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Abstract

There is considerable debate on the merits of extending and strengthening school choice. In England, the controversial Education and Inspections Bill, published on the 28 February 2006, contains a prominent role for 'school choice'. But the debate lacks some basic information on these issues, and this paper provides some background facts to fill this gap. We first consider the transport issue and ask how many pupils have choice of schools. We report the distance of school commutes for various breakdowns of LEA and school type, and for sub-groups of pupils. We also turn the question around and tabulate the proportion of pupils who have 3 schools within 2km of their home, and within 5km and 8km. The conclusion from all this is that most pupils do have considerable choice of school (as defined here). We also address a specific issue about school access ? which pupils attend their nearest school. We show that only about a half of pupils attend their nearest school, and 30% do not attend one of their nearest three schools. We investigate this to understand which pupils attend their local school, and the role played by the quality of that local school.

Keywords: school choice; school commute; ethnicity and education

JEL Classification: I20

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1. Introduction

There is considerable debate on the merits of extending and strengthening school choice. In England, the controversial Education and Inspections Bill[1], published on the 28 February 2006, takes forward the proposals published in the Schools White Paper 'Higher Standards, Better Schools for All'. It is now in its final stages of parliamentary scrutiny, due to become law in November 2006. The provisions of the Bill and the earlier White Paper contain a prominent role for 'school choice'.

The practical issues for policy are around access to good schools. This involves two components: how far pupils have to travel to reach schools; and schools admissions policy. The debate lacks some basic information on these issues. Given this vacuum, and the fact that schooling is a process experienced by all, some commentary appears to extrapolate national trends from personal experiences. This paper provides some background facts for this debate. These facts are based on all pupils in state schools in England, and we focus here on pupils moving into secondary school.

We first consider the transport issue and ask how many pupils have choice of schools. This is defined in terms of distance – how far from home to school. We report the distance of school commutes for various breakdowns of LEA and school type, and for sub-groups of pupils. We also turn the question around and ask how far pupils would have to travel to reach at least three schools, as a measure of the feasibility of choice. Similarly, we tabulate the proportion of pupils who have 3 schools within 2km of their home, and within 5km and 8km. The conclusion from all this is that most pupils do have considerable choice of school (as defined here). We then turn to focus on schools and offer a measure of the degree of potential competition schools face.

Finally, we address a specific issue about school access – which pupils attend their nearest school. We show that only about a half of pupils attend their nearest school, and 30% do not attend one of their nearest three schools. We investigate this to understand which pupils attend their local school, and the role played by the quality of that local school.

The paper also illustrates the important role that large administrative datasets can play in informing policy debates. We use the Pupil Level Annual Schools Census

(PLASC), part of the National Pupil Database (NPD), developed by the Department for Education and Skills (DfES). This data has been released for study in the academic community relatively recently, and has already yielded much useful information[2]. We describe in detail the data that we use below, and then present some facts on travel times, on choice for pupils, on competition between schools, and on school access. The concluding sections summarise the implications for policy and discuss research at CMPO providing evidence on some of the key issues in school choice.

2. Data and Definitions

a. PLASC/NPD

In the following analysis, we use the PLASC dataset, part of the NPD. PLASC covers all pupils in primary and secondary state schools in England and can be linked to each pupil's test score history. In addition, PLASC contains a number of personal and school characteristics.

b. Data on Pupils

Data on pupils includes the following characteristics: ethnicity, gender, within-year age, whether English is the mother tongue, an indicator of family poverty (eligibility for Free School Meals, FSM, which is dependent on receipt of Income Support or Job Seekers Allowance), an indicator of Special Educational Needs (SEN, which measures learning or behavioural difficulties). Some of the pupil characteristics do not change: gender, ethnicity, within-year age and mother tongue. The time-varying characteristics are FSM and SEN status, location and school attended. These are currently measured once a year.

c. Data on Schools

This paper focuses on secondary schools. The data set contains a lot of information on schools. This includes details on school size, admissions policy and any religious denomination of the school. In the analysis below, we define a good school as being

[1] http://www.dfes.gov.uk/publications/educationandinspectionsbill/
[2] See http://www.bristol.ac.uk/Depts/CMPO/PLUG

in the top third nationally of the distribution of schools' percentages of pupils achieving at least 5 A* to C grades.

d. Location and Distance

Crucially for this analysis, we have access to each pupil's full postcode. This locates them quite precisely. We also have the coordinates of the school, which locate it exactly.

Distance can be measured in a number of different ways. For our analysis of the degree of competition in section 4, we use travel distances with assumed road speeds from Department of Transport. This was feasible in computing terms as we were looking at less than 3000 schools. The main alternative is to look at straight line distances, simply computed from coordinates and application of Pythagoras' theorem. This is inferior in the sense that it will fail to take account of natural barriers such as rivers or hills, and it will also mis-represent distances where the road network is not very dense. However, utilising the full road network is very demanding computationally and for half a million pupils per cohort this was impractical. In fact, we compared this straight line method with the travel distance method for three areas – a rural area, an urban area outside London and a London LEA. We identified each pupil's nearest school using both methods. In each of these areas, the correspondence was around 85%. It therefore seems that the approximation given by the straight line method is reasonably accurate.

We use this information to identify each pupil's nearest school. Note that this is exactly what it says: it does not take account of whether there are spare places at that school, nor does it take account of any potential mis-match between any religious denomination of the school and the pupil. We do, however, take account of gender mis-matches in single sex schools.

e. Our sample selection decisions

The results reported below relate to a specific single cohort we have taken from the data. This cohort sat their KS2 tests in the summer of 2001 and their first year of secondary school was 2001/2002. As we have these pupils' postcodes as of PLASC

(January) 2002 this cohort provides the closest match in timing between school assignment and pupil's location that can be achieved with this data.
We focus here on state schools in England, accounting for the vast majority of all pupils. This is because not all private schools carry out all the Key-stage tests and it is safest to cut all private schools out of the data. We also omit some special schools.
We distinguish between selective and non-selective LEAs, where we define the former as having at least 10% of pupils in grammar schools.
Some pupils are omitted if they have missing values for data.
To summarise: we study a single cohort of pupils entering secondary state schools in 2001. We omit special schools and distinguish selective and non-selective LEAs.

f. Definitions

Distance from home to school attended: computed for each pupil; straight line distance.
The minimum radius to reach three schools: computed for each pupil; distance to third nearest school is the minimum radius to reach three schools; straight line distance.
How many pupils have three schools within: 2km, 5km or 8km. Computed for each pupil; straight line distance.
Non-selective LEA: with fewer than 10% pupils in grammar schools
Areas: London: London LEA; Other urban and rural: this comes from the Schools table, and a school is defined as urban/rural if it is in an urban/rural Local Authority District.
Free school meals (FSM): eligibility, not take-up.
KS2 groups: High, medium and low are close to thirds of the distribution, though the discreteness of the KS2 distribution means that the fractions of pupils are not exact.

3. How Many Pupils have Choice?

Choice is defined here simply in terms of how many schools a pupil can reach. It says nothing about whether there are places at these schools, but is purely a distance-based measure.

a. How long are school commutes?

Table 1 summarises the distance between pupils' homes and schools. On average for this data, the school run is just over 1.7km, taking the median measure. The mean is considerably higher due to a small number of very long distances. We will therefore concentrate on the median as a more reliable measure of the experience of the average (in distance) pupil. The mean is also available in all tables. A quarter of pupils overall go less than 1km to school, and about a quarter travel more than 3.3km. All but 10% travel less than 6.6km.

There are obvious differences between urban and rural areas, with the median distance in the latter being about 50% higher than that in the former. The difference between London and other urban areas is not huge and in fact shows travel distances to be slightly longer in London at the median, though lower at the mean. The percentiles of the distribution are in fact about the same for London and other urban areas. Distance travelled is greater in selective LEAs than non-selective LEAs.

Looking at differences between students, we see that on average (median), pupils eligible for FSM travel less far to school. Note that these are all simple unconditional means, and some of this effect is due to the greater concentration of such students in urban areas. Similarly, the lower achieving pupils travel less far than their higher achieving peers, with the top group travelling about a third further than the bottom group. Again, this may relate to the locations of these students between city and countryside (see below).

We see considerable differences across ethnic groups. Students of South Asian ethnic origin travel the least far – for example, a median of 1.5km for Indian ethnic pupils, less than their white peers – while students with Black heritage travel the furthest – a median of 2.0km for Black Caribbean students, some 25% further than whites. There are likely to be a number of complex phenomena lying behind these results.

