

Analysis of academy school performance in GCSEs 2014

Final report

Analysis of Academy School Performance in GCSEs 2014

Jack Worth

June 2015

National Foundation for Educational Research,
The Mere, Upton Park, Slough, Berkshire SL1 2DQ
www.nfer.ac.uk

© National Foundation for Educational Research 2015
Registered Charity No. 313392

Contents

| | |
|-------------------------------|-----------|
| Executive summary | v |
| 1 Introduction | 1 |
| 1.1 Policy context | 1 |
| 1.2 Previous research | 2 |
| 1.3 Aims of this research | 3 |
| 2 Methodology and data | 5 |
| 2.1 Methodology | 5 |
| 2.2 Data sources | 9 |
| 3 Sponsored academies | 11 |
| 3.1 Key Findings | 11 |
| 3.2 Matching | 11 |
| 3.3 Findings | 12 |
| 3.4 Conclusions | 19 |
| 4 Converter academies | 20 |
| 4.1 Key Findings | 20 |
| 4.2 Matching | 20 |
| 4.3 Findings | 21 |
| 4.4 Conclusions | 26 |
| 5 Discussion | 28 |
| References | 30 |
| Appendix A | 32 |
| Propensity score matching | 32 |

Executive summary

Academy schools are schools that are independent of direct accountability to local authorities, being directly funded by and accountable to the Secretary of State for Education. Academies have the ability to develop new curriculum models, change the school's policy on staff pay and conditions and set admissions policy, though many obligations still apply such as statutory testing, regular inspection by Ofsted, providing a broad and balanced curriculum including English, maths and science, and compliance with the school admissions code. Growth in the number of academy schools to more than 4,000 in 2015 makes continued evaluation of the impact structural changes are having on schools important for informing how future policy develops.

There are many potential impacts academy status might have, such as on school funding and financial management, the curriculum taught in schools, school admissions or the way the staff are paid, and these may affect different stakeholders, such as pupils and staff in the schools that become academies, neighbouring schools, academy chains and local authorities. This report specifically explores the association between academy status for secondary schools and the attainment of pupils in 2014 GCSE exams, by comparing academies that have been open for between 2 and 4 years and a group of maintained schools that had similar characteristics at the time the schools became academies. Because of the differences between them, we look at sponsored and converter academies separately. The analysis compares overall average GCSE performance in 2014 between sponsored and converter academies and similar maintained schools, and also considers the gaps between different types of pupil in the same school, such as between pupils eligible for free school meals and those not eligible.

The analysis found that the differences in school GCSE performance between sponsored academies that have been open for between 2 and 4 years and a group of similar maintained schools were generally small and mostly not statistically significant. The difference in Key Stage 4 point score and value added was not statistically significant, whereas the difference in the percentage of pupils who achieved 5 or more A* to C grades, including English and mathematics (and equivalent qualifications) was significant. This finding conflicts somewhat with previous research on sponsored academies, which showed a positive impact on school performance, though the most extensive study of the performance of sponsored academies only found significant improvement in schools that had been sponsored academies for more than four years (Machin and Vernoit, 2011).

There was tentative evidence of a trend towards greater improvement the longer a sponsored academy is open, which is consistent with this previous research. However, there could also be competing explanations: the amount of Department for Education funding available to sponsors when a school became a sponsored academy reduced by 83% between 2010 and 2014 (NAO, 2014).

Analysis comparing the GCSE results of sponsored academies and similar maintained schools in 2013 and 2014 suggests that changes to the way school league tables were calculated in 2014 have differentially affected the GCSE results of sponsored academies.

Sponsored academies outperformed similar maintained schools in 2013 when equivalent qualifications were included, but not when they were excluded nor in 2014 when the contribution of equivalent qualifications to pupils' overall point scores was reduced considerably. This is consistent with previous research findings that sponsored academies make more use of equivalent qualifications compared to similar maintained schools (Worth, 2014; DfE, 2012b).

