

**Title: Segregation, Inequality, and Educational Performance in Northern Ireland:
Problems and Solutions**
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Abstract

Some 16 years after the Belfast/Good Friday Agreement, the legacy of the conflict in Northern Ireland is most clearly evident in the delivery of key public services. The focus of this paper is the highly segregated and unequal system of education provision and the attempts made to tackle these problems at the post-primary level. First, in terms of performance, post-primary educational outcomes are hugely variable: this is the problem of *performance inequality*. Second, pupils from deprived backgrounds – pupils entitled to free school meals and those with special educational needs are grossly under-represented in Northern Ireland’s top-performing (grammar) schools: this is the problem of *access inequality*. Third, as a corollary of two separate systems of education – Protestant and Catholic - there is ‘segregation’ of pupils by school type: Catholic pupils attend *maintained* schools and Protestant pupils attend *controlled* schools and, in consequence, rarely have the opportunity to meet and interact in a school setting. In the face of these problems, this paper proposes a novel approach entitled *shared education*. Under this scheme, schools of different religious backgrounds will enter into ‘partnerships for excellence’ to promote good educational outcomes through a sharing of resources and pooling of expertise and, by doing so, help to dismantle the boundaries which separate Northern Ireland’s pupils.

Introduction

Some 16 years after the Belfast/Good Friday Agreement the legacy of the conflict in Northern Ireland is most clearly evident in the delivery of key public services. The focus of this paper is the highly segregated and unequal system of education provision and the attempts made to tackle these problems at the post-primary level. The system of post-primary education in Northern Ireland is undergoing a radical review both in terms of its structural configuration and in an effort to improve the quality of education outcomes. In structural terms, the post primary school population of approximately 147,000 pupils has a bewildering array of schools, influenced by the role played by churches in the management and delivery of education (Department of Education, 2013). The post-primary pupil cohort is

disaggregated according to a number of variables: selective and non-selective schools (respectively, grammar and secondary schools); co-education and single sex schools; controlled (*de facto* Protestant) state schools, and Catholic maintained schools; integrated schools comprising Catholic and Protestant children, those of other faiths or none; and, Irish medium schools where the curriculum is taught through the Irish language. This complex fragmentation is also reflected in a range of school management structures. Controlled schools are under the management of the schools' board of governors and the employing authorities are five Education and Library Boards. Maintained schools are under the management of the board of governors and the employing authority is the Council for Catholic Maintained Schools (CCMS). Each voluntary grammar school and integrated school is under the management of a board of governors. Aside from this structural morass, there are three key weaknesses facing the education system: pupil segregation, performance and access inequalities.

Pupil segregation: There is a high level of segregation at a time when the Northern Ireland Executive is promoting *Together: Building and United Community* as a strategic policy aimed at creating a shared society (Northern Ireland Executive, 2013). Education provision demonstrates the extent of division between the communities. As the Department of Education statistics (2012/13) show:

- In the primary sector: 5.4% of Catholics attend controlled primary schools; 1% of Protestants attend maintained primary schools; and 5.5% of primary school children attend integrated schools.
- In the secondary (non-grammar) sector: 2.1% of Catholics attend controlled secondary schools; 0.8% of Protestants attend maintained secondary schools; and 14.4% of secondary (non-grammar) pupils attend integrated schools.
- In the secondary (grammar) sector: 7.7% of Catholics attend controlled grammar schools; and 0.9% of Protestants attend voluntary Catholic grammar schools.
- Overall, 6.9% of primary and post-primary pupils attend integrated schools.

Catholics are therefore much more willing to go to schools in the controlled sector than Protestants are to attend maintained schools. The greatest movement by Catholics is into controlled grammar schools. Many young people in Northern Ireland never experience cross community education until they attend university. The segregated school system has resulted in ethno-religious isolation which reinforces 'intra-sectoral bias, stereotyping and prejudice' (Hughes, 2010: 829).

The First Minister referred to the current education system as ‘a benign form of apartheid which is fundamentally damaging to our society’ (Robinson, 2010). In recognition of current divisions, the Department of Education’s policy *Community Relations, Equality and Diversity in Education* (CRED, 2011a: 25) makes clear a commitment to shared education through encouraging ‘greater sharing and collaboration across and between all educational settings on a cross community basis’.

Performance inequalities: In terms of performance, post-primary educational outcomes are hugely variable. In 2012/13, for example, 60.1% of year 12 pupils achieved 5 or more GCSEs (including equivalents) at grades A^{*}-C, including English and Mathematics. When this figure is analysed by school type, 36.4% of non-grammar schools (hereafter, secondary schools) and 93.9% of grammar schools achieved this standard. This represents a performance gap of 57.5 percentage points between the two school types (Guyon et al, 2012; see also Machin et al 2013). More worryingly, this gap has not changed to any significant extent since 2008 when the information was first collected in this format (Northern Ireland Statistics and Research Agency, 2012).

Access inequalities: The third aspect of inequality in Northern Ireland’s post primary schools is access inequality whereby pupils from deprived backgrounds (pupils entitled to free school meals, FSM) and pupils with special educational needs (SEN pupils) are grossly under-represented in grammar schools. On average, grammar schools had 61 FSM pupils and 61 SEN pupils with each group comprising, on average, only 7% of the total number of pupils in grammar schools. On the other hand, secondary schools averaged 150 FSM pupils and 138 SEN pupils with each group comprising, respectively, on average, 26% and 24% of the total number of pupils in secondary schools. So, half of the total number of secondary school pupils - compared to only 14% of grammar school pupils - came from deprived backgrounds (FSM pupils) or had special educational needs (SEN). There is also a high level of educational underachievement amongst the Protestant population validated by a study which noted that ‘there appears to be a tendency towards elitism, and socially imbalanced pupil intakes within schools predominantly attended by Protestants’ (Purvis, 2011: 4).

Against this background, the purpose of this paper is to analyse the extent of segregation and the degree of inequality in Northern Ireland’s post-primary schooling system that generate the weaknesses noted above, and to examine alternative policy proposals to tackle these systemic failures. The paper therefore breaks down into three parts:

- (a) We analyse in much greater detail the three factors introduced above (segregation, performance inequality, and access inequality) which characterise post-primary education in Northern Ireland.
- (b) We consider the current education policies in place to address these problems and their lack of success.
- (c) We propose an alternative model in the form of ‘shared education’ which we suggest offers the potential to address the systemic weaknesses identified through this research.

To provide a specific focus for the analysis we pose the research question: is there an alternative way of tackling religious segregation and systemic inequalities which characterise Northern Ireland’s schools?

The data used to analyse segregation and inequalities are drawn from viability audits conducted by the 5 education and library boards who were charged by the Minister of Education to collect information for all schools in Northern Ireland on enrolments levels, quality of education and financial viability (Department of Education NI, 2012a).

