CMPO Working Paper Series No. 03/063

Measuring Pupil Attainment in English Secondary Schools: A Preliminary Analysis

Adele Atkinson[1]
and
Deborah Wilson[2]

[1]CMPO, University of Bristol
[2]Department of Economics and International Development, University of Bath and CMPO, University of Bristol

March 2003

Abstract

The purpose of this paper is to examine patterns of attainment of boys and girls at different stages of their secondary education and to investigate factors that may affect pupil outcomes. We employ a national dataset of matched examination results, recently released by the Department for Education and Skills, which includes the results of the cohort of pupils who sat Key Stage 3 exams at age 14 in 1997 and GCSE (or equivalent) exams at age 16 in 1999. We find a consistent picture of boys underachieving relative to their female peers. This gender gap widens between the ages of 14 and 16. Grammar schools outperform comprehensives and secondary moderns for both boys and girls at both Key Stage 3 and GCSE. This is no longer the case when we consider a measure of the 'value added' by different school types between these two stages. For example, we find that comprehensives add more value on average than grammar schools for female pupils. The relative importance of gender and school type (here proxied by admissions policy) on pupil outcomes depends on which measure of pupil attainment we consider.

JEL Classification: : H4, I21, L3
Keywords: education, pupil attainment, gender gap

Acknowledgements

We thank the Leverhulme Trust for funding this research.

Address for Correspondence
Department of Economics
University of Bristol
12 Priory Road
Bristol
BS8 1TN
Tel: +44 (0)117 954 6943
Adele.Atkinson@bristol.ac.uk
d.wilson@bristol.ac.uk

CMPO is funded by the Leverhulme Trust.

1 Introduction

Raising the achievement of pupils in secondary schools is high on the UK Government's agenda. The perceived underachievement of boys continues to cause particular concern. The purpose of this paper is to examine patterns of attainment of boys and girls at different stages of their secondary education and to investigate factors which may affect pupil outcomes.

The data we employ is one of the national matched datasets recently released by the Department for Education and Skills (DfES). This gives us the exam results of the cohort of pupils who sat Key Stage 3 tests at the age 14 in 1997 and GCSE exams in 1999, aged 16. We can therefore look for changes in the patterns of attainment both at these two stages and by using a measure of the 'value added' between them. We focus on the impact of gender and of type of school attended. We proxy the latter by admissions policy, and consider differences across three school types: comprehensives, secondary moderns and grammar schools.[1]

Various patterns emerge. There is a consistent picture of boys underachieving relative to their female peers. Moreover, this so-called gender gap widens between the ages of 14 and 16. While grammar schools outperform other school types for both boys and girls at KS3 and GCSE, the same is not true when we consider pupil progress: comprehensives add more value for girls than grammar schools, for example. The relative importance of gender and school type depends on which measure of pupil attainment we consider.

The rest of the paper is organised as follows. In the next section we describe our dataset. Section 3 presents the descriptive results for boys and girls in different types of school (as proxied by admissions policy) at Key Stage 3, GCSE and for a measure of the progress made between the two ('value added'). In section 4 we present and discuss the results of our regression analyses. Section 5 concludes.

2 The Dataset

The main dataset we use for this analysis is one of the national matched exam datasets recently released by the Department for Education and Skills (DfES). These datasets contain the exam results of pupils for Key Stage 3 (KS3) and GCSE/GNVQ, national exams usually sat at the ages of 14 and 16 respectively. Here we present results for the 1997 – 1999 cohort. The matched exam dataset identifies individual exams with identification codes, so there is complete information about the subjects taken at both KS3 and GCSE by each pupil, as well as information on gender and date of birth. We restrict our analysis to state maintained secondary schools in England.[2] The matched pupil level dataset is supplemented by school level data, such as funding status, admissions policy, size. These figures are taken from the Annual Schools Census (also known as Form 7), again released by the DfES.

[1] Grammar schools select pupils on the basis of academic ability, as measured by the results of a test taken in the final year of junior school. Pupils who take the test but do not achieve the required standard generally go to secondary moderns. Comprehensive schools do not have any academic -based selection criteria.

[2] We have omitted independent and special schools and other academic centres such as hospital schools and detention centres from our dataset. In addition, we only consider pupils who take GCSE/GNVQ exams in year 11 (i.e. at age 16) and have not included pupils for whom KS3 results are missing in order that we can calculate value added scores.

Summary statistics are presented in Table 1. There are 3,129 schools and matched exam results for over half a million pupils, 49.24% of whom are girls. We have split the schools on the basis of two features: funding status and admissions policy.[3] The vast majority (89.10%) of English state maintained schools are comprehensive, with approximately 5% each of grammar and secondary modern schools. City Technology Colleges (CTCs) numbered just 15 in 1999. CTCs are able to select a proportion of their pupils, but are distinct from grammar schools in terms of both the selection criteria and the process. Given their small number, when we consider the impact of a selective admissions policy on pupil attainment in the following section we do not include CTCs as a separate category; instead we focus on the grammar school mode of selection.

In the next section we present the descriptive statistics for pupil attainment at KS3, GCSE and in terms of a measure of value added between these two stages. We focus first on the impact of gender and admissions policy on pupil attainment, before considering additional possible explanatory variables in Section 4.

