

Office for  
Students



# A geography of employment: Autumn 2022

Updated official statistics classifying  
local variations in graduate opportunities

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# Contents

<b>Summary</b>	<b>2</b>
<b>Introduction</b>	<b>4</b>
Rationale	4
Methodology	5
Changes in this report	6
<b>Undergraduate qualifiers</b>	<b>8</b>
Data and definitions	8
Grouping methodology	9
Results	9
Comparison to previous results	12
Analysis of smaller sub-areas	12
<b>Taught postgraduate qualifiers</b>	<b>14</b>
Data and definitions	14
Dealing with small areas	14
Results	14
Comparison with undergraduate qualifiers	16
<b>Postgraduate research qualifiers</b>	<b>18</b>
Data and definitions	18
Grouping methodology	18
Results	19
<b>Annex A: COVID-19 impact on taught postgraduate qualifier GO survey data</b>	<b>21</b>
<b>Annex B: Mapping graduates to areas</b>	<b>24</b>
Method	24
Results	26
<b>Annex C: Stability of quintiles</b>	<b>28</b>
Method	28
Results	28
<b>Annex D: Minimum number of taught postgraduate qualifiers in each area</b>	<b>30</b>

# Summary

1. This publication updates our geographical analysis of graduates who are in highly skilled employment. It develops the 'employment' strand of our earlier reports on the geography of employment and earnings, which examined local graduate opportunities by what they earn and those in highly skilled employment.<sup>1</sup>
2. In this report we update the 'highly skilled employment' measure used in our previous publication and expand it to cover postgraduate qualifiers. We refer to this measure as the geography of employment.
3. We have used the same methodology as our previous reports, with some improvements and with updated Graduate Outcomes (GO) survey data.<sup>2</sup> Our method uses travel to work areas (TTWAs), which are defined using commuting patterns. Using this definition, most people work in the same TTWA as their home. There are 228 TTWAs in the UK, mostly centred around towns and cities. Areas are classified based on the proportion of graduates who are in highly skilled employment or further study 15 months after graduation and divided into five groups, or 'quintiles'.
4. For the first time we are releasing data for postgraduate qualifiers. This provides a useful way to see, for example, whether graduate opportunities for postgraduates are similar to undergraduates, whether more are in highly skilled employment, and the level of variation between the five quintiles.
5. The rates of highly skilled employment for undergraduate qualifiers remain steady. In the lowest quintile areas, 67 per cent of graduates were in highly skilled jobs or further study, compared with 77 per cent in the highest quintile areas. The areas with the highest proportion of graduates in highly skilled jobs were mostly in the south of England, but a number of these areas were also located across the rest of the country.
6. The rates of highly skilled employment for taught postgraduate qualifiers across all quintiles varied less than those for undergraduates. In the lowest quintile areas, 86 per cent of graduates were in highly skilled jobs or further study, compared with 91 per cent in the highest quintile areas. The areas with the highest proportion of graduates in highly skilled jobs were mainly in the south of England, Scotland and Northern Ireland.
7. There were fewer postgraduate research qualifiers in the general population and consequently the GO survey population, and they tended to be more mobile in their commuting patterns. For these reasons, we decided that TTWAs were not the most suitable areas to use for postgraduate research qualifiers, and instead we used larger region areas.<sup>3</sup> There was less variation between the quintiles for the 12 regions than there was for quintiles for undergraduate and taught postgraduate qualifiers. In the lowest quintile areas, 93 per cent of graduates were in highly skilled jobs, compared with 96 per cent in the highest quintile areas.

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<sup>1</sup> Our original report was published in June 2021 and we published an update in November 2021. See [www.officeforstudents.org.uk/publications/a-geography-of-employment-and-earnings/](http://www.officeforstudents.org.uk/publications/a-geography-of-employment-and-earnings/).

<sup>2</sup> See Annex B for further information.

<sup>3</sup> See paragraph 66 for further information.

**This publication is an official statistic. We welcome feedback on this report and in particular on the postgraduate qualifiers measure which is an experimental official statistic.**

**Please get in touch with us at [official.statistics@officeforstudents.org.uk](mailto:official.statistics@officeforstudents.org.uk) to let us know your thoughts and feedback.**

# Introduction

## Rationale

8. As the Office for Students, we want to ensure that students leave their courses with the knowledge, qualifications, skills and attributes that employers need, both now and in the future, or which help graduates set up their own businesses. We want to see educated graduates, from all forms of higher education, who can flourish in the world as it is today and might be tomorrow.<sup>4</sup>
9. In 2021 we introduced a method for grouping geographical areas based on two different measures of local graduate opportunity.<sup>5</sup> Although individual students will define their success beyond graduation in relation to their own goals and motivations, our reports demonstrated two possible measures of success: above threshold earnings and highly skilled employment.
10. In this report we update the highly skilled employment measure used in our previous publication and expand it to cover postgraduate qualifiers. We are updating this measure because we consider that there is a strong public interest in publishing information about student outcomes from higher education.
11. Understanding the geographical context for different groups of graduates is important. It provides a better understanding of employment outcomes and how they are linked to the area where the graduates are living. We developed the quintile-based approach because it could provide a useful way to contextualise graduate outcomes by capturing some of the labour market differences that graduates living in different parts of the UK experience.
12. In the OfS consultation on constructing student outcome and experience indicators for the regulation of student outcomes, and our analysis of responses, we proposed that geography of employment quintiles should be included in the creation of split indicators constructed for progression outcomes and benchmarking factors.<sup>6</sup> It would be possible to use the findings in this report for this purpose, if this is taken forward.
13. The postgraduate measures are also published as experimental statistics and we are open to feedback from users and stakeholders about their continued development.<sup>7</sup> The postgraduate measure provides a useful mechanism for understanding the geographical context of graduate employment for postgraduate qualifiers. In our analysis of responses to the consultation on constructing student outcome and experience indicators for use in OfS regulation, we set out

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<sup>4</sup> For more on the OfS strategy, see [www.officeforstudents.org.uk/about/our-strategy/](http://www.officeforstudents.org.uk/about/our-strategy/).

<sup>5</sup> See [www.officeforstudents.org.uk/publications/a-geography-of-employment-and-earnings/](http://www.officeforstudents.org.uk/publications/a-geography-of-employment-and-earnings/).

<sup>6</sup> See [www.officeforstudents.org.uk/publications/student-outcomes-and-teaching-excellence-consultations/outcome-and-experience-data/](http://www.officeforstudents.org.uk/publications/student-outcomes-and-teaching-excellence-consultations/outcome-and-experience-data/).

<sup>7</sup> Experimental statistics: A subset of newly developed or innovative official statistics undergoing evaluation. Experimental statistics are published to involve users and stakeholders in the assessment of their suitability and quality at an early stage.

our commitment to developing and consulting on benchmarks for postgraduate study in the future as a structured way to account for context.<sup>8</sup>

14. It should be noted that the report highlights the differences between areas and provides a way to account for them. In this sense it provides more context about the areas in which students choose to live. It does not present certain areas as better alternative destinations for graduates.