Analysing segregation in schools

Although Northern Ireland has a highly segregated schooling system there has been no detailed analysis of segregation of pupils by type of school. Indeed, the discussion of school segregation proceeds entirely in terms of the binary divide between Protestant and Catholic pupils even though of Northern Ireland’s 146,747 post primary pupils in 2012-13: 75,977 (52%) were Catholic; 56,621 (38%) were Protestant, and 14,149 (10%) were of ‘other religions’¹. The existence of this third group of ‘other pupils’ is almost always ignored in discussions of schooling segregation. So, while it is well known that 89% of Catholic pupils in Northern Ireland attended ‘Catholic’ schools (secondary or grammar) and 89% of Protestant pupils attended ‘Protestant’ schools (secondary or grammar), it is not so well known that 81% of ‘other’ pupils attended ‘Protestant’ schools and only 5% attended ‘Catholic’ schools (secondary or grammar), with 14% in Integrated schools (Department of Education School Statistics 2012/13).

¹ Other religions include: other Christian category (e.g. Jehovah’s Witness), non Christian and religion unknown or unstated.

The mirror image of this finding is that several Catholic schools are homogenous in terms of their pupils' religion: 93 out of 101 Catholic schools had fewer than 5% of pupils who were non-Catholic while only five Protestant schools had fewer than 5% of pupils who were non-Protestant. From this analysis, it would appear that while Catholic schools in Northern Ireland catered almost exclusively to Catholic pupils, Protestant schools in Northern Ireland catered for both Protestant pupils and pupils from 'other' religious backgrounds. Table 1 compares pupil numbers in Northern Ireland's post-primary schools, by management of school (Catholic/Protestant/Integrated) and by the type of school (Grammar/Secondary) alongside the religion of the pupils, for two years: 1997-98 and, 16 years later, 2012-13.

Table 1: Segregation in Northern Ireland's Post Primary Schooling: 1997/98 and 2012/13

	Protestant Pupils		Catholic Pupils		Other Pupils		Total Pupils	
	1997-98	2012-13	1977-98	2012-13	1997-98	2011-12	1997-98	2012-13
Protestant Grammar Schools	25,877	25,262	2,495	3,423	6,164	6,772	34,536	35,457
Protestant Secondary Schools	34,795	25,026	1,145	615	4,214	4,717	40,154	30,358
All Protestant schools	60,672	50,288	3,640	4,048	10,378	11,489	74,690	65,815
Catholic Grammar Schools	101	246	27,564	26,548	35	303	27,700	27,097
Catholic Secondary Schools	132	280	46,171	40,994	93	430	46,396	41,704
All Catholic Schools	233	526	73,735	67,542	128	733	74,096	68,801
Integrated Schools	1,608	5,807	2,291	4,397	409	1,927	4,308	12,131
Total	62,513	56,621	79,666	75,977	10,915	14,149	153,094	146,747

The most significant change over this period was the steep fall in pupil numbers in Protestant schools and the more moderate fall in pupil numbers in Catholic schools, accompanied by a sharp rise in pupil numbers in integrated schools. The result of these changes is that the total post primary pupil numbers in Northern Ireland fell by 6,347 between 1997/98 and 2012/13. The other interesting feature of the change in post primary education in Northern Ireland in the past 16 years is the rise in the number of pupils from other religions, from 10,915 pupils

in 1997/98 to 14,149 pupils in 2012/13. This rise of 3,234 pupils from other religions should be contrasted with the fall in the number of Protestant and Catholic pupils between 1997/98 and 2012/13.

The vast bulk of pupils from other religions went to Protestant schools (95% in 1997-98, when the Integrated school movement was in its infancy, and 81% in 2012/13). The rise in the number of such pupils in the past 16 years has served to erode the religious homogeneity of Protestant schools. In 1997/98, 81% of pupils in Protestant schools were Protestant; by 2012/13, this proportion had fallen to 76% with the slack being taken up by pupils from other religions and, to a smaller extent, by Catholic pupils. The result is that, in 2012/13, only five (out of 95) post primary Protestant schools had fewer than 5% of non-Protestant pupils compared to 39 (out of 116) such Protestant schools in 1997/98. The religious homogeneity of Catholic schools remained unchanged over this 16 year period: only 3 out of 111 Catholic schools in 1997/98, and 8 out of 101 Catholic schools in 2012/13, had more than 5% of pupils who were non-Catholic.

Measuring Segregation in a Multi-group Setting

The foregoing analysis invites the question of whether the degree of religious segregation in Northern Ireland's schools can be measured in the presence of three religious groups: Catholic, Protestant, and 'other' religions? A persuasive way of viewing segregation is in terms of *disproportionality* in group proportions. According to this view of segregation, one should compare the proportions of persons, belonging to different groups (Catholic, Protestant, Other), in the total numbers in *a particular organisation* (school, housing estate, workplace) with the proportions of persons from these groups in the *population at large*. The 'distance' between the organisation-specific proportions and the population proportions then provides a measure of segregation. In the extreme case, segregation is absent if, for each group, the proportionate representation in the organisation and in the population are the same. This inequality is referred to, hereafter, as a 'segregation measure'².

² The calculation methodology for the values of the segregation index is shown in appendix 1.

Table 2: Values of the Segregation Index in Northern Ireland's Post Primary Schools

	1997/98	2012/13
Protestant Grammar	0.714	0.567
Protestant Secondary	1.18	1.34
Catholic Grammar	1.88	1.32
Catholic Secondary	1.95	1.44
Integrated	0.01	0.05

Table 2 shows the J-values for different types of schools in Northern Ireland in 1997/98 and in 2012/13. This table shows that segregation in Northern Ireland schools decreased between 1997/98 and 2012/13 in Catholic grammar and Catholic secondary schools and in Protestant grammar schools. For example, the number of Protestant pupils in Catholic grammar schools more than doubled between 1997/98 to 2012/13 from 101 pupils to 246 pupils and the number of pupils from 'other' religions increased from 35 in 1997/98 to 303 in 2012/13. Similarly, between 1997/98 to 2012/13, the number of Protestant pupils in Catholic secondary schools increased from 132 pupils to 280 pupils and the number of pupils from 'other' religions increased from 93 in 1997/98 to 430 in 2012/13. However, there was a rise in the value of the segregation index for Protestant secondary schools as the number of Catholic pupils in such schools fell from 1,145 in 1997/98 to 615 in 2012/13. On the existing evidence, the least segregated schools in Northern Ireland are the Integrated schools, followed by Protestant grammar schools with Protestant secondary schools and Catholic schools (grammar and secondary) being the most segregated.

