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Issues paper

This report is for information

This report updates and extends previous work on the Participation of Local Areas (POLAR) classification, focusing on the latest version, POLAR3. This report evaluates the construction of POLAR3, explores how this classification relates to other forms of deprivation affecting young people and looks at how the characteristics of 2011-12 higher education entrants from different POLAR3 quintiles vary.

Further information on POLAR3

An analysis of geography, disadvantage and entrants to higher education

HIGHER EDUCATION FUNDING COUNCIL FOR ENGLAND

Contents

Further information on POLAR3: An analysis of geography, disadvantage and entrants to higher education

To	Heads of HEFCE-funded higher education institutions Heads of HEFCE-funded further education colleges Heads of universities in Northern Ireland
Of interest to those responsible for	Widening participation, Policy development
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Executive summary

Purpose

1. The Participation of Local Areas classification (known as POLAR) is a UK-wide area-based measure that groups geographical areas according to the proportion of young people living in them who participate in higher education (HE) by the age of 19. This is known as the 'young participation rate'. The POLAR classification is used for a variety of purposes, perhaps most importantly to distribute HEFCE's student opportunity allocation to higher education institutions, and for the monitoring of local and national patterns of young HE participation.

2. Despite information on the POLAR classification being publicly available, and perhaps because of its extensive use across the HE sector, concerns about the suitability of POLAR to measure young participation accurately at a small-area level persist. These concerns centre around the idea that the geography used – the set of census area statistics wards, created for statistical reporting of the results of the 2001 census –is too large to measure young HE participation rates accurately within neighbourhoods.

3. 'Young participation in higher education' (HEFCE 2005/03) previously examined the suitability of wards as the reporting geography for POLAR. The same publication also investigated the relationship between POLAR and other measures of disadvantage, and how the background characteristics and HE experience of entrants to HE varied across POLAR quintiles. That work focused on entrants to HE during the 1990s, but the POLAR classification has been updated twice since then – most recently in 2012 – to include the latest information on HE entrants. The purpose of this report is to update and extend previous findings in to the light of the most recent version of the POLAR classification, POLAR3.

Key points

4. This report shows that wards are a suitable geography on which to measure HE participation rates among young people. This is demonstrated by assessing the extent to which

wards might conceal pockets of young people in smaller (sub-ward) areas with substantially different rates of young participation. This is assessed nationally as well as for different region and area types within the UK.

5. This report finds that while young participation rates can vary within wards, the majority of the young population are likely to live in sub-ward areas with participation rates that are not substantially different from that of the ward in which they live. This is especially the case for wards in the most and least disadvantaged POLAR quintiles, which also have the lowest levels of observed internal variation of young participation rates. Nationally it is estimated that only one in 14 young people living in wards belonging to the most disadvantaged POLAR quintile resides in a smaller sub-ward area which has a young participation rate substantially different from that of the ward in which they live.

6. The findings reported above are shown to hold true for different parts of the UK. For example, similar levels of observed variation within wards are found across the different countries and regions of the UK, and also when we consider urban and rural areas. These findings are particularly important with respect to Greater London and rural areas, as both are areas where wards are likely to be more heterogeneous than normal. In Greater London, highly affluent and highly deprived neighbourhoods are often located next to one another, sometimes within the same ward, while wards in rural areas can often contain several villages with their own distinct characteristics.

7. The POLAR3 classification is found to correlate with other measures of disadvantage, though in many cases the correlation is not as strong as might be assumed. For example there are several wards which have among the highest young HE participation rates but are classed by other measures as being more disadvantaged than some wards which have average young HE participation rates. These findings demonstrate that POLAR captures a specific form of disadvantage – namely, educational disadvantage relating to participation in higher education – that is different from the types of disadvantage captured by other measures. This means that the POLAR classification is not necessarily an appropriate substitute for other measures of disadvantage, and users of the classification should bear this in mind.

8. Looking at the background characteristics and HE experiences of young HE entrants across POLAR3 quintiles reveals interesting patterns. For example, young entrants from more disadvantaged POLAR3 quintiles are more likely to study part-time and to attend an institution closer to home than entrants from more advantaged POLAR3 quintiles.

Action required

9. This report is for information. No action is required.

Introduction

Background

10. In the UK, the propensity for young people to participate in higher education (HE) varies geographically. This variation is observed in the Participation of Local Areas (POLAR) classification, which estimates how likely young people are to go into HE according to where they live at the age of 15. This is done by estimating the proportion of young people living in an area who progress into HE by the age of 19. By dividing the whole of the UK into small areas, the geographical pattern of HE participation can be constructed[1].

11. The POLAR classification is publicly available, and is used by HEFCE to allocate funding to promote and facilitate widening participation. It is also used by the HE sector to measure widening participation performance and to help target outreach activities.

12. HEFCE's on-going work on young participation has entailed the continuous development of the POLAR classification through time. The first classification was published in 2005, alongside the HEFCE report 'Young participation in higher education' (HEFCE 2005/03)[2]. This detailed report provided an in-depth explanation of the methodology behind POLAR and looked at the relationship between POLAR and other forms of disadvantage experienced by young people. It also looked at how various characteristics of HE entrants varied across the POLAR quintiles, and addressed some of the issues associated with area-based measures.

13. An updated version of POLAR, known as POLAR2, was made available in 2007. This made use of more recent information on HE entrants, and extended the scope of the classification to include part-time study and a range of other HE qualification aims. POLAR was updated again in 2012 as POLAR3, to make use of the latest HE entrant and population information.

14. The purpose of this report is to update those aspects of the analyses presented in HEFCE 2005/03 which are felt to be of foremost interest and benefit to users of the classification.

POLAR methodology

15. POLAR3 is based on the HE participation rates of five cohorts of young people aged such that they would have entered HE aged 18 between the 2005-06 and 2009-10 academic years, or aged 19 between 2006-07 and 2010-11. The definition of HE used here is broad and encompasses: full-time and part-time entrants; the many different types of undergraduate qualifications available such as first degrees, foundation degrees, diplomas, HNCs and HNDs; and entrants to higher education institutions across the UK and to further education institutions in England and Scotland.

16. Young HE participation rates are calculated for each of the 2001 census wards in the UK. This is done by looking at the aggregate number of young people over these five cohorts, recorded at age 15, and calculating the proportion for each census ward who entered HE under

[1] Small areas considered here are 2001 census area statistics wards, referred to as census wards in the main body of this report. See Annex A for a hierarchy of geographies.
[2] Available online at http://webarchive.nationalarchives.gov.uk/20100202100434/http:/www.hefce.ac.uk/pubs/hefce/2005/05_03/

the age of 20[3]. Wards are then ranked according to their participation rate and then divided into five groups, known as quintiles, each of which holds an equal proportion of the young cohort. The quintiles are labelled from 1 to 5 such that quintile 1 contains the wards with the lowest, and quintile 5 those with the highest, young participation rates.

17. The POLAR3 classification is available on the HEFCE website alongside an interactive map showing the POLAR classifications of all wards across the UK[4]. 'POLAR3: Young Participation Rates in Higher Education' (HEFCE 2012/26) gives full details of the POLAR3 methodology along with a detailed analysis of the classification[5].

Report structure

18. The report is split into three main sections. The first section looks at the suitability of the geography used to construct POLAR. While an update of this analysis is of use in its own right, it is included here partly in response to concerns that wards are too large for POLAR to describe HE participation among young people accurately at a local level.

19. The second section looks at relationships between POLAR3 and other forms of disadvantage that young people may experience. Many of the forms of disadvantage considered are area-based, and some school- and individual-level measures are also considered.

20. The third section looks at how certain characteristics vary between HE entrants from different POLAR quintiles. This analysis includes data from the Individualised Learner Record (ILR) in addition to Higher Education Statistics Agency data, so that young entrants studying HE in further education colleges in England can be included.

21. The report has been written so that each section can be read independently. This means, for example, that a reader interested in the relationship between POLAR and other measures of disadvantage, but no interest in variability within census wards, can skip the first section and proceed straight to the second section. A list of abbreviations can be found at Annex F.

22. The annexes primarily support the first section of the report, providing detail on the analysis of the suitability of the POLAR geography. They go further, to evaluate the possibility of using a smaller geography to construct POLAR.

Findings

Investigation into participation heterogeneity in census wards

Why investigate ward heterogeneity?

23. POLAR is an area-based classification, constructed by grouping together areas which have similar rates of young HE participation. All area-based classifications carry with them a risk that the geography used is too large to accurately reflect the true spatial distribution of the variable they are designed to measure. In the case of the POLAR classification, this means that the estimated young HE participation rate for an area may not be fully representative of all young people living in that area; there may be young people living in different parts of an area who have

[3] A measure including mature HE entrants is not constructed as the census ward in which they resided at the age of 15 might be less relevant to their HE participation.
[4] See http://www.hefce.ac.uk/polar/
[5] Available online at www.hefce.ac.uk/pubs/year/2012/201226/

substantially different HE participation rates. This means that areas which are classified as having high young HE participation rates may actually contain smaller areas where the participation rates are substantially lower, and vice versa.

24. The POLAR classification is based on young HE participation rates calculated across the set of census area statistics wards used for reporting data from the 2001 census[6]. Although census wards are reasonably small areas (there are a total of 10,654 of them in the UK) they are not as small as other geographies that have been used to construct other area-based classifications[7]. This difference in geography between POLAR and other area-based measures is one source of concern about heterogeneity within wards.

25. In the case of the POLAR classification, the concerns about heterogeneity of young participation rates within wards are often confounded with variations in other forms of disadvantage, shown by other area-based measures. This has led to the criticism that the POLAR classification is more likely to miss pockets of low HE participation in certain parts of the country; most commonly in London, where local authority housing estates are often interspersed within larger affluent areas, sometimes within a single census ward[8]; and in rural areas, where a single census ward can often contain several villages with distinct characteristics. In these cases it is assumed that the likelihood of progressing into HE will be substantially different for young people living in markedly different areas within a single census ward, because of the different levels of disadvantage that they may experience. While there is a relationship between many forms of disadvantage and the likelihood of progressing into HE, it is not always as strong as is often assumed, particularly in London[9].

26. To address some of these concerns, previous work investigated the extent to which wards were likely to contain smaller (sub-ward) areas where young HE participation rates were substantially different from that of the ward as a whole[10]. By estimating young participation rates at a geography smaller than census wards it found that wards were typically homogeneous in terms of young participation rates; it was uncommon for wards with low young HE participation to contain smaller areas with substantially higher rates of participation, and vice versa.

27. However, this analysis was based on an early version of the POLAR classification, and the classification has since evolved. This and the changing pattern of HE participation since the late 1990s mean that there is a need to update the analysis. There are other benefits to updating the analysis. One of the limitations of the previous work was the availability of just three cohorts of young people. Now more cohorts are available, meaning more robust analysis can be

[6] These are also known as 'caswards', and are referred to as census wards for the remainder of this report.
[7] For example the Index of Multiple Deprivation is an area-based measure calculated for lower super output areas (for more details see https://www.gov.uk/government/publications/english-indices-of-deprivation-2010) and the Output Area Cluster classification is at output areas (for more details see www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/ns-area-classifications/index/methodology-and-variables/output-areas/output-areas.html). See Annex A for a hierarchy of geographies.
[8] For example see Grove, Jack, 'Affluent neighbours obscure true number of poor put off by fees' in Times Higher Education,18 October 2012, available online at www.timeshighereducation.co.uk/news/affluent-neighbours-obscure-true-number-of-poor-put-off-by-fees/421528.article
[9] Relationships between the POLAR classification and other measures of disadvantaged are considered in the next section of this report.
[10] See Annex F in HEFCE 2005/03.

conducted[11]. The previous work has also been extended to focus on different parts of the UK, to see if the issue of homogeneity is greater in certain parts of the country such as Greater London or rural areas.

28. In this report, the sub-ward geography used is the set of output areas created for the reporting of data from the 2001 census. Output areas are the smallest geographical unit at which data from the 2001 census were reported. These were constructed using clusters of adjacent unit postcodes, and designed to have similar population sizes and to be as socially homogenous as possible. These qualities make output areas a good geography for understanding homogeneity within wards. A hierarchy of levels of geography is included in Annex A.

Heterogeneity within wards

29. If a ward is truly heterogeneous in terms of the propensity for young people living within its sub-ward geographies to progress into HE, then the participation rates across those geographies will show strong variation, perhaps to the extent that some of them would be classified in a different POLAR quintile from that of the parent ward. It is possible check this for each ward by calculating the young participation rates for a chosen sub-ward geography and looking at the distribution.

30. However, even if a ward is truly homogeneous, with each sub-ward area having the same participation rate as its parent ward, some level of variation would still be expected due to the small numbers of young people living within sub-ward areas (see Annex B for an explanation of this). This means that a true estimate of ward heterogeneity must take account of this expected variation; that is to say, we cannot simply note the level of observed variability in young participation rates across sub-ward areas and use this to assess ward heterogeneity. Instead we estimate what the expected variability would be (using simulations) and subtract this from our observed variability. The remaining difference provides us with an estimate of true ward heterogeneity. In this report the level of heterogeneity within a ward is measured according to the proportion of the young population living in sub-ward areas whose participation rates place them in a quintile that is neither the same as nor adjacent to that of their parent ward[12].

31. We begin by looking at ward-level heterogeneity across the whole of the UK, before moving on to look at heterogeneity within the separate countries of the UK and the nine English regions. The section concludes with an analysis of heterogeneity within urban and rural areas[13].

Ward heterogeneity across the UK

32. Table 1 shows the level of heterogeneity within wards across the POLAR3 quintiles. For example, it shows that if output areas located within quintile 1 wards were entirely homogenous, 7.2 per cent of the young cohort would be expected, due to random variation, to be in an output area in a quintile that is neither the same as or adjacent to quintile 1 (that is quintiles 3, 4 or 5). The actual distribution shows that 14.3 per cent of the cohort are observed to be living in output areas with participation rates placing them into non-adjacent quintiles. The difference between

[11] This is because the larger number of available cohorts means the population counts in sub-ward areas can be made higher. This reduces the inherent variation arising in young participation rates that are calculated using small numbers of entrants and population counts.
[12] By looking at non-adjacent quintiles we ensure that the differences we find between ward and sub-ward areas are substantial. If we allowed adjacent wards, we would risk a large proportion of the estimated heterogeneity being driven by only small differences in young participation rates between output areas and their parent wards. This is particularly true of wards whose participation rates are close to a POLAR3 quintile boundary.
[13] For full tables see Annex D.

the observed and expected figures suggests that roughly 7 per cent (equivalent to one in 14) of the young cohort in the most disadvantaged wards probably live in output areas with a substantially different propensity to participate in HE.

Table 1: Heterogeneity of wards across POLAR3 quintiles

POLAR3 quintile	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	7.2%	14.3%	7.1%
2	11.0%	20.7%	9.7%
3	22.2%	46.2%	24.0%
4	14.0%	26.5%	12.5%
5	7.2%	17.7%	10.5%

33. The levels of heterogeneity are not equal across the POLAR3 quintiles. Wards in quintile 3 have the highest level of heterogeneity. The relatively narrow range of participation rates covered by the third quintile means that, even if these wards were completely homogeneous, we would still expect 22 per cent of the young cohort within them to be living in output areas with rates that place them into non-adjacent quintiles. The actual results show that 46 per cent of the cohort are observed as living in such output areas, suggesting overall that 24 per cent (nearly one in four) of the cohort in third-quintile wards live in output areas which have a very different participation propensity from the ward average. Further analysis shows that this 24 per cent is roughly equally split between quintiles 1 and 5. Thus, around one in eight young people who are classified as living in quintile 3 wards are likely to live in output areas whose young participation rates would place them into quintile 1, and likewise for quintile 5.

34. For the wards in the fifth quintile, the simulations suggest that complete internal participation homogeneity would lead to around 7 per cent of the cohort being in output areas classified into non-adjacent quintiles. This compares with an actual proportion of nearly 18 per cent, meaning that 11 per cent (around one in nine) of the cohort are probably living in output areas with average or below average participation rates.

35. Among young people living in quintiles 3, 4 and 5 combined, approximately 9 per cent are likely to be actually living in output areas with participation rates that would place them into quintile 1.

36. The results given in Table 1 are very similar to those reported in HEFCE 2005/03. This is in part because the 2001 census output areas and the 1991 census enumeration districts (the sub-ward geography used in HEFCE 2005/03) contain, on average, similar numbers of the young cohort. However, the similarity between the actual proportions and the resulting similarity between the differences suggest that wards have not become substantially more or less heterogeneous since the late 1990s.

37. POLAR3 is a quintile classification based on five cohorts of young people (those aged 18 between 2005-06 and 2009-10). Repeating the analysis using an equivalent quintile measure based on 10 cohorts (18 years old in academic years 2000-01 to 2009-10), which boosts the

number of young people included in the analysis and thereby reduces the levels of variability, finds similar results to those reported in Table 1 (see Table C1 in Annex C).

Ward heterogeneity by country

38. The analysis reported above gives an overall picture of ward-level homogeneity across the UK. However, analysis at the UK level may disguise regional variations, since wards in one part of the UK might be more or less homogeneous than wards in another. Areas where this could be the case include parts of London, where, for example, local authority housing developments are located among larger prosperous areas, and rural areas where, due to the spread-out nature of rural settlements, wards can contain several villages with distinct characteristics.

39. To investigate this, the homogeneity analysis is repeated for each of the four countries that make up the UK, and for each of the nine regions that comprise England. Additional analysis looks at the heterogeneity of wards that are classified as being either in rural areas or urban areas.

Table 2: Heterogeneity of wards across POLAR3 quintiles by country

Country	POLAR3 quintile				
	1	**2**	**3**	**4**	**5**
England	7.5%	10.0%	24.1%	12.6%	10.7%
Scotland	3.3%	4.3%	20.5%	12.7%	9.5%
Wales	6.3%	10.2%	26.2%	10.5%	8.9%
Northern Ireland	4.9%	13.0%	27.2%	13.1%	11.1%
UK overall	**7.1%**	**9.7%**	**24.0%**	**12.5%**	**10.5%**

Note: The percentages presented are the difference between the observed and expected heterogeneity.

40. Table 2 shows how the level of heterogeneity within the different countries follows roughly the same pattern seen in the UK as a whole[14]. Wards in quintile 3 are found to have the highest levels of heterogeneity in all countries, with wards becoming more homogeneous as we move towards quintiles 1 and 5. In all countries wards in quintile 1 are found to be the most homogeneous. There are differences in the level of heterogeneity between countries. For example, in Scotland the level of heterogeneity in quintile 1, 2 and 3 wards is much lower than in the equivalent wards in other countries. In Northern Ireland the level of heterogeneity in quintile 1 wards is also low compared with England and Wales, but the level is higher in wards from quintile 2, 3, 4 and 5.

Ward heterogeneity by region

41. Analysis of the nine English regions suggests that the level of heterogeneity within each region is broadly consistent with that at the national level. In each region, wards have a similar proportion of the young cohort expected and observed to reside in output areas with very different participation rates, resulting in the level of heterogeneity within wards being approximately the same in each region (Table 3). There are some differences. For example the level of heterogeneity in quintile 2 wards in the East of England and Greater London is relatively low compared with equivalent wards in other regions. Also, the level of heterogeneity in quintile 3

[14] Note that Tables 2 to 4 give the difference between the observed and expected levels of heterogeneity. Tables detailing the observed and expected levels of heterogeneity can be found in Annex D.

wards in Greater London is much lower than elsewhere, while in the North East it is much higher. Notably, the level and pattern of heterogeneity of wards located in Greater London is not substantially different from the patterns observed elsewhere. That is to say that wards in London are no more likely than wards elsewhere in the country to conceal smaller sub-ward areas where the propensity for young people to participate in higher education is very high or very low.

Table 3: Heterogeneity of wards across POLAR3 quintiles by region

Region	POLAR3 quintile				
	1	**2**	**3**	**4**	**5**
North East	7.5%	12.9%	34.7%	12.3%	9.3%
North West	7.7%	10.8%	28.3%	13.4%	10.5%
Yorkshire & the Humber	8.1%	11.3%	25.8%	13.0%	11.6%
East Midlands	6.7%	10.6%	24.1%	10.9%	8.5%
West Midlands	8.7%	10.1%	25.6%	13.1%	10.6%
East of England	6.6%	7.4%	21.8%	12.2%	10.3%
Greater London	7.7%	7.4%	16.4%	12.0%	11.6%
South East	6.5%	9.8%	25.3%	13.7%	11.2%
South West	7.5%	10.1%	25.3%	11.8%	9.6%
England	**7.5%**	**10.0%**	**24.1%**	**12.6%**	**10.7%**

Note: The percentages presented are the difference between the observed and expected heterogeneity.

Ward heterogeneity in urban and rural areas

42. Analysis of wards in rural areas also suggests that the level of homogeneity is consistent with the national pattern (Table 4)[15]. For example, as observed nationally, just over 7 per cent of the cohort in rural wards (areas of villages, hamlets and isolated dwellings) classified into quintile 1 are likely to live in output areas where the propensity to participate in HE is higher, to the extent that they would be classed into non-adjacent quintiles.

[15] Wards in England and Wales are grouped into three broad categories using the Office for National Statistics' rural and urban area definition for Census Areas Statistics Wards, available at www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/rural-urban-definition-and-la/rural-urban-definition--england-and-wales-/index.html

Table 4: Heterogeneity of wards across POLAR3 quintiles for urban and rural areas

Area type	POLAR3 quintile				
	1	**2**	**3**	**4**	**5**
Urban	7.4%	10.1%	24.5%	13.2%	11.3%
Town and fringe	8.0%	9.7%	24.3%	12.2%	11.2%
Village, hamlet and isolated dwellings	7.4%	8.6%	19.0%	9.9%	7.9%

Note: The percentages presented are the difference between the observed and expected heterogeneity.

Constructing the POLAR classification using smaller geographical units

43. The analysis presented above has estimated the level of heterogeneity of young HE participation rates within wards across the POLAR quintiles. As has already been noted, census wards are larger than the geographical units used by many other area-based measures, and given that a level of heterogeneity has been identified within wards, an obvious question to ask is to what extent this would be reduced if a smaller geographical unit were used instead of census wards. Such a discussion is beyond the scope of the main body of this report, but an analysis is presented in Annex E. The results suggest that smaller geographical units can better capture the spatial variation in young HE participation rates than wards, but that the participation rates calculated at smaller units are more prone to error through random variation.

The relationship between POLAR3 and other measures of disadvantage

44. To help better understand the POLAR classification, this section explores the relationships between it and other measures of disadvantage. Such an analysis serves two purposes. The first is to highlight that the POLAR classification measures a specific form of disadvantage, namely educational disadvantage, in the form of a young person's likelihood of progressing into HE based upon where they live. Estimating educational disadvantage is not usually the primary purpose of other measures of disadvantage, and although there is known to be a correlation between disadvantage in general and a young person's chances of progressing into HE, the correlation is not always strong. This leads to the second purpose, which is to show how the POLAR classification could be used in conjunction with other measures of disadvantage. Such complementary use of different measures of disadvantage can have benefits for aims such as targeting participants for widening participation outreach activities, where understanding the broad characteristics of those from different POLAR3 quintiles is paramount.

45. Since the POLAR classification focuses on young people, we are careful to ensure that the measures of disadvantage that we compare with POLAR also focus on young people. The analysis uses area-, school- and individual-level measures of disadvantage, including the Income Deprivation Affecting Children Index, and measures derived from census data and the National Pupil Database[16]. While the POLAR classification covers the young population of the UK, all the

[16] The National Pupil Database also encompasses School Census information. The statistics in this analysis are based on those pupils without missing information in the fields of interest.

other measures of disadvantage cover young people in England only. Because of this, we restrict this analysis of POLAR to those wards which are located in England[17].

46. This section begins by looking at the relationships between the POLAR classification and other area-based measures of disadvantage. It then considers the relationships between POLAR and school-based measures, before finishing with a look at the relationships with individual-level measures of disadvantage. This section looks only to explore the relationship between POLAR3 and other measures of disadvantage, and offers no opinion on the relative merits or drawbacks of different classifications.

Area-level measures of disadvantage

Income deprivation affecting children index

47. A widely used measure of disadvantage for the young population is the Income Deprivation Affecting Children Index (IDACI). The IDACI, like POLAR3, is an area-based index, where scores are assigned to small areas ('lower super output areas' or LSOAs – see Annex A for population comparison) reflecting the proportion of children under the age of 16 living in income-deprived households[18]. Because IDACI scores represent proportions of disadvantaged children they can range from zero to one, where a higher score implies a greater proportion of disadvantaged children in an area[19]. IDACI scores are calculated separately, and at different times, for each country in the UK by different local administrations, and due to the slightly different methodologies adopted the scores cannot be directly compared across countries. Because of this our analysis looks exclusively at the relationship between the POLAR3 classification and the IDACI scores taken from the English Index of Multiple Deprivation[20]. We use the most recently released 2010 IDACI scores, based on 2008 data, which fall within the cohorts on which POLAR3 is based.