Table 2 presents a multivariate regression of the same variables as in Table 1. This confirms these results. Even conditioning on an urban location, students eligible for

FSM travel slightly less further to school (about one third of a km), and higher scoring students travel further. Furthermore, controlling for location in London or other urban area, and poverty status, students with Black heritage travel significantly further to school (almost half a km further) and students with Indian, Pakistani or Bangladeshi ethnicity travel slightly less far than their white peers.
More detail on the distribution of school commute times is provided in Figure 1, with kernel estimates of the distribution of school commute distances.

b. How far to be able to reach three schools?

Table 3 records how far a pupil has to travel to reach their nearest three schools. This gives an indication of how far it would be necessary to travel for a pupil to have real choice of school available. In fact, over half of pupils can reach three schools within 2.4km of their home, three-quarters can reach three schools within 4km and only 10% of pupils must travel over 8.2km to reach three schools.
In London, the median distance to reach 3 schools is 1.5km, and 2.3km in other urban areas. Unsurprisingly it is a lot further in rural areas – 6.3km. In urban areas, over 90% of pupils can reach 3 schools within 5km. But less than half of rural students will reach three in that distance.
Pupils eligible for FSM have less distance to travel to reach three schools than those ineligible (median distances: 2.0km vs 2.5km) and pupils in the bottom third of KS2 mean scores (median distance of 2.3km) have shorter distances to travel than those in the middle (2.5km) and highest (2.6km) thirds. These differences between pupils of different characteristics are small in magnitude compared to differences in pupils' locations and these patterns are probably explained by the correlation between pupil's location and their personal characteristics.
Table 4 presents a regression on distance to reach three schools, which confirms that these results hold true controlling for all these factors simultaneously.
Figure 2 presents kernel estimates of the distribution of the minimum distance to reach three schools.

c. How many pupils have three schools within: 2km, 5km or 8km?

Table 5 documents how many pupils have three schools within 2km, 5km or 8km of their home. Again, this is a measure of the feasibility of school choice. The table shows that 80% of pupils have three schools within 5km. This is a product of the fact that almost all pupils in urban areas (99.93% in London and 91.22% in other urban areas) have three schools within 5km, whereas only 42% of pupils in rural areas have a school within 5km.

There are substantial differences between students. Of pupils eligible for FSM, 91% have three schools within 5km of them, compared to 78% for pupils ineligible. There is a slight gradient in ability too: 82% of low attaining pupils can reach three schools within 5km, compared to 79% of middle attaining pupils and 78% of high attaining students. These differences are likely to be related to pupil's location.

Again we see stark differences by ethnicity, with 76% of Black Caribbean heritage students, 62% of Indian ethnicity students having three schools within 2km, compared to 31% of white students. This mostly reflects that white pupils live in urban and rural areas, whereas non-white students live predominantly in urban areas. Nevertheless, it is striking that students with Black heritage have a lot of schools close by but travel further than white students.

In Table 6 we control for these correlations and present a regression analysis of the same variables. The results show that these differences remain once we control for other factors. Students from poor families are more likely to have three schools within 5km of their home, controlling for living in an urban area. Similarly, students from ethnic minority backgrounds are also more likely to have three schools nearby, after controlling for an urban location and poverty status.

d. How many pupils have a good school amongst nearest 3?

Defining a good school as one among the top third of the national "league table" of percentages of 5 A* to C grades, Table 7 reports the proportion of pupils whose nearest three schools includes at least one good school.

Note that it is not contradictory to find that 58% of children have a school nearby them that is in the top 33% of the distribution. With three 'draws' from the school distribution, this is what we would expect.

In this table, we see a different split between rural and urban areas. Pupils living in rural areas are much more likely to have a good school among the nearest 3 – 73% in rural areas compared to 56% in London and 52% in other urban areas.
Similarly, pupils eligible for FSM have a 44% chance of being near a good school, compared to 61% of ineligible pupils. There are similar differences in terms of KS2 achievements. Students with Black heritage and students of Bangladeshi ethnic origin are less likely to live near a good school than are white students, or students with Indian, Pakistani or Chinese ethnic origin.

4. How Many Schools Face Competition?

This is simply measured as the number of other schools nearby (measured this time by drive times using an electronic roadmap as discussed above). We use a ten-minute drive time zone around each school.
In Table 8 we see that using the 10-minute DTZ as the basis, on average, schools have 6 other schools nearby. Clearly this is much higher in urban areas, especially in London, and lower in rural areas. In fact, around 45% of schools in rural areas have no nearby competitors.

5. Who Goes to their Nearest School?

a. How many pupils attend the nearest school?

Table 9 reports the percentage of pupils who attend their nearest school. Under a half (46%) of secondary school students go to their nearest school. In London, only around a quarter do. In rural areas, while higher at 59% it is still not as high as might have been expected.
There is little difference between students in terms of FSM eligibility – 44% of eligible students attend their nearest school, compared to 46% of ineligible students. The most notable difference is by ethnicity. We have already seen that students with Black heritage are more likely to have schools nearby to their home than other groups, and yet travel further. This table confirms that picture showing that less than a quarter

of Black heritage students go to their nearest school, compared to 48% of white students, and 35% of students with Indian or Pakistani ethnic origin.
We discuss a multivariate analysis of this issue below.

b. How many pupils attend one of their nearest three schools?

The results in Table 10 address a broader question – how many students go further afield than their nearest three schools? A glass half full or half empty – clearly more students go to one of their nearest 3 schools (72%), but alternatively 28% do not even go to one of the 3 nearest. Interestingly, the differences between urban areas outside London, and rural areas is now reduced, but London remains very different.
Looking at pupils, differences by FSM eligibility and KS2 performance remain small. But the difference between students with Black Heritage and other students is now even more pronounced: 63% of students with Indian ethnic origin go to one of the nearest 3 schools, 74% of white students, but only 43% of students with Black Caribbean heritage.

c. Who attends their local school?

In Table 11 and Figure 3 we report the results of a multi-variate analysis of whether students attend their nearest school. Consistently with our earlier results, we see that students with Black heritage are far less likely than their white peers to attend their local school, with Indian and Pakistani ethnicity students slightly less likely and Bangladeshi students more likely to do so. Unsurprisingly, students living in urban areas are less lilely to go to their local school.
The relationship between attending the local school, FSM status and the quality of that school is complex. We capture this in the analysis by including a flexible functional form of school quality, and all this interacted with FSM status, as well as FSM status by itself. We present the results graphically in Figure 3. The graph plots the likelihood of a student attending their local school depending on the quality of that school and their FSM status. (The final data point for both groups is dominated by schools with additional attendance criteria, such as faith schools, which draw from much wider catchment areas, hence the much lower likelihood of local students

attending). This shows the striking finding that the relationship with of attendance and quality is very different for poor and non-poor students. For the latter, for higher levels of the quality of local school, students are increasingly likely to attend that school. However, for students from poor families, there is little relationship between quality and attendance. Indeed, for higher quality school, attendance probabilities actually decline. The differences at the top and bottom of the distribution of quality are quite stark. At low quality, non-poor families are unlikely to attend; students from poor families who happen to be living near good schools are unlikely to attend, and much less likely to attend than more affluent students.

d. For those not going to the nearest, where do they go?

In this subsection we report the difference in distance and quality that those not attending their local school experience. The results are in Table 12. It is clear from Table 12a that the excess distances travelled are not trivial – on average students travel an additional 2.3km. Interestingly, such additional distances tend to be higher in London than other urban areas, though clearly highest in rural areas.
The results in Table 12b are quite striking. For those not going to their local school we compare the league table score of their nearest school and the school they actually attend. For students from non-poor families, they attend a better rather than lower scoring school in a ratio of two-to-one. For students from poor families, however, half go to better schools and half to worse. Clearly, FSM-eligible students do commute away to reach better schools, but not to the same extent as more affluent students. In Table 12c, we provide a further breakdown by Keystage 2 score. We see that in both FSM-eligible and more affluent families, there is a gradient with more high-scoring children more likely to switch to a better non-local school.

6. Summary of on-going CMPO Research on School Choice

Researchers at CMPO have produced new evidence on the role and impact of school choice, and also reviewed the existing evidence. Burgess, Propper and Wilson (2005,

2006)[3] have produced summaries of the international evidence on school choice, along with an annotated bibliography of the original research papers.

