Factors contributing to student outcomes in Northern Ireland FE Colleges – An Econometric Analysis.

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Overview

Retention and achievement rates (and as a consequence success rates) have been improving steadily in the Further Education sector in recent years. However, the Department for the Economy (DfE) is aware of significant variations in the rates of successful outcomes within the sector – for example, across different student characteristics, subject areas and colleges.

It is recognised that using raw data alone to compare performance across the sector may not reveal the full picture and an in-depth statistical model has been developed to understand these differences in more detail. This paper reports the results of an investigation of the broad factors[1] which affect the likelihood of success of final year enrolments in courses potentially leading to a regulated qualification from the Further Education sector in Northern Ireland, based on data from academic years 2012/13 to 2014/15.

The results show that, even after adjusting for other characteristics (i.e., conducting a like-for-like assessment of student outcomes); some colleges perform better than others. 'Subject studied' matters for successful student outcomes, for example students that are studying Science and Mathematics subjects have a lower likelihood of success than is the case for other disciplines.

We find that on an adjusted basis, the 'level' of study (i.e. NQF levels) and 'mode' of attendance (i.e. full-time vs part-time) are important factors in explaining variance in successful outcomes among students. The analysis shows that those studying at Level 4 and above and those in full-time study enjoy a higher likelihood of success. We also find that the more affluent the area in which a student is from, the better their chances of success, after controlling for other (measurable) student and institutional characteristics.

This analysis is intended to assist colleges' in the development of their pastoral care and student support programmes, provide advice and guidance to promote the health and well-being of students; shape curriculum plans; identify and address weaknesses; and learn from best practice across the sector. It is important to note however, that the analysis is one of many sources of information colleges should use to improve the quality of their service delivery. In addition, all student needs are assessed at an individual level to identify the appropriate interventions. This research only provides insight into the likely allocation of resources and should not be interpreted as prescriptive.

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[1] The analysis is restricted to the factors identified and recorded in the enrolment datasets.

While DfE has confidence in the output from this analysis, the Department is keen to continue to work with others, including the Further Education sector, to develop it further through the improvement of data collection (particularly in the areas which are non-mandatory).

Contents

1.   Background

1.1   In December 2015, the Department for the Economy (DfE or 'the Department') commissioned the Ulster University Economic Policy Centre (UUEPC) to undertake econometric modelling on Further Education (FE) final year enrolment data.

1.2   DfE has previously undertaken econometric modelling on FE outcome data identifying the factors contributing to successful student outcomes in Further Education. That work was published in 2013[2], and there is now a desire to update the work based on the latest data covering academic years 2012/13 to 2014/15.

1.3   The original project was commissioned following a recommendation from the Department's May 2010 ['DEL Quality and Performance: A Baseline Analysis'](#) report[3]. A key issue identified in the 2010 baseline analysis was the extent of variability in successful outcomes across the Department's skills provision. This included a number of high level observations, such as some social groups being more likely to gain a qualification than others and success rates varying across education and training providers as well as across subject areas.

1.4   The Ulster University provided advice to DfE on the development of the original FE outcomes econometric model in autumn 2010 as well as peer reviewing the 2013 report. Professor Vani Borooah (Professor of Applied Economics) and Dr. Mark Bailey (Senior Lecturer in Economics) both from the University of Ulster (School of Economics) advised on the original project. Dr. Mark Bailey has been retained on this current analysis of the Further Education Leavers Survey (FELS) and Consolidated Data Return (CDR) dataset. Consequently, continuity, in terms of team membership and expertise from Ulster University, has been maintained.

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[2]

https://www.delni.gov.uk/sites/default/files/publications/del/What%20Factors%20Contribute%20to%20Successful%20%28Northern%20Ireland%29%20Student%20Outcomes%20in%20Further%20Education%20An%20Econometric%20Analysi.pdf
[3] Page 105

1.5   The analysis has been undertaken to augment the comprehensive information already available on college performance. It recognises that using raw data alone to compare performance across the sector may not reveal the full picture. In addition, the analysis looks at enrolment numbers, rather than numbers of students (many students enrol in more than one course in any given year). In total, there are 155,795 individual students within this analysis equating to approximately two enrolments per student. Although not undertaken in this study, future research may wish to consider analysis based on student, rather than enrolment outcomes.

1.6   The technique used in this analysis (and outlined in detail at Section 4 of this report) provides a more sophisticated basis on which to undertake a like for like assessment of college performance (accounting for a wide range of factors).

2.   Introduction to the Further Education sector

2.1   The Further Education (FE) sector is the main provider of professional and technical education and training in Northern Ireland. The courses provided by the sector are wide ranging and spans the Essential Skills of literacy, numeracy and ICT, professional and technical provision particularly at Levels 2 and 3, academic programmes and Higher Education courses.

2.2   The FE sector in Northern Ireland is made of up six colleges which are:

- Belfast Metropolitan College (BMC);

- Northern Regional College (NRC);

- North West Regional College (NWRC);

- South Eastern Regional College (SERC);

- Southern Regional College (SRC); and

- South West College (SWC).

2.3   Over the period 2012/13 to 2014/15 the number of enrolments in FE regulated courses[4] has decreased from 156,806 to 140,137, a fall of 10.6%. This is part of a longer term trend falling from a peak of 163,350 in 2009/10 (see **Chart 2.1** overleaf).   The Department's "Delivering Success Through Excellence[5]" 2016 report attributed this change as being due to demographics and economic recovery, a focus on economically relevant courses and decreases in recreational (hobby & leisure type) courses.

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[4] Regulated enrolments are regarded as those on courses that are at 'level 3 or below' and appear on the Register of Regulated Qualifications (RRQ). They exclude recreational courses.
[5] Page 49

**Chart 2.1: FE Regulated enrolments (2003/04 to 2014/15)**
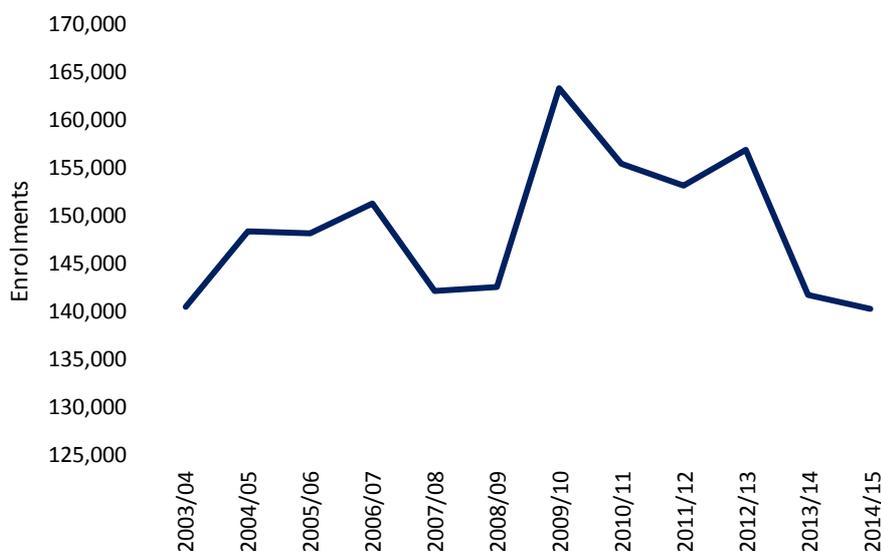
Sources: DEL "Further Education Statistical Record (FESR)" 2003/04 to 2012/13;
Consolidated Data Return (CDR) 2013/14 to 2014/15

2.4   The FE sector continues to engage successfully with those students from more deprived backgrounds.   Approximately 20.5%[6] of regulated FE participants are drawn from the 20% most deprived regions (according to the Northern Ireland Multiple Deprivation Measure) in 2014/15 period.

2.5   Three key metrics of FE performance, within regulated provision, are retention rates, achievement rates and success rates. They are defined as follows:

- **Retention rate** – the proportion of final year students who complete their course (the vast majority of FE enrolments are on courses of one year or less);

- **Achievement rate** – of those that complete their course, the proportion who achieve the qualification they were aiming for; and

- **Success rate** – the overall measure of performance, which is the proportion of the number of enrolments who complete their final year of study and achieve their qualification to the number of final year enrolments.

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[6] Source: DEL "Further Educations Activity in Northern Ireland 2010/11 to 2014/15 tables (excel)" (table A17).
Inclusive of unknown postcodes.

Chart 2.2: FE Retention and Achievement rates (2010/11 to 2014/15)
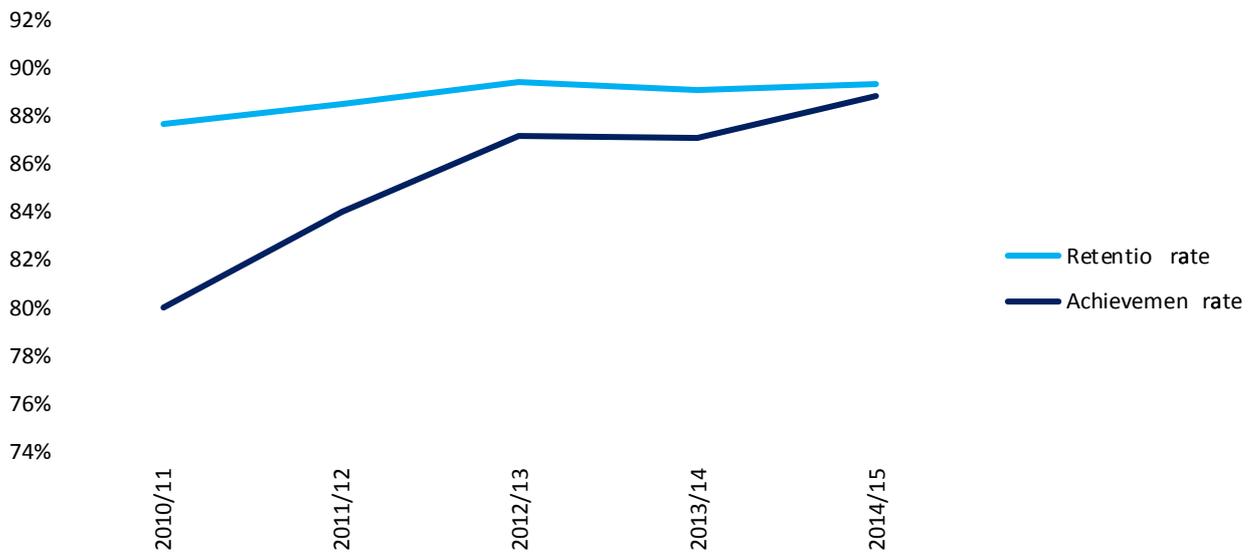
Source: DEL "Further Education Activity in Northern Ireland, 2010/11 – 2014/15"" (Table A29)

2.6 Whilst the number of enrolments has been in decline since the 2009/10 peak, this shows the FE sector has been able to maintain and improve its performance over the last five years.

