Appendix A. Technical Report

Pathways Into and Through Higher Education for Young People with Experience of Children's Social Care in the 1998/1999 Birth Cohort of Young People in England

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Acronyms

The following acronyms are used in this report.

Acronym	Abbreviation
BTEC	Business and Technology Education Council
CIN	Children in Need
CINP	Children in Need Plan
CLA	Children Looked After
CPP	Child on a Protection Plan
DfE	Department for Education
EHCP	Education, Health, and Care Plan
FE	Further Education
FSM	Free School Meals
GCSE	General Certificate of Secondary Education
HE	Higher Education
HEI	Higher Education Institution
IDACI	Income Deprivation Affecting Children Index
ILR	Individualised Learner Record
KS2	Key Stage 2
KS4	Key Stage 4
KS5	Key Stage 5
LA	Local Authority
LEO	Longitudinal Education Outcomes
NPD	National Pupil Database
NVQ	National Vocational Qualification
ONS	Office for National Statistics
PMR	Pupil Matching Reference
PRU	Pupil Referral Unit
SEN	Special Educational Needs
SRS	Secure Research Service

Background

There is abiding concern about the educational opportunities and outcomes for young people who come into contact with the children's social care system. National statistics show that children looked after generally perform less well educationally than peers, have high rates of absenteeism, most are unable to reach the required standard in English and maths, and are more likely to be unemployed and not in further education than their peers.[1] These outcomes are a concern in all countries that collect data on children in care and care leavers (e.g., Courtney et al. 2014 in the United States) and reflect critical national equity, rights, and productivity issues.

The reasons for these disparities are multiple and variable. Educational outcomes are likely to be partially influenced by each young person's development and prior experiences, along with the academic and social disruption they have experienced stemming from those experiences. The cumulative effect of factors such as abuse and neglect, stigma, punitive learning environments, and other school, educational and social factors can also have a detrimental impact on mental health and children's ability to engage positively with school. Recent evidence indicates that around 58% of children looked after have an identified special educational need, which is about 3.4 times higher than the general population; for the majority, their need falls under the category of social, emotional and mental health (DfE, 2024e).

Although there is a large and growing body of evidence about these relationships for the educational outcomes of school-aged children, relatively little is known about the routes to and through Higher Education (HE) for young people with experience of children's social care, particularly concerning their educational pathways compared with other young people in the population.

The research reported here aimed to replicate, extend and develop research on the pathways into and through HE for a recent cohort of young people in England who had experience of children's social care. Entry to HE was defined as a young person registering for a Level 4 qualification at an HE institution (HEI) or a further education (FE) college.[2] This included registering for the first year of a Higher Level National Vocational Qualification (NVQ), a foundation degree, or a Level 4 BTEC (i.e., Business and Technology Education Council) qualification. Any of these can lead to a Level 6 degree qualification.[3]

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[1] https://explore-education-statistics.service.gov.uk/find-statistics/outcomes-for-children-in-need-including-children-looked-after-by-local-authorities-in-england

[2] https://www.gov.uk/what-different-qualification-levels-mean/list-of-qualification-levels

[3] We use the term "degree" to refer to Level 6 qualification here and throughout this report and its analyses as shorthand for all "first" degrees. First degrees generally lead to a Bachelor's qualification such as a BA (Bachelor of Arts) or BSC (Bachelor of Science). They may also be referred to as Honours degree or an undergraduate degree.

The cohort of young people included in this study were born between 1st September 1998 and 31st August 1999 (also referred to, in this report, as the 1998/99 birth cohort). Therefore, the first year of entry to HE was typically the academic year 2017/18, when young people were age 18. The study explored young people's educational pathways into HE, including the types of institutions attended, the continuity of pathways through HE, and the likelihood of successfully attaining an undergraduate degree. In short, using population-level linked data (described in the methods section), this study enabled (a) a detailed consideration of the heterogeneity within the population of young people with experience of children's social care that was not possible in previous studies and (b) a broader look at different types of HE outcome variables across these groups and two comparator group—the general population and young people eligible for free school meals (FSM).

We begin by first describing the educational system in England.

The English Education and Training System and Routes into and through Higher Education

Qualifications in England are categorised into nine levels (Gov. UK, n.d.), reflecting the relative difficulties of the qualifications and of advancing through the education system. They range from Entry Level qualifications (such as English for speakers of other languages and Skills for Life) to Level 8 qualifications (e.g., a doctorate, such as a PhD). Post 16 years old, young people's routes can be academic, vocational or apprenticeship/work-based (Table A1). In 2020, T levels were introduced that combine academic and vocational learning and experience.

Table A1: Qualification Levels in England

LEVEL	ROUTE AND QUALIFICATION		
	ACADEMIC	VOCATIONAL	WORK-BASED
Level 8	Doctorate (PhD/DPhil)		NVQ 8
Level 7	Master's Degree (MA) Postgraduate Diploma / Certificate		NVQ 7
Level 6	Bachelor's Degree (BA / BSc)		NVQ 6 Degree Apprenticeship
Level 5	Foundation Degree (FdA / FdSc)	Higher National Diploma (HND)	NVQ 5
Level 4	Certificate of HE	Higher National Certificate (HNC)	Higher Apprenticeship NVQ4
Level 3	A / AS-levels: Grades A–E International Baccalaureate	BTEC Diploma / Certificate	Advanced Apprenticeship NVQ 3
	T Levels / Tech Levels		
Level 2	GCSEs: Grades A*–C / Awards 4 - 9	BTEC First Diploma	Intermediate Apprenticeship NVQ 2
Level 1	GCSEs: Grades D–G / Awards 1–3	BTEC entry level / Level 1 Functional skills Skills for Life	Traineeship NVQ 1

Adapted from: What qualification levels mean: England, Wales and Northern Ireland - GOV.UK

Following the introduction of statutory guidance on 'raising the participation age' in 2013, the age of compulsory participation in education in England was raised to age 18.[4] Reflecting these changes, the latest official figures indicate that, in the calendar year 2023, 89.8% of 16–17-year-olds were in full- or part-time education or an apprenticeship,

[4] The Education and Skills Act 2008 legislated to increase the age of compulsory participation in education or training to age 18 by 2015 for those born after 1 September 1997, with an interim leaving age of 17 from 2013. The 'raising the participation age' guidance was brought in to try to reach the small group, many of whom are vulnerable, not participating after age 16 and ensure that all young people are given the opportunity to develop the skills necessary to achieve their full potential.

with 65.5% studying Level 3 qualifications[5] and 22.1% studying Level 2 qualifications.[6] [7] Among 18-year-olds, 57.3% were similarly participating, with 34.3% studying at Level 4 or above, 16.6% at Level 3 or below, 33.7% in a HEI[8] and a further 15% in FE colleges and sixth-form colleges or schools (DfE, 2024c).

Entry to Higher Education

The proportion of young people in the general population who enter higher education has grown steadily over the last two decades.[9] In 2023, the University entry rate was 36% of all 18-year-olds in England (Bolton, 2024). To enter HE, most universities require specific Level 3 qualifications such as A-Levels or T-Levels, and GCSEs, particularly in English and maths (grades 9–5). In 2022/23, 9.5% of children looked after for longer than 12 months, 10% of children in need (not in care) and 52% of all pupils achieved grade 5 or above in English and maths—a pre-requisite for entering employment, vocational courses and higher education (DfE, 2024a).

Although sixth-form schools and FE colleges have similar proportions (about 43%) of post-16 learners (DfE, 2024c)—the split in the courses provided within each type of institution is unequal. For example, Lisauskaite et al. (2021) showed that in 2011/12, FE colleges accounted for 12.3% of Level 3 provision (by number of students), whereas sixth-form schools accounted for 81.9%. Young people from more disadvantaged backgrounds were also much more likely to undertake post-16 learning in the FE sector than via school or sixth-form colleges.

Young people with experience of children's social care have substantially lower levels of participation in post-16 education compared with the general population (Nelson and Anderson, 2021). After leaving school, they are less likely, on average, to have identified an educational or vocational qualification and sustained their pursuit of it (DfE, 2024a). They are also under-represented in HEIs compared with the general population (Baker et al., 2022; Harrison, 2017, 2020; Harrison et al., 2023). National statistics (DfE, 2024b) show that in 2022/23, 14% of young people who had been classed as a Child in Need at age 15 had progressed to HE by age 19, and 2% had entered a high UCAS tariff point

[5] 45.2% A / AS levels; 1.5% T levels; 18.8% other Level 3

[6] 11.8% GCSE; 3.3% Other Level 2. The remainder are studying at level 1 or undertaking unclassified qualifications.

[7] The latest figures available here, for the main activity of the age 16 to 18 population at the end of 2023, indicate that at age 16–17, this 89.8% is made up of 84.0% in full-time education, 3.7% in apprenticeships or work-based learning and 2.1% in part-time education. A further 2.6% are in other education or training, with 2.6% in employment and 5.0% not in education, employment or training (the percentages do not sum to 100% due to rounding).

[8] HE institutions include universities, colleges and conservatoires offering HE courses. See UCAS (n.d.) for further detail on definitions within HE.

[9] https://heprofessional.co.uk/edition/understanding-the-higher-education-landscape-what-percentage-of-people-go-to-university-in-the-uk-release

University. In contrast, 48% of their peers had progressed to HE by age 19, with 14% entering a high-tariff UCAS point university.[10]

The traditional route into HE through A-levels/ English Baccalaureate

The traditional model of academic progression from school to university is well established for many as a series of steps: five A*-C / 9-4 grades at GCSEs, including English and maths at the end of KS4 in secondary school, followed by attaining three A-levels studied over two years at a school sixth-form or other FE college or the International Baccalaureate and then, immediately or one year later, participation in a degree course at an HEI. This study uses the term 'traditional' to denote this historical linear academic route into HE. The terminology does not indicate a value judgement but reflects the everyday discourse in the literature. For example, Robson et al. (2024) noted that while most students do not take this traditional route, it is nevertheless relatively well known, and there is no single vocational pathway that is as well-trodden or as easy to understand (see also Wilson et al., 2021).

Table A2: Traditional academic pathway into and through HE

Age	Academic Year	Attainment Stage Description	Qualification Level	Institution
10/11	Year 6	KS2	Level 1	School
15/16	Year 11	KS4/GCSEs	Level 2	School
16/17	Year 12	Beginning of KS5/A-levels/ English Baccalaureate (EBacc)	Level 3	School with 6th form or FE college
17/18	Year 13	End of KS5 /A-levels/ EBacc	Level 4	School with 6th form or FE college
18/19	+1	The first year of HE entry	Level 4	HEI
19/20	+2	Second year of HE	Level 5	HEI
20/21	+3	Completion of the (three-year) degree	Level 6	HEI
21/22	+4	Post-graduate	Level 7	HEI

Note: The traditional model includes four-year degree courses, sometimes including a year of study abroad. Many students also choose to take a gap year before entering university and decide to defer their place. A student who took a gap year and then a four-year course would not complete a degree within this age range.

[10] DfE statistics group HE providers into low, medium and high tariff providers based on the normalised mean tariff score of their intake and using the UCAS tariff points score. See UCAS undergraduate tariff points for further detail.

Other Level 3 qualifications and routes to HE

Research tracking post-16 educational pathways (Hupkau et al., 2016; Patrignani et al., 2019; Dickerson et al., 2023; Robson et al., 2024) has revealed distinct academic, vocational and work-based routes into HE, highlighting the diversity in both how and where students obtain qualifications. Indeed, many students followed a learning programme that included multiple qualifications and mixed pathways into HE, with UCAS acknowledging that 'the qualifications landscape is complex and not well understood by [HE providers], employers, learners, parents and teachers' (2016, p. 6).

