

Widening Participation in Higher Education: A Quantitative Analysis

1. Introduction

Higher education (HE) participation has expanded dramatically in England over the last half century. Yet although participation has been rising, ‘widening participation’ in HE remains a major policy issue. Of particular concern is whether expansion of HE has led to improvements in the representation of previously under-represented groups, such as materially deprived students and ethnic minority students.

This study was motivated by empirical evidence which suggested that the gap in the HE participation rate between richer and poorer students actually widened in the mid and late 1990s (Blanden and Machin, 2004; Machin and Vignoles, 2004; HEFCE, 2005), although this trend appears to have since reversed somewhat (Raffe et al., 2006). Recent evidence suggests that the 20% most disadvantaged students are around 6 times less likely to participate in higher education compared to the 20% most advantaged pupils (HEFCE, 2005). There remain substantial differences in HE participation rates across different ethnic minority groups (Dearing, 1997; Tomlinson, 2001).

Concerns about who is accessing HE also increased following the introduction of tuition fees in 1998. Although the fees were means tested, there were fears that the prospect of fees would create another barrier to HE participation amongst poorer students (Callender, 2003). Recent policy developments, including the introduction of non-means tested top-up fees may also affect participation for more recent cohorts.

The proposed research therefore set out to add to expand our knowledge in the following areas:

- a. the determinants of the likelihood of entering HE;
- b. the nature and quality of the higher education experienced by different types of student;
- c. the determinants of and barriers to progression in HE.

The aim of the project was to produce robust quantitative evidence to inform policy-makers designing strategies to widen access, particularly on the nature and timing of school based initiatives.

2. Objectives

The specific objectives and research questions to be addressed are set out below.

2. 1 The HE Participation Decision

A major objective was to identify at what stage in the education system, and for which groups of students, educational inequalities emerge. Steep socio-economic, ethnic and gender gaps in HE entry and progression appear to originate early in life, and we need

to recognise the impact of schooling in shaping individuals' attainment and aspirations regarding HE participation. We asked.

1. How does the likelihood of HE participation and the timing of HE entry vary according to gender, material deprivation, ethnicity, date of birth and prior attainment?
2. When do the differences in attainment, which drive variations in the likelihood of attending and progressing in HE, appear?
3. Have education maintenance allowances (EMAs) helped to close the gap in HE participation between rich and poor? What are the differences in HE participation between summer- and autumn-born pupils?
4. Do differences exist across different student groups in terms of self and teacher perceptions of ability?
5. Do teacher assessments of pupil ability influence the decision to enrol in HE and do they play a more important role for some groups of students?
6. How important is distance from a university in determining HE participation?
7. How does locality affect the HE participation decision of different groups of students, particularly those from disadvantaged backgrounds?

To address the first three sets of research questions, we used a new linked combination of large scale, individual-level administrative data sets¹ provided by the then Department for Education and Skills. The data include information on the educational attainment of all children in the state school system from age 11 through to potential age 18 or 19 HE participation. We have these data for one particular cohort of students, namely *every* state school student in England who was in Year 11 in 2001/02 and who, if they so decided, would have continued to post compulsory education in 2002/03 and 2003/04, and into Higher Education in 2004/05 (age 18) or 2005/06 (age 19).

Unlike previous work using HE records alone, our analysis is based on both participants and non-participants, allowing robust conclusions to be drawn about the factors determining participation.

To address research questions 4 and 5, we analysed the influence of pupils' own perceptions of their abilities, as well as teacher perceptions of pupils' abilities, and the extent to which these expectations are linked to actual outcomes. We then explored how this relationship varies by student material deprivation, ethnic group and gender. Although there are clear limitations on the extent to which quantitative evidence can inform us about complex psychological issues such as confidence, the role of pupil confidence and teacher perceptions could potentially inform interventions to target high achieving students who do not intend to continue into HE. We used data from the Programme for International Student Assessment (PISA) for 2002 and 2003. We also

¹ See Appendix 2 for a description of these data.

used the combined administrative data described above, which includes records of teachers' assessments of each pupil's national curriculum attainment level, as well as their actual Key Stage test scores.