The analysis found that there was no significant difference in school GCSE performance in 2014 between converter academies and similar maintained schools. There was no evidence of a trend towards school performance increasing relative to similar maintained schools over time. It is still too early to judge the full impact of converter academy status on school performance because almost all converter academies have been open for three years or less, but the analysis shows that there are no short-term benefits in improved school performance associated with converter academy status.

However, there is evidence that the attainment gap between pupils eligible for free school meals and those that are not is narrower in converter academies than in similar maintained schools. Though a modest reduction in the FSM attainment gap of just half a GCSE grade per pupil (6 per cent of the existing gap), this might show an increased focus on disadvantaged pupils being taken by converter academies.

1 Introduction

1.1 Policy context

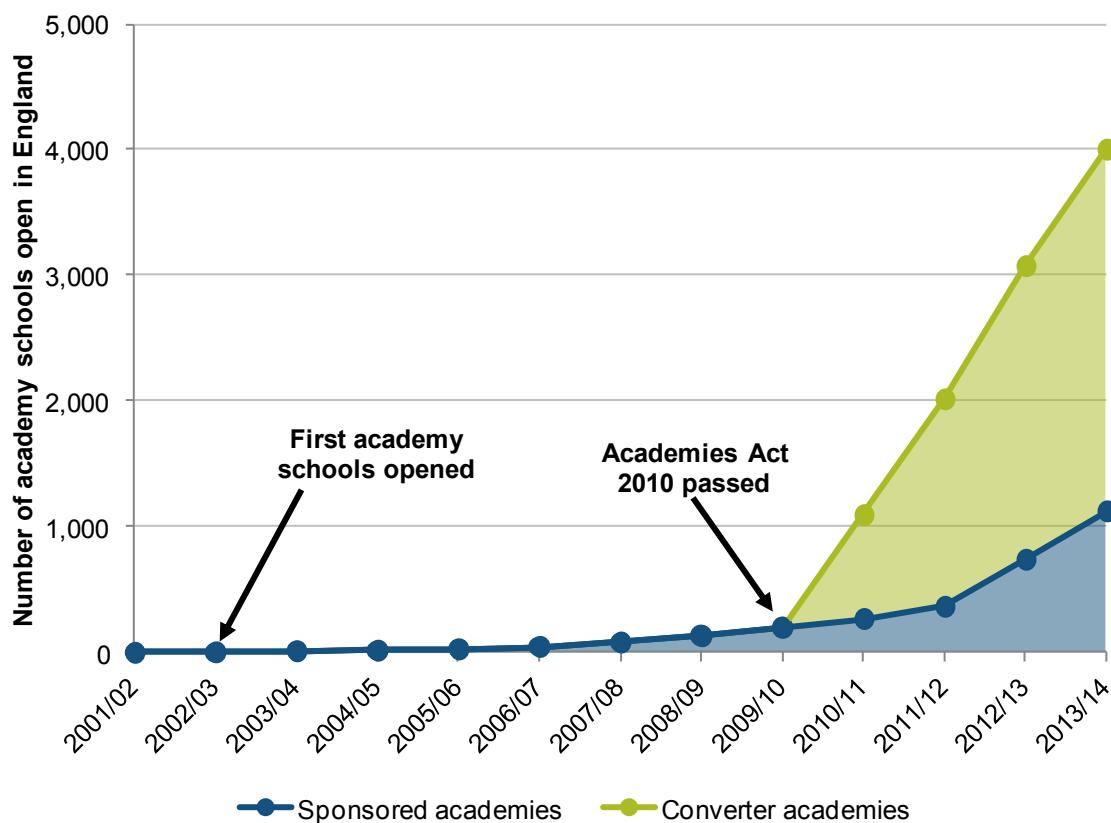
Academy schools are schools that are independent of direct accountability to local authorities, being directly funded by and accountable to the Secretary of State for Education. Some are overseen by a sponsor, which manage a number of academy schools and delegate some management functions to a board of governors. Academy schools have been part of the school landscape in England for more than a decade. As of February 2015 there were 4,461 academies in England, and academies comprised 60 per cent of secondary schools and 13 per cent of primaries (Ofsted, 2014).

