A Study of Progression in Irish Higher Education

HEA

Higher Education Authority
An tÚdarás um Ard-Oideachas

A Study of Progression in Irish Higher Education

A report by the Higher Education Authority

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Higher education institution staff involved in returning
student record data to the Higher Education Authority

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Foreword

This report is published days after the first 'World Statistics Day' declared by the United Nations to emphasise the importance of reliable impartial public information and to promote public trust in official statistics. Across the public service in recent years, it is acknowledged that administrative data is not always sufficient or adequate to inform the implementation of policy or to evaluate the effectiveness of interventions. This has inhibited our ability to develop evidence-based approaches to social and economic development.

The improvement of data gathering systems is an explicit objective of the HEA's current Strategic Plan and of the National Plan for Equity of Access to Higher Education 2008-2013. Significant progress has already been made and this publication marks the end of the beginning for the student record system developed over recent years. Great credit is due to those in the universities, institutes and the HEA who have contributed to the successful development of this valuable statistical resource. For a knowledge-based society, we need a knowledge base. The student record system now operating within Irish higher education compares favourably with the best systems internationally.

To build on Ireland's considerable achievements in the expansion of higher education opportunities, this report provides an updated snapshot of the progression of full-time students in the Irish higher education system between 2008 and 2009. This fills a gap in our evidence base that extends back to the sectoral studies of retention undertaken in the 1990s. The report will serve as a reference document to inform institutional strategy and national policy. It will also underpin and enrich ongoing strategic dialogue about the future evolution of the Irish higher education system. Full cohort studies of completion will become possible as the student record system matures. The HEA will publish updates of the analysis contained in this report on a routine basis from now onwards.

This report provides a solid basis for the exchange of good practice. It is intended to underpin a constructive and collective engagement with the challenges faced by the system in ensuring progression and successful completion of undergraduate studies. I hope it will refine our understanding of the impact of existing education strategies and ultimately enhance the quality of the student experience in Irish higher education.

Tom Boland
Chief Executive
Higher Education Authority

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Executive Summary

A Study of Progression in Irish Higher Education is a report by the Higher Education Authority (HEA) which presents empirical evidence relating to the issue of progression through higher education in Ireland. The report is intended as a reference document that will serve to inform policy and the development of interventions to improve rates of completion and graduation. The analysis draws from the Student Record System (SRS) developed in the HEA over recent years and complements this with Leaving Certificate examination data from the Central Applications Office (CAO) database. The current analysis focuses primarily on the developments in the academic years 2007/08 and 2008/09 between two census dates—1st March 2008 and 1st March 2009—and specifically on the issue of non-presence rates over that period. Full evaluation of completion rates will become possible as the SRS matures.

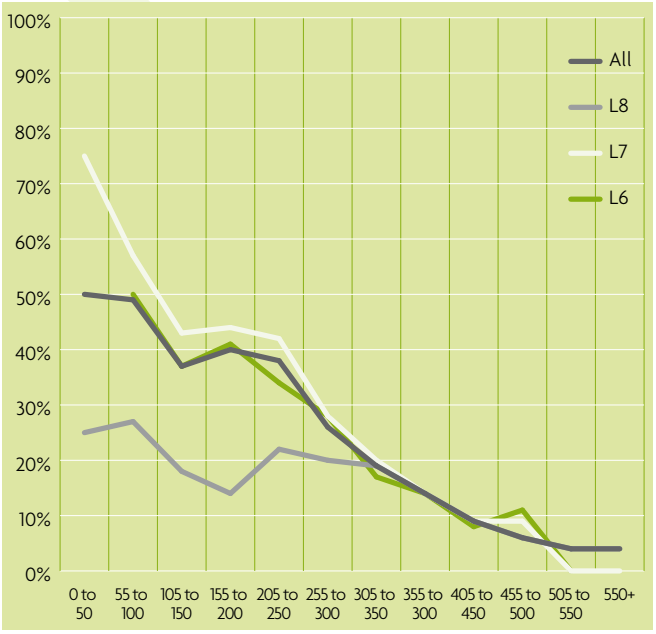
The issue of progression and completion is one of growing importance in the higher education debate both nationally and internationally. It has resonance with other key issues in higher education, ranging from the promotion of greater equality to the pursuit of greater efficiency and the development of skills required for the 'knowledge economy'. The report is aimed at everybody with an interest in these issues but particularly academics, higher education policy-makers, access practitioners, and senior management within higher education institutions. It is intended to underpin a constructive and collective engagement with the challenges presented by progression and successful completion of undergraduate studies.

The report examines the issue of progression across a range of fields of study, NFQ levels and institutions. Significant attention is paid to the extent to which individual students' characteristics, such as gender, age, socio-economic background and prior educational attainment, have an impact on progression. While the main focus of this report is on new entrants, it also examines progression in the later years of undergraduate programmes. The key findings of the report are summarised below.

Chapter 2: Non-Progression of 2007/08 Full-Time Undergraduate New Entrants

- The proportion of new entrants in 2007/08 who are not present one year later was 15% on average across all sectors and NFQ levels.
- The rates of non-presence vary strongly according to the NFQ level, ranging from 25%/26% at levels 6/7 to between 4% and 16% at level 8. They also differ according to the sector, ranging from 22% in an institute of technology to 9% in the university sector and 4% in teacher training colleges.
- There is a clear and strong link between prior educational attainment and successful progression. Educational attainment is a very strong factor influencing whether or not a new entrant progresses beyond the first year of their course of study.
- Regardless of the sector or level that a student enters, students with lower Leaving Certificate examination points are less likely to progress to the following academic year.

Figure 1: Non-Presence Rates by Prior Educational Attainment and NFQ Level.



Chapter 3: Leaving Certificate Attainment in Mathematics and English

- Prior educational attainment is the strongest predictor of successful progression through higher education.
- This is reflected most clearly in Mathematics which is the strongest predictor of successful progression among higher education students. New entrants with higher points in Mathematics are most likely to progress. Attainment in English in the Leaving Certificate examination is also a strong indicator of progression, albeit not as direct as attainment in Mathematics.

Chapter 4: Field of Study

- Rates of non-presence vary greatly across the different fields of study. Profession-orientated courses tend to display the highest rates of progression while the lowest progression rates are found among Engineering, Construction and Computer Science courses.
- At 27%, Computer Science has the highest rate of non-presence across all sectors and levels; Medicine has the lowest non-presence rate of 2%.

Chapter 5: Student Characteristics

- At aggregate level, females display higher rates of progression through higher education than males.
- Mature students display higher rates of progression at levels 6 and 7 in the institute of technology sector and lower rates at level 8 for all sectors.
- The socio-economic groups with the highest entry rates tend to display the highest rates of progression.

Chapter 6: Non-Progression among Higher Education New Entrants: A Multivariate Analysis. *Selina McCoy & Delma Byrne, ESRI*

- At an overall level males are less likely to successfully progress in their course. However this difference largely reflects lower levels of Leaving Certificate performance among males and their greater entry into higher education sectors and courses with higher dropout levels.
- Grant support plays an important role in student retention, particularly for students attending the institutes of technology.

- Students in Computer Science experience a much greater risk of dropout, while those enrolled in education and healthcare courses have significantly lower non-progression rates, even taking account of the gender, 'ability' and social class intake of these courses.
- In comparing retention levels across institutions, the analysis points to the crucial importance of taking account of the composition of the institutions, to allow a like-for-like comparison. Wide overall differences between the institutions decline dramatically once the results are adjusted for the characteristics of the students enrolled.
- Once these adjustments are made, the main differences emerging are between the three main sectors, rather than within them. Retention rates are significantly higher in the colleges of education (and the National College of Art and Design), while the institutes of technology display lower retention levels.

Chapter 7:
An Analysis of Student Progression Beyond First Year

- For all levels and sectors, students are significantly more likely to be present the following year the more advanced they are in their course of study. Non-presence rates for new entrants are 15% compared to 7% for second-year students, 4% for third-year students, and 5% for fourth-year students.
- Those students who repeat their first year of study are far more likely not to progress to the next year of their course than students repeating other years of study.

Chapter 1:

Introduction

Section 1.1: Introduction

Ireland has been remarkably successful in pursuing its ambitious goals 'to widen participation and increase student and graduate numbers' in higher education in order to position itself within the front rank of OECD countries.[1] Participation in higher education in Ireland has risen steadily over recent decades and this is clearly reflected in the % age of the Irish population that has attained higher education qualifications. At present, one-third of the Irish adult population (aged 25–64 years) has a higher education qualification—12% at NFQ levels 6 or 7 and 22% at NFQ level 8 or above.[2] The expansion of opportunities for higher education in Ireland is reflected best in the attainment levels of young adults (aged 25–34 years), 45% of whom have now acquired a higher education qualification.[3] The proportion of 18 year olds entering higher education is approaching two thirds. From a position of relative weakness in terms of the educational attainment of the population a few decades ago, Ireland now ranks highly internationally in terms of attainment in higher education.

Internationally comparable measures of student progression and completion in higher education are difficult to develop because of the variety of systems of entry and access to higher education that exist across countries. These difficulties are compounded by methodological and definitional issues. As Van Stolk and his colleagues note, 'it is challenging to make comparisons between retention rates of countries given the differences in how retention and completion rates are defined and calculated'.[4] The difficulties attendant upon making such comparisons are exacerbated by the range of terms used synonymously with 'retention'. Some terms implicitly attribute responsibility to the student (as exemplified by 'persistence', 'withdrawal', and 'drop-out') but much of the focus in more recent literature on retention has broadened to the learning environment, with responsibility for attrition shifting to the higher education institution or more broadly to the government.[5] Notwithstanding the difficulties in interpreting international comparisons, OECD estimates of higher education completion published in 2007 suggested that Ireland was among the best-performing countries for university completion, and that, at 'sub-degree level' within the institutes of technology, completion rates were just above international averages.[6]

The issue of successful progression and completion of higher education has become increasingly important against the background of expanding educational opportunities and explicit commitments to promote greater equality in the extent to which different groups in society derive benefit from higher education. Ireland has achieved considerable progress in increasing participation in higher education among students from diverse socio-economic backgrounds. The range of initiatives set up to support greater access have highlighted awareness of the importance of successful completion, particularly among groups traditionally under-represented in higher education. Improving student retention represents an *'on-going challenge because as the*

1 Government of Ireland, *National Development Plan 2007–2013: Transforming Ireland: A Better Quality of Life for All* (Dublin: The Stationery Office, 2006), 202.

2 NFQ refers to the National Framework of Qualifications. Level 8 of the NFQ refers to Bachelors' Honours degrees and Higher Diplomas. See **http://www.nfq.ie/nfq/en/FanDiagram/nqai_nfq_08.html**

3 Organisation for Economic Cooperation and Development, *Education at a Glance 2010: OECD Indicators* (Paris: OECD, 2010), 36.

4 Christian van Stolk, Jan Tiessen, Jack Clift, and Ruth Levitt, *Student Retention in Higher Education Courses: International Comparison* (Rand, 2007), xii.

5 Robert Jones, 'Widening Participation/ Student Retention and Success', EvidenceNet Synthesis (Higher Education Academy, U.K., April 2008), 1.

6 OECD, *Education at a Glance 2007: OECD Indicators* (Paris: OECD, 2007), 72. The estimated 'survival rates' reported by the OECD for Ireland in 2004 were 83% at degree level (NFQ level 8) and 69% at sub-degree level (NFQ levels 6&7) compared to estimated OECD averages of 70% and 67% respectively. The OECD define the survival rate as the proportion of those who enter a programme and go on to graduate from it. The estimates flatter Irish universities somewhat because the reference date for the recording of first year students was March 1st. The reference dates for the institutes of technology was October 31st. Recent analysis undertaken within the HEA quantified the level of drop-out between October of first year and March of first year at 5% in the university sector. The rate for institutes of technology was also 4%. Oliver Mooney and Vivienne Patterson, An Initial Study of Progression Rates in Irish Higher Education Institutions (Dublin, 2009).

goal of increased student diversity is being embraced, the needs of the student body are shifting'.[7]

The current difficult economic context, and the growing needs for upskilling and reskilling opportunities, have created an unprecedented demand for higher education in Ireland at a time of extreme fiscal tightening. This has amplified an already strong emphasis on efficiency in Irish higher education. Minimising students' non-completion of courses is an important part of ensuring that the resources available to the higher education sector are utilised with maximum efficiency. That the issue of completion has also featured in debates about accountability is reflected in the use of completion data in the accountability mechanisms of some higher education systems (notably in the US), as well as in the increasing number of surveys and audits undertaken internationally in recent years.[8]

In seeking to address issues of progression and student success in Irish higher education, there is an ongoing need for vigilance in relation to the quality of learning delivered and the standards of education achieved. Making qualifications easier to obtain would contribute to improvements in completion but would do nothing to enhance the real levels of competence and the learning achievements of Irish graduates. The quality of our graduates is paramount and it is in the national interest to preserve and promote the highest standards. Ireland's National Framework of Qualifications provides an architecture within which the education community in Ireland can explore and articulate the learning outcomes associated with each of the levels of achievement that it sets out. In our pursuit of excellence, the objective is to achieve genuine improvements in the capacity of Irish citizens to acquire the highest levels of skill, competence and understanding in the disciplines of their choice. It cannot ever be about lowering the standards to achieve nominal (and artificial) expansions in the numbers of people with higher education qualifications.

7 L. Thomas, J. Quinn, J. Slack, and L. Casey, *Student Services: Effective Approaches to Retaining Students in Higher Education* (Stoke-on-Trent: Institute for Access Studies, Staffordshire University, 2002), 77.

8 For a recent review of the international literature on student retention in higher education see Jones, 'Widening Participation'.

At a more personal level, successful completion is important to the educational and intellectual development of individual students as well as to their self-esteem. As the Director of the U.K.'s Higher Education Policy Institute, Bahram Bekhradnia, recently remarked:

> *In almost all respects dropping out does you no good at all. [The Wider Benefits of Learning Group] looked at things like mental health, physical health, parenting, social attitudes […], but also attitudes to gender and race equality. In pretty well all respects people who drop out are no better off than people who didn't go to university at all, and often actually worse off. It's a dangerous fiction that dropping out doesn't matter. It does, and we should be doing all we can to help young people succeed.*[9]

The national context

Given the increasing importance of retention and progression in higher education policy and practice, the publication of this report is timely because it fills a gap in our evidence-base on these important issues. It is the first report on the subject that includes information from almost all publicly-funded higher education institutions in Ireland, and which therefore has national coverage. A number of sector-wide studies of retention already exist—notably the cohort studies conducted by the Educational Research Centre and published at the turn of the century.[10]

Morgan and his colleagues' university-sector *Study of Non-Completion* (2001) examined the completion rates of full-time undergraduates who first entered higher education in the 1992–93 academic year. Based on retrospective data obtained directly from the universities, the study examined

9 Bahram Bekhradnia, 'Higher Education Policy Making: Hope, Prejudice and Wishful Thinking', lecture at City University, London, 26th January 2010.

10 See Mark Morgan, Rita Flanagan, and Thomas Kellaghan, *A Study of Non-Completion in Institute of Technology Courses: Part One: Quantitative Aspects* (Dublin: Educational Research Centre, October 2000); Mark Morgan, Eemer Eivers, and Rita Flanagan, *Non-Completion in Institutes of Technology: An Investigation of Preparation, Attitudes, and Behaviours Among First-Year Students* (Dublin: Educational Research Centre, May 2002).

completion rates by discipline, gender, and in relation to course entry requirements, as well as the destination of students who did not progress to their second year of study.[11] The headline results of that study estimated that 68% of university students graduated on time, a further 15% graduated late, and the remaining 17% did not complete their programmes of study. Direct comparisons made between the results of the study and those of an earlier, HEA-commissioned study of students entering university in 1985, suggested that completion rates had improved over time across the university sector.[12]

The Educational Research Centre conducted an equivalent study of completion in the institutes of technology sector focusing retrospectively on full-time entrants to *ab initio* programmes of study in 1995.[13] This study found that 52% of students graduated on time, 5% graduated late and almost 43% did not complete their courses; and that there were *"very substantial"* gender differences in completion rate, as well as large differences between fields of study. The authors remark:

> *[The] results indicate that non-completion of courses by students is a matter of serious concern for Institutes of Technology. They also indicate that it is a complex phenomenon, in which Institute, field of study, entry requirements, level of award, and gender all are implicated.*[14]

In 2002 a follow-up study of the institute of technology sector was undertaken which explored the possible causes of non-completion by examining the experience of first-year students across six courses of study.[15] The study found that few students had a good understanding of their course at the point of application and that in a third of all cases the workload was greater than had been anticipated. The main reason cited for non-completion related to the difficulty of the course, and such difficulties frequently arose in relation to one particular subject (often mathematics). These challenges, relating to underlying competence, were more severe in some fields of study than in others, with much lower levels of difficulty and detachment found in business studies than in electronics and computing. The gravity of the challenges facing the sector that emerged from the study led the Council of Directors (now the Institutes of Technology, Ireland (IOTI)) to commission a further study on the issue which was published in 2006.[16] This report estimated completion rates between 73 and 75% for the years between 2002 and 2004.[17]

While the earlier sectoral studies of retention were based on retrospective surveys of institutions, the current study is more comprehensive and more definitive because it is a census-based study of all full-time undergraduates (NFQ levels 6–8) in HEA-funded higher education institutions.[18] This information is derived primarily from the student record system (SRS), which has been developed by the HEA and rolled out to institutions in recent years. The inclusion of the institutes of technology in the SRS is a relatively recent development that occurred subsequent to the designation of the institutes of technology

11 Mark Morgan, Rita Flanagan, and Thomas Kellaghan, A Study of Non-Completion in Undergraduate University Courses (Dublin: Higher Education Authority, 2001), 8–9. The questionnaire circulated to the universities as the mechanism by which this data was obtained is reproduced in Appendix A of the report. *Ibid.*, 74.

12 While completion rates improved at aggregate level, the trends over time varied across institutions. See Educational Research Centre, *An Investigation of Factors Associated with Non-Completion of University Courses* (Dublin: Higher Education Authority, 1997).

13 See note 11 above. *Ab initio* programmes of study are those that are set over a certain number of years from their point of commencement, such as a two-year certificate, a three-year diploma, and a four-year degree.

14 Morgan *et al*, *A Study of Non-Completion in Institute of Technology Courses: Part One* , v.

15 See Morgan *et al*, *Non-Completion in Institutes of Technology: An Investigation*.

16 Eamonn Kinsella, Julie Roe, and Torlach O'Connor, *Completion Rates for Students Taking Full-Time Programmes of Study in Institutes of Technology: A Study Carried Out for the Council of Directors of Institutes of Technology and the Dublin Institute of Technology* (Dublin: The Circa Group, 2006).

17 *Ibid.*, ii. The questionnaire, sent to the institutes in 2004, is reproduced in the Appendix B of the report. *Ibid.*, 57.

18 A full list of the higher education institutions funded by the HEA, comprising the universities, institutes of technology, and other designated institutions, is available on the HEA website (**www.hea.ie**). Data pertaining to undergraduates studying at NFQ levels 6 and 7 in the universities and other designated institutions were not utilised in this report because of the small numbers of students in these categories.

under the aegis of the HEA in the Institutes of Technology Act, 2006. While the current study is based on a very robust and comprehensive database that allows for a wide ranging exploration of the issue of progression, the analysis focuses on the level of progression in a one-year period (between the 1st March 2008 and the 1st March 2009) rather than on full completion/graduation rates for a particular cohort of students. It is therefore only the beginning of a significant improvement in the quality and policy-relevance of our student statistics, and the HEA will undertake full-cohort completion studies as the database matures in the coming years.

Risks of outcomes focussed analysis

The earlier studies of retention in Irish higher education demonstrated substantial differences in retention rates between the university and institute of technology sectors. However there is a need for caution in drawing from this any conclusions in respect of the quality of teaching and learning in particular institutions and sectors. Such conclusions would be based solely on 'raw outputs' without regard for the fact that the context and the student body differ so considerably across institutions.

There are clear distinctions in the profiles of students enrolled in the university and institute of technology sectors in Irish higher education. In terms of gender, in the academic year 2007/08, females comprised 60% of full-time undergraduate new entrants to the university sector by comparison with 45% female full-time undergraduate new entrants to the institute of technology sector.[19] Whilst the majority of such students entering both sectors in 2007 were aged 18 or 19 (70% in the university sector and 63% in the institute of technology sector), a slightly greater proportion of mature students entered the institutes of technology (13.3%) than the universities (10.4%).[20]

The strongest differences between universities and institutes of technology lie in the prior educational attainment levels of entrants (as denoted by performance in the Leaving Certificate examination). In 2007 the most common range of points attained in the Leaving Certificate examination by new full-time undergraduate entrants to NFQ level 8 courses of four years' duration was 450–500 in the university sector and 300–350 in the institute of technology sector;[21] the most common points range for level 6 and 7 courses in the institutes of technology was 250–300. Given the inequalities that persist in the extent to which different socio-economic groups derive benefit from second-level education in terms of school completion and in terms of the attainment of Leaving Certificate points, the lower entry requirements for most institute of technology programmes results in contrasting socio-economic profiles among the students between the universities and institutes of technology. While students from the traditionally under-represented groups (the non-manual, skilled-manual, semi-skilled manual, and unskilled backgrounds) are more numerous in the institutes of technology, the student composition in the university sector tends to be skewed toward the middle and upper ends of the socio-economic spectrum.[22] This general pattern of intake is also reflected in the higher proportions of new entrants in receipt of maintenance grants in the institutes of technology (34%) compared with 25% in the universities in 2007.

In addition to differences in the prior educational attainment of students and in the composition of the student body across the universities and institutes of technology, the sectors also differ substantially in terms of the balance of programmes and disciplines which they teach, and in the NFQ levels of the programmes. More new entrants to the university sector commenced courses

19 HEA, *Higher Education Key Facts and Figures 07/08* (Dublin: HEA, 2009), 16.

20 *Ibid.*, 60, 64.

21 It should be noted that the average number of points obtained in the Leaving Certificate examination by new entrants to NFQ level 8 courses in Dublin City University and the National University of Ireland, Maynooth in 2007/08 was closer to the most common points range of the institute of technology sector than to that of the university sector. See Chart A, Chapter 2.

22 HEA, *Higher Education Key Facts and Figures 07/08,* 69.

in the Humanities and Social Sciences (60.7%), and fewer commenced courses in the Sciences (36.6%) in 2007 than in the institute of technology sector, in which 39.3% enrolled in the Humanities and Social Sciences and 51% in the Sciences.[23]

The remainder of this chapter describes the data sources, analytical methodology, and terminology utilised within this report.

Section 1.2: Data Sources and Methodology

The student data used in this analysis was extracted from the HEA's in-house database of information pertaining to students in all HEA-funded institutions – the Student Record System (SRS), which contains an individual record for each student in each academic year. The SRS was established in the university sector in 2004, and in the institutes of technology, the National College of Ireland and Tipperary Institute in 2007. The data on which this analysis is based was extracted from the SRS by tracking student IDs within institutions and across academic years.

The census dates used for this analysis – 1st March 2008 and 1st March 2009 – span the academic years 2007/08 and 2008/09. Students who repeated a year or who changed course or programme type within their original institution were identifiable and are grouped with those deemed to be still present. Although the SRS does not permit the tracking of students across institutions, the proportion of undergraduate students who transferred to a different institution during these years is estimated to be less than 2% of all undergraduate new entrants. These are included among those deemed not to have progressed.

For the purposes of this report, only student data pertaining to full-time undergraduates (NFQ levels 6–8) was analysed: student records pertaining to undergraduates studying at NFQ levels 6 and 7 in the universities and other colleges were not analysed since such courses are not HEA-funded.

The CAO supplied the HEA with Leaving Certificate examination record data on individuals applying for a higher education place through the CAO application process in 2007 with one or more Leaving Certificates (or equivalent exit examination results). This data-set includes individuals who applied to the CAO for the first time in 2007 supplying Leaving Certificate examination results from the period 2000–2007. Students who applied to the CAO in previous years were excluded from the data-set. Data obtained from the CAO was linked to the SRS data by matching CAO ID numbers.[24]

A CAO applicant's most recent Leaving Certificate examination result comprising six or more subjects was selected as the most likely to reflect the applicant's strongest academic achievement. Leaving Certificate examination results comprising fewer than six subjects were assumed to be solely for the purposes of meeting specific course entry requirements rather than reflecting the sum of Leaving Certificate points accumulated by candidates over a number of examination sittings.

Applicants were matched with 2007 examination records comprising results in six or more subjects. Successful matches were removed and the remainder matched with 2006 examination records comprising results in six or more subjects. This method was repeated until all the examination years (back to 2000) were matched.

The socio-economic data in the SRS was collected by surveying the student body during the registration process in 2007. The non-mandatory nature of this element of the data collection resulted in wide variations in response rates across institutions.

23 *Ibid.*, 22, 24. These%ages were obtained by categorising the ISCED categories 'education', 'humanities and arts', and 'social sciences, business, and law' as the humanities and social sciences; and 'science', 'engineering, manufacturing, and construction', 'agriculture', and 'health and welfare' as science. (The ISCED categories 'general programmes', 'services' and 'combined' were included in neither the humanities and social sciences nor the sciences, and account for the remainder of the enrolments of new entrants in 2007–2008.)

24 SRS data for students in Dublin Institute of Technology, the University of Limerick, and Mary Immaculate College, Limerick could not be linked to the examination results data provided by the CAO for this study because these institutions did not submit CAO IDs in their data return to the SRS.

Categorisation of Students

New Entrants

The majority of the analysis was carried out on full-time undergraduate new entrants to higher education. New entrants are defined as students entering higher education for the first time.

Re-enrolling Students

Students classified as re-enrolling are those students progressing to the next year of study on the same course without any interruptions. This category does not include repeat students or transfer students.

Repeat Students

A repeat student is classified as being present in the institution on their original course the following year but enrolled in the same year of study as the previous year.

Internal Transfer Student

Students transferring from their original mode or course of study to another programme within an institution at the start of the new academic year are described as internal transfer students.

External Transfer Students

Students transferring from a course of study in their institution to another institution are described as external transfer students. These students cannot be identified or tracked in the absence of full coverage of a national-level identifier covering all students such as a PPS number.[25]

Not Present/Non-Presence

In instances in which a student's ID does not appear in their institution's data return for the following academic year, the student is described as being 'not present'. While re-enrolling, repeat and internal transfer students are identified separately in the analysis, it is not possible to distinguish external transfer students from those described as 'not present'.

In summary this study examines the progression of undergraduate new entrants in the academic year 2007/08 to the second year of their original course at a given NFQ level. The data for this cohort is examined by sector, NFQ level, prior educational attainment, grant eligibility status, field of study, gender, age, socio-economic background and nationality. The data also allows for the analysis of the progression of re-enrolling, repeat and internal transfer students. The progression of students in their second, third and subsequent years of study was also examined.

The reader should be aware of the limitations that the data set poses for analysis. Since the census dates used are 1st March 2008 and 1st March 2009, this report does not take into account those students that left their institution prior to 1st March 2008. However previous analysis of the data set undertaken by the HEA showed that just 4% of new entrants dropped out of their original course of study prior to 1st March of the academic year in which their course commenced.[26] In addition, as indicated above, the absence of full coverage of a national-level identifier covering all students, the absence of CAO student IDs in some institutional returns to the SRS, and the incompleteness of the socio-economic data returned to the SRS are all factors that have hindered the presentation of a more comprehensive analysis.

25 The HEA has made significant progress in the collection of PPS numbers from registered students in higher education. Coverage of PPSN is now in the region of between 70% and 85% in the SRS. Complete coverage will in the future allow for identification of those students that transfer between institutions.

26 Oliver Mooney and Vivienne Patterson, *An Initial Study of Progression Rates in Irish Higher Education Institutions* (Dublin: Higher Education Authority, 2009).

Chapter 2:

Non-Progression of 2007/08 Full-Time Undergraduate New Entrants

Introduction

This chapter provides estimates of the level of non-progression among full-time 2007/08 new entrants to HEA-funded institutions by sector, NFQ level, prior educational attainment and grant eligibility status. New entrants are classified as 'not present' if they do not appear in the statistical returns of that institution in the following academic year (2008/09).

Other entrants and students transferring between later years are examined in Chapter 7.

Section 2.1: Non-Progression of New Entrants by Sector and NFQ Level

Table 2.1 illustrates the non-presence rates of new entrants in their second year of study by sector, NFQ level and course duration. The column entitled 'Most Common Points Attained' shows the most common prior educational attainment in the Leaving Certificate examination by students entering higher education by NFQ level, while the column entitled '% Not Present' shows the percentage of new entrants absent from their second year of study by NFQ level within each sector.

The most common points range varies by sector & level: there is a gap of two hundred points between level 6 entrants to the institutes of technology and level 8 entrants to the Other Colleges. Even within the same sector, there is a considerable gap between level 6 and level 8 in terms of points required for entry. The lower level courses tend to enter students on a lower points range. The most common points attained at level 6 and 7 is 250–300 compared with 300–350 at level 8 in an institute of technology.

Differences in most common points attained also vary across sectors at the same NFQ level. The most common points scored by an institute of technology student studying a level 8 course is 300–350 points compared to 400–450 in a university and 450–500 in an Other College.