3. Defining 'Success'

3.1 DfE is responsible for the policy, strategic development and financing of the statutory FE sector. This includes curriculum policy to ensure that colleges' provision is focused on meeting the needs of the Northern Ireland economy. Quality improvement is also a key strategic priority for the Department, an important element of which is monitoring colleges' performance in terms of learner retention, achievement and success.

3.2 In this analysis, a successful outcome is defined as an enrolment that enters the final year of their course (including one year courses) and who fully or partially[7] achieves the (regulated) qualification they were aiming for.

- **Success Rate = Retention Rate x Achievement Rate**

3.3 In 2014/15, 83.1%[8] of all FE regulated enrolments were in the final year on their course. Both the retention and achievement attributes are identifiable within the Further Education Leavers Survey (FELS)[9] and Consolidated Data Return (CDR)[10] datasets, which contains individual data on those enrolments that enter the final year of their course and their level of achievement.

3.4 Having defined success, it is also necessary to define those who did not succeed. The FELS & CDR datasets capture a number of different outcome classifications in addition to 'full' or 'partial' achievement. For the purposes of this project, those who do not succeed are defined as final year enrolments whose outcome was recorded as 'no achievement', 'result not yet known', 'study continuing' or 'results returned directly to students'. Section 4 provides

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[7] Partial achievement is recorded when: the qualification for which a student has enrolled has not been achieved in full, but when either (a) a student achieves a certified component of the intended qualification – for example, a QCF Award instead of a QCF Certificate, or a QCF Certificate instead of a QCF Diploma; or (b) if a student does not achieve a certified component of the intended qualification, but still achieves 50% or more of the intended qualification – for example, 50% or more of the QCF units. It should be noted that 50% or more of QCF qualifications is based on units achieved and not on credits, because even though credits would be a more accurate measure of achievement, credit information is not readily available to colleges from the examination results provided by awarding organisations. 'Partial' achievement represents a small proportion of overall success – around 6% in 2014/15.
[8] Source: DEL "Further Educations Activity in Northern Ireland 2010/11 to 2014/15 tables (excel)" (table 5)
[9] Academic year 2012/13
[10] Academic years 2013/14 – 2014/15

further detail on the composition of the 363,333 final year enrolments through the period of 2012/13 to 2014/15.

3.5 **Charts 3.1, 3.2** and **3.3** show retention, achievement and success rates in the FE sector, by college, over the last five academic years – 2010/11 to 2014/15 (DEL/DfE only began publishing annual FE retention, achievement and success rate data from 2010/11). The wider analysis in this report focuses on the observed difference in success outcomes in each of the 2012/13, 2013/14 and 2014/15 academic years only. The analysis on the 2010/11 and 2011/12 data was completed and reported on previously.

Chart 3.1: Retention rates in the NI FE Sector 2010/11 to 2014/15
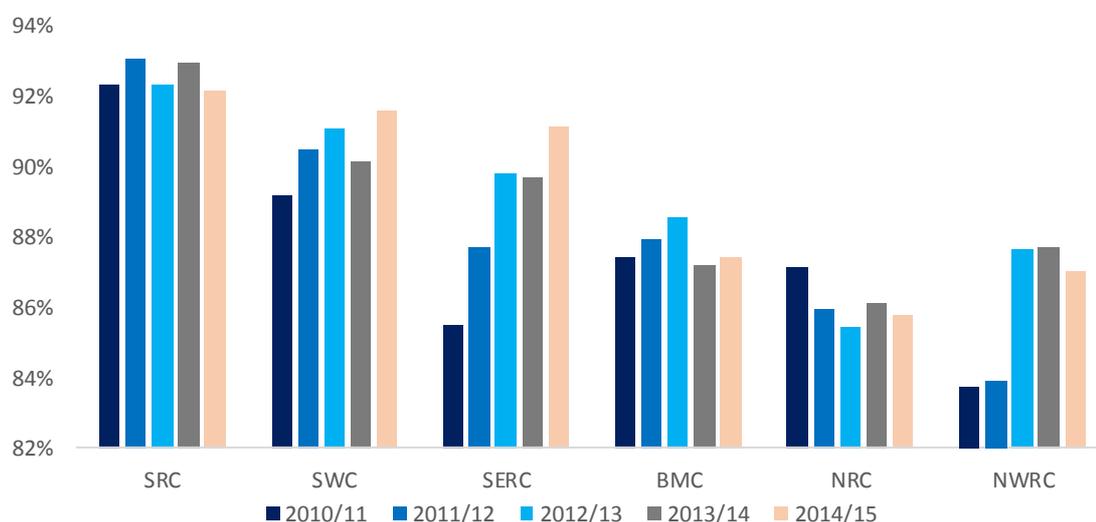
Source: DEL "Further Education Activity in Northern Ireland, 2010/11 – 2014/15" (Table A29)

Chart 3.2: Achievement rates in the NI FE Sector 2010/11 to 2014/15

Chart 3.3: Success rates in the NI FE Sector 2010/11 to 2014/15
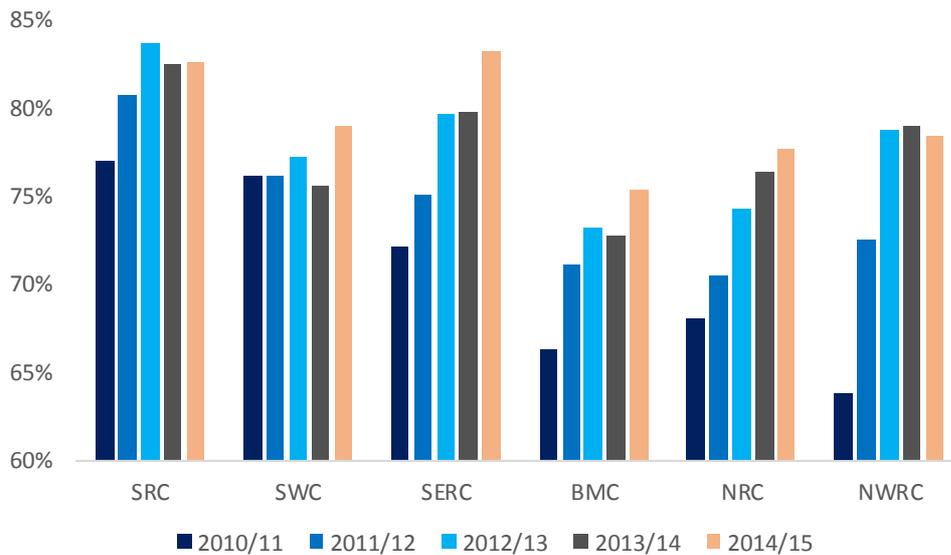
3.6   **Chart 3.1** indicates that retention rate performance has varied across the sector. SRC has been consistently strongest in terms of retention with rates fluctuating between 92% and 93% over the five-year period. Three colleges improved retention performance, SWC, SERC and NWRC from 2010/11.

BMC has been broadly static and NRC has been trending down, but only marginally.

3.7   In terms of achievement, **Chart 3.2** shows that performance has improved significantly across five of the six colleges. The one exception is SWC, where achievement performance has been broadly static (86.2% in 2014/15 is an improvement of only 0.7 percentage points (p.p.) since 2010/11). In 2014/15 the gap between the highest and lowest performing college is relatively small (5.1 p.p.) and has been decreasing.

3.8   In combination these movements have led to increasing success rates across the sector as shown in **Chart 3.3.**

3.9   **The purpose of this econometric research is to provide a greater understanding of the extent to which this performance gap can be explained by student characteristics and types of courses delivered**.

4.   The Econometric Model

4.1   Understanding how the performance of a final year student is influenced by the personal characteristics and circumstances of the student and the institutional characteristics of their college is an important issue for the FE sector and policy makers more generally.

4.2   For example, knowing a male student is less likely to gain a successful outcome than a female student (all other things being equal) can help focus efforts and pastoral support towards those who need it most. Importantly, this should be used for guidance purposes only as not all students with the same characteristics will have the same need for support. The existing approach of providing individually tailored support for students should be maintained.

4.3   In order to identify such factors, a logit model was developed in which the dependent variable Yi=1 if student i had a "successful" outcome (i.e., full or partial achievement) and Yi=0 if he/she did not have a "successful" outcome. The logit equation is:

for K coefficients (β_i) and for observations on K variables (X_i) where:

$$\Pr[Y_i = 1] = \frac{e^{\beta \times X_i}}{1 + e^{\beta \times X_i}}$$

4.4   For an individual to be included in the econometric analysis, a complete data profile must be available against each variable (i.e., a valid data entry for each variable being modelled). If an individual has a missing data entry for any single variable included in the model, then that enrolment (individual) is automatically removed from the analysis.

4.5   DfE is keen to work with the FE sector to minimise the level of missing data, to include all key explanatory variables and to ensure the results of the model are understood fully. It is through engagement that the impact of the model can be maximised. Engagement with the sector and others has already

proved helpful and a number of improvements have already been made following feedback from previous publications.