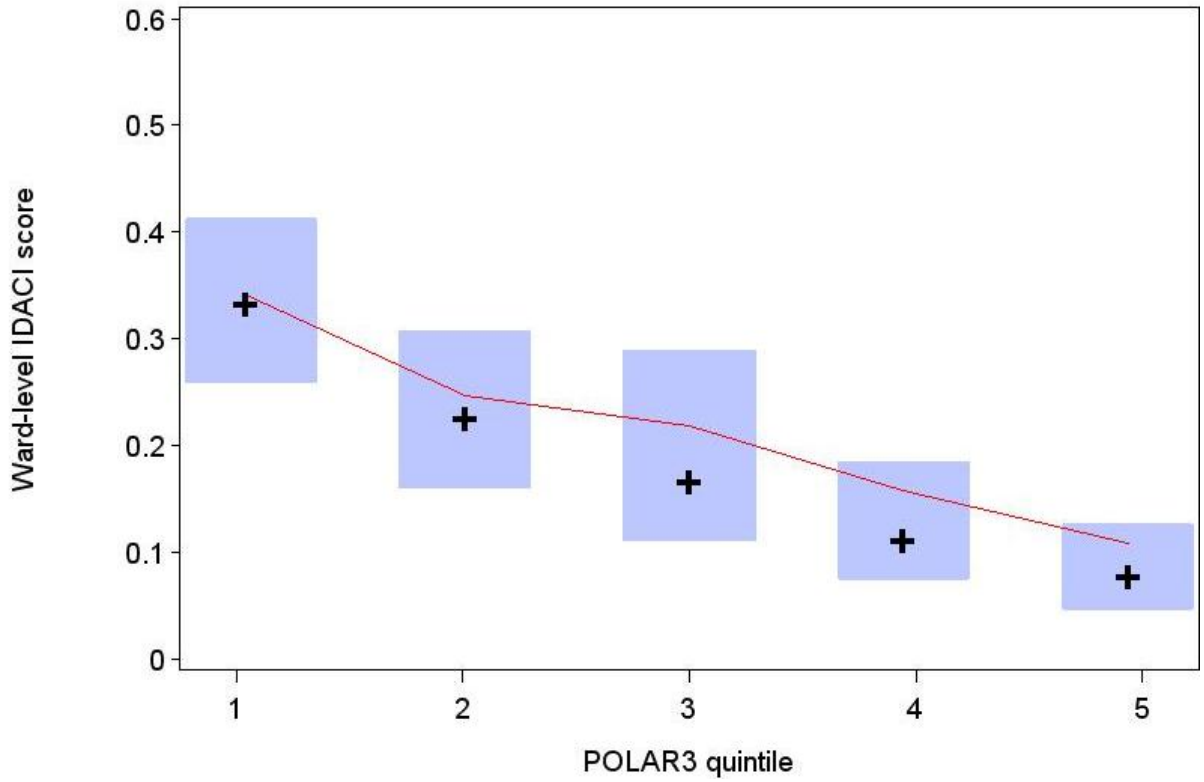
48. Since IDACI scores are reported at lower super output area level, a smaller geography than the census wards used in the POLAR classification, we scale the scores up to ward level. As the IDACI scores represent proportions of disadvantaged young people, this can be done by taking the weighted average of IDACI scores for LSOAs in the same ward, where the weights are the under-16 population in each LSOA.

49. Figure 1 shows how ward-level IDACI scores vary within each POLAR3 quintile. There is a clear relationship. The proportion of income-disadvantaged children is generally higher in the more disadvantaged POLAR quintiles. On average 34 per cent of children living in the most disadvantaged wards according to the POLAR classification were income-deprived, falling to 11 per cent for those living in most advantaged wards. This means that, on average, children living

[17] Since the POLAR3 classification is constructed so that each quintile contains 20 per cent of the UK young population, there is a risk that restricting analysis to only those wards in England will skew the proportion of the population that each quintile covers. This effect is found to be minimal, with the distribution of the English young population over the POLAR3 quintiles following a broadly similar distribution. The proportion of the young population in quintiles 1 to 5 is 21 per cent, 20 per cent, 20 per cent, 20 per cent and 19 per cent respectively.
[18] IDACI covers households with dependent children in receipt of certain income benefits (such as Income Support, income-based Jobseeker's Allowance or Pension Credit (Guarantee)), or those receiving Child Tax Credit who have a household income of less than 60 per cent of the UK median (excluding housing benefits), before housing costs. For further information on IDACI 2010 see 'The English Indices of Deprivation 2010', available online at https://www.gov.uk/government/collections/english-indices-of-deprivation
[19] IDACI scores for local areas are published along with a ranking. The most deprived LSOA has the highest score and a rank of 1.
[20] For further information and documentation see https://www.gov.uk/government/collections/english-indices-of-deprivation

in the most disadvantaged POLAR quintile are 3.1 times more likely to be income-disadvantaged than children living in the most advantaged quintile.

Figure 1: Ward-level IDACI (2010) scores by POLAR3 quintile, for England



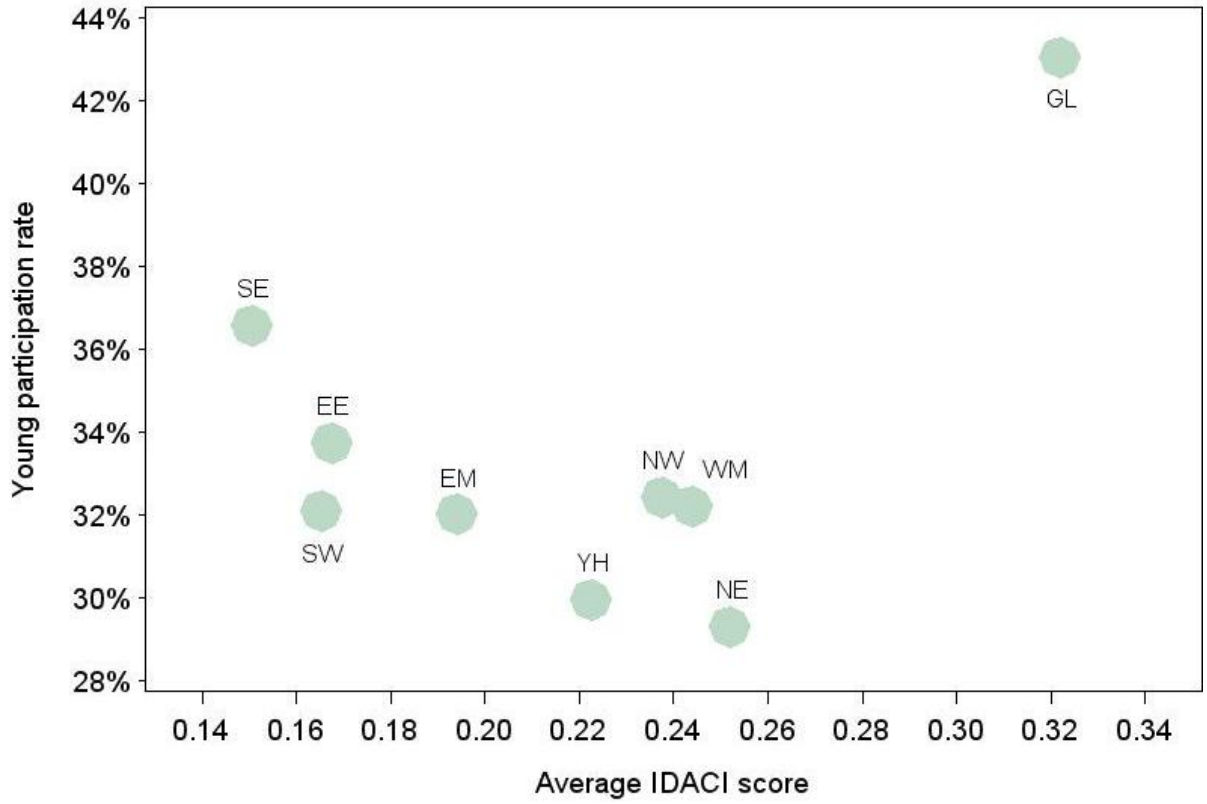
Note: Each bar represents the inter-quartile range of ward-level IDACI scores; '+' indicates the median; the red line represents the mean IDACI score; all weighted by the young population within wards.

50. There is however some overlap in the range of IDACI scores within each POLAR quintile. For example there are some wards in quintile 5 where the proportion of income-disadvantaged children is estimated to be higher than it is for some wards in quintile 3. This suggests that there are some areas with greater levels of income disadvantage affecting children than others, which nevertheless have higher young HE participation rates.

51. Figure 1 also shows a much broader range of IDACI scores in quintile 3 compared with others, and a notable gap between the median ('+') and mean ward IDACI scores ('red line') over the quintiles. For the large part this is attributable to London. As summarised in Table 5 and illustrated in Figure 2, the relationship between IDACI and POLAR3 observed elsewhere is not present for London. In London there is a greater proportion of income-deprived children than anywhere else in the country (45 per cent), but young participation rates in London are higher than elsewhere. In London only 4 per cent of the young population live in wards which are in the lowest young participation quintile[21]. This skews the distribution shown in Figure 1.

[21]See HEFCE 2012/26

Figure 2: Average IDACI (2010) score and young participation rate for each region in England



Regions: 'EE' East of England, 'EM' East Midlands, 'GL' Greater London, 'NE' North East, 'NW' North West, 'SE' South East, 'SW' South West, 'WM' West Midlands, 'YH' Yorkshire and the Humber

52. On the other hand, Figure 2 shows that among other regions there is a general relationship between the level of income deprivation affecting children and likelihood of progressing into HE, with regions which tend to have higher proportions of income-deprived children also tending to have lower young HE participation rates. Additionally, within these regions the average IDACI scores of wards by POLAR3 quintile reduce where wards are classified as more advantaged, as detailed in Table 5. However, within London this relationship is not present and the proportion of children affected by income deprivation is found to be higher in quintile 3 (42 per cent) than quintile 1 (39 per cent).

53. Overall, the main results shown in Figure 1 are comparable with those from previous work, which also found a clear association between the proportion of children in income-deprived households and young participation rates[22]. Comparing the results reported here with previous results suggests that the relationship between young HE participation and income deprivation affecting children has weakened over time. For example previous work reported that on average children living in the most disadvantaged POLAR quintile were 3.8 times more likely to be income-disadvantaged than children living in the most advantaged quintile. This compares with the current ratio of 3.1, reported above.

[22] HEFCE 2005/03, Figure 59.

Table 5: Average IDACI (2010) scores of regions in England by POLAR3 quintile (ordered by overall IDACI score)

Average IDACI score by region	POLAR3 quintile					Overall IDACI score	Young participation rate
	1	2	3	4	5		
South East	0.30	0.20	0.14	0.11	0.07	0.15	36.6%
East of England	0.29	0.19	0.15	0.12	0.08	0.17	33.8%
South West	0.28	0.18	0.14	0.11	0.08	0.17	32.1%
East Midlands	0.33	0.22	0.15	0.12	0.09	0.19	32.0%
Yorkshire & the Humber	0.34	0.25	0.19	0.11	0.08	0.22	30.0%
North West	0.40	0.29	0.22	0.14	0.07	0.24	32.5%
West Midlands	0.35	0.32	0.23	0.13	0.10	0.24	32.2%
North East	0.39	0.27	0.18	0.12	0.07	0.25	29.4%
London	0.39	0.38	0.42	0.35	0.21	0.32	43.1%
England	**0.34**	**0.25**	**0.23**	**0.16**	**0.11**	**0.22**	**34.2%**

Parental occupation

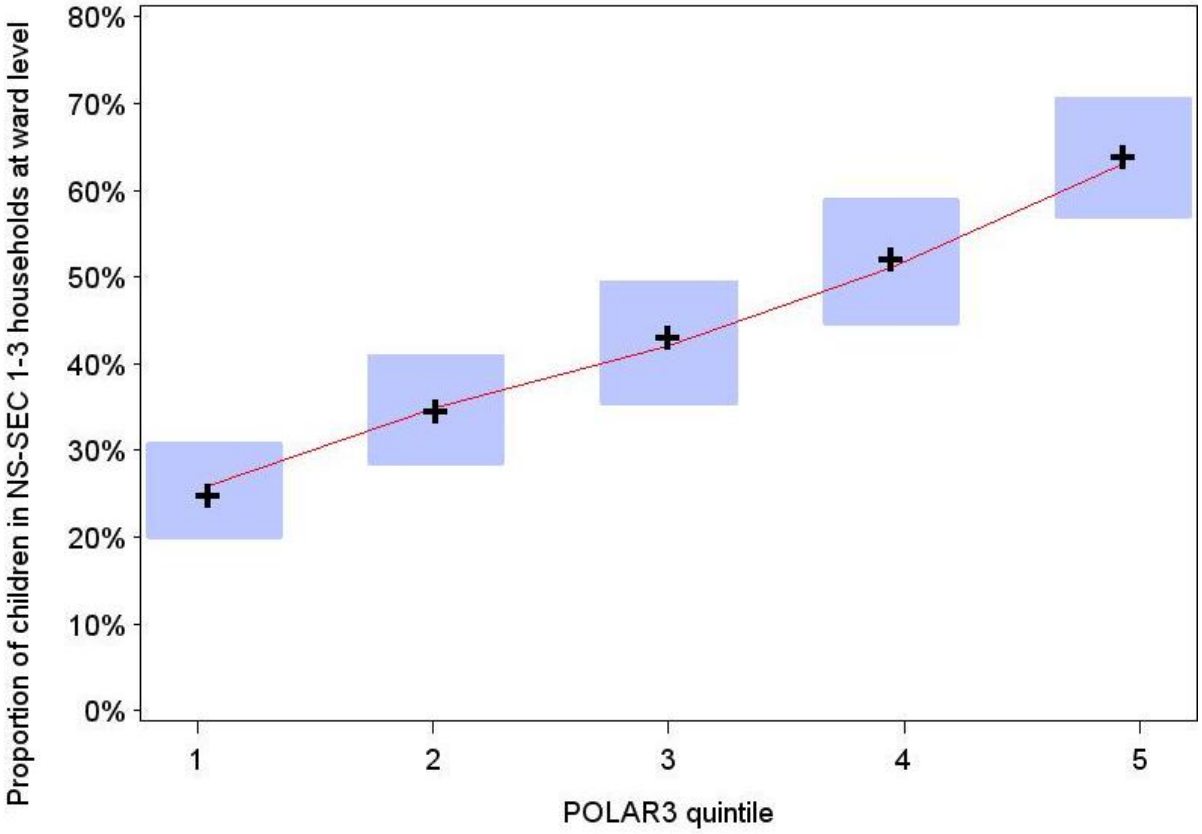
54. Grouping young people by the occupation of their parents is used in the reporting of HE statistics. An area-level analogue for this dimension of parental occupational advantage can be formed by ranking small areas by the proportion of children whose household was assigned to an occupational group in categories 1, 2 or 3 of the National Statistics Socio-Economic Classification (NS-SEC)[23]. Here we investigate the distribution of children living in NS-SEC 1 to 3 households across POLAR3 quintiles.

55. Figure 3 shows how the proportion of children in NS-SEC 1 to 3 households increases with the rate of young participation, with young people in the most disadvantaged POLAR quintile having on average the lowest proportion of children in such households (26 per cent), while those in the most advantaged quintile have the highest proportion (63 per cent). There is some overlap in the distribution of ward-level proportions between quintiles, most noticeably across quintiles 2 to 4, suggesting the relationship between young participation rates and the likelihood of living in an NS-SEC 1 to 3 household is not as strong outside the most advantaged and disadvantaged areas. Similar findings were identified in previous work[24].

[23] Based on the distribution of dependent children aged 0 to 15 by the NS-SEC classification of their household reference person, from 2001 Census Area Statistics Theme Table CT001. The NS-SEC classification is outlined http://www.ons.gov.uk/ons/guide-method/classifications/current-standard-classifications/soc2010/soc2010-volume-3-ns-sec--rebased-on-soc2010--user-manual/index.html. The NS-SEC categories are not readily aggregated; the grouping 1 to 3 contains most higher-salaried managerial and professional occupations and is commonly used in statistics about HE.

[24] HEFCE 2005/03, Figure 50.

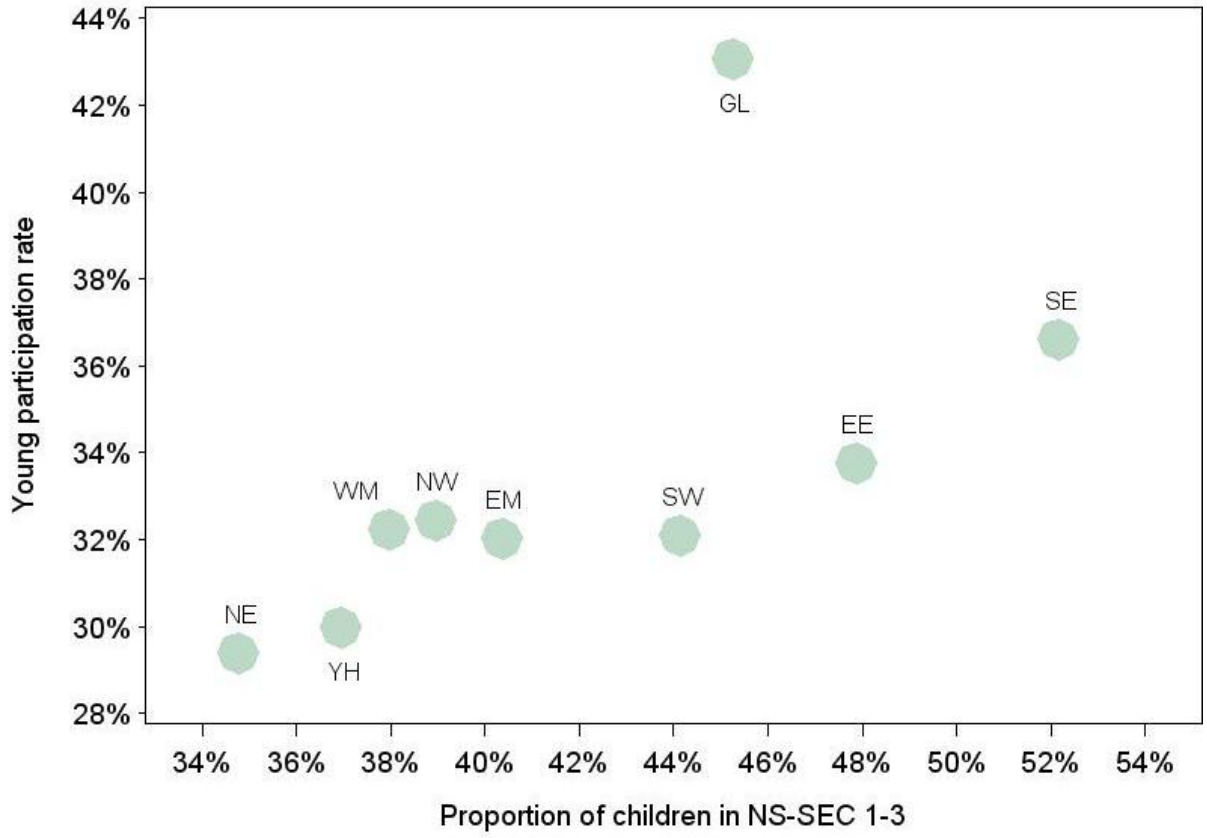
Figure 3: Ward level proportion of children in most advantaged households (NS-SEC 1-3) by POLAR3 quintile, for England



Note: Each bar represents the inter-quartile range of the proportion of children with their head of household in NS-SEC 1 to 3 within each ward; '+' indicates the median; the red line represents the mean score; all weighted by the young population within wards.

56. The relationship between the parental occupation measure and young participation rate observed at a national level is replicated regionally. Figure 4 shows that, broadly speaking; regions with a higher average proportion of children in NS-SEC 1 to 3 households have a higher average rate of young participation. London is slightly anomalous in that its proportion of children in NS-SEC 1 to 3 households (45 per cent) is only just above the national average (43 per cent) whereas it has the highest young participation rate. Additionally, although Table 6 shows that for all regions the proportions of children in NS-SEC 1 to 3 households are higher than average in more advantaged quintiles, the difference between the quintiles is narrower for London. London has the highest proportion of children in NS-SEC 1 to 3 households in quintile 1 (34 per cent), and the lowest in quintile 5 (59 per cent), in comparison with all other regions.

Figure 4: Average proportion in NS-SEC 1 to 3 and young participation rate for each region in England



Regions: 'EE' East of England, 'EM' East Midlands, 'GL' Greater London, 'NE' North East, 'NW' North West, 'SE' South East, 'SW' South West, 'WM' West Midlands, 'YH' Yorkshire and the Humber

Table 6: Average proportion of children in NS-SEC 1 to 3 households in regions in England, by POLAR3 quintile (ordered by overall NS-SEC)

Average proportion in NS-SEC 1-3 by region	POLAR3 quintile					Overall proportion in NS-SEC 1-3	Young participation rate
	1	2	3	4	5		
North East	20.5%	29.9%	39.3%	48.6%	62.6%	34.8%	29.4%
Yorkshire & the Humber	22.5%	31.4%	39.0%	50.0%	62.2%	37.0%	30.0%
West Midlands	23.4%	28.5%	38.7%	50.3%	60.5%	38.0%	32.2%
North West	23.2%	31.2%	38.7%	49.0%	63.3%	39.0%	32.5%
East Midlands	24.1%	33.8%	43.4%	50.4%	59.8%	40.4%	32.0%
South West	30.4%	39.0%	45.9%	51.6%	62.5%	44.2%	32.1%
London	33.7%	35.3%	36.4%	42.6%	58.6%	45.3%	43.1%
East of England	30.3%	40.7%	48.2%	56.4%	66.9%	47.9%	33.8%
South East	31.8%	42.5%	50.7%	58.3%	68.9%	52.2%	36.6%
England	**25.8%**	**34.9%**	**42.0%**	**51.0%**	**63.0%**	**43.0%**	**34.2%**

Children with graduate parents

57. Measures of the qualification level of adults, specifically whether or not they hold an HE qualification, have been shown to discriminate between areas with different young HE participation rates[25]. Here we look at the relationship between POLAR3 and areas with different proportions of children with a graduate parent, derived from a 2001 Census commissioned table[26].

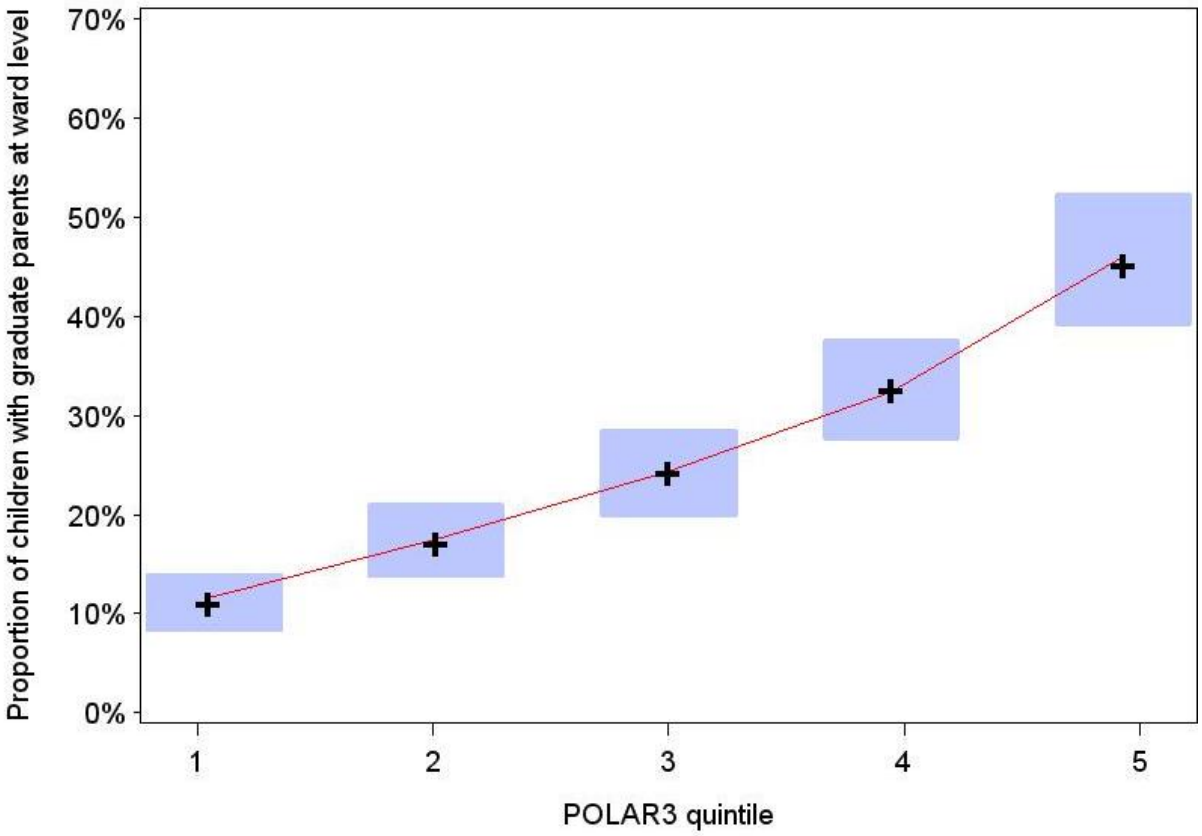
58. Figure 5 shows a clear relationship between the proportion of children in a ward with a graduate parent and young participation rates. The average proportion of children with a graduate parent increases over the POLAR3 quintiles, from 12 per cent for wards in quintile 1 to 46 per cent for wards in quintile 5. In addition, there is little overlap of the ward-level proportions of children with a graduate parent across POLAR3 quintiles, implying that this measure better discriminates between areas of high and low young HE participation than the area-based measures of disadvantage using income and occupation.

59. The relationship across regions between young HE participation rates and the proportion of children with a graduate parent is shown in Figure 6. Regions where the average proportion of children with a graduate parent is higher tend to have higher rates of young participation. This relationship is also found over the quintiles within regions, shown in Table 7. As illustrated in Figure 6, London is once again differentiated from the other regions due to its high young participation rate and is an outlier.

