RESEARCH

BIS | Department for Business Innovation & Skills

BIS RESEARCH PAPER NUMBER 13.

The Impact of the 2006-07 HE Finance Reforms on HE Participation

SEPTEMBER 2010

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BIS Research Paper number 12

September 2010

Executive Summary

In 2006-07, several changes were made to HE finance, the most notable of which was an increase in tuition fees paid by students attending universities in England. However, these fees were no longer payable upfront, and most students were entitled to a loan to cover all of their fees. In fact, the net result of the reforms was actually a *reduction* in the net upfront costs of going to university for students from all income groups (see Dearden, Fitzsimons & Wyness, 2010).

This report examines the effects of the package of reforms introduced by the Higher Education Act in 2006-07 on HE participation, using administrative data on all state school students in England, linked to HE records from all UK universities.

We start by documenting trends in HE participation between 2004-05 and 2007-08, considering not only overall participation rates, but also participation at "high status" institutions and participation amongst particular subgroups of interest. We find that:

- Some individuals appear to have started university a year earlier than they might otherwise have done so (i.e. in 2005-06 rather than 2006-07) to avoid having to pay top-up fees.
- This pattern of shifting participation is most clearly evident for individuals from higher socio-economic backgrounds, and for those with the highest Key Stage 5 results.
- Some individuals who shifted participation forwards to avoid paying top-up fees may have forgone the opportunity of going to a high status university.
- Overall, there is no evidence that the 2006-07 HE finance reforms lead to a sustained fall in HE participation after their introduction.

This does not necessarily mean that the HE finance reforms had no impact on HE participation, however, because we do not know what would have happened to participation in the absence of the reforms. For example, if participation rates would have increased significantly if no changes had been made to the HE finance package, but we observe no change in reality, then we would conclude that the reforms had caused a reduction in participation rates.

The second part of our analysis tries to address this question, by estimating the impact of the 2006-07 HE finance reforms on participation at Scottish universities by English students: the idea is that debt averse students might prefer to go to university in Scotland after 2006-07, where they would pay lower tuition fees and thus incur lower debt than if they had attended university in England.

We tried to implement this approach using a difference-in-differences estimator, comparing the trend in participation at Scottish universities amongst English students living “near” Scotland with the trend in participation at Scottish universities amongst English students living “far” from Scotland before and after the reforms. Unfortunately, however, trend participation rates in Scottish Universities before the reform for our “near” and “far” groups were not similar and our estimator therefore violates one of the fundamental underlying assumptions (the “common trends” assumption), rendering our estimates invalid.

We are therefore unable to satisfactorily identify the effect of the 2006-07 HE finance reforms on participation at Scottish universities by English students.

1 Introduction

Upfront, means-tested university tuition fees were introduced for the first time in the UK in 1998, following the recommendations of the Dearing Report.[1] This arrested, but did not reverse, the decline in funding per full-time equivalent student evident in England since the 1980s, with a white paper considering "The Future of Higher Education" subsequently published by the former Department for Education and Skills in January 2003. This paper proposed, amongst other things, the introduction of higher, variable, but no longer upfront tuition fees for all students, to "giv[e] universities the freedoms and resources to compete on the world stage".[2]

Considerable controversy followed the publication of this white paper, with critics principally concerned about the effects of the reforms on students from lower income families. Indeed, concessions had to be made to secure sufficient Commons support to pass the bill by a margin of just five votes in January 2004.[3] The Higher Education Act was eventually given Royal Assent in July 2004, well before the majority of the reforms – including the introduction of so-called "top-up" fees – were due to be introduced in 2006-07.

While a detailed discussion of the change in grants, fees and loans for students from different families is beyond the scope of this report, it is useful to assess how the net costs of going to university changed between 2005-06 and 2006-07, as this will provide some indication of the participation response we may expect. Figures 1.1 and 1.2 show, respectively, the change in net upfront costs, and the change in net costs assuming loans are repaid at a rate of 79 per cent for maintenance loans and 67 per cent for fee loans (see Dearden, Fitzsimons & Wyness, 2010, for full details). These figures indicate that, while all students benefited from a reduction in net upfront costs in 2006-07 (with the greatest reductions accruing to students from higher income families – see Figure 1.1), once we account for the fact that students from higher income families are amongst the most likely to repay their loans (Figure 1.2), it becomes clear that these students actually experienced a net *increase* in the costs of going to university between 2005-06 and 2006-07, while students from middle income backgrounds experienced a net fall.[4] This suggests that participation may increase amongst students from middle income families, while it may fall amongst students from higher income families.

[1] See http://www.leeds.ac.uk/educol/ncihe/ for more details.
[2] See http://www.dcsf.gov.uk/hegateway/strategy/hestrategy/foreword.shtml for more details.
[3] See http://www.ifs.org.uk/bns/bn45.pdf and http://www.ifs.org.uk/docs/fine_tuning.pdf for more details.
[4] Note that, taking into account the 2006-07 package of reforms as a whole, students from the poorest families also saw a reduction in their net costs of going to university, as they benefited from an increase in grants of £1,000 in 2004-05, which we cannot account for in our analysis comparing 2005-06 and 2006-07. (See Dearden, Fitzsimons & Wyness (2010) for a comparison of the 2004-05 and 2006-07 HE finance systems.)

Figure 1.1: Change in net upfront cost to student of switching from 2005-06 to 2006-07 HE finance system, by parental income

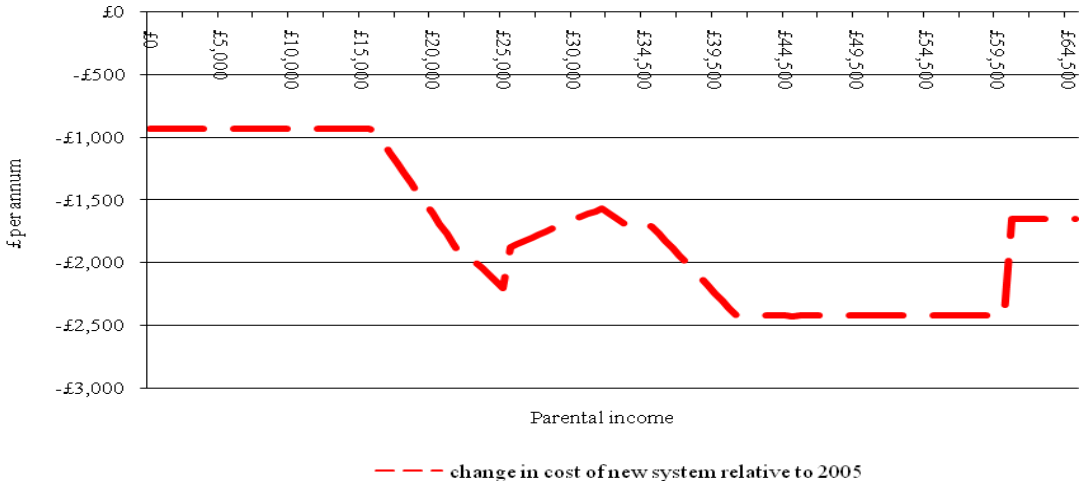
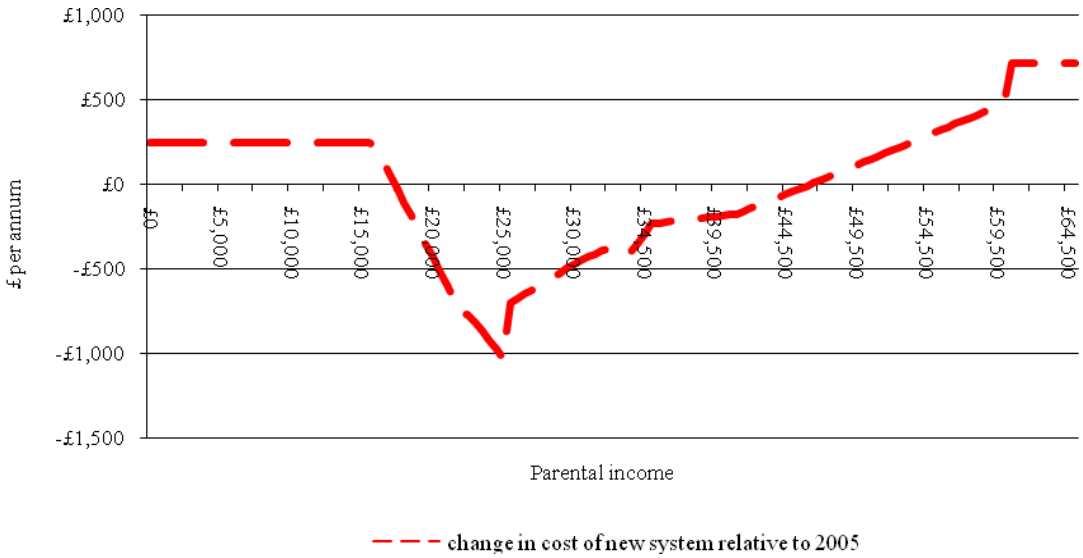


Figure 1.2: Change in net present value of cost to student of switching from 2005-06 to 2006-07 HE finance system, by parental income



It is also useful to compare the fees paid by English students going to university in England with those of English students going to university in Scotland. All English students going to university in Scotland paid fees of £1,700 per year[5] (over four years) and received fee loans of an equivalent amount. If the amount of debt incurred at university matters to students, then a small incentive (of £2,200) exists for English students to go to university in Scotland rather than England after 2006-07.

The aim of this report is to examine the effects of the package of reforms introduced by the Higher Education Act in 2006-07 on HE participation. (Note that we do not try to separately identify the effects of grants, fees and loans – this is done in Dearden, Fitzsimons & Wyness, 2010.)

We do this in two stages:

- First, we document trends in HE participation between 2004-05 and 2007-08, considering not only overall participation rates, but also participation at "high status" institutions[6] and participation amongst particular subgroups of interest (including by socio-economic status, gender, ethnicity and Key Stage 5 score).
- Second, we use a difference-in-differences approach to try to estimate the impact of the reforms on HE participation at Scottish universities by English students.

