

Statement to the Joint Oireachtas Committee on Education, 2 May 2017
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Summary

Based on our research and evidence from Ireland and from countries that have implemented an ICL, our view is that ICLs would be a risky course of action for Ireland. It has the potential to create large contingent liabilities for the Exchequer. It would modify the significant social planning objectives that have been worked out over time between government and the higher education institutions. It would not rectify the resource per student issue without abandoning fiscal prudence and cannot solve the €5.5bn capital expenditure deficit. The Government would need to propose substantial legislative changes to solve issues of financial accounting in Higher Education Institutions, the creation of an arm's length loan company and loan recovery. Many of the decisions lie in the hands of the political system since they are related to role of the higher education system in social planning. Those decisions set the parameters.

Our findings here support that 61.5% of the loans would be estimated to be junk status, therefore 38.5% are investment grade. 21.2% of the loans based upon the estimated data are found to be in the lower spectrum of junk status, denoted as either highly speculative or possessing extreme default risk. The estimated window of effectiveness for an ICL in Ireland are:

- Default rates below 15%;
- A minimum payment cap of €2,250 per year;
- An interest rate of 7-8% over the baseline sovereign;
- In a perfect conditions environment, the model is running somewhere in the 25-30% success zone with perfect conditions, which will mean GDP growth rates of around 4-5% per annum.
- An EIB loan of €500M per annum will be insufficient - this model will need to be a structured Special Purpose Vehicle (SPV) generating in the region of €7 billion of net losses until year 18.
- 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%.
- While the interest rate is paramount to the system working, it has a damaging impact on inequality since it will place those within the €25-35,000 income band into a debt-spiral.

There are ways of making this ICL system functional for certain levels and courses. However, for the vast majority of undergraduates entering the system and ICL will not be effective and will place a great burden on the Exchequer.

At the end of the day higher education has to be paid for and there are only three options: the student, firms or the Exchequer. In all circumstances it is about revenue and not debt, as debts ultimately have to be repaid by revenues generated from income, profits or taxes. We hope our research will be prove beneficial to the Oireachtas Committee in its task of finding a solution to the current Irish Higher Education funding crisis.

Statement

At the outset we would like to make a few points. First, we would like to commend the work done by Peter Cassells and his team, supported by Dr Doris and Prof Chapman and NESDO. They have done an excellent job of highlighting the challenges facing the sector. It is well-established that the staff-student ratio has deteriorated and that this has had an impact on rankings and on the quality of education. The economic rationale for subsidising higher education, and education generally, is related to the idea of human capital and economic growth. Education is beneficial to the economy since it can generate improved human capital, which when applied, increases productivity. Productivity is what drives economic growth and improved material welfare. First is that the education system has both public and private returns and as a student progresses through the education system those returns come to be dominated by private returns. This has been established empirically. Education is also beneficial to society. For instance, work performed in the United States by Prof Walter McMahon of the University of Illinois and recent work by the Growing Up In Ireland project highlights that there are distinct public benefits for educating people up to the end of a primary degree, especially for the primary caregiver of children.

The value of higher education is clear. The State's investment in higher education needs to increase under some form for it to be sustainable in the years to come. Publicly funded higher education could be achieved through directed exchequer funding. At present the system costs approximately €1.5bn to the Exchequer. To bring up funding levels to the high point (€12,158 per student) and cover the €367m in capital expenditure per annum the Exchequer would need to supply €2.2bn, growing with demographics towards €4bn. To "patch" the system the NTF Levy remedy outlined by Minister Bruton can be applied, though this is distortionary and leaves out 25% of the labour force. At present no solution offered brings back resources to mid-2000s levels or solves the capital expenditure problem. Alternatives exist. Students can pay higher fees. Costs can be reduced in various ways: course lengths can be reduced or more "unbundling" of the education product can take place. A ready solution is to "shrink the system" by reducing student numbers and/or institutions. An alternative is to move towards a model with an objective of 50% of the undergraduate student body being made up of non-EU fee paying students. This has been an unspoken but clearly practical approach taken in some of the leading universities in Scotland. In all circumstances this would necessitate significant political investment in the process.

The position taken by Ireland in the mid-1990s and continued by many Continental European jurisdictions is seen by the economics profession as a misallocation of resources since public subsidies could be better spent towards assisting the truly disadvantaged. The welfare comparisons are made using higher education markets that are actually markets where supply, demand, budget constraints and prices all function to transfer information to buyers and sellers. In other words not dirigisme. Where such a market exists courses charge fees in line with their economic costs, students decide what courses and institutions to apply for on the basis of entry criteria and price and where enrolment numbers and the depth of diversity of income streams determines the behaviour of higher education institutions. In such a model subsidies are attached to truly public goods, such as non-commercial research, and encouraging certain course choices, such as STEM. In a system with fixed prices, fixed or near-fixed student numbers and limited alternative income streams, the behaviour of higher education institutions can become detrimental from a welfare point of view.

In practice this is reflected in the HEA funding model. It has encouraged institutions to solve their financial problems via increased enrolment. The long standing solution in higher education management is to develop a model of internal cross subsidisation between low cost and high cost programmes. In optimal conditions this is directly subsidised by the Exchequer and a differential

price still remains. In Ireland this does not exist and results in large welfare losses as general arts and business studies subjects subvent other most expensive courses. This is clear from the IUA Full Economic Cost data. The drawback, from the point of view of the ICL system is that those persons also have the lowest probability of repayment. What in effect happens is that these students provide a subsidy to the medical, chemistry and computer science graduates, who already receive subsidised education via the low cost of entry. In the Irish system the full appreciation of the price and income elasticities of demand for higher education are not known since the higher education system does not operate as a normal market, with only the CAO points calculations reflecting an element of course and institution supply and demand. There are large welfare losses built into the higher education system that would need to be addressed if an alternative financing model were to be investigated.

Income contingent loans are a very effective way of distributing the repayment burden of higher education theoretically. They ensure that the loan holder doesn't have to pay an excessive amount of their income on an annual basis and could go as far as to result in no need for payment whatsoever in times of personal economic hardship. In technical terms – the repayment burden can be made light. While this system has many advantages, it does have limitations. It is not designed to solve a financial crisis. The HEA has published a report in 2016 highlighting the real and immediate financial crisis facing the IOT sector. The universities face similar financial challenges and have turned to low-cost borrowing from the European Investment Bank to solve immediate capital expenditure problems. While this is permissible under HEA regulations it would be irresponsible not to consider that both the borrowers and the lenders labour under the implicit assumption that universities are too-big-to-fail and seek a government bailout if a crisis were to emerge.

