

Article

Understanding students across administrative data in England and Wales

Update on our latest research into how the student population of England and Wales appears in administrative data.

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1 . Disclaimer

These Research Outputs are not official statistics on the population nor are they used in the underlying methods or assumptions in the production of official statistics. Rather, they are published as outputs from research into a methodology different to that currently used in the production of population and migration statistics. These outputs should not be used for policy- or decision-making.

2 . Main points

- 57% of students in England and Wales are registered with healthcare services in their term-time local authority.
- Not all students update their address on administrative data records at the start of every academic year.
- There is evidence that graduates do not update their administrative data in a timely manner after graduating, making it difficult to identify student households.

3 . Overview

Higher education (HE) students, those at university and those studying in other higher education establishments such as colleges, are a large, typically young and highly mobile group within the population. For the academic year ending 2020, the Higher Education Statistics Agency (HESA) reported over 2.5 million enrolments in HE courses across the UK. Most of this population comes from within the UK but there are also around 550,000 international students enrolled each year.

During term-time, this population is concentrated around their universities and can have a significant impact on local populations. The 2011 Census, for example, found that [Oxford's population increases by 83% during term-time](#) (Office for National Statistics, 2016). As such, being able to understand how we can identify and measure this population in a timely way in administrative data is important to ensuring that our administrative data-based population estimates are as accurate as possible.

Since the coronavirus (COVID-19) pandemic began, it is likely that students' behaviour will have changed as lectures moved online, and it is possible many students chose to study from home. This could affect how they appear in administrative data.

To understand if there are changes because of the coronavirus pandemic, we first needed to understand the historical patterns of students in administrative data. For our research, we have looked back at the patterns we see from the academic year ending 2016 to academic year ending 2020 and answer some important research questions to develop our understanding of the student population in administrative data.

Specifically, we answer the following questions in the following sections of this article:

- If a student appears in multiple administrative data sources, are they captured in the same location on both?
- When in the academic year can we see students updating their administrative data?
- How often in their time studying do students update their administrative data?
- How well can we identify addresses occupied by students?
- How well can we capture moves in and out of student addresses?

For most of our research questions, we have focused on students who we believe to be away from their family homes at university. This is the group we expect to have had their behaviour impacted by the coronavirus (COVID-19) pandemic, but also makes up the majority of university students in the UK. In addition, they are also the group who provide the most challenges when attempting to measure the population as they need to update administrative data records for us to know they have moved. This group of students have a location of study of “at provider” as opposed to, for example, distance learning or studying abroad. They also are in university maintained or private halls of residence or other rented accommodation, rather than a parental or guardian home. Any questions where we have looked at a different group, we will state this clearly.

We have also, for most questions, presented the data from the academic year ending 2019. This is the most recent academic year that we know has not been affected by the coronavirus pandemic so provides the most accurate “as it was” picture. As mentioned previously though, our research has covered five academic years and we have seen similar patterns across all years for all research questions. Conducting this research using the Personal Demographic Service (PDS), as well as other, more timely data sources, has helped us to understand how well we might be able to capture information about the student population before new HESA data are delivered.

4 . If a student appears in multiple administrative data sources, are they captured in the same location on both?

The primary motivation for this research question was to understand how well students update their administrative data to their term-time location. We were able to identify students in the Personal Demographic Service (PDS) observing the local authority they were registered in and compared this with their term-time local authority according to the Higher Education Statistics Agency (HESA) data. We then explored further, investigating this at different stages of study and observing how these patterns differed by local authority across England and Wales.

