A survey of the socioeconomic profile of all post-primary schools in 2014 in the context of developing a new resource allocation model to support children with special educational needs

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Background

In June 2014, a National Council for Special Education (NCSE) Working Group published a report aimed at improving how schools are resourced in their efforts to support students with special educational needs (see '*A Proposed New Model for Allocating Teaching Resources for Students with Special Educational Needs*' at www.ncse.ie).

The proposal consisted of a baseline component designed to provide a certain allocation of teaching resources in line with a school's total enrolment, and ensuring a minimum allocation of resources to all schools. In addition, the model included a number of other components to ensure that additional teacher posts are allocated to schools on the basis of each individual school's need for support. Based on national and international research, the Working Group identified a set of criteria that indicate a school's need for additional teaching resources. These include *(i)* the number of enrolled students with complex special educational needs, *(ii)* the number of enrolled students with low levels of academic achievement, and *(iii)* the school's socio-economic context. The Department of Education and Skills (DES) asked the Educational Research Centre (ERC) to assist in the collection of data in relation to the third of these.

In August 2014, the ERC began the process of gathering the information required to develop the new model. As part of this process, a social context survey was developed at the ERC for distribution to all primary and post-primary schools. Questionnaires focusing largely on the socioeconomic characteristics of families served by schools were posted to all primary and post-primary schools nationwide in August 2014. The data gathered were used to assist in the development of an educational profile for each school along with information already held by the DES and the NCSE.

Following the processing of all data from the surveys, a model of resource allocation was developed in line with the recommendations of the Working Group. This involved using survey data and other data provided by the DES / NCSE in different combinations and with different weightings to explore various allocation formulae. The model that resulted from this exercise is being piloted by the DES in a limited number of schools in 2015/16 with a view to assessing its workability and refining it if necessary. In the meantime, the ERC is using the survey data to further explore interrelationships between the social context of schools and a range of other variables. Work is ongoing, for example, to assess the extent to which certain characteristics (e.g., disadvantage, special education needs of

various kinds) are dispersed or clustered within schools). The purpose of the current paper is to describe some of the main outcomes of the survey at post-primary level. Some issues of significance in relation to the future identification of schools for additional resources to address disadvantage will explored. A parallel report on the survey of primary schools which was undertaken at the same time has been published (see Weir & Denner, 2015).

The administration of the survey and response rates

The social context survey format and its constituent items followed closely those used in an earlier survey of primary schools in 2005. The 2005 survey was used to assess levels of disadvantage for the DEIS programme. In contrast, in 2005, post-primary schools were identified for inclusion in DEIS using centrally available data on the percentage of medical cards among families of 3rd years (based on Junior Certificate Examination (JCE) fee waivers granted on the basis of medical card possession), retention levels to Junior and Leaving Certificate, and students' achievements in the JCE[1]. In 2014, the survey method was primarily chosen for reasons of expediency (it could be done quickly), and because primary schools were being surveyed as part of the same exercise[2]. The surveys used at primary and post-primary level in 2014 were very similar, asking both sets of principals to respond to the same set of items. This permits direct comparisons to be made between primary and post-primary schools on key indicators as well as on overall levels of disadvantage. Furthermore, it allows survey responses to be related to centrally available data on medical card possession and student achievement in the JCE which are available for all schools. While a detailed description of the survey items used is beyond the scope of the current exercise, the choice of indicators at primary level in 2005 (most of which were used in the survey at post-primary level in 2014) is available separately (see Archer & Sofroniou, 2008). A copy of the survey sent to post-primary schools is provided in Appendix 1.

There were 723 schools in the 2013/2014 school year at post-primary level. Of these, 23 catered solely for Post-Leaving Certificate (PLC) students. These schools are not included in the analyses reported here, as the purpose of the survey was to inform the resourcing of mainstream schools offering the Junior / Leaving Certificate programme. Completed surveys were returned by 594 of 700 schools giving an overall response rate of 84.9% (Table 1). The highest response rate by sector was from Comprehensive schools, followed by secondary schools, while the lowest was from vocational schools.

[1] For a detailed account of how post-primary schools were identified for DEIS, see Weir (2006).

[2] In advance of the administration of the survey, a consultation process involving the DES, NCSE, and education partners including teacher unions and management bodies took place. During this process, one of the management bodies insisted that post-primary schools be given the opportunity to complete a questionnaire on the social profile of their school in the same way the opportunity was being given to primary schools.

Table 1. Overall response rates to the survey in 2014, and response rates according to school sector.

School sector	**Response rate**
Secondary (*N*=373)	87.9% (*N*=328)
Vocational (*N*=233)	79.0% (*N*=184)
Community (*N*=80)	86.3% (*N*=69)
Comprehensive (*N*=14)	92.9% (*N*=13)
All schools (*N*=700)	84.9% (*N*=594)

Response rates from DEIS and Non DEIS schools were similar to the overall response rate of 85%, but slightly fewer schools in DEIS (159 of 191 schools) returned surveys compared with those not in DEIS (353 of 404 schools), giving response rates of 83.2% and 87.4% for DEIS and non-DEIS schools respectively.

Predictably, not all principals that returned a completed questionnaire responded to all items. Table 2 shows the extent of non-response on individual survey items. Residence in local authority housing had the highest rate of missing values with almost a quarter of principals failing to provide an answer to this item. This was followed by dependence on social welfare and low income (just over 20%), and the number of students in need of language support. The items that had the highest response rates concerned the percentage of Traveller families (only 1.5% missing) and the percentage of one-parent families and medical card holders (11.6% missing for both). The response rate on the medical card variable is higher than its equivalent at primary level (which is 28%), perhaps indicating a greater familiarity with the issue among second level principals who are required to compile medical card figures for the examination fee waiver. While there is clear variability in rates of skipping depending on the item, the overall rate of missing values could be regarded as fairly high. The average rate of non-response across the first six items in Table 2[3] is 14.25%.

[3] With the exception of the medical card item, these items contributed to the primary index of disadvantage in 2005. They also formed the basis of the primary and post-primary indexes in 2014, and the latter features in analyses later in this report.

Table 2. Percentage of principals who responded and did not respond to key questions in the post - primary survey in 2014 (*N*=594).