Table 2.1: Non-Presence Rates by Sector and NFQ Level

Sector	Level	Most Common[27] Points Attained	% Not Present
Institutes of Technology	Level 6	250–300	25%
	Level 7	250–300	26%
	Level 8	300–350	16%
	L8 3 yr duration	*300–350*	*16%*
	L8 4 yr duration	*300–350*	*16%*
	L8 4+ yr duration	*450–500*	*10%*
	All New Entrants	300–350	22%
Universities	Level 8	400–450	9%
	L8 3 yr duration	*350–400*	*10%*
	L8 4 yr duration	*450–500*	*9%*
	L8 4+ yr duration	*550–600*	*3%*
Other Colleges	Level 8	450–500	4%
	L8 3 yr duration	*450–500*	*2%*
	L8 4 yr duration	*400–450*	*7%*
All Institutions	**Level 8**	**350–400**	**11%**
All Institutions	***All New Entrants***	***350–400***	***15%***

While there does not appear to be a significant difference in rates of progression between three-year and four-year courses at level 8, courses of greater than four years' duration show significantly higher progression rates beyond the first year. This is probably due both to the high level of prior educational attainment required to enter, and the unambiguous career qualification awarded on completion in disciplines such as Architecture, Medicine, and Dentistry.[28]

Even at this initial aggregate level of analysis there is evidence of a clear link between prior educational attainment on entry and progression rates. Lower educational attainment on entry is associated with a greater incidence of non-progression. Within the institute of technology sector, non-presence rates at level 6 and level 7 are 25% and 26% respectively, while non-presence rates at level 8 are 16%.

27 'Most Common Points Attained' is the points bracket with the most students applying in that category.

28 See also Chapter Four.

Table 2.2: Non-Presence Rates by Prior Educational Attainment[29]

Points Range	All New Entrants % Not Present	Institutes of Technology				Uni L8 % Not Present	Other Colleges L8 % Not Present	All L8 % Not Present
		IoT Level 6 % Not Present	IoT Level 7 % Not Present	IoT L8 % Not Present	All IoT % Not Present			
0 to 50	*50%*	*n/a*	*75%*	*33%*	*57%*	*0%*	*n/a*	*25%*
55 to 100	*49%*	*50%*	*57%*	*38%*	*52%*	*0%*	*n/a*	*27%*
105 to 150	*37%*	*37%*	*43%*	*22%*	*39%*	*13%*	*0%*	*18%*
155 to 200	*40%*	*41%*	*44%*	*19%*	*42%*	*10%*	*0%*	*14%*
205 to 250	*38%*	*34%*	*42%*	*25%*	*39%*	*19%*	*0%*	*22%*
255 to 300	*26%*	*28%*	*28%*	*21%*	*27%*	*19%*	*8%*	*20%*
305 to 350	*19%*	*17%*	*20%*	*20%*	*20%*	*19%*	*0%*	*19%*
355 to 400	*14%*	*14%*	*14%*	*14%*	*14%*	*14%*	*2%*	*14%*
405 to 450	*9%*	*8%*	*9%*	*12%*	*11%*	*8%*	*5%*	*9%*
455 to 500	*6%*	*11%*	*9%*	*8%*	*8%*	*6%*	*2%*	*6%*
505 to 550	*4%*	*0%*	*0%*	*31%*	*24%*	*4%*	*1%*	*4%*
550+	*4%*	*n/a*	*0%*	*57%*	*44%*	*3%*	*0%*	*4%*
Other[29]	*14%*	*21%*	*23%*	*15%*	*18%*	*10%*	*5%*	*11%*
Total	***15%***	***25%***	***26%***	***16%***	***22%***	***9%***	***4%***	***11%***

Differences between sectors in the typical points required to enter courses at level 8 may explain the accompanying differences in rates of progression. At level 8, for example, the non-presence rates vary from 16% in the institute of technology sector to 9% in the university sector to 4% in the Other Colleges.

Whether a level 8 course is of three or four years' duration seems to have no effect on progression. However there is a clear difference in the progression rates on courses of greater than four years' duration: non-presence rates diminish from 16% for four-year courses to 10% for courses of greater than four years' duration in the institute of technology sector (although numbers are very small); and from 9% to 3% for courses of greater than four years' duration in the university sector.[31]

Table 2.2 examines undergraduate new entrant non-progression from 2007/08 to 2008/09 by sector, NFQ level and prior educational attainment. It elaborates on the previous table by showing the non-presence rates by points brackets across all sectors. In this table the column entitled 'Points Range' refers to the actual points attained by new entrants by contrast with the 'Most Common Points Attained' column included in Table 2.1 above.

The analysis shows that regardless of the sector or level at which a student enters higher education, those with the least Leaving Certificate examination points are the most likely to not progress to the following academic year. At all levels and across all sectors the higher a student's prior educational attainment the less likely they are to not progress to the following academic year.[32]

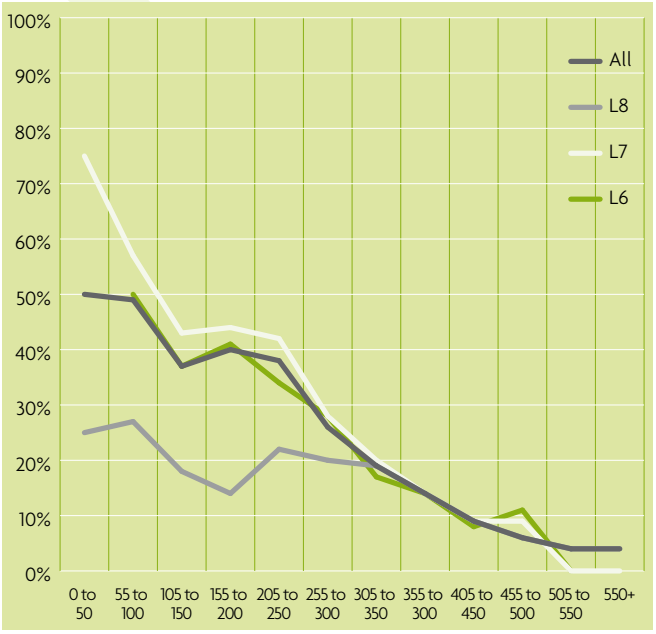
29 The term 'Other' refers to new entrants entering in 2007/08 on a basis other than the Leaving Certificate.

30 Table 2.2 includes 0–50 and 55–100 point ranges. In most cases these students present additional evidence via recognition of prior learning and experience gained in the workplace. Such non-traditional students may not be in a position to progress annually year-on-year regardless of academic ability.

31 There are no level 8 courses of greater than four years' duration in the Other Colleges.

32 New entrants to level 8 courses in the institute of technology sector are an exception to this but the numbers involved are very low. In addition, students in this points range are much more likely to attempt to repeat the Leaving Certificate examination than students in the lower points range. (See Table 24 in Vivienne Patterson and Oliver Mooney, *Discipline Choices and Trends for High Point CAO Acceptors 2006* (Dublin: Higher Education Authority, 2007).

Figure 1: Non-Presence Rates by Prior Educational Attainment and NFQ Level



Appendix A presents a detailed assessment of non-progression of new entrants to each publicly aided institution by prior educational attainment. The charts allow for a visual comparison of cohort size by points bracket, institution and sector. The length of the red bar in each Leaving Certificate examination points bracket shows non-presence, while the green bar shows presence in the following academic year. Also of interest are the relative cohort sizes per points bracket attending each institution. For example Trinity College Dublin receives the highest proportion of students who attained 550 or more points in the Leaving Certificate examination. The relative size of each institution's intake is also readily apparent and is influenced by the disciplines that they offer: not all universities offer courses that require a high points score, such as Medicine or Dentistry, although in the larger universities a considerable number of new entrants enter courses with a higher points score than is required.

Section 2.2:
Non-Progression by Grant Eligibility

The grant is the main source of financial assistance available from the Irish state for students in full-time higher education, eligibility for which is determined on the basis of family and/or personal income. Table 2.3 compares aggregate progression rates of new entrants in receipt of a grant with those not in receipt of a grant by sector and NFQ level.

Table 2.3: Non-Presence Rates by Grant Eligibility

Grant Status	All New Entrants % Not Present	Institutes of Technology				Uni L8 % Not Present	Other Colleges L8 % Not Present	All L8 % Not Present
		IoT Level 6 % Not Present	IoT Level 7 % Not Present	IoT L8 % Not Present	All IoT % Not Present			
YES	*16%*	*22%*	*23%*	*14%*	*20%*	*10%*	*3%*	*11%*
NO	*14%*	*27%*	*27%*	*17%*	*23%*	*9%*	*4%*	*10%*
ALL	***15%***	***25%***	***26%***	***16%***	***22%***	***9%***	***4%***	***11%***
Grant Holders as % of New Entrants	**32%**	**43%**	**44%**	**34%**	**40%**	**25%**	**34%**	**27%**

On average 32% of students are in receipt of a grant nationally, although there is wide variation across the sectors and levels. In 2007/08 40% of new entrants to the institutes of technology were in receipt of a grant compared to just 25% of new entrants to the universities. Meanwhile over 40% of new entrants to level 6 and 7 courses in the institute of technology sector were in receipt of a grant.

Grant aid contributes to progression in the institute of technology sector: at level 6, the progression rates of grant-aided new entrants are 5% better than those of non-aided students, at level 7 they are 4% better, and at level 8 they are 3% better. Thus overall in the institute of technology sector being in receipt of a grant increases a student's chance of progressing and has a positive effect on non-presence rates. We know from the Equal Access Data Survey completed at registration by new entrants to HEA-funded higher education institutions for the past three years that the participation of students from the lower socio-economic groups is much better in the institute of technology sector than in any other sector.[33]

The socio-economic breakdown of students in the university sector outweighs the positive impact grant aid has on overall progression rates, though the multivariate analysis later in this report indicates that grant aid has a positive impact regardless of sector.

Educational attainment is also influenced by social class: the higher social classes attain higher points in the Leaving Certificate examination on average.

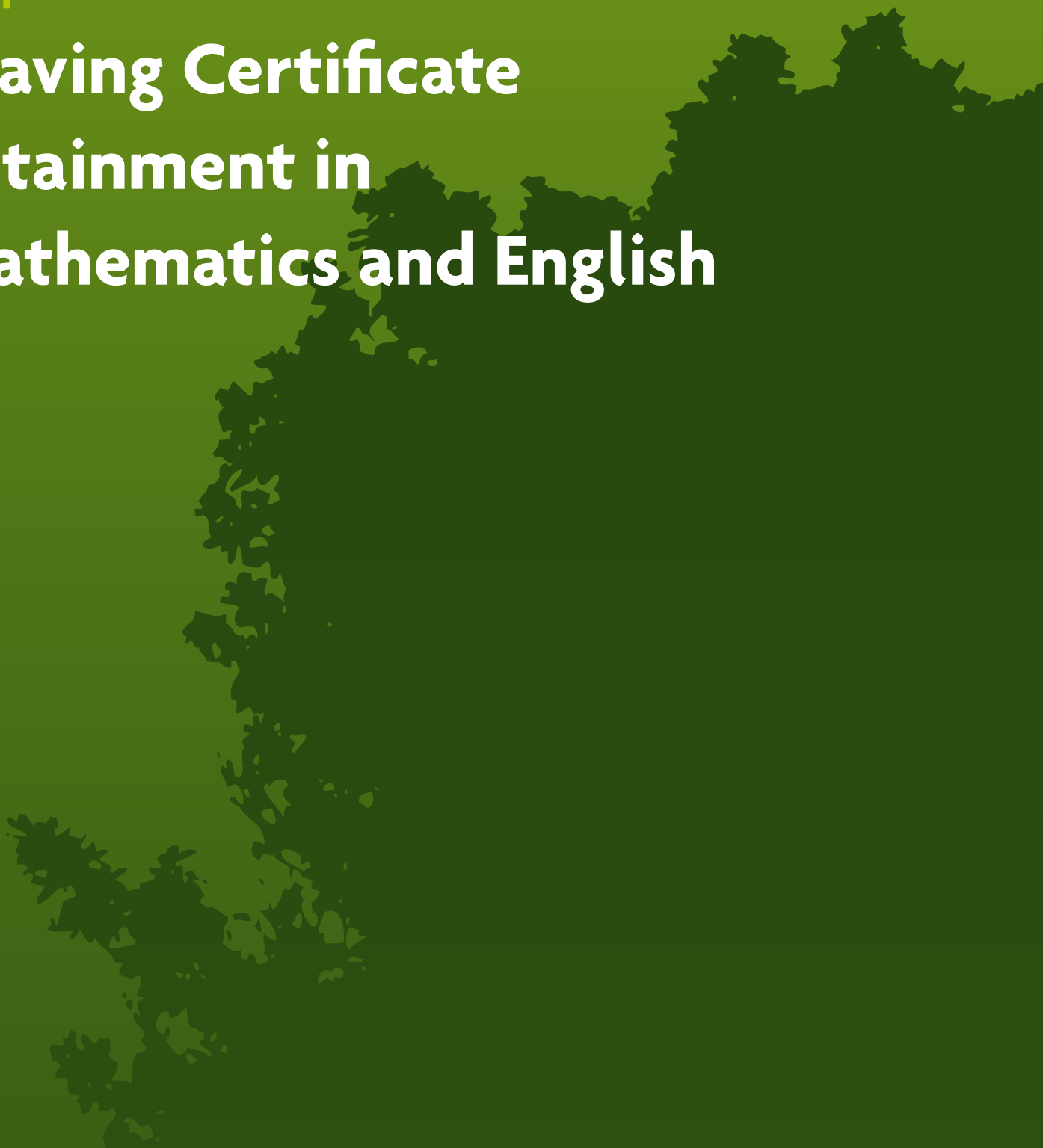
Key points in this chapter include:

- *The proportion of new entrants in 2007/08 who are not present one year later was 15% on average across all sectors and NFQ levels.*
- *The rates of non-presence vary strongly according to the NFQ level, ranging from 25%/26% at levels 6/7 to between 4% and 16% at level 8. They also differ according to the sector from 22% in an institute of technology to 9% in the university sector and 4% in teacher training colleges.*
- *Courses at NFQ levels 6/7 generally tend to enter students on a lower points (250–300) range than NFQ level 8 programmes (350–400).*
- *There is a clear and strong link between prior educational attainment and successful progression. Educational attainment is a very strong factor in whether or not a new entrant progresses past the first year of their course of study.*
- *Regardless of the sector or level that a student enters, students with lower Leaving Certificate examination points are less likely to progress to the following academic year.*
- *Progression of NFQ level 8 new entrants does not vary greatly between programmes of three and four years' duration. However courses whose duration is greater than 4 years display significantly higher levels of progression.*
- *Receipt of a grant has a positive impact on progression in the institute of technology sector across all levels. This is less evident in the universities and Other Colleges.*

33 See Higher Education Authority, *Higher Education Key Facts and Figures 08/09* (Higher Education Authority (Dublin: HEA, 2009).

Chapter 3:

Leaving Certificate Attainment in Mathematics and English



Introduction

This chapter examines progression in higher education within the context of students' prior attainment in the Leaving Certificate examination in Mathematics and English.

Section 3.1: Leaving Certificate Examination Points

In advance of examining progression, Table 3.1 below outlines the points assigned by the CAO to grades achieved in the Leaving Certificate examination.

Table 3.1: Leaving Certificate Grade Points

Grade	Higher	Ordinary
A1	100	60
A2	90	50
B1	85	45
B2	80	40
B3	75	35
C1	70	30
C2	65	25
C3	60	20
D1	55	15
D2	50	10
D3	45	5

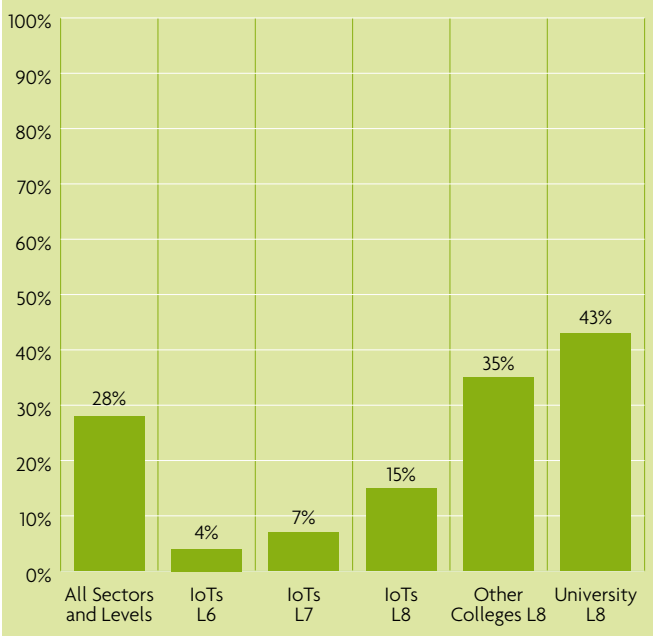
As will be apparent from Table 3.1 there is some overlap in the points awarded at Ordinary and Higher level in the Leaving Certificate examination, namely in the 45–60 points range. While the data presented later in this chapter does not distinguish between points attained at Ordinary and Higher levels, scores from 60 upwards refer to a C3 grade or higher at Higher level or to an A1 grade at Ordinary level.

Section 3.2: Mathematics Attainment

This section provides an overview of the non-presence rates of new entrants to higher education relative to their performance in Mathematics in the Leaving Certificate examination.

Figure 2 outlines the proportion of full-time undergraduate new entrants to higher education in 2007/08 by NFQ level and sector that obtained 60+ points in Mathematics in the Leaving Certificate examination. This point's bracket is the equivalent of a C3 grade or higher in Higher Mathematics and an A1 in Ordinary level Mathematics.

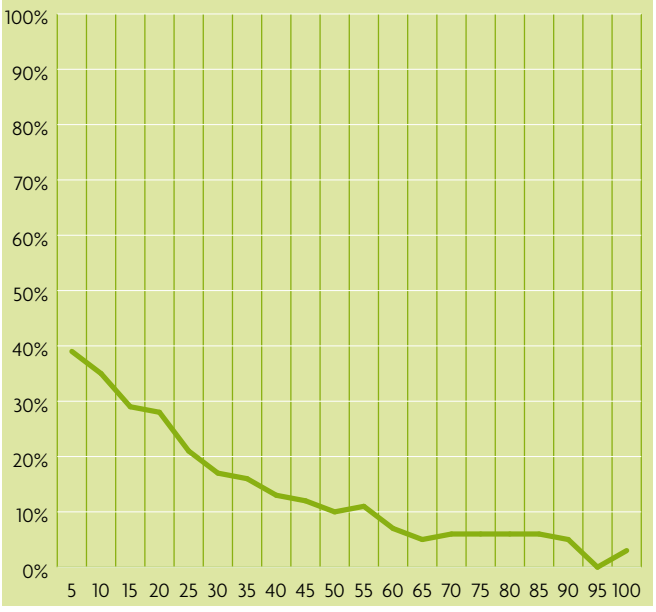
Figure 2: Proportion of 2007/08 Undergraduate New Entrants with 60+ Points in Leaving Certificate Mathematics



The variation across the levels and sectors in the proportion of new entrants with 60 points or higher is striking. In the institute of technology sector only 4% of new entrants at level 6, and 15% of new entrants at level 8 attained 60 or more points in Mathematics compared to 43% of new entrants to the university sector.

Figure 3, which covers all sectors and NFQ levels, outlines the percentage of 07/08 full-time undergraduate new entrants who were not present in their second year by their attainment in Mathematics in the Leaving Certificate examination.

Figure 3: Non-Presence Rates by Points Attainment in Leaving Certificate Mathematics



The figure shows that the higher the points attained in Mathematics in the Leaving Certificate examination by new entrants to higher education, the more likely it is that they will be present in the second year of their course of study. This very strong link between prior academic achievement in Mathematics and successful progression to the second year of higher education is further emphasised in the multivariate analysis presented in Chapter 6.

Table 3.2 provides the data on which Figures 2 and 3 (above) are based: it aligns the non-presence rates of new entrants to higher education to their points attainment in Mathematics in the Leaving Certificate examination, by sector and level.

Table 3.2: Non-Presence Rates[34] by Leaving Certificate Attainment in Mathematics, Sector, & NFQ Level

Sector Level Maths Points[34]	IoTs 6 % NP	IoTs 7 % NP	IoTs 8 % NP	Uni 8 % NP	Oth 8 % NP	All All % NP
0	36%	38%	3%	14%	~	27%
5	37%	48%	26%	15%	~	39%
10	40%	39%	32%	21%	0%	35%
15	31%	35%	20%	19%	0%	29%
20	37%	34%	24%	18%	6%	28%
25	26%	26%	17%	17%	0%	21%
30	23%	22%	18%	13%	2%	17%
35	20%	21%	20%	11%	6%	16%
40	12%	21%	16%	11%	2%	13%
45	18%	15%	14%	10%	2%	12%
50	19%	13%	11%	9%	0%	10%
55	21%	23%	19%	6%	0%	11%
60	11%	10%	10%	7%	4%	7%
65	0%	7%	3%	5%	5%	5%
70	0%	6%	8%	7%	0%	6%
75	0%	6%	10%	5%	4%	6%
80	n/a	5%	18%	5%	5%	6%
85	~	25%	31%	4%	6%	6%
90	n/a	~	25%	4%	13%	5%
95	n/a	n/a	n/a	n/a	n/a	n/a
100	n/a	~	~	3%	0%	3%
Other	*21%*	*24%*	*15%*	*10%*	*5%*	*14%*
% of new entrants with Higher C3 (or Ordinary A1) or better in Higher Maths (excluding Other)	**4%**	**7%**	**15%**	**43%**	**35%**	**28%**

34 ~ represents cell size less than 5 students.

35 The term 'Other' refers to new entrants entering in 2007/08 on a basis other than the Leaving Certificate. Cohorts with very high points in mathematics are very small in the institutes of technology. Individuals with zero points did not sit Mathematics in the 2007 Leaving Certificate examination but may have sat it in previous years (or presented an equivalent qualification from other sources).

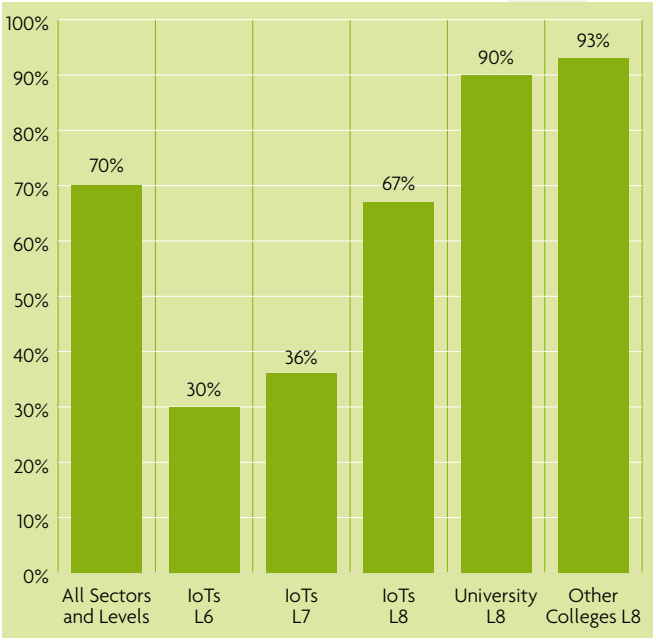
The proportion of students not presenting in their second year of study drops below the national rate for the university sector once a student has attained at least 55 points in Mathematics in the Leaving Certificate examination. However there are some anomalies at level 8 in the institute of technology sector, mainly because the actual numbers with more than 80 points in Mathematics in the Higher level Leaving Certificate examination are very small.

Section 3.3:
English Attainment

Attainment in English in the Leaving Certificate examination is another strong indicator of the likelihood of students being present in their second year of higher education, albeit to a lesser extent than prior attainment in Mathematics.[36]

Figure 4 outlines the proportion of 07/08 full-time undergraduate new entrants to higher education by NFQ level and sector that obtained 60+ points in English in the Leaving Certificate examination. This point bracket is the equivalent to a C3 grade or higher in Higher English and to an A1 in Ordinary level English.

Figure 4: Proportion of 2007/08 Undergraduate New Entrants with 60+ Points in Leaving Certificate English

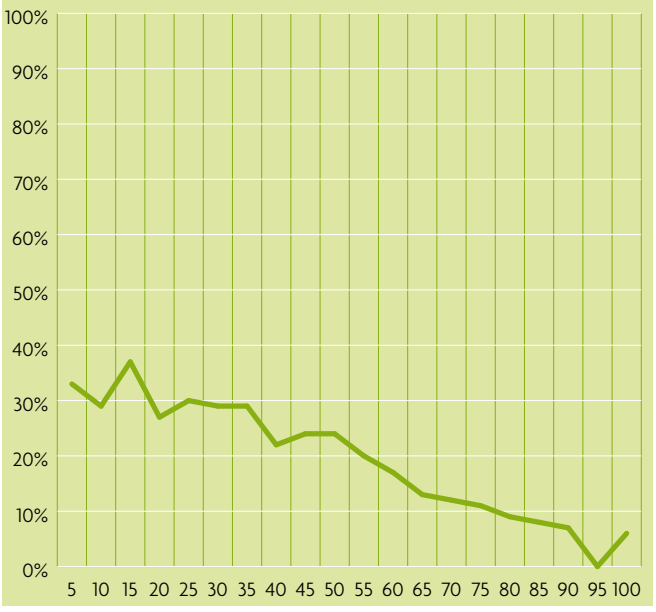


The data shows that the variation in prior attainment in English between the institute of technology and the university and Other Colleges sectors is narrower than the variation in prior attainment in Mathematics. That the Other Colleges sector has the highest proportion of new entrants with 60 or more Leaving Certificate examination points in English (at 93%) is unsurprising given that the majority of these institutions are teacher training colleges. Just as, demonstrated above, very few new entrants to NFQ level 6 and 7 courses had high prior attainment in Mathematics, so, as Figure 4 shows, only 30% of level 6 new entrants and 36% of level 7 new entrants had scored 60+ points in English in the Leaving Certificate examination.

36 The caveat, outlined in Section 3.1. (above), pertaining to the overlap between points attained in the Leaving Certificate at Ordinary and Higher levels also applies here.

Figure 5, which covers all sectors and NFQ levels, outlines the percentage of 07/08 full-time undergraduate new entrants to higher education who were not present in their second year of study by points attainment in English in the Leaving Certificate examination.

Figure 5: Non-Presence Rates by Leaving Certificate English Points Attainment



This chart shows that, just as high prior attainment in Mathematics increases students' chances of progressing in higher education, so high prior attainment in English is also correlated with higher retention rates, albeit to a lesser extent.

Table 3.3 provides the data on which Figures 4 and 5 (above) are based: it aligns the non-presence rates of new entrants to higher education to their points attainment in English in the Leaving Certificate examination by sector and NFQ level.

Table 3.3: Non-Presence Rates by Leaving Certificate Attainment in English, Sector, & NFQ Level

Sector Level English Points	IoTs 6 % NP	IoTs 7 % NP	IoTs 8 % NP	Uni 8 % NP	Oth 8 % NP	All All % NP
0	29%	40%	23%	17%	-	33%
5	33%	43%	20%	0%	-	33%
10	35%	32%	14%	9%	n/a	29%
15	46%	36%	35%	18%	n/a	37%
20	29%	30%	22%	9%	-	27%
25	34%	33%	17%	16%	-	30%
30	34%	31%	16%	12%	n/a	29%
35	33%	33%	25%	14%	17%	29%
40	18%	28%	18%	11%	0%	22%
45	31%	29%	16%	14%	0%	24%
50	31%	30%	18%	14%	0%	24%
55	27%	26%	22%	12%	0%	20%
60	25%	24%	17%	11%	3%	17%
65	20%	19%	15%	11%	6%	13%
70	19%	21%	13%	10%	2%	12%
75	12%	16%	14%	10%	4%	11%
80	8%	21%	17%	8%	2%	9%
85	12%	16%	15%	7%	2%	8%
90	12%	16%	18%	6%	1%	7%
95	n/a	n/a	n/a	n/a	n/a	n/a
100	-	0%	27%	6%	2%	6%
Other	*20%*	*22%*	*15%*	*10%*	*5%*	*n/a*
% of new entrants with C3 (or Ordinary A1) or better in Higher English (excluding Other)	**30%**	**36%**	**67%**	**90%**	**93%**	**70%**

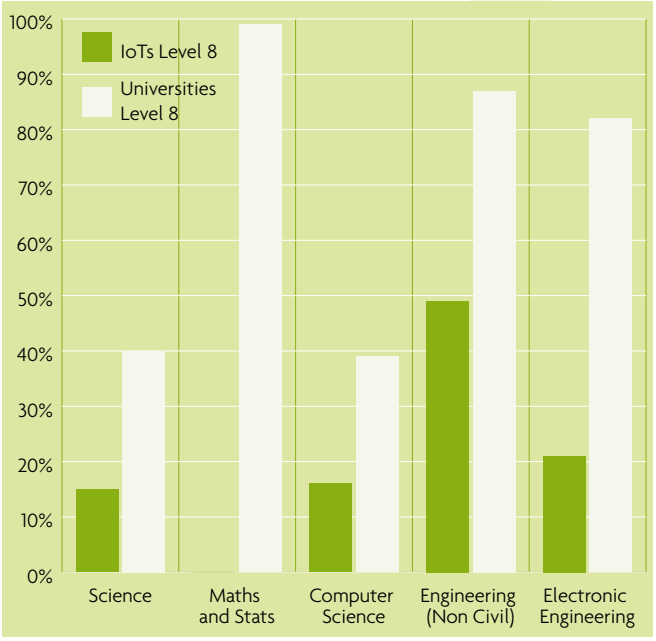
Section 3.4:
Mathematics Attainment and Technology Disciplines

This section shows the effects of prior attainment in Mathematics on new entrants to technology courses. The disciplines categorised as 'technology courses' for the purposes of this analysis are Science, Mathematics and Statistics, Computing, Engineering (non-Civil), Electronic Engineering—disciplines for which a high level of prior attainment in Mathematics is generally considered essential for successful progression through higher education. In the tables that follow, points attained in Mathematics in the Leaving Certificate examination have been grouped in bands of approximately 20 points for ease of analysis.

