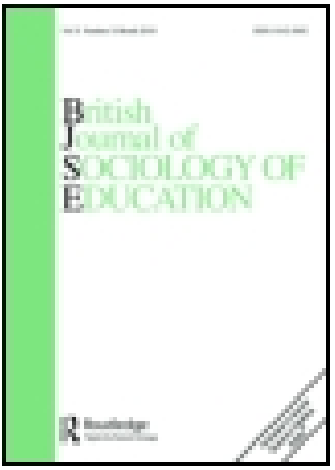

British Journal of Sociology of Education

Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/cbse20

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Published online: 28 Jun 2010.

To cite this article: Philip Noden (2000) Rediscovering the Impact of Marketisation: Dimensions of social segregation in England's secondary schools, 1994-99, British Journal of Sociology of Education, 21:3, 371-390, DOI: 10.1080/713655353

To link to this article: http://dx.doi.org/10.1080/713655353

British Journal of Sociology of Education, Vol. 21, No. 3, 2000

Rediscovering the Impact of Marketisation: dimensions of social segregation in England's secondary schools, 1994–99

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ABSTRACT *Gorard and Fitz have used an index to examine the segregation of pupils eligible for free school meals in Wales and England. They suggest that secondary schools have become less segregated since the quasi-market reforms. This paper describes two segregation indices, the index used by Gorard and Fitz and a version of the index of isolation, suggesting that the latter is a more appropriate measure of segregation. Data are then presented relating to English secondary schools from 1994 to 1999. The analysis shows a significant increase in segregation during that period using either measure of segregation. While it is possible that this increase is from a lower baseline than the level of segregation prior to the reforms, the findings suggest that in the late 1990s there has been a consistent rise in the average level of segregation in English local education authorities.*

Introduction

Recent papers by Stephen Gorard and John Fitz have suggested that secondary schools in Wales and in England have become less socially segregated during the 1990s (Gorard & Fitz, 1998a, b). They report that while there was an initial increase in social segregation during the early 1990s, this was followed by a period of desegregation. In the first of their papers, data are provided relating to South Wales for the period 1991–96 (and from 1988 to 1996 for some local education authorities (LEAs)). This paper uses eligibility for free school meals as the indicator of poverty and then examines the spread of pupils eligible for free school meals across secondary schools in South Wales. A second paper addressing social segregation (Gorard & Fitz, 1998b) states that when the same methods were employed with data for every secondary school in England from 1989 to 1997, 'a somewhat more robust improvement in the social mix of schools' was identified (p. 304). Unfortunately, data are not presented in that paper.

Their findings present a major challenge to the orthodox view of the effects of quasi-market reforms. This orthodoxy suggests that quasi-markets present further advantages to already advantaged families and that, consequently, such market reforms will

ISSN 0142-5692 (print)/ISSN 1465-3346 (online)/00/030371–20 © 2000 Taylor & Francis Ltd

lead to increased social segregation in schools (for example, Gewirtz *et al.*, 1995; Waslander & Thrupp, 1995).

Gorard & Fitz (1998b) suggest that the data may be understood to reflect a 'starting-gun effect' in which more alert families responded quickly to the quasi-market reforms, and consequently generated an initial increase in social segregation. However, other families also learned to make use of the increased opportunities to choose schools for their children, and therefore disadvantaged families were liberated from schools with disadvantaged intakes. They argue that, owing to schools being highly segregated prior to the quasi-market reforms, the net result has been for schools to become less socially segregated. In short, they suggest that disadvantaged families had been liberated from the 'iron cage' of selection by mortgage.

This paper examines their chosen measure of segregation and compares it with an alternative measure of segregation. This alternative measure, a version of the isolation index, has advantages over the measure employed by Gorard and Fitz. The two methods for assessing segregation are then used to present data relating to social segregation in English secondary schools from 1994 to 1999. In keeping with Gorard and Fitz, eligibility for free school meals is used as the indicator of disadvantage, and the LEA as the spatial scale for analysis. The data presented relate to 3842 secondary schools in 128 local education authorities in England [1]. Contrary to Gorard and Fitz, however, the data indicate that there has been a slight increase in social segregation during that period—and this is reflected both in their own index and the relevant component of the isolation index. The data are then used to illustrate the advantages of the decomposed isolation index over the index used by Gorard and Fitz.

Marketisation and Segregation

The various reforms introducing a quasi-market into secondary schooling are well documented (for example Whitty *et al.*, 1998). Much of the empirical and theoretical work examining their impact has suggested that the reforms introduced both greater incentives for social segregation and more powerful mechanisms to facilitate that segregation. Indeed, Gorard & Fitz (1998a) report that, in view of this literature and their own contributions to it, they had expected to find an increase in social segregation. On finding a shift in the opposite direction, they state in their later paper that their findings were greeted by a 'chorus of disbelief' (Gorard of Fitz, 1998b, p. 303).

Before going on to discuss the method used in these papers and to present data for English secondary schools, it is useful to briefly present some of the arguments relating to the quasi-market reforms and social segregation, and also to discuss briefly what is meant by 'segregation'.

Both incentives and mechanisms have been altered on the 'supply side' by the quasi-market reforms. Schools are now far more open to public scrutiny through, for example, school league tables showing pupils' examination results and OFSTED reports on the quality of education provided by schools. Formula funding has meanwhile meant that schools unable to attract sufficient pupils are financially penalised. Taken together, these supply side reforms have introduced clear additional incentives for schools to attempt to attract higher attaining pupils (Gewirtz *et al.*, 1995; Glennerster, 1996). In short, if schools are to protect their market position and their financial stability, they must be able to present a positive image to parents. As years of work on the determinants of attainment bear testimony, it is easiest to maintain this positive image if the school's intake is of higher ability. It has also been suggested that the devolution of control over

school admissions has increased the power of schools to achieve the desired intake (Gewirtz *et al.*, 1995; West *et al.*, 1998a).

Similarly, on the 'demand side', research has reported that many parents see themselves as consumers actively choosing schools for their children (Gewirtz *et al.*, 1995; Woods *et al.*, 1998). Reforms such as more open enrolment and the publication of league tables mentioned earlier have undoubtedly increased their power as consumers. Under open enrolment, schools are compelled (with some exceptions) to admit pupils up to their physical capacity. Consequently, there is now greater scope for parents to choose schools than was previously the case. In addition, a legal judgement prevented local education authorities from operating catchment areas, which coincided with their administrative boundaries. In effect, this prevented them from giving priority to children from within the administrative boundary and, in doing so, further increased parental choice.

Studies examining why parents choose particular schools have identified many important factors. One such factor suggests that some parents actively avoid schools with disadvantaged intakes (for example, West *et al.*, 1998b). Another factor suggests that many parents seek schools where educational standards are perceived to be higher (for example, David *et al.*, 1994). However, the information made available to parents in the form of league tables has not taken the prior attainment levels of the school's intake into account. Consequently, it has not been possible for parents to differentiate between schools with higher ability pupils and schools providing better quality teaching. As there is a strong correlation between a school's social mix and the attainment levels of its pupils, many parents may further tend to favour schools with more advantaged intakes.