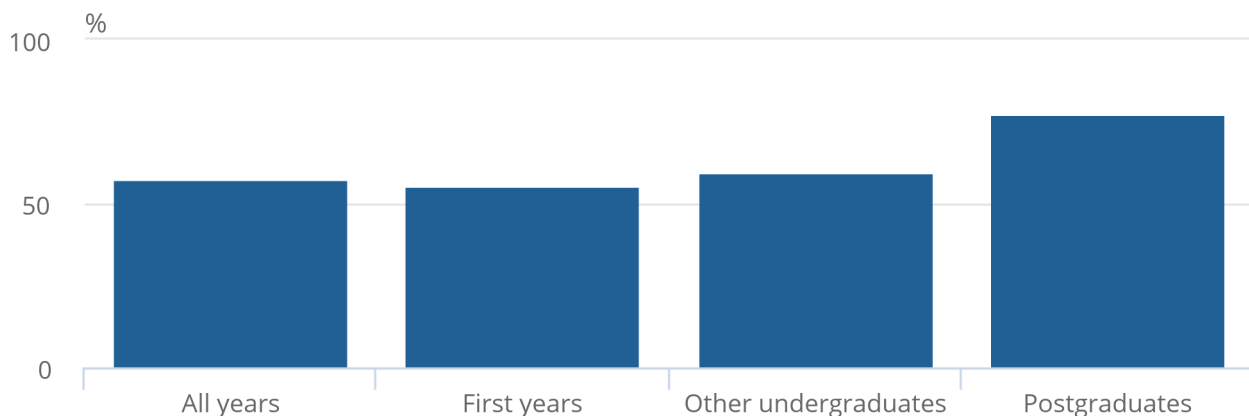
Nationally, we found that around 57% of all students in England and Wales had agreement between their term-time local authority on the PDS and HESA. There is variation across different stages of study though, as illustrated by Figure 1.

Figure 1: Just under 60% of students in England and Wales are registered in the same local authority on the PDS and HESA

Percentage of students registered in the same Personal Demographic Service and Higher Education Statistics Authority term-time local authority, England and Wales, academic year ending 2019

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Percentage of students registered in the same Personal Demographic Service and Higher Education Statistics Authority term-time local authority, England and Wales, academic year ending 2019



Source: NHS Personal Demographic Service, Higher Education Statistics Authority

Notes:

1. Looks at full-time students studying away from home.

By the end of their first year, just over 55% of first-year undergraduates have registered on the PDS in their term-time location. Other undergraduates have agreement between the two sources in just under 60% of cases, with postgraduate students having agreement in over 75% of cases. This increase over time makes sense as over time, there is increased opportunity for interaction with healthcare services. As mentioned previously, these figures relate specifically to the academic year ending 2019, but similar patterns have been seen in all five years we looked at.

Figure 2 shows the rates of agreement between the addresses on the PDS and in HESA within local authorities, where more than 500 students are registered there according to HESA. There is a considerable range with some local authorities over 70% and others below 40%. There is no clear geographical pattern to this at a regional level in England or Wales.

Figure 2: Agreement across data sources varies across England and Wales

Percentage of students registered on the Personal Demographic Service in the same local authority as their Higher Education Statistics Authority term-time local authority

Notes:

1. Looks at full-time students studying away from home.
2. Local authorities with fewer than 500 students excluded.

Download the data

[.xlsx](#)

More about migration and the population

- Research on [the way we produce population and migration statistics](#).
- Latest estimates on [migration into and out of the UK](#).
- View estimates of the [UK population by country of birth and nationality](#).
- Find out about the [future design of migration estimates](#).
- Latest research on [population estimates using administrative data](#).

5 . When in the academic year can we see students updating their administrative data?

The academic year starts in September, so this is when we would expect to see many students updating their address in their administrative data records, as they go to university for the first time or move to new accommodation for the upcoming academic year.

To better understand what we observe in administrative data, we looked at students in the academic year ending 2019 and when they last updated their address on the Personal Demographic Service (PDS). We grouped them into first-year undergraduates, other undergraduates and postgraduates to see how patterns differed depending on how long students had been studying.

For first-year undergraduates, starting university in September 2018, we see a significant increase in the number of address updates on the PDS, as shown in Figure 3. This is the pattern we would expect to see as first-year undergraduates move to their term-time locations for the first time.