Other Level 3 qualifications can also provide a route into HE, and the most common are BTECs, other vocational courses, T levels or NVQ Level 3 or higher. These qualifications are often linked to specific careers or employment sectors involving some work experience. Advanced apprenticeships equivalent to two A-levels also offer a route. Less frequently used routes to HE are 'Access to Higher Education' Diplomas for mature adults who want to enter HE but who lack entry qualifications and Foundation Courses for students who wish to undertake a degree but need to improve their grades or English language skills (when English is not their first language).

Groups of Children and Young People with Experience of Social Care

This study focuses on pathways into and through HE among young people with experience of children's social care. Different authors have variously defined groups of young people with experience of children's social care. These definitions have generally built on the provisions set out under section 17 of the Children Act 1989, where a child is classified as 'in need' if they are unlikely to achieve or maintain a reasonable standard of health or development without intervention, if their health or development is likely to be significantly impaired without intervention, or because they are disabled. The local authority has a duty to provide services to children determined to be in need.

This wide-ranging group of 'children in need' includes 'children looked after' and 'care leavers', children on 'child protection plans', and those on 'children in need plans'. Each of these groups might be defined slightly differently by different researchers, but all of the young people in these groups are likely to experience a range of challenges and receive varying levels of support.

The most recent classifications used by the DfE in reporting outcomes for children in need (DfE, 2024a), including those looked after by local authorities in England, defined young people in social care groups as follows:

- **"CIN**: Children in Need, *including* children on a child protection plan and children looked after. Children in need include children on child in need plans and other types of plans or arrangements. Children in need also includechildren awaiting a referral to be considered, an assessment to start or, for an assessment which has started, for the assessment to be completed.

- **CINO**: children in need, *excluding* children on a child protection plan and children looked after.
- **CPPO**: children are on a child protection plan, excluding children looked after.
- **CLA**: children looked after (excluding children in respite care in their most recent episode during the reporting year)."

Source: DfE, 2024a: *Social care groups*.

These groupings mean that, in theory, there is a single, overarching CIN group comprising the other three groups (i.e., CINO, CPPO and CLA). However, the DfE supporting methodological documentation notes that "in practice, not all CLA match to CIN so they don't add up exactly" (DfE, 2024d). The DfE uses the term Children in Need and its abbreviation, CIN, to include all children defined under the Children Act 1989 as a 'child in need', whereas others use the same language to more narrowly define children and young people 'in need but not in care' (see below).

Our study used several linked datasets (see the 'Data Management and Linking' section for further detail) focussed on a 1998/99 birth cohort of young people who were generally eligible for GCSEs in 2015. As described below, we subdivided young people with experience of children's social care into five mutually exclusive groups and included two comparison groups of young people, from the same cohort, who had no recorded experience of social care. The seven resulting mutually exclusive 'analytic groups' are defined as follows.

Children Looked After

1. **Care Leavers (Group 1):** Care leavers are young people who have been in care at some point since they were 14 years old for three months or more *and* were in care on or after their 16th birthday. These young people are statutorily entitled to some ongoing support from their local authority after they leave care until age 21, or 25 if they are in full-time education or certain other circumstances (Harrison, 2017).
2. **Ever in Care (Group 2):** This group is made up of young people who were in care at any point after the age of 5[11] but do not meet the statutory definition of a care leaver (described above). This includes young people who were in care before age 14, but not after, and those in care for less than three months.

Children in Need but not in care

Children and young people referred to children's services due to concerns about their health or development (or because they are disabled) and who meet the threshold for statutory support are placed on a child in need plan (CINP) or, where there are greater concerns over safety, a child protection plan (CPP). The designation of being 'in need' means these children are allocated a social worker and may be supported by multi-agency teams but usually remain living with birth parents, carers or relatives. When children are unable to live safely within their families or their well-being requires it, children enter care either through a legal order made by a court or when someone with

[11] Comprehensive 'care' records exist only from 2003/04 onwards, meaning data for our sample is only available for those experiencing care at some point after the age of 5.

parental responsibility requests it. The aim, after entry to care, is, when in the child's best interests, to return to their parents or extended family or find a permanent home through adoption. Some children remain in care and become care leavers at 18.

3. **Ever CPP (Group 3)**: This group is comprised of young people who were placed on a child protection plan (CPP) at any point after the age of 11 but who were not in care at any point.
4. **Ever CIN > 6 months (Group 4):** This group is comprised of young people who were classified as in need for more than six months at any point after the age of 11.
5. **Ever CIN < 6 months (Group 5):** This group is comprised of young people who spent a shorter time—less than six months—classified as in need at any point after the age of 11.

Comparison groups

6. **FSM Population (Group 6):** This group is comprised of young people from the 1998/99 birth cohort who were not included in groups 1–5 but were eligible for FSM at any time during the six years before the end of KS4.
7. **General Population (Group 7):** This group is comprised all other young people from the 1998/99 birth cohort who were not included in groups 1–6; that is, young people not in care at any point after age 5, nor designated as in need after the age of 11, but who were not eligible for free school meals (FSM) during the six years before the end of KS4.

Other researchers have differentiated children and young people with experience of children's social care in broadly similar ways but have used slight variations in the definition of their groups (e.g., by using different ages and/or duration of care experience). However, most tend to draw comparisons with a single, general population of all same-aged peers with no care experience. For example, looking at school attainment and progress between KS2 and KS4, Berridge et al. (2020) focussed on variations between three social care groups and an 'all other pupils' comparison group:

- Children Looked After (CLA)[12]
- Children subject to a Child Protection Plan (CPP)
- Children subject to a Children in Need Plan (CINP)
- A comparison group of children with no care interventions

They used qualitative analysis to further refine these groups to reflect the longitudinal experience of social work interventions.

Focussing on the same secondary school period and age 16 outcomes, Sebba et al. (2015) distinguished early (before the end of KS2/age 11) and later (after the end of KS2) entry into care among those experiencing longer care episodes (more than 12 months) and those with shorter durations in care. Those within the larger in need population were grouped together:

[12] In the Berridge study, this group was referred to as 'Children in Care' (CIC) which was the original collective term for individuals who are now commonly referred to as Looked After Children (LAC) or Children Looked After (CLA).

- CLA-LT early entry: Children Looked After who had been in care for 12 months or more, continuously, at the end of KS4 and who were already in care by the end of KS2
- CLA-LT late entry: Children Looked After who had entered care after KS2
- CLA-ST: Children Looked After who had been in care for less than 12 months at the end of KS4
- CIN: Children in Need at the end of KS4 but not in care
- Comparison: children not in care and not in need at the end of KS4

Exploring later ages, Harrison and colleagues examined post-16 outcomes, including ever having studied at Level 4 or higher, being in stable employment and various categories of economic inactivity (Harrison 2017, 2020; Harrison et al., 2023). These authors categorised young people with experience of children's social care (whom they called 'care-experienced young people') slightly differently again. For example, in their most recent study, Harrison, et al. (2023) included the same 'care leaver' group as defined in our study, but the cut-offs for other in care groups varied and made no distinction within the broader in need group or the general population:

- Care leavers: young people who had been in care for a minimum combined period of 13 weeks straddling their 16th birthday
- Late care-experienced: young people who had been in care for significant periods after their 14th birthday but who did not appear in the 'care leavers' group
- Other care-experienced: young people who had previously been in care but did not meet either definition above
- Formerly in need: young people who were designated as 'in need' from 2009/10 but who were not in care at any point after the age of 8
- General population: young people not in any of the care-experienced groups

Earlier work by Harrison (2017, 2020), looking at participation in HE only, compared two alternatively disadvantaged groups—those eligible for FSM and those living in POLAR2[13] Q1 areas— with the general population not in care and those in the care leaver group but not for others with different experiences of social care.

Like Berridge et al. (2020), Ahmed et al. (2022) focused on the three main groups within an overarching children in need (CIN) population in their study of young people's main post-16 educational and other destinations:

- Children Looked After
- Children subject to a CPP
- Children in need and children with other plans

Their analysis considered the results of all three social care groups together, as well as separately, and compared them with an 'all children' population. They showed variation within the different classifications in relation to post-16 pathways and subsequent

[13] POLAR stands for Participation of Local Areas and classifies local areas across the UK into five groups according to young people's level of participation in HE. The 20% of areas with the lowest participation rates are designated as "quintile 1" and are considered the most disadvantaged, and those with the highest participation, "quintile 5", are considered the most advantaged. The measure is regularly updated with POLAR2 based on the HE participation rates of people who were age 18 between 2000 and 2004 (HESA, n.d.i).

outcomes, demonstrating value in differentiating subgroups of the CIN population at later ages.

Previous research on earlier educational attainment

Reviews of the evidence on factors that promote educational attainment and progress (e.g., O'Higgins et al. 2017; Sebba and Luke 2019; Sinclair et al. 2021) highlight limited previous research and small non-representative samples, often under-theorised and of poor quality. In addition, researchers have defined children in need differently, making comparisons between studies difficult. For example, some studies have included children on child protection plans in the children in need group, whereas others have been limited to those only with a child in need plan. Studies have typically used cross-sectional designs, with samples of differing ages and lengths of time in care. Longitudinal studies are rare.

Secondary education

The first population-level studies (Sebba et al., 2015; Berridge, 2020) in the UK investigated looked after children's educational attainment using linked educational data (National Pupil Database (NPD)) and children's social care data to examine the relationships between young people's care histories and their academic outcomes. Focusing on Key Stage 2 (KS2, children aged 10/11) and Key Stage 4 (KS4, children aged 15/16), Sebba et al., 2015 found a gap in attainment between young people who had experience with social care and those who had not, with the average achievement score of young people who came into contact with the children's social care system lower than the average score of the general population. However, the study also found that children with extended stays in care had higher attainment than children with short stays. The results further showed that children looked after for more than 12 months progressed and had better attainment than those in need who were not looked after. The educational gap, variation by the length of time in care, and variation by type of contact with children's social care have continued to be reported in the national statistics. Sebba et al.'s study provided a greater understanding of the key factors contributing to low educational outcomes but did not investigate post-16 pathways and access to HE.

Harrison et al. (2023) summarised post-16 educational outcomes against the age at which different educational levels were achieved (or not). They found that 43% of care leavers, compared with 7% of the general population, had not completed Level 2—i.e., had not achieved five or more GCSEs at A*–C (see Figure 1)—by age 21, a more than sixfold difference. Among the four care groups they considered (i.e., care leavers, late care-experienced, other care-experienced and formerly in need), the Level 2 completion rate was highest for the late care-experienced group (54.1%) and lowest among the formerly in need group (32.0%). The authors argued that these results demonstrate the

importance of ‘good’ passes in GCSE English and maths, as they form critical entry criteria to access Level 3 education, HE pathways and related outcomes.

Pathways to Higher Education

Examining Level 3 qualification routes to HE, Patrignani et al. (2019) compared students with two or more A-levels, students with a Level 3 BTEC qualification and the far less common route of students combining BTECs with A-levels. They found that 77% of those with A-levels progressed to a first degree or above compared with 55% of BTEC learners. Among the small population combining BTEC and A-level qualifications, approximately 45% complete a first degree or above. The authors also noted that students enrolling in HE via the BTEC route tended to do so at an older age and were more likely to enrol part-time than those enrolling via the A-levels route, suggesting a less direct route to HE for those on vocational pathways.

