Educational Disadvantage in Primary Schools in Rural Areas
Report No. 1

Analysis of English Reading and Mathematics Achievement in Schools in the Rural Dimension of the School Support Programme

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Abstract

The achievements of pupils in English reading and mathematics in schools in rural areas serving pupils from poor backgrounds are examined. Pupils in a sample of schools selected for inclusion in the rural dimension of a programme to address educational disadvantage performed significantly better than pupils in a sample of urban schools participating in the same programme. Test scores of pupils in the rural sample were significantly below the national norm for reading but not for mathematics. Although poverty was found to be less concentrated in the rural than in the urban sample, no evidence was found to implicate this in the explanation of the superior performance of rural pupils. There was, however, support for the idea that the relationship between socioeconomic characteristics and pupil achievement is quantitatively and qualitatively different in rural and urban areas. Achievement of pupils in the rural sample seems to be unrelated to school size so there is no support for the idea, common in the international literature, that small school size may mitigate the effect of poverty on educational outcomes. However, the presence in the rural sample of relatively large numbers of pupils from some counties in the West of Ireland may account for some, but not all, of the gap between the urban and rural samples. The fact that about 18% of pupils in the rural sample are attending schools in the Gaeltacht may be part of the reason for the urban-rural gap being smaller for English reading than for mathematics. It is argued that further research in this area is needed and that the work reported here does not yet represent an adequate basis for policy decisions, including those about the allocation of resources.

Introduction

While the issue of educational disadvantage in urban areas has received a considerable amount of attention from researchers, the issue in rural areas has received only scant attention in Ireland and internationally. It is unclear why rural disadvantage has attracted so little attention, but it may simply relate to the higher visibility of urban disadvantage. The term educational disadvantage is used widely to refer to the idea that factors associated with low SES and/or poverty represent impediments to pupils deriving appropriate benefit from their schooling (Kellaghan, 2001). For example, in the (1998) Education Act, disadvantage is defined as 'the impediments to education arising from social or economic disadvantage which prevent students from deriving appropriate benefit from education' [Section 32(9)].

In 2007, the Department of Education and Science (DES) commissioned the Educational Research Centre (ERC) to undertake an evaluation of the School Support Programme (SSP) under DEIS (Delivering Equality Of Opportunity In Schools). At the same time, the DES announced that 'a special study will be carried out on literacy and numeracy in rural primary schools with high concentrations of disadvantage' (Department of Education and Science, 2005, p. 79). The study was prompted by the belief, supported by evidence cited below, that educational disadvantage is qualitatively different in urban and rural areas.

Some studies carried out in Ireland suggest that the relationship between pupil achievement and socioeconomic factors differs in urban and rural areas. One series of analyses focused on data from schools that applied for, and/or were subsequently included in Breaking the Cycle (a scheme catering for urban and rural schools serving pupils from disadvantaged backgrounds). The analyses indicated that the relationships between socioeconomic variables (e.g., unemployment, medical card possession, residence in Local Authority housing, lone-parenthood), are weaker in rural than in urban schools (Weir, 1999). They also revealed a much stronger relationship between pupil achievement and home background factors in urban than in rural areas. Subsequently, the evaluation of the scheme demonstrated that pupils in rural schools performed, on average, much closer to the national norm than did pupils in urban schools in the scheme (Weir, Milis & Ryan, 2002a; Weir, Milis & Ryan, 2002b). Some attempts have been made to use data from National Assessments to investigate the incidence of disadvantage by location (Weir & Archer, 2005). However, the potential of the NAER (National Assessment of English Reading) data to produce such estimates is limited. Weir and Archer noted that, because of the sampling methodologies used in national assessments, the probability of a school being selected for participation is directly related to the number of pupils in the school. Most small (in terms of enrolment) schools are likely to be located in rural areas and, thus, relatively few pupils in such schools participate in national assessments.

Many studies in the United States have claimed that small school size acts as an antidote to the impact of poverty on student achievement (e.g., Howley, Strange & Bickel, 2000). A fairly consistent finding in the research is that the correlation between SES and achievement is weaker in small than in larger schools (i.e., SES explains less of the variance in achievement in small schools). This finding tends to be explained in terms of the capacity of the small school to somehow negate or reduce the achievement disadvantage of students from poor socioeconomic backgrounds (Coladarci, 2006). Other

explanations implicate home factors on their own (i.e., a ‘pure’ home effect), school factors on their own (pure school effects), or the suggestion that poverty is less concentrated in rural schools.

In this report, as already indicated, the achievements of a group of pupils in rural schools and a group of pupils in urban schools (both sets of schools having relatively high levels of assessed poverty) will be compared. Data will also be presented relating to some of the other factors raised so far (e.g., size of school and the region in which the school is located).

The present study

The present study represents a first step in the attempt to achieve a better understanding of educational disadvantage in rural areas. It is intended to build on the findings presented here using achievement data collected in 2009/2010.

In May 2005, the ERC undertook a survey in all primary schools on behalf of the DES in the context of planning for DEIS, which is the most recent in a series of government initiatives to tackle educational disadvantage[1] (see Archer & Sofroniou, 2008). The survey was designed to provide a basis for allocating finance to schools in accordance with their level of disadvantage and to identify schools with the highest levels of disadvantage for inclusion in a new School Support Programme (SSP) which was intended to 'bring together and build upon existing interventions for schools' (Department of Education and Science, 2005, p. 9). It had been decided by the Department that the assessment of disadvantage would use only socioeconomic characteristics associated with poverty (e.g., the percentage of pupils living in lone parent families). However, it was agreed that the choice of particular factors, and the weight to be assigned to these factors, would be determined by their association with an educational measure. While, in a general sense, this approach is consistent with the Education Act definition of disadvantage quoted earlier, it is arguably more appropriate to describe the outcome of the 2005 survey as an assessment of levels of poverty in schools than as an assessment of levels of educational disadvantage. For an account of the procedures involved in the assessment of levels of disadvantage, see Archer and Sofroniou (2008).

Following the nationwide survey in schools in 2005, the highest scoring 334 rural schools on the poverty index were invited to participate in the rural dimension of the SSP and the 340 highest scoring urban schools were invited to participate in the urban dimension of the SSP[2]. As part of the evaluation of the SSP, baseline achievement data were collected in May 2007 in samples of participating rural and urban schools using norm referenced tests of English reading and mathematics (2^{nd}, 3^{rd} and 6^{th} class pupils in the urban sample; 3^{rd} and 6^{th} class pupils in the rural sample). It is planned to repeat testing in the same schools and with many of the same pupils in May 2010. The present report is a first step in the special study of the nature of disadvantage in rural areas. It involves an examination of the test performance of pupils in the rural sample, comparing that performance with the performance of pupils in the urban sample and with national norms, and exploring some reasons for differences that emerge. Rural schools in the SSP have access to the services of a shared co-ordinator (if they succeed in appointing one), or if they are located outside a cluster, they receive a compensatory financial grant. Participating schools also receive a number of other supports (see Department of Education and Science, 2005). It was considered appropriate to take these various categories of school into account in the selection of the sample. Where co-ordinators were working with clusters of schools, they were asked to administer, or to oversee the administration of, the tests in those schools. In clusters where the co-ordinator post was

[1] A similar survey had been carried out in the context of the earlier, Giving Children an Even Break (GCEB), initiative (Weir, 2004b).