	Responded (*N*)	**Did not respond (*N*)**	**% of principals who skipped key questions in 2014 survey**
Medical Card	525	69	11.6%
Travelling Community	585	9	1.5%
Unemployment	486	108	18.2%
One-Parent Family	525	69	11.6%
Local Authority Housing	447	147	24.7%
Family with 5 or more children	487	107	18.0%
Family dependent on Social Welfare payments	468	126	21.2%
Family with low incomes	464	130	21.9%

Socioeconomic characteristics of schools in 2014

Table 3 shows the average percentages for all schools on six socioeconomic variables in 2014. Principals indicated that substantial percentages of their students came from families that have medical cards (43.8%), that more than a quarter lived in local authority accommodation (29%) and that 27.3% lived in families in which the main breadwinner was unemployed. Data revealed that Traveller students were relatively rare, with an overall average of only 2% of students in the category. On average, about one in 10 families was described as a lone-parent family. Data are available from other sources on the prevalence of these characteristics in the national population. These reveal that Travellers represent 0.6% of the population (CSO, 2012a). This compares with an average which is three and a half times higher according to principals surveyed (of 2.1%) although the total percentages are very small. The rates of one-parent families is also higher in schools surveyed (21.9% vs 18.3%) than nationally (CSO, 2012b), although it is possible that families with school-going children would be more likely to fall into this category than would the whole population. Medical card possession is also slightly higher among schools surveyed (43.8%) than among the population as a whole at 40.3% (Department of Health, 2014) although the difference in the figure from both sources is not large.

Schools in different sectors may have different social profiles. For this reason, Table 4 shows the averages for schools according to sector, with Community and Comprehensive schools combined because of the very small number in the latter category.

Table 3. Average percentages and standard deviations on each of the key variables in the post-primary survey in 2014.

Survey item	***N***	**Mean %**	***SD***
Unemployed	481	27.3%	21.1
Holds a medical card	520	43.8%	36.1
Lives in Local Authority accommodation	442	29.0%	25.5
Lives in a lone-Parent Family	520	21.9%	15.4
In a family with 5 or more children	482	10.5%	10.4
Children from Irish Traveller Community	579	2.1%	5.0

Table 4. Average percentages and standard deviations on each of the key variables in the post-primary survey in 2014 according to school sector.

	Community / Comprehensive		**Secondary**		**Vocational**	
	Mean %	***SD***	**Mean %**	***SD***	**Mean %**	***SD***
Unemployed	28.5%	19.8	21.8%	18.0	37.2%	23.6
Medical card	42.1%	19.5	38.7%	43.1	54.5%	24.3
Local Authority housing	29.2%	23.6	25.0%	23.7	36.3%	28.1
One parent family	20.5%	12.7	21.5%	16.0	23.5%	15.4
5 or more children	11.6%	8.8	8.2%	8.2	13.9%	13.2
Traveller	1.6%	2.8	1.4%	3.1	3.6%	7.5

As Table 4 shows, Vocational schools have higher average values on all variables than schools in other sectors. In fact, on all indicators, Vocational schools have the highest average, followed by Community/Comprehensive schools, followed by Secondary schools. Vocational schools, have in particular, proportionately more medical card holders and families with unemployed breadwinners than schools in other categories. They are also the most likely category to cater for Traveller families, and have more than twice the percentage of Travellers enrolled than do Community /Comprehensive or Secondary schools.

Correlations between variables in the 2014 survey and educational outcomes

In this section, the way in which the survey variables relate to each other and to educational outcomes is examined. This is done by presenting a matrix showing the correlations between all of the socioeconomic variables in the survey in 2014 with measures of aggregated student achievement in the JCE in 2014 and 2013 (Table 5). Achievement data were provided to the ERC by the State Examinations Commission (SEC) for use in the evaluation of DEIS at post-primary level. An Overall Performance Scale score (OPS) has been adopted directly from that used by Kellaghan and Dwan (1995) in their analysis of the 1994 Junior Certificate results. The OPS scale involves the allocation of numerical values to the alphabetical grades awarded to each candidate, which when summed, produce an index of a candidate's general scholastic achievement (see Appendix 2 for more detail). The maximum possible OPS score is 84 (which is achieved by a student who is awarded seven "A" grades on Higher Level papers), while the lowest possible OPS score is 0 (where a student fails to achieve at least a grade "F" on any of his/her best seven papers). In the current report, the OPS scores of all students in a school have been aggregated for use as a school-level measure of achievement. However, as well as an overall OPS based on all subjects, it is possible to describe aggregated achievement levels in individual subjects. To examine their relationship with student background variables, individual scores in English and Mathematics in the JCE in 2014 have also been included in Table 5.

In addition to survey and achievement variables, Table 5 includes a variable described as '% med card 2014 fee waiver'. This variable is based on data provided by the SEC to the ERC on whether or not each JCE student was granted an exemption from the JCE examination fee based on medical card possession. The data are used in the evaluation of DEIS at post-primary level, along with educational outcomes that include achievement in the Junior Certificate Examination and Junior and Senior Cycle retention levels. In the context of the current analyses, they provided an independent measure of the percentage of the student cohort with medical cards. Due to the way in which the data were collected, they may represent a more reliable estimate of medical card possession at school level (and certainly a more complete one) than that provided by principals in their survey responses (see '% med card survey' in Table 5). Furthermore, having two measures of the same thing provides a potential source of validation of the survey data.

It is acknowledged that there is a large amount of information in Table 5 (and indeed in Tables 6 and 7 that follow). While all correlations are reported in the interest of completeness, several sets of interrelationships in Table 5 are of particular interest. The first concern the relationships between the socioeconomic variables themselves. As each of these variables is intended to represent an individual aspect of the same thing (in this case, the social profile or socioeconomic backgrounds of students in

a school), one would expect all of these variables to correlate with each other. As the correlations below the line in the bottom right hand section of the matrix in Table 5 show, this is indeed the case. Levels of unemployment, medical card possession, residence in local authority housing, dependence on social welfare, and lone-parent families are all very highly intercorrelated as might be expected. Intercorrelations between low income and the former variables are also high, but somewhat lower than those involving the first set of variables. Family size and other socioeconomic variables are more moderately correlated with other socioeconomic variables, although the correlations are significant in all cases. Correlations involving the percentage of Traveller children enrolled, while all significant, are lower still. However, it should be noted that the magnitude of the correlations involving this variable may be restricted as the percentages of Travellers in the system as a whole is very small (2.1% nationally). The percentage of EAL students does not reliably correlate with the other socioeconomic variables, although it is moderately correlated with lone parenthood and residence in local authority housing. Overall, however, the intercorrelations involving socioeconomic variables in Table 5 may be regarded as substantial and statistically significant, which would be consistent with them assessing different aspects of the same issue. Interestingly, the correlation between the survey data on medical cards and the centrally provided data on medical cards is moderate (r= .554).

