# Impact and Effectiveness of Widening Access to HE in Wales

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*Retention in and progression through HE in Wales. Caroline Wright.*

[1] **Working Papers are intended to present initial analysis and findings. Please do not cite them without permission of the author(s).**

# Foreword

The Wales Institute of Social and Economic Research, Data and Methods (WISERD) is currently evaluating the impact and effectiveness of Widening Access to higher education (HE) in Wales. This project is funded through the Economic and Social Research Council's (ESRC) Secondary Data Analysis Initiative (ES/K004247/1); and by the Higher Education Funding Council for Wales (HEFCW). It will be completed by December 2014.

Access to higher education has become an extremely controversial area of policy, as successive UK administrations have sought to balance increasing student fees with ensuring that HE is open to individuals from as wide a range of social backgrounds as possible. Moreover, relatively distinctive approaches have been adopted in the different devolved administrations of the UK. For example, currently, the Welsh Government has undertaken to pay the increased costs to students arising from the abolition of the fees cap. However, the evidence-base for evaluating different approaches to widening access is relatively weak. Accordingly, WISERD, the HEFCW and the Welsh Government (WG) are collaborating on this innovative research study.

The research analyses how individuals who are resident in Wales progress through secondary school, into sixth forms and further education colleges for post-16 education and on to HE. It also explores what are the key factors here in determining whether individuals progress through the education system to HE or not. What are the relative impacts of the social characteristics of individuals, their previous educational attainment and their progression through the education system? What does this imply for the effects of barriers at the point of entry to HE, such as fees levels, entry processes and so forth? Answers to these questions are known for England, but not for other parts of the UK.

The analysis is based on the innovative use of three linked sources of information, the data for each of which are collected initially for administrative purposes. These are: the National Pupil Database (NPD) for Wales; the Lifelong Learning Wales Record (LLWR); and Higher Education Statistics Agency (HESA) data. By linking these together, it is possible to trace individual trajectories through the education system to entry to HE. It is also possible to compare systematically the trajectories of those who do participate in HE with those who do not. Moreover, using sophisticated statistical techniques, it is possible to determine which are

the most influential factors in shaping patterns of HE participation. Results here will be compared with those that have been produced by similar analyses in England.

A second part of the proposed study (funded by additional resources made available by the HEFCW) investigates the development of distinctive approaches to widening access to HE by successive Welsh administrations since devolution in 1999. Of key significance here is to establish the rationales that underpin the approaches adopted in Wales; and to compare these with those that have informed policy approaches in the other countries of the UK and England, in particular. In addition, the study examines the ways in which national policies have been implemented by the Welsh universities, paying special attention to the assumptions about the determinants of HE participation that are in play here. This part of the study is based on fieldwork, comprising the analysis of official and semi-official documents and interviews with politicians and senior officials responsible for widening access policies; and with the professionals inside the universities responsible for implementing these policies.

The results of the research will be fed directly into the deliberations of the WG and the HEFCW on the future development of policies on widening access to HE, which will be especially intensive over the next few years. Moreover, they will also provide the basis for working with the professionals in the universities with responsibility for implementing widening access policies, to integrate the use of analyses of administrative data more firmly into their day-to-day practices.

# Retention in and progression through higher education in Wales

## Introduction

Participation in higher education (HE hereafter) has increased dramatically during the latter part of the 20th century. The latest HEFCE research indicates that since the late 1990s, the rate of HE participation among young people has increased from 30 to 38 per cent (HEFCE, 2013: 2). However, while participation has increased, concerns regarding unequal access to HE for socially disadvantaged groups remains an important issue for policy makers and academics alike (see for example, HEFCE, 2005, 2010, 2013; Raphael Reed, 2007; Chowdry et al. 2013; Taylor et al., 2013). A stark reminder of this issue is demonstrated by the lack of change in the differential between individuals from advantaged and disadvantaged backgrounds. Although participation rates have increased for young people from both the 'most advantaged' and the 'most disadvantaged' areas as defined by HEFCE's participation of local areas (POLAR) analysis, the participation gap between them has remained broadly at 40 percentage points. Indeed, young people from the most disadvantaged areas would need to treble their participation rate in order to match the rate of their more advantaged contemporaries (HEFCE, 2013: 3).

Lower participation rates among disadvantaged groups are not the only cause for concern, however. While it is true that overall retention rates in the UK are amongst the best in Europe (NESET, 2013), similar patterns with respect to socially disadvantaged groups which exist regarding access, also exist for retention. For example, Smith and Naylor (2000) find that prior academic preparedness and unemployment in the county of prior residence, especially for poorer male students, is negatively associated with completing HE (p.389). Given this, simply attempting to widen access is not sufficient to redressing the aforementioned inequalities. Indeed, policy must consider the issue of retention in and progression through HE for under-represented groups, as a separate strategy for improving social mobility.

This paper will be divided into two sections, the first part will consider retention in HE and the second; progression through HE. The first part of the paper will consider overall retention rates in HE for Welsh domiciled students. More specifically, it will provide an exploratory analysis of the determinants of overall retention rates for young people in Wales. This will consider a number of possible influences on retention including prior attainment levels, socio-economic background and ethnicity of students. This analysis will be extended to consider Welsh domiciled students studying in Wales only, to see if retention rates vary according to where the HEI is located. The final part of this section will provide an analysis of retention rates in each of the Welsh HEIs, to compare how different HEIs are performing in this respect.

Following on from this, the paper will consider progression through HE, with specific regard to student degree outcomes. This will begin with an analysis of overall progression rates for Welsh students. Again, this will consider a number of possible influences including prior attainment levels, socio-economic back ground and ethnicity. This will be followed by an analysis of progression rates for each of the Welsh HEIs, to compare how different HEIs perform given their different student intake.

## Retention in higher education

### Data

The analysis conducted here uses a unique, linked administrative data set. This data is based on four linked administrative data-sets: the National Pupil Database (NPD) for Wales, including Pupil Level Annual Schools Census (PLASC) data; individual learner records from the Lifelong Learning Wales Record (LLWR) for young people who are registered at post-compulsory educational institutions (not including school sixth forms); examination records for those attending sixth form from the Welsh Examinations Database (WED); and individual student records from the Higher Education Statistics Agency (HESA). The school administrative data (NPD/PLASC) contains each state school pupil's record for secondary school, including attainment records, individual characteristics, such as gender, ethnicity, postcode and eligibility for free school meals (FSM). The HESA records contain information regarding the HE institution attended and subject studied, as well as information gathered during the application process, e.g. socio-economic background (NS-SEC). For the purposes of this research we will consider all Welsh participants who enter HE by the age of 20.

In order to understand the relative chances of a young person dropping out of HE the data is divided into those who have: (i) dropped out; (ii) those who have a successful outcome; and (iii) those who are still in HE. From a policy perspective, it may be more informative to identify the specific cause of a student dropping out of HE e.g. academic failure, financial reasons, or health reasons, because of the different policy implications each outcome would precipitate. However, owing to the small number of students who drop-out this level of detail will not be possible in this analysis.

## Descriptive Summary

Of the overall HE population (38,726 students), 6257 (16%) drop-out, 15,258 (39%) successfully complete their HE course and 17,211 (45%) are still in some form of HE. Table 1 shows how the characteristics of HE participants relate to their propensity to drop-out; succeed or remain in HE. It shows that: those who claim FSM, males, CF students, those from socio-economically disadvantaged backgrounds (CIND), those with lower attainment levels and those from earlier cohorts, are more likely to drop out of HE. There is no clear pattern relating to season of birth, however. There don't appear to be any clear distinctions between successful students and those still in HE, apart from a clear pattern according to their cohort, which is to be expected. These findings are unsurprising and are very much in keeping with previous research which shows that students from low socio-economic backgrounds, men and those with lower entry qualifications are the most likely to drop out of HE (NESET, 2013).