3 Results by Gender and School Type (Admissions Policy)

(a) Key Stage 3

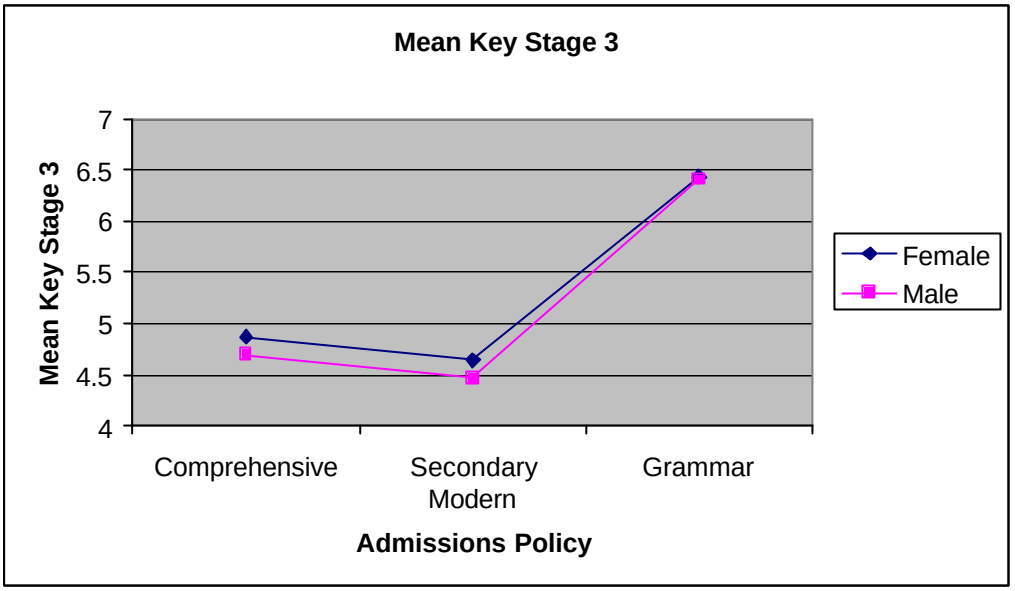
Key Stage 3 (KS3) examinations are national exams taken by pupils aged 13/14 in all state maintained schools at the end of year 9. Tests are taken in English, maths and science, with additional teacher assessments being conducted on a wider range of subjects. Pupils achieve a level based on the test scores attained. Levels range from 1 – 9 (9 only being given to pupils with exceptional ability). Level 5 is the expected (target) level in each subject. The results we report here are in levels.

Tables 2 – 5 give the results by gender and for all pupils across school types (admissions policies) for English, maths and science scores individually as well as for the mean score achieved at KS3. While girls outperform boys on average, there are some subject level differences: girls do better than boys in English, while it is the boys who come out on top in both maths and science. These patterns are consistent across the three school types. Finally, note that, in English, girls in secondary moderns outperform boys in comprehensives.

The results for mean KS3 are illustrated in Figure 1.[4] A striking feature of the graph is that the gap between the genders appears small relative to the differences between school types: both girls and boys in grammar schools achieve higher results at KS3 than their peers in either comprehensives or secondary moderns.

[3] See http://www.dfes.gov.uk/performancetables/schools_02/glossary.shtml for detailed information on funding status.
[4] The same pattern is obtained when we consider KS3 results for each subject (figures available on request).

Figure 1



(b) GCSE

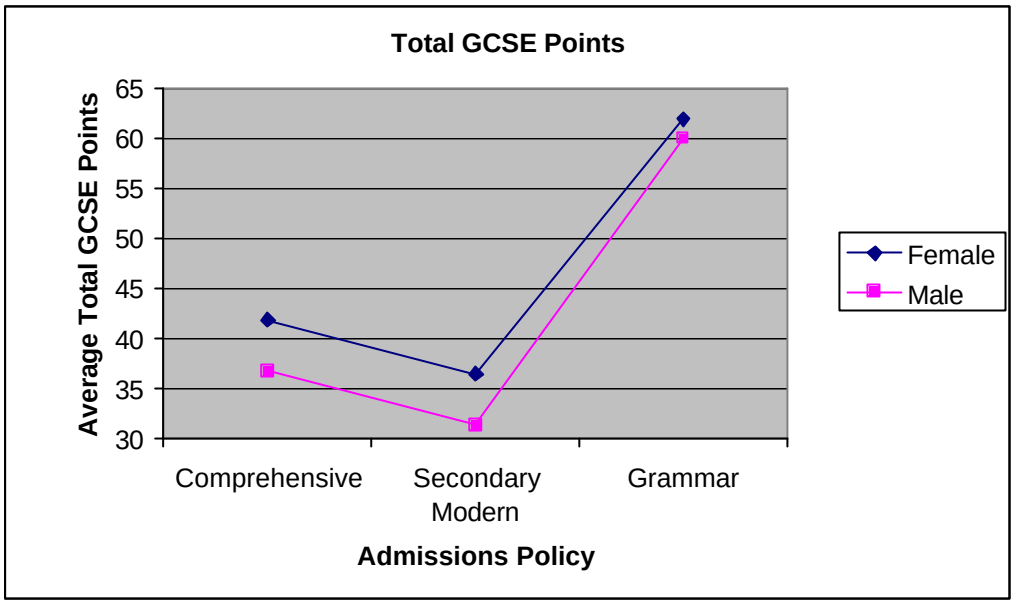
GCSEs and GNVQs are national exams taken at the end of compulsory schooling (end of year 11) when pupils are 16. GCSE pass grades range from A* to G. GCSE and GNVQ grades have been given equivalent point scores by the DfES: a pass at A* is worth eight points, down to a grade G being worth one point, for example, and a full intermediate GNVQ is worth at least four GCSE passes at grade C.[5] The maximum number of points achieved by a pupil therefore depends on both the quantity of exams taken and the score gained in each. Tables 6 – 9 present the summary statistics of girls' and boys' performance at GCSE in 1999.