The second set of correlations of interest are those concerning student achievement (see the upper left hand corner of the matrix above the line). The fact that all correlations in Table 5 relating to achievement are significant suggests a high degree of stability in student outcomes. For example, the correlation between JCE overall outcomes (expressed by OPS scores) in 2013 and 2014 is very high at .94. In 2014, correlations between English and mathematics JCE scores are also high at .89, which is not surprising, as largely the same group of the students provided both sets of scores.

The third set of interrelationships is probably the most interesting, and concerns the association between students' home backgrounds and achievement. As Table 5 shows, all of the socioeconomic variables are negatively and significantly related to all of the educational outcome variables. This means that students from poorer home backgrounds tend to perform more poorly than their more affluent counterparts in the JCE overall, as well as in the individual subject areas of English and mathematics[4]. This is particularly marked in the case of exam fee exemption based on medical card possession at r = -.793 (but less so for the survey variable relating to medical cards at r = -.466)[5]. The correlation between residence in local authority housing and school-level achievement in the JCE in

[4] A scatterplot showing the relationship between the percentage of medical card holders and overall performance in the JCE at school level is shown in Figure 1 in Appendix 3.

[5] It should be noted that data on JCE fee exemptions are available for all schools, but medical card data were returned for only 512 of the 700 schools in the survey.

2013 was -.727 increasing slightly to -.733 in 2014. The relationship between achievement and home background appears to be consistently stronger in reading than in mathematics (i.e., higher correlations were found for Mathematics than for English on all of the individual survey variables). For comparison purposes, Tables 6 and 7 show all correlations for DEIS schools and non-DEIS schools respectively. The patterns are largely similar to those observed among schools overall. However, with a small number of exceptions, the correlations restricted to DEIS schools only are of a slightly smaller magnitude than those in Table 5. This is true for non-DEIS schools also (Table 7), presumably because the ranges are more restricted in the case of the DEIS and non-DEIS subsamples.

Table 5. Correlations between values on centrally provided data on examination performance and examination fee waivers granted on the basis of medical card possession among families of 3rd year students, and percentages on key variables in the survey relating to families of 2nd year students in 2014 in all 700 schools.

	JC Exam tot 2014	JC Exam tot 2013	JC Eng ave 2014	JC Maths ave 2014	% Med card 2014 (fee waiver)	% Med card (survey*)	% Travellers	% EAL students	% un-employed	% lone parents	% local authority housing	% 5 or more children	% social welfare	% low income
JC Exam tot 2014	1 (*N*=680)	.938** (*N*=680)	.926** (*N*=680)	.949** (*N*=680)	-.793** (*N*=680)	-.466** (*N*=512)	-.407** (*N*=571)	-.259** (*N*=466)	-.644** (*N*=474)	-.581** (*N*=513)	-.733** (*N*=437)	-.379** (*N*=475)	-.634** (*N*=457)	-.575** (*N*=454)
JC Exam tot 2013		1 (*N*=686	.877** (*N*=681)	.900** (*N*=681)	-.765** (*N*=682)	-.472** (*N*=513)	-.433** (*N*=572)	-.245** (*N*=467)	-.634** (*N*=475)	-.570** (*N*=514)	-.727** (*N*=438)	-.374** (*N*=476)	-.625** (*N*=458)	-.549** (*N*=455)
JC Eng ave 2014			1 (*N*=691)	.893** (*N*=690)	-.779** (*N*=691)	-.487** (*N*=519)	-.436** (*N*=578)	-.220** (*N*=471)	-.633** (*N*=480)	-.517** (*N*=519)	-.693** (*N*=441)	-.370** (*N*=481)	-.613** (*N*=462)	-.562** (*N*=459)
JC Maths ave 2014				1 (*N*=690)	-.825** (*N*=690)	-.480** (*N*=519)	-.408** (*N*=578)	-.231** (*N*=471)	-.648** (*N*=480)	-.582** (*N*=519)	-.725** (*N*=441)	-.410** (*N*=481)	-.643** (*N*=462)	-.579** (*N*=459)
% Med card 2014 (fee waiver)					1 (*N*=700)	.554** (*N*=520)	.428** (*N*=579)	.226** (*N*=472)	.676** (*N*=481)	.510** (*N*=520)	.650** (*N*=442)	.374** (*N*=482)	.655** (*N*=463)	.541** (*N*=460)
% Med card (survey*)						1 (*N*=520)	.328** (*N*=515)	.142** (*N*=424)	.683** (*N*=457)	.598** (*N*=490)	.609** (*N*=428)	.288** (*N*=454	.722** (*N*=445	.548** (*N*=436
% Travellers							1 (*N*=579)	.071 (*N*=467)	.389** (*N*=475)	.189** (*N*=514)	.362** (*N*=437)	.395** (*N*=478)	.333** (*N*=458)	.245** (*N*=455)
% EAL students								1 (*N*=472)	.132** (*N*=397)	.180** (*N*=429)	.238** (*N*=364)	.016 (*N*=403)	.150** (*N*=382)	.168** (*N*=382)
% unemployed									1 (*N*=481)	.621** (*N*=475)	.729** (*N*=429)	.540** (*N*=444)	.894** (*N*=451)	.618** (*N*=443)
% lone parents										1 (*N*=520)	.714** (*N*=438)	.352** (*N*=473)	.665** (*N*=459)	.506** (*N*=452)
% local authority housing											1 (*N*=442)	.438** (*N*=416)	.766** (*N*=427)	.585** (*N*=421)
% 5 or more children												1 (*N*=482)	.519** (*N*=431)	.382** (*N*=423)
% social welfare													1 (*N*=463)	.667** (*N*=441)
% low income														1 (*N*=460)

**Correlation is significant at the 0.01 level.

Table 6. Correlations between values on centrally provided data on examination performance and examination fee waivers granted on the basis of medical card possession among families of 3rd year students, and percentages on key variables in the survey relating to families of 2nd year students in 2014 in 196 DEIS schools.