Regardless of the logic and merits of the EU Fiscal Rules, they are now part of the Irish policymaking process. There are requirements about Ireland returning to a 60% debt-to-GDP level (advised to 45% by the Central Bank and Fiscal Advisory Council) and that all new expenditures are met with continuous new revenues. Under EU definitions, education is not an investment. The EU and the IMF are keenly aware of the potential for “contingent liabilities” to undermine the public finances and seek to ensure that governments avoid them in future. That means that any special purpose vehicle needs to be stand-alone from the Exchequer. Accordingly, risk must be held by the private entity and the rate of return must equal the average cost of funds to the State. This would place the minimum nominal interest rate at 3.3%, roughly in line with the UK Treasury Green Book 3.5% VFM baseline figure. This approach to sustainable interest rates aligns with the recommendations by the New Zealand Productivity Commission in their March 2017 report *New Models of Tertiary Education* which was tasked with finding solutions to their ongoing ICL problems. Time horizons need to be taken into account as recent work by the IMF highlights that advanced economies reflect a fiscal cycle of approximately 18 years and that within the timeframe of an ICL loan that an Exchequer and a population may experience a full fiscal cycle, complete with fiscal retrenchment. The OECD and IMF have taken the view that this has added more importance of obeying fiscal rules and embracing a cautious approach to policy that may impact the Exchequer into the future and can be evaluated by fiscal stress tests.

We would like to quote here from Professors Bruce Johnstone & Pamela Marcucci:

Income contingent loans, such as those modelled after the Australian Higher Education Contribution Scheme (HECS) would seem to work well when

- a government, by downplaying (or not mentioning at all) the politically treacherous concept of tuition fees, is able to get an element of cost-sharing that it would likely be politically unable to implement were it to advocate

openly event for the relatively modest, deferred tuition fees that such plans generally call for;

- a government, by stressing the deferred obligation of the student, is in a financial position to forego the potential of more up-front tuition and to minimize the role of parents (even affluent ones) as an important partner in sharing the costs of instruction;
- a state does not currently need even the students' deferred revenue, but is able to tax or borrow sufficiently to keep the universities open and the students fed and housed, and to accept payment only in the future – in essence becoming the lender – with a limited ability to tap private capital markets; and
- the majority of student borrowers (that is, students who become obligated to future income contingent payments) will have a single employer that will pay them a periodic and relatively regular salary and that is also sufficiently large, sophisticated, and legally compliant enough so it can be counted upon to take the correct amount out of the borrower's paycheck, year in and year out.

Conversely, income contingent loans would seem to be less applicable when

- nongovernmental revenue is needed immediately, making parental contributions to tuition (even with some discounting and excluding amounts from low-income families) an important sources of necessary revenue supplementation;
- the scarcity of government revenue precludes the government from being the sole lender, thus placing a premium on student loans that have some (albeit discounted) value in the private capital market;
- many graduates (borrowers) are likely to hold multiple short-term jobs, to be employed in the informal economic sector where records are most unreliable, or to be emigrating; and
- there is no tradition of voluntary, reliable self-reporting of income, and state systems for monitoring and verifying income – for the purpose of income-tax withholding or pension or social security contributions – are non-existent or unreliable. (Johnstone & Marcucci, 2010: 178-9)

What we discovered in our research is that approximately 50% of graduates will be unable to pay the full net present value of the income contingent loan over a 20 year time horizon. Our modelling shows that we can be assured of repayment in only 31% of graduates. Our estimations are based on post-crisis wage data from private sector sources and the public sector wage scales. By way of background to the largest employer in the State is the State with 294,000 staff and 39% of GDP. The multinational sector as a whole employs 187,000 people according to the IDA. We currently have a workforce of 2.2m. Approximately 16% of graduates leave the country within 6 months of completing their degrees. In the case of Trinity College that can be in excess of 20% depending on the course observed. The New Zealand and UK experience has illustrated how difficult it is to obtain payments from those overseas, with New Zealand taking recourse to the criminal justice system and arresting ICL defaulters upon re-entry to the country.

We have attempted in our modelling, as far as possible, to make the ICL work for Ireland. Given a certain profile of institutions, courses, ICL size, ICL contract entry points and interest rates an ICL in Ireland may work but a blanket system will not. In our model we have left the existing grant system unchanged. This is due to the obvious political challenges but also due to the potential increase in ICL principal if a UK-style ICL reform of the grant is explored. We break down our ICL loan holders into ventiles based on earning potential. That is determined by course, points, institution, and gender. We use evidence from the Georgetown University Center on Education

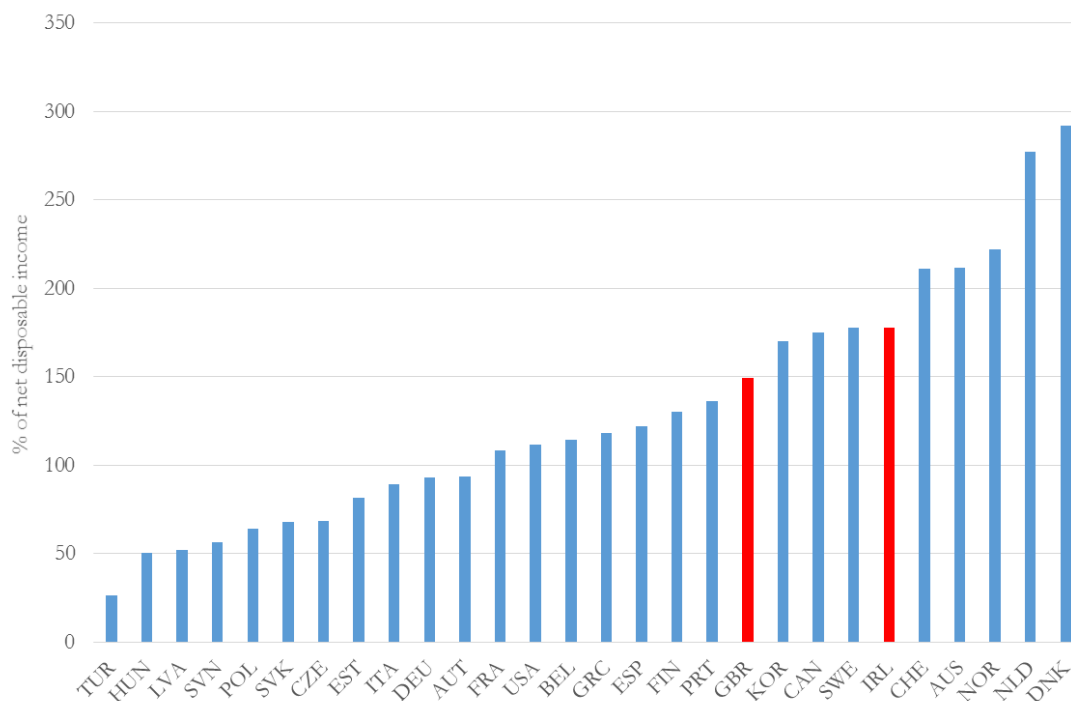
and the Workforce to inform our calculations on employment earnings by university course. We then take a standard model of default and apply it to graduates. Once salaries reach the income contingent level of €25,000, we assume a similar system to that of the UK. The estimated percentages used are slightly above UK estimates to offer the best opportunity of Irish ICL success. Therefore, we estimate the methodologies upon the estimate of 10% of after-tax income being repaid to the ICL system upon an interest rate of 1.5% (estimate of RPI) on income over €25,000 and 3.5% on income over €45,000. The current 2017 Irish tax rates are imposed and held constant for this methodology.