4.6 That feedback tended to focus on the limitations of the model and these are listed below along with comments from the Department:

- The use of Northern Ireland postcode data to assess social background has the impact of excluding all Republic of Ireland (RoI) students from the analysis;

  The student postcode is used to determine the Super Output Area (SOA) in which they live. Each of the 890 SOAs across NI have a Northern Ireland Multiple Deprivation Measurement (NIMDM) score, which indicates the level of deprivation of that area, relative to the other SOAs. Although RoI postcodes do not have a NIMDM score, households in RoI have recently been assigned a postcode by the government and DfE have initiated consultations to determine if a similar deprivation score could be applied and if it could be used in a similar manner to NIMDM.

  Moving away from the use of postcode data could require students to provide additional data (which may be more difficult to obtain) and hence add to the burden of those providing and capturing data. Greater levels of missing data in this field could result in the measure not being included in the analysis.

- Other important variables such as the size of the local grammar cohort, retention levels in non-grammar post-primary schools and the balance between 11-16 and 11-18 age group schools;

  It is recognised that in an area with a large local grammar cohort and/or higher retention levels in the non-grammar post-primary, one would expect a lower success rate as well as lower overall enrolments. The information required to undertake that more detailed analysis is not currently available in the relevant datasets. Consideration will be given to ways in which this information could be captured for future research.

- Data on employment prospects and earnings post-qualification could help explain retention and achievement. To this end DfE are working on enhancing the FELS dataset;

The Department undertook to develop a Further Education Leavers Survey (FE Leavers Survey) to assess the destinations and potential benefits to students on completing and achieving a regulated qualification at a Further Education College in Northern Ireland.

The first annual survey (FE Leavers Survey 2015) provides details on the destinations and potential benefits to students, approximately six months after FE Course completion and achievement.

The findings indicate a range of FE Leaver destinations, which include progression into employment or further learning. The recent publication of the FE leavers survey analysis is available at:

https://www.delni.gov.uk/fe-leavers-survey-2015

- Some colleges are more effective at recording enrolment information, which in turn can lead to over and under representation of students from different colleges.

A new data process to collate all enrolments in FE colleges was introduced in 2013/14, called the Consolidated Data Return (CDR). This return has an accompanying automated validation report, which is produced on a daily basis. This permits FE colleges to review the quality of their data. These automated reports aim to ensure the data is fit for purpose for the college and the department.

There are a number of non-mandatory fields within the CDR, where the student is not required to provide a response and therefore missing data will remain an issue in some fields. With any administrative data system there is a specific primary focus (in this case FE college enrolments) while others (in this case the Department) are using it for secondary analysis and therefore have to accept certain limitations in the data.

4.7　As noted above, the Northern Ireland Multiple Deprivation Measure (NIMDM, 2010) score is used as a proxy to assess social background. The NIMDM 2010 measure is based on seven types of deprivation, including: Income; Employment; Health and Disability; Education, Skills and Training; Proximity to Services; Living Environment; and Crime and Disorder.

Data Overview

4.8　The independent variables used in the econometric analysis and included in the dataset are[11]:

- Student status
- Outcome
- College
- Age
- Gender
- Adult dependents
- Child dependents
- Level of study
- Mode of study
- Ethnicity
- Marital status
- Disability
- Employment status
- Urban/rural domicile
- Social background (based on postcode)
- Subject studied
- Year studied.

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[11] Other variables included in the dataset are: funding group, final year completer, final year achiever, Qualifications on entry, Community background

4.9   As indicated above, to eliminate incomplete data profiles, the full FELS &
       CDR datasets were reduced to create a sample dataset. **Table 4.1** below
       provides an overview of the extent to which the dataset was reduced across
       all three academic years for the analysis.

Table 4.1: Comparison of the full and reduced dataset

	2012/13 – 2014/15
Full (Population) dataset	363,333
Sample dataset (Reduced)	257,241
% data used	**71%**

4.10   To prevent the extensive loss of observations within the analysis, DfE and
       UUEPC agreed that any independent variable with more than 20% missing
       observations would be excluded. As a result, qualifications on entry and
       community background have not been included within the analysis (having
       22% and 25% incomplete observations respectively). A full breakdown of
       how the reduced dataset compares to the overall FELS & CDR datasets are
       presented at **Annex 2**. The breakdown shows that the sample datasets, on
       which econometric results are based, is broadly comparable with the larger
       (population) dataset.

4.11   Overall data capture on factors that impact a successful outcome has
       improved since the last FE Outcomes report published by the Department,
       based on 2011/12 data. In that year the sample dataset was 59% of the full
       (population) dataset and in this three-year period (2012/13 to 2014/15) it
       varied from 64% to 78% with an average of 71%.[12]

4.12   **Table 4.2** below shows the comparison of full and reduced datasets by
       college. This highlights the extent to which colleges have students who do
       not complete all data fields (typically the non-mandatory fields) in the
       enrolment forms. NRC have been consistently strong and over 80% of the

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[12] A contributing factor to the increase in the sample dataset is the removal of independent variables
qualifications on entry and community background from the analysis. The inclusion of these variables would
have reduced the dataset to c57%.

original records in the dataset could be used in the final analysis, but all colleges have improved since 2012/13.

Table 4.2: Comparison of full and reduced datasets by college

College	2012/13	2013/14	2014/15	All years
BMC	58%	67%	69%	**65%**
NRC	89%	90%	90%	**89%**
NWRC	64%	65%	65%	**65%**
SERC	56%	69%	91%	**72%**
SRC	59%	64%	68%	**63%**
SWC	71%	82%	83%	**79%**
Total	**64%**	**72%**	**78%**	**71%**

How can the model be used?

4.13 The econometric model estimates the variables that most affect the probability of successful outcomes. Therefore, it is possible to estimate the extent to which a change in a particular characteristic (individual and/or institutional) will affect the probability of success with all other characteristics unchanged. So, for example, it enables us to ask:

- How does the college an individual attends affect their likelihood of success, after accounting for other potential influences (gender, social background, level of study etc.)?

4.14 This econometric approach (logistic regression) is used extensively in numerous disciplines, including the medical and social science fields. In the medical field, for example, logistic regression is often used to predict the likelihood that a patient will get a given disease (e.g., diabetes) based on observed characteristics of the patient (age, gender, body mass index, results of various blood tests, etc). In the social sciences, logistic regression is used extensively to predict voting patterns, based on age, income, gender, race, state of residence, votes in previous elections, etc.

4.15 This particular model correctly predicts 77.8% of individual outcomes. Additionally, the Wald Test[13] proves that the model is statistically significant. The Wald test as used here is a way of testing the joint significance of explanatory variables in a statistical model in a manner analogous to the F-test often used in Ordinary Least squares analysis (i.e. it tests the estimated coefficients of the independent variables against a null hypothesis that the coefficients are all in fact zero). The Wald value of the model is 9096.26 which significantly surpasses the critical values of a chi² test with 43 degrees of freedom of 59.30 at the 95% level and 67.46 at the 99% level.

4.16 The results of estimating the logistic equation on the data is shown in **Annex 1.**

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[13] The Wald test is a way of testing the significance of particular explanatory variables in a statistical model
Source of definition - http://www.blackwellpublishing.com/specialarticles/jcn_10_774.pdf

5.   Results

Introduction

5.1.   This section of the report sets out the results of the econometric analysis and assesses the impact the following variables had on achieving a successful outcome:

- Success rates across colleges;

- Impact of the subject mix studied;

- Impact of level (NQF level) and mode (Full-time/ Part-time) of study;

- Impact of age of student;

- Impact of gender and urban/rural living;

- Impact of disability (self-reported);

- Impact of the social background/deprivation of student;

- Impact of ethnicity and marital status of student;

- Impact of employment status (self-reported);

- Impact of dependants (adult/child);

5.2.   The following analysis is an update of the previous econometric modelling work undertaken by the department on FE outcomes, published in 2013[14] (refer to paragraph 1.2). The narrative below often makes reference to this previous analysis.

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[14]https://www.delni.gov.uk/sites/default/files/publications/del/What%20Factors%20Contribute%20to%20Successful%20%28Northern%20Ireland%29%20Student%20Outcomes%20in%20Further%20Education%20An%20Econometric%20Analysi.pdf

Success rates across colleges

Unadjusted data

5.3. Analysis of the unadjusted data highlights that there is considerable variability in success outcomes across colleges in the sector, before any like for like adjustment is made through the logistic regression model. In presenting the analysis **one college is selected, in this instance South West College, as a reference** to compare performance against all other colleges. South West College was chosen as the reference as it is a mid-performing college in terms of successful outcomes (but in practice any college could be selected as the reference for presentation purposes). The percentage difference in success (unadjusted data) across the colleges is shown in **Figure 5.1** below.

Figure 5.1: Percentage difference from SWC in success rates by college (2012/13 to 2014/15 – Unadjusted data)
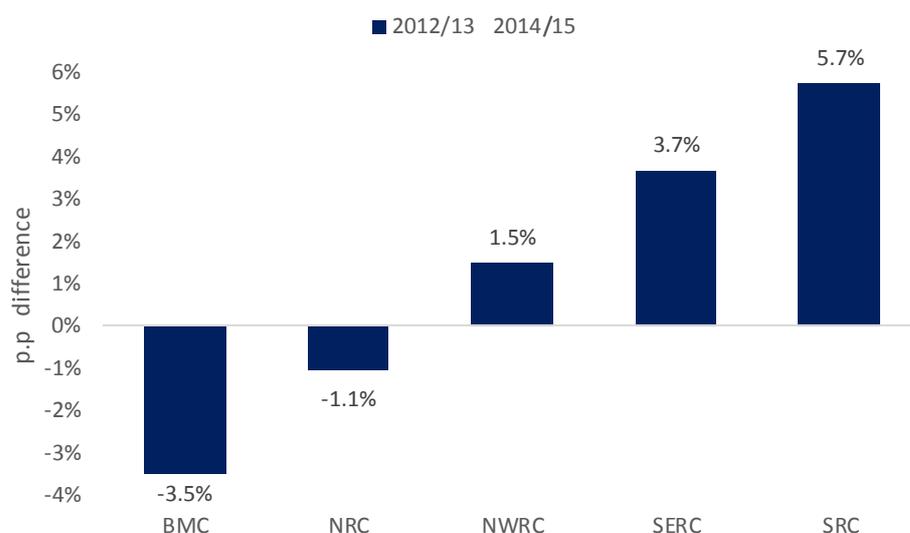
Source: DEL "Further Education Activity in Northern Ireland, 2010/11 – 2014/15" (table A29)
Note: 1. South West College (SWC) has been selected as the reference college.