In both cases, we make use of administrative data on all state school students in England, linked to HE records from all UK universities.

This report now proceeds as follows: Section 2 describes the data that we use and the methodologies that we adopt; Section 3 presents the results of our graphical analysis of trends in HE participation rates, while Section 4 briefly discusses our attempts to estimate the impact of the reforms on HE participation (which were largely unsuccessful); Section 5 concludes.

[5] £2,700 per year for medics.
[6] See Section 2 for our definition of "high status" institutions.

2 Data and methodology

2.1 Data

Our analysis focuses on four cohorts of pupils who sat their GCSEs in 2001-02, 2002-03, 2003-04 and 2004-05. Table 1 highlights the progression of these cohorts through the education system.

Table 1: Our cohorts of interest and their progression through the English education system

	Cohort 1	Cohort 2	Cohort 3	Cohort 4
Sit GCSEs (age 15/16)	2001-02	2002-03	2003-04	2004-05
Sit A-levels or equivalent (age 17/18)	2003-04	2004-05	2005-06	2006-07
Start university as early as possible (age 18/19)	2004-05	2005-06	2006-07	2007-08
Start university after a single gap year (age 19/20)	2005-06	2006-07	2007-08	*2008-09*

Notes: as we only have HESA data up to 2007-08, we do not observe HE participation at age 19 for cohort 4.

Each cohort comprises the population of state school students in England who sat their GCSEs in the relevant year. For each pupil, we observe Key Stage test results taken at 11 and 14, and public examination results taken at 16 and 18 (including both academic and vocational qualifications). We also observe a limited number of pupil characteristics, including gender, date of birth, home postcode, ethnicity, special educational needs (SEN) status, eligibility for free school meals (FSM) and whether English is an additional language (EAL), all recorded at age 16.

To improve our measurement of socio-economic status, we construct a deprivation index based on various student and neighbourhood level measures of socio-economic status, including: 1) the pupil's eligibility for free school meals at age 16; 2) their Index of Multiple Deprivation score[7]; 3) their ACORN type[8]; 4) three very local area-based measures from the 2001 census (socio-economic status, highest educational qualification and housing tenure).[9]

HE participation rates are obtained by linking these school records to the population of students enrolled in a first degree at a higher education institution in the UK. University records were available up to 2007-08 at the time of writing, such that we are able to estimate initial age 18/19 participation for all four cohorts – two pre-reform (1 and 2) and two post-reform (3 and 4) – and age 19/20 participation (following a single gap year) for the first three cohorts. We focus on age 18/19 participation throughout this report.

[7] This is available at Super Output Area (SOA) level (comprising approximately 700 households) in 2004 and makes use of information from seven different domains: income; employment; health and disability; education, skills and training; barriers to housing and services; living environment; and crime.

[8] This is available at postcode level in 2009, and is constructed using a range of information on demographic and socio-economic characteristics, financial holdings and property details, amongst others.

[9] For more details, see Chowdry, Crawford, Dearden, Goodman & Vignoles, *Widening Participation in Higher Education: analysis using linked administrative data*, Institute for Fiscal Studies, mimeo.

We are also interested in participation at “high status” institutions. To derive our measure of HE status, we linked in institution-level average Research Assessment Exercise (RAE) scores from the 2001 exercise, and included all Russell Group institutions, plus any UK university with an average 2001 RAE rating exceeding the lowest average RAE score found among the Russell Group universities. This gives a total of 41 ‘high-status’ universities (listed in Appendix A).

2.2 Methodology

The first part of our analysis (reported in Section 3) graphically documents HE participation for each of our four cohorts. Whilst this graphical analysis provides useful and interesting insight into patterns of participation just before and just after the 2006-07 HE finance reforms, we cannot use this type of analysis alone to evaluate the impact of the reforms on participation rates, because we do not know what would have happened to participation in the absence of the reforms. For example, if participation rates would have increased significantly if no changes had been made to the HE finance package, but we observe only a small increase in reality, then we would conclude that the reforms had caused a reduction in participation rates.

How can we establish what would have happened to HE participation rates in the absence of the reforms? The usual approach is to identify an appropriate “comparison group”, which we use to ‘proxy’ what would have happened to our “treatment group” in the absence of the treatment. This is particularly problematic in this case, for a number of reasons: firstly, the reforms were introduced simultaneously for all UK and EU students attending higher education institutions in England, effectively ruling out a comparison group comprising unaffected students in England; secondly, we do not observe participation rates amongst students in a different country. For example, Scotland operates a separate HE finance system to England: if we had access to all students in Scotland (and there were no changes to HE finances between 2004-05 and 2007-08), then we could potentially use participation rates amongst students in Scotland to proxy what would have happened to participation rates amongst students in England had there been no changes to HE finance.

One potential difference that we might be able to exploit arises from the fact that English students attending university in Scotland are treated under the Scottish finance system, which means that they are liable for lower tuition fees than if they had gone to university in England. This does not solve our problem of a comparison group, however, unless we can surmise that students living “near” Scotland are likely to respond to this incentive, but that students living “far” from Scotland are not (i.e. we believe that there is some cost associated with attending university in Scotland, which varies by distance, and that is prohibitive for those living “far” from Scotland, even in the presence of top-up fees). If this is the case, then we may be able to obtain a “difference-in-differences” estimate of the impact of the HE finance reforms on participation at Scottish universities amongst English state school students.

Box 2.1 describes the difference-in-differences estimator in more detail. To implement a difference-in-differences estimator in a linear framework, we include three binary indicators: one for living "near" Scotland; one for starting university "after" the reforms; and the third (which is our estimate of the impact of the reforms) for living near Scotland and starting university after the reforms.

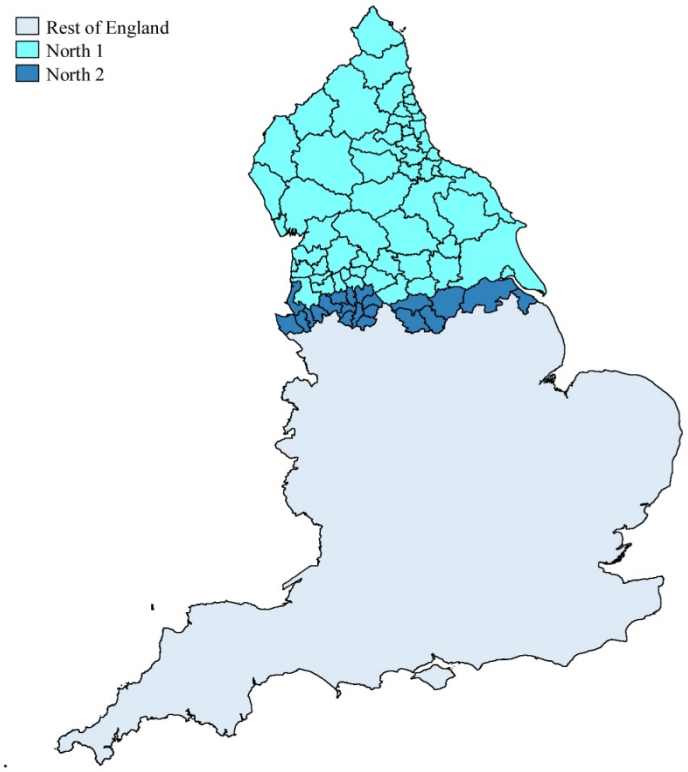
How do we define "near" and "after"? We focus on age 18/19 participation, such that cohorts 1 and 2 – those first eligible for higher education in 2004-05 and 2005-06 – are deemed to start university "before" the reforms, while cohorts 3 and 4 – those first eligible for higher education in 2006-07 and 2007-08 – are deemed to start university "after" the reforms. Figure 2.1 shows how we define students living "near" Scotland. We have experimented with two definitions – one including Greater Manchester, Sheffield and the surrounding area (North2), and one excluding these large metropolitan areas (North1). The choice makes little difference to our results (see Section 4).

Box 2.1: Difference-in-differences estimator

Before introduction of reforms		After introduction of reforms	
Pupils living "near" Scotland	Pupils living "far" from Scotland	Pupils living "near" Scotland	Pupils living "far" from Scotland
A^0	B^0	A^1	B^1

If the Letters A and B refer to the mean (average) outcome for the group in question, then the difference-in-differences estimator is given by $(A^1 – A^0) – (B^1 – B^0)$. This is the trend (in outcomes) amongst pupils living "near" Scotland less the trend in outcomes amongst pupils living "far" from Scotland. Precision can be improved by controlling for observable characteristics in the data at baseline, which we do in a linear fashion.

Figure 2.1: Who lives "near" Scotland?



It should be noted that the assumptions underlying this difference-in-differences estimator are very strong in this case. For example, we have to assume that individuals living "far" from Scotland do not respond at all to the incentive to go to university in Scotland rather than England as a result of these reforms. Moreover, the "common trends assumption" (which underlies the difference-in-differences estimator, and means that the difference in trends in participation at Scottish universities by students living near and far from Scotland can be adequately modelled) is particularly difficult to assess, as we only have two pre-reform periods to consider, so our 'trend' is really just the change in participation between 2004-05 and 2005-06. This is likely to be particularly problematic given the scope for anticipation effects arising from the early announcement of changes to HE finance.

3 Trends in HE participation

In this section, we present graphical analysis of the trends in HE participation between 2004-05 and 2007-08: Section 3.1 presents trends in overall participation; Section 3.2 considers participation amongst various subgroups of interest; and Section 3.3 presents trends in participation at high status institutions and by subject area.

