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L&RS NOTE

Income-contingent loan schemes for higher education

23 October 2017

This *L&RS Note* examines income-contingent loan schemes as an option for the future funding of higher education in Ireland. The deferred payment of third-level fees through the implementation of a system of income-contingent loans is presented as *Option Three* in the report of the Expert Group that was established to examine future funding policy for higher education in Ireland (the Cassell's report).

This *Note* is structured as follows:

- **Section 1** provides context to proposals for changes to higher education funding;
- **Section 2** describes income-contingent loan schemes;
- **Section 3** examines the first case study of income-contingent loan schemes in operation – in England;
- **Section 4** examines the second case study of income-contingent loan schemes in operation – in Australia;
- **Section 5** presents academic analysis on the hypothetical functioning of an income-contingent loan scheme in Ireland; and
- **Section 6** concludes.

Fundamentally, an income-contingent loan (ICL) is a debt instrument that factors in the borrower's ability to repay. ICLs only require repayment when the debtor's income is at or above a specified threshold level. Beyond this threshold level, repayment typically occurs at a capped rate, and can be calculated as a proportion of either total income, or income in excess of the specified threshold level. ICLs are designed to protect borrowers who are without the capacity to service their debt.

Contents

1. Context to proposals for changes to funding higher education

The Cassell's Report

A recent pattern of reduced funding and increased student intake in the Higher Education (HE) sector has led to considerable commentary on the future sustainability of the sector.

In July 2014, the then Minister for Education and Skills, Ruarí Quinn, TD, established an Expert Group to examine future funding policy for higher education. Chaired by Mr. Peter Cassells, former General Secretary of the Irish Congress of Trade Unions, the group was charged with identifying and considering the issues relating to the long term sustainable funding of Higher Education in Ireland and to identify options for change.

The Group's report, 'Investing in National Ambition: A Strategy for Funding Higher Education' (or, the Cassells Report), was published in 2016. The Joint Committee on Education and Skills met on November 10th, November 24th and December 8th 2016, and on May 2nd 2017, to discuss the report.

The fundamental difference between the options considered in the Cassells report is the variation in how much public funding and how much fee funding each option proposes. The three funding options proposed for future sustainable funding for a quality higher education system are:

- *Option One*: A predominately state-funded system (abolition of undergraduate fees) (i.e. more state funding that currently);
- *Option Two*: Increased state funding with continuing student fees; and,
- *Option Three*: Increased state funding with deferred payment of fees through income contingent loans.

In October 2017, an Taoiseach Leo Varadkar stated[1] he could not support a funding model that would see students ''saddled with enormous debt'', indicating that he would not support the implementation of a UK-style loan scheme in Ireland[2].

Public versus private benefits of education

Educational attainment brings both public and private returns. While private benefits typically manifest as an earnings premium for graduates, public benefits are those that pertain to wider society. These public benefits may include reductions in crime and anti-social behaviour, improvements in health and wellbeing, democratic participation, enhanced environmental awareness, and increased tax and social contributions. These issues are

[1] Speech by the Taoiseach, Mr. Leo Varadkar, T.D., at the Trinity 425 Symposium' (2017).
[2] 'Students should not be saddled with debt, says Minister' (2017), *Irish Times*, 4 October.

discussed further in the academic literature. (Corbet and Larkin, 2017[3]; Chapman and Doris, 2016; Chapman and Lounkaew[4], 2015; McMahon and Oketch, 2010, Dee, 2004; Barr[5], 2001).

Given this balance of public and private benefits, the decision regarding how the third-level sector should be funded is a political one. Opponents of an entirely state funded sector argue that this is a regressive approach, with non-graduates on lower incomes contributing to the costs of education for students who themselves have come from wealthy families and will enjoy considerable private returns post-graduation. At the other extreme, an entirely private system is exclusionary and leaves the poorest students without access to education. Those deemed to be high-risk borrowers, and without access to a guarantor, will be unable to avail of private loan facilities.

The case for cost-sharing between graduates and the exchequer rests on this idea – that there are both public and private benefits to individual educational attainment. Income contingent loan (ICL) schemes are one way to spread the payment for these benefits. Recent academic commentary has identified the merits of ICL schemes, finding that the English ICL scheme can be associated with increased funding per student, greater participation and a narrowing of the gap between advantaged and disadvantaged students (Murphy, Wyness and Scott-Clayton, 2017).

Ultimately, government must decide on the appropriate balance between equality of opportunity in education, and the demands on public expenditure.

Ultimately, government must decide on the appropriate balance between equality of opportunity in education, and the demands on public expenditure. The intervention of government in a cost-sharing arrangement can range from the subsidisation of the sector, to the design of an assistance scheme, such as the provision of income-contingent loans with the option of interest rate and write-off subsidies.

Table 1 below highlights how a selection of countries has determined this balance between the public and private contribution to higher education.

[3] Corbet S., and Charles Larkin (2017). *Financing Higher Education in a Constrained Economic Enviornment: The Argument Against Income Contingent Loans in Ireland.*
[4] Chapman B., and Kiatanantha Lounkaew (2015). *Measuring the value of externalities from Higher Education*, Higher Education, Vol. 70, Issue 5, pp. 767-785.
[5] Barr, N. (2001). *Government as Piggy-Bank,* Cambridge: Cambridge University Press.

Table 1. Public vs private contributions to higher education

Country	State Grant	Student Contribution	Median Contribution (€ 2015)	Loan Structure
Australia	Moderate	Moderate	6,000	ICL – Tuition
Norway	High	None	0	None
US	Low	High	11,500	Loan – Tuition &
Germany	High	Low	250	Regional & State
England	Low	High	9,000	ICL – Tuition &
Netherlands	Moderate	Moderate	2,000	ICL – Tuition &
Ireland	High	Moderate	3,000	None

Source: adapted from Corbet and Larkin (2017)

This paper is structured as follows: section 2 introduces the concept of income-contingent loan schemes, section 3 and section 4 present two case studies – one of the English ICL scheme, and another of the Australian ICL scheme, section 5 presents alternative academic analyses of the hypothetical functioning of an ICL system in Ireland while section 6 concludes with a summary of the key issues.

2. Income contingent loan (ICL) schemes

The workings of an ICL scheme

An income-contingent loan (ICL) is a debt instrument that factors in the borrower's ability to repay.

ICLs only require repayment when the debtor's income is at or above a specified threshold level. Beyond this threshold level, repayment typically occurs at a capped rate, and can be calculated as a proportion of either total income, or income in excess of the specified threshold level. Essentially, ICLs are designed to protect borrowers who are without the capacity to service their debt. In effect, they offer a form of default insurance, and do not impact on the borrower's credit-worthiness.

ICLs also facilitate what is known as consumption smoothing, whereby the graduate can delay the payment for their education until a future period when they are better equipped to do so. Consumption smoothing more generally refers to the desire for individuals to maintain a stable level of consumption (or expenditure) throughout their life cycle.

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There are several elements to consider in the design of an effective ICL scheme. These are described in Text Box 1, overleaf.

The two primary costs associated with the provision of ICL schemes are:

- **an interest rate subsidy**; this relates to the level of interest charged on the ICL, which can range from a zero real rate to protect the time value of future repayments, to a rate in excess of the inflation rate. Should an interest rate be chosen that is below the government's cost of borrowing to fund the ICL scheme, there is effectively an interest rate subsidy; and,
- **a write-off subsidy**; this describes the extent to which debtors default on their repayments, with the exchequer bearing the ultimate cost of any default in an ICL system. ICLs contribute to net public debt in the short term through the financing of outlays. While repayments reduce this addition to public debt, they do not completely offset it, as some of the debt is expected to be written off. This is effectively a write-off subsidy.

