# School choice in England: evidence from national administrative data

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**ABSTRACT**

We study school choice in England using a new dataset containing the choices of all parents seeking a school place in state secondary schools. We provide new empirical evidence to inform how the school choice market functions, including the number of choices made, whether the nearest school is the first choice and the probability of an offer from the first choice school. These indicators show that school choice is actively used by many households in England. We use the rich data available to describe how choices vary by pupil, school and neighbourhood characteristics and how school choice is used differently by different groups and in different parts of the country. For the first time, we are able to present national data on how the school choices made by parents vary according to pupils' ethnic group and across urban and rural areas. We show, contrary to some existing literature that has relied on smaller and less representative samples of parents and pupils, that school choices do not vary significantly by social background. We show that parents pro-actively use the choice system and present new evidence on the extent to which the current school admissions criteria that prioritise distance penalise poorer families.

## 1. Introduction

Schools matter and schools differ: educational attainment is key to a child's life chances, and schools vary in their ability to raise attainment. For this reason, the process that a country uses to assign its children to schools is important for their subsequent academic achievement and their life chances. Since 1988, England has used a system of school choice to do this. Parents nominate their preferred schools and, subject to school capacities, a set of published criteria are fed into an algorithm to determine the allocation of pupils to schools. This process has been standardised across areas and refined over time to prevent covert selection of pupils by schools (Allen, Coldron, & West, 2012; White, Gorard, Fitz, & Taylor, 2001).

This paper provides new quantitative evidence on the functioning of school choice in England, building on a large body of research on school choice that followed the introduction of market-based reforms in 1988. We use newly available national data which provides information on every household's secondary school choices for one academic year. The

scale of this data and the fact that it is a census enables us to provide the most representative picture of the school choice market to date. The approach that we take in this paper using large-scale national data complements a range of qualitative approaches that have been used to explore this issue and as such our paper provides novel findings that are, for the first time, nationally representative. We build on an important literature on the sociology of school choice which has relied on analysis of rich qualitative data from a small sample of parents (Bagley, Woods, & Glatter, 2001; Ball, Bowe, & Gewirtz, 1996; Ball & Vincent, 1998; Reay & Ball, 1998). There is also a literature which has taken a geographical approach, studying specific areas or group of areas in depth to account for the local context (Parsons, Chalkley, & Jones, 2000; Taylor, 2000, 2009). Of course, these different approaches have relative strengths and weaknesses. Using national data has the benefit of representativeness but at the expense of detail. We argue that this is appropriate for the system-wide research questions we pose. The contribution of this paper is therefore to provide a nationally representative and comprehensive picture of the current working of school choice in England, which will inform more detailed future research that can fully account for the local context and explore important emerging themes.

Our two main research questions are, first, to ask to what extent parents actively use the school choice system and how use of this system varies across households and neighbourhoods. Previous studies have provided information on the school choices made by select groups of parents living in particular areas or in specific social circumstances. This paper is the first to document the school choices made by parents across the country. We have also used the scale of the data to drill down into the school choices made by particular sub-groups of parents in a variety of different contexts. Second, we ask whether school choice is effective. By effective we mean improving education standards for pupils in England by enabling pupils to access more highly performing schools and providing meaningful choice for parents, in the sense that parents have a number of feasible schools to choose from and that they stand a good chance of accessing their preferred schools. The second research question is also motivated by the theoretical knowledge that school choice will only improve standards in schools overall if parents value academic standards as an important dimension of school quality. Determining the extent to which all parents tend to choose schools with higher academic standards is therefore an important contribution of the paper.

The first research question is answered using several indicators of active choice, described in turn.

**Do parents choose the closest school, regardless of academic standards?** Choosing the closest school will dampen the incentives for schools to improve academic standards and is therefore a key indicator for the system. Existing evidence is mixed. Following the 1988 reform, Parsons et al. (2000) found a progressive rise in transfer to out-of-catchment secondary schools in one Local Education Authority, from 33% to 39% between 1991 and 1996, suggesting increasing use of school choice. The rise was primarily due to choices by parents in 'struggling' or 'aspiring' neighbourhoods rather than those in more prosperous neighbourhoods who presumably chose their school in advance through their residential choice. Allen (2007), using an early census of national data, shows that around 50% of households attend their closest school, but her study

lacked data on households' choices. From the sociology of education perspective, Ball et al. (1996) discuss the importance of the local school for households defined as 'disconnected choosers', who are constrained by 'spatial horizons and the practicalities of travel'. In relation to travel time, Taylor (2000) finds that 74% of households believe there is a maximum limit of travel time to school, with the acceptable limit varying across urban and rural respondents. Note that although an important indicator for the working of school choice, choosing the closest school has a complicated interpretation. It may suggest a passive engagement with the system, but alternatively, may follow an active residential choice or a constrained choice if only the closest school is considered feasible by parents.

**Do parents make the minimum or maximum number of choices available?** The number of choices households make is indicative of how actively the system is used. Choosing zero or one school might imply that the school choice system is not properly understood or that parents do not have strong preferences. It may also mean that there is only one choice that appears feasible to parents. There is little existing evidence on the number of choices that households make and the variation in this across areas. As an exception, from a sample of 215 parents in 8 schools in the mid-1990s, Taylor (2000) finds that 41% of respondents consider only one school. The present paper is the first to document this important aspect of the school choice system.

