However, Trade Support Loans cover only a small proportion of existing Certificate III and IV courses.

As described in the Noonan and Pilcher paper, this lack of coverage is inconsistent and inequitable. Charging fees upfront is poor policy and disproportionately affects those from poor socioeconomic backgrounds with the least financial resources. Yet, students intending to undertake Certificate III and IV qualifications face increasingly significant upfront fees.[11] This is inequitable, but also economically inefficient, as it will lead to sub-optimal participation in important skill areas that are met through Certificate III and IV courses[12], and potentially inappropriate supplies of graduates in higher level qualification courses that have no upfront fees.

Importantly, introducing an ICL mechanism does not in itself lead to taxpayer costs. The balance of costs between the individual debtor, the cohort of all debtors, course providers, and the taxpayer, depends on the specific scheme design features and loan parameters.

2.2 The case for improving the design of HELP

Despite the acceptance of ICLs within Australia over the past 25 years, and the subsequent adoption of similar ICL schemes around the world, current HELP policy is in need of review. Among other things, there are inconsistencies in scheme rules for VET FEE-HELP, HECS-HELP and FEE-HELP, questions about fiscal sustainability due to levels of unpaid debt, the potential burden on students if fees rise, risks to the integrity of the collection system, and – most critically – a lack of coverage of important VET qualifications.[13]

High costs

As stated in Section 1.1, under existing HELP arrangements the Commonwealth provides the initial ICL outlays and bears the risks of other costs. These include those costs from interest subsidies and debt write-down predominantly from debtors dying before they repay their debt in total.

At 30 June 2014, the estimate of the difference between the outstanding HELP debt and the debt's estimated fair value was $8.7 billion[14] with this difference being an estimate of the aggregate ICL costs. The lion's share of this amount, or $8.2 billion, is due to debt write-down. The current proportion of new debt classified as doubtful is 17 per cent according to

[11] As raised in the Noonan and Pilcher (2015) paper, these can exceed $3,000 and range over $4,000 depending on the level of subsidy they attract.

[12] Certificate III and IV courses include qualifications in areas of important social and economic need, such as aged care, early childhood education and care, community care and services, agriculture, land management, information technology, business, and trades such as carpentry, plumbing, and automotive, among many others.

[13] This section presents a brief snapshot of potential risks and deficiencies of the current HELP scheme. For more discussion of these and other issues relating to HELP, see Norton and Cherastidtham (2014), and Highfield and Warren (2015).

[14] This estimate is subject to considerable uncertainty.

Government modelling, however, this estimate is based on valuations using the recent yield curve which has been very low compared to historic averages, and the proportion is forecast to increase if fees are deregulated and loan caps removed as proposed in the 2014/15 Budget.[15] It is not known as yet what the final result of this proposal will be, although the Bill has twice been rejected by the Australian Senate.

Incomes for VET graduates are considerably lower than for university graduates (see Section 4), and under existing HELP minimum repayment thresholds, extending an ICL to Certificate III and IV students would clearly increase these cost outlays.

Non-compliance of repayment from HELP debtors

Chapman and Leigh (2009) found statistically significant bunching at the minimum HECS repayment threshold level, but they also noted that the budgetary cost was economically small. Their conclusions were based on data from 2003-04, and not only has the HELP system grown considerably in that time, but repayment threshold levels have also been modified (in both directions).

Highfield and Warren (2015) identify significant bunching in 2010-11 ATO data, and suggest that this may now be financially material given the larger number of HELP debtors. They put forward suggestions to sure up the integrity of the HELP collection system, including - among other things - broadening the definition of HELP income, and reducing the lower repayment threshold for HELP repayments.

Essential and non-essential design features

Undoubtedly the critical feature of ICLs is that of income contingency. This ensures that repayments remain affordable, thereby removing risk of default in the event of poor employment outcomes or interrupted employment. A minimum repayment threshold, below which no repayments are required, also reduces the risk of financial hardship, though the specific minimum threshold can be debated. This is covered further in Section 3.4.

It is less clear that low loan indexation rates, as currently exist for HELP debtors, are desirable. However, as discussed by Chapman and Higgins (2014) and other commentators following the 2014 Budget, imposing real interest rates to outstanding debt may have unexpected adverse consequences with respect to equity. Different loan indexation regimes are discussed in Section 3.2.

[15] In the 2015-16 budget papers, the fair value of HELP is projected to grow to close to $53 billion in 2017-18 as a consequence of various factors including increased university commencements, deregulation of the higher education sector, and increased demand for VET FEE-HELP. Source: http://www.budget.gov.au/2015-16/content/bp1/html/bp1_bs6-02.htm

It is equally unclear that insurance against low *lifetime* income via debt forgiveness on death is essential. Changes to the existing policy of forgiveness on death are not modelled or costed in this report, although Norton and Cherastidtham (2014) show that such changes could have a significant impact on reducing ICL subsidies.[16]

It is also the case that an unintended consequence of existing HELP rules is that ICL debt is unable to be collected from debtors who leave Australia. Although the magnitude of potential recoverable debt is small, this policy hole should be addressed on grounds of equity. This has been raised by a number of academics and policy experts, who have also advocated for an administratively simple arrangement to facilitate overseas debt collection.[17] The Government recently announced plans to recover overseas debt, and while questions have been raised about the potential complexity and associated administrative costs of their proposed plans, full details of the intended collection arrangements have not yet been made public.

Student choices

The income contingent feature of an ICL removes the risk of bankruptcy and financial hardship, and thereby encourages participation. Consequently, when an ICL is available for some qualifications, but not others, this can affect undesirably the choices that students make, and can even result in an oversupply of graduates from those qualifications covered by an ICL, at the expense of participation in courses that aren't covered. Removing upfront fees and extending ICL cover to Certificate III and IV courses would correct this potentially undesirable feature of tertiary education by expanding student choices to a broader range of qualifications.

Perverse incentives from course providers

Under current HELP arrangements course providers receive student fee income directly from the government, but transfer the risks of non-repayment to students and taxpayers. As a consequence, incentives exist to increase fees and engage in predatory practices to secure student enrolments, as has been evidenced recently with some providers in the VET sector through VET FEE-HELP.[18] Methods to reduce exploitation of students and the system are needed, and could include penalties for providers who misuse the VET FEE-HELP scheme, and stricter regulatory and accreditation requirements for Registered Training Organisations (RTOs) in order to ensure better quality of education.

[16] See Norton and Cherastidtham (2014) on a proposal for reducing doubtful debt by changing the existing ICL debt forgiveness rules and recovering unpaid debt from the estate of each borrower following death.
[17] See Chapman and Higgins (2013), Norton and Cherastidtham (2014), and Highfield and Warren (2015).
[18] For example, see Preiss and Cook (2015).

If universities and RTOs are able to charge tuition fees without accountability for the quality of the graduates produced, undesirable incentives to increase HELP fees may persist. There is, therefore, a need for further discussions concerning policy design that would make course providers more accountable for the fees charged and quality of education provided.[19]

Risks of cost shifting

As raised in the Noonan and Pilcher paper, there is a risk that under an expanded ICL scheme the states/territories will have an incentive to further reduce their subsidy levels and transfer costs to the Commonwealth through the ICL scheme. This could put further pressure on the Commonwealth to reduce subsidies in-turn and shift costs to students through higher charges and loans. Under the current National Partnership Agreement, for VET courses that attract VET FEE-HELP and also receive a state government subsidy, ICL costs are currently shared between the states and the Commonwealth.[20] While this reduces the risk, no agreement currently exists for Fee-For-Service courses that are covered under VET FEE-HELP.

[19] For example, see Ergas (2014), Tourky and Pitchford (2014), and Leaver (2015). Despite the potential benefits, there is a danger that if course providers are responsible for a portion of unpaid debt, this could result in adverse consequences, such as socially important yet low paying career choices being priced at unaffordable rates, or certain student cohorts being excluded or charged unfair prices. However, increasingly, a number of economists and experts in tertiary education financing are recognizing that there is a disconnect between financial benefits and costs among providers, and HELP policy reform should consider if, and how, HELP risk should be partly borne by course providers.

[20] Under Schedule 4 of the National Partnership Agreement, the states and territories have agreed to pay 50 per cent of the fair value of impaired assets relating VET FEE-HELP ICLs for courses to which a state subsidy applied, plus 50 per cent of public debt interest costs for these loans.
http://www.federalfinancialrelations.gov.au/content/npa/skills/skills-reform/national_partnership.pdf

3. Designing the Income Contingent Loan

In this section we set out the ICL scheme options that are considered and varied in the modelling. The magnitude of ICL costs for each individual debtor would depend on their lifetime income and the ICL scheme rules, and any shortfall would either be borne partially or fully by all taxpayers, or the pool of all borrowers with the specific proportion dependent on the scheme rules developed.

The scheme options considered here are:

- the level of loan indexation;
- the inclusion of different levels of loan surcharge (akin to discounts on upfront payments); and
- the level of repayment thresholds and rates.

These options are not exhaustive. Other possible modifications to HELP that have been proposed by others, and that could be considered in a comprehensive review of the HELP system include:

- expanding the definition of income that is used to determine HELP repayments (Highfield and Warren, 2015);
- reconsidering the write-off of debt on death (Norton and Cherastidtham, 2014); and
- changing the rate at which repayment thresholds are indexed (Norton and Cherastidtham, 2014).

We commence this section with a discussion of the loan amounts used in the modelling.

3.1 Loan amounts

Existing ICLs differ in size according to qualification, course fees and by the level of Government subsidies for the course studied. In Victoria, VET fees are deregulated, as are unsubsidised postgraduate places in the higher education sector. Undergraduate and subsidised postgraduate university fees and VET fees outside of Victoria are currently regulated.

Average 2013 loan amounts for full-fee paying Diploma and Advanced Diploma students through the VET sector were approximately $12,000 and $18,000 respectively, while state subsidised students faced a loan amount of approximately $4,000.[21]

[21] The source for these amounts was the Department of Education VET FEE-HELP Data Collection.

Certificate III and IV tuition fees can vary considerably depending on whether fees are subsidised, and by course type, provider, and state/territory. As noted in the Noonan and Pilcher paper, fees can exceed $3,000 and range over $4,000 depending on the level of subsidy they attract. Unsubsidised fees can be considerably higher.

In 2015, student contributions for a Commonwealth-supported place at university vary from $6,152 for one year of full-time study (Band 1), to $10,266 per annum (Band 3). Based on the distribution of undergraduate students across different disciplines, rough estimates of the HECS-HELP debt for a Commonwealth-supported graduate completing their study in 2015 are $23,000, $30,500 and $38,000 for a three, four and five year degree respectively.[22]

For the modelling we use a range of illustrative loan amounts to demonstrate the impact that loan size can have on ICL costs. These are set out in Table 1.

Table 1. Loan amounts used in modelling ($)

Qualification level	Lower bound	Central value	Upper bound
Certificate III and IV	1,000	5,000	9,000
Diploma and Advanced Diploma	8,000	12,000	16,000
Bachelor degree	20,000	30,000	40,000

Should the ICL amount be capped?

Under a qualification based entitlement model[23], capping the entitlement (i.e., capping the direct subsidy) for a particular qualification would not necessarily imply that the ICL must also be capped.

If the ICL is uncapped, then the amount that could be borrowed would be equal to the difference between the course fees and the subsidy provided through the entitlement. If course fees are regulated, this would put a limit on the potential size and subsidies of an ICL.

But under deregulated prices (such as in the Victorian VET system), no such limit on the ICL would exist unless an artificial cap was imposed. While imposing a cap on the ICL for each qualification may limit the amount charged by some course providers, an ICL cap is no guarantee that course providers would not charge tuition fees that exceed the ICL cap. If so, then the outcome for a student would be akin to facing upfront fees, with the consequence that poorer students would be excluded or disadvantaged in other ways.

[22] Higher education sector HECS-HELP amounts were calculated by the authors based on data sourced from the Department of Education and from Norton and Cherastidtham (2015). The Higher education amounts reported allow for loan indexation of 2.5 per cent per annum up to the end of 2015.
[23] See Noonan and Pilcher (2015) for discussion of what is meant by a qualification-based entitlement model.

However, deregulated fees coupled with uncapped ICL limits (or very large loan caps, such as those that currently exist for FEE-HELP loans[24]) can lead to undesirable incentives for course providers to increase fees, passing the costs to the student and, through unpaid debt and interest rate subsidies, the taxpayer. As highlighted earlier, this has been observed in the deregulated VET market, where predatory practices have been used to attract students on the basis that students will face no upfront costs. This can lead to very large public subsidies as doubtful debt increases with increasing ICL amounts.

A possible solution to this problem might include passing some of the ICL risk back to the course providers, although a viable way to make this work is not yet clear. A more straight-forward solution is to not deregulate fees, thereby limiting the ICL amounts that can accrue. Some policy makers, economists and commentators, however, believe this would limit competition and reduce the efficiency within the tertiary education market, although Chapman (2015) illustrates that such arguments are unconvincing and not supported by available evidence.

3.2 Loan indexation

Since the inception of HECS in 1989, outstanding debts have been adjusted to changes in the Consumer Price Index. This has ensured that debt carries a zero real rate of interest for all debtors. Such an arrangement has meant that HELP debts provide an interest rate subsidy because the government's cost of borrowing exceeds price inflation.

Forgone interest has not been an excessive cost to date for HELP debt for two reasons. First, in the recent past the spread between CPI and bond rates has been small. However, historically the gap has been approximately 2.5 per cent, and there is no reason to expect that this won't be the case again in the future. Second, outstanding HECS-HELP debt has been capped due to fee regulation, but if fee deregulation proceeds for domestic bachelor degrees, the cost of forgone interest will rise considerably.

An estimate of the total interest subsidy per annum can be found by multiplying the stock of outstanding HELP debt by the difference between CPI and bond rates. This difference averages 2.5 per cent, and the stock of debt at 30 June 2014 was $34 billion implying around $850 million of interest subsidies per annum.

A concern expressed by a number of economists (e.g., see Barr, 2012) is that CPI indexation is poorly targeted within the cohort of borrowers. Although the greatest benefits go to those with low incomes, a significant portion of the subsidy is directed towards wealthy

[24] The 2015 FEE-HELP limit is $97,728 for most students, increasing to $122,162 for students undertaking medicine, dentistry and veterinary science courses. The government intends to remove the FEE-HELP cap from 1 January 2016 subject to the passage of legislation. Source:
http://studyassist.gov.au/sites/studyassist/helpfulresources/pages/studentoverview_budget2014

graduates who do not need it. Even if a graduate earns a high income and repays their entire debt there will be forgone interest because of the gap between the Government's cost of borrowing and lending.

Interest subsidies can be eliminated by charging loan indexation at the rate of the government's cost of borrowing. However, as shown by Chapman and Higgins (2014) and others, this would lead to the situation where borrowers who experience lower incomes in their careers repay more than high income earners. That is, bond indexation can be considered regressive *within the pool of borrowers*.

This is not a problem for very low lifetime income earners who do not repay their debt. But it can matter greatly for those at the margin who earn enough over their lifetime to repay their debt, but too little to repay quickly, or who have periods of interrupted full-time employment (such as when raising children). In these circumstances there may be periods when the interest charged on the outstanding debt exceeds the compulsory repayments made.

Options can be put forward that strike a compromise between public costs and student affordability. Rather than applying bond indexation *or* CPI indexation, indexation arrangements can be designed to provide partial subsidisation to graduates with low incomes and interrupted employment, while ensuring that wealthy graduates are not subsidised.

As an example, a hybrid indexation arrangement could charge interest at a rate that can vary between CPI and the bond rate, depending on the individual's circumstances in each year. The interest charged to the loan would be limited so that the loan amount would not increase in real terms.[25] This arrangement would ensure that regardless of whether or not repayments are made, the debt would not increase excessively.[26]

As an alternative to such a hybrid scheme, Highfield and Warren (2015) suggest indexing debt to AWOTE, as this would reduce incentives to delay repayment through non-compliance.

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[25] For the hybrid scheme, as conceived here, bond interest would be charged if the loan, after bond interest and repayments, did not increase in real value. If application of bond interest meant that the real value of the loan would increase, then an amount of interest that is less than the bond rate would instead be charged (with the minimum interest being equal to the rate of growth of CPI). Consider the following examples:

- An individual with a loan of $30,000 and an income of $50,000. Repayments would be $0. If interest was charged at the bond rate of 5 per cent, then the loan (after repayments and bond interest) would be $31,500. This is greater than the real value of the loan, which would be $30,750 (assuming 2.5 per cent increase). Therefore, only interest of $750 would instead be charged (equal to 2.5 per cent).
- An individual with a loan of $30,000 and an income of $55,000. Repayments would be $2,200 (4 per cent of income). If interest is charged at the bond rate of 5 per cent, then the loan (after repayments and bond interest) reduces to $29,300. Since this is less than the real value of the loan, which would be $30,750, bond interest would be charged.

[26] Although this may appear potentially administratively cumbersome, a simpler version of this arrangement exists in the UK where different loan interest rates are charged depending on the debtor's income.

For the modelling in this report we consider four loan indexation options:

1. current indexation to CPI;
2. indexation to wage growth;
3. a hybrid arrangement, as described above; and
4. indexation at the Government's cost of borrowing, thereby eliminating interest subsidies.

In addition to interest costs, the government faces costs of unpaid debt. A loan indexation rate could be chosen to also eliminate some of these costs by effectively spreading them *among* the pool of borrowers. Although not recommended or advocated here, one way to achieve this would be to impose a loan indexation rate large enough to eliminate interest costs, but also the costs associated with unpaid debt and loan scheme administration. This is the arrangement in Hungary (see Barr, 2014), and is similar to the interest rate regime introduced within the New Zealand system in 1991[27], however, the majority of income contingent schemes around the world impose more modest indexation rates.

For example, in the current New Zealand loan scheme (which is quite different to its original design), a loan interest rate of zero per cent nominal indexation is charged for graduates who remain in New Zealand[28]; while for the UK, loan interest is charged at a real rate of between 0 and 3 per cent, depending on the level of income earned.