[2] It had been intended than an equal number of urban and rural schools would participate in the SSP (DES, 2005). The fact that there are slightly more urban schools reflects the outcome of a review/appeals process made available to schools.

vacant, specially trained administrators were sent to the schools to do the testing. This was also the case in schools that were categorised as 'unclusterable' due to their lack of proximity to other SSP schools.

Sample

In selecting the sample, all 221 schools in clusters that had appointed co-ordinators were selected for testing (Table 1). Of the schools that were in clusters in which the co-ordinator post was vacant, about half were randomly chosen to participate in the testing. This resulted in the selection of a further 36 schools in 12 clusters. Finally, approximately two-thirds of the 31 schools that were not in a cluster at all were randomly sampled to provide a sample of 23 schools. Four of these schools were subsequently excluded because they were situated on remote islands. This resulted in a final sample of 19 unclusterable schools. Not all of the 276 schools selected for the sample participated. Following the withdrawal of several schools, for example because they had no pupils in 3rd or 6th class or were due to close, the final sample consisted of 266 schools. The total number of 3rd and 6th class pupils in the sample is given in Table 2.

Table 1. Numbers of schools and clusters in the rural sample.

Category	Schools	Clusters
Has coordinator	221	67
Does not have coordinator	36	12
Unclusterable	19	NA
Total	**276**	**79**

Table 2. Numbers of 3rd and 6th class pupils in the rural sample.

Grade level	Pupils
3rd class	2,210
6th class	2,096
Total	**4,306**

Of the 340 urban schools in the SSP, a sample of 120 schools was selected, stratified on the basis of size and on the basis of the extent of their participation in previous schemes for tackling disadvantage. All 120 schools agreed to participate. Six of the 120 schools did not have pupils in 3rd and 6th class and were included to represent junior schools with pupils in 2nd class. In the remaining 114 schools all pupils in 3rd and 6th class (provided they were present) were tested by their class teacher under the supervision of an inspector or retired inspector appointed by the DES. Totals of 4,070 3rd class pupils and 3,925 6th class pupils supplied test data.

Instruments

The Reading Test

The Drumcondra Sentence Reading Test (DSRT), a test developed by the ERC, was used to assess English reading[3]. There are six levels of the test, one for each class level from 1st to 6th. Although there are two forms of the test (A & B), only Form A was used to assess reading at 3rd and 6th class levels in the study. The DSRT is a multiple-choice

[3] For a more detailed account of the development of the DSRT, see Eivers, Shiel and Shortt (2004).

silent reading test. Pupils are asked to read 40 sentences, each of which has a word missing, and identify which one of four alternative words best completes the sentence. The DSRT is a secure test used for research purposes, and it has not been published. Therefore, pupils and teachers are not familiar with it. It is also a relatively short test to administer, taking approximately 35 minutes including time for distributing materials and completing examples. The test has good reliability, at .92 at 3rd class level and .88 at 6th class level.

The Mathematics Test

The DPMT-R is a standardised test which was developed by the ERC for use in primary schools from 1st class up to 6th class (level 1- 6) (Educational Research Centre, 2007). Twenty-five items were selected from the 75 items in form A of the DPMT-R levels 3 and 6 to form the 3rd and 6th class tests. Items were chosen to achieve a balanced coverage of the mathematics curriculum in terms of content and process skills at each level. The shortened mathematics test takes approximately 50 minutes to administer, and has reliabilities of .87 and .89 at 3rd and 6th class levels. The 3rd and 6th class mathematics tests may be administered together to groups of pupils as they use the same examples, and are both silent tests with the same time limits. Schools were given the option of using an Irish-language version of the test.

Parent Questionnaire

A parent questionnaire was provided for each child involved in the testing (any schools which requested Irish language versions of the tests were supplied with bilingual parent questionnaires). The parent completing the questionnaire was asked to answer some background questions about their child. Issues included the extent to which the child was read to before primary school, how the child's primary school was chosen, the amount of time the child spends on homework, whether the family has a medical card, and questions about the parents' own education and occupation.

Two other instruments (a questionnaire for pupils, and a pupil rating form completed by class teachers) were used in the collection of baseline data. No variables from these instruments are examined in the present report.

Results

The results section is organised into subsections intended to address questions arising from the literature about the achievements of rural pupils, including work conducted with Irish samples. The first question to be addressed is whether or not pupils in rural SSP schools perform better in reading and mathematics than pupils in urban SSP schools (and how both groups compare with the national norms). Data analysis designed to answer this first question gives rise to a series of other questions relating to

(a) the possibility that socioeconomic disadvantage is less concentrated in rural than in urban schools

(b) the possibility that rural pupils' achievement is less affected by poverty than urban pupils' achievement, or that the social context effect may operate differently in urban and rural areas

(c) the fact that many rural SSP pupils are in small schools

(d) the fact that so many rural SSP schools are located in the west of Ireland

(e) whether the patterns of differences between urban and rural pupils are similar for mathematics and reading.

Achievement test data gathered as part of the evaluation of the SSP are the main focus of analyses reported in this section. However, data from the 2005 survey for DEIS and parent questionnaire data gathered at the time pupils took the achievement tests are also used.

Do pupils in rural SSP schools perform better than pupils in urban SSP schools (and how do both groups compare with national norms)?

Tables 3 to 6 show mean standard scores for reading and mathematics of pupils in the 114 urban SSP schools, the 266 rural SSP schools that had pupils in 3rd and 6th class, and the standardisation sample. For each mean in Tables 3 to 6, there is an associated standard error (SE) calculated using a jackknife technique to take account of the fact that the samples being compared were selected using a stratified cluster design (Westat, 2000). Tables 3-6 also contain information on two comparisons in each case (between the rural and urban means and between the rural mean and that of the standardisation sample). The difference between the means being compared is shown (Diff), as is the standard error of that difference (SED). In the comparisons reported in Table 3, the Bonferroni adjustment for multiple comparisons is used. As Tables 3 and 4 show, the reading scores of both 3rd and 6th class rural pupils are significantly above those of urban pupils. However, reading scores of rural pupils are also significantly below those of pupils in the standardisation sample. In mathematics, the scores of rural pupils at both class levels are significantly above those of urban pupils, but they do not differ significantly from those of the norm group (Tables 5 and 6). The answer to the question posed above, therefore, is that rural pupils clearly outperform urban pupils in reading and mathematics at both 3rd and 6th class levels. However, while the mathematics achievements of rural pupils do not differ significantly from those of the norm group, their reading achievements at both class levels are significantly below those of the norm group.

Table 3. Weighted standard scores on the DSRT of 3rd class pupils in rural and urban SSP schools in 2007 and in the standardisation sample in 2002.

	Urban SSP			**Rural SSP**			**Standardisation sample**		
	Mean	*SE*	*N*	Mean	*SE*	*N*	Mean	*SE*	*N*
	90.4	.590	4,058	96.8	.480	2,203	100.0 (*SD*=15)	.670	1,069
Comparisons	*Diff*	*SED*							
Rural SSP – Urban SSP	6.4*	.761							
Stand sample – Rural SSP	3.2*	.824							

*Difference is significant at .01 level.