**Is there variation by area and household type?** Ball et al. (1996) find that choice in education is systematically related to social class differences. For example, respondents classified as 'privileged/skilled choosers' were predominantly from higher social class households, while the 'disconnected choosers' were predominately from lower social class households. This may in part be due to the child's role in school choice, which in working class households has been found to be more influential (Reay & Ball, 1998), although Taylor (2000) finds that the child is involved to some extent in 86% of households. There is also a literature concerned with patterns of choice across ethnic groups. Weekes-Bernard (2007) finds that, in common with the wider population, many Black and Minority Ethnic (BME) households were unable to exercise choice, in that their desired school was unattainable. From the sample of around 180 parents in three Local Authorities, Weekes-Bernard finds a preference for Muslim schools for aspirant Muslim parents, which overrides a general preference for proximity, particularly among recent immigrants. Studying the impact of migration on school choices in Greater Manchester, based on semi-structured interviews with 11 migrant parents, Bryne and De Tona (2012) find that there are knowledge barriers to school choice, particularly for new migrants, and that 'grapevine' knowledge (Ball & Vincent, 1998) informed choices rather than published information. A finding common to Weekes-Bernard and Bryne and De Tona is that migrant parents search for the 'right' social and racial mix for their children, which may be distinct from the preferences of White British households. The academic environment of the school is particularly important to many immigrant families. This is typified by one respondent in the study who expressed agreement with a British South Asian journalist that 'the only thing we can get from this country is education, so we have to get that'. Studying specifically Polish migrants to England and Scotland, and based on 25 interviews, Trevena, McGhee, and Heath (2015) discuss the complicated process of school choice for those without established cultural capital.

For our second research question, regarding the effectiveness of school choice, we consider whether parents value the academic standards of schools, which is a critical requirement for the market mechanism to improve the quality of education. We also discuss a commonly used indicator for the success of school choice, namely whether a household achieves its first choice of school.

**Do parents value academic standards in school choice?** For school choice to operate effectively parents must value academic standards so that schools have an incentive to improve. If parents choose without reference to pupil progress this will not provide a strong incentive for schools to improve. The qualitative and quantitative approaches are broadly consistent in concluding that many parents value academic standards, but this may not be the deciding factor. The most commonly cited school characteristics that parents value include academic quality, distance between home and school and the social and ethnic composition of the school, although there are other factors (Burgess, Greaves, Vignoles, & Wilson, 2015; Gibbons & Silva, 2011; Raveaud & Van Zanten, 2007; West & Hind, 2007). For Echols and Willms (1995) find that parents who make an explicit choice away from their designated school did so Scotland, for 'social and reputational factors' as well as the disciplinary climate, while the academic quality of the school was of lesser importance, particularly for parents from lower socio-economic backgrounds. Similarly, Burgess, Greaves, Vignoles, and Wilson (2011) use information from a nationally representative survey of parents in England and find that 'proximity' and a 'general good impression' of the school are most commonly cited reasons, followed by academic standards. While most research using parents' stated preferences has emphasised the importance of academic standards, Chakrabarti and Roy (2010) note that this strand of literature tends to over-emphasise its importance in relation to research on parents' revealed preferences (their observed choice of school). This may be because parents conform to social norms when questioned about their reasons for school choice (Jacob & Lefgren, 2007), suggesting that parents' revealed preferences (which our data set contains) are more informative. Alternatively, this inconsistency may be because revealed preferences are subject to constraints (for example the expected probability of admission) which would mean that preferences for academic standards are not necessarily overstated. Using households' actual choice of school, we show the extent to which choices are correlated with academic quality of the school.

**Is achieving the first choice always best?** There is a distinction between a household's first choice and preferred school. For example, Taylor (2000) finds that 91% of respondents got their first choice but 17% would have preferred to choose an alternative school in the absence of constraints. In a nationally representative later sample, Burgess et al. (2015) find that 7% of parents would have preferred to choose a different primary school. These constraints typically include the lack of places at popular schools, with priority given to those living closest. Indeed, Taylor and Gorard (2001) note the 'enduring link between area of residence and the socioeconomic composition of local schools' as school choice is not free of geographical considerations. We discuss the relevance of this indicator of success of the system.

The paper is structured as follows. Section 2 offers a summary of the school choice system in England and the resulting incentives for household choices. Section 3 describes the new dataset. Section 4 details the results, and we offer an overview of the findings and broader discussion in section 5.

## 2. The school choice process in England

Parents in the English state education system have the right to express a preference for the school that they would like their child to attend. Parents provide a ranking of their preferred choices of school on a form that is submitted in a centralised system to their Local Authority (LA). All government-funded schools (regardless of type) use this common application system. Private schools are outside this system, although parents can apply to both private and state schools simultaneously. On the LA form parents can provide up to 3–6 choices of school in rank order, depending on the LA. Most LAs ask parents to list up to 3 schools (Figure A1). A set of published school prioritisation criteria are used where a school is over-subscribed. Typically, these include: whether the child has a statement of special educational need; is looked-after by the local authority; has a sibling at the school already; distance of the family home from a school; and, less commonly, the faith or aptitude of a child.[1] Each child is allocated to their highest ranked school where they are admitted according to the criteria of each school. If a pupil is not allocated to any preferred school, they are assigned to a school with spare capacity (which is by definition less popular).

The school choice system in England was amended in 2007 to encourage parents to choose their truly most preferred schools rather than to make safety-first or strategic choices,[2] although there remains an incentive to list strategic school choices due to the restricted number of possible choices. Listing one 'safe' school may be advantageous to avoid allocation to a school with spare capacity.[3] The LA is responsible for school allocations, considering parents' choices and school priorities and published admission numbers. This allocation is done using an algorithm (student optimal stable allocation, see Pathak & Sönmez, 2013) that is weakly truth revealing, meaning that parents can do no better than by reporting their true preferred schools. The algorithm works by first taking a list of pupils for each school, ranked in order of priority, and provisionally assigning pupils to the school they ranked most highly where they are ranked within the school's capacity. Next, these pupils are removed from the ranked lists of schools that are less preferred than their provisional allocation. Where this creates space at a school, pupils who prefer this school to their provisional allocation are reassigned, again according to the original ranking of pupils. This process is repeated until all pupils are assigned to their most preferred school subject to the schools' admission arrangements. This may not be fully understood by parents however, who may believe that they are more likely to be allocated their most preferred school by only making one choice, or that they will be penalised for entry to their second-choice school by making an 'ambitious' first choice.