The claims listed earlier all suggest that the quasi-market reforms would stimulate greater social segregation in schools. However, in contrast, advocates of the quasi-market reforms have suggested that they would enable a larger number of disadvantaged families to escape from the restrictions imposed by residential patterns (Coleman, 1992)—or what is often referred to as 'selection by mortgage'. Any initial advantages enjoyed by more privileged families would, it is argued, disappear as more disadvantaged groups also learn to behave as consumers. It is also suggested that because schools were already highly segregated, reforms such as open enrolment and the publication of league tables would give consumers greater power, and consequently enable disadvantaged pupils to escape from poor-quality schools or from schools with disadvantaged intakes.

Thus, we have two conflicting accounts of the dynamics of the educational quasi-market. The disagreements already described are issues that may be resolved empirically. However, before addressing the empirical questions, it is important to consider what 'segregation' means in this context and therefore how it is to be measured. Debates on this question have taken place in the field of urban sociology in relation to residential segregation at various points over the past 50 years (for example, Duncan & Duncan, 1955; Lieberson, 1981; Massey & Denton, 1988). What seems clear from this literature is that segregation is a multi-dimensional concept, and that different measures are appropriate in different contexts.

Segregation implies that two or more groups are separated from each other. However, we might be concerned with whether a group is over-represented in some areas and under-represented in others (i.e. concerned with the '*evenness*' of the spread of a group). Alternatively, we might be interested in the extent of interaction between two groups, i.e. concerned with their '*exposure*' to one another. A third relevant dimension of segregation relates to '*concentration*'. We may be most interested in the extent to which a particular group is concentrated in one or more schools. This paper addresses measures of evenness (the index used by Gorard and Fitz) and exposure (the isolation index). Throughout the

TABLE I. Two notional LEAs' schools' pupils—number of pupils eligible for free school meals/number of pupils on roll

	School					
	A	B	C	D	E	F
LEA 1	0/600	0/600	200/600	200/600	400/600	400/600
LEA 2	0/600	0/600	200/600	200/600	200/600	600/600

paper, the word 'segregation' is left deliberately vague and, where necessary, the more specific terms '(un)evenness' and 'isolation' are used to refer to the relevant dimensions of segregation.

In the following section, the measure of unevenness used by Gorard & Fitz (1998a, b) is described, as is the index of isolation. It is suggested that while the two indices measure different dimensions of segregation, the index of isolation is a more useful measure in the context of school segregation, especially if the index is decomposed into two elements. Data are then presented using free school meal eligibility as the indicator of disadvantage. Using the two indices, an attempt is made to characterise the type and extent of segregation, to illustrate some differences between the two measures of segregation and to discuss some of the implications for policy-makers and researchers.

Measuring Segregation: Unevenness

Indices to measure unevenness have a long history in the study of segregation (for example, Duncan & Duncan, 1955; Jargowsky, 1997). The index of dissimilarity is the most widely used measure of unevenness, and the index used by Gorard and Fitz is closely related to it. The index used by Gorard and Fitz (referred to hereafter as the Gorard index) has a minimum score of zero and a maximum of one, and can be understood as representing the fraction of pupils eligible for free school meals (FSM) who would have to change schools for there to be an even spread of FSM-eligible pupils at all schools in a given LEA. The Gorard index is represented in equation (1).

$$Unevenness = \sum \left(\frac{\left| FSM_s - \left(FSM_{lea} \times \left(\frac{P_s}{P_{lea}} \right) \right) \right|}{2 \times FSM_{lea}} \right) \qquad \text{[equation (1)}$$

However, this measure of segregation has a crucial limitation. While it measures the *(un)evenness* of the spread of FSM-eligible pupils, it takes no account of *where* the unevenness is located. The two notional LEAs shown in Table I and Fig. 1 illustrate this point. In Table I, the number of pupils eligible for free school meals is represented in the numerator for each school and the number of pupils on roll in the denominator. For the sake of simplicity, each school has 600 pupils. In both LEAs, the number of pupils having to move schools for an even spread of FSM-eligible pupils is 800. In LEA 1, this would involve 200 pupils from school E and 200 from school F changing places with 200 pupils from each of schools A and B. In LEA 2, on the other hand, all 400 FSM-eligible pupils would be required to move from the same school—school F. The index is, however, blind to the location of the pupils, and so in both LEAs the Gorard index is one-third.

Many people would argue that, while the index for the two LEAs is equal, LEA 2 is more socially segregated than LEA 1. This seems particularly clear in Fig. 1. In LEA 2, not only would 400 pupils eligible for free school meals have to move schools to achieve