5.4. Over the three-year period for which the data was analysed, there was a 9.2 percentage point (p.p.) gap between the lowest performing college and the highest performing college (i.e. SRC +5.7% and BMC -3.5%). This analysis has been conducted with a combined three-year dataset, compared to annual datasets used in previous analyses. As a result, the quality of data should be improved and the results of the econometric analysis should be more robust.

Data quality improvements have been implemented and continue to be addressed on an on-going basis with the Colleges. It is intended to have the data accredited as 'National Statistics' following a quality assessment process by the UK Statistics Authority during 2017. The results for the impact of factors affecting success rates and the analysis across colleges in this study supersede and replace those previously published in 2013. However, caution should be taken when interpreting these results with the caveats outlined at section 5.10.

Adjusted data

5.5. **However, the unadjusted success rate figures do not provide a full reflection on college performance across the sector.** Some colleges could have larger proportions of students with characteristics which make them more pre-disposed to achieving a successful outcome. Therefore, it is necessary to undertake an analysis that aims to identify the individual impact of each of the characteristics on the likelihood of success. Two examples:

- **Student background** – the previous econometric analysis published 2013 showed that students from more affluent backgrounds are more likely to achieve successful outcomes. Therefore, a college that draws a larger proportion of its students from more affluent backgrounds should perform better. For example, approximately 40% of NWRC enrolments are from the most deprived wards in NI (i.e. in the bottom quintile) compared to just 10% for SERC.

- **Subjects delivered** – the previous econometric analysis has shown that students studying retail and leisure subjects are more likely to gain a successful outcome (irrespective of the college they attended) compared to those students studying science and mathematics subjects. Therefore, a college which has higher proportionate enrolment numbers in retail and leisure subjects should perform better than a college which has higher proportionate science and maths enrolments. For example, BMC has over 6.2% enrolments studying science and mathematics subjects, compared to just 1.29% in SWC.

5.6.   The purpose of conducting a logit regression analysis is to understand if the performance difference identified in **Figure 5.1** above can be explained by the other factors (listed in paragraph 4.8) and to compare college performance on a like for like assessment.

5.7.   **Figure 5.2** below sets out the difference in performance between colleges adjusted for these factors (South West College has, again, been selected as the reference college). A comparison with the unadjusted data is also provided.

Figure 5.2: Percentage difference from SWC in success rates by college (2012/13 to 2014/15 – Unadjusted and Adjusted data)
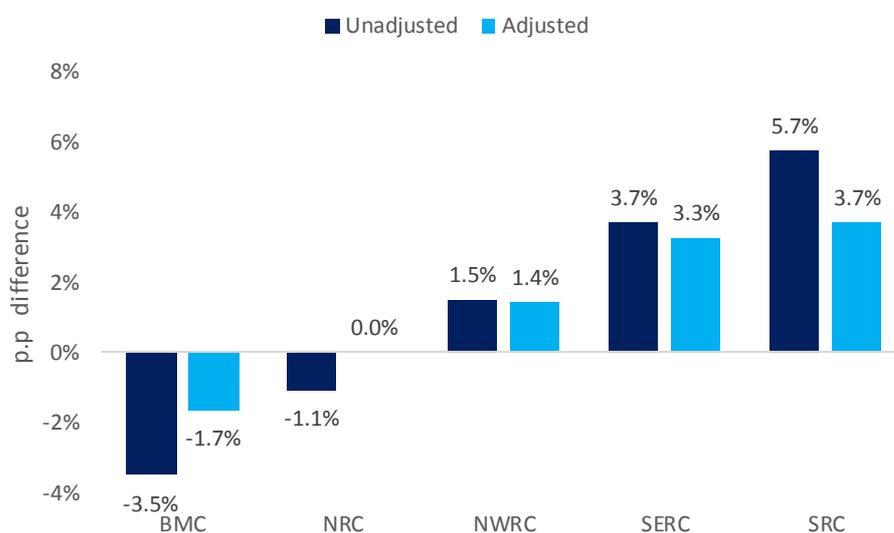
Sources: Further Education Leavers Survey (FELS) 2012/13 and Consolidated Data Return (CDR) 2013/14 & 2014/15
Note: 1.   A score of zero should be interpreted as meaning the likelihood of observing a successful outcome for a final year enrolment is no more (or less) likely than the reference college.
2.   South West College has been selected as the reference college.

5.8.   After adjusting for other characteristics, differentials in performance remain but the following observations are made:

•   The gap between the best and worst performing colleges has narrowed significantly from 9.2 p.p. (using the unadjusted data) to a relatively small difference of 5.4 p.p. (i.e. +3.7% SRC and -1.7% BMC, using the adjusted data);

- There is a convergence in success rates across all colleges. The differential in performance with the reference college is reduced in all cases;

- SRC is still the best performing college.

5.9. Overall the analysis suggests that a student's likelihood of achieving a successful outcome is affected in a small way by the college they attend. Therefore, even if colleges had a similar student profile (gender, age, and social background) and delivered a similar subject mix (subject area and mode of study), a variance in success outcomes across the sector would continue to exist. However, it is also important to recognise that the likelihood of success may also be partially explained by other factors which are not captured in the data and are outside the control of colleges.

5.10. Furthermore, the results provided within this analysis are headline figures which take into account enrolments as a whole, but do not provide a further breakdown of these enrolments. It is recommended that further refinements are added to the model to allow for a more detailed analysis in future. For example, further research could be undertaken examining the role of retention and attainment in success performance, similarly assessing the differences in impact between full-time and part-time courses, and also subject enrolments data compared to aggregated data for an individual student. A preliminary analysis on the performance of full-time enrolments compared to part-time enrolments has been included in **Annex 3**. This preliminary analysis tentatively suggests that, after adjusting for other characteristics, there may be some differences between college outcomes on a full time and part time basis (see **Annex 3**). For example, BMC records a better performance (controlling for other factors) on a full time course basis when compared to other colleges with part time performance less favourable.

5.11. The remaining analysis, conducted across the independent variables listed in paragraph 4.8 above, has been undertaken using the adjusted data only. This will identify the individual impact of each of the characteristics on the likelihood of success.

Impact of the subject mix studied

5.12. The previous econometric research published in 2013 highlighted that the likelihood of a successful outcome varied across subjects studied. That research indicated that retail and leisure related courses had higher success rates than average and science & maths and language courses had lower success rates.

5.13. **Figure 5.3** below shows the results from the econometric analysis for the years 2012/13 to 2014/15 combined.

- Each subject is compared against a reference subject, in this case Health, Public Services and Care;

- A score of zero should be interpreted as meaning the likelihood of observing a successful outcome for a final year enrolment is no more (or less) likely than the reference subject area.

Fig 5.3: Impact of subject area on successful outcome (2012/13 – 2014/15)[1]
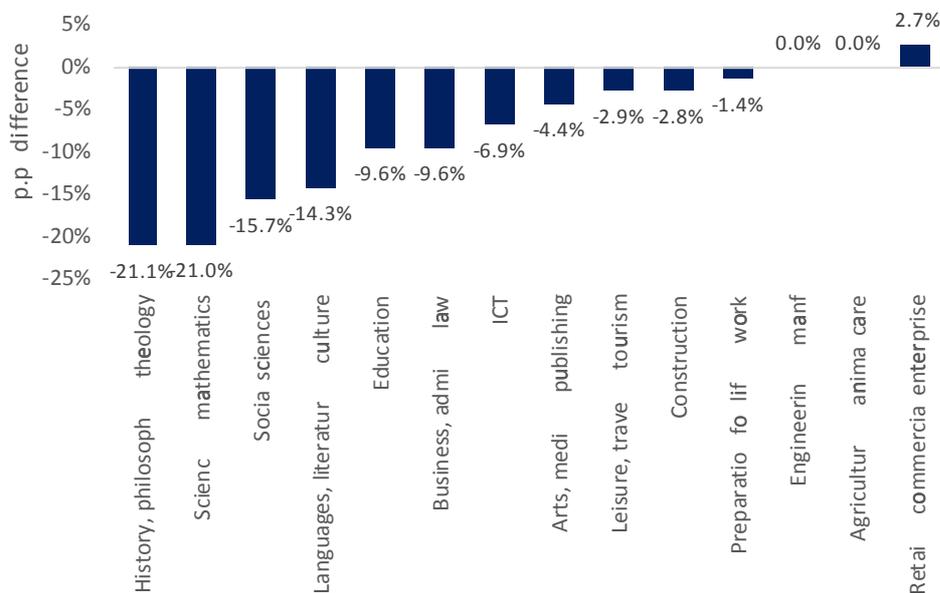
Sources: Further Education Leavers Survey (FELS) 2012/13 and Consolidated Data Return (CDR) 2013/14 & 2014/15

Note: 1. Health, Public Services and Care has been selected as the reference subject area.

5.14. A number of similar trends can be seen emerging:

- Enrolments for 'Retail & commercial enterprise' are more likely to produce successful outcomes (+2.7 p.p.) compared to the reference subject area (Health, Public Services and Care), after controlling for other characteristics included in the analysis (refer to paragraph 4.8).