## Methodology

15. The construction of the geography of employment quintiles uses Graduate Outcomes (GO) survey data.<sup>9</sup> Areas are classified based on the proportion of employed graduates who are in professional or managerial jobs, further study or who have other positive outcomes 15 months after graduation.<sup>10</sup>
16. Other than for postgraduate research students, where we have used regions, we have used travel to work areas (TTWAs) in this analysis. They are defined using commuting patterns derived from 2011 Census data to determine areas where most people live and work in the same area. TTWAs are non-overlapping and relatively few people in each TTWA cross over to a different TTWA to go to work. Each one tends to consist of a major town or city and the area around it. There are 228 of these areas in the UK.<sup>11</sup>
17. Because these areas are developed statistically, they differ greatly in size. More than 50 TTWAs have fewer than 60,000 people living in them whereas the largest TTWA, relating to London and some surrounding areas, has 8.4 million people.
18. Within some TTWAs, particularly those containing large cities, there will be sub-areas where the employment patterns are very different to the rest of the TTWA. The groupings are designed to broadly indicate the job opportunity profile for people living in each area rather than capturing everything that is distinctive about the area.
19. In our analysis of responses to the consultation on constructing student outcome and experience indicators for use in OfS regulation, we noted the views expressed by some respondents that we could have used alternative geographies to determine the employment quintiles and that travel to work areas are less used than some other geographies.<sup>12</sup> We explained that we consider that alternative geographies would equally contain compromises as these are determined based on other factors which are not related to employment. We also

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<sup>8</sup> See our analysis of consultation responses at [www.officeforstudents.org.uk/publications/student-outcomes-and-teaching-excellence-consultations/outcome-and-experience-data/](http://www.officeforstudents.org.uk/publications/student-outcomes-and-teaching-excellence-consultations/outcome-and-experience-data/).

<sup>9</sup> See [www.hesa.ac.uk/innovation/outcomes/survey](http://www.hesa.ac.uk/innovation/outcomes/survey).

<sup>10</sup> For the purposes of this analysis, professional or managerial jobs are defined as Standard Occupational Classification (SOC2020) groups 1-3. The other positive outcomes consist of travelling, caring and being retired.

<sup>11</sup> See the Office for National Statistics website for more information on travel to work areas: [www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/traveltoworkareaanalysisingreatbritain/2016](http://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/traveltoworkareaanalysisingreatbritain/2016).

<sup>12</sup> See [www.officeforstudents.org.uk/publications/student-outcomes-and-teaching-excellence-consultations/outcome-and-experience-data/](http://www.officeforstudents.org.uk/publications/student-outcomes-and-teaching-excellence-consultations/outcome-and-experience-data/).

recognised that patterns of commuting have been affected by the pandemic such that patterns of where people work and live may have changed. However, given the recent prevalence of home working, we consider it likely that this will lead to larger travel to work areas with lower variation between them, meaning that the use of the 2011 travel to work areas remains reasonable.

## Changes in this report

20. Since the last report we have developed our methodology for grouping geographical areas.
21. We have not updated the earnings-based measure produced in previous reports in this publication, and currently have no plans to do so. However, we welcome feedback from users and stakeholders that can demonstrate a use for the earnings-based measure, and we will consider this in future. The previous earnings-based measure data will remain available to download from the archive section of our geography of employment webpage.<sup>13</sup>
22. The measure is now called the 'geography of employment' – the 'earnings' has been dropped.
23. There have also been other changes:
  - i. We have extended the population to include postgraduate qualifiers, with separate classifications for undergraduate, taught postgraduate and postgraduate research qualifiers.
  - ii. We have added another year of GO survey data relating to 2019-20 graduates. We now use three years of survey data used to produce the measure.
  - iii. We have improved the methodology for assigning graduates to areas to make better use of employer postcodes and towns reported in the survey.
  - iv. We have removed the data for each English higher education provider showing where their graduates are based, as it is not clear how this contributed to users' understanding of the new measures and there was no obvious use case for it.
24. Incorporating GO survey data on 2019-20 graduates into the updated geography of employment quintiles for undergraduates means that we are now including data on graduates who completed their studies and sought employment during the first year of the coronavirus pandemic. We have therefore considered whether there is any evidence of a possible COVID effect in the data and assessed whether:
  - the new quintiles are considerably different to those previously published in terms of range of graduates in highly skilled employment or further study, number of TTWAs and number of graduates in each quintile
  - there are individual areas where we see a major decrease or increase in success rate, and hence a considerable difference in quintiles.

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<sup>13</sup> See [www.officeforstudents.org.uk/publications/a-geography-of-employment-and-earnings/](http://www.officeforstudents.org.uk/publications/a-geography-of-employment-and-earnings/).

25. We have assessed these differences in the following ways:

- we compared the latest results for undergraduate qualifiers with our earlier analysis
- we compared the results for taught postgraduate qualifiers with what their geography of employment quintiles would have looked like if we had only used two years of data (i.e. 2017-18 and 2018-19 graduates).

26. From our assessment, we have concluded that any differences between quintiles or individual areas are not beyond what we would reasonably expect due to natural variation. More information about this comparison can be found in the 'Undergraduate qualifiers' and Annex A sections of this report.

### **Feedback**

The postgraduate indicators within this report are experimental official statistics which fall under the official statistics' Code of Practice. We are actively seeking feedback for this analysis. Please email comments to [official.statistics@officeforstudents.org.uk](mailto:official.statistics@officeforstudents.org.uk).



# Undergraduate qualifiers

## Data and definitions

27. The GO data is based on a survey of qualifiers from higher education 15 months after they finished their course. The survey records their current activities, the type of work they are doing, and the location of their employer.
28. The outcome measure we have used in this classification is based on:
- UK undergraduate qualifiers
  - both full-time and part-time courses
  - universities and colleges in England and universities in the rest of the UK
  - graduates who responded to the survey and had a known activity (including 'unemployed' and 'looking for work') 15 months after graduation.
29. It measures the proportion of these graduates who were:
- In highly skilled employment.** Jobs have been categorised using information provided about the job title and typical duties into a Standard Occupation Classification (SOC2020).<sup>14</sup> We use this to identify jobs which can be considered highly skilled. For the purposes of this analysis, 'highly skilled' refers to jobs in the categories relating to professional and managerial roles (SOC major groups 1-3).<sup>15</sup>  
  
or
  - In further study.** If a respondent said they were engaged in a course of study, training or research during the week of the survey, this is counted as a positive outcome. This applies whatever type or level of course they were doing.  
  
or
  - Travelling, retired or caring for someone.** If respondents were travelling, retired, or caring for someone the week of the survey, this is counted as a positive outcome.
30. We have pooled three years of GO data to increase the sample size and robustness. This analysis covers the surveys carried out between December 2018 and November 2021, which relate to graduates who completed their course between August 2017 and July 2020.
31. Table 1 shows the number of undergraduate qualifiers from each year who were surveyed, and the proportion who responded to the GO survey.

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<sup>14</sup> Originally the 2017 Graduate Outcomes survey data was coded using the SOC2010 classification, but this data has been adapted to match the SOC2020 classification.

<sup>15</sup> If someone cannot be assigned to a SOC group based on the information they provided in the survey, an approximation is used based on the types of job taken by others at the same provider.