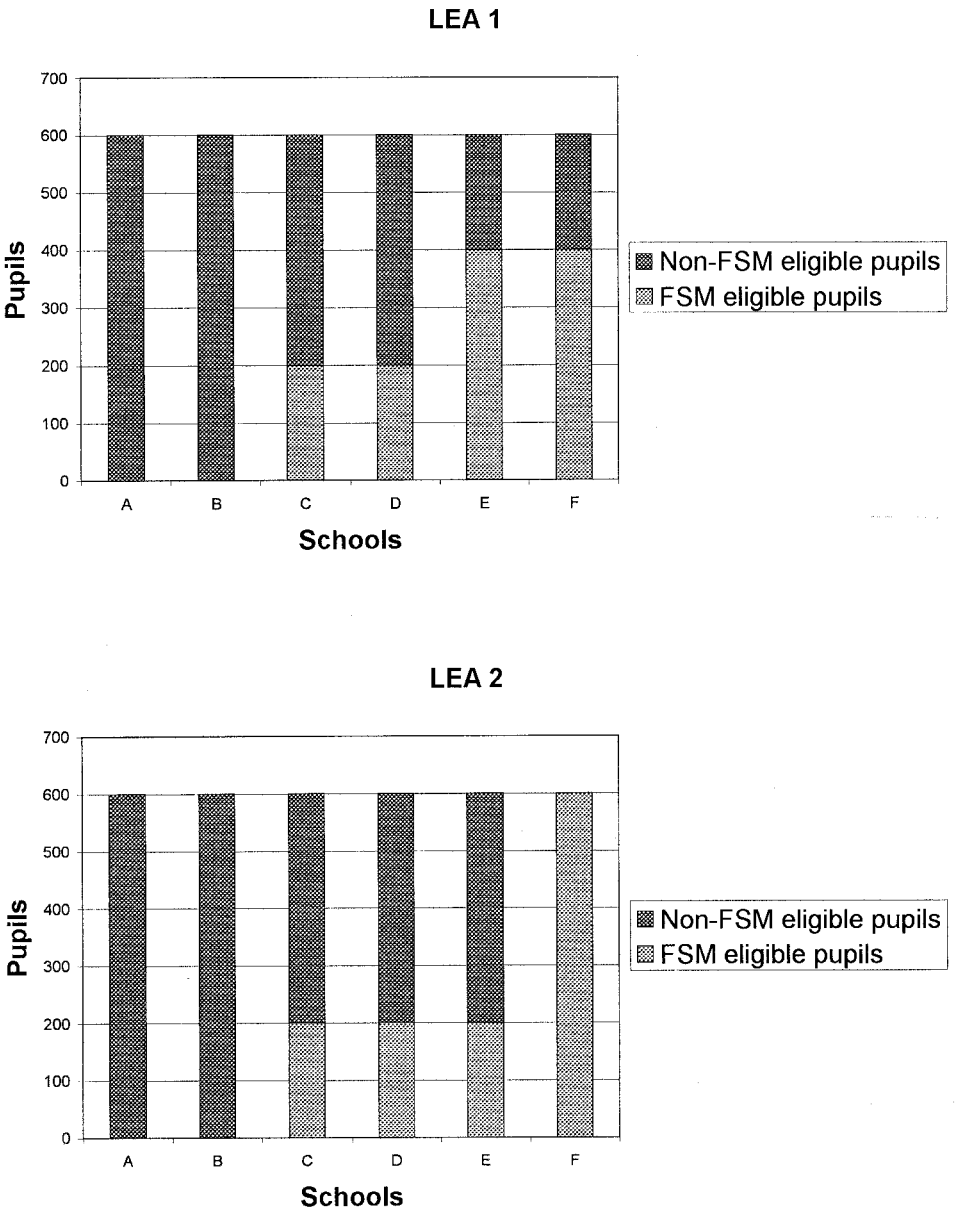

FIG. 1. Free school meal eligibility in two notional LEAs.

an even spread, but 600 such pupils are attending a school at which *all* pupils qualify for free school meals.

But more important than this intuitive view of the relative segregation of the two LEAs, from the point of view of policy, the segregation in LEA 2 is of greater importance than that in LEA 1. First, the likelihood of a school to be judged to be failing appears to be far higher for schools with a high proportion of pupils eligible for FSM (for indirect evidence, see FitzGibbon, 1998). This is of particular importance, given the substantial

additional costs often associated with turning around failing schools. Second, peer-group effects have been identified as important determinants of educational attainment. Such effects are important when considering schools with high proportions of pupils eligible for free school meals for two reasons. First, there are links between socio-economic status (of which FSM is an indicator) and prior attainment, and therefore pupils are likely to encounter a lower attaining peer group than in other schools. Second, qualifications are of greater value to disadvantaged groups (in terms of rates of return on qualifications) and, consequently, any negative peer group effects will be magnified (Sparkes, 1999). Other things being equal, in terms of educational and employment outcomes, the negative consequences of the segregation in LEA 2 are likely to be more damaging and longer lasting than in LEA 1. A third instance of the Gorard index failing to provide important information arises when considering the difficulties of recruiting and retaining high-quality teaching staff in schools with very disadvantaged intakes (for example, School Teachers' Review Body, 1999). Fourth, the index is also of little value when considering the more general value to society of social mixing between more and less advantaged social groups.

Thus, the Gorard index fails to identify an important dimension of segregation and one that is particularly 'policy-relevant'. The index has a further shortcoming, and this is identified by Gorard & Fitz (1998b). The standard against which segregation is judged is not an ideal standard, such as there being no pupils eligible for free school meals in an LEA, but rather a measure of evenness relative to the overall level of free school meal eligibility within the LEA. Consequently, it is not always clear whether a reduction in the Gorard index is desirable. While this might appear to be a relatively minor point, as we shall see, it renders the Gorard index of limited value without additional contextual information.

Measuring Segregation: Exposure

The index of isolation is a well-established segregation measure (Bell, 1954; Lieberson, 1981; Lieberson & Carter, 1982). Intuitively, this index is best understood as the probability that a schoolmate of a pupil eligible for free school meals will also be eligible for free school meals. Rather than measuring the evenness of the spread of the FSM population, this index reflects how far that population is isolated from the non-FSM population, in a given LEA. Mathematically, the index is shown in equation (2).

$$Isolation = \sum \left(\frac{FSM_s}{FSM_{les}}\right)\left(\frac{FSM_s}{P_s}\right) \qquad \text{[equation (2)]}$$

If we return to the examples in Table I, we find that in LEA 1 the index of isolation equals 0.556, while in LEA 2 it equals 0.667. This is because schoolmates of pupils receiving free school meals in LEA 2 are more likely to be also eligible for free school meals. The index of isolation is therefore able to detect higher concentrations of FSM-eligible pupils and, perhaps, therefore to detect schools either in, or in danger of entering, a 'spiral of decline'. As with the Gorard index, the index is on a scale from 0 to 1. A LEA would have an index of isolation of 1 if every pupil eligible for free a school meal was at a school entirely made up of pupils eligible for free school meals.

A key property of the isolation index is that a LEA would have an index of isolation of 1 if every pupil in every school was eligible for free school meals. In contrast, the Gorard index would be zero for this LEA as no pupils would need to change schools to have an even spread of FSM-eligible pupils (all schools would already be at an even 100%). This presents a limitation for the value of the isolation index. This is because the

TABLE II. Free school meal eligibility in two more notional LEAs—number of people eligible for free school meals/number of pupils on roll.

	School					
	A	B	C	D	E	F
LEA 3	400/600	400/600	400/600	400/600	400/600	400/600
LEA 4	0/600	100/600	100/600	100/600	300/600	600/600

index of isolation consequently increases with general increases in the level of eligibility for free school meals across the LEA as a whole. Such changes might arise from general economic conditions and therefore be unrelated to any putative quasi-market effects on segregation within the LEA.

However, from the point of view of this research, this flaw is neither crucial nor insurmountable. The drawback is not a crucial flaw when examining segregation because, even if there is a general rise in the level of eligibility for free school meals and this increase is evenly spread across different schools within an LEA, it is still important, in terms of policy, to grasp the increased isolation of FSM-eligible pupils from non-FSM-eligible pupils. This was pointed out earlier in relation to peer effects, teacher recruitment and schools deemed to be failing.

Far more importantly, however, for the purposes of this paper, the problem is surmountable. This is because the index of isolation can be decomposed into two constituent elements, which separate the influence of the overall LEA rate of FSM eligibility from the isolation of FSM-eligible pupils within the LEA that arises from their attending different schools. This decomposition is shown in equation (3).

$$Decomposition = \left(\frac{FSM_{lea}}{P_{lea}}\right) + \sum\left(\frac{FSM_s}{FSM_{lea}}\right)\left(\frac{FSM_s}{P_s} - \frac{FSM_{lea}}{P_{lea}}\right) \qquad \text{[equation (2)]}$$

The first half of the formula reflects how large the index of isolation would be if all FSM-eligible pupils within the LEA were spread evenly across all schools in the LEA. This is referred to as the 'LEA-wide' element of the index. The second half of the equation reflects how far the isolation of FSM-eligible pupils is attributable to the uneven spread of pupils across different schools within the LEA. This is referred to as the 'within LEA' element.

