Educational advantage and employability of UK university graduates

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Exploring educational advantage in the UK via graduate employment of joint honours degrees by examining pre-university tariff and degree classification

1. Introduction

In the United Kingdom (UK) the majority of undergraduate university students specialise early and study just one academic subject area at bachelors degree level (UCAS, 2019a). This is commonly known in the UK as a 'single honours degree'. This is in contrast to many other university educational systems globally, for example in North America, where students must demonstrate a breadth of knowledge across several academic disciplines, combined with a depth of knowledge in their major subject. The main reason for early specialisation in the UK, both at A-Level and university, lies with the shortness of the UK bachelors degree which is just three years in length. Elsewhere bachelors degrees can be longer which provides more space to explore alternative subjects before specialising. For example, in the USA, Canada and Australia, where bachelors degrees typically last four years.

Notwithstanding the emphasis on early specialisation in the UK, nearly all universities will allow their students to study two or even three academic subjects in parallel (UCAS, 2019b). These are referred to in the UK as 'joint or combined honours degrees' (hereafter referred to as 'joint honours degrees'), and would be known as a double major internationally. Pigden and Moore (2018) has a more detailed account of the characteristics, advantages and disadvantages of joint honours degrees in the UK, and other studies expand on the learning experience of joint honours students (Hodgson, 2011; Pigden, 2016; Pigden and Jegede, 2016; Pigden and Jegede, 2018). In short, it is certainly attractive to the individual student to follow their passions and study two or three subjects of interest, to keep their options open and delay specialisation. However additional effort is required to study often diverse subjects, each having their own unique pedagogies, paradigms, terminologies, subject specific vocabulary and approaches to assessment. Joint honours degree students may also experience not fully belonging to either sub-culture, potentially feeling left out as an 'outsider'. These experiences can impact on the student learning experience and academic outcomes (Slaten et. al, 2014; Pigden and Jegede, 2019).

In the 2018 UK university admissions cycle (UCASa, 2019), just under 10% of all applications and acceptances were for students wishing to study joint honours degrees, and so this popular mode of study does warrant scrutiny, and it is reasonable to question whether joint honours degrees are providing a sound learning experience and excellent academic and employment outcomes. However the publicly available datasets tend to apportion their data for joint honours students and graduates across the two or three subjects studied, and so the overall joint honours degree cannot be directly evaluated. These public datasets include the National Student Survey (NSS), (OfS, 2018), the Destinations of Leavers from Higher Education (DLHE) survey data, (HESA, 2018), Longitudinal Educational Outcomes (LEO), (DfE, 2019a) and the various university league tables[1].

[1] Complete University Guide https://www.thecompleteuniversityguide.co.uk/league-tables/
Guardian League Table https://www.theguardian.com/education/ng-interactive/2018/may/29/university-league-tables-2019
Times Good University Guide https://www.thetimes.co.uk/article/good-university-guide-in-full-tp6dzs7wn

The current study seeks to directly evaluate joint honours degree employment outcomes, and address the issue of apportioning their outcomes across the subjects studied.

2. Literature Review

To understand student choices in their university and subject, Cantwell et al. (2018) and Marginson (2016a) note that in high participation university systems, such as in the UK and other developed countries, the higher education has become a standard achievement and to be expected. The proportion of young people going to university increases yet further simply because it becomes normative—even obligatory—to pursue higher education, particularly in order to access 'graduate' jobs (Clarke, 2018). Although Taylor et al. (2018, p.2) do concede that 'education is intrinsically rewarding, and produces a variety of benefits such as greater civic participation that are not easily quantified'. However with the ever-rising costs to the individual of a university education, the pressure to achieve a return on investment grows. Therefore the graduate employment rate of joint honours graduates in the UK is of interest, and whether this type of degree delivers this aspect of value for money.

Exploring value for money further, in the UK, the 'marketization' of higher education and continued growth in student numbers is partly due to the removal of student number controls in 2015/16, meaning that universities are now free to recruit as many students as they wish without financial penalty. Despite the rapid expansion of students numbers, there remains a positive median earnings differential between graduates and non-graduates over the period of 2008 – 2018 (DfE, 2019b), with graduate median earnings consistently around £10k more than non-graduate median earnings.

However this earnings differential does not apply evenly across all university subjects. For example, 'medicine, mathematics and economics graduates all typically earn at least 30% more than the average graduate, while creative arts graduates earn around 25% less on average' (Belfield et al, 2018, p.5). For joint honours subjects, although direct earnings data is not used in the current study, since there is a persistent positive median earnings differential between graduates and non-graduates, the proportion of graduates in highly skilled destinations (graduate-level employment or further study) serves as a reasonable proxy. Pigden and Moore (2018) find nationally an approximate -3% point negative gap between the proportion of joint honours graduates in a highly skilled destination compared with single honours graduates. Pigden and Moore (2017) analyse the combinations of subjects that are most likely to lead to highly skilled destinations following graduation, and find that the gap in highly skilled destinations between single and joint honours graduates grows larger for humanities subjects, and is smaller for Science, Technology, Engineering and Mathematics (STEM) subjects.

The graduate earnings differential varies substantially with personal characteristics such as gender and ethnicity (Jacobsen, 2007). The differential is also influenced by degree classification, for example Naylor et al. (2016, p.2) who find 'an estimated wage premium for a good degree relative to a lower degree class of circa 7% by age 30 for graduates born in 1970'. Lastly, earning vary with the prestige of the university attended (de Vries, 2014; Britton, 2016). There is a strong correlation between high tariff universities and higher median graduate earnings (DfE, 2018), where 'tariff' is a measure of the level of educational attainment of students prior to attending university, as measured by the Universities and Colleges Admissions Service (UCAS) tariff of university applicants (DfE, 2018). In the UK the highest tariff universities are commonly referred to as the 'Russell Group'. The Russell Group comprises twenty-four research-intensive, highly selective universities, created prior to Further and Higher Education Act 1992. At that point thirty-five UK polytechnics became universities. These so-called 'Post-92' universities, now

numbering seventy-eight, tend to be more teaching-oriented, lower UCAS tariff institutions. The sixty-six 'Pre-92' universities, which include the Russell Group, are typically research-intensive although generally less selective than the Russell Group itself. Given the independent nature of universities in the UK, there is not complete homogeneity in any of these groupings, however considering the universities that fall into either the Russell Group or Post-92 group, does facilitate evaluation at the extremes of the UK higher education system. For example, looking at UCAS tariff upon entry to university:

Average tariff 2017/18 (Heidi Plus):
Russell Group – 173.4
Post-92 – 119.2
Pre-92 – 153.3

Pigden and Moore (2018) find that both single and joint honours graduates from Russell Group universities (older, research-intensive, higher UCAS tariff) are more likely to be in highly skilled destinations compared with the national average. Pigden and Moore (2018) also find that the gap between the proportion of joint honours graduates in highly skilled destinations compared with single honours graduates is much smaller at the Russell Group, compared with Post-92 universities (newer, teaching-oriented, lower UCAS tariff). However that study cannot explain the gap in the rate of highly skilled destination that still persists between the honours types, albeit far smaller at the Russell Group.