Table 4. Weighted standard scores on the DSRT of 6th class pupils in rural and urban SSP schools in 2007 and in the standardisation sample in 2002.

	Urban SSP			**Rural SSP**			**Standardisation sample**		
	Mean	*SE*	*N*	Mean	*SE*	*N*	Mean	*SE*	*N*
	89.5	.500	3,909	95.5	.443	2,091	100.0 (*SD*=15)	.790	1,071
Comparisons	*Diff*	*SED*							
Rural SSP – Urban SSP	6.0*	.668							
Stand sample – Rural SSP	4.5*	.906							

*Difference is significant at .01 level.

Table 5. Weighted standard scores on the shortened version of the DPMT-R of 3rd class pupils in rural and urban SSP schools in 2007 and in the standardisation sample in 2005.

	Urban SSP			**Rural SSP**			**Standardisation sample**		
	Mean	*SE*	*N*	Mean	*SE*	*N*	Mean	*SE*	*N*
	90.7	.626	4,048	98.1	.579	2,206	100.0 (*SD*=15)	1.31	989
Comparisons	*Diff*	*SED*							
Rural SSP – Urban SSP	7.4*	.857							
Stand sample – Rural SSP	1.9	1.43							

*Difference is significant at .01 level.

Table 6. Weighted standard scores on the shortened version of the DPMT-R of 6th class pupils in rural and urban SSP schools in 2007 and in the standardisation sample in 2005.

	Urban SSP			**Rural SSP**			**Standardisation sample**		
	Mean	*SE*	*N*	Mean	*SE*	*N*	Mean	*SE*	*N*
	89.1	.628	3,897	97.2	.626	2,093	100.0 (*SD*=15)	1.35	936
Comparisons	*Diff*	*SED*							
Rural SSP – Urban SSP	8.1*	.887							
Stand sample – Rural SSP	2.8	1.49							

*Difference is significant at .01 level.

To what extent is the superior performance of rural pupils attributable to a lower concentration of pupils from poor backgrounds in rural schools?

Levels of poverty, as assessed in the 2005 survey for DEIS, are lower on average in rural than in urban schools and that the threshold for inclusion in SSP (rural) is well below that for inclusion in SSP (urban). Further evidence of the difference between the two types of schools, in terms of levels of poverty, is presented in Table 7, which shows average values for family background characteristics in schools among the first 328 schools in the urban and rural rank orders[4]. With the exception of the family size variable, rural schools have lower averages on these indicators than urban schools. The largest difference occurs in relation to local authority housing, with almost 44% more urban than rural pupils thus housed. Lone parent families are more than twice as common in urban schools in the top 328 than among the rural equivalent. From these values, therefore, it seems that poverty is less concentrated in the highest scoring rural schools than in the highest scoring urban schools. To check that the differences in Table 7 are not a function

[4] This analysis is based on the urban and rural rank orders before additional schools were admitted to the programme as a result of an appeals process. At that time, there were 328 urban schools in the SSP, and so the comparison in Table 7 is with the top 328 rural schools.

of including greater numbers of schools with lower levels of poverty, a similar exercise was undertaken in which the top 150 urban and rural schools were compared on each variable. This revealed that that the pattern of differences was the same in the smaller samples. If the mean points totals of the schools in the urban and rural samples in which test data were collected are compared, it also appears as though poverty is less concentrated in rural schools. The average points total on all six key variables for the 266 schools in the rural sample is 173.9 which compares with 253.6 for the 120 schools in the urban sample.

Table 7. Average values on variables relating to pupils' family background characteristics in the highest scoring 328 urban and 328 rural schools on the DEIS index.

Variable	**Urban**	**Rural**
	Mean (*SD*)	**Mean (*SD*)**
*Percentage of pupils for whom the school receives a grant for free books[5]	76.5% (20.3)	72.3% (20.7)
*Percentage of pupils who live in a family in which the main income earner is unemployed	51.0% (17.7)	39.4 (19.5)%
Percentage of pupils who live in a family that holds a medical card	62.7% (18.7)	54.1% (20.7)
*Percentage of pupils who live in local authority accommodation	69.0% (20.5)	25.1% (16.7)
*Percentage of pupils who live in a lone-parent family	41.1% (16.0)	17.0% (11.0)
*Percentage of pupils that are in a family with 5 or more children	15.8% (10.0)	16.2% (11.6)
Percentage of pupils who have at least one parent or guardian who left school before taking the Junior, Intermediate, or Group Certificate (or equivalent)	53.5% (22.3)	41.7% (23.7)
Percentage of pupils from families where (i) both parents / guardians are not Irish nationals, or (ii) where the sole parent / guardian is not an Irish national	8.2% (9.7)	3.8% (8.2)
*Percentage of pupils from the Irish Traveller Community	5.7% (9.2)	1.5% (4.1)

*Variable was used in calculating the DEIS index.

The scale of the difference between the two groups of schools outlined in Table 7 indicates that it would be important to re-examine the differences in achievement between the urban and rural SSP groups taking account of the differences in assessed levels of poverty in the two groups. First, however, it is necessary to consider the possibility, raised in the introduction, that the difference in assessed

[5] The book grant scheme is targeted at pupils from families that are: dependent mainly on social welfare payments; on low incomes from employment; or are experiencing financial hardship because of particular circumstances in the home (Department of Education and Science, 2007).

level of poverty is partly due to differences in the ways in which social supports operate in urban and rural areas. For example, it may be that urban schools are more likely to have pupils resident in local authority housing not because of lower levels of poverty in rural areas but because such housing is less available in some counties or because significant numbers of poor families in rural settings are living in inherited farm houses. It may also be worth noting that the number of pupils in a school in receipt of Farm Assist (i.e., financial assistance because of a limited farm income) was not included in the assessment of levels of poverty.

Weir and Archer (2005) pointed out that the issues raised in the previous paragraph are not particularly problematic "when, as in the case of BTC and GCEB, there are separate indicators for urban and rural schools" (p. 82). They go on to suggest that data from the School Books Grant Scheme for Needy Pupils Scheme could be used, if a single measure of poverty, applicable to all schools, is needed. The application form for that scheme avoids differences between schools in urban and rural settings by using categories (e.g., families dependent mainly on social welfare) that are broad enough to allow principals in both settings "to take account of their pupils' individual circumstances" (Weir & Archer, 2005, p. 82). The case for using data from the book grant scheme as an overall index of poverty is supported somewhat by the results of analysis by Weir and Archer (2005) of data from urban schools in the GCEB survey in 2000. In that analysis, the percentage of pupils for whom a book grant was received was found to be highly correlated with other individual indicators (e.g., .78 with medical card possession) and with total GCEB points (.86). The correlation between the book grant variable and achievement (percentage of low achievers estimated by principals) was only slightly lower (.47) than the correlation between total points and achievement (.50).[6]

As a way of addressing the question posed at the beginning of this section, it was decided to attempt to match schools in the urban and rural SSP samples on the basis of book grant data and then compare the achievements of the two matched groups. Rural schools were selected that could be matched with schools in the urban sample to within one percentage point of each other on the percentage of pupils on whose behalf the school claimed a grant for free books. This resulted in a pool of 111 urban and rural schools with equal (or almost equal) scores on the free books variable and with reading and mathematics data available for comparison. The 111 urban schools had a mean percentage of 74.36 (*SD*=20.2) and the rural schools had a mean percentage of 74.40 (*SD*=20.2). Tables 8 and 9 show the mean reading and mathematics scores of 3rd and 6th class pupils in these matched schools according to location.

