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Choice, Competition, and Segregation in a United Kingdom Urban Education Market

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There has been a great deal of research into school choice and the education quasi-market that has dominated compulsory school provision in the United Kingdom since the early 1980s. Much of this research fails to address the context in which processes of choice exist alongside the patterns and outcomes of choice and competition, leading to considerable dispute within UK debates on the impact of school choice. The apparent contradiction can be bridged by focusing on the geographic particularities of the education market at various scales. This article examines one urban education market in the United Kingdom. In mapping the context and patterns of school choice and competition, the article begins to offer new insights into understanding recent trends in social segregation between schools. Such an approach to studying the impact of open enrollment and the marketization of compulsory schooling represents a necessary shift toward the development of a geography of school choice.

Introduction

In the United Kingdom much of the debate about school choice and education quasi-markets in state school provision has been dominated by issues of equity and segregation. With the expansion of school choice and school diversity during the 1980s there was considerable concern that this would exacerbate social inequalities and lead to a two-tier system of provision in the state education system (Adler et al. 1989; Brown 1990; Burdett 1988). Many opponents of school choice generally argued that school choice would privilege some groups of families over others. The central concern has been that middle-class families, with greater social and cultural capital than more working-class families, will be able to utilize school choice to their class advantage. This advantage is conceived in three main ways; in terms of the quality of provision, access to school places, and the social class composition of school intakes. The

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AUGUST 2009 549

Choice, Competition, and Segregation

argument continues that schools will become increasingly segregated between different social groups. Consequently, after the massification of open enrollment and the emergence of a new education market in 1988 there were a number of important and detailed studies primarily interested in the processes and inequities of school choice (David 1993; Gewirtz et al. 1995; Reay and Ball 1997; Tomlinson 1997; Willms and Echols 1992; Woods et al. 1998). It was not uncommon for these studies to provide evidence that choice, social class, and space were interconnected and related to different “circuits of schooling,” particularly between working-class “locals” and middle-class “cosmopolitans” (Ball et al. 1995). Consequently, the choice system appeared to privilege families who had greater social, cultural, and economic capital over “disconnected” (Gewirtz et al. 1994) or “inert” (Willms and Echols 1992) families who tended to be from more socioeconomically disadvantaged backgrounds. Such research provided convincing evidence that “the market works as a class strategy by creating a mechanism which can be exploited by the middle classes as a strategy of reproduction in their search of relative advantage, social advancement and mobility” (Ball 1993, 17). And this generally led to the conclusion that “the exercise of choice as a process of maintaining social distinctions and educational differentiations, as related to social class and the class composition of schools, is likely to exaggerate social segregation” (Ball et al. 1996, 110–11).

However, the first large-scale study to examine the changing socioeconomic composition of school intakes in two countries of the United Kingdom, England and Wales, found rather contrasting outcomes (Gorard et al. 2003). This research measured the segregation of children eligible for free school meals, as a proxy for socioeconomic status, between all state-maintained secondary schools in England and Wales between 1989 and 2002. It suggested that there has not been the dramatic increase in segregation between schools as forecasted. Indeed, in many areas, levels of between-school segregation had fallen. It was not surprising, therefore, that the controversial and apparently contrary findings from this landmark study sparked considerable debate (Allen and Vignoles 2007; Croxford and Paterson 2006; Gibson and Asthana 2002; Goldstein and Noden 2003; Gorard 2004, 2007; Noden 2002). Although some important differences have been identified in these subsequent analyses, the general conclusion made in the original study by Gorard et al. (2003) has largely been endorsed: “Using alternative measures, we agree with Gorard et al.’s main conclusion that there has been no substantial across the board

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increase in socio-economic segregation between schools in the majority of LEAs since the Education Reform Act of 1988” (Allen and Vignoles 2007, 664). With the recent availability of national pupil-level data in England and Wales the often intense debate has more recently shifted toward discussing and improving the measurement of between-school segregation: “This is a field of study in which the empirical differences are small and methodological issues, though sometimes difficult, are important,” Goldstein and Noden conclude (2003, 273). In particular, there may be important developments in the measurement of school segregation using modeling techniques (such as multi-level modeling) rather than using more traditional descriptive analytical tools (such as the Dissimilarity Index and the Segregation Index; Croxford and Paterson 2006). While such statistical advances in measuring school segregation are to be welcomed, they neglect the critical, and substantive, issue that arises from the apparently contradictory findings of previous studies—how can the existence of social class-biased school choices appear to result in similar or even reduced social segregation between schools?