In addition to the above, a collection cost pertains to the recouping of repayments from debtors post-graduation. However, with effective design, there are potential transactional efficiencies associated with recouping payments in an ICL system (Stiglitz[6], 2014). The Australian ICL system, which utilises pre-existing income tax infrastructure to assist in collecting repayments from graduates, estimates that collection costs are below 3% of yearly receipts. Similar estimates are described by Hackett (2014) in relation to the English ICL system.

A more detailed discussion of both the English and Australian schemes is contained in section 3 of this paper.

Text Box 1. Parameters of an income-contingent loan (ICL) scheme

The threshold level of income

This is the minimum amount a graduate must earn before repayment will commence.

Repayment rate and repayment cap

This is the amount that the debtor is expected to repay once the threshold level is reached. In addition to this, a decision must be made regarding the level of income on which repayment should be based, i.e. on total income, or on the excess of income over the threshold level. Furthermore, a decision regarding a cap on repayments should be made. A maximum repayment amount could be set, or no cap may be imposed to allow the debtor to repay early and minimise their debt burden.

Method of recouping payments

The means by which the State will collect repayments should be determined, e.g. through existing taxation infrastructure to avail of transactional efficiencies.

Recouping repayments from overseas debtors

A decision must be made regarding how to retrieve repayments from overseas debtors, e.g. a fixed annual repayment could be imposed, or a surcharge. Due consideration must also be given to any costs associated with following up on overseas debtors in order to retrieve repayments.

Interest rate

The rate of interest charged on the loan must be determined. The nominal interest rate could be linked to inflation to protect the time value of repayments. This would involve setting a zero real rate of interest. Conversely, bank-style interest rates could be applied, or nominal rates could be set to zero.

When to retire the loan

The conditions under which the debt will be retired should be specified. This could be after a specified period of time, for example 20 years post-graduation. It could also coincide with retirement from employment, or earlier, to allow for retirement planning. A decision should also be made regarding how to treat the debt once the debtor is deceased e.g. the debt could be written off, or retrieved from the estate of the deceased. As will be discussed in the two case studies presented in this paper, student debt is written off after 30 years in England, and upon death in both England and Australia.

[6]Joseph Stiglitz (2014). 'Remarks on Income Contingent Loans: How effective can they be at mitigating risk?', in Bruce Chapman, Timothy Higgins and Joseph E. Stiglitz (eds.), 2014. *Income Contingent Loans: Theory, Practice and Prospects,* London: Palgrave McMillan.

3. Case study 1: The English ICL system

English ICL structure & recent changes

A single student loan system does not pertain to the entirety of the UK. For example, Scottish students do not pay fees to study in Scottish institutions and can avail of a free loan for study elsewhere in the UK. For this reason, it is necessary to discuss the English case individually.

Student loans were first introduced in England in 1990. The scheme has undergone considerable revision since it was introduced, with the implementation of income-contingency in 1998.

Key features of English ICLs

- ICLs are available for domestic and EU students with loan amounts granted up to a maximum of £9,000 - this is the current level of the fee cap;
- Repayments are fixed at 9% of graduate income above the threshold level of £21,000 (€23,495)[7]. A real rate of interest is charged; that is, a rate of interest in excess of the inflation rate;
- This real interest rate rises between £21,000 and £41,000, to an overall maximum of 3% for income levels above £41,000; and,
- Student loan debt is written off 30 years post-graduation, or in the event of death or permanent disability[8].

Text Box 2 overleaf provides a simple illustration of how the English ICL scheme operates.

The repayment threshold for post-2012 loans has been frozen for five years from 2016/2017[9], effectively increasing repayments as real wages fall. The threshold at which the maximum rate of interest is charged has also been frozen, increasing accrued interest receipts (i.e. more interest collected).

Additional recent changes have expanded the provision of ICLs in England. Doctoral loans will be granted from 2018/2019, as well as maintenance loans for part-time students.

[7] Sterling converted to Euros on www.xe.com on 10 October 2017 based on rates valid on this date. This conversion method used throughout.
[8] UK government website: https://www.gov.uk/government/publications/financial-support-for-full-time-students-of-higher-education-in-2016-to-2017/financial-support-for-full-time-students-of-higher-education-in-2016-to-2017#repayments
[9] UK government website: https://www.gov.uk/government/consultations/freezing-the-student-loan-repayment-threshold

Maintenance

From the 2016/2017 academic year, maintenance grants were replaced with maintenance loans. Maintenance loans are paid back in the same way as tuition fee loans, once earnings post-graduation exceed the threshold level of £21,000. The size of the maintenance loan that a student is eligible to borrow decreases as household income rises, from a maximum amount of £8,200 (for a household income of £25,000), to a minimum amount of £3,821 (for a household income above £62,180).

Text Box 2. Repayment structure of English ICLs

Repayments are based on future income, not on what is borrowed. Repayment begins post-graduation, once income is over £21,000 a year. Repayments are deducted from salary, the same as it is with tax and national insurance contributions.

The repayment rate is 9% of income over £21,000 a year. At a salary of £25,000 a year, this means repayment occurs at 9% of £4,000 - or £30 a month. For the self-employed, separate arrangements are in place for making repayments.

If income drops below £21,000, repayments will stop and only begin again once income is over £21,000 a year. After 30 years, any outstanding balance is written off.

The Table below describes repayment rates and the repayment amounts associated with different income levels.

Income	Amount of income from which 9% will be deducted	Monthly repayment
Up to £21,000	£0	£0
£25,000	£4,000	£30.00
£35,000	£14,000	£105.00
£45,000	£24,000	£180.00
£55,000	£34,000	£255.00

Source: UK government website: www.gov.uk

No loan support is provided to:

- international students from outside the EU;
- people retraining in a new area on an equivalent or lower qualification to one they already hold; and
- those studying part-time at less than 0.25 intensity.

Less than half of students in England are full-time first-degree students. In this sense, the English student loan system is best understood as an undergraduate loan system with restrictive conditions around eligibility[10]. Minimal additional funding is available. Those courses for which the fee received by the university is insufficient, qualify for additional top-up funding (for example, lab-based courses). Furthermore, all universities across the UK offer a variety of scholarships and bursaries related to socioeconomic background or second-level educational achievement.

Issuance & collection of ICLs in England

The Department for Business, Innovation and Skills (BIS) maintains responsibility for student loans in England. These loans appear as assets in BIS's accounts. The loans are issued via the Student Loans Company, which has 2,649 staff collecting £2 billion per year with an operating budget of £138 million (Corbet and Larkin, 2017). Estimates have placed the costs of collecting repayments in England as similar to those in Australia, at between 3 per cent – 5 per cent of yearly receipts (Doris and Chapman, 2016; Hackett, 2014).