[6] The fact that this analysis did not include data from rural schools lessens but does not completely eliminate its relevance in the present context.

Table 8. Mean unweighted reading and mathematics standard scores of 3rd class pupils in 111 urban and rural SSP schools* with the same percentage of pupils in receipt of a grant for free books.

	Urban			**Rural**		
	Mean	*SE*	*N*	Mean	*SE*	*N*
Reading	90.8	.511	3,834	97.7	.663	874
Mathematics	91.1	.623	3,827	99.2	.794	877
Comparisons	*Diff*	*SED*				
Rural reading – urban reading	6.9**	.837				
Rural mathematics – urban mathematics	8.1**	1.009				

*Achievement data were only available for 106 urban and 109 rural schools because some schools had no pupils in 3rd or 6th class.
** Difference is significant at .01 level.

Table 9. Mean unweighted reading and mathematics standard scores of 6th class pupils in 111 urban and rural SSP schools* with the same percentage of pupils in receipt of a grant for free books.

	Urban			**Rural**		
	Mean	*SE*	*N*	Mean	*SE*	*N*
Reading	90.0	.544	3,686	95.6	.633	824
Mathematics	89.9	.690	3,675	96.8	.701	822
Comparisons	*Diff*	*SED*		*Diff*	*SED*	
Rural reading – urban reading	5.6**	.835				
Rural mathematics – urban mathematics	6.9**	.984				

*Achievement data were only available for 106 urban and 109 rural schools because some schools had no pupils in 3rd or 6th class.
** Difference is significant at .01 level.

As Tables 8 and 9 show, despite having equivalent levels of poverty as measured by the percentage of pupils receiving a grant for free books, pupils in rural schools outperformed their urban counterparts in reading and mathematics at both grade levels. The result of this exercise provides no support for the view that the superior performance of the rural sample (compared with the urban sample) reported in Tables 3 to 6 is simply a reflection of lower levels of poverty in the rural sample.

It is worth noting how similar the entries in Tables 8 and 9 are to the corresponding entries in Tables 3 to 6, where average achievement for the entire SSP samples was presented. In effect, the averages for the entire samples and the corresponding matched samples are almost identical. This is not surprising in the case of the urban samples because only eight schools were excluded as a result of the matching. In the case of the rural samples, however, 167 schools that contributed data for Tables

3 to 6 did not contribute data to Tables 8 and 9 and we know that these 167 schools have lower levels of assessed poverty than those in the matched samples.

Are the achievements of rural pupils less affected by poverty than those of urban pupils?

Having found no evidence, in the previous section, for the proposition that the superior performance of pupils in the rural sample can be attributed to lower levels of poverty in the rural schools, we now turn to the idea, discussed in the introduction, that the impact of poverty on achievement is not as great in rural areas as it is in urban areas. If that impact is indeed less, one would expect to find that the relationship between socioeconomic variables and achievement is different in the urban and rural samples.

Where parents have answered a parent questionnaire, mean test scores for pupils whose parents indicated that they did or did not hold a medical card can be compared. For pupils that have data on this variable, it can be said that those in families with medical cards have average test scores that are significantly below non-medical card holders (Tables 10 to 13). This is true for both reading and mathematics, for 3rd and 6th class levels, and for urban and rural settings. There is, however, a greater difference between medical card holders and non-medical card holders in urban than in rural settings. In rural schools the difference is about one-third of a standard deviation, but in urban settings it extends to about half a standard deviation. While the difference is greater in urban schools, the data confirm that pupils from poor backgrounds in rural areas achieve lower test scores than those from less poor backgrounds. Although the results have not been tabulated here, a further set of analyses using urban non-medical card holders as the reference category revealed that the achievements of rural medical card holders did not differ from those of urban non-medical card holders, and that the achievements of rural medical card holders significantly exceeded those of urban medical card holders. Furthermore, the achievements of urban non-medical card holders were significantly below those of rural non-medical card holders. This pattern was observed for both reading and mathematics and at 3rd and 6th class level. Therefore, on the basis of this, and of the data in Tables 10 to 13, it seems reasonable to suggest that the answer to the question posed at the start of this section is that while the achievements of rural pupils are affected by poverty, the effect is less marked than among urban pupils.

A number of points need to be made about missing values on the medical card variable which arise either because parents did not complete a questionnaire, or because parents who did complete the questionnaire skipped the question about medical card possession. First, there is a large number of such cases in the comparisons reported in Tables 10-13. Second, the percentage of missing cases is much higher (about 28%) in the urban sample than it is in the rural sample (about 16%). Third the mean test scores of pupils for whom the variable is missing in all four comparisons is much lower than the mean for non-medical card holders and quite close to the mean for medical card holders. While each of these points could have a distorting effect on the data, it is unlikely that they could alter the overall picture substantially. For example, when the missing cases were assumed to be medical card holders (a not unreasonable assumption given the test scores) and reclassified accordingly, the change in average standard score was never more than about one point (in the case of reading at 3rd class, the mean for medical card holders went from 88.0 to 87.7 for the urban sample and from 94.5 to 94.0 for the rural sample).

Table 10. Average reading standard scores of 3rd class pupils in urban and rural SSP schools according to medical card status.

	Urban			**Rural**		
	Mean	*SE*	*N*	Mean	*SE*	*N*
Medical card	88.0	.564	1,443	94.5	.637	717
No medical card	95.2	.586	1,459	99.6	.505	1,101
(Missing)	87.2		1,107	92.9		353
Comparisons	*Diff*	*SED*		*Diff*	*SED*	
No medical card – medical card	7.2*	.813		5.1*	.813	

*Difference is significant at .01 level.

Table 11. Average mathematics standard scores of 3rd class pupils in urban and rural SSP schools according to medical card status.

	Urban			**Rural**		
	Mean	*SE*	*N*	Mean	*SE*	*N*
Medical card	88.8	.626	1,443	95.6	.737	716
No medical card	95.9	.699	1,442	101.1	.581	1,101
(Missing)	86.4		1,113	94.4		358
Comparisons	*Diff*	*SED*		*Diff*	*SED*	
No medical card – medical card	7.1*	.938		5.5*	.938	

*Difference is significant at .01 level.

Table 12. Average reading standard scores of 6th class pupils in urban and rural SSP schools according to medical card status.

	Urban			**Rural**		
	Mean	*SE*	*N*	Mean	*SE*	*N*
Medical card	86.8	.583	1,128	92.6	.611	718
No medical card	94.1	.619	1,471	98.0	.520	1,017
(Missing)	86.7		1,267	93.7		330
Comparisons	*Diff*	*SED*		*Diff*	*SED*	
No medical card – medical card	7.3*	.850		5.4*	.802	

*Difference is significant at .01 level.