There are a number of reasons posited as to why levels of segregation between schools in England and Wales appear relatively unchanged over the last 20 years (Gorard et al. 2003). These include the incidence of residential segregation, the “management” of supply and demand by the local authorities who are ultimately responsible for ensuring every child is found a school place, the inelasticity of school places, and changes in the overall levels of poverty. But another important factor is that these studies are investigating very different phenomena. One set of largely qualitative studies has been primarily concerned with the process of school choice, while the other set of largely quantitative studies has been primarily concerned with the outcomes of school choice. The main limitation of the latter is that these studies only “measure changes in segregation in the descriptive sense. . . . These changes do not in themselves . . . tell us anything about the process of segregating” (Croxford and Paterson 2006, 401). The methodological distinction between these two forms of research is illuminating, as quantitative data are often required to rigorously and systematically measure changes in segregation. Conversely, the process of choice is fairly complex and therefore requires more sophisticated and detailed qualitative approaches. As a consequence, there are few analyses on the outcome of school choice (i.e., the impact on school intakes and between-school segregation) that also consider the processes of choice and segregation. The most notable of these include Allen (2007), Parsons et al. (2000), and Taylor (2002). Although they are also largely quantitative studies, and have therefore been able to measure the class composition of school intakes, they have all attempted to consider how and why students are distributed between particular schools. Importantly, what these studies have in common

Choice, Competition, and Segregation

is their geographical approach, employing various forms of spatial analysis, to studying the process and outcomes of school choice.

This article develops this geographical approach further by examining one urban school market in detail. By making explicit and then focusing on the physical location of schools and pupils in the urban market, the analysis considers the direct relationship between measures of between-school segregation and the movement of students between schools (i.e., the choice and competition for school places). Uniquely, the article is able to demonstrate how socioeconomic patterns of school choices can effect, or not effect, the distribution of students between schools. In doing so it highlights the importance of examining the geographical particularities of the education market at various scales—a feature that is often absent from many decontextualized quantitative studies of school segregation. The article concludes by arguing that such an approach to studying the impact of open enrollment and the marketization of compulsory schooling represents a necessary shift toward the development of a geography of school choice.

Toward a Geography of School Choice

Research that can be characterized as the sociology of school choice, that is, social class analyses of choice, tend to dominate the literature on school choice and education markets, and their findings have been well rehearsed. Although space and place are often central to many sociological studies of school choice, there have been few attempts to describe and consolidate the main geographical characteristics of school choice—reflecting the uneven spaces of choice and competition in any given urban market. The focus in many studies tends to be on how space constrains choice rather than the way space and choice interrelate. Not only is it the case that parents generally choose from a limited number of schools, but also the distance or time it takes to travel to school remains an important factor in determining parents' approaches to school choice (Parsons et al. 2000; Taylor 2002). The local nature of school choice may not be surprising. However, the significance of this is considerable in determining parents' success in obtaining a place in their preferred school and, therefore, what impact these final outcomes have in terms of equity. Furthermore, the importance of geography in the admissions policies and procedures of schools and local authorities cannot be underestimated in determining the process and outcomes of school choice (White et al. 2001). In England and Wales there are limits to the number of students that a school can admit—the Standard Admission Number. If there are more applications than places, then various oversubscription criteria are applied. For the majority of schools these criteria are mostly spatially defined, either as predefined catch-

ment areas or as a proximity measure. Typically, where places are oversubscribed those students who live within the school's catchment area or who live nearest to the school are more likely to be allocated a place there. Not only does this mean that popular schools may only be able to admit students from within its immediate vicinity (Parsons et al. 2000), but it also tends to reinforce the localized nature of education markets.

The geographical nature of admissions policies and procedures also serves to reinforce the relationship between schooling and the housing markets (Butler and Robson 2003; Taylor and Gorard 2001). In particular, there is increasing evidence that residential areas around popular schools encourage a premium in their property values (Gibbons and Machin 2006; Leech and Campos 2003). Therefore, the levels of residential segregation in an area can have a direct and significant relationship on levels of segregation between schools in that area (Taylor and Gorard 2001).

Another important geographical feature of the education market in England and Wales is the distribution of different kinds of state-funded schools. The majority of schools in England and Wales are called Community schools. The admissions process and allocation of school places is generally administered by local authorities—the local government structure that constitutes England and Wales. However, there are many other kinds of state-funded schools, such as faith-based schools, Foundation schools, grammar schools, Academies, and an increasing number of specialist schools, all of which control and administer their own admissions arrangements. The existence and promotion of such schools represents the UK government's attempts to offer diversity within the state-funded education market. Not only do these “divergent” schools have their own geography (Taylor 2001a) but their general popularity tends to ensure that these schools are oversubscribed and therefore in a position where they have to select, covertly and overtly, which students will be offered a place or not (West et al. 2004). Indeed, in areas where such divergent schools exist it is common to find higher levels of and increasing socioeconomic segregation between schools (Allen 2007; Gorard and Taylor 2001).

These spatial characteristics of the education market remind us that segregation between schools is not simply a product of school choice. Urban development, changes to school organization, the historical nature of education provision, and social engineering of catchment areas—all prior to the 1980s and recent school choice reforms—have all conspired to determine the current levels of segregation between schools in England and Wales. Indeed, one of the arguments for school choice is that open enrollment can help bypass some of these long-standing constraints on some families' educational opportunities.