In terms of new research, Burgess and Slater (2006)[4] assess one of the key claims made for school choice: the idea that competition between schools will raise standards across the board. This is difficult to get at empirically because the degree of competition is likely to be influenced by the (endogenous) choices of parents and schools. Burgess and Slater use an exogenous change in the education market boundaries to estimate the effect of competition. They find little evidence to support the claims made for competition. The estimate suggests that the impact of the change is going in the right direction, but is not statistically significant.

Secondly, Burgess and Briggs (2006)[5] look at the role of school assignment and school choice in influencing the quality of school for poor children. They show that the present system does not work well for students from poor families. Such students are less likely to go to good schools. Much but not all of this is due to location. Even controlling for location, poor students attend lower scoring schools than non-poor students. Overall, though, it is location near a good school that drives much of the disparity in outcome. This suggests that strengthened school choice could well improve the chances of students from poor families attending good schools.

Thirdly, Burgess, McConnell, Propper and Wilson (2005)[6] consider the role of school choice in sorting of students across schools. They show that in areas of England where choice is more feasible, school sorting is higher relative to the local neighbourhood sorting.

Fourthly, focussing on student sorting along ethnic lines, Burgess, Wilson and Lupton (2005)[7] consider the role of choice feasibility. They show that where choice is more feasible, sorting in schools is greater relative to sorting in the local neighbourhood.

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[3] The 2005 survey is available at http://www.bris.ac.uk/Depts/CMPO/choice.pdf. The 2006 paper is "The impact of school choice in England: implications from the economic evidence" Simon Burgess, Carol Propper and Deborah Wilson. 2006. mimeo, CMPO.

[4] "Using Boundary Changes to Estimate the Impact of School Competition on Test Scores" Simon Burgess and Helen Slater. 2006. CMPO Discussion Paper 06/158.

[5] "School Assignment, School Choice and Social Mobility" Simon Burgess and Adam Briggs. 2006. Discussion Paper 06/158.

[6] Sorting and Choice in English Secondary Schools. Simon Burgess, Brendon McConnell, Carol Propper and Deborah Wilson. 2004, CMPO DP 04/111. Forthcoming as: "The Impact of School Choice on Sorting by Ability and Socio-economic Factors in English Secondary Education." in L. Woessmann and P. Peterson (eds) Schools and the Equal Opportunity Problem. MIT Press, Cambridge.

[7] "Parallel lives? Ethnic segregation in schools and neighbourhoods" Simon Burgess, Deborah Wilson and Ruth Lupton Urban Studies (2005). June. Vol. 42 no. 7, pp. 1027 - 1056.

7. Conclusion

In this section, we take some of the facts presented above and draw out some implications for policy, and the discussion around the recent school reform White Paper.

The Education and Inspections Bill has been very controversial. Many fear that it may be detrimental to the chances of poor children. It is argued that the role of Trust schools, with incentives for selection of pupils that could overwhelm adherence to the new admissions code of practice, will work to the favour of middle class children and against the interests of students from poor families.

But there is evidence that the present system is not working well for such children. For example, the White Paper lead to an outcry that the plan involves the 'bussing' of poor children to schools in wealthy areas. The use of this term implies a link to the highly emotive events around bussing in the civil rights era in the US, a situation far removed from the present day school system in England. But the key point is this: 'bussing' goes on in a big way now. The difference is that this bussing occurs in people carriers, not big yellow school buses, and is not available to all. Affluent families whose nearest secondary school is of poor quality are much more likely to 'bus' their children out to schools further away than are poorer families. They have the resources to either live near better schools in the first place, or to transport them to better schools if not. Poorer families follow this strategy too, and go to other schools if the local one is weak. But they achieve this outcome to a much lesser extent. Policy should be aimed at redressing this imbalance. Of course, the school choice agenda is broader than this, the idea being that the competitive pressure applied to schools vulnerable to losing more mobile pupils will lever up standards everywhere. But the aim of increasing practical choice for poorer pupils seems a reasonable place to start.

The two important practical issues in the reform of school choice are transport and access. The average secondary school commute is 1.7km, lower in urban areas, higher in rural. A quarter of pupils travel over 3.3km, and 10% travel over 6.6km. One key fact is that only around half of all secondary school pupils in England attend their nearest school. One in two pupils are not going to their 'default' school – we are already in a world with a lot of 'choice' being made. But it is important to see that not

all of this movement away from the local school is 'choice' in the sense of consumer choice, in the sense of a desired outcome. The school system has been more-or-less a closed system – that is, roughly speaking there are as many school places as children, and each school can neither expand nor contract very rapidly. This is not of course exactly the case – there are excess places in some areas, and schools can change size. But one useful analogy for the system is a modified game of musical chairs – there are enough chairs for everyone, but some are more desirable than others. The point is that one person's choice of chair has implications for the places available to others. Unlike in most consumer choice contexts, choice by one person has spill-over effects on others. The issue for policies around transport and access is how things look when the game finishes – which pupils are going to which schools.

The facts show that the present system does not work well for pupils from poor families. We have analysed our data on which pupils go to their nearest school, looking in particular at the quality of that local school, and whether the pupil comes from a poor family or not. Quality is measured by the previous league table score of the school in terms of the percentage of its pupils awarded at least 5 A* to C grades at GCSE. We measure the pupil's family background in terms of eligibility for free school meals. The findings show that as the quality of the local school is lower, children from affluent families are less likely to go there. If we focus on schools in the bottom quarter of the national league table, a pupil eligible for free school meals is 30% more likely to attend their low-scoring local school than an otherwise-identical pupil from a better-off family.

The present system, which can be characterised as a mixture of neighbourhood schooling (where pupils simply attend their local school) and choice-based schooling, leads to the sorting of pupils. Pupils are not evenly spread across a group of schools in terms of their key stage test scores, their eligibility for free school meals, or their ethnicity. This sorting is higher where there is more choice. The interplay of the decisions of schools, parents and LEAs produces an outcome in which there is clustering together of pupils scoring well in the Key stage tests, and a clustering together of pupils from poorer backgrounds. This is unlikely to be to the advantage of the latter pupils. It is important to point out, however, that this sorting is much lower in comprehensive LEAs, even those with high choice, than it is in the few LEAs retaining elements of ability selection.

Choice is feasible for most secondary school pupils in England, in the straightforward sense that they have more than one school near to where they live. In fact, 36% have at least three schools within 2km of their home, and over 80% have at least three schools within 5km. Obviously, this varies over the country. In rural areas, the numbers are lower (only 42% have at least three schools within 5km) and in London almost all students have at least three schools within 5km. Put another way, three quarters of secondary school pupils in England have at least three schools within 4km from their home. The policies have to make a reality of this choice in principle. Components of the policy include continuing the programme of creating more schools close to where poorer families live; supporting decision-making by poorer families by providing information; and subsidising the transport costs of poorer families.

The school choice reforms face a number of difficulties in achieving their aims. Responses of schools and parents will be important. Will the target schools – the schools that newly empowered parents want to choose – be willing and able to expand? There are practical difficulties in increasing the number of places, but there may also be questions about the desire to do so. To the extent that a school's position in the league tables depends on the attainment of its intake, schools may be unwilling to increase and potentially dilute the quality of their student body. At the root of this is the question 'what makes a good school good'? If it is mostly attributes that can be readily extended (such as leadership and ethos), then increasing entry should not be a major problem; if it is attributes inherent in the intake (such as the ability of peer groups) then this policy is more problematic.

The response of parents too will be important. What are parents really looking for in a school? If it is educational quality, the changes will leave them unaffected. If it is an exclusive peer group for their child, then they may reconsider their own choice of school.

Wouldn't it be better if all pupils simply attended their local school? This seems a more straightforward system, and also has benefits in terms of traffic pollution and congestion. But it is likely to be the most exclusionary system, with access to good schools highly dependent on income. A strict rule that all children attend their local school would increase the demand for residences near good schools, raising house prices and so excluding poor families. An egalitarian policy aim of trying to loosen the link between a family's parental income and the quality of the school their child attends would not be well served by neighbourhood-based schooling.

This argument is part of a broader insight: the rules by which children are assigned to schools affect the nature of neighbourhoods. Strict neighbourhood schooling is likely to produce communities strongly segregated by income. Other features of areas are likely to be less important than the need to be within so many kilometres of the good school. On the other hand, if the school assignment system is choice-based, neighbourhoods will be more heterogeneous. The residence decision is detached from the school decision, and can be made on other grounds – such as being near parks or transport links or cultural centres – over which there is likely to be more diversity of tastes and consequently less steep house price gradients.