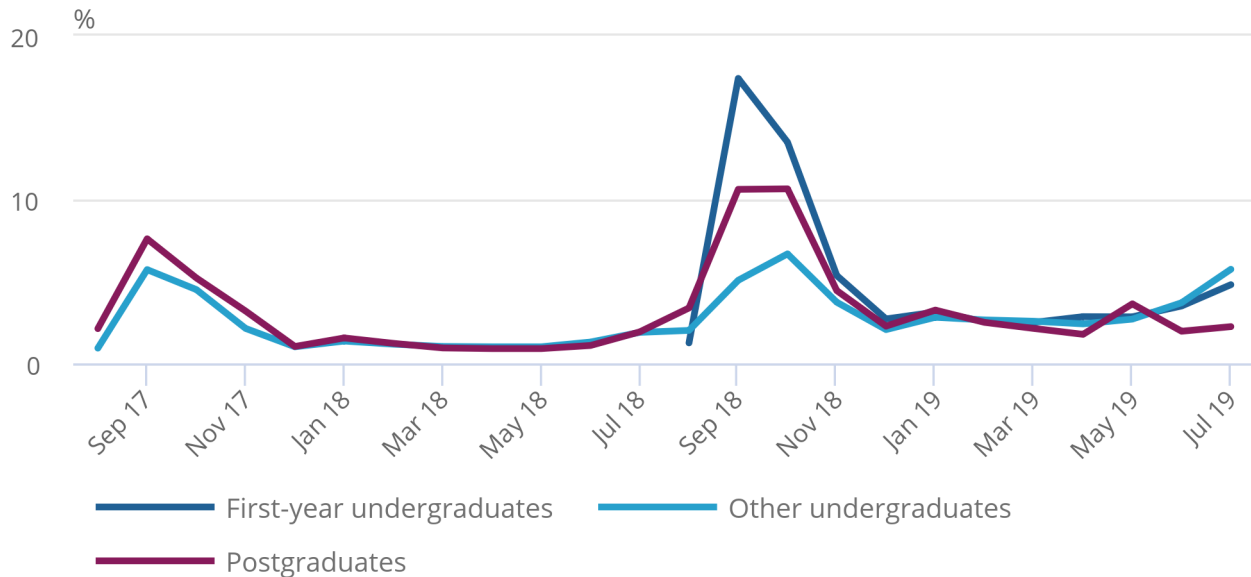
For other undergraduates and postgraduate students, we can again see a peak in updates in September and October 2018 as students return to continue their studies. For other undergraduate and postgraduate students, a similar peak can also be seen in September and October 2017. Both of these peaks are lower than the peak seen for first-year undergraduates. This shows that these students tend to update their PDS addresses at roughly the same time throughout the year but not all of them do it every year.

Figure 3: Not all students update their address with their GP every year

Percentage of first-year undergraduate students, undergraduates in other years and postgraduates in the academic year ending 2019 and when they last updated their address on the Personal Demographic Service, England and Wales, August 2019

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Percentage of first-year undergraduate students, undergraduates in other years and postgraduates in the academic year ending 2019 and when they last updated their address on the Personal Demographic Service, England and Wales, August 2019



Source: NHS Personal Demographic Service, Higher Education Statistics Authority

Notes:

1. Looks at full-time students studying away from home academic year ending 2019.
2. First-year undergraduates not plotted for months during the academic year ending 2018 as they are not yet on HESA data.

6 . How often in their time studying do students update their administrative data?

To understand the number of times students update their administrative data over the course of their study, we took the cohort of first-year undergraduate students from the academic year ending 2016 and observed them through five years of data. This enabled us to compare the number of times they appear in the Higher Education Statistics Agency (HESA) data against the number of unique term-time postcodes we have for them in that data, using this information as a proxy for how well we capture moves. This assumes that the HESA data have the correct number of moves for each student.

Figure 4 shows that, in the majority of cases, we capture at least one fewer unique location than appearances in the data. Looking in more detail at students who spend three years at university, the length of a typical undergraduate degree course, we can see that only 41% of students register three unique locations in that time with 45% registering two and 14% just one. This may not be the true picture and our assumption in these cases is that, for the most part, we capture the move to university and the one between the first and second year, when many students move out of halls and into private rented accommodation but miss some others.

There are a number of caveats with this data. Firstly, despite it being common to do so, we are aware that not every student moves every year. This means that moves that we may think we are missing do, in fact, not exist. Also, as the HESA data look at unique postcodes, it is possible that someone may move within the same postcode and so will not appear as a new unique location despite moving.

Figure 4: HESA data suggest that students are unlikely to move every year they are studying

Percentage of students by number of years of study and number of unique postcodes

Notes:

1. Looks at full-time students studying away from home.

Download the data

[.xlsx](#)

7 . How well can we identify addresses occupied by students?

The previous research questions have all been concerned with the accuracy and frequency of updated administrative data for individual students. It is also important to understand the type of properties the student population lives in and the types of people they live with.

To do this, we have grouped them into the addresses they are registered at on the Personal Demographic Service (PDS) using a Unique Property Reference Number (UPRN), a unique identifier given to every property so that we do not need to use full text addresses when linking between datasets. Following this, we have devised a set of rules to identify if the address they are registered in is their family home, a mixed student and non-student address or an address solely occupied by students. This research only looks at those in private households so does not include the sizable student population that lives in halls of residence.