While previous university wage analysis in Ireland has focused upon productivity as a driver of career earnings, it appears that ICL proponents have missed three key points: 1) Ireland has significantly lower real wages than that of the Celtic Tiger era, reflecting a global trend; 2) Ireland has higher taxation levels than many international counterparts; and 3) Ireland's graduates have continuously emigrated for higher wages and perceived better opportunities abroad. These are not the shared characteristics that a country seeking an ICL structure should possess. Ireland is quite similar in nature to New Zealand and economically to the UK. In mid-2016, the Financial Times (4 July) reported that after a dramatic increase in university fees in the UK, student loan debt rose by £12.6 billion to £86.2 billion in the period 2015-2016. It is estimated that graduates who now pay fees of £9,000 a year are estimated to leave university with an average of £44,000 of debt which has substantially increased upon the level of £16,200 of the cohort who graduated in 2011. In fact, it is widely reported that an expected decrease in UK household debt was entirely mitigated by this increase in student debt, where the Institute for Fiscal Studies modelled that about 70% of students who left university in 2015 are expected to never finish repaying their loans, instead making repayments for 30 years before then having to have the unpaid loan written off. In Figure 1, we observe that the implementation of ICLs in the UK has had a direct effect upon household debt when compared to disposable income. We must continue to reiterate that Ireland already possesses a significantly higher rate of household debt than the UK, therefore offering little tolerance to increases of the same nature or magnitude generated by potential student debt. This new era of the UK ICL model now manifests new issues within the context of student ability to obtain a mortgage and other loan-types. In fact, this increased ICL payment may now generate future real economic issues in the form of the housing market for example, which is quite simply defined as contagion risk, a form of economic shock which Ireland has sadly experienced in recent years.

Figure 1: UK household debt compared to disposable income (2016 estimates) and Household debt as a proportion of net disposable income (2015 estimates)



Source: The Financial Times, 4 July 2016



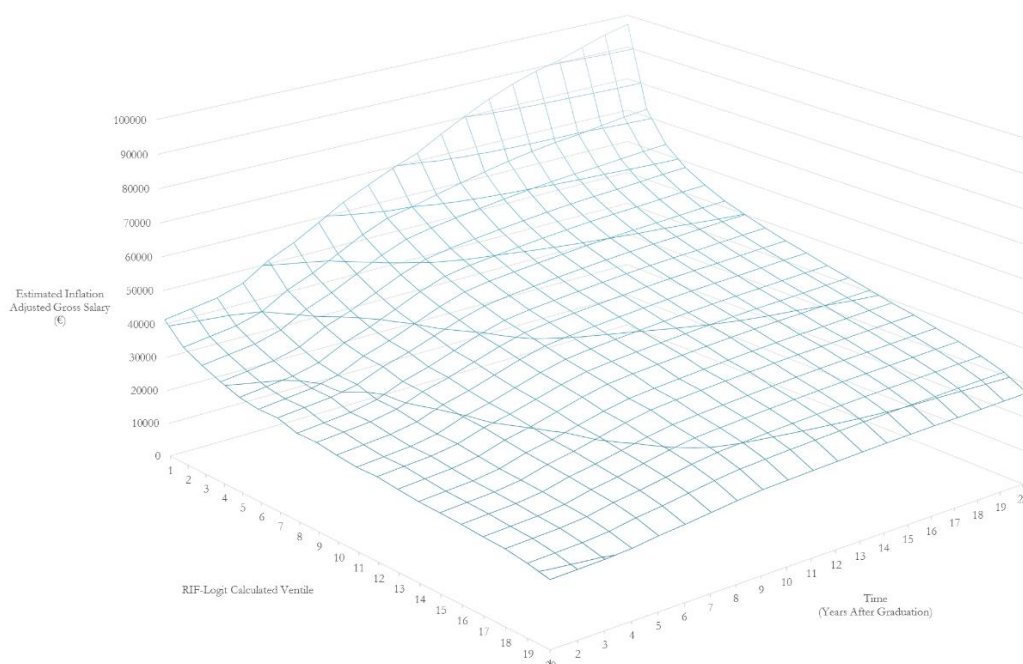
Source: The World Bank

To model the distribution of earnings in detail, we estimate the relationship between expected time passed within a graduate's career and their expected after-tax earnings at that point (holding Irish

tax rates constant at Q1 2017 levels). The models are then estimated upon gross earnings ventiles which have been pre-estimated during the data analysis to separate the education facilities analysed, incorporating the expected gender gap discount (estimated based upon the Morgan McKinley 2016 report statistics, which found an average differential of 20% in Ireland) and education facility premium as necessitated. All resulting cohorts are then combined within the database, denoted by the level of education currently being undertaken. The resulting simulated overall 20 year earning profiles are presented in Figure 2, providing the basis of the analysis of the ICL system if imposed upon the 2014/15 cohort of graduates as a baseline estimate of the current Irish educational and economic conditions in Figure 3.

The methodology is based upon analysis of the available pre-crisis datasets to identify the correlations between age and wages using recentered influence functions, which have been enhanced through the additional support from searching available Irish job vacancy websites, consultation with recruitment companies, student bodies, university career advice services and publicly available current starting wage estimates (in the public sector for example) to estimate current graduate wage estimates. The trends in wage growth are further determined through analysis of publicly available job advertisements seeking at least 1, 2, 5 and 10 years of experience to aid extrapolation of current wage trends, building upon the analysis of age and wages. We also built upon the HEA provided data of the 2014/15 cohort of higher education students denominated by gender and ISCED field of study. Through analysis of the courses at each university, under the guidance of a range of information provided within university course advertisements, national education advisory sources and further aided by the Georgetown University “Economic Value of College Majors” (2015), we identified the most likely positions associated with each ISCED field of study, from which we could allocate a 20-year earnings estimate, as calculated through analysis with the RIF-OLS methodology which are then presented based upon the education ventiles that were estimated. The assumption that all graduates could complete 20 years of employment was made, therefore the methodology focuses upon earnings from the start of their career. The 20 year models are presented due to our forecasts based on the most likely period of debt securitisation, which is tactic commonly used in other jurisdictions such as the UK. 10 and 30-years estimates are further analysed with the short-term model limiting the potential for repayment for multiple ventiles and the long-term model offering little improvement in the ability to repay for those in lower estimated salary ventiles (as income growth is overshadowed by accruing interest payments). Upon these forecasts, an expected loss methodology was implemented to denote the calculated performance of the wage cohorts based upon varying forecasts of Irish wage growth within the twenty-year period. We then build our ICL model upon these forecasts applying similar repayment thresholds and interest repayment categories as those found in the UK ICL system. Prior versions of our methodology incorporated students in receipt of the grant payment and less accurate assumptions of wage profiles, however in this analysis we have focused solely upon the non-grant recipients and have incorporated an advanced dataset. The model is adjusted for estimated graduate emigration and incompleteness rates as provided from multiple sources including individual universities and HEA.

