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**Undergraduate non-completion rates and whether or not it should be treated as an ethnicity issue: a case study of a cohort on 'home' students from a British 'new' university**

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**Abstract**

This paper attempts to provide an insight into the question of whether or not the high non-completion rates found amongst ethnic minority groups in higher education should be treated as an ethnicity issue. The paper is based on a case study on a UK 'new' university which has a high proportion on students from ethnic minority backgrounds. The paper finds evidence to suggest that examining unadjusted data in isolation leads to a significant upward bias in estimates of the extent to which minority groups under-perform. For example, due to minorities (generally) poorer socioeconomic background and their tendency to be over-represented in some subjects areas with high non-completion rates. A probit regression model based analysis finds the existence a series of ethnicity-related interaction effects which indicates that there is considerable complexity in the ways in which ethnic differences impact on completion rates. For example, it is found that being a female Muslim student who lives in their parental home has a positive impact on the likelihood of a student completing their degree; even though, in general, Muslim students and those living in the parental home are less likely to complete a degree. Although the regression model finds significant level of ethnicity-related variation in the probability of completing a degree, it is argued that findings such as these possibly reflect that failure of modelling procedures to fully take account of the complexities associated with modelling these relationships. It is tentatively suggested that in addressing the non-completion issue we need a more holistic approach to educational failure, one that does not concentrate solely on 'academic' issues. It is also tentatively suggested that we should consider treating non-completion not as an ethnicity-related issue but as one that should be looked at in the wider context of a whole series of issues that can lead to the underperformance of any student.

## Introduction

Undergraduate completion, or retention, rates vary considerably internationally; OECD data relating to 2004 shows that in Japan this was 91% whilst in the UK the rate was 78%. These compared well against, for example, Germany 73%, Australia 67% and USA 54%<sup>1</sup>. If the UK data is considered in more detail the picture is even better in relation to *full-time* students. For example, in respect to individuals starting in 2002-03, only 15.2% left higher education (HE) without a qualification. Of those who did graduate: 70.4% completed degree at first institution, 3.7% completing at a different institution and 8.1% still studying (NAO, 2007). These aggregates do however hide considerable variations between institutions, variations that appear to be strongly related to the ethnic and socio-economic make-up of the student body<sup>2</sup>.

The 'lower status' post-1992 universities in the UK generally recruit students with lower academic qualifications. These tend to be individuals from relatively poorer socio-economic backgrounds, and in these institutions, students from the ethnic minorities are over-represented (Connor *et al* 2004). These institutions tend to have both significantly higher non-continuation rates and non-completion rates. In 2004-05 the Russell group ('high status' institutions) showed continuation rates of around 95%, whereas in the post-1992 universities that average figure was about 7% lower and ranged from about 82% to 94% (NAO, 2007).

The institution used for the purpose of this study has both low completion rates and low continuation rates. For example, the continuation rate in 2005/06, at 84%, was at the lower range of the UK range cited above. Ethnic minority students represented 38.5% of the student body and had a 76% progression rate; compared to a 86% progression rate of their whites peers. The data used in the study relates to students 'expected' to graduate in 2005/06 and were full-time 'home' British students. The completion rate of these students was 59% (up to 6 years after enrolment). Although the dataset this is derived from is not strictly comparable with the UK average shown above (70.4%), it does give an indication of the high levels of variation within the sector. This is especially apparent amongst the 'new' universities with their wide range of student ethnic and socioeconomic differences.

Similar variations in completion rates are found internationally. For example, Goldrick-Rab & Roksa (2008) report that in the USA, the average completion rate of under 60% hides the fact that the rate is around 40% for students from low income families. There are also significant ethnicity related differences. Berkner and Cataldi, (2002) identify that 46% of African-American students and 47% of Hispanic students who enrolled in four-year institutions completed their degrees within six years, compared with 67% of whites and 71% of Asians.

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<sup>1</sup> This relates to 2004 data. Table A3.6 <http://www.oecd.org/dataoecd/4/55/39313286.pdf> The survival rates represent the proportion of those who enter a tertiary-type A or a tertiary type B programme (more occupationally orientated than A), who go on to graduate from either programme type.

<sup>2</sup> There are a number of studies, for example, Ramsden 2005, which suggest that higher education data should be looked at in a more disaggregated form.

## Study context and literature

Student retention is an area where there is lots of data available for analysis, but as Bill Rammell (2008)<sup>3</sup>, the then UK Higher Education minister, put it:

“This is an area where statistics of different sorts have produced a particularly large degree of confusion and argument. Is retention getting better, getting worse, or staying the same?”