BTEC qualifications and Foundation degrees have also been identified as stepping stones to undergraduate degrees and reflective of a more extended route through HE. Espinoza et al. (2020) reported that almost half of those who completed a Foundation degree graduated with a Bachelor’s degree by age 25 (see also Conlon et al., 2018).

However, in terms of those undertaking apprenticeships, very little transition has been observed between the different levels, with young people tending to undertake a single apprenticeship at one level and not progressing to the next level of apprenticeship (Bursnall et al., 2017). Findings from Cavaglia et al. (2022) indicated that most individuals undertaking higher (Level 4 or 5) or degree apprenticeships (Level 6) did so after taking GCSEs rather than Level 2 vocational qualifications. For example, the vast majority (86%) of those starting a Higher Apprenticeship between ages 16 and 21 had obtained at least five GCSEs A*–C (4–9), including English and maths, with over half of them (54%) in the top 20% of the GCSE score distribution of the apprenticeship cohort. For those on Degree Apprenticeships, 93% had five good GCSEs, including English and maths, and 72% scored in the top quintile of apprentices between ages 16 and 21.

Furthermore, Cavaglia et al. (2022) showed that A-levels (34%) were almost as popular a route to Higher and Degree Apprenticeships as those (47%) taking another vocational Level 3 qualification. Over half of those who completed a Degree Apprenticeship had completed A-levels. Their analysis also showed that individuals eligible to receive FSM at school were under-represented at all levels of apprenticeships, particularly at the higher levels, suggesting a lack of opportunities to widen participation via this route for those from more disadvantaged backgrounds.

What do we know about children in need and pathways into and through HE?

For the 1998/99 birth cohort considered here, the first year of entry to HE following a traditional educational pathway would have been the academic year 2017/18, when young people were about 18 years old. Although there is variation around each individual's pathway into and through HE, 18-year-olds make up half (50%) of the applications to UK HEIs (UCAS, 2023). Therefore, where possible, previous findings from 2017/18 are used to 'benchmark' and contextualise our key findings related to HE entry, and previous findings from 2020/21 are used to 'benchmark' and contextualise our key findings related to HE degree attainment.

Differences in the routes into HE. Universities and colleges set their own entry requirements for their courses, and the routes into HE vary widely depending on the subject, the specific course and the course provider. The traditional academic pathway to HE is described in Table A2 (above), and figures for 2017/18 indicate that the proportion of students accepted into HE with A-levels only (or with the International Baccalaureate) in England was 49.5%. This compares to 7.5% entering with both A-levels and other qualifications and 43% with other qualifications (UCAS, cited in Robson et al., 2024).

Harrison (2017) reported that care leavers were more likely to enter HE through a range of non-traditional routes, including Access courses and vocational qualifications. His analysis showed that care leavers were significantly less likely to enter HE with A-levels (30%) compared with 37% of those eligible for FSM and 48% of non-care experienced peers. Similarly, Ahmed et al. (2022) reported that compared to their peers, young people who had been a child in need, on a child protection plan, or looked after were less likely to participate in post-16 education. Those studying were less likely to follow a traditional academic path, studying in FE settings rather than in schools with 6th forms or 6th form colleges, potentially filtering themselves into lower-level qualification routes (see also Nelson & Anderson, 2021). The most common activity recorded (32%) for those who had been a child in need after age 16 was 'other education learning at Level 2 or below', compared to KS5, where individuals were entered for one or more Level 3 qualifications, for the wider cohort (61%). In addition, in every subsequent year observed,[14] a larger proportion of individuals in the study's three subgroups of CIN, compared to their peers, were in adult FE (19+), covering qualifications at any level, with correspondingly smaller proportions in HE settings. Within the CIN subgroups, CLA were most likely to be in other education (16–18) and adult FE (19+) but least likely to be in KS5 and HE, highlighting the need to consider the heterogeneity within children and young people with experience of children's social care.

[14] Ahmed et al. (2022) used data from the NPD and the Longitudinal Educational Outcomes dataset matched with data from the Children in Need Census and Children Looked After return to observe educational and employment pathways in the first eight years of post-secondary school.

Differences in the proportion entering HE. In 2017/18, there were 696,000 applications to UK HEIs via UCAS, with 533,000 accepted, constituting 33% of the 18-year-old population (UCAS, 2023). If the entry age is extended to 19, the percentage of young people who entered HE in 2017/18 rose to 43% (DfE, 2020).

Using a slightly older cohort, young people born between 1st September 1995 and 31st August 1996—and so entering HE via a traditional academic route in 2014/15—Harrison et al. (2023) reported that 13.3% of those they classified as care leavers had studied at Level 4 or higher. This figure was 8.8% for young people classified as 'late care-experienced', 13.9% for 'other care-experienced' young people and 18.1% for young people 'formerly in need'. These figures are all considerably lower than the 46.2% of the general population of young people participating in HE for the same year (Harrison et al., 2023). They also found that on first entry to HE, care leavers were less likely to enter degree courses (85.2%) than either young people eligible for FSM (88.1%) or the general population (90.6%), even after controlling for prior KS4 attainment (Harrison, 2017). Care leavers were also over-represented among those returning to HE after having already completed a subdegree course, such as a Foundation degree (Harrison, 2020).

National statistics (DfE, 2019) showed that young people with experience of children's social care were not only less likely to enter HE than their peers but also less likely than young people from challenging circumstances. For the 2017/18 academic year, 12% of young people who had previously been a Child in Need or a looked after child were reported to have entered HE by 19. In comparison, 21% of students receiving SEN support, 26% of those eligible for FSM and 26% of those living in the most disadvantaged areas[15] in England were in HE (DfE, 2019).

However, Harrison also found that once prior attainment and other vital factors—such as demographic background and SEN status—are taken into account, differences in the reported HE participation rates fall. For example, Harrison noted that care leavers were around 69% less likely to enter HE between age 16 and 21 compared with their peers without experience of children's social care. Once prior attainment and key background characteristics were considered, they were only 11% less likely to enter HE (Harrison, 2017, 2020). Indeed, accounting for post-16 attainment and initial study pathways (i.e., whether students took vocational or academic qualifications, completing Level 2 and 3 qualifications, and place of study) alongside school-level characteristics (i.e., KS4 school type, Ofsted rankings and average pass rate), young people with experience of being in care were no less likely to study at Level 4 or higher than the general population (Harrison et al., 2023). However, after accounting for the same factors, young people in

[15] Local area disadvantage is captured by the Office for Students' Participation of Local Areas (POLAR) measure, which classifies areas across the UK into five groups according to their level of young people's participation in HE.

the ‘formerly in need’ group remained significantly less likely to study at Level 4 or higher, though the statistical effect sizes were small.

Differences in the age at entry to HE. Young people who follow a traditional academic pathway will typically enter HE when they are 18 or 19 (see Table A2). In addition to having lower overall entry rates, young people with experience of children’s social care are more likely to enter HE later than peers of the same age. For example, using a cohort of young people that was age 16 at the end of 2007/08 and had entered HE at any point up to 2014/15, Harrison (2017, 2020) showed that only a third (33%) of care leavers were aged 19 at the end of their first year, compared to around 44% of those who were eligible for FSM and 58% of the same cohort as a whole. Similarly, in their mixed-methods study of care leavers in England and Wales, Ellis and Johnson (2024) noted that 37% of participants were over 22 when participating in the study, suggesting they had followed less direct pathways to university.

Harrison (2017) estimated that, on average, care leavers entered HE eight months later than their peers, arguing that much of the entry delay was due to their lower KS4 attainment and the resulting need to take alternative routes to acquire the necessary Level 3 qualifications. Part-time care-experienced students were over-represented in pre-1992 universities, primarily reflecting enrolment via the Open University. However, Harrison’s study (2017) lacked access to data on post-16 participation in FE and could not examine the details of such routes.

Differences in the proportion entering Top-tier HE Institutions. Substantial literature evidences the value individuals gain from HE participation (Britton et al., 2020; OECD, 2019; Walker & Zhu, 2013). However, the economic and social benefits vary by institution, degree, class and subject. For example, Belfield et al. (2018) investigated the differential impact degrees have on labour market prospects and found that both the subject and the institution attended make a considerable difference to subsequent earnings. Russell Group universities typically have higher-earning graduates.[16] Interestingly, however, other non-Russell Group[17] HEIs had a more significant impact on employment prospects, possibly reflecting the more vocational nature of the courses offered. Young people from disadvantaged backgrounds have been found to attend less academically selective universities and enrol in degree subjects with lower economic returns (Campbell et al., 2022). There are sizeable socioeconomic inequalities in academic and earnings ‘match’, such that, across the achievement distribution, low-socioeconomic-status students are consistently under-matched, studying degrees with lower-attaining peers and smaller potential earnings than their wealthier counterparts.

[16] The average return among Russell Group universities is around 10% higher than for the average institution whereas, for post-1992 universities, the average return is 3% lower.

[17] The study defined ‘other’ institutions as post-1992 institutions without polytechnic or central institution roots.

The evidence on the type of HEI attended by young people with experience of children's social care is sparse but suggests differential access. National statistics (e.g., Table 7a of DfE, 2019) show that, in 2017/18, 1% of children who had been looked after entered a high-tariff HEI by age 19, compared with 10% of all students and 3% of students who had been eligible for free school meals.

Differences in Undergraduate Degree Attainment. Each year, most HE enrolments are for full-time, first degrees. For the academic year 2017/18, 96% of first-year students were enrolled on degrees or undergraduate-level courses, 3% were studying Foundation degrees, and 1% were following HND or HNC qualifications (HESA, n.d.ii). Most (92%) degrees were studied full-time and 8% part-time. The projected learning outcomes[18] for full-time degree starters who had entered HE in 2017/18 were that 79% would achieve their degree, with a further 5% transferring to another HE provider, 4% obtaining a different qualification than initially pursued, and 11% not qualifying, transferring, or withdrawing altogether (HESA, n.d.iii).

The Office for Students (2023) reported that the completion rate[19] for full-time students starting degrees in the academic year 2017/18 was 88.5% (a decrease of 0.7% percentage points from the previous year). Students who were care-experienced had lower completion rates, with full-time figures for the same year around 9 percentage points lower, at 79.6%.

Harrison (2017) also found that just over half of care leavers entering HE went on to complete a qualification, but nearly one in five (18%) withdrew completely, a rate twice that of their peers (10%). He also found that care leavers were 38% more likely than other young people with similar demographic profiles and qualifications to leave their studies (see also Geiger & Beltran, 2017; Randolph & Thompson, 2017). Similarly, in their small study of care experienced students in England and Wales (*n* = 234), Ellis and Johnson (2024) reported that more than half of the care leavers they interviewed had considered withdrawing, with many others reporting feeling isolated and inadequately supported by their institutions, both financially and pastorally.

In a much larger study using the Longitudinal Education Outcomes (LEO) dataset[20], Nelson and Anderson (2021) found that children who had been looked after were less

[18] Projected learning outcome rates are predictions about the proportion of full-time first degree starters who are likely to be in each of the 'end states' after a period of fifteen years (i.e., having gained a qualification, transferred to another HE provider, or been absent from HE for two consecutive years). The fifteen-year period was chosen as an over-estimate of the amount of time that the majority of full-time first degree students should have reached one of these end states.

[19] Completion rate is defined here as the proportion of entrants who gained an HE qualification (or were continuing in the study of their qualification) 4 years and 15 days after they started their course and, for part-time students, 6 years and 15 days after they started their course.