Academies have the ability to develop new curriculum models, change the school's policy on staffing structure and set admissions policy, though many obligations still apply such as statutory testing, regular inspection by Ofsted, providing a broad and balanced curriculum including English, maths and science, and compliance with the school admissions code. Academies receive funding directly from central government through the education services grant for services that local authorities provide to maintained schools, such as school improvement, audit and asset management services (DfE, 2012b).

The academy school programme began under the Labour government in the early 2000s. The programme involved replacing poorly performing inner city secondary schools with an academy, with the aim that new management would increase school performance. The policy broadened later in the 2000s to replace poorly performing schools more generally. These early academies have since become known as 'sponsored' academies, to distinguish them from 'converter' academies, and because they are run by a sponsor whereas the same is not necessarily true of converters. Sponsors are organisations such as charities, businesses or religious organisations, which are directly responsible for running a school or a group of schools.

Under the coalition government from 2010 the number of new academies increased much more rapidly (see Figure 1.1). Schools that held an 'outstanding' Ofsted rating (and later 'good' as well) were given the opportunity to convert to academy status (so-called 'converter' academies) and gain the associated freedoms from accountability to local authorities, national curriculum and national pay and conditions. The number of new sponsored academies also increased as the transition to academy status became the standard recommendation following a judgement of inadequate school performance.

Figure 1.1 Number of academies open in England 2001/02 – 2013/14 (sponsored and converter)



Source: Department for Education list of open academies, February 2015

1.2 Previous research

Previous research has considered the question that is central to this report: what impact did academy status have on the schools that became academies? Most of this research has concentrated on the early academies. Machin and Vernoit (2011) found that pupil performance in early sponsored academies significantly improved after changing their status, compared to a group of maintained schools with similar characteristics. As would be expected with a whole-school intervention, the effect of academy status took time to improve performance: the academies open for longer showed the most significant improvement. The intake of year 7 pupils in the new secondary academies had higher average Key Stage 2 scores than previously (Wilson, 2011), although this only explains part of the later improvement in those pupils' GCSE attainment in academies. Machin and Vernoit (2011) also found wider effects on neighbouring schools: despite a drop in the intake ability (measured by average Key Stage 2 scores) of neighbouring schools, GCSE results in the neighbouring schools modestly improved too. Other research has corroborated the findings that sponsored academies improved faster than other similar maintained schools during the period 2002-2009 (NAO, 2010; DfE, 2012a).

Relatively little research has investigated the impact of academy status on exam performance in academy schools that have opened since 2010. NFER analysis found that progress between Key Stage 2 and Key Stage 4 outcomes was higher after 2 years in

sponsored academies compared to similar non-academy schools, but found no significant difference in attainment progress after two years between converter academies and similar non-academy schools (Worth, 2014). The Department for Education carried out research comparing the Ofsted ratings of converter academies and maintained schools with the same previous rating, which found that converter academies previously rated ‘good’ were more likely than maintained schools to retain or improve their subsequent rating (DfE, 2014a). However, the analysis only compared schools with the same previous Ofsted rating and did not attempt to match other characteristics: the differences identified may be due to underlying differences between the schools, for example the prior attainment of the pupils, rather than the impact academy status had. Research on academy schools has also broadened to consider how schools are using the freedoms that academy status has given them (Cirin, 2014) and what difference academy sponsors make to school performance (Hutchings *et al.*, 2014; DfE, 2015).

1.3 Aims of this research

There are many impacts that academy status can potentially have on the schools that become academies, on neighbouring schools, on academy chains and on local authorities. For example, academy status might impact on school funding and financial management, the curriculum taught in schools, school admissions or the way the staff are paid. Intermediate changes such as these may also feed into impacts on pupil outcomes, such as their exam results. This research focuses on measuring the impact that academy status has had on pupil attainment in GCSE exams at age 16. One of the policy changes since 2010 was extending the ability to become an academy to primary schools, and the Education Select Committee (GB. Parliament. HoC. Education Select Committee, 2015) recently made a call for evidence on the impact of academy status on primary schools. However, the scope of this research is to look at secondary academy schools.