**Table 1: No. and percentage of students who: drop-out, succeed and are still in HE according to individual characteristics**

| | Drop-out | | Succeed | | Still in HE | |
|---|---|---|---|---|---|---|
| | No. | % | No. | % | No. | % |
| **Not FSM** | 5745 | 91.8 | 14497 | 95.0 | 16269 | 94.5 |
| **FSM** | 512 | 8.2 | 761 | 5.0 | 942 | 5.5 |
| **Female** | 3086 | 49.3 | 8821 | 57.8 | 9514 | 55.3 |
| **Male** | 3171 | 50.7 | 6437 | 42.2 | 7697 | 44.7 |
| **Autumn** | 1560 | 24.9 | 3823 | 25.1 | 4424 | 25.7 |
| **Winter** | 1482 | 23.7 | 3698 | 24.2 | 4186 | 24.3 |
| **Spring** | 1586 | 25.3 | 3927 | 25.7 | 4271 | 24.8 |
| **Summer** | 1629 | 26.0 | 3810 | 25.0 | 4330 | 25.2 |
| **WB** | 5787 | 92.5 | 14126 | 92.6 | 15736 | 91.4 |
| **WO** | 92 | 1.5 | 264 | 1.7 | 323 | 1.9 |
| **NW** | 220 | 3.5 | 492 | 3.2 | 776 | 4.5 |
| **DK** | 158 | 2.5 | 376 | 2.5 | 376 | 2.2 |
| **NOT CF** | 5142 | 82.2 | 13139 | 86.1 | 15086 | 87.7 |
| **CF** | 1115 | 17.8 | 2119 | 13.9 | 2125 | 12.3 |
| **CIND 1** | 1535 | 24.5 | 4364 | 28.6 | 5058 | 29.4 |
| **CIND 2** | 1348 | 21.5 | 3544 | 23.2 | 4039 | 23.5 |
| **CIND 3** | 1245 | 19.9 | 3140 | 20.6 | 3412 | 19.8 |
| **CIND 4** | 1177 | 18.8 | 2479 | 16.2 | 2620 | 15.2 |
| **CIND 5** | 930 | 14.9 | 1664 | 10.9 | 1994 | 11.6 |
| **No A-Levs** | 2059 | 32.9 | 2770 | 18.2 | 3683 | 21.4 |
| **0-300** | 405 | 6.5 | 631 | 4.1 | 739 | 4.3 |
| **3-500** | 1095 | 17.5 | 1921 | 12.6 | 2068 | 12.0 |
| **5-700** | 1584 | 25.3 | 4941 | 32.4 | 4994 | 29.0 |
| **7-900** | 824 | 13.2 | 4049 | 26.5 | 4398 | 25.6 |
| **900+** | 139 | 2.2 | 879 | 5.8 | 1256 | 7.3 |
| **GCSE 0-50** | 2310 | 36.9 | 2904 | 19.0 | 3812 | 22.1 |
| **50-55** | 1010 | 16.1 | 1956 | 12.8 | 2167 | 12.6 |
| **55-60** | 941 | 15.0 | 2386 | 15.6 | 2461 | 14.3 |
| **60-65** | 765 | 12.2 | 2341 | 15.3 | 2393 | 13.9 |
| **65-70** | 529 | 8.5 | 2044 | 13.4 | 2159 | 12.5 |
| **70-75** | 322 | 5.1 | 1601 | 10.5 | 1683 | 9.8 |
| **75+** | 380 | 6.1 | 2026 | 13.3 | 2536 | 14.7 |
| **2005** | 2301 | 36.8 | 7820 | 51.3 | 2538 | 14.7 |
| **2006** | 2179 | 34.8 | 5645 | 37.0 | 5240 | 30.4 |
| **2007** | 1777 | 28.4 | 1811 | 11.9 | 9433 | 54.8 |

## Overall retention in higher education

In the following analysis drop-out rate will be modelled as a binomial outcome variable. This will be achieved by combining students with a successful outcome and those still in HE to form one group, these young people will be understood to have been 'retained' in HE, whereas the other group has dropped out.

The preliminary modelling explores simple bivariate relationships between a number of explanatory variables and the outcome - dropping-out of HE. The variables used in this analysis have been chosen because of their predictive nature in other working papers (Wright, 2014). The results from the initial modelling found in Table 2 show that gender is highly significant

and males are nearly 30% more likely to drop-out than females. It also shows that social disadvantage as measured by the WIMD and CIND is significant whereby those living in the 40% most disadvantaged areas (WIMD4 and 5 and CIND4 and 5) are between 35-45% more likely to drop-out than those in the 20% most advantaged areas (WIMD1 and CIND1). It shows that those from Communities First areas are 37% more likely to drop-out than those not living in Communities First areas. Those who were eligible for free school meals (FSM) while at school are nearly 50% more likely to drop-out than those who didn't. The final indicator of social disadvantage shows that those lower down the NS-SEC scale are more likely to drop-out. Attainment has the largest and most significant effect on dropping-out propensity: for every additional GCSE point scored by an individual, they are 3% less likely to drop-out and regarding A-Level scores every additional point scored equates to a 0.1% reduction in propensity to drop-out. There also appears to be a cohort effect and those from the 2006 cohort are 11% less likely to drop-out than the 2005 cohort and those from the 2007 cohort are 34% less likely to drop-out than the same group. Ethnicity has a marginal effect, only the 'White other' group differ and are 21% less likely to drop-out than the White British group. Finally, it was shown that season of birth is unimportant in predicting dropping-out propensity.

It has been shown in previous research (HEFCE 2005, 2010, 2013), that there are geographical or spatial elements to HE participation and as such it is important to test for similar phenomena here. With that in mind both a dummy for region was added to the model as well as a dummy for whether a young person stays in Wales for their HE.

As shown in Table 3 there is no difference in the size of the reduction of the DIC whether you use region (11 coefficients) or a binary variable signifying if a student stays in Wales or not. Therefore, in the interests of parsimony the binary variable will be used. This analysis shows that when considered alone, those who stay in Wales are significantly more likely to drop-out than those who move away (to anywhere else).