The separate effects of the two elements of the equation are illustrated if we consider two more examples of LEAs, and these are shown in Table II. LEA 3 has twice the number of FSM-eligible pupils compared with LEA 4. However, the index of isolation for the two LEAs is equal. However, unlike the Gorard index, the fact that they have equal scores need not obscure relevant information.

In LEA 3, the FSM-eligible pupils are evenly spread across all schools. Nevertheless, the index of isolation would be two-thirds as there is a two in three chance that the schoolmate of a FSM-eligible pupil will also be eligible for free school meals. Similarly, in the case of LEA 4, the index of isolation is two-thirds as, once again, that is the probability that a FSM-eligible pupil's schoolmate is also eligible for free school meals. However, if we use the decomposed version of the isolation index, we can identify the relative importance of the two elements of the equation. These elements are shown in Table III.

In the case of LEA 3, all of the probability of a FSM-eligible pupil's schoolmate being another FSM-eligible pupil is accounted for by the LEA-wide element of the equation,

TABLE III.

	'LEA-wide' component[a]	'Within LEA' differences component[b]	Index of isolation
LEA 3	0.67	0	0.67
LEA 4	0.33	0.33	0.67

[a] $\frac{FSM_{LEA}}{P_{LEA}}$; [b] $\sum\left(\frac{FSM_S}{FSM_{LEA}}\right)\left(\frac{FSM_S}{FSM_{LEA}}-\frac{FSM_{LEA}}{P_{LEA}}\right)$.

and none of the probability by an uneven spread of FSM-eligible pupils between schools within the LEA. However, in the case of LEA 4, the probability is split in half between the two elements.

It is vital to understand the importance of the two halves of this equation. The first half of the equation reflects the overall level of FSM eligibility in the LEA. This will be affected by, for example, the local economy, conventional patterns of migration and also by pupils going to schools outside the LEA. The second half of the equation, shown in column three of Table III, reflects variations in the number of FSM-eligible pupils attending different schools. It is this element that is the most pertinent to research on the effects of quasi-markets, as it will reflect the effects of schools selecting more advantaged intakes and differentially active parental choosers. It is also vital to understand that the 'within LEA' element of the decomposed isolation index is not identical to the Gorard index. This is because the 'within LEA' component reflects the contribution made by unevenness to the isolation of FSM-eligible pupils within the LEA, whereas the latter reflects the level of unevenness in itself.

Measuring Social Segregation in England's Secondary Schools: 1994–99

The Gorard Index

The average score for LEAs in England from 1994 to 1999 is shown as line A in Fig. 2. The average Gorard index score decreased in the first year (1994–95) and only increased substantially from 1996 to 1999. If we compare individual LEAs' Gorard index scores for 1994 with those for 1999, 92 out of the 128 LEAs included in this study showed a net increase in the index over that period (i.e. 72% of LEAs saw an increase in the unevenness of the spread of FSM-eligible pupils). These results contrast with those reported for Wales (Gorard & Fitz, 1998a) where, from 1991 to 1996, four out of the six LEAs saw a *decrease* in their score (reported in the paper as the 'percentage stratification'). The Gorard index scores for LEAs in England in this study were, however, significantly more likely to be higher in 1999 than in 1994 (paired samples *t*-test: $t = -5.812$, degrees of freedom (df) = 127, $p < 0.001$).

The fall in the average Gorard index score from 1994 to 1995 may reflect the tail end of a 'starting gun effect' proposed by Gorard & Fitz (1998b). However, further data would be required to substantiate such a claim. Unfortunately, data relating to free school meal eligibility was only collected by the Department for Education and Employment from 1993 and so it would only be possible to extend this time series further backwards by 1 year[2]. Nevertheless, as well shall see, it is difficult to interpret this

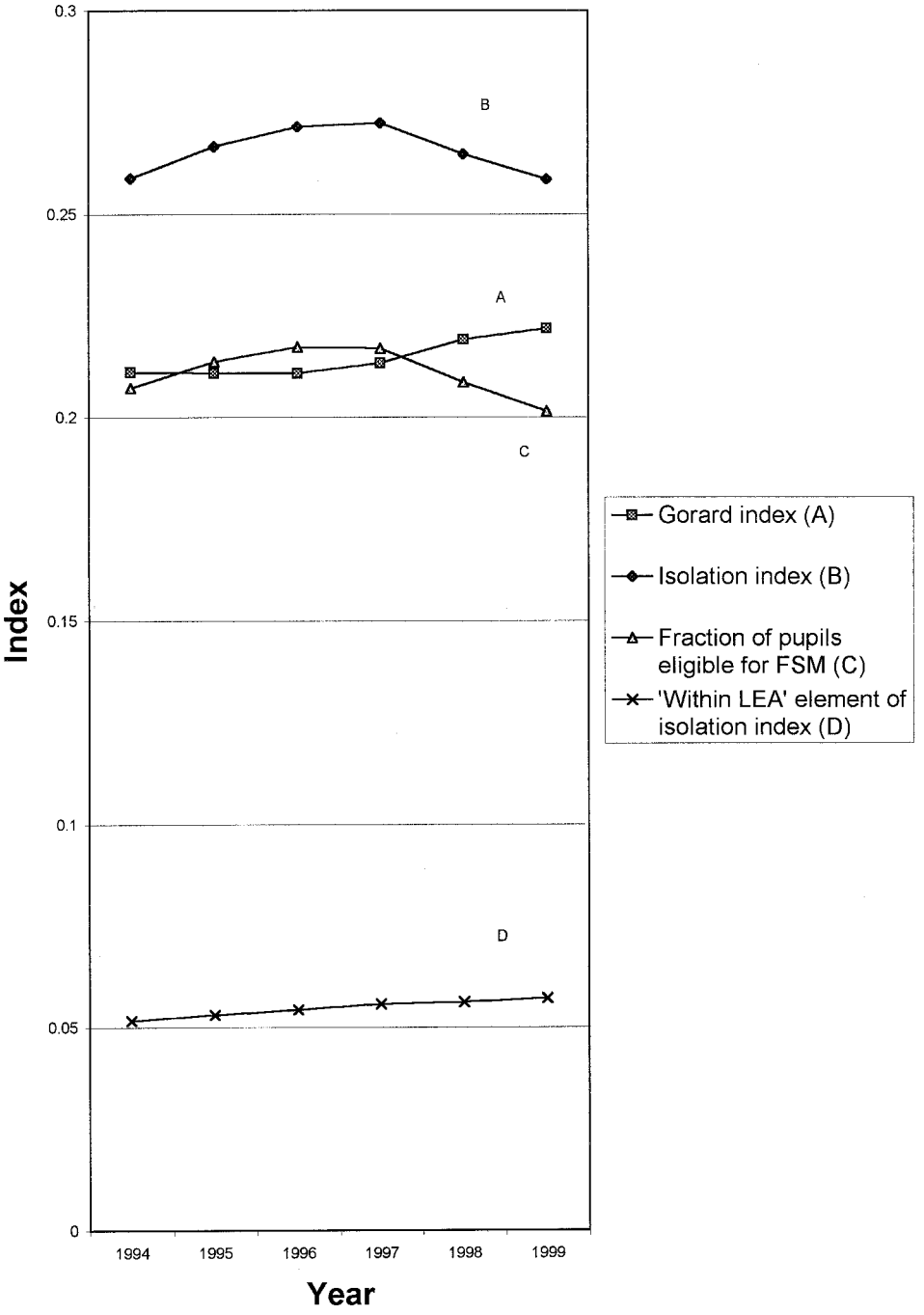

FIG. 2. Average LEA segregation scores and FSM eligibility, 1994–99.

measure of segregation, and further work is therefore required to understand more fully these changes in the average LEA Gorard index score.

