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Are there changes in
Characteristics of UK Higher
Education around the time of the
2006 Reforms

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**Analysis of Higher Education Statistics Agency
(HESA) data, 2002/3 to 2007/8**

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Executive Summary

From 2006 Universities in England have been allowed to charge fees of up to £3,000 (up from £1,200), to be paid following graduation, via income-contingent loans.

Also, from 2004 means-tested grants to low-income students were re-introduced (and from 2006 Universities have been encouraged to use some fee income for bursaries)

The overall combined impact of the 2004-2006 changes to fees, loans and grants has been to make study at HE more costly for students whose parents have high incomes (of £46,000 p.a. or more) and less costly for students from poorer backgrounds.

As a result of devolution there has been some divergence between English HE Policy and that followed in Scotland (1999) and Wales (2004).

It is important to note that analysis of HESA data does not allow us to identify the precise impact of any one single component of the 2004-2006 reform package (i.e. the specific impact of fees, as opposed to loans and/or grants). In addition, we only observe students in Higher Education, rather than the underlying population of applicants. As a result we cannot identify whether any findings are driven by demand (for courses by students) or supply (of courses by institutions) effects.

However, HESA data is the only source of information on HE students (i) across England, Scotland, Wales and Northern Ireland, who are registered on (ii) undergraduate, postgraduate, part-time or full-time courses.

In analysing trends in student characteristics over the period between 2002 and 2007 we identify areas where the 2006 reforms may have had an effect. It should be noted that the tables and charts presented in the report are descriptive. When, for instance, comparing the trends in a certain characteristic of students in Higher Education across England and Scotland we do not control for additional characteristics.

However, we do provide limited comment on an additional set of multivariate analyses that have been attempted to further test for any impacts of the 2006 reforms. This is 'limited' in that we do not provide extensive detail on the outcomes. There are serious questions over the extent to which difference-in-difference analysis can be considered as reliable, given limitations of the data and the changing nature of the HE policy environment around 2006.

The results of the descriptive analysis (not controlling for other factors) suggest that:

Considering full-time undergraduate students in UK Higher Education Institutions (HEIs) in their first year of study, who are directly impacted by the reform package:

- There is an apparent 2005¹ 'spike' and 2006 'dip' in student numbers across English HEIs; with a return to a general upward trend in numbers for 2007. This is consistent with an anticipation effect, given the long lead time between announcement of the reform in 2004 and implementation in 2006.
- When considering only English-domiciled students in English HEIs, this pattern is the same. However, when considering the numbers of English domiciled students studying at Welsh or Scottish Institutions there does not seem to be such a pronounced 'recovery' in numbers in 2007. This may be due to the fact that, on average, Scottish and Welsh HEIs will be further away than comparable English HEIs (other things remaining equal) and the increased overall cost of HE for those from higher income groups following the reforms may have pushed them towards choices closer to home.
- Welsh domiciled students would seem to be responding to the differing funding regimes they face when studying outside of Wales; there is a trend decrease in Welsh students at English Institutions in 2006 and 2007, which is mirrored by an increase in the numbers studying at institutions in Wales. This pattern is consistent with the idea that students are 'price sensitive', but it must be remembered that this is a situation where 'alternatives' are available (i.e. Welsh students seem to be taking up study in their home country as it is viewed as a substitute for study in English HEIs).
- We are only able to consider reliable estimates of socio-economic background using local area statistics, which allow us to associate each individual with an Indicator of Multiple Deprivation (IMD). Analysis of English domiciled students (for which IMD scores are available) suggests that those from less affluent areas have exhibited the least response to the reform package; there is a continued steady upward trend in the proportion of students from less affluent areas over the period of the reform. In contrast, as we consider students from more affluent areas, the 2005 spike; 2006 dip and then 2007 recovery becomes more pronounced. This is consistent with the incentives one would expect from the 2004-2006 reform package and the greater incentive for students from more affluent backgrounds to bring forward enrolment to 2005, if at all possible (perhaps cancelling a planned 'gap' year).
- As with IMD scores, ethnicity is correlated with socio-economic background and therefore income. This may explain the evidence that any anticipation of the 2006 reforms is only apparent for White students, whereas all other ethnic minority groups (apart from the 'other and unknown' category) exhibit more steady increases in numbers over the period
- Because this is not a multivariate analysis, we are more than likely observing the same phenomena in each one of these cases. Students from less affluent backgrounds reacting less to the reforms. Other than this income effect, there is no other evidence of sub-groups of the student population having reacted differently to the reform package.
- Thus, whilst there would seem to be some anticipation effect, with more affluent students bringing forward their enrolment in HE, over the 2005-2007 period the overall trend is to continue the trend increase in numbers studying at undergraduate level in English HEIs.

¹ When talking of '2005' we are referring to the 2005/2006 academic year – that is the student population registered for the September 2005 to August 2006 academic year.

Potential for spill-over effects

As well as possible direct effects of a raise in the fees cap in 2006, we are also able to utilise HESA data to consider whether institutions and/or student characteristics have changed in other parts of the higher education environment (part-time [PT] undergraduate and PT/full-time [FT] postgraduate).

Considering PT undergraduate students in UK Higher Education Institutions (HEIs) who are in their first year of study, there would seem to be some possible evidence of a 'dip' in numbers in 2005 in English HEIs, but this is not particularly pronounced.

Also this analysis must necessarily exclude Open University students due to reporting irregularities in recent years and this removes a large proportion of the part-time student population from consideration.

In England there would seem to be a pronounced dip in postgraduate numbers in 2007. If it was in any way related to the reforms then it must be driven by changing institutional behaviours (as students from the 2006 undergraduate intake would not appear in 2007 postgraduate figures). However, one can also see a similar dip in Scotland in 2007 and this suggests alternative drivers of change; much of the difference in the English figures is driven by changes in overseas student numbers.

Concluding remarks

Implicit in our discussion of spill-over effects is the assumption that, as the market for FT undergraduate study becomes more rewarding for institutions financially, we may expect them to increase supply in this area. During the period under study institutions became more able to do this, because of a number of changes made by the Higher Education Funding Council for England (HEFCE).

The Maximum aggregate Student Number (MaSN), which previously applied to FT UG Home and EU students, was removed in 2002; from 2001-2002 many institutions secured agreements with HEFCE for funded growth and have also had relative flexibility (of plus or minus 5 per cent) in meeting their agreed targets.

From 2008 this environment has changed and HEFCE has been tasked with reining in growth in student numbers, in the face of limited public funds. As recent reviews suggest, in an environment where evidence on the impact of Widening Participation (WP) programmes is limited, the one thing we can be clear of is that expansion of the sector tends to go hand-in-hand with widening participation. Seen in this context, a system where the state pays for the majority of a student's HE represents a break on the increased participation of under-represented groups.

Thus, we may expect an increase in fees, on its own, to reduce participation. However, a funding package that mitigates against this, whilst still placing a greater burden of the cost on the individual (for instance through the use of loans), allows for expansion of the sector (overcoming the constraints of public funding) and is likely to facilitate a further widening of participation.

In addition, we should not underestimate the value of fees as an inducement for institutions to either enter the market or expand their own offerings in the area of FT undergraduate (UG) provision. Such activities are likely to benefit students from lower socio-economic backgrounds as an increasing variety of institutions compete to attract students who would not necessarily consider a university education.

Unfortunately, whilst this is an important issue that needs to be considered during the process of HE policy development, there is at present a lack of clear evidence.

1 Introduction and background to the policy environment

In January 2003 the government set out its ideas for change in the White Paper, *The Future of Higher Education*². As with the Dearing report of 1997, the recommendations of the 2003 White Paper were wide ranging, but arguably the most important (and certainly the most controversial) was the proposal to increase the cap on tuition fees for home undergraduate students from £1,100 to £3,000. In contrast to the environment surrounding the initial introduction of fees in 1998, there was extensive public debate both within government and between the parliamentary parties. By this point devolution had resulted in the proposals in the White Paper only being directly applicable to English HEIs.

The White Paper also proposed the expansion of student numbers towards 50 per cent participation of the relevant age cohort; it heralded the introduction of two-year foundation degrees and began the further expansion of institutions granted degree awarding powers. In his accompanying statement to the House of Commons, the architect of the 2003 White Paper, Charles Clarke, insisted that HEIs recognise that the UK already had a, 'multi-tiered University System', with some institutions stronger in research, others in teaching and others in knowledge transfer.

In 2004 the legislation was adopted (following a very close vote in parliament the Bill was passed on 31st March 2004) with up-front fees of up to £3,000 to be paid following graduation via the income contingent loans system for students entering Higher Education from 2006 onwards. Also, as part of the package, grants to low-income students were steadily re-introduced from 2004. The overall combined impact of the 2004-2006 changes to fees, loans and grants was to make study at HE more costly for students whose parents had higher incomes and less costly for students from poorer backgrounds. As detailed in Dearden et. al. (2008)³ students whose parental income was less than £46,000 could expect to be better off in 2008-2009, when compared to 2003-2004; whereas during this period their peers from more affluent backgrounds were made worse off by the reforms.

Even from such a brief description of the reforms to the student support system between 2004 and 2006, it is apparent that clear and precise identification of the impact of any one single component of the reform package (i.e. the specific impact of fees, as opposed to loans and/or grants) is likely to be problematic. This is an issue to which we return at the end of the report.

² On the 22nd January 2003 the Secretary of State for Education and Skills announced publication of the White Paper.

³ Dearden, L., Fitzsimons, E., Goodman, A, and Kaplan, G. (2008), "Higher education funding reforms in England: the distributional effects and the shifting balance of costs", *Economic Journal*, Vol. 118, No. 526; pp F110-F125.

However, for the moment it is important to note that this study,

- Does not attempt to decompose any potential impacts of the 2006 reforms into their constituent parts. This is an exploration of trends in the characteristics of students in HE between 2002 and 2007. The aim is to identify possible areas where the (entirety) of the reform package may possibly have had an impact.
- That any changes in the characteristics of students that we identify around the time of the 2006 change to the fees regime could be due to either Supply or Demand effects. That is, if we observe, for instance, a change in the proportion of students who undertake study of a particular subject, it is possible that this could be either (i) a result of HE institutions altering their portfolio of subjects (supply change) or (ii) students changing their patterns of application (demand) for subjects.

We utilise Higher Education Statistics Agency (HESA) data [2002-2007] and unless otherwise stated, the Tables select students from the standard registration population. This excludes dormant students, exchange students and those who leave their course within two weeks of commencement. Given the limitations placed on our interpretation of this data, what areas do we investigate and what are the motivations/justifications for analysis?