3.3 Loan surcharge

Costs can also be passed from taxpayers to the pool of borrowers through the use of a loan surcharge (also referred to as a loan fee). This currently exists under FEE-HELP and VET FEE-HELP, where loan surcharges of 25 per cent and 20 per cent are charged respectively.[29]

How does a loan surcharge reduce costs?

If a loan surcharge equal to F per cent is applied, a student who is loaned an amount of Y would be required to repay an amount equal to $Y + (Y \times F)$. For example, for a loan of $10,000 and a surcharge of 20 per cent, the total amount required to be repaid would be $12,000. The surcharge, however, does not form part of the Government's costs; a

[27] The New Zealand system ran into major political problems because of the perceived unfairness of imposing very high interest rates in systems without debt forgiveness. Again we stress that HELP is a different kind of arrangement to England/Wales and Hungary because in Australia there is no time dependent debt forgiveness.
[28] Non-residents, however, are charged a real rate of interest.
[29] However, the government intends to remove these loan surcharges from 1 January 2016 subject to the passage of legislation. Source: http://studyassist.gov.au/sites/studyassist/helpfulresources/pages/studentoverview_budget2014. It is of interest to note that the original HECS system had the equivalent arrangement of a surcharge, which took the form of there being a 15 per cent discount for up-front payments. For more discussion of this point see Section 3.5 below.

consequence is that repayment of the loan *plus* surcharge could result in zero or even a *negative* subsidy for some high income debtors (corresponding with additional progressivity on higher income for Government from these graduates).[30] The exact ICL subsidy associated with an individual debtor will depend on the level of the surcharge, and – if loan indexation is below the Government's cost of borrowing – also on the length of time until the loan and surcharge are repaid.

While some debtors who repay their loan and surcharge in total may have a negative ICL subsidy, those who don't repay will still incur potentially large ICL costs. For those who consistently fall below the minimum repayment threshold throughout their lifetime, clearly the inclusion of a surcharge has no impact on reducing the ICL costs that are passed on to the taxpayer.

Thus, under a surcharge, those individuals who repay smaller amounts or none of their debt have their loan cross-subsidised by those who repay more. The surcharge effectively *pools* some of the ICL costs among the cohort of borrowers, rather than passing all ICL costs to taxpayers.

An appeal of this arrangement is that it is progressive within the pool of borrowers; those who repay slowly or not at all, and receive the highest subsidies, will necessarily have lower incomes than those who repay quickly and in full.

In addition to the interest rate options put forward in the previous section, for the modelling in this report we consider the effect of applying the following loan surcharges to all tertiary qualifications (in addition to zero loan surcharge):

1. 10 per cent loan surcharge;
2. 20 per cent loan surcharge; and
3. 30 per cent loan surcharge.

3.4 Repayment thresholds and repayment rates

Under existing HELP rules an individual who earns less than $53,345 is not required to make any HELP repayments.[31] Between $53,345 and $59,421, debtors pay 4 per cent of their income, and the repayment rate increases in 0.5 per cent jumps for higher income bands, ultimately reaching a rate of 8 per cent for incomes at and above $99,070.

[30] Although a negative subsidy may be seen as unfair by some, negative subsidies would only arise for those individuals with high lifetime incomes. i.e,. it would only arise for those who have managed to capture significant private financial benefits from their study. A negative ICL subsidy is equivalent to reducing the direct subsidy for these individuals, which may be reasonable if the private benefits of their subsidised education are very large.

[31] This will increase to $54,126 in 2015-2016.

The rationale for introducing a minimum repayment threshold below which no repayments are required is that it provides insurance against uncertain post-education outcomes. The original minimum threshold for HECS was chosen with reference to the average full-time and part-time income, the premise being that if an individual's investment in higher-education doesn't pay off by generating an income that exceeds this average, then they won't have to repay their loan.

However, it can be argued that choosing a minimum threshold that is equivalent to average income is not appropriate for a number of reasons:

- First, average income is distorted by very large incomes for some individuals. Median full-time income is not affected by outliers, and is defined as the amount where half of full-time earners have an income less than this amount, and half above this amount. One could argue that using the median is, therefore, more representative of what a typical individual in society earns.

- Second, using a central measure of income (average or median) for *all* workers has become an increasingly inappropriate measure over the past twenty years since the proportion of tertiary graduates in the population has steadily increased. Arguably, a more appropriate central measure that a graduate's income should be compared with should be the income for someone who *had not* undertaken university education.[32]

Since HELP now includes diploma and advanced diploma VET study, the minimum repayment threshold should arguably be set at the median income level for those who have no post-secondary education. That is, the ICL is only required to be repaid if their participation in post-secondary education (through VET or the university sector) generated a higher income than that received by a median income earner who had not participated in tertiary education.

From the 2011 Census, median full-time income in 2015 dollars for secondary school graduates (without post-secondary education) is estimated at $40,000 for 22 year olds, which is close to the average age at graduation for university students who enter study following completion of year 12.[33]

[32] Chapter 4 of Norton and Cherastidtham (2014) includes discussion of conceptual basis of the original HECS threshold.

[33] It could be argued that if a large proportion of Certificate III and IV students have not completed year 12, but instead have completed year 10, then the counter-factual income should be year 10 income rather than year 12. This would lead to justification of a minimum threshold below $40,000.

Highfield and Warren (2015) note that reducing the minimum threshold and repayment rate would reduce the marginal repayment required when crossing the threshold, and therefore, would reduce incentives to evade repayment.[34]

A further and critical argument is that high thresholds can result in high costs of forgone interest and unpaid debt. As VET graduates tend to have lower annual earnings (see the income plots in Section 4), applying existing HELP thresholds for Certificate III and IV would lead to very high levels of unpaid debt. This was modelled and results are provided in Section 5.

It is important to emphasize that the ICL imparts important advantages for prospective students *regardless* of the exact minimum threshold; it provides a source of funds that may not otherwise be available, and the contingent repayment feature reduces the risk of financial hardship and bankruptcy. For these reasons an ICL is considerably more equitable than upfront payments, and this advantage is maintained even in the absence of a minimum threshold. Although reducing the minimum threshold would put pressure on the disposable income of a greater proportion of debtors, the repayment burden could be maintained at a low level for those with lower incomes by reducing repayment rates below 4 per cent of income.

Reducing the minimum threshold to $40,000 or lower, and applying a commensurately lower repayment rate, would both ensure greater debt collection and reduce the risk that students may try to intentionally rearrange their finances to avoid repayment.[35]

For the modelling we consider four threshold and repayment rate options:

1. current HELP thresholds and repayment rates;
2. minimum threshold of approximately $50,000 with a repayment rate of 2 per cent, as proposed in the Budget;
3. new thresholds of $50,000 @ 3 per cent, and $40,000 @ 2 per cent; and
4. new thresholds of $50,000 @ 3 per cent, $40,000 @ 2 per cent, and $35,000 @ 1.5 per cent.

[34] For example, under current HELP rules a debtor crossing the minimum threshold would transition from paying nothing to paying $2,100. If the minimum threshold was reduced to, $40,000 with a 2% repayment rate, the repayment at the threshold would instead be $800.

[35] There is a risk that reducing the minimum repayment threshold would lead to other discontinuities due to interactions with the tax and welfare systems. The choice of thresholds and rates would ultimately need to take into account the financial circumstances of borrowers, so as to not impose excessive financial hardship, and would need to also take into account interactions with the existing system of government payments and benefits.

3.5 Discounts for voluntary and upfront payments

Commonwealth supported students who are eligible for HECS-HELP currently receive a 10 per cent discount if they make an upfront payment of $500 or more. This is effectively equivalent to a loan surcharge for those not paying upfront, as can be seen in the following example:

- If a student faces tuition fees of $10,000 and opts to pay upfront, they would receive a discount from the government equal to $1,000 (10 per cent of the total tuition fee) and they would face out-of-pocket costs of $9,000.
- For all those students *not* paying upfront, they face a HECS-HELP deferred debt of $10,000. Since paying upfront would mean an outlay of $9,000 instead, for students who do not pay upfront this is equivalent to being charged a loan surcharge of $1,000, or 11.1 per cent $9,000.

Thus, from a financial standpoint, the effect of a loan surcharge or a discount on upfront payments can be considered as equivalent.

Subject to passage of legislation, the Australian Government will be removing the existing 10 per cent upfront HECS-HELP discount. There is currently also a bonus of 5 per cent receivable for debtors who make voluntary HELP repayments (above the mandatory income contingent payments), but the Government has announced that this will also be removed subject to the passage of legislation.

Because discounts on upfront payment are financially equivalent to loan surcharges, different options for upfront discounts are not modelled in this report. For consistency and simplicity across the HELP system, a single loan surcharge *or* a single upfront discount may be preferable for all HELP debt, rather than different surcharges and discounts.

3.6 Summary of options for modelling

Table 2 lists the options that are modelled and reported on in Section 5.

Table 2. ICL scheme parameters used in the modelling

Parameter	Level	
Loan amount	Certificate III:	$1k, $5k, $9k
	Certificate IV:	$1k, $5k, $9k
	Diploma/advanced diploma:	$8k, $12k, $16k
	Bachelor Degree:	$20k, $30k, $40k
Repayment thresholds and repayment rates	Current thresholds and repayment rates	
	Current rules + threshold of $50k @ 2 per cent repayment rate	
	Current rules + thresholds of $50k @ 3 per cent, and $40k @ 2 per cent repayment rate	
	Current rules + thresholds of $50k @ 3 per cent, $40k @ 2 per cent, and $35k @ 1.5 per cent repayment rate	
Loan indexation	Rate of increase of CPI	
	Rate of increase of AWOTE	
	Hybrid arrangement	
	Government's cost of borrowing	
Loan surcharge	10 per cent loan surcharge (with CPI indexation)	
	20 per cent loan surcharge (with CPI indexation)	
	30 per cent loan surcharge (with CPI indexation)	

The preferred approach is likely to be a mix of options, and to that end we also consider various combinations of the individual parameter options from the above table.

Note that in addition to diplomas, advanced diplomas, and bachelor degrees, existing HELP arrangements also cover associate degrees, graduate certificates, graduate diplomas, and masters degrees.[36] ICL subsidies are not estimated for these qualifications in this report.[37]

[36] Further, for the modelling herein we ignore the ICL scheme for apprenticeships through Trade Support Loans. These arrangements cover certain Certificate III and IV courses that lead to qualifications specified in the Trade Support Loan Priority List. The maximum loan amount is $20,000, and debt is reduced by 20 per cent on completion of the apprenticeship.

[37] The choice to just include diploma/advanced diploma and bachelor degrees was made because enrolments in these qualifications far exceed enrolments in graduate certificate/diploma and masters degrees. Furthermore, it seems reasonable to assume that the lifetime earnings associated with bachelor degree debtors are broadly comparable with graduates with higher AQF qualification levels (8 and 9).

4. Costing the Income Contingent Loan

Estimating ICL costs involves comparing the projected stream of future repayments with the original loan amount. If the repayments collected – in present value terms – are less than the amount loaned, then there is a cost to the government and an effective subsidy to the student.

The defining characteristic of an ICL such as HELP is that every debtor has a unique repayment stream because debt obligations are not set by time but depend instead on individual future incomes. Thus in order to infer loan repayment streams for debtors in particular categories it is necessary to project expected lifetime income streams.

Modelling future income

Full-time and part-time incomes for individuals at each qualification level (Certificate III and IV, Diploma, and Bachelor degrees) were extracted from 2011 Australian Census data. The Census data is in discrete income bands, and non-parametric methods were used to convert this into continuous income levels for each income percentile, ranging from the 1st to the 99th percentile. The Census contains cross-sectional data on income by age, sex, qualification level and employment status. The income data extracted was for the highest level of non-school qualification achieved (for example, Certificate III, IV, Diploma or Bachelor Degree).

To illustrate the sort of income structures revealed by the data, Figures 2 and 3 show the estimated median and lower-quartile age-income profiles for males and females in full-time employment, disaggregated into category of qualification. The incomes have been inflated with AWE to give 2015 income values.

The income profiles reveal the usual concavity in age-income relationships, and suggest that male bachelor graduates receive *median* annual incomes of around $100,000 a year by age 40 (in 2015 dollars prior to allowing for productivity growth). This compares with $68000, $75000, and $86000, for Certificate III and IV, and Diploma graduates respectively.[38] It can be seen that female incomes for all qualifications are considerably lower.

Full-time income for women at the lower income quartile is below the HELP minimum repayment threshold for all qualifications (approximately $53000 in 2014/15), with the exception of Bachelor degree graduates. Median incomes for Certificate III graduates are below the repayment threshold for all ages.

[38] Note that VET has a distinct subset of apprenticeships and traineeships. The incomes reported here reflect the percentiles across *all* Certificate III and IV completers, and not just those who have completed apprenticeships and traineeships.

Figure 2: Median full-time annual incomes (2015 dollars)

Males **Females**

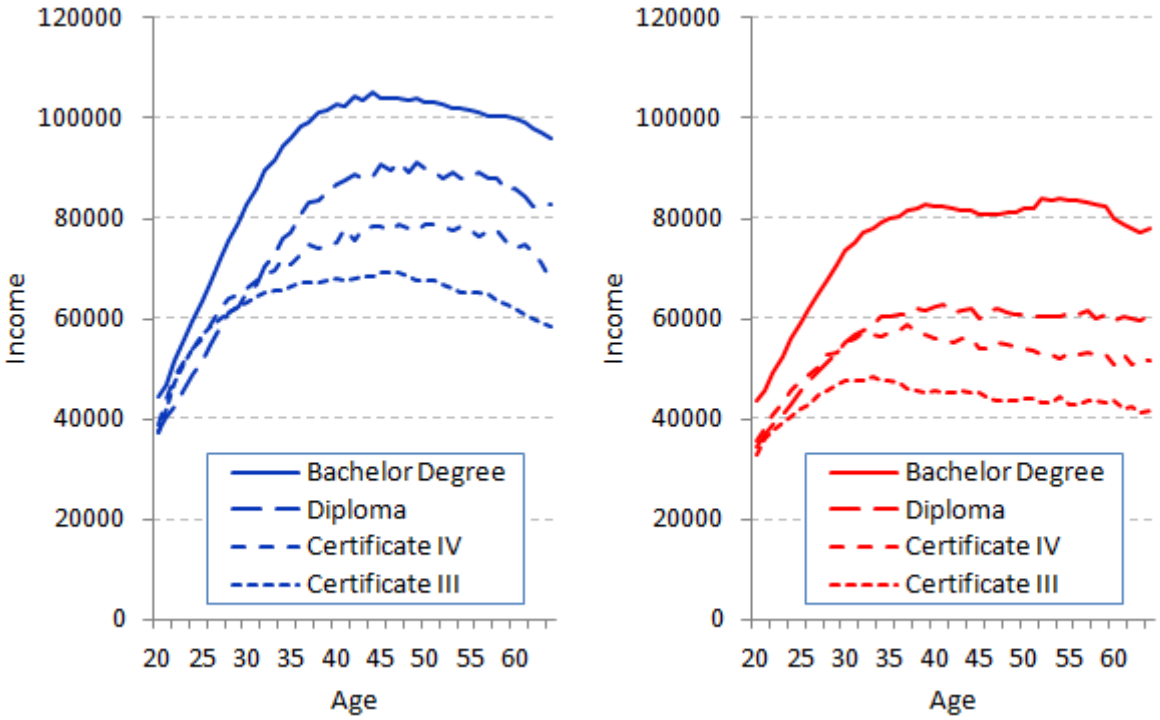
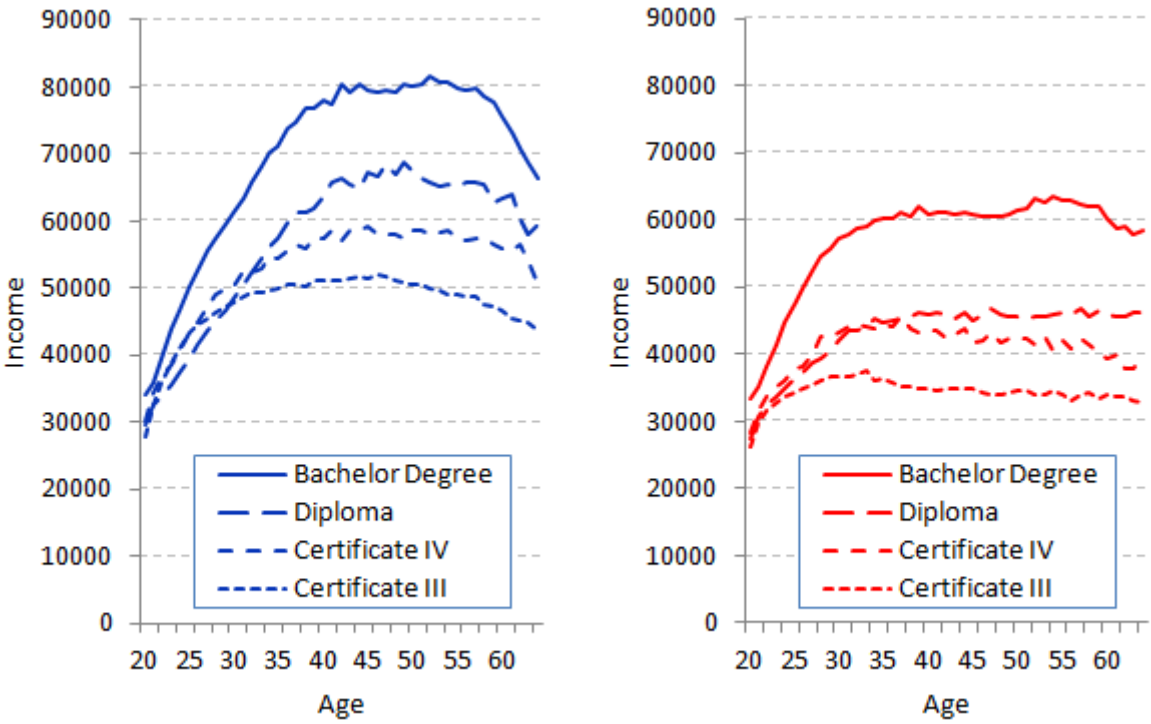


Figure 3: Lower-quartile (25th percentile) full-time annual incomes (2015 dollars)