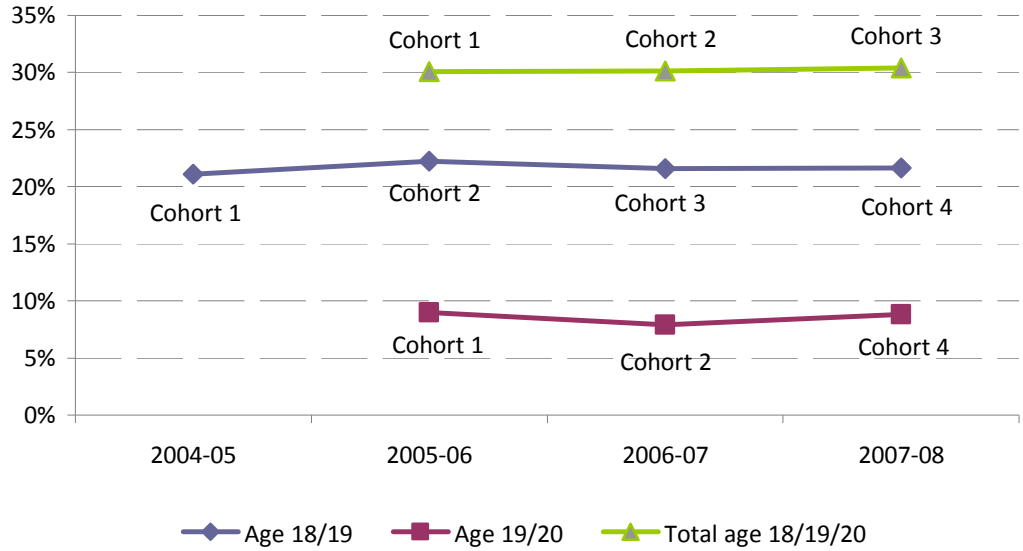
3.1 Overall participation

Figure 3.1 shows age 18/19, age 19/20 and total age 18/19/20 participation at UK higher education (HE) institutions for our cohorts of interest. 21.1% of 18/19 year olds participate in HE for the first time in 2004-05 according to our data.[10] This participation rate increases slightly in 2005-06 (to 22.2%), before falling back somewhat (to 21.6%) in 2006-07.

It is possible that this small increase in age 18/19 participation in 2005-06 is the result of fewer students in Cohort 2 taking a gap year, in order to avoid paying top-up fees (which they would have done had they started university at age 19/20 in 2006-07). This hypothesis appears to be confirmed by the corresponding dip in age 19/20 participation for cohort 2 in 2006-07.

There has, however, been virtually no change in total age 18/19/20 HE participation over this period.

Figure 3.1: Age 18/19 and 19/20 HE participation amongst English state school students



Notes: we only observe age 19/20 participation for our first three cohorts, in 2005-06, 2006-07 and 2007-08.
Source: authors' calculations based on linked school and university records for English state school students attending university in the UK.

[10] This is slightly higher than official age 18/19 participation rates in 2004-05 (including private school students), which stood at 19.8% (see http://www.dcsf.gov.uk/rsgateway/DB/SFR/s000648/SFR14-2006.pdf).

3.2 Participation amongst various subgroups of interest

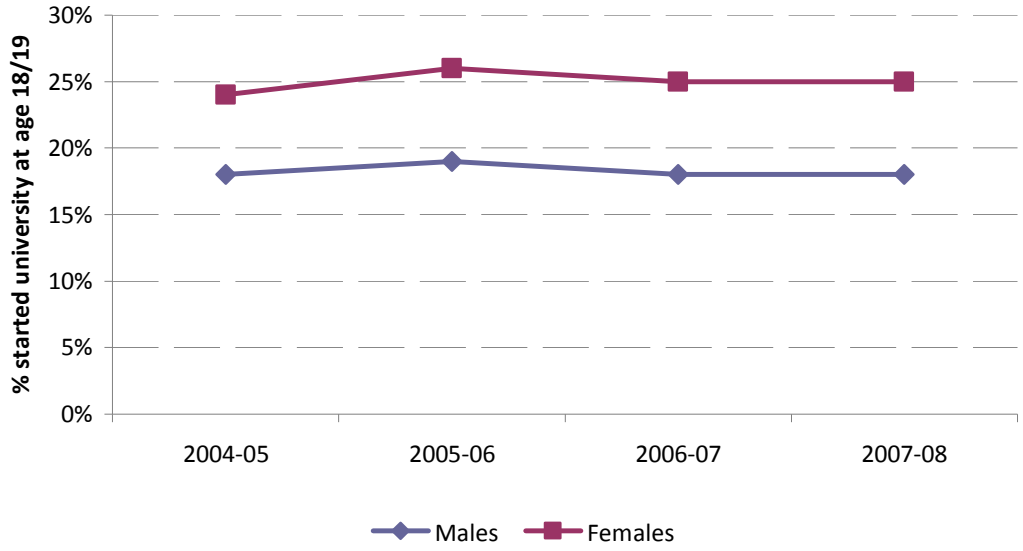
We now move on to document HE participation patterns by:

- gender (Figure 3.2);
- socio-economic status, including eligibility for free school meals (Figure 3.3) and deprivation quintile (Figure 3.4) [11];
- ethnicity (Figure 3.5);
- special educational needs status (Figure 3.6);
- Key Stage 5 scores (Figure 3.7);
- route through which pupils obtained their Level 3 qualification (Figure 3.8).

Of particular interest is whether we observe the same pattern of slightly higher participation in 2005-06 followed by slightly lower participation in 2006-07 as for the state school population as a whole.[12]

Gender

Figure 3.2: Age 18/19 HE participation amongst male and female English state school students



Source: authors' calculations based on linked school and university records for English state school students attending university in the UK.

[11] We also use two area-based measures of deprivation – quintiles of the Index of Multiple Deprivation (IMD) and quintiles of the Index of Deprivation Affecting Children (IDACI) – with similar results (see Appendix B).

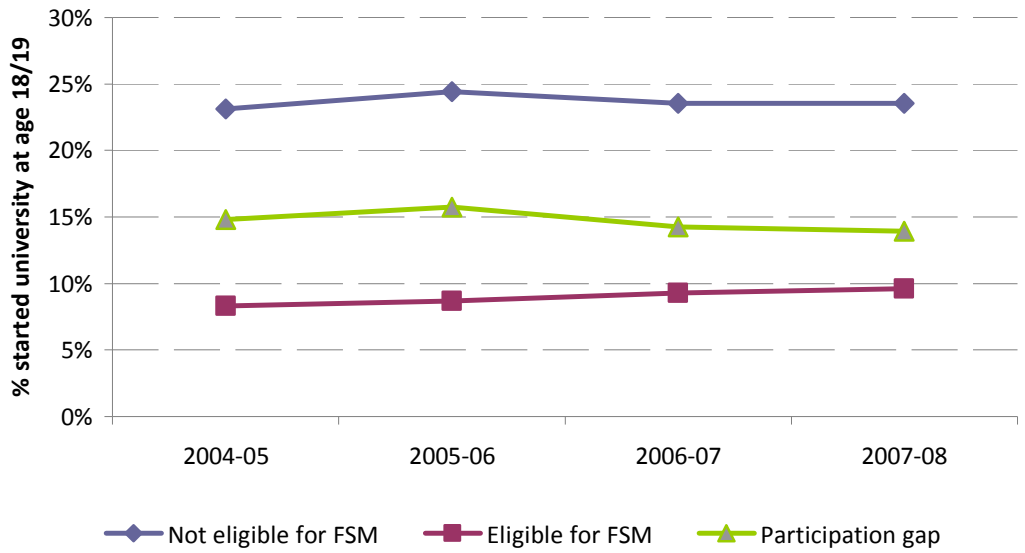
[12] These figures are informed by a comparison of the characteristics of individuals in Cohort 1 who started university after a single gap year with those of individuals who started university as soon as they could (see Appendix C). This analysis suggests that pupils from higher socio-economic backgrounds, males, ethnic minorities, pupils for whom English is an additional language, pupils without special educational needs, August-born pupils, pupils with higher Key Stage 5 scores and those who obtained their Level 3 qualification through a vocational route are all more likely to take a gap year.

Figure 3.2 confirms that girls are around 7 percentage points more likely to go to university than boys at age 18/19. For example, in 2004-05, 24.3% of girls participated in HE compared to 17.9% of boys. The pattern of participation over time is similar, however, with a small increase in participation in 2005-06 – and a small decrease in participation in 2006-07 – for both males and females.

Socio-economic status

Figures 3.3 and 3.4 highlight the very large differences in HE participation by various measures of socio-economic status (SES). Figure 3.3 shows that, in 2004-05, only 8.3% of students who were eligible for free school meals (a proxy for very low family income) at age 16 went to university at age 18/19, compared to 23.1% of students who were not eligible for free school meals, a gap of 14.8 percentage points.

Figure 3.3: Age 18/19 HE participation amongst FSM-eligible and FSM ineligible English state school students



Source: authors' calculations based on linked school and university records for English state school students attending university in the UK.