1. In the first section of the report we concentrate on all full-time, first degree (undergraduate) students in UK Higher Education Institutions (HEIs) who are in their first year of study. In this respect HESA data provide the only source of information where (i) we can get some idea of the actual 'observed' number of students arising from the process of application and acceptance as recorded in UCAS data and (ii) where we have an opportunity to consider students and institutions across England, Scotland, Northern Ireland and Wales.
2. In the second section of the report we are able to consider the possibility that there may have been knock-on or spill-over effects, as institutions and/or students may have responded to changes in the area of FT UG (following the 2004-2006 reforms), with alterations in other parts of the HE portfolio.
3. More specifically, some consideration has also been given to:
 - a) Patterns of study amongst first-year PT Undergraduates. It is quite possible that the 2006 fees reform could have impacted on the decisions of students and institutions as it changed the relative attractiveness of FT and PT study. Postgraduate numbers. Whilst it is too early to observe any impact of the 2006 reforms on subsequent student decisions over PG study (the 2006 cohort will not have made decisions over PG study until 2009 and this data are not yet available), institutions could have been drawn towards UG study (as there was a gain to universities from the 2006 fees reform at UG level⁴) and away

⁴ For details, see Dearden et. al. (2008).

from PG study (which has increasingly focused on overseas students and is therefore a potentially more volatile source of revenue⁵).

- b) Only when using HESA data are the analyses under a) and b) possible. These descriptions of possible spill-over effects and the potential impacts are rather a-theoretical, and we return to the potential ways in which these impacts could arise at the end of the report; most importantly considering the interaction between the Higher Education Funding Council for England (HEFCE) and English HEIs.

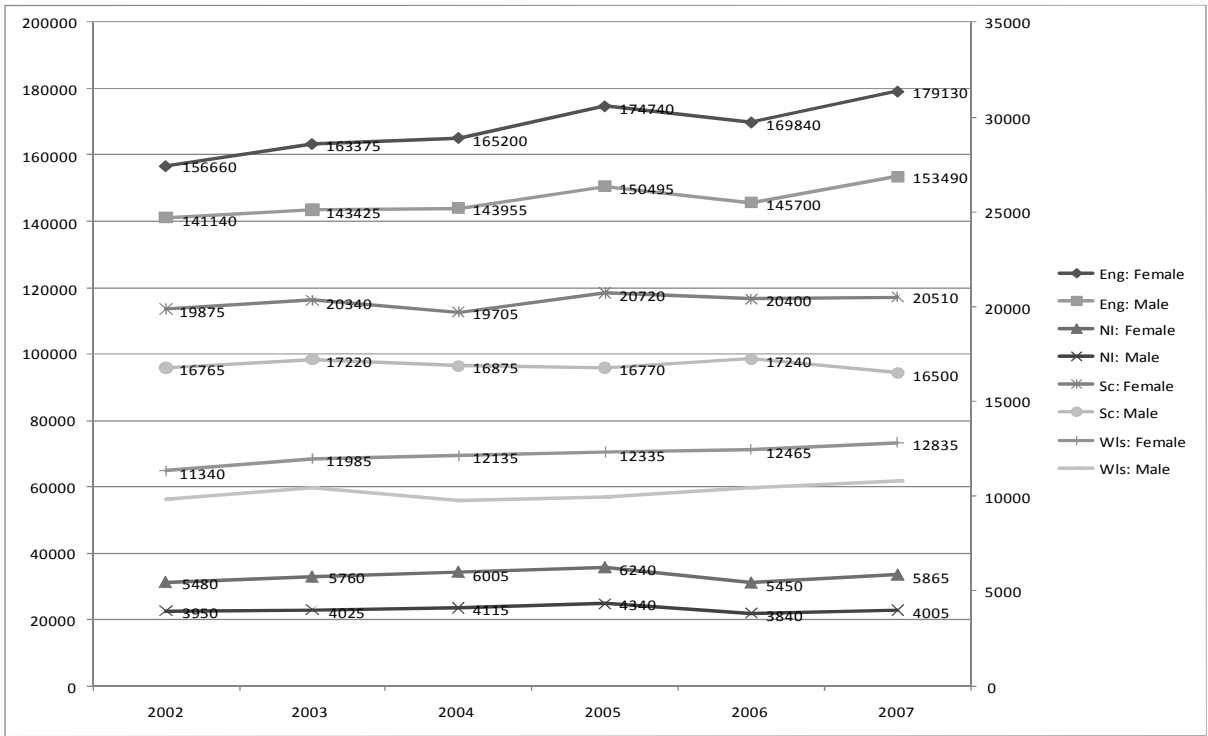
⁵ House, G. (2010), "Postgraduate Education in the UK", *Higher Education Policy Institute*

2 Full-time Undergraduate students in UK HEIs, in their first year of study

Chart 1 considers the trends in overall student numbers according to whether institutions are in England, Scotland, Wales or Northern Ireland. As we can see, there is an apparent spike in the student population within English HEIs in 2005, a corresponding dip in 2006 and then something of a return to trend in 2007 (with a similar, but less pronounced pattern across institutions in Northern Ireland). This seems likely to be the result of students who had some flexibility over whether to start in 2005 or 2006 bringing their start-date forward to avoid the 2006 reform. Given that the fees impact was greatest for those students from a more affluent background (Dearden et. al. 2008) and evidence later in this report shows that the blip is most pronounced amongst those from less disadvantaged areas, it would seem reasonable to suggest that a deferment of '*gap year*' was important in this.

It is important to note that in Chart 1 (and many of the remaining Charts in this report), the left hand scale is used for figures that relate to English students and English HEIs. Whilst the right hand scale is for Scotland, Wales and Northern Ireland. This is to aid comparison of broad trends.

Chart 1: Trends in Full Time Undergraduate 1st year student numbers by gender (Northern Irish, Scottish and Welsh Institutions on the Right-hand axis)



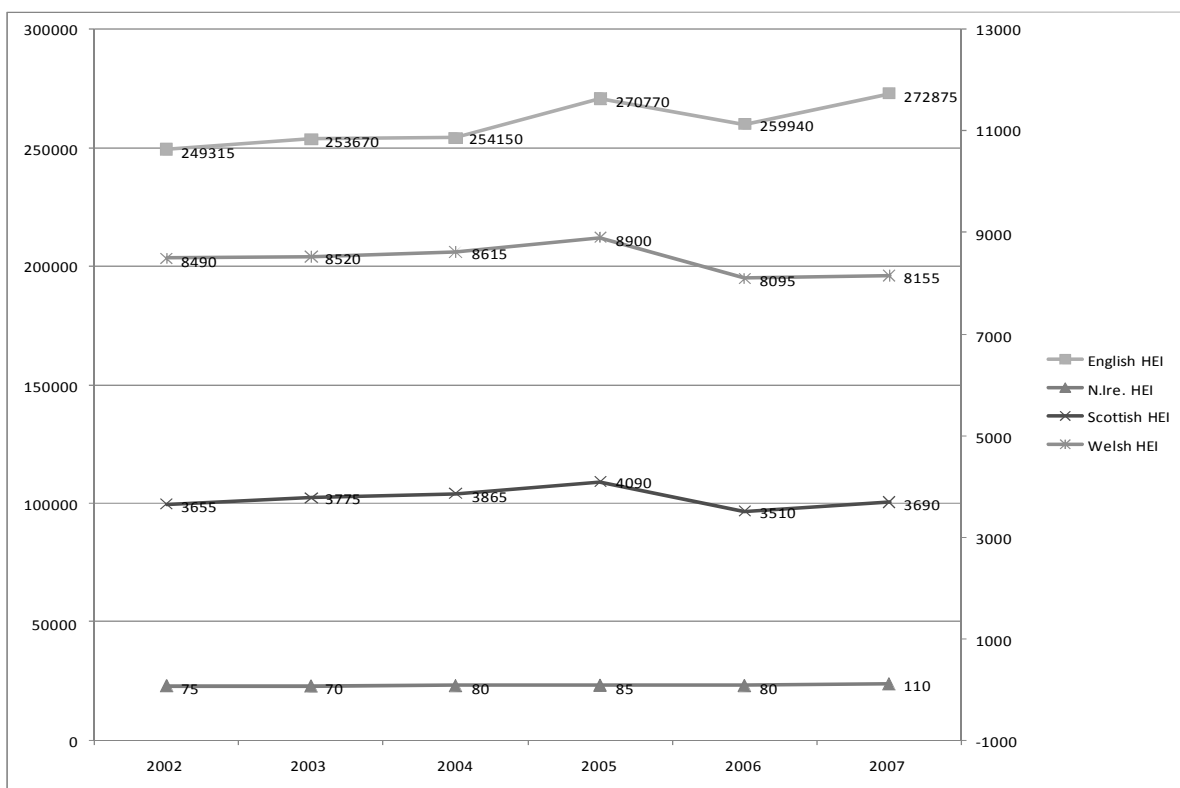
Moving on, we alter our approach and consider the HE sector between 2002 and 2007 from the viewpoint of students resident in the various regions of the UK. As suggested previously, the 2006 reforms did not apply to residents of either Wales or Scotland. More precisely, the 1998 Scotland Act transferred responsibility to the Scottish Parliament the majority of tasks that had previously fallen within the remit of the Scottish Office, including responsibility for Higher Education. As a result of this, there were separate Higher Education Funding Councils set up for England, Scotland and Wales.

In Scotland, a graduate endowment was introduced following the Cubie Inquiry of 1999. This was a one off payment applied to Scottish-domiciled and EU students enrolling at Scottish universities, following graduation from a HE course lasting 3 years or more. The system was introduced in 2001-2002 and the first students became liable in April 2005. Subsequently, the scheme was abolished by the Scottish Parliament in February 2008 and Scotland reverted back to a system of Higher Education that is free at the point of consumption. Scottish domiciled students studying at an English; Welsh or Northern Irish HEI from 2006 onwards can apply to the Scottish body for a loan to cover the cost of any fees, which they start to repay when earning over £15,000 p.a., following graduation.

In contrast, the funding system introduced in Wales levies a charge of £1,200 for Welsh students studying at Welsh universities, compared to a charge of £3,000 for other students at Welsh universities. Welsh domiciled students studying outside of Wales fall under the 2006 English reforms. Given this variability in regimes, we may expect students from the different regions to alter their behaviours and for cross-border flows to be affected. The following charts set out the extent of such cross-border flows.

Chart 2: Trends in cross-country study amongst Full Time Undergraduate 1st year students (Northern Irish, Scottish and Welsh Institutions on the Right-hand axis)

English domiciled students studying at.....



As we can see from Chart 2 the top line which represents the numbers of English domiciled students in English HEIs exhibits the same trend spike (2005), then dip (2006) and reversion to an underlying upward trend (2007) as that seen in Chart 1. However, what is interesting is that numbers of English domiciled students going to Welsh/Scottish Institutions does not seem to recover quite as much in 2007 following the spikes and dips of 2005 and 2006. This may be due to the fact that, on average, Scottish and Welsh HEIs will be further away than comparable English HEIs – the increased overall cost for those from higher income groups may have pushed them towards choices closer to home.

From Chart 3, it would seem that Welsh students have responded to the differences in Welsh and English regimes. A rising number of Welsh students are seen to be studying at Welsh institutions in 2006 and 2007, compared to a ‘mirror-image’ falling proportion studying at English HEIs. This pattern is consistent with the idea that students are ‘price sensitive’ when alternatives are available (i.e. Welsh students taking up study in their home country as a substitute for study in English HEIs).

For Northern Irish students studying at Northern Irish Institutions, the return to any upward trend in 2007 is not as apparent as for English students. The results for Scottish domiciled students are not presented here, as over the period there is simply a small steady decline in the numbers attending both English and Scottish HEIs.