The enhanced graduate employment rates and earnings differential for high tariff universities poses a difficulty for social mobility since the most prestigious universities and courses in England and in the world, remain dominated by students from the most privileged family backgrounds (Marginson, 2016b). On average, the Russell Group receive 41.4% of all UK 18 year old student applications from the most educationally advantaged students (Evennett, 2018), whereas only 6% come from the most disadvantaged areas (HESA, 2019a). Looking across the Russell Group, Pre- and Post-92 universities:

Percentage of young entrants from low participation areas (HESA PI 17/18 table 1b):
Russell Group – 7.52%
Post-92 – 13.9%
Pre-92 – 8.6%

Pigden and Moore (2019) evaluate the rate of highly skilled destination of joint honours graduates compared with single honours graduates, correlated with a measure of educational disadvantage, POLAR4 quintiles (HESA, 2019b). They show that, at the national level, graduates who come from the higher quintiles (more educationally advantaged at the point of admission to university), are more likely to be in a highly skilled destination post-graduation. This is true for both single and joint honours graduates, and demonstrates the lasting effect of educational advantage, even following a university education.

Pigden and Moore (2019) highlight the impact of the type of university at which the graduate has studied. They show that all Russell Group graduates, irrespective of their POLAR4 quintile, are far more likely to be in a highly skilled destination than single or joint honours graduates from the same quintile, but graduating from Post-92 universities. Indeed even the lowest quintile graduates of the Russell Group have a greater rate of highly skilled destination than the highest quintile graduates from Post-92 universities, true for both single and joint honours graduates. Secondly, high quintile joint honours graduates are proportionately far more likely to study at a Russell Group university than high quintile single honours graduates. That study

cannot directly explain this difference, nor the persistent gap between joint and single honours. Other personal characteristics such as UCAS tariff, degree classification, the subjects studied, gender, age and ethnicity are likely to contribute.

Since it is clear that choice of university has such a large effect on highly skilled destinations, why do high tariff students, from educationally disadvantaged backgrounds, not always choose their university to maximise their potential for success? Callender and Dougherty (2018, p.19) challenge the assumption that students are 'rational calculators primarily weighing the economic costs and benefits of higher education and the relative quality of institutions and programs.' They reflect on the relationship between social background and students' choices, and how that leads to the reproduction and legitimisation of social inequality. 'Many working class students "under-match" by picking institutions less selective than they are capable of because they fear that higher prestige institutions will be "snobbish" and they will not fit in (Read et al., 2003; Reay, 2001; Mullen, 2010)' (Callender and Dougherty, 2018, p.19). Furthermore, 'students fear that in succeeding at university, particularly if far from home, they will grow into new identities that their family and community may reject (Archer et al. 2002; Reay 2001, 2005; Reay et al. 2005; Plikuhn and Knoester 2016; see also Jones 2016; Reay et al. 2010)' (Callender and Dougherty, 2018, p.20).

It is likely that students from lower socio-economic and non-traditional backgrounds are: less likely to attend university, and to attend high prestige institutions specifically; more likely to drop out without completing their studies; less likely to be engaged in extracurricular activities; and, less likely to gain a 'good degree' in the form of a classification of 2:1 or a 1st (Purcell et al. 2013; Bathmaker et al. 2013, 2016; Crawford et al. 2017; Reay 2017; Croxford and Raffe 2013, 2014; Social Market Foundation 2017).

Therefore, Callender and Dougherty (2018) note that the university system remains highly stratified, despite the expansion of student numbers. As Marginson (2016a, p. 421) observes, 'higher education provides a stratified structure of opportunity' with students from affluent families dominating 'high value positions within higher education.' Arum et al. (2007) note that university expansion has not reduced and may actually exacerbate inequalities (Marginson 2016a, 2016b; Stich and Freie 2016).

To build on previous work, the current study explores differences in joint and single honours graduates and highly skilled destinations, correlated with UCAS tariff, educational advantage at the point of entering university, via POLAR4 quintiles, and degree classification. These variables are explored at the national level and within Russell Group and Post-92 universities. It is acknowledged that illustrating only the Russell Group and Post-92 universities excludes forty-two UK universities that are Pre-92 but not Russell Group. However the current study will highlight the extremes of the UK higher education sector, as well as the national picture by incorporating the entire set of universities.

3. Methodology

The current study used the same methodology and analysis of highly skilled destinations (defined as either graduate employment or further study) for joint honours graduates used in Pigden and Moore (2017, 2018, 2019), and a short summary is presented here. We complemented the ongoing teaching quality assessment of UK universities under the Teaching Excellence Framework (TEF) (Higher Education Funding Council for England, 2017) by using the same criteria for highly skilled employment or further study as defined by the Higher Education

Funding Council for England (2015), namely that highly skilled employment was any occupation within categories 1-3 of the Standard Occupational Classification (Office for National Statistics, 2010). All further study was also considered to be highly skilled and was therefore included wherever highly skilled destinations were referred to.

In order to identify the proportion of graduates in a highly skilled destination, the Destinations of Leavers from Higher Education (DLHE) survey data, provided by the Higher Education Statistics Agency (HESA), was analysed via a unique, customised dataset into which HESA incorporated additional, publicly non-published data on the academic subjects studied by the graduate. We used the Joint Academic Coding System (JACS), used by HESA to classify academic subjects. By analysing the subjects studied, joint honours graduates could be identified analytically. Our customised DLHE dataset included up to three JACS principal subjects studied by the graduate. Where a degree comprised academic subjects studied from a single JACS subject area then this was deemed a single honours degree, and where the subjects studied were drawn from different JACS subject areas, then these were defined in our study as joint honours degrees. Pigden and Moore (2018), has further details and the limitations of this approach to defining and identifying joint honours degrees via the DLHE survey data. For example some pairs of subjects within the same JACS subject area such as languages or social studies, would normally be identified as joint honours, yet were categorised as single honours in the current study. The effect of this was to identify joint honours degrees only as those where the subjects studied were non-cognate. Secondly, our algorithmic approach was unable to discern whether a degree comprised a major/minor or a true joint honours degree, where the split in the subjects studied was equal. The magnitude of the impact of studying true joint honours rather than a major/minor would be a point to debate, but was identified as a limitation of this study.

In the analyses of DLHE published by HESA, joint honours graduates are apportioned across the subjects studied, and so cannot be directly evaluated. The current study enabled identification of joint honours graduates and directly explored their rates of highly skilled destination for the three most recent years of the DLHE survey: 2014/15 to 2016/17. We also analysed, over the same time period, the graduates' pre-university educational attainment, via their UCAS tariff points. The UCAS tariff used was the 2001-2017 version, that aligned with the time period of our DLHE dataset. We also included the graduates' degree classification, and their POLAR4 quintiles. As in Pigden and Moore (2018, 2019), we considered whether graduates had studied at one of the Post-92 universities (newer, teaching-oriented, lower UCAS tariff), or at a Russell Group university (older, research-intensive, higher UCAS tariff) in order to analyse the graduate outcomes from these two different groups of universities.

To compare single honours degrees with directly related joint honours degrees, in some of the tables and charts we removed 'single honours only degrees', i.e. academic subjects were removed that did not feature in any of the joint honours degrees in the DLHE dataset. For example 'JACS B5 Opthalmics' and 'JACS A4 Clinical Dentistry'. See Table 1. The rationale was that the current study sought to establish whether there was an observable impact in studying a joint honours degree comprising subjects that were also available to study as single honours, i.e. any impact was inherent in this mode of study, rather than in the actual subjects studied.