Previous studies have presented evidence of particular difficulties with progression and completion in the STEM group of disciplines which have been identified as critical for sustaining the national economic development and for attracting foreign direct investment.[37]

Figure 6 illustrates the proportions of full-time undergraduate new entrants to level 8 courses in technology in 07/08 attaining 60+ points in Mathematics in the Leaving Certificate examination by discipline and sector.

Figure 6: Proportions of Technology NFQ Level 8 New Entrants Attaining 60+ Points in Mathematics by Sector and Discipline



As Figure 6 demonstrates, the differences between the institute of technology and university sectors in the prior attainment in Mathematics of students entering courses in technology disciplines are stark—differences which are consistent across the STEM disciplines. Figure 6 also shows that there are clear differences between disciplines in the level of prior attainment in Mathematics of new entrants.

37 The STEM disciplines are Science, Technology, Engineering, and Mathematics.

Table 3.4: Non-Presence Rates of New Entrants to NFQ Level 8 Technology by Leaving Certificate Attainment in Mathematics and by Sector[37]

	Science		Maths & Stats		Computer Science		Engineering (non-Civil)		Electronic Engineering	
Sector Level Maths Points	**IoTs 8 % NP**	**Uni 8 % NP**	**IoTs 8 % NP**	**Uni 8 % NP**	**IoTs 8 % NP**	**Uni 8 % NP**	**IoTs 8 % NP**	**Uni 8 % NP**	**IoTs 8 % NP**	**Uni 8 % NP**
0 to 20	41%	22%	n/a	n/a	33%	43%	63%	~	83%	n/a
21 to 40	23%	19%	n/a	n/a	26%	27%	19%	20%	0%	~
41 to 60	14%	10%	n/a	~	19%	13%	10%	13%	31%	18%
61 to 80	~	3%	n/a	26%	8%	13%	3%	5%	0%	10%
81 to 100	0%	7%	n/a	4%	0%	0%	17%	5%	n/a	0%
60+	0%	6%	n/a	8%	6%	9%	6%	6%	14%	8%
Other[38]	*22%*	*9%*	~	~	*26%*	*16%*	*9%*	*10%*	*22%*	*18%*
Total	22%	10%	22%	10%	23%	16%	14%	8%	27%	12%
% with 60 or more points	**15%**	**40%**	**n/a**	**99%**	**16%**	**39%**	**49%**	**87%**	**21%**	**82%**

Table 3.4 shows the prior attainment in Mathematics of new entrants to level 8 technology courses. It is interesting to note that, in 2007/08, 19.7% of undergraduates across all levels in the institutes of technology were enrolled on technology courses (in Computing, Science, and Engineering (excluding Civil Engineering). The corresponding figure for the universities is 8%.

New entrants to Computer Science have the lowest prior attainment in Mathematics across all technology disciplines, with only 16% of new entrants to the institutes of technology and 39% of new entrants to the universities gaining 60+ points in their Leaving Certificate examination. The prior attainment in Mathematics of new entrants to Computer Science is low considering that similar mental skills are required across both disciplines. The closely-related fields of Computer Science and Electronic Engineering have the highest non-presence rates of all technology disciplines.

Figure 7 outlines the differences between technology disciplines—and between NFQ levels 6 and 7 within these disciplines—in the proportion of 07/08 full-time undergraduate new entrants attaining 60+ points in Mathematics in the Leaving Certificate examination.

It is a matter of concern that, on entry to higher education, only very small proportions of new entrants to these technology disciplines at NFQ levels 6 and 7 in the institute of technology sector have attained 60+ points in Mathematics in their Leaving Certificate examination.

38 The term 'Other' refers to new entrants entering in 2007/08 on a basis other than the Leaving Certificate.

39 The Other Colleges are excluded from Table 3.4 as they do not offer technology disciplines.

Table 3.5 shows the prior attainment in Mathematics of new entrants to level 6 and 7 technology courses in the institutes of technology.

New entrants to Science have the highest prior attainment in Mathematics and constituted 5% of all new entrants to level 6 and 7 courses in 2007/08. Very low proportions of new entrants to Computer Science and Engineering (non-Civil) courses attained 60+ points in Mathematics in the Leaving Certificate examination despite almost 23% of new entrants in 2007/08 entering these disciplines.

Reflections on Prior Educational Attainment

While the performance of students in Mathematics in the Leaving Certificate examination reflects inequalities in the extent to which different socio-economic groups derive benefit from the Irish school system, the correlation between mathematical competence, as reflected in the Leaving Certificate examination results, and the likelihood of progression is striking.
It suggests that the achievements in improvements in mathematical attainment would result in long-term benefits.

Figure 7: Proportions of New Entrants to NFQ Level 6 & 7 Technology Courses Attaining 60+ Points in Mathematics by Sector and Discipline

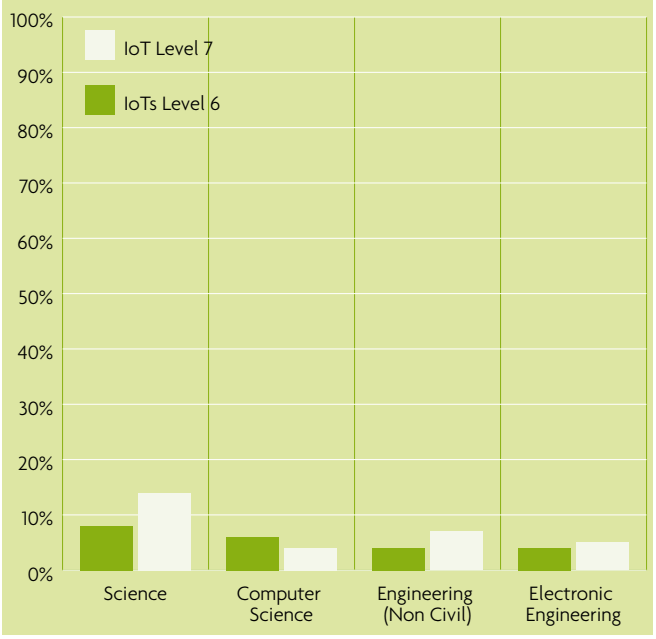


Table 3.5: Non-Presence Rates of New Entrants to Level 6 & 7 Technology Courses By Leaving Certificate Attainment in Mathematics and by Sector

	Science		Maths and Statistics		Computer Science		Engineering (non-Civil)		Electronic Engineering	
Sector Level Maths Points	**IoTs 6 % NP**	**IoTs 7 % NP**	**IoTs 6 % NP**	**IoTs 7 % NP**	**IoTs 6 % NP**	**IoTs 7 % NP**	**IoTs 6 % NP**	**IoTs 7 % NP**	**IoTs 6 % NP**	**IoTs 7 % NP**
0 to 20	36%	43%	n/a	n/a	51%	44%	43%	45%	63%	45%
21 to 40	34%	25%	n/a	n/a	28%	36%	26%	23%	35%	21%
41 to 60	18%	11%	n/a	n/a	50%	18%	12%	13%	13%	17%
61 to 80	~	6%	n/a	n/a	~	17%	~	10%	n/a	~
81 to 100	n/a	~	n/a	n/a	~	~	n/a	~	n/a	~
60+	13%	3%	n/a	n/a	13%	7%	~	9%	0%	21%
Other	*18%*	*24%*	*n/a*	*n/a*	*31%*	*33%*	*42%*	*26%*	*48%*	*22%*
Total	31%	26%	31%	26%	39%	37%	32%	28%	37%	29%
% with 60 or more points	**8%**	**14%**	**n/a**	**n/a**	**6%**	**4%**	**4%**	**7%**	**4%**	**5%**

Key points in this chapter include:

- *Prior educational attainment is the strongest predictor of successful progression through higher education.*
- *This is reflected most clearly in Mathematics which is the strongest predictor of successful progression among higher education students. New entrants with higher points in Mathematics are most likely to progress. Very high proportions of new entrants with points below 50 do not continue their course of study into second year.*
- *Attainment in English in the Leaving Certificate examination is also a strong indicator of progression, albeit not as direct as attainment in Mathematics.*
- *There appears to be a mismatch between the skills required for successful engagement with scientific and technological courses and the competencies of students enrolling in such courses particularly at levels 6 and 7 in the institute of technology sector.*
- *Very small proportions of new entrants to technology at level 6 and 7 in the institute of technology sector attained 60 or more points in mathematics in the Leaving Certificate examination.*
- *New entrants to Computer Science at level 8 have the lowest prior attainment in Mathematics across all scientific and technological disciplines, with only 16% of new entrants to the institutes of technology and 39% of new entrants to the universities gaining 60+ points in their Leaving Certificate examination.*

Chapter 4:

Field of Study

Introduction

This chapter examines the progression rates of new entrants across the various fields of study in Irish higher education. The classification system used is based primarily on the International Standard Classification of Education (ISCED) level 2 with some modification intended to distinguish fields of study[40] highlighted in national skills studies.

Section 4.1: Non-Progression among 2007/08 New Entrants by Field of Study across all Sectors and NFQ Levels

The very substantial variation in progression rates across fields of study is illustrated in Figure 8, which shows that, across all levels and sectors, non-presence rates range from 5% in Education to 27% in Computer Science. It also shows that all disciplines within the 'Engineering', 'Construction', and 'Services' categories display non-presence rates well above the national average of 15%. This result confirms the persistence of low progression rates over time in these disciplines, as highlighted in previous Irish studies.[41]

Figure 8: Non-Presence Rates by Field of Study

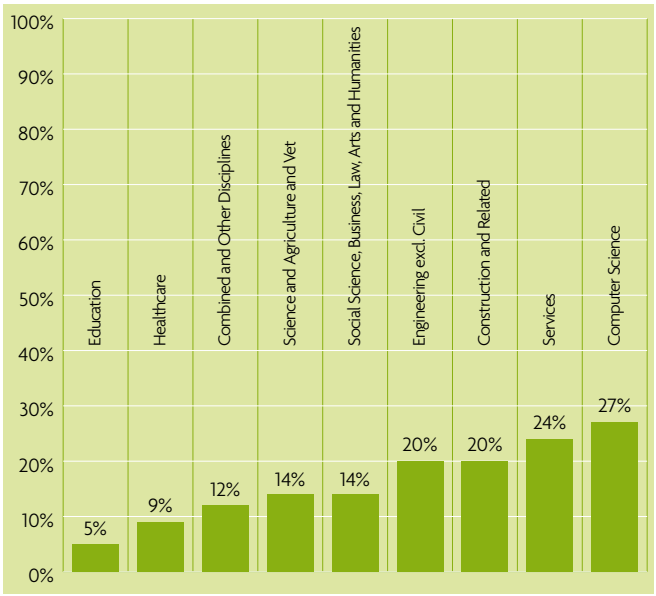


Table 4.1 details the rates of non-presence of new entrants by field of study, NFQ level, and sector.

At level 6 in the institute of technology sector there are four disciplinary categories that show non-presence rates that are higher than the national average of 25%. These are Science, Agriculture and Veterinary Science (26%), Computer Science and Engineering (excluding Civil) (35%) and Construction and Related disciplines (30%). At level 7 the most significant deviation from the average non-presence rate of 27% is seen in Computer Science, which has a non-presence rate of 36%.

In the institute of technology sector at level 8 significant deviations from the sectoral average of 16% are seen in Science, Agriculture and Veterinary Science (22%), Computer Science (25%), Engineering (excluding Civil) (25% and Construction and related disciplines (22%). In the university sector, the only significant deviation from the average rate of 9% is in Computer Science, which has a non-presence rate of 16%.

40 Field of Study – Construction and Related category includes Civil Engineering, Services includes Tourism, Hospitality, Logistics and Sports and Leisure courses

41 See Eamonn Kinsella, Julie Roe, and Torlach O' Connor, *Completion Rates for Students Taking Full-Time Programmes of Study in Institutes of Technology: A Study Carried Out for the Council of Directors of Institutes of Technology and the Dublin Institute of Technology* (Dublin: The Circa Group, 2006); Mark Morgan, Rita Flanagan, and & Thomas Kelleghan, *A Study of Non-Completion in Undergraduate University Courses* (Dublin: Higher Education Authority, 2001).

Table 4.1: Non-Presence Rates by Field of Study, Sector and NFQ Level

Sector	Level	Education	Healthcare	Combined & Other Disciplines	Soc. Sci., Business, Law, Arts, Humanities	Science & Ag. & Vet.	Engineering (excl. Civil)	Construction & related	Services	Computer Science	All
Institutes of Technology	6	23%	16%	10%	22%	26%	35%	30%	19%	35%	25%
	7	5%	14%	n/a	26%	24%	27%	20%	30%	36%	26%
	8	11%	14%	16%	15%	22%	11%	22%	15%	25%	16%
All IoT		11%	14%	15%	21%	24%	26%	22%	25%	32%	22%
Universities	8	7%	6%	12%	9%	11%	9%	5%	7%	16%	9%
Other Colleges	8	2%	n/a	n/a	7%	0%	n/a	n/a	n/a	n/a	4%
All Level 8		4%	8%	12%	10%	11%	9%	16%	15%	20%	11%
All Sectors and Levels		**5%**	**9%**	**12%**	**14%**	**14%**	**20%**	**20%**	**24%**	**27%**	**15%**

It is interesting to note that the non-presence rate for Computer Science at level 8 in the institute of technology sector is 25% compared to 16% in the university sector. This finding arguably demonstrates the effects of the low prior attainment in Mathematics of new entrants to Computer Science in the institutes of technology, in which 10% of new entrants have high attainment by comparison with 22% in the university sector.

It should be noted that the two disciplines with the lowest non-presence rates—Education and Healthcare—are marked by stringent academic requirements on entry and strong competition between students for places. In general, disciplines with more stringent academic entry requirements have lower non-presence rates.

Section 4.2: Profession-Oriented Courses

In this section a loose definition of 'professions' is used to refer to those courses that lead to qualifications which prepare an individual for a particular career, such as Medicine or Law. In general, as Figure 9 and Table 4.2 illustrate, students enrolling on this type of course are much more likely to be present in their second year of study than their counterparts on courses leading to more general qualifications; and competition for places on profession-oriented courses tends to be much higher.

Figure 9: Non-Presence Rates in Profession-Oriented Courses

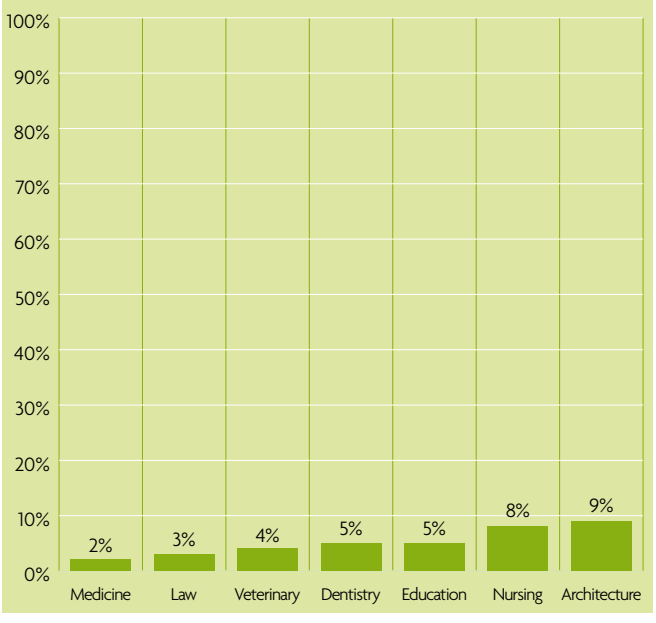


Table 4.2: Non-Presence Rates in Selected Profession-Oriented Courses By Leaving Certificate Points Attainment

Points Range	Law	Medicine	Veterinary	Dentistry	Education	Nursing	Architecture
0 to 50	n/a	n/a	n/a	n/a	n/a	0%	n/a
55 to 100	n/a	n/a	n/a	n/a	n/a	0%	n/a
105 to 150	0%	n/a	n/a	n/a	n/a	0%	n/a
155 to 200	n/a	n/a	n/a	n/a	n/a	10%	0%
205 to 250	33%	n/a	n/a	n/a	0%	14%	n/a
255 to 300	0%	n/a	n/a	n/a	0%	11%	n/a
305 to 350	0%	n/a	n/a	0%	3%	10%	n/a
355 to 400	0%	n/a	n/a	0%	12%	7%	0%
405 to 450	10%	0%	n/a	n/a	7%	4%	19%
455 to 500	4%	0%	0%	0%	3%	7%	14%
505 to 550	0%	9%	0%	0%	1%	13%	6%
550+	3%	2%	5%	8%	0%	0%	7%
Other	*7%*	*3%*	*4%*	*3%*	*5%*	*9%*	*9%*
Total	**3%**	**2%**	**4%**	**5%**	**5%**	**8%**	**9%**

With the exception of Law and Nursing, all new entrants to the profession-oriented courses shown in Table 4.2. attained greater than 400 points in the Leaving Certificate examination. All of these courses show non-presence rates below the national rate of 11% for level 8 courses: Medicine has the lowest non-presence rate of 2% with all new entrants entering with over 500 points; and Law courses display the second lowest non-presence rate of 3% across the outlined professions. It should also be noted that new entrants to Law courses attain a wider range of points in the Leaving Certificate examination than is typical of most other profession-orientated courses.

Key points in this chapter include:

- *Rates of non-presence vary greatly across the different fields of study. Profession- orientated courses tend to display the highest rates of progression while the lowest progression rates are found among Engineering, Construction and Computer Science courses.*
- *At 27%, Computer Science has the highest rate of non-presence across all sectors and levels.*
- *Medicine has the lowest non-presence rate of 2% with all 2007/08 new entrants attaining greater than 550 points in the Leaving Certificate examination.*[42]

42 More recently undergraduate entry to Medicine has been reformed to require applicants to sit the HPAT aptitude test in addition to attaining a minimum of 480 points in the Leaving Certificate examination.

Chapter 5:

Student Characteristics

Introduction

This chapter briefly reviews the issue of progression across a range of student characteristics such as gender, age, nationality and socio-economic background.

Section 5.1: Non-Progression and Gender

The gender balance of new entrants varies according to level and sector as outlined in Figure 10. Of particular note is the fact that females, who outnumber males among higher education entrants in general, outnumber males by 4:1 in the Other Colleges sector. At level 8 in the universities, females account for just under 60% of students, and within the institutes of technology females comprise the majority of new entrants to level 8 programmes.[43] However in the institute of technology sector overall males outnumber females largely because of their higher numbers at levels 6 and 7.

Figure 10: Gender Balance of New Entrants by Sector and NFQ Level

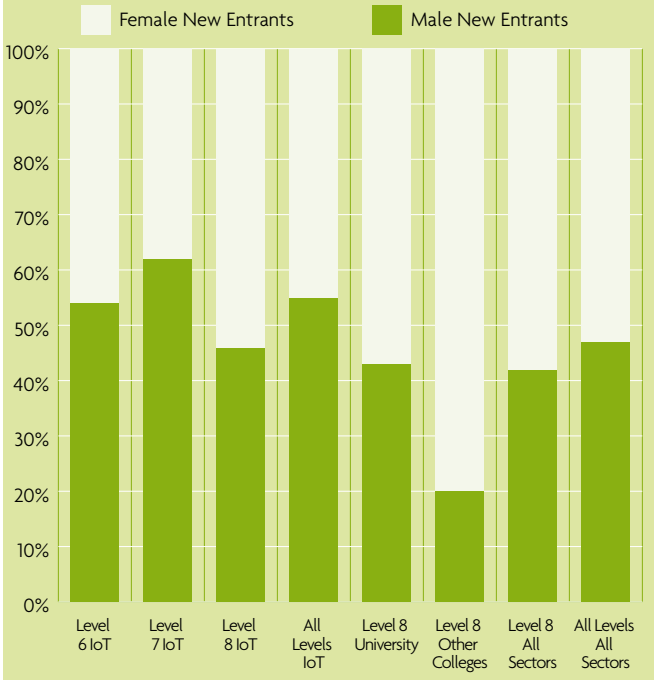
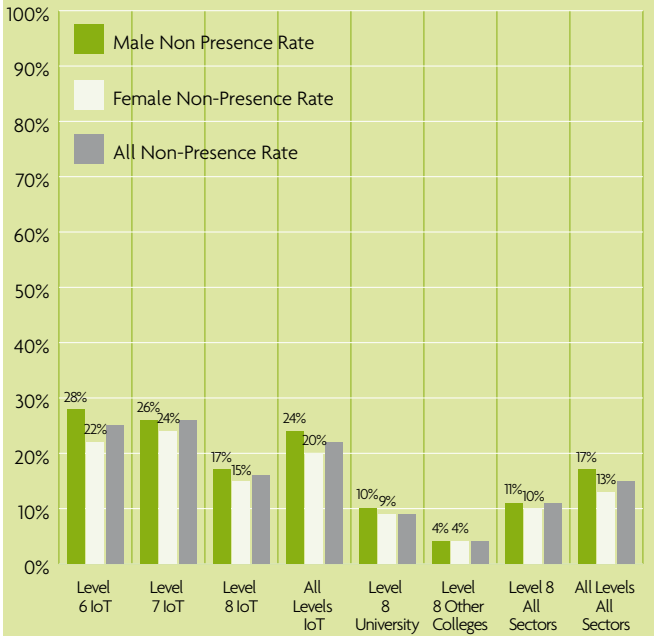


Table 5.1 outlines the non-presence rates of new entrants by sector, level, Leaving Certificate points range, and gender, and provides the data on which Figure 11 is based. At aggregate level females display higher rates of progression through higher education than males. These differences are most pronounced in the institute of technology sector across all NFQ levels, although modest differences are apparent at level 8 in the universities, with no differences by gender in the Other Colleges sector.

Figure 11: Non-Presence by Gender, Sector and NFQ Level



43 See HEA, *Higher Education Key Facts and Figures 08/09*; Muiris O' Connor, *SéSí: Gender in Irish Higher Education* (Dublin: Department of Education and Science, 2007).

Table 5.1: Non-Presence by Gender and Prior Educational Attainment

Sector Level	Institutes of Technology Level 6				Institutes of Technology Level 7			
	Points Range	% Male	Male Not Present %	Female Not Present %	Points Range	% Male	Male Not Present %	Female Not Present %
	0 to 50	n/a	n/a	n/a	0 to 50	25%	-	100%
	55 to 100	58%	57%	40%	55 to 100	63%	63%	45%
	105 to 150	62%	44%	25%	105 to 150	62%	41%	47%
	155 to 200	56%	42%	40%	155 to 200	64%	42%	46%
	205 to 250	58%	37%	30%	205 to 250	64%	43%	41%
	255 to 300	55%	30%	25%	255 to 300	62%	30%	25%
	305 to 350	52%	20%	15%	305 to 350	62%	20%	21%
	355 to 400	52%	10%	18%	355 to 400	61%	14%	13%
	405 to 450	35%	3%	10%	405 to 450	58%	11%	7%
	455 to 500	15%	-	13%	455 to 500	53%	2%	17%
	505 to 550	100%	-	n/a	505 to 550	38%	0%	0%
	550+	n/a	n/a	n/a	550+	0%	n/a	0%
	Other	55%	23%	17%	Other	62%	23%	22%
	Total	**54%**	**28%**	**22%**	**Total**	**62%**	**26%**	**24%**

Sector Level	Institutes of Technology Level 8				Institutes of Technology All Levels			
	Points Range	% Male	Male Not Present %	Female Not Present %	Points Range	% Male	Male Not Present %	Female Not Present %
	0 to 50	33%	-	0%	0 to 50	29%	-	60%
	55 to 100	50%	-	50%	55 to 100	60%	57%	45%
	105 to 150	28%	20%	23%	105 to 150	59%	41%	36%
	155 to 200	34%	9%	24%	155 to 200	60%	41%	42%
	205 to 250	41%	23%	26%	205 to 250	61%	41%	36%
	255 to 300	44%	22%	20%	255 to 300	58%	29%	24%
	305 to 350	43%	21%	19%	305 to 350	53%	20%	19%
	355 to 400	42%	15%	13%	355 to 400	51%	14%	14%
	405 to 450	50%	14%	11%	405 to 450	51%	12%	9%
	455 to 500	52%	5%	11%	455 to 500	49%	4%	13%
	505 to 550	52%	30%	32%	505 to 550	49%	24%	24%
	550+	43%	-	25%	550+	33%	-	17%
	Other	48%	16%	14%	Other	54%	20%	17%
	Total	**46%**	**17%**	**15%**	**Total**	**55%**	**24%**	**20%**

Table 5.1: Non-Presence by Gender and Prior Educational Attainment *(continued)*

Sector Level	Universities Level 8				Other Colleges Level 8			
	Points Range	**% Male**	**Male Not Present %**	**Female Not Present %**	**Points Range**	**% Male**	**Male Not Present %**	**Female Not Present %**
	0 to 50	100%	~		0 to 50			
	55 to 100	0%		0%	55 to 100			
	105 to 150	20%	~	8%	105 to 150	100%	~	
	155 to 200	34%	20%	5%	155 to 200	0%		0%
	205 to 250	43%	27%	13%	205 to 250	67%	~	0%
	255 to 300	47%	27%	12%	255 to 300	69%	0%	25%
	305 to 350	48%	19%	18%	305 to 350	35%	0%	0%
	355 to 400	42%	14%	14%	355 to 400	32%	0%	2%
	405 to 450	41%	9%	8%	405 to 450	16%	3%	6%
	455 to 500	41%	5%	7%	455 to 500	17%	4%	2%
	505 to 550	39%	3%	4%	505 to 550	13%	0%	1%
	550+	42%	3%	4%	550+	6%	~	0%
	Other	46%	11%	9%	Other	20%	6%	5%
	Total	**43%**	**10%**	**9%**	**Total**	**20%**	**4%**	**4%**

Sector Level	All Level 8				All New Entrants			
	Points Range	**% Male**	**Male Not Present %**	**Female Not Present %**	**Points Range**	**% Male**	**Male Not Present %**	**Female Not Present %**
	Total	**42%**	**11%**	**10%**		**47%**	**17%**	**13%**

Reflecting gender differences in Leaving Certificate performance, the lower point ranges are dominated by males, while the higher point ranges are in the majority female. Table 5.2 shows that this is particularly apparent in the institute of technology sector at levels 6 and 7.

The data clearly shows that students with high Leaving Certificate points are more likely to progress. The difference between males and females not present the following year is more pronounced at level 6 in the institutes of technology. However when the variation in prior educational attainment and sector and level of higher education is taken into account (comparison between rows) the differences between genders tends to be modest. Very little distinction is seen between genders in non-presence rates at level 8 in the universities and the Other Colleges sectors.

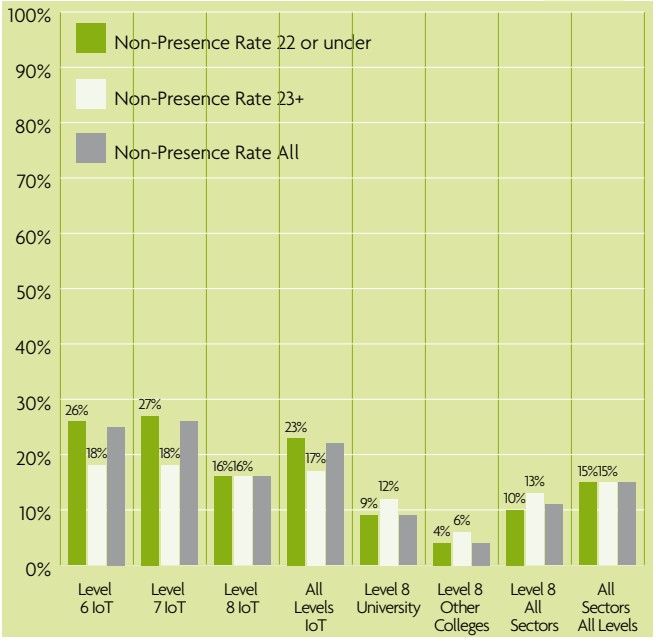
Section 5.2: Non-Progression and Age

Figure 12 outlines non-presence rates of students under 23 vs Mature Students[44]. The impact of age appears to vary according to the students' level and sector of study.

Figure 12 shows that at levels 6 and 7 Mature new entrants are substantially more likely to progress to the following year than a new entrant who is under the age of 23. At level 6 and 7, 18% of mature students are not present in the following year compared to 26–27% of new entrants under 23 years of age. This demonstrates a relatively high level of progression among mature students in the institutes of technology which may be attributable to their greater dedication to their studies than their younger fellow students, particularly if the course duration is shorter than that of many level 8 courses. However it may also be linked to the geographical dispersion of the institutes of technology throughout the country which, through their proximity to students' homes, may increase their attractiveness to mature students.

44 Mature Students are defined as students aged 23 or over on 1st January 2007.

Figure 12: Non-Presence Rates by Age Category



At level 8 in the institute of technology sector there is no difference between the age groups in terms of non-presence rates, but at the same level in the university and Other Colleges sectors mature new entrants seem to be slightly less likely to progress to the following year than those under 23.