Chart 3: Trends in cross-country study amongst Full Time Undergraduate 1st year students (Northern Irish, Scottish and Welsh Institutions on the Right-hand axis)

Welsh domiciled students studying at.....

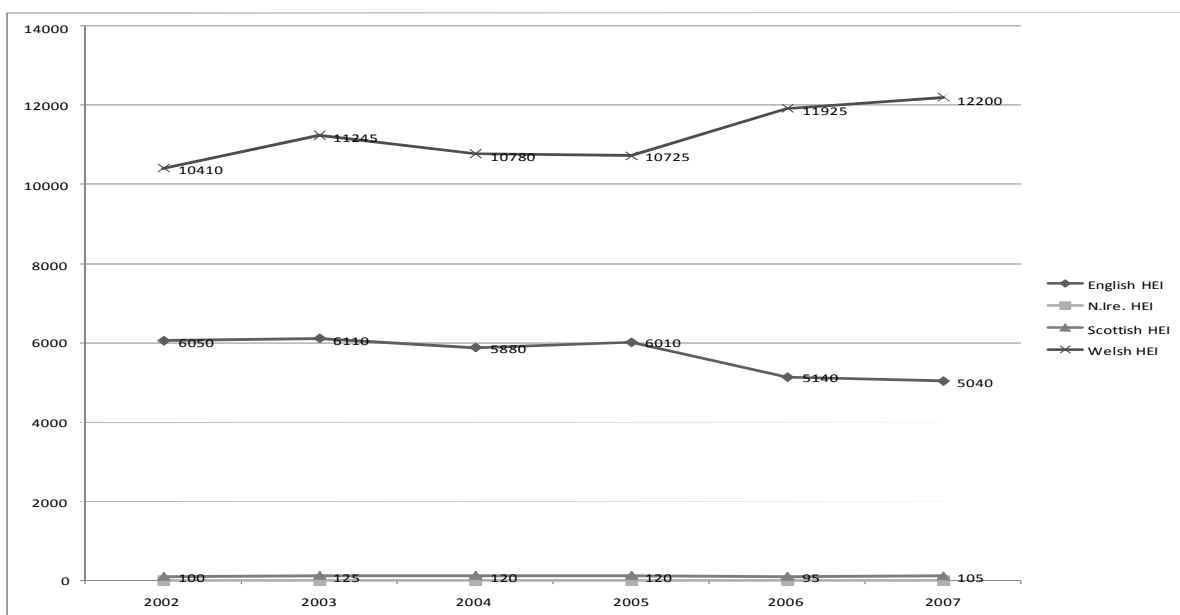
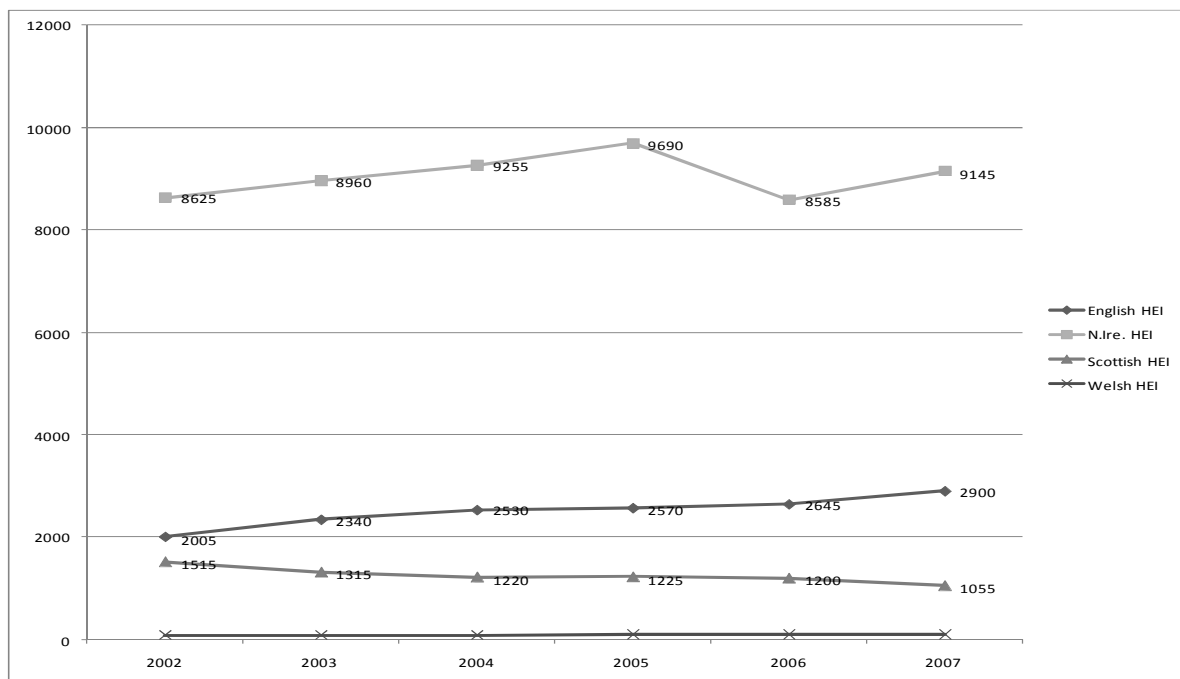


Chart 4: Trends in cross-country study amongst Full Time Undergraduate 1st year students (Northern Irish, Scottish and Welsh Institutions on the Right-hand axis)

Northern Irish domiciled students studying at.....



2.1 Age, Ethnicity and Disability status

Table 1 (overleaf) considers any changes in the age distribution of students in UK HEIs. To provide some historical context, it is worth noting that, at the time of the 1998 introduction of tuition fees, figures from HEFCE suggested a fall in the number of mature students moving into higher education (opp. cit.). This was thought to be linked to the implementation of tuition fees and the possible disproportionate effect on the career decisions of mature students. However, this trend had already begun before the 1998/1999 academic year.

Table 1: Age Distribution of Student Population according to Institution Region Full-time First Degree Students in First Year at Institution												
	2002		2003		2004		2005		2006		2007	
England	%		%		%		%		%		%	
<= 19 years	65.56	195235	64.89	199095	65.73	203215	67.26	218755	67.69	213580	67.88	225790
20-21 years	14.92	44425	15.13	46405	14.83	45845	14.11	45875	14.32	45195	14.59	48540
22-25 years	9.68	28825	9.88	30325	9.75	30155	9.18	29860	8.90	28070	8.90	29615
26+ years and unknown	9.84	29310	10.10	30975	9.69	29945	9.45	30745	9.09	28695	8.63	28690
Total		297795		306805		309155		325235		315540		332635
Northern Ireland	%		%		%		%		%		%	
<= 19 years	75.18	7090	73.88	7230	74.91	7580	74.49	7880	74.97	6965	73.72	7280
20-21 years	12.96	1220	12.33	1205	10.84	1095	11.25	1190	10.86	1010	11.62	1145
22-25 years	5.78	545	6.22	610	6.89	695	6.95	735	6.95	645	7.20	710
26+ years and unknown	6.08	575	7.57	740	7.36	745	7.32	775	7.21	670	7.46	735
Total		9430		9790		10120		10580		9290		9870
Scotland	%		%		%		%		%		%	
<= 19 years	67.66	24790	66.08	24820	66.20	24215	65.45	24540	64.63	24325	64.25	23780
20-21 years	13.26	4855	13.54	5085	13.56	4960	13.52	5070	14.72	5540	14.70	5440
22-25 years	9.21	3375	9.72	3650	10.22	3740	10.66	3995	10.72	4035	11.08	4100
26+ years and unknown	9.88	3620	10.66	4005	10.03	3670	10.37	3890	9.93	3740	9.96	3685
Total		36640		37560		36585		37490		37640		37010
Wales	%		%		%		%		%		%	
<= 19 years	65.23	13800	62.21	13965	64.66	14170	66.11	14750	64.90	14850	65.28	15425
20-21 years	13.17	2785	14.96	3360	13.00	2850	12.48	2785	13.07	2990	13.16	3110
22-25 years	9.38	1985	10.59	2375	9.38	2055	9.51	2120	10.50	2400	9.95	2350
26+ years and unknown	12.23	2590	12.24	2745	12.95	2840	11.90	2655	11.53	2640	11.61	2745
Total		21160		22450		21910		22310		22885		23630

Source: Higher Education Statistics Agency

When considering the differing age groups in English HEIs Table 1 suggests that the response to the 2006 reforms identified in Chart 1 is most clearly evident for the 19 and under age group; whereas the numbers in older age groups remain relatively steady over the period. For instance, in England the steady upward trend in the number of students aged 19 and under accelerates in 2005 to 218,755; it then drops to 213,580 in 2006 and reverts back to an overall upward trend in 2007 with 225,790 students.

Considering the ethnicity of students in higher education, there was a marked increase in the numbers of ethnic minority students during the 1990s. As a result several ethnic minority groups had a higher proportionate representation in Higher Education than in the population as a whole before the end of the decade (see, for example, Modood and Shiner, 1994; Leslie and Drinkwater, 1998)⁶. Table 2 shows a continuation of this trend between 2002 and 2007, with the

⁶ Modood, T and Shiner, M (1994), "Ethnic Minorities and Higher Education: why are there differential rates of entry", London: *Policy Studies Institute*; Leslie, D. and Drinkwater, S. (1999), "Staying on in full-time education: reasons for higher participation rates among ethnic minority males and females", *Economica*, vol. 66, no. 261, pp. 63-77.

numbers of Black students exhibiting particularly pronounced growth of just over 50%. With respect to the reforms of 2006 it is interesting to note that the apparent reaction to the 2006 reforms seen in Chart 1 is only apparent for White students in Table 2, whereas all other ethnic minority groups (apart from the 'other and unknown' category) exhibit more steady increases in numbers over the period.