It is important, therefore, that any study of school choice not only considers the geography and wider context of the education market but also situates the processes and outcomes of school choice within the everyday and “lived

Choice, Competition, and Segregation

experience” of the education market (Waslander and Thrupp 1995; Woods et al. 1998). Of course, most studies of the process of school choice are predisposed to do this. However, most analyses of school segregation do not; UK analyses of school segregation are often undertaken and presented at the local authority, regional, or national level—not necessarily at the scale in which choice actually occurs. To help facilitate this, the notion of competition spaces, borrowed from studies of retail markets (Marsden et al. 1998), has been used to capture the spatial distribution of schools and pupils and the movement of pupils to schools (Taylor 2001b). Using this spatial framework to study school choice has provided a useful way of distinguishing between different “local” markets. The resulting patterns of school choice within these local markets reflect three general types of competition between schools: (1) self-governing competition spaces, (2) hierarchical competition spaces, and (3) nonhierarchical competition spaces (Taylor 2001b, 208).

Self-governing competition spaces reflect choice and competition between the minority divergent schools, particularly faith-based schools, as distinct from the choice and competition of Community schools, which tend to occupy the other distinct competition spaces. Given that admissions to divergent schools in the United Kingdom have always been open to school choice, the recent market reforms in education have largely been responsible for accentuating the importance and significance of the latter two types of competition space: hierarchical (i.e., where there are schools that tend to “gain” or “lose” pupils from one another) and nonhierarchical (i.e., where there is either minor or equivalent levels of choice between local schools).

Identifying the presence and significance of these different types of competition space is not particularly difficult—interviews with parents and/or school staff would probably reveal this. However, in order to also examine the outcomes of these school choices, in terms of measuring segregation, it is necessary to know about the choices and outcomes of every pupil attending schools in any given competition space. Furthermore, since competition spaces are not entirely discrete from one another, it is also necessary to know the choices and outcomes of every pupil in all the neighboring competition spaces. This does pose a particularly difficult set of methodological challenges. Interviewing every pupil would not usually be feasible, and a survey of pupils would require a 100 percent response rate to ensure accuracy. One solution to this, and the one that is employed in this article, is to use administrative data for every pupil and analyze such data using a Geographical Information System (GIS). The use of GIS as a spatial research tool in studying school choice has been well rehearsed (Taylor 2007). As long as each individual pupil can be geo-referenced and the administrative data contains the school destination and some socioeconomic variable(s) for each pupil, it is possible to simultaneously examine the choice of schools alongside the outcomes of those

choices on the social mix of each school's intake. Furthermore, the GIS allows different choice "scenarios" to be modeled and the resulting effect on school intakes and measures of segregation to be observed. Not only does this provide a much more detailed account of the process of segregation, it also helps to explore the relationship between the process of school choice and the outcome of school segregation.

Introduction to the Urban Education Market

Most studies of school choice in the United Kingdom focus on schools that are located in London. This focus on London schools tends to reflect the greater political and media attention of schooling in London and greater concerns about school admissions in the capital. Few studies consider the process of school choice outside London. Therefore, this article examines one urban market in a city in Wales. This is a medium-sized city with 20 secondary (high) schools providing places for approximately 22,000 children ages 11–16 years,¹ all located within the control and auspices of one local authority. Of these, five are faith-based schools and two are Welsh-medium schools.² These schools represent the "diversity" in UK schooling discussed earlier as they manage their own admission arrangements and form distinct self-governing competition spaces. In parallel competition to these divergent schools are the remaining 13 (English-medium) Community schools.

For these 13 Community schools, the local authority is responsible for the admissions process and the residential area of the local authority is divided into 13 congruent "catchment" areas—one for each school. Once a year the local authority writes to parents with children who are expected to transfer to secondary schools in the following year advising parents which school their "child would normally attend by reference to the child's place of residence" ([Urban Authority] 2004,17). This allocation is based on predefined catchment areas. However, parents are then invited to nominate an alternative school as their preferred school. If the number of applicants exceeds the number of places available, otherwise known as the Standard Admission Number, a series of oversubscription criteria are employed to prioritize particular applicants over others. For the Community schools, priority is given to those applicants living in the designated catchment area of the preferred school. Priority is then given in declining order to those applicants who have compelling social and/or medical needs in attending their preferred school and then to applicants with siblings already attending the preferred school. If there are places still available after these criteria have been employed, then priority is given to those applicants based on their proximity to their preferred school, as measured by the shortest practicable walking route. It is important to note

Choice, Competition, and Segregation

that this latter criterion is also employed if there needs to be a distinction drawn between applicants as determined by the other oversubscription criteria. These admission arrangements are quite common in England and Wales, particularly outside London (White et al. 2001).