**Table 1: Number of undergraduate qualifiers surveyed and responded**

	2017-2018	2018-2019	2019-2020	Overall
<b>Did not respond</b>	184,480	181,500	174,470	540,450
<b>Responded</b>	228,715	233,505	223,310	685,530
<b>Total eligible to be surveyed</b>	<b>413,195</b>	<b>415,005</b>	<b>397,780</b>	<b>1,225,980</b>
<b>% responded</b>	55.4%	56.3%	56.1%	55.9%

**Note:** The total numbers in this population (and the rates) are slightly different to the previous population because these do not include other qualifications with a postgraduate component (which are part of PGT)

32. We assigned each graduate to a TTWA based on the information they reported in the survey. For most graduates, this was simply the area containing their employer postcode. For those who did not include their employer postcode (or were not employed), we used information on where they were studying. For 17 per cent of respondents there was no way to assign them to an area using the GO data, so we used the permanent home location from their original course as the most likely area where they were living.<sup>16</sup> We refer to the area assigned to each graduate as the area where they were based. Annex B provides further information about the method for assigning undergraduate qualifiers to TTWAs.

## Grouping methodology

33. All respondents in the GO survey data were ordered (ranked) by using the area average rates of graduates in highly skilled employment or further study. We split these into five quintiles, keeping the number of respondents in each quintile as close to one-fifth as possible. We could not have exactly the same number of respondents in each quintile, as quintiles also have to refer to whole areas.

34. We assigned a quintile to each TTWA based on the proportion of graduates in that area who were in highly skilled employment or further study. Areas with a higher number of graduates in highly skilled employment or further study are assigned to higher quintiles. For instance, in the Reading TTWA a high proportion of graduates were in highly skilled employment or further study, so Reading is assigned the top quintile, quintile 5.

## Results

35. Table 2 shows the number of TTWAs and the distribution of highly skilled employment proportions in each quintile. It shows that the average proportion of graduates in each quintile in highly skilled employment or in further study ranges from 67.4 per cent in quintile 1 to 77.3 per cent in quintile 5.

<sup>16</sup> See Annex B for more information on how areas were defined.

**Table 2: Summary table of GO local graduate opportunity groups for undergraduate qualifiers**

Quintile	Number of TTWAs	Number of graduates	Minimum percentage in highly skilled employment or further study (%)	Average percentage in highly skilled employment or further study (%)	Maximum percentage in highly skilled employment or further study (%)	Difference min to max (ppts)
<b>1 (lowest)</b>	126	133,305	45.3	67.4	69.9	24.6
<b>2</b>	50	137,465	69.9	71.4	72.8	2.8
<b>3</b>	23	130,670	72.8	73.5	74.6	1.8
<b>4</b>	11	190,885	74.7	75.2	75.3	0.6
<b>5 (highest)</b>	18	80,550	75.4	77.3	80.5	5.1
<b>Total</b>	<b>228</b>	<b>672,875</b>				

**Note:** The Average column shows the average for graduates in each quintile, rather than the average of the areas making up each quintile. In all figures and tables in this analysis, numbers are rounded to the nearest five and percentages are rounded to the nearest 0.1 per cent. Proportions and totals are calculated using unrounded numbers.

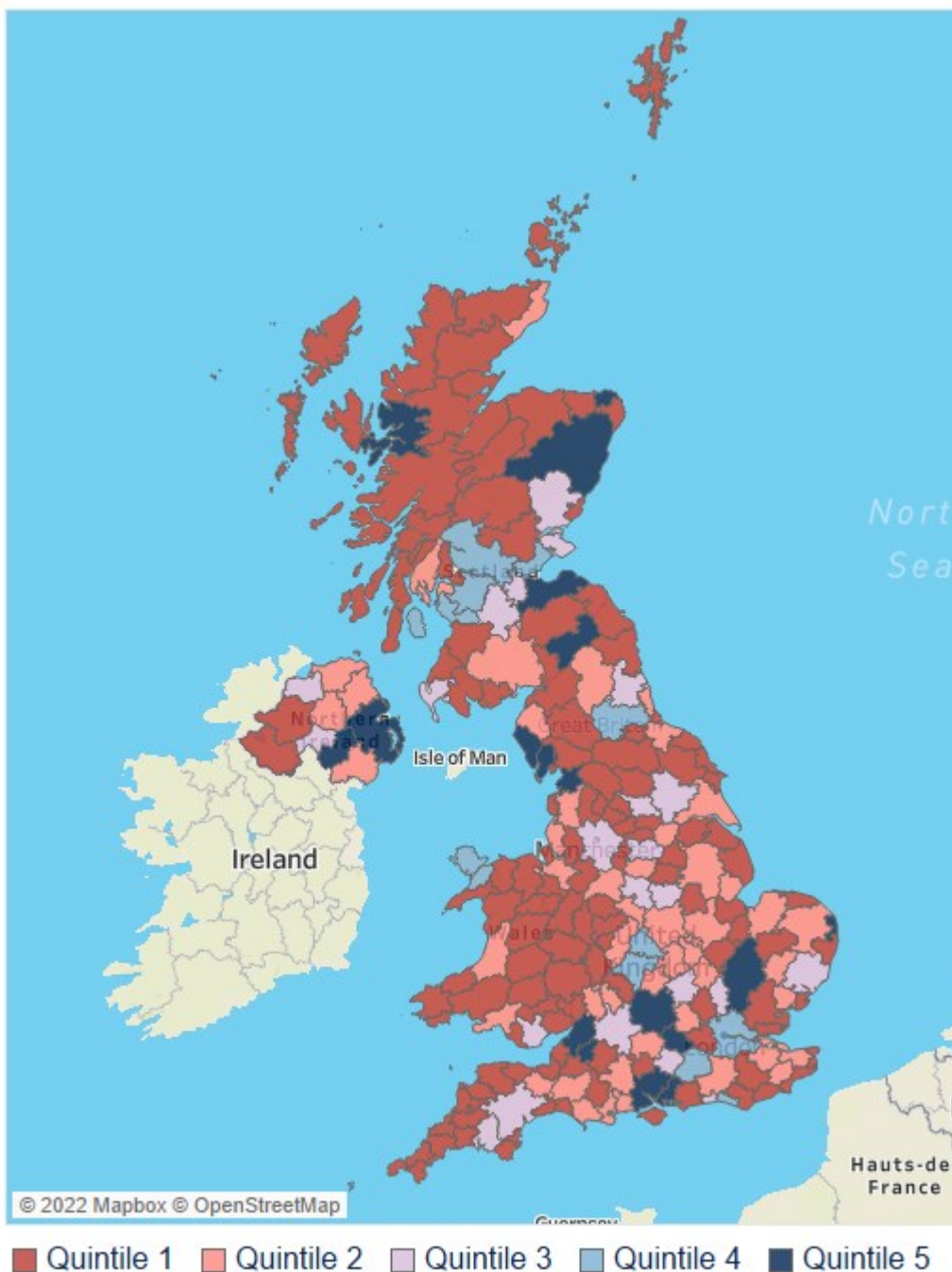
**Note:** The total number of graduates in this table is smaller than the total number of undergraduate qualifiers surveyed and responded presented in Table 1. This is because the population used for assigning TTWAs to quintiles excludes 12,400 graduates who were living abroad and 250 graduates we could not match to a TTWA. Please refer to Annex B for more information on how graduates were mapped to an area.