Table 2: Distribution of Student Population by Ethnicity according to Institution Region

	2002		2003		2004		2005		2006		2007	
England	%		%		%		%		%		%	
White	75.58	195795	75.58	199575	75.41	199275	75.14	211175	74.30	200115	74.09	209235
Black	4.75	12300	5.12	13515	5.69	15040	5.92	16640	6.41	17260	6.68	18855
Asian-Indian	9.33	24175	9.21	24320	9.51	25125	9.19	25820	9.49	25560	9.12	25755
Chinese and other Asian	2.69	6960	2.54	6700	2.65	7010	2.62	7355	2.65	7145	2.77	7835
Other ethnic Background and unknown	7.65	19820	7.55	19935	6.74	17815	7.14	20055	7.15	19245	7.34	20720
Total		259055		264040		264265		281050		269330		282405
Northern Ireland	%		%		%		%		%		%	
White	95.37	8315	80.60	7290	94.48	8845	96.02	9405	95.03	8250	95.86	8885
Black	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Asian-Indian	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0
Chinese and other Asian	0.00	0	0.00	0	0.40	35	0.36	35	0.39	35	0.00	0
Other ethnic Background and unknown	4.15	360	18.89	1710	4.97	465	3.35	330	4.32	375	3.56	330
Total		8720		9045		9360		9795		8680		9270
Scotland	%		%		%		%		%		%	
White	91.14	29265	90.91	29865	90.78	28710	91.12	29350	91.79	28735	92.03	28465
Black	0.36	115	0.51	165	0.55	175	0.65	210	0.78	245	0.90	275
Asian-Indian	1.97	635	2.19	720	2.02	640	2.10	675	2.26	705	2.15	665
Chinese and other Asian	1.07	345	1.08	355	1.16	365	0.97	315	1.20	375	1.28	395
Other ethnic Background and unknown	5.46	1755	5.31	1745	5.49	1735	5.16	1660	3.97	1245	3.64	1125
Total		32110		32850		31625		32210		31310		30930
Wales	%		%		%		%		%		%	
White	92.44	17605	91.03	18130	92.35	18035	92.45	18290	91.77	18520	92.19	18895
Black	0.82	155	1.00	200	0.96	190	1.34	265	1.37	275	1.42	290
Asian-Indian	1.52	290	2.11	420	1.79	350	1.69	335	1.79	360	1.64	335
Chinese and other Asian	0.80	155	0.78	155	0.89	175	0.81	160	1.11	225	0.91	185
Other ethnic Background and unknown	4.42	840	5.09	1015	4.01	785	3.71	735	3.95	795	3.84	785
Total		19040		19920		19530		19785		20180		20495

Source: Higher Education Statistics Agency

Table 3 underlines the increased proportion of students in HEIs who have some form of disability; though it is unclear whether this is driven by increasing recognition of, for instance, students with dyslexia – as opposed to more students with dyslexia going to university.

Table 3: Proportion of Student Population by Disability Status according to Institution Region

	2002		2003		2004		2005		2006		2007	
England	%		%		%		%		%		%	
No Known Disability	93.45	278305	93.61	287190	93.26	288310	92.91	302160	92.35	291415	91.91	305725
Disabled	5.73	17055	6.03	18500	6.52	20155	6.86	22300	7.44	23475	7.49	24910
Unknown	0.82	2435	0.36	1115	0.22	690	0.24	775	0.21	650	0.60	1995
Total		297795		306805		309155		325235		315540		332635
Northern Ireland	%		%		%		%		%		%	
No Known Disability	93.22	8790	86.35	8450	87.64	8870	91.26	9655	86.79	8065	90.07	8890
Disabled	4.71	445	5.86	575	4.98	505	6.43	680	6.31	585	7.41	730
Unknown	2.07	195	7.79	760	7.38	745	2.32	245	6.90	640	2.51	250
Total		9430		9790		10120		10580		9290		9870
Scotland	%		%		%		%		%		%	
No Known Disability	93.92	34410	93.45	35100	93.70	34275	92.36	34625	92.42	34785	92.70	34310
Disabled	5.31	1945	5.77	2170	6.01	2195	6.36	2385	7.09	2670	6.80	2515
Unknown	0.78	285	0.77	290	0.30	110	1.28	480	0.48	180	0.50	185
Total		36640		37560		36585		37490		37640		37010
Wales	%		%		%		%		%		%	
No Known Disability	93.40	19765	93.50	20990	92.49	20265	92.75	20695	91.55	20950	91.54	21630
Disabled	6.49	1375	6.25	1400	7.05	1545	7.18	1605	8.14	1860	8.12	1920
Unknown	0.00	0	0.26	60	0.46	100	0.00	0	0.31	70	0.34	80
Total		21160		22450		21910		22310		22885		23630

Source: Higher Education Statistics Agency

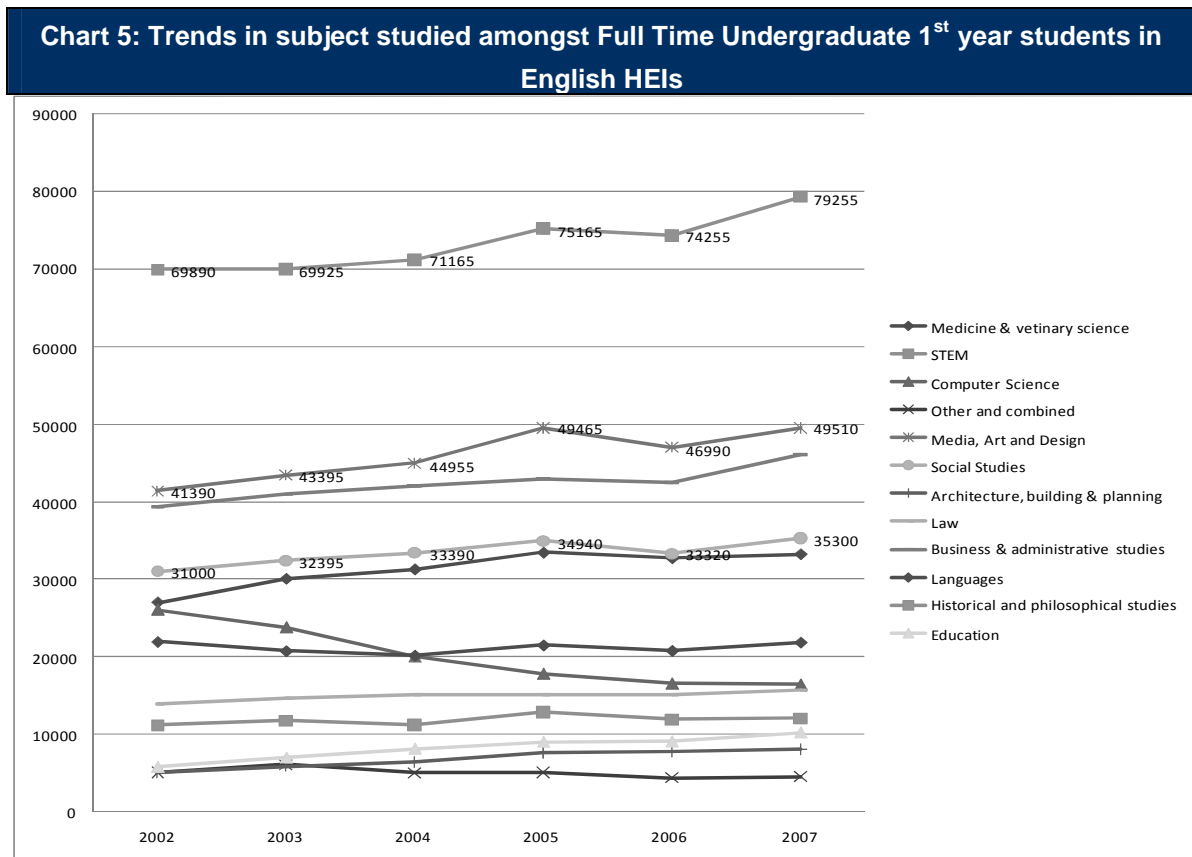
2.2 Subject studied (JACS) and Institution

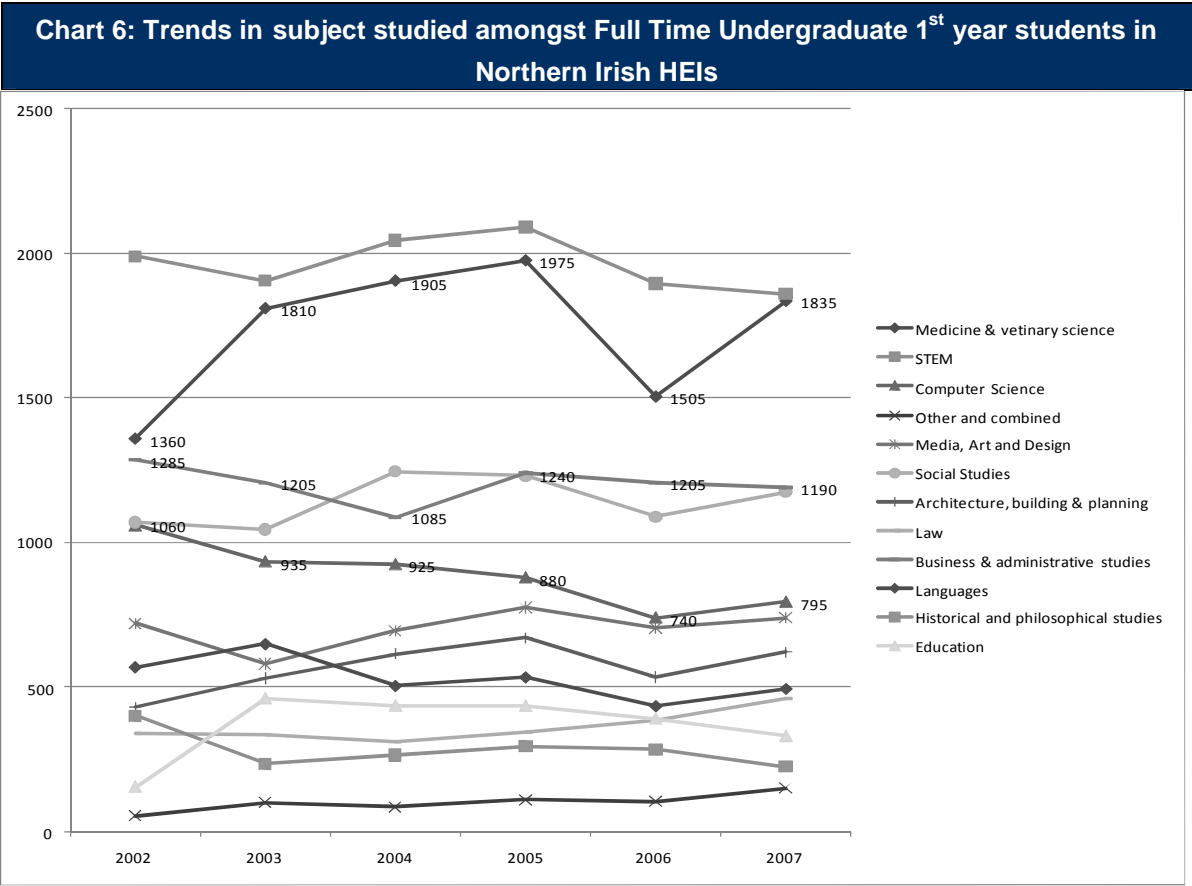
Moving on from consideration of student demographics, Charts 5 to 8 set out the changing pattern of subject studied (according to the Joint Academic Coding System [JACS]) across the devolved regions of the UK. The amount of detail makes it hard to discern trends and therefore Charts 5 to 8 present the figures in a more user-friendly manner for each of the devolved regions of the UK. More specifically,

- In these charts we create a category of *STEM subjects* which includes *Science (Biological and Physical)*, *Technology*, *Engineering* and *Mathematics*. Our STEM category excludes

Medicine, Subjects Allied to Medicine and Veterinary Sciences, which we consider as a separate category.

- Our category of *Media, Art and Design* includes *Mass Communication, Documentation, Creative Arts and Design*.
- Our 'other and combined' group contains *Agriculture and Related*, as well as *Combined Studies*.





In Charts 5 and 6 we can see that the anticipatory spike in students numbers (2005), subsequent dip (2006) and then recovery (2007) is visible for the majority of subjects; there is little apparent difference between subjects. Charts 7 and 8 describe a variety of different trends in subject studied across Scotland and Wales. There are apparent spikes and dips in the figures for these two regions of the UK, but with such relatively small numbers of students under consideration, we cannot confidently identify any clear differences in the patterns of study.