Section 5.3: Non-Progression and Nationality

Figure 13 presents a comparison of the non-presence rates of Irish and non-Irish students, and it shows that the patterns of progression vary according to the level of study and sector.

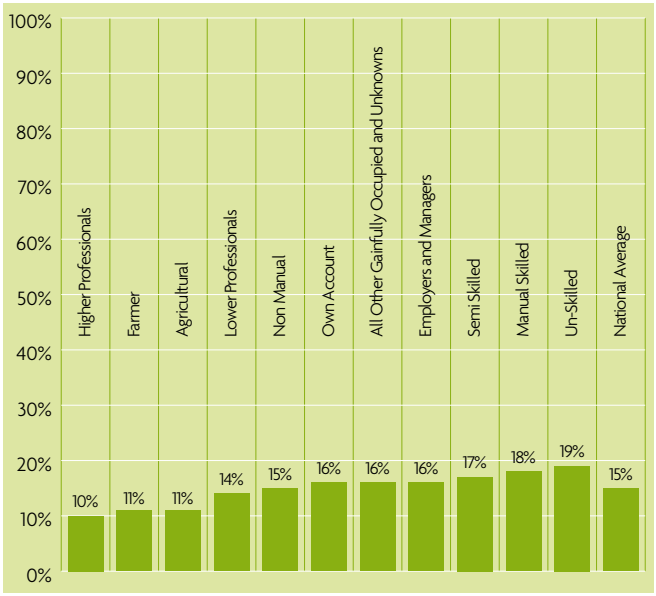
Figure 13: Non-Presence Rates by Nationality[45]

The data shows that at levels 6 and 7 non-Irish students are more likely to progress to the following year than Irish new entrants, while the opposite is true in all sectors for level 8 new entrants. The total cost of shorter-duration courses compared to longer-duration courses may explain their enhanced appeal to non-Irish students.

Section 5.4: Non-Progression and Socio-Economic Group

Figure 14 shows that there is variation in non-presence rates across socio-economic groups. To a certain extent, this corresponds with the overall pattern of access to higher education, with the highest levels of progression found among Higher Professionals and Farmers—the two groups with the highest levels of access to higher education in Ireland.[46] The lowest levels of progression are found among the traditional working classes, with non-presence rates between 17 and 19% among the Skilled, Semi-Skilled and Un-Skilled socio-economic groups. Interestingly, although the non-manual group has recorded the lowest levels of access to higher education in the most recent surveys, the rates of non-presence among this group are broadly equivalent to national averages.[47]

Figure 14: Non-Presence Rates by Socio-Economic Group



A detailed analysis of non-presence rates by sector and NFQ level is presented in Table 5.2.

45 The 'Other Colleges' sector is not included in this analysis due to the small numbers of non-Irish students registered in these institutions

46 See Philip J. O' Connell, David Clancy and Selina McCoy, *Who Went to College in 2004? A National Survey of New Entrants to Higher Education* (Dublin: Higher Education Authority, 2006).

47 See Selina McCoy, Delma Byrne, Philip J. O Connell, Elish Kelly & Cliona Doherty, *Hidden Disadvantage? A Study on the Low Participation in Higher Education by the Non-Manual Group* (Dublin: Higher Education Authority, 2010).

Table 5.2: Non-Presence Rates by Socio-Economic Group, Sector and NFQ Level

	All Sectors All Levels	IOT Level 6	IOT Level 7	IOT Level 8	IOT All Levels	University Level 8	Other Colleges Level 8	All Sectors Level 8
Employers and Managers	16%	27%	29%	17%	24%	10%	3%	11%
Higher Professionals	10%	28%	22%	14%	19%	7%	5%	7%
Lower Professionals	14%	27%	29%	14%	22%	10%	4%	10%
Non-Manual	15%	27%	26%	15%	22%	9%	6%	10%
Manual Skilled	18%	29%	31%	19%	26%	9%	2%	12%
Semi-Skilled	17%	30%	23%	17%	22%	13%	3%	13%
Un-Skilled	19%	33%	25%	14%	24%	12%	4%	12%
Own Account	16%	24%	25%	15%	22%	10%	4%	11%
Farmer	11%	18%	21%	11%	17%	7%	3%	7%
Agricultural	11%	20%	13%	17%	16%	6%	0%	9%
All Other Gainfully Occupied and Unknowns	16%	24%	25%	17%	22%	10%	4%	11%
Total	**15%**	**25%**	**26%**	**16%**	**22%**	**9%**	**4%**	**11%**

Key points in this chapter include:

- *At aggregate level females display higher rates of progression through higher education than males.*
- *Mature students display higher rates of progression at levels 6 and 7 in the institute of technology sector but lower rates at level 8 for all sectors.*
- *Similarly non-Irish students are more likely to progress at levels 6 and 7, but less likely to progress at level 8, than Irish students across all sectors.*
- *There is variation in non-presence rates across socio-economic groups: The socio-economic groups with the highest entry rates tend to display the highest rates of progression through higher education and the lowest rates of progression are found among the lower socio-economic groups. The issue of progression therefore further amplifies the inequalities at the point of entry to higher education identified by Clancy, rendering the socio-economic profile of graduates even more distinct.*

Chapter 6:

Non-progression among Higher Education New Entrants:

A Multivariate Analysis

Selina McCoy, Delma Byrne

Section 6.1: Introduction

Internationally attention is increasingly focused on how students fare after entry to college—on student experiences in relation to retention, completion and withdrawal.[48] However while research is increasingly focused on student experience and performance within higher education, the vast majority of studies are based on single-institution data.[49] To assess the extent to which institutions vary in their non-progression rates, it is important to take account of the composition of the student body, in terms of prior educational attainment in the Leaving Certificate examination or socio-economic profile, to allow a more like-for-like comparison of institutions.

Data from all HEA-funded institutions allows an analysis of student progression across all institutions, from the 2007/08 to the 2008/09 academic years[50]. This chapter is focused on progression from first-year to second year of study among full-time new entrants to higher education. International research points to the importance of this transition in the longer-term educational outcomes of young people and repeatedly highlights the fact that dropout rates peak at this first hurdle, with withdrawal risks declining steadily as students progress through their courses.[51] In the U.S. context, Porter found that over half of student attrition occurs in the first year—a finding echoed in the 2001 U.K. study of Smith and Naylor.[52] Such dropout may be for a range of reasons, including a mismatch of student interest/aptitude and course choice, the experience of difficulties in the transition to higher education, or examination failure.

Section 6.2: Methodology

As well as presenting raw (unadjusted) differences in progression chances across institutions, the analysis is particularly focused on an examination of the net effect of institutions controlling for the differences in student intake across the institutions. Universities typically attract students performing more highly in the Leaving Certificate examination, while institutes of technology cater for greater numbers of young people from disadvantaged backgrounds.[53] By taking account of the gender, social class background and educational attainment characteristics of the students entering different colleges, this analysis provides a value-added picture of institutional variation in non-progression rates, thereby allowing a like-for-like comparison of sectors and institutions. The analysis is focused on two core research questions:

1. What student characteristics influence student progression within higher education?
2. Taking account of individual student characteristics, does the average chance of progression vary between institutions (both within and across sectors)?

48 Although studies vary widely in how these key issues are defined: some, for example, focus on long-term dropout, in the process distinguishing short-term 'stopouts'; others define dropout as non-progression of any type. Similarly, some studies distinguish academic failure from non-enrolment.

49 See John M. Braxton, *Reworking the Student Departure Puzzle* (Nashville: Vanderbilt University Press, 2000).

50 Four main studies of non-completion in higher education in Ireland have been undertaken: Healy *et al* (1999) examined enrolment in three institutes of technology; Morgan *et al* (2001) focused on non-completion in the universities; and Eivers *et al* (2002) and Kinsella *et al* (2006) examined completion in the institutes of technology .

51 See G. Lassibille and L. N. Gomez, 'Why Do Higher Education Students Drop Out? Evidence From Spain', *Education Economics* 16/1 (2008): 89–105; OECD, *Education at a Glance 2008: OECD Indicators* (Paris: OECD, 2008).

52 See A. M. Porter, *Undergraduate Completion and Persistence at Four-Year Colleges and Universities* (Washington D.C.: National Institute of Independent Colleges and Universities, 1990); J. P. Smith and R. A. Naylor, 'Dropping Out of University: A Statistical Analysis of the Probability of Withdrawal for U.K. Students', *Journal of the Royal Statistical Society* 164/2 (2001): 389–405.

53 See Selina McCoy and Emer Smyth, 'Higher Education Expansion and Differentiation in the Republic of Ireland', Special Issue on Differentiation in Higher Education, *Higher Education* (forthcoming 2011).

The analysis is based on multivariate models estimated in STATA.[54] The method takes account of the clustering of students within institutions—that students are not randomly distributed across the higher education sector, but that rather students in the same college may be more like each other. They are likely to share common influences, such as the climate in the institution, the emphasis on non-academic activities, the nature of learning and social supports for students, and the relative emphasis on innovative teaching methods, all of which may influence their progression and success.

Analysis of missing data across variables revealed that list-wise deletion of missing data would have resulted in a considerable reduction in the sample size. To avoid this problem, the models include additional terms for missing cases, allowing a direct test of the progression probabilities of the groups with missing data on explanatory variables. This allows for an examination of the extent to which variables have non-random missing data.

Results are presented in the form of odds ratios: values above 1.0 identify predictors that increase the risk of non-progression while those below 1.0 reduce the risk. All significant results ($p<.05$) are highlighted in bold font.

The sample consists of student records for the full population of full-time new entrants to higher education in 2007/08 (just over 34,000 students). As detailed in the table below, the student background characteristics include gender, father's social class, nationality, Leaving Certificate attainment, grant receipt, field of study and course-level. Interactions among these variables were also examined to explore whether the influence of certain factors varies across different groups of students (although not included in the models presented);[55] and results are discussed in the text where significant relationships are found. Unfortunately, the data does not include more subjective information, like motivation for enrolling in higher education, financial well-being, participation in part-time employment, academic engagement, views on teaching staff, and attendance and participation in non-academic social and cultural activities, all of which may be expected to play a role in student retention. Attempts were made to explore the role of institutional-level student mix in progression rates (such as the average proportion in receipt of a grant), which has been found in other research to have an impact on retention rates.[56] However these analyses are not included here as they did not yield significant results and warrant further attention.

54 The statistical methodology adopted takes account of the clustering of students within institutions. To take account of this clustering of the data, the models were estimated using robust standard errors. This method allows for within-cluster correlation of errors, and results in much more conservative standard errors and smaller t-statistics than those in an unclustered model. This method relaxes the requirement that the errors be independent, by allowing them to be correlated within each cluster group (HE institution). This correlation affects only the standard errors and t-statistics but not the estimated coefficient. As a result, the odds ratios presented are the same for both the clustered and un-clustered models.

55 For example, additional analyses were undertaken to see whether the influence of Leaving Certificate attainment in English, Irish and Mathematics on non-progression varied across the different fields of study.

56 See L. Oseguera and B. S. Rhee, 'The Influence of Institutional Retention Climates on Student Persistence to Degree Completion: A Multilevel Approach', *Research in Higher Education* 50 (2009): 536–569; M. A. Titus, 'An Examination of the Influence of Institutional Context of Student Persistence at Four-Year Colleges and Universities', *Research in Higher Education* 45/7 (2004): 673–699.

The explanatory variables are defined as follows:

Category	***Variables***	***Reference Group (for most models)***
Social Background	**Gender**	Females
	Age group: 16–18 yrs;	25–29 years
	19–20 yrs; 21–24 yrs;	
	30 yrs +	
	Nationality	Non-Irish
	Father's Social Class: Professional; Managerial; Non-Manual; Skilled Manual; Unskilled Manual; Unknown (large proportion of missing cases are modelled separately)	Semi-skilled manual
Grant Receipt	**Receives grant** (HE Grant Scheme, VEC Scholarship Scheme, Third Level Maintenance Grant, Other DES Grant)	Not in receipt of grant
Educational Attainment	**Leaving Certificate Points**	305–350
	(top 6 subjects):	
	0–150, 155–200, 205–250,	
	255–300, 355–400, 405–450, 455–500, 505–550, 555–600	
	Unknown	
	OR	
	LC Points in Irish: 'low' (bottom third); 'high'; unknown	LC Points in Irish: 'medium'
	Points in English: 'low'; 'high'; unknown	Points in English: 'medium'
	Points in Maths: 'low'; 'high', unknown	Points in Maths: 'medium'
Field of Study	**ISCED 2-digit Field of Study**: Education;	Social Science, Business, Law, Arts, Humanities
Course Level	Science, Agriculture, Veterinary; Computer Science; Construction and related; Engineering (excl Civil); Healthcare; Services; Combined & other disciplines	
	NFQ Level:	Level 8 (Honours Degree)
	Level 6 (Higher Certificate)	
	Level 7 (Ordinary Degree)	
Institutional Sector	Institute of Technology	University
	Other (mostly colleges of education)	
Institution	24 HEA-funded institutions	University College Cork

All models assess the likelihood that an individual with certain characteristics does not progress from their first to their second year of study between 2007/08 and 2008/09, relative to the reference group. As noted previously, non-progression is defined as those who are not recorded in 2008/09 in their institution of study in 2007/08.

Section 6.3: Results

The results are presented in four main sections:

1. Section 6.3.1 examines variation in non-progression across the three main sectors: university, institute of technology and other colleges (predominantly colleges of education), focusing on the role of composition (gender, social background, Leaving Certificate performance) and course type (field of study and course level) in non-progression rates in the three higher education sectors. This model is largely to illustrate the methodology adopted and the importance of taking account of student intake and course provision in measuring institutional effectiveness.
2. Section 6.3.2 examines variation in non-progression across all higher education institutions, presenting raw results and results adjusted for differences in student intake and course provision.
3. Section 6.3.3 examines variation across the institutes of technology, presenting raw results and results adjusted for differences in student intake and course provision.
4. Section 6.3.4 examines variation across the universities, presenting raw results and results adjusted for differences in student intake and course provision.

Some of the main findings are highlighted in the text, while full results of all analyses are presented in Appendix D. In each table, results are presented in a sequence of models, taking account of additional aspects of student characteristics and course characteristics.

6.3.1 Characteristics of Students Who Do Not Progress

Individual Characteristics

The first set of analyses (presented in Table D1) focus on the chance of a student not progressing, taking into account:

1. Gender, age and social class (Model 1)
2. Leaving Certificate attainment and grant receipt (Model 2)
3. Higher education sector (Model 3)
4. Field of study and course level (Model 4)

The results show that overall, males are less likely to progress from first to second year, and are 1.4 times more likely to be in the non-progression group than females. However as displayed in Table D1, this gender differential predominantly reflects lower levels of Leaving Certificate attainment among male entrants to higher education. When Leaving Certificate attainment is taken into account (Model 2), males are just 1.2 times more likely to be in the non-progression group. The gender difference is no longer significant when field of study and course-level are controlled in Model 4 indicating that *ceteris paribus (all other things being equal)*, in terms of 'ability' and type of course taken, males are no less likely to progress than their female counterparts.

Considering the age of students, overall students who are 21–24 years of age in the first year of their studies are less likely to progress than those aged 25–29 years. However these differences largely reflect lower levels of Leaving Certificate attainment among this group and there are no significant differences across age groups when educational attainment is taken into account (Table D1, Model 2). Overall delayed entry to college does not appear to be an important factor in explaining college withdrawal in Ireland. In the US context, Jacobs and King similarly find no net effect of age on degree completion.[57]

57 See T. A. Jacobs and R. B. King, 'Age and College Completion: A Life-History Analysis of Women Aged 15–44', *Sociology of Education* 75/3 (2002): 211–230.

Institutions varied considerably in the completeness of the data collected on the social-class background of students. Using the information available (which is broadly representative of the population of new entrants) and including individuals where social class information is not provided in a separate category, strong social class differentiation in progression rates is evident (Table D1, Model 1). Students from professional backgrounds are significantly more likely to progress than those from semi-skilled manual backgrounds. For the most part, social class differences in progression are largely mediated by Leaving Certificate attainment—there are no longer significant social class differences in progression once Leaving Certificate attainment is included (Model 2). The skilled manual group is the only exception—this group displays a significantly lower progression rate than the semi-skilled manual group. This may bear some relationship to the low (and declining) levels of grant eligibility among this group,[58] and to the fact that this group are often on the margins of the grant eligibility income thresholds.[59]

This finding is reinforced by results showing lower levels of non-progression among grant recipients—a finding which remains even after taking account of the type of course taken and institutional sector (Table D1, Models 2 and 4). This indicates that financial support plays an important role in student retention—perhaps due to greater financial security, reduced reliance on (increasingly difficult to secure) part-time work or simply students ensuring that they fulfil the requirements of their courses to retain grant eligibility (since students who fail their exams and are required to repeat the year lose their eligibility for a grant). Indeed research in other countries shows that financial support plays an important role in reducing dropout—this is illustrated by Lassibille and Gomez in the Spanish context and by Dynarski and Bettinger in the US context.[60] In the U.K. context, Yorke concludes 'scholarships and grants tend to have the greatest beneficial effects on [college] persistence'.[61] Additional analyses examined the extent to which the impact of grant receipt varied across 'ability' groups: results showed that the impact of grant receipt on progression chances was even greater for students with higher performance levels in Mathematics.

As shown in Figure 15, prior attainment in the Leaving Certificate examination also plays a central role in student progression—the relationship is linear with rising points predicting lower non-progression, a finding which holds when taking account of field of study and course-level. For each additional rise of 50 points, non-progression odds fall steadily: for example, relative to those securing 305–350 points, students who achieved 255–300 points are 1.5 more likely to dropout, while those with 205–250 points are 2.6 times more likely to not progress to second year. It is interesting to note that prior attainment in the Leaving Certificate examination plays an equally important role in student retention in both the university and institute of technology sectors, signalling the importance of student 'ability' in meeting the academic demands of higher education. The results also highlight the importance of academic preparedness prior to entry and adequate learning supports on entry to higher education. This is also highlighted in the Spanish context by Lassibille and Gomez, who argue that reducing the entry standards to satisfy the demand for higher education from an increasing pool of secondary-school leavers who are not necessarily equipped with the basic skills needed to succeed in higher education, would have adverse effects.[62] They argue that tighter selection at the point of entry to higher education

58 See Selina McCoy, Emma Calvert, Emer Smyth, and Merike Darmody, *Study on the Costs of Participation in Higher Education* (Dublin: Higher Education Authority, 2010).

59 See Selina McCoy, Delma Byrne, Philip J. O'Connell, Elish Kelly, and Cliona Doherty, *Hidden Disadvantage? A Study on the Low Participation in Higher Education by the Non-Manual Group* (Dublin: Higher Education Authority, 2010), 31–32.

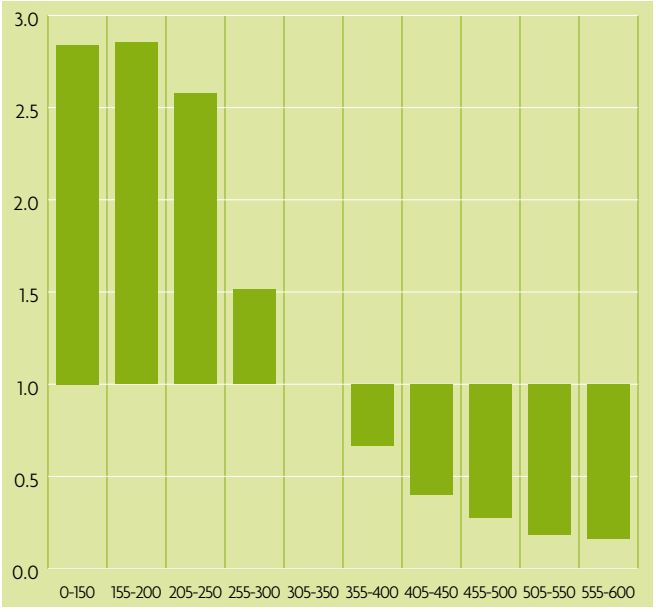
60 See Eric Bettinger, 'How Financial Aid Affects Persistence', NBER Working Paper (Cambridge, MA: National Bureau of Economic Research, 2004); S. M. Dynarski, 'Does Aid Matter? Measuring the Effect of Student Aid on College Attendance and Completion', Working Paper 7422 (Cambridge MA: National Bureau of Economic Research, 1999); Lassibille and Gomez, 'Why Do Higher Education Students Drop Out?.

61 Mantz Yorke, 'Undergraduate Non-Completion in England: Some Implications for the Higher Education System and Its Institutions', *Tertiary Education and Management* 4/1 (1998): 59–70.

62 See Lassibille and Gomez, 'Why Do Higher Education Students Drop Out?.

might be needed. In the Irish context, given the *numerus clausus* system in operation, the academic requirements for entry reflect variation in student demand for courses and result in considerable variation between fields of study and institutions (and over time) in the academic 'standard' of higher education entrants. This makes it more difficult to impose higher education entry standards.

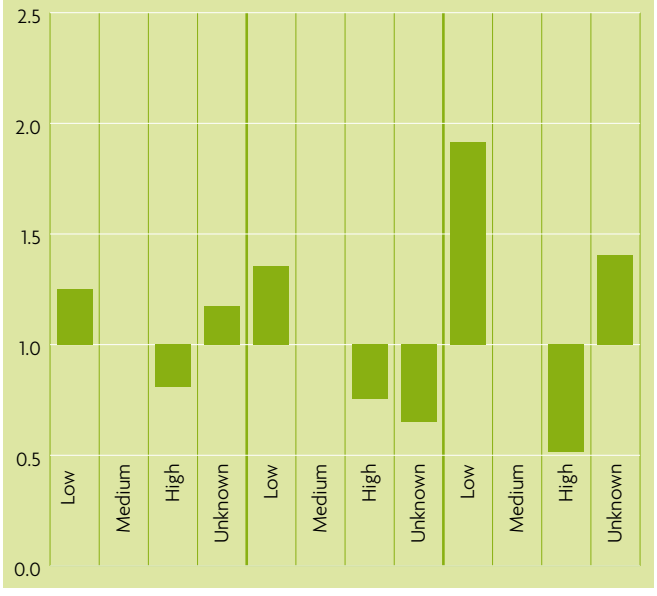
Figure 15: Overall Non-Progression Odds by Leaving Certificate Points



Note: Odds ratios presented from Table A1, Model 2 which controls for gender, age, nationality and father's social class.

Table D2 examines progression patterns according to performance in the Leaving Certificate examination in Irish, English and Mathematics, rather than overall points achieved.[63] The overall non-progression odds based on performance in these three core subjects are displayed in Figure 16. In all three subjects, students with lower performance are more likely to not progress, while those with higher performance levels are significantly more likely to progress. It is interesting to note that the influence of Mathematics performance is greater than performance in English, while Irish performance is least likely to influence non-progression in higher education. Students with lower points in Mathematics are twice as likely to not progress to second year than are students with medium points. These findings indicate that students with low levels of performance in Leaving Certificate Mathematics struggle to meet the academic standards of higher education. However additional analyses (not shown) examined the extent to which English and Maths performance was equally important in progression across all fields of study. The results point to Mathematics being significantly more important in student success in computer science, engineering and construction.

Figure 16: Overall Non-Progression Rates by Leaving Certificate Attainment in English, Irish and Mathematics



Note: Odds ratios presented from Table A2, Model 2 which controls for gender, age, nationality and father's social class.

63 Owing to variation in student performance across the three subjects, to ensure roughly one third of students fall into each category the criteria for 'low', 'medium' and 'high' performance differed as follows: for Irish 'low' performance is less than or equal to 35 points, and 'high' performance is at least 65 points; for English 'low' performance is less than or equal to 45 points and 'high' performance is at least 75 points; while for Mathematics 'low' performance is less than or equal to 30 points and 'high' performance is at least 60 points.

Course and Institution

A noteworthy feature of the results is that students in computer science experience a relative risk of dropout of 1.7 times higher than their counterparts in social science, arts and law (Figure 17). Students in education and healthcare courses have significantly lower non-progression rates, even taking account of the gender, 'ability' and social class intake of these courses. Other work shows important variation in course intensity across the fields of study,[64] which may explain variation in non-progression, while class size also varies considerably across the fields of study. It may also be the case that the factors behind non-completion vary across fields of study—in their research on students in the institutes of technology, Eivers *et al* found that course difficulty was much more frequently cited as a reason for wanting to leave the course among electronics and computing students.[65]

Figure 17: Non-Progression Odds by Field of Study, Controlling for Social Background and Leaving Certificate Performance

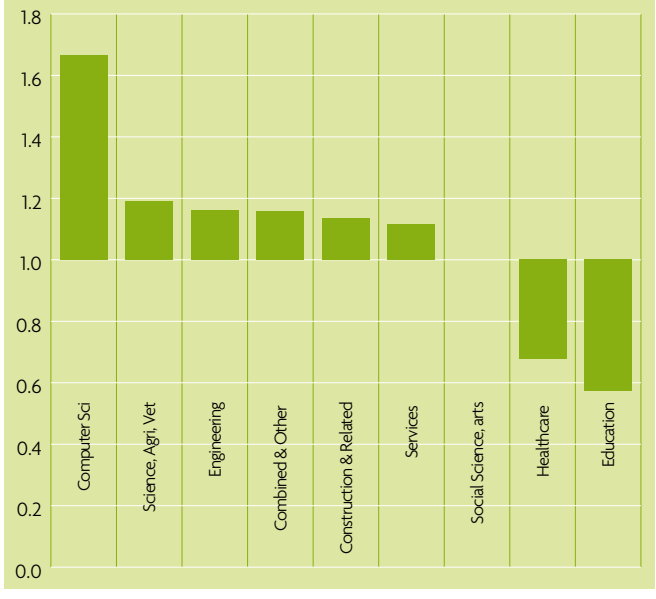
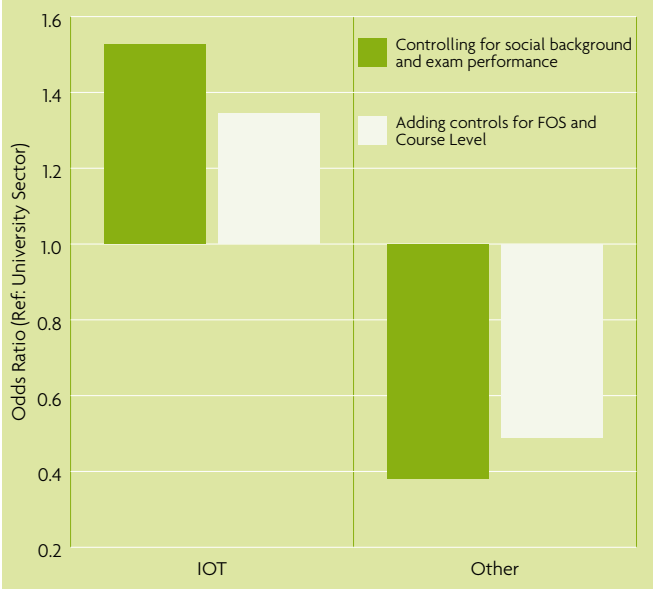


Figure 18: Non-Progression Odds for Institute of Technology and 'Other College' Students Relative to University Students, Controlling for Individual Characteristics



Taking account of student intake, progression rates vary considerably across the three main higher education sectors—the universities, institutes of technology, and Other Colleges. As displayed in Figure 18, students attending institutes of technology are significantly more likely to not progress relative to their counterparts in the university sector, while students attending Other Colleges (predominantly teacher training colleges and NCAD) are substantially more likely to successfully progress. Students attending institute of technology colleges are 1.5 times more likely to not progress than students attending a university, *ceteris paribus* (i.e. taking account of student characteristics like social class and Leaving Certificate performance). This differential falls to 1.4 times to depart when taking account of field of study and course level. To some extent sectoral differences reflect variations in the course-level taken; additional analyses (not shown) examining course-level effects on non-progression showed much higher levels of non-progression among level 7 and, most notably, level 6 course participants, compared to students taking level

64 See McCoy *et al*, *Study on the Costs of Participation in Higher Education.*

65 E. Eivers, R. Flanagan, and M. Morgan, *Non-Completion in Institutes of Technology: An Investigation of Preparation, Attitudes and Behaviours Among First-Year Students* (Dublin: Educational Research Centre, 2002).

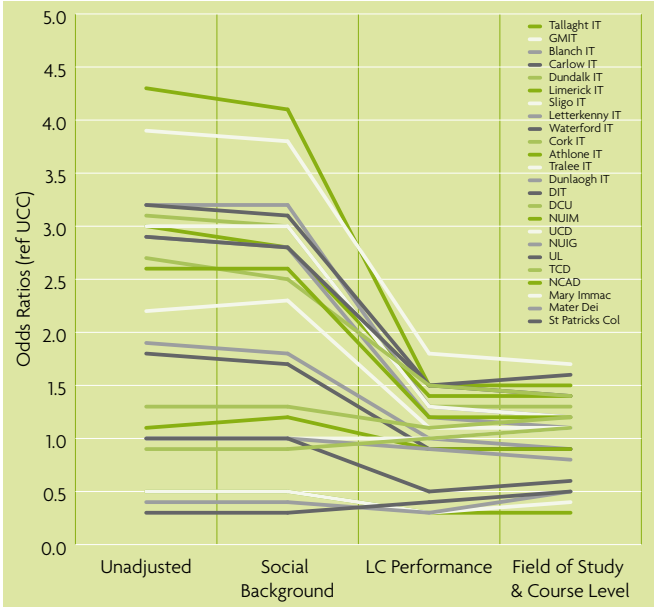
8 Honours degrees (traditionally referred to as Bachelor degrees). These differences are largely captured by variation across sectors, since universities and colleges of education offer almost exclusively level 8 courses, while institutes of technology offer courses at all three levels.