36. Table 2 shows that there was little variation in the average percentage of graduates in highly skilled employment or further study between TTWAs in quintiles 2 and 5, with less than six percentage points between quintile 2 and quintile 5.
37. There was a slightly larger difference in the average percentage of graduates in highly skilled employment or further study between areas in quintile 1 and quintile 5 of just under 10 percentage points.
38. Looking at the variation between TTWAs within each quintile, quintile 1 showed the largest difference. There were nearly 25 percentage points between areas, with the lowest and the highest rates of graduates in highly skilled employment or further study. However, within quintile 1 only four of the 126 areas had rates below 55 per cent, and all were small areas. Differences between areas with the lowest and highest rates of graduates in highly skilled employment or further study within the other quintiles were much smaller, ranging from 0.6 percentage points in quintile 4 to 5.1 percentage points in quintile 5.
39. The number of qualifiers in quintile 4 is much larger than the other quintiles, and the number in quintile 5 is lower. This is because of the size of the London TTWA, which is on the upper boundary of quintile 4. It contains 21 per cent of all respondents, so – whether it was in quintile 4 or fell into quintile 5 – the London TTWA would distort the size of those quintiles. We decided to assign the London TTWA to quintile 4 as, had it been assigned to quintile 5, there would have been very few respondents left in quintile 4, fewer than quintile 5 has currently.

40. Because of the narrow range between minimum and maximum rates in each quintile, we can see areas changing quintile over the years for which we have data due to natural variation, but in most cases we would expect areas to stay within one, or possibly two, quintiles. Simulations confirm that is the case, 82 out of 228 TTWAs (36 per cent) change one quintile in more than 25 per cent of all simulations and only five TTWAs change two quintiles in more than 25 per cent of simulations. Smaller areas are less stable and more likely to change their quintile assignment. More information on the simulations on the stability of TTWAs and their assigned quintiles can be found in Annex C.

41. Figure 1 shows which area has been assigned to which quintile.

**Figure 1: Map of geography of employment quintiles for undergraduate qualifiers**



42. Figure 1 shows that the areas with the highest proportion of graduates in highly skilled jobs were mostly in the south of England, but with a number of quintile 4 and 5 areas across the rest of the country.<sup>17</sup>

## Comparison with previous results

43. In general, the number of areas and the range of rates in each quintile have remained similar to those in our November 2021 publication, which was based on using GO survey data for two cohorts of qualifiers (2017-18 and 2018-19 qualifiers). The only exception is quintile 2 which now contains more areas than before, and quintile 3 which contains fewer.

44. Out of the 228 TTWAs analysed 168 have been assigned to the same geography of employment quintile they had in our last publication. Furthermore, only five TTWAs have changed by two quintiles. Most of these are small areas, so this change in quintile assignment is not unexpected because of the natural variation that is observed in small populations. Two of these five areas are the same as we identified via simulations as most likely to change by two quintiles.<sup>18</sup> In addition, one area has moved up by two quintiles – from quintile 3 to quintile 5, and two areas have moved down by two quintiles because the proportion of undergraduate qualifiers in highly skilled employment or further study has fallen enough to move them down.

## Analysis of smaller sub-areas

45. In our previous publication on geography of employment and earnings we included analysis on the internal consistency of smaller sub-areas within a TTWA for the LEO measure on graduate earnings. The smaller sub-areas we used were middle-layer Super Output Areas (MSOAs). The analysis showed that while a lot of MSOAs were assigned to a quintile different to the one of the TTWA surrounding them, this was largely driven by the small population size of the MSOAs and the relatively narrow boundaries between the quintiles. To understand the extent to which these were genuine differences rather than natural variation, we ran simulations to understand what the variation would be if each MSOA had an underlying rate which was the same as the surrounding TTWA. The simulations confirmed that only a relatively small number of MSOAs had a quintile difference beyond what one would expect given natural variation.

46. We considered repeating this analysis for the geography of employment quintiles presented in this report. However, the method we use for assigning graduates to an area (described in detail in Annex B) means that – at best – we could have used data for 38 per cent of undergraduate qualifiers for whom we had an employer's postcode. This is because we cannot know with certainty that a graduate is living and working in the same MSOA, in the same way that we can reasonably assume so for a TTWA.

47. If we had produced a geography of employment quintiles measure for MSOAs based on the 38 per cent of graduates for whom we have employment postcodes, less than a third of MSOAs in the UK would have had a population large enough to produce reliable results. We concluded that the results based on this limited subset of the population would be biased and would not add any value to this report.

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<sup>17</sup> See the interactive maps and data tables published alongside this report for more detail.

<sup>18</sup> See paragraph 40.

48. This also applies to postgraduate qualifiers where there is less data available to produce meaningful analysis at an MSOA level.

# Taught postgraduate qualifiers

## Data and definitions

49. For the first time we include geography of employment quintiles for taught postgraduate qualifiers, including postgraduate taught masters, PGCE, degrees and other qualifications with a postgraduate component.
50. The outcome measure used in this classification is based on:
- UK taught postgraduate qualifiers
  - both full-time and part-time courses
  - universities and colleges in England and universities in the rest of the UK
  - graduates who responded to the survey and had a known activity (including 'unemployed' and 'looking for work') 15 months after graduation.
51. Table 3 shows the number of taught postgraduate qualifiers from each year who were surveyed, and the proportion who responded to the GO survey. It shows that the response rates for this population were very similar to those for undergraduate qualifiers.

**Table 3: Number of taught postgraduate qualifiers surveyed and responded**

	2017-2018	2018-2019	2019-2020	Overall
<b>Did not respond</b>	61,545	62,155	56,735	180,435
<b>Responded</b>	73,475	80,875	78,215	232,565
<b>Total eligible to be surveyed</b>	135,020	143,030	134,950	413,000
<b>% responded</b>	54.4%	56.5%	58.0%	56.3%

52. As for the quintiles for undergraduate qualifiers, we assigned a quintile to each TTWA based on the proportion of taught postgraduate qualifiers in that area who were in highly skilled employment or further study.

## Dealing with small areas

53. Because there are fewer taught postgraduate qualifiers than undergraduate qualifiers, there are some TTWAs with fewer than 30 survey respondents. These 18 areas cover a total of 370 qualifiers out of 225,670 (0.002 per cent). Further analysis, covered in Annex D, shows that the accuracy is lower for these areas, so instead of using the observed rate to assign each area to a quintile we use the rate for the surrounding region.

## Results

54. Table 4 shows that TTWAs for taught postgraduate qualifiers are more evenly distributed between quintiles than they were for undergraduate qualifiers. However, quintile 1 still has a

considerably higher number of TTWAs, while quintile 4 only a small number of areas. This is because the areas in quintile 1 are smaller, and London is in quintile 4 which distorts its size.