A policy shift towards a stronger choice element in school assignment will bring some interesting transitional problems. Neighbourhood schooling implies that part of the value of some residences is the entry ticket they provide to desired schools. If policy changes to reduce the importance of simple geographical proximity in admissions, these entry tickets will be lost, and consequently the prices of such houses will fall.

Table 1: Distance from home to school attended

Distances in km

			Percentiles:				
	Median	Mean	10th	25th	75th	90th	No. of pupils
All	1.660	2.793	0.518	0.910	3.311	6.635	495,717
LEA Breakdown							
Non-selective	1.598	2.643	0.508	0.888	3.105	5.921	431,502
Selective	2.273	3.807	0.615	1.117	4.980	9.180	64,215
Area Breakdown							
London	1.650	2.407	0.498	0.899	3.035	5.087	67,032
Other Urban	1.530	2.442	0.508	0.874	2.781	5.089	310,573
Rural	2.350	3.936	0.566	1.049	5.659	9.418	118,112
School Breakdown							
Non-religious	1.503	2.480	0.492	0.852	2.853	5.567	399,239
C of E	2.553	4.007	0.658	1.244	5.186	8.543	19,671
Catholic	2.736	3.857	0.788	1.474	4.836	8.104	52,633
Other religious	2.824	4.665	0.647	1.198	6.424	10.992	24,174
Pupil Breakdown							
FSM – yes	1.450	2.117	0.486	0.836	2.561	4.350	87,735
FSM – no	1.713	2.927	0.527	0.928	3.524	6.780	407,771
Low KS2	1.549	2.519	0.500	0.867	2.950	5.609	279,787
Middle KS2	1.714	2.877	0.528	0.933	3.475	6.596	76,401
High KS2	1.921	3.326	0.563	1.002	4.105	7.772	134,396
White	1.661	2.835	0.520	0.911	3.369	6.535	422,263
Black, Caribbean	2.026	3.775	0.604	1.127	3.622	5.727	7,133
Black, African	2.073	2.948	0.581	1.073	3.750	5.869	6,400
Black, other	1.908	2.731	0.601	1.058	3.402	5.607	4,354
Indian	1.478	2.233	0.462	0.829	2.584	4.476	11,331
Pakistani	1.460	1.936	0.506	0.861	2.423	3.640	12,381
Bangladeshi	1.002	1.366	0.338	0.573	1.671	2.790	4,844
Chinese	1.755	2.855	0.545	0.941	3.277	6.277	1,499
Other	1.718	2.663	0.527	0.932	3.209	5.654	10,810

Table 2: Distance from home to school attended – Multivariate analysis

Distances in km

	All LEAs	Non-selective LEAs
Area Breakdown		
London	-0.162	-0.067
	(9.96)**	(3.88)**
Other Urban	*(omitted)*	*(omitted)*
Rural	1.445	1.472
	(117.62)**	(114.08)**
School Breakdown		
Non-religious	*(omitted)*	*(omitted)*
C of E	1.444	1.519
	(56.39)**	(57.11)**
Catholic	1.569	1.595
	(95.31)**	(94.32)**
Other religious	1.699	1.316
	(72.04)**	(49.06)**
Pupil Breakdown		
FSM	-0.370	-0.318
	(26.88)**	(22.59)**
KS2	0.055	0.040
	(43.27)**	(30.36)**
White	*(omitted)*	*(omitted)*
Black, Caribbean	0.461	0.469
	(10.94)**	(11.01)**
Black, African	0.417	0.362
	(9.19)**	(7.84)**
Black, other	0.305	0.282
	(5.74)**	(5.27)**
Indian	-0.138	-0.224
	(4.16)**	(6.51)**
Pakistani	-0.169	-0.116
	(5.29)**	(3.59)**
Bangladeshi	-0.665	-0.643
	(13.07)**	(12.76)**
Chinese	0.080	-0.042
	(0.90)	(0.44)
Other	0.199	0.119
	(5.79)**	(3.32)**
Constant	0.693	0.965
	(19.30)**	(25.93)**
Observations	475877	415334
R^2	0.07	0.07

*t-statistics in parentheses. ** significant at 1%*

Table 3: The minimum radius to reach three schools

Distances in km

			Percentiles:				
	Median	Mean	10th	25th	75th	90th	No. of pupils
All	2.388	3.604	1.310	1.722	3.982	8.229	495,717
LEA Breakdown							
Non-selective	2.396	3.589	1.329	1.737	3.926	8.082	431,502
Selective	2.330	3.705	1.186	1.619	4.525	8.894	64,215
Area Breakdown							
London	1.555	1.648	0.992	1.255	1.944	2.397	67,032
Other Urban	2.272	2.805	1.352	1.742	3.127	4.723	310,573
Rural	6.055	6.816	2.022	3.168	9.601	12.594	118,112
Pupil Breakdown							
FSM – yes	2.026	2.704	1.174	1.520	2.785	4.707	87,735
FSM – no	2.504	3.796	1.350	1.778	4.360	8.698	407,771
Low KS2	2.311	3.469	1.295	1.692	3.698	7.905	279,787
Middle KS2	2.460	3.710	1.324	1.749	4.202	8.433	76,401
High KS2	2.552	3.830	1.336	1.777	4.507	8.724	134,396
White	2.560	3.840	1.390	1.828	4.410	8.712	422,263
Black, Caribbean	1.590	1.722	1.020	1.283	1.974	2.355	7,133
Black, African	1.498	1.658	0.959	1.215	1.872	2.382	6,400
Black, other	1.677	1.953	1.082	1.347	2.127	2.735	4,354
Indian	1.796	1.971	1.126	1.407	2.268	2.789	11,331
Pakistani	1.721	1.810	1.064	1.339	2.149	2.537	12,381
Bangladeshi	1.380	1.579	0.771	0.996	1.846	2.408	4,844
Chinese	1.931	2.605	1.190	1.481	2.679	4.436	1,499
Other	1.738	2.173	1.104	1.371	2.281	3.270	10,810

Table 4: The minimum radius to reach three schools – Multivariate Analysis

Distances in km

	All LEAs	Non-selective LEAs
Area Breakdown		
London	-0.962	-0.930
	(79.16)**	(70.79)**
Other Urban	*(omitted)*	*(omitted)*
Rural	3.898	4.054
	(429.15)**	(418.74)**
Pupil Breakdown		
FSM	-0.358	-0.348
	(34.79)**	(32.57)**
KS2	0.010	0.007
	(10.83)**	(7.19)**
White	*(omitted)*	*(omitted)*
Black, Caribbean	-0.557	-0.555
	(17.63)**	(17.15)**
Black, African	-0.382	-0.396
	(11.26)**	(11.30)**
Black, other	-0.487	-0.493
	(12.23)**	(12.11)**
Indian	-0.675	-0.659
	(27.14)**	(25.29)**
Pakistani	-0.896	-0.885
	(37.62)**	(36.05)**
Bangladeshi	-0.685	-0.691
	(18.00)**	(18.07)**
Chinese	-0.476	-0.474
	(7.11)**	(6.47)**
Other	-0.506	-0.453
	(19.67)**	(16.66)**
Constant	2.662	2.717
	(99.22)**	(96.14)**
Observations	475877	415334
R^2	0.34	0.36

*t-statistics in parentheses. ** significant at 1%*

Table 5: How many pupils have 3 schools within 2km, 5km and 8km.