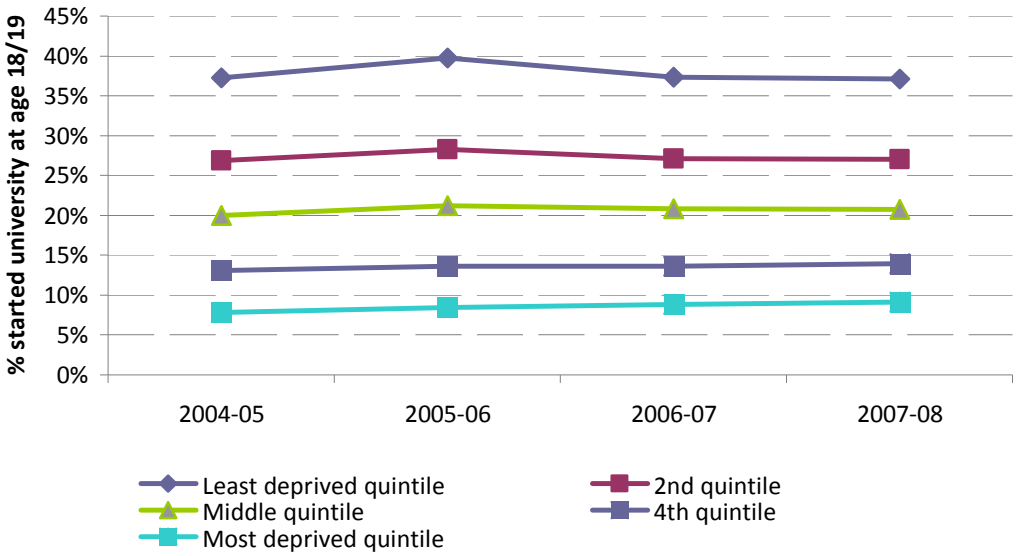
Even more starkly, Figure 3.4 shows that, in 2004-05, 7.9% of pupils in the bottom SES quintile (roughly equivalent to the group who were eligible for free school meals) went to university at age 18/19, compared to 37.3% of pupils in the top SES quintile, a gap of 29.4 percentage points.[13]

Interestingly, we only observe the spike in age 18/19 participation in 2005-06 (and dip in age 19/20 participation in 2006-07 – see Appendix D) for pupils from higher socio-economic backgrounds, particularly those in the top SES quintile; participation amongst pupils from lower socio-economic backgrounds (including FSM-eligible students) continues to rise marginally over

[13] The gaps in participation rates between pupils in the top and bottom IMD and IDACI quintiles are somewhat smaller, at 22.1 and 22.6 percentage points respectively (see Appendix B).

the period. This may be because higher socio-economic students are slightly more likely to take gap years than lower socio-economic students (see Appendix C) and are therefore more able to respond in this way.

Figure 3.4: Age 18/19 HE participation by deprivation quintile amongst English state school students



Source: authors' calculations based on linked school and university records for English state school students attending university in the UK.

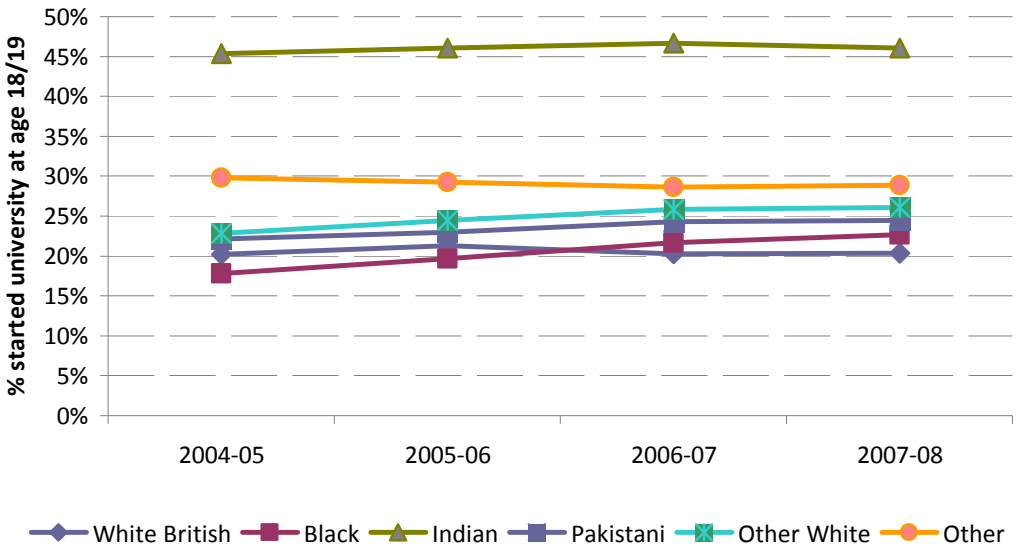
Ethnicity

Figure 3.5 presents HE participation patterns for individuals of White British, Black, Indian, Pakistani, Other White and Other ethnic origin.[14] It is clear from this figure that White British students are amongst the least likely to participate in higher education[15]: only 20.2% of White British pupils started university at age 18/19 in 2004-05, compared to 29.8% of students from Other ethnic backgrounds[16] and 45.3% of Indian students.

Moreover, many ethnic groups experienced a sustained rise in the proportion of students going to university over this period, with students of Black ethnic origin overtaking White British students in 2006-07. In terms of a response to the HE finance reforms, it is only for White British students that we observe a small increase in participation in 2005-06 followed by a small decrease in 2006-07.

[14] Note that sample sizes are too small to draw robust conclusions from the examination of trends in HE participation amongst more detailed ethnic groups.
[15] Only pupils of Black ethnic origin are less likely to go to university than White British pupils in 2004-05.
[16] Comprising pupils of Mixed, Bangladeshi, Chinese and Other Asian ethnic origin.

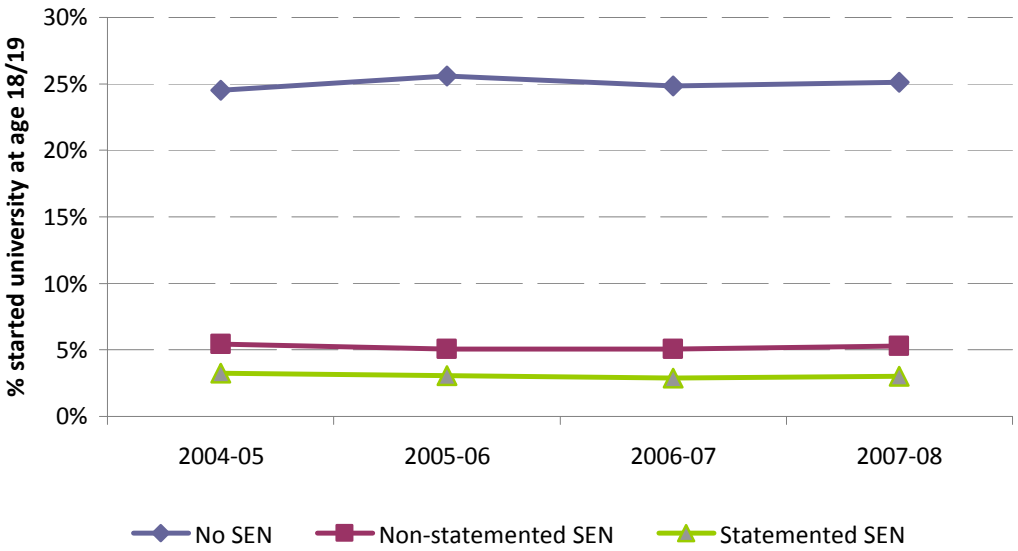
Figure 3.5: Age 18/19 HE participation by ethnicity amongst English state school students



Source: authors' calculations based on linked school and university records for English state school students attending university in the UK.

Special educational needs

Figure 3.6: Age 18/19 HE participation by special educational needs status amongst English state school students



Source: authors' calculations based on linked school and university records for English state school students attending university in the UK.

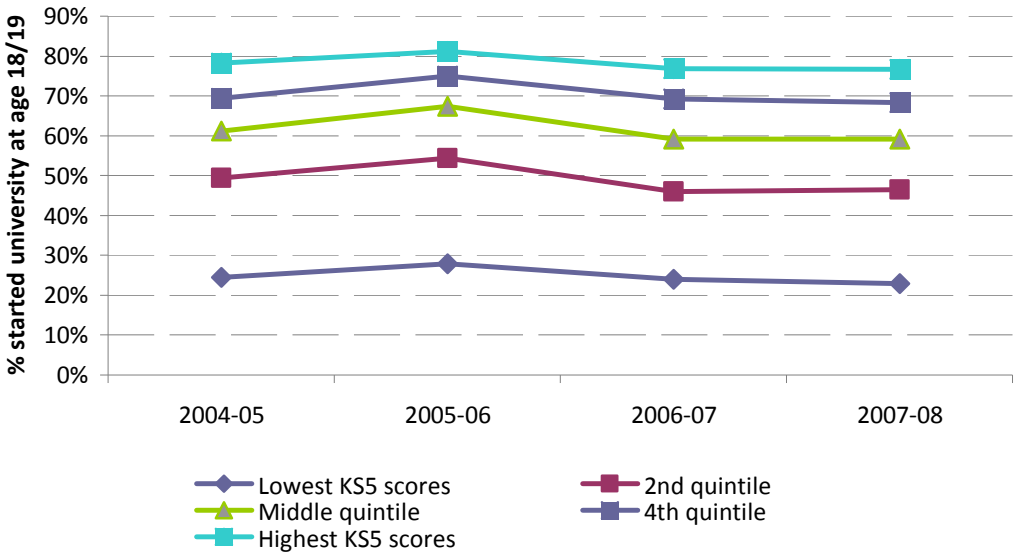
Figure 3.6 shows the very large differences in HE participation rates between pupils with special educational needs (SEN) at age 16 – either statemented (more severe) or non-statemented (less severe) – and pupils without SEN at age 16. For example, in 2004-05, only 5.5% of pupils with non-statemented SEN and 3.2% of pupils with statemented SEN started university at age 18/19, compared with 24.5% of pupils without special educational needs. However, there

appears to be almost no change in participation rates across years, with evidence of a small peak in 2005-06 only for pupils without special educational needs.

Key Stage 5 test scores

Figure 3.7 highlights differences in HE participation rates by quintiles of the Key Stage 5 test score distribution. As might be expected, pupils who score amongst the top 20% at Key Stage 5 are the most likely to go to university (78.3% in 2004-05 start at age 18/19) and pupils who score amongst the bottom 20% at Key Stage 5 are the least likely to go to university (24.5% in 2004-05 start at age 18/19). (Of course, pupils who sit Key Stage 5 tests are, in general, more likely to go to university than pupils who do not, hence the higher-than-average participation rates even for those who do not perform particularly well at Key Stage 5.)