**Table 4: Summary table of GO local graduate opportunity groups for taught postgraduate qualifiers**

Quintile	Number of TTWAs	Number of graduates	Minimum percentage in highly skilled employment or further study (%)	Average percentage in highly skilled employment or further study (%)	Maximum percentage in highly skilled employment or further study (%)	Difference min to max (ppts)
<b>1 (lowest)</b>	71	45,430	77.2	85.5	86.8	9.6
<b>2</b>	45	45,070	86.8	87.2	88.0	1.2
<b>3</b>	54	42,990	88.0	88.4	89.2	1.2
<b>4</b>	15	70,900	89.3	89.7	89.8	0.5
<b>5 (highest)</b>	43	21,660	89.9	90.8	96.9	7.0
<b>Total</b>	<b>228</b>	<b>226,050</b>				

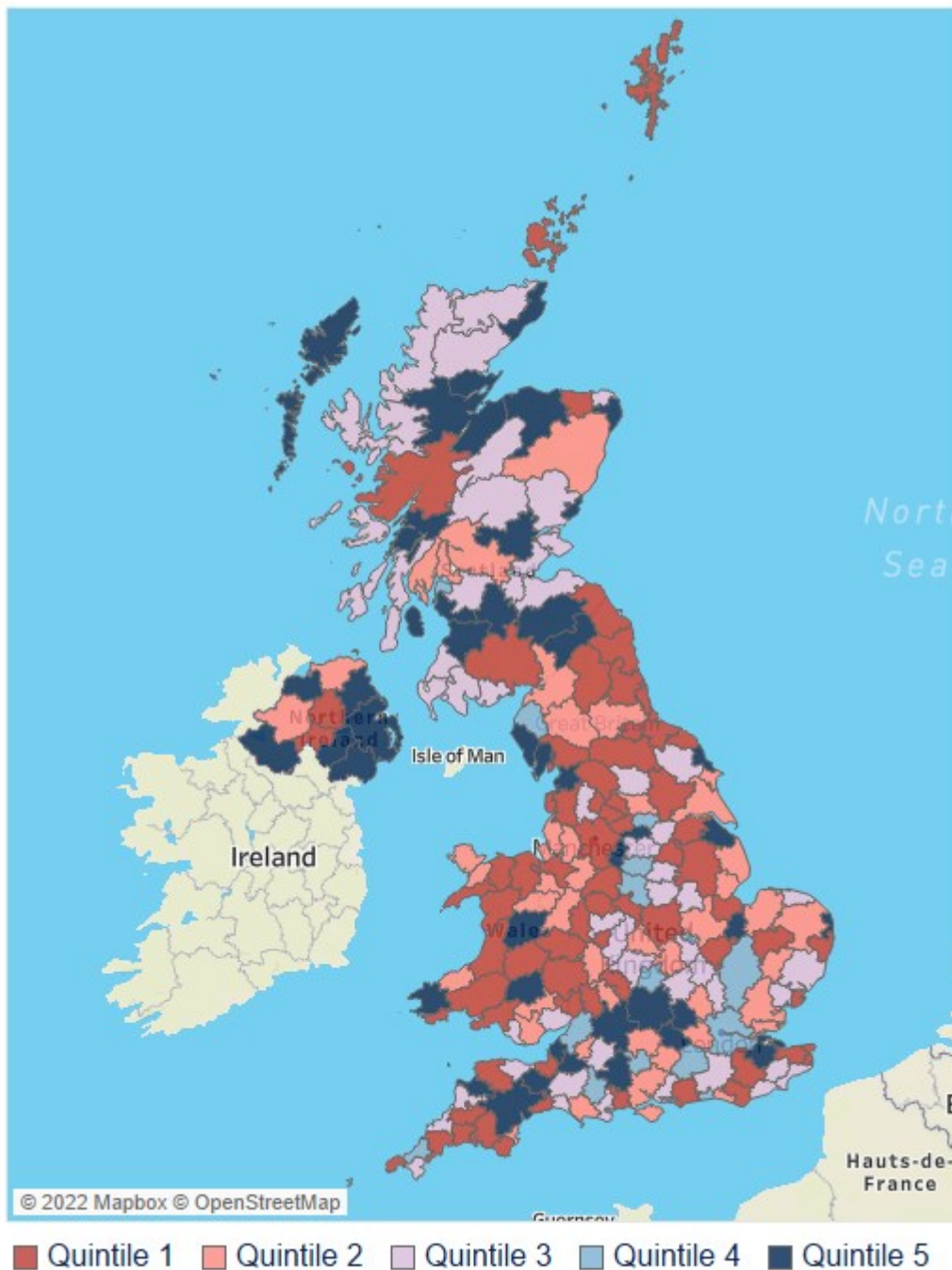
**Note:** The total number of graduates in this table is smaller than the total number of taught postgraduate qualifiers surveyed and responded presented in Table 3. This is because the population used for assigning TTWAs to quintiles excludes 6,270 graduates who were living abroad and 240 graduates we could not match to a TTWA. Please refer to Annex B for more information on how graduates were mapped to an area.

55. It also shows that for taught postgraduate qualifiers there was less variation in the average percentage of graduates in highly skilled employment or further study between areas across all quintiles. There was just over five percentage points difference between the average for quintile 1 and the average for quintile 5.
56. Looking at the variation between TTWAs within each quintile, quintile 1 showed the largest difference, with nearly 10 percentage points between areas with the lowest and the highest rates of taught postgraduate qualifiers in highly skilled employment or further study. However, within quintile 1, only six areas have less than 80 per cent of their taught postgraduate qualifiers in highly skilled employment or further study, and all were small areas.
57. Differences between areas with the lowest and highest rates of taught postgraduate qualifiers in highly skilled employment or further study within the other quintiles were much smaller, ranging from 0.5 percentage points in quintile 4 to 7.0 percentage points in quintile 5.
58. Figure 2 shows which area has been assigned to which quintile. It shows that the areas with the highest proportion of graduates in highly skilled jobs were mainly in the south of England, Scotland and Northern Ireland.<sup>19</sup>

<sup>19</sup> See the interactive maps and data tables published alongside this report for more detail.



**Figure 2: Map of geography of employment quintiles for taught postgraduate qualifiers**



### Comparison with undergraduate qualifiers

59. Over a third of TTWAs have the same quintile assigned for both their undergraduate and taught postgraduate qualifiers. This is not surprising, given the small variation between ranges within quintiles for both groups. However, in general, there are many small TTWAs in quintile 1 for undergraduate qualifiers, whereas for taught postgraduate qualifiers the smallest TTWAs are either in quintile 1 or in quintile 5.
60. There are 25 TTWAs which have quintile 1 assigned for undergraduate qualifiers and quintile 5 for taught postgraduate qualifiers. These are small areas, and most are in Scotland.

61. Only three TTWAs have quintile 5 assigned for undergraduate qualifiers and quintile 2 for taught postgraduate qualifiers. These are larger areas, but given the small variation in the percentage of graduates in highly skilled employment or further study for taught postgraduate qualifiers in quintiles 2, 3, 4 and 5, this, again, is not unexpected. There are no areas with quintile 5 assigned for undergraduate qualifiers and quintile 1 for taught postgraduate qualifiers.

# Postgraduate research qualifiers

## Data and definitions

62. For the first time we include qualifiers from postgraduate research qualifications, including PhDs.
63. The outcome measure used in this classification is based on:
- UK postgraduate research qualifiers
  - both full-time and part-time
  - universities and colleges in England and universities in the rest of the UK
  - graduates who responded to the survey and had a known activity (including 'unemployed' and 'looking for work') 15 months after graduation.
64. Table 5 shows the number of postgraduate research qualifiers from each year who were surveyed, and the proportion who responded to the GO survey. It shows that the response rates for this population were higher than those for undergraduate and taught postgraduate qualifiers.