Males **Females**

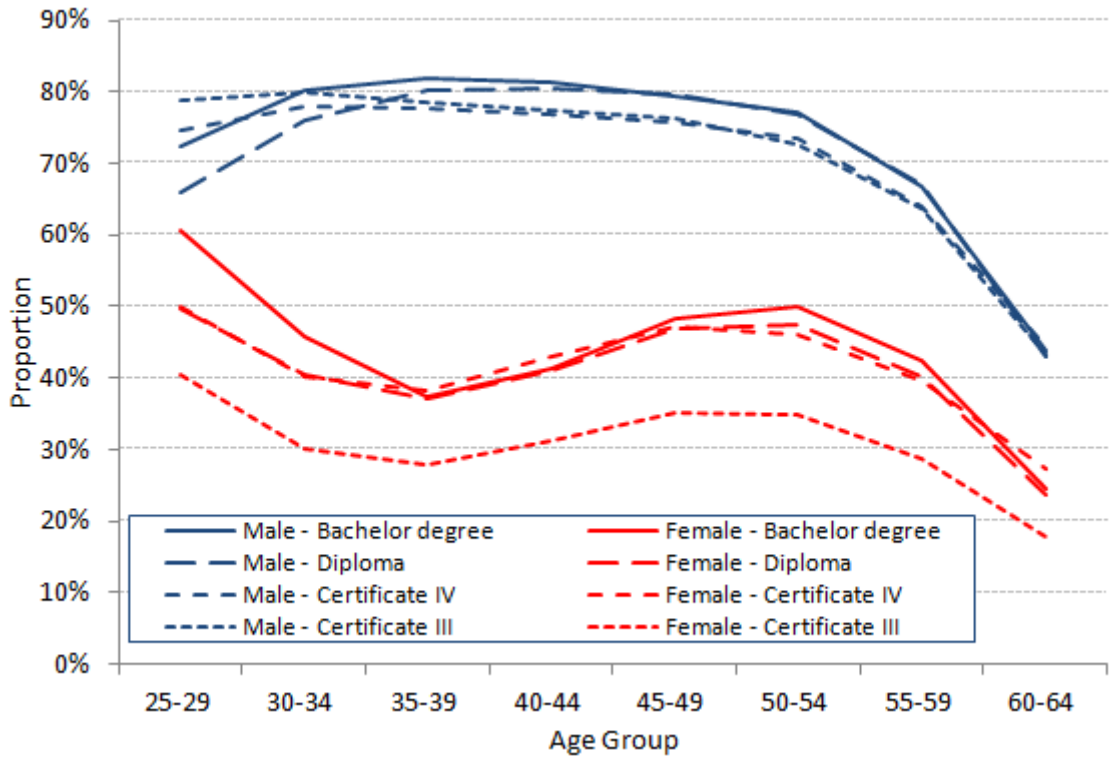


Source: Author calculations based on 2011 ABS Census data adjusted to 2015 dollars with AWE growth

It is important to note that the incomes displayed in Figures 2 and 3 capture period effects (that is, they are based on 2011 data), as well as cohort effects; for example, the income for a 40 year old Bachelor degree graduate reflects the wage growth experienced in the time since completion of their degree. For a 40 year old who graduated at age 22, this implies that they have potentially experienced 18 years of wage growth during the 1990s and 2000s. As such, the figures display the consequences of past wage growth and returns to education prior to 2011, and using these incomes to estimate future ICL repayments presupposes that these trends will continue.[39]

The distribution of full-time income, however, tells only part of the story. Figure 4 shows the rates of full-time employment (defined here as the proportion of the total population of each sex and at each qualification level who are employed full-time). Lower rates of full-time employment, coupled with lower full-time incomes for women, imply that a considerably larger proportion of women will fall below the minimum repayment threshold resulting in higher unpaid debt and ICL costs. In particular, the income levels and full-time employment rates for Certificate III women suggest potentially very low debt recovery under existing HELP arrangements.

Figure 4: Full-time employment rates



Source: Author calculations based on 2011 ABS Census data

[39] Further, in using these incomes there is an implicit assumption that the quality of education and candidates will be the same in the future as it has been in the past. This may not be the case in VET, where there has been an increase in online delivery of courses.

The figures above, while providing a rough indication of possible debt recovery, are limited in that they are based on cross-sectional data and thus only represent a snapshot in time. Specifically, they do not reveal how incomes and labour force states can change for each individual over their lifetime. To address this limitation, the Household Income and Labour Dynamics of Australia panel survey (HILDA) was used to supplement the cross-sectional data. HILDA allows generation of income transitions within full-time and part-time employment states, and mobility between labour force experiences.

Using HILDA, statistical models were developed to model the probabilities that an individual transitions to higher or lower levels of income (to reflect, for example, promotions or change of job or career).[40] This was undertaken for males and females separately, and allowed for differences in qualification levels, labour force states, and income levels in previous years. Similar models were also developed to model the probabilities that an individual changes labour force state (to reflect, for example, periods out of the workforce to raise children, illness, unemployment, further education, retirement, or transitions into full-time work), conditional on sex, age, qualification level, and labour force states in previous years.

The statistical models generated were calibrated to ensure that simulated income and labour force transitions conformed to the observed income and labour force distributions from the Census.[41]

Simulation Process

These statistical models were then applied as part of a simulation process that was used to generate income for a hypothetical cohort of 10,000 individuals. This was repeated for males and females separately, for each qualification level – Bachelor, Diploma, Certificate IV and Certificate III.

[40] Specifically, the following process was followed. First, income was extracted by qualification, sex and age range for each wave of the HILDA data, for those with positive incomes of working age (~ages 25-60). For full-time and part-time persons separately, incomes were ranked within each wave for each cohort and these ranks were converted into income deciles. A series of multinomial logistic models were fit, with the response being the income decile for year t, and the following explanatory variables: income deciles at year t-1, yr t-2, yr t-3, as well as employment state at year t and year t-1. For those cases with positive income at time t but where income at time t-1 = 0 (if unemployed or not in labour force) a model was used with income rank as response variable and employment state at time t-1 as the single explanatory variable. These multinomial regression models were then used to predict income decile for those projected to have full-time or part-time income at time t. These predicted deciles were then matched with the corresponding part-time or full-time incomes from the 2011 Census by age, sex and qualification (allowing for wage inflation into the future). By using this approach we ensure that projected incomes are consistent with Census data. A series of multinomial logistic regression models was also used to predict employment state at time t, given employment state at time t-1,t-2, and t-3, as well as age, sex and qualification level. A term was included in the employment models to also allow for longer periods of persistency at the same employment rate.

[41] For an alternative approach to modelling graduate earnings under the English student loans system, see Crawford *et al.* (2014).

As a first step in the simulation process, the initial labour force state and income level for each of the 10,000 individuals were selected so the overall distribution of labour force state and income matched with the distributions for each particular sex, age and qualification combination from the 2011 Census. It was assumed that the age for the first year out of university for Bachelor degree graduates is 23, and the starting age for Diploma, Certificate IV and Certificate III graduates is 27.[42]

Using the statistical models developed, the labour force state for each individual at each future year was first simulated, based on their sex, age, qualification level and current and previous labour force states. Following generation of their labour force states, their incomes (full-time or part-time) were then simulated, based on their sex, age, qualification level, labour force state, and current and previous income levels. If the simulated labour force state was either unemployed or out of the labour force, then the individual was assigned a zero income for that year. For each future year, simulated incomes were inflated with assumed earnings growth of 4 per cent per annum. Thus, simulated incomes are given in nominal dollars.[43]

Calculating repayments and loan subsidies

Once incomes were simulated for each individual, the HELP rules were then applied to determine the level of compulsory repayment made. Future repayments were projected to be made if a debtor's simulated income exceeded the minimum repayment threshold, with the amount repaid being equal to their income multiplied by the repayment rate corresponding with the appropriate repayment threshold.[44] This amount was then deducted from their outstanding debt, where each one of the 10,000 individuals was assigned the same starting level of debt. In every year of the simulation, any outstanding debt was increased at the assumed rate of debt indexation (currently equal to the rate of growth of CPI).[45]

[42] These are estimates of approximate ages at completion based on author calculations using Department of Education Higher Education statistics for Bachelor degree students and National VET Provider statistics collection. While there is evidence that median age for VET students is greater than Bachelor degree students, minor changes to these ages in the model has negligible impact on the results reported in Section 5.

[43] A limitation with our approach is that we assume lifetime income is independent of loan amount. Modelling income by discipline, and associating this with different loan amounts, may possibly lead to different overall ICL subsidy estimates. This is something that should be considered if this research was to be extended.

[44] HELP debtors can, at any stage, also make voluntary repayments. When a debtor makes a voluntary repayment they receive a repayment bonus of five per cent (see Section 3.5). For the purposes of the modelling in this report we assume that no students make voluntary repayments (note: the current government has proposed removal of the five per cent bonus). Repayment thresholds are assumed to be indexed each year at the rate of growth in AWE.

[45] For bachelor degree students, the total loan amount was assumed to be incurred over three years and in the model the loan outstanding accrued interest both during and after university study.

This was carried out each year until the loan was either repaid, or the individual was projected to have either died or retired (we assume a retirement age of 65).[46]

Once the repayment profile is determined for each individual, we discount repayments. The present value of repayments is calculated by discounting the projected nominal repayment amounts at the Government borrowing rate, assumed to be 5 per cent nominal (the approximate average long-term bond rate over the past 10 years). [47] For comparison, a small selection of ICL subsidies is also given based on a bond rate of 3.2 per cent (the approximate average long-term bond rate over last year).[48]

The choice of these bond rates requires some discussion. Government budgetary costing standards require that the fair value of HELP debt be valued using the yield curve at the time of valuation. We approximate this roughly with the use of a rate of 3.2 per cent, which is the average long-term bond rate over the past year. If new loans are provided, there is an immediate cost to the budget equal to the expected ICL subsidies. Using the approximate *current* government cost of borrowing provide an estimate of the budgetary costs based on *current* economic circumstances.

However, when proposing policy reform that will impact cohorts of students in the medium and long-term, rather than just in the immediate timeframe, the expected borrowing costs of government in the future – and not just the present – should be incorporated into the costing. This argument is justification for valuing subsidies using a long-term cost of borrowing of 5 per cent. This presupposes that the government cost of borrowing will return to this long-term average in the future.

[46] Although mortality is included in the simulations it has a negligible impact on the costings. For example, according to the 2005-07 Australian Life Tables, the probability of a 20 year old man dying before reaching age 50 is less than 5 per cent (and less than 9 per cent from age 20 to age 60). The probabilities of death are even lower for women. We ignore the possibility of non-recovery of debt from debtors who leave Australia temporarily or permanently. Under recently announced policy, the Government intends to start collecting HELP repayments from debtors who move overseas. Further, the magnitude of the lost debt due to overseas migration is very small relative to the total outstanding debt, and is immaterial to the results reported here given the various sources of uncertainty in the assumptions and modelling.

[47] Source: RBA F2 historical tables: Capital Market Yield – Government Bonds - Monthly (based on monthly rates up to May 2015)

[48] Source: RBA F2 historical tables: Capital Market Yield – Government Bonds - Monthly (based on monthly rates up to May 2015)

In summary, the key assumptions applied when estimating ICL subsidies in this report are:

Government cost of borrowing of 5%, CPI of 2.5%, and wage inflation of 4%.[49]

Once the repayments are discounted at the chosen government cost of borrowing, the ICL subsidy can then be estimated. This is equal to the difference between the present value of the loan and the present value of repayments:

$$\text{ICL subsidy} = \sum_{t=1} \left(\frac{1}{1+d}\right)^t L_t - \sum_{t=1} \left(\frac{1}{1+d}\right)^t R_t$$

where L_t is the loan in year t, R_t are the repayments made in year t, and d is the interest rate used to discount the loan and repayments. The amounts are discounted to account for the fact that repayments recovered in the future are worth less to the Government than repayments made today. This is because repayments of made today immediately reduce Government debt, thereby reducing the interest that Government would have to pay on this debt.

The ICL subsidy can then expressed as a ratio:

$$\text{ICL subsidy ratio} = \frac{\text{ICL subsidy}}{\text{PV loan}}$$

The ICL subsidy ratio can be thought of as the proportion of the loan amount that is not expected to be recovered by the Government, in present value terms.

We now provide a simple example to help explain the difference between the ICL subsidy and ICL subsidy ratio. Consider a student who enrolls in a tertiary education course with tuition fees of $10,000. The student takes out an ICL of $10,000 and over their lifetime they repay $7,000 (in present value terms). The ICL subsidy is the shortfall between the loan and the repayments, which in this example is $3,000. The ICL subsidy ratio is the ICL subsidy as a proportion of the loan amount, which in this example is 30 per cent.

ICL subsidy components

As described earlier in this report, the ICL subsidy arises because outstanding debt is forgiven when the debtor dies (this component is referred to as the DNER subsidy – 'debt not expected to be repaid') and due to the interest charged to the loan being less than the Government's cost of borrowing (this component is referred to as the interest subsidy or the deferral subsidy).

[49] The historical rate of CPI growth over the past 10 years is approximately 2.5 per cent, and growth in total earnings (AWE) over this historical period has been 4 per cent per annum.

The ICL subsidy can be decomposed into these two components[50]:

$$\text{ICL subsidy} = \text{Interest subsidy} + \text{DNER subsidy}$$

The following explanation concerning the DNER aspect of the equation is not important to the results, but is included to be comprehensive. The DNER subsidy can be roughly approximated by estimating the ICL subsidy under the ICL scheme assumption that the loan interest charged is equal to the Government's cost of borrowing (i.e., equal to the discount rate). This is the case because if debt is indexed at the long-term bond rate (assumed to be the Government's borrowing rate), then the government will not incur costs associated with foregone interest. In this event there will be zero costs associated with debtors who eventually repay their loan in full (besides those associated with administration). Under this assumption, any difference between the loan and the amount repaid would arise solely because some of the outstanding loan is unpaid on the death of the debtor.

[50] Note that under PAYG arrangements, the Government recovers HELP repayments over the course of the year rather than at the end of financial year. Our model assumes that debt is recovered at the end of the year, and therefore our interest subsidy estimates will be greater than the actual subsidies.

5. Results

In this section the modelling results are presented and discussed with the focus being on ICL costs. In Section 5.1 we give the subsidy ratio estimates for Certificate III, IV, Diplomas and Bachelor degrees under current HELP rules. In Section 5.2 we report on subsidy ratios under the various design options outlined in Section 3 and summarised in Table 2. We conclude with Section 5.3, where uncertainties in the model processes are described. The subsidies given are expressed as ratios as described in Section 4.

It is important to highlight the significant uncertainties in the subsidy estimates presented. Due to data limitations, model assumptions, and ambiguity about future medium and long-term labour market conditions for tertiary graduates, the subsidies that are reported herein are subject to considerable uncertainty. These limitations are described further in Section 5.4. In particular, the estimates reported should not be seen as a substitute for the official Government HELP subsidy estimates, which are based on models developed using income and repayment data for HELP debtors. Despite the uncertainties surrounding the estimates in our report, we believe that they provide a reasonable guide to the magnitude of the ICL subsidies that could arise if HELP was extended to Certificate III and IV qualifications, and moreover, they provide insight into how ICL subsidies may change as a consequence of modifications to HELP rules.

5.1 Subsidy estimates under current HELP rules[51]

Bachelor Degree

We first consider the ICL costs for a hypothetical cohort of new bachelor degree graduates who incur loan amounts of $30,000, where current HECS-HELP rules apply (i.e., existing repayment thresholds and repayment rates apply, and outstanding debt is indexed to CPI). Figure 5 shows the subsidy ratios (defined in Section 4) for the population of new graduates ranked by the level of subsidy paid from highest to lowest. This ranking *broadly* corresponds with lifetime earnings, noting that those with lower subsidies generally have higher incomes over their lifetimes.[52] The ICL subsidy ratios assume a Government nominal cost of borrowing of 5 per cent per annum. The blue line gives the values for males, and the red line

[51] All of the subsidy estimates reported in this section and Section 5.2 are for cohorts of *new* graduates with the qualifications considered. These estimates do not take into account attrition rates.

[52] The x-axis gives the proportion of the graduate population. While the x-axes of the figures given in Section 5 broadly correspond with decile of lifetime earnings, this is not exact. This is because incomes can transition above and below the minimum threshold. As an example, an individual with income just below the minimum threshold for their entire lifetime can have a 100 per cent subsidy, while someone with income just over the threshold for 15 years (but subsequently substantially under the threshold for the remainder of their lifetime) can repay their debt in full and have a zero subsidy. In this case, the individual with the higher lifetime income has a lower subsidy than the person with the lower lifetime income.

for females. For example, the subsidy ratio is approximately 40 per cent or greater for 20 per cent of male graduates. Similarly, 20 per cent of all female graduates will have a subsidy ratio of 60 per cent or greater.

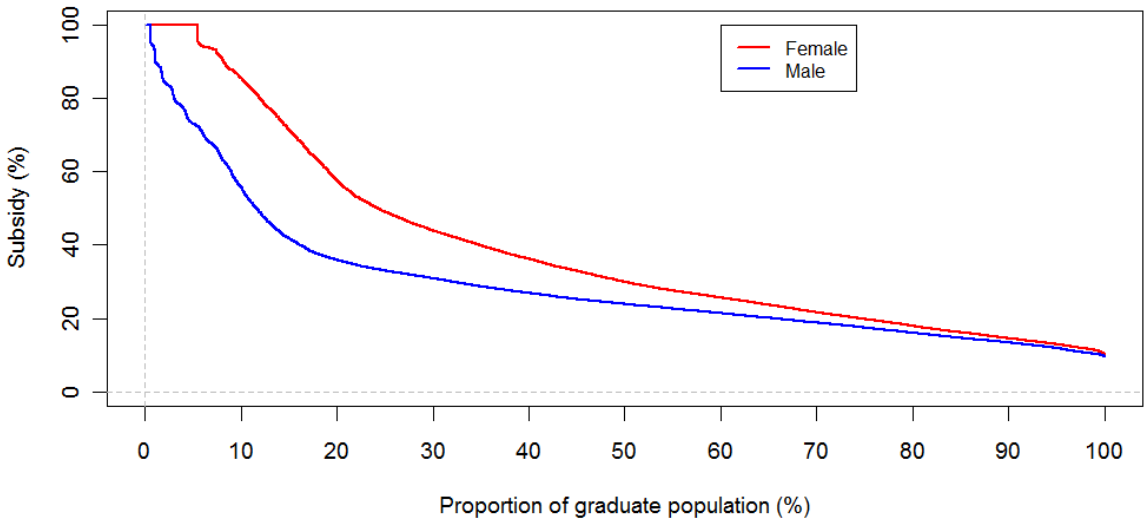
The plot demonstrates some expected patterns:

- The red line in the plot indicates that approximately 5 per cent of women who graduate with bachelor degrees will not repay any of their debt over their lifetimes.