The analysis is split into two main strands: analysing the association between sponsored academy status and average outcomes, and analysing the association between converter academy status and average outcomes. It is crucial to perform the two sets of analysis separately because the schools became academies for different reasons and had very different contexts and characteristics. The research does not consider free schools, academy schools that have opened as new schools. Secondary free schools have not been open for long enough to have GCSE results yet. The focus in this report is sponsored and converter academies: existing schools that became academies.

The analysis considers the association between sponsored and converter academy status and a number of different outcomes. The analysis compares the average achievement at GCSE among all the pupils in academy schools and in similar maintained schools. It also considers the gaps between different types of pupil in the same school, such as between pupils eligible for free school meals and those not eligible. The differential use of different types of qualification by academy and similar maintained schools is also analysed, though the changes to the calculation of school performance tables in 2014 make this challenging.

By comparing average outcomes in academies and similar maintained schools we are attempting to capture the effect that academy status has had on school performance, compared to what might have happened if the school had remained a maintained school.

While becoming an academy is associated with changes to the way the school is run, there have also been changes to the way maintained schools have operated over the time period analysed here (2010-2014). For example, converter academies are schools that have the freedoms associated with being an academy, though many of the freedoms that academy schools have uniquely had, for example the ability to relate teachers' pay to their performance, have recently been extended to maintained schools. Also, local authorities have been much more active in giving warning notices to maintained schools (NAO, 2014). Therefore any difference between sponsored academies and similar maintained schools may conflate the impact of academy status and the impact of recent changes and interventions applied to maintained schools.

The next chapter of this report explains the sources of data that were used and the methods that were used to analyse the data. The following two chapters present the analysis of sponsored academies compared to similar maintained schools and converter academies compared to similar maintained schools, respectively. The final chapter discusses the implications of the findings.