- Subjects such as 'History, philosophy and theology', 'Science and Mathematics' and 'Social Sciences' are less likely to deliver successful outcomes (-21.1 p.p., -21.0 p.p. and -15.7 p.p. respectively) compared to the reference subject.

5.15. This econometric analysis cannot explain the reasons for variations in subject level success rates. Individual colleges may wish to explore potential reasons within their institution and a comparison of results with similar subject areas (where possible) in schools may show similar trends.

Impact of the level (e.g. NQF Level) and mode (i.e. full-time and part-time) of study

5.16. The level of study (e.g. by NQF level) and mode of study (i.e. Full-time [FT] or Part-time [PT]) also have an impact on the likelihood of a successful outcome, even after adjustment to allow for a more like-for-like comparison. **Figure 5.4** shows the results of the latest analysis on the impact of the level of study on successful outcomes.

**Fig 5.4: Impact of the level and mode of study on successful outcome (2012/13 – 2014/15)**
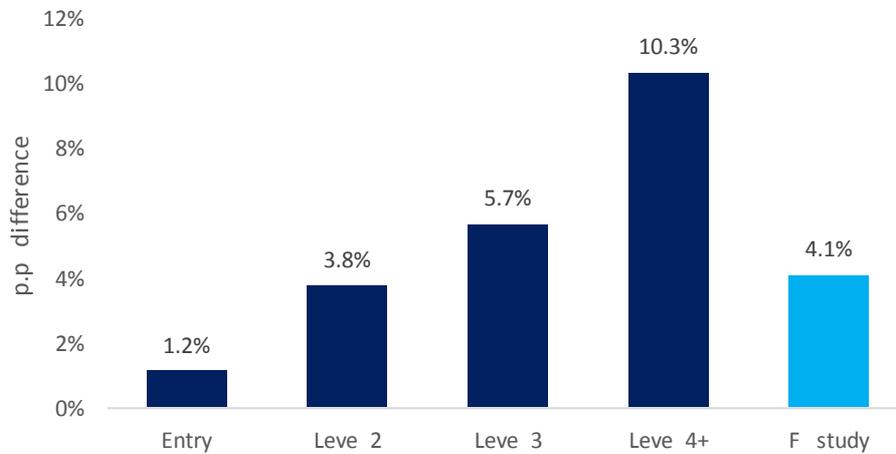
Sources: Further Education Leavers Survey (FELS) 2012/13 and Consolidated Data Return (CDR) 2013/14 & 2014/15

Note: 1: Level 1 has been selected as the reference level (level of study)

2: PT study has been selected as the reference mode (mode of study)

3. A score of zero should be interpreted as meaning the likelihood of observing a successful outcome is no more (or less) likely than the reference level of study

5.17. The previous econometric analysis indicated that Level 2 study has had the lowest likelihood of success. However, these results would suggest that Level 1 (the reference level) has had the lowest likelihood of success in the last three years. As the level of study increases with the exception of entry level, so does the likelihood of success.

5.18. The previous econometric analysis indicated that full-time study was associated with a higher likelihood of a successful outcome. These results show that the previous trend has continued and students on full-time study have a greater likelihood of success than those studying part-time (by approximately 4.1 p.p.).

Impact of age on a successful outcome

5.19. The analysis is based on three age groups: those aged 14-19, 20-24 and 25+. The previous econometric analysis indicated that age did NOT have a significant impact on the likelihood of achieving a successful outcome. However, the latest analysis found that those aged 20-24 had a marginally lower likelihood of success relative to the reference age group (14-19). Those aged 25+ had the same likelihood of success to the reference age group.

Fig 5.5: Impact of age on a successful outcome (2012/13 – 2014/15)[1]
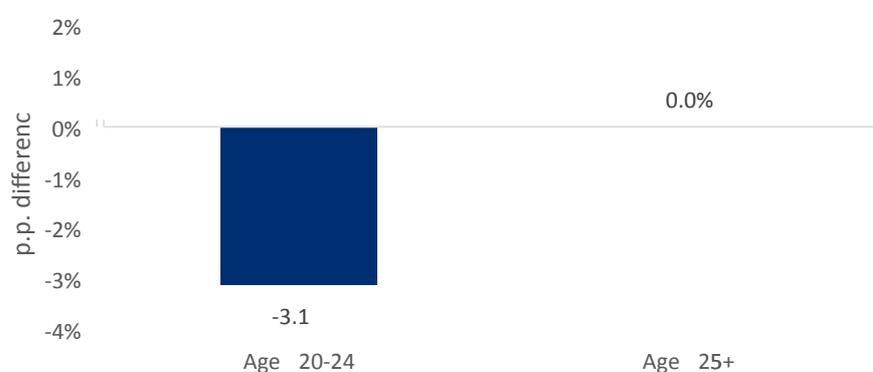
Sources: Further Education Leavers Survey (FELS) 2012/13 and Consolidated Data Return (CDR) 2013/14 & 2014/15
Note: 1. Those aged 14-19 have been selected as the reference age group

Impact of gender and urban/rural dwelling on a successful outcome

5.20. The previous econometric analysis indicated that gender did NOT have a significant impact on the likelihood of achieving a successful outcome. This analysis shows that females had a higher likelihood of success (1.0 p.p.), albeit only marginal.

5.21. The analysis also shows that controlling for all other factors, a student from an 'urban' area is less likely to achieve a successful outcome than a student from a rural area (by 2.9 p.p.). **Figure 5.6** shows these results.

Fig 5.6: Impact of gender and urban/rural on a successful outcome (2012/13 – 2014/15)
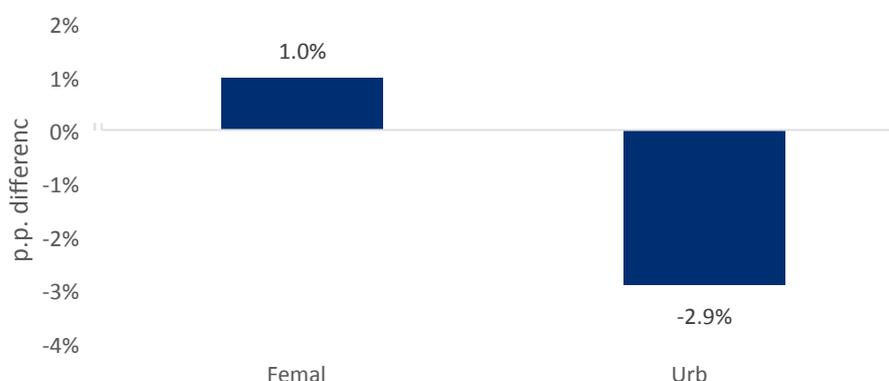
Sources: Further Education Leavers Survey (FELS) 2012/13 and Consolidated Data Return (CDR) 2013/14 & 2014/15
Note: 1. Male is the reference gender
2. Rural is the reference area

Impact of disability (self-reported) on a successful outcome

5.22. The latest analysis, in line with the previous econometric analysis, has indicated that disability did NOT have a significant impact on the likelihood of achieving a successful outcome (compared to those not self-reporting as disabled) after controlling for other factors.

Impact of social background/ deprivation on a successful outcome

5.23. Enrolments are categorised (by home postcode) into deprivation quintiles, from Dep 1 (the most deprived area) to Dep 5 (the least deprived area) based on the Northern Ireland Multiple Deprivation Measure (2010). The previous econometric analysis indicated that those living in the most deprived super output areas are least likely to succeed and those living in the least deprived wards are most likely to succeed. This was not surprising, but the percentage point difference between those living in the most and least deprived areas was very narrow. This suggested that the access policies and pastoral care offered within the FE sector had an impact in keeping the gap to a relatively low level.

5.24. **Figure 5.7** below shows the results based on the 2012/13 to 2014/15 enrolment data.

**Fig 5.7: Impact of social background on successful outcome (2012/13 – 2014/15)[1]**
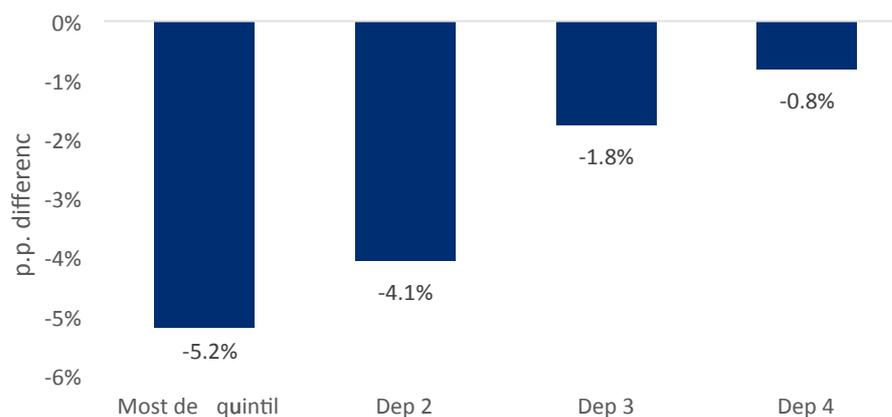
Sources: Further Education Leavers Survey (FELS) 2012/13 and Consolidated Data Return (CDR) 2013/14 & 2014/15
Note: 1. Dep 5 (least deprived area) is the reference quintile

5.25. The trend from the previous econometric analysis has continued and students from the most deprived backgrounds are the least likely to achieve a successful outcome, with a gap at 5.2 p.p.

Impact of ethnicity and marital status on a successful outcome

5.26. Previous analysis has indicated that 'white' students are marginally more likely to succeed compared to otherwise identical final year enrolments of 'non-white' ethnicity. The previous analysis also indicated that those who are married have the highest likelihood of success, compared to those who are single or are widowed/divorced or separated. **Figure 5.8** below shows the results from the latest (2012/13 to 2014/15) data enrolment analysis.