Table 1 Non-joint honours subjects

JACS Code	Principal Subject
A1	Pre-clinical Medicine
A2	Pre-clinical Dentistry
A9	Others in Medicine and Dentistry
B5	Ophthalmics
G02	Broadly based programmes in computer science (2011/12 only)
D1	Pre-clinical Veterinary Medicine
D2	Clinical Veterinary Medicine and Dentistry
D9	Others in Vet Sci, Ag and related subjects
H9	Others in Engineering
I5	Health Informatics
J1	Minerals Technology
K0	Architecture, Build and Plan: any area
K9	Others in Architecture, Build and Plan
W0	Creative Arts and Design: any area
A3	Clinical Medicine
A4	Clinical dentistry

4. Results and Discussion

4.1 Relationship between rate of highly skilled destination (TEF methodology) and UCAS tariff band upon entry to university - all graduates, both single and joint honours

We examined how likely graduates were to be in a highly skilled destination six months post-graduation, correlated against their UCAS tariff. Table 2 and Chart 1 showed that the proportion in a highly skilled destination increased the higher the tariff band. This suggested that pre-university educational attainment had a continued impact post-graduation. While plausible, this posed difficulties for the university system's ability to add value and level the playing field by the point of graduation, irrespective of students' prior educational attainment.

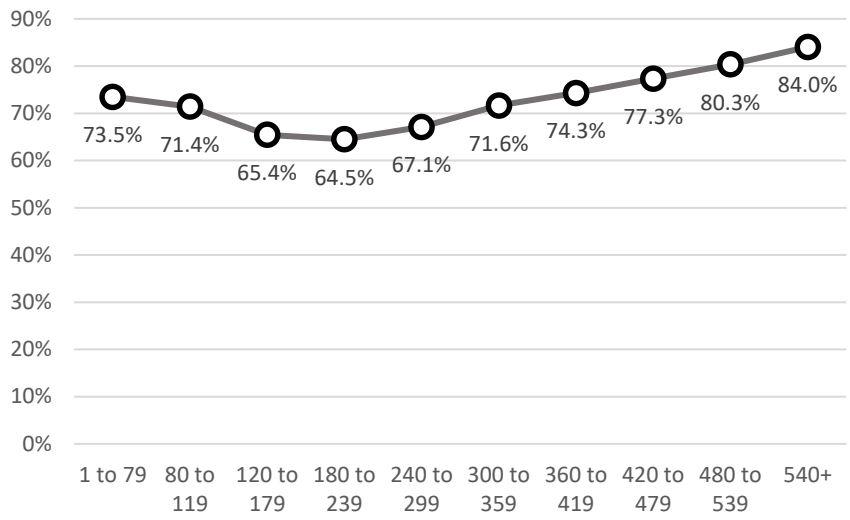
It was interesting to note the shape of this graph (also found in similar subsequent tariff band charts) where the minima for the rate of highly skilled destination was found in the 180-239 tariff points band, rather than in the 1-79 band – why were the lowest bands not correlated with the lowest rates of highly skilled destination? The lowest tariff bands were not correlated with the lowest rates of highly skilled destination. This could be due to the prevalence of mature, non-standard qualification students in the lowest bands, who have high levels of motivation and determination to succeed, and who therefore perform relatively well in their rate of highly skilled destination. These bands will also include low tariff graduates who complete a pre-university 'foundation year', and benefit from an extra year studying and familiarising themselves with their university's approach to assessment, teaching and learning.

Table 2 Highly skilled destination and UCAS tariff

Includes non-joint honours subjects

Highly skilled destinations (TEF methodology)		
UCAS tariff band	%	Population
1 to 79	73.5%	2,760
80 to 119	71.4%	3,432
120 to 179	65.4%	13,664
180 to 239	64.5%	37,892
240 to 299	67.1%	89,298
300 to 359	71.6%	108,085
360 to 419	74.3%	110,043
420 to 479	77.3%	77,045
480 to 539	80.3%	44,697
540+	84.0%	51,923

Chart 1 Highly skilled destination and UCAS tariff



4.2 Relationship between UCAS tariff, rate of highly skilled destination (TEF methodology) and POLAR4 quintile - all graduates, both single and joint honours

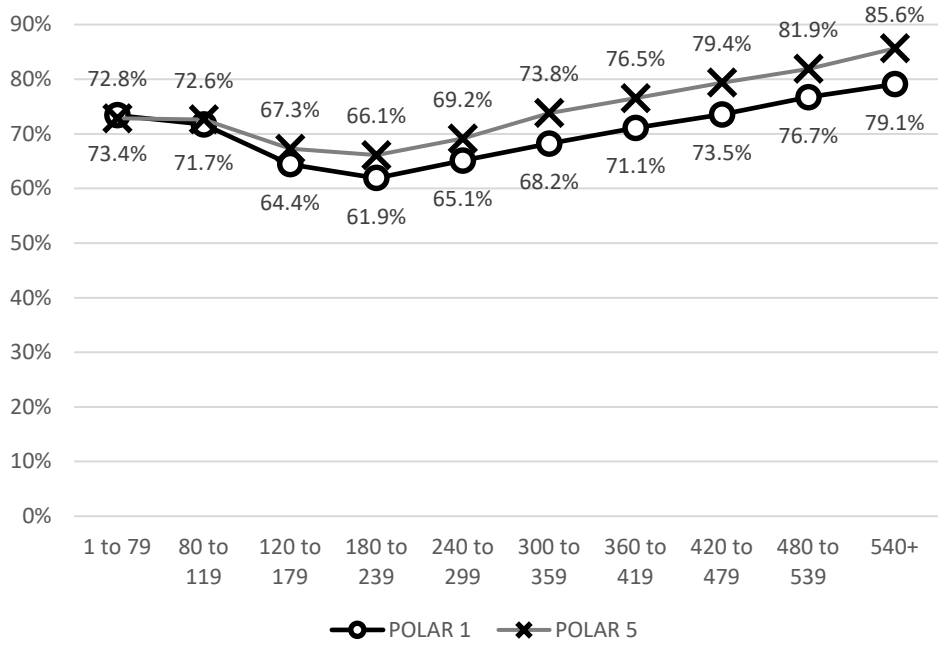
We extended the analysis in Section 4.1 to examine how likely graduates were to be in a highly skilled destination six months after graduating, correlated against their UCAS tariff, and also their POLAR4 quintile. In order to keep the plot clear to read, in Chart 2 we only showed quintiles 1 and 5. Quintiles 2, 3 and 4, when plotted, fitted within quintile 1 and 5, and graduates were progressively more likely to be in highly skilled destinations, the higher the quintile. Again, the rate of highly skilled destination minima was in the 180-239 band, rather than in the lowest band.

Table 3 and Chart 2 showed that there was a substantial, persistent positive gap in the rate of highly skilled destination between higher quintiles and the lower quintiles, irrespective of the graduates' tariff. This demonstrated how earlier educational advantage persists over the course of a university education, even for the highest tariff graduates. This was possibly reflective of the

less educationally advantaged students (even those with a high tariff) deliberately 'under-matching' and graduating from less prestigious universities, as discussed in the literature review and explored further in section 4.3.

Highly skilled employment or study (TEF methodology)					
Tariff band	POLAR 1	POLAR 2	POLAR 3	POLAR 4	POLAR 5
1 to 79	73.4%	76.9%	73.3%	71.8%	72.8%
80 to 119	71.7%	69.7%	72.4%	70.4%	72.6%
120 to 179	64.4%	65.3%	65.6%	64.2%	67.3%
180 to 239	61.9%	65.1%	65.1%	63.0%	66.1%
240 to 299	65.1%	66.0%	66.5%	66.8%	69.2%
300 to 359	68.2%	69.7%	71.3%	71.5%	73.8%
360 to 419	71.1%	72.2%	73.7%	73.9%	76.5%
420 to 479	73.5%	74.8%	77.0%	76.9%	79.4%
480 to 539	76.7%	79.0%	79.1%	79.9%	81.9%
540+	79.1%	81.5%	83.3%	83.6%	85.6%

Chart 2 UCAS tariff, rate of highly skilled destination (TEF methodology) and POLAR4 quintile



4.3 Proportion from each UCAS tariff band graduating from the Russell Group, split by POLAR4 quintile and highly skilled destinations - all graduates, both single and joint honours

We were interested in examining whether less educationally advantaged students (low POLAR4 quintile), including those who had achieved very high UCAS tariff points, were less likely to select higher prestige universities, as opposed to other UK universities such as Post-92's. Table 4 examined the proportion of graduates in a particular tariff band graduating from a prestigious Russell Group

university, categorised by their POLAR4 quintile. In any particular band, the proportion of graduates from the Russell Group increased the higher the quintile.