Percentage of pupils with three schools within 2, 5, 8 km

Group	% of pupils with three schools within:		
	2km	5km	8km
All	36.15%	80.68%	89.44%
LEA Breakdown			
Non-selective	35.63%	81.22%	89.80%
Selective	39.69%	77.02%	87.02%
Area Breakdown			
London	77.55%	99.93%	100%
Other Urban	37.28%	91.22%	96.91%
Rural	9.71%	42.03%	63.81%
Pupil Breakdown			
FSM – yes	48.71%	90.85%	95.33%
FSM – no	33.46%	78.51%	88.19%
Low KS2	37.98%	82.31%	90.22%
Middle KS2	34.52%	79.51%	88.93%
High KS2	33.20%	77.85%	88.09%
White	31.55%	78.30%	88.14%
Black, Caribbean	76.43%	99.09%	99.57%
Black, African	79.95%	98.95%	99.56%
Black, other	69.02%	97.57%	98.71%
Indian	62.14%	98.43%	99.32%
Pakistani	66.59%	99.45%	99.74%
Bangladeshi	79.81%	98.53%	99.22%
Chinese	53.30%	91.79%	95.40%
Other	63.87%	95.10%	97.66%

Table 6: Probability of having 3 schools within 5km of home – Multivariate Probit Analysis

Probit Coefficients

	All LEAs	Non-selective LEAs
Area Breakdown		
London	1.765	1.715
	(38.76)**	(33.92)**
Other Urban	*(omitted)*	*(omitted)*
Rural	-1.498	-1.557
	(298.62)**	(285.41)**
Pupil Breakdown		
FSM	0.296	0.285
	(36.73)**	(33.00)**
KS2	-0.010	-0.007
	(15.15)**	(10.39)**
White	*(omitted)*	*(omitted)*
Black, Caribbean	0.873	0.838
	(14.69)**	(13.35)**
Black, African	0.560	0.612
	(7.98)**	(7.73)**
Black, other	0.608	0.635
	(11.34)**	(10.89)**
Indian	0.920	0.943
	(25.54)**	(23.17)**
Pakistani	1.324	1.385
	(26.76)**	(24.12)**
Bangladeshi	0.694	0.751
	(11.45)**	(11.16)**
Chinese	0.386	0.383
	(6.63)**	(5.85)**
Other	0.457	0.387
	(16.87)**	(12.79)**
Constant	1.532	1.503
	(83.46)**	(75.53)**
	475877	415334
Observations	0.873	0.838

*t-statistics in parentheses. ** significant at 1%*

Table 7: How many pupils have a good school within their nearest 3?

A good school is defined as being in the top third nationally of %5A-C

	% Pupils with a good school among the nearest 3 schools	No. of pupils
All	57.65	495,535
LEA Breakdown		
Non-selective	54.77	431,320
Selective	77.02	64,215
Area Breakdown		
London	56.07	67,032
Other Urban	52.18	310,569
Rural	72.95	117,934
Pupil Breakdown		
FSM – yes	43.90	87,713
FSM – no	60.60	407,611
Low KS2	54.22	279,696
Middle KS2	59.65	76,371
High KS2	63.88	134,338
White	58.83	422,084
Black, Caribbean	44.33	7,133
Black, African	41.27	6,400
Black, other	49.07	4,353
Indian	51.74	11,331
Pakistani	42.06	12,381
Bangladeshi	36.52	4,844
Chinese	59.41	1,498
Other	53.01	10,809

Table 8: Ten-minute drive time zone

		Percentage with:				
Location	**Mean**	**0**	**1 – 5**	**6 – 10**	**11+**	**Obs**
All	6.69	14.52	40.96	23.22	21.3	3127
London	17.19	0.48	3.14	13.29	83.09	414
Other Urban	6.74	3.63	45.7	33.48	17.19	1873
Rural	1.41	45.71	49.05	5.24	0	840

Table 9: How many pupils attend their nearest school?

	% Attending nearest schools	No. of pupils
All	45.86%	495,717
LEA Breakdown		
Non-selective	47.93%	431,502
Selective	31.94%	64,215
Area Breakdown		
London	27.76%	67,032
Other Urban	44.69%	310,573
Rural	59.20%	118,112
Pupil Breakdown		
FSM – yes	43.92%	87,735
FSM – no	46.29%	407,771
Low KS2	47.66%	279,787
Middle KS2	45.81%	76,401
High KS2	42.05%	134,396
White	48.01%	422,263
Black, Caribbean	21.97%	7,133
Black, African	20.33%	6,400
Black, other	26.27%	4.354
Indian	35.27%	11,331
Pakistani	35.13%	12,381
Bangladeshi	44.34%	4,844
Chinese	34.76%	1,499
Other	32.08%	10,810

Table 10: How many pupils attend one of their nearest 3 schools?

	% Attending one of nearest 3 schools	No. of pupils
All	72.10	495,717
LEA Breakdown		
Non-selective	74.33	431,502
Selective	57.10	64,215
Area Breakdown		
London	51.73	67,032
Other Urban	73.39	310,573
Rural	80.28	118,112
Pupil Breakdown		
FSM – yes	71.29	87,735
FSM – no	72.30	407,771
Low KS2	74.16	279,787
Middle KS2	72.09	76,401
High KS2	67.73	134,396
White	74.42	422,263
Black, Caribbean	43.18	7,133
Black, African	40.81	6,400
Black, other	49.59	4,354
Indian	63.43	11,331
Pakistani	64.46	12,381
Bangladeshi	71.64	4,844
Chinese	59.31	1,449
Other	56.22	10,810

Table 11: Probability that a pupil attends the nearest school. Multivariate Probit Analysis

Explanatory Variables	Coefficient
KS2	-0.024 (24.84)**
Eligible for FSM	0.650 (19.36)**
School is in an urban area	-0.168 (16.12)**
Black Caribbean	-0.701 (19.61)**
Black African	-0.540 (11.46)**
Black Other	-0.476 (10.85)**
Indian	-0.067 (2.84)**
Pakistani	-0.140 (5.94)**
Bangladeshi	0.335 (8.57)**
Chinese	-0.086 (1.30)
Other	-0.310 (10.47)**
SEN without statement	0.006 (0.54)
SEN with statement	-0.283 (11.95)**
Constant	-1.061 (13.52)**
Observations	369422

Also included in the regression – full set of LEA dummies, ventiles of the quality of the nearest school (measured as the school %5A to C grades), and these ventiles interacted with the pupil's FSM status.*
*t-statistics in parentheses. ** significant at 1%*

Table 12a: Comparing Actual and Nearest School: Distance

Location	Mean excess distance of nearest school to next nearest school (KM)	Mean excess distance of nearest school to actual school (KM)*
All	1.26	2.35
London	0.47	2.18
Non-London Urban	0.89	2.09
Non-London Rural	2.73	3.52

**Of those for whom actual school is not nearest school*

Table 12b: Comparing Actual and Nearest School: Quality

FSM Eligibility	School attended is worse than nearest	School attended is better than nearest
N	34.87%	65.13%
Y	49.57%	50.43%

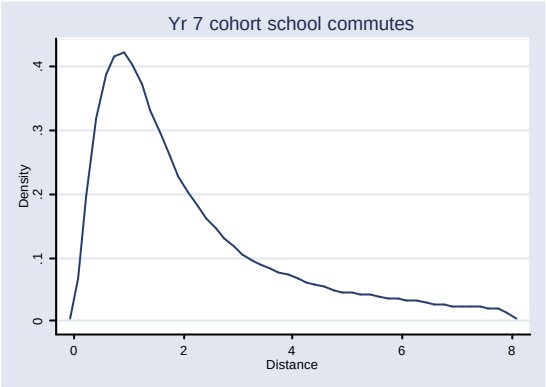
**Of those for whom actual school is not nearest school*
"Worse"/ "Better" in terms of school %5A-C in 2001

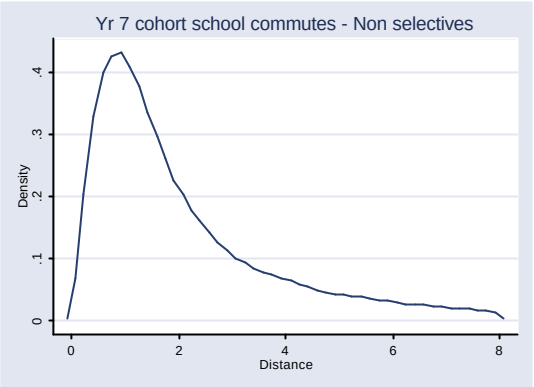
Table 12c: Comparing Actual and Nearest School: Quality

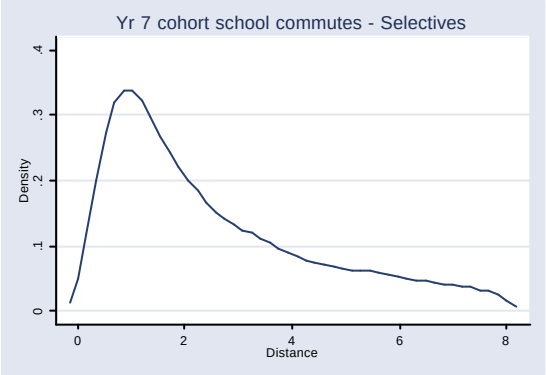
KS2 Mean Group	FSM Non-Eligible Pupils	FSM Eligible Pupils
	School attended is worse than nearest	School attended is worse than nearest
Bottom	39.14%	51.51%
Medium	33.49%	44.92%
Top	28.36%	41.16%