Fig 5.8: Impact of ethnicity and marital status on a successful outcome (2012/13 – 2014/15)[1, 2]
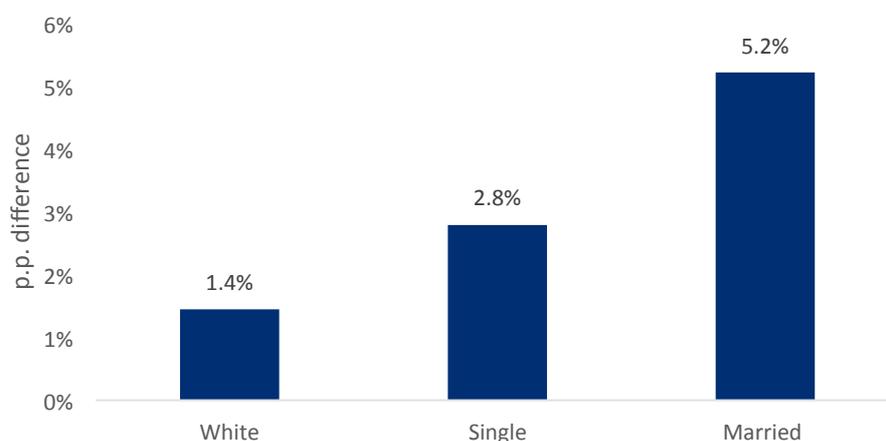
Sources: Further Education Leavers Survey (FELS) 2012/13 and Consolidated Data Return (CDR) 2013/14 & 2014/15
Note: 1. 'Widowed/divorced or separated' is the reference marital status
      2. 'Non-white' is the ethnicity reference

5.27. These results are similar to the previous econometric analysis. Those classified as 'white' are 1.4 p.p. more likely to achieve success, and married students have the highest likelihood of success (5.2 p.p.) relative to 'Widowed/divorced or separated' students and 'Single' students have a 2.8 p.p. greater likelihood of success relative to 'Divorced/ Widowed' students.

Impact of employment status (self-reported) on a successful outcome

5.28. The previous econometric analysis indicated that final year enrolments 'in employment' were more likely to have a successful outcome than someone unemployed. Furthermore, those in full-time employment were more likely to achieve a successful outcome than those in part-time employment.

5.29. That trend has continued in the latest data, where those in full-time employment have the highest likelihood of success (4.5 p.p. higher than unemployed), followed by those who have identified themselves as 'inactive[15]' and then those working part-time.

5.30. **Figure 5.9** below shows the results from the 2012/13 to 2014/15 data enrolment analysis.

**Fig 5.9: Impact of employment status on a successful outcome[1]
(2012/13 – 2014/15)**
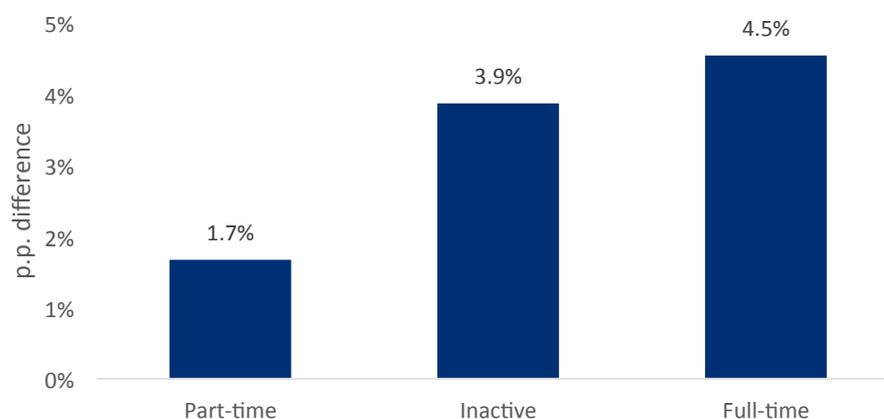
Sources: Further Education Leavers Survey (FELS) 2012/13 and Consolidated Data Return (CDR) 2013/14 & 2014/15
Note: 1. Unemployed is the reference employment status

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[15] The ONS definition of 'economically inactive' are those without a job and have not actively sought work in the last four weeks, and/or are not available to start work in the next two weeks. It is typically made up of those who are looking after family members, early retired, students and those who are sick.

Impact of dependents on a successful outcome

5.31.   The analysis found that having dependents had only a very limited impact on achieving a successful outcome. Those with adult dependents were 2.4 p.p. less likely to achieve a successful outcome (compared to those with no adult dependents) and those with child dependents were 0.7 p.p. more likely to achieve a successful outcome (compared to those with no child dependents). **Figure 5.10** below shows the results from the analysis.

Fig 5.10: Impact of dependents on a successful outcome (2012/13 - 2014/15)[1]
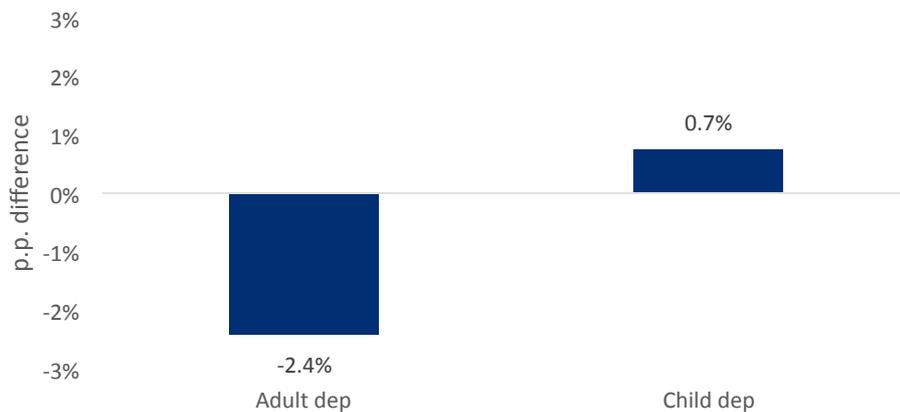
Sources: Further Education Leavers Survey (FELS) 2012/13 and Consolidated Data Return (CDR) 2013/14 & 2014/15
Note:1. No adult or child dependents is the reference dependents status

6.   Summary

6.1.   DfE in partnership with Ulster University has developed an econometric model to analyse the variability in success outcomes in the FE sector on a more 'like for like' basis. The regression model offers a more sophisticated method to scrutinise the raw data, compared to drawing conclusions from the raw data only.

6.2.   The latest analysis of the final year enrolments on regulated courses combining academic years 2012/13 to 2014/15 has provided more longitudinal insight into the characteristics most likely to affect successful outcomes across the FE sector. Based on the results it can be concluded that a student with the following characteristics will be more likely to succeed:

- attend Southern Regional College;
- study a Retail and Commercial enterprise subject area;
- study a subject a Level 4 or above;
- study on a full-time basis;
- from a rural area;
- from a less deprived area;
- being married; and
- being full-time employed (or inactive).

6.3.   The following characteristics have been identified as having only a limited impact on achieving a successful outcome:

- age;
- gender;
- ethnic background; and
- having dependents.

6.4.   It is intended that this analysis will assist colleges to: shape curriculum plans; identify and address weaknesses and risk areas; shape student support and pastoral care; and identify/learn from best practice across the sector.

6.5. However, it must be stressed that this analysis does not replace existing mechanisms for assessing performance or student support programmes but is intended to provide a further source of evidence to inform action to improve a student's chances of success.

Annex 1 – (Logistic) Regression Analysis at 5% level of significance

Interpreting the statistics

A positive (or negative) coefficient estimate indicates that the probability of "success" rises (or falls) with an increase in the value of the variable associated with the coefficient. However, the coefficient estimates do not provide a guide to the amount by which the probability of success increases or decreases in consequence of a change in the variable value.

For this reason, the estimation results are discussed in terms of "marginal probabilities" shown in the third column of the table as dy/dx. The marginal probability of "success", associated with a determining variable (e.g., gender, age, college) is the change in the probability of "success" consequent upon a unit change in the determining variable, the values of the other variables remaining unchanged (held at their mean values). For discrete variables[16], the marginal probabilities refer to changes consequent upon a move from the residual (or reference) category[17] for that variable to the category in question[18].

So, for example, compared to an otherwise identical final year enrolment, an urban domiciled enrolment is 2.9 percentage points less likely to have a successful outcome. This result is significant at the 95% level. Significance levels tell us the extent to which the result is due to chance. In this instance, there is a 95% chance of the result being true and, conversely, only a 5% chance of it not being true. The 90% threshold is generally accepted as the minimum standard in the academic literature.

In this analysis, variables are said to be significant when they are statistically significant at the 5% level or higher, i.e. the z-value is greater than ±1.96. Given the number of observations within the analysis (over 210,000), the t-distribution converges tightly to the normal distribution – i.e. the critical value is 1.95998 as opposed to 1.95996.

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[16] A variable that takes values from a finite or countable set, in this case the outcome is success (or not).
[17] The residual categories for the variables are defined in the notes.