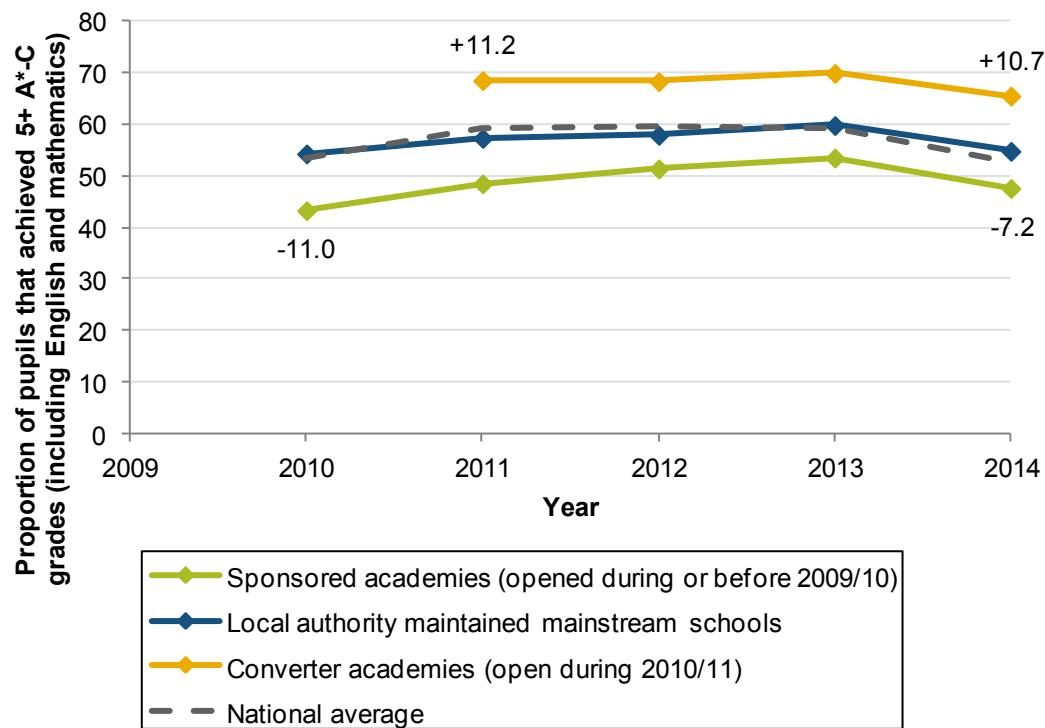
2 Methodology and data

2.1 Methodology

2.1.1 Measuring the impact of academy status

A natural way to begin thinking about what impact sponsored or converter academy status has had on the attainment progress made by pupils at those schools is to compare the average exam results of schools that are academies with those that are not. The figure below shows Department for Education (DfE) school performance data for 2010-2014 for three different groups of secondary school. The measure presented is the percentage of pupils that achieved 5+ A*-C grades including English and maths. The yellow line shows the average results for the 653 converter academies that became academies during the 2010/11 academic year and the green line shows the average results for the 183 sponsored academies opened during or before the 2009/10 academic year. The blue line shows all the schools that were local authority maintained schools in 2014 and the dotted line shows the national average for all secondary schools.

Figure 2.1 Proportion of pupils that achieved 5+ A*-C grades including English and maths 2010-2014, by school type



Source: Department for Education (2014b).

Firstly, comparing levels of achievement between school types is problematic because it does not take into account the ability of the pupils when they begin secondary school: it measures absolute performance rather than progress. Sponsored academies have a level of

performance that is below the national average, but this was the case before they became academies and is still the case afterwards. On the other hand, converters tend to be high performing and were high performing before they became academies. Comparing levels of performance is not informative as to whether becoming an academy had an impact on school performance.

Are trends in performance a more informative way of looking at the impact of academy status? We can compare how the gap between the average performance of academies and average performance among maintained schools has changed. The percentage point gap between the two types of academy schools and all maintained schools is shown in Figure 2.1 as an example. The performance of sponsored academies has improved more quickly than all maintained schools, with the gap narrowing from 11.0 percentage points in 2010 to 7.2 percentage points in 2014. The gap between converter academies and maintained schools has also narrowed slightly over time, from 11.2 percentage points to 10.7 percentage points.

Again, this measures levels of performance rather than the progress made by pupils i.e. pupils' performance compared to those pupils with a similar level of performance at the beginning of secondary school. This type of comparison also doesn't take account of 'mean reversion': the tendency of statistics measured each year to tend towards the average. Schools became sponsored academies because of perceived underperformance, which is informed by, amongst other considerations, school exam results. This implies they have greater capacity for improvement than average schools. Conversely, converter academies were only permitted to become academies if their school performance data, amongst other considerations, indicated they were high performing and had less capacity for improvement. Therefore, we might expect performance to drift towards the average over time in any case.

A better comparison is to compare schools that became academies with schools that did not become academies and which had similar characteristics at the time. If mean reversion occurs, then it will affect the subsequent results of both groups of schools. A comparison between academies and a matched comparison group of maintained schools will take account of mean reversion and the difference in averages is more likely to represent the difference that academy status has made.

2.1.2 Matched comparison group

The ideal comparison between types of school would be to compare two groups of schools, where the only difference between the two groups is that one group became academies and the other group did not. Randomly allocating academy status to willing schools and comparing their outcomes over time would give a very robust measure of the impact: but academy status was not randomly allocated to schools.

Matching a group of maintained schools with similar characteristics to academy schools using the data of those schools can reduce the underlying differences between academy and maintained schools being compared. However, it is not possible to match schools based on factors that were not measured. These factors, such as the support that schools receive from their local authority and the enthusiasm of school leaders for their school becoming an academy, represent underlying differences that affect whether the school became an academy, and also might be contributing to differences in performance. Uncertainty about

whether these unobserved factors are well balanced means the estimated differences between academies and similar maintained schools in this report cannot be taken as the causal impact of academy status on school performance.

This research compares the performance of sponsored and converter academy schools with groups of maintained schools that had similar levels, at the time they became an academy, of:

- the proportion of pupils achieving 5+ A*-C grades including English and mathematics
- the proportion of pupils eligible for free school meals
- Ofsted rating.