[25] 'Trends in young participation in higher education: core results for England' (HEFCE 2010/03), available online at www.hefce.ac.uk/pubs/year/2010/201003/

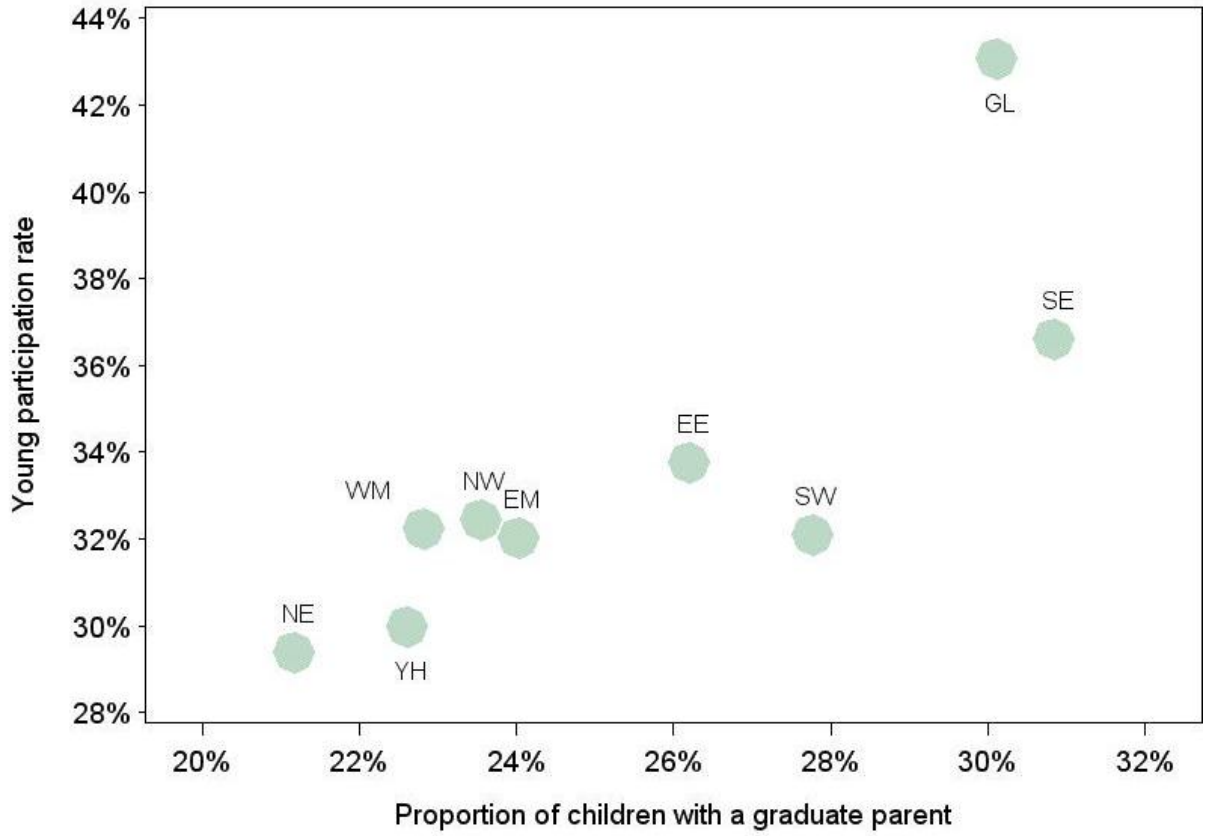
[26] 2001 Census commissioned table C0821. The ranking measure is the proportion of 10- to 14-year olds in 2001 living in families with a parent holding a higher education qualification.

Figure 5: Ward-level proportions of children with at least one graduate parent by POLAR3 quintile, for England



Note: Each bar represents the inter-quartile range of the proportion of children with at least one graduate parent within each ward; '+' indicates the median; the red line represents the mean score; all weighted by the young population within wards.

Figure 6: Average proportion of children with at least one graduate parent and young participation rate for each region in England



Regions: 'EE' East of England, 'EM' East Midlands, 'GL' Greater London, 'NE' North East, 'NW' North West, 'SE' South East, 'SW' South West, 'WM' West Midlands, 'YH' Yorkshire and the Humber

Table 7: Average proportion of children with at least one graduate parent in regions in England, by POLAR3 quintile (ordered by overall graduate parent proportion)

Average proportion with a graduate parent by region	POLAR3 quintile					Overall proportion with a graduate parent	Young participation rate
	1	2	3	4	5		
North East	10.0%	16.4%	23.2%	31.6%	46.9%	21.2%	29.4%
Yorkshire & the Humber	10.6%	17.1%	23.1%	33.2%	47.2%	22.6%	30.0%
West Midlands	10.7%	14.6%	22.2%	32.7%	44.1%	22.8%	32.2%
North West	10.8%	15.5%	22.6%	31.7%	46.3%	23.6%	32.5%
East Midlands	11.1%	17.8%	24.7%	31.4%	43.4%	24.0%	32.0%
East of England	11.7%	18.4%	25.1%	32.5%	47.1%	26.2%	33.8%
South West	13.7%	21.5%	28.8%	36.0%	48.5%	27.8%	32.1%
London	14.2%	15.0%	22.5%	27.9%	43.9%	30.1%	43.1%
South East	13.2%	20.8%	27.2%	35.4%	48.8%	30.9%	36.6%
England	**11.5%**	**17.6%**	**24.3%**	**32.4%**	**46.1%**	**26.0%**	**34.2%**

Attainment at Key Stage 4

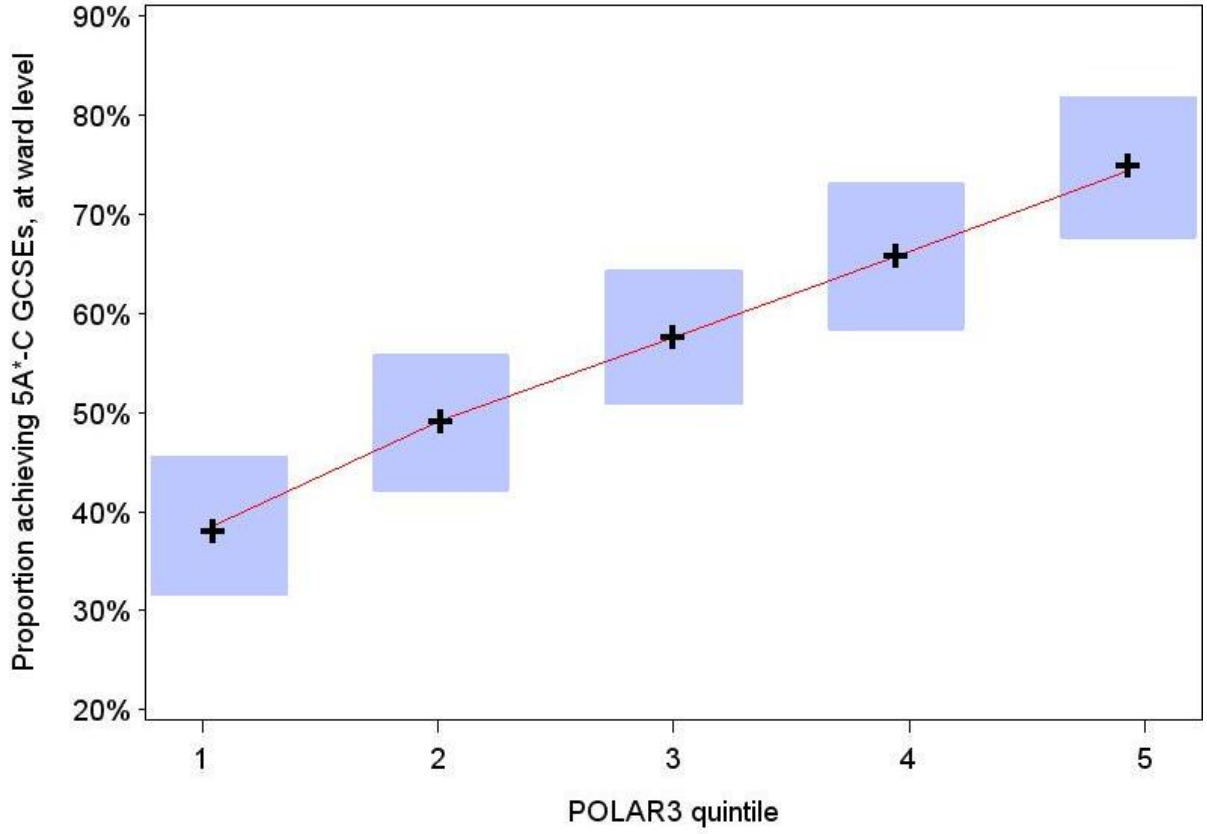
60. Academic attainment is one of the most important determinants of participation in HE. The relationship between ward-level young participation and attainment is investigated here by comparing the POLAR3 quintile of a ward with the proportion of its resident 15-year old maintained school pupils who achieve five or more GCSEs or GNVQs at grade A*-C[27]. This level of attainment is a useful measure, since it is usually a requirement to progress into further study[28].

61. Figure 7 shows that wards with higher proportions of children in maintained schools who achieve five or more A* to C GCSEs or GNVQs at Key Stage 4 tend to have higher young HE participation rates. Wards with the lowest young participation rates have, on average, the lowest proportion of children (39 per cent) who achieve this level, while wards with the highest young participation rates have the highest proportion (74 per cent). This means children living in quintile 5 wards who attend maintained schools are, on average, almost 90 per cent more likely to achieve five or more A* to C GCSEs or GNVQs at Key Stage 4 than children living in quintile 1 wards.

[27] Attainment data are taken from the National Pupil Database, covering15-year olds in maintained schools in England who were entered for a Key Stage 4 qualification during the 2010-11 academic year. Pupils at independent schools are therefore not included in this analysis. Qualifications include those achieved in earlier academic years. Note that this measure of attainment does not include pupils studying equivalent qualifications.
[28] Similar results to those shown here are found using alternative measures of attainment, for example GCSE and GNVQ total point score as used in analysis at an individual level in paragraphs 78 to 81.

62. Figure 7 will not fully reflect the extent of the relationship between attainment and young HE participation, given that children who attend independent schools are excluded from this analysis. It is likely that pupils at independent schools, who on average achieve higher grades at Key Stage 4 than those at maintained schools, are more likely to live in wards with higher young participation rates. This would increase the difference in the proportions achieving five or more A* to C GCSEs or GNVQs at Key Stage 4 across the POLAR3 quintiles.

Figure 7: Ward level proportions of KS4 pupils achieving five or more A* to C GCSEs or GNVQs in 2010-11 by POLAR3 quintile, for England



Note: Each bar represents the inter-quartile range of wards distributed by the proportion of Key Stage 4 pupils achieving five or more A to C GCSEs or GNVQs in 2010-11; '+' indicates the median; the red line represents the mean score; all weighted by the young population within wards.*

63. The relationship between young HE participation rates and Key Stage 4 attainment is shown in Table 8. Within all regions, wards in the more advantaged quintiles have higher proportions of young pupils achieving five or more A* to C GCSEs or GNVQs. This relationship is shown in Figure 8. For example, Yorkshire and the Humber has both the lowest proportion of pupils attaining five or more A* to C GCSEs or GNVQs in 2010-11 (51 per cent) and the lowest rate of young participation (30 per cent) of all regions in England. London is slightly anomalous as although it has a highest proportion of pupils achieving this level at Key Stage 4 (61 per cent), its rate of young participation is exceptionally high (43 per cent).

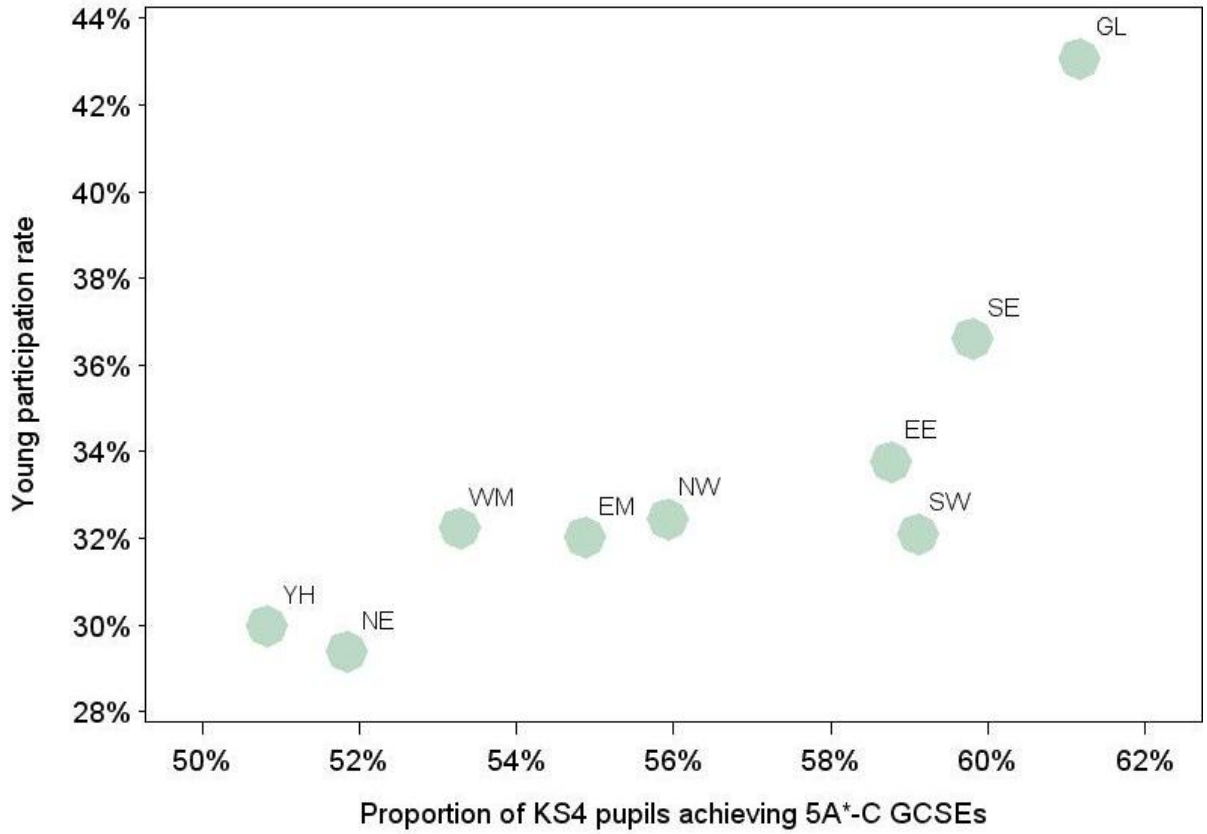
Table 8: Average proportion of KS4 pupils achieving five or more A* to C GCSEs or GNVQs in regions in England, by POLAR3 quintile

Proportion with 5 A*-C GCSEs	POLAR3 quintile					Proportion with 5 A*-C GCSEs	Average young participation rate
	1	2	3	4	5		
Yorkshire & the Humber	34.1%	46.4%	55.0%	65.9%	73.5%	50.8%	30.0%
North East	37.9%	47.8%	56.3%	66.1%	76.8%	51.9%	29.4%
West Midlands	37.8%	45.5%	54.9%	65.8%	72.9%	53.3%	32.2%
East Midlands	38.2%	48.6%	57.1%	66.3%	73.9%	54.9%	32.0%
North West	39.1%	48.6%	57.6%	66.9%	78.2%	55.9%	32.5%
South West	42.4%	54.8%	62.2%	68.1%	76.7%	59.1%	32.1%
East of England	39.5%	51.5%	60.4%	68.6%	76.7%	58.8%	33.8%
South East	38.8%	49.8%	59.1%	66.6%	76.1%	59.8%	36.6%
London	46.8%	52.0%	56.0%	60.2%	70.2%	61.2%	43.1%
England	**38.5%**	**49.2%**	**57.6%**	**65.7%**	**74.4%**	**56.8%**	**34.2%**

64. The results so far have been based on attainment measured by the proportion of pupils in maintained schools attaining five or more A* to C GCSEs or GNVQs. This definition excludes equivalent qualifications[29]. If the definition is extended to include these qualifications, to assess the proportion achieving level 2 (five or more A*-C GCSEs or equivalents), the trend between young participation and Key Stage 4 attainment previously observed dissolves. This is shown in Figure 9, where the region level picture is a very different from Figure 8. For instance, Figure 9 shows that the North East, which has the lowest rate of young participation (29 per cent) of all regions in England, has the highest proportion of children achieving level 2 in 2010-11 (85 per cent). On the other hand, Figure 8 shows this same region to have one of the lowest proportions of pupils gaining five A*-C GCSEs or GNVQs (52 per cent).

[29] Equivalent qualifications include NVQs Level 1 and 2, BTEC Firsts and GCE AS-Levels.

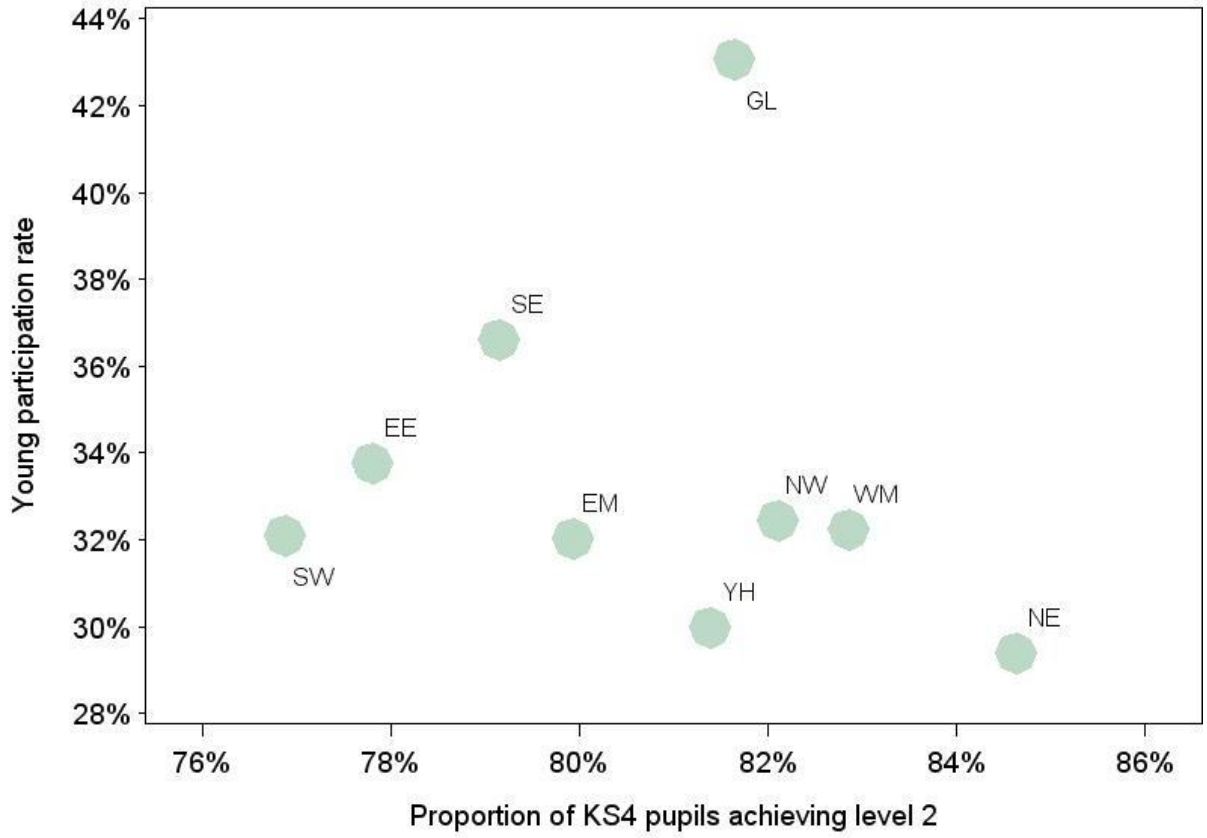
Figure 8: Average proportion of KS4 pupils achieving five or more A* to C GCSEs or GNVQs and young participation rate for each region in England



Regions: 'EE' East of England, 'EM' East Midlands, 'GL' Greater London, 'NE' North East, 'NW' North West, 'SE' South East, 'SW' South West, 'WM' West Midlands, 'YH' Yorkshire and the Humber

65. The difference between the two definitions of Key Stage 4 attainment is summarised in Table 9. Table 9 also highlights how this difference varies between regions. For example, those regions with the lowest proportions of pupils attaining five A* to C GCSEs, associated with low young participation rates, tend to have higher percentage point increases in Key Stage 4 attainment when equivalents are included. This suggests that in some regions there are large proportions of pupils who achieve level 2 at Key Stage 4 via equivalent qualifications but that this does not translate into HE progression.

Figure 9: Average proportion of KS4 pupils achieving five or more A* to C GCSEs or equivalent (Level 2) and young participation rate for each region in England



Regions: 'EE' East of England, 'EM' East Midlands, 'GL' Greater London, 'NE' North East, 'NW' North West, 'SE' South East, 'SW' South West, 'WM' West Midlands, 'YH' Yorkshire and the Humber

Table 9: Difference in the proportion of Key Stage 4 pupils attaining Level 2 between attainment measures, by region (ordered by the size of the difference)

Region	Proportion of KS4 pupils with 5 or more A*-C GCSE/GNVQs	Proportion of KS4 pupils with Level 2 (GCSE and equivalents)	Percentage point increase (from including equivalents)	Average young participation rate
South West	59.1%	76.9%	**17.77**	32.1%
East of England	58.8%	77.8%	**19.05**	33.8%
South East	59.8%	79.2%	**19.35**	36.6%
London	61.2%	81.6%	**20.47**	43.1%
East Midlands	54.9%	79.9%	**25.05**	32.0%
North West	55.9%	82.1%	**26.18**	32.5%
West Midlands	53.3%	82.9%	**29.57**	32.2%
Yorkshire & the Humber	50.8%	81.4%	**30.56**	30.0%
North East	51.9%	84.6%	**32.79**	29.4%

Output area cluster classification

66. This section analyses how young people in small areas classified according to the 2001 output area (OA) cluster classification are distributed across POLAR3 quintiles. This classification groups output areas on the basis of demographic, environmental and economic factors measured in the 2001 census[30]. These groups do not therefore disaggregate areas by level of disadvantage, but instead describe areas as one of the following: blue-collar communities; city living; countryside; prospering suburbs; constrained by circumstances; typical traits; or multicultural[31]. In contrast with the area-based measures used earlier, the 2001 OA cluster classification does not use only the experiences of young people to derive these groups, but the experiences of the whole population in a small area. Despite this we are able to look at the distribution of the young population in England.

67. Table 10 shows the distribution of young people over the OA clusters, within each POLAR3 quintile. The OA cluster accounting for the largest proportion of those pupils from the most disadvantaged POLAR3 quintile is 'blue-collar' (37 per cent), whose traits include high proportions of residents in terraced housing, renting and without HE qualifications. Additionally, areas 'constrained by circumstances' (with relatively high proportions of people who rent, live in flats, have fewer than two cars in their household and have no HE qualifications) account for 24 per cent of the quintile 1 young population. Both the 'blue-collar' (shown in Figure 10) and 'constrained circumstances' clusters account for a progressively smaller proportion of young people where quintiles are more advantaged.

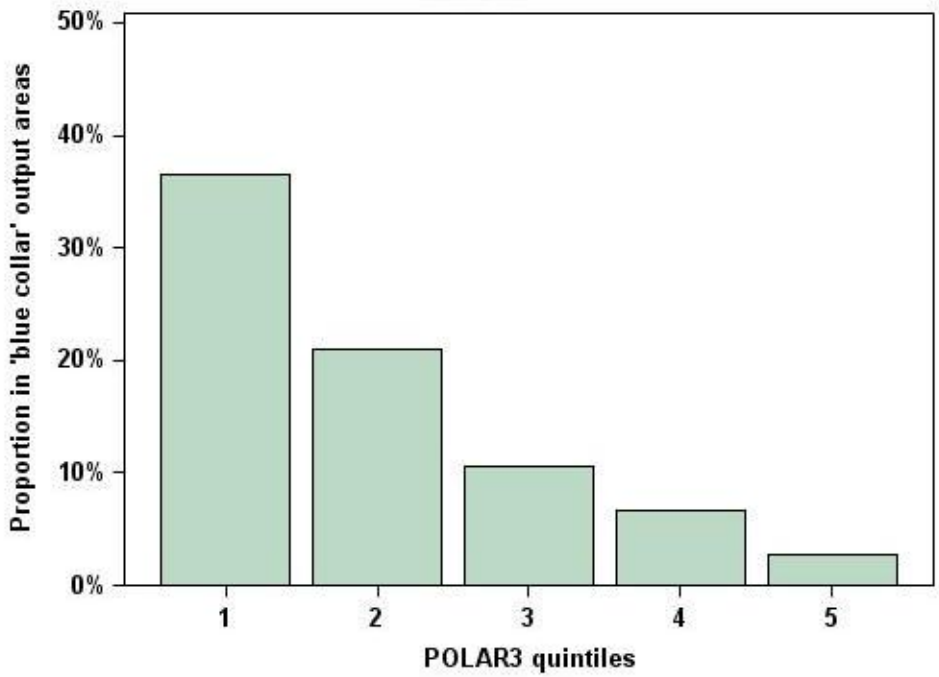
Table 10: Proportion of the young population in output area clusters within POLAR3 quintiles, in England (ordered by overall proportion in each cluster)

Output area cluster	POLAR3 quintiles				
	1	2	3	4	5
Prospering suburbs	9.5%	17.7%	21.9%	27.1%	31.3%
Blue-collar	36.6%	21.0%	10.6%	6.6%	2.7%
Typical traits	19.8%	25.6%	22.6%	20.0%	16.5%
Multicultural	5.1%	10.9%	19.8%	15.9%	12.1%
Countryside	3.3%	7.8%	12.2%	18.7%	18.0%
Constrained	24.0%	14.1%	7.8%	5.4%	3.2%
City living	1.9%	3.1%	5.0%	6.3%	16.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

[30] Produced by the Office for National Statistics (ONS). For further methodology and details see www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/ns-area-classifications/index/methodology-and-variables/output-areas/output-areas.html

[31] A breakdown of the ONS OA cluster classification groups is available at www.sasi.group.shef.ac.uk/area_classification/

Figure 10: Proportion of the young population in blue-collar output areas by POLAR3 quintile, in England



68. Table 10 also shows that young people from more advantaged areas are more likely to live in ‘prospering suburbs’. Of the young population in quintile 1 wards, 9 per cent live in these areas, compared with 31 per cent from quintile 5. ‘Prospering suburbs’ are characterised by above average proportions of the population residing in detached housing, having two or more cars per household and with relatively few residents who have no central heating or rent their residence. Compared with young people living in other quintiles, young people from quintile 5 also have the highest proportions residing in ‘countryside’ and ‘city living’ output areas. Areas described as ‘countryside’ are more sparsely populated and have a high proportion of people living in detached houses with two or more cars. Areas described as ‘city living’ have high proportions of people born outside of the UK and people with HE qualifications. Table 11 shows that over half (52 per cent) of pupils from these ‘city living’ areas also reside in some of the most advantaged wards, where the proportion declines steadily towards the least advantaged quintiles.