Lastly, we examined research questions 6 and 7 using the linked administrative data set, with additional data from the 2001 Census and Ordnance Survey geographical data. This work explored the role of geography in students' HE participation decisions. Some existing research (e.g. Card (1995), Frenette (2004)) supports the idea that people living further away from universities are less likely to choose to participate, particularly those from more disadvantaged backgrounds and some ethnic/gender groups. We investigated the importance of various measures of distance to a HE Institution (HEI) for students' patterns of participation, and how these patterns varied by material deprivation and ethnicity.

2.2 The HE Experience

We analysed the nature of students' participation in HE by prior attainment, gender, age, ethnicity and material deprivation. Specifically, we modelled the subject and institutional choices made by different groups of students using the linked administrative data set. The subjects chosen and quality of HE accessed by different groups of students is an increasingly important policy issue with the introduction of variable tuition fees, since students may now trade off quality against cost when making their HE choices. We asked:

8. How does choice of degree subject and institution vary by gender, ethnicity, material deprivation, age and prior attainment?
9. To what extent is there 'equality of access' to 'high status' institutions for different groups of students?
10. For a given level of prior attainment, what is the influence of distance, family background and their interactions on the decision to attend a high status university?
11. What is the impact of degree subject and university status on graduate earnings?

To address these questions we measured university status on the basis of research quality and prestige (the analysis of wage returns also made use of other measures of quality, detailed further below). We then used the linked administrative data to model the extent to which access to higher status institutions varied by gender, ethnicity, material deprivation and prior attainment.

This work originally had an international dimension, including comparisons with France and Germany. Data limitations and issues of comparability have proven very difficult here and we have so far been unable to produce robust research on this issue. Instead we focused on the UK only.

Our work investigating the impact of degree subject choice and institution on the labour market earnings of graduates shortly after leaving university allowed us to determine the extent to which the wage benefit from a degree varies across subjects and institutions, an issue that has potentially become more pressing with the expansion of higher education in the UK (Walker and Zhu, 2005).

The work on graduate earnings made use of four data sets covering four different cohorts of graduates (though focusing on the most recent cohort): 1985, 1990, 1995 and 1999. The 1995 and 1999 cohorts were surveyed (respectively) 3 and 4 years after graduation and are most comparable (the surveys were conducted by the same researchers and were deliberately designed to be as similar as possible). The 1985 and 1990 cohorts were surveyed (respectively) 11 and 6 years after leaving university. For both these cohorts we used wages six years after graduation.²

We were then able to use our estimates of wage returns according to institution and subject to determine whether particular types of students were more or less likely to choose high return subjects.

2.3 Progression in HE

Progression within higher education is potentially as important as participation (Parry, 2002), but there is substantially less quantitative evidence on this. Dearing (1997) suggested that students from disadvantaged backgrounds progressed as well in HE as more advantaged students (Hogarth et al. 1997), but more recent evidence is less optimistic (HEFCE, 1999). Nationally, HEFCE reports non-completion rates of 17%, but with substantial variation across institutions (HEFCE, 2000).

Our research asked:

12. Does progression in HE vary by material deprivation, for a given level of prior attainment?
13. Are particular groups of students at risk of failing to progress?
14. Do progression rates vary by subject and by institution, for a given level of prior attainment?

We used both Higher Education Statistics Agency (HESA) data and the linked administrative data (which includes HESA data) to explore the extent to which students dropped out or withdrew from higher education, and to see how this propensity varied across different student types (by gender, ethnicity, age on entry, prior attainment and material deprivation).

This work contributes to the existing research on this issue, both from the UK (Arulampalam, Naylor and Smith, 2005; Davies and Elias, 2003; Yorke, 2001) and elsewhere (Beekhoven, De Jong and Van Hout, 2000), by providing a clearer picture

² Those graduating from university in 1985 were asked retrospective questions about wages 6 years after graduation.

of the extent of drop out across the whole sector. Our models are particularly robust given the excellent measures of prior attainment in the linked data.

3. Methods

Our work used regression based quantitative modelling approaches to answer the research questions identified above, and was informed by theories from economics, geography and sociology.