The School Admissions Code defines acceptable over-subscription criteria for schools.[4] More autonomous types of schools (now around 62% of all secondary schools) determine their own admissions criteria within the School Admissions Code. An interview with a parent, for example, is not an acceptable criterion. If a child is refused a place at a school, there is the right of appeal to an independent panel. In 2015/16 the percentage of admissions resulting in an appeal was 3.7%, of which around one fifth found in favour of the parent(s).[5]

Parents can also devise strategies to maximise their chances of getting into their preferred school, for example by choosing a nearby home. Parents may therefore appear

to value school proximity highly, but in fact the distance between home and school is driven by the admissions criteria. The higher demand for homes close to popular schools has been studied empirically and is acknowledged to increase house prices around 'good' schools (Barrow, 2002; Bayer, Ferreira, & McMillan, 2007; Black, 1999; Fack & Grenet, 2010; Gibbons & Machin, 2003; Gibbons, Machin, & Silva, 2013; Kane, Riegg, & Staiger, 2006; Machin & Salvanes, 2016).

## 3. Data

We use globally unique administrative data on parents' school choices. Most school choice analyses use either partial information on choices or full data from a particular locality or city. Unusually, our data covers the whole cohort of pupils who sought admission to any English state secondary school in the school year 2014/15. The parental choice data contain for each pupil: the ID of each nominated school (e.g. first, second and third choices in some areas and up to six choices in others), and the identity of the school that the child was offered, which may differ from the school that the pupil was finally enrolled in. Our dataset also links to the National Pupil Dataset (NPD), a census of all pupils in the English education system. Students whose families made a choice but do not enter the state-sector are included in the data. Access to these data was provided by the Department for Education, through the NPD application process.[6]

The two datasets together provide us with: the characteristics of pupils and the detailed characteristics of all the schools they applied to (not just the one they enrol in); and their home location in relation to all their preferred schools and to their allocated school.[7] The sample is large (over 526k pupils) which permits fine-grained analysis. We analyse the whole cohort with only a few exceptions. We exclude middle school areas as there are two school moves rather than one. We include selective areas in which students must pass an examination to get into some schools (grammar schools). We compare LAs where more than three or only three school choices are allowed, and areas with higher and lower numbers of schools in the local area as a measure of population and school density.

For pupil characteristics, we focus on eligibility for Free School Meals (FSM), as a marker of poverty, and aggregate ethnic groups.[8] We also consider whether a pupil has English as an Additional Language (EAL), and IDACI as a measure of neighbourhood deprivation.[9] Detailed definitions for variable creation are in the Appendix. Table A1 shows the sample size for each subgroup.

There are limitations to the data. We do not know the precise admissions criteria for each school. While these criteria almost always involve similar rules, as we discussed above, there will be local variation in detail that may be decisive for some schools and pupils.

The most important limitation is that we do not know the nature of the priority of each pupil for each of their school choices.[10] In particular, we do not know whether the child has an older sibling at the school or whether the child is a 'Looked After Child', both of which have high priority in over-subscribed schools, generally overriding proximity. Not having this information complicates the analysis of parents' choices. If having an older sibling was evenly distributed through the cohort then this problem should not bias our analyses, but this is unlikely to hold. In the Millennium Cohort Study, the presence of an older sibling of secondary school age is strongly correlated with

household income: 67% of children in the lowest income decile have an older sibling of school age at the point relevant for school admission, compared to 33% in the highest income decile. Priority to a preferred school (which we do not observe) may therefore be correlated with household characteristics such as eligibility for FSM. This point needs to be borne in mind when considering the results.

## 4. Results

We present results relating to our two research questions exploring the functioning and the effectiveness of school choice. For the first research question, regarding the extent and variation in active school choice, we present and discuss the following key indicators: the number of choices made by households; whether the first-choice school is the nearest; and variation by household and neighbourhood type. For the second research question, we explore whether households value the academic standards of a school (with the implication that if they do, this is likely to lead to higher standards in England's schools), whether school places reflect parents' preferences and the likelihood of receiving an offer from a first choice school. We also interpret this measure of success of the system. To explore the variation across households, results in all tables are shown separately by personal characteristics: FSM, ethnicity, EAL status and neighbourhood poverty level. We also show neighbourhood characteristics based on where the family making the choices lives: the number of choices families can make, and density. We postpone a broad discussion of the findings to the final section of the paper.

### Active use and understanding of school choice

a. *Number of choices made*

Table 1 shows the number of school choices made on the LA form. The overall average number of choices made is 2.4, but there is wide dispersion. Thirty-five per cent of households make only one choice, while at the other extreme, 27% make the maximum number of choices permitted. There is very little difference between the number of choices made by richer and poorer households. Similar proportions of FSM and non-FSM households make only one choice and indeed similar proportions make the maximum number of choices. There are much bigger differences by ethnicity and EAL status, however. For example, 41% of White British households only make one choice, compared to 17% of Asian households and 12% of Black households. At the other extreme, 37% of these latter groups make as many choices as they can, compared to 24% of White British households. These differences are reflected in the split by EAL status, with a much higher fraction of EAL households making all choices possible and a higher mean number of choices.

There are striking differences across neighbourhood characteristics. People make more choices in dense neighbourhoods (represented by the number of schools within 20km), with far fewer making just one choice. In Hackney in central London for example only 9% of people make just one choice, while 27% make the maximum allowable six choices. Similarly, in Birmingham, 35% make six choices and over half make at least four choices. By contrast, in Cornwall, 77% of parents make just one choice. Online Appendix Table 1 shows the number of choices made in each LA in England. Second, the