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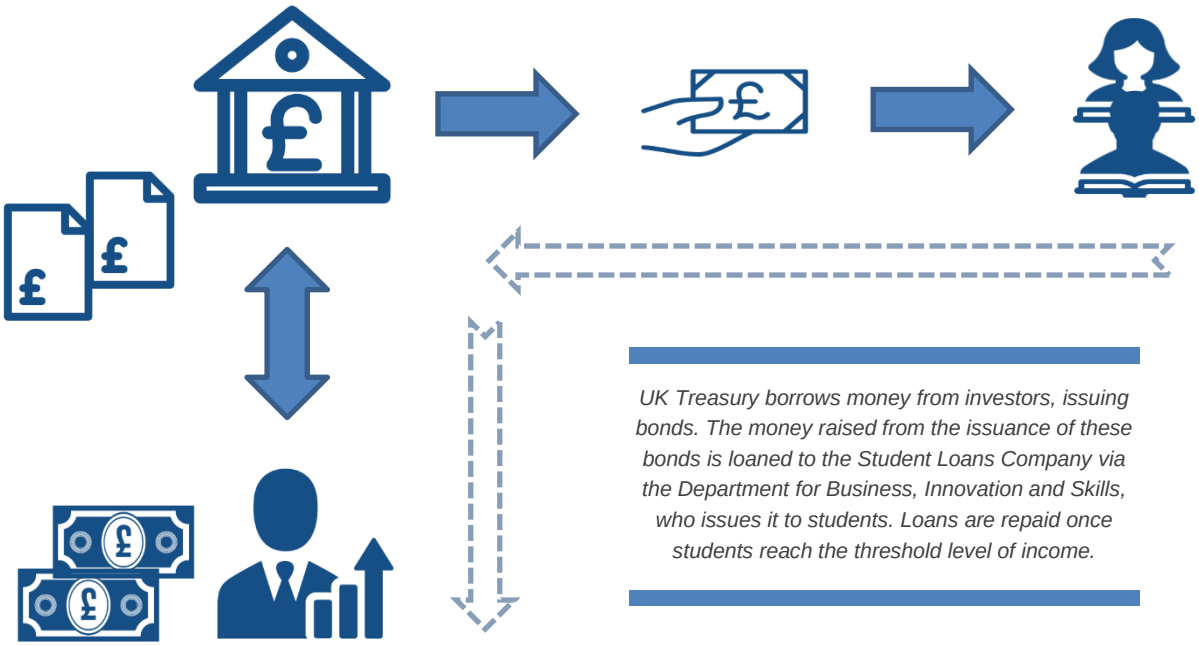
In essence, the UK Treasury borrows money by issuing bonds (fixed interest securities). It then lends this money to BIS, which lends it onwards to students via the Student Loans Company. This interaction is simplified in Figure 2. In this way, the loan creates both an asset and a liability on Government books, as debt is issued in order to issue the loan to a student.

The values of the asset and the liability are determined by estimating discounted future repayments on the student loans. On the asset side, students make monthly income-contingent payments, while on the liability side, the Government makes payments every six months and repays the principal amount when the bond matures. In this way, the Government's net position is the value of the asset offset against the value of the liability[11].

[10] Nick Hillman (2014). A comparison of student loans in England and Australia, *Higher Education Policy Institute*.
[11] For more information on the accounting treatment of student loans in the UK, and the complexities therein, please see the HEPI publication: The Accounting and budgeting of student loans.

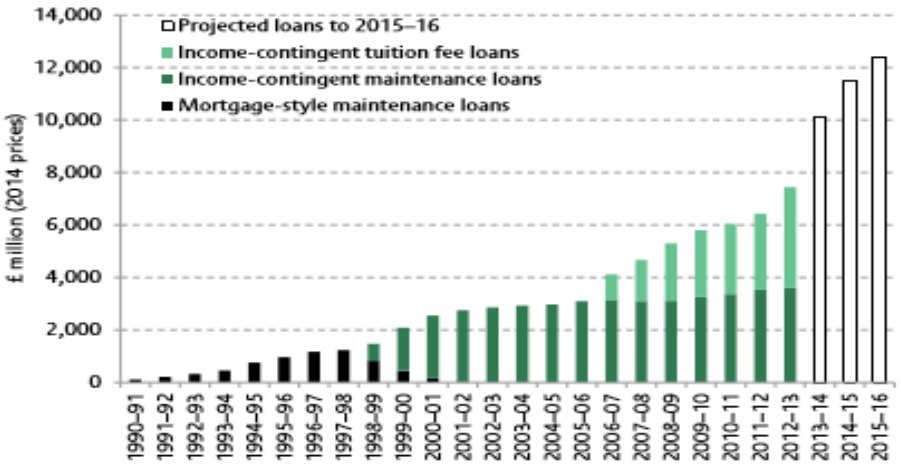
Figure 2. Flow of funds from Treasury to the Student Loans Company, English ICL scheme



Source: Oireachtas Library & Research Service

Figure 3 below shows the value of student loans issued each year, while Table 6 overleaf shows loans issued against repayments received for 2014 – 2020. Future figures are based on projections. As shown, the total size of loans issued each year has grown substantially over the last two decades. Repayments are, or are projected to be, significantly below new loans issued each year, for the years between 2014 and 2020.

Figure 3. Value of English student ICLs issued each year, £ millions 2014



Source: Institute for Fiscal Studies, 2014

Table 6. Projected loan outlay & repayments (£ billions), English ICL system

	2014/2015	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020
New loans issued	12.1	13.7	14.8	15.5	16.0	16.5
Repayments	2.3	2.4	2.6	2.5	2.3	2.5
Shortfall	9.8	11.2	12.2	13.0	13.7	13.9

Source: Office for Budgetary Responsibility, Economic and Fiscal Outlook, 2015

Interest rate and write-off subsidies

The UK Treasury allocates a Resource and Budgeting (RAB) charge to allow for losses in the value of student loans held by BIS[12]. This RAB charge consists of two elements.

The payments made by Government against the borrowings used to create the loans are generally lower than interest payments received on student loans. This is often referred to as an **interest rate subsidy**.

The second is essentially a **write-off subsidy**, accounting for the difference between the principal borrowed by the Government through the issuance of bonds and the repayments received. It captures the level of default on loans issued.

Generally the RAB charge is expressed as a percentage of non-repayment. More progressive student loan systems will have a positive RAB charge, because of the support provided to those with low earnings who are unable to repay fully the amount borrowed.

The official RAB charge has fluctuated in line with economic conditions. Accurate estimation is difficult, and risks overstating the future cost given difficulties in estimating graduate earnings and graduate emigration. Nevertheless the RAB charge offers some insight into the sustainability of an ICL scheme for higher education. An ICL that is loss making, with a positive RAB charge can be sustainable if sufficient resources are made available to sustain it.

BIS convert the face value of assets to a fair value, based on discounted estimated future repayments. In effect, they calculate the net present value (NPV) of future payments. The face value of the loans is the nominal balance owed to government via the Student Loans Company. This is not the same as what these loans are worth to government – that fair value is determined by the estimated repayments the accounts will generate.

[12] For more information on the accounting treatment of student loans in the UK, and the complexities therein, please see the HEPI publication: The Accounting and budgeting of student loans.

As the majority of individual loan accounts are not expected to be paid off in full, these two values (face value and fair value) are naturally projected to diverge.

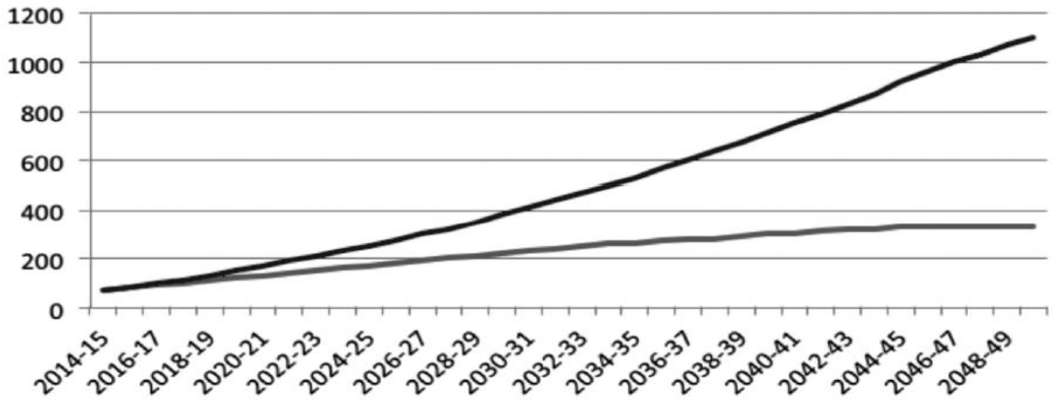
As at March 2014, the face value of outstanding student loans in England was £54 billion, while the fair value (based on the NPV) of these loans was estimated at £33.3 billion[13]. The rate at which future repayments are discounted to arrive at the fair value of the loans is the discount rate, and should represent the government's cost of borrowing to fund the ICL.