	JC Exam tot 2014	JC Exam tot 2013	JC Eng ave 2014	JC Maths ave 2014	% Med card 2014 (fee waiver)	% Med card (survey*)	% Travellers	% EAL students	% un-employed	% lone parents	% local authority housing	% 5 or more children	% social welfare	% low income
JC Exam tot 2014	1 (*N*=192)	.931** (*N*=192)	.933** (*N*=192)	.947** (*N*=192)	-.723** (*N*=192)	-.296** (*N*=155)	-.379** (*N*=163)	-0.1 (*N*=128)	-.558** (*N*=149)	-.584** (*N*=157)	-.710** (*N*=142)	-.310** (*N*=148)	-.528** (*N*=143)	-.407** (*N*=140)
JC Exam tot 2013		1 (*N*=192)	.876** (*N*=192)	.903** (*N*=192)	-.698** (*N*=192)	-.304** (*N*=155)	-.430** (*N*=163)	-0.1 (*N*=128)	-.528** (*N*=149)	-.572** (*N*=157)	-.671** (*N*=142)	-.303** (*N*=148)	-.486** (*N*=143)	-.391** (*N*=140)
JC Eng ave 2014			1	.903** (*N*=195)	-.733** (*N*=196)	-.344** (*N*=157)	-.426** (*N*=165)	-0.1 (*N*=128)	-.533** (*N*=150)	-.485** (*N*=158)	-.655** (*N*=143)	-.281** (*N*=149)	-.511** (*N*=144)	-.383** (*N*=141)
JC Maths ave 2014				1 (*N*=195)	-.764** (*N*=195)	-.314** (*N*=157)	-.404** (*N*=165)	-0.1 (*N*=128)	-.573** (*N*=150)	-.580** (*N*=158)	-.710** (*N*=143)	-.355** (*N*=149)	-.536** (*N*=144)	-.410** (*N*=141)
% Med card 2014 (fee waiver)					1 (*N*=196)	.412** (*N*=157)	.470** (*N*=165)	.177* (*N*=128)	.584** (*N*=150)	.434** (*N*=158)	.524** (*N*=143)	.351** (*N*=149)	.464** (*N*=144)	.331** (*N*=141)
% Med card (survey*)						1 (*N*=157)	.308** (*N*=155)	0.09 (*N*=122)	.717** (*N*=143)	.583** (*N*=151)	.618** (*N*=137)	0.06 (*N*=142)	.662** (*N*=138)	.423** (*N*=133)
% Travellers							1 (*N*=165)	0.03 (*N*=127)	.334** (*N*=148)	0.15 (*N*=156)	.240** (*N*=141)	.393** (*N*=147)	.243** (*N*=142)	.208* (*N*=139)
% EAL students								1 (*N*=128)	0.13 (*N*=120)	0.1 (*N*=125)	0.15 (*N*=115)	0 (*N*=119)	0.12 (*N*=116)	0.14 (*N*=114)
% unemployed									1 (*N*=150)	.642** (*N*=148)	.661** (*N*=139)	.430** (*N*=140)	.837** (*N*=141)	.424** (*N*=138)
% lone parents										1 (*N*=158)	.694** (*N*=143)	.363** (*N*=148)	.639** (*N*=144)	.342** (*N*=140)
% local authority housing											1 (*N*=143)	.451** (*N*=138)	.695** (*N*=138)	.459** (*N*=134)
% 5 or more children												1 (*N*=149)	.404** (*N*=135)	.250** (*N*=131)
% social welfare													1 (*N*=144)	.469** (*N*=135)
% low income														1 (*N*=141)

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

Table 7. Correlations between values on centrally provided data on examination performance and examination fee waivers granted on the basis of medical card possession among families of 3rd year students, and percentages on key variables in the survey relating to families of 2nd year students in 2014 in 504 non-DEIS schools.

	JC Exam tot 2014	JC Exam tot 2013	JC Eng ave 2014	JC Maths ave 2014	% Med card 2014 (fee waiver)	% Med card (survey*)	% Travellers	% EAL students	% un-employed	% lone parents	% local authority housing	% 5 or more children	% social welfare	% low income
JC Exam tot 2014	1 (*N*=488)	.912** (*N*=488)	.891** (*N*=488)	.927** (*N*=488)	-.756** (*N*=488)	-.484** (*N*=357)	-.344** (*N*=408)	-.282** (*N*=338)	-.569** (*N*=325)	-.464** (*N*=356)	-.646** (*N*=295)	-.271** (*N*=327)	-.553** (*N*=314)	-.576** (*N*=314)
JC Exam tot 2013		1 (*N*=490)	.825** (*N*=489)	.849** (*N*=489)	-.716** (*N*=490)	-.495** (*N*=358)	-.355** (*N*=409)	-.269** (*N*=339)	-.576** (*N*=326)	-.452** (*N*=357)	-.670** (*N*=296)	-.298** (*N*=328)	-.570** (*N*=315)	-.540** (*N*=315)
JC Eng ave 2014			1 (*N*=495)	.845** (*N*=495)	-.726** (*N*=495)	-.496** (*N*=362)	-.378** (*N*=413)	-.232** (*N*=343)	-.569** (*N*=330)	-.418** (*N*=361)	-.617** (*N*=298)	-.282** (*N*=332)	-.530** (*N*=318)	-.566** (*N*=318)
JC Maths ave 2014				1 (*N*=495)	-.791** (*N*=495)	-.490** (*N*=362)	-.329** (*N*=413)	-.236** (*N*=343)	-.566** (*N*=330)	-.473** (*N*=361)	-.624** (*N*=298)	-.297** (*N*=332)	-.561** (*N*=318)	-.579** (*N*=318)
% Med card 2014 (fee waiver)					1 (*N*=504)	.588** (*N*=363)	.361** (*N*=414)	.174** (*N*=344)	.622** (*N*=331)	.441** (*N*=362)	.618** (*N*=299)	.270** (*N*=333)	.623** (*N*=319)	.543** (*N*=319)
% Med card (survey*)						1 (*N*=363)	.248** (*N*=360)	0.1 (*N*=302)	.612** (*N*=314)	.557** (*N*=339)	.539** (*N*=291)	.406** (*N*=312)	.676** (*N*=307)	.529** (*N*=303)
% Travellers							1 (*N*=414)	0.05 (*N*=340)	.362** (*N*=327)	.112* (*N*=358)	.410** (*N*=296)	.342** (*N*=331)	.310** (*N*=316)	.179** (*N*=316)
% EAL students								1 (*N*=344)	0.04 (*N*=277)	.167** (*N*=304)	.226** (*N*=249)	-0.1 (*N*=284)	0.06 (*N*=266)	.125* (*N*=268)
% unemployed									1 (*N*=331)	.523** (*N*=327)	.707** (*N*=290)	.537** (*N*=304)	.898** (*N*=310)	.661** (*N*=305)
% lone parents										1 (*N*=362)	.660** (*N*=295)	.246** (*N*=325)	.594** (*N*=315)	.541** (*N*=312)
% local authority housing											1 (*N*=299)	.321** (*N*=278)	.748** (*N*=289)	.605** (*N*=287)
% 5 or more children												1 (*N*=333)	.508** (*N*=296)	.378** (*N*=292)
% social welfare													1 (*N*=319)	.722** (*N*=306)
% low income														1 (*N*=319)

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).