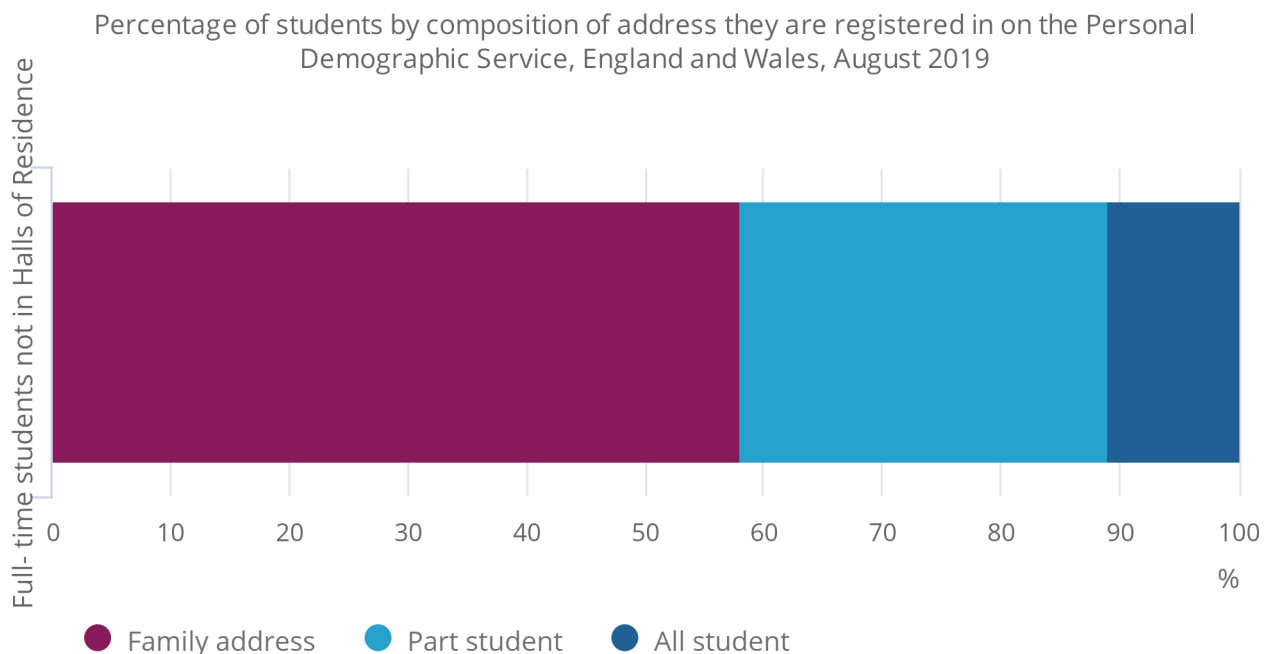
Figure 5 shows that nearly 60% of full-time students, away at university, in private households are registered on the PDS in family addresses. This figure is high as the Higher Education Statistics Agency (HESA) data show that 45% of full-time students away at university in the academic year ending 2019 lived in halls of residence.

The data also only have 12% of students in addresses solely occupied by students, with around 30% living in addresses that seem to be made up of students and non-students. This may be because of recent graduates not updating their administrative data since leaving university and therefore appearing as non-students to us in our analysis.

Figure 5: When excluding those in Halls of Residence, more than half of students are registered with a GP at their family address

Percentage of students by composition of address they are registered in on the Personal Demographic Service, England and Wales, August 2019

Figure 5: When excluding those in Halls of Residence, more than half of students are registered with a GP at their family address



Source: NHS Personal Demographic Service, Higher Education Statistics Authority

Notes:

1. Looks at full-time students studying away from home.
2. Excludes those living in Halls of Residence.

To further understand how well we can capture these addresses using administrative data, we have also looked at whether the addresses we have identified have disregards or exemptions in local authority Council Tax data. A disregard can be applied if a student lives with other people who may be eligible for discounts if the student is not counted among the Council Tax liable residents. An exemption is applied to addresses not liable to pay Council Tax at all, as one occupied solely by students would not be.