**Table 2: Results from the separate analyses**

| Explanatory Variable | Null | Gender | WIMD | CIND | GCSE | FSM | Ethnicity | QOB | ALEVs | CF | Cohort | NS-SEC |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| cons | -1.648 | -1.782 | -1.836 | -1.816 | -1.711 | -1.679 | -1.64 | -1.666 | -1.715 | -1.703 | -1.502 | -2.045 |
| Male | | 0.287*** | | | | | | | | | | |
| WIMD 2 (ref: WIMD1) | | | 0.092** | | | | | | | | | |
| WIMD 3 (ref: WIMD1) | | | 0.172*** | | | | | | | | | |
| WIMD 4 (ref: WIMD1) | | | 0.419*** | | | | | | | | | |
| WIMD 5 (ref: WIMD1) | | | 0.455*** | | | | | | | | | |
| CIND 2 (ref: CIND1) | | | | 0.088** | | | | | | | | |
| CIND 3 (ref: CIND1) | | | | 0.156*** | | | | | | | | |
| CIND 4 (ref: CIND1) | | | | 0.349*** | | | | | | | | |
| CIND 5 (ref: CIND1) | | | | 0.449*** | | | | | | | | |
| GCSE Points | | | | | -0.03*** | | | | | | | |
| FSM (ref: no FSM) | | | | | | 0.476*** | | | | | | |
| Ethnicity: White Other (ref: White British) | | | | | | | -0.217* | | | | | |
| Ethnicity: Non-White (ref: White British) | | | | | | | -0.114 | | | | | |
| Ethnicity: DK/NS (ref: White British) | | | | | | | -0.078 | | | | | |
| Winter (ref: Autumn) | | | | | | | | -0.006 | | | | |
| Spring (ref: Autumn) | | | | | | | | 0.024 | | | | |
| Summer (ref: Autumn) | | | | | | | | 0.056 | | | | |
| A Levels | | | | | | | | | -0.001*** | | | |
| CF (ref: not CF) | | | | | | | | | | 0.365*** | | |
| 2006 (ref: 2005) | | | | | | | | | | | -0.106*** | |
| 2007 (ref: 2005) | | | | | | | | | | | -0.342*** | |
| Lower managerial (ref: higher managerial) | | | | | | | | | | | | 0.234*** |
| Intermediate (ref: higher managerial) | | | | | | | | | | | | 0.238*** |
| Small emps/own account workers (ref: higher managerial) | | | | | | | | | | | | 0.293*** |
| Lower supervisory/technical occupations (ref: higher managerial) | | | | | | | | | | | | 0.248*** |
| Semi-routine occupations (ref: higher managerial) | | | | | | | | | | | | 0.464*** |
| Routine occupations/Never worked & long-term unemployed (ref: higher managerial) | | | | | | | | | | | | 0.529*** |
| Not classified/Missing (ref: higher managerial) | | | | | | | | | | | | 0.693*** |
| **DIC** | **34256** | **34150** | **33971** | **33999** | **33191** | **34182** | **34256** | **32459** | **33171** | **34165** | **34156** | **33958** |
| **Diff in DIC** | | **-106** | **-286** | **-257** | **-1065** | **-74** | **-0.68** | **+2.864** | **-1086** | **-91** | **-100** | **-299** |

**Table 3: Results from separate geographical analysis**

| Explanatory Variable | Region | Stayed in Wales |
|---|---|---|
| cons | -1.542 | -1.943 |
| N.West (ref: Wales) | -0.33*** | |
| S.West (ref: Wales) | -0.3*** | |
| E.Midlands (ref: Wales) | -0.723*** | |
| London (ref: Wales) | -0.447*** | |
| Scotland (ref: Wales) | -0.892*** | |
| S.East (ref: Wales) | -0.482*** | |
| Yorks and Humber (ref: Wales) | -0.394*** | |
| East (ref: Wales) | -0.339* | |
| W. Midlands (ref: Wales) | -0.394*** | |
| N.East (ref: Wales) | -0.76*** | |
| N.Ireland (ref: Wales) | -1.909 | |
| Yes (ref: no) | | 0.4*** |
| **DIC** | **34098** | **34098** |
| **Diff in DIC** | **-158** | **-158** |

Similarly, it has been shown that the local authority where the young person resides has an impact on their educational trajectories (Wright, 2014). Therefore, the effect of the local authority was estimated by adding a random effect for local authority. This resulted in a substantial reduction in the DIC, meaning that it is statistically significant and therefore important in explaining drop-out rates.

Results from a combined analysis (**Table 4**) show that gender remains highly significant and males are 23% more likely to drop-out than females. Social disadvantage is no longer statistically significant for CIND, CF or FSM indicators. However, those lower down the NS-SEC scale are more likely to drop-out. GCSE and A-Level scores remain highly significant to dropping out propensity. As do cohort effects: the later the cohort the less likely they are to drop-out. Interestingly, ethnicity which previously showed only a marginal effect now has a statistically significant effect and it is the non-White group who are significantly less likely to drop-out than the base category - White British. Season of birth remains unimportant, but has been included so that it has been controlled for. Finally, staying in Wales still shows a negative effect on retention: those who study in Wales are 13% much more likely to drop-out than those who move away.

**Table 4: Results from the combined analyses**

| Explanatory Variable | OR |
|---|---|
| Male (ref: female) | 1.226*** |
| CIND 2 (ref: CIND1) | 1.013 |
| CIND 3 (ref: CIND1) | 1.005 |
| CIND 4 (ref: CIND1) | 1.076 |
| CIND 5 (ref: CIND1) | 1.019 |
| GCSE Points gm | 0.984*** |
| FSM: Yes (ref: no FSM) | 1.090 |
| Ethnicity: White Other (ref: White British) | 0.826 |
| Ethnicity: Non-White (ref: White British) | 0.786*** |
| Ethnicity: DK/NS (ref: White British) | 1.168 |
| Winter (ref: Autumn) | 0.970 |
| Spring (ref: Autumn) | 0.984 |
| Summer (ref: Autumn) | 1.004 |
| A Levels gm | 0.999*** |
| CF (ref: not CF) | 1.076 |
| 2006 (ref: 2005) | 0.914*** |
| 2007 (ref: 2005) | 0.728*** |
| Lower managerial (ref: higher managerial) | 1.151 |
| Intermediate (ref: higher managerial) | 1.105 |
| Small emps/own account workers (ref: higher managerial) | 1.123 |
| Lower supervisory/technical occupations (ref: higher managerial) | 1.051 |
| Semi-routine occupations (ref: higher managerial) | 1.229*** |
| Routine occupations/Never worked & long-term unemployed (ref: higher managerial) | 1.250*** |
| Not classified/Missing (ref: higher managerial) | 1.254*** |
| Stay in Wales (ref: don't stay in Wales) | 1.133*** |
| **DIC** | **32483** |
| **Diff in DIC** | **-1772** |

The inclusion of a local authority effect in the combined model shows that while it first appeared that Merthyr Tydfil had the highest drop-out rate, it is likely that this was a result of their below average attainment rate (which is strongly linked to retention), because, once this has been taken into account, Merthyr Tydfil goes from having the highest drop-out rates to 6$^{th}$. Conversely, the 7 local authorities with the lowest drop-out rate at the beginning of the modelling process (Isle of Anglesey; Denbighshire; Conwy; Monmouthshire; Wrexham; Powys; and Flintshire) remain with the lowest drop-out rate at the end of the modelling process, although they are in a slightly different order. It is also interesting to note that the overall local authority effect is reduced from a range of 0.71-1.70 (99) to 0.77-1.25 (48), meaning that the differences between local authorities are less marked, following the inclusion of the confounders (attainment, CF, FSM, CIND, NS-SEC, cohort, ethnicity and gender).