**Table 1.** Number of choices made (secondary).

|  | 1 (%) | 2 (%) | 3 (%) | 4+ (%) | Max (%) | Mean |
|---|---|---|---|---|---|---|
| All | 34.55 | 21.58 | 26.89 | 16.98 | 26.88 | 2.41 |
| *Pupil characteristics* | | | | | | |
| FSM | 36.86 | 20.49 | 25.98 | 16.67 | 24.31 | 2.39 |
| Non-FSM | 34.15 | 21.77 | 27.05 | 17.03 | 27.32 | 2.42 |
| EAL | 18.62 | 16.66 | 29.81 | 34.91 | 34.25 | 3.20 |
| Non-EAL | 38.15 | 22.69 | 26.23 | 12.93 | 25.22 | 2.24 |
| White British | 40.78 | 23.52 | 25.94 | 9.76 | 24.03 | 2.10 |
| Asian | 17.06 | 16.51 | 31.45 | 34.97 | 37.79 | 3.24 |
| Black | 11.84 | 13.13 | 26.96 | 48.07 | 37.12 | 3.69 |
| Above median SES (neighbourhood) | 37.72 | 22.89 | 25.94 | 13.45 | 25.67 | 2.24 |
| Below median SES (neighbourhood) | 31.49 | 20.28 | 27.81 | 20.43 | 28.04 | 2.58 |
| *Local area characteristics* | | | | | | |
| Above median number of schools within 20km | 25.55 | 19.93 | 26.67 | 27.85 | 26.88 | 2.85 |
| Below median number of schools within 20km | 43.73 | 23.26 | 27.11 | 5.89 | 26.88 | 1.97 |
| 3 choices allowed | 44.61 | 23.62 | 31.64 | 0.14 | 31.78 | 1.87 |
| More than 3 choices allowed | 23.43 | 19.32 | 21.64 | 35.61 | 21.46 | 3.01 |

Note: Overall sample size is 526,329. 'FSM' denotes free school meals, a binary indicator for pupil income disadvantage. 'EAL' denotes English as an additional language. 'Above median SES (neighbourhood)' denotes neighbourhood disadvantage (defined by the Income Deprivation Affecting Children Index) is the more affluent half in the sample. 'Above median number of schools within 20km' denotes the number of schools within 20km above the median in the sample. '3 choices allowed' denotes the maximum number of choices parents are able to express is 3.
Source: National Pupil Database linked to national parents' preferences data, made available by the Department for Education. IDACI: https://www.gov.uk/government/statistics/english-indices-of-deprivation-2015

maximum number of choices allowed is correlated with the number of choices made. Almost twice as many choices are made in LAs where more choices are allowed, on average. This is partly related to population density, as urban areas are more likely to allow more than three choices,[11] but there is evidence of a frustrated demand to make more choices for some parents, particularly in urban areas where only three choices are permitted. For example, shown in Online Appendix Table 1, 71% of parents make the maximum number of three school choices in Brighton and Hove and presumably, given the option, many parents would have made more choices.

Finally, there are relatively slight differences in the number of choices made by neighbourhood poverty, the mean number of choices made being slightly higher in poorer areas.

Of course, many of these factors are strongly correlated, for example urban density with neighbourhood poverty. We run a simple multivariate regression to control for these factors simultaneously (Table A2). Columns 1 to 4 show the points made above from the raw data in Table 1 are confirmed by regression analysis.

### b. First-choice school is the nearest school

Table 2 shows the percentage of households that nominate the nearest school as their first choice. Strikingly, this percentage is only 39%. These households appear to value proximity highly, but some will have moved home precisely to make their preferred school their nearest school. Around 3.5% of households in the Millennium Cohort Study report moving to a new house to ensure the child is admitted to their preferred school

**Table 2.** Admission to first choice school.

|  | % with offer to first choice | % attend first choice |
|---|---|---|
| All | 85.36 | 85.21 |
| *Pupil characteristics* |  |  |
| FSM | 84.13 | 80.64 |
| Non-FSM | 85.57 | 86.01 |
| EAL | 72.80 | 72.97 |
| Non-EAL | 88.17 | 87.91 |
| White British | 90.26 | 89.75 |
| Asian | 72.12 | 73.58 |
| Black | 66.34 | 66.22 |
| Above median SES (neighbourhood) | 88.68 | 89.36 |
| Below median SES (neighbourhood) | 82.23 | 81.08 |
| One choice | 97.05 | 95.31 |
| Two choices | 87.31 | 86.42 |
| Three choices | 81.16 | 81.66 |
| At least four choices | 65.54 | 68.28 |
| Maximum number of choices | 77.00 | 78.17 |
| *Local area characteristics* |  |  |
| Above median number of schools within 20km | 80.07 | 80.55 |
| Below median number of schools within 20km | 90.72 | 89.90 |
| 3 choices allowed | 91.38 | 90.24 |
| More than 3 choices allowed | 78.65 | 79.58 |

Note and source: See Table 1.

but many more are likely to have considered local school quality in their choice of home. Even if we widen the definition to ask, 'is the nominated first-choice school within 20% distance of the nearest one', that is still only true for less than half of all families. This implies that most families do not prioritise distance from the school above all else.

There are important differences in this statistic by area characteristics. Unsurprisingly, households in less dense areas, with fewer schools and longer commute times, are more likely to choose their nearest school. Households in areas where more choices are allowed are also less likely to pick the nearest (though as London is the largest area with more than three choices, this fact may drive this relationship). There appears to be a degree of caution being exhibited whereby parents are more likely to put down the school that they have the greatest chance of their child being admitted to (often their nearest) when they are only permitted three choices. Households living in more affluent neighbourhoods are more likely to choose their closest school, which may reflect the overall quality of schools there rather than preferences for distance.

The differences across sub-groups of families reflect the patterns seen for the number of choices made. There is essentially no difference in the proportion of families choosing their nearest school by FSM-eligibility, 38% versus 39%. By contrast, there are substantial differences by EAL-status and by ethnicity. On the former, 42% of non-EAL pupils put the nearest school top of their list, compared to 27% of EAL pupils.

There is a marked decline in the proportion nominating their closest school by the number of choices made. Only 20% of those making at least four choices nominate the nearest, and even among those that make one choice, only 55% nominate their closest

school. This suggests that proximity is not the most important consideration even for those who make only one choice.

Table A2 (columns 5 and 6) confirm that these observed patterns are evident when accounting for other factors in a multivariate regression. As such, the finding that ethnic minority pupils are less likely to choose their closest school, for example, is true conditional on population density.

Online Appendix Table 2 extends the definition to whether any of the schools that families nominated were the nearest. Even then, the overall figure is just 55% – almost half of all families do not nominate their nearest school at all.