6.3.2 Non-Progression across All Institutions

Appendix Table D3 displays raw and adjusted non-progression risks across each of the colleges (relative to the reference group UCC). The results are summarised in Figure 19 below. Overall, the results show large differences in average chances of non-progression, with many of the institutes of technology displaying higher non-progression risks. However, when individual student characteristics are taken into account (particularly Leaving Certificate performance), variation across the higher education institutions declines significantly, pointing to the importance of taking a value-added approach in measuring institutional effectiveness in student retention. To take an example, the overall average chance of non-progression for students attending the Institute of Technology, Blanchardstown was three times that for University College Cork. However, when student composition is controlled for the differential between the two colleges is no longer significant. When all adjustments for student intake are included in Model 4, seven institutes of technology display significantly higher non-progression odds: Galway–Mayo Institute of Technology; Waterford Institute of Technology; the Institute of Technology, Tallaght; the Institute of Technology, Carlow; Limerick Institute of Technology; Cork Institute of Technology; and Dundalk Institute of Technology. Section 6.3.3 below examines variation across the institute of technology sector in greater detail.

Appendix Table A3 shows that five higher education institutions have significantly lower chances of non-progression than the reference group, University College Cork: these are the National College of Art and Design, Mary Immaculate College, St. Patrick's College, the University of Limerick and the National University of Ireland, Galway. It is clear that, *ceteris paribus*, retention rates are significantly higher in the colleges of education (and the National College of Art and Design), perhaps reflecting selection processes operating in these institutions, the more specialised nature of the courses in the institutions (with students enrolling on a course with a clear career orientation, as opposed to a more 'general' course with no specific career direction) and the labour market opportunities for students successfully completing courses in these colleges.

Figure 19: Non-Progression Odds across Institutions, Unadjusted and Controlling for Additional Individual Characteristics

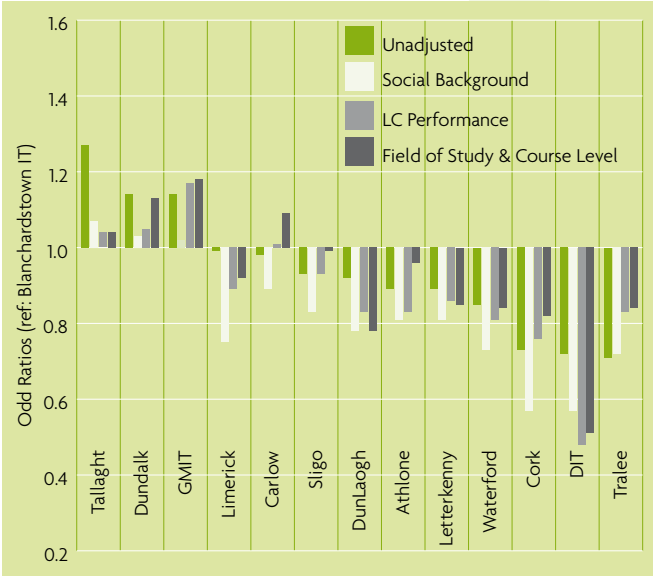


6.3.3 Non-Progression across Institutes of Technology (NFQ Level 6 & 7 Courses only)

Appendix Table D4 displays non-progression odds for level 6 and level 7 students across the institutes of technology. The results are summarised in Figure 20 below. What is immediately clear, and of great importance, is that these institutions, for the most part, do not differ significantly in their non-progression rates among level 6 and level 7 students, *ceteris paribus*. With the exception of lower non-progression chances in Dublin Institute of Technology, relative to the reference, the Institute of Technology, Blanchardstown, no other institution differs significantly to that reference group. This is a significant finding and reinforces the importance of taking account of student intake in comparing institutional effectiveness and the importance of comparing within as well as across higher education sectors.

In line with earlier results, attainment in the Leaving Certificate examination is a significant predictor of progression, while students in receipt of a grant are also more likely to progress. Again students taking courses in computing are at greater risk of non-progression, while students enrolled in healthcare courses are more likely to successfully progress, relative to science, agriculture and veterinary courses. This analysis, confined to students taking level 6 and 7 courses in the institutes of technology, also reveals that age group now matters for progression: students aged 16–18 and 19–20 years are more likely (1.8 and 1.9 times) to be in the non-progression group than those aged 25–29 years. In contrast, students aged over 30 years are significantly less likely to not progress.

Figure 20: Non-Progression Odds for Institutes of Technology, Unadjusted & Controlling for Additional Individual Characteristics



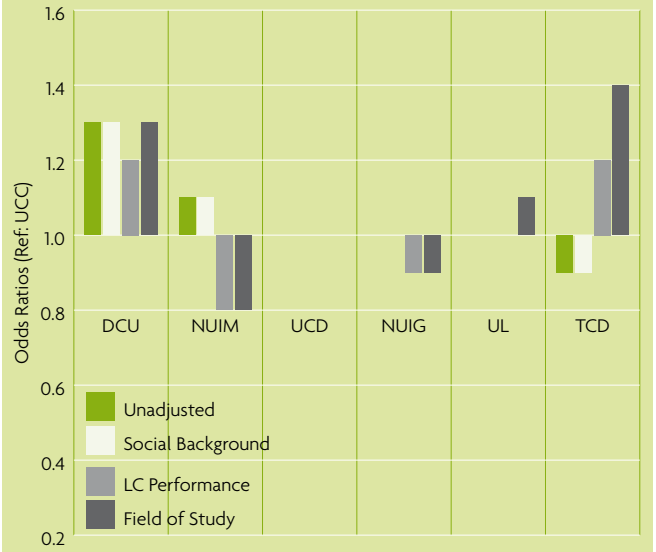
6.3.4 Non-Progression across the Universities (NFQ Level 8 Courses only)

Confining attention to level 8 courses and just the university sector, Figure 21 displays raw and adjusted progression rates across these colleges, with full results presented in Appendix Table D5. Once again, it is clear that variations within the university sector are small and, for the most part, not significant. However, relative to University College Cork, the average chance of progression is somewhat lower in Trinity College Dublin and Dublin City University, when account is taken of individual student background and course type: in the case of Trinity College Dublin non-progression odds

are 1.4 times higher than for University College Cork, while the differential for Dublin City University is 1.3 times. The National University of Ireland, Maynooth emerges as the only institution with significantly lower non-progression chances than University College Cork. It is important to bear in mind that this analysis is confined to the universities only; earlier analysis has shown that when all institutions and all course levels are included, University of Limerick and the National University of Ireland, Galway (along with the National College of Art and Design and the colleges of education) display the lowest non-progression odds, *ceteris paribus*.

There are no significant differences in non-progression odds across age groups and by gender. Receiving a grant does not have a significant impact on progression, unlike for students in the institutes of technology. Performance in the Leaving Certificate examination is, once again, a powerful predictor of student non-progression. Finally, similar patterns emerge across fields of study—higher non-progression among computing students and lower non-progression among students enrolled in healthcare courses, relative to students in social science, law and arts.

Figure 21: Non-Progression Odds for Universities, Unadjusted and Controlling for Additional Individual Characteristics



Section 6.4: Discussion

Irish research on higher education and indeed policy has, for the most part, placed considerable emphasis on widening access and promoting the entry of under-represented groups into college.[66] However internationally attention is increasingly focused on how students fare after entry—on student experiences in relation to retention, completion and withdrawal. International reports have placed considerable emphasis on the importance of examining retention, dropout and performance in higher education within and across national contexts.[67] Such research has cited Ireland as one of the few countries not producing any figures on non-completion rates among its undergraduate students. Recent moves to ensure that Irish higher education institutions provide details on all students enrolled and year-to-year progression figures allows a valuable opportunity to address this important gap.

Earlier chapters have explored levels of non-progression in Ireland, both within and across higher education sectors. This chapter examines the factors shaping non-progression, attempting to unpack seemingly wide differences in progression across institutions. The results highlight a number of important factors shaping higher education progression in Ireland. In the first case, it is clear that social class differentiation plays a role, with students from professional and managerial classes more likely to successfully progress from their first to their second year of study. However class differences are no longer significant once performance is taken into account. Essentially while students from working-class backgrounds are disproportionately less likely to enrol in higher education, once that transition is made there are few notable social-class differences in progression. This is somewhat at odds with international research, with Goldrick-Rab, for example, concluding that

66 See Clancy, *College Entry in Focus*; McCoy *et al*, *Study on the Costs of Participation in Higher Education*; O'Connell *et al*, *Who Went to College in 2004?*,

67 See OECD, *Education at a Glance 2008*.

> students from lower socio-economic backgrounds are more likely than are economically advantaged students (net of prior academic preparation) to follow pathways that are characterised by interrupted movement. Such pathways appear to be less effective routes to the timely completion of degrees.[68]

However it may well be the case that the students from different social classes in this analysis who do not progress have very different trajectories and longer-term outcomes. As Goldrick-Rab suggests, if more advantaged students

> fail a course or decide that they dislike a major, they are more likely to be able to negotiate the complex advising and registration system to make a change within that institution or to another institution. Students from lower-class backgrounds [...] may obtain initial access to college, aided by policies, such as financial aid and affirmative action [...] but when faced with academic failure [they] may be forced to change schools or leave college.[69]

There may well be social-class differences in the factors underlying student non-progression; with middle-class students perhaps more likely to leave for 'positive' reasons relating to alternative (more suitable) options and disadvantaged students more likely to leave for 'negative' reasons relating to disengagement and failure.

Gender patterns also emerge, with females more likely to make the transition, although much of the difference is accounted for by males taking courses in subject areas which have lower progression rates (i.e. Engineering and Science). It is interesting to find, *ceteris paribus*, that grant recipients in the institutes of technology display greater progression rates than those not in receipt of such support, suggesting the importance of this support for the financial well-being of students and their reduced reliance on part-time work (which has only become increasingly challenging in the current climate).[70] Further, given the stipulation that grant recipients pass their exams to retain grant eligibility, this may also be playing a role in timely student progression.

Leaving Certificate performance emerges as a strong predictor of successful transition, in line with earlier work examining the relationship between Leaving Certificate results and degree results in four higher education institutions (Fitzgerald, 2006). Similar findings emerge in the US context, with Adelman finding that high school academic achievements such as grades and test scores, provide the best indicators of success later in college.[71] It is interesting to find that attainment in mathematics in the Leaving Certificate is an important predictor of progression in higher education—suggesting that students with poor mathematical skills, in particular, struggle to meet the academic demands of higher education.

Finally, even after controlling for socio-economic characteristics and 'ability' (at least as reflected in attainment in the Leaving Certificate examination), significant differences in progression rates exist across subject areas and fields of study. Further analysis needs to unpack this issue to assess the differential contribution of student mix, pedagogical/teaching approaches, academic requirements, learning supports and labour market linkage across fields of study, since the difficulties students face in successfully progressing in one field of study may be different to another field.

The analysis highlights the importance of taking account of student intake in assessing the effectiveness of institutions in student retention. It is clear that wide overall differences across institutions to a large extent reflect differences in the types of students enrolling in different colleges. This provides some support for an argument that colleges cannot be held solely accountable for retention and graduation rates. This message is echoed in international

68 Sara Goldrick-Rab, 'Following Their Every Move: An Investigation of Social Class Differences in College Pathways', *Sociology of Education* 79/1 (January 2006): 61–79 (61).

69 *Ibid.*, 65.

70 See McCoy *et al*, *Study on the Costs of Participation in Higher Education.*

71 See C. Adelman, *Answers in the Tool Box: Academic Intensity, Attendance Patterns and Bachelor's Degree Attainment* (Washington D.C.: U.S. Government Printing Office, 1999).

research, with Titus, for example, arguing that 'holding institutions accountable for their "unadjusted" persistence rate is inappropriate, given that such a rate is influenced by a complex set of variables largely at the student level'.[72] Clearly, colleges vary widely in the 'quality' of students they enrol and hence a value-added measure is of utmost importance in assessing inter-institutional variation in student progression. Taking such a value-added approach, it is clear that seemingly wide differences across the institutes of technology and universities portray a misleading picture of institutional effectiveness. When results are adjusted to allow for like-for-like comparisons, differences within the two main higher education sectors are substantially smaller and, for the most part, not noteworthy. The main differences in progression rates emerge between the university, institute of technology and 'Other Colleges' sectors. It is clear that a focus on raw or absolute levels of progression/completion across institutions carries the danger of rewarding institutions with more selective student intakes. As Astin argues in relation to a focus on absolute levels of performance, 'the most dangerous aspect of such an approach to accountability is that it provides negative incentives for institutions to enrol underprepared students, since such students tend to lower the institution's *absolute* level of outcome performance'.[73]

The sectoral differences in progression warrant considerable research and policy attention. Rapid expansion in the numbers enrolled in the institutes of technology has played an important role in greater numbers of disadvantaged students and students with lower levels of attainment in the Leaving Certificate examination accessing higher education.[74] Given strong differentiation in progression according to Leaving Certificate performance, the question can be asked: are significant numbers of students in the institutes of technology struggling to meet the academic demands of their courses? Is it the case—as Smith and Naylor, and Cave *et al*—maintain, that indicators of non-completion can potentially conflict both with policies of widening access to higher education and with the maintenance of academic quality?[75] However it is also clear that some colleges with a more disadvantaged intake fare better than others perhaps pointing to the role of academic supports, teaching and learning approaches and broader student engagement in college life in promoting student success.

Finally it is important to note that student non-progression should not be considered a negative phenomenon for all students. In some cases non-progression may signal an inability to meet the academic requirements of the course and transferring to an alternative course may be the optimum outcome. Similarly withdrawal may signal a lack of interest in the course content and transfer to an alternative course in which the student is more intrinsically motivated may be a positive step. Non-completion cannot be eliminated, nor should it be, but rather the focus should be on monitoring retention and performance levels within and across institutions over time, and ensuring that students in need of additional supports are identified and provided with such support in a timely and effective manner.[76] There can be little doubt that non-progression may stem from inappropriate choice of course, which reflects on second-level guidance support, an issue which has emerged in recent research examining the processes influencing higher education entry.[77]. It is essential that all students leaving the second-level system are fully equipped for higher education—in terms of

72 M. A. Titus, 'An Examination of the Influence of Institutional Context of Student Persistence at Four-Year Colleges and Universities', *Research in Higher Education* 45/7 (2004): 673–699 (693).

73 A. W. Austin, 'How "Good" Is Your Institution's Retention Rate?', *Research in Higher Education* 38/6 (1997): 647–658 (656).

74 See McCoy and Smyth, 'Higher Education Expansion'.

75 See M. Cave, S. Hanney, M. Henkel, and M. Kogan, *The Use of Performance Indicators in Higher Education: The Challenge of the Quality Movement*, Higher Education Policy Series No. 3 (London: Jessica Kingsley, 1997); Smith and Naylor, 'Dropping Out of University'.

76 As noted by Bradley and Lenton, dropout rates are also likely to reflect labour market conditions and such conditions are likely to differentially effect different groups of students. Steve Bradley and Pam Lenton, 'Dropping Out of Post-Compulsory Education in the U.K.: An Analysis of Determinants and Outcomes', Working Paper, Department of Economics, Lancaster University (2005): 1–25 (6).

77 See McCoy *et al*, *Hidden Disadvantage*.

academic preparedness, knowledge and understanding of course content and the requirements of the course, and an understanding of potential career paths.[78] Within the higher education setting, results point to the value of identifying 'at risk' students and ensuring that they have the supports and guidance they need to enhance their motivation, engagement and performance early-on in their courses.

Key points in this chapter include:

- *At an overall level males are less likely to successfully progress in their course. However this difference largely reflects lower levels of Leaving Certificate performance among males and their greater entry into higher education sectors and courses with higher dropout levels.*
- *Leaving Certificate performance plays a central role in student progression, with rising points equating to greater levels of student progression—a finding which holds when taking account of field of study and course-level. The results highlight the importance of academic preparedness prior to higher education entry and adequate learning supports on entry to higher education.*
- *It is clear that grant support plays an important role in student retention, particularly for students attending the institutes of technology. This signals the importance of grants for the financial well-being of students and means that students are less reliant on part-time employment. Further, given the stipulation that grant recipients pass their exams to retain grant eligibility, this may be serving as an effective incentive for timely student progression.*
- *Students in computer science experience a much greater risk of dropout, while those enrolled in education and healthcare courses have significantly lower non-progression rates, even taking account of the gender, 'ability' and social class intake of these courses.*
- *In comparing retention levels across institutions, the analysis points to the crucial importance of taking account of the composition of the institutions, to allow a like-for-like comparison. Wide overall differences between the institutions decline dramatically once the results are adjusted for the characteristics of the students enrolled.*
- *Once these adjustments are made, the main differences emerging are between the three main sectors, rather than within them. Retention rates are significantly higher in the colleges of education (and the National College of Art and Design), while the institutes of technology display lower retention levels.*
- *Dublin Institute of Technology emerges with higher retention levels within the institute of technology sector. In the universities, students are most likely to successfully progress in the University of Limerick, the National University of Ireland, Galway (overall model), and the National University of Ireland, Maynooth.*

Note:

1 The statistical methodology adopted takes account of the clustering of students within Institutions. To take account of this clustering of the data, the models were estimated using robust standard errors. This method allows for within-cluster correlation of errors, and results in much more conservative standard errors and smaller t-statistics than those in an unclustered model. That it, this method relaxes the requirement that the errors be independent, by allowing them to be correlated within each cluster group (HE institution). This correlation affects only the standard errors and t-statistics but not the estimated coefficient. As a result, the odds ratios presented are the same for both the clustered and un-clustered models.

78 This has also been highlighted by Eivers, Flanagan, and Morgan in *Non-Completion in Institutes of Technology.*

Chapter 7:

An Analysis of Student Progression Beyond First Year

Introduction

To date this report has examined non-progression among full-time undergraduate 2007/08 new entrants to higher education. For completeness this final chapter explores the issue of non-progression among second, third, and fourth-year students in the same time period. In addition, the progression among students repeating a year across all years is examined.

Section 7.1: Non-Progression by Course Year

This section examines the students in the second, third, fourth, and later years of their course by sector, NFQ level and course duration. These figures exclude repeating students.

Table 7.1 shows that, for all levels and sectors, you are significantly more likely to be present the following year than a new entrant. The further advanced a student is in their course of study (depending on the duration of the course) the more likely they are to be present the next year. That is, a student that is in the third year of a four-year course is considerably more likely to be present in the fourth year than a student in first year of a four-year course is in the second year.[80]

At level 6, 9% of those enrolled in the second year of their course did not graduate from their final year in the expected timeframe, compared to 26% of level 6 new entrants who were not present in the following year. At level 7, 11% of second-year students were not present in their third year, while 7% of third-year students did not graduate on time. This figure compares to 27% of new entrants at that level.

Table 7.1: Non-Presence Rates by Course-Year, Sector, NFQ Level and Course Duration[76]

Sector	Level	Students Not Present (%)				
		2nd Yr	3rd Yr	4th Yr	>4th Yr	Yrs 2+
Institutes of Technology	6	9%				9%
	7	11%	7%			8%
	8 (All)	9%	7%	8%	15%	8%
	All IoT	10%	7%	8%	15%	8%
Universities	8 (All)	5%	3%	3%	2%	3%
Other Colleges	8 (All)	2%	1%	1%		1%
All Institutions	*8 (3 Yr)*	*5%*	*3%*			*4%*
	8 (4 Yr)	*6%*	*4%*	*5%*		*5%*
	8 (>4 Yr)	*2%*	*8%*	*10%*	*5%*	*7%*
	8 (All)	5%	3%	5%	5%	5%
All Institutions	All Levels	7%	4%	5%	5%	6%

79 In some cases small groups of students exceeded the anticipated length of their course by one year, but were still tagged as 're-enrolling' students. These have been excluded from the table above. Some institutes of technology, such as Athlone Institute of Technology, may be calling internal transfers on the ladder system re-enrolments.

80 The pattern holds across the remaining sectors, with one exception: level 8 institute of technology students enrolled on courses lasting longer than four years. In this case proportions similar to that of new entrants are seen to be not present in the next year or final year of their course. However since only two institutes of technology offer such courses and the numbers enrolled on them are small, concrete conclusions cannot be drawn.

Section 7.2:
Non-Progression of Repeating Students

Table 7.2 examines the non-presence rates of students repeating a year of study by sector, NFQ level, course duration and course year.

The table shows that, at all levels and for all sectors for first-year students, while the overall proportion of students repeating is low, those who do repeat in first year are far more likely to not be present the following year than students repeating other years. The non-presence rates for students repeating first year is far higher than the non-presence rates of new entrants (32% versus 9 for level 8 in the universities, for example). Students repeating first year of a level 6 course are almost twice as likely to be not present the following year than a new entrant is (25% compared to 46%). Students repeating the first year of level 8 courses in an 'Other College' are eight times more likely to be not present the following year than a new entrant (4 percent compared to 33%). Since teacher training courses form a large proportion of courses offered by 'Other Colleges', a student may decide that they are not suited to that profession.

Table 7.2: Non-Presence Rates of Repeating Students by Course-Year, Sector, NFQ Level and Course Duration

Sector	Level		1st Yr	2nd Yr	3rd Yr	4th Yr	>4th Yr	All Yrs
Institutes of Technology	6	Repeat %	6%	6%				6%
		Repeats Not Present %	46%	22%				32%
	7	Repeat %	4%	5%	4%			4%
		Repeats Not Present %	37%	30%	22%			29%
	8 (All)	Repeat %	3%	3%	1%	1%	2%	2%
		Repeats Not Present %	38%	23%	26%	37%	22%	32%
	All IoT	Repeat %	**4%**	**4%**	**3%**	**1%**	**2%**	**3%**
		Repeats Not Present %	**40%**	**25%**	**23%**	**37%**	**22%**	**31%**
Universities	8 (All)	Repeat %	**4%**	**4%**	**3%**	**1%**	**1%**	**3%**
		Repeats Not Present %	**32%**	**25%**	**20%**	**12%**	**21%**	**25%**
Other Colleges	8 (All)	Repeat %	**1%**	**2%**	**2%**	**0%**		**1%**
		Repeats Not Present %	**33%**	**15%**	**7%**	**n/a**		**15%**
All Institutions	*8 (3 Yr)*	*Repeat %*	*4%*	*5%*	*3%*			*4%*
		Repeats Not Present %	*31%*	*23%*	*15%*			*24%*
	8 (4 Yr)	*Repeat %*	*3%*	*3%*	*2%*	*1%*		*2%*
		Repeats Not Present %	*36%*	*26%*	*26%*	*20%*		*29%*
	8 (>4 Yr)	*Repeat %*	*3%*	*2%*	*2%*	*1%*	*2%*	*2%*
		Repeats Not Present %	*20%*	*20%*	*6%*	*31%*	*22%*	*20%*
	8 (All)	Repeat %	**4%**	**3%**	**2%**	**1%**	**2%**	**3%**
		Repeats Not Present %	**34%**	**24%**	**20%**	**20%**	**22%**	**26%**
All Institutions	All Levels	***Repeat %***	**3%**	**3%**	**2%**	**3%**	**3%**	**3%**
		Repeats Not Present %	**28%**	**26%**	**24%**	**21%**	**29%**	**28%**

Students are equally likely to repeat any year of a course with the exception of the final year. Many institutions do not allow students to re-sit their final year exams and still receive an Honours award.

Section 7.3: Transfer Students

The vast majority of first-year students are new entrants. A small proportion are repeat students. Less than one percent of first-year students present in March 2008 had transferred to another course within the same institution in March 2009. The small size of this cohort (less than 300 of 65,000) prevents detailed analysis of transfer between disciplines. Future studies with access to cohorts spanning several years could revisit this issue.

Key points in this chapter include:

- *For all levels and sectors, students are significantly more likely to be present the following year the more advanced they are in their course of study. Non-presence rates for new entrants are 15% compared to 7% for second-year students, 4% for third-year students, and 5% for fourth-year students.*
- *Students are equally likely to repeat any year of a course with the exception of the final year.*
- *Those students who repeat first year are far more likely to not progress to second year than students repeating other years.*

Chapter 8:

Concluding remarks

The fundamental importance of academic preparedness

This report demonstrates that there is a strong correlation between students' educational attainment at secondary level and their subsequent success in progressing through higher education. This is reflected in the multivariate analysis, which shows that the influence of students' gender and socio-economic background on their progression through higher education is mediated mostly through their prior educational attainment. In particular students' mathematical abilities appear to have a strong bearing on their capacity to engage with higher education. Accordingly this analysis presents key challenges for the education community in Ireland: to improve the level of achievement and competence development throughout the school system, and to support the academic preparedness of all prospective new entrants to higher education.

> *In pursuing our national aspirations in education, the HEA is conscious that the graduate is the product of the entire education system. Therefore, it will be important to ensure complementarity and consistency in the skills and aptitudes that are nurtured and developed at all levels of education.*[81]

In demonstrating that the highest rates of non-completion in higher education in Ireland are in technology-based disciplines, this report corroborates the findings of earlier studies.[82] This represents a mis-match between identified priorities in terms of economic and enterprise development strategy and our areas of greatest vulnerability in terms of competence development. The importance for economic recovery of creating a strong foundation in science and technology in Ireland renders this a matter of particular concern. For higher education institutions, the analysis suggests that in all scientific and technology oriented programmes (particularly those at levels 6 and 7), the continuing development and application of mathematical competences should be pursued as a key learning outcome of the core curriculum. In other disciplines fostering and supporting academic preparedness will require the development of other competences such as academic writing and basic research skills.

This implies institution-wide supports. If targeting is necessary, this study indicates that prior educational attainment (as captured in Leaving Certificate outcomes) offers an efficient and available basis for prioritisation.[83] A recent study of the experiences of students from the 'non-manual' socio-economic group in accessing higher education in Ireland highlighted the key role of information and awareness in shaping higher education access and the potential for improved linkage between second- and higher education sectors in this regard.[84] Higher education institutions also have a key opportunity and responsibility to enhance learning outcomes through their role in the formation and continuing professional development of primary and secondary-school teachers.[85]

81 HEA, Submission to the National Strategy for Higher Education (June 2009).

82 Morgan et al, 2000 & 2001

83 While prior academic attainment could provide a convenient basis for targeting of interventions, continued monitoring of educational outcomes by reference to key equality criteria—including the socio-economic background, age, gender, and disability status of students -- will be vital to inform Ireland's progress towards greater equality in the extent to which higher education serves the needs and unlocks the potential of all citizens.

84 See McCoy et al, Hidden Disadvantage? A Study on the Low Participation in Higher Education by the Non-Manual Group.

85 The University of Limerick's National Centre for Excellence in Mathematics and Science Teaching and Learning, funded under the HEA's Strategic Innovation Fund, promotes best teaching practice in these disciplines in higher education. See www.nce-mstl.ie. The importance of high-quality teaching in mathematics at primary school level has been highlighted in Seán Delaney, Knowing What Counts: Irish Primary Teachers' Mathematical Knowledge for Teaching (Dublin: Marino Institute of Education and the Department of Education and Skills, January 2010).

Progression in the context of the pursuit of greater equality in higher education.

The severity of inequality at the point of entry to Irish higher education is well documented in the studies undertaken by Patrick Clancy between 1980 and 1998, and in research more recently conducted by the ESRI.[86] In addition to the traditional focus on issues pertaining to widening access to higher education, the focus of attention in Ireland and internationally has broadened to examine inequalities in the extent to which different socio-economic groups derive benefit from higher education. The impact of widening participation on retention rates has stimulated impassioned debate in the literature on student retention.

The overall patterns that emerge from this study reflect the aggregate impact of socio-economic circumstances and background on the likelihood of progression through higher education. These patterns show that non-presence rates from the first year to the second year of study in 2008 ranged from 10% among students from a 'Higher Professional' background to 19% among students from an 'Unskilled Manual' background.[87] At aggregate level, these outcomes further exacerbate the severe inequalities of access to higher education reflected in the strong correlation between socio-economic background and likelihood of entry to higher education. This underlines the vulnerability of students from lower socio-economic backgrounds to non-progression in higher education and to the importance of supporting students from a diverse range of backgrounds in gaining access to, and progressing in, higher education.[88]

The multivariate analysis provides hope and encouragement because it suggests that there does not appear to be a direct correlation between socio-economic group per se and non-presence rates when other factors are considered. The HEA's data suggests that those students from lower socio-economic groups who successfully enter higher education perform relatively well, and that the often strong socio-economic differences found in retention studies elsewhere are not as pronounced in the Irish system. This contradicts the majority of international research on this issue and reflects well on the achievements of the Irish higher education system in the promotion of equality.[89]

86 See O'Connell et al, Who Went to College in 2004? and McCoy et al, Hidden Disadvantage?.

87 This study does not address the factors underlying non-progression—such as examination failure/dropout versus transfer to a more suitable course—which may well vary across socio-economic groups.

88 The need to support students from lower socio-economic backgrounds in accessing higher education has been illustrated by recent research undertaken by the Economic and Social Research Institute (ESRI) on which a presentation was made at the European Network on Transitions in Youth Conference 2010. Smyth and Banks explored the forces that shape social class differentiation in the transition to higher education through a comparison of the experiences of students from a working-class school with those of students from a fee-paying school. They found that these groups of students had 'very different sets of economic, cultural, and social capitals upon which to draw in the educational field' particularly with regards to the level of advice received from their parents and siblings, and the culture and expectations of the school. Emer Smyth and Joanne Banks, '"There was Never Really any Question of Anything Else": Young People's Agency, Institutional Habitus and the Transition to Higher Education', paper delivered at the European Network on Transitions in Youth Conference, Dublin, 9th–11th September 2010.