To summarise, the long-run public cost of providing student loans in England arises from two primary sources. The first is that borrowers benefit from an average interest rate that is lower than the government's cost of borrowing (interest rate subsidy); the second is that not all loans are fully repaid (write-off subsidy).

A UK Spending Review in November 2015[14] saw a change in the discount rate for student loans to equal the inflation rate plus 0.7%. This brings the discount rate more in line with the government cost of borrowing, reducing the RAB charge to 23% (relative to the 45% RAB reported prior to this adjustment in the discount rate) and thus substantially lowering the level of public subsidy.

Figure 4 below shows official projections of total outstanding balances in the English ICL system over the next four decades. The face value in today's terms is expected to peak at £330 billion before initial write-offs begin. In future cash terms, the total amount owing will have crossed £1 trillion by that point.

Figure 4. Total outstanding balances in the English ICL system over the next four decades



top line - outstanding student loan balances in cash terms
bottom line - outstanding student loan balances in 2014 terms

Source: HEPI, The accounting and budgeting of student loans, Andrew McGettigan

[13] Ibid.
[14] Financial Reporting Advisory Board (FRAB), 'Update on discount rates set at 30 November 2013'

To summarise, the long-run public cost of providing student loans in England arises from two primary sources. The first is that borrowers benefit from an average interest rate that is lower than the government's cost of borrowing (interest rate subsidy); the second is that not all loans are fully repaid (write-off subsidy).

In numerical terms, the Institute of Fiscal Studies (IFS)[15] estimates suggest that 60% of the loan subsidy arises from the fact that not all loans are repaid in full (write-off subsidy), while the remaining 40% can be attributed to the fact that some graduates are charged an interest rate that is lower than the government's cost of borrowing at some points during repayment (interest rate subsidy).

The IFS estimates place the average loan issued per student over the life of their course at £40,286 in NPV terms using 2014 prices. This means that the average loan subsidy per student amounts to £17,443. With an annual intake of 300,000 full-time students, that amounts to a total of £5.2 billion. Of course, the degree of subsidy varies considerably across the distribution of graduate earnings. The lowest-earning 10% of graduates receive a subsidy of 93% (£36,481 on average), while the highest-earning 10% of graduates receive a subsidy of just 1% (£475 on average).

Difficulties in estimating the costs of an ICL

Estimating the value of the RAB charge is challenging. For example, in 2013, the estimated value of the RAB charge for 2015/2016 rose to £4.4 billion. In reality, £12 billion of loans were issued in 2015/2016. Given the RAB charge at the time of 45%,that means a value for the RAB charge of around £5.4 billion. With only £4.4 billion allocated for the value of the RAB for 2015/2016, the allocated amount was £1 billion short[16]. In these circumstances, BIS is required to request supplementary assistance from the UK Treasury.

Generally, this shows the difficulties in estimating the cost of an ICL scheme. At the heart of these difficulties are lower than expected graduate salaries, economic

This shows the difficulties in estimating the cost of an ICL scheme. At the heart of these difficulties are lower than expected graduate salaries, economic instability, higher than expected loan take up, and the quality of forecasting particularly in relation to graduate salaries and emigration.

[15] For more information on the accounting treatment of student loans in the UK, and the complexities therein, please see the HEPI publication: The Accounting and budgeting of student loans.
[16] Ibid.

instability, higher than expected loan take up, and the quality of forecasting particularly in relation to graduate salaries and emigration. These issues are compounded by the uncertainty and risks associated with Britain's exit from the European Union (Brexit).

To allow for this fluctuation in the RAB charge, the UK Treasury granted BIS an additional facility in what is known as their Annually Managed Expenditure (AME), where AME is that element of spending over which government has more limited control. BIS agreed with the UK Treasury to risk-share, and to cover the costs of one-thirtieth of that extra spending every year from within their controllable current expenditure budget[17].

Ultimately, ICLs bring uncertainty. Estimating the long-run cost of student loans is inherently difficult. It requires a model to forecast graduate income and repayment behaviour over many decades into the future. In reality, there are considerable difficulties in estimating loan repayments, which are themselves based on estimates of graduate incomes thirty years into the future.

Sale of the student loan book

In their Autumn Statement 2013[18], the UK government announced plans for a sale of parts of the student loan book estimated to amount to £12 billion in total. The government previously sold a £2 billion loan book, supported by a guarantee of a £750 million subvention. Ministers stated that the sales are undertaken to reduce public debt and secure the borrowing system. They argued that sales would not change loan conditions and would only proceed where they represent good value for taxpayers.

However, the National Union of Students (NUS) criticised the decision, claiming that the move privatises student loans. NUS argues that it is it likely that some repayments will go towards private profits[19].

The major challenge facing the English ICL system relates to the recouping of repayments from graduates based abroad.

Challenges facing the system

The major challenge facing the English ICL system relates to the recouping of repayments from graduates based abroad. There are specific issues relating to the quality of data about graduates abroad, and there are obvious challenges in using tax-based repayment systems in recouping payments from graduates based within foreign jurisdictions.

[17] Ibid.
[18] Autumn Statement 2013, HM Treasury.
[19] Rachel Pells (2017). 'Government Begins Plans to Sell off Billions of Pounds Worth of Student Debt to Private Companies', *Independent*, 6 February.

Furthermore, there are questions around the cost effectiveness of recouping payments from borrowers who live abroad (as the costs of enforcing payment may exceed the amounts recovered).

England has not had much success with non-resident graduates. According to Corbet and Larkin (2017), in 2010, £111 million pound was outstanding to graduates not in the UK, while 9% were in arrears and 33% were not paying or contactable. A decision was made to allocate £10 million to collection services to follow up with this cohort, or 9% of the face value of that part of the loan book.

However, certain solutions[20] have been recommended. These include converting income-contingent debt to mortgage-style debt on leaving the country, with a higher interest rate or surcharge on all those going abroad. An alternative approach would be the implementation of annual set payments for those overseas. This remains an area of considerable debate, and represents a substantial challenge to the success of an ICL scheme.

Other issues surround the risk profiling of students across institutions and disciplines. In an effort to improve on the uncertainty in the loan book, the Teaching Excellence Framework was developed to lower the RAB charge by removing employment and remuneration risk. Universities and disciplines are given a rating, in an attempt to more closely link courses to debt profiles.

[20] Nick Hillman (2014). A comparison of student loans in England and Australia, *Higher Education Policy Institute*.

4. Case study 2: The Australian ICL scheme

ICL scheme structure

Australia was the first country in the world to implement an ICL scheme. The main descendant of the original student loan scheme is the 'Higher Education Contribution Scheme: Higher Education Loan Programme' (HECS-HELP). This loan is available to students with a Commonwealth supported place.