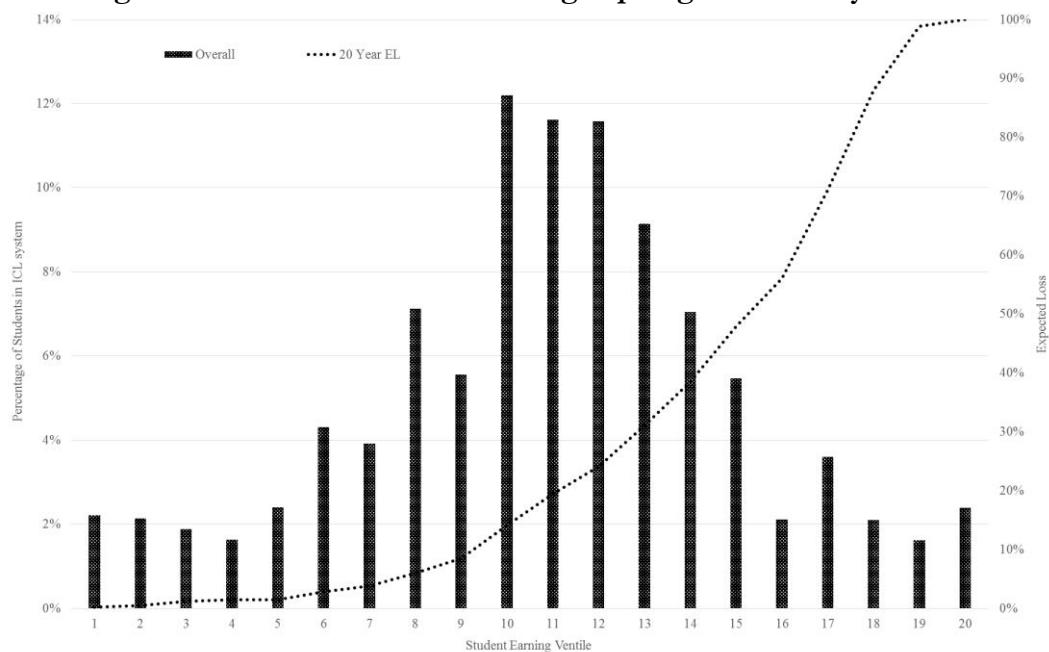
Figure 2: Range-based estimated career earnings upon graduation by ventile (all student groups)



Note: The highest earners are denoted in ventile 1, the lowest earners in ventile 20. Salary estimates are adjusted for a modest inflation rate of 1% throughout the twenty year period. The above figure is based upon the combined sample, including segregation of gender, educational facility attended and level of education obtained. Source: Author's Calculations

The expected loss in Figure 3 is calculated as a function of the graduating estimate of €18,000 owed (which is calculated as €3,000 for 4 undergraduate years in university and €6,000 for one postgraduate year, therefore applying fees only) upon ICL repayment under the conditions of the UK ICL system (Additional and reduced repayment burdens were considered and will be presented in a forthcoming draft along with estimated probability of default methodologies and re-developed stress testing). We therefore measure the barrier upon which interest repayments plateau or increase in comparison to wage growth, thus eliminating the probability of repayment. 35.4% of students are placed in cohorts 10 through 12, however the estimated 20 year expected loss rates are found to be 14.1%, 19.4% and 24.1% respectively. This level of expected loss upon the average graduate salary base, when considered supplementary to the existing grant subsidy provided by the Irish state, portrays evidence that this system possesses a high probability of subsidy provision being significantly above 30%. Further repayment risks are located within our high emigration rates (similar to the problem found in New Zealand's ICL system) and those who dropout of their selected programmes after receiving ICL funding (as per 2017 HEA estimates which are found to be approximately 15% in first year programmes as analysed in the 2013/14 cohort of Irish university students).

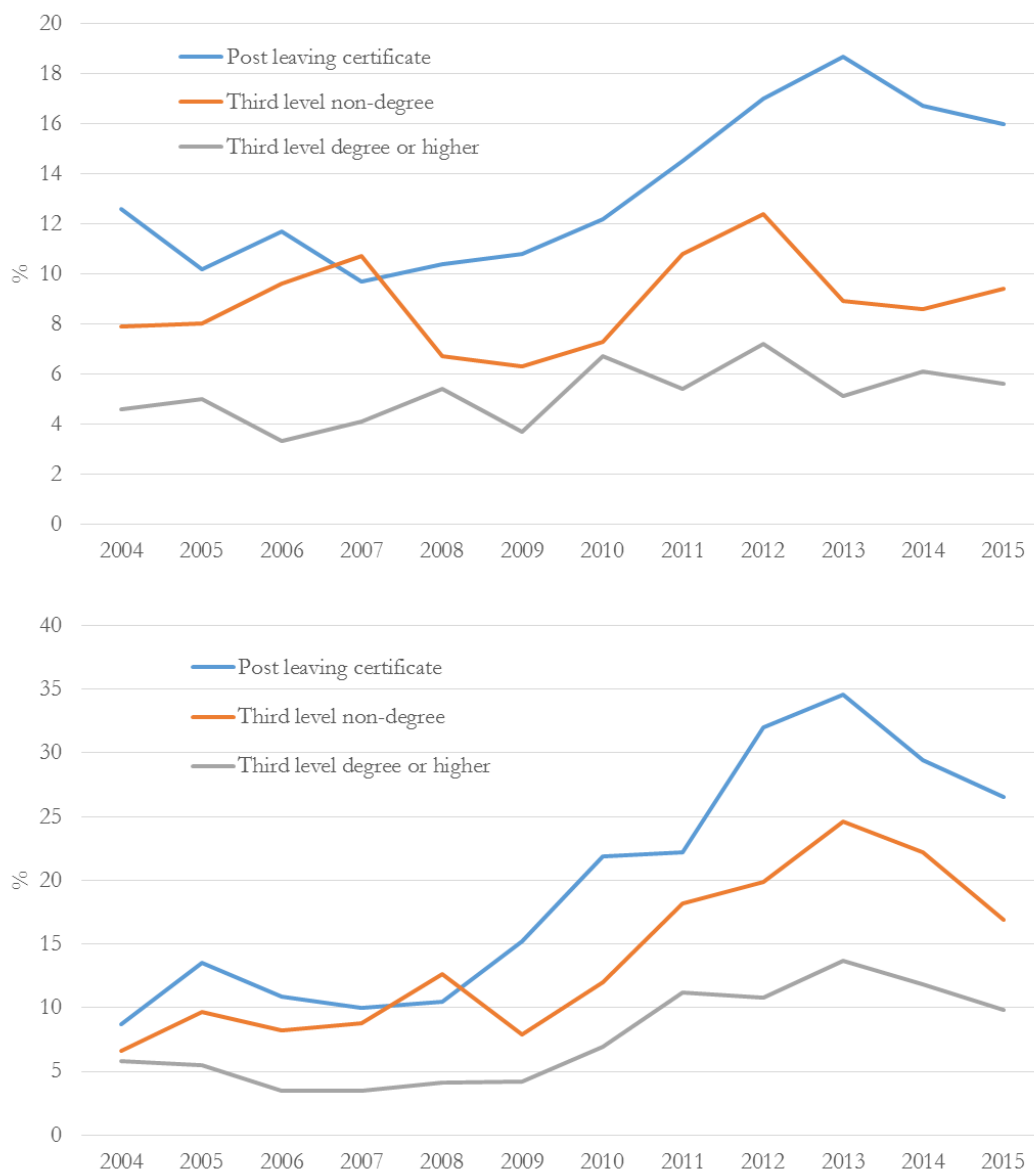
Figure 3: Range-based estimated career earnings upon graduation by ventile