Parents also have the opportunity to apply directly to one or more of the other divergent schools. The oversubscription criteria for the divergent schools are notably different from those for the Community schools, reflecting their particular educational ethos (e.g., parents have to demonstrate that they regularly practice a particular religious belief). As has already been discussed, admissions to these divergent schools has always been available through school choice. Recent reforms to expand school choice in England and Wales have mainly changed admissions to Community schools. The main impact of divergent schools in recent years has largely been the expansion in the number of such schools and places available in them. However, the number and size of divergent schools in this Welsh urban market have remained relatively unchanged for many years. Therefore, the main focus of the following analysis is largely on the choice between, and impact on, Community schools, thereby attempting to isolate the impact of recent school reforms on school choice and open enrollment from the long-established “parallel” provision of faith-based schools and, in the context of Wales, Welsh-medium schools.

The data for this analysis were obtained from the local authority for all pupils in secondary schools, ages 11–16 years. Individual pupil data were georeferenced using their home postcode (or zip code). Each postcode in the United Kingdom is given a grid reference point—these are generalized for the postcode area to ensure some degree of anonymity for individual families and can therefore be up to 200 meters from the actual home of the pupil. However, the accuracy of this conversion is greater in urban and more densely populated areas. These points can then be analyzed in a GIS both spatially and by the pupils’ socioeconomic background. The primary socioeconomic variable used in this analysis is whether individual pupils were eligible for free school meals (FSM) or not—this eligibility is based on levels of household income. In 2002, 17 percent of all secondary-school-aged pupils in Wales and 18 percent of all secondary-school-aged pupils in this urban education market were eligible for FSM—representing the most socioeconomically disadvantaged families.

It is evident, then, from the admission arrangements for this urban education market that there are a number of different choice scenarios that can be modeled and compared by analyzing individual pupil data in a GIS. In each scenario pupils can be hypothetically allocated to different schools according to different criteria. This article initially examines the impact of choice on segregation under four different scenarios: (1) based on the actual choice of schools (Actual Intake); (2) based on the allocation of pupils by the catchment

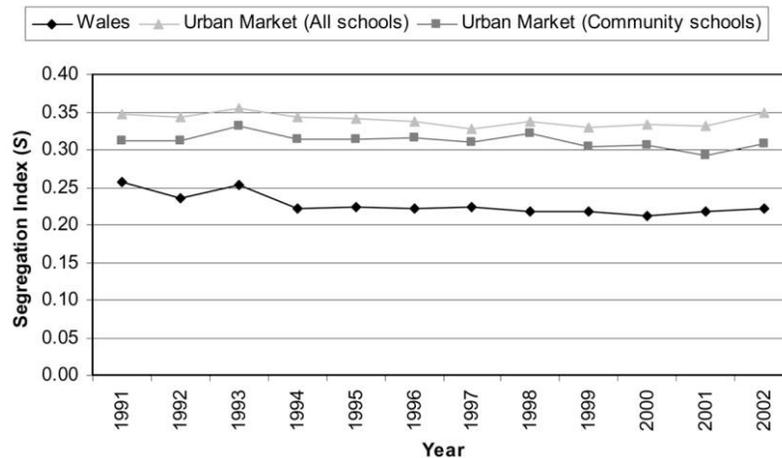


FIG. 1.—Segregation (S) of pupils eligible for free school meals, 1991–2002

area they live in (Catchment Intake); (3) based on the allocation of pupils to their nearest school, as measured by the straight-line distance between school and home (Proximity Intake); (4) based on a random allocation of pupils to schools (Random Intake).³

Socioeconomic Segregation between Schools

The analysis begins by considering the actual choice of schools and the resulting Actual Intake. Traditional analyses of school segregation have largely been interested in changes in segregation over time. In this article the Segregation Index (S)—which measures the proportion of a subset minority group that would have to move school for all schools to have their “fair share” of that subset group—is utilized. The fair share is equal to the proportion of the subset group across the whole area concerned. This measure is proven to be compositionally invariant, and therefore unnecessarily unaffected by changes in the overall proportion of the subset group over time. (See Gorard and Taylor [2002] and Gorard et al. [2003] for more details about this measure.) However, there are other measures of segregation that can also be employed, such as the Dissimilarity Index and the Isolation Index, but each generally has its limitations. Figure 1 illustrates the level of segregation of students eligible for FSM between schools over time.⁴ It shows the level of socioeconomic segregation (i) between all schools in Wales, (ii) between all schools in this urban education market, and (iii) between the Community schools in this