- Many individuals will undergo periods when their income falls below and rises above the minimum repayment threshold. Some individuals will not maintain incomes above the minimum threshold for a sufficient time to repay their total debt, but some repayments may nevertheless be made during their lifetime. For these individuals we expect a high, but declining, subsidy ratio as lifetime income increases.

- There will also be some individuals who repay their debt in total. Since under current HECS-HELP rules outstanding debt is indexed to CPI, even those who repay their debt in full will attract some level of subsidy. Figure 5 indicates that at the highest lifetime income levels, there is a subsidy ratio of approximately 10 per cent.

Figure 5: ICL subsidy ratios for Bachelor degree graduates. Loan amount $30k. Current HECS-HELP rules. Government bond rate of 5%.



The average subsidy ratio can be determined for this hypothetical cohort of new graduates. Assuming a Government cost of borrowing of 5 per cent per annum, the average lifetime subsidy ratio is 39 per cent for females and 29 per cent for males, giving an average of approximately 34 per cent across all graduates (assuming a 55/45 female-male ratio for bachelor degree graduates).[53]

The subsidies are highly dependent on the difference between the interest rate charged (CPI) and the government bond rate. In Figure A1 in Attachment 1, the results of Figure 5 are plotted against the case where a 3.2 per cent government cost of borrowing is assumed. A lower bond rate assumption has the effect of reducing the cost to government substantially. At 3.2 per cent for the bond rate, the average subsidy ratio (assuming 55/45 sex ratio) is 20 per cent (24 per cent for females and 14 per cent for males).

For the remainder of Section 5, results are only presented for the 5 per cent bond rate assumption.

Table 3 gives the subsidy ratio estimates for three different loan sizes: $20,000, $30,000 and $40,000.[54] Since repayments are a fixed proportion of income, regardless of the outstanding loan owing, larger loans mean a longer time until total repayment, and therefore greater interest charged. Further, larger loans will mean that some on lower incomes (who would have repaid in full had they had a smaller loan) will have unpaid debt remaining on death. Thus, larger loans increase both the DNER as well as interest subsidy.[55]

Table 3: ICL subsidy ratios for different Bachelor degree loan amounts under current HECS-HELP rules. Government bond rate of 5%.

Loan Amount	$20,000	$30,000	$40,000
Females	34	39	43
Males	25	29	32

Note: These results assume that lifetime incomes and loan amounts are not correlated.

For every additional $10k of loan, the subsidies continue to increase by between 3 and 4 per cent. For a debt of $60,000 the subsidies would be of the order of 50 per cent and 38 per cent for females and males respectively.

[53] To test if the model produces realistic outputs, the results were compared with the official Government estimates from June 2013. Government estimates for total ICL subsidies are approximately 23 per cent (interest subsidies + DNER subsidies). The reported yield on the 10 year bond at June 2013 was 3.8 per cent. Using an interest rate for discounting of 3.8 per cent, assuming CPI of 2.5 per cent (consistent with Government assumptions), 4 per cent wage growth, and an average debt at June 2013 of approximately $25,000 for new debtors (based on a 3.5 year degree on average), our model generates an ICL subsidy of 22.5 per cent. Although this difference is small, we would expect a larger difference since our estimates assume that all debtors completed their degrees, and therefore do not allow for student attrition.

[54] The results are plotted in Figure A2 in Attachment 1.

[55] This assumes that loan amounts and lifetime incomes are unrelated.

Diploma and Advanced Diploma

Eighty-nine per cent of all VET FEE-HELP loans made in 2013 were for Diploma qualifications, and thus the results presented here are only for Diploma graduates.[56] As discussed in Section 3.1, the average Diploma fee is approximately $12,000 for a full-fee paying student, and with a 20 per cent VET FEE-HELP loan surcharge this would imply a total amount owing of $14,400.

Figure 6: ICL subsidy ratios for Diploma graduates. Loan amount $12k. Current VET FEE-HELP rules with and without 20 per cent loan surcharge. Government bond rate of 5%.

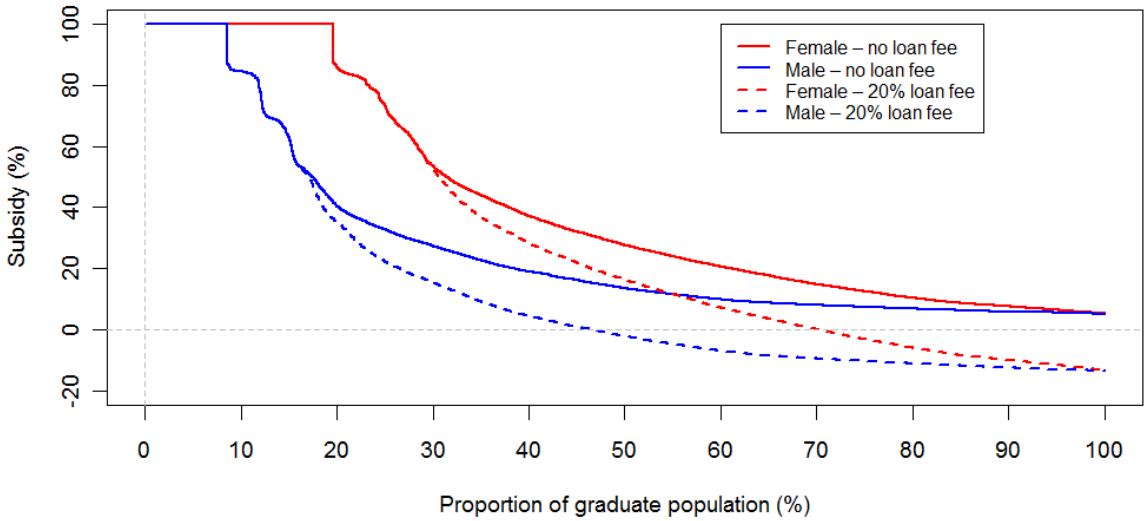


Figure 6 shows the subsidies if the 20 per cent loan surcharge was not applied, and also the impact of it being charged on the loan. The implication of the loan surcharge is that debtors with higher lifetime incomes pay a small amount in excess of the $12,000 loan, resulting in a negative subsidy. In effect, these repayments cross-subsidise the lower repayments made by lower income earners.

The lower loan amounts (compared with Bachelor degree graduates), and the 20 per cent loan surcharge, result in lower overall subsidies for Diploma graduates, than for Bachelor graduates.[57] Subsidy ratio estimates for a variety of loan amounts are given below.

[56] Further, analysis of Census data shows that Advanced Diploma graduates have very similar incomes and employment rates to Diploma graduates. It is, therefore, reasonable to assume that the results for Diploma graduates will be very similar to Advanced Diploma graduates.

[57] The subsidy estimates are only for Diploma students who complete their qualification. The subsidies for debtors who do not complete their qualification would be expected to be greater.

Table 4: ICL subsidy ratios for different Diploma loan amounts under HELP rules. Government bond rate of 5%.[58]

	Loan Amount	$8,000	$12,000	$16,000
No loan surcharge	Females	38	42	45
	Males	24	27	30
20% loan surcharge	Females	28	32	36
	Males	10	14	18

Certificate III and Certificate IV

Results are now presented for Certificate III and IV graduates under current HELP repayment thresholds, repayment rates, and loan indexation rules, and assuming a loan amount of $5,000 and Government bond rate of 5 per cent per annum. Two sets of results are given: (i) assuming that no loan surcharge is applied to the loan amounts of $5,000; and (ii) assuming a 20 per cent loan surcharge is charged (consistent with current VET FEE-HELP rules).

Figures 7 and 8 gives the results across the graduate population distribution for Certificate III and Certificate IV completers respectively. A number of observations follow from these figures:

- Male subsidies are substantially lower than those of females. This is a consequence of males experiencing much higher full-time and part-time incomes for both Certificate III and IV qualifications, and in particular much higher rates of full-time employment and labour force participation.

- Subsidy ratios for Certificate III females are much greater than those for Certificate IV. This is due to higher Certificate IV incomes, and is largely because female Certificate IV completers have much greater rates of full-time employment and labour force participation. In contrast, employment rate and labour force participation rates for male Certificate III and IV are very similar.

- A majority of Certificate III females are never expected to exceed the minimum HELP repayment threshold, which leads to a 100 per cent subsidy ratio. For those who do exceed the threshold, one year of repayments will lead to a loan reduction of over $2,000. Only 2 to 3 years of income exceeding the threshold will result in the total loan (in this case, $5000) being repaid. Consequently, the subsidy ratio curve is steep;

[58] Although fees for subsidised VET FEE-HELP diploma students are substantially smaller than $12,000 (averaging approximately $4,000), subsidised VET FEE-HELP diploma students are less than 20 per cent of all VET FEE-HELP diploma debtors in 2013 (source: Australian Government Department of Education VET FEE-HELP Data Collection)

while there will be some who only earn enough to partially repay their loan (e.g., who earn above the threshold for only one or two years), the vast majority who exceed the minimum threshold will do so for longer than two years, and will therefore repay their loan completely.

- In the absence of a loan surcharge, the average subsidy ratio across the entire population distribution is 60 and 41 per cent for female Certificate III and IV graduates, and 21 and 18 per cent for male Certificate III and IV graduates respectively.

- If a 20 per cent loan surcharge is applied, consistent with existing VET FEE-HELP rules, then the average subsidy ratio falls to 54 and 31 per cent for female Certificate III and IV graduates, and 7 and 2 per cent for male Certificate III and IV graduates.[59]

Figure 7: ICL subsidy ratios for Certificate III graduates. Loan amount $5k. With and without 20 per cent loan surcharge. Government bond rate of 5%.

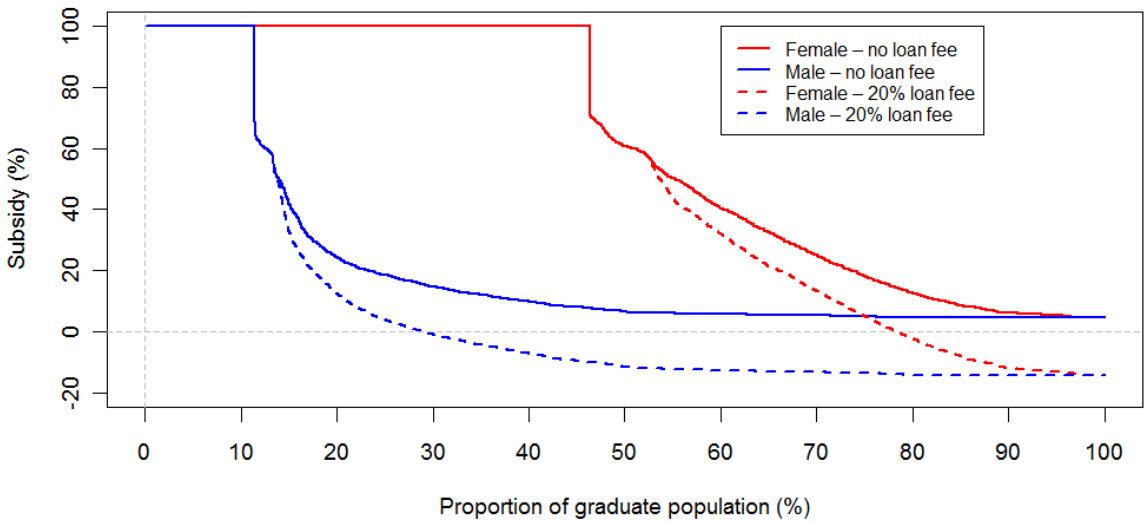


Table 5 gives the subsidies for the case with and without loan surcharge, and for a variety of loan amounts.

The introduction of a 20 per cent loan surcharge has a relatively small effect on female subsidy ratios, particularly for Certificate III. This is because a significant proportion of female debtors have very low lifetime incomes such that they repay either little or none of the debt, so increasing the debt level through a surcharge is not material. In contrast, for males the introduction of a loan surcharge results in a significant increase in lifetime repayment amounts and a reduction in the subsidy.

[59] This implies an aggregate subsidy estimate of approximately 25 per cent, following the same assumptions set out in the previous footnote.

Figure 8: ICL subsidy ratios for Certificate IV graduates. Loan amount $5k. With and without 20 per cent loan surcharge. Government bond rate of 5%.

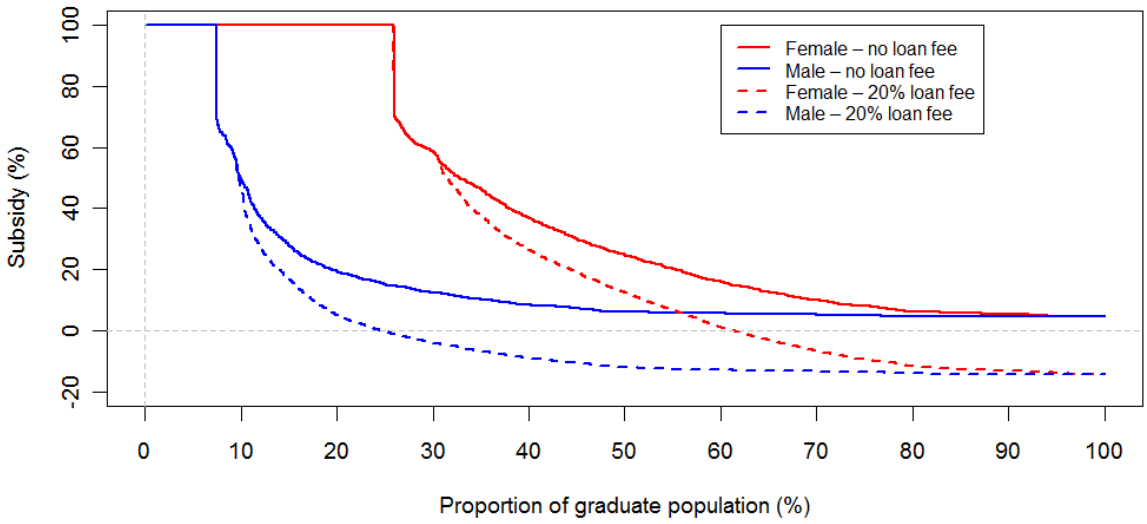


Table 5: ICL subsidy ratios for different Certificate III and IV loan amounts under HELP rules. Government bond rate of 5%.

	Qualification	Loan Amount	$1,000	$5,000	$9,000
No loan surcharge	Certificate III	Females	56	60	65
		Males	19	21	24
	Certificate IV	Females	37	41	46
		Males	16	18	21
20% loan surcharge	Certificate III	Females	47	54	60
		Males	3	7	11
	Certificate IV	Females	25	31	37
		Males	-1	2	6

Summary of results under current HELP rules

The results of the different qualifications are plotted together in Attachment 1 in Figures A3 and A4, assuming no loan surcharge for Diploma and Certificate III and IV debtors.

Loan size can have a large impact on ICL costs. Although lifetime incomes for male university graduates are much higher than for VET graduates, the ICL subsidy ratios are higher for Bachelor graduates. This is directly due to the larger debt incurred by university graduates; larger debt amounts take a longer time to repay, and because existing debt is indexed to CPI, this leads to a greater relative cost. This difference is most noticeable for males. For example, for $30,000 debts, repayment in full can take 15 years at the lowest repayment threshold (compared with 1-3 years for Certificate III and IV debt). Even at high incomes repayment may take between 5 and 10 years. The subsidy ratio estimates are summarised in Table 6.

Table 6: Summary of ICL subsidy ratios under current HELP rules. Government bond rate of 5 per cent per annum.[60]

Qualification level	Males	Females
Certificate III	21 (7)	60 (54)
Certificate IV	18 (2)	41 (31)
Diploma	27 (14)	42 (32)
Bachelor Degree	29	39

Note: The numbers in brackets are the subsidy ratios if a 20 per cent loan surcharge is applied to the debt, consistent with existing VET FEE-HELP rules.

The key results from this section are summarised below:

- Female ICL costs across the board are much greater than males, which is largely due to significantly lower rates of full-time employment. This is particularly apparent for Certificate III females.

- Extending the existing HELP system to Certificate III and IV without considering modifications to the scheme rules would result in significant ICL costs associated with female debtors. Although imposing a 20 per cent loan surcharge (consistent with current VET FEE-HELP rules) brings down the ICL costs, this has relatively little effect on Certificate III females, since the majority experience incomes below the minimum threshold for the duration of their lifetimes.

- Although ICL subsidy ratios are very high for VET females, they are more modest for males, and indeed are lower than the costs for Bachelor degree graduates. This is due to the lower loan amounts experienced for VET qualifications compared with Bachelor degrees.

- As loan sizes increase, the ICL subsidy ratios also rise. If fees are deregulated and ICL amounts are uncapped, there is a risk of substantially higher ICL costs if existing HELP scheme rules are left unchanged (due to an increase in outstanding debt, but also due to an increase in the subsidy ratios).

[60] For illustration of the significant impact that loan size can have on subsidies, if we considered a $30,000 loan size for Certificate III and IV debtors (commensurate with average HECS-HELP debts for new graduates), and zero loan surcharge, the subsidies for female Certificate III and IV subsidies would increase to 79 and 60 per cent, and male Certificate III and IV subsidies would increase to 37 and 33 per cent.

5.2 The impact of ICL scheme design options on subsidy estimates

In this section we report the results concerning subsidy ratios estimates when ICL scheme parameters are modified.