Stability of schools' socioeconomic characteristics between 2005 and 2014

Data provided on the percentages of examination fee exemptions can also be used as a proxy in the estimation of stability in schools' socioeconomic characteristics over time. The ERC holds historical data on examination fee exemptions as a result of work undertaken on identification of schools for the allocation of additional resources such as those under DEIS. Table 8 shows the correlations between the percentage of medical card holders (fee waivers) in 2002, 2003 and 2004 and the most recent data from 2014.

Table 8. Correlations between percentages of medical card holders (exam fee waivers) in 2014 in 2002, 2003, and 2004 in all post-primary schools.

	% with medical cards 2002	% with medical cards 2003	% with medical cards 2004
% with medical cards 2014	.704**	.741**	.769**

**Correlation significant at .01 level.

As Table 8 shows, the correlations between the most recent year (2014) and previous years are very high, suggesting a high degree of stability in the socioeconomic profiles of schools. The correlations increase slightly over time, which is predictable as one would expect smaller differences in social profiles in the shorter than the longer term. Table 9 shows the correlations separately for DEIS and non-DEIS schools. In each year, there are higher correlations between the medical card variables in non-DEIS schools. This may mean that the socioeconomic composition of DEIS schools is more stable than in non-DEIS schools. However, it is also likely to reflect the fact that the range of values on the medical card variable in DEIS schools is more restricted than in non-DEIS schools.

Table 9. Correlations between percentages of medical card holders (exam fee waivers) in 2014 in 2002, 2003, and 2004 in all post-primary schools by DEIS Status.

	% with medical cards 2002	% with medical cards 2003	% with medical cards 2004
% medical cards in DEIS schools 2014	.574**	.649**	.680**
% with medical cards in non-DEIS Schools 2014	.664**	.689**	.723**

**Correlation significant at .01 level.

Another way of examining the stability over time is to plot schools' values on medical cards at two time points. Figure 1 shows a scatterplot of the distribution of the percentage of medical cards based on exam fee waivers at school level at a ten-year interval in 2004 and 2014. As the figure

shows, there is a good degree of correspondence between schools' values in 2014 and 2014, although there are several significant outliers also.

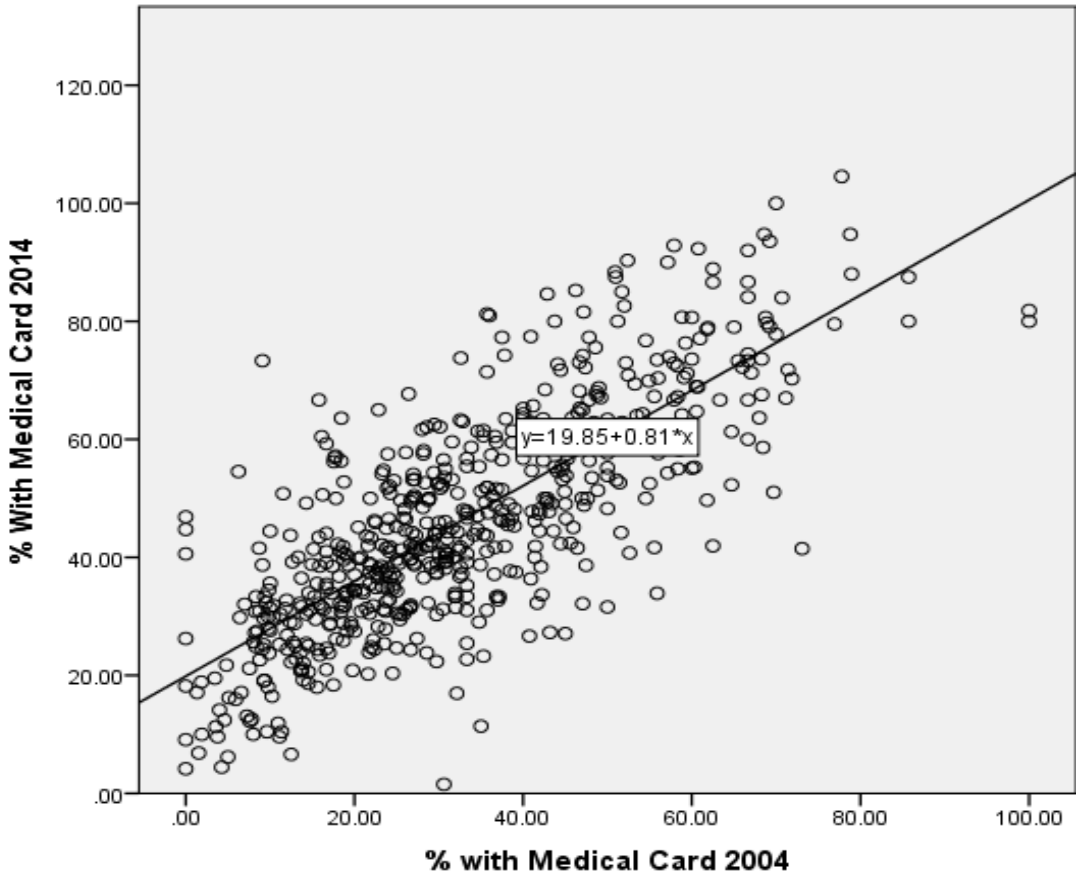

Figure 1. Scatterplot of percentage of medical card holders (exam fee waivers) at school level in 2004 and 2014.

There has been an overall increase in the percentage of students with medical cards between 2004 and 2014. This is consistent with Figures from the Department of Health, which indicate that the percentage of the Irish population with a medical card rose from 28.4% in 2004 to 40.3% in 2013 (Department of Health, 2014).