**Table 5: League table of retention rates by local authority**

**(A) 'Raw' drop-out rate**

| LEA | OR |
|---|---|
| Merthyr Tydfil | 1.70 |
| Neath Port Talbot | 1.31 |
| Carmarthenshire | 1.19 |
| Gwynedd | 1.18 |
| Caerphilly | 1.17 |
| Rhondda Cynon Taf | 1.16 |
| Bridgend | 1.15 |
| Newport | 1.11 |
| Vale of Glamorgan | 1.07 |
| Blaenau Gwent | 1.06 |
| Torfaen | 1.05 |
| Swansea | 0.98 |
| Pembrokeshire | 0.96 |
| Cardiff | 0.91 |
| Ceredigion | 0.88 |
| Isle of Anglesey | 0.87 |
| Denbighshire | 0.85 |
| Conwy | 0.81 |
| Monmouthshire | 0.81 |
| Wrexham | 0.77 |
| Powys | 0.75 |
| Flintshire | 0.71 |

**(B) Drop-out rate at the end of the modelling process**

| LEA | OR |
|---|---|
| Vale of Glamorgan | 1.25 |
| Carmarthenshire | 1.24 |
| Gwynedd | 1.23 |
| Neath Port Talbot | 1.22 |
| Bridgend | 1.16 |
| Merthyr Tydfil | 1.13 |
| Newport | 1.12 |
| Caerphilly | 1.10 |
| Rhondda Cynon Taf | 1.06 |
| Pembrokeshire | 1.03 |
| Torfaen | 1.03 |
| Cardiff (ydd) | 1.01 |
| Ceredigion | 0.99 |
| Blaenau Gwent | 0.96 |
| Swansea | 0.93 |
| Isle of Anglesey | 0.89 |
| Denbighshire | 0.89 |
| Conwy | 0.88 |
| Monmouthshire | 0.87 |
| Powys | 0.80 |
| Flintshire | 0.78 |
| Wrexham | 0.77 |

NESET (2013) states that there is some evidence that drop-out rate differs across different types of HEI and that the more élite the institution the less likely it is for students to drop-out (p.77). The following analysis will therefore include dummy variables relating to the type of HEI a student attends. Two separate dummies were added to the model: one relating to whether a student was studying at a Russell Group university and the other whether they were studying at a post-92 university. This analysis shows that those attending a Russell group university were 3% less likely to drop-out, whilst attending a post-92 university increases the likelihood of dropping out by 4%. Both results, although small, were statistically significant.

## Retention in Welsh higher education

Because of the inflated odds of dropping-out associated with staying in Wales as shown above, it is important to consider this group alone. The following analysis will therefore consider the drop-out rates of Welsh students who remain in Wales for their HE. Given the results from the previous section, this analysis will start with a combined analysis including the same variables.

**Table 6: Results from the combined analyses**

| Explanatory Variable | OR |
|---|---|
| Male (ref: female) | 1.20*** |
| CIND2 (ref:CIND1) | 1.01 |
| CIND3 (ref:CIND1) | 0.99 |
| CIND4 (ref:CIND1) | 1.10* |
| CIND5 (ref:CIND1) | 0.99 |
| CFIRSTAREA (ref: not CF) | 1.08 |
| FSM (ref: not FSM) | 1.09 |
| Lower managerial (ref: higher managerial) | 1.12* |
| Intermediate (ref: higher managerial) | 1.11 |
| Small emps/own account workers (ref: higher managerial) | 1.09 |
| Lower supervisory/technical occupations (ref: higher managerial) | 0.94 |
| Semi-routine occupations (ref: higher managerial) | 1.21** |
| Routine occupations/Never worked & long-term unemployed (ref: higher managerial) | 1.19** |
| Not classified/Missing (ref: higher managerial) | 1.31*** |
| 2006 (ref: 2005) | 0.94 |
| 2007 (ref: 2005) | 0.74*** |
| GCSE (points-gm) | 0.98*** |
| A-Levels (comblevpt-gm) | 1.00*** |
| White – Other (ref: White British) | 0.90 |
| Non-white (ref: White British) | 0.79*** |
| DK/NS (ref: White British) | 1.14 |
| Winter (ref: Autumn) | 1.00 |
| Spring (ref: Autumn) | 1.00 |
| Summer (ref: Autumn) | 1.05 |

In some respects, the results from the Welsh only analysis are much the same as the overall retention analysis: gender, GCSE and A-level scores, cohort and ethnicity all remain significant and have a similar effect on drop-out propensity, while CF and FSM indicators and season of birth continue to have no significant impact on dropping-out. However, there are also some notable differences. Whereas before there were no significant effects relating to CIND, this analysis found that those in CIND4 (the 20-40% most disadvantaged young people) are significantly more likely to drop-out than those from CIND1 (the most advantaged 20% of the population). This is an unusual finding because it is not the most disadvantaged (CIND5) who have the highest drop-out rate. That said the two groups are not significantly different from one another. The relationship with NS-SEC is similar to those found earlier, but again there are some important differences. Those from lower managerial; semi-routine occupations and routine occupations/never worked & long-term unemployed and not classified/missing are significantly more likely to drop-out than those from higher managerial backgrounds. However, those from lower supervisory/technical occupations are significantly *less* likely to drop-out, showing that it is not those at the top of the social scale who have the lowest drop-out rates.

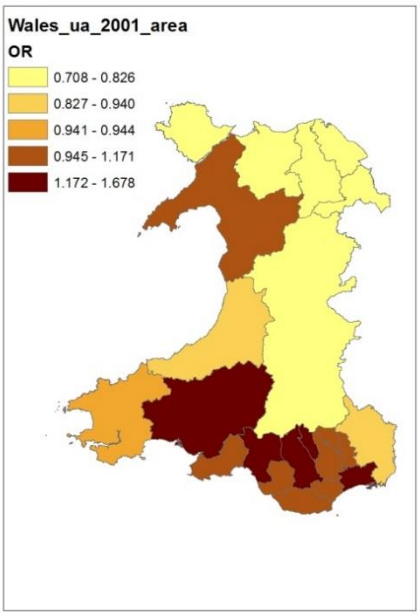
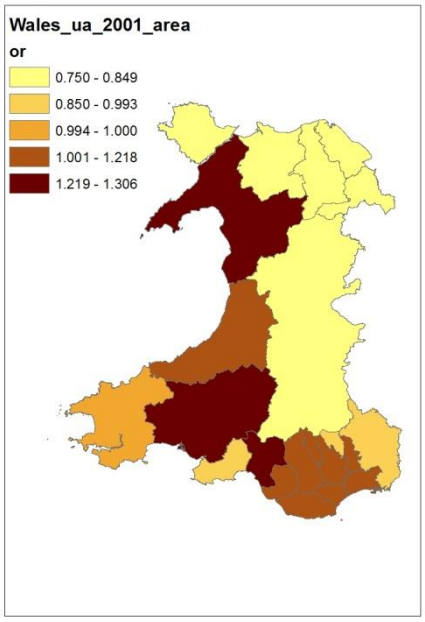
The odds ratios for each local authority are presented in Table 7 below. In the left-hand column are the raw drop-out rates before any other factors have been taken into account and in the right-hand column are the drop-out rates once all of the predictor variables have been accounted for. They are also mapped up in Figure 1.