This multiplicity of data has led to a significant number of different qualitative and quantitative models that attempt to identify why students drop out. An early paper by Johnes and Taylor (1989) identified: scholastic ability (A levels), subject mix and whether or not students stayed in university halls as key variables. Later studies have tended to look for additional factors. For example, a paper published by the National Audit Office in 2007 (NAO, 2007) identifies a whole list of issues: personal, lack of preparedness, lack of integration, dissatisfaction with the course, wrong choice of course, financial reasons and more attractive opportunities available elsewhere. Many of these are also identified elsewhere in the literature. For example, Bennett 2003, identifies financial hardship as a major contributing factor. Whereas Ozga et al 1998, identify issues such as ‘student preparedness for academic life’ and their ‘ability to make informed choices’.

The study undertaken in this paper focuses on the relationship between ethnicity and completion rates. The literature in this area attempts to explain the higher non-completion rates of ethnic minorities using a variety of approaches. For example, Khattab (XXX) highlights ethno-religious factors and the impact of cultural and social differences. Dywer *et al* (2006) on the other hand suggest that ethnic social capital may be a way of explaining differences in attainment (for example, through networking effects). A further possibility is identified by Momood (2006). He asks the question of whether or not Muslim minorities actually do under-perform. He asks whether in fact performance differences do exist given, that white students from wealthier socioeconomic backgrounds are being compared with minority students from poorer socioeconomic backgrounds.

This paper undertakes a statistical analysis that attempts to determine the main factors that lead to ‘under-performance’ of ethnic minorities in a UK ‘new’ university and therefore whether in fact non-completion should be treated as an ethnicity-related issue. This focuses on: socio-economic, ethno-religious, gender-related, subject-related and qualification related factors. The data used is described in the next section and the key relationships between ethnicity and the variables outlined above are identified. A ethnicity-focused probit regression model of degree completion rates then developed and discussed. Finally, a series of conclusion are drawn as to whether or not the non-completion ‘problem’ should be treated as an ethnicity-related issue.

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<sup>3</sup> [http://www.dius.gov.uk/news\\_and\\_speeches/speeches/past\\_ministers/bill\\_rammell/stewart](http://www.dius.gov.uk/news_and_speeches/speeches/past_ministers/bill_rammell/stewart). Access date 10/07/2009.

### **Data description: non completion rates and ethnicity**

The data used in this study relates to UK 'home' students (defined as having a UK postcode permanent address<sup>4</sup>) who were enrolled on a full-time or sandwich degree basis. The data-set is quite complex and so the study uses a 'reference case' as close to a 'standard entry' model as is possible. Non-standard entrants are excluded; these include those who were direct entrants to level 2 or 3 and also those who previously studied at the university at foundation or sub-degree level. The unit of analysis used are students 'expected' to graduate in 2004/2005. A distinction is also made between those who completed a standard three year full-time (FT) degree or a 4 year sandwich degree (SW) and those who completed within a 6 years period.

The number of 'expected' graduates in 2004/05 was 2818 (74.5% full-time). The actual numbers completing within the standard time frame was 1406 or 49.9%. By the year 2006/07 total completions from this cohort were 1664. This gives a non-completion rate of 41%.

The study is based on a sample of 2325. The 493 difference from the 'expected' graduate number relates to missing data<sup>5</sup>. There was no clear pattern in missing cases in respect to: gender, completion rates, ethnicity or social background. This indicated there were no significant sample selection issues.

### **Non-completion rates and their variation in relation to: ethnic, ethno-religious and socio-economic factors and entry qualifications**

The aggregate non-completion rate data of 49.9% (after standard period) and 41% (after 6 years) hides some highly significant variations relating to ethnic, religious and social-economic factors. From Table 1 it can be seen that non-completion rates for white students are significantly lower than those for black and Asian students. However, there are major differences between different sub-elements of the Black and Asian ethnic groups. For example, 65% of Black-Caribbean students failed to complete within standard time compared to 41% of Black-African origin students. In addition, Asian-Pakistani origin students performed considerably more poorly than their other Asian peers.

There are a considerable number of possible explanations for these differences. For example, there may be 'quality' differences between students with similar backgrounds. Shiner and Modood (2002), suggest that 'new' universities show a bias towards ethnic minorities, in that otherwise identical ethnic minority candidates are likely to be made an offer of a place to study<sup>6</sup>.