Choice, Competition, and Segregation

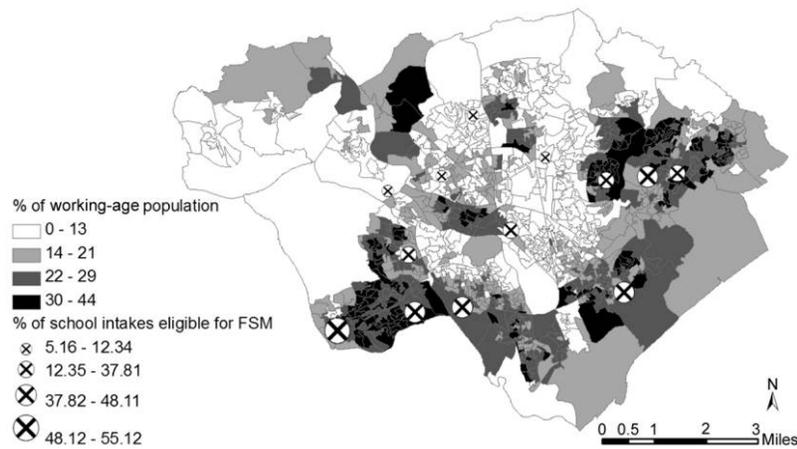


FIG. 2.—Social geography of the urban education market: adults in low-paid occupations by ward (includes those in semiroutine and routine occupations and long-term unemployed).

market only. This shows that levels of socioeconomic segregation between all schools in Wales (i.e., at the national level) have slightly decreased over this 12-year period. However, levels of between-school segregation in this urban market remain relatively unchanged since 1991. Figure 1 also shows that with the inclusion of the divergent schools, levels of segregation are generally higher than they are for levels of segregation just between the Community schools

The problem with these comparisons of segregation between schools over time, along with many other attempts to analyze segregation, is that they do not account for the underlying residential segregation of the urban education market. Indeed, the actual composition of the 13 Community school intakes (as measured by the proportion of students eligible for FSM) corresponds closely to the social geography of the urban area (as measured by the proportion of adults in low-paid occupations; see fig. 2). Although there are quite marked differences in the socioeconomic composition of school intakes in this urban market, as seen by comparing the intakes of schools in the southwest and schools in the north of the urban area, this could largely be related to the residential geography and lack of choice within the urban market.

However, a more rigorous way of examining this relationship is to compare these actual levels of segregation with the impact on school segregation under the other three choice scenarios. The comparative results for the following year are presented in table 1. This shows that the level of socioeconomic segregation between schools as a result of school choice (Actual Intake) is only slightly higher than if pupils chose only (or if they were allocated to) their designated catchment school (Catchment Intake). However, this in turn would

TABLE 1

Comparative Measures of Segregation (S) between Community Schools (Using Individual Student Data)

Intake	S
Actual Intake	.27
Catchment Intake	.26
Proximity Intake	.25
Random Intake	.02

lead to slightly greater segregation than if pupils went to their nearest school (Proximity Intake). This suggests that the catchments areas, determined by the local authority, slightly exaggerate the level of segregation between schools in comparison to the level if catchment areas were determined only by distance. It also reflects the housing market's response to the use of catchment areas as an oversubscription criterion. Nevertheless, given the underlying levels of residential segregation, it appears that school choice has slightly exacerbated the levels of segregation between Community schools in this urban market. If students were allocated a school randomly (Random Intake) then it is clear that socioeconomic segregation would be very low, but notably not zero.⁵

The opportunity to model different choice scenarios and examine the impact these have on levels of between-school segregation has already provided a more nuanced understanding of school choice and its impacts, and an analysis like this is able to demonstrate the importance of residential segregation on school segregation. However, this still does not say much about the process of segregation and its relationship to school choice. For example, why are levels of segregation higher with school choice (Actual Intake above) than if schools were simply chosen on their proximity to the family home (Proximity Intake above)? Also, in the context of wider debates about the impact of school choice, it may be equally relevant to also ask why segregation between schools in this urban education market is not even higher. Examining levels of segregation using aggregated numbers of pupils by schools and local authorities can provide only a partial representation of the impact of school choice, even when using these different choice scenarios.

It is generally the case that most analyses of segregation between schools use the local authority as their unit of analysis—that is, that segregation is measured between all schools across a large institutional area. This example conducts analyses across an entire urban area with 13 Community schools (plus a further seven divergent schools). It is important that any measurement of segregation also occurs at an appropriate local level. One way of doing this

Choice, Competition, and Segregation

is to identify the competition spaces or local networks of schools where the majority of school choice occurs (Taylor 2001b).

Competition and Choice between Schools

The real value of a geographical approach to studying school choice using data on individual pupils and a GIS is that it is possible to explore the distribution of individual pupils to schools under these different choice scenarios, that is, identifying which pupils would attend which schools based on these different choice criteria. So, for example, by comparing the Actual Intakes with the Catchment Intakes it is possible to see the impact of school competition on pupil numbers. Overall, three-quarters of pupils attended their catchment area school. In other words, it appears that one in four pupils successfully employed school choice to obtain a place in an alternative school to the one they were originally allocated by the local authority.⁶ Compared with other urban education markets this may appear relatively low (see Taylor [2002] for other comparisons); however, this does not include pupils attending the two Welsh-medium and five faith-based schools (the divergent schools). Further analysis reveals that only 65 percent of students attend their nearest school (as a straight line measurement). This would suggest that the use of catchment areas, both in terms of the initial allocation of students to schools and in the oversubscription criteria, plays an important role in defining the distribution of students to schools and therefore the composition of school intakes. This could be because they are important in guiding the original choice of schools or in their importance in allocating oversubscribed school places.