The majority of Australian students are enrolled on a Commonwealth supported place (a subsidised higher education enrolment), and so can apply for the HECS-HELP scheme for a loan up to the amount of tuition for the course to be undertaken. Additional loans are also available to cover student services fees and for student maintenance. With a partial exception for students from New Zealand, Australia does not extend student loan facilities to international students.

For those without a Commonwealth supported place, a separate loan scheme (FEE-HELP) is available. Students availing of the FEE-HELP[21] scheme face an additional 25% surcharge that is added to their outstanding debt. FEE-HELP can be availed of by undergraduates at private institutions and for those undertaking postgraduate study. In essence, this surcharge is a redistribution from higher income graduates to lower income graduates.

The threshold level of income, at which graduates begin to repay their student loans, is $54,869 (€36,186)[22]. The repayment rates for each income band can be seen in Table 7 overleaf. Debtors are incentivised to repay early, as voluntary repayments of $500 or more receive a bonus of 5% of the repayment value. For example, a payment of $600 pays off $630 of loan debt. Repayment rates are based on **total taxable income**, unlike the English ICL system, which bases repayments on income above the threshold level only.

[21] FEE-HELP Information for 2016, Australian Government.
[22] Australian dollars converted to Euros on www.xe.com on 10 October 2017 based on rates valid on this date. This conversion method used throughout.

Table 7. Threshold level of income and associated repayment rates for Australian ICLs

Threshold Income	Repayment Rate
Below $54,869	0%
$54,869 – $61,119	4.0%
$61,120 – $67,368	4.5%
$67,369 – $70,909	5.0%
$70,910 – $76,222	5.5%
$76,223 – $82,550	6.0%
$82,551 – $86,894	6.5%
$86,895 – $95,626	7.0%
$95,627 – $101,899	7.5%
$101,900 and above	8.0%

Source: https://www.hrblock.com.au/tax-tips/understanding-hecs-help

Tuition fees and revenue stream

In Australia, tuition fees vary by university and course, as shown in Table 8 below. The average tuition fee is $7,900 (€5,210). This is different to the English system, which places a maximum fee cap of £9,000 (€10,069) irrespective of the programme of study.

Table 8. Student fee bands in Australia

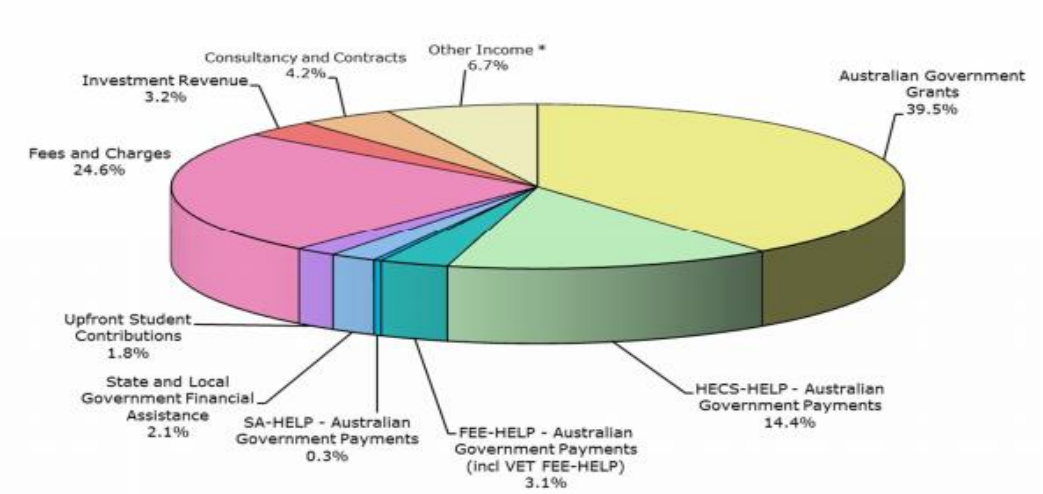
Course	Maximum Fees
Band 1: law, dentistry and medicine	$10,440
Band 2: computing, engineering and maths	$8,917
Band 3: humanities, psychology and languages	$6,256

Source: Degrees of debt: Funding and finance for undergraduates in Anglophone countries, April 2016

Until 2012, caps on student places were imposed on each subject. Since 2012, student numbers have been unrestricted, which has resulted in increased fees as universities increased their recruitment. As a result, the government could not maintain the level of funding per student and allowed student fees to rise to compensate.

The revenue streams for the 39 Australian higher education providers for 2014/2015 can be seen in Figure 5 overleaf. Loan schemes account for almost 20% of all revenue received by the 39 higher education providers, with upfront student contributions accounting for less than 2%. However overall, government funding accounts for the largest share of revenue, despite the existence of student loan schemes.

Figure 5. Revenue streams for the 39 Australian higher education providers for 2014/2015



Source: Financial Reports of Higher Education Providers, November 2016

Doubtful debt and interest rate subsidies

Current estimations place the likely level of Australian student debt that will go unpaid at around 20%. In monetary terms, the level of debt estimated to be unpaid by 2017 is $13 billion[23] (€8.9 billion). The estimated proportion of new debt issued each year that is not expected to be repaid can be seen in Table 9 below, while a time series of this doubtful debt can be seen in Figure 6 overleaf. The percentage of loans that are estimated to go unpaid has risen consistently over the past five years, and stands at 22% as of 2016/2017.

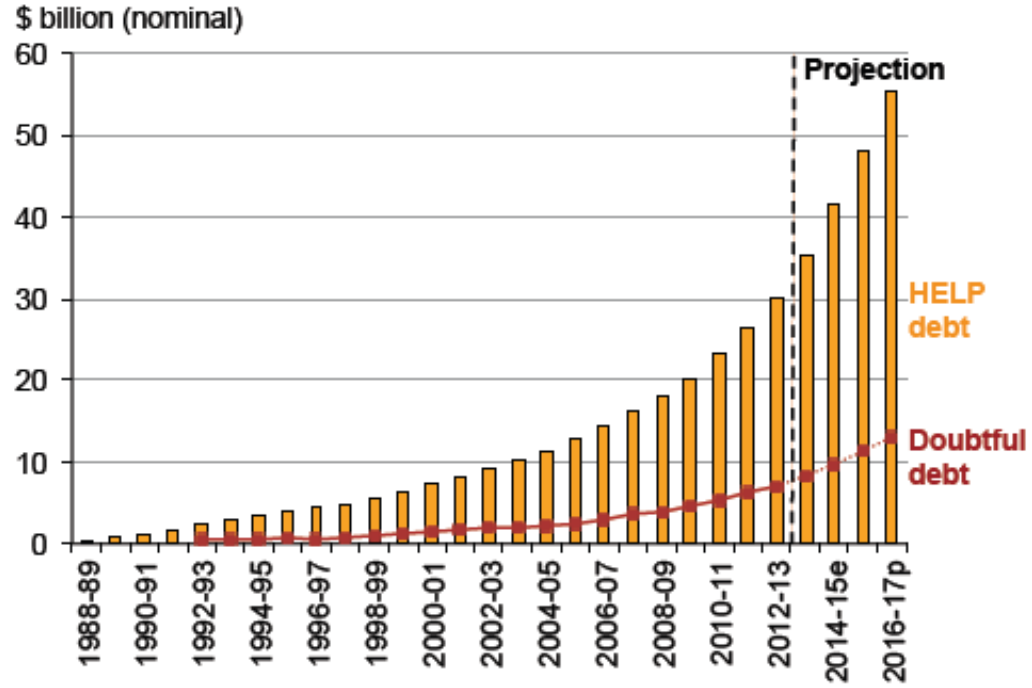
Table 9. Percentage of loans that is estimated to go unpaid

Year of issue	Percentage that will go unpaid
2012-2013	18%
2013-2014	19%
2014-2015	20%
2015-2016	21%
2016-2017	22%

Source: A comparison of student loans in England and Australia, HEPI

[23] Andrew Norton (2014). 'Doubtful debt: The rising cost of student loans', *Grattan Institute*, April.