At GCSE as well as at KS3, it is the girls who achieve better results: on average, girls score approximately five points more than boys, which is equivalent to an additional pass at grade C. Moreover, at this level the girls also do better in maths and science as well as in English. The differential attainment of girls relative to boys is greater at age 16 than at age 14 for this cohort: evidence of a widening gender gap between these ages. Again there is some consistency to these patterns across school types.

Figure 2 illustrates the results for total points scored at GCSE, and shows the better performance of girls across the three types of school. As for KS3, the difference between school types dominates that between the genders: once again it is pupils in grammar schools who are achieving better results. Indeed, boys in grammar schools significantly outperform girls in both comprehensives and secondary moderns, on average by approximately 20 points or three grade As.

[5] See the website of the Qualifications and Curriculum Authority, http://www.qca.org.uk, for more information on both GCSEs and GNVQs.

Figure 2



One implication of the preliminary analysis at both KS3 and GCSE is that school environment, including teacher and peer group effects, may be a more important determinant of pupil attainment than gender. We now consider whether this result holds when we measure pupil attainment in terms of value added, rather than raw test scores.

(c) Value Added

The 2002 secondary school performance tables included, for the first time, a measure of the 'value added' by a school to its pupils between KS3 and GCSE.[6] This was in part a response to the criticism that performance indicators based on raw exam results (such as the percentage of pupils gaining at least 5 GCSEs at grade C or above) may be measuring differences in schools' intakes as well as differences in their impact on pupil attainment. This is particularly relevant when considering differences in admissions policy. The new value added indicator incorporates a proxy for intake (performance at age 14) and hence should be better able to isolate the impact of a school on the progress made by its pupils between KS3 and GCSE.

There are various ways in which a measure of value added may be calculated (Wilson 2003). For this analysis we follow the method employed by the DfES in their 2001 pilot study of value added. The DfES employs value added as a relative concept and measures a pupil's progress relative to the national average. Family and/or background characteristics are not controlled for, nor is there any inclusion of the resources used by a school, hence there is no consideration of efficiency in the education production process. The precise method by which value added is calculated is as follows. Pupils are categorised into one of 18 bands based on the mean score they achieve at Key Stage 3 across English, maths and science. The

[6] A similar measure between Key Stage 2 and Key Stage 3 (ages 11 – 14) was also published. From 2003, a 'whole school' value added indicator, i.e. between the ages of 11 and 16, will be published.

additional teacher based assessments are not included in the calculation of KS3 mean score. These bands form the input measure for the value added calculation. The output score is total GCSE/GNVQ points. The median output score is computed for each of the KS3 bands: this is the expected outcome for all pupils within that band. Each pupil's total score is then compared with the median point score for all pupils in the same category. If the actual score achieved is equal to the median, the pupil has gained zero value added; a positive value added implies a higher than expected score, given KS3 performance, while negative value added suggests a lower than expected performance at GCSE/GNVQ. A school level measure is then calculated by taking the mean of its pupils' scores. If this is positive, the school's pupils have performed better than expected at GCSE, given their KS3 results.[7] What is actually published is a variant on the above method. The output score is capped at the best eight GCSE results or equivalent (see Wilson (2003) for more on the possible impact of the publication of alternative performance indicators). In addition, the published indicator is centred around 100 and not 0, presumably to avoid confusion about the meaning of a 'negative' value added score. For the purposes of this paper, we do not aggregate up to school level. Rather, we consider value added at pupil level in order to look at differences across different types of school, as proxied by admissions policy.