[20] The LEO dataset contains information on labour market outcome for learners from schools, colleges and universities. Nelson and Anderson's (2021) study looks at the post-16 education and economic activities of 2.5 million young people who took their GCSE exams in England between 2006 and 2009 and focuses on

likely to complete a degree than their peers without experience of children's social care. For example, 6% of young people looked after for at least one day, and 8% of those looked after continuously for 12 months achieved a Level 6 qualification or above, compared with 35% of young people who had not been looked after. Interestingly, Harrison (2017) found that young people who completed their degree were just as likely as their peers to achieve a first- or upper-second-class honours degree, controlling for background characteristics and prior academic attainment. Indeed, Baker et al. (2022) found that care-experienced graduates who completed undergraduate degrees were significantly more likely to progress to postgraduate study than graduates without social care experience.

around 25,000 individuals who had been in care during some of secondary school compared to all individuals.

Method

There is an identified gap in knowledge on the routes into HE and outcomes for young people with social care experience. In particular, little is known about the variation within this group by the type of children's social work service and intervention they received. In this chapter, we set out the research questions and analytical approach, but first, we describe how the children in need population were defined and grouped.

Defining the study's population

This study focuses on educational pathways into and through HE for young people with experience of children's social care. A wide range of circumstances bring children into contact with social workers. Children and young people referred to children's services due to concerns about their health or development (or because they are disabled) and who meet the threshold for statutory support can be placed on a child in need plan (CINP) or, where there are greater concerns over safety, a child protection plan (CPP).

These different interventions have led previous researchers to categorise young people with experience of children's social care differently. For example, using the term 'care-experienced' to refer to any child who has been looked after or using the term 'child in need' to refer only to those on a child in need plan. The DfE (2024a), in their reporting of children's outcomes, used an overarching 'children in need' category that included all the above groups except care leavers and also reported separately the outcomes for children on a child in need plan, those on a child protection plan and those looked after.

This study wanted better to understand the heterogeneity within the children in need group and therefore grouped young people by the type of service they had received. In addition, young people who had become care leavers were included to understand their pathways to HE.

The study used seven mutually exclusive analytical groups: five care-experienced groups and two comparison groups. The criteria for each group are set out below.

The children in need grouping used in the analysis

Care Leavers (Group 1): Young people who had been in care at some point since they were 14 years old for 13 weeks or more *and* were in care on or after their 16th birthday. These young people are statutorily entitled to some ongoing support from their local authority after they leave care until age 21 or 25 if they are in full-time education or certain other circumstances. In our data, this group was made up of 4,350 individuals.

Ever in care (Group 2): Young people who were in care at any point after the age of 5[21] but did not meet the statutory definition of a care leaver (described above). It includes young people who were in care before age 14 but not after and those in care for less than three months. This group was made up of 6,590 individuals.

Ever on a child protection plan (Group 3, CPP): Young people placed on a child protection plan (CPP) at any point after age 11[22] but who were not in care at any point. This group was made up of 5,670 individuals.

Ever a child in need for more than 6 months (Group 4, CIN > 6 months): Young people classified as in need for more than six months at any point after age 11. This group comprised 26,550 individuals, 12% of whom had a 'disability or illness' (according to the 'primary need' indicated in the CIN data).

Ever a child in need for less than 6 months (Group 5, CIN < 6 months): Young people who spent a shorter time—less than six months—classified as in need at any point after age 11. This group was the largest of the five care-experienced groups and comprised 43,930 young people, 2% of whom had a 'disability or illness' (according to the 'primary need' indicated in the CIN data).

Comparison groups

The outcomes for the groups defined above were compared with those young people who were eligible for free school meals because FSM children often come from socioeconomic groups similar to children who have contact with Children's Services.

Free school meals Population (Group 6, FSM): Young people from the 1998/99 birth cohort who were not included in groups 1–5 but who were eligible for FSM at any time during the six years before they completed KS4. The size of this group was 96,460 individuals.

General Population (Group 7): All other young people from the 1998/99 birth cohort who were not included in groups 1–6; that is, young people not in care at any point after age 5, nor designated as in need after the age of 11, and not eligible for FSM during the six years before they completed KS4. This group was made up of 372,690 individuals.

These definitions created clear analytic groups for comparison but did not account for young people who may have fit different group definitions at different times or other forms of intersection. Group membership was prioritised using the lowest-numbered group. For example, if a young person fit the definition of both a 'care leaver' (Group 1) and 'ever in care' (Group 2), they were assigned to the care leaver group.

[21] Comprehensive 'care' records exist only from 2003/04 onwards, meaning data for our sample is only available for those experiencing care at some point after the age of 5.
[22] We used age 11 as a cut-point to ensure children had KS2 scores.

Research Questions

The seven groups of young people were selected to answer the following primary research question: How do different groups of young people with experience of social care differ in their progression to and through HE compared to each other and their peers?

More specifically, this study explored this general question in relation to the following specific questions:

- How likely are young people with experience of children's social care to enter HE?
- When do they enter HE?
- Where do they enter HE?
- What happens to them after they enter HE?

The Data

The sample (*n* = 556,240)

The DfE uses the child's unique pupil number (UPN) as the primary matching key to link social care and education datasets.[23] A UPN is allocated to students when they start school. Since 2013, local authorities have had to submit (as part of the Children Looked After SSDA903 return) a valid UPN for all children looked after who were aged four or over on 31st August within the collection year (except for children who were only receiving respite care). The records from the social care datasets are matched into the NPD by the DfE, mainly through the UPN, but also by other information such as date of birth, sex/gender, race/ethnicity, and the local authority caring for the child. If a child can be matched, the child is given a pupil matching reference (PMR) number, and this de-identified PMR number is made available for researchers to use.

The current study sample drew on a single cohort of young people born between 1st September 1998 and 31st August 1999. The primary additional inclusion criterion was being present in England and in the NPD at KS2 and KS4, when young people were about age 11 to age 16. Excluded were children entering England after the age of 11, whether from elsewhere in the UK, the EU or further afield (e.g., unaccompanied asylum-seeking children), as well as those educated in independent schools.

[23] https://explore-education-statistics.service.gov.uk/methodology/outcomes-for-children-in-need-including-children-looked-after-by-local-authorities-in-england-methodology

The administrative datasets that were linked

Data were requested from DfE on the 1998/99 birth cohort of young people who were generally eligible for GCSEs in 2015. To track the educational and care-related experience of children and young people living in England from the age of 5 to 22, the following datasets were linked (via PMR numbers) to provide a longitudinal account of the 1998/99 birth cohort:

Children Looked After (CLA) data return. The SSDA903 statistical return is a local authority's annual child-level data collection returned to the DfE. The return is completed for every child in England who was looked after at any point during the year and also for a group of former looked after children whose nineteenth birthday fell during the year. We requested records for 2003/04–2016/17.

Children in Need (CIN) Census. The Children in Need census covers all children referred to Children's Social Care Services in England even if no further action is taken. It includes children's demographic characteristics, referral dates, actions and outcomes of assessments. We requested records for 2009/10–2016/17.

The **National Pupil Database (NPD)** is a longitudinal database linking student characteristics and attainment information for all children in state-funded schools in England, early years providers, FE colleges, and, where available, from independent schools. It holds student and school characteristics, including age, sex/gender, race/ethnicity, attendance and exclusions matched to student-level attainment data. It is the source of the data published in the DfE performance tables. Independent schools are not required to complete the School Census, meaning that examination results are the only information available for linking for these students. For this study, data were requested on attainment at KS2 (2009/10), KS4 (2014/15) and KS5 (2015/16–2017/18) and on other student characteristics, such as FSM eligibility, special education needs (SEN), and absences and exclusions (2010/11-2014/15).

The Individualised Learner Record (ILR) is an ongoing collection of data about students from training providers in England's Further Education (FE) and Skills sector. Training providers collect information about each of their students, the learning they are doing, and the learning outcome once it is known. We requested an ILR dataset for 2015/16–2020/21 that included information about the year, start date, learning aims, NVQ level, GSCEs, A-levels, program type, completion status, and grades.

Higher Education Student Statistics (HESA) contains information regarding participation in all UK publicly funded HEIs, plus one alternative provider: The University of Buckingham. From 2016/17, HESA also included data for students enrolled on HE-level courses at further education (FE) colleges in Wales. We requested HESA records on participation in HEIs for 2016/17–2020/21 that included information about year, start

date, course aim, subject, mode of study, institution attended, breaks in study, reason for episode ending and qualification achieved.

These social care and education data were requested from the DfE, and the application was approved. The data files were de-identified and provided for analysis in the Secure Research Service (SRS) provided by the Office for National Statistics (ONS). The intention was to link the various datasets to examine young people's pathways into and through HE.

Data limitations

The data and years requested are a strength of the study because the extensive changes to KS4 exam testing and grades occurred after 2016/17. Additionally, Key Stages 2, 4 and 5 had been completed by the study sample before the COVID-19 pandemic occurred, resulting in schools closing and exams being cancelled. However, the linked datasets also had some limitations; the key ones are below.

The NPD contains student-level data on those educated in state-funded schools. Most children who are 'home-schooled' or educated in independent schools are missing from the NPD (hence, missing from the study sample), as independent schools are not required to submit their exam results.

Students' progress cannot be followed if they attended an FE college outside England, as the ILR includes only learners in England. However, HESA records all UK entries, and therefore, if a young person was educated in England but chose a HEI in Wales, Scotland or Northern Ireland, their progress can still be followed.

The social care data collection (SSDA903) began in 1992, but there was a period between 1998 and 2003 when only a one-third sample was collected before returning, in 2004, to collect data on all children in care. Therefore, children not in the one-third sample but who entered care between 1998-2004 have their early care histories missing.

From 1st April 2015, local authorities (LAs) were required to record long-term foster placements for all children in such placements. Two new codes were added to identify a relative/friend (kinship) long-term or matched foster placement. There was a period of catch-up where LAs reviewed their foster placements and changed placement codes to indicate whether they were intended to be long-term. Analysis by DfE statisticians of the SSDA903 data revealed large and unlikely differences in the proportion of foster placements by the LA caring for the child.[24] DfE did further work with LAs to reduce misreporting, but in 2023, the national statistical release did not include statistics on children in long-term foster care. A further limitation is that the date the long-term foster care decision was made was not collected.

[24] Department for Education (2020) *A guide to looked after children statistics in England Version 1,5*

The truncation caused by the absence of data after age 22 prevents the ability to track educational progress beyond the traditional age at which young people complete higher education. Young people with experience of children's social care are likely to attend HE later than the general population (Harrison, 2020); many young people will still be studying at the age of 22 and many others will have yet to enter HE by age 22. This means that the results of this study are likely to underestimate the educational progress of young people with experience of children's social care.

The study lacks data on labour market statuses other than those involving education and training, so much of the broader life of the young person is unobserved.

This study considers only one birth cohort; experiences and outcomes may vary by cohort. One area where this may be particularly substantive is the timing and impact of the COVID-19 pandemic and its associated lockdowns, which significantly affected young people in general and students with experience of children's social care in particular.

These caveats can be weighed against the benefit of population statistics in national data for England. These provide an averaged and under-nuanced but relatively precise and detailed view of pathways into and through HE for children and young people with experience of children's social care between the ages of 16 and 22 in England in comparison with those of children eligible for free school meals and for the general population.