Repayment thresholds and repayment rates

As described in Section 3.4, we now present the subsidy ratio estimates for the following repayment threshold and repayment rates:

1. Current HELP thresholds and repayment rates.
2. Current rules plus minimum threshold of approximately $50k with a repayment rate of 2 per cent, as proposed in the 2014 Budget.
3. Current rules plus new thresholds of $50k @ 3 per cent, and $40k @ 2 per cent.
4. Current rules plus new thresholds of $50k @ 3 per cent, $40k @2 per cent, and $35k@ 1.5 per cent.

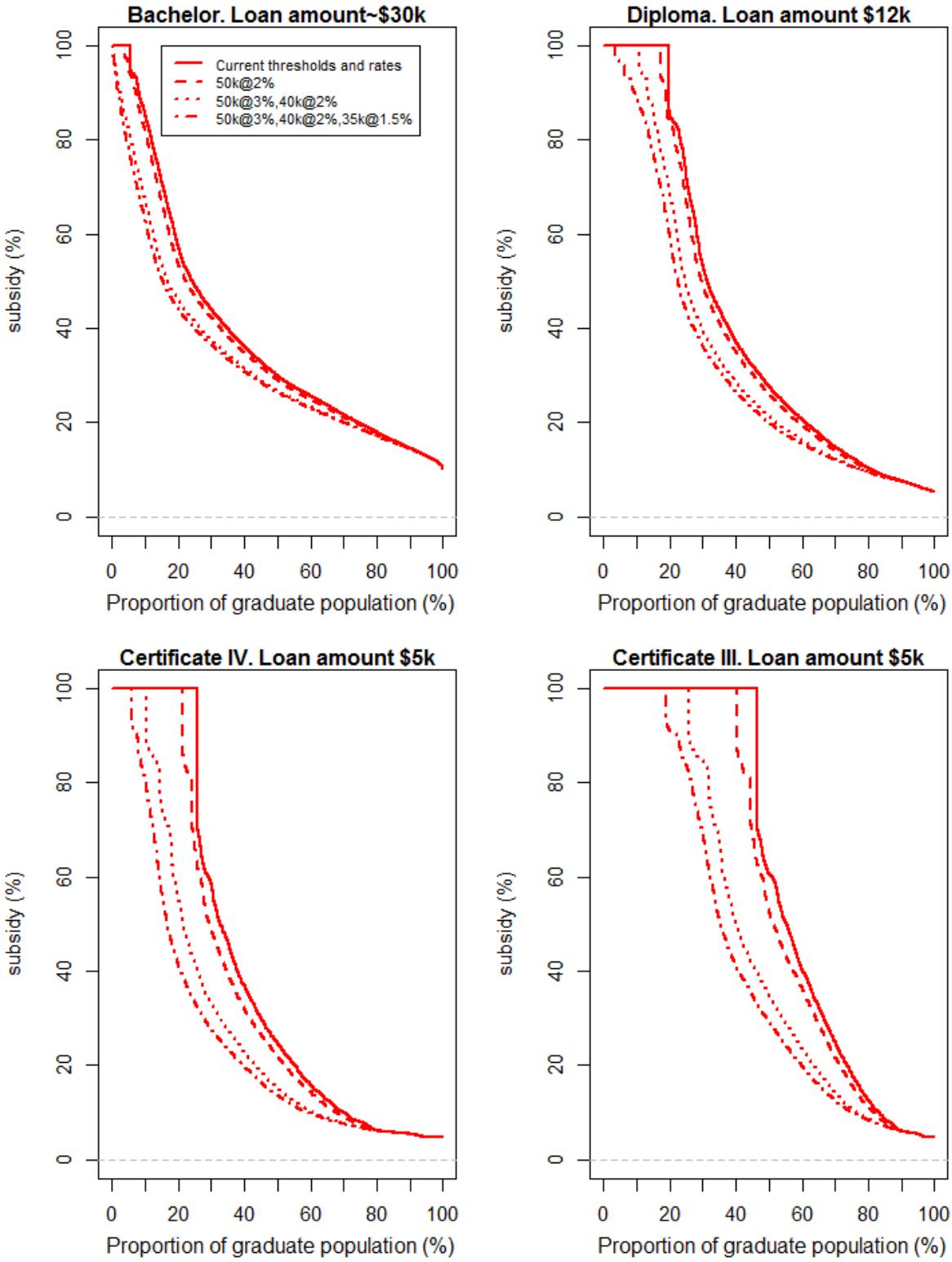
Table 7 presents the subsidy ratio results across the entire cohort of graduates, and Figure 9 presents the subsidy ratio distribution for the different qualification levels for women.[61]

Table 7: Summary of ICL subsidy ratios under modified repayment thresholds and repayment rates. No loan surcharge. CPI indexation. Government bond rate of 5%.

	Current thresholds and rates	$50k @ 2% repayment rate	$50k @ 3% $40k @ 2%	$50k @ 3%, $40k @ 2%, $35k @ 1.5%
MALES				
Certificate III	21	20	12	10
Certificate IV	18	16	9	9
Diploma	27	24	16	15
Bachelor Degree	29	28	25	24
FEMALES				
Certificate III	60	57	47	43
Certificate IV	41	38	30	27
Diploma	42	40	35	33
Bachelor Degree	39	38	34	33

[61] Corresponding male plots are included in Attachment 1.

Figure 9: Effect of different repayment thresholds and repayment rates on ICL subsidy ratios. Females. No loan surcharge. CPI indexation. Government bond rate of 5%.



Modifying the repayment thresholds and rates can have a large impact on repayments and ICL costs. Key observations from the modelling are:

- The reduction in the minimum threshold to $50,000 with a repayment rate of 2 per cent as announced in the 2014 Budget, leads to only a small drop in the ICL subsidy ratios.

- Reducing the repayment threshold to $40,000 with a 2 per cent repayment rate would imply repayments of $800 per annum if annual income is $40,000. This would increase the number of lower income debtors who repay some of their debt. It would, however, have a noticeable impact on reducing Certificate III and IV subsidies: for Certificate III and IV males the subsidies fall by approximately 9 percentage points, while for Certificate III females the reduction is 13 percentage points. When applying this reduced threshold and repayment rate, the average subsidy ratio across Certificate III and IV women would be comparable to that of female Bachelor degree graduates under existing HELP rules.

- For Diploma graduates, reducing the threshold to $40,000 also has a large effect, particularly for males, where the income distribution of male Diploma graduates is such that a relatively large proportion falls in the income range between $40,000 and $50,000.

- In contrast, while moving to a minimum threshold of $40,000 reduces the subsidies for Bachelor graduates, the reduction is only approximately 5 per cent.

- For interest, we have also explored the impact of reducing this further, by including a minimum threshold of $35k with a 1.5 per cent repayment rate. This would only require payments of $525 per annum ($10 per week) for those at the minimum threshold, yet could reduce female Certificate III and IV subsidies by an additional 4 percentage points.

Loan indexation

As described in Section 3.2, we give the subsidy ratio estimates for the following loan indexation options:

1. Indexation at CPI (as per current arrangements).
2. Indexation at AWE.
3. A hybrid indexation arrangement, as described in Section 3.2.
4. Indexation at the Government's cost of borrowing, thereby eliminating interest subsidies.

A summary of the results is given in Table 8, and Figure 10 displays the distribution of subsidies for women.[62]

Table 8: Summary of ICL subsidy ratios under loan indexation options. No loan surcharge. Government bond rate of 5%.

	CPI indexation	Hybrid	AWE	Bond rates
MALES				
Certificate III	21	17	17	13
Certificate IV	18	13	13	9
Diploma	27	22	21	16
Bachelor Degree	29	19	19	11
FEMALES				
Certificate III	60	58	56	53
Certificate IV	41	38	35	31
Diploma	42	38	35	30
Bachelor Degree	39	31	29	22

The following observations can be made:

- As discussed in Section 4, the subsidy ratios estimates when calculated assuming bond indexation give the approximate costs associated with DNER (debt-not-expected-to-be-repaid).

- It can be seen from Table 8 that the approximate interest subsidies are larger for qualifications with greater loan amounts. Interest subsidies (approximated by the difference between the subsidies under CPI indexation and bond indexation) are approximately 8 per cent for Certificate III graduates[63], and 11 per cent for Diplomas, but over 15 per cent for Bachelor graduates. For Bachelor degrees, the size of the loans is such that repayment takes many years. For example, for a $30,000 debt, repayment in full can take 15 years at the lowest repayment threshold (compared with 1-3 years for Certificate III and IV debt). Even at high incomes repayment may take between 5 and 10 years. The longer time to repayment leads to a much greater interest subsidy for Bachelor degree graduates, even for those with higher incomes. Therefore, as fees increase (and if the gap between the bond rate and CPI widens from the current narrow levels), strategies to limit interest subsidies become more important.

[62] Corresponding male plots are included in Attachment 1.
[63] The interest subsidy is highly dependent on the gap between CPI and Bond rates.

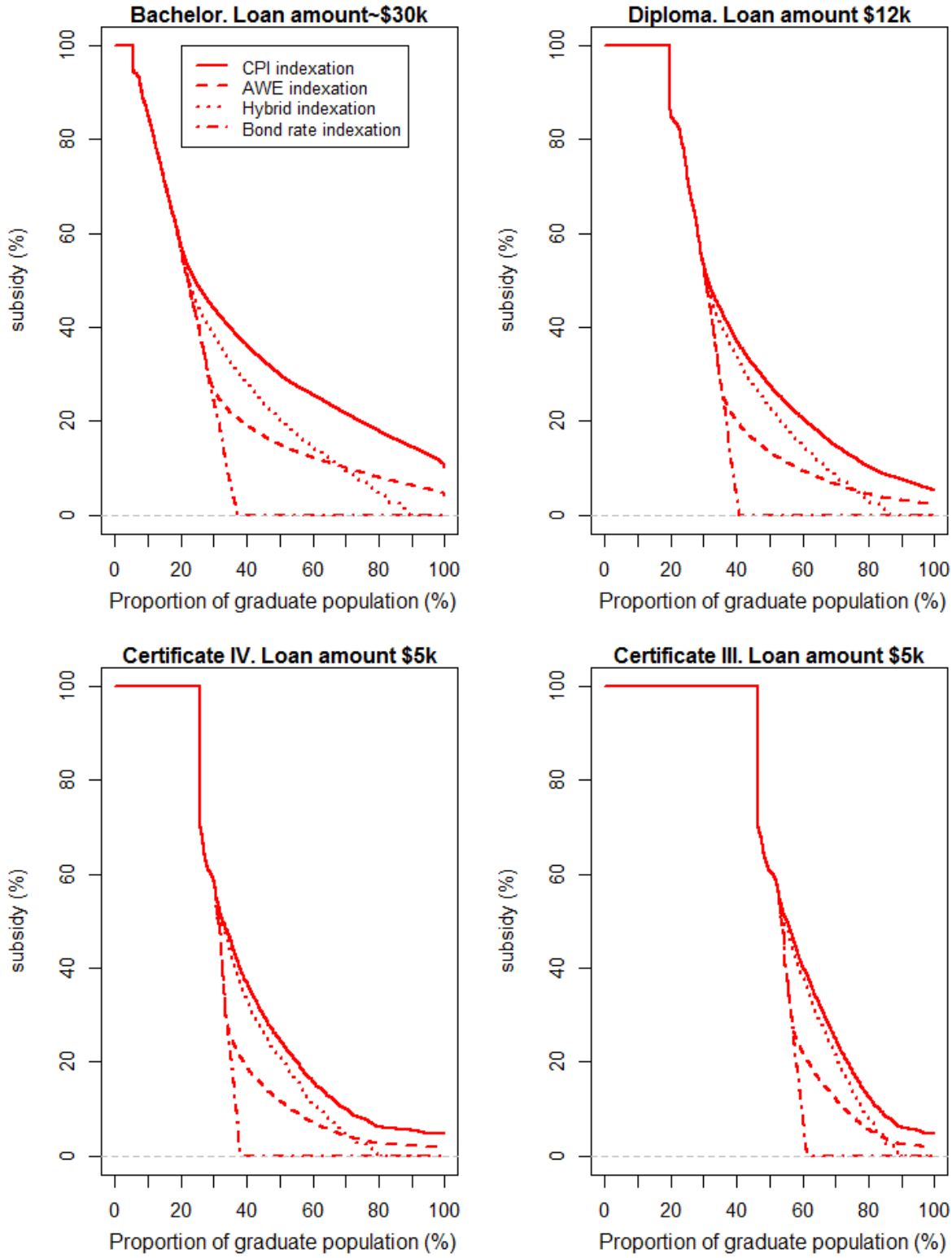
- A consequence of the relationship between interest subsidies and loan sizes is that measures to limit interest subsidies by increasing indexation rates have most impact on the ICL costs for Bachelor degrees. For female Certificate III and IV graduates, the DNER is the lion's share of costs. Eliminating the interest subsidy by charging at the bond rate has a relatively small impact on reducing total subsidies for female Certificate III and IV students.

- The proportion of individuals that repays their debt in full can be seen in Figure 10 by comparing the lines for 'CPI indexation' and 'Bond rate indexation'. For example, for female Certificate III debtors, subsidies drop to zero under bond indexation at the 60th percentile, which indicates that only 40 per cent of female Certificate III graduates repay their debt in full. In contrast approximately 60 per cent of female Certificate IV, Diploma and Bachelor graduates repay in full.

- As discussed in Section 3.2, bond indexation has been criticized since there can be periods when the loan increases in real terms due to high interest, even when repayments are made. The hybrid indexation arrangement puts constraints on the interest charged, such that loans cannot increase faster than inflation. Although this has no impact on very low income earners, and only moderate impact on reducing subsidies for those with median lifetime incomes, for those with high lifetime incomes this approach can dramatically reduce subsidies, reducing them to zero at the highest incomes. As seen in Table 8, the net impact is to reduce subsidies by up to 10 per cent for Bachelor degree graduates. In contrast, hybrid indexation only reduces subsidies by between 2 and 5 per cent for Diploma and Certificate III/IV graduates.

- If loans were indexed at AWE (wage inflation, assumed to be 4 per cent per annum in the modelling) this would clearly reduce the interest subsidies and therefore the overall subsidies for all qualifications. However, Figure 10 demonstrates that hybrid indexation is considerably more progressive; ICL subsidy ratios are higher for lower lifetime earners, and lower for higher lifetime earners, than the subsidy ratios under AWE indexation.

Figure 10: Effect of different loan indexation arrangements on ICL subsidy ratios. Females. No loan surcharge. Government bond rate of 5%.



Loan surcharge

A loan surcharge (or loan fee) can be used to pool risk among the cohort of debtors. The following loan surcharges are considered in the modelling and results are given below:

1. 10 per cent surcharge.
2. 20 per cent surcharge.
3. 30 per cent surcharge.

Table 9: ICL subsidy ratios under different loan surcharges. CPI indexation. Government bond rate of 5%.

	No loan surcharge	Surcharge 10%	Surcharge 20%	Surcharge 30%
MALES				
Certificate III	21	14	7	-1
Certificate IV	18	10	2	-5
Diploma	27	21	14	8
Bachelor Degree	29	23	17	12
FEMALES				
Certificate III	60	57	54	51
Certificate IV	41	36	31	26
Diploma	42	37	32	28
Bachelor Degree	39	34	30	26

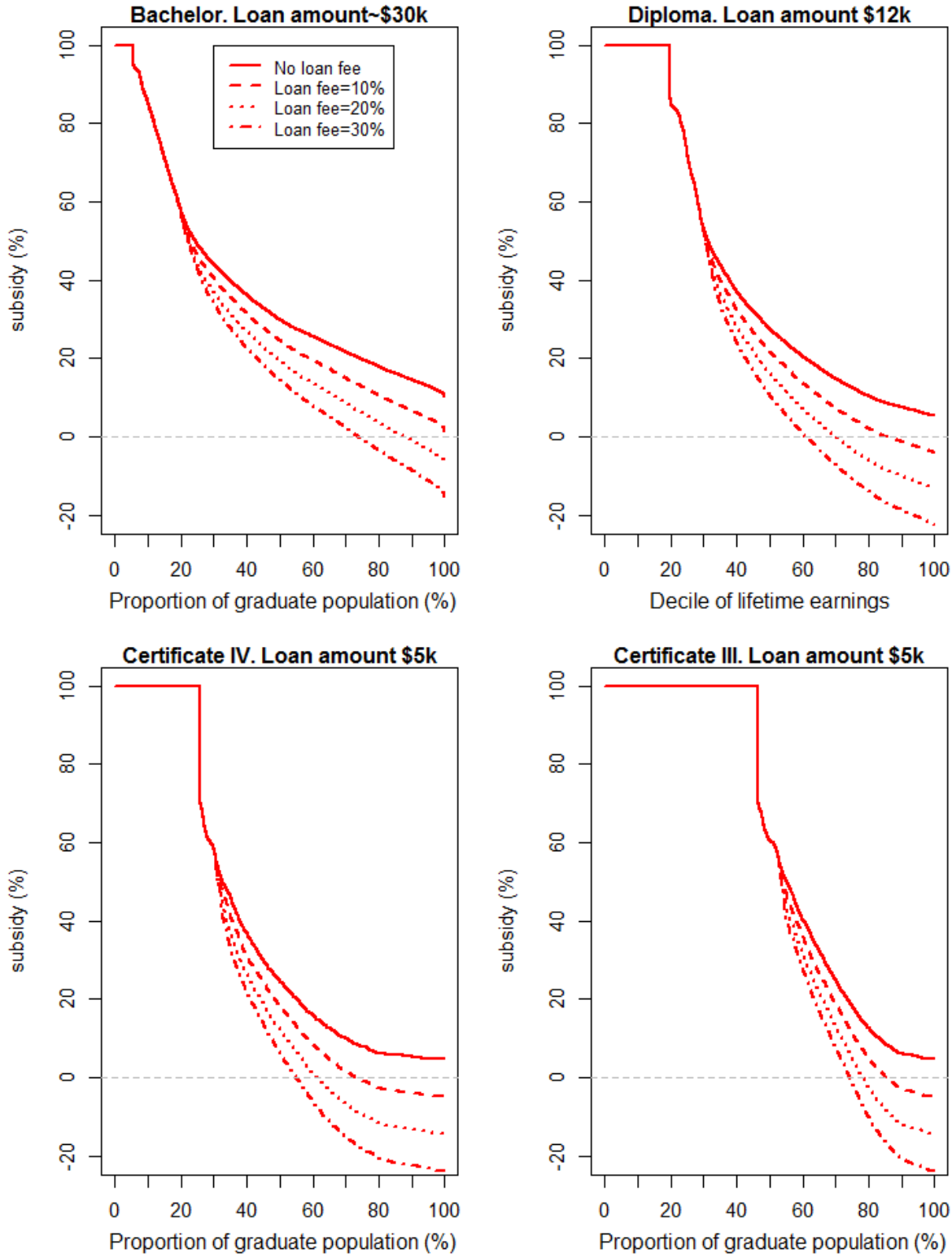
The following observations can be made:

- When loan surcharges apply, individuals who only partially repay their loan generally have unchanged subsidies. For Certificate III and IV graduates whose incomes are high enough to repay their debt in full, the surcharge is small (for example, $1,000 or 20 per cent of $5,000, for a 20 per cent loan surcharge) and therefore has very little impact on the length of time required to repay their debt. The surcharge increases the total repayment thereby leading to lower subsidies, and negative subsidies when incomes are sufficiently high.