The main methodological contribution is in the use of linked administrative data. These data provide a complete longitudinal record of each student's attainment from age 11 through to age 19. The weakness of administrative data, however, is that it is not particularly rich in terms of background characteristics e.g. parental socio-economic status. A key methodological challenge was to improve on the measures of family economic background available. To do this we used neighbourhood based measures of deprivation, based on Census and other geographical data, in addition to individual level data on the student's eligibility for Free School Meals, to derive an "index" of material deprivation.

Another methodological challenge was to produce a quantifiable measure of university quality. This proved challenging and our research has been heavily influenced by the debate amongst the TLRP teams as to how one defines quality. We primarily made use of Research Assessment Exercise scores and whether or not an institution was a member of the Russell Group of universities. For the analysis of wage returns, additional sources of data on institution and course quality were used, including the faculty-student ratio; the retention rate; the total tariff score; mean faculty salary and expenditure per pupil.

Geographic data were also used in our analysis of the role of geography in HE participation choices. For this work, we calculated various distance metrics, including straight-line distance, to identify proximity of HE institutions. We then made use of GIS software and used multi-nomial logit models for the analysis.

Our work on progression within higher education made use of the linked administrative data and modelled whether students did not continue their course after their first year of study. Ideally, we would have liked to study degree completion and degree achievement using these data. However, the pupils have not yet reached the age of degree completion. Therefore our work on degree completion and degree class relied only on HESA data, which does not have such good measures of prior achievement.

4. Results

4. 1 The HE Participation Decision

Students from materially deprived backgrounds are much less likely to participate in higher education at age 18 or 19 compared to students from less deprived backgrounds. For example, only 12.7% of boys from the most deprived backgrounds attend HE at these ages, compared to 41.7% of boys from the least deprived backgrounds, a gap of 29 percentage points. The gap between the richest and poorest girls is even bigger, at 34.6 percentage points. However, we found that this gap in HE participation does not emerge at the point of entry into higher education. Instead it comes about because materially deprived pupils do not achieve as highly in secondary school as their more advantaged counterparts. In fact, the socio-economic gap that remains on entry into HE, after allowing for prior attainment, is just 1.0 percentage points for males and 2.1 percentage points for females (between those from the most and least deprived backgrounds).

The implication is that focusing policy interventions on disadvantaged pupils who are already in post-compulsory education is unlikely to have a serious impact on the socio-economic gap in HE participation. This is not to say that universities should not carry out outreach work, but simply that it will not tackle the major problem, namely the underachievement of disadvantaged pupils in secondary school.

Having said this, our analysis of the transitions made by students between Key Stage 2 and Key Stage 4 is quite reassuring. Deprived students who do catch up and perform well at Key Stage 4 (i.e. GCSE) have a similar probability of attending university as their more advantaged peers. Our work suggests that improving educational performance at Key Stage 4 is particularly important.

This means that earlier interventions to improve the performance of disadvantaged children are more likely to increase their HE participation than interventions during post-compulsory education. Improving the educational achievement of disadvantaged students is (unsurprisingly) likely to be challenging, given that there is far less upward mobility in their educational achievement throughout secondary school (compared to their more advantaged counterparts).

It should be remembered, however, that students look forward when making decisions about what qualifications to attempt at age 16 and 18, and when deciding how much effort to put into school work. If disadvantaged pupils feel that HE is “not for people like them”, then it may be that their achievement in school simply reflects anticipated barriers to participation in HE, rather than the other way around. This suggests that outreach activities will still be required to raise students’ aspirations, but that they might perhaps be better targeted on younger children.

Our work also shows that most ethnic minority students are significantly *more* likely to participate in HE than their White British peers, consistent with work by Wilson, Burgess and Briggs (2005). This suggests some success from efforts to widen participation amongst ethnic minority groups. Furthermore, not only do all ethnic minority groups have higher participation rates after allowing for prior achievement, but they also exhibit more upward mobility in educational achievement than White British children throughout secondary school.

In summary, we found that under-representation of particular groups of students is attributable to weak academic achievement in secondary school, rather than factors at the point of entry into HE.

We have also been able to extend our work on the HE participation decision to consider the effectiveness of one particular policy intervention, namely the introduction of education maintenance allowances (EMAs), in closing the gap in HE participation between rich and poor. Preliminary work using the linked administrative data suggests that EMAs have had a positive effect in encouraging more young people from relatively poor backgrounds to go on to Higher Education, and hence somewhat closing the gap between rich and poor.