The percentage point gap between the proportion graduating from the Russell Group in the lowest and highest quintile in each tariff band widened the higher the band, with a very large 23.6% point gap between quintile 5 graduates and quintile 1 graduates who had elected to study at these most prestigious universities in the 540+ band. Combining both tariff and POLAR4 quintile, it was clear from Table 4 that the vast majority (76.9%) of graduates having both a high tariff and educational advantage had studied at the Russell Group.

This accorded with the view in the literature that the less educationally advantaged select lower prestige universities, even those who have achieved high tariff points. Moreover, the relative preponderance of the most educationally advantaged students in the higher bands electing to study at the prestigious Russell Group underlined early educational advantage leading to a prestigious university education.

Table 4 Proportion from each UCAS tariff band graduating from the Russell Group, split by POLAR4 quintile

	% graduating from Russell Group provider									
	POLAR 1		POLAR 2		POLAR 3		POLAR 4		POLAR 5	
Tariff band	%	Pop	%	Pop	%	Pop	%	Pop	%	Pop
1 to 79	6.2%	29	5.5%	30	5.4%	32	5.8%	35	9.5%	64
80 to 119	3.9%	20	6.0%	40	3.8%	28	5.0%	42	9.4%	80
120 to 179	2.9%	58	2.9%	72	2.5%	73	2.7%	91	4.0%	138
180 to 239	1.5%	68	1.2%	79	1.4%	112	1.3%	123	1.7%	177
240 to 299	2.1%	231	2.2%	328	2.4%	460	2.7%	589	3.9%	1,008
300 to 359	10.6%	1,175	11.5%	1,949	13.2%	2,803	16.4%	4,347	22.8%	8,323
360 to 419	19.8%	2,148	22.7%	3,680	26.9%	5,746	32.3%	8,612	44.6%	17,714
420 to 479	30.4%	2,001	34.9%	3,670	39.6%	5,568	45.1%	8,293	58.1%	17,980
480 to 539	45.1%	1,333	51.0%	2,684	54.6%	4,241	58.2%	6,187	68.2%	13,711
540+	53.3%	1,571	60.4%	3,398	65.6%	5,396	69.8%	8,312	76.9%	19,623

Table 5 again considered only the Russell Group, but now examined the rate of highly skilled destination, categorised by POLAR4 quintile. In any particular tariff band, the difference in the rate of highly skilled destination across the range of quintiles was quite small. Therefore just electing to study at the Russell Group meant that, for any particular tariff band, low quintile graduates were almost as likely to be in a highly skilled destination as the high quintile graduates. Just electing to study at the Russell Group meant that for any particular tariff band, low quintile graduates were almost as likely to be placed in a highly skilled destination as the high quintile graduates. Unfortunately, as shown in Table 4, the lower quintile, high tariff students did not study at the Russell Group in nearly the same proportion as the higher quintile, high tariff students. This underlined the importance of encouraging and facilitating lower quintile students to win a place at the most prestigious universities, such as the Russell Group, as a lever for addressing issues of social mobility.

Table 5 Highly skilled destinations in each UCAS tariff band graduating from the Russell Group, split by POLAR4 quintile

% Highly skilled work or study RG only

	Highly skilled employment or study (TEF methodology)									
	POLAR 1		POLAR 2		POLAR 3		POLAR 4		POLAR 5	
Tariff band	%	Pop	%	Pop	%	Pop	%	Pop	%	Pop
1 to 79	78.6%	28	96.7%	30	80.6%	31	80.0%	35	79.0%	62
80 to 119	89.5%	19	87.2%	39	88.5%	26	68.3%	41	81.8%	77
120 to 179	72.4%	58	83.8%	68	85.9%	71	85.7%	84	79.7%	133
180 to 239	75.8%	66	79.2%	77	81.5%	108	78.9%	114	75.6%	164
240 to 299	77.9%	222	79.8%	312	77.0%	439	78.4%	559	74.6%	944
300 to 359	71.4%	1,130	73.5%	1,851	74.3%	2,652	74.6%	4,091	76.0%	7,788
360 to 419	76.7%	2,051	77.9%	3,514	78.0%	5,436	77.1%	8,157	78.8%	16,519
420 to 479	78.5%	1,919	78.1%	3,508	80.9%	5,288	80.3%	7,818	80.9%	16,753
480 to 539	80.5%	1,259	81.3%	2,560	81.6%	4,053	82.0%	5,870	83.0%	12,835
540+	85.6%	1,514	84.9%	3,253	85.3%	5,132	85.7%	7,920	86.8%	18,488

4.4 Relationship between rate of highly skilled destination (TEF methodology) and UCAS tariff band upon entry to university – split by single honours and joint honours

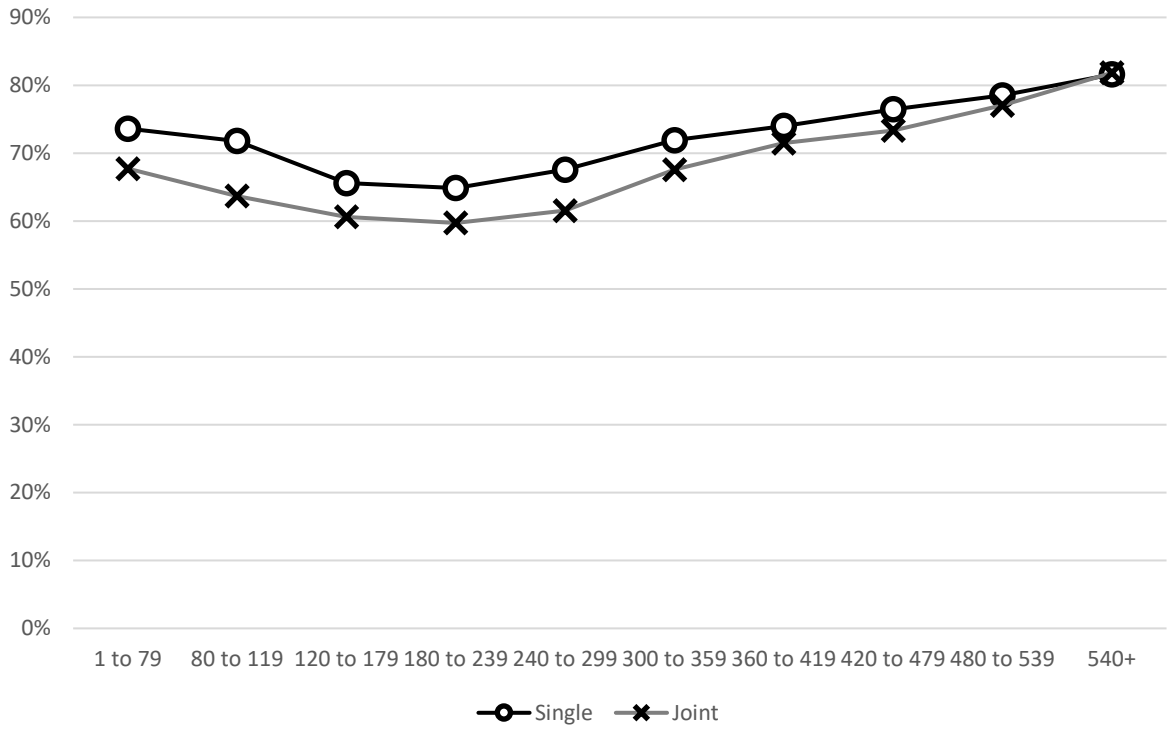
Returning to the current study's focus on joint honours graduates and their rate of highly skilled destination, we analysed in Table 6 and Chart 3 the relationship between the rate of highly skilled destination and UCAS tariff for single and joint honours degree graduates. We saw the same shape of graph as in Sections 4.1 and 4.2, and other tariff band charts – the minima in the rate of highly skilled destination occurred in the 180-239 band, and then there was a steady rise in the rate of highly skilled destination, as the graduates' tariff increased. This applied to both single and joint honours graduates. However the joint honours graduates were less likely to be in a highly skilled destination in every band except the highest. It was clear, however, that the highly skilled destinations gap between single and joint honours graduates decreased as the band rose, and was negligible in the 540+ band. We explored this further in Section 4.5.