Table 11: Proportion of the young population in POLAR3 quintiles within output area clusters, in England

Output area cluster	POLAR3 quintiles					Total
	1	2	3	4	5	
Prospering suburbs	8.0%	15.6%	20.4%	25.4%	30.5%	100.0%
Blue-collar	45.3%	27.2%	14.5%	9.1%	3.9%	100.0%
Typical traits	17.5%	23.7%	22.2%	19.7%	16.9%	100.0%
Multicultural	7.2%	16.2%	31.2%	25.3%	20.0%	100.0%
Countryside	4.9%	12.3%	20.4%	31.2%	31.3%	100.0%
Constrained	42.1%	25.8%	15.2%	10.5%	6.4%	100.0%
City living	5.2%	8.8%	15.2%	19.2%	51.7%	100.0%

School-level measures of disadvantage

69. This section investigates how a young person's likelihood to progress into HE is associated with certain school-level characteristics. School-level attributes are compared with the POLAR3 quintile of Key Stage 4 pupils at English maintained schools in 2010-11, based on their home address[32].

School type and admissions

70. Differences in attainment are known to exist between different types of school and schools with different admissions policies[33]. This leads us to investigate the distribution of pupils who attend different types of maintained schools and their admissions policies across the POLAR3 quintiles. Table 12 shows that the majority of pupils from all POLAR3 quintiles attend comprehensive schools. The proportion who attend comprehensive schools is slightly higher for those living in wards with the lowest young HE participation rates (93 per cent) and lowest for those living in wards with the highest rates (87 per cent). Table 13 shows how those pupils who attend comprehensive schools are unevenly spread over the POLAR3 quintiles. Whereas over 20 per cent of pupils at comprehensive schools come from each of the lower quintiles (1, 2 and 3), just 17 per cent are from quintile 5.

[32] This analysis is based on data from the National Pupil Database, and relates to 15-year olds attending maintained schools in England in the 2010-11 academic year. Pupils at independent schools are therefore not included.

[33] For example see 'GCSE and equivalent results in England 2010-11 (revised)', available at https://www.gov.uk/government/publications/revised-gcse-and-equivalent-results-in-england-academic-year-2010-to-2011

Table 12: Proportions of KS4 pupils grouped by POLAR3 quintiles and split by different school types, in schools in England in 2010-11

KS4 school type	POLAR3 quintile				
	1	**2**	**3**	**4**	**5**
Comprehensive	93.2%	91.8%	90.5%	88.6%	86.7%
Modern	3.0%	3.6%	4.4%	4.7%	4.4%
Selective	1.3%	2.6%	3.4%	5.3%	7.6%
Other maintained[34]	2.4%	1.9%	1.6%	1.3%	1.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

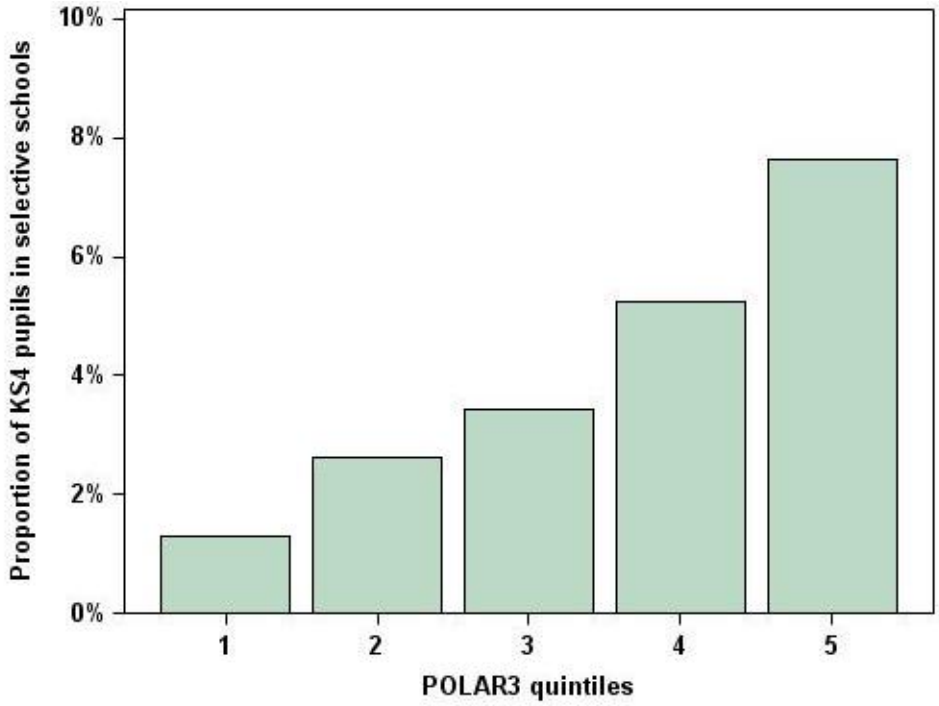
Table 13: Proportions of KS4 pupils grouped by school type and split by POLAR3 quintiles, in English schools in 2010-11

KS4 school type	POLAR3 quintile					Total
	1	**2**	**3**	**4**	**5**	
Comprehensive	21.0%	21.0%	21.0%	19.6%	17.4%	100.0%
Modern	15.5%	18.7%	22.8%	23.3%	19.7%	100.0%
Selective	6.7%	13.7%	18.1%	26.5%	34.9%	100.0%
Other maintained	28.9%	22.7%	19.9%	15.8%	12.7%	100.0%

71. The opposite pattern is observed for pupils attending selective schools. Just 1 per cent of pupils from the most disadvantaged POLAR3 quintile attend selective schools, compared with 8 per cent of pupils from the most advantaged quintile (Figure 11). As a result, just 7 per cent of KS4 pupils in selective schools are from the most disadvantaged quintile, compared with over a third from the most advantaged (see Table 13). Similar proportions of pupils (between 3 and 5 per cent) from each POLAR3 quintile attend modern schools, and similar proportions of pupils (between 1 and 2 per cent) are found to attend other maintained schools (Table 12).

[34] 'Other maintained' includes special schools and Pupil Referral Units.

Figure 11: Proportion of KS4 pupils who attended a selective maintained school by POLAR3 quintile, in England 2010-11



School-level Key Stage 4 attainment

72. The analysis above shows a general relationship between school type attended and the POLAR3 quintile of wards where pupils live. However some of the school types are very broad, and there are likely to be differences in the characteristics of schools within each of the categories. This leads us to investigate whether there are differences across the POLAR3 quintiles between schools, when schools are classified according to some other measure. A common measure used to rank schools is performance, so here we investigate the relationship between the POLAR3 quintile of the ward that school pupils live in and the performance of the schools they attend. School-level performance is measured as the proportion of Key Stage 4 pupils in 2010-11 who achieve five or more GCSEs or GNVQs at grade A* to C[35].

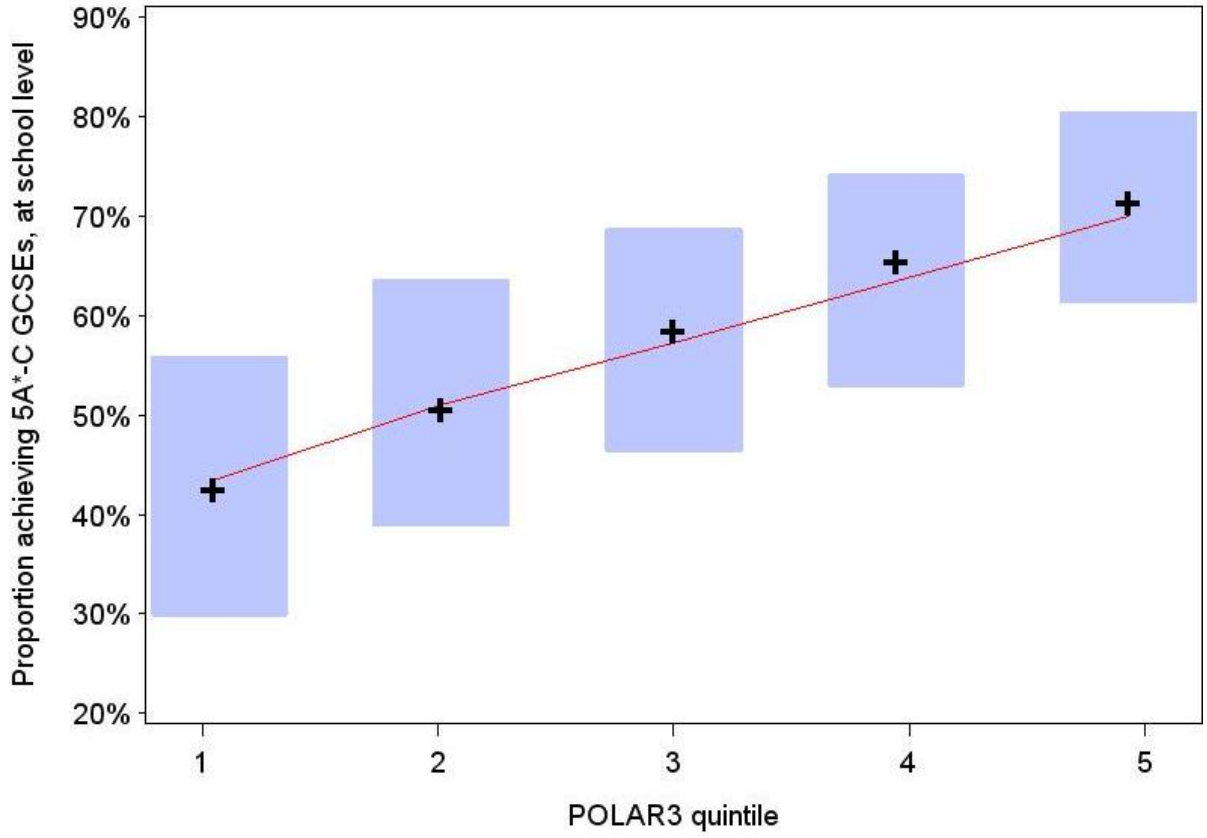
73. Figure 12 shows how, on average, young people living in wards with lower young HE participation rates are more likely to attend lower-performing schools. Children living in wards with the lowest young HE participation rates attend maintained schools where, on average, 43 per cent of pupils achieve at least five A* to C GCSEs or GNVQs at Key Stage 4. On the other hand, children living in wards with the highest participation rates attend maintained schools at which, on average, 70 per cent of pupils achieve five A* to C GCSEs or GNVQs at Key Stage 4.

74. Figure 12 shows some overlap in the spread of school performance across POLAR3 quintiles. For example, with the exception of the most advantaged, there are young people in all POLAR3 quintiles attending schools where the proportion achieving five A* to C GCSEs or GNVQs ranges between 53 and 56 per cent. This has consequences for targeting, in that there are likely to be pupils who live in low young HE participation wards and attend schools with

[35] Attainment data are taken from the National Pupil Database. Attainment data cover 15-year olds in maintained schools in England who were entered for a Key Stage 4 qualification during the 2010-11 academic year. Qualifications include those achieved in earlier academic years.

relatively good academic performance, and on the other hand pupils who live in wards with high young HE participation rates but attend schools with relatively low academic performance. This suggests that adopting a targeting methodology that incorporates both area and school-level measures can help identify disadvantaged young people, which, if using just one measure, might be missed.

Figure 12: Distribution of KS4 pupils by the proportion of pupils in their school achieving five or more A* to C GCSEs or GNVQs and POLAR3 quintile, in England 2010-11



Note: Each bar represents the inter-quartile range of KS4 pupils distributed by their school's level of KS4 attainment in GCSEs 2010-11, measured by the proportion gaining five or more A to C GCSEs; '+' indicates the median; the red line represents the mean score.*

Free school meal claims by school

75. Whether or not a pupil claims free school meals (FSM) is a widely recognised signal of disadvantage. Pupils are eligible to claim free school meals if their parents receive certain income support or tax credits[36]. Free school meal claimant information is summarised to create an alternative school-level measure, based on the proportion of Key Stage 4 pupils at a school who claim free school meals[37]. This measure is then used to see if the POLAR3 classification of the ward that a pupil lives in is related to the level of disadvantage of the school they attend. An

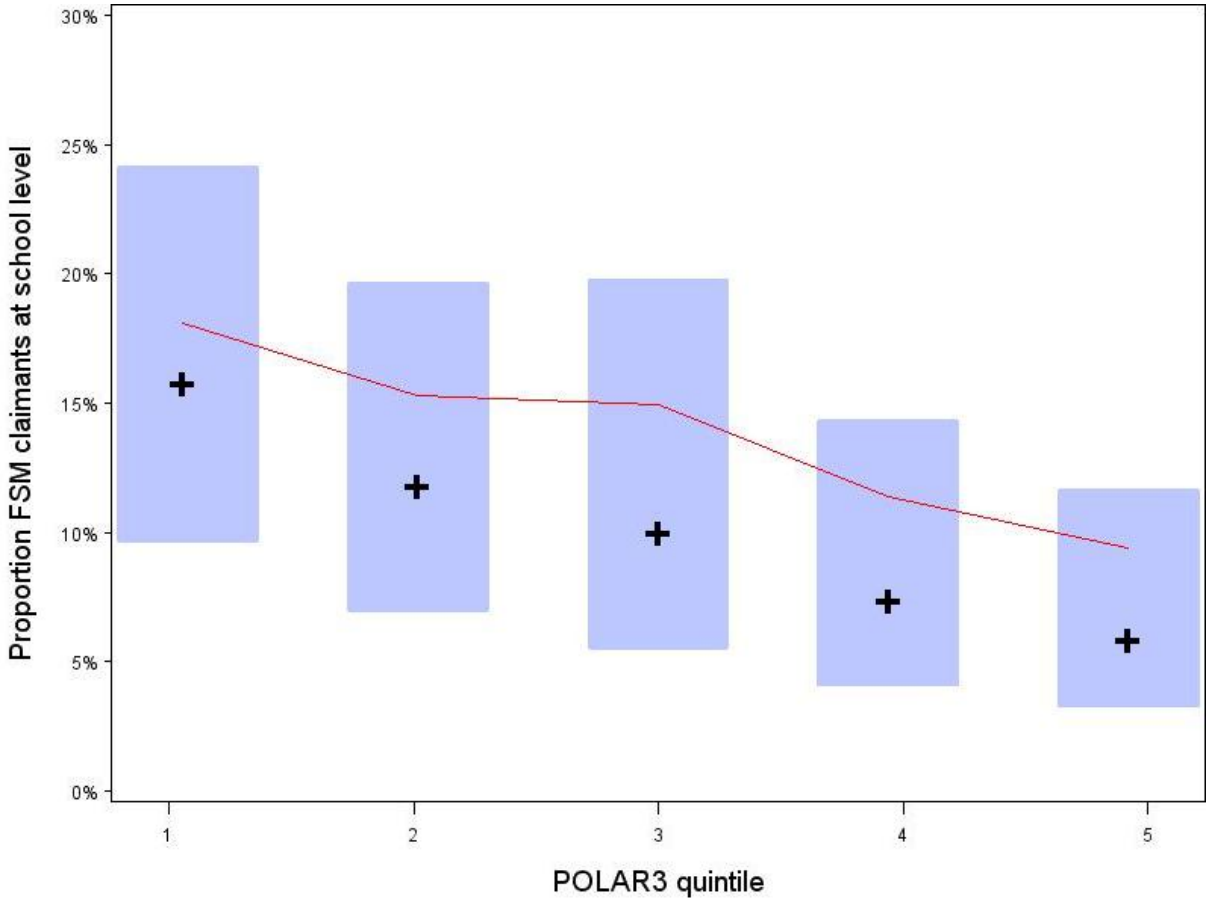
[36] For full FSM eligibility criteria, see www.education.gov.uk/schools/pupilsupport/pastoralcare/a00202841/fsmcriteria

[37] Free school meal information is taken from the National Pupil Database and relates to 15-year olds attending maintained schools in England in the 2010-11 academic year. It must be noted that some of those pupils who are eligible for FSM do not claim, and only self-declared pupils are known and recorded in the data.

analysis of the relationship between the POLAR3 classification and free school meal claimants is given in paragraphs 82 to 85.

76. Figure 13 shows there is a general relationship between the young HE participation rates of the wards where pupils live and the proportion of pupils who claim free school meals at the schools they attend. The average proportion of free school meal claimants in schools decreases from wards with lower young HE participation rates towards wards with higher rates. Young people who live in wards with the lowest young HE participation rates attend schools which have an average 18 per cent of pupils who claim free school meals. This compares with 9 per cent for pupils who live in wards with the highest young HE participation rates. Figure 13 also shows that there is a gap between these average (mean) proportions and the median proportions of free school meal claimants within each quintile. This is due to a number of schools, attended by pupils from all quintiles, which have relatively very large proportions of pupils claiming free school meals, skewing the distribution. This is partly attributable to the characteristics of London, where this occurs more frequently in comparison with other regions (see paragraph 85).

Figure 13: Distribution of KS4 pupils by the proportion of pupils in their school claiming free school meals (FSM) and POLAR3 quintile, in England 2010-11



Note: Each bar represents the inter-quartile range of KS4 pupils, distributed by proportion of KS4 pupils in their school who claim FSM in 2010-11; '+' indicates the median; red line represents the mean score.

77. The range of school-level disadvantage is large for each of the POLAR3 quintiles, and there is a substantial amount of overlap in the level of school disadvantage across the quintiles.

For example, there are pupils living in wards in all five quintiles who attend schools where between 10 and 12 per cent of pupils claims free school meals. This suggests that the POLAR3 classification does not discriminate well between schools with relatively high and low proportions of free school meal claimants. The range of school-level disadvantage is noticeably large for pupils in quintile 3. This diversity, and some of that in quintiles 4 and 5, is affected by London where a relatively large proportion of pupils from all quintiles attend disadvantaged schools, in comparison with other regions.

Individual-level measures of disadvantage

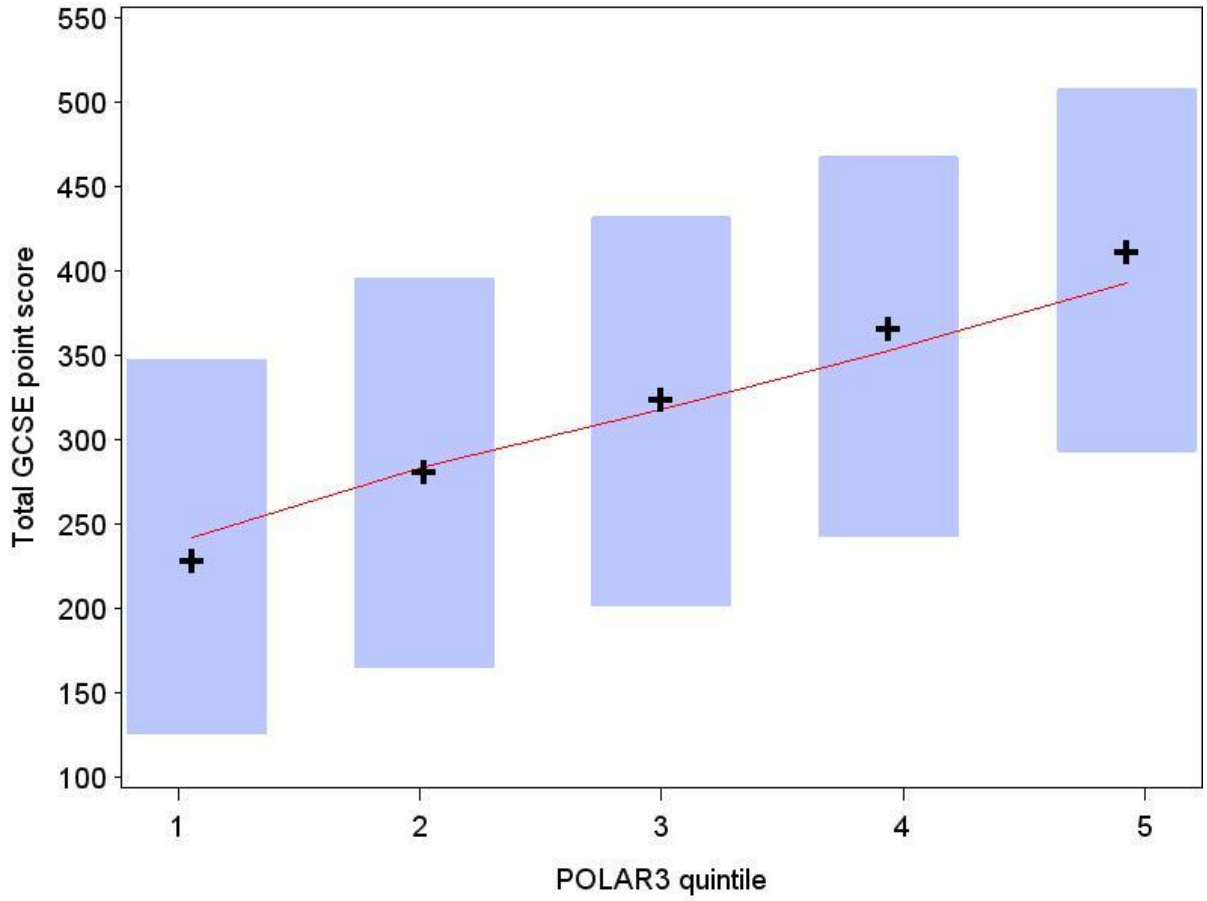
Attainment at Key Stage 4

78. As discussed previously, academic attainment is one of the main factors which influence participation in HE. The attainment level of young people across POLAR3 quintiles is investigated by looking at total GCSE point scores of 15-year old Key Stage 4 pupils in maintained schools in England[38].

79. Figure 14 shows that pupils in wards with higher young HE participation tend to achieve more highly at Key Stage 4. Those pupils living in the most disadvantaged wards have on average the lowest attainment (242 points), compared with those in the least disadvantaged (393 points). This means that those pupils living in quintile 5 wards achieve on average over 60 per cent higher total GCSE scores compared to pupils from quintile 1. On the other hand, Figure 14 also shows a lot of overlap in Key Stage 4 attainment. Scores of between 296 and 346 are attained by pupils in all quintiles. However, Figure 14 does not fully represent how attainment and HE participation relate. The analysis only includes pupils in maintained schools, with no information on the independent school population who are likely to achieve higher scores on average and live in high-participation areas. Including independent students might therefore increase the difference in attainment observed across the across the POLAR3 quintiles.

[38] Attainment data are taken from the National Pupil Database. Attainment data cover 15-year olds in maintained schools in England who were entered for a Key Stage 4 qualification during the 2010-11 academic year. Qualifications include those achieved in earlier academic years.

Figure 14: Distribution of Key Stage 4 pupils by their total GSCE point score and POLAR3 quintile, in England 2010-11



Note: Each bar represents the inter-quartile range of KS4 pupils distributed by their Key Stage 4 attainment 2010-11, measured by their total GCSE point score; '+' indicates the median; the red line represents the mean score.

80. Table 14 shows that the relationship between a pupil's Key Stage 4 attainment and the HE participation rate of their local area is present within all regions in England. Within all regions, pupils living in the most disadvantaged wards are associated with the lowest average attainment scores. Figure 15 shows that this relationship is also clear at regional level, where there is a tendency for higher attainment scores to be associated with relatively higher rates of young HE participation across regions. London separates itself from other regions, as although it has a very high rate of young participation (43 per cent), its average attainment score is close to that of other regions in the south of England (334).

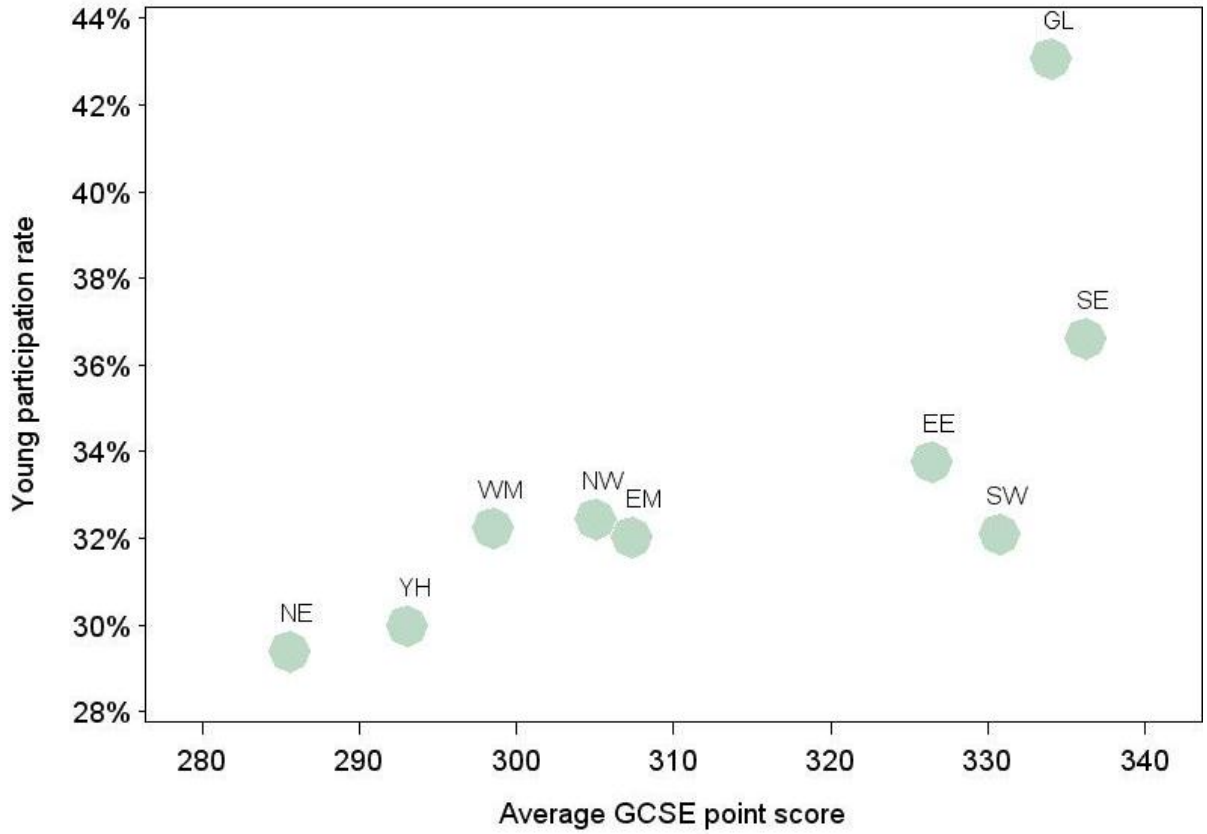
Table 14: Average GSCE scores of Key Stage 4 pupils by region in England, by POLAR3 quintile (ordered by overall point score)

Average GCSE point score by region	POLAR3					Overall GCSE point score	Average young participation rate
	1	2	3	4	5		
North East	229.6	268.2	298.9	340.8	384.0	285.7	29.4%
Yorkshire & the Humber	227.0	274.2	306.2	351.7	393.9	293.1	30.0%
West Midlands	234.4	263.3	303.8	352.5	386.7	298.6	32.2%
North West	238.6	273.8	311.3	347.5	395.5	305.1	32.5%
East Midlands	243.9	280.2	313.8	348.8	386.6	307.4	32.0%
East of England	251.3	295.5	334.3	364.6	400.4	326.5	33.8%
South West	261.9	313.5	341.2	368.2	407.3	330.8	32.1%
London	273.0	295.3	309.9	329.8	378.4	334.1	43.1%
South East	248.8	294.2	333.0	367.4	408.7	336.2	36.6%
England	**242.1**	**283.9**	**317.8**	**352.8**	**393.3**	**316.0**	**34.2%**

81. The attainment scores used in the analysis so far have been based on the total point scores achieved by Key Stage 4 pupils through GSCEs only. The inclusion of equivalent qualifications makes the relationship between a pupil's attainment score and the young participation rate of their ward less clear[39]. For example, Figure 16 shows that the North East has the highest average attainment score (503) but the lowest rate of young participation (29 per cent). Previously, when considering only GCSEs (Figure 15), the North East had the lowest average attainment. Table 15 summarises the difference between these two measures of attainment and, in conjunction with Figure 15 and Figure 16, shows that including equivalent qualifications has a substantial effect on the relationship between attainment and young participation (a similar result was found earlier when the proportion attaining five or more A*-C GCSEs or GNVQs was considered – see Figures 8 and 9 and Table 9).