Another possible explanation of these variations are differences in social-economic class; which is usually a strong predictor of educational outcomes. It can be seen from Table 1 that nationally, HE participation rates are much lower amongst white students (38%) than amongst the ethnic minorities. Two thirds of white students come

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<sup>4</sup> This was used in order to differentiate between UK based home students and students based in other EU countries who are classified as home students within the data.

<sup>5</sup> A combination of incorrectly entered postcodes and also where ethnicity data was not provided.

<sup>6</sup> This is however refuted by Gittoes and Thompson (2007), who suggest that the differences found reflect inadequate model specification rather than bias.

from non-working class backgrounds, whereas two-thirds of Pakistani and Bangladeshi students have parents who are in manual work or are unemployed (Modood, 2006). From Table 2 it can be identified that white students were from relatively affluent backgrounds socioeconomic<sup>7</sup>, with a mean value of 57 (where 100 represents the most affluent background). This can be contrasted with students from minority backgrounds. It can be noted, for example, that Black-Caribbean and Asian-Pakistani students (who have the highest non-completion rates) are from the poorest backgrounds (32 and 31 respectively). This indicates that low continuation rates are possibly more a reflection of socio-economic factors rather than ethnicity. It is apparent from Table 2 that another variable that may be of significance is entry qualifications. It can be noted that there would appear to be a strong negative association between the entry qualification measure, tariff points<sup>8</sup>, and non-completion rates. This can possibly explain some of the variation within the Asian ethnic group. For example, Asian-Bangladeshis, who have significantly higher completion rates than Asian-Pakistani students, have superior entry qualifications and also have wealthier socio-economic backgrounds.

If we examine the non-completion rates of white students from poor backgrounds with similar educational qualifications (a deprivation index of 32 or less and tariff points of 165 or less) we find a non-completion rate of 54.6%. This is very close to those of Black-Caribbean and Asian-Pakistani students. Modood (2006) suggested that we have to be very careful about identify ethnic and ethno-religious cultural differences as being the reason minority students under-perform. He suggests that Islam can be a source of educational aspiration and motivation and should not be seen in terms of failing to encourage participation in British institutions (like HE). The evidence from this study would appear to support his suspicions.

**Table 1: Home students\* entry shown by ethnicity with an ‘expected’ graduation date of 2004/05**

Ethnic Group	Participation rates <sup>√</sup>	Total	Completion within standard time**		Total Completions***	
			Non-Completions	Non-completion rate	Non-Completion	Non-completion rate
Black African	73%	83	34	41%	26	31%
Black Caribbean	45%	57	37	65%	30	53%
Asian Indian	71%	239	132	55%	117	49%
Asian Pakistani	49%	128	86	67%	73	57%
Asian Bangladeshi	39%	32	16	50%	14	44%

<sup>7</sup> The socio-economic background measure relates to the student’s home address and is derived from *The Indices of deprivation 2004* [15]. These indices are based on ‘super output areas’ (SOA). The measure used in this study is obtained by mapping the SOA against the UK postcode file.

<sup>8</sup> Tariff points are used to measure the academic ability of students on entry to the module. These are used in the UK in order to make comparisons between different pre-higher education qualifications. For example, between “A” level and BTEC qualifications.

<b>White</b>	38%	1608	715	44%	552	34%
<b>Other ethnicity</b>		178	80	44.4%	68	38%
<b>All students</b>	40%	2325	1100	47.3%	880	37.8%
<b>Black total<sup>†</sup></b>		154	77	50%	60	39%
<b>Asian Pak/Bangladeshi</b>		160	102	64%	87	54%
<b>Asian all</b>		423	246	58%	214	51%

\*defined as having a UK home address postcode

\*\*3 years ordinary or 4 years sandwich degree

\*\*\* Completed within 6 years

<sup>†</sup> also includes black students from other ethnic backgrounds

<sup>√</sup> English participation rates 2001-2002 (Connor, 2004) – see Modood paper

**Table 2: Entry qualification points and socio-economic background by ethnicity**

Ethnic Group	Full data set		Complete degree within 6 years		Non-completions	
	Mean points*	Socio-economic background**	Mean points*	Socio-economic background**	Mean points*	Socio-economic background**
<b>Black African</b>	170	42	183	47	135	31
<b>Black Caribbean</b>	159	32	159***	45	159	20
<b>Asian Indian</b>	194	42	188	47	163	20
<b>Asian Pakistani</b>	173	31	180	54	160	20
<b>Asian Bangladeshi</b>	199	40	207	45	175	21
<b>White</b>	229	57	236	57	202	58
<b>Other ethnicity</b>	195	46	202	52	179	36
<b>Total sample case weighted Mean</b>	209	50	211	52	187	46
<b>Black total</b>	166	39	174	45	150	24
<b>Asian Pak/Bangladeshi</b>	180	33	188	47	163	20
<b>Asian all</b>	188	39	194	48	171	30

\*These are mean qualification tariff points based on a sample of 1428<sup>9</sup>.