Table 13. Average mathematics standard scores of 6th class pupils in urban and rural SSP schools according to medical card status.

	Urban			Rural		
	Mean	*SE*	*N*	Mean	*SE*	*N*
Medical card	86.8	.654	1,127	93.9	.636	717
No medical card	94.0	.735	1,460	100.4	.590	1,017
(Missing)	85.8		1,269	94.4		332
Comparisons	*Diff*	*SED*		*Diff*	*SED*	
No medical card – medical card	7.2*	.984		6.5*	.868	

*Difference is significant at .01 level.

So, far, the relationship between socioeconomic characteristics and achievement in the rural sample has been found to differ from that in the urban sample in that, although rural pupils from families without a medical card outperformed pupils from families with a medical card, the difference between medical card holders and non-medical card holders is significantly smaller than the difference between these two groups in the urban sample. Table 14 contains some evidence of another difference between the urban and rural samples in terms of the relationship between poverty and achievement. The table suggests that a social context effect, as described in the introduction, may be operating in the urban but not the rural sample. Using a simplified version of the procedure reported by Sofroniou, Archer and Weir (2004), separate regression analyses were carried out on the urban and rural samples with 3rd class reading achievement as the dependent variable and whether a pupil's family had a medical card and the percentage of medical card holders in the pupil's grade level as independent variables. The analyses reported by Sofroniou et al. were based on national samples, while the analyses reported here are based on data with a truncated range (because all schools in the sample have high levels of assessed poverty). For this reason, one might not expect the current analyses to reveal the same pattern of outcomes. As can be seen from Table 14, while the individual-level medical variable was found to be a significant predictor of achievement in both samples, the context variable (percentage of medical card holders at that grade level) only made an additional significant contribution in the urban sample. Thus, there is evidence of a social context effect in the urban but not the rural sample.

Table 14. Summary of outcomes of regression analyses to predict the reading achievements of 3rd class pupils in urban and rural schools using medical card possession[1] at individual and school level as independent variables.

	Urban			Rural		
Variables	R	R Square	R Square change	R	R Square	R Square change
Individual MC	.244	.059*	–	.170	.029*	–
School level MC (%)	.309	.096*	.037*	.174	.030*	.001 (*ns*)

[1]Percentages of medical card holders at individual and school level are based on valid percentages (i.e., without missing or ambiguous responses included).

*p>.001

In another attempt to shed light on this issue, pupils' test scores were aggregated to school level. Then separate correlations between average test scores achieved by pupils and the three measures of school-level poverty that have been used in this report (DEIS points total, free books eligibility, and percentage of pupils in families with medical cards) were compared for urban and rural schools. As Table 15 shows, the urban correlations are all statistically significant and higher than their rural equivalents. In most cases, the rural correlations are low and non-significant, with the exception of those involving the percentage of medical card holders in the school. It is also worth noting that in some cases (e.g., in case of the free books variable) the correlations are in the "wrong" direction (i.e., the sign is positive). Although there are rival interpretations, this outcome may reflect a lack of association between achievement and socioeconomic factors in rural schools, a finding which is consistent with earlier analyses using individual level data.

Table 15. Correlations between school level weighted reading and mathematics scores of 3rd and 6th class pupils and total points in the DEIS survey, the percentage of pupils in the school in receipt of a book grant, and the percentage of medical card holders in the school based on parent questionnaire responses, in urban and rural SSP schools.

			DEIS total points	**% Free books**	**% medical cards**
Urban	3rd class	Reading	-.61*	-.47*	-.50*
		Mathematics	-.62*	-.49*	-.47*
	6th class	Reading	-.60*	-.49*	-.66*
		Mathematics	-.56*	-.45*	-.53*
Rural	3rd class	Reading	-.06	.02	-.14*
		Mathematics	.02	.10	-.01
	6th class	Reading	-.02	.08	-.25*
		Mathematics	-.05	.06	-.20*

*Significant at .01 level.

To what extent is the superior performance of rural pupils attributable to the fact that many rural SSP pupils are in small schools?

Previous work has suggested that small school size has a mitigating effect on poverty. While many schools in the rural dimension of the SSP are small, there are some larger schools. Therefore, to investigate whether the achievements of rural pupils differed depending on the size of school attended, pupils were divided into roughly equal thirds according to school size. This resulted in a 'small school' category of less than or equal to a total enrolment of 63, and a 'large school' category of greater than or equal to 114. As Table 16 shows, there were no significant differences in the achievements of pupils in these three categories in either reading or mathematics. In fact, the similarities in the scores of pupils in the three groups are striking. It should be pointed out, however, that the school size categories used here are arbitrary in the sense that they were generated with reference to the characteristics of the sample itself. Size categories differ depending on the purpose of classification. For example, the OECD has a metric for deciding on what constitutes a 'small' school at post-primary level which could also be employed at

primary level (OECD, 2004). Any school with 25% or fewer pupils than the average is classified as small. If this metric were applied to data from primary schools nationally in 2005/2006, it would mean that a school with 105 pupils or fewer would be considered to be a small school[7]. The implications of this for the current exercise would be that some of the pupils in our 'medium' school category would migrate to the 'small' school category. It seems unlikely that, in the present case, such a reclassification would affect the average test scores as the mean scores for pupils in small and medium sized schools are very similar. There is always a possibility that information about the relationship between a continuous variable and other variables is lost if it is converted to a categorical variable as was done for Table 16. To pursue this possibility, schools' aggregated reading scores (for 3rd class) were plotted against its total enrolment (Figure 1) which provides no more evidence of a relationship between school size and aggregated achievement than does the three size category comparison involving individual-level data. The absence of a relationship is confirmed by the fact that the correlation (at school level) and achievement is not significant (r=.02).

Table 16. Average achievement in reading and mathematics of 3rd class pupils in small, medium, and large schools*.