The recent HEA-commissioned study of the participation of the 'non-manual' group in higher education indicates the importance of ensuring that students from this socio-economic group are supported in accessing and progressing in higher education. See McCoy et al, Hidden Disadvantage?.

89 This finding corresponds with Irish higher education institutions' general experience of mature students and with institutional evaluations which have shown very impressive completion rates among participants in access programmes. The supports and strategies developed by access practitioners can serve to inform broader institutional strategies for learner engagement.

This report shows that student grants have a positive impact on progression—a fact most clearly evident in the institute of technology sector. Grant support is highly important in fostering the financial well-being and security of students, and therefore in ensuring timely student progression. A recent study on the costs of participation in higher education examined changes in the value of grant payments over time, and trends in terms of the groups successful in obtaining grants.[90] Grants are a crucial support for lower socio-economic groups, particularly in a climate in which alternative funding mechanisms, such as part-time employment, are severely constrained. Notwithstanding Ireland's comparatively impressive progress in widening participation, this study does highlight the higher non-progression chances of students from the 'skilled manual' group. As with the 'non-manual' group (who currently have the lowest levels of access to higher education), families in the 'skilled manual' category are likely to be on the margins of grant-eligibility thresholds.

As in earlier studies, the differences between institutions declines once the results are adjusted for the characteristics of the students enrolled. The multivariate analysis presented in Chapter 6 demonstrates that the main differences emerging are between the three main sectors, rather than within them.[91] An appreciation of the success of Irish institutions in 'adding value' to the learning achievements of their students will require a thoughtful and holistic assessment of learning outcomes in light of the context in which institutions operate. Institutions differ in the extent to which they succeed in achieving high rates of progression, and an open exploration of the pedagogies and the strategies that contribute to high educational outcomes can enhance the quality of Irish higher education. This study hopes to provide an evidential basis upon which the Irish higher education community's understanding of student progression—and of the student experience more broadly—can be enriched.

The attractiveness of shorter horizon programmes

The evidence indicates that mature students engage more comfortably and effectively with higher education in shorter programmes (of full-time study). At NFQ levels 6 and 7, mature students (aged 23 or over) display higher rates of progression than their younger counterparts. This finding bears testimony to the capability and the capacity of the institute of technology sector to reach out to adults in their hinterlands. The regional distribution of the institutes of technology may also be an important factor informing the higher completion rates of mature students insofar as the institutes' proximity and accessibility to adult learners contributes to their successful engagement with level 6 and level 7 programmes.

90 Selina McCoy, Emma Calvert, Emer Smyth, and Merike Darmody, Study on the Costs of Participation in Higher Education, (Dublin: Higher Education Authority, 2009).

91 This finding echoes the outcomes of a 2007 study undertaken by the National Audit Office (NAO) in the U.K., which found that the twenty research-led universities in the Russell Group had the highest continuation rates and that the 'new universities', created post-1992, had the lowest. See National Audit Office, Staying the Course: The Retention of Students in Higher Education (London: The Stationery Office, 2007), 7. The relative scarcity of working-class students in the Russell Group and their prevalence in the post-1992 universities is also noted by Reay and her colleagues, in their studies of retention and progression in higher education in the U.K. See Diana Reay, Gill Crozier, and John Clayton, '"Fitting In" or "Standing Out": Working-Class Students in U.K. Higher Education', British Educational Research Journal 36/1 (February 2010): 107–24 (107–8). Bekhradnia observes that the 'universities with the highest drop-out rates coincide closely with the universities that are most active in widening participation'. See Bekhradnia, 'Higher Education Policy Making'. Gifford, Briceño-Perriott, and Mianzo predict that the putative correlation between widening participation and declining retention rates will result in increased focus on 'pre-college predictors of success' in the admissions process in higher education in America as competition for places intensifies. See Denise D. Gifford, Juanita Briceño-Perriott, and Frank Mianzo, 'Locus of Control: Academic Achievement and Retention in a Sample of University First-Year Students', Journal of College Admission (Spring 2006): 18–25 (24).

In recent years the institutes of technology have demonstrated renewed commitment and improving capability in the design and delivery of flexible and accessible learning opportunities for adults in the labour force. However the ladder system of progression pioneered within the sector, which this report shows suits mature learners, has declined over recent years. In the last five years, the provision of shorter duration courses—particularly at NFQ level 6 in the institutes—has almost halved. A range of factors including student/parental demand, unintended institutional responses to the funding allocation models and a general institutional pursuit of elevated status on the NFQ led over recent years to this substantial decrease in level 6 Higher Certificate course offerings in favour of *ab initio* level 8 programmes. These changes have occurred without evidence from the labour market that skills at these levels are no longer required. In fact in 2007 the *National Skills Strategy* anticipated that Ireland would have significant skills shortages at NFQ levels 6 and 7 by 2020.[92]

This report suggests that adults engage most effectively with shorter duration courses, and there is evidence that such courses are also important in widening access because they are regarded as 'less risky' options by potential learners from lower socio-economic groups.[93] In advancing the flexible learning agenda and building on the early successes of the institutes of technology in reaching out to adults in their regions, it is important to capitalise on the benefits of the system of progression which was pioneered in the institutes of technology and which underpins the design of Ireland's National Framework of Qualifications. The NFQ, and Ireland's pro-active engagement with the European Union's Bologna process, has provided *'an ideal architecture to build flexibility into the higher education system'*.[94] Irish higher education institutions have responded to these developments with a range of initiatives to promote innovation in teaching and learning and greater flexibility in course provision.[95]

What higher education institutions do does matter

The strength of the correlation between prior educational attainment and progression should not distract from the equally clear finding of this report that higher education institutions matter, and that the teaching and learning strategies and the student experience created on campus have a significant impact on learning outcomes. The first-year experience is regarded as particularly important in the international literature on retention as this is the period during which students are most likely

92 See Expert Group on Future Skills Needs, Tomorrow's Skills: Towards a National Skills Strategy.

93 See Selina McCoy and Emer Smyth, 'Higher Education Expansion and Differentiation in the Republic of Ireland', Special Issue on Differentiation in Higher Education, Higher Education (October 2010).

94 HEA, 'Submission to the National Strategy for Higher Education', 4. On Ireland's National Framework of Qualifications see www.nfq.ie; on the Bologna Process see www.bologna.ie.

95 The establishment of teaching and learning centres, educational technology units, and the development of technological infrastructure and virtual learning environments (VLEs) have significantly enhanced the opportunities for e-learning and work-based learning opportunities. Noteworthy system-wide initiatives funded under the HEA's Strategic Innovation Fund (SIF), include the National Academy for Integration of Research, Teaching and Learning (NAIRTL), the Learning Innovation Network (LIN) and the recently launched online portal BlueBrick—an initiative of the Institutes of Technology, Ireland (IOTI) which enables prospective students to search and apply for a range of courses offered on a flexible basis in the institute of technology sector. See www.nairtl.ie, http://lin-ireland.com/index.php?title=Main_Page and www.bluebrick.ie. New approaches to employer-academic partnership are being developed in the EIE (http://eine.ie/), REAP (http://reap.ie/site/), and ACE (http://ww2.dkit.ie/research/other_projects/ace/about) projects. SIF funding has also supported innovative approaches to widening participation, including the Shannon Consortium's involvement in pioneering approaches to educational disadvantage as part of the Limerick regeneration initiative.

to discontinue their studies.[96] In view of the fact that 4% of full-time first-year students in both the university and institute of technology sectors dropped out prior to the census date of 1st March, the total proportion of students not progressing to March of their second year of study was 13% in the universities and 26% in the institutes of technology. The proportion of students discontinuing their studies between the second and third years of their course declined to 7%; and the proportion not progressing from their third to their fourth year of study was just 4%.

Tinto maintains that the first-year learning experience *'is the key to student retention'* and that the patterns of interaction between staff and students, and the general integration of students into their environment in the first year of study, is of critical importance.[97] He suggests that first-year programmes of study should be problem-based rather than discipline-specific; that collaborative, group-learning should be encouraged; and that students' prior knowledge and experience should be built upon in order to *'bring to the fore their understanding and actively engage them in a communal discourse of what they already know'*.[98] Innovative teaching methodologies that actively engage the student in the learning process, as well as the integration of retention initiatives into the mainstream culture of an institution, are central to this. There is evidence emerging that intentional teaching strategies, developed to build students' capacities to integrate their learning, can have a positive impact on student progression from the first year of study onwards.[99]

This report is intended to serve as an evidence base for collective engagement by the Irish higher education community with the challenges of progression, completion, and enhancement of the student-learning experience. That Ireland's rates of progression compare favourably with trends in higher education internationally should not give rise to any complacency, nor divert from the collective pursuit of continual improvement in educational outcomes and in the skill and competence levels of the Irish population. Facilitating pathways to course completion for students necessitates not only the continuation and strengthening of the support mechanisms currently available in higher education institutions, but the emergence of a more flexible higher education system that is responsive to the needs of learners. Such a system should be characterised by innovation in teaching and learning, and in the design and delivery of programmes of study, to ensure greater connectivity between higher education institutions and the communities that they serve.

96 See V. Johnston, 'Why Do First-Year Students Fail to Progress to Their Second Year? An Academic Staff Perspective', paper presented at the British Educational Research Association Annual Conference, University of York, 11th–14th September 1997; Quinn et al, From Life Crisis to Lifelong Learning; L. Thomas, 'Student Retention in Higher Education: The Role of Institutional Habitus', Journal of Education Policy 17/4 (2002): 423–32; M. Yorke and B. Longden, The First-Year Experience in Higher Education in the U.K.: Report on Phase 1 of a Project funded by the Higher Education Academy (York: Higher Education Academy, 2007).

97 Vincent Tinto, 'Taking Student Retention Seriously: Rethinking the First Year of College', Speech to the American Association of Collegiate Registrars and Admission Officers, 15th April 2002. In Tinto's landmark study, Leaving College: Rethinking the Causes and Cures of Student Attrition (1993), and in subsequent research on student success, he argues that the key to effective retention is commitment to quality education and the building of a strong sense of inclusive educational and social community on campus. He identifies three major sources of student departure: academic difficulties, the inability of individuals to reconcile their educational and occupational goals, and their failure to become or remain incorporated in the intellectual and social life of the institution. Tinto argues that in order to persist in higher education, students need integration into formal (academic performance) and informal (faculty/staff interactions) academic systems; and into formal (extracurricular activities) and informal (peer-group interactions) social systems. He advocates an holistic student experience, the social and academic aspects of which are intertwined. See Vincent Tinto, Leaving College: Rethinking the Causes and Cures of Student Attrition (Chicago: University of Chicago Press, 1993).

98 Vincent Tinto, 'Taking Student Retention Seriously: Rethinking the University of the Future', lecture at the Rossier School of Education, University of Southern California, 17th November 2003. See also John M. Braxton, Jeffrey F. Milem, and Anna Shaw Sullivan, 'The Influence of Active Learning on the College Student Departure Process: Toward A Revision of Tinto's Theory', Journal of Higher Education 71/5 (September–October 2000): 569–590.

99 B. Higgs, S. Kilcommins, and T. Ryan (eds.), Making Connections: Intentional Teaching for Integrative Learning (NAIRTL, 2010).

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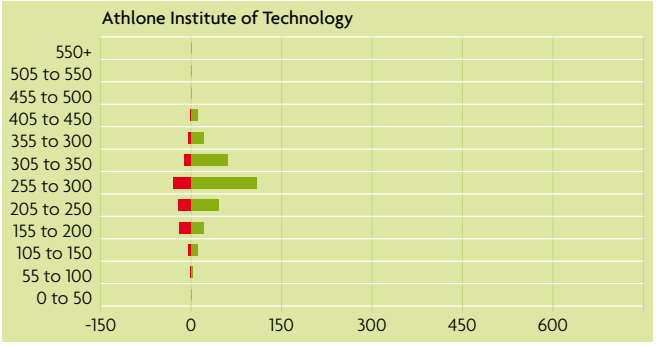
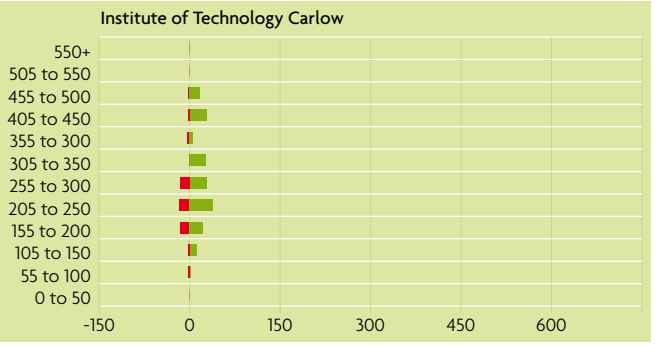
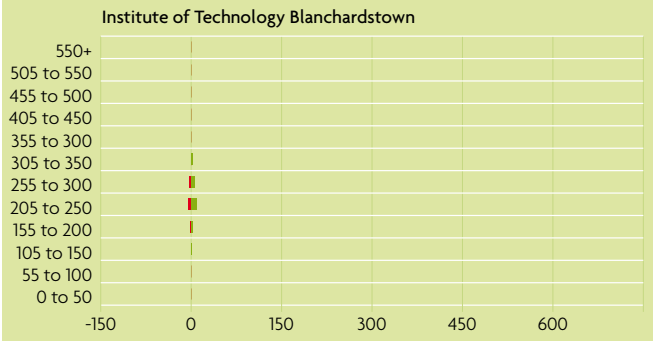
Appendices

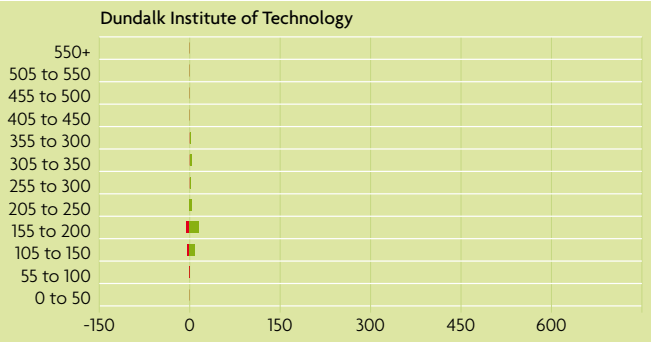
Appendix A:
Overall Non-Presence Rates by Institution, NFQ Level and Prior Education Attainment

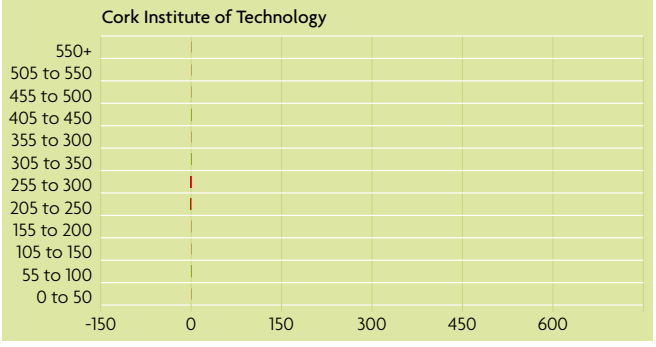
Institutes of Technology Level 6 Present vs Not present headcount by Leaving Certificate points bracket

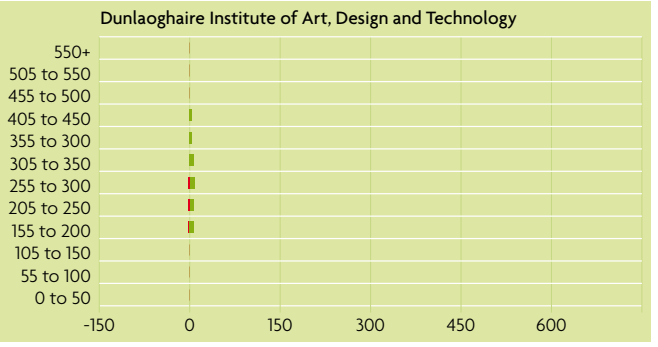


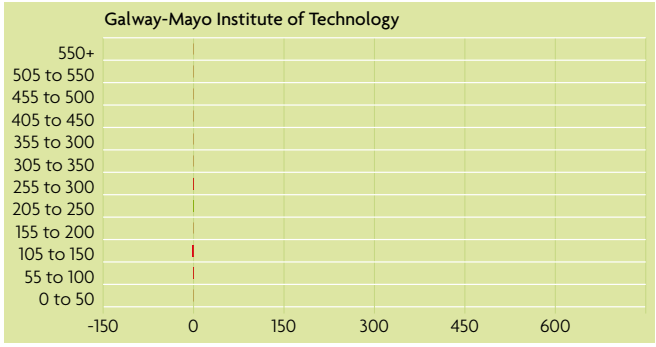








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550+
505 to 550
455 to 500
405 to 450
355 to 300
305 to 350
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205 to 250
155 to 200
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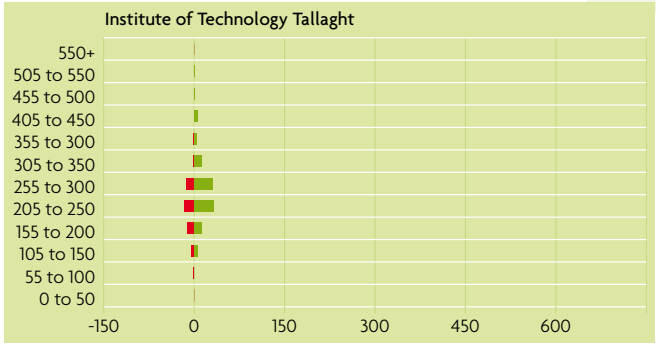
Institute of Technology Tallaght
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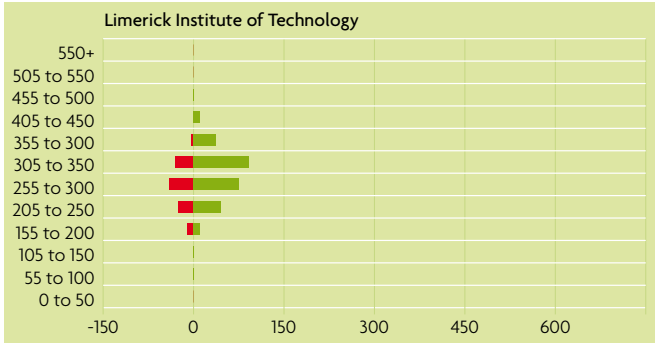
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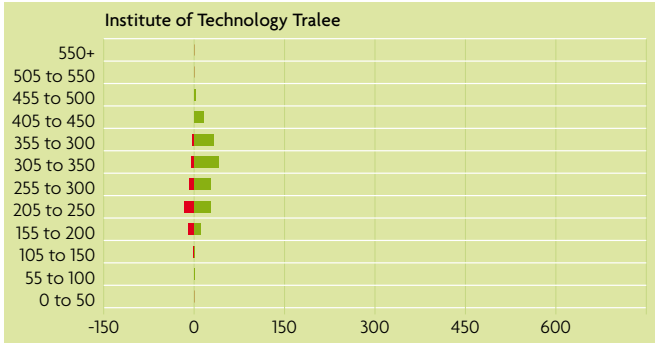
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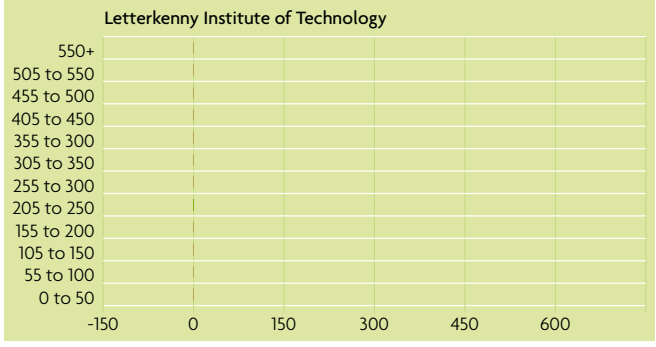
Letterkenny Institute of Technology
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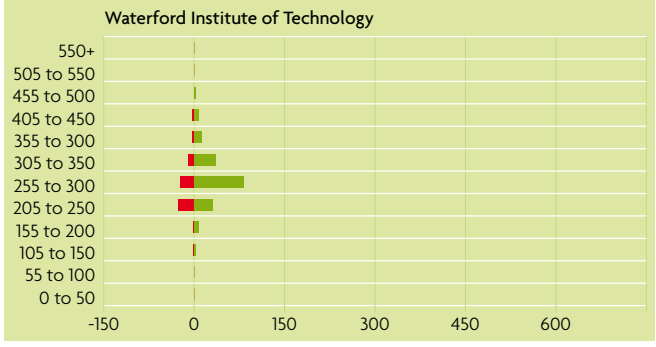
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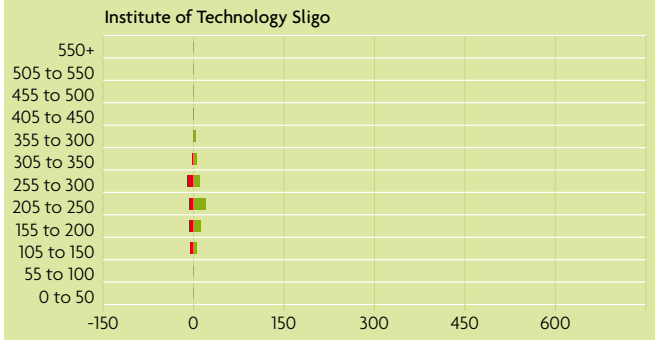
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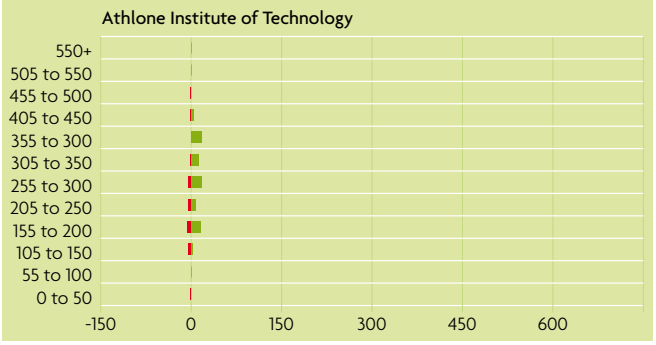
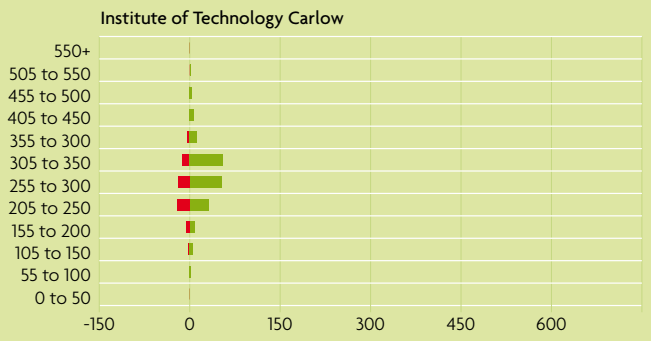
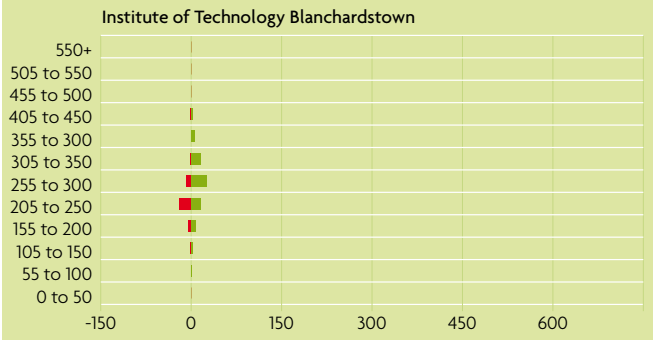
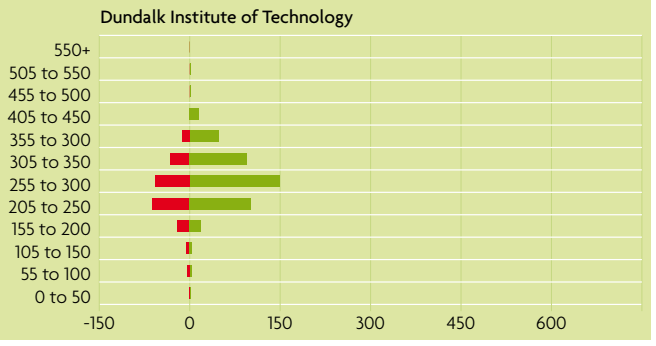
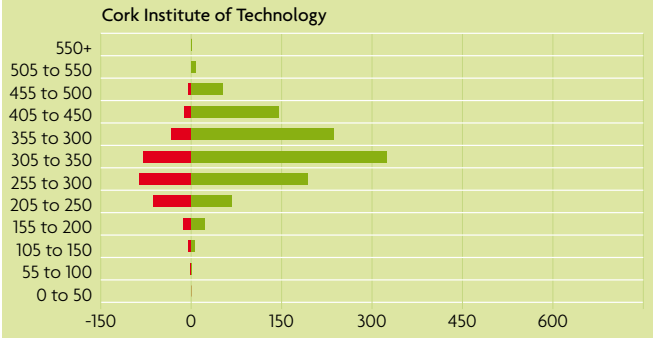
Institutes of Technology Level 7 Present vs Not present headcount by Leaving Certificate points bracket