Source: Author's Calculations (2017)

We must also point out that although some may consider our estimates of the lower ventiles to be rather excessively negative, we point to one simplistic robustness check in the form of EU-SILC data based upon the estimated deprivation rate and at risk of poverty measures in Ireland. Within this context, in Figure 4 we can clearly observe the increases in both measures that have occurred since 2009. This has been widely explained due to the rise in unemployment levels, particularly youth unemployment, combined with the period of wage cuts that followed in the aftermath of the economic crisis. Figure 4 also serves as a good example of the dangers that are inherent in such a system if a crisis of the scale just witnessed in this state should re-occur. It should also be noted that graduates in fields such as engineering and quantitative finance, which are considered to be in high-earning ventiles (2-6), suffered significant unemployment during this period. This serves as a simplistic example that all students, no matter how high their career earning rates are perceived to be are at risk of unemployment as a consequence of economic conditions. It is estimated based on 2015 data that approximately 10% of third level degree (or higher) students are categorised as deprived, with approximately 6% at risk of poverty. Further, third-level students with lower than degree status present evidence of approximately 16% being categorised as deprived and over 9% at risk of poverty.

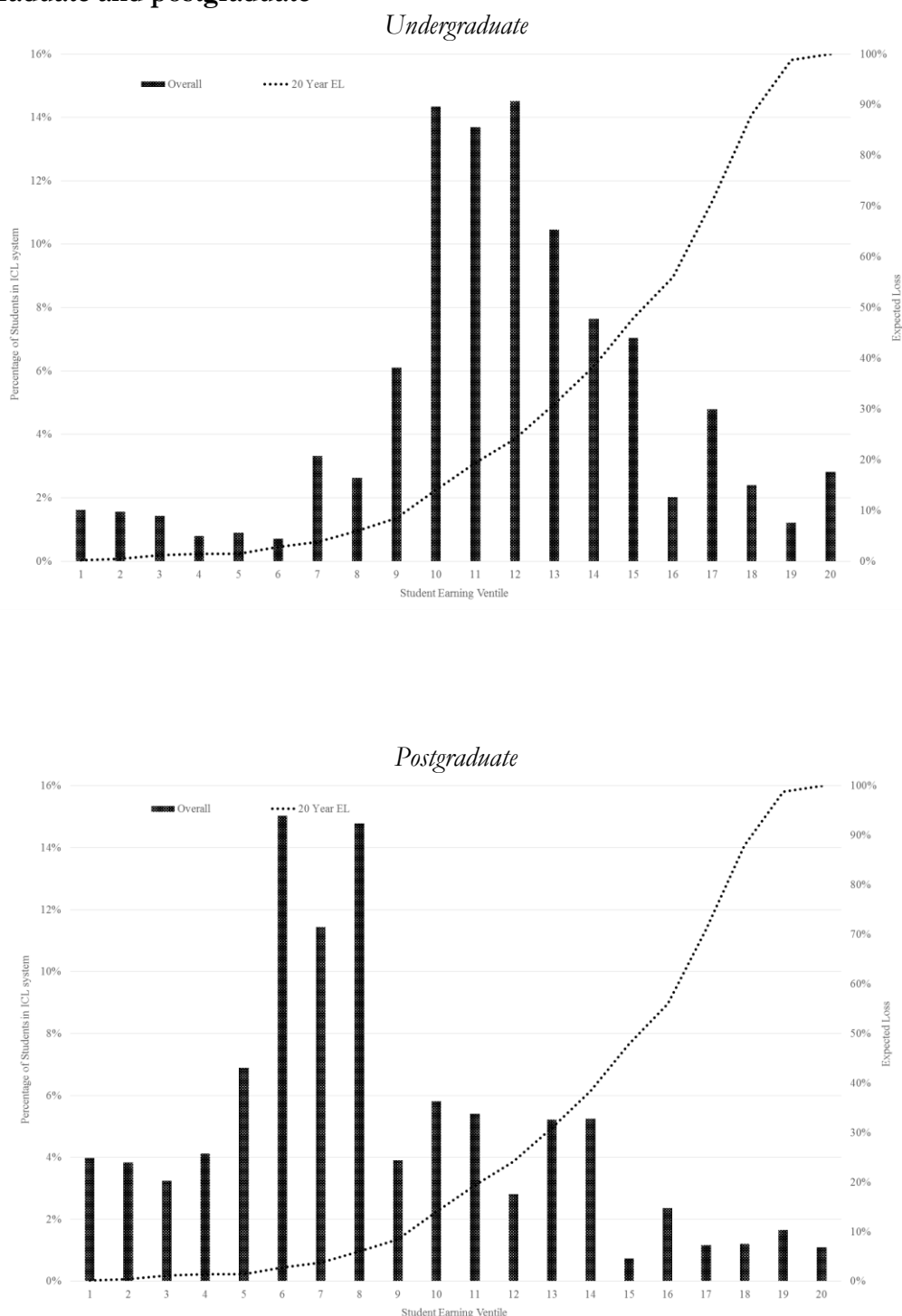
Figure 4: At risk of poverty rate in Ireland (2004-2015, Top Figure) and Deprivation Rate in Ireland (2004-2015, Bottom Figure)



Source: EU-SILC (2016)

There is also evidence within the data to suggest that there exists a functional ICL system for postgraduate education across most educational facilities. This appears based on these preliminary estimates to merit further investigation and worthy debate. Due to the salary premiums evidenced across most ventiles within the Irish education system, our analysis shows that a majority of postgraduate salaries as in Figure 5, are categorised in ventiles 1 through 10, accounting for 73.1% of the postgraduate population.

Figure 5: Range-based estimated career earnings upon graduation denoted by undergraduate and postgraduate