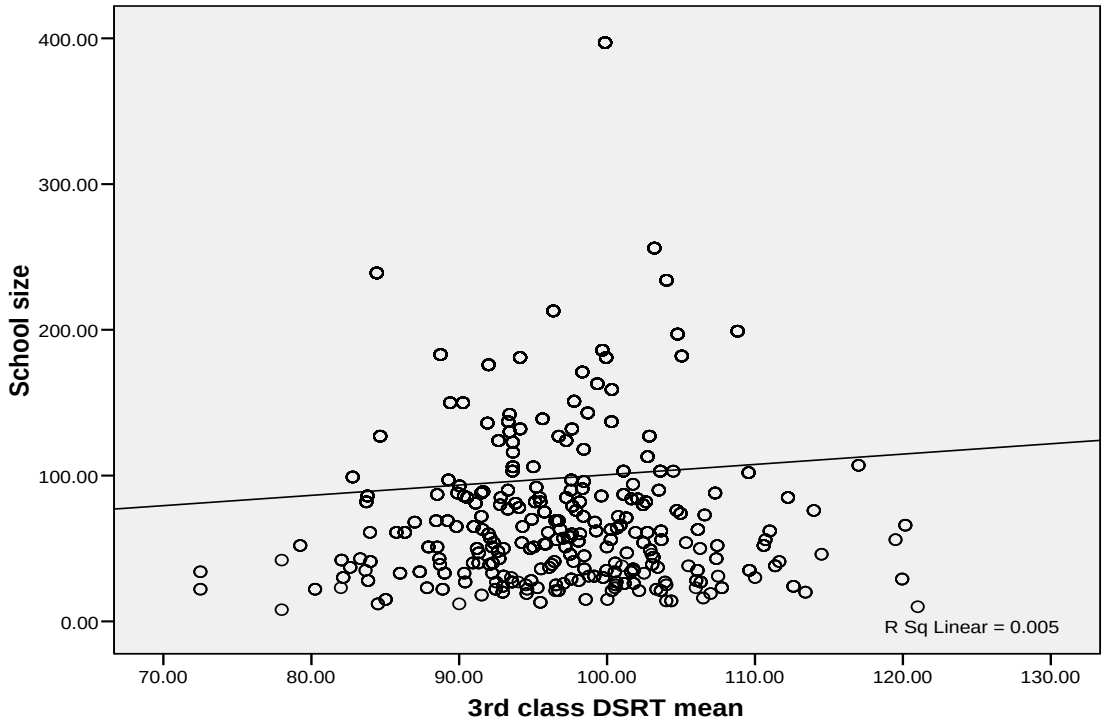
	Reading			**Mathematics**		
	Mean	*SE*	*N*	Mean	*SE*	*N*
Small (≤ 63)	96.6	.658	767	98.8	.741	766
Medium (64-113)	96.8	.823	739	96.6	.880	741
Large (≥ 114)	96.8	.933	697	98.8	1.24	700
Comparisons	*Diff*	*SED*		*Diff*	*SED*	
Small – Large	0.2	1.14		0	1.44	
Small – Medium	0.2	1.05		2.2	1.15	
Medium – Large	0	1.24		2.2	1.52	

* These categories were decided by first sorting the pupil database in ascending order of the size of school attended by the pupils. Then the sample was separated into roughly equal thirds, and the total enrolments in the schools at each cut-point were identified. The number of pupils falling into each category was then counted.

It is clear from Figure 1 that, although average achievement is unrelated to school size, dispersal of achievement is related to size. The spread of achievement decreases markedly as total enrolment increases. This may reflect the likelihood that average achievement in small schools will be volatile. Coladarci (2006), for example, showed that mean achievement for particular grade levels varied widely from year-to-year in small schools, while year-to-year variation in larger schools was much less.

[7] In 2005/2006, there were 441,966 pupils enrolled in 3,160 schools giving an average enrolment 140 (Department of Education and Science, 2008). Schools with 25% below this would have an enrolment of 105.

Figure 1. Scatterplot of aggregated 3rd class reading test scores and school size (based on total enrolment in 2005/2006).



Another feature of the Coladarci (2006) study is relevant here. In that study, although school size was found to be unrelated to achievement aggregated to school level, a regression analysis revealed a small but statistically significant interaction between size and measure of the level of poverty in schools – a finding that was interpreted as evidence that the effect of poverty on achievement may be mitigated by being in a small school. A regression analysis similar to that reported by Coladarci (2006) using total points as the measure of poverty and total enrolment as the measure of size, was carried out with the rural SSP data and is summarised in Table 17. As can be seen, none of the terms in the model, including the interaction between total enrolment and points total, is statistically significant.

Table 17. Results of regression analysis to predict 3rd class reading scores from a 'poverty' measure (DEIS points total), school size (total enrolment in 2005/2006), and their product, in all rural schools (*N*=266)[8].

Variable	***b***	***s.e***	***β***	***t***	***p***
(R Square=.004)*					
(constant)	99.4	2.6			
Poverty	-.014	.014	-.062	-1.00	.318
School size	.002	.010	.013	.217	.828
Poverty x school size	.000	.000	-.007	-.111	.912

*The introduction of the interaction term adds nothing further to the explanation of the variance in reading achievement already explained by poverty and school size (i.e., the R Square of the poverty/size interaction=.000).

[8] Poverty and school size were 'centred' for this analysis. That is, the mean for the variable was subtracted from each individual value on the variable and the products were multiplied to produce the interaction term.

The possibility of an interaction between school size and the region in which schools are located will be considered below but, so far, there is no evidence in the data to implicate school size in an explanation of the relatively high achievements (compared with their urban counterparts) of rural pupils in the SSP.

To what extent is the superior performance of rural pupils attributable to the fact that many rural SSP pupils are in schools located in the west of Ireland?

Although there are no primary-level studies in the area, studies on participation rates at third level indicate that students from counties located along the western seaboard have relatively high levels of admissions to third level institutions (O'Connell, Clancy, & McCoy, 2006). For example, the average percentage third level admission rates of Donegal, Sligo, Mayo, Galway, Clare and Kerry combined is 66.3%[9], compared with a national average of 55.0%. Furthermore, there are regional variations in the extent to which students from higher or lower social classes are represented in higher education. For example, in the Dublin area, a student from a higher social class is two and a half times more likely than a student from a lower social class to be admitted to higher education. However, in Galway and Mayo there is virtually no difference in admission rates to higher education on the basis of social class (O'Connell et al., 2006).

Tables 18 and 19 show the average reading and mathematics scores of 3rd and 6th class pupils grouped by location. The categories attempt to take into account the location of schools according to county and region, but are also organised to ensure that there are sufficient numbers of scores available for comparison. While each category contains at least 150 pupils, some categories (e.g., Donegal) contain much greater numbers, reflecting the high representation of SSP schools in those areas. An examination of the data in the tables suggests that there may be some evidence for the belief that rural achievement is being influenced by the presence of large numbers of pupils from the west of Ireland. With one exception, the average scores of pupils in Mayo, the rest of Connaught, and Cork and Kerry constitute the top three regions in reading and mathematics at both 3rd and 6th class levels. The relatively large size of the sample of pupils from Mayo (and, thus, their significant contribution to the overall mean) should also be noted. Furthermore, in about seven cases (e.g., that of 3rd class pupils in Mayo for mathematics) the mean score achieved by these groups is around the national average. It appears, therefore, that the 'region hypothesis' might at least partly explain the superior performance of pupils in rural SSP over their urban counterparts. However, it should be noted that the scores of pupils in regions where performance is poorest (i.e., North Leinster and Cavan / Monaghan in Tables 18 and 19), are still between 2.3 and 5.9 test score points above the average of the urban sample. This suggests that, while the data support the region hypothesis, they does not account entirely for the finding that pupils in rural schools in the SSP outperform their urban counterparts.

[9] The figures for Donegal and Sligo include students enrolled in third level institutions in Northern Ireland.

Table 18. Mean Reading and Mathematics scores of 3rd class rural pupils by region.