Ethics and Legal Basis

The data application for this project (Reference number: DS00731) was approved by the DfE's data sharing approval panel (Data license reference number: DR210831.01). The ethical and legal basis for linking data and analysing with the ONS's SRS can be found here: https://www.ons.gov.uk/aboutus/transparencyandgovernance/datastrategy/datapolicies/onsresearchanddataaccesspolicy.

Linking Datasets

The analysis was conducted in the SRS, part of the ONS.[25] Statistical disclosure policies were applied to ensure that data remained confidential, and no individual could be identified, resulting in tables not always summing to 100%. Counts lower than 10 were suppressed and replaced with the letter *a*, and counts lower than 5 were suppressed and

[25] This work was undertaken in the Office for National Statistics Secure Research Service using data from ONS and other owners and does not imply the endorsement of the ONS or other data owners. This work uses research datasets that may not exactly reproduce National Statistics aggregates.

replaced with the letter *c*. If the percentage (no decimal points) would have rounded to zero, the letter *k* replaces the percentage.

Individual datasets were aggregated on the unique de-identified PMR number to provide a single case ID for each student with all the relevant variables. All individual datasets were then linked via the PMR, providing a total eligible sample of 703,430 individuals. In order to meet the inclusion criterion of residence in England from the age of 11 and ensure continuity of educational experiences, only those individuals present in both the KS2 and KS4 census were considered eligible. As such, all cases that did not have matching IDs in the KS2 and KS4 datasets were removed, providing a complete-case cohort of 556,240 individuals (i.e., the core dataset). It is with this core dataset that all subsequent analysis was conducted.

Table A3 shows the overall match rate and a breakdown of the match rates for each dataset. The 'Total Sample' column shows the number of cases in each dataset, the 'Matched Sample' column shows the number of cases in each external dataset (e.g., HESA) that could be matched to the core dataset (i.e., those with IDs in both KS2 and KS4 datasets), and the 'Match Rate' columns show the proportion of these cases in each dataset that were matched. The 'forward match rate' is the percentage of cases in an external (e.g., HESA) dataset that was matched to the core dataset. For example, of the 319,660 cases from the 1998/99 birth cohort with valid data in the HESA dataset, 247,230 cases could be matched to the core dataset, and 247,230 / 319,660 = 77%. The 'reverse match rate' is the percentage of cases in the core dataset that was matched to an external dataset. For example, of the 556,240 cases in the core dataset, 247,230 were able to be matched to the HESA data, and 247,230 / 556,240 = 44%).[26]

The HESA data includes students throughout the UK (not just those in England) and those educated in private schools. Therefore, a lower forward match rate for the HESA data (compared to other external datasets) was expected. Similarly, less than half of young people typically go on to university, so a reverse match rate of less than 50% was expected. Some young people had no record of post-age-16 education in the KS5 or ILR datasets. These young people may have left England, been pregnant/parenting, been in custody or had health/disability issues that were acting as barriers to further education. The study did not link the labour market and other data (e.g., health data) and, therefore, could not identify outcomes after KS4 for some young people.

Some young people identified in the social care data may not have been matched if they only ever attended an independent school, had left care on a permanence order (e.g., special guardianship, child arrangement order, adoption order) or were unaccompanied

[26] The reverse match rates for the KS5 and Absences datasets (shown in Table A3) were inflated because they were matched to the core dataset using all of the available PMRs in those external datasets. For example, the KS5 dataset apparently included PMRs for all KS4 school children from the previous year who could have entered post-16 education, even though only a subset of these young people undertook post-16 education in schools.

asylum seekers because they would not have been assigned a UPN that could be matched (so would not be in the core dataset). In addition, the sample at KS4 (including absences and exclusions) may have included young people who had entered the UK school system after age 11—whether as asylum seekers or from outside England—that could not be matched with the KS2 sample (so would not be in the core dataset).

Table A1: Data Linking Matching Rates.

Dataset	Total Sample	Matched Sample	Difference	Forward Match Rate	Reverse Match Rate
All datasets combined	703,430	556,240	147,190	79%	74%
Match rates between the total, core, and external datasets					
KS2	569,880	556,240	13,640	98%	100%
KS4	610,660	556,240	54,420	91%	100%
Absences	586,110	540,550	45,560	92%	97%
Exclusions	76,630	71,360	5,270	93%	13%
CIN	107,730	97,590	10,140	91%	18%
CLA	14,190	11,960	2,230	84%	2%
KS5	603,470	520,590	82,880	86%	94%
ILR	463,040	394,940	68,100	85%	71%
HESA	319,660	247,230	72,430	77%	44%

Note: Data files were matched using the de-identified Pupil Matching Reference (PMR) ID number. Counts are rounded to the nearest 10. The forward match rate is the percentage of cases in an external dataset matched to the core dataset. The reverse match rate is the percentage of cases in the core dataset matched to an external dataset.

Missing Data

There are different kinds of missing data. For example, there may be young people who are entirely missing from a dataset, or there may be young people who are missing valid data values on a given variable but who otherwise have valid values on other variables in a given dataset. There are many ways to *assess* both of these kinds of missing data. For example, we describe below how we assessed the extent to which young people who were completely absent from an external dataset differed from young people who had valid data in an external dataset and could be matched to our core sample.

In this study, there was also a third kind of missing data, due to the reliance on administrative data over which project analysts had no control. Specifically, the administrative data had raw variables for which valid data values were assigned to indicate only affirmative instances. For example, for the raw variable ‘Number of KS4 sessions excluded from (one of five particular years)’, only affirmative instances of being excluded were recorded; that is, there was no ‘0’ assigned to young people who were known to have zero exclusions, and there was no missing data value (e.g., -9) assigned to young people whose exclusion status was unknown. In these cases, we assumed that the absence of a valid data value indicated ‘0’ rather ‘-9’ or, in other words, that there were no missing data on the given variable.

There are few ways to *address* analytically situations in which young people are missing completely from a dataset, but there are many ways to address situations in which young people are missing only some data values in a given dataset. For example, in the latter case, we could use multiple imputation procedures to estimate missing data values to construct a more complete dataset, or we could use full information maximum likelihood estimation procedures within the context of a particular analysis so that the model parameter estimates apply to people in the sample who have missing data on some of the variables in the model.

In most cases, in this study, no attempt was made to address missing data issues. For example, the logistic regression models involved only young people who had complete data on all included variables. The main exception was including missing data categories where examining the relationship between some categorical variables; in which cases, for example, the extent to which observed counts (and corresponding percentages) differed from what was expected by chance (or to other cell counts/percentages) took into account the presence of missing data on the included variables. However, no attempts were made to correct for whatever differential attrition (e.g., missingness on one variable that appeared to be related to valid responses on another variable) was observed for any given analysis. Consequently, consistent with the generally descriptive nature of this study, the results and interpretations of these analyses should be considered preliminary.

To assess the extent to which young people in the core dataset (i.e., young people in both the KS2 and KS4 datasets) whose data were able to be matched to data in the external datasets (i.e., the ‘matched sample’) were representative of both the total eligible sample and the samples available in the external datasets, Table A4 shows how the total eligible sample, the matched sample and the external non-matched sample (i.e., young people in an external dataset that could not be matched to the core dataset) differed on variables in the KS4 dataset. Although Chi-square and *t*-test analysis of the differences between the samples tended to be statistically significant, due mainly to the large sample sizes, most of those differences were relatively small.

Table A2: Eligible and Matched Cohort Comparisons on KS4 Demographic Characteristics

	Total sample (*n* = 610,660)*		Matched sample (*n* = 556,240)		Non-matched sample (*n* = 54,430)	
	N	**%**	**N**	**%**	**N**	**%**
Male	312,910	51.2%	283,900	51.0%	29,020	53.3%
Female	297,750	48.8%	272,340	49.0%	25,410	46.7%
Asian	51,340	9.2%	46,800	8.8%	4,550	17.6%
Black	27,370	4.9%	24,130	4.5%	3,240	12.5%
Mixed	22,880	4.1%	21,580	4.1%	1,300	5.0%
White	442,910	79.3%	428,380	80.4%	14,520	56.1%
Other	13,920	2.5%	11,650	2.2%	2,270	8.8%
No SEN	516,430	84.6%	465,670	83.7%	50,670	93.3%
SEN with Statement	21,380	3.5%	20,420	3.7%	960	1.8%
SEN without Statement	72,860	11.9%	70,150	12.6%	2,710	5.0%
Non-FSM	531,700	87.1%	480,750	86.4%	48,520	89.1%
FSM	78,960	12.9%	75,490	13.6%	5,910	10.9%
Special school	21,750	3.6%	19,250	3.5%	2,500	4.6%
Mainstream	586,670	96.1%	535,940	96.4%	50,730	93.3%
	N	**mean**	**N**	**mean**	**N**	**mean**
KS4 IDACI	610,660	0.20	556,240	0.21	54,430	0.1
Total KS2 point score	569,880	40.34	556,240	40.41	13,640	37.4
Fixed Exclusions	76,380	3.27	71,140	3.27	5,240	3.2
Absence Rate	586,110	6.21	540,550	5.94	45,570	9.4

Note: Counts are rounded to the nearest 10. * The total sample used for these analyses included only young people with KS4 data because most test variables were from KS4.

Specifically, individuals in the matched sample were, on average, practically indistinguishable from individuals in the total eligible sample. For example, the percentage of cases in each test variable category differed by more than 1% in only one case (i.e., the matched compared to the total sample included a slightly higher percentage of young people classified as ‘White’). In contrast, and although relatively minor overall, differences between individuals in the matched and non-matched samples

were both more numerous and of larger magnitudes. For example, young people in the matched (compared to non-matched) sample were more likely to be female, be classified as White, have a special educational need (SEN), be eligible for free school meals (FSM), attend a mainstream school and have higher KS2 academic attainment scores; they were also less likely to be classified as Black or Asian.

Wave Structure

In constructing a longitudinal cohort, this study had the specific complication that the data for different parts of students' educational pathways from KS4 to HE came from different administrative datasets. As described in detail below, this study defined and measured educational pathways in terms of the sequence of qualifications[27] that young people attained as they moved through the system (as opposed to the years and ages at which they obtained qualifications). To allow for the diversity of post-16 pathways by routes and ages, the data were organised as shown in Table A5.

Table A5: Definition of Waves of Measurement for Pathways into and through HE

	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
Shorthand	Qualification at the end of KS4	Registered qualification at the start of FE	Qualification at the end of FE	Registered qualification at the start of HE	Qualification at the end of HE
Specification in data	GCSE qualification completed in Year 11	Educational qualification registered for at the start of formal post-16 education and training, whenever that started for the individual	Level 2 or 3 qualification by age 22 or prior to entry to Level 4, whichever came first	Educational qualification registered for at the start of Level 4 qualification (before age 22)	Educational qualification at the end of HE or age 22, whichever came first

By way of example, Table A6 shows how the data structure worked for young people following the traditional academic pathway,[28] as the most straightforward pathway from age 16 to HE entry. Table A6 shows the standard ages, academic years and calendar years for the 1998/99 birth cohort, along with the corresponding attainment stages, qualification levels and data waves (including the data sources).

[27] Qualifications in England are categorised into nine levels (Gov.uk, n.d.), reflecting the relative difficulties of the qualifications and of advancing through the education system. They range from Entry Level (such as English for speakers of other languages and Skills for Life) to Level 8 (a doctorate, such as PhD or DPhil).
[28] The traditional model of academic progression from school to university is well established for many as a series of steps: high GCSE scores at the end of KS4 in the school system, A-levels for two years at a school sixth-form or other FE college and then, immediately or one year later, participation in a degree course at an HE institution.