Figure 3

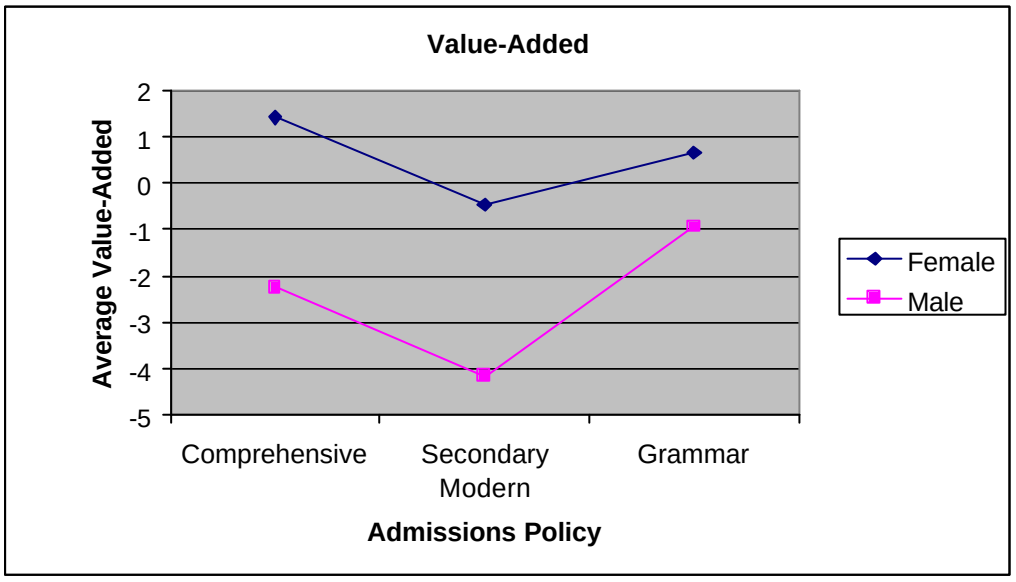


Table 10 and Figure 3 show the relative average performance of girls and boys when we measure attainment in terms of value added between 14 and 16. In our cohort, girls generally achieve a positive value added (except for a score of –0.47 in secondary moderns), while the reverse is true for boys. This follows from the fact that the benchmark KS3 bands contain both boys and girls and illustrates the widening gender gap between KS3 and GCSE. Of particular interest is the different pattern across school types compared to the results using raw test scores. When we consider value added, there is no longer such a difference between the relative performance of grammar schools and either comprehensives or secondary moderns. In fact comprehensives add more value for female pupils on average than grammar schools. This is consistent with the 2002 secondary school league tables, in which

[7] Go to http://www.dfes.gov.uk/statistics/DB/PER/p0313/index.html for more on how value added is calculated.

comprehensive schools scored higher on the value added performance indicator than grammar schools between KS3 and GCSE. A school level measure of value added between Key Stage 2 and Key Stage 3 (ages 11 and 14) was also published in 2002. This tells a different story, however: according to this measure, 75 out of the 77 top scoring state schools are grammar. We return to this point later.

In summary, these preliminary analyses suggest that girls outperform boys on average both at Key Stage 3 and GCSE. Moreover, this gender gap appears to be widening between the ages of 14 and 16. When we measure attainment in terms of raw test scores at either age it appears that school type (proxied here by admissions policy) is a more influential factor in determining relative attainment than gender: grammar schools outperform comprehensives and secondary moderns for both boys and girls at both KS3 and GCSE. This is no longer the case when we consider a more accurate, value added, measure of pupil attainment.

We have identified admissions policy and gender as being influencing factors in the achievements made by pupils at KS3 and GCSE. Of course there are others. We therefore proceed by carrying out some regression analyses in order to (a) confirm the above findings and (b) to further explore alternative reasons for differences in attainment.

4 Regression Analysis

4.1 Explanatory Variables

Gender

We first consider the whole sample and include gender as an explanatory variable (later we split the sample and run separate regressions for boys and girls). The variable is encoded in such a way that a negative coefficient implies boys are doing worse than girls, while a positive sign indicates the reverse. Our priors are informed by the results of the preliminary analyses reported above.

School Type

In Table 1 we split the schools on the basis of two features: funding status and admissions policy. Consider now Table 11. Here we present the between/within variance ratios for both categories for each pupil attainment measure. The ratio is consistently higher for admissions policy than for funding status, implying that the former explains more of the total variation in both raw test results and value added than the latter. Funding status does have some explanatory power, however, so we include dummies for both categories in our regression analysis. We omit Community as the benchmark funding type and measure the impact of other types relative to that. With regard to admissions policy, we omit comprehensive and measure the relative impact of grammar schools (GRAM) and secondary moderns (MOD). Given the findings above, we expect a positive coefficient on the former and a negative on the latter.

Age

There is evidence that the within-year age of a pupil has an impact on outcome, with older pupils in a year group doing better than their younger peers (see, for example, Alton and Massey (1998) for evidence on this at GCSE; Sharp (1995) for evidence at KS1 and GCSE; Hutchison and Sharp (1999) for evidence of season of birth effects in reading at ages 6, 8, 10 and 12). We have the date of birth of all pupils in our dataset, and so have constructed a within-year age variable: AGE = 365-(number of days from 1/9/82). A positive coefficient would therefore confirm the findings of these previous studies.

Free School Meals

Eligibility for free school meals is commonly used as a proxy for low income (for more discussion and further references see, for example, Thomas and Mortimer (1996); Levacic and Woods (2002)). We include a variable (%FSM) that measures the percentage of children in each pupil's school that is eligible for free school meals, as reported in the Annual Schools Census. Following the results from previous studies, we expect the coefficient on this variable to be negative.

School Size

The measure we use to capture school size is the number of pupils. In our dataset this ranges from 50 to 2,361, with a mean of 1042. There is very little evidence on the impact of school size on pupil attainment in English secondary schools (Spielhofer et al 2002). We expect the impact of school size to be increasing but non-linear; we therefore also include $(SIZE)^2$ in order to identify the point of diminishing returns and the optimal size of school in terms of our different measures of pupil attainment.

Single Sex

We include a dummy variable for whether a school is single sex or co-educational. Just over 10% of pupils in our dataset attend single sex schools. A recent review of the evidence on the impact of single sex education suggests that it is academically advantageous, particularly for girls (Spielhofer et al 2002). A positive coefficient on our dummy variable indicates higher attainment in single sex schools relative to co-educational.

Religious Denomination

Finally, we include dummies for religious denomination relative to the omitted benchmark of no religion. 85.22% of schools in our dataset fall into the 'no religion' category. We measure the impact of Catholic, Church of England and 'other' relative to that.[8] We have no specific priors on the signs of these coefficients.

[8] 'Other' include Jewish, Seventh Day Adventist and Christian, which together account for just 0.56% of our total sample of pupils.