**Table 7: League table of drop-out rates by local authority**

| (A) 'Raw' drop-out rate | | (B) Drop-out rate at the end of the modelling process | |
|---|---|---|---|
| **NAME** | **OR** | **Name** | **OR** |
| Merthyr Tydfil | 1.68 | Carmarthenshire | 1.31 |
| Neath Port Talbot | 1.33 | Neath Port Talbot | 1.25 |
| Carmarthenshire | 1.25 | Gwynedd | 1.22 |
| Newport | 1.19 | Vale of Glamorgan | 1.22 |
| Rhondda Cynon Taf | 1.19 | Newport | 1.16 |
| Gwynedd | 1.17 | Bridgend | 1.12 |
| Caerphilly | 1.12 | Merthyr Tydfil | 1.11 |
| Bridgend | 1.11 | Rhondda Cynon Taf | 1.08 |
| Vale of Glamorgan | 1.10 | Caerphilly | 1.07 |
| Torfaen | 1.09 | Torfaen | 1.07 |
| Blaenau Gwent | 1.08 | Ceredigion | 1.04 |
| Swansea | 1.05 | Cardiff | 1.02 |
| Cardiff | 1.00 | Pembrokeshire | 1.00 |
| Pembrokeshire | 0.94 | Blaenau Gwent | 0.99 |
| Ceredigion | 0.94 | Swansea | 0.97 |
| Monmouthshire | 0.87 | Monmouthshire | 0.90 |
| Isle of Anglesey | 0.83 | Isle of Anglesey | 0.85 |
| Denbighshire | 0.82 | Denbighshire | 0.80 |
| Wrexham | 0.80 | Conwy | 0.79 |
| Flintshire | 0.77 | Powys | 0.78 |
| Powys | 0.75 | Flintshire | 0.77 |
| Conwy | 0.71 | Wrexham | 0.75 |

Once again, Merthyr Tydfil goes from having the highest drop-out rate to 7$^{th}$ from top and is replaced by Carmarthenshire, which has the highest drop-out rate once all other things are held constant. The 7 local authorities with the lowest drop-out rate at the beginning of the modelling process (Isle of Anglesey; Denbighshire; Conwy; Monmouthshire; Wrexham; Powys; and Flintshire) have the lowest drop-out rate at the end of the modelling process, although they are in a slightly different order. Incidentally, this is also the same for the overall retention modelling. Once again, the overall local authority variance is reduced, this time from a range of 0.71-1.68 (97) to 0.75-1.31 (56), showing that the differences between local authorities are less marked, following the inclusion of the confounders (attainment, CF, FSM, CIND, NS-SEC, cohort, ethnicity and gender).

**Figure 1: Local authority odds ratios**

| 'Raw' drop-out rate | Drop-out rate at the end of the modelling process |
|---|---|
|  |  |



## Retention rates at Welsh HEIs

While the UK has one of the best continuation rates in Europe (NESET, 2013) it is less clear how Wales' fairs given the aggregate nature of the data used in the aforesaid report. Below are presented HESA data relating to non-continuation rates at each HEI in the UK, including an overall average for Wales and the UK.

**Table 8: Continuation rates for the UK and Wales**

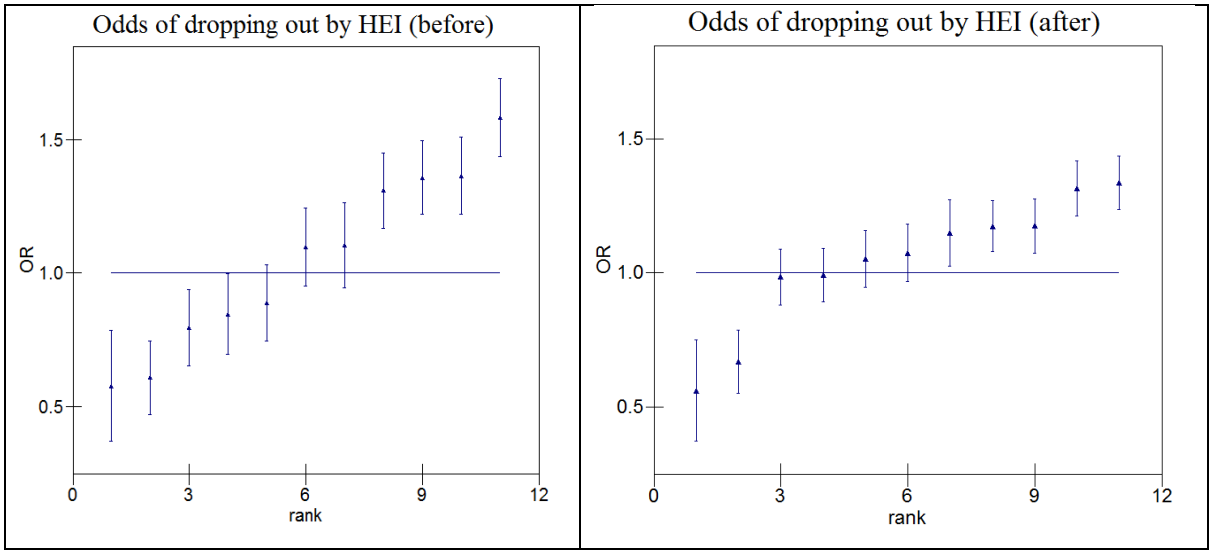
| Continuation Rate | | |
|---|---|---|
| | UK | Wales |
| 2007/08 | 89.9% | 89.6% |
| 2008/09 | 90.6% | 91.3% |
| 2009/10 | 90.5% | 90.0% |
| 2010/11 | 91.7% | 91.1% |

The overall continuation rate for the Wales is not dissimilar to that of the UK. However, it is likely that there will be great variation between the different HEIs in Wales. In order to focus HEIs on improving their retention rates, each year HEIs' are given a benchmark by which their 'continuation' performance is marked.

The following analysis will calculate the drop-out rate of each HEI in Wales, by estimating the precision-weighted mean as opposed to the arithmetic mean. The advantage of using this method is that it takes account of the size of the HEIs and as such will not give an inflated or deflated estimate of drop-out rates, which the standard arithmetic mean would. Having estimated the drop-out rates for each of the Welsh HEIs we can then add in known confounders (attainment, CF, FSM, CIND, NS-SEC, cohort, ethnicity and gender) and calculate new drop-out rates. This will allow us to assess to what extent HEI drop-out rates are explained by the characteristics of their students.

Below are presented the odds ratios of dropping out propensity for each Welsh HEI, for both a model which takes no account of student characteristics (before) and a model which accounts for a number of student characteristics (after). The results for these models can be found in Figure 2 and are presented on the same scale to aid comparison. The results from the before model show that there are substantial differences in drop-put rates between the Welsh HEIs. While the gradient is reduced once all known confounders have been included in the model (indicating that student characteristics impact on HEI drop-out rates) it doesn't entirely flatten out, which means that there are some implicit differences between HEIs that are not related to student intake (or at least not relating to the factors we have taken account of here).

**Figure 2: Odds of dropping out according to HEI – before and after modelling process**



## Progress through higher education

### Data

To model progression through higher education a variable was created, which refers to the first degree classification received by the student. There will of course be students who are still in the process of undertaking their higher education course who are not expected to have an outcome yet. Of those who have entered HE (38,726 young people), 12,749 students (nearly a third) have a registered outcome. Of this group with a registered outcome, 1816 had an entry aim related to a certificate/foundation degree or 'other' qualification. Some of this group may eventually go on to study for a degree and get a classification, but it will take slightly longer, which may mean we will not observe them in this timeframe. Of course, many may not progress on to a degree programme, so for that reason this analysis will restrict the sample to the group who went into higher education with the aim of doing a degree (10,933 students).

### Descriptive summary

Of those who receive an HE outcome (12,749), 1216 (9.5%) gain a first class degree; 5811 (45.6%) gain a 2:1; 4023 (31.6%) gain a 2:2; 581 (4.6%) gain a third/pass; 105 (0.8%) are 'unclassified' and 1013 (7.9%) get an FE level qualification. Table 9 compares the characteristics of HE participants and their propensity to gain a 'good' degree (those receiving a first or upper second class degree), with those who receive a 'other' degree (those who receive a lower second, third, pass or unclassified degree or an FE qualification). It shows that those who claim FSM, males, CF students, those from socio-economically disadvantaged backgrounds (CIND), those with lower attainment levels and those from earlier cohorts, are less likely to gain a first or upper second degree classification. There is no clear pattern relating to season of birth, however.