Table A6: Data Structure for Young People in the 1998/99 Birth Cohort on the Traditional Higher Education Pathway

Age	Academic year	Calendar year	Attainment stage description	Qualification level	Data wave
10 / 11	Year 6	2009/10	KS2	Level 1	Wave 1 (NPD)
15 / 16	Year 11	2014/15	KS4/GCSE	Level 2	Wave 2 (NPD)
16 / 17	Year 12	2015/16	Beginning of KS5/A-levels/FE	Level 3	Wave 3 (NPD, ILR)
17 / 18	Year 13	2016/17	End of KS5/A-levels/FE	Level 3	Wave 4 (NPD, ILR)
18 / 19	+1	2017/18	First year of HE	Level 4	Wave 5 (ILR, HESA)
19 / 20	+2	2018/19	Second year of HE	Level 5	Wave 6 (ILR, HESA)
20 / 21	+3	2019/20	Completion of full (three-year) degree	Level 6	Wave 6 (ILR, HESA)

Measures

Outcome variables

The primary outcomes of interest relate to initial participation in HE. We also consider HE outcomes and the pathways students take into and through HE, within the timeframes in the available data. The project covers higher education offered both by HE institutions (in the HESA dataset) and FE colleges (in the ILR dataset).

More detail about the construction of the following five primary outcome variables—from the raw variables and their transformations—is summarised in Section I of the *Codebook* of Variables (Appendix B).

Initial Entry to Higher Education (OV1). This is a binary measure of initial entry to higher education, measured as entering university (a recorded entry in the HESA) or enrolling in a Level 4 qualification at an FE college (identified with the ILR dataset).

OV1: 1 = Yes, 0 = No

Type of Institution Initially Attended (OV2). Research by Harrison (2020) suggests that full-time students with experience of children's social care are substantially under-represented in Russell Group and pre-1992 universities. In contrast, part-time students with experience of children's social care are over-represented in pre-1992 universities, mainly the Open University.

This study used Boliver clusters (Boliver, 2015) to categorise the type of institution attended. The four Boliver clusters[29] were developed to better reflect differentiation within the current UK university system, considering research activity, teaching quality, economic resources, academic selectivity and socioeconomic student mix rather than divisions along more binary distinctions relating to institution age, such as 'old' versus 'new'. OV2 is a categorical variable that classifies the institution initially attended using a sixfold classification based on Boliver's cluster analysis. The earliest enrolment date on a Level 4 (or higher) course was used to select the institution initially attended, whether this information came from the ILR (FE college) or HESA (University).

OV2: 1 = Oxbridge, 2 = Russell group/Old (pre-1992) universities, 3 = New/Old universities, 4 = New universities, 5 = Non-grouped 6 = FE colleges.

Qualification Initially Pursued (OV3). This outcome measures whether the individual was enrolled in studying for a first (e.g., bachelor's) degree, a subdegree or no degree. The degree category was derived from the specified qualification enrolment level, based on the first registered Level 4+ course in the ILR or HESA. The degree category includes those enrolled on a degree programme, alongside Level 6 qualification courses and postgraduate courses. The subdegree category consists of all Level 4 and 5 qualifications, such as a foundation degree, HND, DipHE or undergraduate credits. The 'no degree' category comprises university students with an initial Level 3 registration.

OV3: 1 = Degree, 2 = Subdegree, 3 = No degree

University Continuity (OV4). This is a binary variable indicating a continuous or discontinuous pathway through the university. Continuity means the individual maintained the same course of study at the same university, whereas discontinuity means the individual paused their studies at any point or changed one or more of the following: the university they attended, the primary course or subject they studied, or their mode of study (i.e., full time or part time). Within the HESA dataset, binary variables were initially created for these four chosen characteristics, indicating whether a change had occurred. Where a student had no recorded changes on any of these aspects, they were placed into the 'yes' category for university continuity, with everyone else placed in the 'no' category.

OV4: 1 = Yes, 0 = No

Higher Education Qualification (OV5). This categorical variable captures HE outcome status within the specified timeframe; that is, completion of a degree or subdegree, still studying, withdrawn with unplanned qualification, and withdrawn without qualification.

[29] The Boliver clusters are based on HESA data for 127 UK universities, yielding four distinct groups: Oxbridge, Russell Group and old (pre-1992) universities, new (post-1992) and old universities, and new universities. The analysis also included two further categories: those not grouped within the Boliver clusters (e.g., some for-profit institutions and the Open University) and FE colleges.

This variable identifies the highest qualification obtained within the known timeframe; where a qualification had not been completed, their last known status is provided. For the degree category, we combined postgraduate qualification, degree completed, and Level 6 qualifications from the ILR. The subdegree category comprises all those who completed a subdegree level course within the timeframe, excluding those who also completed a degree or those who withdrew with an unplanned subdegree. Where an individual had completed a subdegree and later enrolled on a degree program, they were coded into the 'completed a subdegree' category and not 'continuing studies'. Those in the continuing category are all those who had not completed an HE qualification or had not been identified as withdrawn. Where students' last known registration indicated a change in course, transfer in provider or a pause in studies, they were coded as 'continuing studies'. Those students who initially enrolled on a degree program but withdrew with a subdegree or Level 3 qualification, and those enrolled on a subdegree that withdrew with a Level 3 qualification, were placed in the 'withdrawn with unplanned qualification' category. The final category is all students who withdrew from their HE level course without any qualification.

OV5: 1 = Degree, 2 = Subdegree, 3 = Continuing, 4 = Withdrawn with unplanned qualification, 5 = Withdrawn with no qualification

Auxiliary Outcome Variables

In addition to the primary outcome variables, several auxiliary outcome variables were constructed that both (a) reflect alternative ways of operationalising the primary outcome variables and (b) are suitable (in most cases) to use as dependent variables in the logistic regression analyses. For example, the six-level OV2 (i.e., Type of Institution Initially Attended) was simplified to a binary variable, OV2b (i.e., Entry into a Top-tier HE Institution), to focus on the distinction between entering the highest-prestige HE institutions (i.e., Oxbridge and Russell group/old universities) versus all other HE institutions. Each auxiliary outcome variable is documented, together with its corresponding primary outcome variable, in Section II of Appendix B.

Age 18/19 Entry (OV1b). A binary variable of age of initial entry into HE was created from information about the first year that students entered a Level 4 course, in either the ILR or HESA dataset. Those who entered at age 18/19 or earlier reflected the traditional HE pathway and were coded as 1, whereas any student who entered at a later date was on an alternative path into HE and coded as 0.

OV1b: 1 = Yes, 0 = No

Entry into a Top-tier HE Institution (OV2b). A binary variable was created from OV2, which combined categories 1 (Oxbridge) and 2 (Russell group/Old universities) of the institution initially attended.

OV2b: 1 = Yes, 0 = No

Completed Degree (OV5b). A binary variable was created, from OV5, for young people who completed a degree or higher by age 22 versus those who did not complete a degree.

OV5b: 1 = Yes, 0 = No

Explanatory Variables

This study included demographics, social care, education pathways, and other variables to facilitate comparisons between the seven analytic groups and identify potential risk or protective factors that might operate differentially across the groups of young people. Section III of Appendix B summarises further details about the construction of these and other explanatory variables.

Demographic characteristics

Sex/Gender and Race/Ethnicity. Among children and young people with experience of social care and children in the general population, educational outcomes are consistently poorer for males than females and for those with racial/ethnic minority status (e.g. O'Higgins et al., 2017).

Sex/gender was taken from the KS4 dataset and measured through a binary variable, with female as the reference category. Race/ethnicity was measured at KS4 and grouped into five categories, from the 99 categories used in the source NPD variable, to provide a simplified categorical variable of race/ethnicity, with White set as the reference group.

Sex: 0 = Female, 1 = Male

Ethnicity: 0 = White, 1 = Asian, 2 = Black, 3 = Mixed, 4 = Other

Special Educational Needs (SEN) Provision. National statistics show that children with identified SEN have much lower attainment compared with those without SEN. Children in Need have much higher SEN rates than the general population.[30] This reflects, in part, that children with a disability are included in the statutory definition of 'in need' under the

[30] https://explore-education-statistics.service.gov.uk/find-statistics/outcomes-for-children-in-need-including-children-looked-after-by-local-authorities-in-england

Children Act 1989 and that it is the duty of the local authority to maintain “a reasonable standard of health or development” (Children Act 1989, section 17, 10a).

A categorical variable was created for the level of SEN provision received at KS4, identifying those receiving provision with and without a Statement (or EHC plan). Where no SEN provision was recorded within the dataset, children were coded as 1 to indicate no identified SEN.

SEN: 1 = No identified SEN, 2 = SEN with Statement (or EHC plan), 3 = SEN without Statement (or EHC plan)

Free School Meal (FSM) eligibility. Family and neighbourhood poverty are disproportionately high among those receiving social work interventions. For example, Fletcher et al. (2015) found that over half of Children in Need and Children in Care (the latter on a short-term basis) were eligible for FSM, compared to less than a quarter of those not in care or in need. A binary variable was created to indicate whether the student was ever eligible for free school meals in the last six years (from the end of KS4), with ‘yes’ set as the reference category.

FSM: 0 = Yes, 1 = No

Local Area Deprivation. Local area deprivation was measured at KS4 through the IDACI score, which was included in the analysis as a point score. A quintile version of this variable was created for descriptive purposes, and an additional three-level categorical variable was also created from quintiles for use in the regression analyses, which was split into the bottom 20%, middle 60%, and top 20% areas of deprivation.

IDACI Group: 1 = Bottom to 5 = Top

Absences, Exclusions, and Alternative Provision. Children and young people who have spent time in care are more likely to experience disruptions to their schooling in terms of school changes, absences and exclusions. Berridge et al. (2020) noted that, across all the groups explored in their study[31], children and young people ‘with experience of social work interventions’ (p. 33) were more likely to attend non-mainstream schools than their peers. For example, at KS2, compared with 0.3% of their peers, children with experience of social care were at least six times as likely to attend a non-mainstream school. At KS4, the proportion in non-mainstream settings increased to 1.3% of the general population, with one in five children in these settings subject to a CINP for six months or more and almost a quarter of them with experience in care.

According to Fletcher et al. (2015), far higher proportions of Children in Care and Children in Need than the general population change school during secondary education,

[31] Children in Care; children on a CPP; children subject to a CINP.

particularly during KS4 and term time. Children and young people with experience of social care also have higher levels of unauthorised absences and exclusions from school than their peers: on average, 4 to 8 times as many fixed-terms exclusions and between 6 and 13 times as many permanent exclusions, than other children. Sebba et al. (2015) showed that, controlling for other factors, young people who changed schools in Years 10 or 11 scored over five grades lower in their GCSEs than those who did not.

Sinclair et al. (2019) identified factors correlated with the likelihood of those with longer-term experience of being In Care—five groups ranging from entry into care before KS1 to later in KS4—catching up to their peer group in terms of average attainment at age 16 These included:

- being in a mainstream (as opposed to a non-mainstream) school
- being in a mainstream school that has been shown to be ‘effective’ at supporting other educationally disadvantaged groups; namely, children eligible for FSM and those with social difficulties or with initial low attainment
- being in a stable placement in the two years before the KS4 census point

A binary variable was created from the school type at KS4. Comprehensive, selective, modern and independent schools were combined to reflect mainstream schools. Not ADMPOL, maintained special schools, hospitals and pupil referral units (PRUs), and non-maintained/independent special schools were combined to reflect non-mainstream schools.