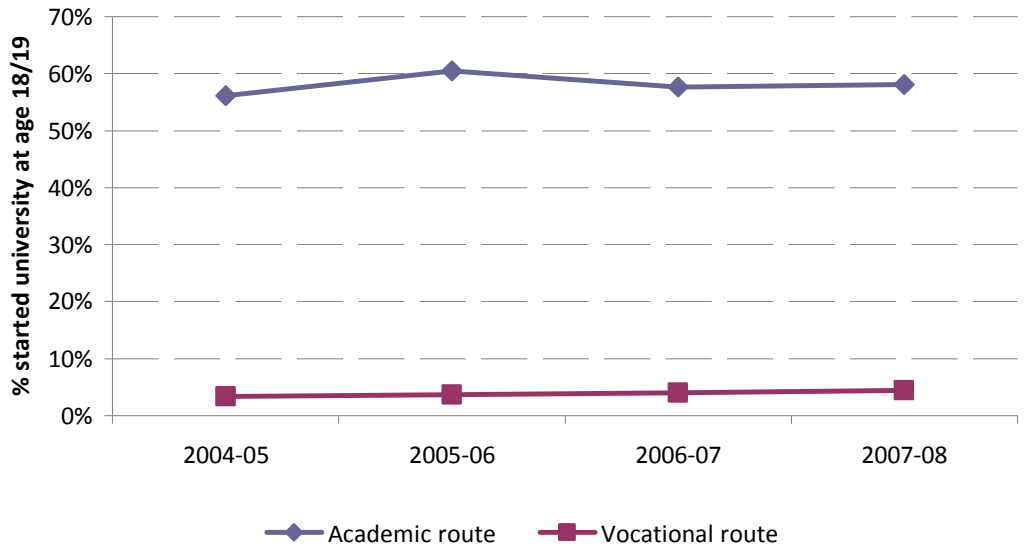
Figure 3.7: Age 18/19 HE participation by quintile of Key Stage 5 results amongst English state school students



Source: authors' calculations based on linked school and university records for English state school students attending university in the UK.

Related to this point, it is interesting to observe an increase in participation in 2005-06 followed by a decrease in participation in 2006-07, on average, for all pupils who sit Key Stage 5 tests, with the largest swings observed for individuals in the middle of the Key Stage 5 test score distribution. This suggests that higher ability individuals are the most likely to respond to the introduction of the HE finance reforms by switching participation from age 19/20 to age 18/19. (This is true regardless of the socio-economic background of these individuals – see Appendix E for details).

Figure 3.8: Age 18/19 HE participation by Level 3 qualification route amongst English state school students



Source: authors' calculations based on linked school and university records for English state school students attending university in the UK.

This notion that higher ability individuals are more likely to respond to the reforms by shifting participation forward a year is confirmed by Figure 3.8, which shows that only individuals who obtained their Level 3 qualification through an academic route (including Key Stage 5) appear to do so; the very small proportion (less than 4% in 2004-05) of HE participants who obtained their Level 3 qualification via a vocational route do not appear to shift participation from age 19/20 to age 18/19.

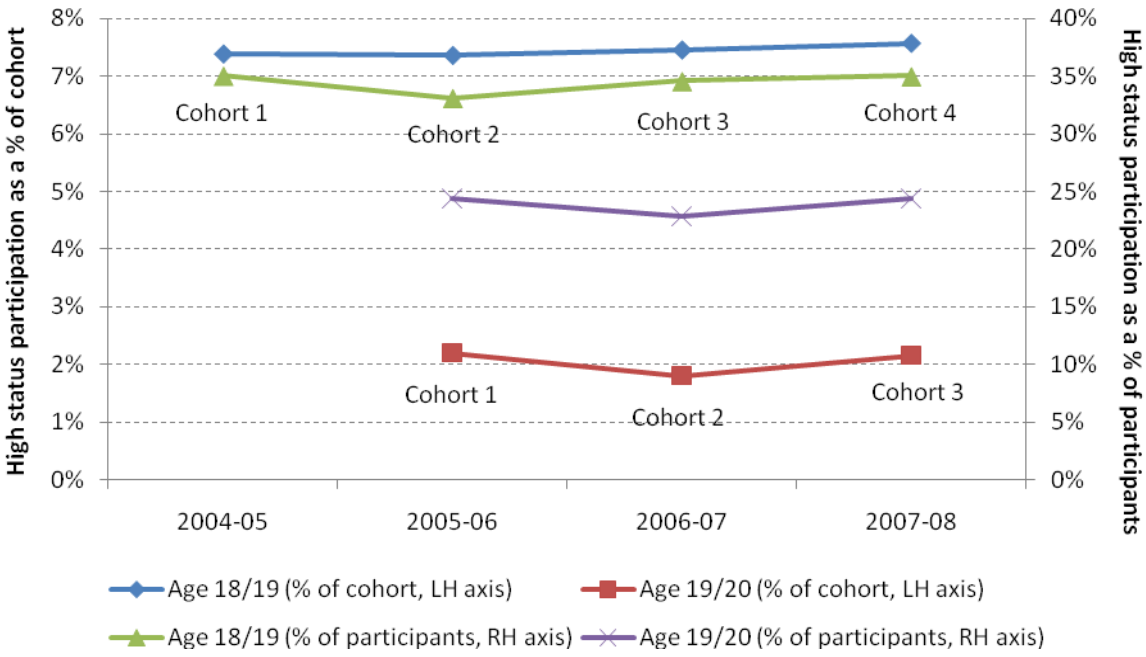
3.3 Participation at high status institutions and by subject

The introduction of reforms which increase the lifetime net present value of the costs of going to university for many students might be expected to affect dimensions of participation other than simply the choice of whether to go or not (the extensive margin). For example, we might expect students to choose universities or courses likely to generate higher returns to their investment (the intensive margin). In this section, we consider patterns of participation at "high status" institutions over the same period of interest.

Figure 3.9 presents age 18/19 and age 19/20 participation at "high status" HE institutions in the UK for our cohorts of interest, both as a proportion of the total cohort (left-hand axis) and as a proportion of HE participants (right-hand axis).[17] It shows that 7.4% of 18/19 year olds join high status universities for the first time in 2004-05, and that this proportion changes relatively little over our period of interest (it is 7.6% in 2007-08); there is, however, a small dip in age 19/20 participation at high status institutions in 2006-07 (it falls from 2.2% in 2005-06 to 1.8% in 2006-07).

[17] Section 3 discusses our definition of "high status" institutions.

Figure 3.9: Age 18/19 and 19/20 participation at "high status" universities by English state school students (proportion of cohort and proportion of participants)



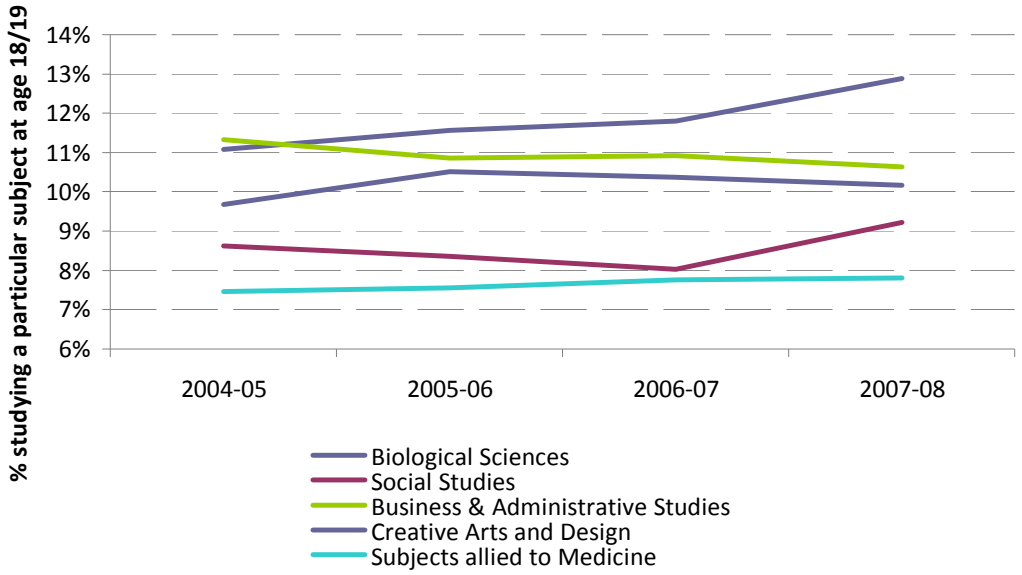
Notes: we only observe age 19/20 participation for our first three cohorts, in 2005-06, 2006-07 and 2007-08.
Source: authors' calculations based on linked school and university records for English state school students attending university in the UK.

There is, however, a small *dip* in the proportion of *participants* attending high status institutions at age 18/19 in 2005-06 (as well as a small dip in 2006-07). This suggests that some individuals who would have attended high status institutions in 2006-07 decided to shift their participation forwards, but were unable to secure places at high status institutions (presumably due to capacity constraints). This suggests that the introduction of the HE finance reforms may have lead some individuals in cohort 2 to attend lower status institutions than they would have done in the absence of the reforms.[18]

Figures 3.10, 3.11, 3.12 and 3.13 present trends in age 18/19 participation by subject between 2004-05 and 2007-08, in decreasing order of popularity. There does not appear to have been a switch to high return subjects immediately after the HE finance reforms were introduced in 2006-07, except perhaps for Social Studies (including Economics), shown in Figure 3.10, in which participation rose from 8.0% in 2006-07 to 9.2% in 2007-08. There was also an increase in the proportion of students opting to study Biological Sciences, and a noticeable decrease in the proportion of students studying Historical and Philosophical Studies, over the same period.