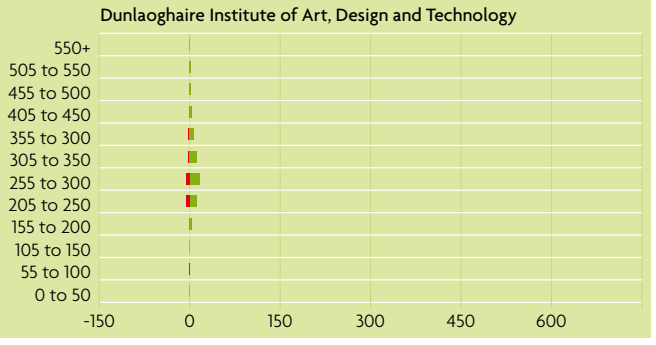


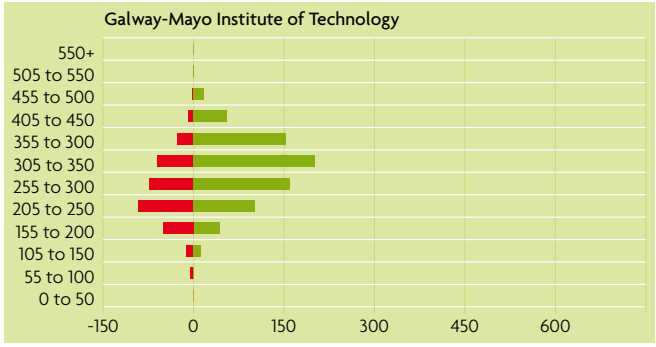








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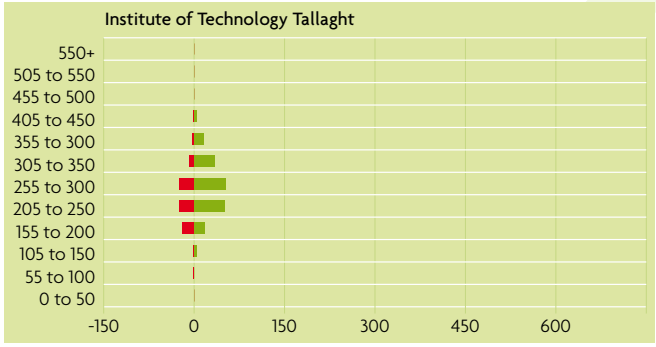
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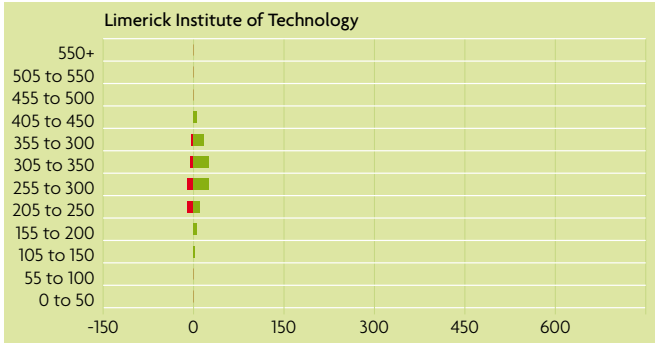
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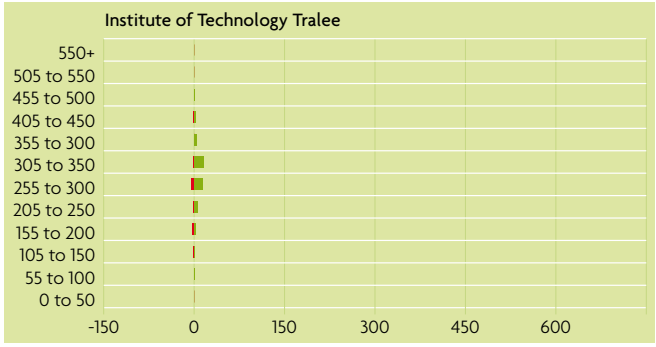
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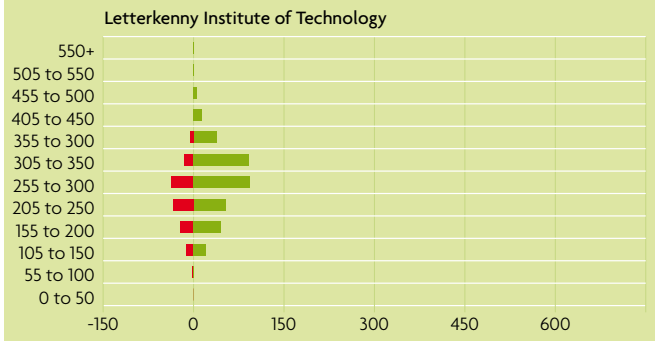
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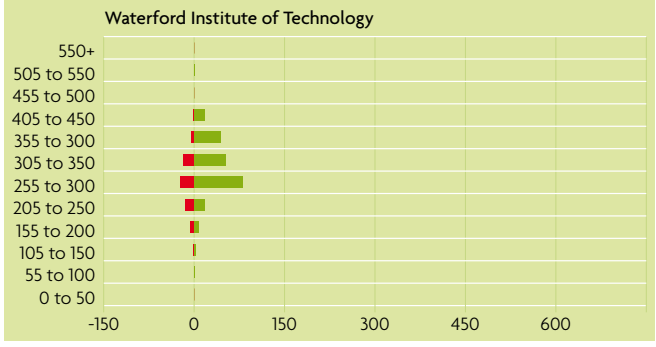
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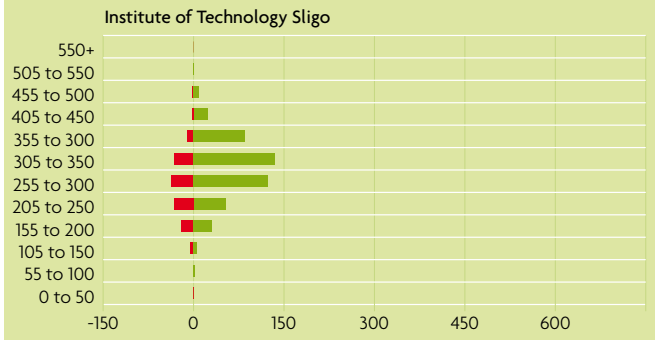
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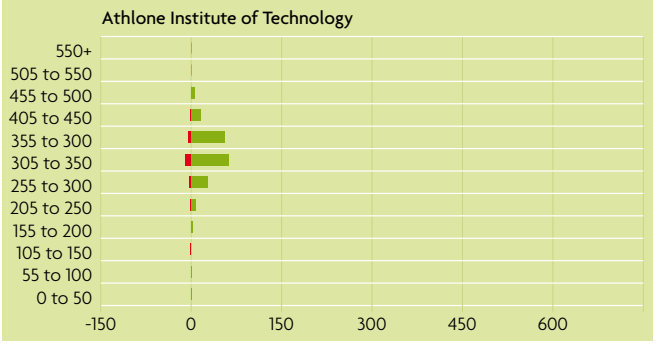
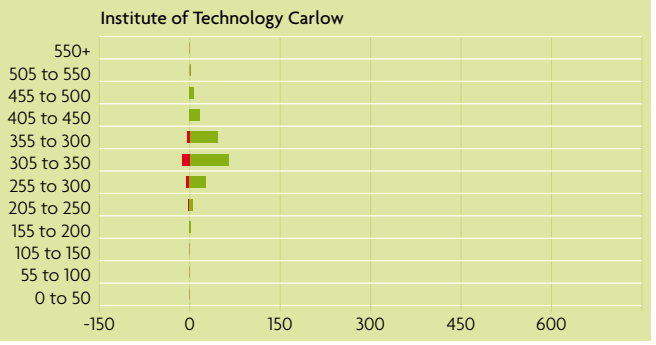
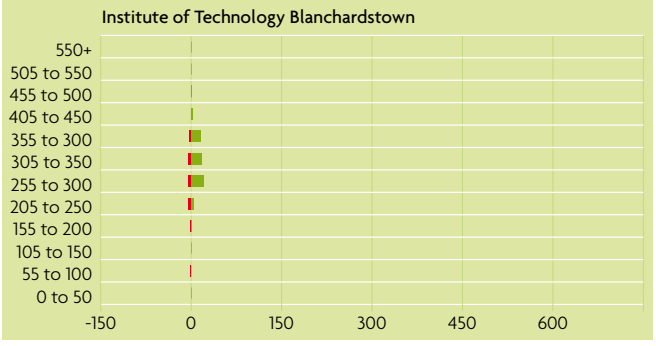
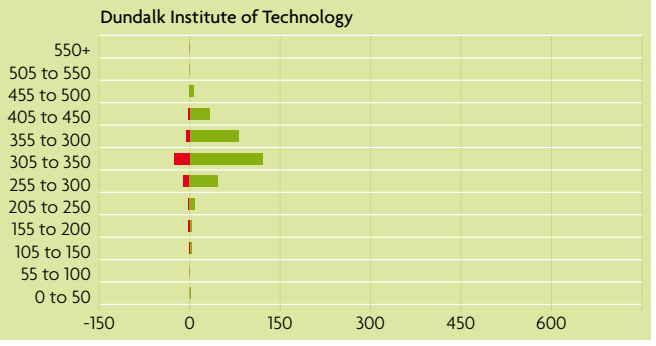
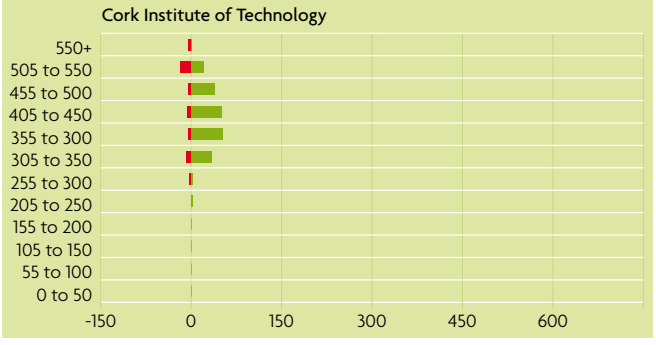
Institutes of Technology Level 8 Present vs Not present headcount by Leaving Certificate points bracket

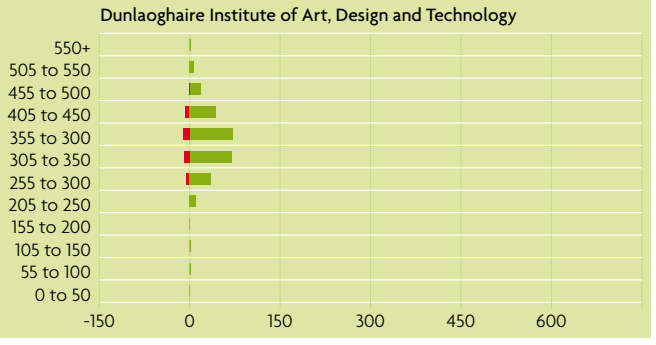


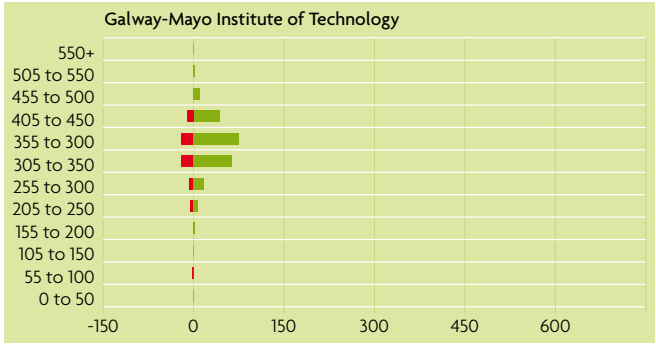











Galway-Mayo Institute of Technology
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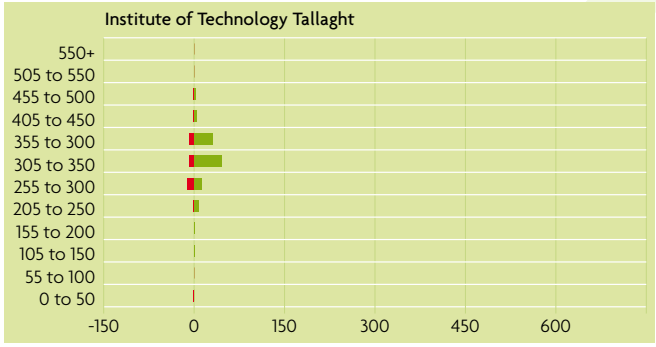
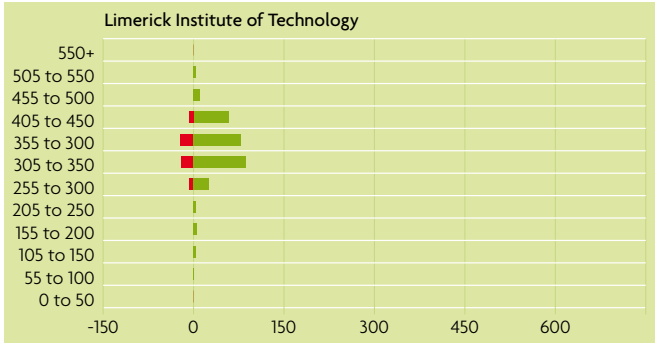
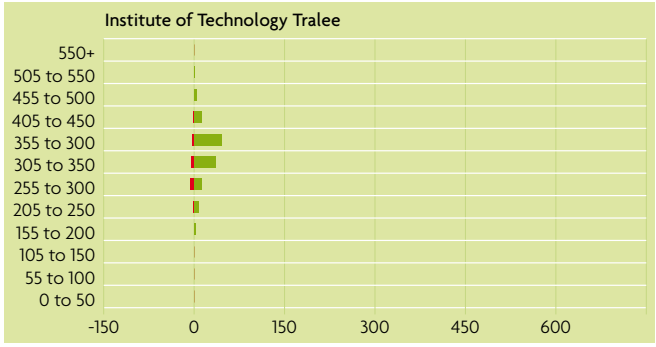
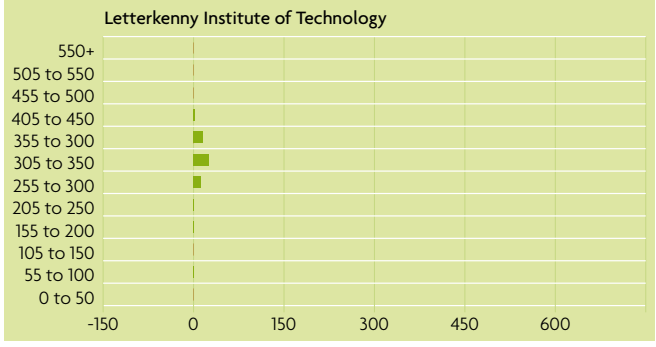
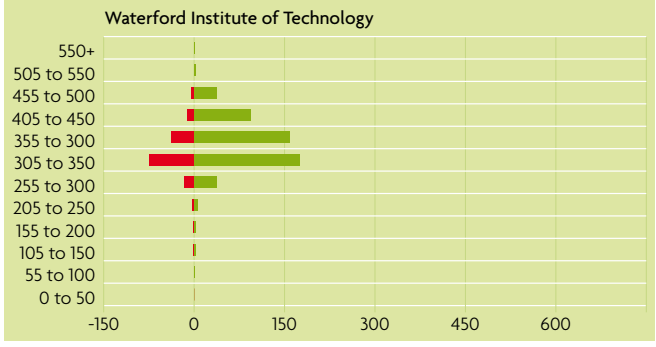
450
600

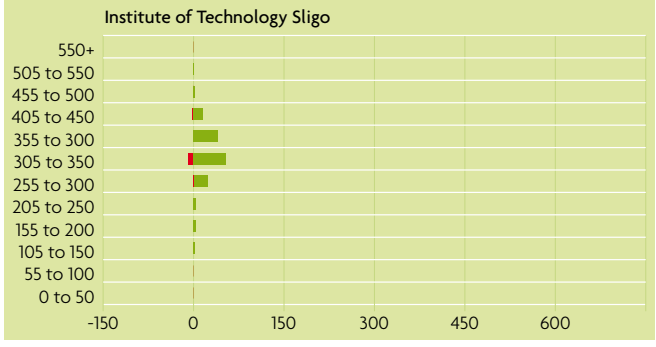

Institute of Technology Tallaght
550+
505 to 550
455 to 500
405 to 450
355 to 300
305 to 350
255 to 300
205 to 250
155 to 200
105 to 150
55 to 100
0 to 50
-150
0
150
300
450
600


Limerick Institute of Technology
550+
505 to 550
455 to 500
405 to 450
355 to 300
305 to 350
255 to 300
205 to 250
155 to 200
105 to 150
55 to 100
0 to 50
-150
0
150
300
450
600

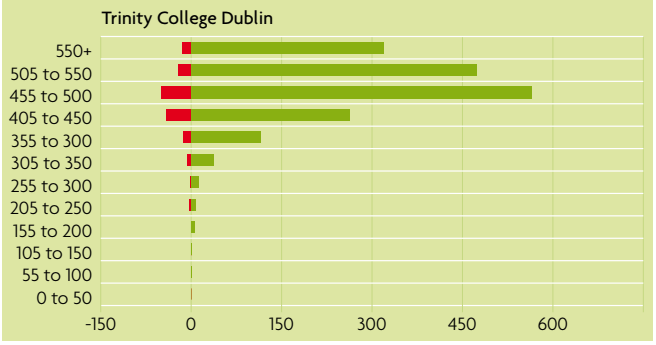

Institute of Technology Tralee
550+
505 to 550
455 to 500
405 to 450
355 to 300
305 to 350
255 to 300
205 to 250
155 to 200
105 to 150
55 to 100
0 to 50
-150
0
150
300
450
600

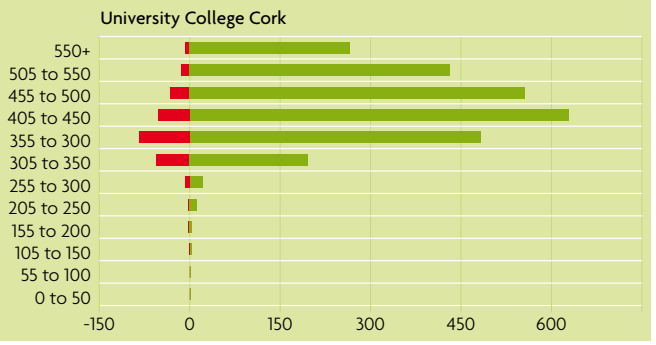

Letterkenny Institute of Technology
550+
505 to 550
455 to 500
405 to 450
355 to 300
305 to 350
255 to 300
205 to 250
155 to 200
105 to 150
55 to 100
0 to 50
-150
0
150
300
450
600

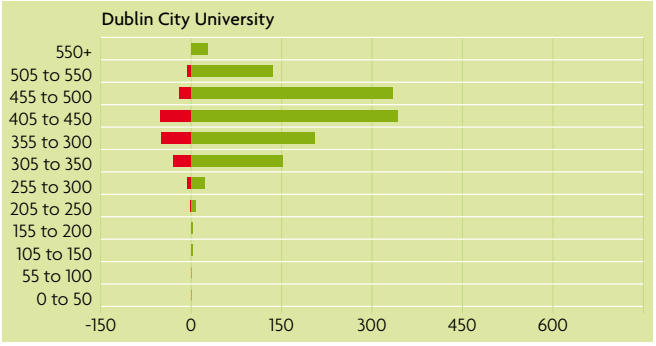

Waterford Institute of Technology
550+
505 to 550
455 to 500
405 to 450
355 to 300
305 to 350
255 to 300
205 to 250
155 to 200
105 to 150
55 to 100
0 to 50
-150
0
150
300
450
600

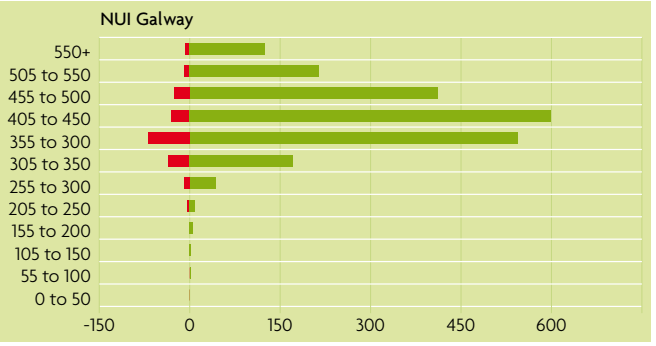

Institute of Technology Sligo
550+
505 to 550
455 to 500
405 to 450
355 to 300
305 to 350
255 to 300
205 to 250
155 to 200
105 to 150
55 to 100
0 to 50
-150
0
150
300
450
600

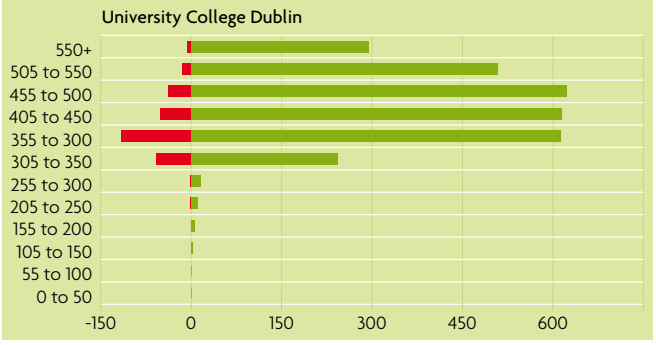
Universities Level 8 Present vs Not present headcount by Leaving Certificate points bracket

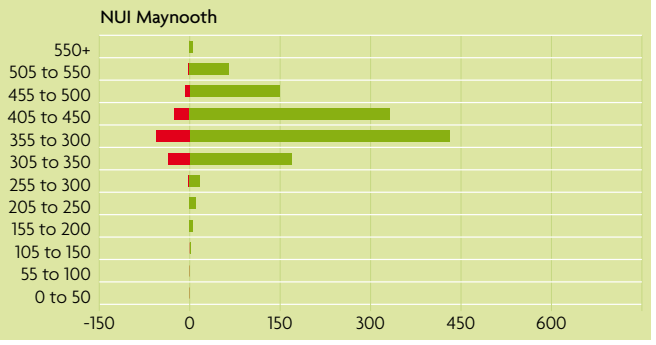




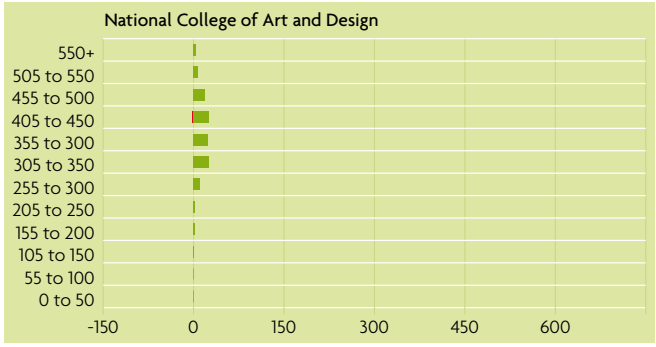


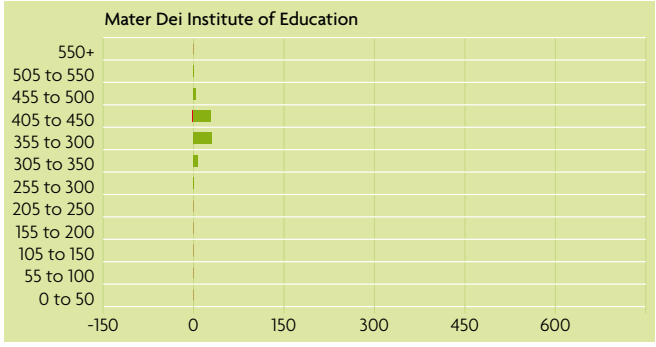


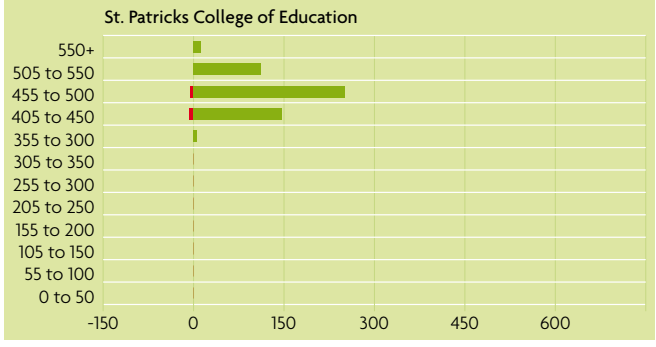




Other Level 8 Present vs Not present headcount by Leaving Certificate points bracket







Appendix B:
Overall Non-Presence Rates by Institution and NFQ Level

Table B1: 2007/2008 Full-Time Undergraduate New Entrant Non-Presence Rates by Institute of Technology & NFQ Level

Institute of Technology	***Level 6 Non Presence***	***Level 7 Non Presence***	***Level 8 Non Presence***	***All Levels Non Presence***
Athlone Institute of Technology	*24%*	*26%*	*11%*	*21%*
Institute of Technology Blanchardstown	*29%*	*27%*	*18%*	*24%*
Cork Institute of Technology	*22%*	*21%*	*23%*	*21%*
Institute of Technology Carlow	*28%*	*26%*	*18%*	*24%*
Dundalk Institute of Technology	*21%*	*30%*	*13%*	*24%*
Dunlaoghaire Institute of Art, Design and Technology	*19%*	*24%*	*14%*	*16%*
Dublin Institute of Technology	*15%*	*25%*	*13%*	*16%*
Galway-Mayo Institute of Technology	*34%*	*30%*	*22%*	*28%*
Limerick Institute of Technology	*28%*	*23%*	*18%*	*23%*
Letterkenny Institute of Technology	*19%*	*25%*	*4%*	*22%*
Institute of Technology Sligo	*38%*	*24%*	*10%*	*23%*
Institute of Technology Tallaght	*31%*	*33%*	*25%*	*30%*
Institute of Technology Tralee	*21%*	*20%*	*12%*	*18%*
Waterford Institute of Technology	*26%*	*22%*	*21%*	*22%*
All	***25%***	***26%***	***16%***	***22%***
National Average	**25%**	**26%**	**11%**	***15%***

Table B2: 2007/2008 Full-Time Undergraduate New Entrant Non-Presence Rates by University & NFQ Level

University	***Level 8 Non-Presence***
Dublin City University	*11%*
University College Dublin	*9%*
University College Cork	*9%*
National University of Ireland Galway	*9%*
University of Limerick	*9%*
National University of Ireland Maynooth	*10%*
Trinity College Dublin	*8%*
All Universities	***9%***
National Average Level 8	***11%***

Table B3: 2007/2008 Full-Time Undergraduate New Entrant Non-Presence Rates by Other College & NFQ Level

Other Colleges	*Level 8 Non-Presence*
National College of Art and Design	*5%*
Mater Dei Institute of Education	*4%*
Mary Immaculate College Limerick	*5%*
St. Patricks College Drumcondra	*3%*
All Other Colleges	***4%***
National Average Level 8	***11%***

Appendix C:
Overall Non-Presence Rates by Institution and NFQ Level and Field of Study

Table C1: Institute of Technology Level 6 Non-Presence Rates by Field of Study

	Non Presence Rates Level 6														
Field of Study	**AIT**	**ITB**	**CIT**	**ITC**	**DKIT**	**IADT**	**DIT**	**GMIT**	**LIT**	**LYIT**	**ITS**	**ITTAL**	**ITTRA**	**WIT**	**All Institutes**
Education	n/a	n/a	23%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	23%
Healthcare	16%	n/a	n/a	19%	n/a	n/a	5%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	16%
Science, Agriculture & Veterinary	32%	n/a	n/a	26%	0%	n/a	n/a	n/a	29%	n/a	n/a	25%	19%	30%	26%
Social Science, Business, Law, Arts & Humanities	23%	31%	11%	29%	26%	19%	15%	n/a	28%	0%	38%	23%	21%	17%	22%
Engineering excl Civil	48%	20%	20%	n/a	n/a	n/a	47%	n/a	23%	n/a	0%	40%	20%	34%	35%
Construction and Related	30%	n/a	~	20%	n/a	n/a	n/a	n/a	31%	n/a	n/a	n/a	30%	32%	30%
Services	31%	n/a	n/a	n/a	n/a	n/a	11%	n/a	n/a	n/a	n/a	n/a	11%	35%	19%
Computer Science	n/a	33%	35%	46%	n/a	n/a	n/a	34%	26%	21%	n/a	27%	41%	48%	35%
Combined and Other Disciplines	n/a	n/a	n/a	n/a	10%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	10%
All Disciplines	**24%**	**29%**	**22%**	**28%**	**21%**	**19%**	**15%**	**34%**	**28%**	**19%**	**38%**	**31%**	**21%**	**26%**	**25%**

AIT Athlone Institute of Technology
ITB Institute of Technology Blanchardstown
CIT Cork Institute of Technology
ITC Institute of Technology Carlow
DKIT Dundalk Institute of Technology
IADT Dun Laoghaire Institute of Art, Design and Technology
DIT Dublin Institute of Technology
GMIT Galway-Mayo Institute of Technology
LIT Limerick Institute of Technology
LYIT Letterkenny Institute of Technology
ITS Institute of Technology Sligo
ITTAL Institute of Technology Tallaght
ITTRA Institute of Technology Tralee
WIT Waterford Institute of Technology
DCU Dublin City University
UCD University College Dublin
UCC University College Cork
NUIG National University of Ireland Galway
UL University of Limerick
NUIM National University of Ireland Maynooth
TCD Trinity College Dublin
NCAD National College of Art and Design
MDEI Mater Dei Institute of Education
MI Mary Immaculate College Limerick
SPD St. Patrick's College Drumcondra

Table C2: Institute of Technology Level 7 Non-Presence Rates by Field of Study

	Non Presence Rates Level 7														
Field of Study	**AIT**	**ITB**	**CIT**	**ITC**	**DKIT**	**IADT**	**DIT**	**GMIT**	**LIT**	**LYIT**	**ITS**	**ITTAL**	**ITTRA**	**WIT**	**All Institutes**
Education	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	5%	n/a	n/a	5%
Healthcare	n/a	n/a	12%	26%	16%	n/a	6%	n/a	n/a	10%	10%	n/a	n/a	20%	14%
Science, Agriculture & Veterinary	27%	20%	19%	8%	45%	n/a	28%	30%	n/a	20%	23%	n/a	n/a	8%	24%
Social Science, Business, Law, Arts & Humanities	13%	26%	22%	18%	32%	22%	23%	28%	21%	26%	26%	36%	13%	n/a	26%
Engineering excl Civil	14%	39%	36%	29%	33%	n/a	26%	27%	21%	24%	29%	11%	0%	n/a	27%
Construction and Related	36%	n/a	11%	27%	25%	n/a	15%	17%	n/a	16%	28%	n/a	n/a	21%	20%
Services	33%	n/a	25%	15%	23%	n/a	33%	47%	50%	n/a	21%	56%	44%	19%	30%
Computer Science	18%	50%	46%	31%	37%	27%	n/a	47%	n/a	35%	29%	29%	33%	36%	36%
Combined and Other Disciplines	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
All Disciplines	**26%**	**27%**	**21%**	**26%**	**30%**	**24%**	**25%**	**30%**	**23%**	**25%**	**24%**	**33%**	**20%**	**22%**	**26%**

Table C3: Institute of Technology Level 8 Non-Presence Rates by Field of Study

	Non Presence Rates Level 8														
Field of Study	**AIT**	**ITB**	**CIT**	**ITC**	**DKIT**	**IADT**	**DIT**	**GMIT**	**LIT**	**LYIT**	**ITS**	**ITTAL**	**ITTRA**	**WIT**	**All Institutes**
Education	n/a	n/a	n/a	n/a	n/a	n/a	11%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	11%
Healthcare	8%	n/a	n/a	12%	9%	n/a	8%	15%	10%	1%	7%	25%	9%	25%	14%
Science, Agriculture & Veterinary	14%	n/a	22%	10%	n/a	n/a	22%	30%	n/a	n/a	5%	44%	0%	13%	22%
Social Science, Business, Law, Arts & Humanities	12%	15%	10%	18%	15%	12%	12%	23%	13%	n/a	13%	24%	13%	19%	15%
Engineering excl Civil	n/a	33%	6%	n/a	n/a	n/a	9%	5%	n/a	n/a	-	n/a	n/a	22%	11%
Construction and Related	20%	n/a	47%	n/a	24%	n/a	12%	31%	21%	n/a	7%	n/a	n/a	14%	22%
Services	n/a	n/a	n/a	n/a	n/a	n/a	10%	24%	28%	n/a	n/a	n/a	n/a	33%	15%
Computer Science	n/a	33%	28%	29%	13%	37%	26%	n/a	26%	18%	0%	21%	32%	21%	25%
Combined and Other Disciplines	n/a	n/a	n/a	n/a	n/a	n/a	16%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	16%
All Disciplines	**11%**	**18%**	**23%**	**18%**	**13%**	**14%**	**13%**	**22%**	**18%**	**4%**	**10%**	**25%**	**12%**	**21%**	**16%**

Table C4: Institute of Technology All Levels Non-Presence Rates by Field of Study