### Effectiveness of school choice

a. *Value of academic standards*

Figure 1 shows the likelihood that a family nominates their nearest school as first choice relative to the academic attainment of that school. Households whose closest school is in the lowest quartile of attainment are least likely to choose their closest school. The proportion nominating their closest school as first-choice school declines with the number of nearby schools, irrespective of the closest schools' attainment. Less than 15% of households in very dense urban areas whose nearest school is in the bottom quartile of attainment nominate that school as top choice. We note that higher academic attainment does not necessarily indicate a higher quality of teaching at the
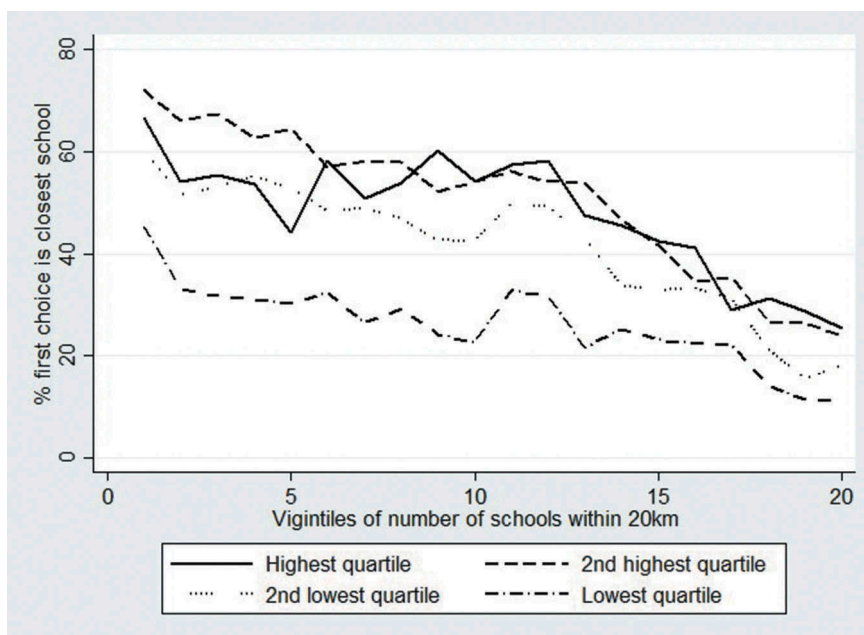


**Figure 1.** First choice is closest school, by number of schools within 20km (vigintiles) and school quality of closest school (measured by % 5A*-C) in quartiles.
Source: See Table 1.

school, as academic attainment is also a function of the peer group at the school. It is, however, a commonly used metric for parents.

Are there limits to parents choosing highly attaining schools? One such limit is the number of choices that parents can make, which is binding for many households in some, particularly urban, areas. This means that the first choice school may be 'safe' rather than 'ambitious'. The data show that the quality of parents' first choice school is higher in LAs where more choices are permitted (which is true even taking account of higher school quality in London). These results are reported in a summary regression in Table A2, columns 11 and 12, which accounts for pupil and neighbourhood characteristics as in other regressions. This indicates that where parents are given a greater number of choices they use it to make ambitious choices.[12]

Figure 2 shows that, on average, academic attainment is highest for the first choice school and declines with later choices, whether the households make 2, 3, 4, 5, or 6 choices. For example, in London, for households that make six choices, the first choice has 71% of students achieving 5A*-C, compared with 70% for the second choice. This declines for each choice, to 63% for the sixth choice. In LAs where three choices are permitted, for those making the maximum number of choices, the first choice school has 62% of students achieving 5A*-C, compared with 59% for the second choice and 57% for the third choice. On average, the most preferred schools
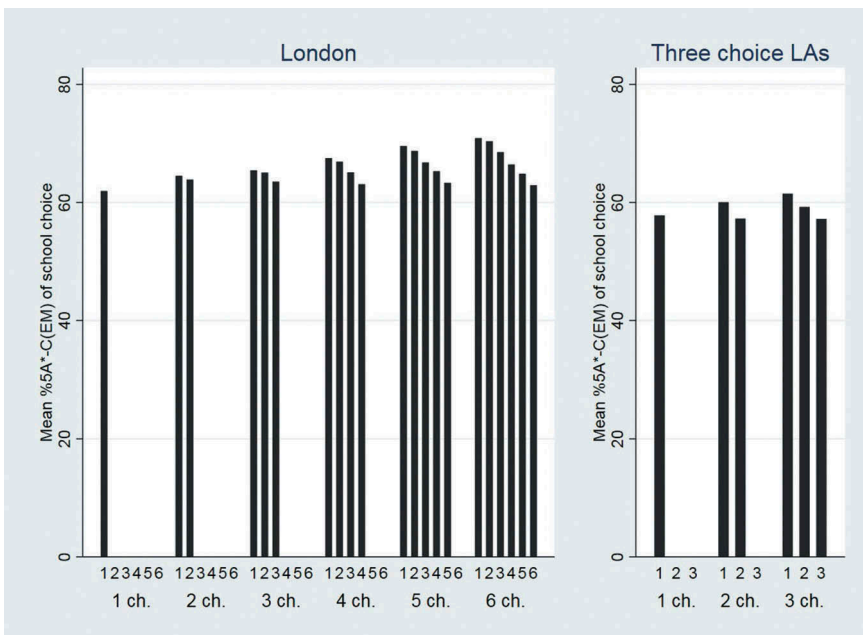


**Figure 2.** Academic attainment (measured by % 5A*-C) of school choices, by the number of choices made.

Note: The bars show the %5A*-C (including English and mathematics) for each choice (1 to 6), by the number of choices made (where '1 ch.' denotes '1 choice' and so on).

Source: See Table 1.

have higher academic attainment than lower choices, which is consistent with households valuing this attribute.

## b. *Admission to first-choice school*

Table 3 reports the fraction of households that are observed in their first-choice school in the Spring term after school entry. This is slightly different to the fraction receiving an offer from their first-choice school, suggesting some offers are not taken up, some individuals get put on waiting lists and then secure a place at their school of choice, and some successfully appeal decisions. We focus on the receipt of an offer but note any interesting discrepancies.