Analysing performance inequality in schools

The 212 post-primary schools in Northern Ireland differed in terms of the proportions of their pupils obtaining 5+ GCSEs at grades at A*-C and in the proportions of their pupils obtaining 5+ GCSEs at grades at A*-C, including English and Mathematics. However, since they also differed in terms of the *size* of their Year 12 classes, there were further differences between them in the *number* of their pupils who obtained 5+ GCSEs at A*-C grade and in the *number* of their pupils who obtained 5+ GCSEs at A*-C grade, including English and Mathematics. Differences between grammar and secondary schools, in these respects, are shown in Table 3:

Table 3: Distribution of GCSE performance by type of school (2012/13)

	Grammar School	Secondary Schools	Total
Pupils achieving 5+ @ A*-C	9,017 (97%)	8,397 (58%)	17,413 (73%)
Pupils achieving 5+ @ A*-C (incl. E&M)	8,724 (94%)	5,025 (35%)	13,478 (56%)
Total Year 12 Pupils	9,316	14,542	23,858

The first thing to note about Table 3 is that 73% of Year 12 pupils in Northern Ireland 5+ GCSEs at A*-C grade and 56% obtained 5+ GCSEs at A*-C grade, including English and Mathematics. However, this overall performance masked a great disparity of performance between grammar schools (who admitted pupils on the basis of a selection test at the age of 11) and secondary schools (which were non-selective): 97% of grammar school pupils, compared to 58% of secondary school pupils, obtained 5+ GCSEs at A*-C grade and 94% of grammar school pupil, compared to 35% of secondary school pupils, obtained 5+ GCSEs at A*-C grade, including English and Mathematics.

The selection process for children at the age of 11 to attend either grammar or secondary schools was formally withdrawn by the Department of Education in 2008 but continues through an unregulated system of tests used by grammar schools to admit pupils. A recent report on the impact of academic selection on performance highlights the problem of a link between the use of selection and widening achievement gaps:

Social divisions associated with grammar and secondary school attendance are also likely to exacerbate achievement gaps in relation to socio-economic background. An analysis of school-level attainment data for Northern Ireland for 2011/12, for example, demonstrates that once the differences in intake between schools has been controlled for, the odds of a young person achieving the basic standard at 16 of five or more GCSEs Grades A*-C, including English and maths, are over three and a half times higher if they attend a grammar school compared to a secondary school (Connolly et al, 2013: 59).

In addition to inter-sector (grammar versus secondary) differences in GCSE performance, there were also performance differences within schools in the two sectors. In order to address performance inequality between post-primary schools in Northern Ireland, we computed the Gini coefficient³ - probably the most widely used measure of inequality - for the inter-school distribution of the *proportions* and of the *numbers* of 'successful' GCSE pupils (see table 4).

³ The interpretation of the Gini coefficient is outlined in appendix 2.

Table 4: Values of Gini Coefficients in the Inter-School Distribution of Proportions and Numbers of Successful GCSE Pupils (2012/13)

Gini computed on the distribution of ↓	All Schools	Secondary Schools	Grammar Schools
Proportion of 5+ A*-C grade GCSEs pupils	0.191	0.177	0.017
Proportion of 5+ A*-C grade GCSEs (incl. E&M) pupils	0.325	0.247	0.030
Number of 5+ A*-C grade GCSEs pupils	0.345	0.331	0.163
Number of 5+ A*-C grade GCSEs (incl. E&M) pupils	0.447	0.386	0.167

Table 4 shows that while there was considerable inequality in GCSE performance between the secondary schools (Gini values of 0.177 and 0.247 on proportions and of 0.331 and 0.386 on numbers), there was much less inequality between the grammar schools (Gini values of 0.017 and 0.030 on proportions and of 0.163 and 0.167 on numbers). We can conclude that within the secondary school sector, there was *less* inequality in performance, both in terms of 5+ GCSEs at grades at A*-C and in terms of 5+ GCSEs at grades at A*-C, including English and Mathematics - within the Catholic sector compared to the Protestant sector.

Inequality Decomposition

An interesting question about inequality is how much of the overall inequality between schools in their GCSE performances was due to differences in performance between the grammar and the secondary school sectors (inter-sector differences)? And, how much was due to differences within the two sectors (intra-sector differences)? This section provides an answer to this question, using the methodology of ‘inequality decomposition’. The methodology is outlined in appendix 3.

Table 5
Percentage Within- and Between-Group Contributions to Inequality
in School Performance using Theil's Mean Logarithmic Index

<i>Decomposition by</i> ↓	<i>5+ GCSE grades at A*-C</i>	<i>5+ GCSE grades at A*-C (inc. E&M)</i>
Grammar versus Secondary		
Within-Group Contribution:	57	40
Between-Group Contribution:	43	60
Catholic versus Protestant (All schools)		
Within-Group Contribution:	100	90
Between-Group Contribution:	0	10
Catholic versus Protestant (Secondary Schools)		
Within-Group Contribution:	93	98
Between-Group Contribution:	7	2
ELB (All Schools)		
Within-Group Contribution:	95	95
Between-Group Contribution:	5	5
ELB (Secondary Schools)		
Within-Group Contribution:	95	92
Between-Group Contribution:	5	8

Table 5 shows that 43% of overall inequality in school performance, in respect of 5+ GCSE at grades A*-C, could be explained in terms of differences between grammar and secondary schools and 60% of overall inequality in school performance, in respect of 5+ GCSE at grades A*-C including English and Mathematics, could be explained in terms of differences between grammar and secondary schools. The remainder of inequality – 57% and 40% - could be explained by inequality in performance in schools within the secondary and grammar sectors. Other divisions of the sample – by Catholic and Protestant and by the Education and Library Boards (ELBs) pertaining to different parts of Northern Ireland – explained, at most, 10% of overall inequality in between-group terms.

Equity Adjusted Performance

One is often faced with the dilemma of choosing between a larger cake which is unequally distributed between the mouths gathered around the table and a smaller cake which is more equally distributed. The dilemma arises because, although we value size, we also know that ‘size isn’t everything’, distribution also matters. In consequence, there may well be a trade-

off between size and distribution and we may be prepared to sacrifice size in order to get more equality. Although this notion of a trade-off between size and distribution trade-off is most often applied to income inequality, it can be applied as well to other fields. For example, Anand and Sen (1997) compared Honduras (with an average literacy rate of 75%, distributed between men and women as 78%, 73%) with China (with an average literacy rate of 80%, distributed between men and women as 92%, 68%) and asked which country should be regarded as having the 'better' achievement with regard to literacy: China with a higher overall rate or the Honduras with greater gender equality? A similar argument, as shown below, can be made with respect to educational performance.

Judging post-primary schooling in Northern Ireland solely on the basis of its mean proportion of pupils attaining 5+ A*-C grades at GCSE - 73% ignoring English and Mathematics and 56% including English and Mathematics (see table 3 above), aggregated over *all* schools - ignores inequality in the distribution of these proportions between Northern Ireland's post-primary schools. Sen (1998) showed that if μ is the mean level of achievement, and I the degree of inequality in its distribution, then the level of social welfare, W , may be represented as $W = \mu(1-I)$: "this has the intuitive interpretation as the size of the pie (μ) corrected downwards by the extent of inequality ($I-I$)" (p. 129). Pursuing this line of reasoning, Anand and Sen (1997) argued that a country's achievement with respect to a particular outcome should not be judged exclusively by its mean level of achievement (for example, by the average literacy rate for a country) but rather by the mean level *adjusted to take account of inter-group or inter-personal differences in achievements*. In the light of this advice, the 'equity adjusted' proportions for Northern Ireland are $73 \times (1-0.191) = 59\%$ for 5+ A*-C grades at GCSE and $56 \times (1-0.325) = 38\%$ for 5+ A*-C grades at GCSE, including English and Mathematics (see table 3).