A further way of examining the stability of the socioeconomic composition of the schools is to see if their level of disadvantage has changed since 2005 when schools were ranked for inclusion in DEIS. For this purpose, schools were assigned to one of 10 categories based on their final place in the DEIS rank order in 2005 based on the variables described earlier (Medical card possession, achievement in the Junior Certificate Examination and retention levels), and their rank based the percentage of examination fee waivers in 2014. These categories were then cross tabulated. Only schools that had

data on both occasions were included in the exercise. Ultimately, this common set of schools numbered 593, as in 2004 there was only 633 included in the rank ordering exercise[6].

As Table 10 shows, 72% of the schools that were ranked 1 to 100 in 2005 were also in this rank category for 2014. If the first two categories are combined (i.e., rank 1 to 200), 77% of the schools remain in the same category. Regardless of the rank category, the overall correlation between the two ranks was high at .79. This confirms that there are fairly high levels of stability in schools over time in terms of their socioeconomic composition. It should be noted that, because they are based on different variables (educational outcomes and percentage of students with medical cards in 2005 and medical card possession only in 2014), the ranks are only useful in providing a broad estimate of stability over time.

Table 10. Crosstabulation of post-primary schools in six categories based on level of disadvantage in 2005 (DEIS rank) and 2014 (medical card rank).

		Ranked in 2014 (Medical card)						
		Rank 1 to 100 (most disadv.)	Rank 101 to 200	Rank 201 to 300	Rank 301 to 400	Rank 401 to 500	Rank 500+ (least disadv.)	Total
Ranked in 2005 (DEIS index)	Rank 1 to 100 (most disadv.)	72.3% (*N*=68)	21.3% (*N*=20)	3.2% (*N*=3)	2.1% (*N*=2)	1.1% (*N*=1)	0.0% (*N*=0)	100.0% (*N*=94)
	Rank 101 to 200	24.7% (*N*=23)	35.5% (*N*=33)	26.9% (*N*=25)	9.7% (*N*=9)	2.2% (*N*=2)	1.1% (*N*=1)	100.0% (*N*=93)
	Rank 201 to 300	4.3% (*N*=4)	27.7% (*N*=26)	33.0% (*N*=31)	23.4% (*N*=22)	9.6% (*N*=9)	2.1% (*N*=2)	100.0% (*N*=94)
	Rank 301 to 400	4.3% (*N*=4)	13.0% (*N*=12)	15.2% (*N*=14)	31.5% (*N*=29)	26.1% (*N*=24)	9.8% (*N*=9)	100.0% (*N*=92)
	Rank 401 to 500	0.0% (*N*=0)	6.2% (*N*=6)	21.6% (*N*=21)	22.7% (*N*=22)	34.0% (*N*=33)	15.5% (*N*=15)	100.0% (*N*=97)
	Rank 500+ (least disadv.)	0.0% (*N*=0)	1.6% (*N*=2)	4.9% (*N*=6)	13.0% (*N*=16)	25.2% (*N*=31)	55.3% (*N*=68)	100.0% (*N*=123)
	Total	16.7% (*N*=99)	16.7% (*N*=99)	16.9% (*N*=100)	16.9% (*N*=100)	16.9% (*N*=100)	16.0% (*N*=95)	100.0% (*N*=593)

In the survey of schools in 2014, principals were asked to indicate the percentage of 2nd year students in 2013 that live in a family with a full medical card. These students should largely have formed the 3rd year cohort in 2014 for whom we have centrally provided medical card data. A correlation of .71 was found between the two variables, indicating a moderate to high level of agreement between the

[6] In 2005, all fee-paying schools were excluded from the exercise, as were schools in certain categories such as those exclusively serving adults.

data provided by the SEC and by principals. However, the centrally available data are undoubtedly more reliable than principals' estimates in most cases (a point often made by principals themselves).

Correlations between the elements of the new resource allocation model

Correlations between the medical card variable (based on the examination fee waiver) and other variables that were being considered for inclusion in the new resource allocation model were also performed (Table 11). Along with total enrolment, the variables included the percentage of low scorers in English and Mathematics in the JCE, and the percentage of students with complex needs. Low scorers were defined as those in Stens 1-3, which theoretically includes the 16% of candidates with the lowest scores in each subject (see Tables 1 and 2 in Appendix 4 for cut points in English and Mathematics). The percentage of students with complex needs in Table 11 includes students in the following categories: with physical, hearing, or visual impairments, emotional behavioural disorder, severe emotional behavioural disorder, moderate general learning difficulty, severe and profound general learning difficulty, autistic spectrum disorder, assessed syndrome, speech and language disorder, multiple disabilities. As the data in the table show, there are high correlations between the percentage of medical card holders and the percentage of low scorers in English and Mathematics. There is a moderate negative correlation between school size and medical card possession. This probably reflects the fact that medical card holders are more likely to be found in vocational schools which tend to be smaller than schools in other sectors. Positive correlations of slightly greater magnitude were found between medical card possession and the percentage of students with complex needs, and with poor English and Mathematics achievements. Overall, the data in Table 11 suggest that all variables are associated with each other and, therefore, seem appropriate for inclusion in the new resource model.

Table 11. Correlations between variables used in the proposed new resource allocation model.

	Total enrolment	**% Stens 1-3 English**	**% Stens 1-3 Maths**	**% students with complex needs**
% Medical card (exam fee waiver)	-.373* (*N*=690)	.704* (*N*=690)	.730* (*N*=690)	.382* (*N*=685)
Total enrolment		-.355** (*N*=690)	-.314** (*N*=690)	-.371** (*N*=685)
% Stens 1-3 JCE English			.846** (*N*=690)	.491** (*N*=685)
% Stens 1-3 JCE Maths				.399** (*N*=685)

**All correlations are significant at the 0.01 level.

Summary and conclusion

The overall response rate to the survey for post-primary schools was 84.9% which was lower than the overall response rate of 96.4% among primary schools (Weir & Denner, 2015). Of the responses to individual items in the questionnaire, residence in local authority housing had the highest rate of missing values with almost a quarter of principals failing to provide an answer to this item. The overall rate of missing values could be regarded as fairly high, but comparable with the primary survey. The average rate of non-response for the first six items is 14.2% and 14% at post-primary and primary levels respectively. As this was the first time post-primary schools participated in a survey of this kind, unfamiliarity with the process may have contributed to the low response rate overall and to individual items. The response rate may also have reflected concerns about data protection issues which anecdotal evidence suggests have been on the increase in recent years. This may be combined with a reluctance among principals to ask about/provide personal information on families served by their schools. Principals were most likely to skip the question on residence in Local Authority housing possibly due to the variety of such housing nowadays, and difficulties in knowing which families are in receipt of housing support.