	Reading	**Maths**
Donegal	95.8 (14.7) (*N*=621)	98.6 (15.6) (*N*=622)
Mayo	99.9 (14.3) (*N*=430)	100.7 (15.2) (*N*=432)
Galway	94.0 (15.4) (*N*=204)	97.2 (15.4) (*N*=205)
Rest of Connaught*	100.4 (16.8) (*N*=165)	99.0 (16.2) (*N*=165)
Cork and Kerry	98.9 (14.9) (*N*=218)	98.8 (14.6) (*N*=217)
Rest of Munster**	96.0 (16.3) (*N*=183)	98.0 (15.7) (*N*=184)
South Leinster***	95.6 (16.9) (*N*=179)	96.7 (16.8) (*N*=179)
North Leinster and Cavan / Monaghan****	93.1 (14.6) (*N*=184)	93.0 (16.8) (*N*=185)

*Sligo, Leitrim, Roscommon;**Clare, Limerick, Tipperary SR, Tipperary NR, Waterford; ***Carlow, Kilkenny, Wexford, Kildare; ****Longford, Louth, Offaly, Westmeath.

Table 19. Mean Reading and Mathematics scores of 6th class rural pupils by region.

	Reading	**Maths**
Donegal	94.4 (14.0) (*N*=591)	95.9 (14.7) (*N*=590)
Mayo	96.3 (14.2) (*N*=427)	99.1 (13.7) (*N*=426)
Galway	94.2 (14.6) (*N*=169)	95.8 (13.0) (*N*=169)
Rest of Connaught*	97.5 (14.1) (*N*=186)	96.6 (15.6) (*N*=188)
Cork and Kerry	99.4 (15.2) (*N*=181)	99.0 (15.8) (*N*=181)
Rest of Munster**	96.1 (15.1) (*N*=183)	97.9 (15.9) (*N*=183)
South Leinster***	94.2 (15.1) (*N*=142)	95.2 (14.8) (*N*=143)
North Leinster and Cavan / Monaghan****	93.0 (14.7) (*N*=196)	95.0 (15.1) (*N*=195)

*Sligo, Leitrim, Roscommon;**Clare, Limerick, Tipperary SR, Tipperary NR, Waterford; ***Carlow, Kilkenny, Wexford, Kildare; ****Longford, Louth, Offaly, Westmeath.

Although it has already been shown that school size and poverty do not contribute significantly to explaining the variance in the achievements of pupils in rural SSP schools (Table 17), further regression analyses were carried out to investigate the possibility of a region effect. Region was added to size (total enrolment) and poverty (DEIS points) as a predictor of 3rd class reading achievement. The regions chosen for inclusion in these three separate regression analyses were Mayo, rest of Connaught, and Cork and Kerry combined[10] (the three regions characterised by the highest average test scores). The results indicated that, while poverty and school size did not significantly add to the explanation of the variance in achievement in any case, location in the region specified added significantly to the explanation of the variance in each case. A further set of analyses was carried out to test for an interaction between school size and poverty in each of these three regions. First, the test scores of pupils in the three regions of Mayo, the rest of Connaught, and Cork and

[10] The region variable was entered as a dummy variable (e.g., “Mayo” and “not Mayo”)

Kerry were separated. Regression analyses were then performed to predict 3rd class reading achievement from school size and poverty (block 1), and from a size / poverty interaction[11] (block 2). No significant size / poverty interactions were found in Mayo, or in Cork and Kerry combined. However, a significant, but very small, interaction effect in the direction opposite to that predicted was found in schools in the rest of Connaught.

Are the patterns of differences between urban and rural pupils similar for mathematics and reading?

At the start of the results section, Tables 3, 4, 5, and 6 showed mean scores for urban and rural pupils at both grade levels in reading and mathematics. Table 20 shows the differences in urban and rural pupils' standard score points, as well as the differences between the rural sample and the norm group. As the table shows, the differences between the average scores of rural pupils and urban pupils appear to be greater in mathematics than in reading by between 1 and 2 standard score points depending on grade level. Rural pupils' average scores are also closer to the norm group in mathematics than in reading. There is no such pattern among urban pupils. Indeed, average reading and mathematics scores for pupils in urban SSP schools are virtually identical at both grade levels (Tables 3 to 6). The answer to the question, therefore, appears to be that rural pupils are underperforming in reading relative to their measured achievements in mathematics.

Table 20. Mean differences between the standard scores of rural SSP pupils in 3rd and 6th class, their urban counterparts in SSP, and the norm group.

	Rural - Urban		**Rural – Norm group**	
	3rd class	6th class	3rd class	6th class
Reading	+6.4	+6.0	-3.2	-4.5
Mathematics	+7.4	+8.1	-1.9	-2.8

Are the observed differences in reading and mathematics among rural pupils attributable to the presence in the sample of sizeable numbers of pupils from Gaeltacht areas?

It is possible that pupils in schools in Gaeltacht areas were placed at a disadvantage by taking an English reading test[12] rather than an Irish reading test. Tables 21 and 22 provide mean scores in reading and mathematics of 3rd and 6th class pupils according to the Gaeltacht status of the school attended. The scores of pupils in Gaeltacht schools do not differ significantly in mathematics. However, at both grade levels in reading, rural pupils in Gaeltacht schools are outperformed by their counterparts in non-Gaeltacht schools. The scores may also be affected by level of poverty, as the mean DEIS points total for Gaeltacht schools (183.4) exceeds that of non-Gaeltacht schools (171.5). However, the points difference is not large, and if level of poverty is part of the explanation, it might have been expected to have an equivalent affect on mathematics scores. On the basis of data presented here, therefore, it seems as if the scores achieved

[11] Poverty and school size were 'centred' for this analysis. That is, the mean for the variable was subtracted from each individual value on the variable and the products were multiplied to produce the interaction term.

[12] The mathematics test was offered to schools in English or Irish.

by pupils in Gaeltacht schools may have depressed the overall reading score of pupils in the rural sample.

Table 21. Mean unweighted reading and mathematics standard scores of 3rd class pupils in rural Gaeltacht and non-Gaeltacht schools in the SSP.

	Gaeltacht			**Non-Gaeltacht**		
	Mean	*SE*	*N*	Mean	*SE*	*N*
Reading	95.0	.936	401	97.3	.415	1,805
Mathematics	97.9	.904	403	98.3	.562	1,808
Comparisons	*Diff*	*SED*				
Gaeltacht reading – non-Gaeltacht reading	2.3*	1.024				
Gaeltacht mathematics – non-Gaeltacht mathematics	0.4	1.064				

* Difference is significant at .01 level.

Table 22. Mean unweighted reading and mathematics standard scores of 6th class pupils in rural Gaeltacht and non-Gaeltacht schools in the SSP.

	Gaeltacht			**Non-Gaeltacht**		
	Mean	*SE*	*N*	Mean	*SE*	*N*
Reading	94.1	.883	382	95.8	.467	1,715
Mathematics	97.4	.989	381	96.7	.506	1,716
Comparisons	*Diff*	*SED*				
Gaeltacht reading – non-Gaeltacht reading	1.7*	0.999				
Gaeltacht mathematics – non-Gaeltacht mathematics	-.07	1.111				

* Difference is significant at .05 level.