Analysing access inequality

Given the fact that the performance of grammar schools is so much superior to that of secondary schools, a disturbing feature of Northern Ireland's post-primary schooling system is that pupils from deprived backgrounds, pupils entitled to free school meals (FSM pupils), and pupils with special educational needs (SEN pupils) were grossly under-represented in grammar schools. Half of the total number of secondary school pupils, compared to only 14% of grammar school pupils, came from deprived backgrounds (FSM pupils) or had special educational needs (SEN).

Table 6 explores in greater detail the distribution of the different types of pupils between grammar and secondary schools. There were a total of 26,569 FSM post-primary pupils in Northern Ireland of whom only 4,150 (16%) went to grammar schools with the remaining 22,419 FSM pupils (84%) in secondary schools. Similarly, there were a total of 24,762 SEN post-primary pupils in Northern Ireland of whom only 4,147 (17%) were grammar school pupils with the remaining 20,615 SEN pupils (83%) in secondary schools. By contrast, of the 96,571 post-primary pupils in Northern Ireland *who were neither FSM nor SEN pupils*, 53,836 (56%) attended grammar schools while the remaining 42,735 pupils (44%) were secondary school pupils.

Table 6: Distribution of FSM and SEN pupils by type of School (2012/13)

	Grammar School	Secondary Schools	Total
FSM Pupils	4,150	22,419	26,569
SEN Pupils	4,147	20,615	24,762
Other Pupils	53,836	42,735	96,571
Total Pupils	62,133	85,769	147,902

So, one indicator of *inequality of access* in Northern Ireland's post-primary school system is that while the 26,569 FSM pupils comprised 18% of Northern Ireland's total enrolment of 147,902 post-primary pupils, the 4,150 FSM pupils in grammar schools comprised only 7% of the total grammar school enrolment of 62,113 pupils. Similarly, while the 24,762 SEN pupils comprised 17% of Northern Ireland's total enrolment of 147,902 post-primary pupils, the 4,147 SEN pupils in grammar schools comprised only 7% of the total grammar school enrolment of 62,113 pupils. In contrast, while the 96,571 post-primary pupils in Northern Ireland *who were neither FSM nor SEN pupils* (hereafter, referred to as *non-deprived* pupils) comprised 65% of Northern Ireland's total enrolment of 147,902 post-primary pupils, the 53,836 such pupils in grammar schools comprised 86% of the total grammar school enrolment of 62,113 pupils.

Access Inequality by Catholic/Protestant Grammar Schools

Most of Northern Ireland's grammar schools (51 out of 67) are classed under the management type 'voluntary'. However, under this veneer, there is a clear binary divide between the 67 grammar schools depending on whether they subscribe to a 'Protestant ethos' (38 schools) or to a 'Catholic ethos' (29 schools). Table 7 shows that there is a clear and significant difference between Catholic and Protestant grammar schools in their intake of FSM pupils. Of the total of 35,090 pupils in Protestant grammar schools, only 1,476 (4.2% of the total)

were FSM pupils. By contrast, of the total of 27,043 pupils in Catholic grammar schools, 2,674 (9.9% of the total) were FSM pupils. A t-test showed that this difference in proportions between Protestant and Catholic grammar schools in their respective intakes of FSM pupils was statistically significant (t-value=5.19). The difference between Protestant and Catholic grammar schools in their intakes of SEN pupils - respectively, 6.6% and 6.8% of their pupil strengths - was not, however significant.

Table 7: Distribution of FSM and SEN pupils by "Ethos" of Grammar School (2012/13)

	Catholic Grammar Schools (29)	Protestant Grammar Schools (38)	Total
FSM Pupils	2,674	1,476	4,150
SEN Pupils	1,840	2,307	4,147
Other Pupils	22,529	31,307	53,836
Total Pupils	27,043	35,090	62133

In summary, the above analyses on segregation and inequalities show:

- i) Protestant (controlled) schools are much more heterogeneous in their composition, while the religious homogeneity of Catholic (maintained) schools remains unchanged since 1997/98 (signing of Belfast/Good Friday Agreement).
- ii) There are large performance inequalities between grammar schools and secondary schools (although this is less true within the Catholic sector) even when adjusted to take account of inter-group or inter-personal differences in achievements.
- iii) While children from deprived backgrounds have difficulty accessing grammar schools in Northern Ireland, this is considerably more of a problem in Protestant, compared to Catholic grammar schools.

So, how has the Northern Ireland Executive responded to these key problems?

Government Responses

There have been three types of response by the Department of Education to the weaknesses outlined above: structural, school improvement policies, and a review of community relations in schools.

First, there has been a structural response to the current excess supply of school places (reports of 85,000 empty desks) to have ‘a network of viable and sustainable schools that are of the right type, the right size, located in the right place and have a focus on raising standards’ (Department of Education, 2012b: 4). A number of measures were adopted. First, the Minister commissioned the five Education and Library Boards (ELBs) working closely

with other education providers to conduct viability audits of all primary and post primary schools in Northern Ireland. The audits identified those schools which were experiencing 'stress' defined by three criteria: quality of the educational experience; enrolment trends; and the financial standing of schools. Second, the results of the viability audits were then used as the empirical basis for developing draft strategic plans across each of the five ELB areas. Third, an integral aspect of planning the future education estate was not only the need to drive up educational standards but also to better target provision that would address social needs or schools drawing from socially deprived areas.

The rationale for viability audits and area planning process was based on the Department of Education's *Sustainable Schools Policy* which identified six key factors that collectively contributed to viable schools for the future: quality educational experience; stable enrolment trends; sound financial position; strong leadership and management; accessibility; and strong links with the community (Department of Education, 2009a). In fact, only the first three criteria were considered in the viability audits and the remainder ignored because they were deemed not to be quantifiable.

This seems entirely at odds with the Department of Education's *Every School and Good School – A Policy for School Improvement* (2009b) where at least two criteria, excluded from the viability audits and draft area plans, are deemed to be core components that make for a successful school, namely: effective leadership; and a school connected to its local community. Hence, instead of addressing the systemic weaknesses in the education system, area plans have recommended the establishment of large schools (through amalgamations) where enrolment figures of pre-existing schools fall short of arbitrary guidelines on school size set down by the Department of Education. Traditional sectarian cleavages have been reinforced through the planning process because separate managing authorities devised their own plans and 'cut and pasted' into a composite plan. Using the Department of Education's own viability audit data on education achievements in the post-primary sector, the research evidence is that larger schools do not make for educationally better schools as measured by GCSE performance (Borooah and Knox 2012). In short, this institutional response has singularly failed to address the weaknesses in the education system beyond the claim by the Department of Education that larger schools will offer wider curriculum choice and indirectly raise educational standards.