We also used the linked data to consider HE participation amongst another group of potentially disadvantaged students who are often forgotten in the discourse of widening access to HE, namely those that are summer-born. We found that the disadvantage faced by summer-born children throughout school continues into university: only 35.2 per cent of girls and 28 per cent of boys born in August start degree courses by the age of 19, against 37 per cent of girls and 29.6 per cent of boys born in September.

Our findings on the role of geography, suggested that there is a strong relationship between geographical distance and institutional choice. Interestingly ethnic minority groups, who are more likely to be located close to higher status institutions due to their urbanisation, are over-represented in top status institutions once you allow for prior attainment.

Our work on the determinants of academic attainment and HE participation, also explored the relationship between pupil assessment at age 14 (Key Stage 3) and participation in age 16+ education. We questioned whether a systematic gap between teacher assessment and externally-marked tests indicates assessment bias or uncertainty, either in testing procedures or through teachers' perceptions of pupils' skills. We found that teacher and test assessments diverge slightly along lines of pupil characteristics, especially prior achievement. However, the divergence between teacher assessment and test scores has almost no bearing on pupil qualifications or participation after age 16. Among secondary school pupils, we found that pupils with a more positive view of their academic abilities were more likely to expect to continue to higher education even after controlling for observable measures of ability and students' characteristics. University students are also poor at estimating their own test-performance and over-estimate their predicted test score. However, females, white and working class students have less inflated view of themselves.

2.2 The HE Experience

We find that there are large socio-economic gaps in the likelihood of attending a high status institution, conditional on HE participation. Once we take account of prior attainment, we find that the impact of material deprivation largely disappears. This

suggests that if we want to widen participation in high status institutions, we need to focus on improving poor students' their educational achievement in secondary school.

We find that many ethnic minority groups are significantly *less* likely to attend a high status university than White British students. However, once we control for prior attainment, all ethnic minority groups have a similar or higher probability of attending a high status university. This means that it is poor prior achievement that is holding back ethnic minorities from attending high status institutions.

We found that enrolment in subjects varied across different types of student. Ethnic minority and deprived students were more likely to enrol in degrees that had high economic value, suggesting (but not proving) that these students may be more focused on the importance of careers and labour market opportunities (in terms of their subject choice) than White British and less deprived students.

We also considered whether the institution choices made by students had any longer term consequences, namely a payoff in the labour market. Our results suggest that there is a positive return to attending a higher quality institution of around 6 per cent per year.³ This is comparable to that found in the US (Black and Smith, 2006). The magnitude of this return is important, as an average earnings differential of this size adds up to a considerable sum over a lifetime in the labour market.

For example, average earnings for graduates of the 1999 cohort four years after graduation were £22,828. If we assume that the return to HE quality is 6 per cent of this amount and (very conservatively) assume that this stays constant in absolute terms over his/her time in the labour market, this amounts to a net present value of £35,207 (assuming 25 years in the labour market and using a discount rate of 3.5%). By contrast, Blundell et al. (2005) find that the average return to Higher Education is 48% (of earnings) in comparison with leaving school at age 16 with no qualifications. If we translate this into lifetime earnings in the same (very rough) way, this amounts to £281,594. Thus, although there is a high average return to quality, it is still small by comparison to the overall value of higher education.

Such evidence suggests that there is potentially some justification for requiring graduates to contribute to the cost of their university education and for allowing differential fees (to account for a return to the quality of institution attended).

2. 3 Progression in HE

In the UK, as in the US, there is a significant gap in the non-continuation rate between advantaged and disadvantaged pupils. Despite a low aggregate rate of first year drop out (6%) from English universities, the 20% most deprived pupils in England are around 3 percentage points (50%) more likely to drop out than the most advantaged 20%. Much of this gap disappears once we allow for students' prior achievement: some of the apparent difference in first year drop out rates between more and less

³ Higher quality is captured by considering the impact of 1 standard deviation improvement in HE quality. A one standard deviation increase in the RAE score would mean an increase of about 1, where the scale is from 2 to 5.5).

deprived students is attributable to their academic preparation for HE and/or their ability. After allowing for personal characteristics, prior achievement and institution choice, there remains a 1 percentage point difference in the drop out rate between the most advantaged and disadvantaged English students. In the context of a low overall drop out rate, this difference is arguably sizeable.