Exposure

The results relating to the isolation index (line B) and its decomposed elements (lines C and D) are also shown in Fig. 2. The average LEA score on the isolation index rose from 1994 to 1997 before falling from 1997 to 1999. If we decompose the index into its components, we see that the overall isolation index closely tracks changes in the average level of FSM eligibility in English LEAs. Thus, line B and line C are almost parallel. However, when investigating the purported effects of the education quasi-market, it is segregation between schools *within* a LEA that is the key measure—and this element is shown as line D. The within LEA component of the isolation index shows a steady, if small, increase. This steady increase is consistent with the hypothesis that the educational quasi-market is facilitating the creation of schools of concentrated disadvantage. Each year from 1994 to 1999, LEAs in England have, on average, seen a slight increase in the probability of FSM-eligible pupils being educated with other FSM-eligible pupils, as a result of increased segregation *within* the LEA. Once again, the 1994–99 differences between the 'within LEA' element of the decomposed isolation index are statistically significant (paired samples *t*-test: $t = -4.421$, $df = 127$, $p < 001$). Overall, in 84 LEAs, the 'within LEA' score increased from 1994 to 1999 (representing 66% of LEAs).

Illustrating the Differences Between the Indices

Having presented a summary of the overall findings, the data may also illustrate the differences between the indices described earlier in this paper. That is, the data provide examples showing how the Gorard index fails to reflect important changes in between-school segregation, also revealing the difficulties of interpreting Gorard index scores.

In 11 LEAs, the Gorard index score fell from 1994 to 1999, while the 'within LEA' element of the isolation index rose. It is instructive to present the school-level data for one of these LEAs to illustrate the differences between the indices. This LEA is referred to as LEA A in order to protect the identity of the schools in question. LEA A saw its Gorard index score decrease marginally from 1994 to 1999, suggesting that pupils eligible for free school meals were more evenly spread at the later date, i.e. a smaller proportion of the FSM-eligible pupils would have had to move schools in 1999 to achieve an even spread. However, the within LEA component of the isolation index suggests that segregation increased during this period. That is, in 1999, it was more likely that the schoolmate of a FSM-eligible pupil in LEA A would also be a FSM-eligible pupil.

These two propositions are of course reconcilable. However, this begs the question as to which of the two measures best captures the type of segregation that has been hypothesised to follow from the introduction of an educational quasi-market. The proportions eligible for FSM at each of LEA A's schools in 1994 and 1999 are shown in Fig. 3. Each of the pairs of bars represents a single school, the first bar relating to 1994, the second to 1999. What is immediately clear from the graph is that even though the Gorard index score for the borough decreased over this period, two schools suffered disproportionately from an increase in their levels of FSM eligibility.

Thus, in the case of LEA A, we can see that the Gorard index has failed to capture an important change in the segregation of FSM-eligible pupils. Yet Gorard & Fitz (1998b) have suggested that, in both England and Wales, the index is an adequate

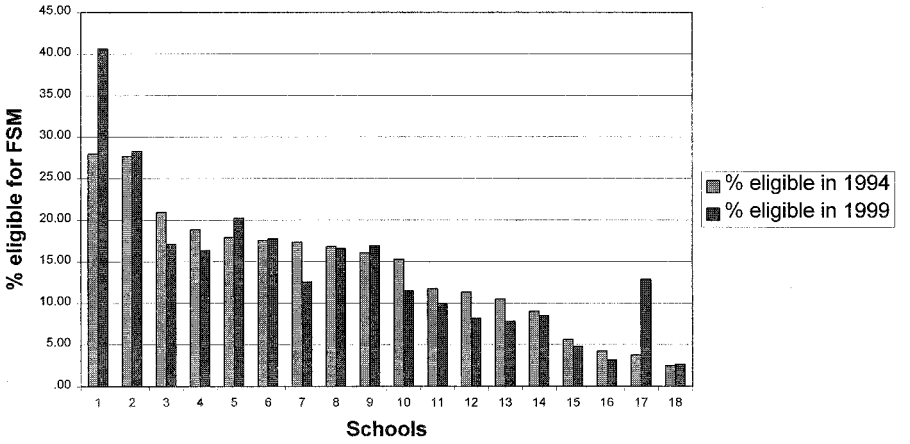

FIG. 3. Percentage of pupils eligible for FSM in the schools of LEA A in 1994 and 1999.

measure of segregation and that it indicates disadvantaged families have been assisted by the quasi-market reforms. They state:

> at an aggregated level, indicators of social deprivation are now more evenly spread than they were before school choice was introduced. In other words, it *is* poorer families who have been released from the 'iron cage' (Waslander & Thrupp, 1997) of rigid catchment areas based on the cost of local housing … (Gorard, 1999, p. 40)

The case of LEA A would suggest, however, that the Gorard index is not an adequate measure of segregation, and certainly not an adequate basis on which to assess whether disadvantaged families have benefited from the changes in segregation reflected in that index. This LEA saw its Gorard index score decrease slightly from 1994 to 1999, yet considering Fig. 3, it is difficult to sustain the claim that the poorer families in this borough have benefited. In 1998, their children were more likely to be attending schools with other disadvantaged children than they had been in 1994, and one school saw a very large increase in the proportion of pupils eligible for free school meals (rising from 28 to 41%).

The problems involved in interpreting the Gorard index are further exemplified if we consider the potential value of the index to policy-makers. As was stated earlier, Gorard & Fitz (1998a) acknowledge that a Gorard index score of zero does not imply an 'ideally' desegregated LEA, as the ideal scenario would be to have *no* deprivation rather than some deprivation evenly spread. If we consider the data presented in Tables IV and V, drawn from the Appendix, however, we see that this is more than an academic point. Tables IV and V show the LEAs with the lowest Gorard index scores in 1999 and the highest levels of free school meal eligibility in that year. It is important to note that smaller LEAs are likely to show the most extreme values on such measures. In short, the tables show that the most even spread of FSM-eligible pupils is in those LEAs with the highest rates of FSM eligibility. The one exception is Rutland (a LEA that includes only three secondary schools), the LEA with the *lowest* rate of FSM eligibility of any LEA in that year. (Overall, there is a significant negative correlation between Gorard index scores and the percentage eligible for free school meals ($r = -0.587$, $p < 0.001$).)