	Non Presence Rates Level 6/7/8														
Field of Study	**AIT**	**ITB**	**CIT**	**ITC**	**DKIT**	**IADT**	**DIT**	**GMIT**	**LIT**	**LYIT**	**ITS**	**ITTAL**	**ITTRA**	**WIT**	**All Institutes**
Education	n/a	n/a	23%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	9%	n/a	n/a	11%
Healthcare	12%	n/a	12%	18%	10%	n/a	7%	15%	10%	3%	9%	25%	9%	24%	14%
Science, Agriculture & Veterinary	27%	20%	19%	20%	41%	n/a	24%	30%	29%	20%	18%	30%	15%	18%	24%
Social Science, Business, Law, Arts & Humanities	18%	21%	20%	23%	26%	14%	13%	27%	24%	26%	26%	30%	16%	18%	21%
Engineering excl Civil	34%	32%	28%	29%	33%	n/a	21%	25%	22%	24%	28%	34%	7%	28%	26%
Construction and Related	31%	n/a	20%	26%	25%	n/a	27%	19%	26%	16%	26%	n/a	30%	20%	22%
Services	32%	n/a	25%	15%	23%	n/a	16%	43%	31%	n/a	21%	56%	15%	25%	25%
Computer Science	18%	39%	39%	36%	28%	30%	26%	43%	26%	30%	24%	26%	35%	37%	32%
Combined and Other Disciplines	n/a	n/a	n/a	n/a	n/a	10%	16%	n/a	n/a	n/a	n/a	n/a	n/a	n/a	15%
All Disciplines	**21%**	**24%**	**21%**	**24%**	**24%**	**16%**	**16%**	**28%**	**23%**	**22%**	**23%**	**30%**	**18%**	**22%**	**22%**

Table C4: University Level 8 Non-Presence Rates by Field of Study

	Non Presence Rates Level 8							
Field of Study	**DCU**	**UCD**	**UCC**	**NUIG**	**UL**	**NUIM**	**TCD**	**All Universities**
Education	12%	n/a	n/a	n/a	6%	n/a	6%	7%
Healthcare	7%	4%	5%	3%	6%	n/a	8%	6%
Science, Agriculture & Veterinary	14%	10%	7%	13%	11%	12%	9%	11%
Social Science, Business, Law, Arts & Humanities	10%	10%	7%	8%	10%	10%	9%	9%
Engineering excl Civil	23%	3%	8%	8%	10%	9%	9%	9%
Construction and Related	n/a	7%	4%	2%	n/a	n/a	n/a	5%
Services	n/a	n/a	n/a	7%	n/a	n/a	n/a	7%
Computer Science	29%	21%	11%	22%	16%	4%	11%	16%
Combined and Other Disciplines	n/a	n/a	14%	9%	6%	12%	7%	12%
All Disciplines	**11%**	**9%**	**9%**	**9%**	**9%**	**10%**	**8%**	**9%**

Table C5: Other Colleges Level 8 Non-Presence Rates by Field of Study

	Non Presence Rates Level 8				
Field of Study	**NCAD**	**MDEI**	**MI**	**SPD**	**All Other Colleges**
Education	n/a	4%	3%	1%	2%
Science, Agriculture & Veterinary	n/a	n/a	0%	n/a	0%
Social Science, Business, Law, Arts & Humanities	5%	0%	11%	5%	7%
All Disciplines	**5%**	**4%**	**5%**	**3%**	**4%**

Appendix D:
Supplementary Data to Multi Variate Analysis

Table D1: Sectoral Variation in Non-Progression, Controlling for Student Intake (including LC Points) and Course Provision (Clustered Model)

	Model 1			Model 2			Model 3			Model 4		
		Robust			Robust			Robust			Robust	
	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z
Male	**1.376**	**0.078**	**0.000**	**1.173**	**0.061**	**0.002**	1.109	0.054	**0.034**	0.950	0.041	0.239
Ref: Female												
Age Group												
Age 16-18	0.987	0.122	0.913	1.094	0.154	0.526	1.077	0.138	0.565	1.014	0.126	0.912
Age 19-20	1.071	0.128	0.565	1.137	0.145	0.312	1.109	0.127	0.365	1.059	0.122	0.620
Age 21-24	**1.298**	**0.111**	**0.002**	1.187	0.113	*0.071*	1.139	0.116	0.201	1.107	0.109	0.303
Age 30+	0.909	0.084	0.306	1.061	0.105	0.550	1.007	0.097	0.940	0.967	0.093	0.725
Ref: Age 25-29												
Nationality												
Irish	0.968	0.078	0.682	1.003	0.099	0.976	1.024	0.097	0.802	1.067	0.101	0.493
Ref: Other												
Father's Social Class												
Professional	**0.541**	**0.054**	**0.000**	0.863	0.066	*0.055*	0.910	0.073	0.241	0.912	0.074	0.258
Manager	**0.846**	**0.067**	**0.034**	1.081	0.095	0.377	1.120	0.101	0.207	1.137	0.098	0.133
Non Manual	**0.846**	**0.068**	**0.038**	0.941	0.078	0.465	0.954	0.079	0.573	0.969	0.079	0.701
Skilled Manual	1.224	0.075	0.001	1.243	0.085	0.002	1.251	0.089	0.002	1.251	0.089	0.002
Unskilled Manual	**1.222**	**0.102**	**0.017**	1.150	0.106	0.132	1.130	0.103	0.178	1.124	0.098	0.181
Class Unknown	0.890	0.115	0.368	1.117	0.093	0.184	1.120	0.077	0.099	1.128	0.081	0.093
Ref: Semi-skilled												

	Model 1			Model 2			Model 3			Model 4		
		Robust			Robust			Robust			Robust	
	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z
Leaving Cert Points (top 6 subjects)												
0-150				**2.839**	**0.479**	**0.000**	**2.604**	**0.461**	**0.000**	**2.433**	**0.438**	**0.000**
155-200				**2.853**	**0.303**	**0.000**	**2.598**	**0.299**	**0.000**	**2.356**	**0.284**	**0.000**
205-250				**2.576**	**0.205**	**0.000**	**2.339**	**0.216**	**0.000**	**2.105**	**0.229**	**0.000**
255-300				**1.515**	**0.137**	**0.000**	**1.384**	**0.135**	**0.001**	**1.298**	**0.130**	**0.009**
355-400				**0.667**	**0.046**	**0.000**	**0.754**	**0.050**	**0.000**	**0.748**	**0.054**	**0.000**
405-450				**0.399**	**0.050**	**0.000**	**0.496**	**0.067**	**0.000**	**0.484**	**0.066**	**0.000**
455-500				**0.275**	**0.031**	**0.000**	**0.368**	**0.047**	**0.000**	**0.366**	**0.046**	**0.000**
505-550				**0.184**	**0.044**	**0.000**	**0.248**	**0.067**	**0.000**	**0.248**	**0.064**	**0.000**
555-600				**0.164**	**0.038**	**0.000**	**0.218**	**0.060**	**0.000**	**0.236**	**0.061**	**0.000**
Unknown				**0.687**	**0.109**	**0.018**	0.772	0.105	0.057	0.785	0.099	0.054
Ref: 305-350												
Grant receipt												
Receive Grant				**0.839**	**0.048**	**0.002**	**0.826**	**0.045**	**0.001**	**0.817**	**0.043**	**0.000**
Ref: No Grant												
Sector												
IOT							**1.526**	**0.127**	**0.000**	**1.345**	**0.192**	**0.038**
Other							**0.382**	**0.030**	**0.000**	**0.490**	**0.063**	**0.000**
Ref: University												
Field of Study												
Education										**0.573**	**0.094**	**0.001**
Science, Agri, Vet										**1.191**	**0.075**	**0.005**
Computer Sci										**1.664**	**0.148**	**0.000**
Engineering										**1.160**	**0.087**	**0.049**
Construction & Related										1.136	0.098	0.138
Healthcare										**0.677**	**0.104**	**0.011**
Services										1.116	0.096	0.203
Combined & Other										1.159	0.160	0.286
Ref: Social Science, Law, Arts												
NFQ Level												
Level 6										1.159	0.160	0.286
Level 7										1.223	0.207	0.235
Ref: Level 8												
Students	33,750			33,750			33,750			33750		
HE Institutions	25			25			25			25		
Log Likelihood	-14078.7			-13,206.7			-13097.4			-13000.4		
Pseudo R^2	0.0084			0.0698			0.0775			0.0843		

Note: Bold font denotes statistically significant results

Table D2: Sectoral Variation in Non-Progression, Controlling for Student Intake (including English, Irish and Maths Results) and Course Provision (Clustered Model)

	Model 1			Model 2			Model 3			Model 4		
		Robust			Robust			Robust			Robust	
	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z
Male	**1.376**	**0.078**	**0.000**	**1.219**	**0.060**	**0.000**	**1.139**	**0.052**	**0.004**	0.964	0.041	0.392
Ref: Female												
Age 16-18	0.987	0.122	0.913	1.026	0.138	0.846	1.015	0.127	0.906	0.969	0.117	0.793
Age 19-20	1.071	0.128	0.565	1.067	0.128	0.591	1.038	0.115	0.733	1.003	0.111	0.979
Age 21-24	**1.298**	**0.111**	**0.002**	**1.205**	**0.108**	**0.039**	1.132	0.117	0.230	1.104	0.110	0.322
Age 30+	0.909	0.084	0.306	1.009	0.097	0.927	0.953	0.094	0.623	0.909	0.090	0.334
Ref: Age 25-29												
Irish	0.968	0.078	0.682	0.998	0.096	0.980	1.014	0.093	0.880	1.059	0.100	0.543
Ref: Other												
Professional	**0.541**	**0.054**	**0.000**	**0.768**	**0.060**	**0.001**	**0.848**	**0.069**	**0.042**	0.863	0.072	0.075
Manager	**0.846**	**0.067**	**0.034**	1.019	0.092	0.836	1.073	0.098	0.441	1.101	0.095	0.268
Non Manual	**0.846**	**0.068**	**0.038**	0.918	0.075	0.295	0.940	0.075	0.434	0.956	0.076	0.574
Skilled Manual	**1.224**	**0.075**	**0.001**	**1.227**	**0.084**	**0.003**	**1.239**	**0.087**	**0.002**	**1.246**	**0.088**	**0.002**
Unskilled Manual	**1.222**	**0.102**	**0.017**	1.167	0.099	0.068	1.138	0.097	0.130	1.133	0.092	0.123
Class Unknown	0.890	0.115	0.368	1.052	0.093	0.563	1.085	0.072	0.217	1.096	0.076	0.186
Ref: Semi-skilled												
Irish 'low'				**1.250**	**0.082**	**0.001**	**1.177**	**0.076**	**0.012**	1.141	0.077	0.052
Irish 'high'				**0.810**	**0.072**	**0.018**	0.921	0.090	0.399	0.922	0.092	0.412
Irish missing				**1.175**	**0.078**	**0.015**	**1.172**	**0.077**	**0.016**	**1.134**	**0.078**	**0.067**
Ref: Irish 'medium'												
English 'low'				**1.356**	**0.083**	**0.000**	**1.206**	**0.062**	**0.000**	**1.123**	**0.054**	**0.015**
English 'high'				**0.753**	**0.043**	**0.000**	**0.879**	**0.048**	**0.019**	**0.892**	**0.047**	**0.029**
English 'missing'				0.651	0.148	0.059	**0.658**	**0.135**	**0.041**	**0.673**	**0.136**	**0.050**
Ref: English 'medium'												
Maths 'low'				**1.917**	**0.082**	**0.000**	**1.771**	**0.075**	**0.000**	**1.761**	**0.069**	**0.000**
Maths 'high'				**0.516**	**0.049**	**0.000**	**0.566**	**0.057**	**0.000**	**0.557**	**0.055**	**0.000**
Maths 'missing'				1.406	0.282	0.090	1.436	0.286	0.069	**1.485**	**0.296**	**0.047**
Ref: Maths 'missing'												
Receive Grant				**0.880**	**0.051**	**0.028**	**0.849**	**0.047**	**0.003**	**0.834**	**0.044**	**0.001**
Ref: No Grant												
Institute of Technology							**1.827**	**0.138**	**0.000**	**1.487**	**0.203**	**0.004**
Other							**0.385**	**0.042**	**0.000**	**0.491**	**0.076**	**0.000**
Ref: University												
Education										**0.582**	**0.094**	**0.001**
Science, Agri, Vet										**1.220**	**0.074**	**0.001**

	Model 1			Model 2			Model 3			Model 4		
		Robust			Robust			Robust			Robust	
	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z
Computer Sci										**1.813**	**0.175**	**0.000**
Engineering										**1.216**	**0.101**	**0.019**
Construction & Related										1.097	0.098	0.301
Healthcare										**0.666**	**0.100**	**0.007**
Services										1.154	0.121	0.173
Combined & Other										1.138	0.167	0.376
Ref: Social Science, Law, Arts												
Level 6										**1.325**	**0.160**	**0.020**
Level 7										**1.356**	**0.210**	**0.050**
Ref: Level 8												
Students	33750			33,750			33,750			33750		
HE Institutions	25			25			25			25		
Log Likelihood	-14078.7			-13405			-13216.8			-13084.2		
Pseudo R^2	0.0084			0.0558			0.0691			0.0784		

Note: Bold font denotes statistically significant results

Table D3: Institutional Variation in Non-Progression, Controlling for Student Intake (including LC Points) and Course Provision (Unclustered Model)

	Model 1			Model 2			Model 3			Model 4		
	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z
DCU	**1.275**	**0.129**	**0.016**	**1.251**	**0.127**	**0.028**	1.082	0.112	0.448	1.210	0.128	0.072
UCD	1.005	0.085	0.950	1.029	0.088	0.738	0.999	0.086	0.991	1.057	0.096	0.541
NUIG	1.000	0.092	0.997	0.961	0.089	0.671	0.856	0.081	0.100	**0.822**	**0.078**	**0.039**
TCD	0.902	0.085	0.272	0.884	0.084	0.196	0.951	0.093	0.612	1.114	0.111	0.281
UL	1.017	0.103	0.871	0.957	0.098	0.669	**0.482**	**0.057**	**0.000**	**0.552**	**0.067**	**0.000**
NUIM	1.149	0.118	0.176	1.171	0.121	0.127	0.917	0.096	0.411	0.915	0.098	0.407
MaterDei	0.375	0.222	0.097	0.381	0.225	0.103	**0.306**	**0.182**	**0.046**	0.487	0.294	0.234
St Patricks Col	**0.271**	**0.071**	**0.000**	**0.289**	**0.076**	**0.000**	**0.363**	**0.095**	**0.000**	**0.500**	**0.136**	**0.011**
NCAD	0.473	0.185	0.056	0.468	0.184	0.053	**0.324**	**0.128**	**0.004**	**0.343**	**0.136**	**0.007**
Athlone IT	**2.639**	**0.276**	**0.000**	**2.641**	**0.277**	**0.000**	1.157	0.128	0.189	1.221	0.149	0.100
Blanchardstown IT	**3.161**	**0.449**	**0.000**	**3.183**	**0.455**	**0.000**	1.324	0.197	0.059	1.202	0.186	0.234
Cork IT	**2.737**	**0.228**	**0.000**	**2.513**	**0.216**	**0.000**	**1.461**	**0.132**	**0.000**	**1.358**	**0.142**	**0.003**
Carlow IT	**3.239**	**0.314**	**0.000**	**3.149**	**0.308**	**0.000**	**1.492**	**0.154**	**0.000**	**1.432**	**0.161**	**0.001**
DunLaoghaire Ins	**1.904**	**0.277**	**0.000**	**1.838**	**0.269**	**0.000**	0.970	0.146	0.839	0.940	0.146	0.691
GalwayMayoIT	**3.917**	**0.318**	**0.000**	**3.773**	**0.310**	**0.000**	**1.847**	**0.161**	**0.000**	**1.678**	**0.168**	**0.000**

	Model 1			Model 2			Model 3			Model 4		
	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z
DundalkIT	**3.106**	**0.280**	**0.000**	**3.040**	**0.279**	**0.000**	**1.312**	**0.129**	**0.006**	**1.301**	**0.140**	**0.014**
DIT	**1.830**	**0.150**	**0.000**	**1.714**	**0.142**	**0.000**	0.859	0.087	0.135	0.867	0.092	0.179
Limerick IT	**3.038**	**0.298**	**0.000**	**2.795**	**0.281**	**0.000**	**1.427**	**0.151**	**0.001**	**1.374**	**0.159**	**0.006**
Letterkenny IT	**2.889**	**0.305**	**0.000**	**2.850**	**0.302**	**0.000**	1.237	0.139	0.059	1.118	0.139	0.372
Mary Immac	**0.509**	**0.096**	**0.000**	**0.534**	**0.101**	**0.001**	**0.260**	**0.052**	**0.000**	**0.383**	**0.082**	**0.000**
Sligo IT	**3.038**	**0.297**	**0.000**	**2.979**	**0.294**	**0.000**	**1.322**	**0.139**	**0.008**	1.245	0.145	0.059
Tallaght IT	**4.335**	**0.466**	**0.000**	**4.116**	**0.446**	**0.000**	**1.544**	**0.179**	**0.000**	**1.469**	**0.182**	**0.002**
Tralee IT	**2.182**	**0.283**	**0.000**	**2.299**	**0.304**	**0.000**	1.127	0.154	0.385	1.080	0.157	0.599
Waterford IT	**2.893**	**0.243**	**0.000**	**2.846**	**0.241**	**0.000**	**1.545**	**0.137**	**0.000**	**1.605**	**0.156**	**0.000**
Ref: UCC												
Male				**1.166**	**0.037**	**0.000**	**1.104**	**0.036**	**0.002**	0.949	0.034	0.142
Ref: Female												
Age 16-18				1.116	0.094	0.192	**1.393**	**0.130**	**0.000**	1.250	0.117	0.017
Age 19-20				1.182	0.100	0.047	**1.405**	**0.129**	**0.000**	**1.282**	**0.119**	**0.008**
Age 21-24				**1.233**	**0.120**	**0.032**	1.252	0.123	0.023	1.196	0.118	0.071
Age 30+				0.845	0.091	0.119	0.931	0.101	0.509	0.909	0.099	0.381
Ref: Age 25-29												
Irish				1.004	0.061	0.947	**1.156**	**0.073**	**0.022**	**1.199**	**0.076**	**0.004**
Ref: Other												
Professional				**0.792**	**0.085**	**0.030**	0.881	0.097	0.249	0.887	0.098	0.278
Manager				1.054	0.083	0.499	1.115	0.089	0.174	1.130	0.091	0.129
Non Manual				0.942	0.085	0.512	0.964	0.089	0.692	0.976	0.090	0.796
Skilled Manual				**1.216**	**0.095**	**0.013**	**1.232**	**0.099**	**0.009**	**1.236**	**0.099**	**0.008**
Unskilled Manual				1.121	0.130	0.328	1.122	0.133	0.332	1.113	0.133	0.368
Class Unknown				1.131	0.081	0.086	1.138	0.083	0.078	1.145	0.084	0.065
Ref: Semi-skilled												
0-150							**2.836**	**0.368**	**0.000**	**2.645**	**0.348**	**0.000**
155-200							**2.715**	**0.248**	**0.000**	**2.481**	**0.231**	**0.000**
205-250							**2.398**	**0.165**	**0.000**	**2.175**	**0.154**	**0.000**
255-300							**1.418**	**0.088**	**0.000**	**1.333**	**0.085**	**0.000**
355-400							**0.744**	**0.045**	**0.000**	**0.741**	**0.045**	**0.000**
405-450							**0.486**	**0.035**	**0.000**	**0.473**	**0.035**	**0.000**
455-500							**0.357**	**0.032**	**0.000**	**0.349**	**0.031**	**0.000**
505-550							**0.240**	**0.029**	**0.000**	**0.235**	**0.029**	**0.000**
555-600							**0.210**	**0.037**	**0.000**	**0.223**	**0.039**	**0.000**
Unknown							1.121	0.081	0.116	1.067	0.078	0.377
Ref: 305-350												
Receive Grant							**0.828**	**0.030**	**0.000**	**0.826**	**0.030**	**0.000**
Ref: No Grant												

	Model 1			Model 2			Model 3			Model 4		
	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z
Education										**0.572**	**0.080**	**0.000**
Science, Agri, Vet										**1.184**	**0.068**	**0.003**
Computer Sci										**1.637**	**0.108**	**0.000**
Engineering										**1.195**	**0.075**	**0.005**
Construction & Related										1.117	0.072	0.085
Healthcare										**0.645**	**0.040**	**0.000**
Services										1.126	0.080	0.093
Combined & Other										**1.209**	**0.089**	**0.010**
Ref: Social Science, Law, Arts												
Level 6										1.109	0.072	0.114
Level 7										**1.144**	**0.065**	**0.018**
Ref: Level 8												
Students	33,750			33,750			33750			33750		
Chi Square	1469.56 ***			1469 ***			2319 ***			2505.13 ***		
Pseudo R^2	0.0084			0.0518			0.0817			0.0882		

Note: Bold font denotes statistically significant results

Table D4: Institutional Variation in Non-Progression across Institutes of Technology (Level 6 and 7 courses only), controlling for Student Intake (including LC Points) and Course Provision (Unclustered Model)

	Model 1			Model 2			Model 3			Model 4		
	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z
Athlone IT	0.894	0.159	0.529	0.806	0.146	0.235	0.833	0.153	0.319	0.961	0.184	0.834
Cork IT	0.726	0.119	0.051	**0.569**	**0.097**	**0.001**	0.763	0.132	0.118	0.819	0.144	0.255
Carlow IT	0.982	0.171	0.918	0.891	0.157	0.513	1.009	0.180	0.961	1.093	0.199	0.627
DundalkIT	1.142	0.194	0.434	1.026	0.177	0.884	1.049	0.183	0.782	1.135	0.201	0.476
DIT	0.717	0.124	0.054	**0.570**	**0.101**	**0.001**	**0.481**	**0.093**	**0.000**	**0.513**	**0.101**	**0.001**
DunLaoghaire Ins	0.919	0.234	0.740	0.783	0.201	0.341	0.831	0.217	0.478	0.783	0.207	0.354
GalwayMayoIT	1.140	0.185	0.421	1.017	0.167	0.919	1.167	0.195	0.354	1.181	0.200	0.325
Limerick IT	0.987	0.177	0.943	0.748	0.139	0.119	0.892	0.168	0.545	0.917	0.179	0.656
Letterkenny IT	0.886	0.155	0.490	0.807	0.143	0.227	0.860	0.155	0.404	0.855	0.156	0.391
Sligo IT	0.932	0.159	0.681	0.831	0.144	0.287	0.926	0.163	0.661	0.986	0.177	0.939
Tallaght IT	1.271	0.231	0.187	1.072	0.197	0.706	1.042	0.194	0.826	1.036	0.196	0.851
Tralee IT	0.712	0.143	0.091	0.721	0.148	0.111	0.835	0.174	0.385	0.836	0.180	0.403
Waterford IT	0.854	0.148	0.363	0.732	0.129	0.077	0.807	0.144	0.231	0.837	0.153	0.331
Ref: BlanchardstownIT												

	Model 1			Model 2			Model 3			Model 4		
	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z
Male				**1.143**	**0.056**	**0.006**	1.087	0.054	0.090	0.993	0.056	0.903
Ref: Female												
Age 16-18				**1.574**	**0.205**	**0.001**	**1.911**	**0.281**	**0.000**	**1.835**	**0.273**	**0.000**
Age 19-20				**1.689**	**0.221**	**0.000**	**1.970**	**0.287**	**0.000**	**1.894**	**0.279**	**0.000**
Age 21-24				**1.377**	**0.204**	**0.031**	**1.382**	**0.210**	**0.033**	1.336	0.204	0.058
Age 30+				**0.703**	**0.119**	**0.037**	**0.700**	**0.119**	**0.036**	**0.669**	**0.115**	**0.019**
Ref: Age 25-29												
Irish				1.112	0.106	0.264	**1.255**	**0.123**	**0.021**	**1.307**	**0.130**	**0.007**
Ref: Other												
Professional				1.081	0.195	0.667	1.058	0.194	0.757	1.061	0.195	0.747
Manager				1.221	0.136	0.074	1.205	0.137	0.101	1.221	0.139	0.081
Non Manual				1.129	0.139	0.328	1.133	0.142	0.319	1.147	0.144	0.277
Skilled Manual				**1.363**	**0.144**	**0.003**	**1.371**	**0.147**	**0.003**	**1.374**	**0.148**	**0.003**
Unskilled Manual				1.129	0.171	0.426	1.158	0.179	0.342	1.162	0.180	0.333
Class Unknown				**1.401**	**0.139**	**0.001**	**1.365**	**0.137**	**0.002**	**1.381**	**0.140**	**0.001**
Ref: Semi-skilled												
< 150							**2.059**	**0.291**	**0.000**	**2.012**	**0.286**	**0.000**
155-200							0.909	0.142	0.543	0.903	0.142	0.516
255-300							0.963	0.067	0.591	0.966	0.067	0.621
305-350							**0.599**	**0.046**	**0.000**	**0.624**	**0.049**	**0.000**
400+							**0.243**	**0.038**	**0.000**	**0.258**	**0.041**	**0.000**
Unknown							1.198	0.120	0.072	1.174	0.119	0.112
Ref: 205-250												
Receive Grant							**0.771**	**0.039**	**0.000**	**0.768**	**0.039**	**0.000**
Ref: No Grant												
Educ and Soc Sci										0.933	0.090	0.474
Computer Sci										**1.586**	**0.188**	**0.000**
Engineering										1.159	0.127	0.177
Construction & Related										0.863	0.095	0.181
Healthcare										**0.610**	**0.090**	**0.001**
Services										1.094	0.123	0.426
Ref: Science, Agr, Vet												
Level 7										1.004	0.069	0.952
Ref: Level 6												
Students	9837			9834			9834			9824		
Chi Square	60.98	***		156.76	***		443.39	***		509.42	***	
Pseudo R^2	0.0055			0.014			0.0397			0.0457		

Note: Bold font denotes statistically significant results

Table D5: Institutional Variation in Non-Progression across Universities, controlling for Student Intake (including LC Points) and Course Provision (Unclustered Model)

	Model 1			Model 2			Model 3			Model 4		
	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z
DCU	**1.269**	**0.128**	**0.019**	**1.261**	**0.129**	**0.024**	1.179	0.124	0.117	**1.282**	**0.139**	**0.022**
UCD	0.998	0.084	0.978	1.029	0.088	0.740	0.991	0.086	0.916	1.006	0.094	0.948
NUIG	0.995	0.091	0.953	1.005	0.095	0.955	0.915	0.088	0.356	0.877	0.086	0.180
UL	1.001	0.102	0.995	1.029	0.108	0.786	1.023	0.153	0.877	1.094	0.168	0.558
NUIM	1.142	0.118	0.198	1.082	0.113	0.452	0.831	0.088	0.082	**0.785**	**0.087**	**0.030**
TCD	0.881	0.084	0.187	0.912	0.090	0.352	**1.242**	**0.128**	**0.036**	**1.438**	**0.153**	**0.001**
Ref: UCC												
Male				1.071	0.058	0.205	1.049	0.058	0.382	0.935	0.054	0.242
Ref: Female												
Age 16-18				**0.751**	**0.104**	**0.039**	0.876	0.140	0.409	0.750	0.121	0.075
Age 19-20				0.764	0.107	0.054	0.883	0.141	0.435	0.764	0.123	0.095
Age 21-24				1.361	0.225	0.062	1.378	0.232	0.057	1.300	0.220	0.122
Age 30+				0.940	0.170	0.732	1.079	0.200	0.681	1.052	0.196	0.787
Ref: Age 25-29												
Irish				1.000	0.103	0.998	1.062	0.120	0.597	1.098	0.125	0.410
Ref: Other												
Professional				**0.676**	**0.089**	**0.003**	0.849	0.114	0.221	0.831	0.112	0.169
Manager				1.131	0.093	0.135	**1.262**	**0.106**	**0.006**	**1.223**	**0.104**	**0.017**
Skilled Manual				1.216	0.126	0.060	1.196	0.126	0.089	1.176	0.124	0.125
Semi- unskilled				1.191	0.145	0.150	1.166	0.144	0.213	1.144	0.141	0.277
Ref: Non-manual												
300-350							0.781	0.145	0.182	0.827	0.155	0.311
355-400							**0.722**	**0.068**	**0.001**	**0.724**	**0.069**	**0.001**
405-450							**0.401**	**0.041**	**0.000**	**0.394**	**0.040**	**0.000**
455-500							**0.283**	**0.031**	**0.000**	**0.275**	**0.031**	**0.000**
505-550							**0.158**	**0.023**	**0.000**	**0.157**	**0.024**	**0.000**
555-600							**0.149**	**0.029**	**0.000**	**0.165**	**0.032**	**0.000**
Unknown							**0.444**	**0.060**	**0.000**	**0.447**	**0.061**	**0.000**
Ref: < 300												
Receive Grant							1.025	0.066	0.700	1.002	0.065	0.970
Ref: No Grant												
Education										**0.606**	**0.103**	**0.003**
Science										1.140	0.091	0.103
Computer Science										**1.505**	**0.207**	**0.003**
Engineering										1.013	0.142	0.928
Construction										1.018	0.291	0.950

	Model 1			Model 2			Model 3			Model 4		
	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z	Odds Ratio	Standard Error	P>z
Health										**0.531**	**0.054**	**0.000**
Combined										1.084	0.091	0.334
Ref: Social Science, Law, Arts												
Students	16702			16687			16687			16646		
Chi Square	13.24	***		67.77	***		401.57	***		477.06	***	
Pseudo R^2	0.0013			0.0066			0.0389			0.0463		

Note: Bold font denotes statistically significant results

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