Chart 7: Trends in subject studied amongst Full Time Undergraduate 1st year students in Scottish HEIs

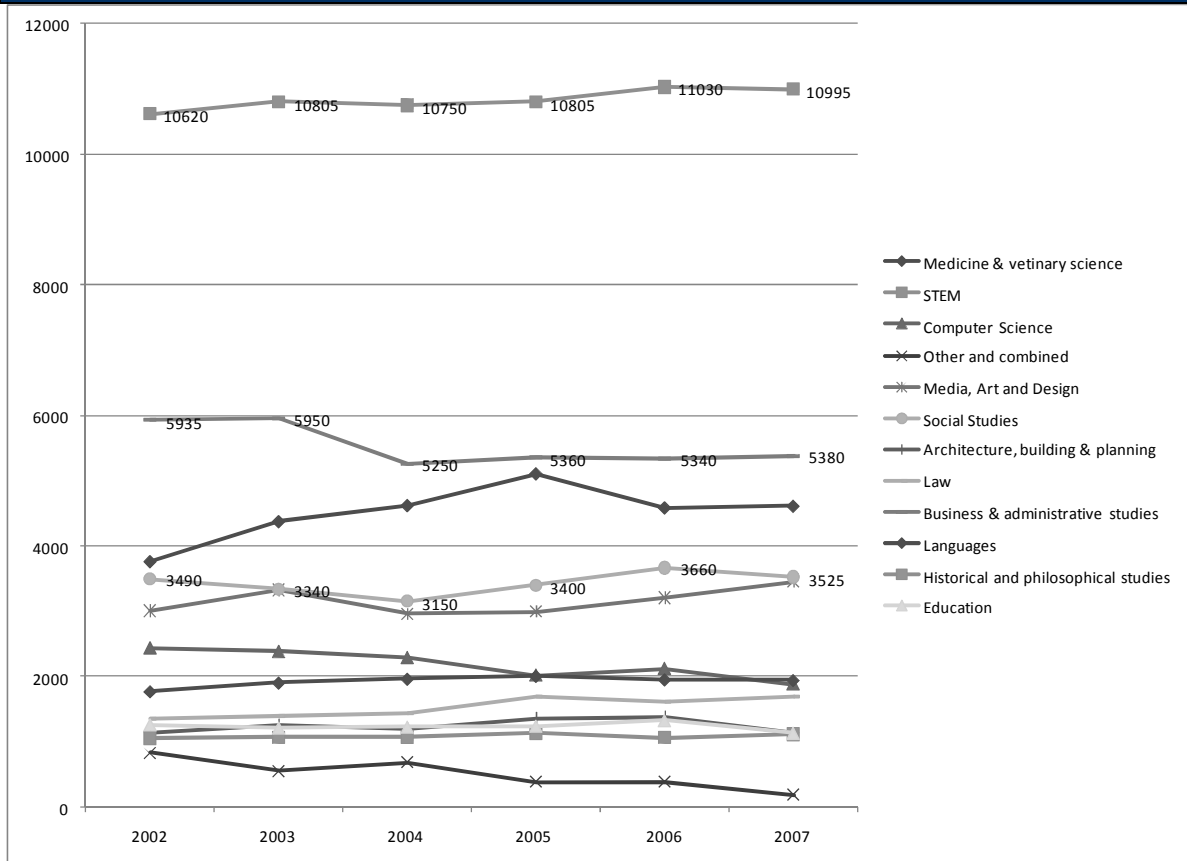


Chart 8: Trends in subject studied amongst Full Time Undergraduate 1st year students in Welsh HEIs

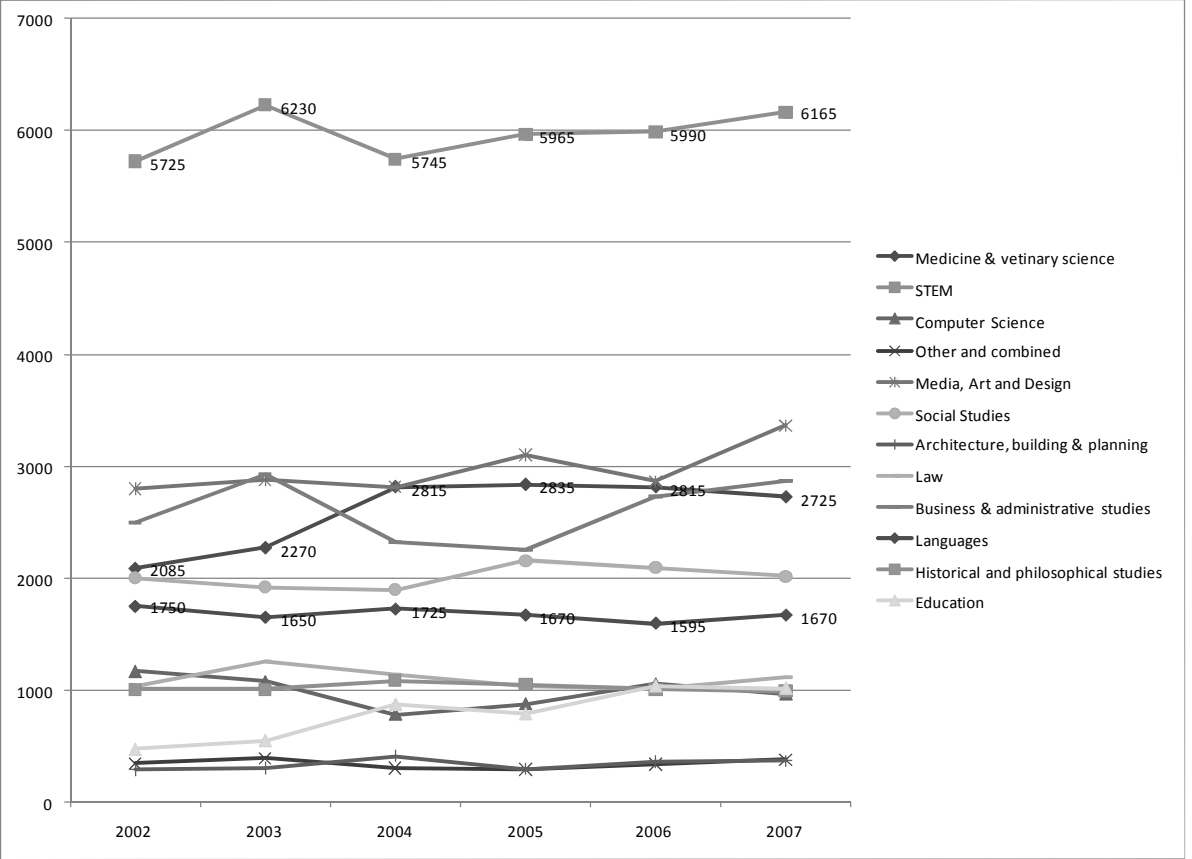


Table 5 splits the student population according to whether they are studying at a **Russell Group** institution (large research-intensive institutions); the **1994 Group** (smaller research-focused institutions); other institutions that gained degree awarding powers before 1992 (**pre-1992**); those that were given degree awarding powers following the passing of the 1992 UK Further and Higher Education Act (**post-1992**); those that have been given the power to award degrees more recently, following the implementation of changes flagged in the 2003 White Paper *The Future of Higher Education* (**Modern**); as well as **HE Institutions** and **Specialist Colleges**.

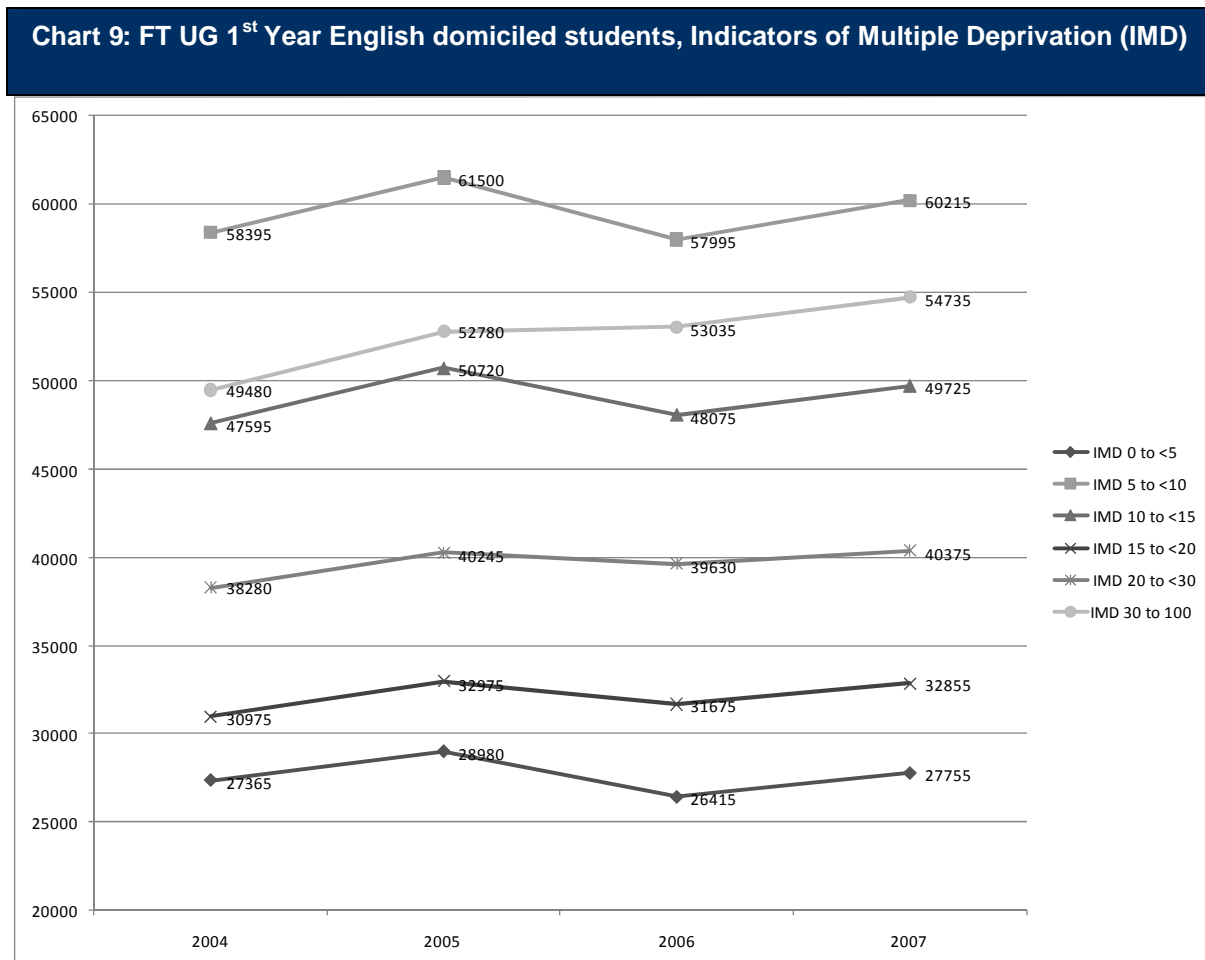
Table 5: Distribution of the Student Population by Institution according to Institution Region