Apart from issues of non-response, the survey data appear reliable and, in general, in line with data from other sources. For example, across all schools, principals indicated that 43.8% of students came from families with medical cards compared with the national figure of 40.3%. An examination of the inter-correlations between the socioeconomic variables revealed that they were substantial and statistically significant. However, the correlation between the survey data on medical cards and the centrally provided data on medical cards (r= .554) could be described as moderate. The difference between the two medical card variables is evident when each is related to educational outcomes: There is a much stronger relationship between Junior Certificate Examination results in 2014 and examination fee exemption based on medical card possession at school level (r = -.793) than between examination outcomes and the survey variable relating to medical cards (r = -.466). This suggests that examination fee exemptions remains a useful measure in assessing the socio-economic profile of post-primary schools. Its relatively strong relationship with other variables that were being considered for inclusion in the new resource allocation model (in particular the percentage of students in Stens 1-3 Junior Certificate English and Mathematics), suggest that all variables are associated with each other and, therefore, eligible for inclusion in the new resource allocation model.

Given that some features of the survey method are perceived as unsatisfactory (and likely to become even more so in future) it is important that alternative methods of assessing levels of disadvantage in schools are explored. The DES is currently examining alternatives to the survey methodology in the

context of the review of the DEIS Action Plan for Educational Inclusion (DES, 2005). One possibility involves the use of area-based data. This was considered in previous attempts to assess levels of disadvantage but rejected because many children attend schools outside the areas in which they live. In recognition of the link between home background and educational outcomes described in the Education (1998) Act, and as was done in assessing levels of disadvantage in the past, a measure of student achievement could be combined with the schools' socioeconomic profile.

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www.education.ie

Appendix 1

Post-Primary School Profile Questionnaire 2014

School Name _____ Roll Number _____

School Address _____

Principal _____

Contact Numbers Landline:_____ Mobile:_____

Chair of Board of Management_____

Dear Principal,

As the accompanying letter from the Department of Education and Skills (DES) explains, the Educational Research Centre (ERC) has been asked to carry out a survey of all primary and post-primary schools to collect data pertaining to the social context of each school. These data will assist in the development of an educational profile for each school, which may be used by the DES Special Education Section to inform future decisions regarding resource allocation.

The survey contains 4 questions. Questions 1 and 2 pertain to basic information about your school, including location and total enrolment. Questions 3 and 4 seek estimates of the socio-economic characteristics of your students and of levels of parental involvement in your school.

- Please note that responses to **Questions 3 and 4** should be based only on the students enrolled in **second year** in **September 2013** (*i.e.* your current third years, in the majority of cases)

- If your school has only recently opened (2013 or later) and **there were no second year students in September 2013**, please base your answers on the students in **first year in September 2013 OR on the current first year students**, as appropriate.

We appreciate that information about the socio-economic characteristics of students' families is not always readily available. However, as outlined in the accompanying letter from the DES, it may be important in establishing schools' levels of need. We are confident that you will make every effort to supply the most accurate estimate possible. When responding to Questions 3 and 4, you may wish to consult with teachers and perhaps others in the community. We ask that you retain all notes, records, lists etc. that you use when completing the questionnaire in an anonymised form. While we do not want students' names returned, you may be asked to produce any lists used as part of a more detailed examination of your return.

Please note that it is important that we receive a completed questionnaire from every school in order to ensure that the appropriate resource allocation is made. Upon completion of the questionnaire, please return it in the prepaid envelope provided by **Friday, 26th September, 2014.** Should you have any queries, contact information is available on the final page. Your cooperation is very much appreciated.

Yours sincerely,

Peter Archer

Peter Archer

Q1. What is the location of your school? *(Tick one only)*

NOTE: Location categories are based on those used by the Central Statistics Office (CSO).

(a) The city of Dublin or its suburbs, or the cities of Cork, Galway, Waterford or Limerick	❑
(b) A city or large town – apart from those specified above (population of 10,000 or more)	❑
(c) A town (population 5,000 to 9,999)	❑
(d) A town (population 1,500 to 4,999)	❑
(e) A village or rural community (population 1,000 to 1,499)	❑
(f) A village or rural community (population 500 to 999)	❑
(g) A village or rural community (population under 500)	❑

Q2.

(a) What was the total enrolment of your school on September 30th, 2013?	**Students**
(b) How many of these students were in second year? *(If none, enter '0')*	**Students**
(c) If you are NOT basing your responses on second year students in September 2013 (due to your school having opened in 2013 or later), please indicate the number of first year students upon which your answers are based	**Students**

Questions 3 & 4 will require some consideration but reliable information from schools will result in a more accurate profile and, ultimately, more appropriate resourcing.

Q3. In questions 3(a-i), your estimates of the socioeconomic characteristics of your students are sought. *Please remember that you should base your answers to the following questions on the students **enrolled in second year** in **September 2013**. For each characteristic, please indicate as accurately as possible the number of students with the specified characteristic.*

Of the total number of students enrolled in second year in September 2013, how many	**Number of Students**	
(a) live in a family that has a full medical card? *(If none, enter '0')* **NOTE:** Count only those who have a full medical card and not those with a 'GP only' medical card.		
(b) are members of the Travelling Community? *(If none, enter '0')*		
(c) have English as an additional language (EAL)? *(If none, enter '0')*		
If possible, please indicate how many of these are at Levels 0, A1 and A2 of English as measured by the primary and post-primary assessment kits available on the NCCA website (www.ncca.ie)? **NOTE:** If you do not have the information, please write 'NA'.	**Level**	**Number**
	0	
	A1	
	A2	

(d) live in a family in which the main breadwinner is unemployed? *(If none, enter '0')*	
(e) live in a one-parent family? (This includes one parent, separated and widowed families.) *(If none, enter '0')*	
(f) are in a family living in housing/accommodation supplied by a local authority, or in receipt of rent allowance? *(If none, enter '0')*	
(g) are in a family with five or more children? *(If none, enter '0')*	
(h) live in a family that is dependent mainly on social welfare payments? *(If none, enter '0')*	
(i) live in a family with low incomes *(e.g., those likely to be in receipt of supplementary welfare benefits such as Family Income Supplement, Farm Assist or Back to School Clothing and Footwear Allowance)? (If none, enter '0')* **NOTE:** Please exclude those counted in (h).	