[18] The marginal probability is defined as $\dfrac{\partial \Pr(Y_i = 1)}{\partial X_{ik}}$ and reported in the tables as dy/dx

Table 1: (Logistic) Regression Analysis – Results (statistically significant variables) 2012/13 - 2014/15

Residual Variable	Variable	dy/dx[19]	Std. Err.	Z	P>|z|	95% Confidence interval	
Compared to male	Female	0.98	0.00177	5.52	0	0.006301	0.01324
Compared to 14-19	20-25 year old	-3.12	0.00274	-11.4	0	-0.0366	-0.025873
Compared to non-white	White	1.44	0.00507	2.85	0.004	0.004506	0.02439
	Single	2.79	0.00502	5.55	0	0.018016	0.037689
Compared to Widowed & Divorced	Married	5.21	0.00412	12.62	0	0.043981	0.060147
Compared to no child dependent	Child dependent	0.74	0.00277	2.67	0.008	0.001952	0.012801
Compared to no adult dependent	Adult dependent	-2.41	0.0049	-4.92	0	-0.033706	-0.014504
	Full-time emp	4.54	0.00251	18.07	0	0.040466	0.050312
Compared to unemployed	Part-time emp	1.67	0.0022	7.59	0	0.012379	0.020994
	Inactive	3.87	0.0021	18.42	0	0.034556	0.042786
	Dep1 (most deprived)	-5.20	0.00317	-16.40	0	-0.058231	-0.045798
Compared to Deprivation Quintile 5	Dep2	-4.07	0.00307	-13.26	0	-0.046739	-0.034699
(least deprived)	Dep3	-1.77	0.00307	-5.76	0	-0.023698	-0.011661
	Dep4	-0.83	0.00301	-2.75	0.006	-0.014189	-0.002383
Compared to rural domicile	Urban domicile	-2.91	0.00189	-15.39	0	-0.032776	-0.02537
	Entry level	1.15	0.00338	3.41	0.001	0.004906	0.018148
Compared to Level 1 study	Level 2	3.78	0.00232	16.28	0	0.033271	0.042376
	Level 3	5.68	0.00278	20.41	0	0.051339	0.062246
	Level 4 plus	10.34	0.00323	32.06	0	0.097117	0.109766
Compared to part-time study	Full time study	4.10	0.00256	16.04	0	0.036033	0.046065

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[19] Figures used for charts in analysis

Residual Variable	Variable	dy/dx[20]	Std. Err.	Z	P>|z|	95% Confidence interval Residual Variable	
Compared to Health, public services and care	Science and mathematics	-21.00	0.00665	-31.57	0	-0.222995	-0.196925
	Construction	-2.82	0.00663	-4.25	0	-0.041186	-0.01518
	ICT	-6.87	0.00481	-14.28	0	-0.078133	-0.05927
	Retail and commercial enterprise	2.71	0.00399	6.80	0	0.019287	0.03492
	Leisure, travel and tourism	-2.86	0.00626	-4.56	0	-0.040833	-0.016284
	Arts, media and publishing	-4.36	0.00605	-7.20	0	-0.055415	-0.03171
	History, philosophy and theology	-21.08	0.01501	-14.04	0	-0.240216	-0.181371
	Social sciences	-15.73	0.00902	-17.44	0	-0.175023	-0.139665
	Languages, literature and culture	-14.32	0.00642	-22.30	0	-0.155782	-0.130608
	Education and training	-9.56	0.00538	-17.78	0	-0.106111	-0.085035
	Preparation for life and work	-1.41	0.00397	-3.55	0	-0.021902	-0.006328
	Business, administration and law	-9.55	0.00563	-16.98	0	-0.106579	-0.084517
Compared to studying in 12/13	Studying in 13/14	-1.18	0.00222	-5.30	0	-0.016133	-0.007429
	Studying in 14/15	0.51	0.00219	2.35	0.019	0.000847	0.009441
Compared to South West College	BMC	-1.65	0.00303	-5.44	0	-0.022443	-0.01056
	NWRC	1.41	0.00326	4.34	0	0.007765	0.020533
	SERC	3.25	0.00281	11.55	0	0.027002	0.038036
	SRC	3.68	0.00286	12.86	0	0.031212	0.042434

[20] Figures used for charts in analysis

Annex 2: Mean value comparison of variables in full and reduced dataset (2012/13 to 2014/15)[21]

Table 1: Differences in retention, achievement and success rates

Variable	Full FELS & CDR Dataset 2012/13 – 2014/15 (Population size 363,333)		Reduced FELS & CDR Dataset 2012/13 – 2014/15 (for modelling) (Sample size 257,241)		Difference in rate (percentage points)
	No. of Observations	Rate	No. of Observations	Rate	
No. final year enrolments (A)	363,333	-	257,241	-	
No. final year completers (B)	324,438	-	228,508	-	
Retention rate (B/A)		**89.3%**		**88.8%**	**-0.5pp**
No. of Achievements - full and partial (C)	284,509		200,191		
Achievement rate (C/B)		**87.7%**		**87.6%**	**-0.1pp**
Success Rate (B/A*C/B)		**78.3%**		**77.8%**	**-0.5pp**

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[21] Differences in rate/mean may not add due to rounding

Table 2: Differences in success rates, by FE college

Variable	Full FELS & CDR Dataset 2012/13 – 2014/15 (Population size 363,333)		Reduced FELS & CDR Dataset 2012/13 – 2014/15 (for modelling) (Sample size 257,241)		Difference in rate (percentage points)
	No. of Observations	Rate	No. of Observations	Rate	
Success by FE college					
BMC	83,001 (22.8% of full dataset)	73.8%	53,635 (20.9% of full dataset)	72.6%	-1.2pp
NRC	45,313 (12.5% of full dataset)	76.2%	40,534 (15.8% of full dataset)	77.3%	1.1pp
NWRC	43,775 (12.1% of full dataset)	78.7%	28,284 (11.0% of full dataset)	78.6%	-0.2pp
SERC	74,703 (20.6% of full dataset)	80.9%	53,435 (20.8% of full dataset)	80.6%	-0.3pp
SRC	67,008 (18.4% of full dataset)	83.0%	42,436 (16.5% of full dataset)	81.7%	-1.3pp
SWC	49,533 (13.6% of full dataset)	77.2%	38,917 (15.1% of full dataset)	77.0%	-0.2pp
Sector total		**78.3%**		**77.8%**	**-0.5pp**

Table 3: Differences in means, independent variables

Variable	Full FELS & CDR Dataset 2012/13 – 2014/15 (Population size 363,333)		Reduced FELS & CDR Dataset 2012/13 – 2014/15 (for modelling) (Sample size 257,241)		Difference in means (percentage points)
	No. of Observations	Mean Value	No. of Observations	Mean Value	
Gender					
Female	187,166	50.5%	133,148	51.8%	1.2pp
Male	183,652	49.5%	124,093	48.2%	-1.2pp
Sector total	**363,333**	**100%**	**257,241**	**100%**	
Age					
Young	204,184	56.2%	148,908	57.9%	1.7pp
Mid	48,280	13.3%	34,582	13.4%	0.2pp
Old	110,653	30.5%	73,751	28.7%	-1.8pp
Sector total	**363,333**	**100%**	**257,241**	**100%**	
Adult dependents					
Adult dependents	9,816	2.7%	8,488	3.3%	0.6pp
No adult dependents	353,517	97.3%	248,753	96.7%	-0.6pp
Sector total	**363,333**	**100%**	**257,241**	**100.0%**	

| Variable | Full dataset | | Reduced dataset | | Difference in means |
	No. of Observations	Mean Value	No. of Observations	Mean Value	(percentage points)
Child dependents					
Child dependents	34,938	9.6%	30,213	11.8%	2.1pp
No child dependents	328,395	90.4%	227,028	88.3%	-2.1pp
Sector total	**363,333**	**100%**	**257,241**	**100%**	
Aim of qualification					
Studying entry level	32,646	9.0%	20,157	7.8%	-1.2pp
Studying level 1	57,119	15.8%	42,096	16.4%	0.6pp
Studying level 2	179,644	49.6%	127,384	49.5%	-0.1pp
Studying level 3	74,898	20.7%	54,773	21.3%	0.6pp
Studying level 4 or higher	18,071	5.0%	12,831	5.0%	0.0pp
Sector total	**362,378***	**100%**	**257,241**	**100%**	
***955 missing observations (0.3%) missing observations**					
Full time study	54,312	15.0%	40,897	15.9%	1.0pp
Part time study	309,021	85.1%	216,344	84.1%	-0.9pp
Sector total	**363,333**	**100.0%**	**257,241**	**100%**	

Variable	Full dataset		Reduced dataset		Difference in means (percentage points)
	No. of Observations	Mean Value	No. of Observations	Mean Value	
Ethnicity					
White	316,903	97.2%	250,643	97.5%	0.2pp
Non-white	9,010	2.8%	6,569	2.6%	-0.2pp
Sector total	**325,913***	**100%**	**257,212[22]**	**100.0%**	
***37,420 missing observations (10.3%) missing observations**					
Single	243,716	82.3%	211,917	82.4%	0.1pp
Married	42,849	14.5%	36,861	14.3%	-0.1pp
Divorced/Widowed	9,695	3.3%	8,463	3.3%	0.0pp
Sector total	**296,260***	**100.0%**	**257,241**	**100.0%**	
Disability					
Disability	47,137	13.0%	33,969	13.2%	0.2pp
No disability	316,196	87.0%	223,272	86.8%	-0.2pp
Sector total	**363,333**	**100%**	**257,241**	**100%**	

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[22] Figure does not match the overall figure of 257,241 as there are 12 uncoded observations, which as a result cannot be dropped from the dataset

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Variable	Full dataset		Reduced dataset		Difference in means (percentage points)
	No. of Observations	Mean Value	No. of Observations	Mean Value	
Employment status					
Employed full time	43,885	14.5%	39,049	15.2%	0.7pp
Employed part time	53,791	17.7%	49,533	19.3%	1.5pp
Inactive	80,276	26.5%	61,169	23.8%	-2.7pp
Unemployed	125,225	41.3%	107,490	41.8%	0.5pp
Sector total	**303,177***	**100%**	**257,241**	**100%**	
*60,156 missing observations (16.6%) missing observations					
Community background					
Catholic	128,155	46.8%	106,936	45.8%	-1.0pp
Protestant	118,860	43.4%	103,421	44.3%	0.9pp
Other community	26,806	9.8%	23,153	9.9%	0.1pp
Sector total	**273,821**	**100%**	**233,510[23]**	**100%**	
*89,512 missing observations (24.6%) missing observations – removed from regression analysis					

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[23] Figure does not match the overall figure of 257,241 as this variable was excluded from the regression analysis therefore missing observations were not dropped