	2002		2003		2004		2005		2006		2007	
England	%		%		%		%		%		%	
1994 Group	12.19	36300	12.24	37550	12.09	37385	12.08	39280	12.88	40625	13.20	43905
Former HE	0.95	2840	0.98	3015	1.03	3175	1.04	3395	1.08	3420	1.09	3635
Post 1992	44.44	132340	44.41	136250	44.57	137800	44.84	145835	43.91	138550	43.34	144175
Pre 1992	9.27	27590	9.67	29680	9.20	28430	9.30	30230	9.55	30130	9.39	31225
Modern	8.21	24460	8.23	25250	8.07	24955	8.26	26870	8.21	25890	8.40	27925
Russell Group	19.35	57615	18.95	58150	19.32	59740	18.46	60025	18.57	58610	18.93	62960
Specialist	2.44	7265	2.27	6980	2.20	6810	2.37	7715	2.13	6725	2.05	6815
Total		297795		306805		309155		325235		315540		332635
Northern Ireland	%		%		%		%		%		%	
Pre 1992	62.41	5885	59.85	5860	58.04	5875	59.40	6285	55.98	5200	57.48	5675
Russell Group	37.59	3545	40.15	3930	41.96	4245	40.60	4295	44.02	4090	42.52	4200
Total		9430		9790		10120		10580		9290		9870
Scotland	%		%		%		%		%		%	
1994 Group	3.76	1380	4.22	1585	4.67	1710	4.06	1525	3.92	1475	4.07	1510
Former HE	1.20	440	1.05	395	1.25	460	1.46	550	1.43	540	0.00	0
Post 1992	29.13	10675	28.88	10850	30.45	11140	29.61	11100	28.99	10910	29.68	10985
Pre 1992	32.92	12065	32.03	12030	32.36	11840	31.97	11985	32.94	12395	32.10	11880
Modern	6.70	2455	6.66	2500	5.26	1925	6.84	2565	6.51	2450	7.75	2870
Russell Group	23.44	8590	23.87	8965	23.15	8470	22.82	8555	22.04	8295	22.69	8400
Specialist	2.84	1040	3.29	1235	2.85	1045	3.24	1215	4.17	1570	3.70	1370
Total		36640		37560		36585		37490		37640		37010
Wales	%		%		%		%		%		%	
Former HE	11.13	2355	10.61	2380	10.23	2240	11.28	2515	10.04	2295	10.99	2600
Post 1992	33.05	6990	36.57	8210	30.98	6790	31.17	6955	34.12	7810	33.35	7880
Pre 1992	32.80	6940	31.60	7095	34.51	7560	34.91	7790	33.95	7770	34.16	8075
Russell Group	20.83	4410	19.07	4280	23.58	5165	21.99	4905	21.22	4855	21.50	5080
Specialist	2.19	465	2.16	485	0.70	155	0.64	145	0.68	155	0.00	0
Total		21160		22450		21910		22310		22885		23630

Source: Higher Education Statistics Agency

There is little clear movement in the proportions of students going to each type of institution around the 2006 reforms, but we shall return to consideration of longer term trends in HE according to type of institution in the final section of this repo. When we do so, we will consider this alongside longer term trends in the socio-economic composition of the student population. However, for the moment retaining a focus on the period around 2006, Chart 8 indicates that students from more affluent backgrounds exhibit more of an anticipatory response to the reforms from 2005.

Chart 9 groups students by their socio-economic background, using indicators that reflect the level of deprivation associated with their local area (down to the lowest level of disaggregation available). Students with an IMD score between 0 to <5 live in areas that have very low levels of deprivation (i.e. the area is relatively affluent). The absolute position of the line in the chart simply reflects the number of students in the IMD category and is not a relevant indicator. What is of relevance and interest, is the extent to which, as we move up the IMD groupings of students (from those in more, to those in less, affluent areas), the extent to which we observe an apparent response to the 2006 reforms, becomes less pronounced. For those students who live in areas with IMD scores of between 30 and 100, there is very little inflexion of a continuing upward trend throughout the period.



2.3 Multivariate analyses

From the analysis to this point, the suggestion is that the main differential 'reaction' to the 2006 reforms is by income group (proxied by socio-economic background and ethnicity), together with some change in the flows of students across the different regions of the UK in response to the differing incentives that result from devolution.

However, analysis of 'spikes' and 'troughs' in a series of data cannot be taken as strong evidence that the reforms have, or have not, had a direct causal effect. We cannot be certain that, for instance, continued growth in the proportion of 'disadvantaged' students would not have been even greater in the absence of reforms (even though the new reform package favoured this group, perceptions of debt loom larger for those from lower socio-economic backgrounds and could have acted as more of a deterrent).

Ideally, in order to fully investigate the possibility of an impact of the 2006 reforms, a period of policy stability in a comparator country (for instance, Scotland) is required, as it provides a relative 'do nothing' option against which we can compare English trends. Thus, whilst we cannot make the assumption that England and Scotland are directly comparable, in terms of levels (of students with certain types of characteristics, types of institution etc.) we can look for 'differences' in the rates of change of certain variables. For instance, from 2006 does the rate of any change in the focus of subject studied in England alter significantly, relative to the rate of change in Scotland?ⁱ

There are a number of reasons why we do not present the results of these estimations in detail.

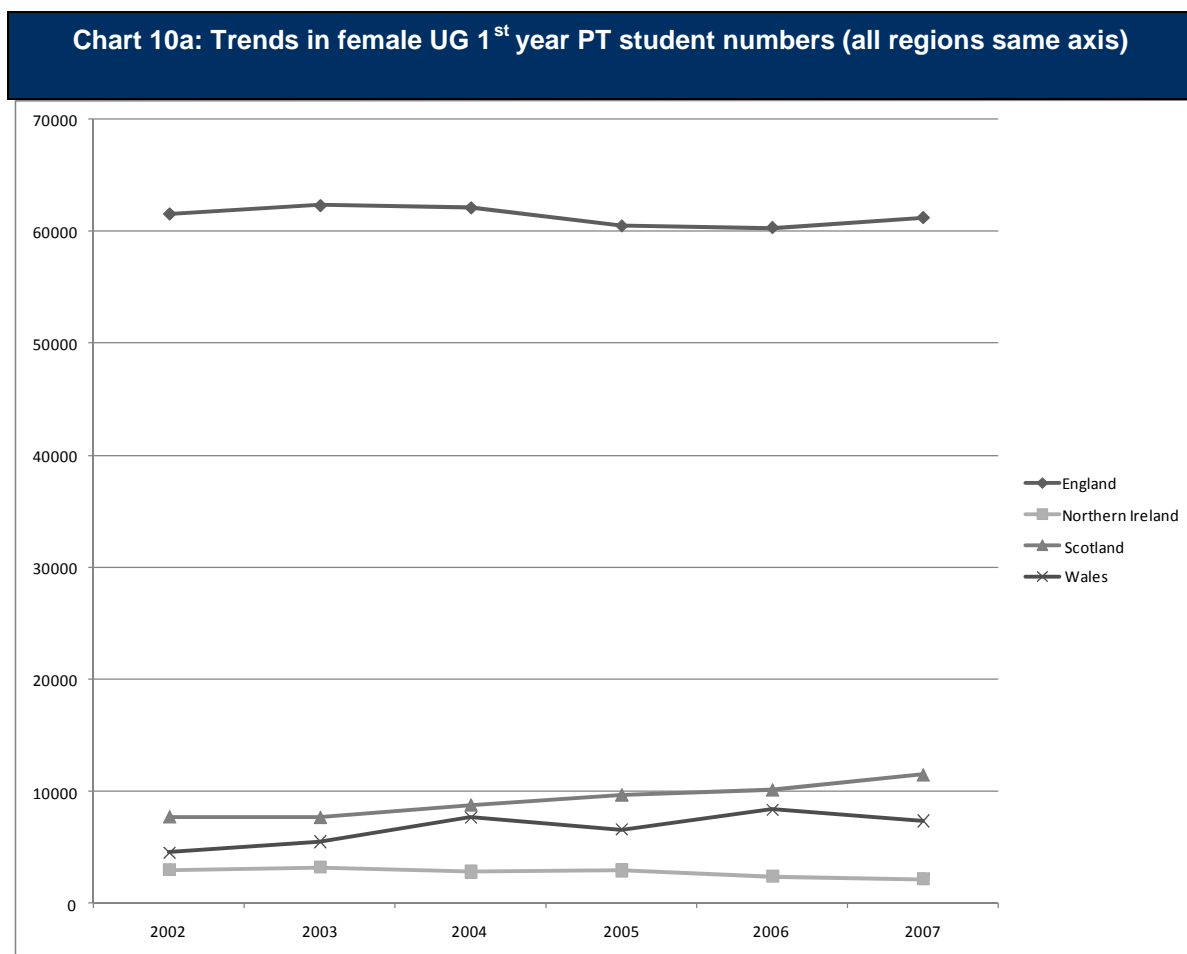
- First and foremost, there are few consistent findings that we are confident of presenting. For instance, there would seem to be some apparent decline in the rate of growth of *Languages* in England, relative to Scotland around the time of the reform. But this effect is not seen elsewhere and when relaxing the parallel trends assumption this effect is no longer apparent.
- This is an active area for policy in all countries over the period under study and not only does Scotland not necessarily provide a robust counterfactual; it is also the case that the English reforms begin in 2004 with the re-introduction of grants.
- Ultimately, we are only able to test the impact of the entire reform package and in addition we cannot consider different socio-economic groups across all the regions of the UK (IMD scores are only available for English regions).

3 Possible spill-over effects

This section considers whether there is anything apparent in the other areas of English HEIs' offerings (outside of full-time first degree studies) around the time of the 2006 fees reform. We consider the possibility that there may have been knock-on or spill-over effects, as institutions and/or students may have responded to changes in the area of FT undergraduate study, with alterations in other parts of the HE portfolio.