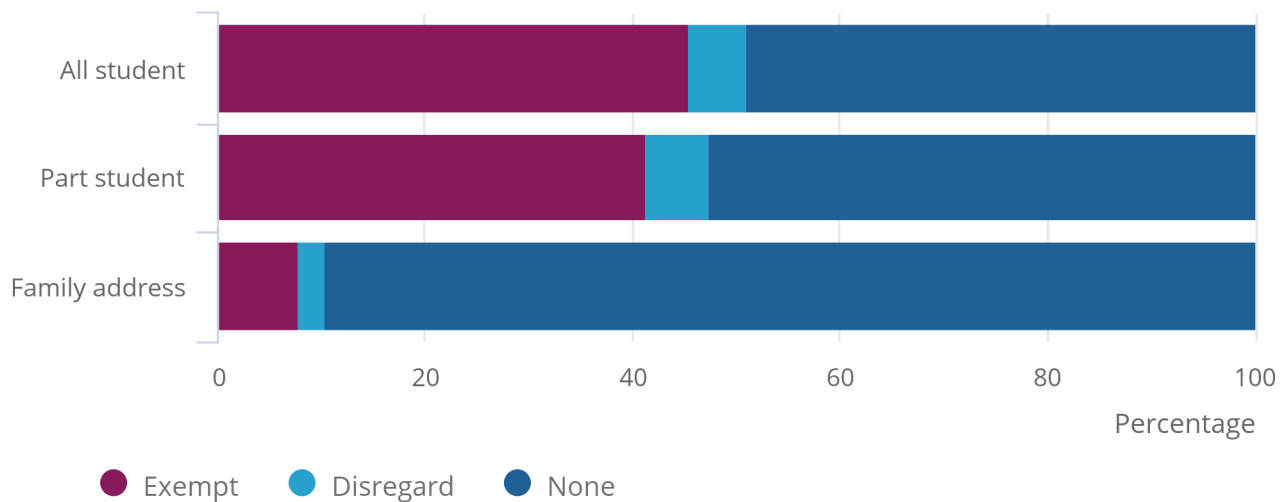
Figure 6 shows the percentage of addresses with the different Council Tax indications for each of the three address types. We can see that solely student addresses have full exemptions less than half of the time. When we consider disregards as well, there is an indication of student occupants in more than half of cases. We found that more than 40% of partially student addresses have full exemptions, which lends slightly more evidence to the idea that, on the PDS, these addresses contain recently graduated students who have moved out but have not updated their administrative data.

Figure 6: Only half of “all student” addresses have any indication on Council Tax that students live there

Addresses with students in them, grouped by composition and type of Council Tax student indication, England and Wales, April 2021

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Addresses with students in them, grouped by composition and type of Council Tax student indication, England and Wales, April 2021



Source: NHS Personal Demographic Service, Higher Education Statistics Authority, Local Authority Council Tax

Notes:

1. Excludes halls of residence.
2. Only looks at students registered as studying away from home on HESA data.

8 . How well can we capture moves in and out of student addresses?

It is beneficial to identify the addresses students live in and, for various internal migration measures, to be able to accurately capture moves into and out of student properties.

To detect this, three data sources were used:

- Council Tax data to identify addresses with a full exemption
- Valuation Office Agency (VOA) to distinguish number of bedrooms in the property
- Personal Demographic Service (PDS) to recognise the number of persons who had changed their address to that property in the previous 12 months

This gave the ability to derive the student bedroom turnover rate within an address. Because of not having Council Tax data for multiple years, we did this for the 12 months to April 2021 meaning it is likely to have been impacted by the coronavirus (COVID-19) pandemic.