**Table 5: Number of postgraduate research qualifiers surveyed and responded**

	2017-2018	2018-2019	2019-2020	Overall
<b>Did not respond</b>	5,920	5,670	5,220	16,815
<b>Responded</b>	9,550	9,910	10,045	29,505
<b>Total eligible to be surveyed</b>	15,470	15,585	15,270	46,320
<b>% responded</b>	61.7%	63.6%	65.8%	63.7%

## Grouping methodology

65. There are two issues with using TTWAs to define the quintiles for qualifiers from postgraduate research courses.
- i. There were fewer postgraduate research qualifiers, meaning many areas would have a rate based on relatively few qualifiers.
  - ii. There was evidence that postgraduate research qualifiers were willing to travel further from their home to find work. The average distance from the home TTWA to the employment TTWA was larger for these qualifiers than undergraduate and taught postgraduate qualifiers, and research qualifiers were also significantly more likely to record 'university' in the name of their employer. This suggests that the jobs sought by some postgraduate research qualifiers are more specialised and less locally available.

66. Because of these issues, we have decided that TTWAs are not the most suitable areas to use for postgraduate research qualifiers, and instead we will use regions.<sup>20</sup> This will mean there are more qualifiers making up the rate for each area. It also takes into account the greater mobility of these qualifiers.

## Results

67. Table 6 shows there is very little variation between the proportions of postgraduate research qualifiers in highly skilled employment or further study across the 12 UK regions. There is only a three percentage points difference between the average rates in quintile 1 and quintile 5, and all quintiles have quite a narrow range of rates within them (between 0 and 1 per cent).

**Table 6: Summary table of GO local graduate opportunity groups for postgraduate research qualifiers**

Quintile	Number of regions	Number of graduates	Minimum percentage in highly skilled employment or further study (%)	Average percentage in highly skilled employment or further study (%)	Maximum percentage in highly skilled employment or further study (%)	Difference min to max (ppts)
<b>1 (lowest)</b>	2	4,705	92.5	92.6	92.7	0.2
<b>2</b>	3	5,200	92.9	93.3	93.8	0.9
<b>3</b>	2	5,935	93.9	93.9	94.0	0.1
<b>4</b>	4	5,120	94.1	94.6	95.1	1.0
<b>5 (highest)</b>	1	6,205	95.7	95.7	95.7	0.0
<b>Total</b>	<b>12</b>	<b>27,165</b>				

**Note:** The total number of graduates in this table is smaller than the total number of postgraduate research qualifiers surveyed and responded, presented in Table 5. This is because the population used for assigning regions to quintiles excludes 2,250 graduates who were living abroad and 55 graduates we could not match to a region. Please refer to Annex B for more information on how graduates were mapped to an area.

68. Quintile 5 is made up entirely of the London region which has the highest proportion of postgraduate research qualifiers in highly skilled employment or further study. While the differences are not large, it is still important to note that London remains the region (and TTWA) with one of the highest rates of success across all three groups of qualifiers.

69. Figure 3 shows which region has been assigned to which quintile. It shows that the region with the highest proportion of postgraduate research graduates in highly skilled employment or further study is London, while the lowest rates of such graduates were in the North-West and the Yorkshire and The Humber regions in England.

<sup>20</sup> The regions used for these classifications are known as International Territorial Levels – Level 1. These replaced the NUTS 1 regions previously used in similar analyses as they are only used for areas in the European Union. There are 12 ITL1 regions in the UK – nine of them are in England, and the remaining three are Scotland, Wales and Northern Ireland. More information about this geography format can be found on [geoportal.statistics.gov.uk/datasets/ons::international-territorial-levels-level-1-january-2021-names-and-codes-in-the-united-kingdom/about](https://geoportal.statistics.gov.uk/datasets/ons::international-territorial-levels-level-1-january-2021-names-and-codes-in-the-united-kingdom/about).

**Figure 3: Map of geography of employment quintiles for postgraduate research qualifiers**



# Annex A: COVID-19 impact on taught postgraduate qualifier GO survey data

1. Incorporating GO survey data on 2019-20 graduates into the updated geography of employment quintiles for undergraduates means that we are now including data on graduates who completed their studies and sought employment during the first year of the coronavirus pandemic. We have therefore considered whether there is any evidence of a possible COVID effect in the data and assessed whether:
  - the new quintiles are considerably different to those previously published in terms of range of graduates in highly skilled employment or further study, number of TTWAs and number of graduates in each quintile
  - there are individual areas where we see a major decrease or increase in success rate, and hence a considerable difference in quintiles.
2. We have assessed these differences in the following ways:
  - we compared the results for undergraduate qualifiers with the geography of employment quintiles we have previously published for the same group
  - we compared the results for taught postgraduate qualifiers with what their geography of employment quintiles would have looked like if we had only used two years of data (i.e. 2017-18 and 2018-19 graduates).
3. In paragraphs 43 and 44 we set out our comparison to previous results for undergraduate qualifiers. From our assessment, we have concluded that any differences between quintiles or individual areas are not beyond what we would reasonably expect due to natural variation.
4. This annex looks at the difference between the distributions of the proposed quintiles for taught postgraduate qualifiers and what the same results would have looked like had we published analogous results in our previous release, using the same matching and grouping methodologies but only for two years of GO survey data (2017-18 and 2018-19 qualifiers). This sample would exclude any possible COVID-19 effect we might expect in the responses for 2019-20 qualifiers.
5. We have not repeated this analysis for postgraduate research qualifiers as the small number of graduates in the GO population and areas used for quintiles mean that the results are likely to differ year-on-year because of natural variation.
6. Table A1 and Table A2 show that, in general, the average rates and their ranges in each quintile have remained similar between the two sets of results. Table A1 shows that the average rates in each quintile for this data are consistently slightly higher (by no more than 1 per cent) than the ones based on three years of GO survey data.
7. However, as Table A1 shows, there are more TTWAs in quintile 5, and fewer in quintiles 1, 2 and 3. This is largely driven by the rule where we assign the region rate to small TTWAs with less than 30 people. As this set of results is built on less data, it is expected that there will be more such areas. Most of these small TTWAs are in Scotland, which as a region has a high

proportion of graduates in highly skilled employment or further study, and this explains the majority of the shift in quintiles.

8. It is also important to remember that there are fewer data points for postgraduate qualifiers and less variation between the ranges in their quintiles than there were for undergraduate qualifiers, so areas will be more prone to moving quintiles year-on-year.
9. Eight areas would have been assigned two or three quintiles higher in this set of results. These again are small areas which are likely to show less consistent results due to the natural variation in the data.
10. From our assessment, we have concluded that any differences between quintiles or individual areas are not beyond what we would reasonably expect due to natural variation.