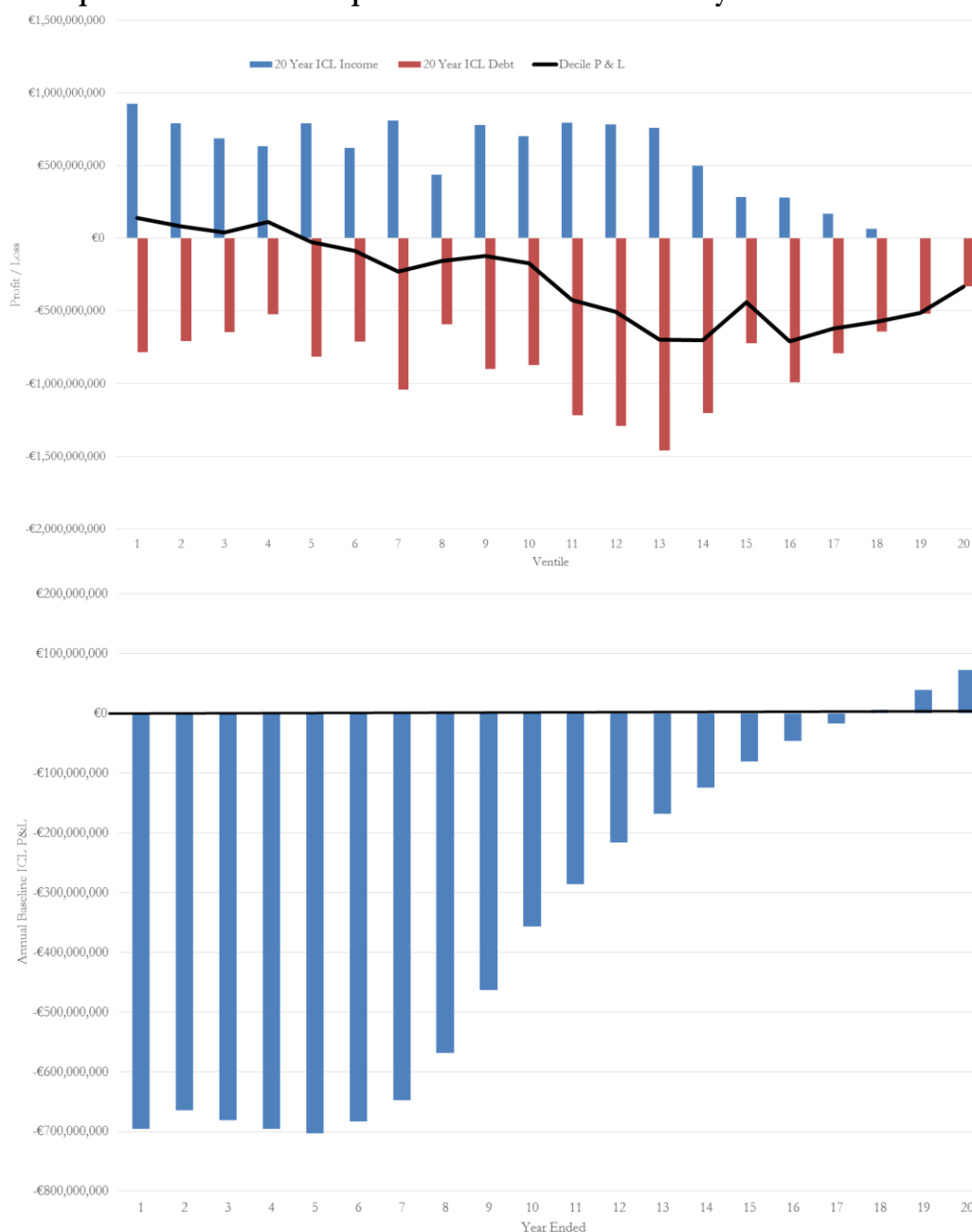


Source: Author's Calculations (2017)

The ICL system's modelled profit and loss (P&L) is then presented in Figure 6. As we can observe within the first 20 years of the ICL system's existence, we calculate that ventiles 1 through 5 will achieve breakeven. This indicates that after assuming the projected expected losses combined with assumptions of Irish graduate emigration, we are relatively confident that these cohorts of high-earning students will repay their loans. However, as we move further down through the ventiles, we begin to observe the estimated losses that are accrued by the lowest earners. The lowest ventiles in the system do not present the largest loss due to the relatively fewer students that are positioned

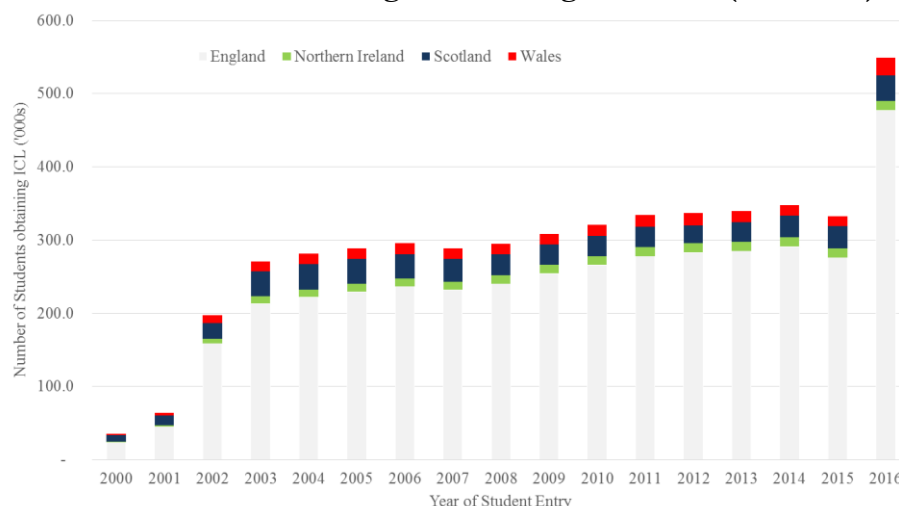
in this category. The largest number of students are located at ventile 11 through 14 which generate the most substantial estimated losses. Should we repeat the same analysis for 30 years into the future, the net profits of the ICL system are estimated to increase, yet the probability of high expected losses for those in lower ventiles remain. However, the additional risks that increase from sources such as illness and death would then start to become significant factors, which merits further investigation. In our methodology, we find that the 20-year expected loss is the most effective manner to quantify these risks as should the student not have repaid their loan at this point, there is a significant probability that they would never do so. Further, this is the most likely period of debt securitisation and sale. In Figure 6, we also observe the estimated profit and loss of this ICL system. We estimate, that outside the grants paid by the government each year, this ICL system would have to absorb annual payments of between €600 and €700 million each year for the first seven years. However, we do find that the system would reach a breakeven point between year 17 and year 18, where it would return a profit after reaching an estimated running loss of €7.1 billion. We must state that these calculations are completed under the assumption that the economy continues to grow unaffected between the start-up of the ICL and the break-even point. This is a highly unlikely scenario, particularly as a shock such as that experienced in the recent economic collapse would render the ICL system in immediate danger due to two significant side-effects: 1) issues raising necessary capital; and 2) student non-repayment due to a host of reasons such as unemployment and wage reductions.

Figure 6: Twenty-year profit and loss assumptions by ventile for the baseline ICL system and annual profit and loss assumptions for the baseline ICL system



Source: Author's Calculations (2017)

Focusing on international comparisons, Figure 7 represents the growth in the number of student numbers availing of the UK system, presenting evidence of a large increase in English student funding in 2016. Between 2015 and 2016, the number of English students obtaining ICLs increased from approximately 276,000 to 477,000. While this growth is not observed in Northern Ireland or Scotland, the number of Welsh students receiving ICLs increased from approximately 13,000 to over 24,000.

Figure 7: Number of students obtaining ICL funding in the UK (2000-2016)

Source: The Student Loans Company (SLC)

In Table 1, we observe the repayment statistics for students that have received ICL funding per graduating cohort between 2000 and 2016. While the SLC provide data for each of the four systems individually, we have compiled the data to observe the complete system. We can observe that over fifteen years on from the 2000 graduating cohort, only 48% of this money has been repaid, noting that there were only 35,615 students within the total annual cohort. Of this, only 18.6% are above the repayment threshold. We must note that after thirteen years, 25.2% of the 2003 group (the first to contain over 250,000 students) are currently not repaying their ICL, combining the reasons provided due to unemployment and being under the salary threshold. The 2004 and 2005 groups represent 24.9% non-performance, while this figure grows substantially as we investigate more recent cohorts.