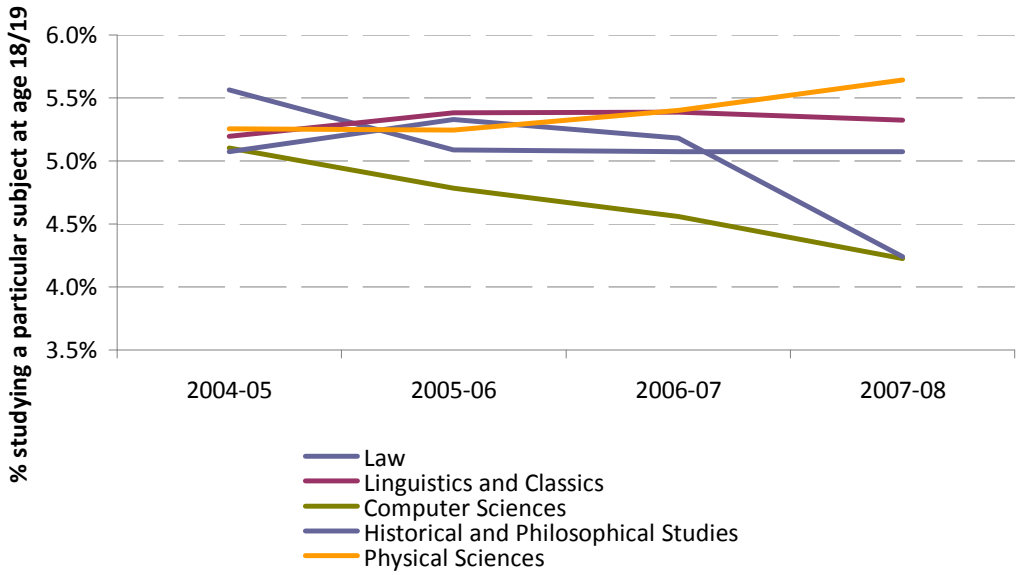
[18] The story is similar if we consider participation at Russell Group institutions instead (see Appendix F).

Figure 3.10: Age 18/19 participation by subject amongst English state school students



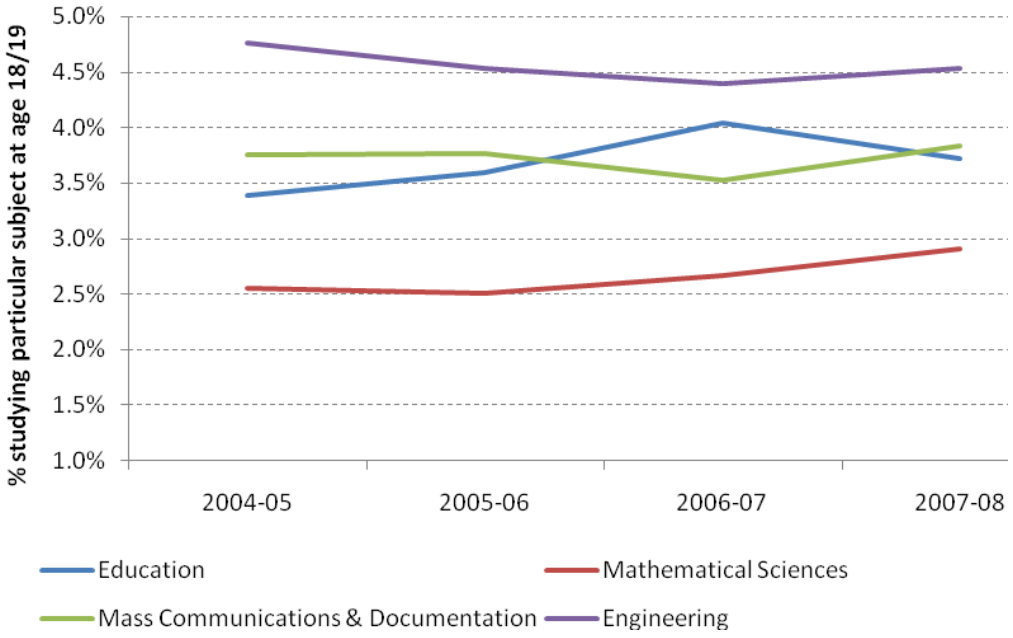
Source: authors' calculations based on linked school and university records for English state school students attending university in the UK.

Figure 3.11: Age 18/19 participation by subject amongst English state school students



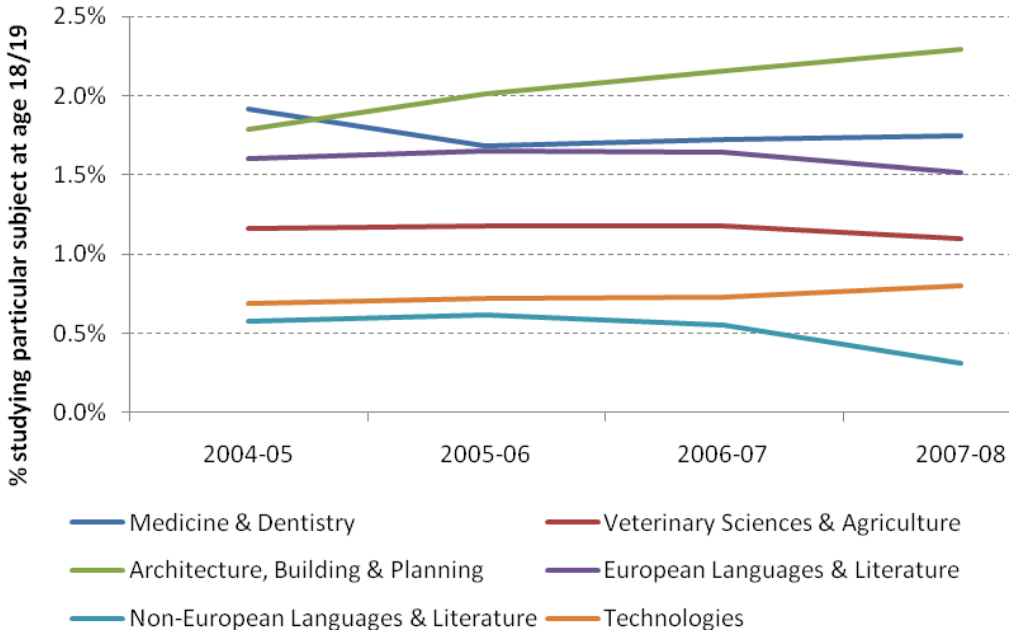
Source: authors' calculations based on linked school and university records for English state school students attending university in the UK.

Figure 3.12: Age 18/19 participation by subject amongst English state school students



Source: authors' calculations based on linked school and university records for English state school students attending university in the UK.

Figure 3.13: Age 18/19 participation by subject amongst English state school students



Source: authors' calculations based on linked school and university records for English state school students attending university in the UK.

3.4 Summary

In summary, this section has shown that:

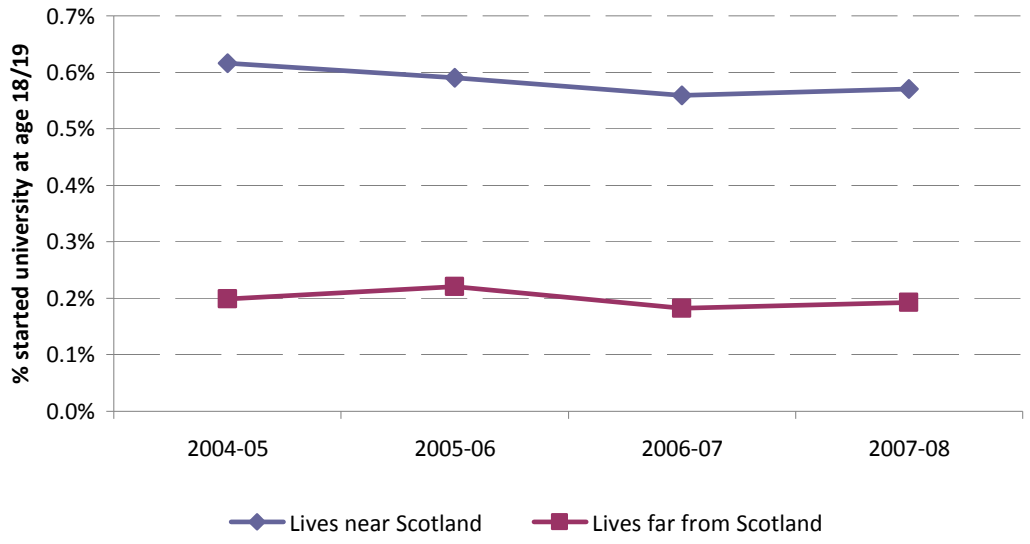
- Some individuals in cohort 2 appear to have started university a year earlier than they might otherwise have done so (i.e. in 2005-06 rather than 2006-07) to avoid having to pay top-up fees.
- This pattern of shifting participation is most clearly evident for individuals from higher socio-economic backgrounds, and for those with the highest Key Stage 5 results.
- Some individuals in cohort 2 who shifted participation forwards to avoid paying top-up fees may have forgone the opportunity of going to a high status university.

4 Impact of 2006-07 HE finance reforms on HE participation

In this section, we move on to consider whether, despite our concerns about the validity of our identification strategy (see Section 2.2), we are able to say anything about the impact of the 2006-07 HE finance reforms on participation at Scottish universities by English students.

We start by presenting trends in participation in Scottish universities by English state school students from 2004-05 to 2007-08 (in Figure 4.1). From this figure, it is clear that very few English students go to university in Scotland: fewer than 0.7% of those who live "near" Scotland and fewer than 0.3% of those who live "far" from Scotland go to university in Scotland each year.

Figure 4.1: Age 18/19 participation at Scottish universities by English state school students



Moreover, it is clear that the 'trend' in participation between 2004-05 and 2005-06 is very different for students living "near" Scotland (for whom participation fell) compared to students living "far" from Scotland (for whom participation rose). This effectively undermines our hopes of using a difference-in-differences estimator to identify the impact of the reforms on participation in Scottish universities; nevertheless, we present our results here for completeness.

Table 4.1 overleaf confirms the main findings of Figure 4.1: that participation in Scottish universities by English state school students is lower in 2006-07 than in 2005-06 (the coefficient on "after" is negative) and that students who live near Scotland are substantially more likely to go to university in Scotland than students who live far from Scotland (the coefficient on "near" is positive). Table 4.1 does suggest, however, that the drop in participation we see in Figure 4.1 between 2005-06 and 2006-07 amongst students living near Scotland is marginally lower than

the drop in participation amongst students living far from Scotland (who are supposed to be proxying participation amongst students living near Scotland in the absence of the reforms), suggesting that the 2006-07 HE finance reforms insignificantly increased (or left unchanged) participation at Scottish universities amongst state school students from England.