\*\*Derived from the 2004 'Index of Deprivation' total deprivation estimate. This measure is adjusted from the original data to show 100 as the least deprived area and 0 as the most deprived area. The values shown are means and based on a total sample of 2325.

\*\*\*Note the mean tariff points for Black Caribbean students are identical for completion and non-completed categories.

<sup>9</sup> This is a potential source of bias if the missing cases are not representative of the sample as a whole. This does not appear to be an issue. There are differences, but the omitted cases do not appear show substantial bias in terms of specific personal characteristics. For example, Black-Caribbean students represent 2.45% of the full data-set and 2.1% of the tariff points data. Similarly for Asian-Pakistani the respective figures are 5.5% and 5.2% and for whites: 69.2% and 72%.



### Non-completion rates and their variation in relation to gender and subject of study

It is found within the UK that females tend to out-perform their male counter-parts (NAO, 2007). This was also found in this study where non-completion rates across the university for females, 34.5%, were considerably lower than those of males, at 41.5% (Table 3). Khattab (XXX) suggests that a combination of ethno-religious and gender related factors may account for differences from this general pattern in respect to some ethnic minority groups. He argues that differences in traditional practices and perceptions to the value of education for men and women can partly explaining gender-related variations. From Table 3 it can be identified that non-completion rates for female students from an Asian-Muslim background are significantly higher; this despite their being a rough gender balance in initial enrolment numbers. These figures can be contrasted with Asian-Indian students where, not only is the non-completion rate lower for females, there is also a significantly higher female enrolment rate in the first instance. In respect to black students, female Black-Caribbean students underperform relative to males. It is not clear from the data why this should be the case.

Completion rates amongst subjects varied considerably. As can be seen in Table 4 these vary between 36.7% (law) and 72.8% (subjects allied to medicine). It is therefore necessary to consider whether or not different ethnic groups are over/under represented in different subject areas. Other studies have found that there is a tendency for Asian and Black students to aspire to enter the professions (Connor *et al* 2004, for example, found that the national trend was for ethnic minorities to be overrepresented by double in law and medicine). In this university the main route into the ‘professions’ is represented by law – where there is a high failure rate. It can be noted in Table 4a that whereas law takes 8.9% of all enrolments, it enrolls 21.7% of Black Caribbean, 21.6% of Asian Pakistanis, and 25% of Asian Bangladeshis. It can also be noted that the latter two groups are under-represented in high-completion-rate subjects such as ‘subjects allied to medicine’ and Creative arts and design’.

**Table 3: Degree completions by ethnicity and gender**

Ethnic Group	Female			Male		
	Total	Non-Completion	Non-completion rate	Total	Non-Completion	Non-completion rate
Black African	34	9	26%	49	17	34%
Black Caribbean	41	24	58%	16	6	38%
Asian Indian	130	54	42%	109	63	58%
Asian Pakistani	67	43	64%	61	30	49%
Asian Bangladesh	16	8	50%	16	6	38%
White	835	264	31%	773	288	37%
Other ethnicity	90	29	32%	88	39	44%
<b>Total</b>	<b>1207</b>	<b>416</b>	<b>34.5%</b>	<b>1118</b>	<b>464</b>	<b>41.5%</b>
<b>Black total</b>	<b>83</b>	<b>36</b>	<b>43%</b>	<b>71</b>	<b>24</b>	<b>34%</b>
<b>Asian Pak/Bangladeshi</b>	<b>77</b>	<b>36</b>	<b>47%</b>	<b>83</b>	<b>51</b>	<b>61%</b>
<b>Asian all</b>	<b>216</b>	<b>95</b>	<b>44%</b>	<b>207</b>	<b>119</b>	<b>57%</b>