4.2 Results: (a) All Pupils

We have run a series of regressions on the alternative measures of attainment: KS3 mean and subject level, GCSE total points and subject level, value added, as well as a probit on achieving at least five GCSEs at grade C or above. The last measure is of interest since it is the key performance indicator published in the secondary school league tables. Given that it is essentially a summary statistic of GCSE performance, however, we expect the results of this regression to be similar to those found for GCSE itself.

The results are presented in Table 12. The coefficients on GENDER confirm our preliminary findings regarding the differential attainment of girls and boys across the alternative attainment measures: boys only outperform girls in KS3 maths and science. The relative explanatory power of the different categorisations of school type is also confirmed: MOD and GRAM are consistently significant at 1%,[9] while the picture is more mixed with regard to the alternative funding categories. The signs on SINGLESEX and SIZE confirm our priors. The negative and significant coefficient on $(SIZE)^2$ confirms the non-linearity of the impact of school size on pupil attainment (a similar result was obtained by Spielhofer et al (2002)). The optimal size of school ranges from 1280 – 2155. There is no obvious pattern regarding the effect religious denomination has on the results gained by students. The AGE variable is almost always positive, implying, as expected, that older pupils within the year group are generally higher achievers. It is negative for value added, however. This may suggest that the younger pupils are catching up to their older peers during Key Stage 4, i.e. between the ages of 14 and 16 (evidence of such a process of catch-up is provided by Hutchison and Sharp (1999) for children between the ages of 10 and 12). %FSM is negative across all regressions, as expected, except for value added, where it is positive and significant. One possible reason for this is that the impact of low income (as proxied by %FSM) is accounted for by the inclusion of prior attainment in the value added regression, i.e. that the effect of this variable has been fully felt by the time a pupil reaches the age of 14. Finally, consider again the coefficients on MOD and GRAM. The sign for MOD confirms the preliminary findings above: pupils on average do better – both in terms of raw test results and value added – in comprehensives than in secondary moderns. GRAM is positive for all the raw test score measures of attainment, and negative but not significant for value added. This reflects the pattern obtained above: once we consider value added there is no longer such a difference between the relative performance of grammar schools and either comprehensives or secondary moderns.

Given this result, in conjunction with our preliminary finding that comprehensives create more value for female (but not male) pupils on average than grammar schools, we split the sample and ran the same regressions on boys and girls separately.

4.3 Results: (b) Girls and Boys

In Tables 13 and 14 we present selected results from the girls-only and boys-only regressions respectively. Non-reported variables showed no significant differences from the full sample results.[10] SINGLESEX continues to be positive and significant across all regressions for the

[9] Apart from the value added regression, in which GRAM is not significant. We return to this below.

[10] Full results available from the authors on request. We also split the sample into pupils who achieved at least five GCSEs at grade C or above and pupils who did not. The results showed no significant differences from the full sample regression and so are not reported here. Again, they are available on request.

girls, but is now not significant for boys for KS3 science, GCSE science and value added. The singlesex effect is consistent for girls, regardless of measure of attainment employed, but this is not the case for at least some measures of boys' performance. %FSM is now negative but not significant for girls for value added. An interesting difference concerns GRAM in the value added regression. This is now positive and significant (at 5%) for boys, and negative and significant (1%) for girls. This confirms the finding discussed above: comprehensives add more value than grammar schools for girls, while the reverse is true for boys. Given that SINGLESEX is also included as an explanatory variable, this is obviously more than a singlesex effect. This confirms the one of the findings of Speilhofer et al (2002) who, using similar UK data, find that girls in singlesex comprehensives achieve better results than their female peers in singlesex grammar schools.

5 Conclusion

In this paper we both describe the patterns of attainment for boys and girls in English secondary schools using three different measures and examine the possible factors which determine such patterns. A consistent picture emerges of girls outperforming boys, both at 14 and, to a greater extent, at 16. This is true across all school types. The relative importance of gender and school type, as proxied by admissions policy, depends on which measure of attainment we consider. In particular, once we employ a measure of value added there is no longer such a significant grammar school effect, with comprehensives adding more value than grammar schools for their female pupils between the ages of 14 and 16.

We have found evidence of a widening gender gap between the ages of 14 and 16. This suggests that what happens to boys between these ages should be a focus for policy: how can the trend be reversed? But it may also point to a more significant trend. If it is generally the case that the gender gap widens over time, the early existence of a gap should alert the government to focus on preventing it from increasing: could specific and early targeting of policy improve boys' performance to prevent the gender gap from widening?

The results from this initial analysis suggest various areas for further research, which are currently being investigated by the authors and colleagues. First, this paper examines the performance of one cohort of pupils: we now have access to the matched datasets for three subsequent cohorts, which will enable us to investigate whether the findings presented here have more general applicability. Second, note that in all the regressions only a low R^2 is obtained. This suggests that raw test results (and indeed value added) are noisy measures of the actual levels of and changes in pupil achievement. Kane and Staiger (2002) examine the impact of employing noisy accountability measures in the US education system; we are currently investigating similar issues using UK data. Third, we are building both on the work presented here and that in Wilson (2003) to further investigate the impact of the introduction of value added measures of both pupil and school performance on the secondary education market in England. Finally, our results regarding the value added by grammar schools, in conjunction with the 2002 league tables, suggest that the issue of which types of school add (most) value to pupils at different points in their education is a complex one. We are currently investigating this in greater detail, by considering the impact of academic selection on all secondary school pupils.