- Since the majority of Certificate III females have lifetime incomes that are too low to repay their debt, a loan surcharge has little impact in reducing the subsidies within this group.

- The greater total repayments for those with high lifetime earnings effectively cross-subsidise the costs associated with lower lifetime earners. Although loan surcharges reduce subsidies for both males and females, the reduction is most significant for males, with a large proportion of the male population having negative ICL subsidies when the surcharge is 20 per cent or greater. Consequently, the majority of the cross-subsidisation is from males, with higher earnings, to females.

Figure 11: Effect of different loan surcharge on ICL subsidy ratios. Females. CPI indexation. Government bond rate of 5%.



Combining scheme options

The results in Section 5.1 and Section 5.2 indicate that different scheme options have different effects on the magnitude of ICL costs, and the distribution of ICL subsidies among debtors. In this sub-section we select a number of scheme options and model how the options, in concert, would impact on ICL subsidy ratios:

1. **Repayment thresholds and repayment rates**. As discussed In Section 3.4, arguments can be put forward for lowering the minimum threshold to approximately $40,000 (with commensurately lower repayment rates). Income and employment outcomes for VET students, and particularly female VET students, are considerably lower than for higher education graduates. By lowering the minimum threshold and repayment rate a greater proportion of Certificate III and IV debtors would repay their debts.

2. **Loan surcharge**. Under HECS-HELP there is no surcharge (though there is a discount on upfront payments), while under VET FEE-HELP and FEE-HELP there are loan surcharges of 20 and 25 per cent respectively. One way to remove this inconsistency would be to abolish HELP loan fees and upfront discounts as earmarked in the 2015-2016 Budget. This would put upward pressure on ICL costs, particularly in an environment of increasing enrolment numbers and tuition fees. An alternative option would be to impose a consistent loan surcharge on all loans. A surcharge of 10 per cent is modelled here, which progressively shares a modest level of ICL costs among the pool of debtors.

3. **Loan indexation rates**. Increasing the indexation rate can reduce costs by reducing interest subsidies. The hybrid arrangement described in Section 3.2 reduces subsidies for higher earners more so than for lower earners, and is therefore a more efficient use of subsidies than CPI indexation which is poorly targeted, or AWE indexation which is less progressive than hybrid indexation. While the hybrid arrangement does not reduce subsidies to the same extent as bond indexation, it guards against high interest accrual by ensuring that the real value of outstanding debt doesn't increase over time.

Three combinations of these scheme design features are modelled and results are given in Table 10 and plotted in Figures 12 and 13:

- **Option A** assumes a lower minimum threshold of $40k (with 2 per cent repayment rate) with no other scheme changes.
- **Option B** assumes a 10 per cent loan surcharge, as well as the minimum threshold of $40k with 2 per cent repayment rate.
- **Option C** assumes hybrid indexation rather than CPI indexation, as well as a 10 per cent loan surcharge, and a minimum threshold of $40k with 2 per cent repayment rate.

Table 10: Summary of ICL subsidy ratios under combined options. Government bond rate of 5%.

	Current HELP rules (excluding loan surcharges)	Option A lower threshold	Option B lower threshold + 10% loan surcharge	Option C lower threshold + 10% loan surcharge + hybrid indexation
MALES				
Certificate III	21	12	4	-2
Certificate IV	18	9	1	-6
Diploma	27	16	8	-2
Bachelor Degree	29	25	18	3
FEMALES				
Certificate III	60	47	43	39
Certificate IV	41	30	24	19
Diploma	42	35	30	24
Bachelor Degree	39	34	29	17

Figures 12 and 13 show that by reducing the minimum repayment threshold to $40,000 but with a 2 per cent collection rate, repayments will increase for debtors with lower lifetime incomes, and consequently ICL subsidies will fall. Importantly, however, those with incomes below the minimum threshold are still protected from financial hardship. If the minimum threshold is not reduced, ICL subsidy ratios for Certificate III females remain above 50 per cent.

Imposing a 10 per cent loan surcharge in the presence of a lower threshold (Option B) reduces the subsidies further, but it does so in a progressive way; for women, it is only those with lifetime earners at the very top of the earnings distributions who repay more than the original loan amount (in present value terms). Although a significant proportion of Certificate III and IV men would pay an amount that exceeds the initial loan, repayments occur over time and only if income is above the repayment threshold, and it should be recalled that the counter-factual for this cohort is upfront fees. Furthermore a 10 per cent surcharge implies that the *maximum* cost to an individual graduate is limited to 10 per cent on top of the initial loan.

Figure 12: ICL subsidy ratios under current HELP rules and with Combined Options. Females. Government bond rate of 5%.

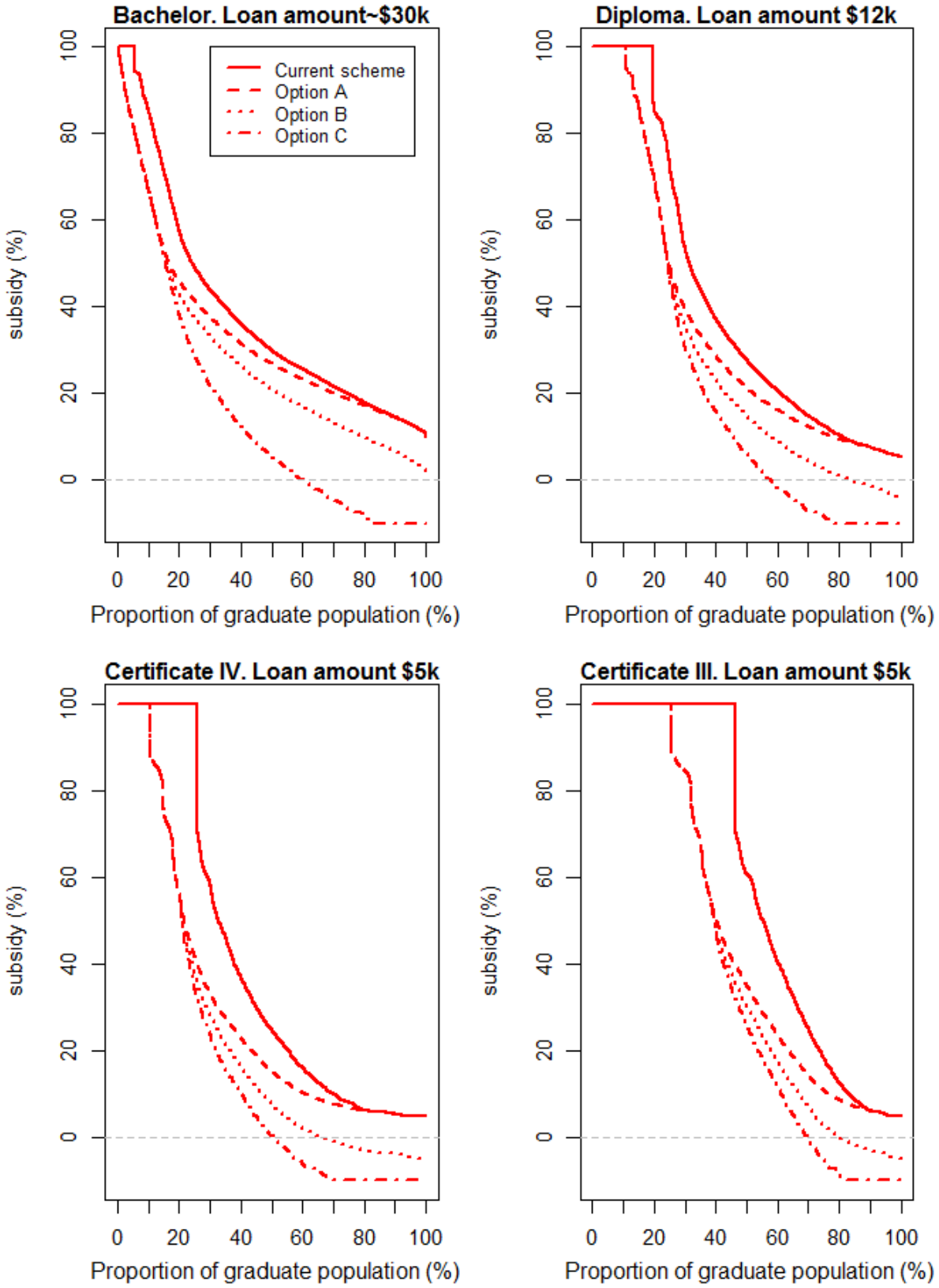
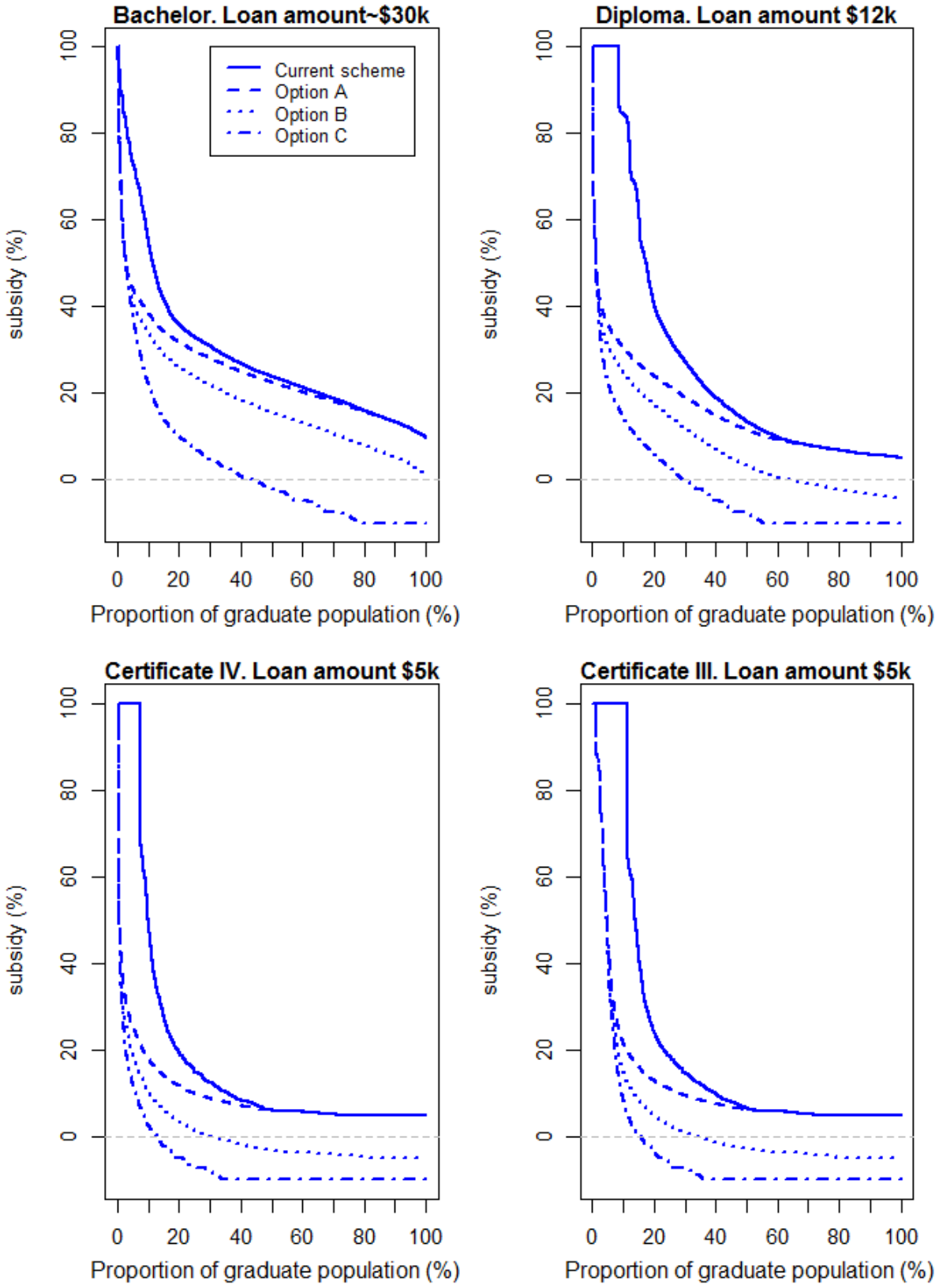


Figure 13: ICL subsidy ratios under current HELP rules and with Combined Options. Males. Government bond rate of 5%.



Replacing CPI indexation with hybrid indexation (Option C), reduces the subsidies by a significant margin, and has a particularly large impact on reducing ICL subsidies (and increasing repayment amounts) for Bachelor degree graduates due to their high debts and consequent long time until repayment, even for those with high lifetime incomes. However, the inclusion of hybrid indexation (on top of the surcharge and lower repayment threshold) would imply a larger proportion of debtors pay an amount that exceeds the loan borrowed (in present value terms); for men, this proportion would exceed 50 per cent for all qualifications considered here.

Although lifetime incomes for Certificate III women are considerably lower than for Bachelor graduates, the subsidy ratio for Certificate III women under Option C is the same as the subsidy ratio for Bachelor graduate women under existing HELP rules. This shows the potential impact that a combination of scheme reform options can have on the viability of extending HELP coverage to Certificate III and IV qualifications while limiting the size of ICL costs.

In summary, a combination of lower repayment thresholds, a modest loan surcharge and hybrid loan indexation, would have the effect of passing a greater proportion of costs to the individual debtor, as well as pooling risk among the cohort of debtors, while maintaining taxpayer funding for those with the least lifetime financial resources.

5.3 Uncertainties and sensitivity of ICL estimates

The ICL subsidy ratio estimates presented in this report are subject to considerable uncertainty:

- Variability in an individual's future income can arise from career and job mobility, heterogeneous wage inflation, and life events (such as child birth, parental leave, illness and disability). Although some of this variability is implicitly allowed for in our model, the variability in the model reflects the patterns observed in historic data that may not be representative of the future.

- Specifically, changes to the economy can affect employment demand and income growth for individuals with a tertiary education. Our model is based on employment and labour force participation rates at the time of the 2011 Census, and assumes that past patterns in wage growth associated with each qualification will continue into the future. If future long-term employment opportunities for tertiary graduates fall relative to the 2011 rates, or if the observed historic growth rates in graduate salaries falls off, this will reduce the private returns to tertiary education and increase and ICL subsidy ratios above the estimates reported here.

- Another limitation is that we have carried out the subsidy ratio estimates for hypothetical cohorts of graduates at a single starting age that varies only with type of qualification (22 for bachelor graduates, and 27 for Certificate III and IV and Diploma graduates). While the choice of this starting age was taken to be generally representative of the median age for each qualification, more detailed and accurate subsidy estimates could be estimated by incorporating calculations for cohorts of different graduation ages.

- Uncertainty in the results also arises due to the reliance on parametric models for projecting income and labour force state transitions. This introduces the potential for model misspecification and parameter variability.

- For the majority of the modelling and results presented, we assume a fixed loan amount for each qualification, and specific assumptions for CPI, wage inflation, and the Government discount rate. As described in Sections 5.1, changing these assumptions (particularly the gap between CPI and the government cost of borrowing) can have a dramatic impact on the subsidies.

6. Summary of results and discussion

Public subsidies consist of two components – direct subsidies and ICL subsidies.[64] In this report we have focused on how different ICL scheme arrangements impact on ICL subsidies. We have reported the total ICL subsidy ratios for different graduate cohorts, and also examined how the distribution of ICL subsidies among debtors is likely to vary with scheme design and tertiary qualification level. A focus of the report has been on design options and ICL cost implications of a single universal ICL scheme that could apply to tertiary qualifications including Certificate III and IV.

As argued in the Noonan and Pilcher paper and in this report, upfront fees inhibit the participation of the disadvantaged and are inequitable; they also result in a waste of educational opportunities for the nation. It is very apparent that an ICL, if designed properly, is far superior to upfront fees. The fact that the HELP system has worked well in Australia for over 25 years is an important institutional and policy consideration in this regard.

For our exercises it is important to note that when compared to university graduates, Certificate III and IV completers have low incomes and, for women, low employment outcomes. The results of our modelling demonstrate that under current HELP rules there would be relatively low debt recovery and high ICL costs if ICLs were extended to Certificate III qualifications, with subsidy ratios reaching perhaps as high as 60 per cent for female Certificate III debtors.

Consequently, modifications to repayment thresholds and rates, loan indexation, and loan surcharges have been modelled; results demonstrate that the choice of ICL parameters has a significant impact on the magnitude of ICL subsidy ratios, as well as the distribution of costs among debtors. The key results, and strengths and weaknesses of the options, are given in Tables 12, 13, and 14, with some of the main summary points being as follows:

[64] A critical first question when considering a universal income contingent loan for tertiary education is 'what is the appropriate level of government subsidy?' The answer to this question should be informed by the expected level of private and public returns for different tertiary qualifications. And as noted at different parts of the report, direct subsidies can be reduced to take account of relatively high ICL subsidies through increased charges; it is a matter of policy balance.