**Table 4: Degree completions by subject**

Subject Group <sup>10</sup>	Total	Non-Complete	complete	% non complete	% Comp
<b>0</b>	76	30	46	39.5%	60.5%
<b>1</b>	397	108	289	27.2%	72.8%
<b>2</b>	249	110	139	44.2%	55.8%
<b>3</b>	59	34	25	57.6%	42.4%
<b>4</b>	257	139	118	54.1%	45.9%
<b>5</b>	276	114	162	41.3%	58.7%
<b>6</b>	235	68	167	28.9%	71.1%
<b>7</b>	297	188	109	63.3%	36.7%
<b>8</b>	400	151	249	37.8%	62.3%
<b>9</b>	105	34	71	32.4%	67.6%
<b>10</b>	350	98	252	28.0%	72.0%
<b>Total</b>	2701	1074	1627	39.8%	60.2%

**Table 4a: degree enrolment by ethnicity and degree subject**

Subject	Subject Percent of total	Percentage of ethnic group taking the subject								
		Black African	Black Caribbean	Black total	Asian Pakistani	Asian Bang	Asian Indian	Asian all	White	Other ethnic
<b>0</b>	2.8%	4.8%	0.0%	2.6%	4.5%	0.0%	2.1%	1.2%	3.3%	1.7%
<b>1</b>	16.1%	6.0%	17.5%	11.0%	8.2%	6.3%	8.3%	8.2%	19.3%	7.9%
<b>2</b>	9.9%	2.4%	7.0%	3.9%	11.2%	12.5%	8.7%	9.6%	10.8%	8.4%
<b>3</b>	2.4%	3.6%	0.0%	1.9%	2.2%	0.0%	1.7%	1.6%	2.5%	2.8%
<b>4</b>	9.1%	20.5%	7.0%	16.2%	22.4%	9.4%	19.1%	19.2%	5.7%	9.6%
<b>5</b>	9.5%	8.4%	0.0%	4.5%	4.5%	0.0%	6.6%	6.1%	11.1%	5.6%
<b>6</b>	8.9%	6.0%	15.8%	9.7%	6.7%	15.6%	7.5%	8.5%	9.1%	9.0%
<b>7</b>	8.9%	19.3%	21.1%	19.5%	21.6%	25.0%	12.9%	16.9%	6.0%	9.6%
<b>8</b>	14.7%	21.7%	14.0%	19.5%	12.7%	21.9%	23.7%	19.5%	12.4%	21.3%
<b>9</b>	4.2%	1.2%	3.5%	2.6%	3.7%	3.1%	1.2%	2.1%	4.3%	9.0%
<b>10</b>	13.6%	6.0%	14.0%	8.4%	2.2%	6.3%	8.3%	7.0%	15.5%	15.2%

<sup>10</sup> 0= unspecified, 1= Subjects allied to medicine, 2= Biological sciences, 3= Physical sciences, 4= Mathematical/computer science, 5= Engineering, 6= Social/economic political science, 7= Law, 8= Business and administrative studies, 9= Information science, 10= Creative arts and design.



## **Some thoughts on whether or not non-completion an ethnicity related issue**

The examination of the above tables suggests that any conclusion that ‘ethnic minority students under-perform relative to their white peers’ need to be treated with a great deal of caution. It is clear from this study of a UK ‘new’ university that there are significant differences in the social classes of the white and non-white students who enrol. It was found that if we consider white students from the same class background, and who had similar qualifications to their ethnic minority peers, the non-completion rates were quite similar. This does not mean however that culture-related differences are not significant. For example, female Muslim students were found to have a much higher non-completion rate than their male counter-parts (traditionally it is seen as being less important for a woman to be educated). Culture also plays a part in the choice of subject. In this data-set Asian students in general appear to be over-represented in ‘hard’ subjects like law and under-represented in ‘easy’ subjects like the create arts. It does suggest that this is a highly complex issue and that it is not possible to isolate simple ethnicity-related cause and effect explanations of underperformance.

## **Regression model of degree completion rates**

The regression results presented below in Table 5 are from a hetroscedasticity-adjusted probit model<sup>11</sup> that takes the form of an educational production function. The dependant variable is the completion of a degree; where: the ‘expected’ degree completion date was 2004/2005 and completion as defined as being within a period of 6 years. The probability of completion is modelled as being a function of: academic ability (measured in terms of qualifications on entering university), personal characteristics (gender, ethnic origin, if disabled, if the individual was a mature student on entry and whether or not they lived in the parental home), economic background (using the index of total deprivation) and a series of interaction-effects (between ethnic origin and a series of other explanatory variables).

The conclusion from the section above calls into question whether or not we should be treating non-completion as an ethnicity related issue. It may very well be however that the models of completion rates found in the literature partly driven by the easy availability of data in respect to ethnicity. This is an issue that will be discussed at a later point.