References

Alton, A and Massey, A (1998), Date of Birth and Achievement at GCSE and GCE A-Level, *Educational Research*, 40(1): 105-109

Hutchison, D and Sharp, C (1999), *A Lasting Legacy? The Persistence of Season of Birth Effects*, Paper presented at the British Educational Research Association Conference, University of Brighton, September

Kane, TJ and Staiger, DO (2002), The Promise and Pitfalls of Using Imprecise School Accountability Measures, *Journal of Economic Perspectives*, 16(4): 91-114

Levacic, R and Woods, PA (2002), Raising School Performance in the League Tables (Part 1): Disentangling the Effects of Social Disadvantage, *British Educational Research Journal*, 28(2): 207-226

Sharp, C (1995), *School Entry and the Impact of Season of Birth on Attainment*, NFER Research Summary (September), National Foundation for Educational Research in England and Wales, Slough

Spielhofer, T, O'Donnell, L, Benton, T, Schagen, S and Schagen, I (2002), *The Impact of School Size and Single Sex Education on Performance*, LGA Research Report 33, Slough, NFER

Thomas, S and Mortimore, P (1996), Comparison of Value-Added Models for Secondary School Effectiveness, *Research Papers in Education*, 11(1): 5-33

Wilson, D (2003), *Which Ranking? The Use of Alternative Performance Indicators in the English Secondary Education Market*, CMPO, University of Bristol, Working Paper 03/058

Table 1: Summary Statistics

Type of School (% in brackets)	Community	Foundation	Voluntary Aided	Voluntary Controlled	CTC*	Total
Comprehensive	1886	362	460	80		2788 (89.10)
Modern	101	44	12	4		161 (5.15)
Grammar	45	75	32	13		165 (5.27)
Total	2032 (64.94)	481 (15.37)	504 (16.11)	97 (3.10)	15 (0.48)	3129 (inc CTCs)
Number of Pupils	343047 (66.26)	80125 (15.48)	73987 (14.29)	18172 (3.51)	2364 (0.46)	517695

*CTC: City Technology College
Gender Split: Girls: 254931 (49.24%); Boys: 262764 (50.76%)

Table 2: Overall KS3 Mean by Gender, Admissions Policy

	Comprehensive	Secondary Modern	Grammar	All Schools
Girls	4.87 (1.16)	4.64 (1.00)	6.43 (0.62)	4.93 (1.18)
Boys	4.69 (1.26)	4.47 (1.11)	6.41 (0.66)	4.75 (1.28)
All Pupils	4.78 (1.21)	4.56 (1.06)	6.42 (0.64)	4.84 (1.23)

Note: Source: Department for Education and Skills
Figures weighted by pupil numbers
Standard deviations in brackets

Table 3: Mean KS3 English by Gender, Admissions Policy

	Comprehensive	Secondary Modern	Grammar	All Schools
Girls	4.94 (1.37)	4.72 (1.33)	6.36 (0.78)	4.99 (1.38)
Boys	4.28 (1.65)	4.07 (1.59)	6.01 (0.85)	4.34 (1.66)
All Pupils	4.61 (1.55)	4.40 (1.50)	6.19 (0.83)	4.66 (1.56)

Note: See Table 2

Table 4: Mean KS3 Maths by Gender, Admissions Policy

	Comprehensive	Secondary Modern	Grammar	All Schools
Girls	4.93 (1.33)	4.65 (1.13)	6.61 (0.77)	4.99 (1.35)
Boys	4.99 (1.33)	4.73 (1.14)	6.81 (0.81)	5.06 (1.35)
All Pupils	4.96 (1.33)	4.69 (1.14)	6.71 (0.79)	5.02 (1.35)

Note: See Table 2

Table 5: Mean KS3 Science by Gender, Admissions Policy

	Comprehensive	Secondary Modern	Grammar	All Schools
Girls	4.84 (1.14)	4.63 (0.95)	6.33 (0.79)	4.90 (1.16)
Boys	4.91 (1.19)	4.70 (1.00)	6.41 (0.82)	4.96 (1.20)
All Pupils	4.88 (1.16)	4.66 (0.98)	6.37 (0.80)	4.93 (1.18)

Note: See Table 2

Table 6: Mean Total GCSE Points by Gender, Admissions Policy

	Comprehensive	Secondary Modern	Grammar	All Schools
Girls	41.86 (17.37)	36.47 (14.70)	61.90 (10.82)	42.55 (17.60)
Boys	36.75 (17.33)	31.37 (14.71)	59.97 (11.88)	37.54 (17.74)
All Pupils	39.28 (17.54)	33.96 (14.92)	60.95 (11.39)	40.02 (17.85)

Note: See Table 2

Table 7: Mean GCSE English by Gender, Admissions Policy

	Comprehensive	Secondary Modern	Grammar	All Schools
Girls	4.84 (1.49)	4.48 (1.35)	6.52 (0.85)	4.90 (1.51)
Boys	4.19 (1.58)	3.79 (1.41)	6.16 (0.93)	4.26 (1.61)
All Pupils	4.51 (1.57)	4.15 (1.42)	6.34 (0.91)	4.58 (1.59)