Matching is done in two steps. First, we estimated a ‘propensity score’ for each school, which is the probability of a school being an academy. Although we know whether a school is an academy or not, imagine picking a school at random and not knowing whether it was an academy or a maintained school, but knowing its characteristics: the propensity score represents the probability of whether the school is an academy or not. A maintained school with the same propensity score as an academy school means that, based on their characteristics, the two schools had the same probability of becoming an academy, but one did and the other did not.

Second, the matched comparison group of maintained schools is constructed by matching each academy school with the three maintained schools that have the closest propensity score to them. The match is performed ‘with replacement’: that is to say, each maintained school can be selected into the comparison group more than once. This might happen if the school has a propensity score that is among the closest three to more than one academy. Some schools were matched more than once and weighted according to the number of times they were selected, but the majority of comparison schools were selected only once.

Matching is performed separately for schools that became sponsored and converter academies in different years: 2009/10 (open for 4 years in 2014), 2010/11 (3 years) and 2011/12 (2 years). The three samples are combined for the main analysis to increase the sample size and therefore the precision of the analysis, though differences between those schools that became academies sooner are compared to those that became academies later to explore whether there is any evidence of trends.

2.1.3 Analysis

Two analyses comparing the outcomes in academy schools in 2014 with those in similar maintained schools are presented throughout this report: a simple comparison of averages and the results of regression analysis. Comparing the average outcomes in academy schools with the average outcomes in similar maintained schools represents the average difference in outcomes that is associated with academy status.

All the academy schools analysed in this report have been academies for between 2 and 4 years, so the pupils sitting GCSEs in 2014 joined the school before it became an academy. Therefore, because of the propensity score matching, there should be few underlying differences in the average characteristics of pupils sitting GCSE exams in 2014 between the two groups of schools.

However, there may be some differences between academies and similar maintained schools in the particular characteristics of the pupils that took GCSE exams in 2014. For example, the cohort of pupils in academy schools may have slightly higher average Key Stage 2 scores, or have more pupils that are eligible for free school meals, than pupils in similar maintained schools. Because of matching, these differences are likely to be down to chance, but they are also likely to affect the outcomes we might expect pupils to achieve at GCSE. We use regression analysis to estimate the average difference in outcomes that is associated with academy status, while controlling for variation in pupil characteristics. Regression analysis acts as a cross-check to the simple comparisons of average outcomes. Regression analysis also has the advantages that:

1. differences in outcomes are interpreted as the progress pupils make between the tests they took at the end of primary school and their GCSEs, rather than the levels of the attainment they achieve, i.e. it measures what value the school is adding; and
2. differences in outcomes are estimated with a greater level of precision: confidence intervals are smaller when underlying differences in pupil characteristics are accounted for.

2.1.4 Outcome measures

We analyse the difference between academy schools and similar maintained schools in three main outcome measures:

- average Key Stage 4 point score for the best 8 GCSEs. Six points is equivalent to one grade in one subject. An A* grade is worth 58 points, an A grade worth 52, a B grade worth 46, a C grade worth 40 etc.
- the percentage of pupils who achieved 5 or more A* to C grades (including equivalent qualifications), including English and mathematics
- average value added – the Key Stage 4 points that a pupil scores, relative to the Key Stage 4 points of the average pupil with the same Key Stage 2 point score. A six point difference in value added is the equivalent of one grade in one subject. Value added scores above 1000 are above the national average in terms of the amount of progress pupils are making, whereas scores below 1000 are below the national average.

We also analyse how much relative progress pupils of different types made in academy schools compared to similar maintained schools. The three comparisons we make are between:

- pupils eligible for free school meals and those that are not eligible
- pupils in the lower prior attainment band and those in the middle prior attainment band
- pupils in the higher prior attainment band and those in the middle prior attainment band.

In each case we measure the gap in average Key Stage 4 points between the two groups of pupils in each school, and compare the extent of the gaps in academy and similar maintained schools, as described above.