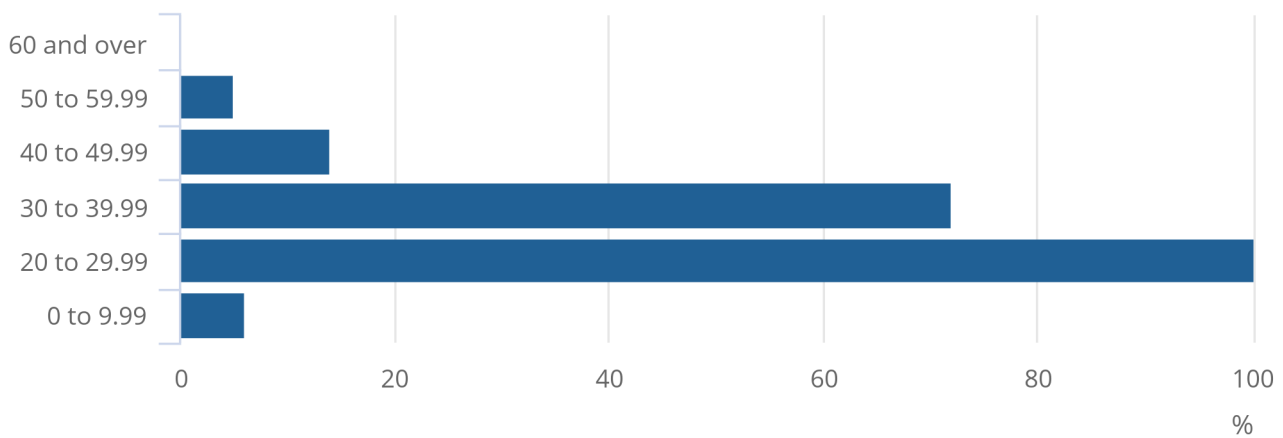
Figure 7 shows that the vast majority of local authorities have a student bedroom turnover rate somewhere between 10% and 40%. This is potentially low as we might expect this figure to be closer to 100%, with whole groups of students moving in and out of addresses each year. We are, however, aware that not all student experiences are the same and many students will spend more than one year in an address while at university.

Figure 7: Bedroom turnover in student addresses appears to be less than 40% in the vast majority of cases

Percentages of occupants in student properties turned over in the previous 12 months, by number of local authorities England and Wales, April 2021

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Percentages of occupants in student properties turned over in the previous 12 months, by number of local authorities England and Wales, April 2021



Source: NHS Personal Demographic Service, Higher Education Statistics Authority, Valuation Office Agency

Notes:

1. Excludes halls of residence.

9 . The impact of the coronavirus pandemic on the student population

Throughout 2020 and 2021, the experience of university students has differed to their predecessors because of national and local lockdowns and restrictions introduced to reduce the spread of coronavirus (COVID-19). It is expected that this impact will have changed the behaviour of students as far back as March 2020 and will likely have had a knock-on impact on the administrative data when compared with years before.

There follows a timeline of the main social distancing restrictions and safety measures that are likely to have impacted the student experience:

- March 2020: nearly all on-campus activities are cancelled, paused or moved online days before the UK government announces the first national lockdown; advice against all non-essential travel abroad is issued and international students and domestic students who are yet to travel home are urged not to; all non-essential travel is banned on 23 March 2020 when the first national lockdown is announced
- June 2020: the beginning of gradual lifting of restrictions in England and Wales
- September 2020: reintroduction of restrictions in England and Wales
- November 2020: second national lockdown in England begins
- early-December 2020: one-week travel corridor begins for students to return home for winter break
- late-December 2020: Wales introduces “stay at home” restrictions
- early-January 2021: third national lockdown in England begins
- April 2021: easing of restrictions in Wales, with students able to return to in-person teaching
- May 2021: easing of restrictions in England, with in-person teaching at universities resuming; international travel resumes in England and Wales under a traffic light system

The possible impact of the coronavirus pandemic on the administrative data for the academic year ending 2020 has meant that we have presented our results mostly from the academic year ending 2019. Conducting this research using the Personal Demographic Service (PDS), a more timely data source, has helped us to understand how well we might be able to capture information about the student population before new Higher Education Statistics Agency (HESA) data are delivered. Work is currently being undertaken to better understand the impact that the coronavirus pandemic had, and continues to have, on various administrative data sources.

10 . International students

This report has looked at all students in England and Wales. Alongside this we are also carry out work to build a better understanding of the international students population. Using administrative data we have undertaken some analysis to understand [international student employment](#), and used this information to adjust our [admin-based migration estimates \(ABMEs\)](#) to fill a gap on students who may have arrived in the UK, but not appear in tax and benefits data.

We are also continuing to build [insights into international students](#), their journey as a migrant, and what they do after their visa expires. We first published this back in 2017, and have been building on this research. We will [publish the results of this at the end of November 2021](#).

11 . Census uses

The Office for National Statistics (ONS) undertakes a comprehensive quality assurance of the 2021 Census prior to publication. This includes validation against a range of ONS statistics, surveys and administrative sources as well as demographic analysis using the census statistics. We have published details of our [Quality Assurance Strategy](#) and worked with users to understand the most appropriate sources for this work.

Our understanding of how census compares with other sources will be building on the significant amount of work being done in the ONS to use administrative data. This includes comparing census statistics to the most recent administrative-based population estimates (ABPEs). Linking between sources has already provided deeper insight into many of the sources we use and plan to use across the ONS.