**Table 9: No. and percentage of students who gain a 'good' degree and a 'other degree according to individual characteristics**

| | Good degree | | Other degree | |
|---|---|---|---|---|
| | No. | % | No. | % |
| **Not FSM** | 6790 | 96.63 | 5403 | 94.43 |
| **FSM** | 237 | 3.37 | 319 | 5.57 |
| **Female** | 4422 | 62.93 | 3278 | 57.29 |
| **Male** | 2605 | 37.07 | 2444 | 42.71 |
| **Autumn** | 1753 | 24.95 | 1433 | 25.04 |
| **Winter** | 1693 | 24.09 | 1376 | 24.05 |
| **Spring** | 1809 | 25.74 | 1500 | 26.21 |
| **Summer** | 1772 | 25.22 | 1413 | 24.69 |
| **WB** | 6491 | 92.37 | 5308 | 92.76 |
| **WO** | 130 | 1.85 | 89 | 1.56 |
| **NW** | 199 | 2.83 | 193 | 3.37 |
| **DK** | 207 | 2.95 | 132 | 2.31 |
| **NOT CF** | 6298 | 89.63 | 4789 | 83.69 |
| **CF** | 729 | 10.37 | 933 | 16.31 |
| **CIND 1** | 2277 | 32.52 | 1579 | 27.73 |
| **CIND 2** | 1736 | 24.79 | 1297 | 22.78 |
| **CIND 3** | 1393 | 19.89 | 1160 | 20.37 |
| **CIND 4** | 1011 | 14.44 | 973 | 17.09 |
| **CIND 5** | 585 | 8.35 | 685 | 12.03 |
| **No A-Levs** | 559 | 7.96 | 1128 | 19.81 |
| **0-300** | 130 | 1.85 | 240 | 4.21 |
| **3-500** | 579 | 8.24 | 892 | 15.66 |
| **5-700** | 2233 | 31.78 | 2260 | 39.68 |
| **7-900** | 2879 | 40.98 | 985 | 17.30 |
| **900+** | 646 | 9.19 | 190 | 3.34 |
| **GCSE 0-50** | 488 | 6.94 | 1430 | 24.99 |
| **50-55** | 609 | 8.67 | 918 | 16.04 |
| **55-60** | 976 | 13.89 | 1026 | 17.93 |
| **60-65** | 1165 | 16.58 | 920 | 16.08 |
| **65-70** | 1205 | 17.15 | 669 | 11.69 |
| **70-75** | 1078 | 15.34 | 393 | 6.87 |
| **75+** | 1506 | 21.43 | 366 | 6.40 |
| **2005** | 4253 | 60.52 | 3027 | 52.90 |
| **2006** | 2767 | 39.38 | 2116 | 36.98 |
| **2007** | 7 | 0.10 | 579 | 10.12 |

The preliminary modelling (shown in Table 10) explores simple bivariate relationships between a number of explanatory variables and the outcome – gaining a 'good' degree. The variables used in this analysis have been chosen because of their predictive nature in earlier modelling procedures. The results from the initial modelling show that: gender is highly significant and females are more likely to gain a 'good' degree than males. It also shows that social disadvantage as measured by the CIND is significant whereby those living in the 20% most advantaged areas (CIND1) are the most likely to gain a 'good' degree than those in the 20% most disadvantaged areas (CIND5) are the least likely. It shows that those from non-Communities First areas are more likely to gain a 'good' degree than those living in

Communities First areas. Those who were not eligible for free school meals (FSM) while at school are more likely to gain a 'good' degree than those who did. The final indicator of social disadvantage shows that those lower down the NS-SEC scale are less likely to gain a 'good' degree. Apart from NS-SEC, attainment has the largest and most significant effect on gaining a 'good' degree and there are separate and positive effects relating to both GCSE and A-Level scores. There also appears to be a strong cohort effect, however, this is probably owing to the very small number of students from the 2007 NPD cohort with a registered outcome, so these results are largely unreliable and will be excluded from the combined model. Ethnicity has a marginal effect where non-White students' are the least likely group to gain a 'good' degree, but this relationship is not statistically significant. Finally, it was shown that season of birth is unimportant in predicting dropping-out propensity, however, this will be included in the combined model, so that it is controlled for. There was also a large and statistically significant effect related to leaving Wales: those who complete their HE outside of Wales, are twice as likely, to gain a 'good' degree than those who remain in Wales.

**Table 10: Results from separate modelling**

| Explanatory Variable | OR |
|---|---|
| Male (ref: female) | 0.79*** |
| CIND2 (ref:CIND1) | 0.93 |
| CIND3 (ref:CIND1) | 0.83*** |
| CIND4 (ref:CIND1) | 0.72*** |
| CIND5 (ref:CIND1) | 0.59*** |
| CFIRSTAREA (ref: not CF) | 0.60*** |
| FSM (ref: not FSM) | 0.59*** |
| Lower managerial (ref: higher managerial) | 0.85*** |
| Intermediate (ref: higher managerial) | 0.78*** |
| Small emps/own account workers (ref: higher managerial) | 0.75*** |
| Lower supervisory/technical occupations (ref: higher managerial) | 0.72*** |
| Semi-routine occupations (ref: higher managerial) | 0.72*** |
| Routine occupations/Never worked & long-term unemployed (ref: higher managerial) | 0.69*** |
| Not classified/Missing (ref: higher managerial) | 0.12*** |
| 2006 (ref: 2005) | 0.93* |
| 2007 (ref: 2005) | 0.01*** |
| GCSE (points-gm) | 1.07*** |
| A-Levels (comblevpt-gm) | 1.23*** |
| White – Other (ref: White British) | 1.20 |
| Non-white (ref: White British) | 0.84 |
| DK/NS (ref: White British) | 1.28** |
| Winter (ref: Autumn) | 1.01 |
| Spring (ref: Autumn) | 0.99 |
| Summer (ref: Autumn) | 1.03 |
| Wales (ref: not Wales) | 0.48*** |

An analysis of local authorities showed that there is a significant, unexplained variance present. The residuals for each local authority are detailed in Table 11 below. This shows that young people from Merthyr Tydfil have the lowest odds and those from Monmouthshire have the highest odds of gaining a 'good' degree.

**Table 11: League table of local authority (raw differences)**

| LEA | OR |
|---|---|
| Monmouthshire | 1.49 |
| Cardiff | 1.37 |
| Pembrokeshire | 1.33 |
| Powys | 1.32 |
| Flintshire | 1.29 |
| Ceredigion | 1.27 |
| Denbighshire | 1.24 |
| Isle of Anglesey | 1.14 |
| Conwy | 1.12 |
| Swansea | 1.11 |
| Vale of Glamorgan | 1.10 |
| Carmarthenshire | 1.09 |
| Gynedd | 1.06 |
| Torfaen | 1.05 |
| Newport | 0.98 |
| Caerphilly | 0.98 |
| Wrexham | 0.92 |
| Neath Port Talbot | 0.91 |
| Bridgend | 0.88 |
| Blaenau Gwent | 0.85 |
| Rhondda | 0.76 |
| Merthyr Tydfil | 0.33 |

Owing to the strong correlations between some of the predictor variables, it is important to consider their effects in combination. In the following analysis, each of the predictor variables are considered alongside each other in a combined model. This analysis (Table 12) shows that males remain significantly less likely to gain a 'good' degree than females. GCSE and A-Level scores continue to have a large and highly significant effect on whether a student will gain a 'good' degree. Interestingly, ethnicity which previously showed a marginal effect is now no longer statistically significant for any of the ethnic categories. Season of birth, which was unimportant in the previous, separate analysis, now shows a significant effect related to summer-born students, who are significantly more likely to gain a 'good' degree than autumn-born students. Finally, staying in Wales still shows a negative effect on progression: those who study in Wales are significantly less likely to gain a 'good' degree than those who move out of Wales.