Table 1: Student repayment statistics in the UK ICL system (as of March 2016)

Loan Repayed	Domestic								Emigrated/International				Totals (000s)	
	Loan Cancelled	Above Threshold	Below Threshold	ST Unemp	LT Unemp	Incomplete Paperwork	Status leading to non-payment	Above Threshold (Paying)	Above Threshold (Defaulted)	Below Threshold	In Arrears	Further information sought (missing)		
2000	48.0%	2.6%	18.6%	14.3%	1.3%	6.3%	0.0%	6.4%	0.2%	0.2%	0.3%	0.0%	1.3%	35.615
2001	43.5%	2.6%	22.7%	15.4%	1.5%	6.2%	0.0%	5.7%	0.2%	0.3%	0.3%	0.1%	1.2%	63.727
2002	44.9%	1.9%	25.5%	13.9%	1.3%	5.2%	0.0%	4.5%	0.5%	0.4%	0.5%	0.1%	1.1%	197.836
2003	42.5%	1.5%	29.2%	13.2%	1.4%	4.9%	0.1%	4.2%	0.6%	0.5%	0.6%	0.1%	1.2%	271.159
2004	39.3%	1.2%	32.6%	13.2%	1.4%	4.9%	0.1%	4.0%	0.7%	0.5%	0.7%	0.1%	1.1%	281.206
2005	35.0%	1.0%	36.7%	13.4%	1.6%	4.9%	0.1%	4.0%	0.8%	0.5%	0.7%	0.1%	1.1%	288.998
2006	30.4%	0.8%	40.7%	13.7%	1.7%	5.0%	0.1%	4.1%	0.9%	0.6%	0.7%	0.1%	1.2%	296.311
2007	25.2%	0.7%	45.4%	13.8%	1.9%	5.3%	0.1%	3.9%	1.0%	0.6%	0.8%	0.1%	1.1%	289.074
2008	21.1%	0.5%	48.6%	14.3%	2.1%	5.4%	0.2%	3.8%	1.1%	0.6%	0.9%	0.3%	1.0%	295.384
2009	15.7%	0.4%	52.2%	15.6%	2.4%	5.6%	0.2%	3.8%	1.2%	0.6%	1.0%	0.3%	0.9%	308.506
2010	10.1%	0.3%	54.9%	17.3%	2.7%	6.1%	0.3%	3.8%	1.3%	0.7%	1.2%	0.4%	0.8%	321.137
2011	7.4%	0.3%	54.6%	19.4%	3.0%	6.2%	0.5%	3.8%	1.4%	0.6%	1.5%	0.5%	0.8%	334.034
2012	5.4%	0.2%	53.7%	21.8%	3.2%	6.5%	0.8%	3.8%	1.2%	0.6%	1.6%	0.5%	0.7%	336.762
2013	3.2%	0.2%	52.1%	24.4%	3.6%	6.9%	1.2%	4.0%	1.0%	0.4%	1.8%	0.5%	0.7%	340.103
2014	1.9%	0.1%	46.9%	28.8%	4.1%	7.2%	2.5%	4.3%	0.7%	0.3%	1.8%	0.4%	0.8%	347.590
2015	1.3%	0.1%	5.9%	6.8%	4.8%	8.0%	64.7%	4.5%	0.5%	0.1%	1.9%	0.4%	0.9%	332.394
2016	1.2%	0.1%	0.1%	0.2%	6.3%	7.5%	69.2%	11.0%	0.1%	0.0%	1.0%	0.0%	3.2%	549.189

Source: The Student Loans Company (SLC)

In Table 2 we find that overseas borrowers are predominantly more likely to be more long-term overdue, with domestically residing graduates presenting evidence of being overdue by under 12 months within the New Zealand ICL system. It is important to reiterate the scale of the levels of debt that is portrayed in these tables, with overdue overseas debt accounting for \$982.6 million

and domestic overdue debt accounting for \$91.2 million. The NZ ICL system has been identified to contain major issues that have been linked to fraud and emigration. It was reported in December 2016 that after a crackdown on student loan borrowers identified 57,000 NZ students living in Australia where two-thirds were in default. In October, a new information-sharing agreement between Australia and New Zealand came into force to identify such issues. Tertiary Education, Skills and Employment Minister Steven Joyce stated that identified borrowers have a combined loan balance of \$1.2 billion. There have also been reports of arrests of returning indebted citizens linked to hard-line powers introduced in March 2014. This has started a worrying trend of criminalising those who are unable to keep up with payments of their ICLs. Further, NZ citizens living outside the state that have defaulted on their ICLs are now being “monitored” for arrest should they wish to return home.

Table 2: Age of NZ overdue repayments by location as of 30 June 2016

Age of overdue repayments	New Zealand-based borrowers		Overseas-based borrowers	
	\$m	%	\$m	%
0-1 month	\$5.3	5.9%	\$3.9	0.4%
2-3 months	\$12.9	14.1%	\$155.8	15.9%
4-6 months	\$3.9	4.3%	\$5.3	0.5%
7-12 months	\$4.1	4.5%	\$7.9	0.8%
1-2 years	\$13.5	14.8%	\$153.3	15.6%
2-5 years	\$20.0	22.0%	\$310.7	31.6%
>5 years	\$31.4	34.5%	\$345.7	35.2%
Total	\$91.2	100.0%	\$982.6	100.0%

Source: New Zealand Student Loan Scheme Annual Report (2016)

But can we just repackage and sell the risk to financial markets? Yes, we can. However, financial markets process the inherent information associated with these portfolios and allocate a “fair value”. For further information on this policy, we should consult those in the United Kingdom ICL system who have spent significant time and effort attempting to sell “loan books”. In fact, the UK ICL system is selling the 2002-2006 loan book in early-2017, which had a face-value of approximately £4 billion. The final value of this sale has yet to be announced, however it is most likely going to include a substantial discount. This attributable discount may present a direct cost to the Exchequer, which in the Irish context would be a further subsidy to that already in place, namely the grant. Students who have had their loans securitised and sold are not affected, however HRM and the ICL system continues to operate the recuperation facilities on behalf of the new book owners. In late 2013, it was widely reported that a company called Erudio Student Loans was named as the successful bidder upon the 1990-1998 loan book which was estimated to be worth £890 million. It sold for £160 million, a discount of approximately 82%. This neutralised the loan book up to 1998, enshrining the risk of repayments from this cohort as an issue for those that purchased the loan book. There are numerous cohorts of society whose incomes will sadly never make it to the point where the ICL repayments will start, therefore generating this discount.

In order for this system to be sustainable and not an excess burden upon the Exchequer, it would need to be an attractive prospect for securitisation. This technique has been used in the UK, with limited success, to generate liquidity. In the UK the successful sale of one particular older loan books valued at £2bn but required a £750m subvention from the Treasury to entice willing investors. In the Irish context we have estimated a baseline credit rating of each ventile based on the calculated information using the 20 year expected loss model. From this analysis, we can observe the estimated market perception of each student loan ventile, observed in this brief sub-

analysis as an individual portfolio. However, it is most likely that utilisation of this tactic would most likely sell the entire period of loans for an “x-year” time-period.