The impact on pupil numbers can also be considered for each school (table 2). This begins to provide a much better representation of school choice and the impact on school intakes. Table 2 shows which schools would have admitted more pupils (net) if they had been allocated by the catchment area they lived in.⁷ Conversely, it also highlights the schools that admitted fewer students (net) as a result of school choice. It is clear from this table that School F gained the most net pupils (364) from outside its catchment area. Contrast this with School A, with the greatest net loss of pupils (−420) to other schools. However, it is important to recall that school intakes in the United Kingdom are capped, so the number or percentage of “gains” does not necessarily reflect the popularity of each school. For example, School L and School D had more applications than there were places in the last year of entry, yet neither of them are the top two schools with the most proportionate gains (table 2).

Figure 3 illustrates the spatial distribution of these gains and losses between all schools. This does not show all patterns of choice between schools; it simply

TABLE 2

Summary of Gains and Losses for Community Schools

School	Actual Intake	Catchment Intake	Net Gains (or Losses)	Actual Intake (as % of Catchment Intake)	Admissions for Last Year of Entry (as % of Standard Admission Number)
F	1,041	677	364	154	100
H	784	536	248	146	47
L	1,181	908	273	130	100
B	744	606	138	123	76
M	1,169	954	215	123	80
G	1,888	1,825	63	104	100
D	1,075	1,046	29	103	133
K	1,381	1,345	36	103	100
C	832	968	(-136)	86	85
E	1,316	1,571	(-255)	84	87
I	868	1,144	(-276)	76	57
J	706	988	(-282)	72	48
A	479	899	(-420)	53	35

illustrates the most significant patterns of choice (i.e., where there are 10 or more net gains between schools). From this it is clear that choice and competition between all Community schools in this urban market are interlinked; that is, while one school may gain pupils from another school, it too could be losing pupils to a third school. This is typical of many urban education markets in the United Kingdom (Taylor 2002). However, as discussed earlier, more detailed studies reveal that school choice often takes place at a local level, and this approach provides a way of distinguishing between different competition spaces within a given education market. Although they are all interlinked, it is possible to identify from figure 3 five different competition spaces in this urban market (table 3).

The first competition space presented (example 1) illustrates a hierarchical competition space of approximately four tiers. At the top of the hierarchy is School F, which gains relatively large numbers of pupils from Schools A, B, and E. As a result, School F makes significant gains overall. School E is in the second tier, School B the third, and, finally, School A in the fourth and lowest tier. Although School E gains some pupils from the catchment areas of Schools B and A, they do not counter the significant losses to School F. Conversely, any losses from School B to Schools F and E are easily offset by the significantly large number of pupils it gains from School A's catchment area. As a result, School E and School A both experience significant net losses overall from competition with the other two schools, although for different

Choice, Competition, and Segregation

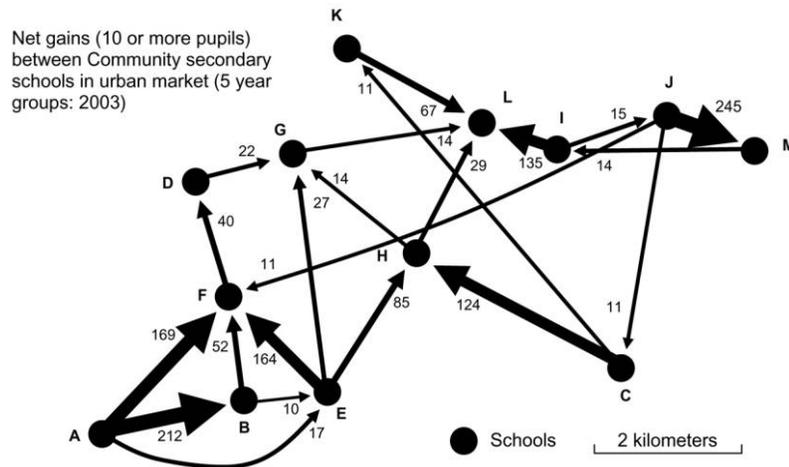


FIG. 3.—Net gains between secondary schools in urban education market

reasons, and despite School E being in the second tier of this competition space. It should also be noted that this is not a discrete competition space. All of these schools appear to be in some competition with other schools in the urban education market. Most notable are the impacts of School D, School H, and School G that gain pupils from at least one of these four schools in this first example (fig. 3). This would suggest that further tiers could be added at the top of this hierarchical competition space, reflecting the number of pupils, although less significant, that choose alternative schools.

