

## Widening Participation Research Fund Interim Report – 29<sup>th</sup> August 2016

**Project Title:** Exploring value added measures for University of Bristol undergraduate students: the impact of admissions criteria (prior attainment) and other relevant student background, academic department and contextual factors on the progress and retention of disadvantaged and other UOB students.

**Principal Investigator:** Sally Thomas with Co-I Harvey Goldstein

**A brief description of the research project as presented in the original proposal, including the objectives and the research methodology:**

The proposed research aims to use UOB and if possible also DFE/HESA datasets and value added techniques to investigate a range of pertinent issues directly relevant to the widening participation agenda and to inform and support UOB evidence-based policy in this area. The research objectives are to access/prepare appropriate historical datasets for at least 3 consecutive UOB cohorts, and to conduct multilevel and other statistical analyses to address specific research questions:

- What are the relevant outcomes (e.g. drop out/degree class), baseline and explanatory factors (outside UOB control) in relation to estimating undergraduate student progress at UOB? What differences emerge in apparent student progress when utilising different qualification measures as the baseline or outcome measure, especially when comparing disadvantaged, non UK and other students? Does the evidence indicate that current admission requirements (including use of a low school performance indicator), and qualification equivalences are justifiable and valid, especially for disadvantaged and non UK students?
- What is the range and extent of UOB student progress within and across departments and/or faculties? What student background, departmental, contextual/peer group or other factors may explain differences in student progress across departments/faculties? What are the departmental effects and associated time trends when comparing disadvantaged, non UK and other students?

Following a preliminary statistical exploration of the data we propose to start with fitting a 2-level model where the level 2 unit is the UOB department of origin. This will enable us to explore department differences and also to highlight individual departments where degree performance is either very high or low on average. In this analysis we will use prior achievement and other relevant measures as explanatory factors. If data exists over time for successive cohorts this will lead to a 3-level model with department at level 3, cohort at level 2 and student at level 1. This will allow sensitive analyses of trends over time (at least 3 cohorts).

**An outline of any departures from the original objectives and methodology, with reasons:**

There has been no change to the original research objectives and methodology except with regard to introducing a specific approach to deal with missing data in MLwin (imputation). With regard to the datasets employed, the Bristol Administrative dataset was of somewhat poorer quality than originally anticipated with considerable missing data, so this imputation approach was deemed necessary. Extensive data checking, cleaning and recoding of UOB data was also required prior to the analysis stage. Given the UOB data quality issues, findings based on the Bristol Administrative datasets should be treated as preliminary and with some caution. Subsequently we have been able to access (for a fee) an equivalent dataset for all UK universities from DFE/HESA (December 2015) which provides more detailed and quality controlled information on individual students and allows a

more sophisticated and valid comparison of UOB students value added progress across UK universities and subject areas. Analysis of this larger dataset is ongoing given a no-cost extension has been granted until 31<sup>st</sup> July 2017.

**Summary of the interim findings:**

**A detailed literature review found that** very little work looking at estimates of departmental or institutional value added in HE has been conducted to date, possibly due to a lack of longitudinal matched HE datasets. However, there is more previous evidence available on the overall impact of student WP or background factors on degree outcomes. Typically it has been found that students are more likely to get a 2.1 or above if they have: High SES family background; Attend a state rather than a private school; Are white; Are less than 24years rather than mature. Gender and average school performance does not appear to have an impact, once other factors are taken into account.

**The findings from the Bristol Administrative Datasets from four cohorts (2011-2014)** using a variety of different MLwin models generally supported previous findings but also reported new evidence:

- In relation to estimating UOB undergraduate student progress, the most appropriate/useful student outcome measure is the binary measure “achieved 1<sup>st</sup> /2.1 degree”. Other student outcome measures explored included dropout and a categorical ordered degree outcome, but these had various methodological limitations.
- HESA tariff score (Alevel or equivalent), and total GCSE score are prior attainment variables that were found to be statistically significant in predicting degree outcomes and thus should be controlled for in the analysis of Academic HE department value added.
- Individual student background characteristics (private schooling, parental education, disability, ethnicity) and interactions between HESA tariff/Private schooling/Disability were also found to be statistically significant in predicting degree outcomes. Thus, depending on the purpose of the evaluation evidence, should be considered in the analysis of Academic HE department value added.
- The estimated impact of student admission criteria and background factors includes, for example, students eligible for a lower UCAS entrance score admission criteria due to attending a “secondary school with low performance” did not attain significantly different degree outcomes or progress in comparison to other students. However, overseas (non EU), privately educated, disabled and non-white ethnicity students were typically found to perform less well than other students, although interaction effects also suggested this was not the case for the most able privately educated and least able disabled students. No statistically significant additional effect was found for facilitating A-level subjects over and above total A-level tariff score.
- Having controlled for student intake and background factors, the percentage of total variance in student’s unadjusted degree outcome scores attributable to differences between UOB academic departments is reduced. Nevertheless, there remains a substantial and statistically significant difference between the estimates of student outcomes and value added progress across UOB academic departments and these differences vary over time. Further research is required to explore the reasons for these observed differences.