We also found that raw indicators of the drop out rate of English universities could be misleading, if one's purpose is to gauge university effectiveness. For instance, the ranking of universities by drop out rate would change markedly if the prior achievement of students were taken into account. In policy terms, this suggests that if we are to use drop out rates as measures of institution performance, we must take into account student composition, by applying a value-added model.

The drop out rate has risen in recent years in England and the evidence here suggests that we should be alert to the fact that this will tend to widen the socio-economic gap in degree completion, since materially deprived students drop out to a greater extent even after allowing for their prior achievement.

5. Activities

We have actively participated in the TLRP network and presented our research in a number of different settings (listed below). We have engaged with academics and users via our advisory group, which included Professor Robin Naylor and Helen Connor. In addition we had a representative from HEFCE, Mark Corver and from the Department for Innovation, Universities and Skills, Stijn Broecke, who were helpful in guiding the work.

Early on we had extensive mutually advantageous discussions with Peter Elias, Strategic Advisor (Data Resources) to the ESRC. This helped us with the practical and political hurdles we faced when trying to facilitate the linking of the administrative data.

Part way through we had a dialogue with the National Audit Office, which made use of the linked administrative data to produce their recent report (NAO, 2008).

Future activities include presenting the research at an American Education Research Association symposium in San Diego in April 2009.

A Routledge book is planned, with colleagues from other TLRP HE projects. We will be contributing two chapters to this book.

A SAGE handbook of research on higher education is planned and we will contribute one chapter.

A policy commentary from the TLRP suite of HE projects is forthcoming, to be edited by Martin Ince and Miriam David.

5.1 Seminars and Presentations

Our work on HE participation of poor and ethnic minority students was presented as follows:

Vignoles, A. *Widening Participation in Higher Education: Data Issues*, British Education Research Association Annual Conference, September 2006.

Vignoles, A. *Widening participation in Higher Education: A Descriptive Analysis*, TLRP Conference, November 2006.

Goodman, A., *Using large datasets for studying access to and participation within HE*, TLRP Symposium at Society for Research into Higher Education (SRHE) Conference, 13th December 2006.

Chowdry, H., *Widening participation in Higher Education: Early evidence from new linked administrative data*, DfES seminar, 14th June 2007.

Vignoles, A. *The labour market value of higher education*, British Education Research Association Annual Conference, 2007.

Chowdry, H., *Widening Participation in Higher Education*, Oxbridge Lectures, 23rd & 28th January 2008.

Vignoles, A. *Widening Participation in Higher Education*, Department of Education, University of Oxford, January 2008.

Chowdry, H., *Evaluation of the Education Maintenance Allowance using administrative data*, Institute for Fiscal Studies internal seminar, 31st March 2008.

Crawford, C. & A. Vignoles, *Widening Participation in Higher Education: A Quantitative Analysis*, Institute of Education seminar, 9th June 2008.

Vignoles, A. *Outcomes*, HEFCE hosted TLRP conference, *Diversity and Widening Participation to HE: policy implications*, London, 17th June 2008.

Vignoles, A. *Widening Participation in Higher Education: A Quantitative Analysis*, NCRM Methods Conference, Oxford, July 2008.

The work on teacher assessment and student perception was presented as follows:

Gibbons, S, The Society for Research in Higher Education Annual Conference, 2007.

Gibbons, S, The European Society of Population Economics 2008.

Gibbons, S, The Royal Economic Society Annual Conference 2008.

Gibbons, S, The Centre for Economic Performance, London School of Economics Labour Seminar 2007.

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Gibbons, S, Department for Work and Pensions Employment Group Conference
(DWPEG), 2007.

6. Outputs

[a] Chowdry, H., Crawford, C., Dearden, L., Goodman, A. and Vignoles, A. (2008) *Widening Participation in Higher Education: analysis using linked administrative data*, Institute for Fiscal Studies report. <http://www.tlrp.org/dspace/handle/123456789/1281> and also available at http://www.ifs.org.uk/publications.php?publication_id=4234.