The overall fraction of households receiving an offer from their first-choice school is 85%. That most parents get their first choice of school suggests, at face value, that the system is effective. With a restricted choice list there is a distinction between the first choice and preferred school, however, as households may make pragmatic choices based on the probability of admission at each school. This 85% may therefore be viewed more negatively as reflecting constraints on households' choices. A successful system with active and ambitious choices by parents may result in a lower percentage of households achieving their first choice.

There is little difference between FSM and non-FSM families, with respectively 84% and 86% being successful. Comparing offers and attendance, for FSM pupils 81% attend their first-choice school, compared to 84% who received an offer, whereas this is

**Table 3.** First choice school is closest school.

| | % First choice is closest school | % First choice is closest school (within 20% tolerance) | % First choice is closest school in LA |
|---|---|---|---|
| All | 38.98 | 45.95 | 39.56 |
| *Pupil characteristics* | | | |
| FSM | 38.03 | 45.03 | 38.60 |
| Non-FSM | 39.15 | 46.11 | 39.73 |
| EAL | 27.28 | 33.47 | 27.57 |
| Non-EAL | 41.63 | 48.77 | 42.28 |
| White British | 43.90 | 51.28 | 44.59 |
| Asian | 27.73 | 34.39 | 27.88 |
| Black | 18.85 | 23.51 | 19.23 |
| Above median SES (neighbourhood) | 43.73 | 51.07 | 44.47 |
| Below median SES (neighbourhood) | 34.35 | 40.95 | 34.78 |
| One choice | 55.43 | 62.89 | 56.53 |
| Two choices | 37.59 | 45.25 | 38.09 |
| Three choices | 31.03 | 37.88 | 31.30 |
| At least four choices | 19.88 | 25.15 | 20.01 |
| Maximum number of choices | 28.01 | 34.43 | 28.17 |
| *Local area characteristics* | | | |
| Above median number of schools within 20km | 31.66 | 37.98 | 32.36 |
| Below median number of schools within 20km | 46.43 | 54.05 | 46.89 |
| 3 choices allowed | 45.54 | 52.95 | 46.23 |
| More than 3 choices allowed | 31.73 | 38.20 | 32.18 |

Note and source: See Table 1.

reversed for non-FSM pupils – more attend their first choice than receive an initial offer, perhaps due to successful appeals.

Differences are larger between ethnic groups and by EAL status. Black and Asian households are less likely to have an offer from their first-choice school than White British households; similarly, EAL households are less likely to have an offer from their first choice (73% relative to 88%).

There are also significant differences between types of area. In densely populated urban areas (with an above median number of schools within 20km) applicants have a lower probability of receiving an offer from their first-choice school. This may reflect a wider variation in school quality, more schools within a feasible travel distance, more competition for places at popular schools, and parents being less able to predict the demand for each school.

Households in LAs where only three choices are allowed are also more likely to receive an offer from their first choice. This may be because these LAs are typically more rural or that households are more cautious when choices are limited. The number of choices made is also strongly correlated with the percentage that receive an offer from their first choice. Ninety-seven per cent of households that make only one choice receive an offer from this school. This suggests that their offer was almost guaranteed, perhaps due to proximity or strong priority due to a sibling or other characteristic. For those making the maximum number of choices, 77% received an offer from their first-choice school. This may be because those with a low probability of admission make more choices, or because more sophisticated users of the system make all the choices they can, including an ambitious nomination as first choice.

Overall, Table 3 shows that pupils have a lower chance of getting an offer from their first-choice school if: they live in dense urban areas; they live in areas where more choices are permitted; they live in poorer neighbourhoods; they apply to high perform-ing schools; or they are from minority ethnic backgrounds. The largest differences arise from density, school quality and the maximum number of choices permitted. Of course, all these factors are correlated. Because of the importance of population density in affecting the outcome, Table A2 (columns 7 to 10) report the results from a multivariate regression (including the number of schools within 20km as a proxy for population density together with other variables). The key points we make above are confirmed.

Should we therefore conclude that school choice is less effective in these urban areas and for ethnic minority households? The key indicator of interest is the percentage of households offered a place at their most preferred school, with a more effective system increasing this percentage. As the most preferred school may not necessarily equate to the first choice school it is not possible to conclude whether school choice is more effective in particular areas or for particular households. Indeed, as we have argued, ambitious school choices to a preferred school (which should be encouraged) would result in a lower percentage of households allocated to their first choice.

## 5. Discussion and conclusions

The school a pupil attends can affect their attainment and enjoyment of school, ultimately affecting their life chances. Understanding the functioning of the school choice system and how pupils are allocated to schools is therefore critical if we are to

understand and improve educational equality and social mobility. In this paper we use a novel and comprehensive dataset to study the how school choice works across England.

Our analysis shows that a large proportion of parents use the school choice system pro-actively. Previous studies have explored the process of school choice for relatively small samples of parents. Our contribution is to document nationally the extent and variation in active school choices across household and neighbourhood types. We find that significant numbers of parents make the maximum number of school choices. Further, contrary to some existing literature, only a minority of parents choose their nearest school. The local school is more likely to be bypassed where its academic quality is low: this holds for different types of parents, including poorer parents. In other words, the data suggest that many parents are making active choices for schools and appear to value academic attainment.

Further, with our novel data we are able to present large-scale quantitative evidence on the extent of strategic choices being made by parents. We show that many parents do make strategic choices, which implies that they understand the school choice system as it currently operates. We show, for the first time, that when parents make multiple choices, their first choice tends to be more ambitious. We are also able to consider the constraints imposed by the school choice system in some areas. People make more cautious choices when constrained to three options. This suggests that they would have benefited from having more choices, consistent with theoretical and experimental evidence (Calsamiglia, Haeringer, & Klijn, 2010; Haeringer & Klijn, 2009), and an important note for policy. Our findings provide system-wide evidence that LAs could improve the percentage of households allocated to a preferred school simply by offering parents the option of making more choices on the application form. This would be relatively costless and would reduce the need for a strategic or 'safe' school choice.