Table 4.1: Impact of 2006-07 HE finance reforms on age 18/19 participation at Scottish universities by English state school students

	North1		North2	
	1 year before/after	2 years before/after	1 year before/after	2 years before/after
Start university after the reforms	-0.021** [0.004]	-0.013** [0.003]	-0.019** [0.004]	-0.014** [0.003]
Live near Scotland	0.140** [0.012]	0.149** [0.009]	0.101** [0.008]	0.099** [0.006]
Start university after the reforms and live near Scotland (treatment effect)	**0.010 [0.007]**	**0.00007 [0.005]**	**0.003 [0.006]**	**0.002 [0.004]**

Notes: all coefficient estimates and standard errors have been multiplied by 100. **indicates significance at the 1% level; * indicates significance at the 5% level. Model also includes controls for gender, ethnicity, month of birth, deprivation status, special educational needs status and whether English is an additional language (all measured at age 16), plus test scores at ages 11, 14, 16 and 18, indicators for reaching the government's expected level at ages 16 and 18, and details of A-level passes in key subjects. Full results are available from the authors on request.

We would attach very little weight to this finding, however, because students living far from Scotland were not on the same participation trend prior to the reforms as students living near Scotland, so there is no particular reason to think that they were over the period of interest either. This suggests that our estimates are invalid and should therefore not be relied upon.

5 Summary and Conclusions

This report has examined the effects of the package of reforms introduced by the Higher Education Act in 2006-07 on HE participation, using administrative data on all state school students in England, linked to HE records from all UK universities.

We started by documenting trends in HE participation between 2004-05 and 2007-08, considering not only overall participation rates, but also participation at "high status" institutions and participation amongst particular subgroups of interest. We found that:

- Some individuals appear to have started university a year earlier than they might otherwise have done so (i.e. in 2005-06 rather than 2006-07) to avoid having to pay top-up fees.
- This pattern of shifting participation is most clearly evident for individuals from higher socio-economic backgrounds, and for those with the highest Key Stage 5 results.
- Some individuals who shifted participation forwards to avoid paying top-up fees may have forgone the opportunity of going to a high status university.
- Overall, there is no evidence that the 2006-07 HE finance reforms lead to a sustained fall in HE participation after their introduction.

This does not necessarily mean that the HE finance reforms had no impact on HE participation, however, because we do not know what would have happened to participation in the absence of the reforms. For example, if participation rates would have increased significantly if no changes had been made to the HE finance package, but we observe no change in reality, then we would conclude that the reforms had caused a reduction in participation rates.

The second part of our analysis tried to address this question, by estimating the impact of the 2006-07 HE finance reforms on participation at Scottish universities by English students: the idea is that debt averse students might prefer to go to university in Scotland after 2006-07, where they would pay lower tuition fees and thus incur lower debt than if they had attended university in England.

We tried to implement this approach using a difference-in-differences estimator, comparing the trend in participation at Scottish universities amongst English students living "near" Scotland with the trend in participation at Scottish universities amongst English students living "far" from Scotland before and after the reforms. Unfortunately, however, our estimator violated one of its fundamental underlying assumptions (the "common trends" assumption), rendering our estimates invalid. We are therefore unable to satisfactorily identify the effect of the 2006-07 HE finance reforms on participation at Scottish universities by English students.

Appendix A

Table A1: "High status" universities

Russell Group Universities	2001 RAE > RAE for lowest Russell Group University
University of Birmingham	University of Arts, London
University of Bristol	Aston University
University of Cambridge	University of Bath
Cardiff University	Birkbeck College
University of Edinburgh	Courtauld Institute of Art
University of Glasgow	University of Durham
Imperial College London	University of East Anglia
King's College London	University of Essex
University of Leeds	University of Exeter
University of Liverpool	Homerton College
London School of Economics & Political Science	University of Lancaster
University of Manchester	University of London (institutes and activities)
Newcastle University	Queen Mary and Westfield College
University of Nottingham	University of Reading
University of Oxford	Royal Holloway and Bedford New College
Queen's University Belfast	Royal Veterinary College
University of Sheffield	School of Oriental and African Studies
University of Southampton	School of Pharmacy
University College London	University of Surrey
University of Warwick	University of Sussex
	University of York

Appendix B

Figure B1: Age 18/19 HE participation amongst English state school students in the top (Q1) and bottom (Q5) quintiles of the Index of Multiple Deprivation

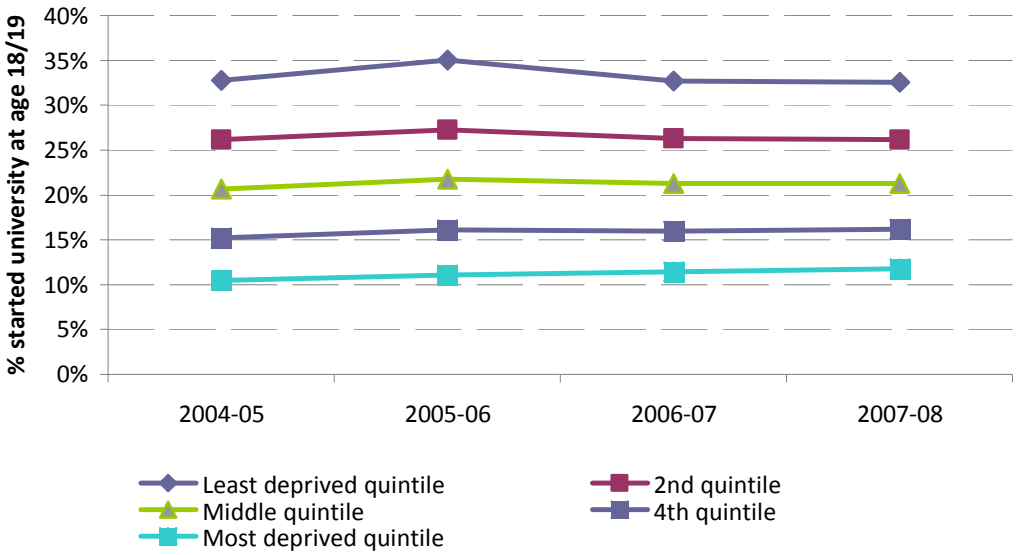
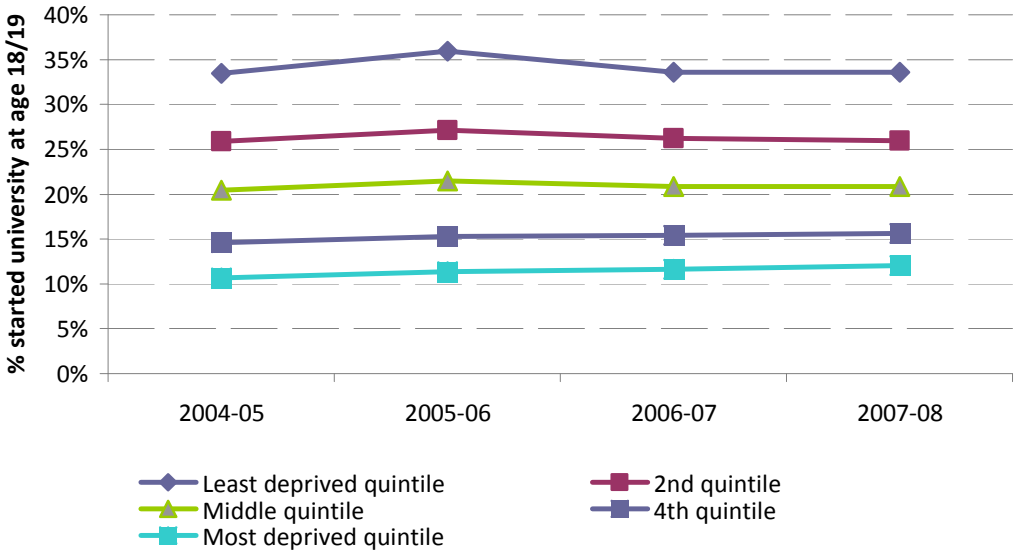


Figure B2: Age 18/19 HE participation amongst English state school students in the top (Q1) and bottom (Q5) quintiles of the Index of Deprivation Affecting Children



Appendix C

Table C1: Who takes a gap year?	
	HE participation at age 19/20 rather than age 18/19
2nd socio-economic quintile	-0.005**
Middle socio-economic quintile	-0.008**
4th socio-economic quintile	-0.011**
Bottom socio-economic quintile	-0.016**
Male	0.005**
Other White	0.008**
Black African	0.022**
Black Caribbean	0.012**
Other Black	0.022**
Indian	0.022**
Pakistani	0.016**
Bangladeshi	0.016**
Chinese	0.026**
Other Asian	0.016**
Mixed	0.017**
Other ethnicity	0.015**
English as an additional language	0.010**
Statemented special educational needs	-0.012*
Non-statemented special educational needs	-0.005*
Born in October	-0.001
Born in November	0.000
Born in December	0.001
Born in January	0.000
Born in February	0.001
Born in March	0.000
Born in April	0.005*
Born in May	0.000
Born in June	0.001
Born in July	0.003
Born in August	0.005*
2nd quintile of Key Stage 5 scores	0.010**
Middle quintile of Key Stage 5 scores	0.020**
4th quintile of Key Stage 5 scores	0.032**
Top quintile of Key Stage 5 scores	0.039**
Level 3 qualification obtained through academic route	0.014**
Level 3 qualification obtained through vocational route	0.002
Observations	154,730

Notes: analysis focuses on students in Cohort 1: those who sat their GCSEs in English state schools in 2001-02 who started university in 2004-05 (at age 18/19) or 2005-06 (at age 19/20, after a single gap year).
** indicates significance at the 1% level; * indicates significance at the 5% level.