Another aspect of this institutional response is the establishment of a new education body entitled the Education and Skills Authority (ESA) which is intended to help improve education standards, promote equality, and enable more resources to be directed to schools (Perry, 2012). The Education Bill (which at the time of writing (May 2014) is being considered by the Northern Ireland Assembly) is the legislative mechanism for the establishment of ESA. The Education and Skills Authority will replace eight existing organisations: the five education and library boards, the Council for Catholic Maintained Schools, and the Youth Council. In a briefing to the Education Committee of the Northern Ireland Assembly, a senior official of the Department of Education noted:

The Minister is very clear that this particular Bill should focus on improving education rather than on reducing bureaucracy, important though that is. Although much of the focus of the Bill is on ESA as an organisation, ESA is merely a means to an end. That end, the policy goal, is better schools (Official Report, 2012:3).

In fact, many of the clauses in the Education Bill are about institutional changes rather than a focus on improving schools. Much of its content is on: the role, membership, and functions of ESA; the functions of the Northern Ireland Council for Curriculum, Examinations and Assessment; management of grant-aided schools; new powers and functions for the Education Inspectorate; and, new statutory duties for Boards of Governors. The establishment of ESA may well result in greater administrative efficiency in the management of the education system but there is no guarantee that, of itself, it will improve education outcomes. The establishment of ESA has hit political difficulties and has been seen by some unionist politicians as a means of the current Sinn Féin minister exerting greater control over grammar schools and the controlled sector.

The second way in which the Department of Education has responded to identified weaknesses is through school improvement policies. The policy *Every School a Good School* (referred to above) was seen to be at the centre of the (then) Education Minister's reform agenda. Her vision was for 'schools as vibrant, self-improving communities of good practice, meeting the needs and aspirations of individual pupils through high quality teaching and learning' (2009b: i). Therein, the Minister outlined the characteristics of a good school as: child-centred provision; high quality teaching and learning; effective leadership; and a school connected to its local community.

A follow-up supporting strategy aimed at improving numeracy and literacy was also launched by the Department of Education entitled: *Count, Read: Succeed* (2011). The strategy focused

on: promoting and developing each child's ability to understand and use language as an integral part of the learning process across all areas of the curriculum; and developing numeracy through applied mathematics in the curriculum and in real life situations. The literacy and numeracy strategy also devised new levels of progression designed to set out clearly the literacy and numeracy skills that pupils would be expected to demonstrate by the end of each of the main Key Stages of their education. Yet as education outcomes attest, these policies to improve schools have, thus far, made little or no impact on performance or access inequalities.

More recently the Education Minister has proposed a series of school improvement measures aimed at addressing concerns raised by the Chief Inspector's Report (Education and Training Inspectorate, 2012). In a statement to the Northern Ireland Assembly the Minister indicated that he was 'determined to retain a clear and unapologetic focus on raising educational standards' (O'Dowd, 2012:14). He intends, *inter alia*, to:

- Support continuing professional development of teachers through a new strategy for teacher education that will focus first on attracting the right people in to teaching and then to support them as they prepare to become teachers and as they go through their professional career.
- Develop fit-for-purpose leadership programmes for principals and vice principals – leaders who will work in alliance with their peers to meet the education needs of young people.
- Reward principals who undertake leadership roles in under-performing schools, not on the number of pupils in their school but on the size of the challenges they face and on their success in overcoming these challenges.
- Create mobility in the profession to create a breath of experience, including employment outside the school.
- Enhance the professional standing of teachers by strengthening the role of the General Teaching Council as the professional body in supporting teachers and upholding the highest professional standards.

The third and final response to systemic weaknesses outlined above is to address the highly segregated system of education in Northern Ireland. Up to 2010, the Department of Education allocated around £3.5m per annum for the promotion of equality and good community relations among children and young people in formal and non-formal education (Department of Education, 2011a). The aim was: to encourage greater cross-community contact and co-operation; to support and encourage mutual understanding and tolerance; to promote equality and work to eliminate discrimination; and, to promote recognition of, and respect for, cultural

diversity. Evidence suggests that much of this work has been of limited value because of the nature of contact involved. Contact was not sustained over time and hence attitudinal change towards the 'other' community proved inadequate (O'Connor et al, 2002). The Department of Education cut its budget in 2010/11 to £1.1m per year with the introduction of a new policy *Community Relations, Equality and Diversity in Education* (CRED, 2011a). The policy, with reduced resources, is a very blunt instrument and does little more than encourage schools to see how CRED might link into core areas of the curriculum and strengthen pre and post-qualification training in the education workforce. Here again, there has been no change in patterns of enrolment across controlled and maintained schools over the last 4 years. The data show the consistency of religious segregation in schools over time. Catholic maintained secondary schools and voluntary Catholic grammar schools are almost exclusively populated by pupils of that faith. Catholic parents, on the other hand, are much more likely to send their children to controlled grammar schools (some 7% of controlled grammars are Catholics) than vice-versa (less than 1% of Protestants attend voluntary Catholic grammar schools). In short, segregated schooling is an intractable problem in Northern Ireland schools.

An alternative approach

The Department of Education's most recent corporate plan sets out the focus of their work over the next three years.

We will maximise the contribution that education can make to shaping a strong and shared community and delivering sustainable economic growth...We will, in particular, work to improve attainment for young people from disadvantaged backgrounds... address social exclusion and... close the achievement gap and, in doing so, improve the life chances of young people from our more disadvantaged communities. We will also harness the potential that education provides to redress inequality and to promote opportunities for shared learning for pupils in schools in all sectors (Department of Education, 2012c:6).

It is clear that the current structural, school improvement and community relations policies have had limited or no impact so far on the key problems facing the education system in Northern Ireland and there is a need to offer some creative alternatives.

One such alternative is the Shared Education Programme [SEP] which started in 2007, is funded jointly by the International Fund for Ireland and Atlantic Philanthropies, and is managed by Queen's University School of Education, the Fermanagh Trust, and the Primary Integrating/Enriching Education Project in North Eastern Education and Library Board. The

programme currently involves 165 schools, 44 partnerships and 16,000 children collaborating on a weekly basis. Shared education was been defined in a recent Ministerial Advisory Group report on the topic as follows:

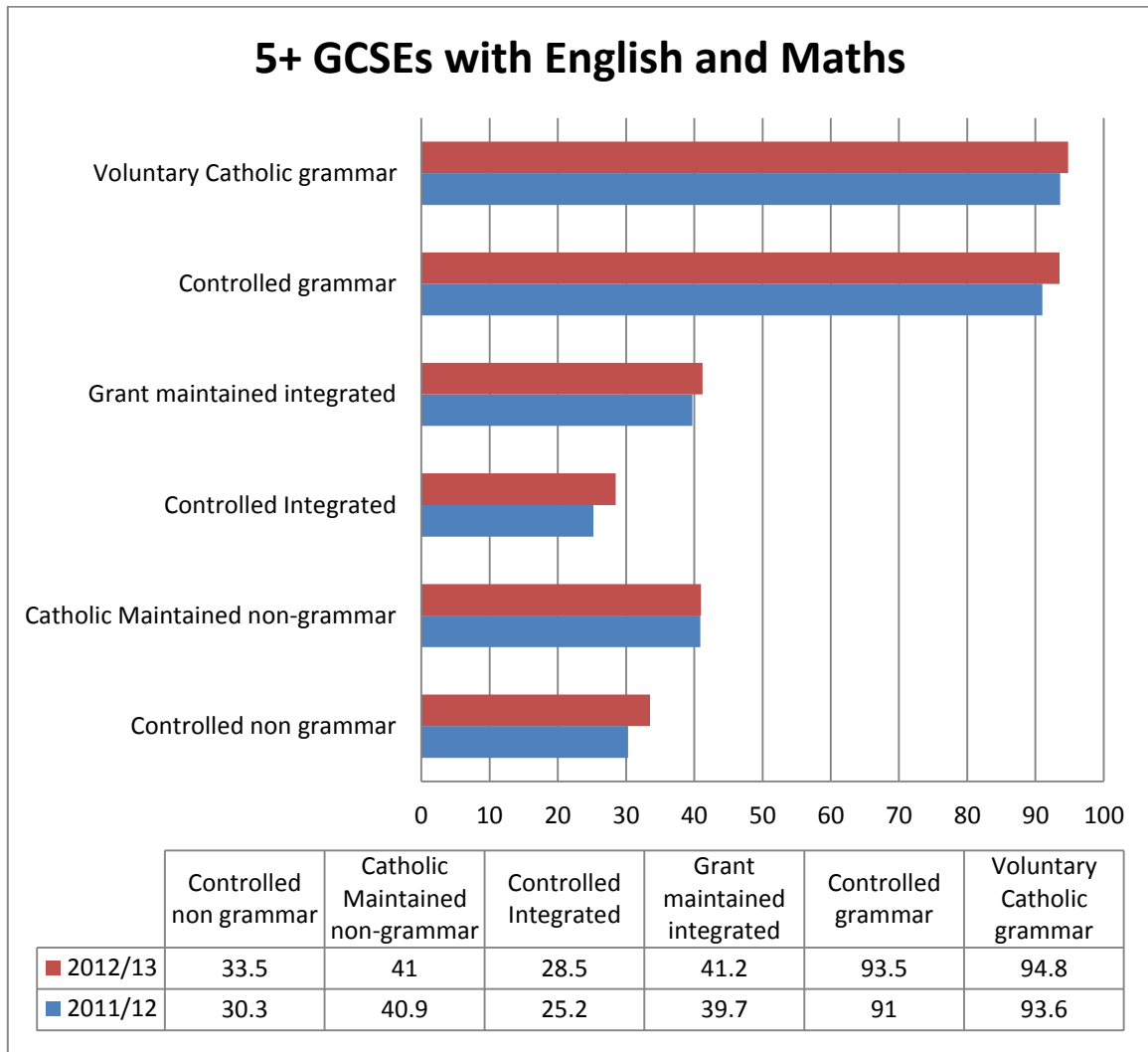
Shared education involves two or more schools or other educational institutions from different sectors working in collaboration with the aim of delivering educational benefits to learners, promoting the efficient and effective use of resources, and promoting equality of opportunity, good relations, equality of identity, respect for diversity and community cohesion (Connolly *et al*, 2013).

Shared education is distinct from integrated education. The essential point is that shared education involves educational collaboration while preserving community identity: pupils sit together in a classroom to study, say differential equations, while remaining Catholic or Protestant pupils. So, while in the abstract, it is possible to get the benefits of shared education by joining together a Catholic and a Protestant school to form one large ‘integrated’ school, in practice the latter solution is unlikely to be acceptable to parents unwilling to concede on the issue of identity.

Research evidence on the impact of integrated education tends to focus on its reconciliation and societal benefits in the divided society that is Northern Ireland. These benefits accrue from intergroup contact which can positively influence social attitudes about ‘the other’ community and create a more plural society (McGlynn, 2011; Stringer et al, 2009; Hayes et al, 2007). The evidence is summarised by Stringer et al (2000:11) when they conclude that meaningful contact with peers from the other religion in school is more likely to make them ‘more accommodating to issues that have divided the two religious groups’ in their adult life. What is less well-known are the educational benefits of integrated education. In a summary of the research on integrated education, Hansson et al (2013) conclude that the extent to which preference for integrated education outweighs preference for selective academic (grammar) education is not known, citing McGlynn (2007). However, ‘there is some evidence to indicate that pupil achievement in integrated schools is at least comparable to secondary education although it is not possible to draw conclusive findings from the data’ Hansson et al (2013:50) In fact, the data on the performance of integrated schools show that controlled integrated schools are the poorest performing in the post primary sector, if judged by the educational outcomes of pupils attaining 5 or more GCSEs including English and Maths (see table 8). Grant maintained integrated schools perform at a level comparable to

non-selective secondary schools which, in turn, achieve significantly lower results than controlled or voluntary Catholic grammar schools.

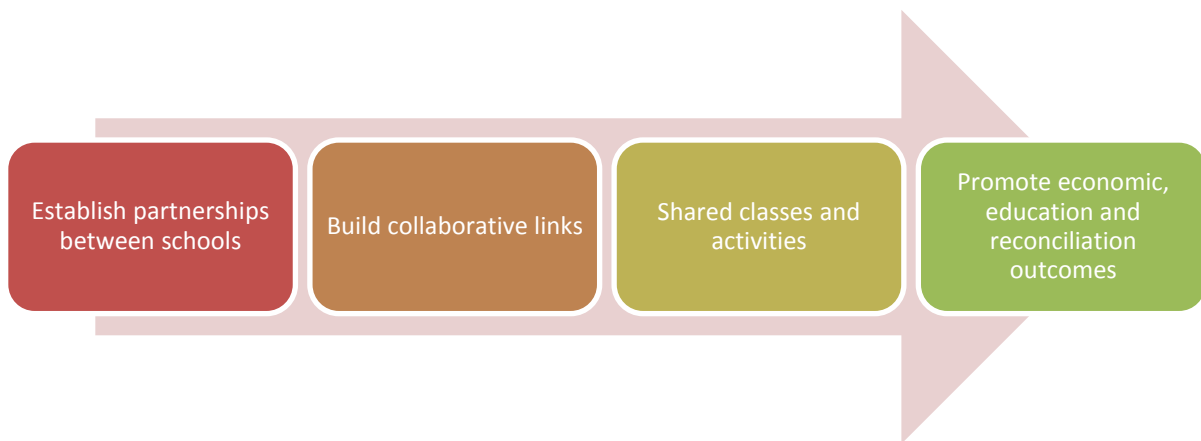
Table 8: School Performance by Sector



Shared Education

The focus of shared education is delivering core curriculum activities where teachers and pupils work together across schools to achieve higher quality educational experiences. The delivery model involves 4 basic stages (see figure 1):

Figure 1: Shared Education Model



Shared education recognises that schools have interdependent relationships and promotes positive collaboration to support the common good. Ultimately it is about creating interdependencies between schools and making boundaries porous – it isn't about threatening anyone's identity or the creation of a Catholic/Protestant hybrid.