Figure 6. Time series of doubtful debt



Notes: Forecast of HELP debt is based on combining the CPI-indexed stock of HELP debt from last year with new lending and subtracting estimated annual repayments. Doubtful debt estimates are only available from 1992-93 onwards.

Source: Doubtful debt: the rising cost of student loans, Grattan Institute

The Grattan Institute (an Australian public policy think tank) cites a communication from the Australian Department of Education for the year ending June 2011 that estimates as much as a quarter of student debtors will not fully repay their loans – this is made up of 16.5% who will not repay anything, and 11% who will repay only a partial amount of their debt[24].

This so-called *doubtful debt* (estimated by the Office for Doubtful Debt) arises for several reasons:

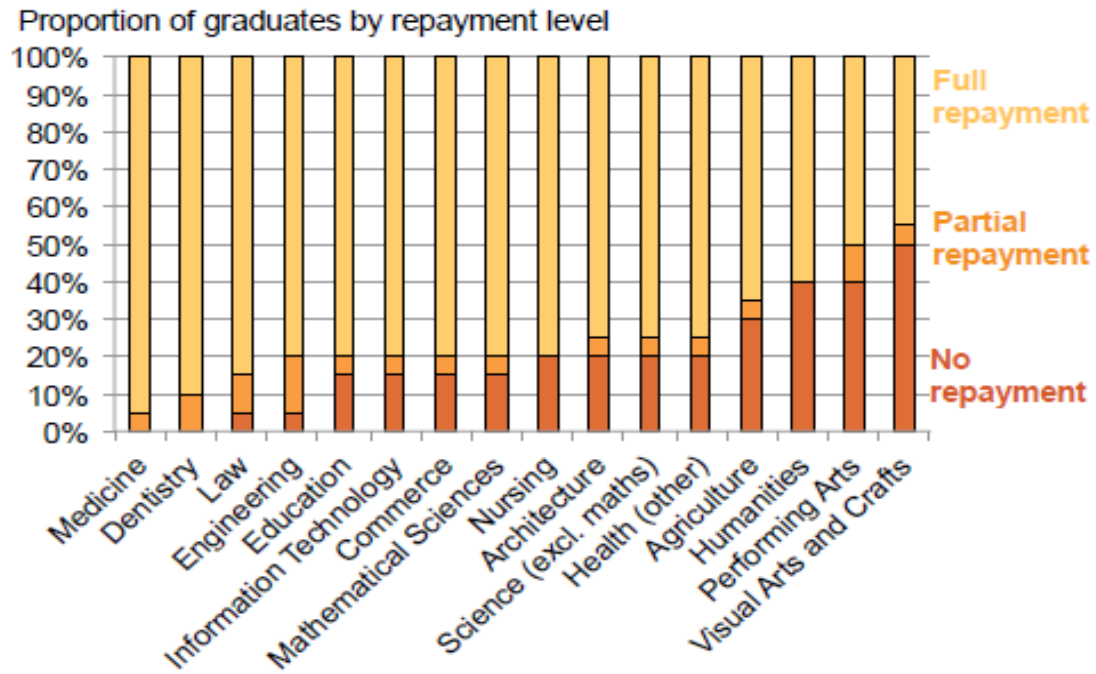
- as Australian graduates repay loans through income tax, similarly to the collection of repayments within the English ICL system, payments cannot be collected from overseas graduates;
- furthermore, the threshold for repayment is linked to average weekly income, which means it is increasing in real terms. In this way, over time, fewer graduates will reach the threshold level obligating them to repay (as real wages fall); and,

[24] Ibid.

- finally, student loans are written off once the debtor is deceased, as is also the case in the English ICL system. This contributes to the overall rate of default.

The level of doubtful debt also varies significantly by discipline. Figure 7 shows, by discipline, the proportion likely to repay student loans and at what level. The proportion not likely to repay (in part or in full) varies from 5% in medicine to 55% in visual arts. Larger disciplines with lower repayment prospects are a major contributor to the level of doubtful debt.

Figure 7. Graduates and repayment levels



Notes: *Based on the analysis of Weidmann and Norton (2012a) updated with Census 2011 data. The student contribution for science (excl. maths) and mathematical sciences courses reflects the current contribution level, not the lower level for 2011. Health (other) includes health fields other than medicine, dentistry and nursing. Graduates aged 18-65 who are also Australian citizens are included. People who did not specify their income are excluded. The 2010-11 threshold was used.*

Source: Doubtful debt: the rising cost of student loans, Grattan Institute

However, the level of doubtful debt alone does not capture the total cost of the Australian student loan scheme. Unlike the English ICL scheme, Australian student loans are subject to inflation-linked interest rates only, and so, there is no real rate of interest, representing a

substantial interest rate subsidy. This zero real rate of interest is estimated to cost the government $600 million per year[25], and typically hovers between 2% and 3%.

[25] Nick Hillman (2014). A comparison of student loans in England and Australia, *Higher Education Policy Institute*.

5. The proposed operation of an ICL system in Ireland

Recent academic analyses

The prospect of introducing income-contingent loan schemes as a means to fund Ireland's higher education sector has been subject to considerable academic debate. The Joint Committee on Education and Skills invited prominent academics from each side of the debate to discuss their work in relation to the operation of an ICL scheme in Ireland on May 2nd 2017. This section offers an overview of their work.

However, the lack of reliable data makes robust analysis and estimation problematic, specifically with graduate emigration rates, student withdrawal rates, and graduate salaries by discipline. Efforts to improve the quality of this data would allow for more substantial estimation regarding the likely success of an ICL system in Ireland.

Corbet and Larkin (2017)

In a paper commissioned by the Technological Higher Education Association (THEA)[26] Corbet and Larkin (2017) examine the viability of an ICL scheme for Ireland. The paper makes several underlying assumptions about the design of the ICL system, and the demographic and socioeconomic profile of those availing of the scheme. These are shown in Text Box 3 in the Appendix.

Essentially, they argue that the success of the ICL system relies upon unrealistically low default rates. They refer specifically to default rates associated with the English ICL scheme, which have ranged between 22% and 45%, and note that in the Irish case, 22% would be the '*outer edge of operational effectiveness'*, while 45% would be beyond acceptability. However, the paper does not estimate a default rate for Ireland, relying instead on international examples.

In addition, they advise that early repayment be an inherent feature of any Irish ICL scheme to mitigate default risk, but further recommend that a payment cap of between €1,000 and €2,000 be used to ease annual repayment burdens. Furthermore, they find that interest rates below 3% will generate perpetual losses in the system, while an interest rate below 6% will not permit the ICL scheme to recover its losses within 30 years.

Corbet and Larkin (2017) propose two baseline models, based on low risk estimators, of an Irish ICL scheme. These are shown in Table 10 below. The variable in each case relates to the level of additional funding available for each student. They then proceed with a stress test of these baseline models.

[26] THEA is the representative body for Irish Institutes of Technology.

Each model assumes that €500,000 has been borrowed at the sovereign rate. While Model A assumes that an additional €2,500 will be required per student, Model B assumes €1,000 additional funding will be required. This additional funding is in excess of the entry amount of €3,000. It must be noted that the default rate chosen in Model A and Model B is an assumed rate of default, inferred from evidence of default rates associated with ICLs in other jurisdictions. In reality, the default rate will largely be determined by the evolution of graduate earnings and the chosen repayment structure specific to the ICL system. As shown in Figure 8 below, it takes 15 years before this ICL becomes self-financing, and over 20 years before it becomes profitable.