Note: See Table 2

Table 8: Mean GCSE Maths by Gender, Admissions Policy

	Comprehensive	Secondary Modern	Grammar	All Schools
Girls	4.06 (1.82)	3.61 (1.57)	6.28 (1.02)	4.14 (1.84)
Boys	4.01 (1.84)	3.52 (1.61)	6.35 (1.03)	4.09 (1.87)
All Pupils	4.03 (1.83)	3.57 (1.59)	6.31 (1.03)	4.11 (1.86)

Note: See Table 2

Table 9: Mean GCSE Science by Gender, Admissions Policy

	Comprehensive	Secondary Modern	Grammar	All Schools
Girls	4.28 (1.72)	3.88 (1.52)	6.29 (1.20)	4.35 (1.74)
Boys	4.19 (1.71)	3.77 (1.54)	6.12 (1.19)	4.25 (1.73)
All Pupils	4.23 (1.72)	3.82 (1.53)	6.21 (1.20)	4.30 (1.74)

Note: See Table 2

Table 10: Mean Value Added by Gender, Admissions Policy

	Comprehensive	Secondary Modern	Grammar	All Schools
Girls	1.42 (9.47)	-0.47 (9.01)	0.66 (7.95)	1.35 (9.45)
Boys	-2.25 (9.45)	-4.17 (9.20)	-0.95 (8.41)	-2.23 (9.46)
All Pupils	-0.43 (9.64)	-2.29 (9.29)	-0.13 (8.22)	-0.46 (9.62)

Note: See Table 2

Table 11: Between/Within Variance Ratios

Attainment Measure	Between/Within Variation Ratio: Admissions Policy	Between/Within Variation Ratio: Funding Status
KS3 Mean	0.697	0.189
KS3 English	0.523	0.148
KS3 Maths	0.679	0.164
KS3 Science	0.667	0.179
GCSE Total Points	0.726	0.324
GCSE English	0.649	0.146
GCSE Maths	0.667	0.158
GCSE Science	0.615	0.139
Value Added	0.455	0.374

Note: Source: Department of Education and Skills

Table 12: Regression Results: All Pupils

	Overall KS3 Mean	English KS3	Maths KS3	Science KS3	Total GCSE Points	English GCSE	Maths GCSE	Science GCSE	Value Added	5 GCSEs at C or Above
GENDER	-0.14	-0.60	0.09	0.09	-4.86	-0.63	-0.03	-0.08	-3.55	-0.28
	(29.73)**	(84.78)**	(18.18)**	(18.63)**	(57.95)**	(91.33)**	(4.30)**	(10.15)**	(63.88)**	(51.66)**
AGE	8.31	9.84	8.55	6.55	80.45	8.14	7.20	6.24	-32.40	5.08
	(56.03)**	(49.13)**	(49.16)**	(44.08)**	(35.23)**	(38.54)**	(29.84)**	(27.72)**	(24.02)**	(27.70)**
%FSM	-2.54	-2.43	-2.66	-2.46	-32.70	-2.77	-3.44	-3.33	0.17	-2.19
	(55.93)**	(35.79)**	(61.06)**	(55.43)**	(35.76)**	(38.04)**	(40.94)**	(40.52)**	(0.26)	(39.41)**
SIZE/10,000	5.12	7.69	4.31	3.00	92.66	7.75	8.58	5.95	33.33	5.93
	(7.98)**	(7.36)**	(6.26)**	(4.41)**	(7.11)**	(7.05)**	(5.91)**	(4.62)**	(3.40)**	(7.95)**
$(SIZE)^2$/100,000	-0.02	-0.03	-0.01	-0.01	-0.28	-0.02	-0.03	-0.02	-0.11	-0.02
	(5.54)**	(5.62)**	(3.97)**	(2.42)*	(4.76)**	(4.93)**	(3.83)**	(3.00)**	(2.40)*	(5.58)**
SINGLESEX	0.19	0.22	0.16	0.16	3.40	0.31	0.36	0.29	0.94	0.23
	(10.73)**	(8.47)**	(9.43)**	(8.22)**	(10.16)**	(12.20)**	(11.69)**	(8.55)**	(3.95)**	(11.03)**
CTC	0.08	0.07	0.06	0.09	9.40	0.10	0.14	-0.02	8.21	0.25
	(0.80)	(0.56)	(0.64)	(0.88)	(2.70)**	(0.69)	(1.08)	(0.12)	(3.24)**	(1.88)
FOUNDATION	0.00	0.03	-0.00	-0.02	0.89	0.02	0.05	0.01	0.95	0.03
	(0.25)	(1.29)	(0.20)	(1.20)	(3.65)**	(1.00)	(1.81)	(0.46)	(5.08)**	(2.08)*
VOLUNTARY AIDED	0.25	0.28	0.25	0.20	3.85	0.38	0.38	0.28	0.56	0.24
	(6.58)**	(5.47)**	(6.38)**	(5.09)**	(6.16)**	(7.13)**	(5.68)**	(4.53)**	(1.21)	(5.81)**
VOL^Y CONTROLLED	0.08	0.09	0.06	0.09	0.19	0.03	0.09	0.12	-0.85	0.05
	(2.77)**	(1.91)	(2.28)*	(3.06)**	(0.30)	(0.62)	(1.76)	(1.90)	(1.58)	(1.34)
MOD	-0.20	-0.18	-0.24	-0.19	-4.74	-0.31	-0.40	-0.36	-1.85	-0.30
	(8.68)**	(4.25)**	(11.54)**	(9.07)**	(13.85)**	(8.87)**	(10.95)**	(9.59)**	(6.72)**	(13.13)**
GRAM	1.08	1.00	1.20	0.99	14.46	1.22	1.54	1.30	-0.54	1.49
	(40.70)**	(26.67)**	(45.22)**	(34.08)**	(31.55)**	(34.17)**	(36.54)**	(29.18)**	(1.56)	(31.39)**
CATHOLIC	-0.08	0.04	-0.15	-0.12	-0.71	-0.06	-0.14	-0.14	0.55	-0.09
	(1.95)	(0.67)	(3.58)**	(2.61)**	(1.08)	(1.14)	(2.01)*	(2.07)*	(1.11)	(2.01)*
C of E	-0.07	-0.07	-0.09	-0.06	0.16	-0.06	-0.11	-0.09	1.10	-0.05
	(1.98)*	(1.38)	(2.23)*	(1.56)	(0.24)	(1.18)	(1.80)	(1.32)	(2.23)*	(1.26)
OTHER RELIGION	0.10	0.08	0.14	0.07	4.27	0.24	0.31	0.23	2.90	0.29
	(1.24)	(0.67)	(1.77)	(1.08)	(3.28)**	(2.14)*	(2.32)*	(1.94)	(2.98)**	(2.35)*
CONSTANT	4.96	5.27	4.83	4.84	43.48	5.18	3.86	4.34	2.91	0.18
	(129.68)**	(87.49)**	(121.80)**	(123.73)**	(58.49)**	(81.41)**	(48.04)**	(59.42)**	(5.41)**	(4.05)**
OBSERVATIONS	484569	471209	472502	469776	476403	467670	470877	468933	476403	484569
R-squared	0.18	0.15	0.16	0.16	0.17	0.17	0.14	0.13	0.05	