While some households clearly engage with the school choice process, which may act to improve standards, choice is curtailed for others by the predominant current school admissions criteria. Allocating places to over-subscribed schools by proximity means that some households have negligible chance of admission to the best schools. Given the limited choices permitted, these households may decide that making such an 'ambitious' choice would be wasteful. Goldharber (2000) states that 'the rules in place governing the structure of any particular school choice program are likely crucial in determining the outcomes of the program.' In England, the dominant over-subscription criteria for secondary schools, straight line distance, is likely to induce strategic school choices, residential segregation and unequal access to the highest quality schools.

Much of the previous literature on school choice has suggested that richer and poorer parents make different school choices. This indeed has been a key argument against the system of school choice, suggesting that it may disadvantage children from poorer backgrounds. The evidence on this issue however, has largely been gleaned from smaller scale studies. Our national data show that in fact FSM and non-FSM households are similar in terms of the number of choices made, the proximity of first-choice, and admission to first choice school. Poorer parents appear to make as active use of the school choice system as richer parents. However, non-FSM households still access better schools due to their proximity to higher performing schools. In London, students registered for FSM attend a school where 59% of pupils achieve 5A*-C grades at GCSE, on average, compared to 65% for non-FSM students. This gap widens to 8 percentage

points outside London. A pressing policy issue is to consider different admissions criteria that might reduce this inequality in access.

There is also a striking difference between White and Black and Asian families (and relatedly between EAL and non-EAL families). Black or Asian families (or EAL families) make far more school choices and prefer higher performing schools. This is consistent with previous research suggesting the high value of education for aspirant ethnic minorities and immigrants. Building on this research, we are the first to show evidence that these differences in values may lead to varying engagement with school choice. Without more in-depth study we cannot conclusively say what drives these differences, which is a subject for future research. For example, this could be explored by comparing households that are newly observed in the national data with less recent migrants. Perhaps the former have a greater focus on education or a better understanding of the school choice system. The trade-off made between academic quality and choosing the 'right' social and ethnic mix should also be the subject of future work, which will inform important policy conclusions about ethnic segregation. Indeed, the data used in this research could complement the qualitative literature that finds strong preferences for particular peer groups.

Our conclusion is therefore that the school choice system is being actively used. However, the national picture suggests that this is true to varying extents in different contexts, more so in urban areas than in rural areas and more so by Black, Asian and EAL students. Certainly, only a minority of families make just one choice or choose their local school. Further, taken at face value the system appears to be working well. Most parents get their first choice of school. However, given that most schools are at capacity, this finding may equally reflect a degree of realism in parents' assessments of admission and constraints to their choice. The next step for the research agenda is to determine the relative importance of parental choice and constraints (e.g. not living in close enough proximity to their preferred school) in school allocation. In subsequent papers we intend to undertake further statistical modelling to better understand these relationships.

## Notes

1. This is explicitly intended not as a measure of general ability, but a specific aptitude such as music, sport or maths for example.
2. Prior to 2007, different Local Authorities in England used either a first preference first or an equal preference allocation mechanism. The first preference first system was outlawed in the 2007 admissions code since it prioritizes students based on the rank order of parents' choices.
3. The possibility to list more choices may mitigate this to some extent and allow more 'ambitious' choices in terms of school academic quality, which we explore.
4. The latest admissions code (2014) is published here: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/389388/School_Admissions_Code_2014_-_19_Dec.pdf.
5. Department for Education (2017)https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/640212/SFR44_2017_Appeals_Text.pdf.
6. The authors are happy to provide further details and original application forms on request but note that the NPD application process was reformed in June 2018 as so these are less relevant.
7. The family's postcode is taken from the NPD – at the closest point to when the choice was made. If this is not available, the postcode recorded in secondary school is used.

8. Ethnic group is derived from the National Pupil Database, based on minor ethnic group classification.
9. http://standards.esd.org.uk/?uri=metricType%2F382&tab=details .
10. This information was used for example by Allen, Burgess and McKenna (2013) in modelling the outcome of the Brighton and Hove school lottery.
11. In most areas of the country households can make a maximum of three choices. Exceptions are London (Pan-London co-ordinated admissions) and the surrounding area, Manchester and surrounding LAs, and Birmingham (among others). See the map in Appendix Figure 1.
12. This simple regression suggests that for households eligible for free school meals there is not a significant positive relationship between the quality of first choice school and number of choices permitted. This suggests that increasing the number of choices would not necessarily reduce inequality in access to good schools, but a more comprehensive analysis is required for such a conclusion.

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## Disclosure statement

No potential conflict of interest was reported by the authors.