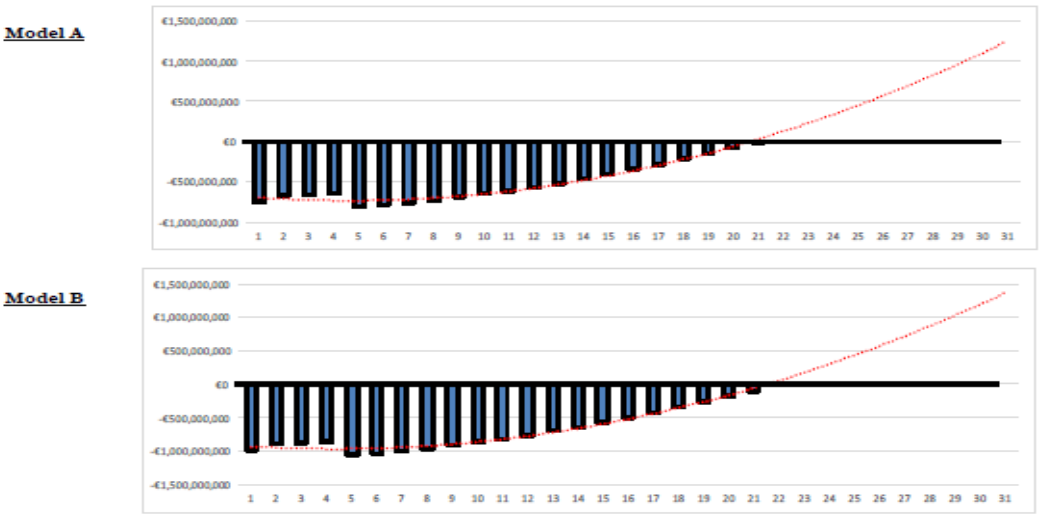
Table 10. Model Irish ICL schemes proposed by Corbet and Larkin (2017)

Description	Model A	Model B
Baseline Funding Per Student	€3,000	€3,000
Additional Funding Per Student	€2,500	€1,000
Government Loan Facility	€500,000,000	€500,000,000
Default Rate	25%	25%
Student Fully Repaying	15%	15%
Repayment Cap	€1,000	€1,000
System Interest Rate	4.5%	4.5%

Source: adapted from Corbet and Larkin (2017)

Overall, the author's conclusions based on their stress test results are detailed in Text Box 4 in the Appendix. The authors advise that Ireland is not of an appropriate size, and that the default risk is too high, for an ICL system as proposed in the Cassells report (2016) to succeed. They suggest that there is a minimum of 10 years of losses to be absorbed by the ICL system or the higher education institutes, thus preventing capital expenditure on the sector for a decade.

Figure 8. Annual profit and losses of proposed Irish ICL system Corbet and Larkin (2017)



Source: Corbet and Larkin (2017)

Based on their analysis, and concerning the future funding of higher education in Ireland, Corbet and Larkin (2017) recommend the following options:

- the sector seeks funds from increased tax revenues (similar to a second USC or reallocation of current USC when cuts are being considered);
- the sector reduces student population and the number of institutions in operation;
- the sector moves to a hard binary model based on repayments abilities of students with private higher education institutes using ICLs and the rest under public funding;
- a substantially reformed ICL methodology rather than a blanket ICL structure that has been proposed by Cassells (2016) such as a course or university specific ICL structure that permits more effective risk profiling. The linking of courses and disciplines to debt profiles is possible in Ireland since all modules have an OECD subject identifier that can be cross-referenced to NACE[27] codes for economic analysis; or,
- should the status quo remain, the sector can enter a period of decline until systematic failure followed by root and branch redesign.

Doris and Chapman (2016)

In a paper that formed the basis of the analysis contained within the Cassells report (2016), Doris and Chapman (2016) examine the prospect of an ICL system in Ireland by estimating life-cycle earnings using data from the National Employment Survey (NES, 2006). This allows them to simulate the time pattern of repayments, an important consideration when examining likely default rates within an ICL system.

Doris and Chapman (2016) test two interest rate regimes, one with a zero real interest rate, and another that rises to 2% when income is above the recommended €26,000 threshold, but remains at 0% otherwise. They also test two repayment schedules, one with a flat rate of 8% on *marginal income* above the threshold, and another between 2% and 8% on *total income* once the threshold is reached.

The loan amount is assumed to be €16,000. They further assume that graduation happens after 3 years and that 10% of graduates emigrate permanently, while another 10% are living abroad in any given year. They find that the introduction of a write-off age makes no difference to results, as loans had either been paid off by age 55, or earnings had fallen below the threshold level at that stage.

Doris and Chapman (2016) find that the ICL systems that entail positive real interest rates result in repayment rates of 95% and 97% for schemes with repayments based on total and

[27] NACE is a statistical classification of economic activities in the European Union.

marginal income respectively. For schemes with a zero real interest rate, repayments of 83% and 85% are predicted. These results are shown in Table 11 below.

However, many graduates will not begin repayments until much later in their life cycle due to low initial graduate earnings, or unemployment post-graduation and temporary emigration. For this reason, the authors claim that discounted payments are significantly lower, at 63% to 74% (implying subsidies of 26% to 37%). However these subsidy rates are based on the assumption that no repayments are made in the years that these students are abroad. Based on hypothetical calculations, the authors further suggest that encouraging emigrants to repay their student loans will reduce the government subsidy by up to 10 percentage points.

The results indicate that the schemes that include a non-zero real rate of interest are preferable from the point of view of the government's fiscal position, as the discounted repayments are higher for these schemes. For this same reason, these schemes are less appealing to graduates. However, for all of the ICL schemes modelled, the authors argue that repayments are affordable and offer a reasonable repayment burden.

Table 11. Proportion of €16,000 repaid for Alternative ICL Repayment Schemes, Accounting for Employment and Emigration Patterns

Parameters	0% Discount Rate	2% Discount Rate
8% Repayment of Marginal Income, 0% Real Interest Rate	0.83	0.63
8% Repayment of Marginal Income, 2% Real Interest Rate	0.97	0.72
2% - 8% Repayment of Total Income, 0% Real Interest Rate	0.85	0.67
2% - 8% Repayment of Total Income, 2% Real Interest Rate	0.95	0.74

Source: adapted from Doris and Chapman (2016)

6. Conclusion

The Cassells Report, published in 2016, presents three options for the future funding of higher education in Ireland. Of these, *Option Three*, the introduction of income-contingent loan schemes for higher education has been the subject of considerable debate. The Joint Committee on Education and Skills met on November 10th, November 24th and December 8th 2016, and on May 2nd 2017, to discuss the report. However, the Committee has not published a report on the issue to date.

An income-contingent loan (ICL) is a debt instrument that factors in the borrower's ability to repay. ICLs only require repayment when the debtor's income is at or above a specified threshold level. Beyond this threshold level, repayment typically occurs at a capped rate, and can be calculated as a proportion of either total income, or income in excess of the specified threshold level.

The two primary costs associated with the provision of ICL schemes are:

- **an interest rate subsidy**; this relates to the level of interest charged on the ICL. Should an interest rate be chosen that is below the government's cost of borrowing to fund the ICL scheme, there is effectively an interest rate subsidy; and,
- **a write-off subsidy**; this describes the extent to which debtors default on their repayments, with the exchequer bearing the ultimate cost of any default in an ICL system.