[b] Chowdry, H., C. Crawford, L. Dearden, A. Goodman & A. Vignoles (2008), *Understanding the determinants of participation in higher education and the quality of institute attended: analysis using administrative data*, Institute for Fiscal Studies report. <http://www.tlrp.org/dspace/handle/123456789/1126> and also available at http://www.ifs.org.uk/publications.php?publication_id=4279.

[c] Chowdry, H., Crawford, C. and Vignoles, A. (2008) "Widening Participation in Higher Education: A Quantitative Analysis", *Building Research Capacity*, Issue 13, January 2008.

[d] Chowdry, H., L. Dearden & C. Emmerson (2007) *The impact of the EMA pilots on participation and attainment in post-compulsory education*, Institute for Fiscal Studies report. . <http://www.tlrp.org/dspace/handle/123456789/1296>.

[e] Powdthavee, N. and Vignoles, A. (2008) "The socio-economic gap in university drop out", Department of Quantitative Social Science, Institute of Education mimeo. <http://www.tlrp.org/dspace/handle/123456789/1280>.

[f] Powdthavee, N. and Vignoles, A. (2007) "Succeeding in higher education: a widening participation issue", Department of Quantitative Social Science, Institute of Education mimeo. <http://www.tlrp.org/dspace/handle/123456789/808>.

[g] Powdthavee, N. and Vignoles, A. (2006) *Who drops out of HE? Describing the data*, Department of Quantitative Social Science, Institute of Education report. <http://www.tlrp.org/dspace/handle/123456789/1139>.

[h] Gibbons, S. and Chevalier, A. (2008) "Assessment and Age 16+ participation", *Research Papers in Education*, 23 (2) 113-123.

A summary of [h] aimed at non-academic users is forthcoming in the Centre for Economic Performance's *Centrepiece* magazine, Summer 2008.

[i] Gibbons, S. and Chevalier, A. (2007) "Assessment, achievement and participation", working paper, <http://www.tlrp.org/dspace/handle/123456789/1313>, and <http://personal.lse.ac.uk/gibbons/papers/Teacher%20Assessments%20December%2007.pdf>.

[j] Gibbons, S., Thorpe, M., Snell, M. and Hoskins, T. (2008) "Students self-Perception", working paper <http://www.tlrp.org/dspace/handle/123456789/1314> and

Institute for the Study of Labour (IZA) discussion paper (DP 3031), www.iza.org
(submitted to the Economics of Education Review).

[k] Hussain, I., McNally, S., Telhaj, S. (2008) “University Quality and Graduate Wages in the UK”, forthcoming Centre for the Economics of Education Discussion Paper and available at: <http://www.tlrp.org/dspace/handle/123456789/1282> .

7. Impacts

We have undertaken a range of dissemination activities, mentioned earlier in this report, in our attempt to achieve some impact from our research. The success of this dissemination work in at least getting our results in front of policy-makers and the wider public is apparent from the extensive list of media impacts described at Appendix 3. These media impacts include most of the broad sheet newspapers and a two page article in *The Times Higher*, 19 June 2008. We have also had our research discussed in media specifically targeted at policy-makers, such as “ePolitix”.

We have also consciously used more targeted methods of dissemination. In written form, we have circulated a briefing note of our research across the user community:

Vignoles, A. (2008) *Widening Participation in Higher Education: A Quantitative Analysis*, TLRP Research Briefing 29.

In addition, we have interacted with policy-makers directly. For example, we participated in a Widening Participation Symposium, organised by Bill Rammell MP, Minister of State for Lifelong Learning, Further and Higher Education (November 2006). In addition, Lorraine Dearden discussed our work when she gave evidence to the Education and Skills Committee, 7th March 2007

www.parliament.the-stationery-office.co.uk/pa/cm200607/cmselect/cmeduski/285/7030701.htm.

We have also written specific user targeted outputs to ensure that our results are accessed by the wider user community, such as:

Vignoles, A. (2008) “The Value of a Degree”, *Graduate Market Trends*, Spring 2008.

In summary, our attempts to influence policy-makers have been extensive. In particular we feel that our collaboration with The Sutton Trust for the report of the National Council for Educational Excellence (NCEE), and our ongoing dialogue with various public bodies, including the Department for Innovation, Universities and Skills and the National Audit Office have been particularly important.