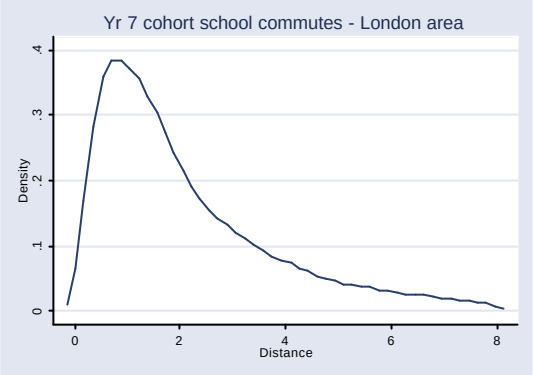
**Of those for whom actual school is not nearest school*
"Worse"/ "Better" in terms of school %5A-C in 2001

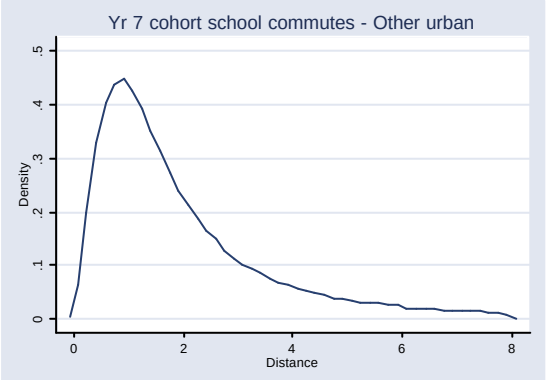
Figure 1: Kernel density plots of School Commute Distances











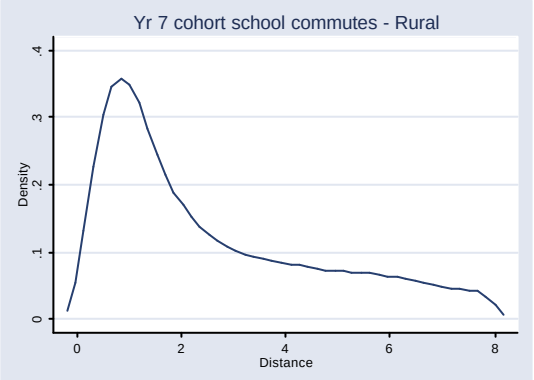
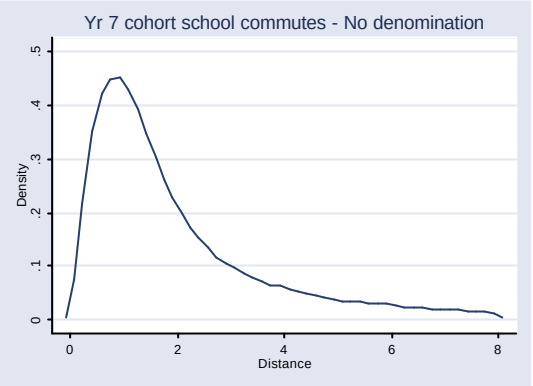
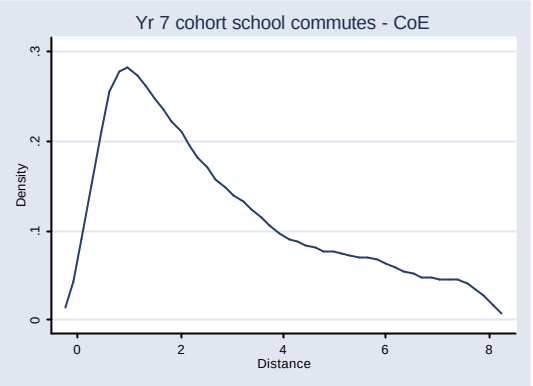
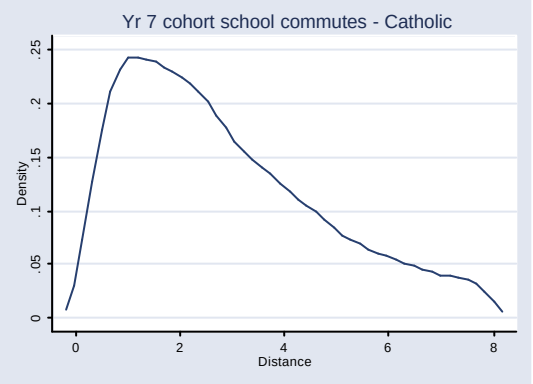
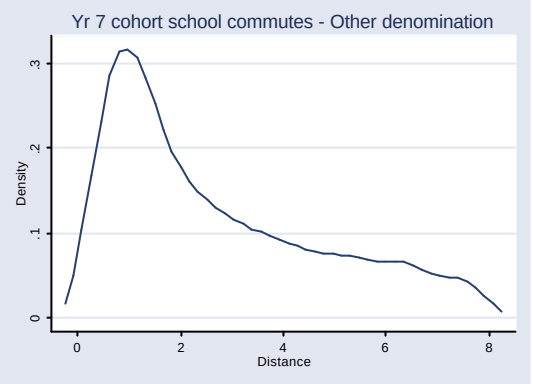


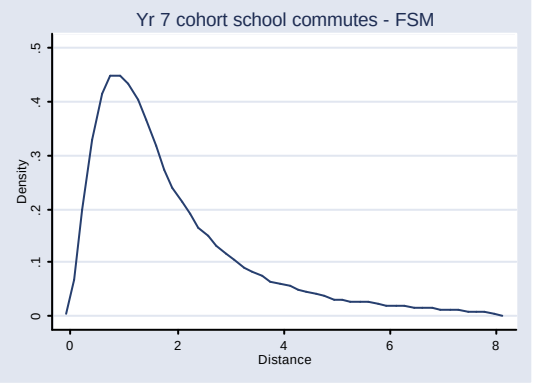
Figure 1 continued

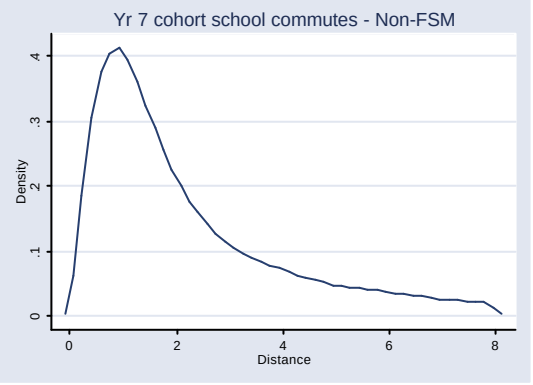












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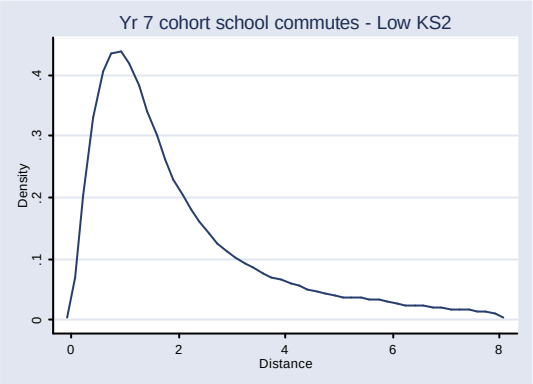