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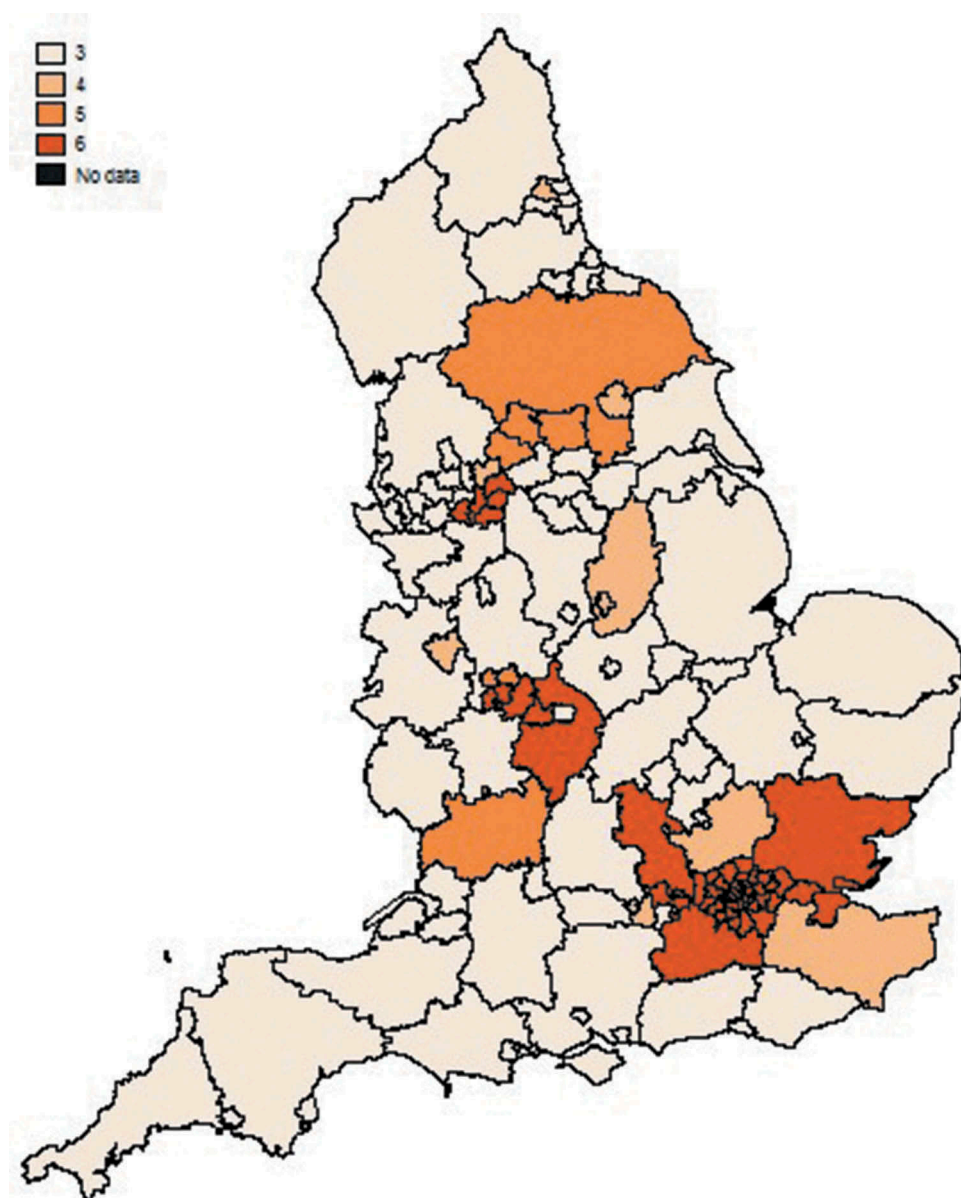
# Appendix



**Figure A1.** Maximum number of choices possible.
Note: Borders shown are local authority (LA) boundaries.
Source: See Table 1.

**Table A1.** Sample size by pupil and local area characteristics.

|  | Number of observations |
|---|---|
| All | 524,115 |
| *Pupil characteristics* | |
| FSM | 77,563 |
| Non-FSM | 446,552 |
| EAL | 96,393 |
| Non-EAL | 427,722 |
| White British | 369,635 |
| Asian | 56,209 |
| Black | 29,547 |
| Above median SES (neighbourhood) | 260,260 |
| Below median SES (neighbourhood) | 260,256 |
| *Local area characteristics* | |
| Above median number of schools within 20km | 264,598 |
| Below median number of schools within 20km | 259,517 |
| 3 choices allowed | 275,225 |
| More than 3 choices allowed | 248,735 |

Note and source: see Table 1.

**Table A2.** Regression estimates.

| | One school choice | | Maximum number of choices | | First-choice school is closest school | | Attend first choice school | | Offer from first choice school | | Quality of first choice school | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| FSM | 0.06*** (0.00) | 0.06*** (0.00) | -0.04*** (0.01) | -0.04*** (0.01) | 0.03*** (0.00) | 0.03*** (0.00) | -0.02*** (0.00) | 0.03** (0.00) | -0.01*** (0.00) | -0.01** (0.00) | -4.68*** (0.30) | -4.60*** (0.30) |
| EAL | -0.02*** (0.00) | -0.12*** (0.01) | 0.01 (0.01) | 0.12*** (0.02) | 0.01 (0.01) | -0.08*** (0.01) | -0.02* (0.01) | -0.10*** (0.01) | -0.01* (0.01) | -0.11*** (0.01) | -1.62*** (0.31) | 3.09*** (0.44) |
| Asian | -0.15*** (0.01) | | 0.17*** (0.02) | | -0.11*** (0.01) | | -0.10*** (0.01) | | -0.13*** (0.01) | | 7.16*** (0.53) | |
| Black | -0.20*** (0.02) | | 0.19*** (0.02) | | -0.18*** (0.01) | | -0.17*** (0.01) | | -0.18*** (0.01) | | 5.86*** (0.59) | |
| Below median SES (neighbourhood) | 0.00 (0.01) | -0.01 (0.01) | 0.00 (0.01) | 0.02 (0.01) | -0.04*** (0.01) | -0.05*** (0.01) | -0.03*** (0.00) | -0.04*** (0.00) | -0.02*** (0.00) | -0.03*** (0.00) | -7.92*** (0.35) | -7.55*** (0.34) |
| Above median number of schools within 20km | -0.08*** (0.02) | -0.09*** (0.02) | 0.03 (0.03) | 0.05* (0.03) | -0.07*** (0.02) | -0.08*** (0.03) | -0.02*** (0.01) | -0.03*** (0.01) | -0.03*** (0.01) | -0.04*** (0.01) | 1.17* (0.47) | 1.59*** (0.47) |
| More than 3 choices allowed | -0.13*** (0.03) | -0.14*** (0.03) | -0.16*** (0.05) | -0.15*** (0.05) | -0.07* (0.03) | -0.08* (0.03) | -0.06*** (0.01) | -0.07*** (0.01) | -0.07*** (0.01) | -0.09*** (0.01) | 1.79** (0.56) | 2.23*** (0.55) |
| School quality in local area | | | | | | | | | | | 0.35*** (0.02) | 0.35*** (0.02) |
| Ethnic group included | Y | N | Y | N | Y | N | Y | N | Y | N | Y | N |
| Number of observations | 520,499 | 520,499 | 520,499 | 520,499 | 515,662 | 515,662 | 516,871 | 516,871 | 504,583 | 504,598 | 458,510 | 458,510 |

Note and source: see Table 1.