Repayment thresholds and repayment rates

Reducing the minimum repayment threshold reduces ICL subsidies for all qualifications. However, reducing repayment thresholds and repayment rates would have a greater impact for qualifications that have a large proportion of debtors with lower expected lifetime incomes.

Reducing the minimum threshold will therefore improve debt recovery and reduce ICL costs more so for VET debtors than for those with HECS-HELP or FEE-HELP loans.[65]

Loan surcharge

Imposing a loan surcharge is a progressive way to share ICL costs among the cohort of debtors. Lower income earners will repay their debt slowly or not at all, and will therefore receive higher subsidies than higher income earners who repay their debt plus surcharge quickly and in full.

While a surcharge reduces subsidies for moderate and higher income earners, it has less impact on low income earners and does not change ICL costs for those with insufficient lifetime income to repay. Loan surcharges would therefore be effective in reducing ICL subsidies for Certificate III and IV males, but would have a relatively small impact on subsidy reduction for Certificate III women under current repayment threshold rules.[66]

Loan indexation

Increasing loan interest rates will reduce subsidies for those with large loans (for example, Bachelor degree debtors) much more so than for those with smaller loans (for example, Certificate III and IV debtors). A consequence is that changing the interest rate applied to loans does little to improve loan recovery for Certificate III or IV debtors, but it can have a substantial impact on curtailing costs if loan amounts are large or increasing.[67]

Increasing loan indexation above CPI will also be regressive within the pool of borrowers for those repaying. An option to address this risk is to apply a hybrid interest rate that charges CPI indexation to lower income earners and bond rate indexation to those with higher incomes.

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[65] Reducing repayment thresholds by a large amount may be politically unpalatable. A possible approach could be to gradually reduce the threshold over a number of years. In addition, although a 2 per cent repayment rate corresponding with an income of $40,000 has been modelled in this report, reducing the repayment rate further to 1.5 per cent or 1 per cent would limit the adverse impact on disposable income among lower earners. Other options could be considered such as applying different repayment thresholds to different qualifications, however, this would be administratively cumbersome, and may been seen as inequitable between groups of debtors.

[66] In addition to the loan surcharge options modelled in this report, options could be considered such as different loan surcharges for each qualification (similar to current arrangements), reflecting that qualifications have different tuition fees and repayment prospects.

[67] If changes were made to loan indexation, then decisions would need to be made as to whether the changes were to occur to existing debt, or just new debt. Although applying changes to all existing debt would be more administratively straight-forward, and would lead to greater reduction in subsidies, changing the 'goal posts' for existing debtors may be politically unpalatable (and may be considered by some to be unethical).

Table 12: Summary of results - repayment thresholds and repayment rates

Option modelled	Impact on ICL subsidies	Strengths	Weaknesses
Existing thresholds and repayment rates	Leads to large ICL subsidies for women, and in particular, Certificate III (60 per cent of debt).	Current rules.	Arguably financially very expensive.
Current rules plus minimum threshold of $50k with a repayment rate of 2 per cent.	Subsidies reduced by 1 to 3 per cent of debt relative to current subsidies.	Small reduction in thresholds is likely to be more acceptable to students and in political terms, compared to larger reductions.	Leads to a small reduction in subsidies. Subsidies for Certificate III females in particular remain very high.
Current rules plus new thresholds of $50k @ 3 per cent, and $40k @ 2 per cent.	Subsidies reduced by 4 to 13 per cent of debt relative to current subsidies.	Largest reductions in subsidies for Certificate III. Reduces incentives for debtors to structure income to avoid repayment. Argument can be made that $40,000 may be an appropriate minimum threshold on grounds that this is comparable with the median income for year 12 completers with no tertiary education. A 2 per cent repayment rate means that initial repayments are low.	Individuals earning between $40,000 and $50,000 who were previously exempt from repaying their loan, might be required to repay if the scheme is not grandfathered. This would reduce living standards for a greater proportion of debtors in their early post-graduation years. A reduction in the minimum threshold to $40,000 may lead to unintended interactions with the existing tax and welfare system.
Current rules plus new thresholds of $50k@3 per cent, $40k@2 per cent, and $35k@ 1.5 per cent.	Subsidies reduced by 5 to 17 per cent of debt relative to current subsidies.	As for above option, but with further 2 to 4 per cent reduction in subsidies for Certificate III debtors.	Fewer arguments to reduce below $40,000. Additional reductions in subsidies are small.

Table 13: Summary of results - loan surcharges

Option modelled	Impact on ICL subsidies	Strengths	Weaknesses
No surcharge	Leads to large ICL subsidies for women, and in particular, Certificate III (60 per cent of debt).	Current rules.	Arguably financially very expensive.
10 per cent loan surcharge	Subsidies reduced by 3 to 8 per cent of debt relative to current subsidies.	Extremely progressive within the pool of debtors.	Not practical or politically desirable to impose on existing debt. Low effectiveness in reducing subsidies for cohorts with large proportion of incomes below minimum repayment threshold.
20 per cent loan surcharge	Subsidies reduced by 6 to 16 per cent of debt relative to current subsidies.	As for 10 per cent surcharge, but greater reduction in subsidies.	As for 10 per cent surcharge, but a larger proportion of high earners have negative subsidies.
30 per cent loan surcharge	Subsidies reduced by 9 to 23 per cent of debt relative to current subsidies.	As for 20 per cent surcharge, but greater reduction in subsidies.	As for 20 per cent surcharge, but a larger proportion of high earners have negative subsidies.

Table 14: Summary of results - loan indexation

Option modelled	Impact on ICL subsidies	Strengths	Weaknesses
CPI indexation	Magnitude of subsidies depends on difference between CPI rate and Government's cost of borrowing.	Current system. Increase in debt is guaranteed to be no greater than growth in CPI. Is progressive within the pool of borrowers.	Can lead to large interest rate subsidies. Subsidies are arguably poorly targeted; high income earners may receive high subsidies, although the subsidies are still greater for low income earners. The subsidies are particularly high if ICL amounts are large.
Indexation at Government's cost of borrowing	Subsidies reduced by 7 to 18 per cent of debt relative to current subsidies.	Eliminates interest subsidies altogether.	Would lead to very high real debt accrual among those with low lifetime incomes and is thus regressive among debtors. Can result in a situation where the interest charged exceeds the compulsory repayments for some with low incomes.
Indexation at growth rate of Average Weekly Earnings	Subsidies reduced by 4 to 10 per cent of debt relative to current subsidies.	Reduces subsidies compared with CPI indexation.	Highest income earners still receive interest subsidies, albeit smaller than under CPI indexation. Less progressive than Hybrid indexation.
Hybrid indexation	Subsidies reduced 4 to 10 per cent of debt relative to current subsidies.	Charges interest at a rate that varies between CPI and the bond rate, depending on individual circumstances. Higher income earners would be charged the bond rate, while low income earners (including those below the minimum threshold) would have their loans indexed at CPI. Reduces subsidies compared with CPI indexation, and is more progressive than CPI or AWE indexation.	Implementation may be complex. For both Hybrid and AWE indexation, reduction in subsidies is small for Certificate III and IV debtors because of relatively small debt amounts.

It was noted with respect to the results presented in the tables above that different scheme options have varying impacts on ICL subsidies depending on the tertiary qualification studied, and associated expected loan sizes and debtor lifetime incomes. Combinations of different options in concert were shown to reduce ICL costs across all qualifications relative to the current HELP scheme.

For example, application of a minimum repayment threshold of $40,000 (with a 2 per cent repayment rate) plus a loan surcharge of 10 per cent, would reduce subsidies by between 10 per cent (for Bachelor degree completers) and 17 per cent of debt (for Certificate III completers), with an estimated overall reduction in ICL subsidy ratios of approximately 15 per cent when compared with existing HELP arrangements. If a hybrid interest rate was also applied to outstanding debt, this would further reduce ICL subsidies, resulting in an overall estimated reduction of between 20 and 25 per cent of debt relative to the ICL subsidy ratios under the existing HELP system.[68] Critically, under a number of the combinations of ICL options considered, the expected ICL subsidy ratios for Certificate III and IV females would be comparable or lower than those for female Bachelor degree graduates under current HELP rules.

If upfront payments for Certificate III and IV qualifications were replaced by an ICL, then subsidies would clearly increase if there were no increase in tuition charges. The results in this report demonstrate that there are a range of HELP scheme modifications that could offset the increased ICL subsides that would arise from inclusion of Certificate III and IV debtors, yet would preserve the insurance features of contingent loans that facilitate participation, individual affordability and equity.[69]

Although many of the HELP modifications modelled and described above reduce ICL subsidies, this may not necessarily be required to have a workable and fair tertiary education entitlement with coverage extended to Certificate III and IV. It is important to note that if the Government has an objective to ensure a specific level of *overall* subsidies (direct subsidies as well as ICL subsidies), then they could achieve this by varying the level of direct subsidies, in addition to, or as an alternative to HELP reform.

This point is now elaborated on. In order to answer the important question of how government subsidies should be distributed among students, a decision is required on the split between direct subsidies and ICL subsidies. While direct subsidies can be distributed according to factors such as initial socio-economic status, course and qualification, ICL subsidies vary predominantly by lifetime income. A further distinction is that of certainty;

[68] All subsidy results reported here are based on an assumed Government cost of borrowing of 5 per cent per annum.

[69] In addition to the HELP changes that we have modelled in this report, there are other reform options suggested by Norton and Cherastidtham (2014), Highfield and Warren (2014), and others, that warrant consideration in any comprehensive review of HELP.

while the size of direct subsidies are specified from the outset, ICL subsidies are dependent on future long-term employment outcomes and income, and are therefore subject to relative uncertainty.

We now offer an illustrative example of how the split between direct subsidies and ICL subsidies can lead to different preferred ICL schemes, yet with equivalent overall government outlays. Consider a situation where direct subsidies are 55 per cent of total course costs, leaving the student with tuition fees equal to 45 per cent of course costs. We assume an ICL is available to cover these fees, and there is a corresponding ICL subsidy which leads to total government subsidies of 71 per cent of course costs.[70] This situation is illustrated in Figure 14 and is denoted as 'Before'.

Now assume that the Government wished to reduce overall subsidies from 71 per cent to 64 per cent. One way to achieve this would be to reform HELP, and in so doing, increase debtor repayments and reduce ICL subsidies. Student tuition fees would remain as before at 45 per cent of course costs, but more of these tuition fees would be repaid and government would face lower ICL costs. In Figure 14 this is denoted as 'A'.[71]

Another way to achieve the overall subsidy reduction would be to reduce direct subsidies, and increase student tuition fees, but not reform HELP. In Figure 14 this is denoted as 'B'.[72] In both cases 'A' and 'B' the overall costs borne by the taxpayer are the same, and overall student outlays are also the same[73]; *what is different is how the public subsidies are distributed among students and debtors*.

Compared to the 'Before' case, the reduction in government subsidies under 'A' and 'B' imply greater outlays by students, and lower outlays by taxpayers. Although income contingency ensures that a debtor's loan repayments in any year are a fixed percentage of their income, passing more costs to students implies lower lifetime disposable income. The decision on what is an appropriate set of ICL reforms is a subjective/political issue dependent on beliefs of how the costs of tertiary education should be spread between students and all taxpayers.

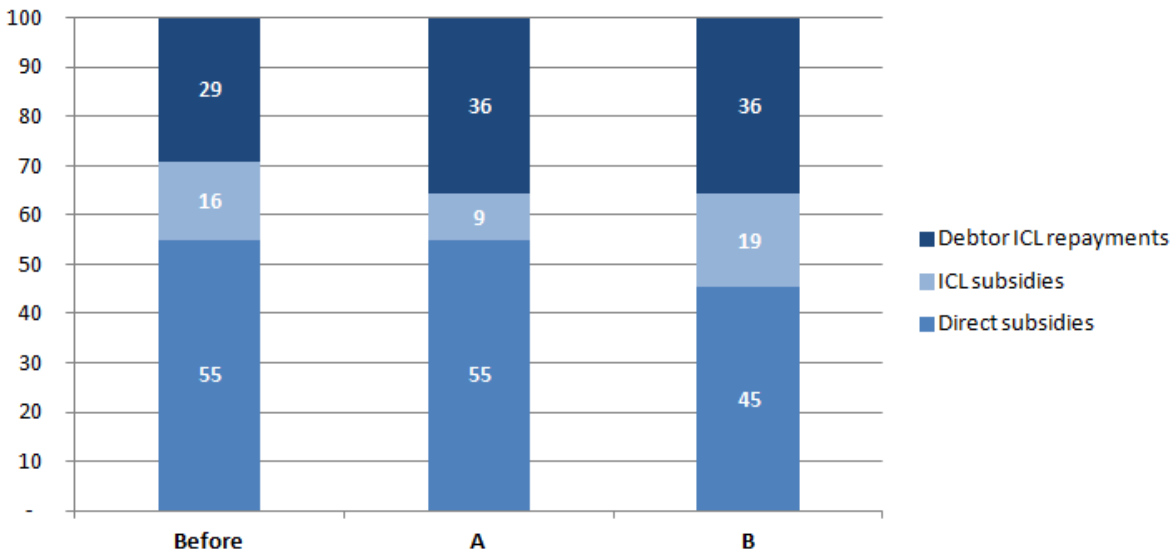
[70] In this example we assume that ICL subsidies are 35 per cent of debt (this is a rough approximation of aggregate HELP subsidies across all tertiary qualifications under current HELP rules). This implies debtor repayments of 29 per cent and ICL subsidies of 16 per cent of course costs (summing to the student tuition fees of 45 per cent of course costs).

[71] In this example, we assume a reduction in ICL subsidies to 21 per cent of debt, which is an approximation of aggregate HELP subsidies across all tertiary qualifications under Option B (reduced minimum repayment threshold plus 10 per cent loan surcharge).

[72] In this case tuition fees are 55 per cent of course costs, and the ICL subsidy ratio is 35 per cent of debt (as for the 'Before' case). This results in ICL subsidies equal to 19 per cent of course costs.

[73] But tuition fees are higher under case 'B'.

Figure 14: Illustrative direct subsidies, ICL subsidies and debtor ICL repayments under different hypothetical scenarios.



It should be stressed again that because of this interaction between direct subsidies and ICL subsidies in terms of the overall subsidies from the government(s), consideration of reforms to the HELP system need to be made in a broader framework where *overall* state and federal government funding and pricing of tertiary education is considered.

Although this report has focused on ICLs for tuition fees, as raised in the Noonan and Pilcher paper, there is also arguably a need for improved income support arrangements in Australia. There is evidence that insufficient income support has led to high rates of student employment, student poverty, and attrition in Australia, and extending a universal ICL to cover income support across the tertiary sector (either as a replacement or supplement to existing income support schemes) would reduce financial hardship and improve educational outcomes. While this has not been modelled in this report, the issue should be considered further in dialogue surrounding a tertiary education entitlement.[74]

This report has examined the sharing of costs between students receiving tertiary education and all taxpayers. We noted in Section 2.2 that course providers receive student fee income

[74] There is also support in the theoretical economic literature, with Del Rey and Racionero (2010) demonstrating that in order to induce optimal participation, a higher education financing model should include an ICL that provides loans for tuition fees as well as income support. Both the UK and New Zealand ICL schemes cover both tuition fees and income support. The benefits of ICLs for income support in Australia have been recognized, with the Australian Government announcing the conversion of Commonwealth Start Up Scholarships to ICL. This has not yet become legislation, but if it does, it would not cover the VET sector. As noted in Noonan and Pilcher (2015), income contingent Trade Support Loans are also offered that cover certain Certificate III and IV courses that lead to selected qualifications. However, these loans cover only a small proportion of existing Certificate III and IV courses. For more information on the financial hardship facing students see James *et al.* (2007) and Higgins (2011). Also see Higgins (2011) for a discussion of the risks of extending an ICL to income support, and scheme design options to reduce the risks.

from the government under the HELP system, but risks are passed to students and taxpayers. The misalignment between those receiving a financial gain (course providers) and those bearing the risk, can lead to undesirable incentives for course providers to enroll students who are not suited to a particular course, and to charge excessive fees. We encourage further discussion on policy design that would make course providers more accountable for the fees charged and quality of education provided.

Attachment 1 Additional figures

Figure A1: ICL subsidy ratios for Bachelor degree graduates. Loan amount~$30k. Current HECS-HELP rules.

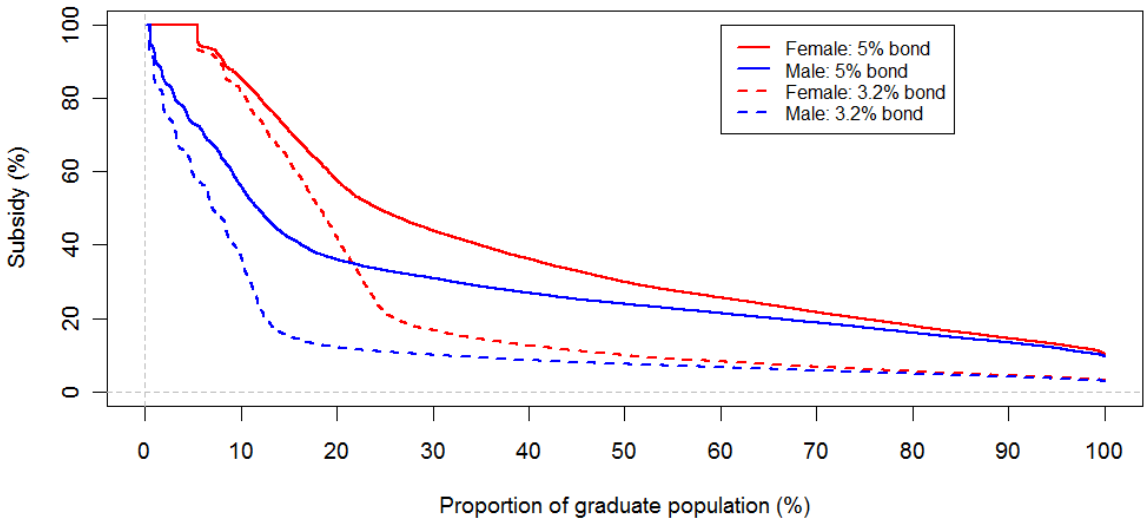


Figure A2: ICL subsidy ratios for Bachelor degree graduates. Various loan amounts. Current HECS-HELP rules. Government bond rate of 5%.