Much of the theoretical and research underpinnings for collaborative learning draw on the extensive literature on how collaboration and networking between schools in Great Britain can enhance school effectiveness and improvement. Moore and Kelly's research (2009), for example, considered primary school networking as a means of promoting whole-school improvement under two national initiatives *Networked Learning Communities* and *Primary Strategy Learning Networks*. Their research develops an 'ideal' type model for productive networking partnerships which they describe as *remunerative/supportive* in nature. In practical terms this means that partnerships are: funded for long-term working; focus on the common good of raising overall standards rather than personal or individual school gain; and, demonstrate a commitment amongst participating schools to collaborative working. This, in turn, promotes trust and confidence amongst the schools which allows for more innovative practice to emerge.

Work by Lindsay *et al* (2005), Chapman and Allen (2005), and Chapman and Hadfield (2010) examine the potential for stronger schools being matched with weaker schools to help improve their performance. Muijs *et al* (2010) argue that networking is differentially effective in meeting different educational goals and set out the circumstances under which it is more likely to enhance school effectiveness and improvement:

Where improvements in pupil performance have been seen, this is often where more effective schools have paired with less effective schools to help them to improve, where leadership has been strong and supportive of networking, and where the number of schools involved has been limited. External support may also be helpful in cases where internal capacity or trust between schools may be lacking (Muijs *et al*: 2010: 24).

Chapman's research (2008; see also Chapman and Harris, 2004; and West, 2010) highlights key levers for improvement where networking takes place in a context of challenging circumstances which he argues should include: generating positive relationships; focusing on teaching and learning; understanding, leading and managing changes; committing to continuous professional development; building community; and, drawing on external support.

In their latest research on using collaboration and networking as a means of school improvement Chapman and Muijs (2013) conducted a large quantitative study (122 federations and 264 comparator schools) which examined the relationships between school federations and student outcomes. They developed a typology of federations (used to describe the nature of collaborative relationships and structural arrangements between two or more schools). One category was described as 'performance federations' consisting of two or more schools, some of which were low and others high performing schools. The study concluded:

Federations can have a positive impact on student outcomes and federation impact is strongest where the aim of the federation is to raise educational standards by federating higher and lower attaining schools. Our study therefore primarily suggests that school improvement may result when a strong school works with a weaker school to improve the latter, and that it is this rather than a generic "collaboration effect" that may lead to improvement (Chapman and Muijs, 2013:35).

The researchers reference key features associated with successful partnerships involving 'stronger' and 'weaker' schools from previous work. These include: the successful transfer of cultural norms and management systems into the 'weaker' school; the movement of staff between the schools to build shared understanding of, and approaches to, teaching and

learning; and, the streamlining of financial mechanisms to achieve economies of scale (Chapman et al, 2008; Lindsay et al 2007).

Evans et al (2005: 233) writing about the potential for collaboration pose a fundamental question which is particular apt when applied to Northern Ireland: ‘how can collaboration and partnership overcome the inequalities in a system based on choice and specialization, which has the potential of both overt and covert selection of pupils on the basis of aptitude, and the underpinning advantages of social class position?’

The shared education programme has so far primarily acted as a pilot for cross-community collaboration and trust building between schools (Gallagher *et al*, 2010). It has been able to take risks because it is externally funded, whereas the Department of Education would have been much more cautious fearing a potential sectarian backlash amongst some parents and pupils. Having demonstrated its potential for cross-community collaboration, there is now a real opportunity to adapt shared education as a mechanism for networking amongst schools in pursuit of raising education standards, tackling inequalities and contributing to a more inclusive society. The policy opportunity exists through two key commitments given by the Northern Ireland Executive in the *Programme for Government 2011-15* in which the Executive pledges to: ensure all children have the opportunity to participate in shared education programmes by 2015; and, substantially increase the number of schools sharing facilities by 2015 (Northern Ireland Executive, 2011).

In practical terms this approach offers a number of possibilities. The Education Minister’s recent proposals for school improvement focus precisely on those issues which are seen to be important in the stronger/weaker collaborative approach, *inter alia*: enhanced teaching and learning; strong leadership and management of change; and, a commitment to continuous professional development. Maintaining a focus on raising educational outcomes, through ‘partnerships for excellence’, means that **all** schools, regardless of pupils’ background have the opportunity to improve. There has been a review of the schools’ funding formula in Northern Ireland which offered opportunities to incentivise collaboration (Salisbury, 2012). Although the review did not support this idea, the Ministerial advisory group on shared education did. Since schools which are currently competing for the same pupils are unlikely to want to collaborate (because they are from the same managing authority) then, by default, the collaborative partnerships will be cross-community. This, in turn, will have significant reconciliation benefits for students and society in the medium term. In short, shared education

can complement the Minister's agenda on improving education standards, addressing inequalities and contribute towards a more inclusive society.

Conclusions

Northern Ireland is praised as an education system which produces high performance levels. This is undoubtedly true for grammar school pupils. However it ignores the fact that only one-third of secondary school pupils obtain 5+ GCSE passes at A* - C grades, including English and Maths. It also conceals the level of inequality which children from disadvantaged backgrounds experience in accessing grammar schools. Structural reforms, proposed school closures and mergers into super-schools will do little to address these problems. School improvement policies employed by the Department of Education have also made no impression on raising standards. This paper offers peer learning, a model based on stronger- weaker school links, as an alternative approach. The pilot shared education programme provides early evidence of trust building between schools which allows for peer learning to happen. The essential point is that parents make a choice on educational grounds rather than the heterogeneity of schools. While segregated schools sit uneasily with a desegregated workforce, poor educational standards fail to prepare pupils for employment, the greater of the two evils.

Those for whom schools have failed, particularly young Protestant males in socially disadvantaged areas, complain that there has been no 'peace dividend' in Northern Ireland or their life chances have not improved as a result of political stability. A desegregated schools system is unlikely to change this – poorly performing schools will not improve educationally by virtue of mixing with those from another religion. Since the Belfast (Good Friday) Agreement in 1998 the data show that aside from Protestant secondaries, Northern Ireland's schools are becoming much more heterogeneous, although the Catholic school ethos and associated iconography still poses a problem for Protestants attending maintained schools. Shared education has helped to dissolve traditional school boundaries and create circumstances of trust which will allow effective peer learning to take place between schools. In so doing, education performance for all schools is likely to increase and quicken the pace of desegregation which offers societal benefits. An unequivocal focus on raising standards should be at the heart of the reform agenda in Northern Ireland schools. Segregated schooling is much less of an issue than popular belief would imply. Access and performance inequalities are the wicked issues.

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Appendix 1: Calculating the values of the segregation index in post primary schools.