Mainstream: 1 = Yes, 0 = No

The total absence rate was taken as the number of authorised or unauthorised absences, as a proportion of the annual total number of sessions from 2011 to 2015. This variable was then split into quintiles for analysis, with quintile 5 as the reference category.

Total Absence Rate: Quintiles 1–4 = 1, quintile 5 = 0

Fixed exclusion was defined as a binary variable of whether a child had a fixed or permanent exclusion (from 2011 to 2015).

Fixed Exclusion: 1 = Yes, 0 = No

School change was derived from the ‘joined the school in the last 2 years' variable at KS4, indicating a disruption in their school education.

School Change: 1 = Yes, 0 = No

KS4 Attainment. Addressing the importance of educational attainment at KS4, we included a binary measure of KS4 attainment. Young people who achieved 5 A to C’s including English and maths were distinguished from those with all other qualifications (including none).

KS4 5 A–C: 1 = Yes, 0 = No

The total point score of attainment at KS2 (i.e., total KS2 point score used in value-added calculations) and KS4 (i.e., total GCSE and equivalents new style point score) were also included as continuous variables.

Experiences in Care. Ahmed et al. (2022) found that Children Looked After who had more favourable outcomes (e.g., higher proportions recorded in KS5, HE and employment) fell into one of the following four groups:

- aged 12 or younger when they first entered care
- in care for over five years
- did not re-enter care
- in foster placements only

Sebba et al. (2015) found that, controlling for other factors, young people who had been In Care for longer—those already in care at the end of KS2 for 12 months or more continuously at the end of KS4—did better in their GCSE exams than children In Need and those who had only been in short-term care. Overall, their results indicated that placement changes were risk factors for looked after children's educational outcomes, with analysis showing that more changes in the later years of schooling had a stronger relationship with KS4 scores than those in earlier years. They also found that young people living in foster or kinship care did better, on average, in their GCSEs than young people in residential or other types of placements at age 16 (see also Sinclair et al., 2019). Similarly, in a review of studies from the US, Pecora (2012) showed that young people with one fewer care placement per year were almost twice as likely to complete high school before leaving care (see also Gypen et al., 2017).

The primary need at first entry into care is a categorical variable within the CLA dataset that was grouped into three categories for analysis. Abuse or neglect informs the first group, family stress and dysfunction the second, and disability, socially unacceptable behaviour, low income, absent parenting and other cases the third group.

Primary Need, CLA: 1 = Abuse/neglect, 2 = Family stress/dysfunction, 3 = Other

The 38 categories of the CLA 'placement' variable, which indicates the type of care placement a young person was last in, were grouped into 3 categories for analysis. 'Foster care with foster carer' and 'Foster care with friends or relatives' were combined into a single group. "Children's homes" and 'residential schools' were combined into a second group. Adoption, semi-independent, refuge, independent, residential and other were combined into a third group. (Note: Other variations of the 'placement type' variable were also constructed, focused on those who only had foster care, only had residential care, or had mixed placements).

Placement Type: 1 = Foster care, 2 = Residential, 3 = Other

To account for the stability of longer periods of care, we included a measure of the total number of years continuously spent in care.

Acknowledging the disruptions faced with entering care during secondary school, and the favourable outcomes found for children entering care before age 12, we included a binary variable for those entering care after KS2.

Enter Care, Secondary: 1 = Yes, 0 = No

Where specific analysis of Children in Need is conducted, we included a primary need variable constructed from the CIN dataset that used the same groups described for the CLA version of this variable.

Primary Need, CIN: 1 = Abuse/neglect, 2 = Family stress/dysfunction, 3 = Other

The age at which a child or young person enters need was grouped into three categories.

CIN Entry Age: 1 = Under 11, 2 = Age 11–13, 3 = Age 14+

To account for the mental health of the child or young person, we created a binary variable from the factors identified at the end of assessment in the CIN dataset, selecting the ‘mental health concerns about the mental health of the (PRUs) child’ (CMH) category.

CMH Concern: 1 = Yes, 0 = No

Educational Pathway Status Variables

The following wave-specific educational pathway status variables represent the qualifications young people achieved at secondary, further, or higher education and the qualifications registered for at the beginning of further and higher education. Each variable represents one phase in the sequence of events, defined as qualifications registered for and achieved at a given phase, that young people experienced along their educational pathway from the end of KS4 to the end of HE (or age 22, whichever came first). In other words, each data wave represents the educational status of each young person as they start or end their participation in the standard structure of the English education system (see Table A1), as opposed to the calendar year or age at which they registered for or obtained their qualifications. Together, they were used to construct the educational pathway variables (described below, in the Educational Pathway Variables section).

Wave 2. The Wave 2 educational pathway status variable represents the student’s qualification at the end of KS4, when most students in the 1998/99 birth cohort were 16 years old. The seven possible categories of the original variable, found in the NPD dataset (see Section IV of Appendix B), were reduced to the following four categories:

1 = GCSE-High, meaning completing five or more A*–C or equivalents, including English and Maths

2 = GCSE-Medium, meaning completing five or more A*–C or equivalents, not including English and Maths

3 = GCSE-Low, meaning completing one or more A*–G or equivalents or achieving one or more passes in KS4 performance tables qualifications

4 = GCSE-No, meaning no passes in KS4 performance tables qualifications, entries in KS4 non-performance tables qualifications only, or no recorded results

Wave 3. The Wave 3 educational pathway status variable represents the educational qualification registered for at the start of formal post-16 education and training, whenever that starts for the individual, when most students in the 1998/99 birth cohort were 17 years old. Several NPD and ILR variables (e.g., 'course aim'; see Section IV of Appendix B) were used to construct the final Wave 3 analytic variable, which has the following five categories:

1 = A-levels, meaning they registered for an A-level program

2 = Vocational, meaning they registered for a vocational program

3 = GCSE, meaning they registered for a GCSE program

4 = Apprenticeship, meaning they registered for a vocational program to undertake an apprenticeship

5 = Other

Young people without registration information at the start of formal post-16 education and training were assigned to a missing data code.

Wave 4. The Wave 4 educational pathway status variable represents the young person's educational Level 2 or 3 qualification achieved by age 22 or prior to entry to Level 4 whichever came first, when most students in the 1998/99 birth cohort were 18 years old. Several NPD and ILR variables (see Section IV of Appendix B) were used to construct the final Wave 4 analytic variable, which has the following nine categories:

1 = A-levels (2+), meaning they achieved the equivalent of two A-levels or a Level 3 qualification

2 = A-levels (<2), meaning they completed less than two A-levels, so did not achieve a Level 3 qualification

3 = Vocational (Level 3), meaning they completed a Level 3 vocational qualification

4 = Vocational (Level 2-), meaning they completed a vocational qualification below Level 3

5 = Apprenticeship (advanced), meaning they completed an advanced apprenticeship or equivalent Level 3 NVQ

6 = Apprenticeship (intermediate), meaning the completed an intermediate apprenticeship that was below the Level 3 NVQ

7 = Access, meaning they completed an Access course

8 = Continuing studies, meaning they had not completed any FE post-16 qualifications but were still working towards them (as of age 22)

9 = Withdrawn, meaning they withdrew from FE course work.

Young people without qualification information at the end of FE were assigned to a missing data code.

Wave 5. The Wave 5 educational pathway status variable represents the educational qualification registered for at the start of Level 4 qualifications (prior to age 22), when most students in the 1998/99 birth cohort were 18/19 years old. Several ILR and HESA variables (e.g., 'course aim'; see Section IV of Appendix B) were used to construct the final Wave 5 analytic variable, which has the following four categories:

1 = Degree, meaning they registered for a degree program

2 = Degree (Apprenticeship), meaning they registered for a degree program as part of an apprenticeship

3 = Subdegree, meaning they registered for a subdegree program (e.g., foundations degree)

4 = Subdegree (Apprenticeship), meaning they registered for a subdegree program as part of an apprenticeship.

Young people with no educational registration information at the start of HE were assigned to a missing data code.

Wave 6. The Wave 6 educational pathway status variable represents the student's qualification at the end of HE (or age 22, whichever came first), when most students in the 1998/99 birth cohort were 22 years old. Several ILR and HESA variables (see Section IV of Appendix B) were used to construct the final Wave 6 analytic variable, which has the following eight categories:

1 = Post Graduate, meaning they had attained a post-graduate qualification

2 = Degree I, meaning they had attained a bachelor's degree, first class

3 = Degree II:i, meaning they had attained a bachelor's degree with a 2:1 classification

4 = Degree II: ii/III, meaning they had attained a bachelor's degree with either a 2:2 or 2:3 classification

5 = Degree other, meaning they had attained a bachelor's degree with no classification specified

6 = Subdegree, meaning they attained a subdegree qualification

7 = Continuing, meaning they were still working toward a qualification

8 = Withdrawn, meaning they withdrew from HE without a qualification

Young people with no degree or other educational outcome information at the end of HE were assigned to a missing data code.

Educational Pathway Variables

This study defines and measures each young person's educational pathway through the English education and training system mainly in terms of the sequence of qualifications that young people attained as they moved through the system (as opposed to the years and ages at which they obtained these qualifications). The educational pathway status variables (described above and detailed in Section IV of Appendix B) were used to construct a smaller, simplified set of educational pathway variables: academic, vocational, and apprenticeship. Details about the construction of each educational pathway variable are shown in Section V of Appendix B.

The first set of pathways is referred to as academic because each pathway in this set involves registering for A-levels course work at the start of FE and an A-levels qualification at the end of FE. The second set is referred to as vocational because each pathway in this set involves registering for vocational course work at the start of FE and an NVQ qualification at the end of FE. The third set is referred to as apprenticeship because each pathway in this set involves registering for a work-based apprenticeship at the start of FE and a work-based apprenticeship qualification at the end of FE. Within each of these sets, we identify eight or nine different kinds of pathways, depending on the specific sequence of events characterizing each young person as they move from the end of KS4, through FE, and into or through HE.

Despite these three sets, and the many pathways within each set, the common distinction between (a) the traditional standard, linear academic route into university' (i.e., GCSEs, A-levels, and straight into university to study a degree) and (b) alternative routes into university means that we refer regularly to four different kinds of educational pathways: *traditional academic pathways*, *alternative academic pathways*, *vocational pathways*, and *apprenticeship pathways*. After briefly summarising the construction of each of the many academic, vocational, and apprenticeship pathways to and through HE, we then describe how we combined the diverse educational pathway information into a few simplified variables focused on how young people followed one of the traditional academic, alternative academic, vocational, or apprenticeship pathways into and through HE.

Most of the educational pathway variables used in this study were focused on a particular educational outcome (e.g., HE entry) and constructed to test a set of related research questions about that outcome. For example, the first set of pathway variables (and subsequent analyses) address questions about the traditional and alternative educational pathways young people follow from the end of KS4 (Wave 2 qualifications), through FE

(i.e., Waves 3 & 4) and then into and through HE (i.e., Waves 5 & 6). In addition to (a) HE entry (OV1), we also describe educational pathways focused on (b) age 18/19 entry into HE (OV1b), (c) entry into a top-tier HE institution (OV2b) and (d) attaining a degree or higher by the age of 22 (OV5b).

Pathways to Higher Education Entry

Academic Pathways. The first set of educational pathways ('Traditional Pathway to HE Entry') was constructed by combining information about young people from the pathway status variables corresponding to the end of KS4 to the end of FE (i.e., Waves 2, 3, & 4) together with 'Initial Entry into HE'.