International evidence suggests that the ultimate success of an ICL is linked to the level of default in the system. Text Box 1 on page 7 presents the variety of parameters that can be manipulated when designing an ICL scheme in order to minimise the debt burden facing students and the level of default. Of particular relevance, is the means by which repayments should be collected from emigrant graduates.

Two-thirds of those emigrating from Ireland are third-level graduates (Moriarty et al., 2015; Cairns, 2017). OECD estimates place the high-skilled emigration rate for Ireland at around 21% compared to the UK at 11% and Australia at 3%. Given the challenges associated with retrieving loan repayments from graduates domiciled abroad, as observed in the English and Australian ICL systems, this is an important consideration for the successful implementation of an ICL system in Ireland.

Another option for increasing the likelihood of repayment include the linking of academic courses to debt profiles, given that default rates have been shown to vary by discipline. However, this could have unintended consequences, and result in an overall decline in the

numbers of students choosing courses in the arts and humanities, given the relative ease by which funding can be attained in alternative courses in business and science.

Appendix

Text Box 3. ICL features and demographic & socioeconomic characteristics modelled in Corbet and Larkin (2017)

1. First four years of the cycle present no return
2. Dentists and doctors are considered to start repayment in year 6/7
3. The system needs to sustainably generate between €800 million and €1,000 billion per year - repayment must be considered as EIB loan/sovereign bond repayment
4. We must consider a student growth rate in line with theoretical expectations (selecting cap at 260,000 students by 2035)
5. Considering an interest repayments baseline of inflation +2.5%
6. 169,474 registered students at Irish universities in 2014/15 - high-end estimated levels of growth of 34% by the end of the next decade - low end is 22.5% (D/Education & Skills 2016/17 projection)
7. Student numbers therefore grow by 2.2% per year upon 2014/15 baseline estimates
8. Due to conflicting estimates (Cassells, on record, media, etc.), we are therefore building a baseline system that will incorporate over 230,000 students in the Irish university system by 2030, 260,000 by 2035 - to be justified through stress testing
9. The system will cost approximately €35,000,000 per year to run based on 1/4 of the UK model growing by 2.5% each year to account for growth with establishment costs of €50,000,000
10. Assuming 16% international students within the system, which is further assumed to remain constant, thus growing in line with the system itself - the ICL is only available for Irish students
11. 15% of Irish students are estimated to be on a programme > 4 years in duration (e.g.: medicine, dentistry)
12. 31% of 4 year graduates pursue further study
13. 4% unable to obtain employment
14. 2% incapacitated for other reasons
15. 53% obtain immediate employment (this figure is assumed to increase to over 35% for over 4 year graduates)
16. 10% immediately emigrate
17. We assume for simplicity that those seeking ICL funding on >4 year programmes are incorporating a 0% PD (probability of default) due to high earning potential, even if they have emigrated
18. We are assuming that 40% of >4 year sample emigrate as in line with anecdotal established evidence (namely our doctors and engineers)
19. Student salary growth is assumed to be fixed for the first two years of employment, growing at 2% per annum thereafter for 4 year programmes - 3 % for 5 year programmes - 4% for 6 year programmes
20. Based on HEA 2017 data, we are assuming that 49.6% of students will not reach €25,000 salary within their first year of employment
21. For simplicity and lack on concrete evidence, we are assuming that there is a simplistic division of students achieving degrees with equal earning potential within the average salary earnings as denoted by the HEA
22. Assumed earnings structure
23. Assuming 42% grant recipients for third level universities, this increases to approximately 70% for the ITs
24. We will assume in the baseline model that trends continue - it will be possible to incentivise entry to certain professions using tax breaks/additional funding over time

25. We are assuming an equal division of graduates across professions - noting that this is exceptionally simplistic, we will further the strength of our analysis by modelling this assumption in due course - note that the figures will change based on table 3 to the right
26. The model is developed upon the principle that those earning €25,000 will be able to repay their ICL - we initially develop the model with no repayment cap, then we introduce varying repayment caps
27. Ireland does not benefit from economies of scale in the same manner as similar ICL networks in Australia and the UK, this is important to note in PD calculations.

Source: adapted from Corbet and Larkin (2017)

Text Box 4. Results of ICL stress test, Corbet and Larkin (2017)

- Default rates must be kept below 15%
- A repayment cap of €2,250 should be imposed
- An interest rate of 7% to 8 % over the baseline sovereign rate is required (to obtain self-sufficiency within 20 years)
- The model is easily undermined and, even with perfect conditions, is running somewhere in the 25% - 30% success zone. To succeed, it would require sophisticated financial engineering
- A European Investment Bank (EIB) loan of €500 million will be insufficient, this model will need a structured SPV generating in the region of €6 to €7 billion of net expenditure until year 7 or 8
- To generate a profitable year for the ICL structure within a decade, students would be subject to an interest rate of 10% on their loans or be subject to a default rate of 0%
- If the loan is kept small (€2,000), default is less likely, and the ICL would be more likely to succeed, but this would require the government to maintain all current expenditure plus the €3,000 student charge for the remaining non-grant students and put in place a €2,000 ICL financed fee in addition
- An alternative is to address the riskiness of the loan book in total
- Due to grant recipient levels in the Institute of Technology (IOT) sector, remove IOT from the ICL scheme and place under direct exchequer subvention
- Colleges and universities lacking an undergraduate medical school should be removed from the profile of institutions able to avail of ICLs
- Remaining institutions will need to profile students on the basis of points and potential future earnings in excess of the €25,000 threshold .i.e. need to risk profile better for improved chances of success
- The earnings of future grads relates to entry points and course based on the Higher Education Authority survey of graduates with different interest rates for the bands of 350-400, 400-500, and 500-600 points with the exclusion of those under 350 points
- Students not in engineering, ICT, health sciences and certain finance and legal service subjects will be subject to a higher rate of interest and/or a large upfront payment to reduce the principle amount of the ICL
- The aim would be that persons graduating with an ICL will be obtaining a gross income of approximately €35,000. The universities connected to this ICL would need to finance the first 4 years where there is no income. However it will become fully self-sustainable within 12 years, and part of the portfolio would be open to being sold as a tranched asset backed security

Source: adapted from Corbet and Larkin (2017)

Glossary

Real versus nominal interest rates	The real rate of interest is equal to the nominal rate of interest minus the inflation rate. A real rate of interest equal to zero implies that the nominal rate of interest is equal to the inflation rate.
Discount rate	This is the rate used to establish the present value of a future sum. Generally, due to the concept of the time value of money, a future amount will be worth less today. The time value of money refers to the idea that an amount of money received today is worth more than this same amount received at a future date, as it can be invested and may accumulate interest.
Income contingent loan (ICL)	This is a type of loan that does not require repayment until the debtors income is at or above a specified threshold level. There is no standard approach to the design of ICLs. Ultimately, they involve the provision of an **interest rate subsidy** and a **write-off subsidy** to borrowers. The size of each of these subsidies can be adjusted across various parameters.
Interest rate subsidy	This refers to the level of interest charged on an ICL relative to the government's cost of borrowing. Should an interest rate be chosen that is below the government's cost of borrowing to fund the ICL, there is an interest rate subsidy.
Write-off subsidy (England, *RAB charge*; Australia, *doubtful debt*)	This describes the extent to which debtors default on their repayments, with the Exchequer bearing the ultimate cost of any default in an ICL system. ICLs contribute to net public debt in the short term through the financing of outlays. While repayments reduce this addition to public debt, they do not completely offset it, as some of the debt is expected to be written off. This is effectively a write-off subsidy.