Variable	Full dataset		Reduced dataset		Difference in means (percentage points)
	Mean Value	No. of Observations	Mean Value	No. of Observations	
Domicile					
Urban domicile	225,553	64.1%	163,894	63.7%	-0.4pp
Rural domicile	126,135	35.9%	93,347	36.3%	0.4pp
Sector total	**351,688***	**100%**	**257,241**	**100.0%**	
*11,645 missing observations (3.2%) missing observations					
Social class – level of deprivation					
Deprivation quintile 1 (most deprived)	76,923	21.9%	55,404	21.5%	-0.3pp
Deprivation quintile 2	80,689	22.9%	60,080	23.4%	0.4pp
Deprivation quintile 3	75,020	21.3%	54,758	21.3%	0.0pp
Deprivation quintile 4	67,216	19.1%	49,650	19.3%	0.2pp
Deprivation quintile 5 (last deprived0	51,819	14.7%	37,349	14.5%	-0.2pp
Sector total	**351,667***	**100.0%**	**257,241**	**100.0%**	
*11,666 missing observations (3.2%) missing observations					

Variable	Full dataset		Reduced dataset		Difference in means (percentage points)
	Mean Value	No. of Observations	Mean Value	No. of Observations	
Subject studied (SSA tier 1)					
Health, public services and care	30,702	8.5%	22,244	8.7%	0.2pp
Science and mathematics	13,517	3.7%	10,775	4.2%	0.5pp
Agriculture, horticulture and animal care	2,393	0.7%	1,790	0.7%	0.0pp
Engineering and manufacturing technologies	19,079	5.3%	12,568	4.9%	-0.4pp
Construction, planning and the built environment	10,966	3.0%	7,765	3.0%	0.0pp
Information and communication technology	39,811	11.0%	27,931	10.9%	-0.1pp
Retail and commercial enterprise	37,514	10.3%	26,628	10.4%	0.0pp
Leisure, travel and tourism	11,764	3.2%	8,505	3.3%	0.1pp
Arts, media and publishing	14,632	4.0%	10,104	3.9%	-0.1pp
History, philosophy and theology	1,728	0.5%	1,302	0.5%	0.0pp
Social sciences	5,625	1.6%	4,358	1.7%	0.1pp
Languages, literature and culture	18,549	5.1%	13,491	5.2%	0.1pp
Education and training	32,022	8.8%	22,485	8.7%	-0.1pp
Preparation for life and work	103,911	28.6%	71,436	27.8%	-0.9pp
Business, administration and law	20,908	5.8%	15,859	6.2%	0.4pp
Sector total	**363,121***	**100%**	**257,241**	**100%**	
***212 missing observations (0.1%) missing observations**					

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Variable	Full dataset		Reduced dataset		Difference in means (percentage points)
	Mean Value	No. of Observations	Mean Value	No. of Observations	
Qualification level upon entry					
Level 0 (entry level)	80,020	28.2%	53,697	23.8%	-4.3pp
Level 1	9,949	3.5%	7,911	3.5%	0.0pp
Level 2	135,768	47.8%	113,594	50.4%	2.6pp
Level 3	43,377	15.3%	36,978	16.4%	1.1pp
Level 4	2,427	0.9%	2,086	0.9%	0.1pp
Level 5	8,254	2.9%	7,332	3.3%	0.3pp
Level 6	3,022	1.1%	2,621	1.2%	0.1pp
Level 7	1,103	0.4%	937	0.4%	0.0pp
Level 8	207	0.1%	127	0.1%	0.0pp
Sector total	**284,127***	**100%**	**225,283[24]**	**100%**	

*79,206 missing observations (21.8%) missing observations – removed from regression analysis

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[24] Figure does not match the overall figure of 257,241 as this variable was excluded from the regression analysis therefore missing observations were not dropped

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Table 1: Part time enrolments analysis

Residual Variable	Variable	dy/dx	Std. Err.	Z	P>|z|	95% Confidence interval	
Compared to male	Female	1.07	0.0020	5.52	0	0.0069	0.0146
Compared to 14-19	20-25 year old	-3.12	0.0031	-10.04	0	-0.0373	-0.0251
Compared to non-white	White	1.76	0.0055	3.18	0.001	0.0068	0.0285
	Single	2.85	0.0053	5.41	0	0.0181	0.0388
Compared to Widowed & Divorced	Married	5.59	0.0044	12.73	0	0.0473	0.0645
Compared to no child dependent	Child dependent	0.796	0.0030	2.65	0.008	0.0021	0.0138
Compared to no adult dependent	Adult dependent	-2.72	0.0054	-5.01	0	-0.0378	-0.0165
	Full-time emp	4.95	0.0027	18.13	0	0.0442	0.0549
Compared to unemployed	Part-time emp	1.69	0.0025	6.86	0	0.0121	0.0218
	Inactive	4.32	0.0023	18.49	0	0.0387	0.0478
	Dep1 (most deprived)	-5.28	0.0035	-15.08	0	-0.0597	-0.0460
Compared to Deprivation Quintile 5 (least deprived)	Dep2	-4.45	0.0034	-13.07	0	-0.0511	-0.0378
	Dep3	-2.00	0.0034	-5.88	0	-0.0267	-0.0133
	Dep4	-1.01	0.0033	-3.03	0.002	-0.0167	-0.0036
Compared to rural domicile	Urban domicile	-2.67	0.0021	-12.66	0	-0.0309	-0.0226
	Entry level	1.09	0.0036	3.06	0.002	0.0039	0.0179
Compared to Level 1 study	Level 2	4.16	0.0025	16.58	0	0.0367	0.0466
	Level 3	4.99	0.0032	15.66	0	0.0436	0.0561
	Level 4 plus	8.67	0.0042	20.68	0	0.0785	0.0949

Residual Variable	Variable	dy/dx	Std. Err.	Z	P>|z|	95% Confidence interval	
	Science and mathematics	-23.74	0.0076	-31.26	0	-0.2523	-0.2225
	ICT	-8.71	0.0057	-15.24	0	-0.0983	-0.0759
	Retail and commercial enterprise	3.01	0.0047	6.38	0	0.0209	0.0393
	Arts, media and publishing	-8.22	0.0083	-9.93	0	-0.0984	-0.0659
Compared to Health, public services and care	History, philosophy and theology	-20.95	0.0154	-13.62	0	-0.2396	-0.1793
	Social sciences	-14.85	0.0102	-14.62	0	-0.1684	-0.1286
	Languages, literature and culture	-15.67	0.0071	-22.16	0	-0.1706	-0.1429
	Preparation for life and work	-11.23	0.0061	-18.53	0	-0.1242	-0.1005
	Education and training	-2.50	0.0046	-5.43	0	-0.0340	-0.0160
	Business, administration and law	-11.09	0.0066	-16.86	0	-0.1238	-0.0980
Compared to studying in 12/13	Studying in 13/14	-1.40	0.0025	-5.59	0	-0.0189	-0.0091
	Studying in 14/15	0.59	0.0025	2.39	0.017	0.0011	0.0108
Compared to South West College	BMC	-2.06	0.0033	-6.16	0	-0.0271	-0.0140
	NWRC	2.76	0.0036	7.64	0	0.0205	0.0347
	SERC	4.09	0.0031	13.33	0	0.0349	0.0469
	SRC	3.29	0.0032	10.36	0	0.0267	0.0391

Table 2: Full time enrolments analysis

Residual Variable	Variable	dy/dx	Std. Err.	Z	P>|z|	95% Confidence interval	
Compared to male	Female	1.75	0.0043	4.04	0	0.0090	0.0260
Compared to 14-19 years old	Aged-20-24	-4.30	0.0058	-7.40	0	-0.0544	-0.0316
	Aged 25 and over	-1.84	0.0092	-2.01	0.0450	-0.0364	-0.0004
Compared to unemployed	Full-time emp	2.13	0.0077	2.76	0.006	0.0062	0.0364
	Part-time emp	1.35	0.0046	2.95	0.003	0.0045	0.0224
	Inactive	1.33	0.0047	2.85	0.004	0.0042	0.0225
Compared to Deprivation Quintile 5 (least deprived)	Dep1 (most deprived)	-4.49	0.0073	-6.16	0	-0.0592	-0.0306
	Dep2	-2.15	0.0069	-3.13	0.002	-0.0349	-0.0080
Compared to rural domicile	Urban domicile	-3.86	0.0040	-9.57	0	-0.0465	-0.0307
Compared to Level 1 study	Entry level	12.57	0.0116	10.87	0	0.1030	0.1483
	Level 3	4.01	0.0095	4.22	0	0.0215	0.0587
	Level 4 plus	10.58	0.0061	17.31	0	0.0938	0.1177
Compared to Health, public services and care	Science and mathematics	-6.06	0.0110	-5.52	0	-0.0821	-0.0391
	Agriculture & animal care	2.88	0.0135	2.13	0.033	0.0023	0.0554
	Engineering & manf	1.56	0.0070	2.24	0.025	0.0020	0.0293
	Construction	-3.01	0.0092	-3.28	0.001	-0.0481	-0.0121
	Retail and commercial enterprise	2.06	0.0059	3.52	0	0.0091	0.0320
	Arts, media and publishing	1.98	0.0063	3.13	0.002	0.0074	0.0323
	Languages, literature and culture	-13.18	0.0177	-7.43	0	-0.1666	-0.0970
	Education and training	-13.74	0.0346	-3.97	0	-0.2052	-0.0696

Residual Variable	Variable	dy/dx	Std. Err.	Z	P>|z|	95% Confidence

Compared to South West College					interval	
BMC	1.49	0.0072	2.06	0.04	0.0007	0.0291
NRC	-2.78	0.0075	-3.72	0	-0.0425	-0.0132
NWRC	-2.39	0.0076	-3.15	0.002	-0.0388	-0.0090
SERC	-1.72	0.0077	-2.25	0.025	-0.0322	-0.0022
SRC	6.60	0.0062	10.67	0	0.0539	0.0782

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