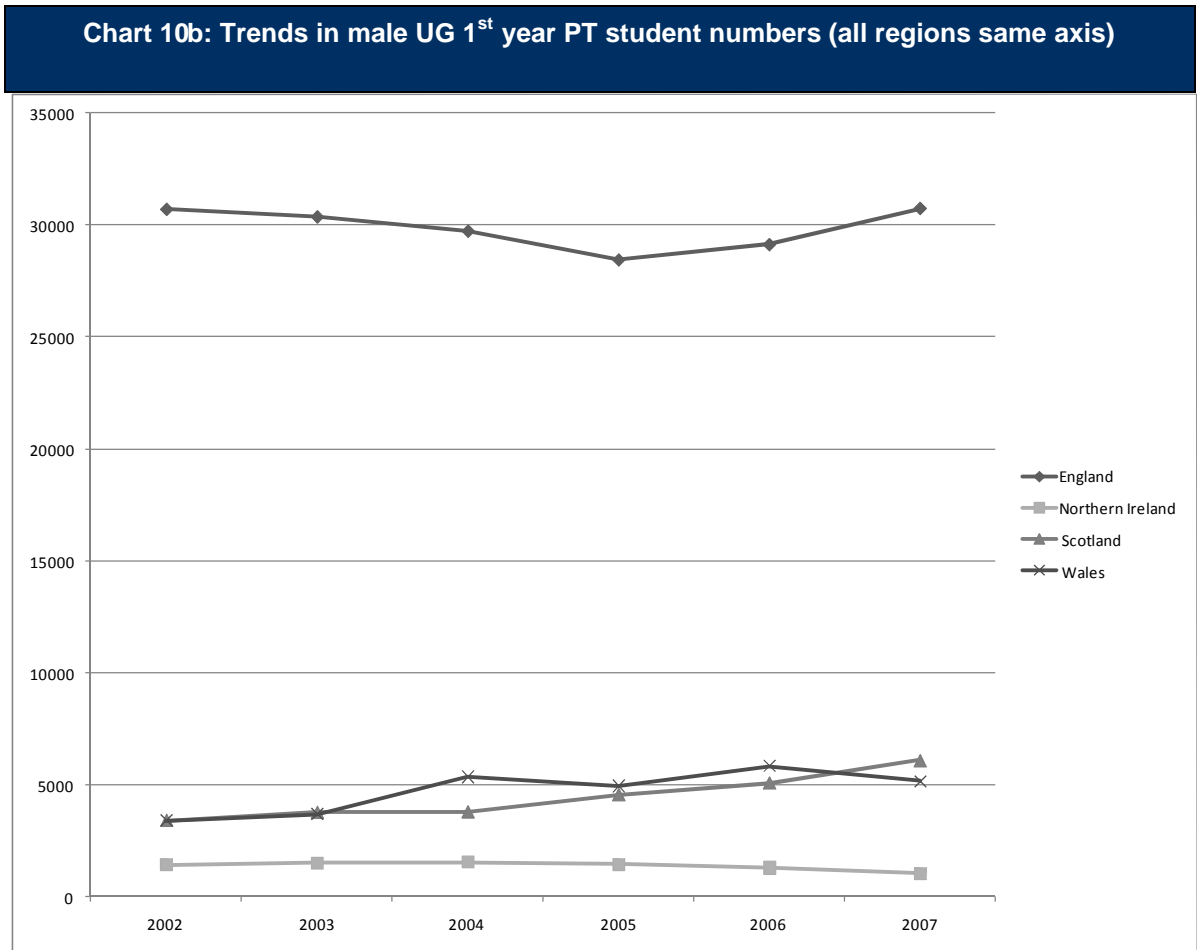
3.1 Part-time undergraduate study

First let us consider the numbers of PT undergraduate students in their first year before and after the 2006 reforms. At its simplest, the reform package (from the institutional perspective) alters the relative returns from offering FT and PT undergraduate study. Also, from the point of view of more and less affluent students, it alters the relative costs and benefits of studying PT or FT.



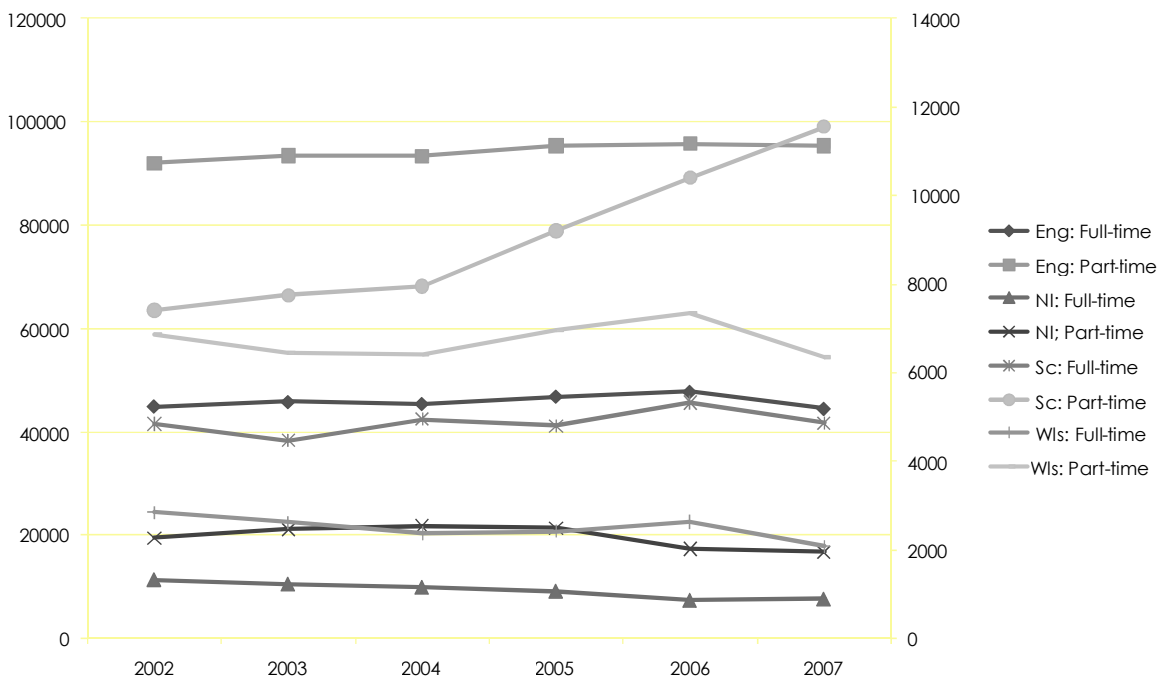
Considering PT undergraduate students in UK Higher Education Institutions (HEIs) who are in their first year of study, Charts 10a and 10b provide some possible evidence of a 'dip' in

numbers in 2005 in English HEIs, for both female and male students, but this is not particularly pronounced. Also this analysis must necessarily exclude Open University students due to reporting irregularities in recent years and this removes a large proportion of the part-time student population from consideration. Further analysis of sub-groups yields no more differences of interest.



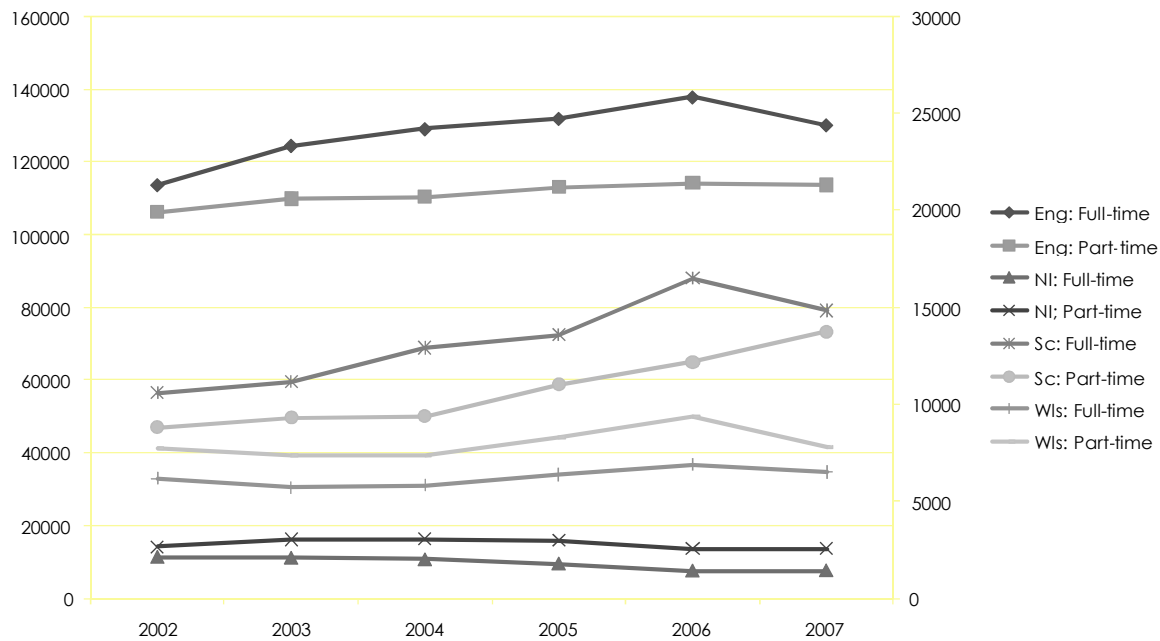
3.2 Postgraduate part-time and full-time study

Chart 11: Trends in PT and FT Masters students (NI, Scotland and Welsh Inst. RH axis): UK domiciled students only



In England there would seem to be something of a dip in postgraduate numbers in 2007, which seems to be driven by the behaviours of FT non-UK domiciled students, as it is much more pronounced in Chart 11 than Chart 12. If it was in any way related to the reforms then it must be driven by changing institutional behaviours (as students from the 2006 undergraduate intake would not appear in 2007 postgraduate figures). However, one can also see a similar dip amongst full-time numbers in Scotland in 2007 and this suggests possible alternatives as drivers of change.

Chart 12: Trends in PT and FT Masters student numbers (NI, Scotland and Welsh Inst. RH axis)



Before moving on to conclude, it is worth noting that across both the postgraduate and undergraduate student populations in Scotland, there is a pronounced and steady trend increase in Part-time numbers (from around 2004). This is in contrast to the situation across English HEIs, where the majority of growth in student numbers has been observed amongst those studying FT. Even our brief consideration of the policy environments across Scotland and England gives some indication of a divergence in the approaches to funding of Higher Education since devolution. Any moves to promote PT graduate education within England might benefit from a consideration of the reasons why such growth has been observed in Scottish Higher Education.

4 Fees and Widening Participation: consideration of the supply side

When one considers the literature on possible impacts arising from a change in funding regime and/or long term trends in UK HE participation (Callender, 2003; Marcenaro-Gutierrez, Galindo-Rueda & Vignoles, 2004; Machin and Vignoles, 2006)⁷, together with the US (Linsenmeier et al., 2006) and other literatures (Baumgartner and Steiner, 2006) the focus is invariably on student demand (participation or enrolment decisions). Often this is because the reforms are not seen to change the 'returns' to institutions, or because of a lack of appropriate data that would allow one to distinguish between supply (of degree courses by HE Institutions) and student demand effects of any policy changes. In this respect, HESA data are little different and ultimately do not allow us to dig deeper into this issue using econometric methods. However, we would wish to underline the importance of expansion of supply in driving recent participation of disadvantaged groups and consider this within the context of the fees debate.

First, it is important to note that the results here are consistent with those of Dearden et. al. (2010) who present the most up-to-date evidence on the impact of, separately, fees, loans and grants on participation rates in UK HE. The suggestion from this research is that a £1,000 increase in fees reduces participation by 4.4 percentage points and loans counteract this to some extent with a £1,000 increase, raising participation by 3.2 percentage points⁸.

Using HESA data we are not able to attain this level of disaggregation, but our results are in line with a reform package that raised the cost of HE for students from more affluent backgrounds and fell for those with parents on lower incomes. There is evidence of a differential 'reaction' to the 2006 reforms, with those from lower income backgrounds (proxied by local area characteristics and ethnicity) exhibiting less of an 'anticipatory' response to the reforms. This is alongside some change in flows of students across the different regions of the UK in response to the differing incentives that result from devolution.