The second example in table 3 highlights another significant hierarchical competition space. This is in a different area of the urban market involving just three schools in two tiers. At the top of this hierarchy is School L, which makes significant gains from School I and School K. An important distinction between this example and the previous competition space discussed is that these latter schools (I and K) are not in any obvious or significant competition with one another. As a consequence of these patterns of school choice, School L makes significant gains overall. Again, this competition space is not discrete. For example, it is clear that School L attracts pupils from a large number of other schools' catchment areas.

The third and fourth examples of competition spaces in this urban education market involve just two schools, respectively, reflecting their greater relative isolation. Although there are gains and losses between both pairs of schools, the resulting net movement of students highlights the greater attraction of students to School M (example 3) and School H (example 4). As before, the movement of pupils in figure 3 to and from these schools shows that they are

TABLE 3

Five Competition Spaces in the Urban Education Market

COMPETITION SPACE	% OF PUPILS OBTAINING GCSE GRADES A*–C	PERCENTAGE OF INTAKE ELIGIBLE FOR FSM		
		Actual Intake	Catchment Intake	Proximity Intake
1. Hierarchical (4 tiers):				
School F	28	31.0	29.0	29.7
School E	26	44.5	43.1	40.1
School B	20	48.1	41.3	45.3
School A	21	55.1	52.5	49.9
2. Hierarchical (2 tiers):				
School L	75	5.2	3.7	7.6
School K	55	11.7	11.9	9.6
School I	27	31.7	26.8	26.2
3. Hierarchical (2 tiers):				
School M	26	37.8	38.8	43.4
School J	29	43.3	41.0	28.5
4. Hierarchical (2 tiers):				
School H	29	34.9	26.1	19.4
School C	24	46.4	45.1	47.0
5. Nonhierarchical:				
School G	54	12.3	12.4	13.9
School D	66	6.9	6.5	6.0

NOTE.—GCSE = General Certificate of Secondary Education; FSM = free school meals.

not entirely isolated from competition with other Community schools in the area.

The final form of competition space represented in table 3 (example 5) identifies two schools that are in competition with one another and other schools. However, the complexities of the urban market do not allow for them to be classified in any particular hierarchical competition space. Consequently, these schools occupy a particular form of competition within the urban market that probably results in very different impacts on other schools. They are all in competition with other schools, but not to the degree that would suggest they are in direct competition with particular schools over significant numbers of pupils. This can be easily seen by examining the net movement of pupils to and from these schools in figure 3.

The importance of identifying each of these competition spaces, particularly the hierarchical competition spaces, is the relationship they have with the examination performance and the socioeconomic composition of each school's intake. In nearly every example presented in table 3, the school's position

Choice, Competition, and Segregation

within a hierarchy reflects the percentage of pupils (in a typical year) that obtained grades A*–C in five or more General Certificate of Secondary Education exams; the higher the position of a school in their hierarchical competition space, the greater the overall examination performance of Year 11 pupils. The exception to this is the nonhierarchical competition space (example 5) and example 3 (Schools M and J). However, the relationship between a school's position in the hierarchical competition spaces and the proportion of pupils attending that school who are eligible for FSM is even more evident (and exists for all four hierarchical competition spaces identified). So, the higher the position of a school in their hierarchical competition space, the lower the proportion of pupils in their intakes eligible for FSM (i.e., there are fewer socioeconomic disadvantaged pupils going to these schools).

This more detailed examination of school choice and competition in the urban education market would give the impression that there is a close relationship between choice and the schools' intake characteristics (as presented here in terms of the overall examination performance of a school's intake and the proportion of pupils eligible for FSM) within each competition space. And it would go some way to help explain why detailed qualitative studies of school choice would suggest that the education market is likely to polarize school intakes—this would certainly appear to be the case if just the choice of schools (or not) being made were studied. However, table 3 also demonstrates that the main alternative methods of allocating school places (by catchment area or proximity) would produce a similar relationship between the socioeconomic composition of these schools and their position in the respective competition spaces, thus still reflecting localized residential differentiation.⁸

An important distinction between this detailed analysis by competition space and the earlier analysis of between-school segregation for all schools is that it is now possible to see how the composition of school intakes may be changed due to school choice. For example, differences in the composition of the Actual Intakes and Catchment Intakes are not associated with the position of the school in each hierarchy. In the first example from table 3, School F at the top of the hierarchical competition space is taking more pupils eligible for FSM than if the intake were allocated by catchment area. Therefore, it would appear that it is taking closer to its "fair share" of socioeconomically disadvantaged pupils—suggesting a process of desegregation. However, School A at the bottom of the same hierarchical competition space is taking an increased share of pupils eligible for FSM, and more than its fair share—which suggests a process of segregation. Of course, in this example there must be a "flight" (Waslander and Thrupp 1995) of non-FSM pupils out of this competition space and into adjoining or distant competition spaces (see fig. 3). Nevertheless, this complex mixing of pupils in schools occurs in examples 2 and 4 presented in table 3. The only competition spaces where there are clear patterns of

segregation *or* desegregation are in example 3 (an apparently segregating competition space) and example 5 (an apparently desegregating competition space).