**Table A1: Summary table of GO local graduate opportunity groups for taught postgraduate qualifiers in 2017-2018 and 2018-19**

Quintile	Number of TTWAs	Number of graduates	Minimum percentage in highly skilled employment or further study (%)	Average percentage in highly skilled employment or further study (%)	Maximum percentage in highly skilled employment or further study (%)	Difference min to max (ppts)
1	64	33,210	77.2	86.4	87.7	10.5
2	32	27,695	87.7	88.1	88.5	0.8
3	43	28,375	88.5	89.0	89.9	1.4
4	12	46,535	89.9	90.3	90.3	0.4
5	77	14,205	90.5	91.5	100.0	9.5
<b>Total</b>	228	150,020				

**Table A2: Summary table of GO local graduate opportunity groups for taught postgraduate qualifiers using three years of GO data**

Quintile	Number of TTWAs	Number of graduates	Minimum percentage in highly skilled employment or further study (%)	Average percentage in highly skilled employment or further study (%)	Maximum percentage in highly skilled employment or further study (%)	Difference min to max (ppts)
1	71	45,430	77.2	85.5	86.8	9.6
2	45	45,070	86.8	87.2	88.0	1.2
3	54	42,990	88.0	88.4	89.2	1.2

<b>4</b>	15	70,900	89.3	89.7	89.8	0.5
<b>5</b>	43	21,660	89.9	90.8	96.9	7.0
<b>Total</b>	<b>228</b>	<b>226,050</b>				

**Note:** This is a duplicate of Table 4 from the main document.

**Note:** The total number of graduates in this table is smaller than the total number of taught postgraduate qualifiers surveyed and responded presented in Table 3. This is because the population used for assigning TTWAs to quintiles excludes 6,270 graduates who were living abroad and 240 graduates we could not match to a TTWA. Please refer to Annex B for more information on how graduates were mapped to an area.



# Annex B: Mapping graduates to areas

1. This annex describes the method for assigning respondents to the Graduate Outcomes (GO) survey to the most appropriate travel to work area (TTWA) or region.
2. Ideally this would be recorded consistently for all respondents, but to reduce burden on survey respondents, not everyone is asked their precise location, and, for those who are asked, an answer is not compulsory. For this reason, there is a process of assigning each graduate to the most appropriate area based on the information recorded.

## Method

### Mapping graduates to TTWAs

3. The aim is to use the information provided about employment location, further study and prior home postcode to assign graduates to the most appropriate TTWA or region. We use the information provided by the graduate to assign them directly to a TTWA or region, if possible. If this is not possible, we use other information to select the most likely area. We use the fact that most graduates return to their home region or stay in their study region.
4. The following steps are carried out for each graduate, ordered from the closest match to the least likely match, and the best match is chosen:
  - i. **Main location is abroad.** The graduate has reported that their main activity for the year was abroad.<sup>21</sup>
  - ii. **Direct match on postcode.** The graduate reported their workplace postcode, and this determines which TTWA they are in.
  - iii. **Direct match on town/city.** The graduate recorded their workplace town or city, and this is one of those listed in the TTWA name. For example, the graduate records their employment city as “Clifton, Bristol”, which matches the Bristol TTWA.
  - iv. **Free text postcode match.** The graduate did not record a postcode in response to the employer postcode question but did in response to the free text ‘workplace city’ question. This postcode assigns them to a TTWA as above.
  - v. **Partial postcode match.** In cases where only a partial postcode was recorded or the full postcode was invalid, the first part of the postcode was used to assign a TTWA. If the partial postcode matched more than one TTWA, it was assigned to the one with the strongest supporting evidence (see below).
  - vi. **Common city match.** If a city was recorded which was not one of the largest in any TTWA, we looked at the TTWAs assigned to other graduates who recorded the same information in the ‘workplace city’ question. If there were graduates with that response assigned to more than one TTWA the one with the strongest supporting evidence was used.

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<sup>21</sup> See HESA’s technical specification: [www.hesa.ac.uk/collection/c18072/derived/xmllocgr](http://www.hesa.ac.uk/collection/c18072/derived/xmllocgr).

- vii. **Study postcode match at same provider.** If a graduate reports that they are studying at the same provider they previously graduated from, we assign them the TTWA where they studied previously (as recorded in our student data).
  - viii. **Implied study postcode match.** If a graduate reports that they are studying at a different provider to previously, we assign them a TTWA based on the most common location for all students at that provider. If there is more than one common TTWA for students at the provider, the one with the strongest evidence is used.
  - ix. **Lower evidence matches.** If there is no strong evidence for any of the above matches, we accept weaker evidence to assign the graduate based on steps (e), (f) and (h) from above. See below for more information.
  - x. **Prior home postcode.** If none of the above steps have assigned a TTWA to the graduate, we assign them a TTWA based on the permanent home address recorded in our student data for their previous course.
5. The strength of the evidence to assign a graduate to a TTWA in parts (e), (f) and (h) is determined by its proximity to other TTWAs we know the graduate has a link to, and also a measure of how common it is for graduates to be in that TTWA.
- i. First, we check if it matches other TTWAs linked to the graduate. For instance, if a graduate is matched to two different TTWAs using their partial postcode (e above), we check if either of them is the same TTWA as their common city match (f above), their current study TTWA (g above) or implied study TTWA (h above). If so, we assign them to the matching TTWA.
  - ii. If the TTWA does not match other TTWAs, we instead check whether it was close to those other TTWAs, using 15 miles as the definition of 'close'.
  - iii. After that, we see which TTWA was more common for similar graduates. For instance, looking at TTWAs matched on partial postcode (e above), we consider which TTWA had more graduates with the same partial postcode.
6. If the TTWA is corroborated by other sources (i or ii above) or at least 50 per cent of the similar graduates are in that TTWA, this is considered 'strong evidence'. Such areas are accepted as matches for parts (e), (f) and (h). If no TTWAs meet this threshold, but at least 20 per cent of the similar graduates are in that TTWA, it is considered weak evidence and accepted as a match for parts (e), (f) and (h). Otherwise, it is not accepted as a match.

### Mapping graduates to regions

7. All postgraduate research qualifiers, and those taught postgraduate qualifiers from the 18 small areas with fewer than 30 survey respondents, as set out in paragraph 53, are matched to a region using nearly the same methodology as the one used for mapping graduates to TTWAs and the best matches are chosen with the same priority. The only difference between the methodologies is that town and city names could not be used for matching to regions directly, as they do not relate to region names.

## Results

8. Table B1 shows the proportion of undergraduate qualifiers assigned to a TTWA using each type of match. It shows that 63 per cent of the graduates matched directly using the employment postcode, town or city they reported.