In the sections that follow, some comparisons are drawn between GCSE outcomes in 2013 and in 2014. However, these comparisons should be interpreted carefully because the

methodology for calculating measures of pupil achievement, and therefore of school performance, changed considerably in 2014 (DfE, 2014b). Firstly, the range of vocational qualifications at an equivalent level to GCSEs that were eligible for inclusion in the performance measures was reduced. The value that each equivalent qualification could contribute to a pupil's score was restricted to no more than one GCSE, where previously some counted for several. The total number of equivalent qualifications that could contribute to a pupil's score was also restricted to two. Secondly, an early entry policy meant that the result of a pupil's first entry for a GCSE qualification was included in the performance measures, rather than the pupil's best entry.

Both these changes are likely to have been the main contributory factor to the drop in average Key Stage 4 point scores between 2013 and 2014 (see Figure 2.1). The changes do not necessarily affect the conclusions that this research is able to draw, as the analysis is primarily concerned with comparing the progress that pupils made in academies and similar maintained schools in the same year. However, some comparisons are made between academies and similar maintained schools in 2013 and 2014, and are interpreted cautiously because of the changes outlined above.

2.1.5 Pupil characteristics

In the regression analysis we take account of the underlying association between pupil characteristics and outcomes, to control for underlying differences when comparing academies and similar maintained schools. Those pupil characteristics are:

- average Key Stage 2 point score, the level of attainment that the cohort of pupils were at when they began secondary school
- proportion of pupils eligible for free school meals
- proportion of pupils with special educational needs
- proportion of pupils with English as an additional language
- the number of pupils in the GCSE cohort, i.e. the size of the school.

When analysing the gaps between pupils in lower and higher prior attainment bands with pupils in the middle prior attainment band, the proportions of pupils in the lower and higher prior attainment bands are also included in the regression analysis.

2.2 Data sources

This research combines data from a number of sources to make the comparisons between academy schools and similar maintained schools. These are:

- Outcome measures and the characteristics of the GCSE cohort pupils were gathered from secondary school performance tables, published by the Department for Education.
- Information about when the academy was opened and whether it is a sponsored or converter academy was gathered from the DfE's list of open academies.
- Ofsted data on historical school ratings was used to identify which Ofsted rating academy schools had before they became academies, and which Ofsted rating maintained schools had at the time.

- NFER's Register of Schools was used to identify the percentage of pupils achieving 5+ A*-C grades at GCSE and the proportion of pupils eligible for free school meals in academy schools before they became an academy, and similar maintained schools at the time.

3 Sponsored academies

3.1 Key Findings

The differences in overall school performance between sponsored academies that have been open for between 2 and 4 years and a group of similar maintained schools are generally small and mostly not statistically significant. The difference in the percentage of pupils who achieved 5 or more A* to C grades (including equivalent qualifications), including English and mathematics was statistically significant.

Consistent with previous research, there is some evidence of an upward trend in the performance of sponsored academies compared to similar maintained schools the longer they are open.

There is no significant difference between sponsored academies and similar maintained schools in terms of the attainment gap between pupils eligible for FSM and those that are not. There is tentative evidence of a trend in sponsored academies closing the FSM gap as they are open for longer, though it is difficult to draw firm conclusions given the small number of schools.

3.2 Matching

Schools that became sponsored academies were schools perceived to be underperforming according to their average school performance data and/or most recent Ofsted rating. The data shows that sponsored academies had lower proportions of pupils achieving 5 A*-C including English and maths than average, higher proportions of pupils eligible for free school meals, and were more likely to have a ‘satisfactory’/‘requires improvement’¹ or ‘inadequate’ Ofsted rating. Therefore, a good comparison group of maintained schools should reflect these differences to act as a proxy for what might have happened to the sponsored academies if they hadn’t become academies.

Appendix Tables A1.1 – A1.3 show the average characteristics of sponsored academies and all maintained schools, and the differences, which are generally large and statistically significant. The latter columns show the differences between sponsored academies and a matched group of maintained schools, and shows that the matched maintained schools have very similar characteristics. Indeed, the average differences between sponsored academies and the group of matched maintained schools are not statistically significant.