Probability of Completion =  $f$  ( academic ability, subject of study,  
personal characteristics, economic background, interaction effects)

The model contains 26 independent variables (see Appendix 1 for variable descriptions) and uses a sample of 1311 observations. The omitted ‘reference case’ in respect to ethnicity is the ‘white’ ethnic group and the omitted ‘reference case’ in respect to subject of study are: physical sciences and mathematical/computer science plus all unspecified subjects.

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<sup>11</sup> Using Limdep v.9: Greene, W.,H., Econometric Software, inc, Plainview, NY.

The model predicted reasonably well, with the percentage of correct predictions being 80%. The McFadden likelihood ratio index, or Pseudo-R<sup>2</sup>, was 0.1537 and the Ben-Akiva and Lerman adjusted likelihood ratio test value was 0.711. The impact of individual explanatory variables on degree class can be identified from the marginal effects column shown below.

**Table 5: Probit marginal effects and model coefficients**

Variable	Marginal Effects	Model Coefficients	Variable Mean
Constant	0.20626**	1.01061***	
PAK	-0.36844***	-1.80521***	0.0511
BLAFR	-0.38935**	-1.90769**	0.0282
BLCAR	-0.36058***	-1.7667***	0.0206
INDAS	-0.24882***	-1.21915***	0.0931
OTHRER	-0.31994***	-1.56759***	0.0694
BANG	0.10372	0.50817	0.0183
TARIFF	0.00061*	0.00427***	218.4089
TOTAL	-0.00063	-0.00311	53.9190
GENDER	0.00694	0.034	0.5652
MATURE	0.00375	0.01839	0.1068
DISABLE	0.12943***	0.63416**	0.0584
PARENTH	-0.04574*	-0.22413*	0.3219
SUBB	-0.11745**	-0.57545**	0.1686
SUBC	-0.12668**	-0.62071**	0.1022
SUBH	0.25403**	1.24466**	0.0664
SUBL	-0.14196***	-0.69553**	0.1030
SUBM	-0.33739***	-1.6531***	0.1137
SUBP	-0.15209**	-0.74519**	0.0511
SUBN	-0.07229	-0.3542	0.1442
SUBW	-0.16265***	-0.79693***	0.1617
INT1	0.00529***	0.02593***	1.7937
INT2	0.00743***	0.03638**	0.6253
INT3	0.00469***	0.02297***	4.0717
INT4	0.00462***	0.02265***	3.1637
INT5	0.00275**	0.01349**	4.7674
INT6	0.22159**	1.10332**	0.0244
Significant at: 90% *, at 95% **, at 99% ***			

From Table 5 it can be identified that ethnicity and ethno-religious differences appear to have a strong, and statistically significant, impact on completion rates. This is after controlling for factors such as social background, subject of study and entry qualifications.

The model indicates that, compared against the 'white' reference case, Pakistani ethnic origin students (PAK) are 36.8% less likely to complete a degree. The corresponding figures for black students (BLAFR and BLCAR) are similar. It can be noted however, that the degree of under-performance of Indian origin students (INDAS) is substantially lower. Possibly most interesting of all, for Bangladeshi

(BANG) origin students the coefficient is positive (although not significant). This suggests that after controlling for other factors, there is tentative evidence to suggest that this group performs better than the white reference case. The non-completion rate is substantially lower for Bangladeshi students (44%) than their Muslim Pakistani peers (57%). Although this rate is significantly higher than for whites (34%), the positive sign can possibly be explained by the former being over-represented in high non-completion subjects like law (25% compared to 8% of white students) and underrepresented in relatively low non-completion subjects such as those allied to medicine (6.3% compared to 19.3% for whites).

The results indicate that there are a number of interaction effects between ethnicity and other factors. A number of positive effects were found in relation to social background and ethnicity. This indicates that ethnic minority students, from a given socio-economic backgrounds, are more likely to complete their degree than a white reference case student from the same background. For example, for Pakistani origin students this interaction effect (INT1) is a small, but statistically significant, 0.5%. Similar small social background related interaction effects are found in respect to black Caribbean, 'Other race' and Indian origin students.

The largest size interaction effects relate to a three-way interaction between living at home, being female and being Muslim (INT6). The model suggests that these students show a substantially higher probability of completion (22%). This despite: students living at home having a 4.5% lower probability of completion (PARENTH), and female Muslim students showing lower completion rates than their male peers (Table 3). Data from HEFC<sup>12</sup> indicates that students living at home (where address data is known) generally have higher non-continuation rates. The HEFCE study also found that home-based students are more likely to be found in: lower socio-economic groups, be female and be Bangladeshi/ Pakistani students. This goes some way to explain the high rate of home-based students in the data-set used in this study (29% compared to a UK average of about 20%).