The student population was recognised as one of a number of important population groups where we need to take extra steps during the 2021 Census to ensure we can produce robust statistics. A student specific communication campaign was in place, which we adapted in light of the coronavirus (COVID-19) pandemic making use of university and social media channels.

The research and findings detailed in this article will enable us to better understand what we should be comparing 2021 Census statistics to. This intelligence will be used as part of our quality assurance process.

12 . Glossary

Academic year

An academic year runs September to August. In this publication, most results have been published for the academic year ending 2019, covering the period September 2018 to August 2019.

13 . Data sources and quality

To answer these questions, we have predominantly used two main data sources. The first is data on higher education enrolments from the Higher Education Statistics Agency (HESA).

HESA compile and standardise data collected by individual universities and produce official statistics using these data. These administrative data include the type of accommodation students are in, the postcode where they are registered as living, as well as how far through their higher education (HE) programmes they are. The HESA data contain some duplicate records and missing data but as much of this as possible is removed while cleaning the data.

The second main data source is the Personal Demographic Service (PDS) from NHS Digital. It contains any individual who has interacted with the NHS by registering with a general practitioner (GP), accessing A&E services or attending hospitals. Note however that the PDS does not identify individuals as being students.

It covers England and Wales and provides us with demographic information but contains no information about a person's health record. The data rely on being updated by individuals if they move and register to use a new GP. Because of the data relying on individuals to update their records it also has some overcoverage from individuals who have died or left the country but not yet deregistered or been removed from the system.

14 . Future developments

This focused research on students has shown that student moves and other life transitions for highly mobile population groups are not always captured in a timely or accurate way in administrative data.

It has however provided us with valuable insight into this group of the population, which can now benefit other administrative data-based products, as well as being used as part of census quality assurance processes. In particular, the variation in accuracy across England and Wales has highlighted areas where these data can have more value than others and is something we can continue to consider.

We are also aware that the coronavirus (COVID-19) pandemic is likely to have impacted the behaviour of students and that this could have knock-on impacts to administrative data patterns since March 2020. Research is being undertaken to further understand this and findings will be considered and applied in future iterations of administrative data-based products. As this article has illustrated, administrative data do not capture students perfectly, in their entirety. However, they continue to have value in situations when we understand it better and do not have alternative sources to deliver other evidence on key sub-populations.

15 . Related links

More information, including links to previous publications, for the population and migration statistics transformation project can be accessed via [the overview page](#)

[Admin-based population and migration estimates, a research update](#)

Article | Released 26 November 2021

An update on recent research completed in the ongoing transformation of population and migration statistics to an admin data first methodology. This article will summarise several key research developments made across the project and signpost to previous or accompanying papers.

[Measuring and adjusting for coverage patterns in the admin-based population estimates, England and Wales: 2011](#)

Article | Released 27 July 2020

This article assesses the coverage patterns of the national level admin-based population estimates, which were published in June 2019. It describes how we plan to measure and adjust for these coverage patterns using the Integrated Population and Characteristics Survey and estimation framework. The article provides a progress update on the development and testing of this new survey and describes the types of estimation methods we are investigating.

[Developing our approach for producing admin-based population estimates, describing the development of admin-based population estimates \(ABPE\) Version \(V\)3.0](#)

Article | Released 21 June 2019

Research into developing a new methodology to create population estimates from administrative data.

[Updating our users on our population and migration statistics transformation journey](#)

Article | Released 30 January 2019

Report updating our users on our population and migration statistics transformation journey, seeking feedback on our future plans and recap of the ABPE v3.0 data sources and hierarchy with which they are used.

[The coverage of ABPE \(SPD\) v2.0 against 2016 MYEs](#)

Article | Released November 2017

Research and population statistics from a methodology different to that currently used in the production of official population statistics.

[The data sources and methodology of ABPE \(SPD\) v2.0](#)

Article | Released November 2016

Report providing an update of our methodology for producing population estimates from administrative data and coverage evaluation against 2011 Census and 2015 MYEs.

Earlier [research outputs](#) on using administrative data to produce population statistics.

[Population estimates for the UK, England and Wales, Scotland and Northern Ireland statistical bulletins.](#)

All information and publications on [international migration](#) produced by the Office for National Statistics.

All information and publications on the [size of the population](#) produced by the Office for National Statistics.