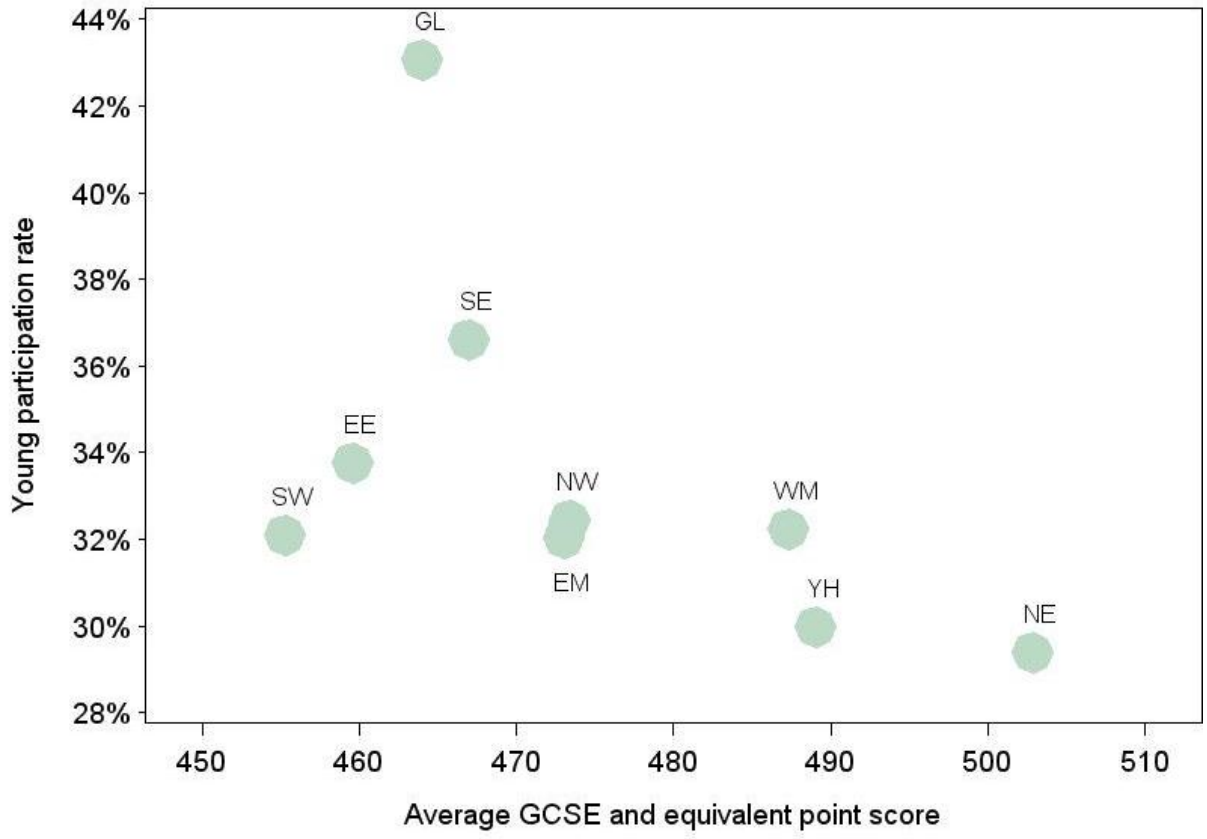
[39] Equivalent qualifications include NVQs Level 1 and 2, BTEC Firsts and GCE AS-Levels.

Figure 15: Average GCSE point score of Key Stage 4 pupils and young participation rate for each region in England



Regions: 'EE' East of England, 'EM' East Midlands, 'GL' Greater London, 'NE' North East, 'NW' North West, 'SE' South East, 'SW' South West, 'WM' West Midlands, 'YH' Yorkshire and the Humber

Figure 16: Average GCSE and equivalent point score and young participation rate for each region in England



Regions: 'EE' East of England, 'EM' East Midlands, 'GL' Greater London, 'NE' North East, 'NW' North West, 'SE' South East, 'SW' South West, 'WM' West Midlands, 'YH' Yorkshire and the Humber

Table 15: Difference in the average point score of Key Stage 4 pupils by region, by attainment measure (ordered by the size of the difference)

Region	Average KS4 GCSE point score	Average KS4 point score (GCSE and equivalents)	Increase in average point score (from including equivalents)	Average young participation rate
South West	330.8	455.4	**124.6**	32.1%
London	334.1	464.0	**130.0**	43.1%
South East	336.2	467.0	**130.8**	36.6%
East of England	326.5	459.6	**133.2**	33.8%
East Midlands	307.4	473.0	**165.6**	32.0%
North West	305.1	473.4	**168.3**	32.5%
West Midlands	298.6	487.4	**188.8**	32.2%
Yorkshire & the Humber	293.1	489.1	**196.0**	30.0%
North East	285.7	502.9	**217.3**	29.4%

Free school meal claims by pupil

82. As noted earlier, pupils claiming free school meals are recorded at an individual level, enabling calculation of the number of free school meal claimants over the POLAR3 quintiles[40].

83. Figure 17 shows how the proportion of free school meal claimants varies across the POLAR3 quintiles. Around 21 per cent of pupils in quintile 1 wards claim free school meals, compared with around 7 per cent of those in quintile 5 wards, meaning that pupils living in wards with the lowest young HE participation rates are three times more likely to claim free school meals than those living in wards with the highest rates.

Figure 17: Proportion of Key Stage 4 pupils claiming free school meals within each POLAR3 quintile, at English maintained schools 2010-11

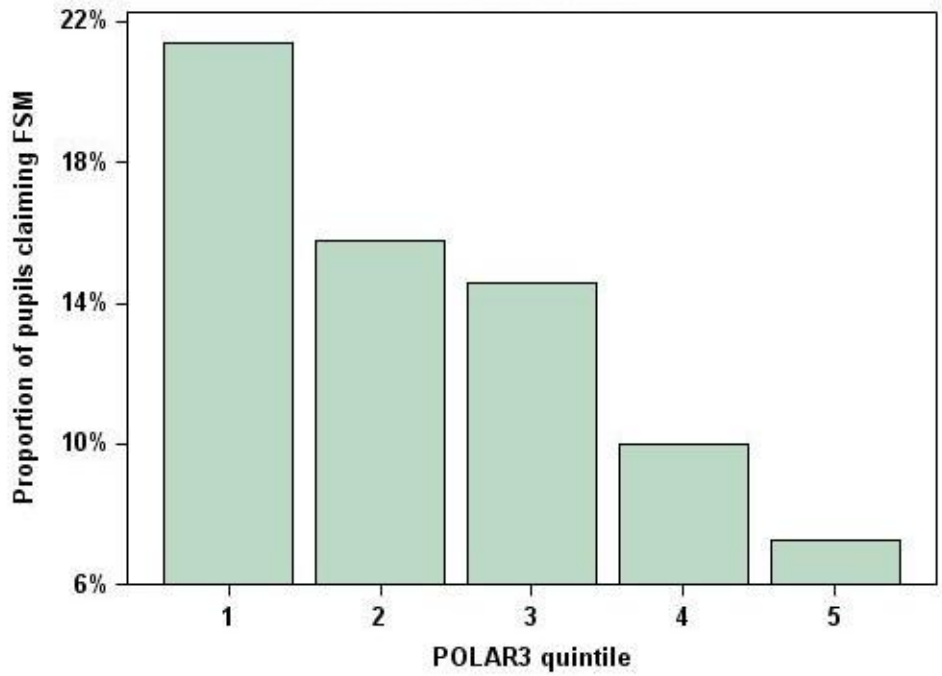


Table 16: Distribution of Key Stage 4 pupils over POLAR3 quintiles, grouped by whether they claim free school meals

Free school meal claimant status	POLAR3 quintiles					Total
	1	2	3	4	5	
Claimants	31.2%	23.3%	21.8%	14.3%	9.4%	100.0%
Non-claimants	18.6%	20.2%	20.8%	20.9%	19.5%	100.0%

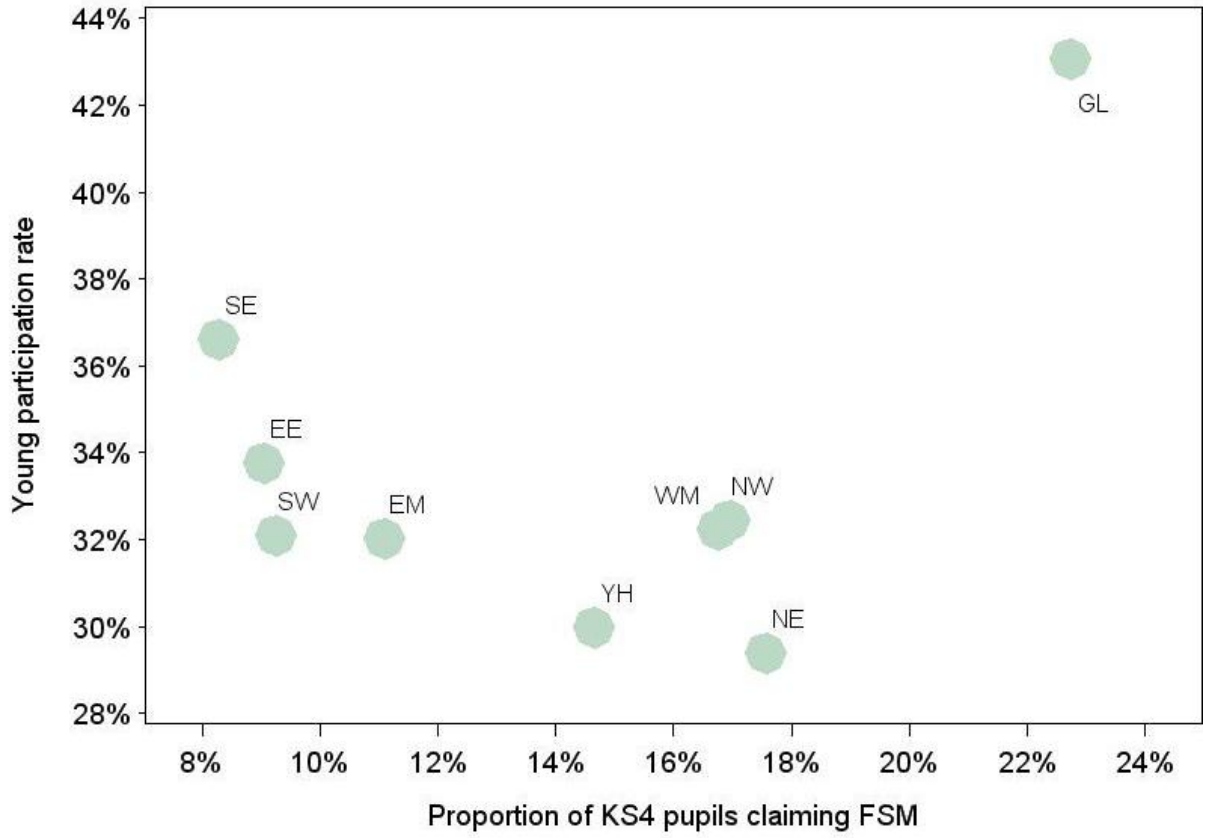
84. Table16 shows that of those who claim free school meals, 30 per cent live in quintile 1 wards while 9 per cent live in quintile 5 wards. Thus, pupils who claim free school meals are three times more likely to live in the most disadvantaged than the most advantaged wards according to the POLAR3 classification. However, the majority of pupils who live in quintile 1

[40] Free school meal information is taken from the National Pupil Database and relates to 15-year olds attending maintained schools in England in the 2010-11 academic year. It should be taken into consideration that free school meal information is only available for those pupils who are eligible and who also claim.

wards do not claim free school meals, and a small proportion of pupils who live in quintile 5 wards do claim them.

85. Figure 18 shows that there is a relationship between the proportion of free school meal claimants within a region and the overall young HE participation rate. With the exception of London, regions with higher proportions of free school meal claimants tend to have lower participation rates. However, London has the highest proportion of free school meal claimants (23 per cent) but also the highest young HE participation rate (43 per cent). Unlike the relationship observed within all other regions, the proportion of pupils in London claiming free school meals does not decrease over the POLAR3 quintiles. For instance, those pupils in quintile 3 (29 per cent) are almost 50 per cent more likely to claim than those in quintile 1 (21 per cent).

Figure 18: Proportion of Key Stage 4 pupils claiming free school meals and young participation rate for each region in England



Regions: 'EE' East of England, 'EM' East Midlands, 'GL' Greater London, 'NE' North East, 'NW' North West, 'SE' South East, 'SW' South West, 'WM' West Midlands, 'YH' Yorkshire and the Humber

Table 17: Proportion of Key Stage 4 pupils claiming free school meals (FSM) by region in England, by POLAR3 quintile (ordered by overall proportion claiming FSM)

Proportion claiming FSM by region	POLAR3 quintile					Overall proportion claiming FSM	Average young participation rate
	1	2	3	4	5		
South East	15.9%	10.8%	7.4%	5.7%	3.7%	8.3%	36.6%
South West	16.4%	9.8%	7.6%	5.8%	4.1%	9.3%	32.1%
East of England	15.7%	10.3%	8.4%	6.0%	4.5%	9.1%	33.8%
East Midlands	19.8%	12.2%	8.6%	6.4%	4.9%	11.1%	32.0%
Yorkshire & the Humber	22.6%	15.9%	13.3%	6.9%	5.3%	14.7%	30.0%
North West	28.4%	19.8%	15.5%	10.0%	4.9%	17.0%	32.5%
West Midlands	22.4%	23.3%	16.5%	8.1%	6.7%	16.8%	32.2%
North East	27.8%	19.6%	12.6%	7.9%	4.7%	17.6%	29.4%
London	21.4%	23.8%	29.0%	24.0%	15.7%	22.7%	43.1%
England	**21.4%**	**15.8%**	**14.6%**	**10.0%**	**7.3%**	**14.0%**	**34.2%**

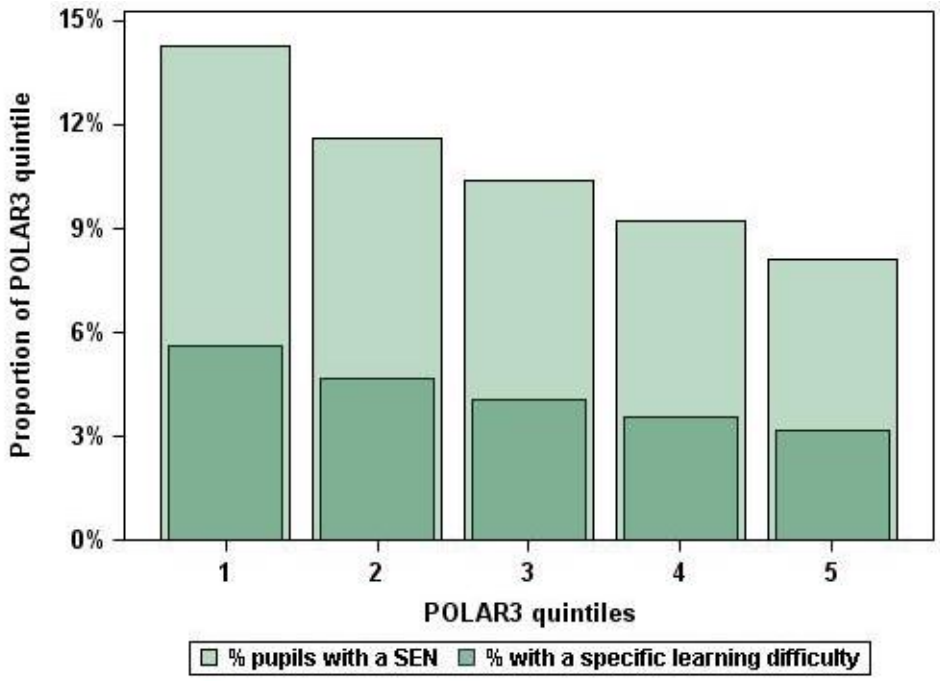
Special Educational Needs

86. Children with special education needs (SENs) often require additional support to aid them in their learning. Despite this additional help, having a special education need can have an effect on school-level attainment and act as a barrier to further study beyond compulsory education. Here we explore the distribution of school pupils with special educational needs across POLAR3 quintiles[41].

87. Figure 19 shows how the proportion of pupils with a special educational need is higher among those living in wards with lower young HE participation rates. Almost 15 per cent of pupils living in quintile 1 wards have a special educational need, compared with around 8 per cent of pupils living in quintile 5 wards.

[41] Information on special education needs is taken from the National Pupil Database and relates to 15-year olds attending maintained schools in England in the 2010-11 academic year. The difficulties faced by pupils with SENs range from learning difficulties and behavioural disorders to physical disabilities and impairments. Of those pupils with a recorded SEN type, 64 per cent are non-statemented (have not had a statutory assessment and legal statement of their special educational needs).

Figure 19: Proportion of Key Stage 4 pupils with a recorded special educational need and the proportion with a specific learning difficulty in 2010-11, over POLAR3 quintiles



88. Figure 19 also presents the proportion of all Key Stage 4 pupils in each POLAR3 quintile who have a learning difficulty, such as dyslexia. Learning difficulties account for the largest proportion of all types of special educational need (39 per cent). The proportion of pupils with a specific learning difficulty is similarly observed to decrease over the POLAR3 quintiles, from approximately 6 per cent of Key Stage 4 pupils in quintile 1, to 3 per cent in quintile 5. In terms of the proportion of pupils with learning difficulties out of the number of pupils recorded with any SEN, the proportion remains largely similar over the quintiles, between 39 and 40 per cent.

89. Table 18 shows that within all regions there is a trend for areas with lower rates of participation to have a higher proportion of pupils with special educational needs. The exception is London, where the proportion of pupils with a learning difficulty is the same within quintile 3 as in quintile 1 (14 per cent). At region level there appears to be no discernible relationship between these two measures, as the proportion with a special education need within each region is very similar, ranging from 9 to 13 per cent.

Table 18: Proportion of Key Stage 4 pupils with a special educational need (SEN) by region in England, by POLAR3 quintile (ordered by overall proportion with SEN)

Proportion with a SEN in each region	POLAR3 quintiles					Overall proportion with a SEN	Average young participation rate
	1	2	3	4	5		
South West	12.3%	9.8%	8.1%	7.0%	6.1%	8.9%	32.1%
Yorkshire & the Humber	13.9%	11.0%	8.3%	7.4%	6.8%	10.2%	30.0%
East Midlands	13.1%	11.0%	9.9%	7.6%	6.7%	10.0%	32.0%
West Midlands	13.4%	11.3%	9.3%	8.5%	7.9%	10.3%	32.2%
North West	13.7%	12.3%	9.7%	8.2%	6.5%	10.5%	32.5%
East of England	14.4%	10.9%	9.6%	8.7%	7.9%	10.4%	33.8%
North East	15.8%	12.0%	10.7%	9.8%	6.4%	12.0%	29.4%
South East	17.8%	13.8%	11.2%	9.6%	8.2%	11.8%	36.6%
London	13.6%	12.6%	14.0%	13.2%	10.9%	12.7%	43.1%
England	**10.8%**	**14.3%**	**11.6%**	**10.4%**	**9.2%**	**10.8%**	**34.2%**

Summary of the relationship between POLAR3 and other measures of disadvantage

90. POLAR3 is specifically a measure of educational disadvantage, based on rates within local areas of young people's participation in HE. This section has explored the extent to which this measure of disadvantage relates to other measures that affect young people. It showed that although POLAR3 correlates with other measures, the relationships are not perfect. For example, although young people who live in income-deprived areas tend to be less likely to participate in HE, there are some parts of the country, for example London, where rates of young HE participation among income deprived groups are high. These relationships between POLAR and other measures of disadvantage highlight the need for disadvantaged people to be targeted using a range of different measures of disadvantage, as specified in HEFCE's targeting guidance[42].

POLAR3 and young HE entrant characteristics

91. This section looks at how particular characteristics of young entrants to higher education vary by the POLAR3 quintile of where they lived prior to entry[43]. As the POLAR3 classification is a measure of young HE participation, we know that a greater proportion of young HE entrants will come from higher-participation quintiles. However, the pattern across the POLAR quintiles may be different depending on the background characteristics and nature of study of young HE entrants. The analysis below looks at UK-domiciled HE entrants at UK higher education

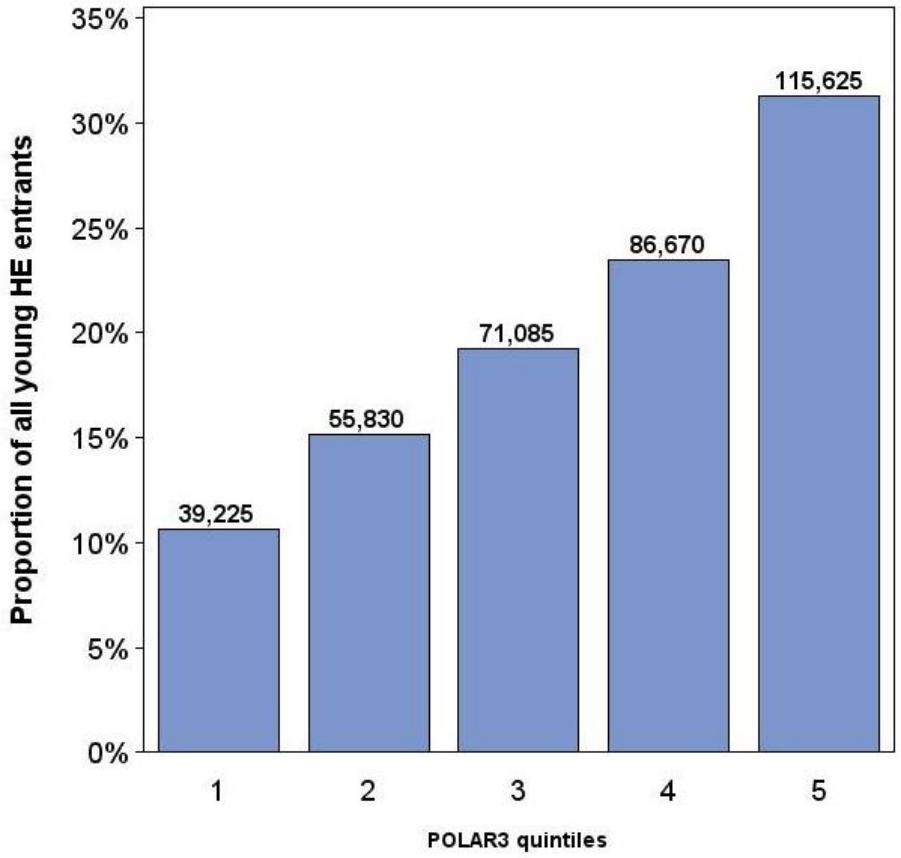
[42] 'Higher education outreach: targeting disadvantaged learners' (HEFCE 2007/12), available online at http://webarchive.nationalarchives.gov.uk/20120118171947/http://www.hefce.ac.uk/pubs/hefce/2007/07_12/

[43] Young entrants are defined to be those under the age of 21 at the start of the academic year.

institutions (HEIs) and English further education colleges (FECs) in the 2011-12 academic year[44]. This analysis is an update and extension of previous HEFCE work[45].

92. The composition of the young entrant population is important as it defines the context for further analysis reported later. Figure 20 shows that almost a third of young entrants in 2011-12 came from wards classified into the most advantaged POLAR3 quintile. Almost three times as many young entrants came from the most advantaged quintile as came from the most disadvantaged quintile.

Figure 20: Distribution of young HE entrants over POLAR3 quintiles in 2011 (Population total: 368,435[46])



Age on entry

93. We focus on the background characteristics of HE entrants, and how they are distributed across the POLAR3 quintiles. Examining this young population in more detail by age shows that the majority of those within each quintile entered HE at 18. However, as shown in Figure 21, the proportion who entered at 18 accounted for slightly less among those from the most disadvantaged quintiles; 50 per cent of young entrants from quintile 1 areas entered at 18 years, below the overall average of 53 per cent. A larger proportion from quintile 1 entered HE aged 19

[44] The population was identified using the same methodology as the published HEFCE Regional profiles of Higher Education www.hefce.ac.uk/whatwedo/invest/unicoll/regionalprofiles/
[45] See HEFCE 2005/03 Section 4.5, which reported on English-domiciled entrants to higher education institutions.
[46] In addition to this total there are 895 HE entrants in this dataset with missing POLAR3 information, who account for 0.2% of the total population of 369,330. Populations are rounded to the nearest 5.

or 20 years than from other backgrounds. As shown in Table 19, almost 17 per cent of pupils from quintile 1 entered HE at age 20, compared with 10 per cent from quintile 5 in 2011. Out of all those who entered at age 20, approximately one in seven were from quintile 1 (Table 20).