**Table 12: Results from the combined analysis**

| Explanatory Variable | OR |
|---|---|
| Male (ref: female) | 0.84*** |
| CIND2 (ref:CIND1) | 1.04 |
| CIND3 (ref:CIND1) | 0.95 |
| CIND4 (ref:CIND1) | 1.05 |
| CIND5 (ref:CIND1) | 1.17* |
| CFIRSTAREA (ref: not CF) | 0.91 |
| FSM (ref: not FSM) | 1.18 |
| Lower managerial (ref: higher managerial) | 0.97 |
| Intermediate (ref: higher managerial) | 0.97 |
| Small emps/own account workers (ref: higher managerial) | 0.97 |
| Lower supervisory/technical occupations (ref: higher managerial) | 0.97 |
| Semi-routine occupations (ref: higher managerial) | 1.03 |
| Routine occupations/Never worked & long-term unemployed (ref: higher managerial) | 1.04 |
| Not classified/Missing (ref: higher managerial) | 0.86*** |
| GCSE (points-gm) | 1.05*** |
| A-Levels (comblevpt-gm) | 1.00 |
| White – Other (ref: White British) | 0.96 |
| Non-white (ref: White British) | 0.94 |
| DK/NS (ref: White British) | 1.21 |
| Winter (ref: Autumn) | 1.07 |
| Spring (ref: Autumn) | 1.07 |
| Summer (ref: Autumn) | 1.19*** |
| Wales | 0.69*** |

It is noticeable that each of the previously significant measures of socio-economic disadvantage are no longer significant in the combined analysis. It is important to establish if this is a result of multi-collinearity between the socio-economic measures, or rather between the socio-economic measures and one or more of the other explanatory variables. To this end each of the combined models was re-run including each of the socio-economic measures separately. This showed that each of the measures had already lost their significance, indicating that this was owing to strong correlation between the socio-economic measures and something else (probably attainment). Given this I have continued with the model that includes all of the socio-economic measures.

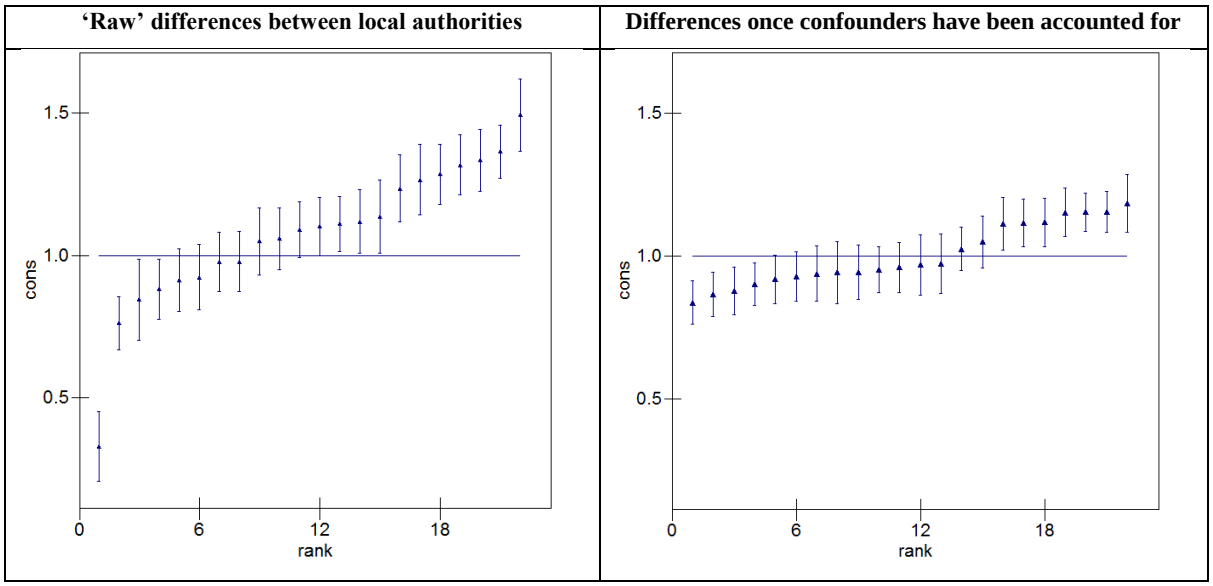
Two separate dummies were added to the combined model: one relating to whether a student was studying at a Russell Group university and the other whether they were studying at a post-92 university. This analysis shows that those attending a Russell group university were 15% more likely to gain a 'good' degree, whilst those attending a post-92 university were 12% less likely. Both results were statistically significant.

Analysis of the combined model also shows that while it first appeared that young people from Merthyr Tydfil had the lowest odds of gaining 'good' degree, it is likely that this was a result of their below average attainment rate (which is strongly linked to progression), because, once this has been taken into account, Merthyr Tydfil rises from bottom in the table to 14th (see Table 13), similarly, Swansea rises from 10th to 2nd in the table. Conversely, The Vale of Glamorgan drops 10 places from 11th place to 21st. It is also interesting to note that the overall local authority effect is reduced from 0.33-1.49 (116) to 0.84-1.18 (34), meaning that a lot of the variance previously presented at the local authority level, has been explained by the individual characteristics of those living with these local authorities.

**Table 13: League table of odds of gaining a 'good' degree by local authority**

| 'Raw' progression rates | | Progression rates from the combined model | |
|---|---|---|---|
| **LEA** | **OR** | **LEA** | **OR** |
| Monmouthshire | 1.49 | Monmouthshire | 1.18 |
| Cardiff | 1.37 | Swansea | 1.16 |
| Pembrokeshire | 1.33 | Cardiff | 1.15 |
| Powys | 1.32 | Pembrokeshire | 1.15 |
| Flintshire | 1.29 | Flintshire | 1.12 |
| Ceredigion | 1.27 | Powys | 1.12 |
| Denbighshire | 1.24 | Denbighshire | 1.11 |
| Isle of Anglesey | 1.14 | Torfaen | 1.05 |
| Conwy | 1.12 | Caerphilly | 1.02 |
| Swansea | 1.11 | Blaenau Gwent | 0.97 |
| Vale of Glamorgan | 1.10 | Isle of Anglesey | 0.97 |
| Carmarthenshire | 1.09 | Gwynedd | 0.96 |
| Gynedd | 1.06 | Newport | 0.95 |
| Torfaen | 1.05 | Ceredigion | 0.94 |
| Newport | 0.98 | Merthyr Tydfil | 0.94 |
| Caerphilly | 0.98 | Wrexham | 0.94 |
| Wrexham | 0.92 | Neath Port Talbot | 0.93 |
| Neath Port Talbot | 0.91 | Conwy | 0.92 |
| Bridgend | 0.88 | Carmarthenshire | 0.90 |
| Blaenau Gwent | 0.85 | Bridgend | 0.88 |
| Rhondda | 0.76 | Vale of Glamorgan | 0.86 |
| Merthyr Tydfil | 0.33 | Rhondda | 0.84 |