For a situation to occur where it is possible to identify processes of segregation and desegregation within a single urban education market, and even within the same competition space, there clearly must be a complex relationship between school choice and between-school segregation.

Conclusions

Numerous other spatial analyses of school choice have already provided reasons why socioeconomic and ethnic segregation have not significantly increased. However, from this detailed examination of one urban education market in Wales there would appear to be two clear and additional explanations as to why school choice does not appear to have exacerbated socioeconomic segregation between schools. First, just as there are examples of competition spaces within an urban education market with increased segregation as a result of school choice, there are examples where the opposite trend, of reduced segregation, also exists. And second, within each competition space it is quite probable that some schools, particularly those that already exist at the top of any hierarchical competition space, admit closer to their fair share of students eligible for FSM as a result of school choice.

But this is not the end of the story. Given these conclusions, it is still easy to see how processes of school choice may appear to promote socioeconomic segregation. The inclusion of divergent schools in the analysis would have shown greater socioeconomic segregation between schools. But, most important, the existence of hierarchies of choice and competition suggests there are clear “winners” and “losers” in the education market. Supporters of school choice will be relieved to see that the socioeconomic compositions of many school winners are increasingly becoming mixed. However, there is a worrying trend among some of the losers; as a result of many families choosing alternative schools (including those with FSM and non-FSM children), the pupils that remain are more likely to be eligible for FSM and from low socioeconomic backgrounds and are therefore becoming more ghettoized.

This article has detailed the most significant findings that constitute a geography of school choice. The advantages of this approach to studying school choice have also been highlighted. While the findings presented here clearly do not cover all the issues relating to school choice, it should now be clear how and why a geography of school choice provides a useful framework in which to continue to explore these issues. However, one of the main limitations to a solely geographical approach is that school choice is changing all the time. Not only has the national program of legislation for open enrollment

Choice, Competition, and Segregation

in England, Wales, Scotland, and Northern Ireland been modified and adjusted over time but there are a number of other important ways in which school choice may be changing over time. This includes the way schools have responded to open enrollment, changes in the supply of places and school provision (a good example of this is the dramatic increase in specialist schools and the rise in segregation), and changes in the demand for school places over time. These temporal problems are compounded by the fact that the supply of school places is relatively inelastic, which means that as more parents try to get a place in a school of their choice, as opposed to their local or allocated school, a growing proportion of families will inevitably be unsuccessful. In the short term we see annual fluctuations in the number of applications to popular schools due to the publication of success rates in obtaining school places the year before. How this affects school choice in the medium to longer term is less clear. Further inquiry into the spatial relationships and characteristics of school choice and the education market over time is still required before fully appreciating the impact of school choice reforms.

Notes

1. The majority of secondary schools in this urban market also offer provision for 16–18-year-olds. However, since this provision is not homogenous across all schools, this analysis examines only the choice and composition of 11–16-year-olds (i.e., those years that are compulsory).

2. Wales is a bilingual country of the United Kingdom. Although the language of Welsh is now compulsory in all schools in Wales, schools are typically divided into English-medium or Welsh-medium, where the principle language of instruction for all subjects is either English or Welsh, respectively.

3. A random allocation of students to schools is included for substantive and methodological reasons. Substantively there is growing debate in the United Kingdom about using random allocation as a way of allocating oversubscribed places. This is seen as the only way that segregation can be removed from the state-funded school system. To date there are only a few examples in which random allocation is used, albeit in a very limited way (e.g., Brighton and Hove, England). The methodological reason is discussed later.

4. $S = 0.5 \times (\Sigma |A_i/A - C_i/C|)$, where A_i is the number of children eligible for FSM in school i , C_i is the total number of children in school i , A is the total number of children eligible for FSM in the chosen area, and C is the total number of children in the chosen area.

5. There has been some debate about whether descriptive measures of segregation such as the Segregation Index (S) and the Dissimilarity Index can have a score of zero—absolutely no segregation. The result presented here confirms that there is a small bias in such measures despite students being distributed randomly. How significant these biases in the measures are is debatable. However, most important to this analysis is that the level of segregation by random allocation as an indicator of bias is larger than the difference between the measures of segregation by choice versus segregation

by catchment area—which suggests we cannot be confident that segregation by choice is significantly different to segregation by catchment area or by proximity.

6. Of course this does not include those parents and pupils who exercised school choice but who were not able to get a place in their preferred choice of school.

7. Net figures are presented in table 2 for simplicity. In all schools there are gains and losses (as defined by the different choice scenarios), but we are largely interested in the net impact of these choices on school intakes.

8. A comparison of the examination performance of a school is not possible for the hypothetical catchment intake.

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