Table 6 Highly skilled destination and UCAS tariff band – split by single honours and joint honours

Excluding non-joint honours

	Highly skilled destinations (TEF methodology)				
UCAS tariff band	Single		Joint		Difference
	%	Population	%	Population	pp
1 to 79	73.6%	2,577	67.7%	158	5.9%
80 to 119	71.8%	3,195	63.7%	212	8.1%
120 to 179	65.6%	12,824	60.6%	777	5.0%
180 to 239	64.9%	34,693	59.7%	3,116	5.1%
240 to 299	67.6%	80,956	61.5%	8,084	6.0%
300 to 359	71.9%	96,978	67.6%	10,442	4.3%
360 to 419	74.0%	97,073	71.5%	10,651	2.5%
420 to 479	76.5%	65,084	73.4%	7,939	3.1%
480 to 539	78.5%	35,313	77.0%	5,058	1.5%
540+	81.6%	37,818	81.8%	7,098	-0.2%

Chart 3 Highly skilled destination and UCAS tariff band – split by single honours and joint honours



4.5 Relationship between rate of highly skilled destination (TEF methodology) and UCAS tariff band upon entry to university – split by single and joint honours, and Russell Group or Post-92

We deepened the analysis of Section 4.4 by comparing the performance of Russell Group with Post-92 graduates. The analysis in Table 7 and Chart 4 unfortunately threw up a couple of anomalous data points, due to the small number of graduates in certain tariff bands. Firstly we observed the excessively high proportion (83.9%) of Russell Group joint honours graduates in a highly skilled destination in the 120-179 band. The very small number of these graduates in the lowest bands meant that the significance of that particular data point was doubtful, as we would have expected the rate of highly skilled destination to be around mid-60%. Secondly, there was a dip in the rate of highly skilled destination for the 540+ band for Post-92 joint honours graduates. We might have reasonably expected this band to have the highest rate of highly skilled destination, but the small number of graduates in this band again placed uncertainty on the significance of this value.

Broadly speaking, we could see that the gap in the rate of highly skilled destination in the lower tariff bands between single and joint honours that existed in Russell Group graduates, was eradicated in the higher bands. However at the Post-92 universities, the gap in the rate of highly skilled destination between single and joint honours graduates was maintained across all the bands, even the highest.

Graduates of both degree types from the Russell Group outperformed the Post-92 universities in the rate of highly skilled destination, except in the lower bands where single honours graduates from Post-92 universities had a higher rate of highly skilled destination than joint honours graduates of the Russell Group.

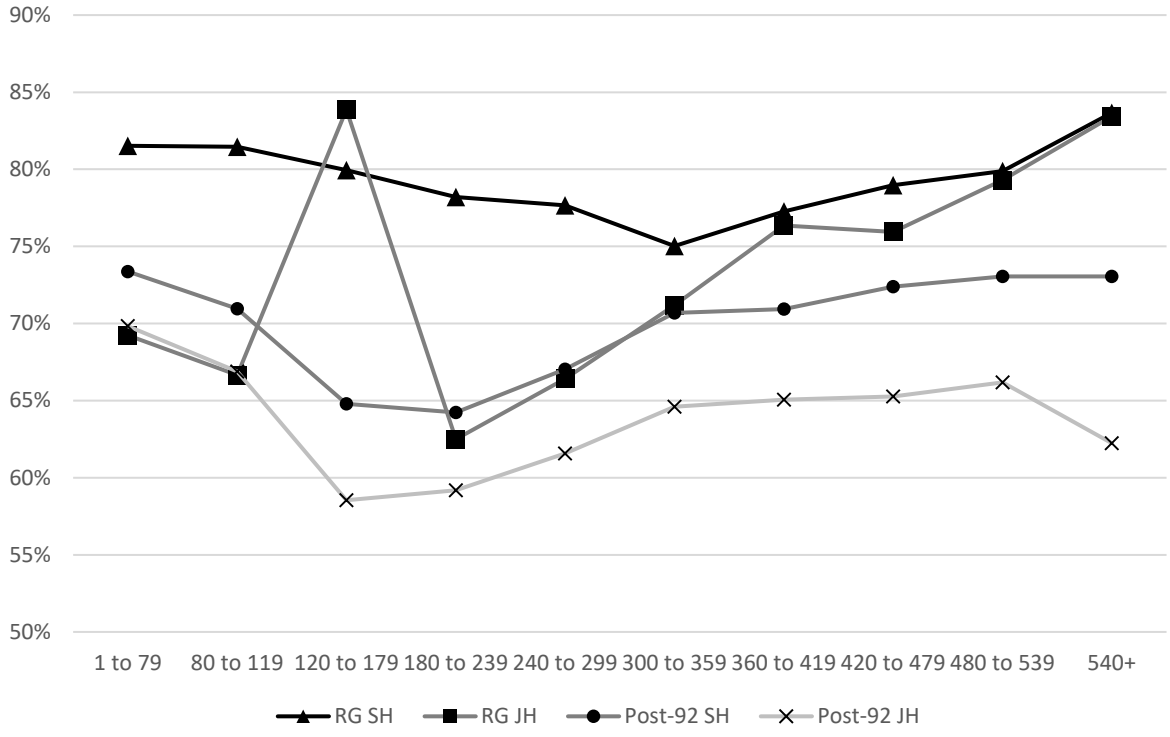
It was interesting to note in Table 7 and Chart 4 that at the Russell Group, the number of graduates in each tariff band rose, with increasingly higher tariffs, for both honours types, whereas at the Post-92 universities, the number of graduates peaked in the 300-359 band, before declining to low levels in the highest bands. This correlation existed for both single and joint honours graduates at both

university types. This partially explained the result found in Section 4.4 whereby the gap in the rate of graduates in a highly skilled destination at the highest band between joint and single honours graduates was eradicated. There was a high likelihood that the highest tariff band joint honours graduates elected to study at the prestigious Russell Group, and had a very high rate of highly skilled destination as a result.