TABLE IV. LEAs with lowest Gorard index score, 1999

LEA	Gorard index score
Islington	0.07
Knowsley	0.07
Hackney	0.07
Tower Hamlets	0.08
Newham	0.10
Rutland	0.10

TABLE V. LEAs with the highest percentage eligible for FSM, 1999

LEA	% Eligible for FSM
Tower Hamlets	66
Knowsley	52
Southwark	51
Hackney	50
Islington	49
Lambeth	47
Newham	45

Arguably, in LEAs with the highest levels of FSM eligibility, the challenge is less to spread FSM-eligible pupils evenly across all schools than to attract more advantaged children to *any* school—an outcome likely to result in an increase in the Gorard index. Here, we can see the advantage of a segregation measure that reflects both changes in the LEA wide level of eligibility for free school meals *and* the level of unevenness of spread between schools. The case of Enfield provides a good example of the need for such a measure. From 1994 to 1999, Enfield saw a decrease in its Gorard index score but a substantial increase in its isolation index, driven almost entirely by a LEA wide increase in the level of FSM eligibility. Thus, in the case of Enfield, an 'improvement' in the evenness of the spread of FSM-eligible pupils masks the fact that it saw a relatively substantial increase in the level of deprivation among the school population as a whole during this period. While there is no reason to suggest this is the case in Enfield, such apparent 'improvements' might, for example, be being accompanied by flight from a LEA's schools by more advantaged families.

Conclusion

This paper has suggested that segregation is not a simple concept and that it can be measured in various ways. Such a conclusion certainly militates against attempting to capture segregation *fully* in any single number. It has also been suggested that the index used by Gorard and Fitz is not the best means of measuring segregation in schools, and a version of the isolation index has been proposed that better captures the most relevant information.

Using both the index of isolation and the Gorard index to analyse data for the whole of England during the period 1994–1999, we have seen that there has been a net increase in segregation. The summary figures show that while the average Gorard index score for LEAs over this period appears relatively volatile, the 'within LEA' element of

the decomposed isolation index shows a smooth increase from 1994 to 1999. This finding is consistent with theories suggesting the dynamics of the educational quasi-market would lead to greater social segregation. This conclusion goes against some of the findings reported by Gorard & Fitz (1998a, b). In short, while they suggest that the 'established market' sees segregation settle, the analysis in this paper suggests that the 'established market' in England has seen average levels of segregation increasing consistently.

There are nevertheless also many areas that have seen net desegregation during this period, and almost no LEAs saw a consistent year-on-year increase in segregation scores. Further research is required to fully understand this variation and the different types of trajectories. It is, as many previous research studies have suggested, at the local level that the educational quasi-market and competition between schools must be understood. It has been the purpose of this paper, however, to identify the average changes that have taken place across all local education authorities in England. While Gorard (1999) has advocated the removal of school choice research from the research agenda, the availability of comprehensive data provides an opportunity to substantially move forward our understanding of the dynamics of the educational quasi-market. It is only now that we are in a position to identify the relative importance of the different elements of the quasi-market reforms.

In addition, a note of caution must be sounded because the findings must be considered in the light of the 'starting-gun effect' noted by Gorard & Fitz (1998b). They used the Gorard index to monitor changes in segregation soon after the quasi-market reforms, and suggest that an initial steep rise in segregation was followed by an even steeper fall. Even though this paper has reported a rise in social segregation in schools, this rise may possibly be from a lower baseline than the 1988 level of segregation, and the increases in segregation from 1994 to 1999 may be relatively trivial compared with an earlier shock. It may be that the detrimental effects of bureaucratic control over admission numbers have been underestimated and that, therefore, despite the rise in segregation from 1994 to 1999, a larger number of disadvantaged families have now been freed from the 'iron cage'. The introduction of open enrolment may have had a substantial and beneficial effect on the opportunities available for disadvantaged families. However, it will not be possible to make such a judgement until the relevant data are made fully available.

It is also important to note that any assessment of the overall impact of the quasi-market reforms must not take segregation as the only outcome measure. Such changes must be considered in conjunction with other effects of the quasi-market reforms such as, for example, the effects of the publication of league tables on standards or the effects of OFSTED inspections on teacher morale.

Another very important conclusion to draw from the data is that the isolation of pupils eligible for free school meals and the creation of schools of concentrated disadvantage are not primarily driven by 'within LEA' segregation, but by changes in overall levels of free school meal eligibility in the LEA. The isolation of such pupils is primarily a function of the local economy, conventional patterns of migration and other factors only indirectly linked with the educational quasi-market. For example, the sustained population loss from some declining urban areas, and in particular the loss of more advantaged families, may be of greater importance to changes in the social mix of local schools than any 'within LEA' quasi-market effects. This may be to state the obvious. However, it is a very important conclusion because 'between LEA' segregation must be considered alongside 'within LEA' segregation. While it is beyond the scope of this paper to present data on this matter, it should be recognised that even if an LEA is desegregating, as measured

by either the Gorard index or the 'within LEA' element of the decomposed isolation index, this does not mean that greater equality of educational opportunities will necessarily follow for the country as a whole. Improvements in 'within LEA' segregation may, in some instances, be small compared with LEA wide changes in eligibility for free school meals. It is therefore important to consider the dynamics of the educational quasi-market within the local social and demographic context.

Acknowledgements

The author thanks Anne West, Jo Sparkes and Hazel Pennell at LSE for helpful discussions relating this paper, and Anne West and Jennifer Beaumont at the Department for Education and Employment for very useful comments on an earlier draft. Thanks also go to Karen Gardiner for enlightening discussions relating to segregation indices and to Stephen Gorard for pointing out differences between the Gorard index and the Index of Dissimilarity. Finally, thanks are due to Jennifer Beaumont and Phil Heaviside at the Department for Education and Employment for providing the data and for their efficiency in dealing with queries.

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NOTES

[1] In 1998, there were 132 LEAs in England. Four of these have been excluded from the analysis. City of London has no secondary schools and the Scilly Isles have only one, and therefore segregation scores cannot be calculated for these LEAs. Doncaster and Wakefield have also been excluded as they both moved from a three-tier to a two-tier system during the period 1993–94 to 1998–99. Consequently, it was not possible to produce a consistent time series of schools for these areas as some 'middle deemed secondary' schools became junior schools, and pupils at some schools were divided among other schools during the period. There was some local government reorganisation during the period. To overcome this problem, schools have been treated as if they had been within their 1998 LEA throughout the period. Therefore, for example, Portsmouth LEA has segregation scores for 1994, 1995, 1996, 1997, 1998 and 1999 even though the local authority did not have responsibility for education in the earlier years.

[2] Data relating to 1993 have not been included in Fig. 2 because it was not possible to include the FSM data for that year in a consistent time series. However, if 1993 is analysed using 1993 LEA boundaries (as opposed to the 1998 boundaries used for the data presented in this paper), the segregation scores for that year appear to be relatively high. While this higher segregation score may arise simply from the use of a different set of LEA boundaries, it is perhaps more likely that segregation was indeed greater in that year. However, further analysis is required before any such conclusion may be drawn.