4. In questions 4(a-d), your estimates of levels of parental involvement in your school are sought. *Please remember that you should base your answers to the following questions on students in* ***second year*** *in* ***September 2013.*** *For each characteristic please estimate as accurately as possible the percentage of students with the specified characteristic.*

Of the students enrolled in second year in 2013:	**Percentage of students**
(a) What percentage of students was unable to participate fully or effectively in school through a combination of any of the following factors: regularly came to school late, without adequate nutrition, without books/materials for class, too tired to take part in school? *(If none, enter '0')*	**%**
(b) For what percentage of students did at least one parent or guardian take an active part in their child's education by attending parent-teacher meetings regularly? *(If none, enter '0')*	**%**
(c) For what percentage of students did at least one parent or guardian support the school by, for example, volunteering to take part in after school activities, volunteering to be involved in the work of the school, or showing an active interest in the school's parent council and/or board of management? *(If none, enter '0')*	**%**
(d) For what percentage of students did at least one parent or guardian show evidence of engaging in their child's learning at home by supporting their child with homework and/or providing and encouraging learning-related activities? *(If none, enter '0')*	**%**

Please use this space if you wish to comment on the process of completing this questionnaire, and/or any difficulties you may have encountered.

_____

_____

_____

_____

_____

Signature of Principal: _____

Please return by Friday, 26th September, 2014

using the prepaid envelope supplied to:

Educational Research Centre

St Patrick's College, Dublin 9

Should you have any queries, please call **Bridget Dooley** on either **(01) 8065233** or **(01) 8065242.**

This is a designated phone-line which is open from 1st – 26th September.

Alternatively, send an email to **sesp@erc.ie** and we will respond as soon as possible.

In the event that the above phone lines are busy, please contact either

Darina Errity on **(01) 8065209** or **Eva Moran** on **(01) 8065219.**

Thank you for the time and effort spent on completing this questionnaire.

Appendix 2

Overall Performance Scale (OPS) Scores

Student performance in the JCE is described here using an overall performance scale (OPS) score which has been adopted directly from that used by Kellaghan and Dwan (1995) in their analysis of the 1994 Junior Certificate results. The OPS scale involves the allocation of numerical values to the alphabetical grades awarded to candidates, which when summed, produce an index of a candidate's general scholastic achievement (Table 1). The OPS score is based on a student's performance in the seven subjects in which he or she performed best. The maximum possible OPS score is 84 (which is achieved by a student who is awarded seven "A" grades on Higher Level papers), while the lowest possible OPS score is 0 (where a student fails to achieve at least a grade "F" on any of his/her best seven papers.

Table 1. Individual overall performance scale (OPS) scores corresponding to grade categories at each examination level.

Higher	Ordinary	Foundation	OPS score
A			12
B			11
C			10
D	A		9
E	B		8
F	C		7
	D	A	6
	E	B	5
	F	C	4
		D	3
		E	2
		F	1

Appendix 3

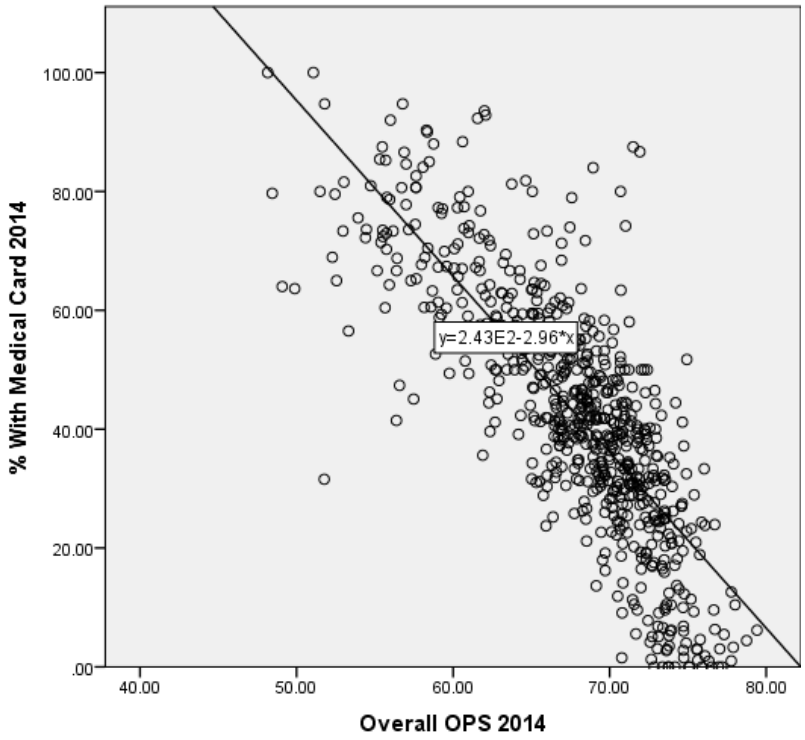

Figure 1. Scatterplot of percentage of medical card holders (based on Junior Certificate Examination fee waiver) in 2014 and average overall OPS in 2014.

Appendix 4

In Mathematics, the Performance Scale scores for 2014 reveal that a score of 7 is at or around the 16th percentile for English and a score of 6 is at or around the 16th percentile for Mathematics.

Table 1. Distribution of Mathematics Performance Scale (MPS) scores for all students in 2014.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	36	.1	.1	.1
	1	17	.0	.0	.1
	2	86	.1	.1	.2
	3	583	1.0	1.0	1.2
	4	1445	2.4	2.4	3.7
	5	2094	3.5	3.5	7.2
	6	5345	8.9	9.0	16.2
	7	8655	14.5	14.6	30.8
	8	9198	15.4	15.5	46.4
	9	8670	14.5	14.6	61.0
	10	10759	18.0	18.2	79.2
	11	8906	14.9	15.0	94.2
	12	3420	5.7	5.8	100.0
	Total	59214	98.9	100.0	
Missing	System	649	1.1		
Total		59863	100.0		

Table 2. Distribution of English Performance Scale (EPS) scores for all students in 2014.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	16	.0	.0	.0
	1	16	.0	.0	.1
	2	32	.1	.1	.1
	3	228	.4	.4	.5
	4	489	.8	.8	1.3
	5	491	.8	.8	2.2
	6	2756	4.6	4.7	6.8
	7	6094	10.2	10.3	17.2
	8	5048	8.4	8.6	25.7
	9	10569	17.7	17.9	43.6
	10	17157	28.7	29.1	72.7
	11	11727	19.6	19.9	92.6
	12	4354	7.3	7.4	100.0
	Total	58977	98.5	100.0	
Missing	System	886	1.5		
Total		59863	100.0		