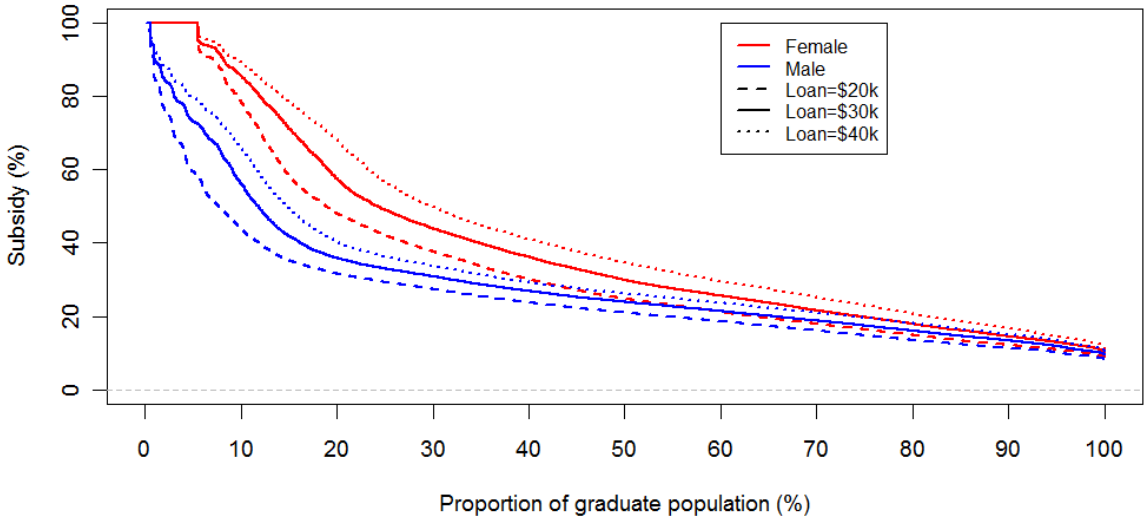


Figure A3: ICL subsidy ratios for female graduates. Loan amounts: Certificate III and IV - $5,000; Diploma - $12,000; Bachelor Degree - $30,000. No loan surcharge. Government bond rate of 5%.

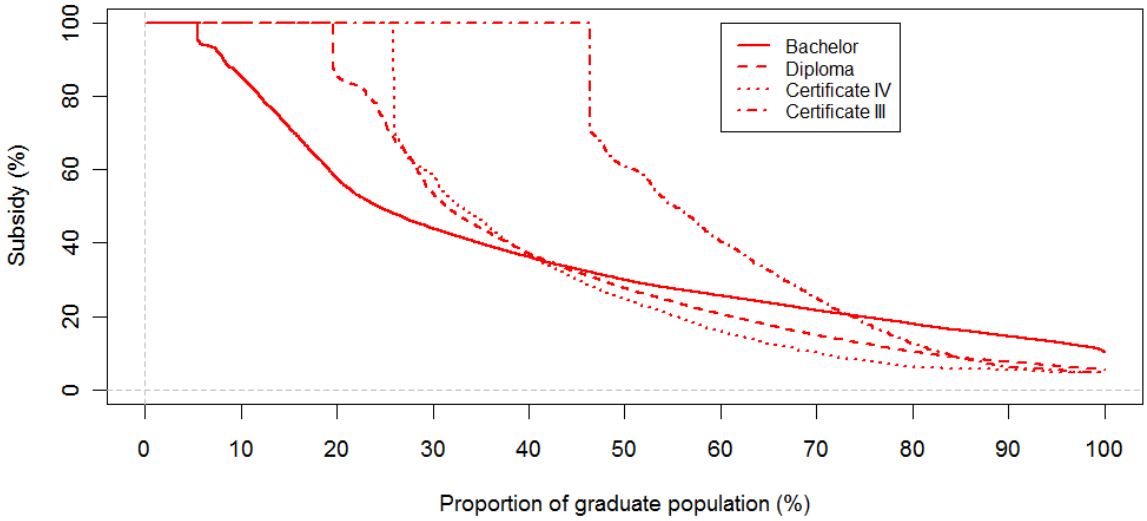


Figure A4: ICL subsidy ratios for male graduates. Loan amounts: Certificate III and IV - $5,000; Diploma - $12,000; Bachelor Degree - $30,000. No loan surcharge. Government bond rate of 5%.

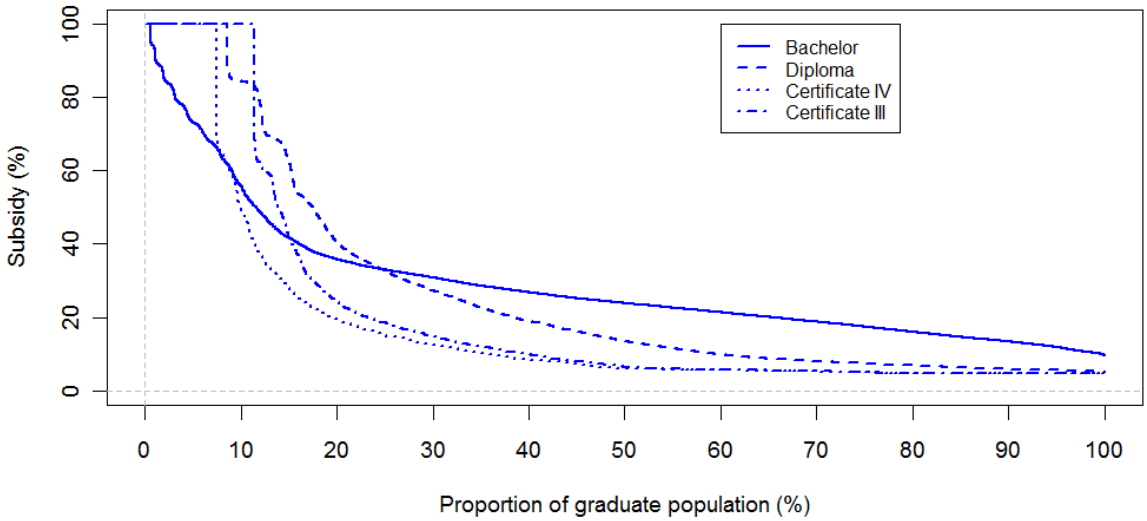


Figure A5: Effect of different repayment thresholds and repayment rates on ICL subsidy ratios. Males. No loan surcharge. CPI indexation. Government bond rate of 5%.

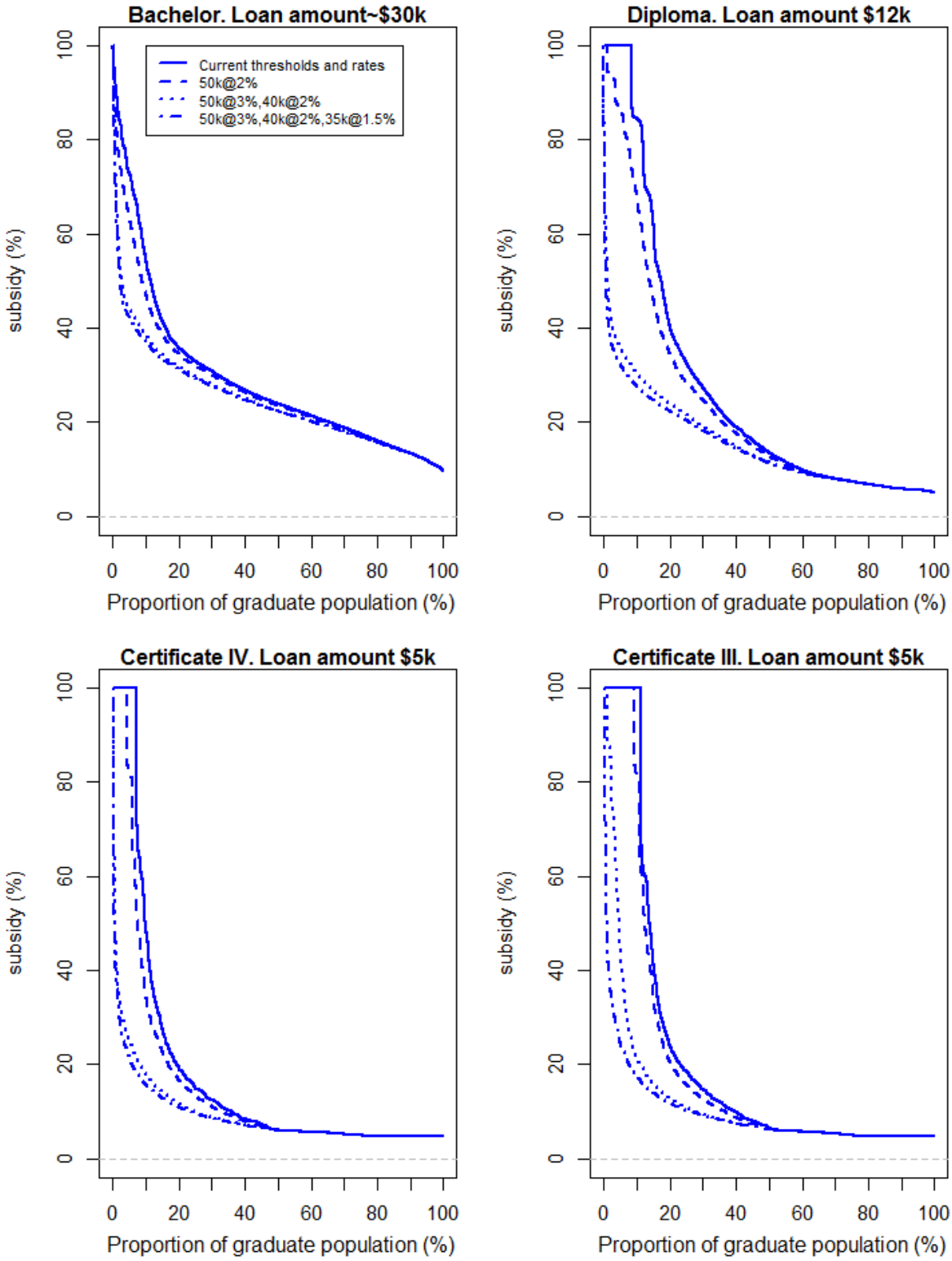


Figure A6: Effect of different loan indexation arrangements on ICL subsidy ratios. Males. No loan surcharge. Government bond rate of 5%.

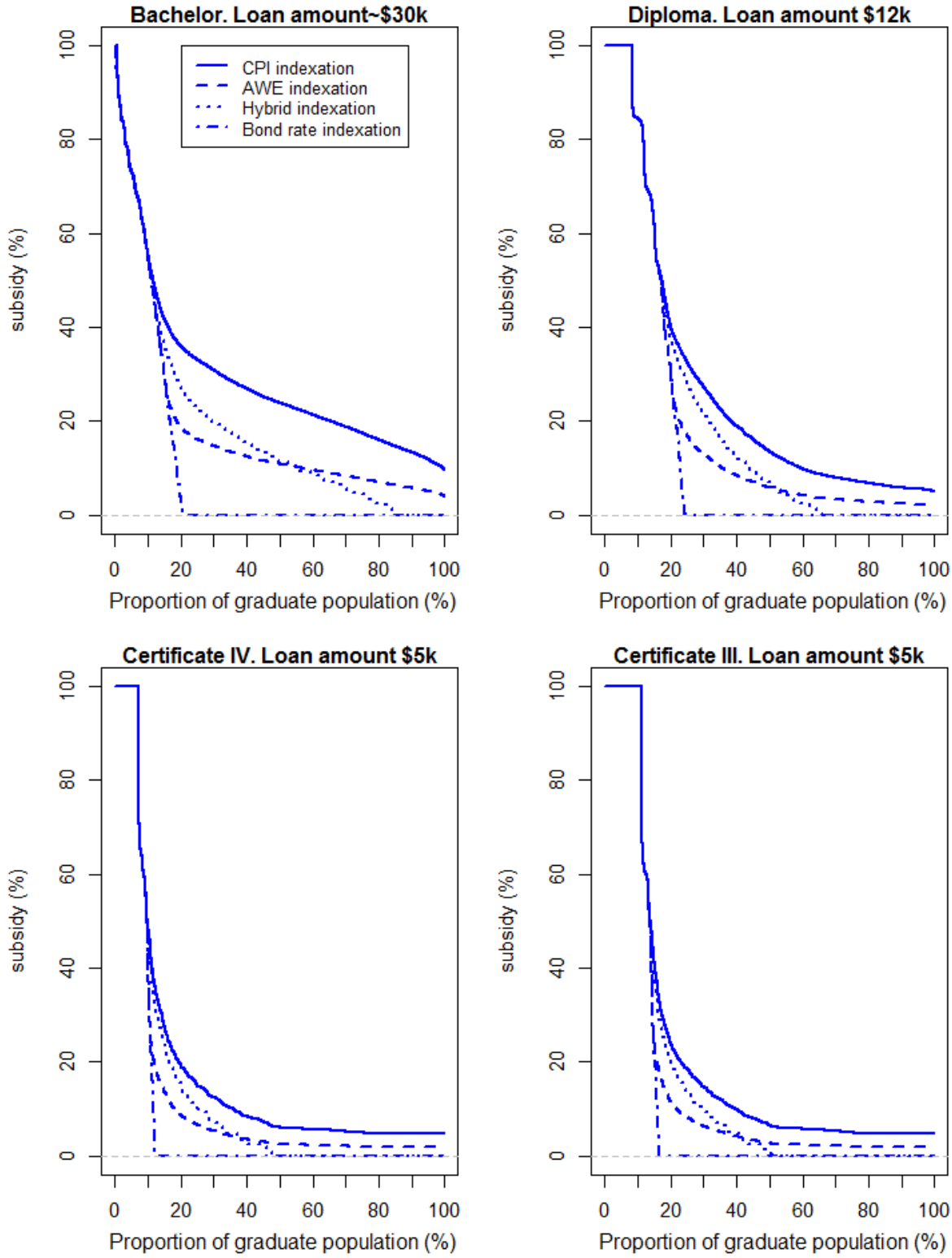
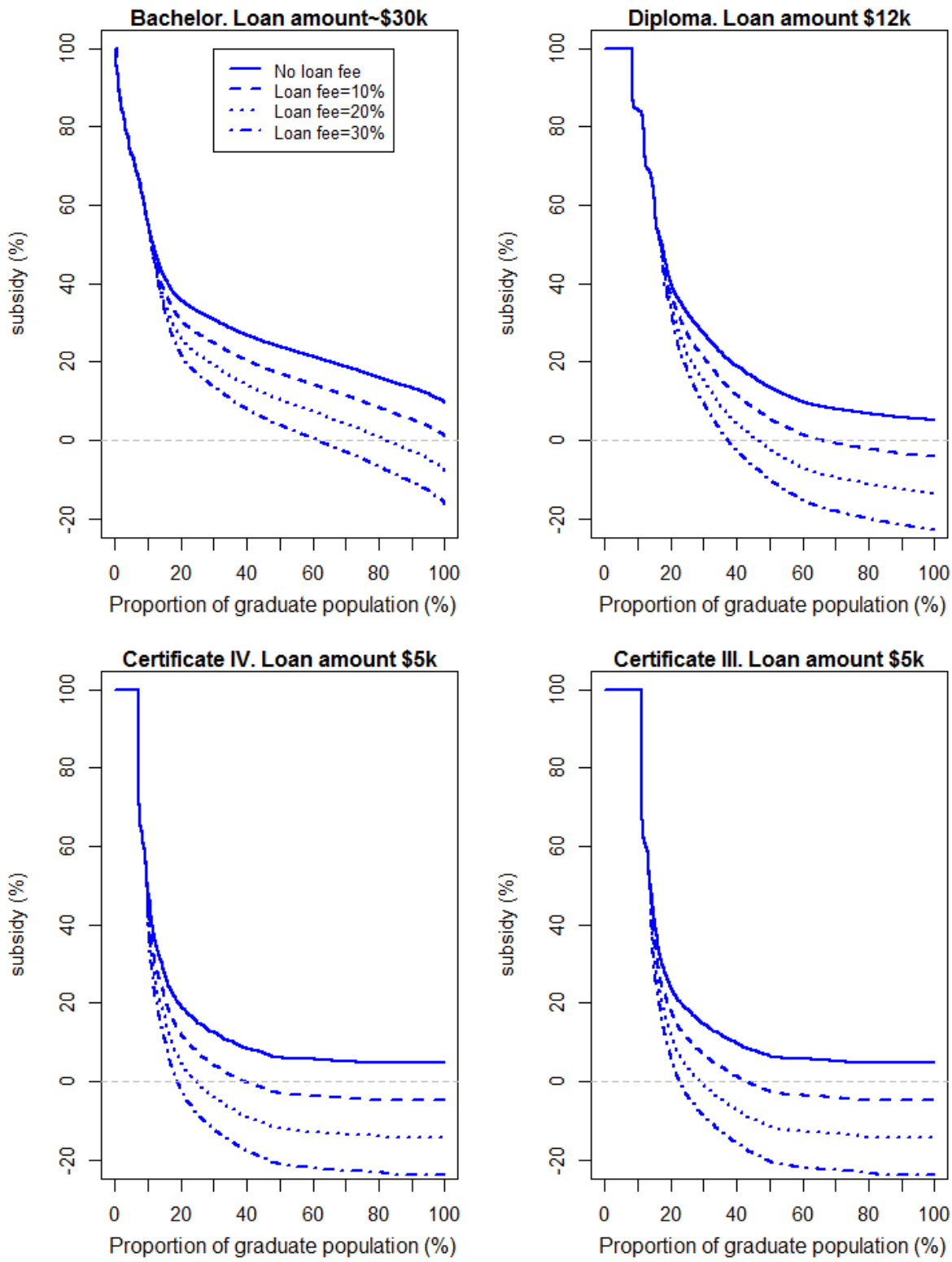


Figure A7: Effect of different loan surcharges on ICL subsidy ratios. Males. CPI indexation. Government bond rate of 5%.



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