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Appendix. Changes is social segregation in England's LEAs 1994–1999

LEA	% Pupils eligible for FSM, 1999	% Point change in eligibility for FSM, 1994–99	Gorard index, 1999	Change in Gorard index, 1994–99	Isolation index, 1999	Change in isolation index, 1994–99	'Within LEA' element of decomposed isolation index	Change in 'within LEA' element of decomposed isolation index, 1994–99
Buckinghamshire	7.36	1.16	0.50	0.03	0.25	0.08	0.17	0.07
Middlesbrough	33.73	− 4.37	0.19	0.03	0.43	0.00	0.10	0.04
Solihull	13.02	− 0.42	0.43	0.04	0.30	0.04	0.17	0.04
Milton Keynes	15.11	1.19	0.32	0.05	0.24	0.05	0.09	0.04
Redcar and Cleveland	27.14	3.44	0.27	0.04	0.38	0.07	0.10	0.03
Croydon	20.32	1.25	0.23	0.02	0.29	0.05	0.09	0.03
Wandsworth	30.95	− 3.09	0.15	0.04	0.37	0.00	0.06	0.03
Tameside	20.55	0.79	0.19	0.02	0.27	0.04	0.07	0.03
Hammersmith and Fulham	31.98	− 4.30	0.28	0.06	0.44	− 0.01	0.12	0.03
Lewisham	36.90	− 2.44	0.13	0.02	0.43	0.00	0.06	0.03
Southwark	50.58	− 3.90	0.12	0.01	0.57	− 0.01	0.06	0.03
Cumbria	13.11	1.97	0.28	0.01	0.20	0.05	0.06	0.03
Wirral	26.62	0.83	0.28	0.02	0.38	0.03	0.12	0.02
East Sussex	14.26	− 1.40	0.23	0.06	0.19	0.01	0.05	0.02
York	10.55	1.15	0.32	0.03	0.17	0.03	0.06	0.02
Barnet	15.92	1.22	0.27	0.02	0.24	0.03	0.08	0.02
Bexley	14.10	3.17	0.23	0.02	0.21	0.05	0.06	0.02
Birmingham	33.60	2.02	0.24	0.01	0.45	0.04	0.11	0.02
Camden	29.12	2.21	0.17	0.02	0.36	0.04	0.06	0.02
Hillingdon	15.35	2.40	0.25	0.00	0.22	0.04	0.06	0.02
Haringey	43.45	3.21	0.18	0.02	0.51	0.05	0.08	0.02
Kent	12.12	− 1.07	0.32	0.04	0.20	0.01	0.08	0.02
Bedfordshire	11.08	− 1.52	0.29	0.04	0.19	0.00	0.08	0.02
Durham	18.02	0.88	0.22	0.03	0.23	0.02	0.05	0.02
Liverpool	37.65	− 1.54	0.19	0.02	0.46	0.00	0.08	0.02
Poole	8.19	− 2.40	0.36	0.06	0.15	− 0.01	0.07	0.02

Stoke on Trent	24.88	1.94	0.20	0.04	0.31	0.03	0.06	0.02
City of Derby	20.36	− 0.96	0.24	0.02	0.28	0.01	0.08	0.02
Luton	27.62	− 1.09	0.26	0.03	0.37	0.00	0.10	0.01
Lambeth	46.75	− 3.39	0.13	0.01	0.52	− 0.02	0.06	0.01
St Helens	22.36	4.94	0.23	0.01	0.29	0.06	0.07	0.01
Somerset	9.27	− 1.44	0.19	0.04	0.12	0.00	0.03	0.01
Bolton	16.37	− 0.04	0.32	0.03	0.24	0.01	0.08	0.01
Oldham	22.06	− 1.16	0.30	0.00	0.35	0.00	0.13	0.01
Gateshead	20.75	− 3.43	0.26	0.03	0.29	− 0.02	0.08	0.01
Shropshire	12.47	− 1.17	0.27	0.01	0.19	0.00	0.07	0.01
Suffolk	11.20	− 0.53	0.24	0.04	0.15	0.00	0.04	0.01
North Tyneside	20.22	2.02	0.20	0.03	0.26	0.03	0.06	0.01
Waltham Forest	32.81	− 1.32	0.16	0.01	0.38	0.00	0.05	0.01
Trafford	18.96	− 0.99	0.31	0.05	0.30	0.00	0.11	0.01
Sheffield	22.91	− 1.33	0.27	0.02	0.33	0.00	0.10	0.01
Lincolshire	8.72	− 1.05	0.33	0.03	0.15	0.00	0.06	0.01
Barking	26.57	8.04	0.12	0.03	0.29	0.09	0.02	0.01
Northamptonshire	12.55	0.11	0.28	0.02	0.20	0.01	0.07	0.01
Kirklees	18.60	0.96	0.29	0.01	0.27	0.02	0.09	0.01
Ealing	29.79	0.02	0.14	0.02	0.33	0.01	0.03	0.01
Havering	12.08	1.67	0.29	0.00	0.19	0.02	0.07	0.01
City of Bristol	23.13	− 1.98	0.20	0.03	0.29	− 0.01	0.06	0.01
Bromley	13.03	0.07	0.31	0.01	0.20	0.01	0.07	0.01
Harrow	17.86	4.08	0.15	0.00	0.20	0.05	0.03	0.01
Barnsley	25.67	2.91	0.19	0.00	0.31	0.04	0.05	0.01
Sutton	8.34	− 0.36	0.38	0.04	0.15	0.00	0.06	0.01
Brent	25.95	− 1.43	0.17	0.00	0.30	− 0.01	0.04	0.01
Sunderland	28.67	2.91	0.16	0.00	0.34	0.04	0.05	0.01
Portsmouth	17.09	− 1.95	0.20	0.02	0.22	− 0.01	0.05	0.01
Newham	44.90	5.50	0.10	− 0.01	0.49	0.06	0.04	0.01
Surrey	6.91	− 0.23	0.26	0.03	0.10	0.00	0.03	0.01
Stockton-on-Tees	21.45	− 1.24	0.25	0.01	0.29	− 0.01	0.08	0.01
South Gloucestershire	8.65	− 2.42	0.19	0.03	0.11	− 0.02	0.02	0.00