These results are not surprising. Making a service more costly, we can expect some contraction of demand. If we cushion the blow to individuals to some extent (by loans and/or

⁷ Callender, C., (2003) Attitudes to debt: School leavers' and further education students' attitudes to debt and their impact on participation in higher education, *Universities UK*, London 185 pp; Galindo-Rueda, F., Marcenaro-Gutierrez, O. and Vignoles, A. (2004) The widening socio-economic gap in UK higher education. CEEDP, 44. *Centre for the Economics of Education*, London School of Economics and Political Science; Machin, S. and Vignoles, A. (2006) Education policy in the UK. CEEDP, 57. *Centre for the Economics of Education*, London School of Economics and Political Science; Linsenmeier, D., Rosen, H. and Rouse, C. (2006). "Financial aid packages and college enrollment decisions: An econometric case study", *Review of Economics and Statistics* 88 (1), pp 126-145; Baumgartner, H. and Steiner, V. (2006), "Does More Generous Student Aid Increase Enrolment Rates into Higher Education? Evaluating the German Student Aid Reform of 2001", *German Institute for Economic Research*, Discussion Paper No. 563.

⁸ Dearden, L., Fitzsimons, E. and Wyness, G. (2010), "Estimating the impact of up-front fees and student support on university participation", mimeo, *Institute for Fiscal Studies*.

grants) we will offset this somewhat and the exact mix will determine the net effect; with final decisions made within the context of expected subsequent returns.

However, implicit in our discussion of spill-over effects is the assumption that, as the market for FT undergraduate study becomes more rewarding for institutions financially, we may expect them to increase supply in this area (within the confines set by the Higher Education Funding Council for England [HEFCE]). An expansion of supply, through attracting more institutions into the market, or existing institutions focusing more on undergraduate education, would seem to have benefited students from disadvantaged backgrounds.

Table 6 only covers a few years (IMD data do not go further back), but it shows clearly that the more research intensive institutions (1994 and Russell Groups) continue to have lower levels of participation from those in lower socio-economic groups. A wealth of other work underlines the central role that teaching-focused institutions have played in drawing in individuals who would not have previously considered going to university⁹.

Table 6: Distribution of Student Population by IMD Score according to Type of Institution

⁹ See for instance, Department for Education and Skills (2003), *Widening participation in Higher Education*.

	2004		2005		2006		2007	
1994 group								
	%		%		%		%	
IMD 0 to <5	15.86	4825	15.69	5025	14.56	4720	14.55	5085
IMD 5 to <10	28.76	8755	29.03	9300	27.98	9070	27.78	9705
IMD 10 to <15	20.62	6275	20.21	6475	20.10	6515	20.35	7110
IMD 15 to <20	11.87	3610	11.70	3750	11.91	3860	12.26	4280
IMD 20 to <30	12.34	3755	12.19	3905	12.91	4185	12.77	4460
IMD 30 to <40	5.62	1710	5.87	1880	6.54	2120	6.44	2250
IMD 40 to <50	2.98	910	3.13	1005	3.53	1145	3.50	1220
IMD 50 to <100	1.96	595	2.19	700	2.46	795	2.35	820
Avg IMD / Total	14.64	30435	14.81	32035	15.47	32415	15.40	34930
Total pop. of Eng and Wel students		31595		33205		33540		36175
Total pop. of students, all domiciles		37385		39280		40625		43905
Post 1992								
	%		%		%		%	
IMD 0 to <5	8.09	9110	8.18	9895	7.71	8785	7.91	9040
IMD 5 to <10	19.41	21850	19.46	23540	18.84	21470	18.72	21405
IMD 10 to <15	17.07	19225	17.23	20845	16.93	19295	16.99	19430
IMD 15 to <20	12.28	13835	12.39	14990	12.38	14105	12.29	14060
IMD 20 to <30	17.04	19190	16.83	20370	17.22	19625	17.03	19475
IMD 30 to <40	11.40	12835	11.46	13865	11.64	13270	11.59	13255
IMD 40 to <50	7.61	8575	7.47	9045	7.75	8835	7.76	8870
IMD 50 to <100	7.09	7985	6.98	8445	7.54	8595	7.71	8810
Avg IMD / Total	21.70	112600	21.59	120995	22.13	113980	22.16	114345
Total pop. of Eng and Wel students		115920		124590		117615		121285
Total pop. of students, all domiciles		137800		145835		138550		144175
Pre 1992								
	%		%		%		%	
IMD 0 to <5	8.24	1895	8.91	2220	8.21	1990	7.92	1955
IMD 5 to <10	20.53	4730	20.26	5045	19.86	4810	19.23	4745
IMD 10 to <15	18.55	4275	18.44	4590	17.99	4355	16.98	4190
IMD 15 to <20	12.43	2865	12.42	3090	12.06	2920	12.54	3095
IMD 20 to <30	16.52	3805	16.56	4120	16.82	4075	16.88	4165
IMD 30 to <40	9.83	2265	9.38	2335	9.92	2400	10.65	2630
IMD 40 to <50	6.68	1540	6.68	1665	6.80	1645	7.40	1825
IMD 50 to <100	7.22	1660	7.33	1825	8.34	2020	8.39	2070
Avg IMD / Total	21.06	23030	20.99	24890	21.70	24220	22.21	24680
Total pop. of Eng and Wel students		23720		25685		24940		25530
Total pop. of students, all domiciles		28430		30230		30130		31225
Russell Group								
	%		%		%		%	
IMD 0 to <5	15.01	7930	15.06	7990	14.51	7440	14.71	8040
IMD 5 to <10	28.84	15230	28.45	15095	28.81	14775	29.04	15875
IMD 10 to <15	21.24	11220	21.90	11620	21.41	10980	21.49	11745
IMD 15 to <20	11.87	6270	11.94	6335	12.19	6250	11.91	6510
IMD 20 to <30	11.73	6195	11.61	6160	11.75	6025	11.55	6315
IMD 30 to <40	5.35	2830	5.23	2780	5.42	2780	5.32	2910
IMD 40 to <50	2.98	1570	3.02	1605	3.08	1575	3.05	1670
IMD 50 to <100	2.99	1580	2.79	1480	2.82	1445	2.91	1590
Avg IMD / Total	15.10	52820	15.00	53065	15.14	51275	15.07	54650
Total pop. of Eng and Wel students		54930		56285		53230		56890
Total pop. of students, all domiciles		66550		67740		65330		69775

Widening participation activities have been predominantly undertaken by new and existing teaching-focused institutions targeting new 'markets' of students. This is not surprising, as the majority of these institutions are demand constrained; they have to work to fill their courses, engaging in a variety of outreach activities and advertising, and then focusing on reducing the higher drop-out rates that are more prevalent among lower socio-economic groups (see Vignoles et. al. 2009)¹⁰.

¹⁰ Vignoles, A. and Powdthavee, N. (2009), "The socioeconomic gap in university dropouts", *The B.E. journal of economic analysis & policy*, Vol. 9, Issue 1.

5 Concluding remarks

Implicit in our discussion of spill-over effects is the assumption that, as the market for FT undergraduate study becomes more rewarding for institutions financially, we may expect them to increase supply in this area. During the period under study institutions became more able to do this, because of a number of changes made by the Higher Education Funding Council for England (HEFCE).

The Maximum aggregate Student Number (MaSN), which previously applied to FT UG Home and EU students, was removed in 2002; from 2001-2002 many institutions secured agreements with HEFCE for funded growth and have also had relative flexibility (of plus or minus 5 per cent) in meeting their agreed targets.

However, since the Parliamentary announcement on 29th Oct 2008 by the Secretary of State for Innovation, Universities and Skills, HEFCE has been tasked with reining in growth in student numbers, in the face of limited public funds. As recent reviews suggest¹¹, in an environment where evidence on the impact of Widening Participation (WP) programmes is limited, the one thing we can be clear of is that expansion of the sector tends to go hand-in-hand with widening participation. Seen in this context, a system where the state pays for the majority of a student's HE represents a break on the increased participation of under-represented groups.

Thus, we may expect an increase in fees, on its own, to reduce participation. However, a funding package that mitigates against this, whilst still placing a greater burden of the cost on the individual (for instance through the use of loans), allows for expansion of the sector (overcoming the constraints of public funding) and is likely to facilitate a further widening of participation¹².

In addition, we should not underestimate the value of fees as an inducement for institutions to either enter the market or expand their own offerings in the area of FT UG provision. Such activities are likely to benefit students from lower socio-economic backgrounds as an increasing variety of institutions compete to attract students who would not necessarily consider a university education.

Unfortunately, whilst this is an important issue that needs to be considered during the process of HE policy development, there is at present a lack of clear evidence.

¹¹ See for instance, Prof. Stephen Gorard of Birmingham University, interviewed in Attwood, R. (2010), *Mind the Gap*, Times Higher Education, 25th February.

¹² For a detailed discussion of the options see, Dearden, L., Goodman, A., Kaplan, G. and Wyness, G. (2010), "Future arrangements for funding Higher Education", *Institute for Fiscal Studies* and the *Nuffield Foundation*.

¹ In addition to these key policy differences between Scotland and England, there are a number of additional issues that need to be considered when comparing the systems in the two regions of the UK :

- University courses typically last for three years in England and Wales, but for four years in Scotland; with the older Scottish Universities awarding a Master of Arts or 'MA' on completion of this 4 year degree (a title that implies Postgraduate study within the English system).
- Payment of the graduate endowment of £2,000 was made irrespective of graduate or parental income (though exemptions were granted to groups such as lone parents and the disabled).
- A system of means-tested bursaries was brought in alongside the existing loans, and the two taken together represent an increase in the total support package to the lowest income groups. This is in contrast to a reduction in the value of loans available to the most affluent.
- Scottish and English Universities have faced very similar challenges over recent decades, but it should be remembered that the size of operation in Scotland and England is very different; with the former having around 20 institutions to manage compared to over 130 in England.

¹ The methodology employed is referred to as 'difference in difference'. The general forms we have adopted for this are relatively straightforward and slowly build from quite basic (i) to more robust specifications (iii).

(i) Difference in Difference without trend

$$y_{it} = u_i + \beta D + \varepsilon_{i,t}$$

(ii) Difference in Difference with parallel trend

$$y_{it} = u_i + \mu t + \beta D + \varepsilon_{i,t}$$

(iii) Difference in Difference in Difference with differential trend

$$y_{it} = u_i + \mu t + \mu'_{\tau} t + \beta D + \varepsilon_{i,t}$$

Where u_i is the individual effect; μ_t is the trend coefficient and $\mu'_{\tau} t$ the differential in trend for the treated; β is the estimated Difference in Difference effect or Difference in Difference in Difference effect; t is the time period; D is the treatment (i.e. for England this is equal to 1 in years ≥ 2006); ε is the cell (here university unit) error term.

The basic approach is to assume the university as the unit of analysis; for instance, in the case of subject studied, the dependent variable (y) is student numbers in a particular subject area within an institution. When attempting to identify whether we have a difference in differences (or rates of change) we are implicitly assuming that the trends amongst treated (English students) and untreated (Scottish students) are parallel – that is, any divergence or convergence is due to the impact of the treatment, not prior differences in these trends. When we use specification (iii) we relax this assumption and allow for differential trends between England and Scotland.

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