Figure 21: Proportion of young HE entrants who enter aged 18 years in 2011, by POLAR3 quintile

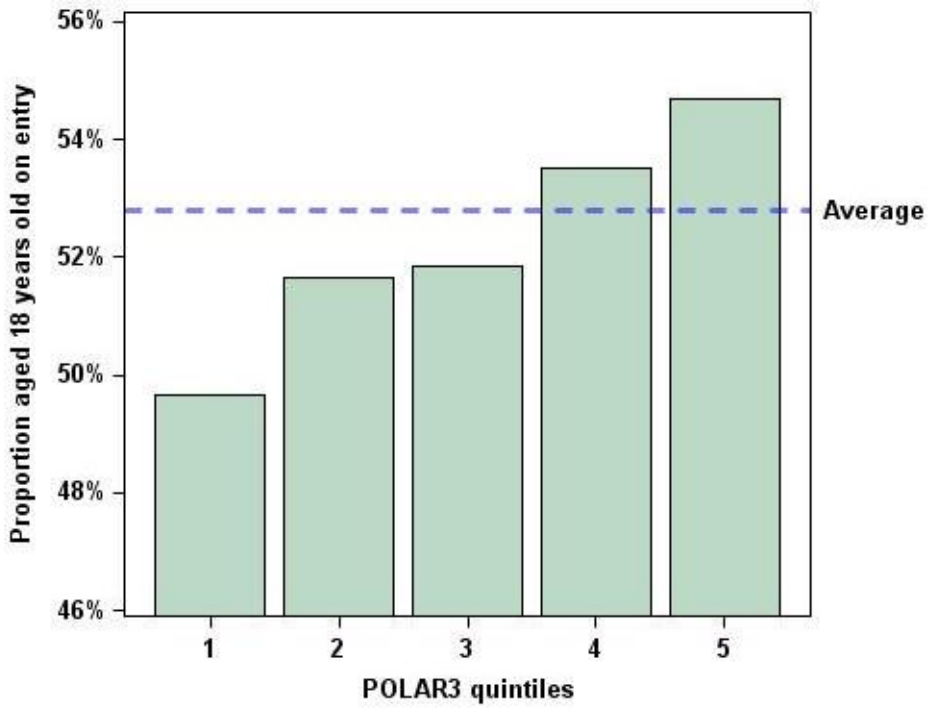


Table 19: Distribution of young HE entrants by age on entry in 2011, grouped by POLAR3 quintile

Age on entry to HE	POLAR3 quintiles					Average
	1	2	3	4	5	
Under 18	2.6%	3.2%	3.4%	4.2%	5.0%	4.0%
18	49.7%	51.7%	51.8%	53.5%	54.7%	52.8%
19	31.3%	30.8%	31.2%	30.6%	30.4%	30.7%
20	16.5%	14.3%	13.6%	11.7%	10.0%	12.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

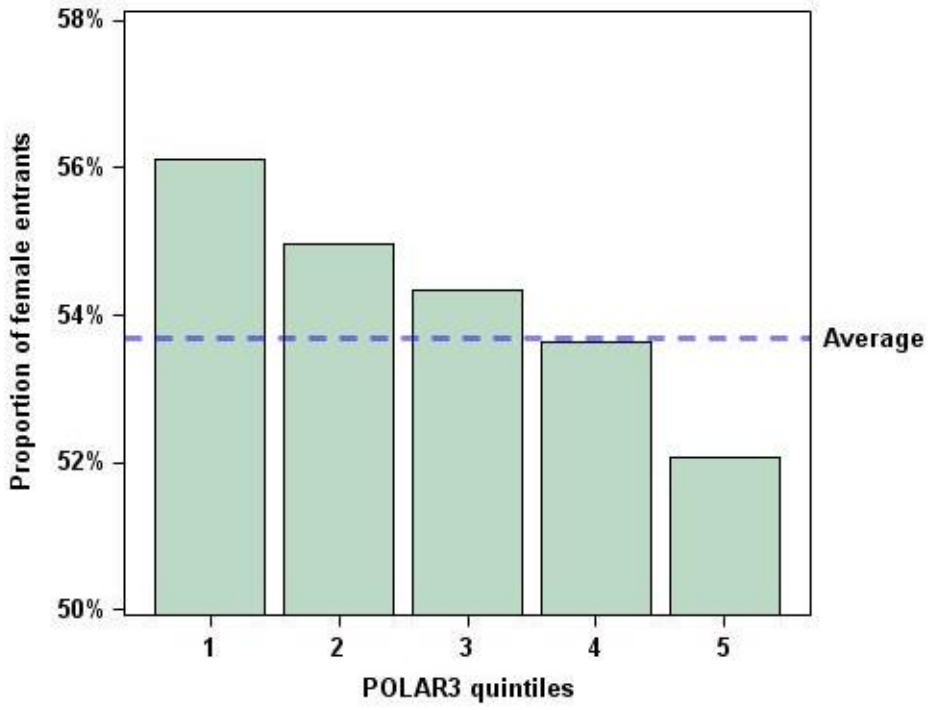
Table 20: Distribution of young HE entrants over POLAR3 quintiles, grouped by age on entry in 2011

Age on entry to HE	POLAR3 quintiles					Total
	1	2	3	4	5	
Under 18	6.9%	12.3%	16.6%	24.7%	39.4%	100.0%
18	10.0%	14.8%	18.9%	23.8%	32.5%	100.0%
19	10.8%	15.2%	19.6%	23.4%	31.0%	100.0%
20	14.1%	17.5%	21.1%	22.2%	25.2%	100.0%
Overall	10.7%	15.2%	19.3%	23.5%	31.4%	100.0%

Gender

94. Figure 22 shows the proportion of young HE entrants from across POLAR3 quintiles who were women. We find that there are more young female than male HE entrants across all quintiles. However, the proportion of women (56 per cent) is higher among entrants from the more disadvantaged quintiles, where it is two percentage points above the average (Table 21). Table 22 additionally shows that the proportion of female entrants who are from the most disadvantaged quintiles (11 per cent) is higher than the proportion among male entrants (10 per cent) and that this situation is then reversed among the most advantaged quintiles. These findings support earlier HEFCE analysis that the participation gap between women and men is widest among those living in the most disadvantaged POLAR quintiles[47].

Figure 22: Proportion of young female HE entrants in 2011, by POLAR3 quintile



[47] HEFCE 2013/28 Trends in young participation in higher education.

Table 21: Distribution of young 2011 HE entrants by gender, grouped by POLAR3 quintile

Gender	POLAR3 quintiles					Average
	1	2	3	4	5	
Male	43.9%	45.0%	45.6%	46.4%	47.9%	46.3%
Female	56.1%	55.0%	54.4%	53.6%	52.1%	53.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 22: Distribution of young 2011 HE entrants over POLAR3 quintiles, grouped by gender

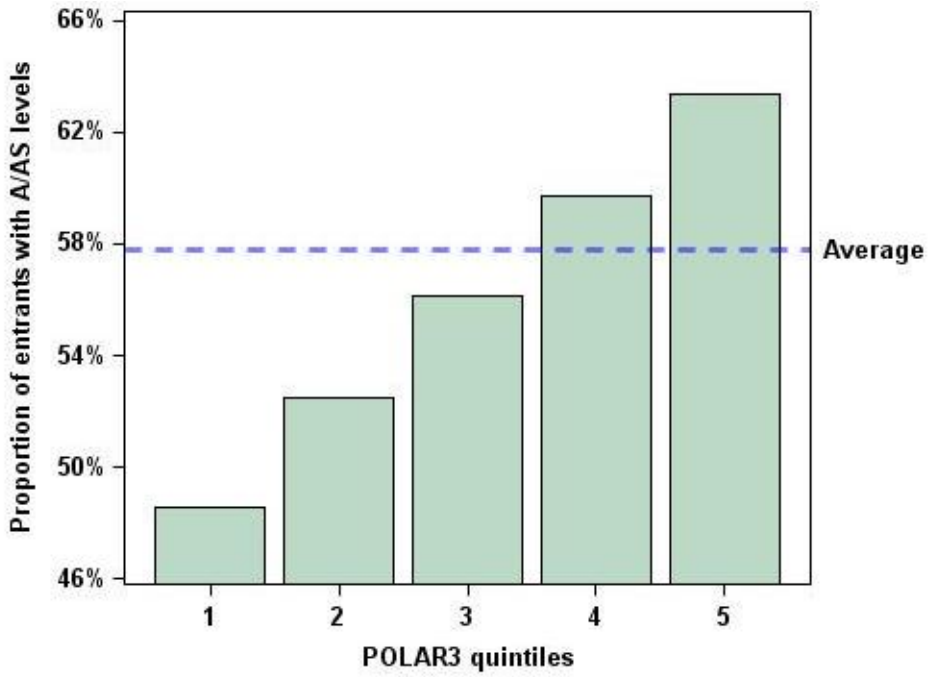
Gender	POLAR3 quintiles					Total
	1	2	3	4	5	
Male	10.1%	14.8%	19.0%	23.6%	32.5%	100.0%
Female	11.1%	15.5%	19.5%	23.5%	30.4%	100.0%
Overall	10.7%	15.2%	19.3%	23.5%	31.4%	100.0%

Qualifications on entry

95. The highest qualifications commonly held by young HE entrants are A- or AS-level qualifications[48]. Table 23 shows that this is true of almost 60 per cent of young HE entrants. Figure 23 shows the pattern across POLAR3 quintiles, namely that A- or AS-levels are the highest qualifications on entry for larger proportions of those young HE entrants who are from more advantaged quintiles. Among young HE entrants from the most disadvantaged POLAR3 quintile, just under half (49 per cent) hold A- or AS-levels as their highest qualification. This proportion rises to 63 per cent of the most advantaged young entrants.

[48] Highest qualification on entry is defined as recorded by the Higher Education Statistics Agency's data return (in the field 'QUALENT3'). For more detail and a full breakdown of qualifications, see www.hesa.ac.uk/component/option,com_studrec/task,show_file/Itemid,233/mnl,11051/href,a%5E_%5EQUALENT3.html/www.hesa.ac.uk/component/option,com_studrec/task,show_file/Itemid,233/mnl,11051/href,a%5E_%5EQUALENT3.html/

Figure 23: Proportion of young HE entrants with A- or AS-levels as their highest qualification on entry in 2011, by POLAR3 quintiles



96. The lower proportion of young HE entrants from quintile 1 with A- or AS-levels is offset by these entrants being more likely to hold other qualifications, such as HNCs, HNDs or Foundation Degrees. Such qualifications are the highest held by around a third of young HE entrants from quintile 1, falling to less than a fifth for those from quintile 5. Less than a quarter of all those entrants who hold such qualifications as their highest qualification are from quintile 5 (Table 24).

97. It is rare for an HE access course qualification to be the highest qualification held by young HE entrants. Entrants for whom such qualifications are the highest held are most commonly found in the most disadvantaged POLAR3 quintile, but this is the case for less than 1 per cent of entrants from this quintile.

Table 23: Distribution of young HE entrants by their highest level qualification on entry to HE in 2011, grouped by POLAR3 quintile

Qualifications on entry	POLAR3 quintiles					Average
	1	2	3	4	5	
A- or AS-level (including Scottish Highers)	48.5%	52.5%	56.2%	59.8%	63.4%	57.8%
Level 3 qualifications, subject to UCAS tariff (excluding A- and AS-levels)	17.0%	17.0%	16.7%	16.5%	16.9%	16.7%
International Baccalaureate diploma or certificate	0.4%	0.5%	0.6%	0.7%	1.0%	0.7%
HE access course, QAA recognised	0.5%	0.4%	0.4%	0.3%	0.2%	0.3%
Other including HNCs and Foundation Degrees	33.6%	29.7%	26.2%	22.7%	18.6%	24.4%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 24: Distribution of young HE entrants over POLAR3 quintiles, grouped by their highest qualification on entry in 2011

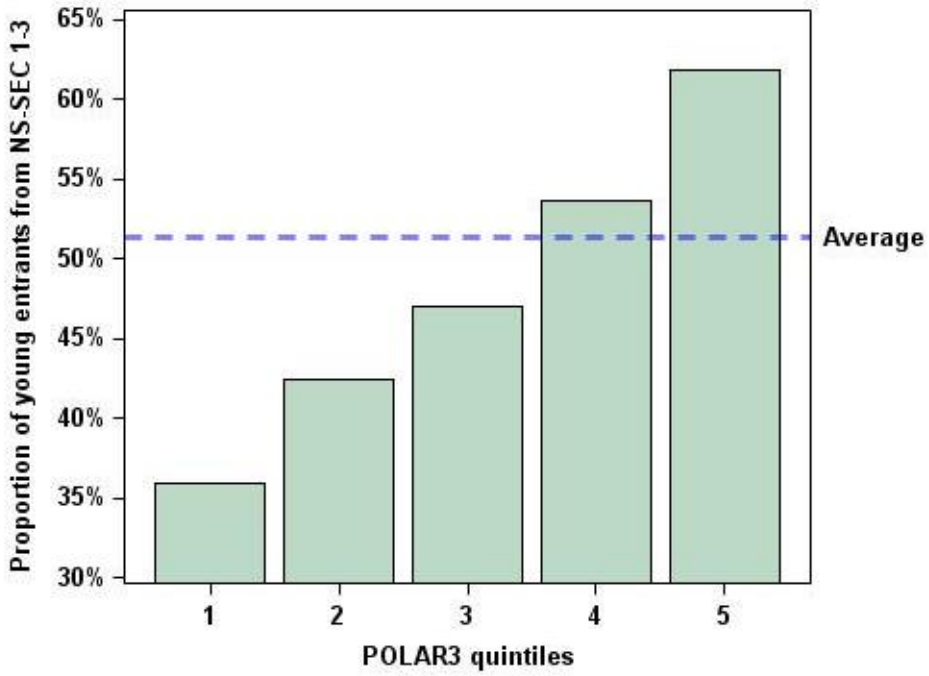
Qualification on entry	POLAR3 quintiles					Total
	1	2	3	4	5	
A- or AS-level (including Scottish Highers)	8.9%	13.7%	18.7%	24.3%	34.3%	100.0%
Level 3 qualifications, subject to UCAS tariff (excluding A- and AS-levels)	10.8%	15.3%	19.2%	23.1%	31.6%	100.0%
International Baccalaureate diploma or certificate	5.4%	10.7%	16.6%	24.7%	42.6%	100.0%
HE access course, QAA recognised	16.0%	17.6%	23.7%	22.5%	20.2%	100.0%
Other including HNCs and Foundation Degrees	14.7%	18.5%	20.8%	22.0%	24.0%	100.0%
Overall	10.7%	15.2%	19.3%	23.5%	31.4%	100.0%

Parental occupation

98. Figure 24 shows the proportion of young HE entrants from different POLAR3 quintiles who have parents employed in higher managerial or professional occupations, classified into NS-SEC groups 1 to 3[49]. It finds that young HE entrants from more advantaged POLAR3 quintiles were most likely to have parents employed in such occupations. Table 26 additionally shows that almost two fifths of all those HE entrants with parents in such managerial or professional occupations were from quintile 5.

99. On the other hand, Table 25 shows how young entrants from more disadvantaged POLAR3 quintiles were most likely to have parents who worked in lower supervisory or routine occupations; 34 per cent of young entrants from quintile 1 had parents in such occupations, compared with 17 per cent of those from quintile 5. Table 25 additionally shows that, although very few entrants from any background (0.2 per cent) came from households where their parents had been unemployed long term, this was more likely to be true of young entrants from more disadvantaged backgrounds (for whom the figure was 0.5 per cent).

Figure 24: Proportion of young 2011 HE entrants with parents in managerial and professional occupations (NS-SEC 1 to 3) by POLAR3 quintile



[49] Information on parental occupations is collected and coded to the NS-SEC classification by UCAS. Provision by institutions of parental occupation information for HE entrants who did not apply via UCAS is encouraged but not usually available. This analysis is therefore limited to HE entrants who gained entry via UCAS. Note that entrants independent of UCAS are overwhelmingly studying on part-time courses.

Table 25: Distribution of young 2011 HE entrants by their parental occupation (NS-SEC), grouped by POLAR3 quintiles

Parental occupation (NS-SEC)	POLAR3 quintiles					Average
	1	2	3	4	5	
Managerial & professional occupations (NS-SEC 1-3)	35.9%	42.4%	47.0%	53.7%	61.9%	51.3%
Lower supervisory & routine occupations (NS-SEC 4-7)	34.2%	30.1%	26.6%	22.3%	16.5%	23.7%
Never worked & long-term unemployed	0.5%	0.4%	0.3%	0.2%	0.1%	0.2%
Not classified	29.4%	27.1%	26.2%	23.9%	21.6%	24.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 26: Distribution of young 2011 HE entrants over POLAR3 quintiles, grouped by parental occupation (NS-SEC)

Parental occupation (NS-SEC)	POLAR3 quintiles					Total
	1	2	3	4	5	
Managerial & professional occupations (NS-SEC 1-3)	7.4%	12.5%	17.6%	24.6%	37.8%	100.0%
Lower supervisory & routine occupations (NS-SEC 4-7)	15.3%	19.2%	21.6%	22.1%	21.8%	100.0%
Never worked & long-term unemployed	22.5%	22.5%	20.6%	16.4%	18.1%	100.0%
Not classified	12.7%	16.7%	20.5%	22.8%	27.4%	100.0%
Overall	10.7%	15.2%	19.3%	23.5%	31.4%	100.0%

100. The proportion of entrants whose parents' occupation could not be classified was high, ranging from 30 per cent for entrants from quintile 1, to 22 per cent for entrants from quintile 5. Such large proportions could alter the patterns reported above. Analysis of UCAS applicants whose parental occupation could not be coded suggests that they are more likely to be from more disadvantaged POLAR quintiles[50]. If this is the case then it could amplify the differences across the POLAR3 quintiles between the proportions of entrants whose parents are and are not in higher managerial or professional occupations.

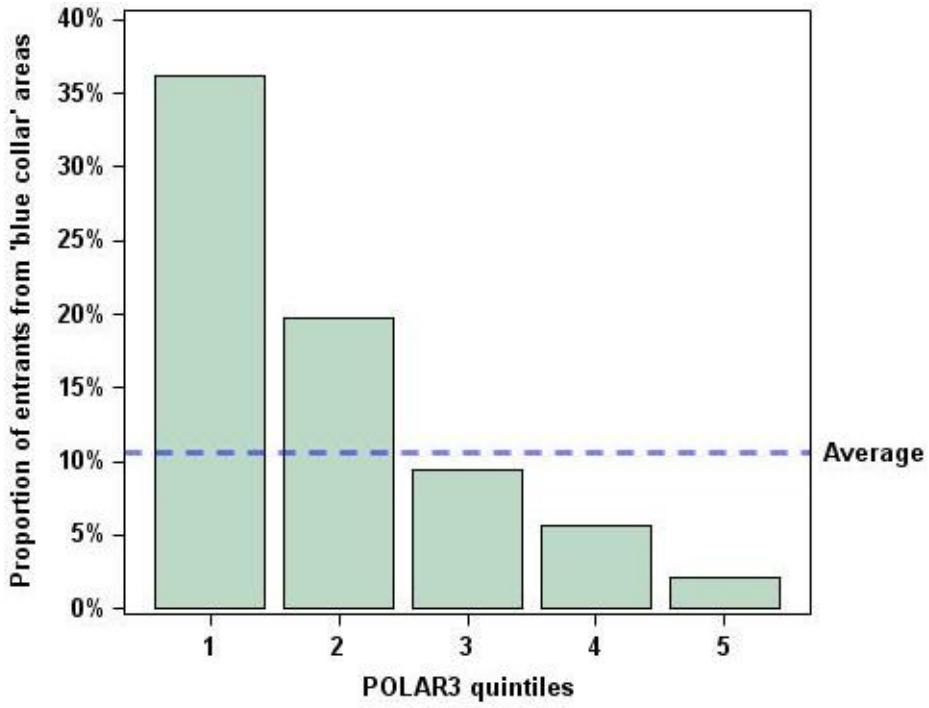
[50] Harrison and Hatt, 'Knowing the 'unknowns': Investigating the students whose social class is not known at entry to higher education', Journal of further and higher education, 33:4, 347-357.

Output area cluster

101. Grouping young entrants into clusters on the basis of the social and demographic features of their home address (using the 2001 output area cluster classification described in paragraph 66) highlights further trends over the POLAR3 quintiles[51]. When areas are classed into blue-collar, city living, countryside, prospering suburbs, constrained by circumstances, typical traits or multicultural communities; the proportion of young HE entrants from 'blue-collar' communities decreases over the quintiles[52]. As shown in Figure 25, the proportion of entrants from such output areas is highest among entrants from quintile 1 areas (36 per cent), well above the cohort average (11 per cent). A similar trend is observed among the proportions from 'constrained circumstances' over the quintiles, shown in Table 27. Both of these clusters are characterised by populations with a low proportion having attained HE and higher proportions of renters.

102. On the other hand, Table 27 shows that the proportions from 'prospering suburbs' increased over the quintiles, from 14 per cent of pupils from quintile 1 to 43 per cent of those from quintile 5. These are output areas with relatively high proportions of detached housing, house ownership and households with two or more cars. Table 28 shows that out of all those entrants from 'prospering suburbs', over two-fifths are from quintile 5 areas.

Figure 25: Proportion of young 2011 HE entrants from blue-collar output areas, by POLAR3 quintile



[51] Produced by the Office for National Statistics. For further methodology and details see: www.ons.gov.uk/ons/guide-method/geography/products/area-classifications/ns-area-classifications/index/methodology-and-variables/output-areas/output-areas.html

[52] For a breakdown of the ONS OA cluster classification super-groups, groups and sub-groups see: www.sasi.group.shef.ac.uk/area_classification/

Table 27: Distribution of young 2011 HE entrants by the characteristics of their home output area, grouped by POLAR3 quintile

Output area cluster	POLAR3 quintiles					Average
	1	2	3	4	5	
Prospering suburbs	13.6%	23.3%	27.4%	33.8%	43.2%	13.8%
Typical traits	21.0%	24.8%	20.6%	17.5%	14.4%	18.6%
Countryside	4.1%	8.8%	13.8%	21.7%	19.4%	15.6%
Multicultural	6.1%	12.1%	21.0%	14.8%	10.7%	13.3%
Blue-collar communities	36.3%	19.8%	9.4%	5.6%	2.0%	10.6%
Constrained by circumstances	17.3%	9.5%	4.9%	3.3%	1.7%	5.5%
City living	1.6%	1.8%	2.9%	3.2%	8.6%	4.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 28: Distribution of young 2011 HE entrants over POLAR3 quintiles, grouped by the characteristics of their home output area

Output area cluster	POLAR3 quintiles					Total
	1	2	3	4	5	
Prospering suburbs	4.6%	11.1%	16.7%	25.0%	42.7%	100.0%
Typical traits	12.0%	20.2%	21.3%	22.1%	24.3%	100.0%
Countryside	2.8%	8.5%	17.1%	32.7%	38.9%	100.0%
Multicultural	4.8%	13.7%	30.3%	26.1%	25.1%	100.0%
Blue-collar communities	36.3%	28.2%	17.1%	12.4%	6.0%	100.0%
Constrained by circumstances	33.2%	25.9%	17.1%	14.1%	9.7%	100.0%
City living	3.9%	6.1%	12.5%	17.0%	60.6%	100.0%
Overall	10.7%	15.2%	19.3%	23.5%	31.4%	100.0%

Previous school type

103. Looking exclusively at English 18-year old entrants, Table 29 shows their distribution from different POLAR quintiles by the type of educational institution they attended to study at Key Stage 5, immediately prior to entry into HE[53]. Most entrants attended a comprehensive school, with 40 per cent of entrants from the most disadvantaged POLAR quintiles, and 45 per cent of those from the most advantaged quintiles, doing so.

[53] Information on previous educational establishment is obtained by matching HE entrants on the Higher Education Statistics Agency student record to pupils studying for Key Stage 5 qualifications in either 2010 or 2011. This means only entrants whose previous educational institution was in England are included in the analysis.

104. Large differences in the proportion of entrants from different POLAR3 quintiles who attended independent schools prior to HE entry are shown in Figure 26. Entrants from the most advantaged POLAR3 quintile were seven times more likely to have attended an independent school at Key Stage 5 than entrants from the most disadvantaged quintile (20 per cent of entrants from advantaged areas compared with 3 per cent from disadvantaged areas). Table 30 shows that of those 18-year olds entering HE from an independent school, almost 60 per cent were from quintile 5.

105. Similarly large differences across the quintiles are seen for those who previously attended sixth form colleges or other FE colleges prior to HE. Table 29 shows that among entrants from the most disadvantaged POLAR3 quintile, just under a third attended an FE college (compared with just under one in 10 from the most advantaged quintile) while more than one in five attended a sixth form college (compared with one in seven from the most advantaged quintile). This means entrants from the most disadvantaged POLAR3 quintile were three times more likely to have attended an FE college, and one and a half times more likely to have attended a sixth form college, than entrants from the most advantaged quintile.

106. Attendance at a selective educational institution immediately prior to HE was relatively uncommon among entrants from both advantaged groups (11 per cent) and disadvantaged groups (6 per cent). However entrants from the most advantaged POLAR3 quintile were one and a half times more likely to have attended a selective educational institution.