Reardon and Firebaugh (2002) argue that the best measure of segregation as disproportionality is provided by Theil's (1967) *Entropy Index*. This is described below:

Suppose the three groups are indexed $k=1$ (Catholic), $k=2$ (Protestant), and $k=3$ (Other) such that N_k and G_k are the numbers of pupils from *each* group in, respectively *all* schools and in a particular type (say type X where X can represent a group of schools or, indeed, an individual school) of school.

Then $N = \sum_{k=1}^3 N_k$ and $G = \sum_{k=1}^3 G_k$ are, respectively, the total numbers of pupils in all schools and in type X schools.

One way of measuring inequality in a variable is by *the natural logarithm of the ratio of the arithmetic mean of the variable to its geometric mean* (Bourguignon, 1979; Theil, 1967; and Borooah, 2001). This idea translates very naturally, from its usual application to income inequality, to measuring the degree of inequality associated with educational (or labour market or health) outcomes in which people in different population groups meet with different degrees of success in securing an 'outcome'. In this study, the three groups are Catholic, Protestant, and Other religion pupils and the 'outcome' is being a pupil in a type X school. The variable of interest is the proportion of pupils from a particular group who are pupils in type X school and it is inequality in the distribution of this rate between the three groups that is sought to be measured. This inequality is referred to, hereafter, as a 'segregation measure'

The success rate of group k (denoted e_k), in terms of being a pupil in type X school, is $e_k = G_k / N_k$, $0 \leq e_k \leq 1$. Then the arithmetic and geometric means of e_k are, respectively:

$$\bar{e} = \sum_{k=1}^3 e_k n_k \quad \text{and} \quad \hat{e} = \prod_{k=1}^3 (e_k)^{n_k} \quad \text{where} \quad n_k = N_k / N, \quad \sum_{k=1}^3 n_k = 1 \quad (1)$$

so that the *segregation measure* (for type X schools) is:

$$J = \log(\bar{e} / \hat{e}) = \log(\bar{e}) - \sum_{k=1}^K n_k \log(e_k) \quad (2)$$

Now from the definition of e_k :

$$e_k = G_k / N_k = (G_k / N_k)(N / G)(G / N) = (G_k / G)(N / N_k)(G / N) = (g_k / n_k) \bar{e} \quad (3)$$

where: $g_k = G_k / G$ and $n_k = N_k / N$ are, respectively, group k 's share of type X school pupils and of all pupils. Employing equation (3) in equation (2):

$$J = \log(\bar{e} / \hat{e}) = \log(\bar{e}) - \sum_{k=1}^3 n_k \log(e_k) = \log(\bar{e}) - \sum_{k=1}^3 n_k \log \left[\frac{g_k}{n_k} \bar{e} \right] = \sum_{k=1}^3 n_k \log \left[\frac{n_k}{g_k} \right] \quad (4)$$

From equation (4), inequality is minimised when $J=0$. This occurs when $n_k = g_k$, that is when each group's share in the total of all pupils (n_k) is equal to its share in the total of type X school pupils (g_k). Otherwise, $J>0$. The interpretation of equation (4) is that the segregation measure is a weighted

average of the group-specific (logarithmic) differences between the population and organisation shares ($\log(n_k / g_k) = \log n_k - \log g_k$), the weights being the population shares (n_k).

Interpretation of J

The inequality measures J has along the lines suggested by Bourguignon (1979), an appealing interpretation. If social welfare is the sum of identical and concave group utility functions whose arguments are e_k then social welfare is maximised when e_k - the success rate of a group - is the same for every group. If the utility functions are of the logarithmic form (that is $U=\log(e_k)$), then J represents the distance between *maximum* level of social welfare ($\log(\bar{e})$) and the *actual* level of

social welfare ($\sum_{k=1}^3 n_k \log(e_k)$): social welfare is maximised when access inequality is minimised.

Appendix 2: Interpretation of Gini coefficients

If N is the number of schools, S_k is the number of successful GCSE pupils from school k ($k=1\dots K$), and $\bar{S} = \sum_{k=1}^N S_k / N$ represents the average number of successful pupils, the Gini coefficient is defined as:

$$G = \frac{1}{2N^2\bar{S}} \sum_{i=1}^N \sum_{j=1}^N |S_i - S_j|$$

In other words, the Gini coefficient is computed as half the mean of the difference in the number of successful pupils between pairs of schools, divided by the average number of successful pupils (\bar{S}). So, $G=0.4$ would imply that the *difference in the number of successful pupils between two schools chosen at random* will be 80% of the average number of successful pupils: if $\bar{S} = 80$, this difference will be 64 pupils; $G=0.1$ would imply that the *difference in the number of successful pupils between two schools chosen at random* will be 20% of the average number of successful pupils: if $\bar{S} = 80$, this difference will be 16 pupils.

Appendix 3: Inequality decomposition methodology

Suppose that the sample of N schools is divided into M mutually exclusive and collectively exhaustive groups with N_m ($m=1 \dots M$) schools in each group. Let $\mathbf{p} = \{p_i\}$ and $\mathbf{p}_m = \{p_i\}$ represent the vector of school performances of, respectively, all the schools in sample ($i=1 \dots N$) and the schools in group m . Then an inequality index $I(\mathbf{p}; N)$ defined over this vector is said to be additively decomposable if:

$$I(\mathbf{p}; N) = \sum_{m=1}^M I(\mathbf{p}_m; N_m)w_m + \mathbf{B} = \mathbf{A} + \mathbf{B} \quad (5)$$

where: $I(\mathbf{p}; N)$ represents the *overall* level of inequality; $I(\mathbf{p}_m; N_m)$ represents the level of inequality within group m ; \mathbf{A} – expressed as the weighted sum of the inequality in each group, w_m being the weights – and \mathbf{B} represent, respectively, the *within-group* and the *between-group* contribution to overall inequality.

If, indeed, inequality can be ‘additively decomposed’ along the lines of equation (5) above, then, as Cowell and Jenkins (1995) have shown, the proportionate contribution of the between-group component (\mathbf{B}) to overall inequality is the income inequality literature’s analogue of the R^2 statistic used in regression analysis: the size of this contribution is a measure of the amount of inequality that can be ‘explained’ by the factor (or factors) used to subdivide the sample (gender; maternal literacy status etc.).

Only inequality indices which belong to the family of *Generalised Entropy Indices* are additively decomposable (Shorrocks, 1980). These indices are defined by a parameter θ and, when $\theta=0$, the weights are the population shares of the different groups (that is, $w_j = N_j / N$); since the weights sum to unity, the within-group contribution \mathbf{A} of equation (4) is a weighted average of the inequality levels within the groups. When $\theta=0$, the inequality index takes the form:

$$I(\mathbf{p}; N) = \left(\sum_{i=1}^N \log(p_i / \bar{p}) \right) / N \quad (6)$$

where: $\bar{p} = \sum_{i=1}^N p_i / N$ is the mean probability over the entire sample. The inequality index defined in equation (6) is known as Theils’s (1967) *Mean Logarithmic Deviation* (MLD) index.