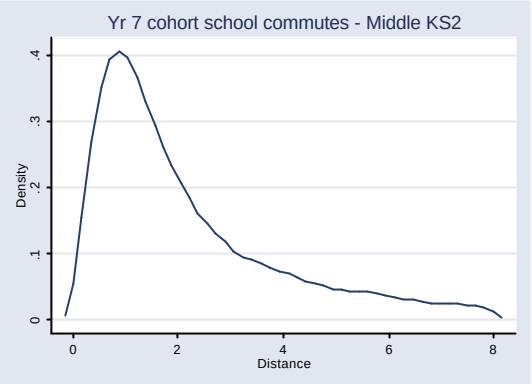

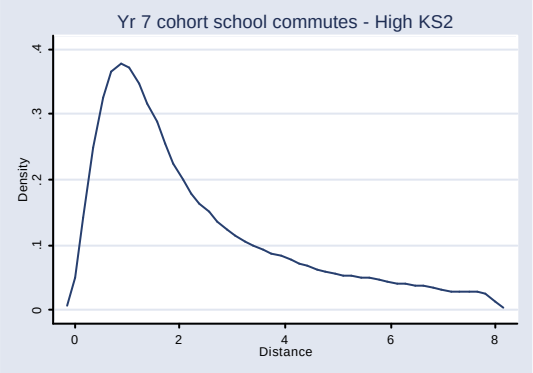

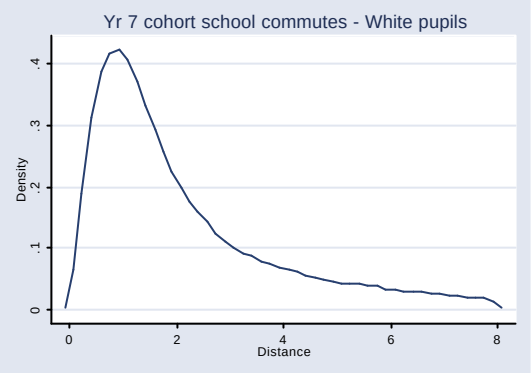

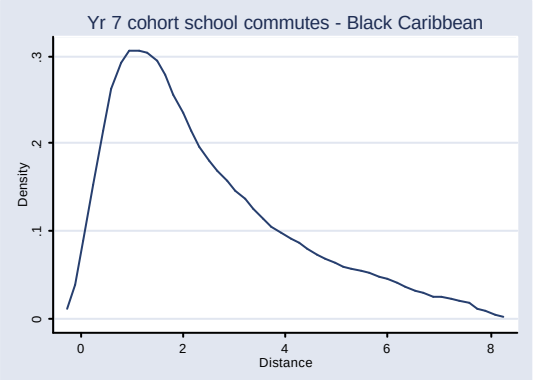

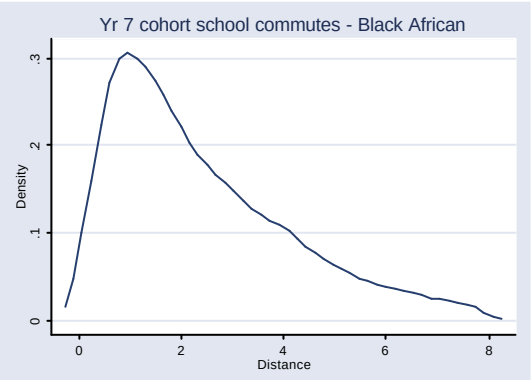

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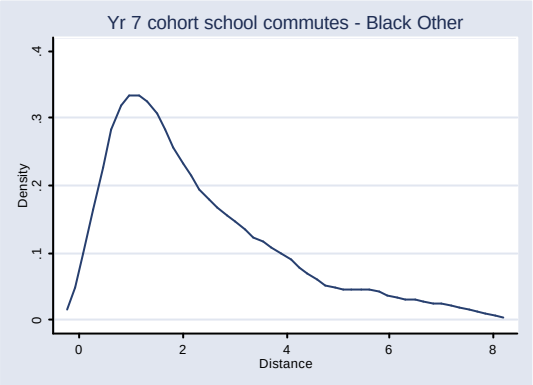
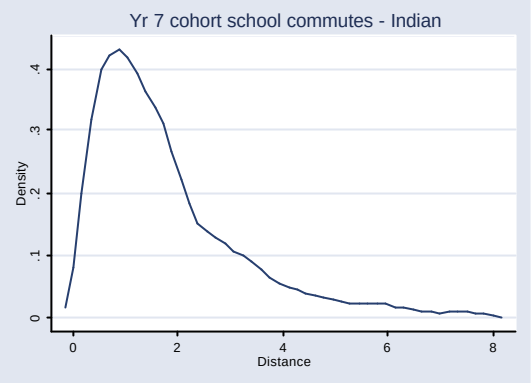
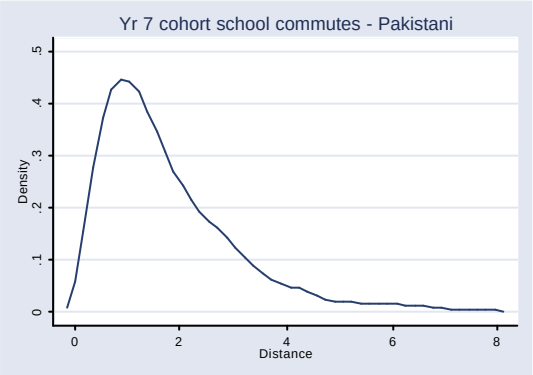
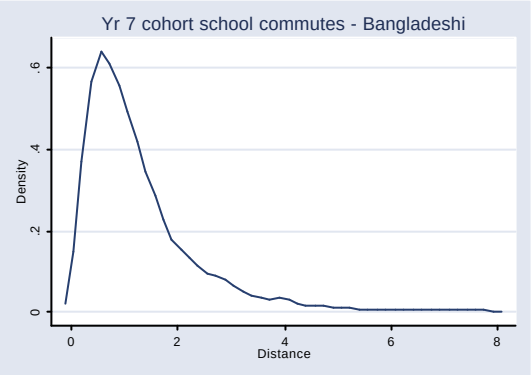
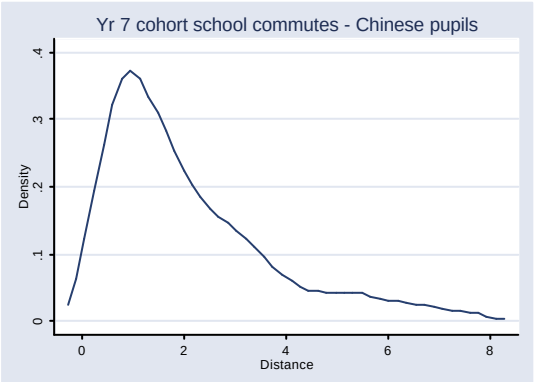