Figure 26: Proportion of English 18-year old 2011 HE entrants who studied Key Stage 5 (KS5) at an independent school, by POLAR3 quintile

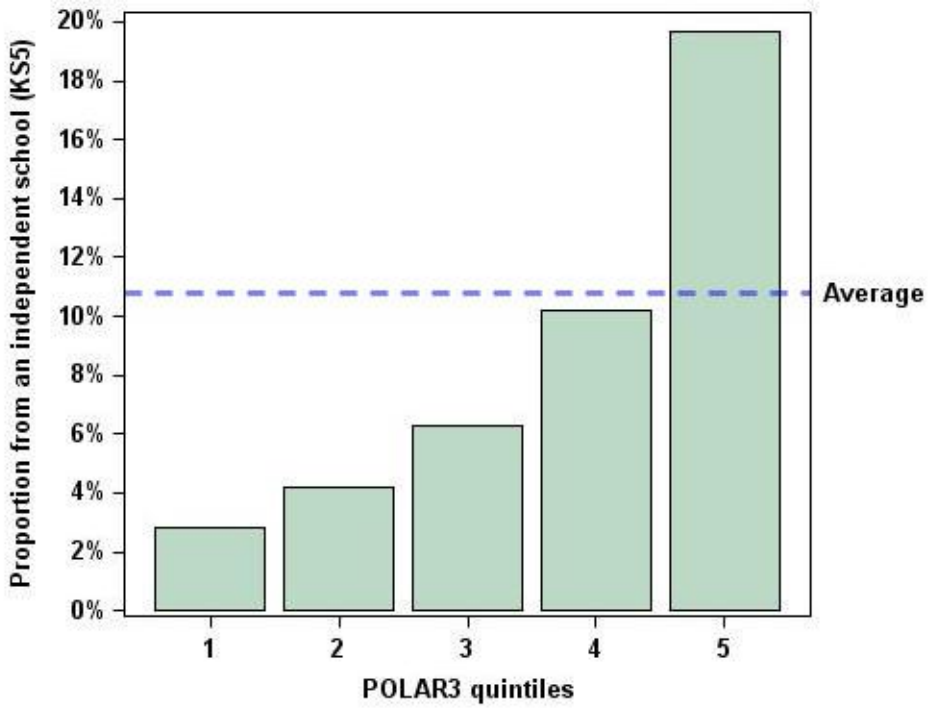


Table 29: Distribution of English 18 year old 2011 HE entrants by their Key Stage 5 institution type, grouped by POLAR3 quintile

Key Stage 5 institution type	POLAR3 quintiles					Average
	1	2	3	4	5	
Comprehensive	40.2%	43.2%	44.3%	44.8%	44.5%	43.8%
Sixth form college	22.2%	20.5%	19.9%	19.4%	15.2%	18.6%
Other further education college[54]	27.6%	22.6%	18.4%	13.4%	8.1%	15.5%
Independent	2.8%	4.2%	6.3%	10.2%	19.7%	10.8%
Selective	5.7%	8.2%	9.5%	10.7%	11.2%	9.7%
Modern	0.8%	1.0%	1.3%	1.4%	1.3%	1.2%
Other maintained	0.7%	0.3%	0.4%	0.2%	0.2%	0.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 30: Distribution of English 18 year old 2011 HE entrants by POLAR3 quintile, grouped by their Key Stage 5 institution

Key Stage 5 institution type	POLAR3 quintiles					Total
	1	2	3	4	5	
Comprehensive	9.4%	14.8%	19.6%	24.1%	32.0%	100.0%
Sixth form college	12.3%	16.6%	20.8%	24.6%	25.8%	100.0%
Other further education college	18.3%	21.9%	23.0%	20.4%	16.5%	100.0%
Independent	2.7%	5.9%	11.3%	22.4%	57.8%	100.0%
Selective	6.0%	12.7%	18.9%	25.9%	36.4%	100.0%
Modern	7.2%	12.4%	20.3%	26.6%	33.6%	100.0%
Other maintained	23.9%	15.9%	25.3%	18.0%	16.9%	100.0%
Overall	10.3%	15.1%	19.4%	23.6%	31.6%	100.0%

HE study at a further education college

107. HEFCE provides direct funding for HE-level courses to English higher education institutions and further education colleges. Entrants who enrolled on such courses at higher education institutions are said to be ‘registered at a HEI’, while those enrolled on such courses at further education colleges are said to be ‘registered at an FEC’. Figure 27 shows the proportion

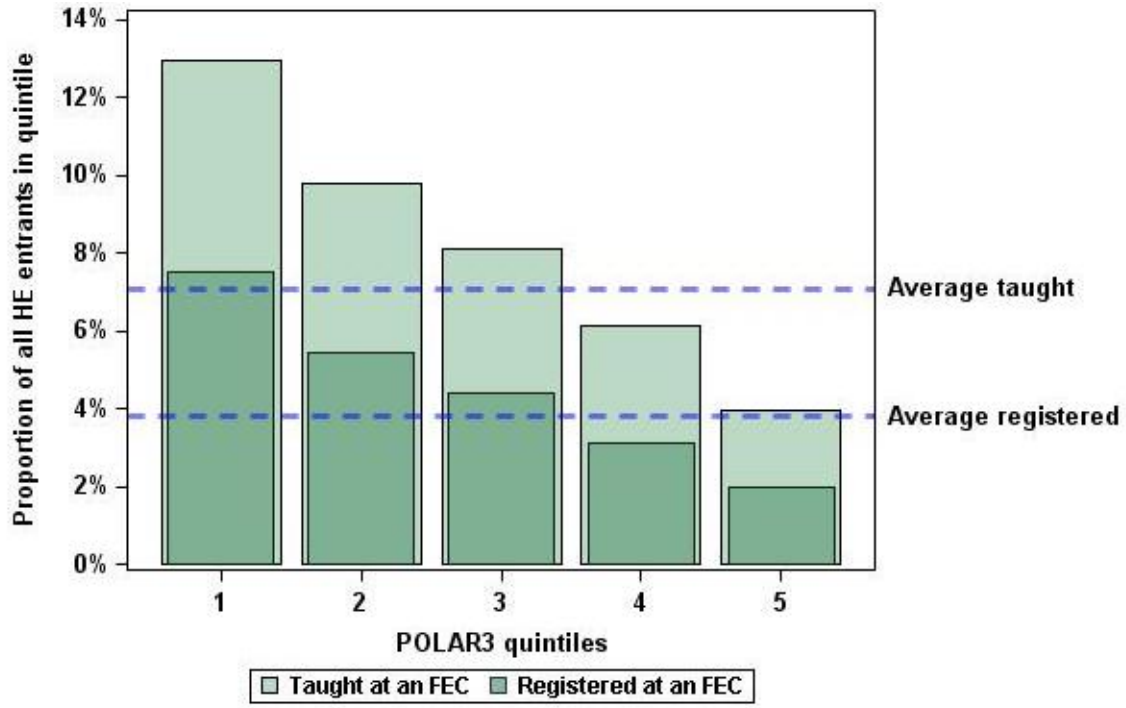
[54] Other further education colleges include general FECs and specialist designated colleges.

of entrants from different POLAR3 quintiles who are registered at an FEC. Entrants from more disadvantaged POLAR3 quintiles are more likely to be registered at an FEC, with 8 per cent of entrants from quintile 1 being registered at an FEC compared with just 2 per cent of entrants from quintile 5. Table 32 shows that over a fifth of entrants registered at an FEC are from quintile 1.

108. Some higher education institutions that receive direct funding franchise some of their provision to further education colleges, and entrants to these franchised courses are registered at a HEI but taught at an FEC[55]. We can combine these entrants with those who are registered at an FEC to identify all entrants who are taught at an FEC. Figure 27 shows the proportions of entrants from different POLAR3 quintiles who are taught at an FEC. With 13 per cent of entrants from the most disadvantaged POLAR3 quintile taught at an FEC, such entrants are three times more likely to be taught at an FEC than entrants from the most advantaged POLAR3 quintile, of whom 4 per cent are taught at an FEC.

109. Table 31 shows that approximately double the number of young HE entrants are taught at an FEC (7 per cent) as are registered at one (4 per cent). This relationship is broadly consistent across the quintiles, as also shown in Figure 27.

Figure 27: Proportion of young 2011 HE entrants registered and the proportion taught at an FEC, by POLAR3 quintile



[55] A franchise is an agreement made between institutions that one may deliver a programme owned and approved by another (the franchising institution).

Table 31: Distribution of young 2011 HE entrants by their registered and teaching institution types, grouped by POLAR3 quintile

Institution type	POLAR3 quintiles					Average
	1	2	3	4	5	
Registered at HEI	92.5%	94.6%	95.6%	96.9%	98.0%	96.2%
Registered at an FEC	7.5%	5.4%	4.4%	3.1%	2.0%	3.8%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Taught at HEI	87.1%	90.2%	91.9%	93.9%	96.0%	92.9%
Taught at an FEC	12.9%	9.8%	8.1%	6.2%	4.0%	7.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 32: Distribution of young 2011 HE entrants by POLAR3 quintile, grouped by their registered and teaching institution types

Institution type	POLAR3 quintiles					Total
	1	2	3	4	5	
Registered at HEI	10.2%	14.9%	19.2%	23.7%	32.0%	100.0%
Registered at an FEC	20.9%	21.5%	22.3%	19.1%	16.2%	100.0%
Taught at HEI	10.0%	14.7%	19.1%	23.8%	32.4%	100.0%
Taught at an FEC	19.3%	20.8%	22.0%	20.3%	17.5%	100.0%
Overall	10.7%	15.2%	19.3%	23.5%	31.4%	100.0%

Travel time to HE provider

110. The time it takes to drive from an entrant's home address to their HE provider has been calculated for all young entrants in 2011-12, and times reported averaged by POLAR3 quintile (Figure 28)[56]. Entrants from more disadvantaged quintiles were more likely to attend an institution closer to their home than entrants from more advantaged quintiles; approximately 40 per cent of entrants from quintiles 1, 2 and 3 attended an institution within half an hour's drive of their home, compared with less than 30 per cent of entrants from quintiles 4 and 5 (Table 33). Entrants from more advantaged quintiles were more likely to attend institutions that were over an hour's drive away from their home. Table 34 shows that out of those entrants who attended an institution which was more than six hours drive from their home, 45 per cent were from quintile 5.

[56] Entrants to courses provided by the Open University were excluded, as driving time is not relevant for distance learning. These accounted for 3 per cent of the young entrants in 2011-12. Driving times are calculated between an entrant's home address and the main campus of their registered institution.

Figure 28: Drive time between the home and institution wards of young HE entrants 2011, grouped by POLAR3 quintile

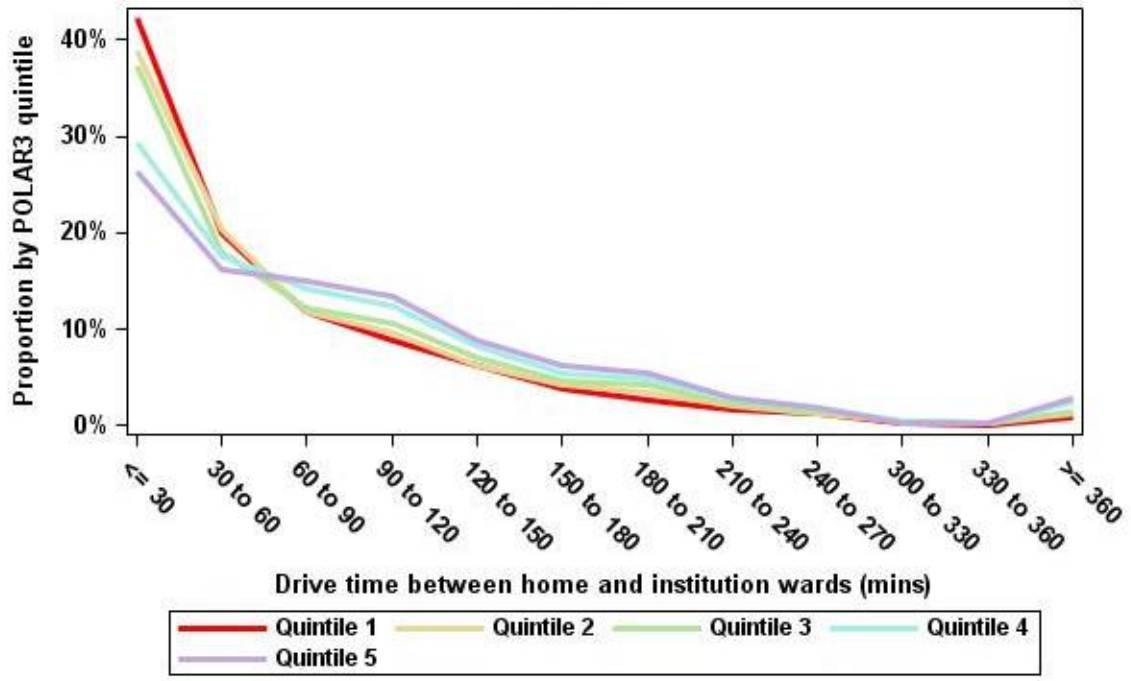


Table 33: Distribution of young 2011 HE entrants by the time it takes to drive from their parental home to their institution, grouped by POLAR3 quintile

Driving time to institution (minutes)	POLAR3 quintiles					Average
	1	2	3	4	5	
<= 30	42.3%	39.0%	37.3%	29.3%	26.4%	32.7%
30 to 60	20.0%	20.4%	18.0%	17.6%	16.3%	17.9%
60 to 90	11.9%	11.9%	12.3%	14.3%	15.1%	13.5%
90 to 120	8.8%	9.7%	10.7%	12.3%	13.5%	11.6%
120 to 150	6.2%	6.2%	7.0%	8.3%	8.8%	7.7%
150 to 180	3.9%	4.3%	4.7%	5.4%	6.3%	5.2%
180 to 210	2.7%	3.5%	4.3%	4.9%	5.5%	4.5%
210 to 240	1.7%	2.0%	2.2%	2.8%	2.8%	2.5%
240 to 270	1.2%	1.4%	1.5%	1.9%	1.8%	1.6%
300 to 330	0.3%	0.4%	0.4%	0.5%	0.3%	0.4%
330 to 360	0.1%	0.2%	0.2%	0.3%	0.3%	0.2%
>= 360	0.9%	1.2%	1.5%	2.4%	2.9%	2.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 34: Distribution of young 2011 HE entrants over POLAR3 quintiles, grouped by driving time between parental home and institution

Driving time to institution (minutes)	POLAR3 quintiles					Total
	1	2	3	4	5	
<= 30	13.7%	18.0%	22.0%	21.0%	25.3%	100.0%
30 to 60	11.8%	17.2%	19.4%	23.1%	28.5%	100.0%
60 to 90	9.4%	13.3%	17.5%	24.8%	35.0%	100.0%
90 to 120	8.0%	12.6%	17.8%	25.0%	36.5%	100.0%
120 to 150	8.5%	12.3%	17.7%	25.4%	36.1%	100.0%
150 to 180	8.0%	12.4%	17.3%	24.2%	38.1%	100.0%
180 to 210	6.4%	11.7%	18.4%	25.4%	38.1%	100.0%
210 to 240	7.4%	12.1%	17.5%	27.0%	35.9%	100.0%
240 to 270	7.8%	12.7%	17.7%	27.6%	34.2%	100.0%
300 to 330	8.4%	15.8%	18.8%	29.5%	27.5%	100.0%
330 to 360	6.2%	12.3%	18.1%	30.2%	33.3%	100.0%
>= 360	4.5%	9.0%	14.0%	27.7%	44.8%	100.0%
Overall	10.7%	15.2%	19.3%	23.5%	31.4%	100.0%

Entry tariff of HE provider

111. In England, young people from the most advantaged areas are between six and seven times more likely than those from the most disadvantaged areas to attend an institution whose entrants have high average tariff points, as determined by the Office for Fair Access (OFFA)[57]. Using this same grouping of HEIs, based on the average UCAS tariff points of young entrants, the proportions of 2011 entrants from different POLAR3 quintiles can also be assessed (Table 35)[58]. Figure 29 shows that entrants from the most advantaged POLAR3 quintile were most likely to attend an institution with a high average tariff (38 per cent), and least likely to attend an institution with a lower average tariff (27 per cent). In comparison, nearly half of entrants from the most disadvantaged quintile attended an institution with a lower average tariff, while around one in seven attended a high-tariff HEI. Table 36 shows that 45 per cent of those entrants attending the institutions with the highest average tariff entry requirements were from quintile 5.

[57] See Annex C of OFFA report 'What more can be done to widen access to highly selective universities?' (April 2010), Annex C, available online at www.offa.org.uk/publications/

[58] This selectivity measure was developed by OFFA, and applies to English HEIs only (not including franchised provision). For further detail see 'What more can be done to widen access to highly selective universities?' p97.

Figure 29: Proportion of young 2011 HE entrants at high average tariff English HEIs, by POLAR3 quintile

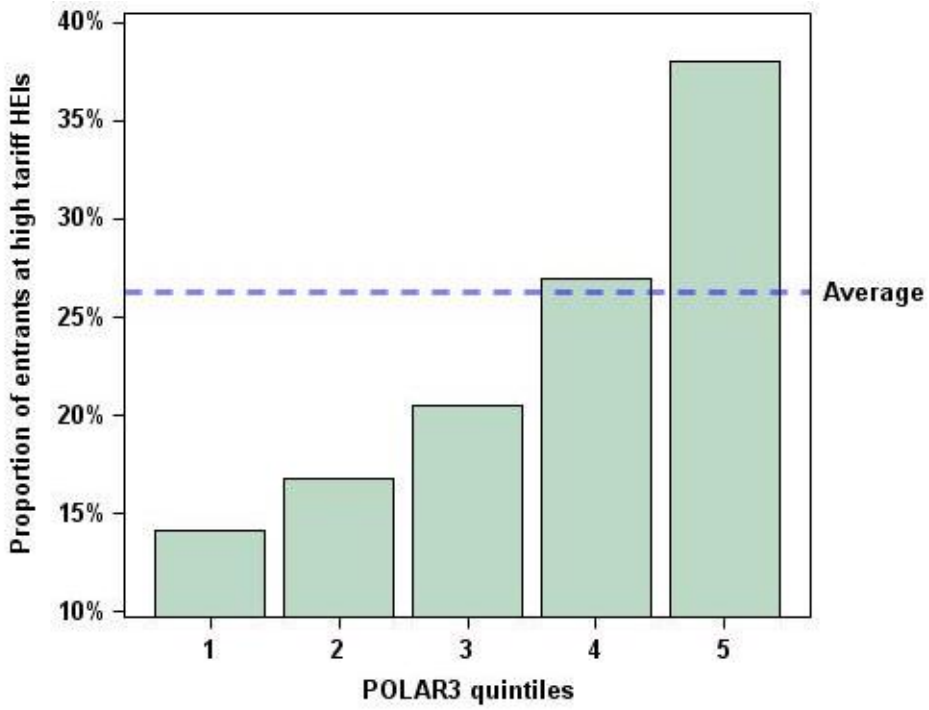


Table 35: Distribution of young 2011 HE entrants by institution's average UCAS tariff, grouped by POLAR3 quintiles

Institution selectivity (OFFA)	POLAR3 quintiles					Average
	1	2	3	4	5	
Higher (375+ tariff points)	14.1%	16.8%	20.5%	27.0%	38.1%	26.3%
Middle (260-<375)	36.6%	36.9%	36.6%	36.7%	34.8%	36.1%
Lower (<260)	49.3%	46.3%	42.9%	36.3%	27.1%	37.6%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100%

Table 36: Distribution of young 2011 HE entrants over POLAR3 quintiles, grouped by the average UCAS tariff of their institution

Institution selectivity (OFFA)	POLAR3 quintiles					Total
	1	2	3	4	5	
Higher (375+ tariff points)	5.9%	9.8%	15.0%	23.9%	45.4%	100.0%
Middle (260-<375)	11.1%	15.7%	19.4%	23.6%	30.2%	100.0%
Lower (<260)	14.4%	18.8%	21.8%	22.4%	22.5%	100.0%
Overall	10.7%	15.2%	19.3%	23.5%	31.4%	100.0%

HE qualification type

112. A range of undergraduate and postgraduate qualification types are offered by HE providers. In addition to studying for a first degree, entrants can enrol on courses that lead to 'other undergraduate' qualifications, such as Foundation Degrees, Certificates of Higher Education and HNDs.

113. Figure 30 shows that the majority of young HE entrants from all quintiles studied towards first degrees, but the highest proportions were found among entrants from the most advantaged quintile. Around 18 per cent of entrants from quintile 1 were studying for other undergraduate qualifications, twice the proportion from quintile 5 (Table 37)[59]. Table 38 shows that although quintile 5 entrants made up over 30 per cent of all young HE entrants, they account for less than 25 per cent of those studying towards other undergraduate qualifications.

[59] Note that the population analysed consists of young, probably first-time entrants into HE, so all qualifications are at undergraduate level.

Figure 30: Proportion of young 2011 HE entrants studying towards first degrees

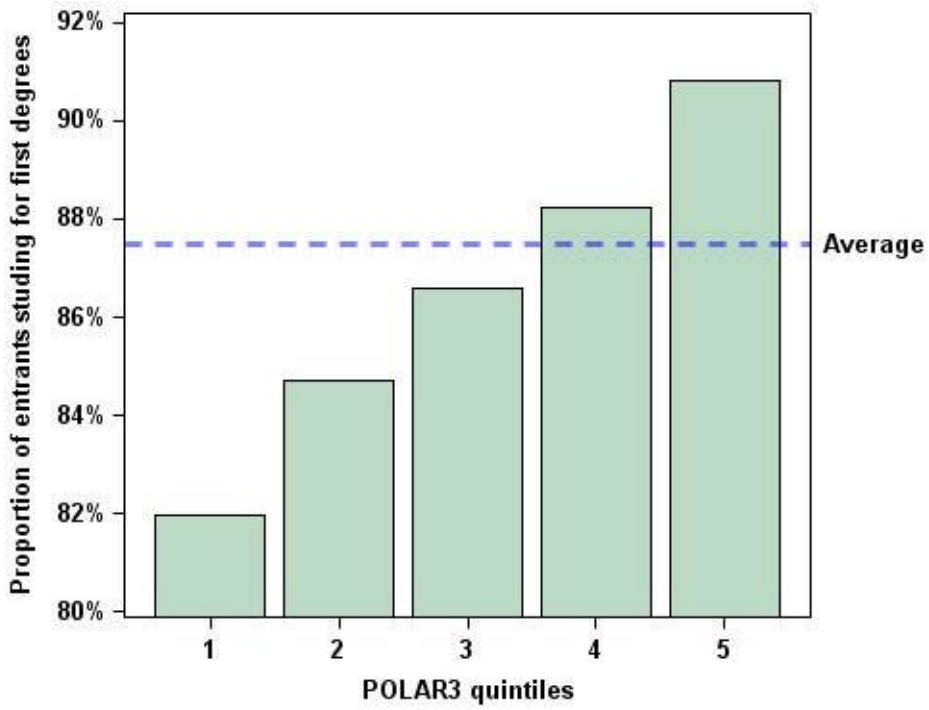


Table 37: Distribution of young 2011 HE entrants by qualification type, grouped by POLAR3 quintile

Qualification type	POLAR3 quintiles					Average
	1	2	3	4	5	
First degree	82.0%	84.7%	86.6%	88.3%	90.8%	87.5%
Other undergraduate	18.1%	15.3%	13.4%	11.8%	9.2%	12.5%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 38: Distribution of young 2011 HE entrants by POLAR3 quintiles, grouped by qualification type

Qualification type	POLAR3 quintiles					Total
	1	2	3	4	5	
First degree	10.0%	14.7%	19.1%	23.7%	32.6%	100.0%
Other undergraduate	15.4%	18.6%	20.7%	22.1%	23.1%	100.0%
Overall	10.7%	15.2%	19.3%	23.5%	31.4%	100.0%

Mode of study

114. Many HE providers offer courses that can be studied part-time. Figure 31 shows that a minority of young HE entrants study part-time, but that entrants from more disadvantaged POLAR3 quintiles are more likely to do so than entrants from more advantaged quintiles. Around 9 per cent of young entrants in 2011-12 from the most disadvantaged quintile studied part time, compared with 6 per cent from the most advantaged quintile (Table 39). Despite forming 11 per cent of the young HE entrant population, quintile 1 entrants account for almost 14 per cent of those who study part-time (Table 40).