We maintain that this activity has resulted in genuine impact on the policy debate in this area. The NCEE report presented to the government alluded to our work and suggested that interventions to widen participation must occur earlier than is currently the case and that widening participation is primarily about problems in the school system, rather than with university admissions. If the government accepts the recommendations of the NCEE report, then we feel that our research will have influenced policy-making in a very direct way.

8. Future Research Priorities

Our future research priorities are as follows:

Although we were able to make robust conclusions about continuation from year 1 of study to year 2, our work on degree completion and class of degree achieved could usefully be updated using the more robust linked administrative data.

When the next cohort of linked data is available we can explore changes over time. This will be particularly important in understanding the impact on students of changes to the financial support system and tuition fees: clearly a hugely important policy issue (see Pennell and West, 2005, for example). Team members have already secured some research funding from the Department for Innovation, Universities and Skills to examine this issue via the Centre for the Economics of Education.

We need to better understand the limitations of administrative data, in terms of the limited controls available. This priority is being addressed via ADMIN, a new research methods Node located at the Institute of Education, which is investigating methodological issues around the use of linked survey-administrative data.

Word count: 4994

Appendix 1: References

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Walker, Ian and Zhu, Yu, "The College Wage Premium, Overeducation, and the Expansion of Higher Education in the UK" (June 2005). IZA Discussion Paper No. 1627. Available at SSRN: <http://ssrn.com/abstract=738343>.

Appendix 2: Linked Data

Our analysis uses data from the English National Pupil Database (NPD) and individual student records held by the Higher Education Statistics Agency (HESA). The former is an administrative dataset maintained by the Department for Children, Schools and Families (DCSF), comprising academic outcomes in the form of Key Stage test results for all children aged between 7 and 16 (and some at age 18) – i.e. it includes the person's GCSE and A-level scores (where applicable) - and pupil characteristics from the Pupil Level Annual School Census (PLASC). The HESA data contain information on all students studying a first degree at Higher Education Institutions (HEIs) in the UK. With these two sources of data linked together, we have longitudinal data on our cohort of students from Key Stage 2 through to potential age 18 or 19 HE participation. Additionally, these two data sets are linked to a third data set, the Individual Learner Record (ILR) provided by the Learning and Skills Council, which allows us to observe whether or not individuals in our sample enrolled in Further Education institutions. These data were kindly linked for us by what was the Department for Education and Skills. As there was, at that time, no unique pupil identification number that applies across schools, FE colleges and HEIs, the linking between the different datasets was on the basis of fuzzy matching (using a variety of variables, particularly postcode, name and date of birth). We were not party to this linking process and therefore do not have descriptive data on the effectiveness of the matching. This is clearly an area for future research.

Our information on test and examination results is further enhanced by an additional derived dataset provided by DCSF, known as the “cumulative Key Stage 4 and Key Stage 5” file. This provides an important addition to the NPD, as it records both vocational and academic qualifications that were achieved after the age of 16.

Key Stage tests (from the NPD)

The Key Stage tests are national achievement tests sat by all children in state schools in England: Key Stage 1 is taken at age 7, Key Stage 2 at age 11, Key Stage 3 at age 14 and Key Stage 4 (GCSEs) at age 16. For individuals who choose to remain in the education system beyond statutory school-leaving age (16 in England), Key Stage 5 (A levels or equivalent) is sat generally at age 18. For the cohort used in this analysis, results are not available at Key Stage 1, as the individuals in question would have sat the exams before such data was recorded. However, we make use of the Key Stage 2 data from 1996–97, the Key Stage 3 data from 1999–00, the Key Stage 4 data from 2001–02 and the Key Stage 5 data from 2002–2003 and 2003–04.

Cumulative Key Stage 4 and Key Stage 5 dataset

Additional data on Key Stage 4 outcomes and our only source of Key Stage 5 outcomes *for those who do not take A-levels* is a cumulative dataset that captures details of a pupil's highest qualification by age 18. Here, we make use of information identifying whether individuals had achieved the National Qualifications Framework (NQF) Level 3 threshold (equivalent to two A Level passes at grade A–E) via any route by age 18. Unfortunately, this dataset does not contain more detailed test results

To cite this output:

Vignoles, Anna et al (2008). Widening Participation in Higher Education: A Quantitative Analysis: Full Research Report
ESRC End of Award Report, RES-139-25-0234. Swindon: ESRC

for these non-A level students. We therefore use the indicator of attainment of the Level 3 threshold in addition to the Key Stage 5 test scores to provide attainment information for those individuals who do not sit any A Levels. In other words, we have richer data on the achievement of A level students (point score) than we do for students who achieved Level 3 via some other (generally vocational) route.