Conclusion

The focus of the present report is on the achievements of pupils in English reading and mathematics in schools in rural areas serving pupils from poor backgrounds. Pupils in a sample of schools selected for inclusion in the rural dimension of the SSP performed significantly better than pupils in the urban SSP sample. The scores of the rural sample were significantly below the national norm for reading but not for mathematics.

No evidence was found for the suggestion that the superior performance of the rural sample could be explained by the apparently lower concentration of poverty in rural schools. This is so because the achievement differences were almost identical when the comparisons were restricted to schools that could be precisely matched on the basis of the percentages of pupils deemed eligible for free books. There was, however, support for the idea that the relationship between socioeconomic characteristics and pupil achievement is quantitatively and qualitatively different in rural and urban areas. Quantitative differences are evident in the findings that, while there are significant differences between the average scores of children from families that have and have not medical cards in both samples, the size of these differences is greater in the urban sample. The fact that, in sharp contrast with the urban sample, and in line with previous work (Weir, 1999), the correlation between school level of poverty and average achievement was close to zero points to qualitative differences as does the fact that evidence of a social context effect was found for the urban but not the rural sample.

Only limited progress was made in identifying factors that can account for the superior performance of the rural sample. As noted already, it cannot be accounted for by heavier concentrations of pupils from poor backgrounds in the urban sample (assuming that the free books variable is an appropriate measure of concentrations of poverty in rural and urban contexts). In the introduction, research was cited suggesting that small school size may mitigate the effect of poverty on educational outcomes. No evidence of such an effect was found in the present study. It does seem to be the case, however, that the presence of relatively large numbers of pupils from some counties in the West of Ireland in the rural sample can account for some but not all of the gap between the urban and rural samples. It is also of interest that about 18% of the rural sample are attending schools in the Gaeltacht and that this may be the reason for the urban-rural gap being smaller for English reading than for mathematics, although it is recognised that only some of these pupils are in Irish-speaking homes, and not all of them are being taught through the medium of Irish (Harris, Forde, Archer, Nic Fhearaile & O'Gorman, 2006).

Future work in the area of educational disadvantage in rural areas will need to focus on the extent to which the superior performance of pupils in rural schools (compared to their urban counterparts) can be attributed to a variety of factors. In particular, questions about the role of the home (e.g., are rural parents who are poor able to provide more support for their children's education than urban parents who are poor?) will need to be examined. School factors will also need to be examined (e.g., do teachers in rural schools devote more time to literacy and numeracy than teachers in urban schools?). It is possible, of course, that home and school factors both play a part. Indeed home and school factors may interact with each other. It is also possible that

other factors (e.g., the level of support provided by the local community) may be relevant.

It will be possible to make some progress using data collected for the evaluation of the SSP. For example, the questionnaire for parents from which the medical card information was obtained for this report also contained questions about books and other resources in the home and about the extent to which parents supported the literacy and numeracy development of their children. Therefore, it will be possible to compare the home experiences of children from poor families in rural and urban settings. The additional variables from the questionnaire for parents could also be combined with the variables reported on here using multivariate statistical techniques (such techniques have, so far, mostly been used with school-level data, while univariate analyses were used with individual level data, with the exception of the analysis relating to the social context effect).

Data recently gathered and due to be gathered in 2010 as part of implementation studies within the evaluation of the SSP may prove useful in examining the role of school factors. For example, it will be possible to compare the approach to school planning and the priorities established with the planning process of rural and urban schools. Particularly useful may be the results of a questionnaire survey about the curricular choices and pedagogical practices of classroom teachers in SSP urban and rural schools planned for 2009. Furthermore, the collection of follow-up achievement data will permit the exploration of the possibility that differences between the achievements of urban and rural pupils are due to a statistical artefact related to the volatility of, or lack of stability in, achievement data in small schools (see Coladarci, 2006).

Some of the important questions that arise about disadvantage in rural areas cannot be addressed using data from the SSP evaluation alone. The collection of achievement data from rural schools that do not have high concentrations of pupils from poor backgrounds would appear to be essential at some point. Ethnographic and other types of observational studies would also seem to be desirable.

The present report hopefully contributes to understanding educational disadvantage in rural settings. However, it is no more than an initial step in this regard and as such, does not represent an adequate basis for policy decisions including decisions about the allocation of resources.

References

Archer, P., & Sofroniou, N. (2008). *Procedures used to assess levels of disadvantage in primary schools for DEIS. Summary report.* Dublin: Educational Research Centre.

Coladarci, T. (2006). School size, student achievement, and the "power rating" of poverty: Substantive finding or statistical artefact? *Education Policy Analysis Archives, 14,* 1-26.

Department of Education and Science (2005). *DEIS (Delivering equality of opportunity in schools): An action plan for educational inclusion.* Dublin: Author.

Department of Education and Science (2007). *School Books Grant Scheme for Needy Pupils*. Circular 0030/2007.

Department of Education and Science (2008). *Tuarascáil staitistiúil/ Statistical report 2005/2006.* Dublin: Stationery Office.

Education Act (1998). Dublin: Stationery Office.

Educational Research Centre. (2007). *Drumcondra Primary Reading Test – Revised Manual. Levels 3-6*. Dublin: Author.

Eivers, E., Shiel, G., & Shortt, F. (2004). *Reading literacy in disadvantaged primary schools*. Dublin: Educational Research Centre.

Harris, J., Forde, P., Archer, P., Nic Fheararile, S., & O'Gorman, M. (2006). *Irish in primary schools. Long-term national trends in achievement.* Dublin: Stationery Office.

Howley, C., Strange, M., & Bickle, R. (2001). *Research about school size and school performance in impoverished communities (ERIC Digest).* Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools. (ERIC Document Reproduction Service No. ED 488 968)

Kellaghan, T. (2001). Towards a definition of educational disadvantage. *The Irish Journal of Education, 32*, 3-22.

O'Connell, P.J., Clancy D., & McCoy, S. (2006). *Who went to college in 2004? A national survey of new entrants to higher education.* Dublin: Higher Education Authority.

OECD (2004). *OECD survey of upper secondary schools: Technical report.* Paris: Author.

Sofroniou, N., Archer, P., & Weir, S. (2004). An analysis of the association between socioeconomic context, gender and achievement. *Irish Journal of Education, 35*, 58-72.

Weir, S. (1999). *An analysis of the application variables used to select schools for the Breaking the Cycle scheme.* Report to the Department of Education and Science. Dublin: Educational Research Centre.

Weir, S. (2004b). *A commentary on the implementation of Giving Children an Even Break.* Report to the Educational Disadvantage Committee. Dublin: Educational Research Centre.

Weir, S., & Archer, P. (2005). A review of procedures to select schools for support to deal with educational disadvantage. *Irish Journal of Education, 36, 63-85.*

Weir, S., Milis, L., & Ryan, C. (2002a). *The Breaking the Cycle scheme in urban schools: Final evaluation report.* Report to the Department of Education and Science. Dublin: Educational Research Centre.

Weir, S., Milis, L., & Ryan, C. (2002b). *The Breaking the Cycle scheme in rural schools: Final evaluation report.* Report to the Department of Education and Science. Dublin: Educational Research Centre.

Westat. (2000). *WesVar 4.0 user's guide.* Rockville, MD: Author.