Table 3: Expected loss comparisons to international tranches of estimates

ICL Ventile	% of Students	Est. 20 year expected loss	Theoretical Credit Rating Grade
1	4.5%	0.1%	Investment
2	4.1%	0.3%	Investment
3	3.8%	0.7%	Investment
4	3.0%	0.9%	Investment
5	4.4%	1.3%	Investment
6	4.1%	2.2%	Investment
7	5.8%	3.1%	Investment
8	3.5%	5.6%	Investment
9	5.3%	8.0%	Investment
10	5.4%	14.0%	Junk
11	6.9%	19.4%	Junk
12	7.8%	24.1%	Junk
13	8.4%	31.0%	Junk
14	7.0%	38.4%	Junk
15	4.7%	44.9%	Junk
16	6.3%	55.9%	Junk
17	5.2%	71.5%	Junk
18	4.1%	88.1%	Junk
19	3.4%	98.8%	Junk
20	2.3%	100.0%	Junk

We also observe that 61.5% of the loans would be estimated to be junk status, therefore 38.5% are investment grade. 21.2% of the loans based upon the estimated data are found to be in the lower spectrum of junk status, denoted as either speculative or possessing extreme default risk (ventiles 13 through 20). Based on our analysis, we estimate that the window of effectiveness for an ICL in Ireland are:

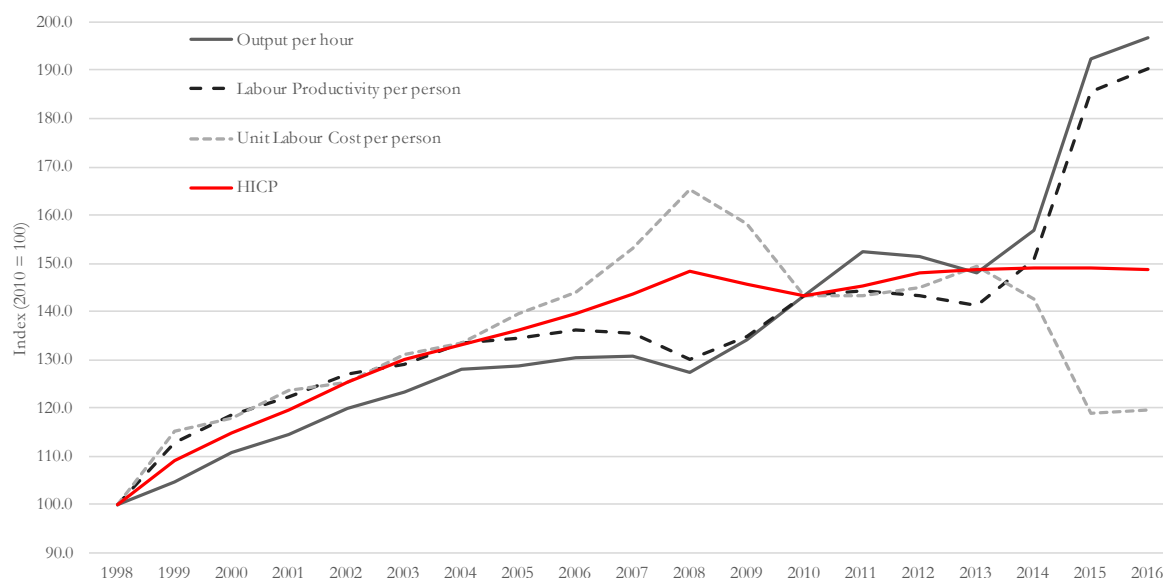
- Default rates below 15%;
- A minimum payment cap of €2,250 per year;
- An interest rate of 7-8% over the baseline sovereign;
- In a perfect conditions environment, the model is running somewhere in the 25-30% success zone with perfect conditions, which will mean GDP growth rates of around 4-5% per annum.
- An EIB loan of €500M per annum will be insufficient - this model will need to be a structured Special Purpose Vehicle (SPV) generating in the region of €7 billion of net losses until year 18.
- 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%.
- While the interest rate is paramount to the system working, it has a damaging impact on inequality since it will place those within the €25-35,000 income band into a debt-spiral.

There are ways of making this ICL system functional. One can begin by focusing on HEIs with low levels of grant recipients and high points and high earning potential courses. By expanding the

ICL to postgraduates it will capture more high earners. The signing of the ICL contract in year 2 of the student's education will eliminate most drop-out students, which constitute a large default risk (which is also a valid option). A much higher interest rate would be required and recourse to the criminalisation of non-compliance with the regulations of the ICL, most importantly for those that emigrate will be necessary. In short, the main purpose of the ICL will be cost recovery in order to prevent it from becoming a large liability for the Exchequer. Issues of equity and social policy will by necessity become secondary.

There are a few basic background issues we would like to highlight about the Irish higher education system and the labour market in general. Seamus McGuinness of the ESRI has recently published work on education-labour market mismatch and has highlighted Ireland's very high figure, 33%, when compared to the rest of Europe. This has been further reinforced by a report on the UK's education-labour market mismatch by the UK's Chartered Institute of Personnel and Development, an association of 140,000 HR professionals. This echoed much of Baroness Wolf's *Remaking tertiary education: can we create a system that is fair and fit for purpose?* (2016) report. The earning potential of graduates, when highlighted as part of the general change in the labour share of national income is less than optimistic, with the labour share of income remaining flat since the 1970s and weak productivity growth. This has been highlighted by Prof. Robert Gordon and by the IMF in their latest World Economic Outlook. The Irish case is highlighted in Figure 8. In addition, we know that services economies suffer from low productivity and Baulmol's cost disease which translates into flat or very modest wage growth.

Figure 8: The disconnect between output per hour, productivity and unit labour costs



Source: OECD, Eurostat, Authors' Calculations.

Ultimately there is another dimension. Traditional undergraduate higher education is a large sunk cost investment, i.e. an irrecoverable cost in time, effort and money. There are deep information asymmetries on the part of the student with respect to the educational product and the labour market. In the US, there is strong evidence that even when students overcome these asymmetries (60% don't) they overestimate their salaries by 13%. This is part of the rationale for an ICL. It is also part of the reason why in a changing economy and labour market, where large and well-educated precariats exist and as highlighted by MIT's Daron Acemoglu, there is empirical evidence that robotics are eating away at jobs and wages.

Based on our research, the evidence shows that ICLs would be a risky course of action for Ireland. It has the potential to create large contingent liabilities for the Exchequer. It would modify the significant social planning objectives that have been worked out over time between government and the higher education institutions. It would not rectify the resource per student issue without abandoning fiscal prudence and cannot solve the €5.5bn capital expenditure deficit. The Government would need to propose substantial legislative changes to solve issues of financial accounting in HEIs, the creation of an arm's length loan company and loan recovery. These conclusions are based upon evidence but indicate that further investigation is warranted based upon evidence from Ireland as well as multiple jurisdictions that have and do not have ICLs. Many of the decisions lie in the hands of political system since they are related to role of the higher education system in social planning. Those decisions set the parameters. At the end of the day higher education has to be paid for and there are only three options: the student, firms or the Exchequer. In all circumstances it is about revenue and not debt, as debts ultimately have to be repaid by revenues generated from income, profits or taxes.