**Figure 3: Local authority residuals at the beginning and end of the modelling process**



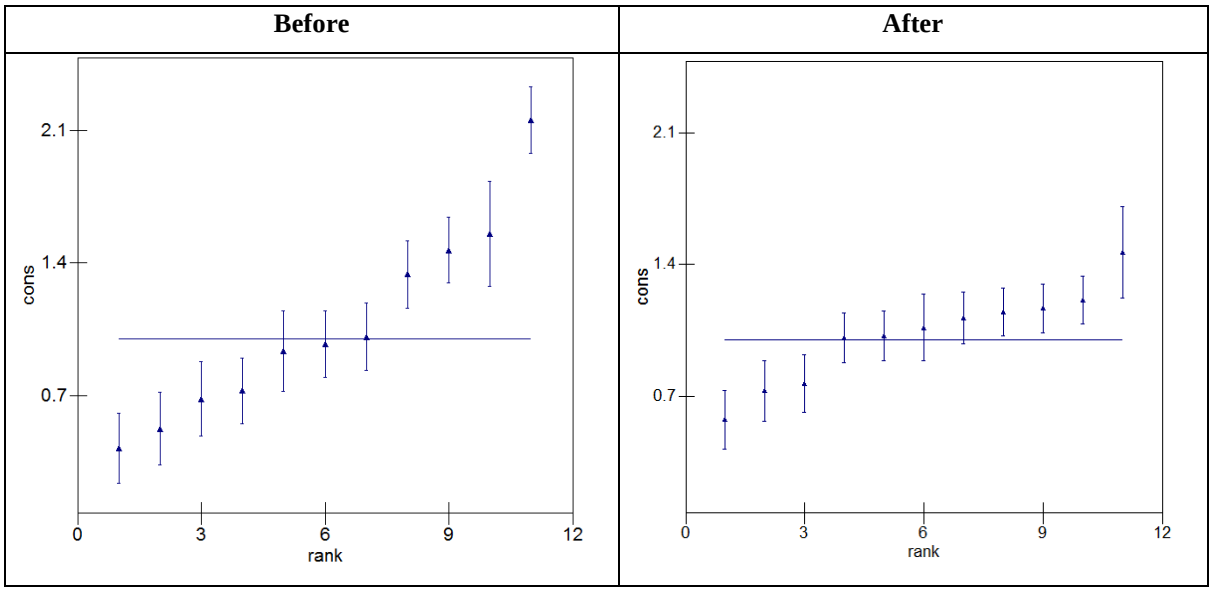

## Progression rates at Welsh HEIs

The following analysis will calculate precision-weighted, progression rates for each HEI in Wales. Having estimated 'raw', precision-weighted progression rates as we did with the retention rates, we can then add in known confounders to the model (attainment, CF, FSM, CIND, NS-SEC, cohort, ethnicity and gender) and calculate new ones. This will allow us first to establish if HEIs perform differently in terms of their student outcomes (likelihood of gaining a 'good' degree) and second, to assess the extent to which HEI these outcomes are explained by student intake.

Below are presented the odds ratios of gaining a 'good' degree for each Welsh HEI, for both a model which takes no account of student characteristics (before) and a model which accounts for a number of student characteristics (after). The results for these models can be found in Figure 2 and are presented on the same scale to aid comparison. The results from the 'before' model show that there are substantial differences in students' odds of gaining a 'good' degree between the Welsh HEIs: students' attending the highest performing Welsh HEI have the highest odds of leaving university with a 'good' degree and are more than twice as likely to get an upper second or first class degree than a student attending the average HEI. Whereas, students' attending the lowest performing HEI are 60% less likely to get an upper second or first class degree than a student attending the average HEI. While the variance has clearly been reduced in the 'after' model (the residuals are much closer to the average) the variance doesn't entirely disappear, which means that there are some implicit differences between HEIs that are

not related to student intake. Although the top three universities remain the top three, after the inclusion of other known confounders, there are some changes to the ordering of HEIs.

**Figure 4: Odds of gaining a 'good' degree according to HEI – before and after modelling process**




## Conclusions

The first section of this paper provided an analysis of the determinants of retention, for young Welsh people in higher education generally, those staying specifically in Wales and for each of the Welsh HEIs.

The first analysis showed that males, White British students, lower achieving students, those from earlier (NPD) cohorts and those who remain in Wales during higher education, are more likely to drop-out. It also showed that social disadvantage was not statistically significant for CIND, CF or FSM indicators. However, those lower down the NS-SEC scale were shown to be more likely to drop-out than those higher up. A significant, unexplained variance relating to local authority was also found. This showed that young people from The Vale of Glamorgan were the most likely to drop-out (once all other factors had been accounted for) and those from Wrexham were the least likely. Finally, this analysis showed that there was an effect relating to university type whereby those attending a Russell group university were less likely to drop-out, whilst those attending a post-92 university were more likely to drop-out.

Given the significance of remaining in Wales, a second analysis was conducted on those who stayed in Wales for their HE. This analysis also showed that males, White British students, lower achieving students and those from earlier (NPD) cohorts, are more likely to drop-out.

However, there were some notable differences to the overall retention analysis. Whereas in the previous analysis there had been no significant effects found relating to CIND, the Wales-only analysis found that those in CIND4 (the 20-40% most disadvantaged young people) are significantly more likely to drop-out than those from CIND1 (the most advantaged 20% of the population). This is an unusual finding because it is not the most disadvantaged (CIND5) who have the highest drop-out rate. The relationship with NS-SEC is similar to those found earlier, but again there are some important differences. Those from lower managerial; semi-routine occupations and routine occupations/never worked & long-term unemployed and not classified/missing are significantly more likely to drop-out than those from higher managerial backgrounds. However, those from lower supervisory/technical occupations are significantly *less* likely to drop-out, showing that it is not those at the top of the social scale who have the lowest drop-out rates.

The final retention analysis showed that there were significant differences between Welsh HEIs in terms of their drop-out rates. Following the inclusion of all known confounders, these differences were reduced, indicating that student characteristics impact on HEI drop-out rates. However, the differences did not disappear entirely, which means that other distinctions must exist between HEIs that are not being accounted for here. For example, the provision of financial support, pastoral care, advice or guidance may alter outcomes for students at particular HEIs. However, to establish any additional influences, further exploration would be required. What can be concluded however is that the difference between the raw drop-out rates and those that have taken account of individual characteristics is important. In policy terms, this would suggest that if HEIs are to be judged on their retention rates, these must be calculated after having accounted for differences in student type.

The second part of the paper aimed to provide an analysis of progression through HE for Welsh students; and to analyse the progression rates of each of the Welsh HEIs.

The first analysis showed that males, lower achieving students and those who remain in Wales, are significantly less likely to leave university with a 'good' degree and that those born in the summer are more likely to get a 'good' degree than those born in autumn. It also showed that social disadvantage was not statistically significant for CIND, CF, FSM or NS-SEC indicators and neither was ethnicity (which it has been in previous analyses). A significant, unexplained variance relating to local authority was also found. This showed that young people from Monmouthshire are the most likely to get a 'good' degree and those from Rhondda are the least

likely. Finally, this analysis showed that there was an effect relating to university type whereby those attending a Russell group university were more likely, whilst those attending a post-92 university were less likely to leave university with a 'good' degree.

The second of the two progression analyses showed that there were significant differences between Welsh HEIs in terms of their numbers of 'good' degrees. Following the inclusion of all known confounders, these differences were reduced, indicating that student characteristics impact on student outcomes. However, the differences did not disappear entirely, which means that other distinctions must exist between HEIs that are not being accounted for here. Again, what can be concluded here is that the difference between the 'raw' outcomes and those that have taken account of individual characteristics is important. In policy terms, this would suggest that if HEIs are to be judged on their progression rates, these must be calculated after having accounted for differences in student type.

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