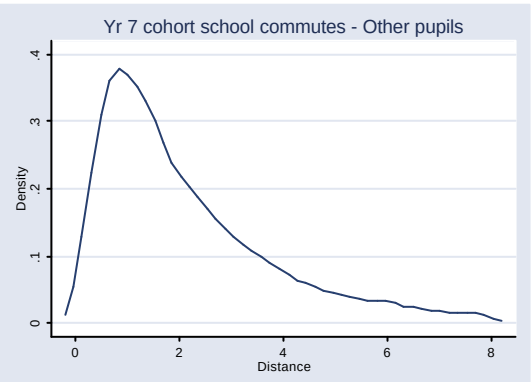


Figure 2: Kernel density plots of Distance to reach three Schools

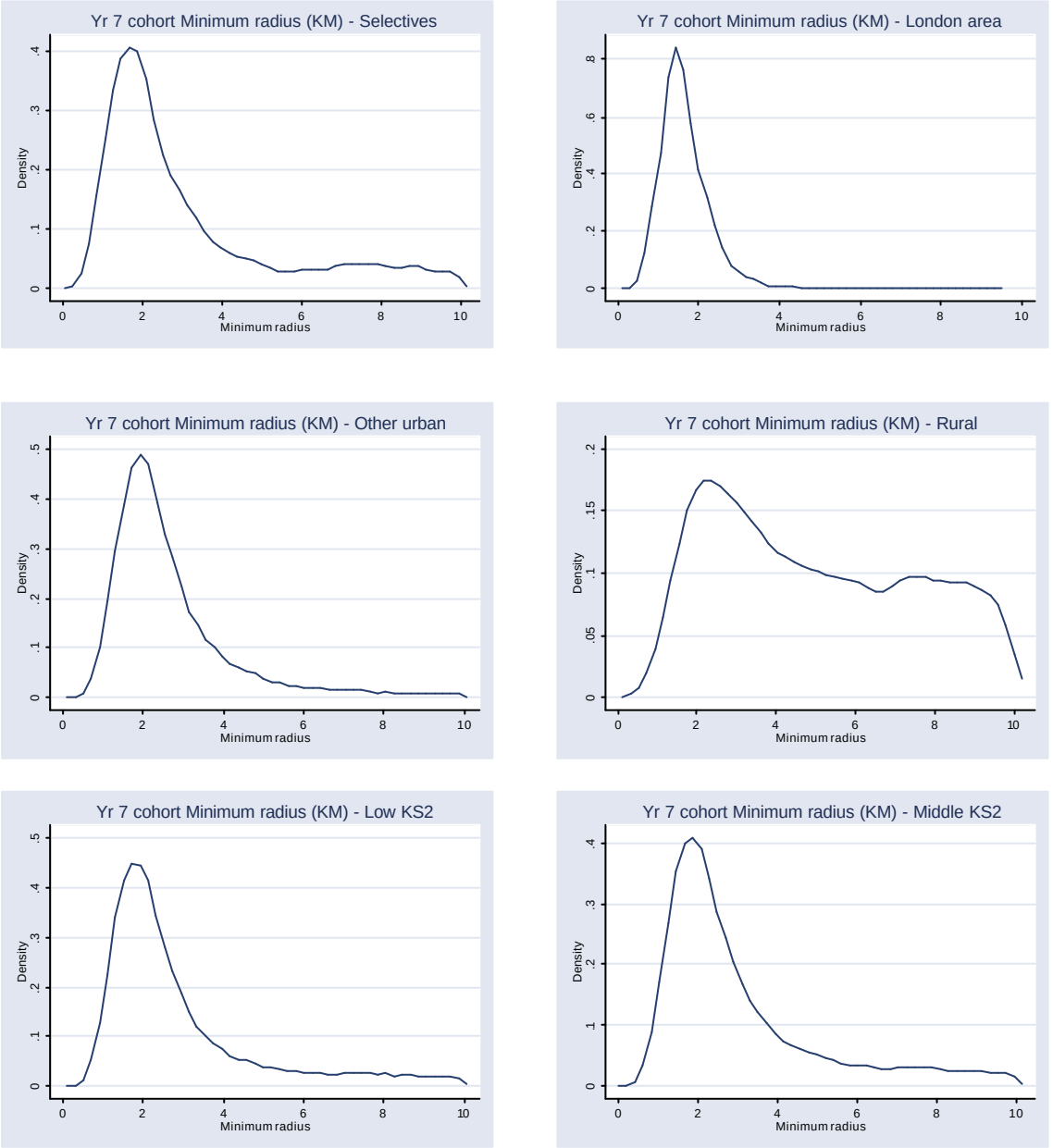
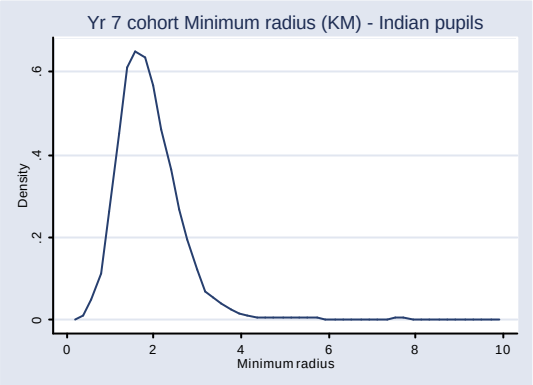
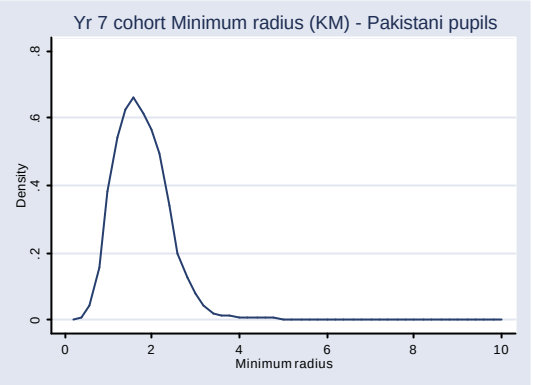
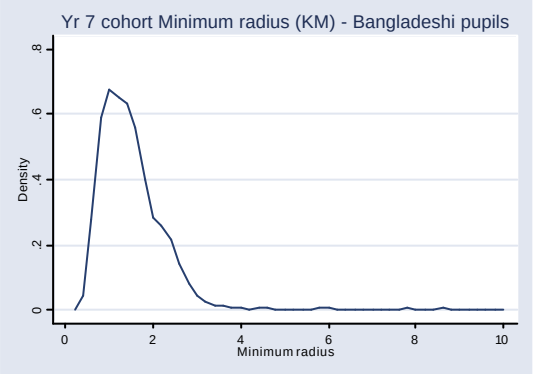
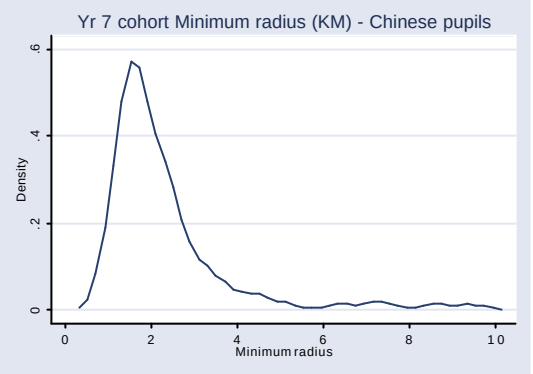


Figure 2 continued









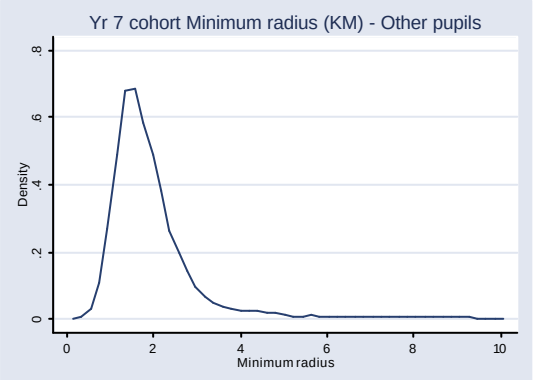
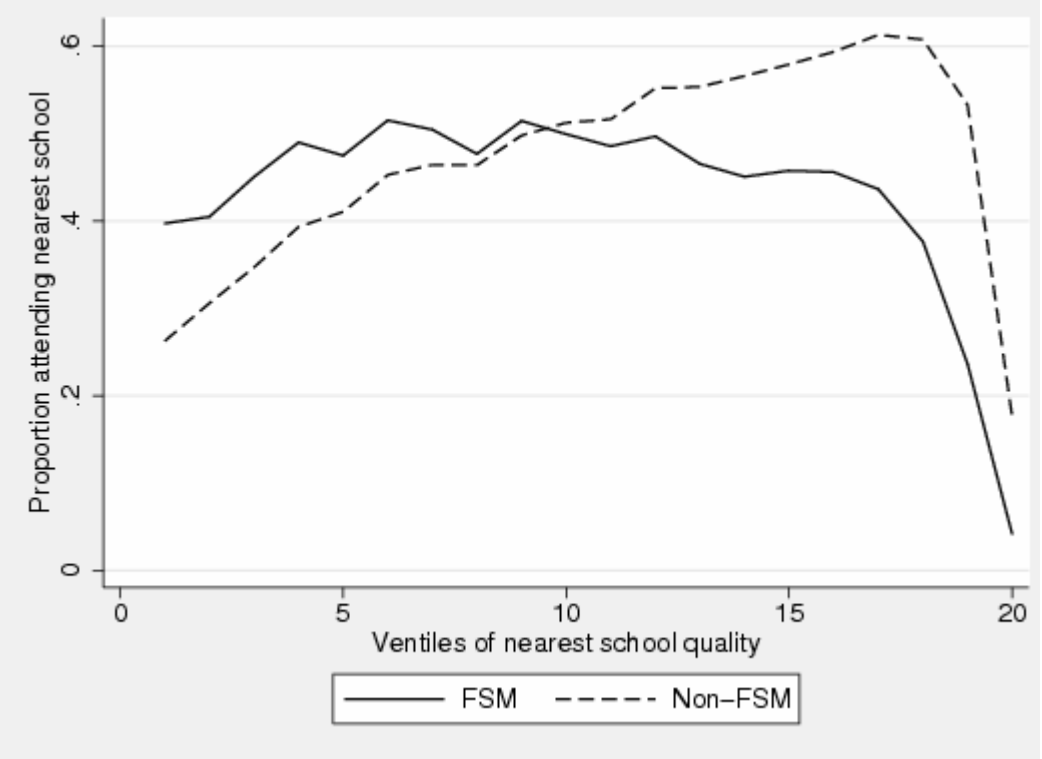


Figure 3: Going to the local school, school quality and FSM status



Fitted values from regression in Table 11.