Robust t-statistics in parentheses; ** significant at 1%; * significant at 5%
CTC: Community Technology College

Table 13: Regression Results: Girls Only (Selected Results)

	Overall KS3 Mean	English KS3	Maths KS3	Science KS3	Total GCSE Points	English GCSE	Maths GCSE	Science GCSE	Value Added	5 GCSEs at C or Above
%FSM	-2.51	-2.31	-2.71	-2.46	-34.54	-2.85	-3.59	-3.47	-0.88	-2.30
	(52.79)**	(33.83)**	(55.28)**	(50.48)**	(32.01)**	(36.23)**	(39.19)**	(36.42)**	(-1.12)	(35.78)**
SINGLESEX	0.22	0.22	0.18	0.25	4.49	0.35	0.49	0.49	1.52	0.30
	(12.23)**	(7.87)**	(9.55)**	(11.56)**	(11.18)**	(12.27)**	(13.73)**	(12.04)**	(4.93)**	(11.90)**
MOD	-0.23	-0.22	-0.27	-0.22	-5.36	-0.34	-0.45	-0.41	-2.04	-0.32
	(8.61)**	(4.76)**	(10.85)**	(8.45)**	(13.27)**	(8.21)**	(10.44)**	(9.05)**	(6.51)**	(11.17)**
GRAM	1.01	0.91	1.14	0.95	12.25	1.06	1.40	1.21	**-1.98**	1.41
	(34.85)**	(22.27)**	(36.38)**	(28.55)**	(23.06)**	(26.62)**	(29.42)**	(23.36)**	**(4.76)****	(26.20)**
OBSERVATIONS	239747	233514	233707	232213	236029	233667	233420	232552	236029	239747
R-squared	0.18	0.12	0.15	0.17	0.15	0.13	0.15	0.14	0.01	

Robust t-statistics in parentheses; ** significant at 1%; * significant at 5%
Other variables in the regression are as reported in Table 12

Table 14: Regression Results: Boys Only (Selected Results)

	Overall KS3 Mean	English KS3	Maths KS3	Science KS3	Total GCSE Points	English GCSE	Maths GCSE	Science GCSE	Value Added	5 GCSEs at C or Above
%FSM	-2.57	-2.55	-2.60	-2.48	-31.16	-2.69	-3.33	-3.23	1.06	-2.10
	(47.21)**	(30.30)**	(50.63)**	(49.77)**	(31.02)**	(32.08)**	(33.90)**	(35.57)**	(-1.6)	(32.69)**
SINGLESEX	0.13	0.22	0.14	0.03	2.06	0.26	0.21	0.04	0.22	0.15
	(4.61)**	(4.98)**	(4.84)**	(-1.2)	(4.08)**	(6.24)**	(4.27)**	(-0.79)	(-0.67)	(4.57)**
MOD	-0.17	-0.13	-0.20	-0.17	-4.20	-0.29	-0.36	-0.31	-1.72	-0.29
	(6.19)**	(2.71)**	(8.27)**	(7.18)**	(10.56)**	(7.53)**	(8.97)**	(7.83)**	(5.29)**	(11.24)**
GRAM	1.15	1.10	1.27	1.05	16.85	1.39	1.69	1.41	**1.01**	1.56
	(31.45)**	(20.99)**	(34.49)**	(27.04)**	(26.55)**	(29.13)**	(29.10)**	(23.76)**	**(2.30)***	(26.06)**
OBSERVATIONS	244822	237695	238795	237563	240374	233993	237457	236381	240374	244822
R-squared	0.18	0.11	0.16	0.16	0.15	0.13	0.14	0.13	0.01	

Robust t-statistics in parentheses; ** significant at 1%; * significant at 5%
Other variables in the regression are as reported in Table 12