Table 7 Highly skilled destination and UCAS tariff band – split by single and joint honours, and Russell Group or Post-92

Excluding non-joint honours										
	Graduate level employment (TEF methodology)									
	Russell Group					Post-92				
	Single		Joint		Difference	Single		Joint		Difference
Tariff band	%	Pop	%	Pop		%	Pop	%	Pop	
1 to 79	81.5%	157	69.2%	13	12.3%	73.4%	1,923	69.8%	116	3.5%
80 to 119	81.5%	178	66.7%	15	14.8%	71.0%	2,403	66.9%	145	4.1%
120 to 179	79.9%	354	83.9%	31	-3.9%	64.8%	10,486	58.5%	603	6.2%
180 to 239	78.2%	500	62.5%	16	15.7%	64.2%	29,169	59.2%	2,610	5.0%
240 to 299	77.7%	2,153	66.4%	271	11.2%	67.0%	63,658	61.6%	5,841	5.5%
300 to 359	75.0%	15,267	71.2%	2,054	3.8%	70.7%	57,422	64.6%	5,183	6.1%
360 to 419	77.3%	30,172	76.4%	4,180	0.9%	70.9%	42,379	65.1%	3,357	5.9%
420 to 479	79.0%	28,153	75.9%	4,264	3.0%	72.4%	20,240	65.3%	1,451	7.1%
480 to 539	79.9%	19,854	79.3%	3,410	0.6%	73.0%	6,719	66.2%	473	6.9%
540+	83.7%	24,943	83.4%	5,792	0.2%	73.1%	5,182	62.2%	294	10.8%

Chart 4 Highly skilled destination and UCAS tariff band – split by single and joint honours, and Russell Group or Post-92



3.6 Relationship between rate of highly skilled destination (TEF methodology) and degree classification – all graduates, both single and joint honours

We analysed in Table 8 the proportion of graduates in highly skilled destinations correlated with their degree classification upon graduation. We found a strongly positive relationship between academic achievement, in the form of the highest degree classification awarded, and the rate of highly skilled destination.

Table 8 Highly skilled destination and degree classification – all graduates, both single and joint honours

Includes non-joint honours

Highly skilled employment or study (TEF methodology)		
Degree class	%	Population
First class honours	83.7%	170,023
Upper second class honours	72.5%	328,037
Lower second class honours	61.8%	111,909
Third class honours/Pass	53.8%	16,266

3.7 Relationship between UCAS tariff band upon entry to university and degree classification – all graduates, both single and joint honours

We varied the analysis in Section 4.6, to examine the proportion of graduates achieving each degree classification, as a function of their UCAS tariff. Firstly, in Table 9 and Chart 5 we found that the proportion of graduates achieving a first class honours degree increased as their tariff rose (apart from the dip in the 180-239 band seen in other tariff band charts).

Secondly, we found that the proportion of graduates achieving a third class honours degree was very low across all tariff bands, and fell to less than 1% for the highest band. Thirdly, the proportion of graduates achieving a lower second class honours degree fell rapidly away to very low levels after peaking in the low 120-179 band, simultaneous with the lowest proportions gaining first or upper second class honours.

Lastly, the proportion of graduates achieving an upper second class honours degree was very high for all tariff bands, peaking in the relatively modest 300-359 band, and only thereafter gently decreasing in the highest bands, and almost equalling the proportion achieving a first class honours degree in the 540+ band.

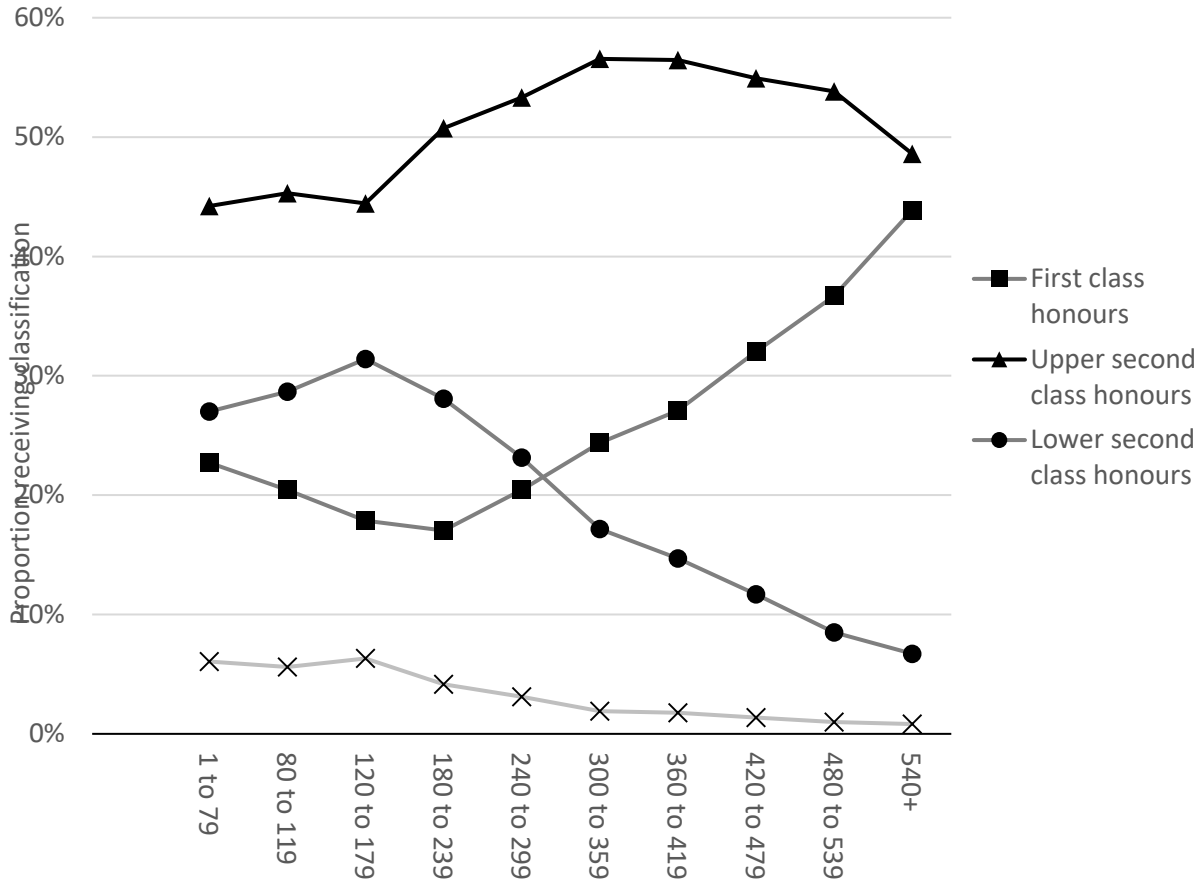
While not a precise conclusion, these results closely correlated with the minima in the rate of graduates in a highly skilled destination in the slightly higher 180-239 band, found in Section 4.4 (and other tariff band charts). The minima found in the slightly higher 180-239 band was possibly due to the much higher proportion of graduates from this band in Post-92 universities, who had a much lower rate of highly skilled destination than the graduates in that band from the Russell Group (Section 4.5, Table 7, Chart 4), thereby shifting the chart minima up into the 180-239 band.