**Impact of the interim findings for:**

- **the University of Bristol**
- **the UK higher education sector and policy makers**
- **the international HE sector**
- **other sectors or bodies (e.g. schools, local authorities)**

As stated above, given the UOB data quality issues, findings based on these datasets alone should be treated as preliminary and tentative. The interim findings are nevertheless extremely useful as pilot analyses to inform the on-going analysis of the larger more robust HESA/DFE dataset including all UK universities. Moreover, dissemination activities already held (see details below) created considerable interest in the findings in UK and overseas.

Overall, the interim findings tentatively suggest the following potential impacts for UOB/other UK

universities/international HE policy and practice:

- Improved methods of allocating contextualised offers on the basis of individual WP factors should be actively explored, as well as the use of more sensitive “value added” secondary school performance measures as indicators of secondary school quality. The potential of using DFE free school meals and/or alternative indicators of individual Socio-economic status will be examined using the HESA/DFE dataset.
- The idea that student HE progress is generally better supported via what are called “facilitating” Alevel subjects (as suggested by Russell Group) is not evidenced by the data.
- Improved UOB strategies for supporting teaching and learning and the academic progress of disabled and ethnic minority students need to be considered, given these groups appear to perform less well after controlling for intake and other factors.
- The observed differences between UOB academic departments in estimated student progress require further exploration.

**Expected impact of the further research for:**

- **the University of Bristol**
- **the UK higher education sector and policy makers**
- **the international HE sector**
- **other sectors or bodies (e.g. schools, local authorities)**

The further research using the HESA/DFE datasets will clarify and extend the equivalent results from the UOB administrative datasets. It will also provide more robust and valid evidence than the interim findings, thereby considerably enhancing the potential research impacts described above. Overall, the research is in line with monitoring and valuation objectives in current UOB WP strategy and support aims of the UOB access agreement in terms of identifying in finer detail the relationship between intake requirements/characteristics of disadvantaged groups and subsequent successful progress and qualification outcomes in both UOB and other UK universities. Crucially the research seeks to provide unique and robust evidence of the expected academic potential of UOB defined categories of disadvantaged and other students, as well as the contextual, departmental and other factors that appear to promote good student progress. The expected impacts would be to support, refine and improve UOB recruitment and department/academic support strategies, especially for disadvantaged students targeted by UOB WP strategy and access agreement.

**A timeline describing the next stages of the project:**

Further equivalent/exploratory MLM analyses of DFE/HESA national data are in progress/planned to contrast with findings from UOB datasets. Timeline: August 2016-March 2017 complete all equivalent analyses using DFE/HESA national dataset; April-July 2017 complete write up of final report and journal articles and other dissemination activities including a meeting with key HESA policy makers.

**Dissemination activities undertaken and planned:**

- British Educational Research Association Conference 2015 symposium paper was presented, alongside papers from three other GSOE UOB WP projects (September 2015, Belfast).
- Similar presentation at ICSEI 6—9 Jan 2016 (Glasgow) and AERA 12-18 April 2016 (Washington, USA).
- Other academic presentations are also planned eg Earli Educational Effectiveness Sig - Sept 2016 and for policy makers eg UOB seminar in Goldeny Hall on 18th October 2016 and further discussion with advisory group.
- Submission of journal articles to relevant academic journals, government and professional organisations such as HESA and Russell group.

Confirmation that the project will be delivered on time: Yes by 31<sup>st</sup> July 2017

**Financial summary for project to August 2016 :**

<b>Budget Headings</b> (to match headings provided in initial bid)	<b>Total Budget</b> £	<b>Total Actual Spend</b> £
Buyout for ST	14170.00	14,170.00
Buyout for HG	5668.00	5,668.00
Research Assistant	63942.00	41,247.79
Research Specific Consumables & Phone	515.00	577.37
Computer/Laptop	1029.00	1,815.06
Advisory Group Meetings/UK Disseminations	4117.00	1,204.00
Dissemination international Conferences	4117.00	2,038.00
Consultancy	6176.00	2,038.00
<b>Total</b>	<b>99,734.00</b>	<b>68,758.22</b>

**Total Budget remaining 31 July 2016** **30,975.78**

(note: distribution of Total Actual Spend is estimated under the headings provided in initial bid – as these exact headings were not subsequently used in financial accounting. However the total remaining budget remains the same)

**Financial summary for continuation of project 2016/17 :**

<b>Budget Headings</b> (to match headings provided in initial bid)	<b>Budget</b> £
Buyout for ST	0.00
Buyout for HG	0.00
Research Assistant	25,000.00
Research Specific Consumables & Phone	800.00
Computer/Laptop	0.00
Advisory Group Meetings/UK Disseminations	1,175.78
Dissemination international Conferences	3,000.00
Consultancy	1,000.00
<b>Total</b>	<b>30975.78</b>