**Table B1: Proportion of undergraduate qualifiers matched with each type of match**

Match type	Number of graduates	Proportion
Direct match on postcode	263,495	38%
Direct match on city/town	172,175	25%
Free text postcode match	120	0%
Partial postcode match	17,645	3%
Common city match	43,210	6%
Study postcode match at the same provider	22,885	3%
Implied study postcode match	33,865	5%
Partial postcode match (weak evidence)	5	0%
Implied study postcode match (weak evidence)	1,055	0%
Common city match (weak evidence)	2,785	0%
Prior home postcode	115,640	17%
Main location is abroad	12,400	2%
Not able to assign a TTWA	250	0%
<b>Total</b>	<b>685,530</b>	<b>100%</b>

**Table B2: Proportion of postgraduate qualifiers matched with each type of match**

Match type	Number of taught postgraduate qualifiers	Proportion of taught postgraduate qualifiers	Number of postgraduate research qualifiers	Proportion of postgraduate research qualifiers
Direct match on postcode	101,000	43%	13,635	46%
Direct match on city/town	63,500	27%	0	0%
Free text postcode match	55	0%	15	0%
Partial postcode match	6,380	3%	2,170	7%
Common city match	14,270	6%	6,095	21%
Study postcode match at the same provider	4,150	2%	765	3%
Implied study postcode match	4,145	2%	670	2%
Partial postcode match (weak evidence)	0	0%	5	0%

<b>Implied study postcode match (weak evidence)</b>	100	0%	70	0%
<b>Common city match (weak evidence)</b>	1,075	0%	5	0%
<b>Prior home postcode</b>	31,375	13%	3,740	13%
<b>Main location is abroad</b>	6,270	3%	2,250	8%
<b>Not able to assign a TTWA</b>	240	0%	85	0%
<b>Total</b>	<b>232,560</b>	<b>100%</b>	<b>29,505</b>	<b>100%</b>

**Note:** The total number of taught postgraduate qualifiers in this table does not match the value in Table 3 due to rounding differences.

9. Table B2 shows the proportion of taught postgraduate and postgraduate research qualifiers matched with each type of match. It shows that the proportion of taught postgraduate qualifiers matched directly via employment postcode, or town or city, was higher than it was for undergraduate qualifiers at 70 per cent. However, it was lower for postgraduate research qualifiers as only 46 per cent were matched directly on their employment postcode.

## Annex C: Stability of quintiles

1. This annex discusses simulations carried out to check the stability of the geography of employment quintiles. They were created and analysed separately for the three student populations discussed in this report (undergraduate, taught postgraduate and postgraduate research qualifiers).
2. An ideal classification would be stable if there were no change in the underlying graduate outcome rate. This analysis uses simulations to understand the probability of an area moving into a different quintile if different years of data were used but the underlying rate had not changed (i.e. arising from natural variation).

### Method

3. First, for each travel to work area (TTWA) or region, the simulation generates a new proportion of qualifiers in highly skilled employment or further study from each area. This can be estimated from a binomial distribution: conceptually each graduate in the base population flips a (biased) coin which decides if they will gain a highly skilled job or not. The binomial distribution needs two parameters, N and p. These are estimated for each area using the area graduate population (for N) and the area proportion in highly skilled employment or further study (for p). Every pass of the simulation therefore generates a new highly skilled employment rate for each area.
4. Second, these simulated proportions are used to assign a new quintile based on the new proportions for all areas.
5. Each new set of quintiles generated by one pass of the simulation is compared with the quintile originally assigned, to calculate the difference to the reference quintile for each area. This is repeated for 2,000 simulated classifications to give stable summary statistics.

### Results

6. Table C1 shows the distribution of simulated quintiles for areas in each original quintile for undergraduate qualifiers. Each row represents the distribution of the simulated quintiles for areas in each original quintile. For instance, for the areas originally in quintile 1, 90.5 per cent of the time those areas were still in quintile 1, and 8.0 per cent of the time they were in quintile 2.
7. The table also shows that the top and bottom quintiles were more stable than those in the middle quintiles. This is due to the size of the areas and the relatively narrow range of some quintiles.
8. Tables C2 and C3 report the equivalent results for taught postgraduate and postgraduate research qualifiers.
9. Quintile 4 is more unstable than other quintiles for undergraduate and taught postgraduate qualifiers. This is because it contains a small number of smaller TTWAs alongside the London TTWA which makes up the largest share of its respondents. The small areas in this quintile are more likely to change quintiles because of natural variation.

**Table C1: Distribution of simulated quintiles for areas in each original quintile (Q): undergraduate qualifiers**

Original GoE Quintile	Number of TTWAs	Simulated GoE Q1	Simulated GoE Q2	Simulated GoE Q3	Simulated GoE Q4	Simulated GoE Q5
1	126	90.5	8.0	1.0	0.1	0.4
2	50	19.0	63.0	15.4	1.1	1.6
3	23	2.1	16.0	65.7	9.1	7.0
4	11	0.0	1.1	30.6	40.5	27.8
5	18	2.0	1.7	4.4	5.1	86.8

**Note:** All proportions are rounded to one decimal place and row percentages may not always sum to 100.

**Table C2: Distribution of simulated quintiles for areas in each original quintile (Q): taught postgraduate qualifiers**

Original GoE Quintile	Number of TTWAs	Simulated GoE Q1	Simulated GoE Q2	Simulated GoE Q3	Simulated GoE Q4	Simulated GoE Q5
1	71	73.6	14.4	6.6	1.1	4.4
2	45	30.0	36.9	22.0	2.5	8.6
3	54	19.1	16.2	31.6	5.3	27.9
4	15	5.1	8.0	29.8	18.2	38.8
5	43	2.1	3.3	11.2	5.9	77.6

**Note:** All proportions are rounded to one decimal place and row percentages may not always sum to 100.

**Table C3: Distribution of simulated quintiles for areas in each original quintile (Q): postgraduate research qualifiers**

Original GoE Quintile	Number of regions	Simulated GoE Q1	Simulated GoE Q2	Simulated GoE Q3	Simulated GoE Q4	Simulated GoE Q5
1	2	78.5	19.1	2.3	0.1	0.0
2	3	26.2	45.4	20.2	8.2	0.1
3	2	1.3	27.1	58.0	13.7	0.1
4	4	6.2	16.4	21.9	49.6	6.0
5	1	0.0	0.0	0.0	12.5	87.6

**Note:** All proportions are rounded to one decimal place and row percentages may not always sum to 100.

## Annex D: Minimum number of taught postgraduate qualifiers in each area

10. We used the simulations method described in Annex C to decide on the minimum number of survey respondents to use the observed rate in the TTWA, rather than the overall region rate for the taught postgraduate quintiles. Table D1 shows the number of areas of each size, and the proportion of simulations where the area was in a quintile at least two different to the original.

**Table D1: Accuracy of taught postgraduate quintiles, by size of area**

Number of respondents in each area	Number of areas	Total number of respondents	% of simulations where the TTWA changes by at least 2 quintiles	Average difference between simulated rate and observed rate
<b>10 to 29</b>	18	370	30.1	6.4
<b>30-49</b>	16	625	23.1	4.1
<b>50-74</b>	12	745	25.1	3.4
<b>75-99</b>	13	1,165	22.9	2.6
<b>100-199</b>	28	4,340	19.4	2.1
<b>200-299</b>	22	5,340	19.8	1.7
<b>300-499</b>	38	14,590	19.5	1.3
<b>500 or more</b>	81	198,880	7.1	0.8
<b>Overall</b>	<b>228</b>	<b>226,055</b>		

**Note:** The total number of graduates in this table does not match the number in Table 4 due to rounding differences.

11. Table D1 shows that areas with fewer than 30 respondents moved at least two quintiles in 30.1 per cent of simulations, compared with 23.3 per cent for areas with 30 to 49 respondents. The average difference between the simulated rate and the observed rate was also lower for the latter group, 4.1 rather than to 6.4.

12. These simulations have allowed us to be comfortable with our approach of calculating the proportion of graduates in highly skilled employment or further study for all TTWAs with a population size greater or equal to 30, and only using the region rates for the 18 TTWAs with a population size less than 30.



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