Table 9 UCAS tariff band and degree classification – all graduates, both single and joint honours

Includes non-joint honours

Tariff band	First class honours	Upper second class honours	Lower second class honours	Third class honours/Pass	Population
1 to 79	22.7%	44.2%	27.0%	6.1%	2,743
80 to 119	20.4%	45.3%	28.7%	5.6%	3,396
120 to 179	17.9%	44.4%	31.4%	6.3%	13,870
180 to 239	17.0%	50.7%	28.1%	4.1%	38,666
240 to 299	20.4%	53.3%	23.1%	3.1%	91,983
300 to 359	24.4%	56.6%	17.2%	1.9%	111,286
360 to 419	27.1%	56.5%	14.7%	1.8%	112,381
420 to 479	32.0%	54.9%	11.7%	1.4%	76,508
480 to 539	36.7%	53.8%	8.5%	1.0%	42,613
540+	43.9%	48.6%	6.7%	0.8%	47,419

Chart 5 UCAS tariff band and degree classification – all graduates, both single and joint honours



3.8 Relationship between POLAR4 quintile and degree classification – all graduates, both single and joint honours

In Table 10 we examined the relationship between the graduates' POLAR4 quintile and the degree classification achieved at graduation. We found that, irrespective of their quintile, the large majority of graduates achieved an upper second class honours degree and very few indeed achieved a third class honours degree. The higher quintile graduates were more likely to have achieved a first or an upper second class honours degree than those in the lower quintiles. Conversely, the lower quintiles

graduates were more likely to have achieved a lower second or third class honours degree than those in the upper quintiles. Combining with Section 4.6, this demonstrated how the higher quintiles were more likely to be placed in a highly skilled destination upon graduation from university.

Table 10 POLAR4 quintile and degree classification – all graduates, both single and joint honours

	Degree class by POLAR			
POLAR	First class honours	Upper second class honours	Lower second class honours	Third class honours/Pass
1	24.2%	49.9%	22.2%	3.6%
2	26.1%	50.7%	20.1%	3.1%
3	26.8%	51.5%	19.0%	2.8%
4	26.9%	52.4%	18.0%	2.7%
5	28.4%	54.8%	14.9%	2.0%

3.9 Proportion of each honours type (single or joint) in each degree classification, for both Russell Group and Post-92 Universities

We deepened the analysis of degree classification to examine the proportion of graduates from each honours type (single or joint) achieving each degree classification, and we also considered whether these distributions were different for graduates of the Russell Group compared with Post-92 universities. Table 11 showed that, irrespective of the honours type, or where the graduates had studied, a large majority achieved upper second class honours.

In addition, although comparable proportions of single and joint honours graduates achieved a first or lower second class honours degree at Post-92 universities, at the Russell Group roughly 10% points more graduates achieved a first class honours degree than Post-92 graduates, and 10% points fewer graduates achieved a lower second class honours degree than Post-92, irrespective of the honours type. This correlated with the higher rate of highly skilled destination of graduates from the Russell Group, given that Section 4.6 showed that those with a higher classification of degree were more likely to be in a highly skilled destination.

Secondly, joint honours graduates were less likely to achieve a first class honours degree, and yet more likely to achieve an upper second class honours degree relative to single honours graduates at that university type; this applied at both Russell Group and Post-92 universities. Given the strong correlation between degree classification and rate of highly skilled destination seen in Section 4.6, this was a partial explanation for the negative gap between joint honours and single honours graduates' rate of highly skilled destination.

Table 11 Proportion of each honours type (single or joint) in each degree classification, for both Russell Group and Post-92 Universities

Excludes non-joint honours subjects

	Degree class by provider type and single/joint honours							
	Russell Group				Post-92			
	Single		Joint		Single		Joint	
Degree class	%	Pop	%	Pop	%	Pop	%	Pop
First class honours	30.8%	42,881	28.5%	6,356	25.2%	81,417	20.6%	4,969
Upper second class honours	57.4%	79,930	61.5%	13,699	49.5%	160,111	55.1%	13,288
Lower second class honours	10.6%	14,822	9.1%	2,018	21.8%	70,407	21.8%	5,259
Third class honours/Pass	1.2%	1,692	0.9%	210	3.5%	11,238	2.6%	616

3.10 Rate of highly skilled destination split by degree classification, single or joint honours, and Russell Group or Post-92 University

In Table 12 we examined the rate of highly skilled destination of graduates from Russell Group or Post-92 universities, split by whether they had studied a single or a joint honours degree, and also by the degree classification they achieved at the point of graduation. All graduate types followed a similar pattern to that seen in Section 4.6, whereby those achieving a first class honours degree were the most likely to secure a highly skilled destination, and then the likelihood was increasingly less with each lower degree classification. However, for any particular degree classification, there was a distinct reduction in the proportion of graduates in a highly skilled destination, depending on whether the graduates had studied single or joint honours at Russell Group or Post-92 universities. Single honours graduates from the Russell Group had the highest rate in a highly skilled destination but a lower rate of joint honours graduates from the Russell Group were in a highly skilled destination; a lower rate still of single honours graduates from Post-92 universities were in a highly skilled destination, and the smallest rate in a highly skilled destination were joint honours graduates from Post-92 universities. This same pattern existed for any particular degree classification.

With the exception of first class honours single honours graduates from Post-92 universities, the joint and single honours graduates from the Russell Group had a higher rate of highly skilled destination than their Post-92 counterparts in the next higher degree classification. For example, single honours graduates from the Russell Group, with a lower second class honours degree, were more likely to be in a highly skilled destination than single honours graduates from the Post-92 universities that held an upper second class honours degree. This underlined the importance of degree type and prestige of university in terms of securing a highly skilled destination, irrespective of the classification of degree achieved. Given that the lower quintile students were more likely to elect to study at a lower prestige university, even if they had a high UCAS tariff, then even if they went on to achieve a top honours degree classification, the chances were lower that these educationally disadvantaged students would secure a highly skilled destination post-graduation.

The gap in the rate of highly skilled destination between single and joint honours graduates, in any particular degree classification, was much smaller at the Russell Group compared with Post-92 universities. Furthermore, given that such a high proportion of graduates had generally achieved an upper second class honours degree, the very small gap in the rate of highly skilled destination between single and joint honours graduates of the Russell Group who achieved an upper second class honours degree, partially explained the overall much smaller gap in the rate of highly skilled destination for all joint honours graduates at the Russell Group.

Table 12, shows the dominance of the Russell Group in attracting the higher UCAS tariff students, both single and joint honours. Indeed in the 240-299 band the Post-92 university graduate numbers

peaked and then started to decrease, just as the graduate numbers at the Russell Group started to increase, hitting their peak in the highest 540+ band.

Table 12 highly skilled destination split by degree classification, single or joint honours, and Russell Group or Post-92 University

Excludes non-joint honours subjects

	Highly skilled employment or study (TEF methodology)									
	Russell Group					Post-92				
	Single		Joint		Difference	Single		Joint		Difference
Degree class	%	Pop	%	Pop		%	Pop	%	Pop	
First class honours	86.7%	40,700	84.3%	5,991	2.4%	82.3%	78,603	76.0%	4,753	6.3%
Upper second class honours	77.7%	74,838	76.9%	12,718	0.8%	69.8%	153,613	64.0%	12,714	5.8%
Lower second class honours	70.3%	13,962	67.6%	1,871	2.7%	59.9%	67,052	53.7%	4,963	6.2%
Third class honours/Pass	63.5%	1,589	64.3%	185	-0.8%	51.9%	10,588	40.4%	579	11.5%

3.11 Proportion of graduates in each UCAS tariff band, split by single honours and joint honours, and Russell Group and Post-92

In Table 13 and Chart 6 we examined the proportion of graduates in each UCAS tariff band, who had studied a single or joint honours degree, at either a Russell Group or Post-92 university. In the Post-92 universities, the shape of the graph was consistent for both honours type – a peak of graduates from the 240-299 band, and a gradual decrease in numbers for bands both lower and higher than this.

The Russell Group had a different distribution, with very small numbers of graduates below the 300 band, and then a sharp rise thereafter. For both single and joint honours graduates of the Russell Group, there was an anomalous dip in the proportion in the 480-539 band, but then a further climb thereafter. Particularly significantly, Russell Group joint honours graduates in the 540+ band represented a very significant 28.8% of the overall Russell Group joint honours population, significantly larger than the proportion of Russell Group single honours graduates in this top band (22.5%).