For example, if a young person (e.g., 'Rebecca') had (a) attained five or more A*–C or 9–4 grades for GCSEs or equivalents, including English and Maths, by the end of KS4; (b) registered for A-levels at the start of FE; (c) attained two or more A-levels by the end of FE; and (d) entered HE, then Rebecca was classified as following the traditional academic pathway to HE entry. The dichotomous Traditional Pathway to HE Entry variable is summarised in the top panel of Table B1 (see Appendix B).

In addition, because there is often interest in knowing how HE entry rates vary across different groups of young people with experience of social care *for only those who entered HE*, this conditional information about HE entry rates is represented by a second pathway variable, which includes both the traditional academic pathway category together with several different alternative academic pathways from the end of KS4 to HE entry. In this case, the focus was on alternative pathways characterised by different academic attainments (i.e., as opposed to vocational or apprenticeship information, described below). This 'Traditional and Alternative Academic Pathways to HE Entry' variable was similarly constructed by combining information about young people from the Wave 2 through Wave 4 pathway status variables together with those entering university.

For example, if a young person followed the previously described traditional pathway to HE, then they were also classified as following the traditional academic pathway into HE on the Traditional and Alternative Academic Pathways to HE Entry variable. Similarly, if a young person (e.g., 'John') had (a) attained five or more A*–C or 9–4 grades for GCSEs or equivalents that did *not* include English and Maths by the end of KS4; (b) registered for A-levels at the start of FE; (c) attained two or more A-levels by the end of FE; and (d) entered HE, then John was categorized as having followed one (of the eight) alternative academic pathways to HE entry.

In addition to several additional alternative academic pathways characterized mainly by different qualifications at the end of KS4 and various pathways through FE, we also included alternative academic pathways focused on young people who registered for GCSEs at the start of FE, presumably to increase their GCSE qualifications before working on their A-levels. For example, young people who ended KS4 with five or more

A*–C or 9–4 grades for GCSEs or equivalents that did *not* include English and Maths, registered for GCSEs at the start of FE, ended FE with two or more A-levels and then entered HE were categorized as following one of the eight alternative academic pathways on the Traditional and Alternative Academic Pathways to HE Entry variable, as summarized in Table B1. Pathways that involved a mix across waves of academic, vocational, and apprenticeship registrations and qualifications, as defined in this study, were classified as missing data (on this and the other pathway variables, described below).

Vocational Pathways. A third educational pathway variable was created to examine the potentially viable routes to HE entry through vocational options during FE (i.e., 'Vocational Pathways to HE Entry'), again focused only on young people who entered HE. For example, if a young person attained five or more A*–C or 9–4 grades for GCSEs or equivalents, including English and Maths, by the end of KS4; registered for vocational or GCSE studies at the start of FE;[32] attained an NVQ Level 3 qualification at the end of FE and then entered HE; they were categorized as following one of the eight vocational pathways to HE entry, as summarized in Table B1.

Apprenticeship Pathways. To examine the potentially viable routes to HE entry that go through apprenticeship options during FE, a fourth educational pathway variable was created (i.e., 'Apprenticeship Pathways to HE Entry'), again focused only on young people who entered HE. For example, if a young person attained five or more A*–C or 9–4 grades for GCSEs or equivalents, including English and Maths, by the end of KS4; registered for an apprenticeship or GCSEs at the start of FE; attained an advanced (Level 3) apprenticeship qualification at the end of FE and then entered HE, they were categorized as following one of the eight apprenticeship pathways to HE entry, as summarized in Table B1.

Pathways to Age 18/19 Higher Education Entry

The construction of the educational pathway variables representing the academic, vocational and apprenticeship pathways from the end of KS4 to age 18/19 HE entry followed the same procedure used to construct the previously described HE entry pathway variables, with one exception: 'Initial Entry to HE' (OV1) was replaced with 'Age 18/19 HE Entry' (OV1b). In other words, the same set of pathway status variable codes was used from Wave 2 (i.e., 'Qualifications at the end of KS4') to Wave 3 (i.e., 'Registered qualification at the start of FE') to Wave 4 (i.e., 'Qualifications at the end of FE'), but the OV1b auxiliary outcome variable 'Age 18/19 HE Entry' was used in place of the OV1 (i.e., 'Initial entry to HE Entry') primary outcome variable. The resulting

[32] The W2 GCSE and Vocational categories were combined here (and elsewhere) to ensure that young people who had registered for GCSEs before working on their vocational qualifications were included in this and similar pathways.

academic, vocational and apprenticeship pathway variables, with their pathway-specific coding patterns, are shown in Table B2.

Pathways to Entry into a Top-tier (Boliver) Higher Education Institution

The construction of the educational pathway variables representing the academic, vocational and apprenticeship pathways from the end of KS4 to a top-tier HE institution at HE entry followed the same procedure used to construct the previously described HE entry and age 18/19 HE entry pathway variables, with the same exception: the OV1b outcome variable (i.e., 'Age 18/19 HE Entry') was replaced with the OV2b outcome variable (i.e., 'Entry into a Top-tier HE Institution'). The resulting academic, vocational and apprenticeship pathway variables, with the pathway-specific coding patterns, are shown in Table B3.

Pathways to the End of Higher Education (or age 22)

The educational pathway variables representing the academic, vocational and apprenticeship pathways from the end of KS4 to the end of HE (or age 22, whichever came first) were constructed by combining (a) the previously specified academic, vocational and apprenticeship pathways from Wave 2 to Wave 4 with (b) the pathways (described below) from Wave 5 (i.e., 'Registered qualification at the start of HE') to Wave 6 (i.e., 'Qualification at the end of HE' or by age 22).

The educational pathways from W5 to W6 represent the relationship between a young person's degree registration at HE entry and the HE degree they attained by age 22. To simplify this analysis, the first five categories of the Wave 6 pathway status variable (e.g. 'Postgraduate degree' and 'Degree with first-class honours') are referred to, collectively, as 'Degree'. Consequently, for each of the four Wave 5 degree registration categories (i.e., 'Degree', 'Degree Apprenticeship', 'Subdegree' and 'Subdegree Apprenticeship'), we coded whether the young person followed a pathway to one of four possible Wave 6 degree attainment categories: 'Degree', 'Subdegree', 'Continuing' or 'Withdrawn'. For example, a young person who registered for a first (Level 6) degree at the start of HE may have (a) attained a degree by the end of HE (or by age 22), (b) attained a subdegree, (c) been continuing their studies or (d) withdrawn from HE studies. The 16 Wave 5 to Wave 6 pathways through HE implied by the four Wave 5 degree registration categories and the four Wave 6 degree attainment categories were organised into four sets of four pathways, with each set being anchored to one of the four Wave 5 degree registrations; that is, the four sets of Wave 5 to Wave 6 pathways are referred to, respectively, as 'Degree registration pathways', 'Subdegree registration pathways', 'Apprenticeship degree registration pathways' and 'Apprenticeship subdegree registration pathways'.

After constructing the 16 possible pathways from the four Wave 5 degree registrations to the four Wave 6 degree attainments, the complete set of educational pathways was

constructed from the end of KS4 (i.e., Wave 2) to the end of HE (i.e., Wave 6) by connecting the previously described academic, vocational and apprenticeship pathways from Wave 2 to Wave 4 with the 16 possible pathways through HE (i.e., from Wave 5 to Wave 6). Specifically, the Wave 2 to Wave 4 parts of the nine 'Traditional and Alternative Academic Pathways to HE Entry' variable were connected to the four 'Degree registration pathways' from Wave 5 to Wave 6 to yield the 36 'Traditional and Alternative Academic Pathways from KS4 to HE Degree Registration and HE Attainment by Age 22' shown in Table B4.

As detailed in Section V of Appendix B, similar procedures were used to construct (a) the 36 'Traditional and Alternative Academic Pathways from KS4 to HE Subdegree Registration and HE Attainment by Age 22' shown in Table B5, (b) the 36 'Traditional and Alternative Academic Pathways from KS4 to HE Apprenticeship Degree Registration and HE Attainment by Age 22' shown in Table B6 and (c) the 36 'Traditional and Alternative Academic Pathways from KS4 to HE Apprenticeship Subdegree Registration and HE Attainment by Age 22' shown in Table B7. Finally, following the same logic, we next constructed the analogous 'vocational' pathways to HE outcomes shown in Tables B8 to B11 and 'apprenticeship' pathways to HE outcomes shown in Tables B12 to B15.

Simplified Educational Pathway Variables

In order to simplify the presentation of the relationships between the educational pathways from the end of KS4 to FE and on to the four main outcome variables used in the pathway analyses (i.e., 'HE Entry', 'Age 18/19 HE Entry', 'Entry into a Top-tier HE Institution' and 'Degree Attainment by age 22'), four simplified educational pathway variables were created. Each simplified pathway variable was focused on one of these four main outcome variables and, as described below, combined pathway information from several of the previously described academic, vocational and apprenticeship pathways variables.

The first simplified pathway variable, 'Simplified Educational Pathways to HE Entry', was constructed by combining information from 'Traditional and Alternative Academic Pathways to HE Entry', 'Vocational Pathways to HE Entry' and 'Apprenticeship Pathways to HE Entry' variables described above. For example, if a young person followed the traditional academic pathway from KS4 to HE entry, then they were categorized as following the 'traditional academic' pathway on the 'Simplified Educational Pathways to HE Entry' variable. Similarly, if a young person followed a vocational pathway from KS4 to HE entry, then they were categorized as following the 'vocational' pathway on the 'Simplified Educational Pathways to HE Entry' variable. The complete construction of the simplified educational pathways to 'HE Entry', 'Age 18/19 HE Entry', 'Entry into a Top-tier HE Institution' and 'Degree Attainment by age 22' is summarised in Appendix B (e.g., Tables B16, B17, B18 and B19, respectively).

Analytic Plan

The analytic plan involved three stages of analysis: (a) descriptive analysis of all variables across the seven analytic groups; (b) regression analysis of the relations between the explanatory and outcome variables, focusing particularly on the extent to which the baseline relations between group membership and outcomes were affected by the explanatory variables; and (c) pathway analysis of the various routes from KS4, through FE into HE, and through HE to degree attainment.

In the first stage of analysis, we generated and tabled descriptive statistical information, for each of the seven analytic groups, on the outcome, explanatory and educational outcome pathway variables. Given the volume of findings associated with these descriptive analyses, we highlight a few key variables that were central to subsequent analysis, with most of the descriptive results tabled for archival purposes. In some cases, we also use the results of these basic descriptive analyses to generate secondary research questions about how these relationships provide the basis for data-driven hypothesis-building that guided the remainder of the analysis.

In the second stage of analysis, we used binary logistic regression analysis to (a) replicate a prototypical multivariate model used for predicting educational attainment (i.e., ‘Entry into HE’) for young people with experience of social care (b) extend that regression model by including our seven analytic groups, and (c) apply a simplified prediction model (i.e., using a subset of explanatory variables) to each of the primary outcome variables.

In the third stage of analysis, we provide a relatively detailed descriptive examination of the educational pathways followed by young people from the end of KS4, through FE into HE, and through HE to degree attainment. We begin by providing descriptive statistical information on about two dozen educational pathway variables, including how the numbers of young people following different pathways varied across the seven analytic groups. Next, we consolidated much of this pathway information into four different kinds of educational pathways (i.e., traditional academic, alternative academic, vocational, and apprenticeship) that we then examined in relation to four key outcomes variables (i.e., HE Entry, Age 18/19 HE Entry, Entry into a Top-tier HE Institution and Degree Attainment by Age 22).

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