Pupil Level Annual School Census (PLASC)

This census was first carried out in January 2002 and covers all pupils attending state schools in England. It records pupil-level information – such as date of birth, home postcode, ethnicity, special educational needs, entitlement to free school meals⁴ and whether English is an additional language – plus a school identifier.

HESA

This dataset, collected by the Higher Education Statistics Agency, is used to identify all Higher Education participants at age 18 or 19 in our cohort of interest. It includes administrative details of the student's institution, subject studied, progression, mode of attendance, qualification aimed for, and year of programme. For the purposes of this paper, participation in Higher Education is defined as attending any institution that appears in the HESA dataset.

⁴ This can be thought of as a proxy for very low family income. Pupils are eligible for Free School Meals (FSM) if their parents receive Income Support, income-based Jobseeker's Allowance, or Child Tax Credits, with a gross household income of less than £14,495 (in 2007–08 prices).

Appendix 3: Media Impacts

We had broad sheet and other national coverage of our findings as follows:

Report shows bright pupils dropping out at 16. Mention of an IOE study for the Sutton Trust. "ePolitix". bulletins@parlicom.com, June 2008.

60,000 top pupils lost to universities, Guardian p 12, 13 June 2008

Tenth of brightest pupils opt out of higher education, Independent p 17, 13 June 2008

60,000 pupils a year 'waste their talent', Daily Telegraph p 2, 13 June 2008

State pupils 'miss out on university because of bad teaching, not bias', Daily Mail p 12, 13 June 2008

This is London <http://www.thisislondon.co.uk/news/article-23494438-details/State+pupils+%27miss+out+on+university+because+of+bad+teaching%2C+not+bias%27/article.do>, 13 June 2008

A lesson in truth, Daily Mail comment p 14, 13 June 2008

Talents of bright pupils 'wasted', BBC Online.
<http://news.bbc.co.uk/1/hi/education/7450957.stm>, 13 June 2008

Top pupils not going to university, Hertfordshire Mercury, 13 June 2008

Bright pupils dropping out, Nottingham Evening Post 13 June 2008

Degrees off limits to one in 10 pupils, Shropshire Star 13 June 2008

'State schools failing 60,000 pupils a year' Huddersfield Daily Examiner 13 June 2008

Pupils bright enough for university quitting, Express & Star Wolverhampton 13 June 2008.

Our key finding that the lower participation rate of materially deprived students is attributable to poor prior achievement was cited in articles in the broadsheet press and other media in relation to the debate on student grants.

Chowdry, H., L. Dearden, E. Fitzsimons, A. Goodman, G. Kaplan & L. Sibieta, *HE student support funding*, IFS Press Release, July 2007
<http://www.ifs.org.uk/pr/HE%20Student%20Support.pdf>

Student loan move fails to aid poorest, Financial Times, 23rd July 2007

New grants for students 'will not help the poorest', The Independent, 23rd July 2007

Grant reforms 'of little help to poorest students', The Daily Telegraph, 23rd July 2007

New university grants 'are no help to poorest', The Guardian, 23rd July 2007

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ESRC End of Award Report, RES-139-25-0234. Swindon: ESRC

Student funding 'misses poorest', BBC News website, 23rd July 2007:
<http://newsvote.bbc.co.uk/1/hi/education/6908942.stm>

Brown grants plan 'won't aid poor students', Press Association News, Chester
Evening Leader, Wrexham Evening Leader, 23rd July 2007

Our work on the impact of date of birth on HE participation was also widely cited:

Summer's babies lose degree race, *Daily Mail*, 14 July 2008

Summer babies are less likely to attend university, *The Times*, 14 July 2008

August babies miss out on university, *Metro*, 14 July 2008.

Children born at end of academic year less likely to go to University, *The Telegraph*,
14th July 2008.