Table 13 and Chart 6 showed that the proportion of joint honours graduates relative to single honours in any tariff band was much higher in the Russell Group than the relative proportion in the Post-92 universities. Also at the Russell Group, the absolute numbers of joint honours graduates, and the proportion relative to single honours, increased the higher the band. The highest 540+ band had the highest concentration of joint honours graduates, which also actually exceeded the proportion of single honours graduates in that band.

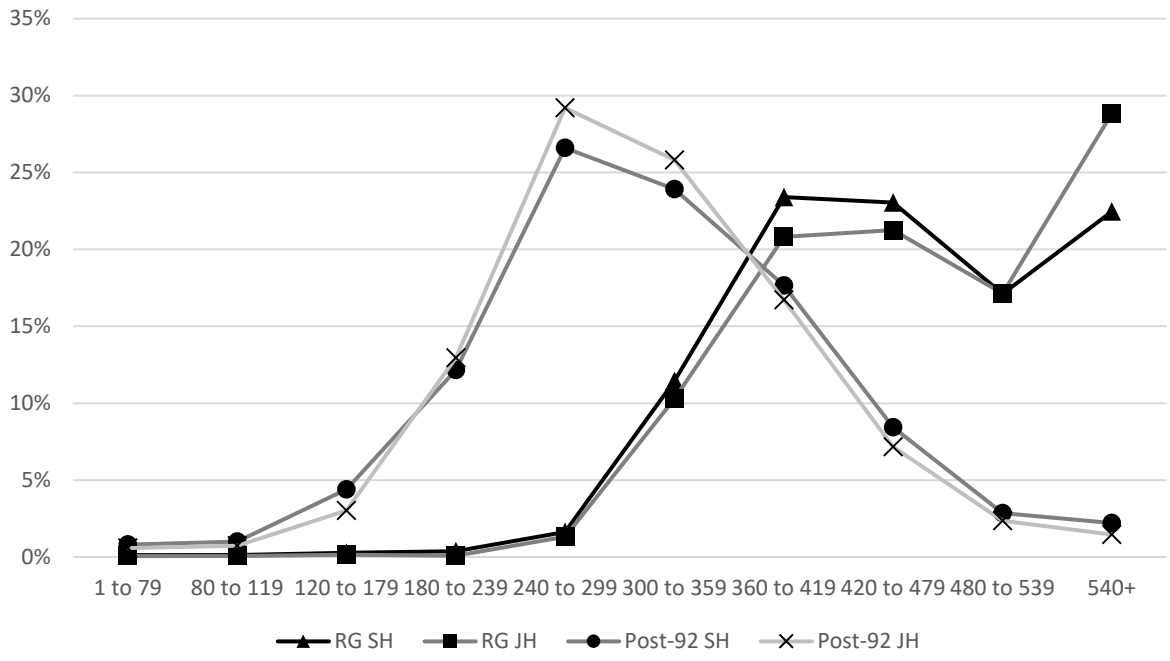
Table 13 and Chart 6, showed that low or moderate tariff bands were much more likely to attend a Post-92 university, rather than the highly selective Russell Group, and they therefore graduated with worsened prospects for highly skilled destinations. However it would be helpful to also consider the 'value-added' to students who are educationally disadvantaged, therefore have a poor tariff and attend a Post-92 university. Although they may have a lower rate of highly skilled destination than their Russell Group counterparts, the lifetime outcomes for these graduates may be disproportionately improved, as a consequence of their experience at a Post-92 university.

Table 13 Proportion of graduates in each UCAS tariff band, split by single honours and joint honours, and Russell Group and Post-92

Includes non-joint honours subjects

Tariff band	Proportion of graduates in each tariff band							
	Russell Group				Post-92			
	Single		Joint		Single		Joint	
	%	Population	%	Population	%	Population	%	Population
1 to 79	0.1%	177	0.1%	13	0.8%	2,017	0.6%	122
80 to 119	0.1%	197	0.1%	15	1.0%	2,515	0.7%	154
120 to 179	0.3%	402	0.1%	32	4.4%	11,001	3.0%	632
180 to 239	0.4%	541	0.1%	19	12.2%	30,453	13.0%	2,719
240 to 299	1.6%	2,345	1.3%	284	26.6%	66,626	29.2%	6,128
300 to 359	11.5%	16,472	10.3%	2,212	23.9%	59,895	25.8%	5,415
360 to 419	23.4%	33,654	20.8%	4,482	17.7%	44,232	16.7%	3,510
420 to 479	23.0%	33,131	21.2%	4,574	8.4%	21,147	7.2%	1,504
480 to 539	17.1%	24,611	17.1%	3,690	2.8%	7,133	2.4%	496
540+	22.5%	32,306	28.8%	6,207	2.2%	5,529	1.5%	308

Chart 6 Proportion of graduates in each UCAS tariff band, split by single honours and joint honours, and Russell Group and Post-92



5. Conclusion and Future Work

This study adds new insights into joint honours degrees and also reinforces the literature around relative educational advantage and achievement prior to university, and the impact on graduate employment. Educational disadvantage is shown to persist over the course of a university degree education, from the perspective of gaining graduate employment. For any particular UCAS tariff band, the higher the POLAR4 quintile the higher the rate of graduates in a highly skilled destination. Although generally the higher the tariff, the higher the rate of highly skilled destinations. Furthermore, the Russell Group significantly outperform the Post-92 graduates in

their rates of highly skilled destinations post-graduation, for any particular tariff band, and for both joint and single honours degrees.

Significantly, at the Russell Group, the number of graduates in each tariff band rises with increasingly higher tariffs, for both single and joint honours degrees, whereas at the Post-92 universities, the number of graduates peaks in the 300-359 band, before declining to low levels in the highest tariff bands. Higher quintile graduates are far more likely to study at the Russell Group, than lower quintile graduates, with this effect increasing the higher the tariff. Clearly, low quintile students with high tariffs are 'under-matching' and there is an impact on their graduate employment as a result.

The current study demonstrates a strongly positive correlation between university academic achievement, in the form of the level of degree classification awarded, and the rate of graduates in a highly skilled destination. Furthermore, both single and joint honours graduates of the Russell Group are more likely to achieve the top honours degree classifications. Higher quintile graduates are proportionately more likely to achieve the highest degree classifications, and proportionately less likely to achieve the lowest classifications, than graduates from the lower quintiles. Joint honours graduates are less likely to achieve a first class honours degree than single honours, and this will affect their rate of highly skilled destination. Lastly, with the exception of first class honours graduates from Post-92 universities, the joint and single honours graduates from the Russell Group have a higher rate of highly skilled destination than their Post-92 counterparts in the next higher degree classification.

Future work will involve an analysis of the earnings of joint honours graduates via the Longitudinal Educational Outcomes (LEO) dataset, (DfE, 2019a). Similarly to other publicly available datasets relating to university students and graduates, the LEO data for joint honours graduates is apportioned over the subjects studied, so our research will seek to apply a similar methodology to that used within the current study to identify joint honours graduates directly, in order to specifically evaluate their earnings potential.

Further work could also include a reflection of the impact that employer behaviour has on graduate recruitment from the different types of university. In particular attitudes relating to recruitment of graduates from the Russell Group compared with Post-92 universities might expose inconsistencies in the attitudes or understanding employers have of the subjects studied, which in turn might impact on the rate of graduate employment between single and joint honours.

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