The significance of both the direct effects and the interaction effects identified indicates that the relationship between ethnicity and completion rates is highly complex and that we have to be very careful about the conclusions that can be drawn from studies such as these. The dataset has produced some results which may be considered surprising if they are compared to similar studies. For example, gender is found to be statistically insignificant (although the sign is as expected). This is despite the female completion rate in the dataset as a whole being substantially higher than that of males (65% compared to 58%: see Table 3). The lack of significance indicates that gender differences may reflect other factors; such as the tendency of females to study high-completion-rate subjects, such as Nursing and Creative Arts and Design.

Educational qualifications can be seen as an indicator of ability and/or student motivation levels. The entry qualifications variable (TARIFF) used in the model is

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<sup>12</sup> [http://www.hefce.ac.uk/pubs/hefce/2009/09\\_20](http://www.hefce.ac.uk/pubs/hefce/2009/09_20)

statistically significant and, as expected, the sign is positive. The impact of this variable on completion rates appears however to be relatively small, as can be seen in terms of a low tariff point elasticity of completion of 0.158.

Despite the apparently strong positive relationship between socio-economic background and completion rates identified in Table 2 the coefficient in the regression model is both negative and insignificant. This may possibly be a reflection of this variable having differential impacts on different groups<sup>13</sup>. As noted above, the interaction effects between this variable and: Asian Pakistani (INT1), Black Caribbean (INT2), Asian Indian and Other ethnic origins (INT4) are all positive and significant.

Finally, it should be noted that the subject related coefficients are both large and statistically significant. This is as would be expected from the variation in completion rates identified in Table 4. It can be noted that the ethnicity-related differences in the subject mix that students choose (Table 4a) may partially explain why a number of the coefficients found in Table 5 are possibly a little unexpected.

### **Discussion: Is non-completion an ethnicity issue and how can we reduce non-completion rates?**

There has been considerable effort applied to attempting to develop academic models of what determines non-completion. For example, Bennett (2003) highlights financial hardship. Ozga et al (1998), on the other hand, put it down to predominantly ‘a lack of preparedness for university life’.

Non-continuation figures are higher for ethnic minority students across the UK. However, some studies suggest that ethnicity may not be a significant issue in this respect. For example, it has been shown that after controlling for differences in: entry qualifications, subject and age, full-time ethnic minority students do slightly better than expected relative to HEFCE benchmarks (cited in Connor *et al* 2004). This can be contrasted with the finding in this paper (which uses more control variables) and which, at first sight, suggests that ethnicity explains a considerable amount of the variation. This does not necessarily prove however that ethnicity *per se* is the issue. It may very well be that ethnicity appears so significant because important explanatory variables have been omitted from the model, variables whose affects are being manifest as ethnicity effects in the model. Davis and Elias (2003), for example, identify some of these possible factors, such as: unmet expectations about the HE experience; the ‘wrong’ choice of course, financial difficulties, poor teaching quality and the feeling of isolation or hostility in academic culture. These are factors which are difficult to model using standard regression procedures.

It is likely that some of these non-completion related variables are more significant than others in respect to ethnic minority performance. For example, financial problems are likely to be more of an issue for students from lower socioeconomic

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<sup>13</sup> Eliminating the interaction effect terms from the model does in fact turn the coefficient both positive and significant at the 10% level.

groups. Yorke (1999) found that this was particularly important for black students<sup>14</sup>. Adia *et al* (1996), also for example, identified that ethnic minorities found the transition between school and HE more difficult than their white peers.

In a national survey of around 1300 undergraduates Connor *et al* (2004) asked second year ethnic minority students about whether they had considered leaving university and the reasons why. They found that black students were more likely to consider leaving than others; in particular, Black African women (48%) and Black Caribbean men (43%). The reasons were mainly in relation to: financial difficulties and dislike of the course. The survey also found ethnicity-related differences in respect to the extent of, and type of, difficulties affecting academic performance. Black students were found as being most likely to have experienced problems in general. Whilst, for example, Indian extraction students were most likely to cite that their main problem was that 'academic work was too hard'. Pakistanis and Bangladeshi extraction students, on the other hand, were more likely to cite that they 'did not get enough encouragement from lecturers'.