Appendix D

Figure D1: Age 19/20 HE participation amongst FSM-eligible and FSM ineligible English state school students

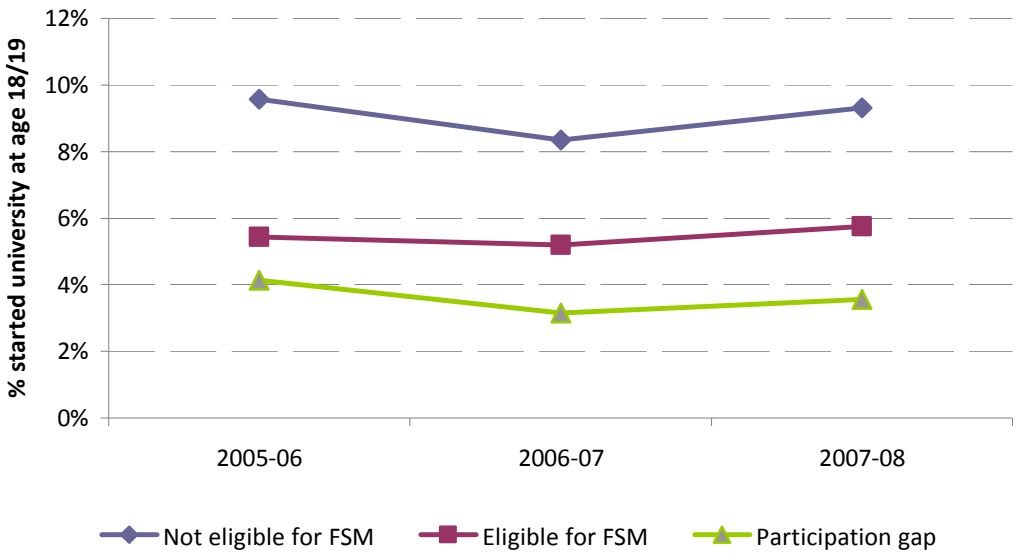
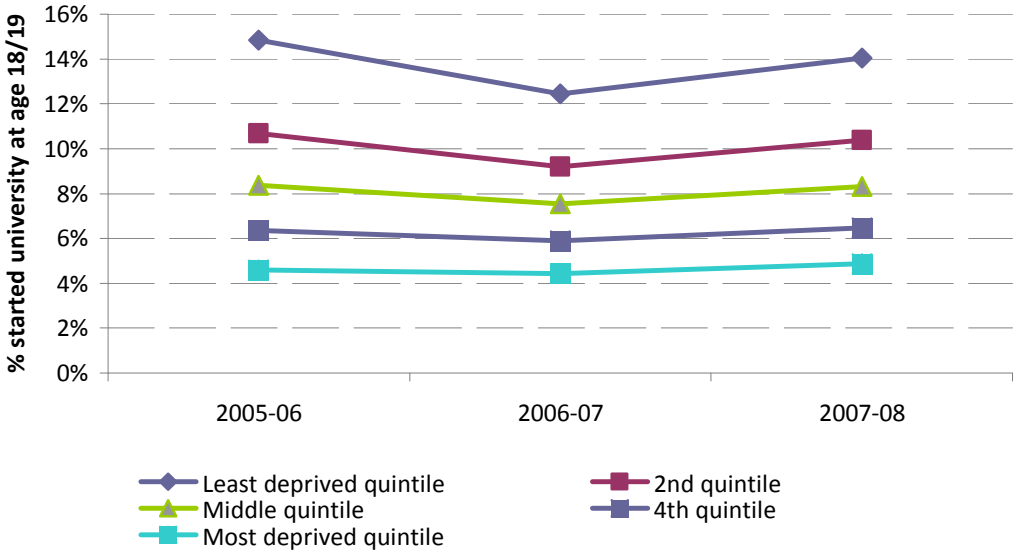


Figure D2: Age 19/20 HE participation by deprivation quintile amongst English state school students



Appendix E

Figure E1: Age 18/19 HE participation by quintile of Key Stage 5 results amongst English state school students in the top 40% of the SES distribution

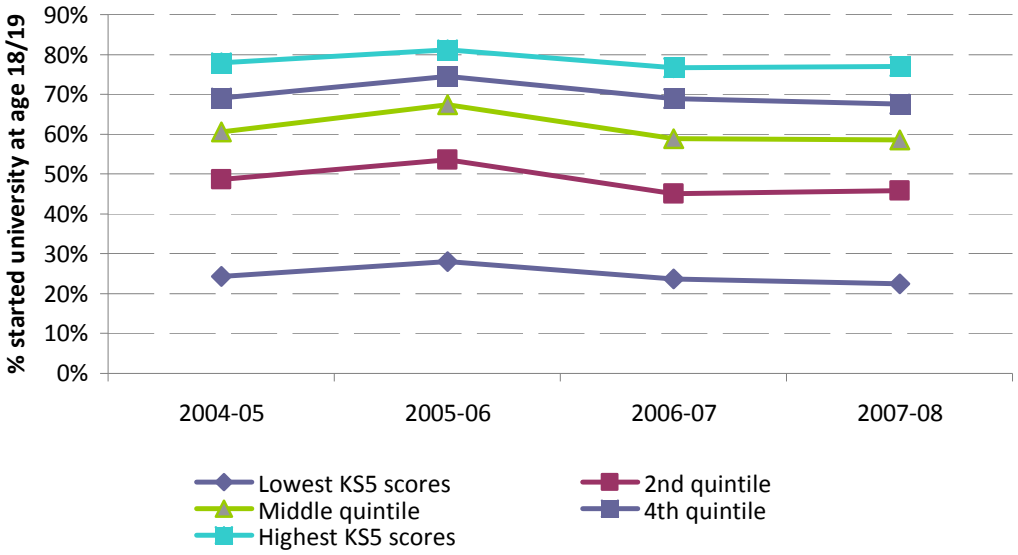
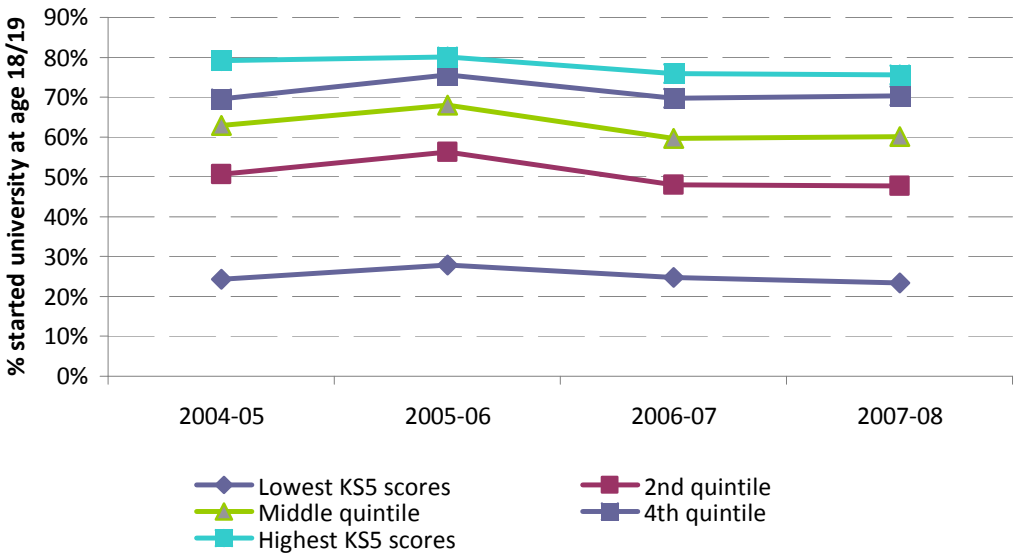
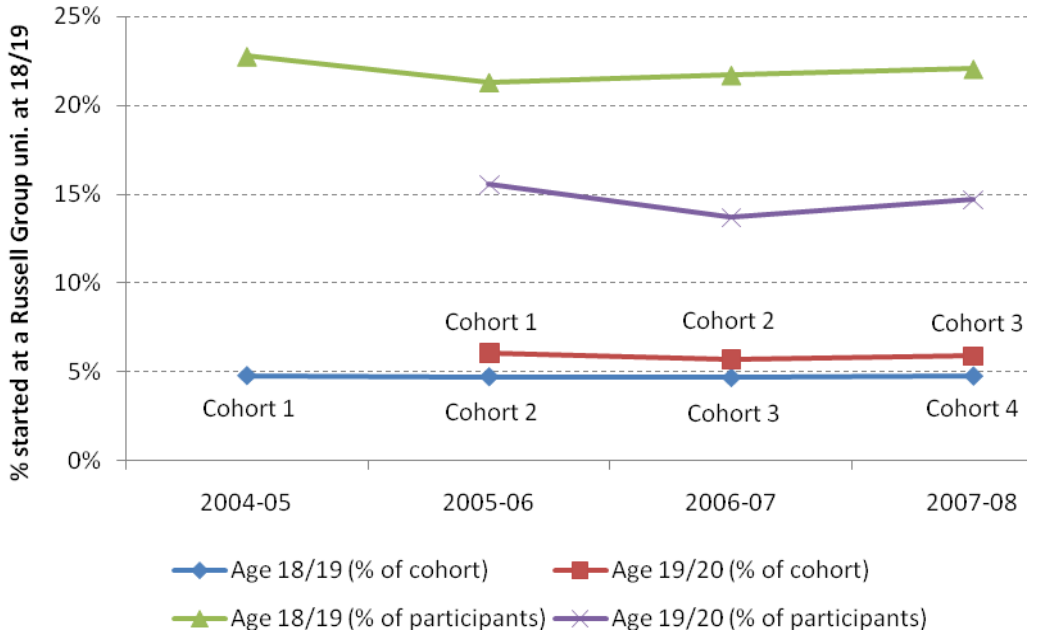


Figure E2: Age 18/19 HE participation by quintile of Key Stage 5 results amongst English state school students in the bottom 40% of the SES distribution



Appendix F

Figure F1: Age 18/19 and 19/20 participation at Russell Group universities by English state school students



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