Figure 31: Proportion of young 2011 HE entrants studying part-time

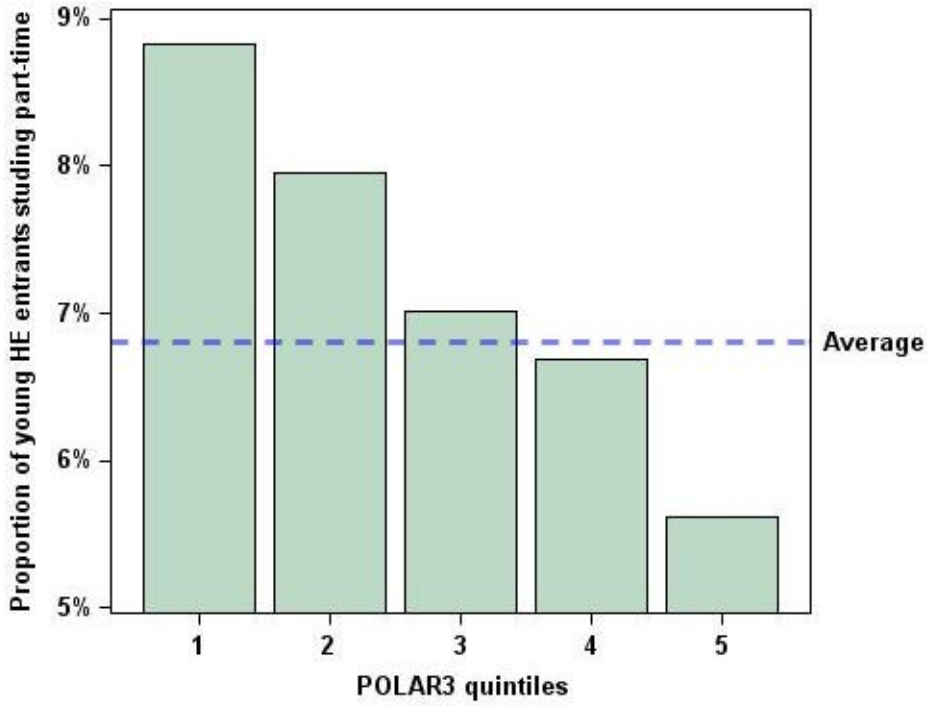


Table 39: Distribution of young 2011 HE entrants by their mode of study, grouped by POLAR3 quintile

Mode of study	POLAR3 quintiles					Average
	1	2	3	4	5	
Part-time study	8.8%	8.0%	7.0%	6.7%	5.6%	6.9%
Other modes of study including full-time	91.2%	92.1%	93.0%	93.3%	94.4%	93.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

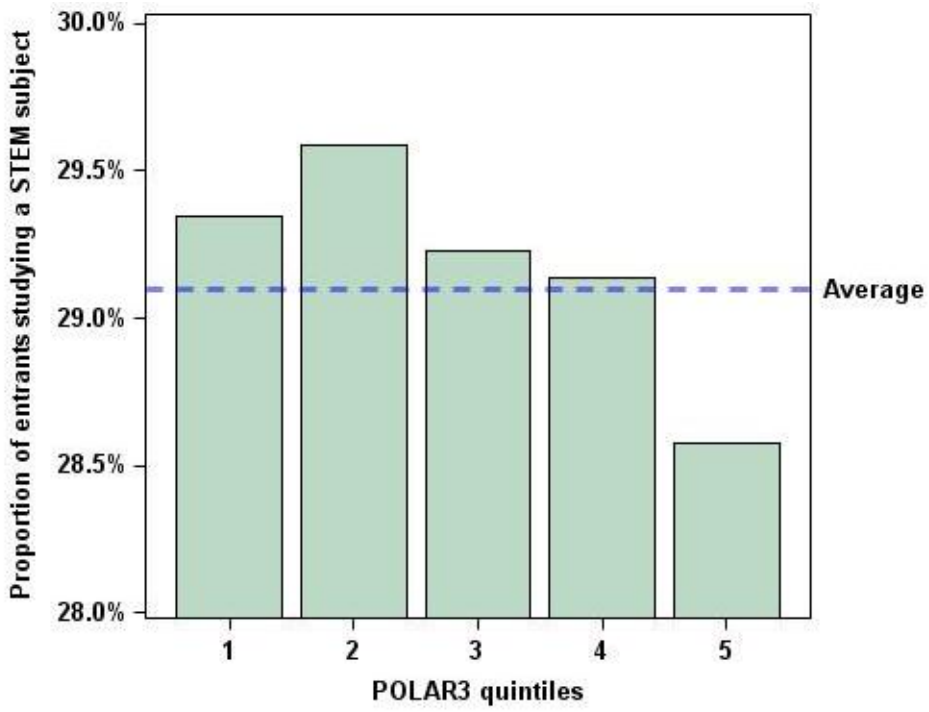
Table 40: Distribution of young 2011 HE entrants by POLAR3 quintile, grouped by their mode of study

Mode of study	POLAR3 quintiles					Total
	1	2	3	4	5	
Part-time study	13.7%	17.6%	19.8%	23.0%	25.8%	100.0%
Other modes of study including full-time	10.4%	15.0%	19.3%	23.6%	31.8%	100.0%
Overall	10.7%	15.2%	19.3%	23.5%	31.4%	100.0%

Subject of study

115. Table 41 shows the subject fields studied by young HE entrants and shows the differences in the subjects pursued by entrants from different backgrounds. Entrants from disadvantaged backgrounds were more likely to study creative art and design, computer science and education courses than those from more advantaged backgrounds. On the other hand, a higher proportion of more advantaged entrants pursued languages and historical and philosophical subjects. Entrants from quintile 5 (2.8 per cent) were four times as likely to study medicine and dentistry as those from quintile 1 (0.7 per cent). Half of all those young entrants studying medicine and dentistry were from quintile 5 (Table 43).

Figure 32: Proportion of young 2011 HE entrants studying STEM subjects



116. Table 42 shows that 29 per cent of young entrants studied subjects included in science, technology, engineering and mathematics (STEM)[60]. Figure 32 shows that this proportion is broadly similar over the quintiles, but young HE entrants from quintile 1 have a slightly higher propensity to study STEM subjects (29.4 per cent) than entrants from quintile 5 (28.6 per cent). Table 44 shows that there was almost no difference between how entrants who studied STEM subjects and the young entrant population overall were distributed over the quintiles.

Table 41: Distribution of young 2011 HE entrants by subject of study, grouped by POLAR3 quintile

Subject of study	POLAR3 quintiles					Average
	1	2	3	4	5	
Creative arts & design	15.2%	13.8%	13.2%	12.8%	11.3%	12.8%
Business & administrative studies	12.2%	12.5%	12.7%	12.3%	12.1%	12.4%
Biological sciences	11.8%	11.8%	11.5%	11.4%	10.3%	11.2%
Social studies	10.5%	10.6%	10.8%	10.7%	11.9%	11.0%
Subjects allied to medicine	7.0%	7.1%	6.8%	6.7%	5.9%	6.6%
Engineering & technology	5.9%	6.2%	6.2%	6.3%	6.7%	6.4%
Languages	5.0%	5.0%	5.6%	6.4%	7.5%	6.2%
Physical sciences	3.9%	4.4%	4.6%	5.0%	5.6%	4.9%
Computer science	5.9%	5.3%	4.9%	4.3%	3.5%	4.5%
Education	5.6%	5.3%	4.7%	4.3%	3.3%	4.3%
Historical & philosophical studies	3.2%	3.7%	4.1%	4.8%	5.8%	4.6%
Law	2.1%	2.0%	2.0%	1.8%	1.6%	1.8%
Mass communications & documentation	3.8%	3.7%	3.7%	3.2%	2.8%	3.3%
Architecture, building & planning	1.6%	1.7%	1.9%	2.0%	2.2%	2.0%
Mathematical sciences	1.8%	1.9%	2.0%	2.1%	2.5%	2.1%
Medicine & dentistry	0.7%	1.0%	1.3%	1.8%	2.8%	1.8%
Agriculture & related subjects	1.2%	1.3%	1.4%	1.5%	1.3%	1.3%
Veterinary science	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%
Combined[61]	2.6%	2.8%	2.6%	2.7%	2.9%	2.7%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

[60] STEM subjects do not include clinical sciences, such as medicine and allied subjects and veterinary sciences.
[61] Pupils studying in more than one broad discipline have been classified as following a 'combined' course.

Table 42: Distribution of young 2011 HE entrants by study of a STEM subject, grouped by POLAR3 quintile

Subject of study	POLAR3 Quintiles					Average
	1	2	3	4	5	
STEM subject	29.4%	29.6%	29.2%	29.1%	28.6%	29.1%
Other subject	70.7%	70.4%	70.8%	70.9%	71.4%	70.9%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Table 43: Distribution of young 2011 HE entrants by POLAR3 quintile, grouped by subject of study

Subject of study	POLAR3 quintiles					Total
	1	2	3	4	5	
Creative arts & design	12.7%	16.3%	19.9%	23.5%	27.7%	100.0%
Business & administrative studies	10.5%	15.4%	19.9%	23.4%	30.8%	100.0%
Biological sciences	11.2%	16.0%	19.8%	23.9%	29.0%	100.0%
Social studies	10.1%	14.5%	18.9%	22.8%	33.7%	100.0%
Subjects allied to medicine	11.3%	16.3%	20.0%	24.0%	28.3%	100.0%
Engineering & technology	9.9%	14.7%	18.8%	23.5%	33.1%	100.0%
Languages	8.5%	12.1%	17.3%	24.0%	38.0%	100.0%
Physical sciences	8.5%	13.6%	18.1%	24.1%	35.7%	100.0%
Computer science	14.1%	17.9%	21.2%	22.6%	24.3%	100.0%
Education	13.7%	18.6%	21.0%	23.1%	23.7%	100.0%
Historical & philosophical studies	7.4%	12.2%	17.1%	24.3%	39.1%	100.0%
Law	12.3%	16.2%	21.0%	22.8%	27.7%	100.0%
Mass communications & documentation	12.0%	17.0%	21.3%	23.0%	26.7%	100.0%
Architecture, building & planning	8.7%	13.2%	19.0%	23.9%	35.3%	100.0%
Mathematical sciences	9.0%	13.6%	18.3%	22.8%	36.3%	100.0%
Medicine & dentistry	4.1%	8.5%	13.7%	23.9%	49.9%	100.0%
Agriculture & related subjects	9.8%	15.0%	20.1%	25.5%	29.6%	100.0%
Veterinary science	2.2%	6.7%	17.1%	27.1%	46.8%	100.0%
Combined	10.2%	15.4%	18.1%	23.4%	33.0%	100.0%
Overall	10.7%	15.2%	19.3%	23.5%	31.4%	100.0%

Table 44: Distribution of young 2011 HE entrants by POLAR3 quintile, grouped by whether they study a STEM subject

Subject of study	POLAR3 quintiles					Total
	1	2	3	4	5	
STEM subject	10.7%	15.4%	19.4%	23.6%	30.8%	100.0%
Other subject	10.6%	15.0%	19.3%	23.5%	31.6%	100.0%
Overall	10.7%	15.2%	19.3%	23.5%	31.4%	100.0%

Annex A: Hierarchy of geographies

1. This annex gives a summary of the different levels of geography referred to in this report and sets out a hierarchy. This is to make interpretation clearer, for example, when the report refers to ‘sub-ward geographies’. Table A1 displays the levels of geography in descending order of size, showing the number of each type of geography in the UK and a summary of the size of their young population, where the young population is made up of five cohorts, consistent with the POLAR3 populations.

Table A1: Summary of geography levels in the UK

Geography unit	Number in UK	Average young population	Minimum young population	Maximum young population
Region*	9*	363,343.2	171,412.9	516,271.6
2001 census ward	10,654	368.5	1.0	3,199.1
Lower super output area (LSOA)	41,773	94.0	1.0	327.7
Output area	222,944	17.9	1.0	132.0

Note that the populations above refer to five cohorts of 15-year olds aggregated, as used in the POLAR3 methodology. Thus the average young population refers to the total of five cohorts averaged over different geographies.

**Regions in England only*

Annex B: Source of variability in participation rates

1. A degree of variability is expected in young participation rates. Consider the example of an area with an underlying participation rate of 30 per cent: this can be thought of in terms of each child in the area having an equal and independent 30 per cent chance of participating in higher education. The observed small-area participation rate for a particular cohort, or set of cohorts, is thus the summation of the outcomes for these children in terms of whether they progress into higher education. Because these outcomes are to a certain extent random, there will be an element of randomness in the observed participation rate. The amount of randomness expected is larger for smaller cohort sizes.

2. Another source of variation is due to the small population counts at sub-ward geographies. A ward may have an observed participation rate of, say 34 per cent, but a sub-ward area with a young population of 10 can only ever have an observed young participation rate that is a multiple of 10 (for example 20 per cent, 30 per cent or 40 per cent) and this will not match the observed rate of the parent ward. Such ‘integer’ effects become larger as the sub-ward geography considered, and hence the size of the young population, gets smaller.

Annex C: Ward heterogeneity using POLAR based on 10 cohorts

1. This annex presents an analysis of heterogeneity within wards equivalent to that in the main report, but using a POLAR measure based on the HE participation rates of 10 cohorts (those aged 18 between 2000-01 and 2009-10) rather than five (those aged 18 between 2005-06 and 2009-10). This is to assess whether basing POLAR on a larger cohort would reduce the heterogeneity observed within wards.

2. Table C1 shows that the level of heterogeneity within wards based on 10 cohorts is broadly similar to, but a little higher than, that observed using the official POLAR3 measure (Table 1). Note that this is also observed to be the case regionally and over different area types (urban and rural wards), within each of which levels of heterogeneity follow similar trends to those seen in the equivalent POLAR3 analysis, but are overall slightly higher.

3. As basing POLAR on 10 cohorts of young people increases the population size used, and so reduces the amount of random variability, this measure might be considered a more reliable estimate of the true heterogeneity of areas. However, this measure is effectively assessing how heterogeneous cohorts have been over a long period of time and might not reflect the characteristics of the most recent cohorts, which the POLAR3 classification does.

Table C1: Heterogeneity of wards across POLAR quintiles based on 10 cohorts of young people

POLAR quintiles	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	3.1%	12.0%	8.9%
2	5.4%	18.3%	12.9%
3	10.6%	40.6%	30.1%
4	7.2%	23.9%	16.7%
5	3.2%	15.2%	11.9%

Annex D: Supplementary tables on output area variation within wards

1. This annex contains tables detailing the expected and observed levels of heterogeneity within wards, by country, region and area type. The resultant difference between these expected and observed levels the measure of heterogeneity used, and presented, in the main body of the report.

2. Tables D1 to D4 examine the heterogeneity of wards in the four UK nations; Tables D5 to D13 do the same for the English regions, and Tables D14 to D17 for rural and urban areas.

Country

Table D1: Heterogeneity of wards across POLAR3 quintiles in England

POLAR3 quintiles	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	6.9%	14.4%	7.5%
2	10.4%	20.4%	10.0%
3	20.6%	44.7%	24.1%
4	13.3%	25.9%	12.6%
5	6.8%	17.5%	10.7%

Table D2: Heterogeneity of wards across POLAR3 quintiles in Scotland

POLAR3 quintiles	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	15.0%	18.3%	3.3%
2	18.8%	23.1%	4.3%
3	41.4%	61.9%	20.5%
4	22.8%	35.5%	12.7%
5	11.3%	20.8%	9.5%

Table D3: Heterogeneity of wards across POLAR3 quintiles in Wales

POLAR3 quintiles	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	6.4%	12.7%	6.3%
2	10.8%	21.0%	10.2%
3	21.4%	47.6%	26.2%
4	13.5%	24.1%	10.5%
5	7.1%	16.0%	8.9%

Table D4: Heterogeneity of wards across POLAR3 quintiles in Northern Ireland

POLAR3 quintiles	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	4.6%	9.5%	4.9%
2	9.6%	22.5%	13.0%
3	15.1%	42.3%	27.2%
4	7.7%	20.7%	13.1%
5	4.5%	15.6%	11.1%

Region

Table D5: Heterogeneity of wards across POLAR3 quintiles in the North East

POLAR3 quintiles	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	6.9%	14.4%	7.5%
2	10.6%	23.5%	12.9%
3	20.9%	55.6%	34.7%
4	14.2%	26.5%	12.3%
5	7.7%	17.1%	9.3%

Table D6: Heterogeneity of wards across POLAR3 quintiles in the North West

POLAR3 quintiles	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	7.1%	14.9%	7.7%
2	9.5%	20.3%	10.8%
3	19.7%	48.0%	28.3%
4	12.2%	25.6%	13.4%
5	6.6%	17.2%	10.5%

Table D7: Heterogeneity of wards across POLAR3 quintiles in Yorkshire and the Humber

POLAR3 quintiles	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	6.2%	14.2%	8.1%
2	10.3%	21.6%	11.3%
3	20.3%	46.1%	25.8%
4	14.5%	27.5%	13.0%
5	8.3%	19.8%	11.6%

Table D8: Heterogeneity of wards across POLAR3 quintiles in the East Midlands

POLAR3 quintiles	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	6.8%	13.6%	6.7%
2	11.1%	21.7%	10.6%
3	21.9%	46.0%	24.1%
4	13.0%	24.0%	10.9%
5	7.4%	15.9%	8.5%

Table D9: Heterogeneity of wards across POLAR3 quintiles in the West Midlands

POLAR3 quintiles	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	7.0%	15.7%	8.7%
2	9.2%	19.3%	10.1%
3	20.2%	45.8%	25.6%
4	12.6%	25.7%	13.1%
5	7.6%	18.2%	10.6%

Table D10: Heterogeneity of wards across POLAR3 quintiles in East England

POLAR3 quintiles	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	7.3%	13.9%	6.6%
2	11.1%	18.5%	7.4%
3	21.1%	42.9%	21.8%
4	13.3%	25.5%	12.2%
5	6.9%	17.2%	10.3%

Table D11: Heterogeneity of wards across POLAR3 quintiles in Greater London

POLAR3 quintiles	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	9.2%	17.0%	7.7%
2	11.2%	18.6%	7.4%
3	19.8%	36.1%	16.4%
4	13.4%	25.4%	12.0%
5	5.6%	17.2%	11.6%

Table D12: Heterogeneity of wards across POLAR3 quintiles in the South East

POLAR3 quintiles	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	6.4%	12.9%	6.5%
2	10.9%	20.7%	9.8%
3	21.0%	46.4%	25.3%
4	13.3%	27.0%	13.7%
5	6.3%	17.6%	11.2%

Table D13: Heterogeneity of wards across POLAR3 quintiles in the South West

POLAR3 quintiles	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	7.3%	14.7%	7.5%
2	11.1%	21.2%	10.1%
3	22.3%	47.6%	25.3%
4	14.3%	26.1%	11.8%
5	8.1%	17.7%	9.6%

By urban and rural areas

Table D14: Heterogeneity of wards across POLAR3 quintiles in rural areas

POLAR3 quintiles	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	6.8%	14.1%	7.4%
2	10.3%	20.4%	10.1%
3	20.4%	45.0%	24.5%
4	13.4%	26.6%	13.2%
5	6.4%	17.7%	11.3%

Note: for England and Wales only.

Table D15: Heterogeneity of wards across POLAR3 quintiles in town and fringe areas

POLAR3 quintiles	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	8.2%	16.1%	8.0%
2	11.1%	20.8%	9.7%
3	21.9%	46.2%	24.3%
4	13.6%	25.8%	12.2%
5	7.9%	19.1%	11.2%

Note: for England and Wales only.

Table D16: Heterogeneity of wards across POLAR3 quintiles in village, hamlet and isolated areas

POLAR3 quintiles	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	11.5%	18.9%	7.4%
2	12.6%	21.2%	8.6%
3	22.6%	41.6%	19.0%
4	12.8%	22.7%	9.9%
5	7.7%	15.6%	7.9%

Note: for England and Wales only.

Annex E: Further analysis on heterogeneity within geographies

1. This annex looks at whether the spatial variation of young HE participation could be better captured by using a smaller geography than the census wards used to create the POLAR3 classification. This is investigated by creating a quintile classification analogous to POLAR3 but where each quintile is constructed from aggregations of lower super output areas (LSOAs), rather than census wards[62]. The analysis presented in paragraphs 32 to 43 is repeated using this analogous quintile classification.

2. If LSOAs are better at capturing the spatial distribution of young HE participation rates than census wards, then the observed level of heterogeneity within quintiles, and the difference between the observed and expected levels of heterogeneity, should be smaller than they are for the POLAR3 classification.

3. Table E1 shows the result of this analysis, and is directly comparable to Table 1 in the main report. We find that the observed heterogeneity is much lower when quintiles are constructed from aggregations of LSOAs compared with census wards, and that the differences between observed and expected levels of heterogeneity are also lower. Overall 6 per cent of the young population are estimated to be living in an output area with a substantially different young participation rate from that suggested by its quintile assignment when using LSOAs as the base geography, compared with 13 per cent when census wards are used. Likewise, across all quintiles smaller proportions of the young population are found to be living in output areas with substantially different young HE participation rates. For example when using LSOAs, only one in 40 young people who are classified as living in quintile 1 areas are thought to live in output areas with participation rates that are substantially higher, compared with one in 14 when using census wards. The respective proportions for quintile 5 areas are one in 20 compared with one in 10. This suggests that LSOAs are better than census wards at capturing the spatial variation in young HE participation rates.

Table E1: Heterogeneity of lower super output areas by POLAR3 quintile in the UK

POLAR3 quintiles	Expected percentage (via simulation)	Actual (observed) percentage	Difference between observed and expected
1	3.8%	6.1%	2.3%
2	6.9%	11.6%	4.7%
3	14.3%	25.7%	11.3%
4	9.9%	16.6%	6.7%
5	5.2%	10.2%	5.0%

4. Tables E2, E3 and E4 show the difference between observed and expected levels of heterogeneity across the UK nations, regions of England, and rural and urban areas in England respectively. Comparing these tables with Tables 2, 3 and 4 in the main report again shows how

[62] See Annex A for further details on the hierarchy of geographies.

the difference between observed and expected figures is much smaller when quintiles are constructed from LSOAs rather than census wards, indicating that LSOAs better capture the spatial distribution of young participation rates within countries, regions and across rural and urban areas. Like Tables 2, 3 and 4, these tables show that the levels of heterogeneity across all regions and all area types are broadly similar. That is to say, Table E3 shows that the proportion of young people in small areas whose propensity to participate in higher education is concealed by their LSOAs is generally similar in London to other regions in England, or lower. Table E4 shows this is also the case for rural areas in comparison with other all area types, although it should be noted that a relatively high proportion of young people in rural areas (village, hamlet and isolated areas) in quintile 1 LSOAs live in more advantaged small areas.

Table E2: Heterogeneity of lower super output areas by POLAR3 quintile by country

Country	POLAR3 quintile				
	1	2	3	4	5
England	2.3%	4.7%	10.9%	6.5%	4.9%
Scotland	0.9%	2.2%	10.2%	7.2%	5.2%
Wales	2.7%	5.4%	15.2%	6.4%	5.0%
Northern Ireland	3.9%	9.0%	20.5%	9.8%	6.7%
UK overall	**2.3%**	**4.7%**	**11.3%**	**6.7%**	**5.0%**

Note: The percentages presented are the difference between the observed and expected heterogeneity.

Table E3: Heterogeneity of lower super output areas by POLAR3 quintile by region

Region	POLAR3 quintile				
	1	2	3	4	5
North East	2.2%	5.7%	13.8%	6.9%	3.9%
North West	2.2%	4.4%	11.1%	5.7%	4.2%
Yorkshire & the Humber	2.4%	4.8%	10.8%	6.7%	4.4%
East Midlands	2.1%	5.8%	12.3%	6.7%	5.7%
West Midlands	2.5%	4.8%	10.1%	6.5%	4.5%
East of England	2.2%	4.1%	11.2%	6.8%	5.4%
Greater London	3.2%	3.5%	5.4%	5.3%	4.2%
South East	2.4%	5.0%	13.3%	7.8%	5.4%
South West	2.5%	5.1%	14.7%	7.1%	6.5%

Note: The percentages presented are the difference between the observed and expected heterogeneity.

Table E4: Heterogeneity of lower super output areas by POLAR3 quintile for rural and urban areas

Area type	POLAR3 quintile				
	1	2	3	4	5
Urban	2.2%	4.5%	10.3%	6.0%	4.5%
Town & Fringe	3.8%	6.1%	13.9%	8.6%	5.8%
Village, Hamlet & Isolated	6.9%	7.4%	14.6%	7.1%	6.0%

Note: The percentages presented are the difference between the observed and expected heterogeneity for areas in England and Wales only.

Accuracy of young participation rates at different geographies

5. The analysis presented above suggest that constructing young participation quintiles from estimates derived at LSOA level would allow the spatial distribution of young participation rates to be better captured compared to using census wards. However the increased spatial accuracy gained from the smaller geography must be balanced against the accuracy of the young participation rates themselves. As described in Annex B, moving to a smaller geography means the size of the cohort upon which the participation rates are based becomes smaller, so that the level of random variation introduced into the estimate is greater. This means that the accuracy of the participation rate is reduced, and consequently we can be less confident that the quintile into which an area is assigned is the correct one.

6. It is possible to estimate how the use of different geographies affects the accuracy of the young participation rates derived at those geographies. This is done by simulation: we use the observed cohort sizes and young participation rates to simulate entrant counts, by sampling from a binomial probability distribution, and then use these simulated entrant counts to create a simulated young participation rate. These simulated rates are then used to create quintiles, and we calculate the proportion of the young population who live in areas which are classified into different quintiles. We report these proportions, averaged across the samples and the young participation quintiles to which areas belong (as given by the POLAR3 classification).

7. Table E5 shows the proportion of instances where census wards from each POLAR3 quintile were classified into different quintiles based upon 100 samples. Tables E6 and E7 show the equivalent proportions estimated when LSOAs and output areas respectively were used as the base geography. As expected, the accuracy of the participation rates falls as the base geography at which they are calculated becomes smaller. This is shown by the percentages in the diagonal elements of each table becoming smaller as smaller geographies are used. For example, when census wards as used, 91.6 per cent of young people who live in POLAR3 quintile 1 wards were classified, in the simulations, into quintile 1. This compares with 85.6 per cent for LSOAs, and 66.4 per cent for output areas. Overall, the simulations place 84.8 per cent of the young population into the same quintiles as under POLAR3 when wards are used, compared with 74.9 per cent for LSOAs and 59.2 per cent for output areas. Alternatively, the proportion of the young population not classified into the same quintile increases by 65.1 per cent when quintiles are based on aggregations of LSOAs compared with when we use quintiles based on census wards.

Table E5: Proportion of young cohort assigned via simulation to the same or different participation quintiles to that given by the POLAR3 classification (Census wards)

	Actual (POLAR3)				
Simulated	**1**	**2**	**3**	**4**	**5**
1	91.6%	8.4%	0.0%	0.0%	0.0%
2	8.4%	80.9%	10.6%	0.1%	0.0%
3	0.0%	10.7%	78.2%	11.0%	0.0%
4	0.0%	0.0%	11.1%	81.1%	7.8%
5	0.0%	0.0%	0.1%	7.7%	92.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table E6: Proportion of young cohort assigned via simulation to the same or different participation quintiles to that given by the POLAR3 classification (LSOAs)

	Actual (POLAR3)				
Simulated	**1**	**2**	**3**	**4**	**5**
1	85.6%	14.2%	0.3%	0.0%	0.0%
2	14.3%	68.3%	16.9%	0.5%	0.0%
3	0.1%	17.1%	64.8%	17.9%	0.1%
4	0.0%	0.5%	17.9%	68.8%	12.8%
5	0.0%	0.0%	0.2%	12.7%	87.1%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Table E7: Proportion of young cohort assigned via simulation to the same or different participation quintiles to that given by the POLAR3 classification (Output areas)

	Actual (POLAR3)				
Simulated	**1**	**2**	**3**	**4**	**5**
1	66.4%	25.3%	4.5%	0.7%	0.1%
2	16.9%	50.8%	24.4%	4.5%	0.3%
3	1.5%	20.9%	47.9%	24.7%	2.0%
4	0.1%	2.8%	21.3%	53.0%	19.7%
5	15.1%	0.2%	1.8%	17.1%	77.9%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Annex F: List of abbreviations

FEC	Further education college
FSM	Free school meals
HE	Higher education
HEFCE	Higher Education Funding Council for England
HEI	High education institution
HNC	Higher National Certification
HND	Higher national Diploma
ILR	Individualised Learner Record
IDACI	Income deprivation affecting children
KS	Key Stage
LSOA	Lower super output area
NS-SEC	National Statistics Socio-Economic Classification
OA	Output area
OFFA	Office for Fair Access
ONS	Office for National Statistics
POLAR	Participation of Local Areas
SEN	Special educational needs
STEM	Science, technology, engineering and mathematics subjects (not including clinical sciences, such as medicine and veterinary sciences and allied subjects).
UCAS	Formerly the Universities and Colleges Admission Service.