Factors such as these possibly account for some of the variation explained by the ethnicity variables in this study. Whilst, for example, it can be seen in Table 3 that non-completion rates are high for both male and female Black Caribbean groups, we should perhaps be identifying this in relation to their greater financial difficulties relative to the white ethnic group reference case, rather than in relation to their ethnicity *per se*.

There is some evidence to suggest that academic performance in the university in this study is affected by learning-style differences. The present author found that black accounting/economics students have poorer levels of engagement in the learning process (Rodgers, 2009). This could possibly be because they have to work the finance their studies (Connor *et al* 2004, found they were the group that spent the most time in paid work). This clearly is not an ethnicity related issue. However, this does not mean that we can necessarily discount ethnicity related factors. For example, an alternative explanation might be that they felt culturally alienated from the teaching style.

The conclusion that can be drawn from this paper is that although the statistical model produced identifies ethnicity as an important explanatory variable, we should possibly look at the non-completion issue in holistic terms and not think of it in terms of specific problems affecting specific ethnic groups. It would perhaps be more appropriate to look at this issue as being a series of problems that can affect any students (irrespective of ethnicity), but which are more likely to affect specific groups. If there is a non-completion problem to solve we need to focus on the complete 'student experience' rather than concentrating on narrow ethnicity-related issues such as alienation in respect to teaching/learning styles in relation to specific ethnic groups. We possibly need to look at the functions normally provided by students unions in the UK as requiring a stronger emphasis; in a similar manner to the 'Student Affairs' approach found in the USA. Like UK unions, these divisions are

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<sup>14</sup> This is possibly partly a reflection of the finding from Connor *et al* (2004) that this group was the least likely to get parental contributions.

generally student-centred. However, they generally have a significantly wider remit and provide services relating to: admissions, financial aid, student advising, student unions, counselling services, student conduct, career services, residence life and student activities (Schuh *et al*, 2001). The 'student experience' possibly needs to be considered from a holistic perspective if we wish to minimise non-completion rates and this may require additional investment in these types of areas rather than concentrating on narrower 'academic' issues.

It is clear however that, although we may be able to reduce non-completion rates to some extent, there are factors beyond our control which mean there will always be considerable differences in non-completion rates. Differences which, on first impression, appear to be ethnicity related. This study finds evidence that Asian students are more likely to pick 'hard subjects' which is something we can do little about. It is also possibly that for some minority groups the subject they study reflect the aspirations of the family (or, as Connor *et al* (2004) found, for career/employment reasons) rather than the student's personal interest. Dissatisfaction with the academic aspects of their experience may be because they just don't like the subject rather than being anything in relations to cultural alienation. We also have to accept that differences in students' socioeconomic backgrounds will have an impact on their completion rates through the financial pressures they face. In a rather perverse way, higher non-completion rates amongst ethnic minorities may not be a totally negative sign as it may partly reflect the fact that minority students from lower socioeconomic groups are more likely to go into HE than their white peers from the same social classes.

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## Appendix

**Table A1: Variable definitions**

Variable	Description
TARRIF	Qualification entry points
TOTAL	Index of depravation of home address (outside of term-time) where 0 = most deprived and 100= least deprived
GENDER	Dummy: female =1
MATURE	Dummy: over age of 21 =1
DISABLE	Dummy: disabled =1
PARENTH	Dummy: live in parental home during term-time =1
PAK	Dummy: Asian Pakistani ethnic origin =1
BLAFR	Dummy: Black African ethnic origin =1
BLCAR	Dummy: Black Caribbean ethnic origin =1
INDAS	Dummy: Asian Indian ethnic origin
OTHRER	Dummy: Other race ethnic origin
BANG	Dummy: Asian Bangladeshi ethnic origin
SUBB	Dummy: Subjects allied to medicine subject group
SUBC	Dummy: Biological science subject group (including psychology)
SUBH	Dummy: Engineering subject group
SUBL	Dummy: Social, Economic and political studies subject group
SUBM	Dummy: Law subject group
SUBP	Dummy: Media and information science subject group
SUBN	Dummy: Business subject group
SUBW	Dummy: Create Arts and design subject group
INT1	Interaction term: depravation and Asian Pakistani ethnic origin
INT2	Interaction term: depravation and Black Caribbean ethnic origin
INT3	Interaction term: depravation and Asian Indian ethnic origin
INT4	Interaction term: depravation and other race ethnic origin
INT5	Interaction term: tariff points and Black African ethnic origin
INT6	Interaction term: living in parental home and Muslin ethnic origin and Female