Appendix Table *(continued)*

LEA	% Pupils eligible for FSM, 1999	% Point change in eligibility for FSM, 1994–99	Gorard index, 1999	Change in Gorard index, 1994–99	Isolation index, 1999	Change in isolation index, 1994–99	'Within LEA' element of decomposed isolation index	Change in 'within LEA' element of decomposed isolation index, 1994–99
Bath and North East Somerset	8.57	− 2.85	0.19	0.02	0.11	− 0.02	0.02	0.00
Norfolk	11.04	0.37	0.19	0.01	0.14	0.01	0.03	0.00
Isle of Wight	18.50	− 2.49	0.14	0.03	0.20	− 0.02	0.02	0.00
North Yorkshire	6.89	− 0.05	0.28	0.00	0.11	0.00	0.04	0.00
Essex	12.05	− 0.29	0.27	0.01	0.18	0.00	0.06	0.00
Nottinghamshire	19.13	− 1.00	0.26	0.01	0.28	− 0.01	0.09	0.00
Kingson upon Thames	8.82	− 0.60	0.26	0.03	0.12	0.00	0.03	0.00
Newcastle upon Tyne	26.84	− 0.53	0.22	0.00	0.35	0.00	0.08	0.00
North Somerset	8.15	− 2.46	0.26	0.03	0.12	− 0.02	0.04	0.00
West Sussex	8.37	− 0.81	0.23	0.02	0.11	− 0.01	0.03	0.00
Coventry	19.43	− 4.39	0.21	0.01	0.26	− 0.04	0.06	0.00
Cheshire	12.54	0.52	0.31	0.00	0.20	0.01	0.07	0.00
Derbyshire	10.48	− 0.50	0.23	0.01	0.15	0.00	0.04	0.00
Rotherham	17.22	− 1.24	0.19	0.01	0.22	− 0.01	0.05	0.00
East Riding of Yorkshire	9.58	1.77	0.21	− 0.01	0.13	0.02	0.03	0.00
Dorset	7.45	− 1.41	0.17	0.01	0.09	− 0.01	0.01	0.00
Bury	14.93	1.43	0.20	− 0.01	0.18	0.02	0.04	0.00
Wiltshire	6.89	− 1.21	0.17	0.01	0.08	− 0.01	0.02	0.00
Hartlepool	26.71	− 3.84	0.16	0.02	0.30	− 0.04	0.03	0.00
Wolverhampton	21.63	− 3.72	0.19	0.01	0.27	− 0.04	0.05	0.00
South Tyneside	25.33	− 0.49	0.12	− 0.01	0.28	0.00	0.03	0.00
Dudley	15.63	− 1.03	0.24	0.00	0.21	− 0.01	0.06	0.00

Cornwall	13.34	− 2.54	0.13	0.02	0.15	− 0.02	0.01	0.00
Rutland	5.80	− 0.22	0.10	0.00	0.06	0.00	0.00	0.00
Wigan	16.38	− 1.10	0.21	0.01	0.21	− 0.01	0.05	0.00
North East Lincolnshire	20.20	− 0.80	0.21	− 0.01	0.26	− 0.01	0.06	0.00
Warwickshire	8.25	− 0.43	0.25	0.00	0.12	0.00	0.04	0.00
Cambridgeshire	12.09	− 1.05	0.27	0.00	0.18	− 0.01	0.06	0.00
Devon	12.40	− 0.51	0.23	0.01	0.17	− 0.01	0.05	0.00
Leicester City	22.04	− 1.93	0.17	− 0.01	0.27	− 0.02	0.04	0.00
North Lincolnshire	14.11	− 0.92	0.18	− 0.02	0.18	− 0.01	0.03	0.00
Northumberland	13.04	0.33	0.27	0.01	0.19	0.00	0.06	0.00
Greenwich	37.14	0.71	0.11	0.01	0.40	0.01	0.03	0.00
Manchester	43.01	− 0.39	0.11	0.00	0.47	− 0.01	0.04	0.00
Enfield	21.39	2.92	0.26	− 0.01	0.28	0.03	0.07	0.00
Southampton	18.26	0.72	0.15	− 0.02	0.21	0.01	0.03	0.00
Bournemouth	11.80	− 1.82	0.27	0.02	0.17	− 0.02	0.05	0.00
Leicestershire	7.10	− 0.60	0.21	− 0.01	0.09	− 0.01	0.02	0.00
Richmond upon Thames	16.92	0.60	0.17	0.01	0.20	0.00	0.04	0.00
Lancashire	18.97	− 0.72	0.26	0.00	0.27	− 0.01	0.08	0.00
Merton	18.85	0.28	0.17	− 0.02	0.22	0.00	0.03	0.00
City of Westminster	37.85	− 6.23	0.16	0.01	0.43	− 0.07	0.05	0.00
Hampshire	6.82	− 1.81	0.24	0.02	0.10	− 0.02	0.03	0.00
Knowsley	51.69	− 0.11	0.07	− 0.01	0.53	− 0.01	0.02	0.00
Staffordshire	10.02	− 0.90	0.20	0.00	0.13	− 0.01	0.03	0.00
Sandwell	21.99	− 3.33	0.17	0.00	0.25	− 0.04	0.03	0.00
Rochdale	27.57	− 1.29	0.19	− 0.01	0.33	− 0.02	0.05	− 0.01
Hereford and Worcester	8.77	− 0.60	0.24	0.01	0.13	− 0.01	0.04	− 0.01
Bradford	29.16	− 1.75	0.27	0.01	0.40	− 0.02	0.11	− 0.01
Swindon	11.37	− 2.69	0.25	0.01	0.16	− 0.03	0.04	− 0.01
City of Kingston upon Hull	27.80	− 0.70	0.16	− 0.01	0.32	− 0.01	0.05	− 0.01

Appendix Table *(continued)*

LEA	% Pupils eligible for FSM, 1999	% Point change in eligibility for FSM, 1994–99	Gorard index, 1999	Change in Gorard index, 1994–99	Isolation index, 1999	Change in isolation index, 1994–99	'Within LEA' element of decomposed isolation index	Change in 'within LEA' element of decomposed isolation index, 1994–99
Darlington	18.95	0.18	0.17	−0.02	0.21	−0.01	0.03	−0.01
Hackney	50.22	−8.95	0.07	−0.01	0.52	−0.10	0.02	−0.01
Hertfordshire	7.96	−1.66	0.29	0.01	0.12	−0.02	0.04	−0.01
Berkshire	7.82	−0.68	0.35	0.02	0.15	−0.02	0.07	−0.01
Kensington and Chelsea	33.26	−7.38	0.16	0.00	0.38	−0.08	0.04	−0.01
Walsall	18.68	−6.47	0.25	0.01	0.26	−0.07	0.08	−0.01
Sefton	22.22	1.51	0.29	−0.01	0.32	0.00	0.10	−0.01
Hounslow	21.31	0.59	0.17	−0.01	0.25	−0.01	0.03	−0.01
Islington	48.64	−3.06	0.07	−0.02	0.50	−0.04	0.01	−0.01
Redbridge	17.74	0.90	0.22	−0.01	0.24	−0.01	0.06	−0.01
Leeds	18.99	0.25	0.29	−0.01	0.29	−0.01	0.10	−0.01
Tower Hamlets	66.13	2.15	0.08	−0.04	0.70	0.01	0.03	−0.02
Oxfordshire	8.87	−0.91	0.29	−0.01	0.14	−0.03	0.05	−0.02
Salford	26.86	0.58	0.20	−0.04	0.34	−0.01	0.07	−0.02
Gloucestershire	8.18	−2.87	0.29	0.01	0.13	−0.05	0.05	−0.02
Brighton and Hove	20.19	−3.59	0.11	−0.03	0.22	−0.06	0.02	−0.02
Stockport	15.14	0.29	0.17	−0.06	0.19	−0.02	0.03	−0.02
Calderdale	17.12	−1.02	0.27	−0.03	0.28	−0.03	0.11	−0.02