However, the comparison group for sponsored academies is comprised of schools that were maintained schools at the time the academy schools became academies and that are still maintained schools in 2014. Because sponsored academy status is the standard recommendation following a judgement of inadequate school performance, these schools

¹ In 2012, the ‘satisfactory’ Ofsted grade became known as ‘requires improvement’.

might still be maintained schools *because* they have improved in recent years. This possibility is worth bearing in mind, as it could bias the comparisons made.

3.3 Findings

3.3.1 Key Stage 4 results in 2014

Table 3.1 compares the 2014 Key Stage 4 results of sponsored academies and similar maintained schools using the three different measures. The figures show that on average both sponsored academies and similar maintained schools are below the national average in terms of capped Key Stage 4 points (average = 315.0) and the percentage of pupils achieving 5 A*-Cs including English and maths (average = 52.6). The schools are also slightly below the national average value added of 1000. However, the analysis of interest is to compare the averages of the two groups.

The results suggest the average performance of pupils in sponsored academies and similar maintained schools is very similar. Overall, the difference in capped Key Stage 4 points is -2.3 points: less than one GCSE grade per pupil difference in favour of maintained schools. The difference in the proportion achieving 5 A*-C grades is 1.5 percentage points, and the difference in value added is 0.6 points.

Comparing the average differences between sponsored academies and similar maintained schools using regression analysis, which takes account of average underlying differences in the characteristics of the pupils, such as prior attainment and the proportion eligible for free school meals, also shows that the differences in Key Stage 4 points and value added are small. The 95% confidence intervals indicate that the differences are not statistically significant.

The exception is the percentage achieving 5 A*-C grades including English and maths, which is 2.9 percentage points higher in sponsored academies than in similar maintained schools. The difference is statistically significant, although the result should be seen in the context of the other two measures: results of single significance tests should be interpreted cautiously when multiple tests are conducted.

Table 3.1 Difference between sponsored academies and similar maintained schools in average GCSE outcomes

| | Average | Regression model |
|------------------------------------|---------|------------------|
| Capped Key Stage 4 point score | | |
| Sponsored academy | 276.1 | |
| Similar maintained | 278.4 | |
| Difference | -2.3 | 1.0 |
| 95% confidence interval | | (-5.4 – 7.5) |
| Percentage achieving 5 A*-C | | |
| Sponsored academy | 43.3 | |
| Similar maintained | 41.7 | |
| Difference | 1.5 | 2.9 |
| 95% confidence interval | | (0.0 – 5.7) |
| Value added | | |
| Sponsored academy | 985.0 | |
| Similar maintained | 984.5 | |
| Difference | 0.6 | 1.7 |
| 95% confidence interval | | (-5.4 – 8.8) |
| Controls for prior attainment | No | Yes |
| Controls for pupil characteristics | No | Yes |

Note: Differences may not exactly match due to rounding.

3.3.2 Comparing earlier and later academies

Comparing the three cohorts of sponsored academies to their respective comparison groups shows a slight trend towards stronger performance among academies that have been open for longer, though the trend should be interpreted cautiously because of the small number of schools open in each year. Sponsored academies open for four years outperform similar maintained schools in 2014 by 8.3 Key Stage 4 points (more than one GCSE grade per pupil) whereas those open for two years are behind similar maintained schools by 7.3 points. However, neither difference is statistically significant. The hint of a trend is consistent with previous work by Machin that showed that sponsored academies open for 4 years or more improved relative to similar maintained schools, whereas there was no difference for academies open for a shorter time (Machin and Vernoit, 2011).

Figure 3.1 shows the difference in Key Stage 4 point score between sponsored academies and similar maintained schools with 95% confidence intervals. It shows the differences for each of the three cohorts of academy schools and results from all three combined. The estimated differences are from the regression model, so take into account the average underlying characteristics of the pupils, such as prior attainment and the proportion eligible for FSM. Figure 3.2 shows the same for the percentage achieving 5 A*-C grades including English and maths and Figure 3.3 shows the same for value added.

Figure 3.1 Difference between sponsored academies and similar maintained schools in average 2014 capped Key Stage 4 points

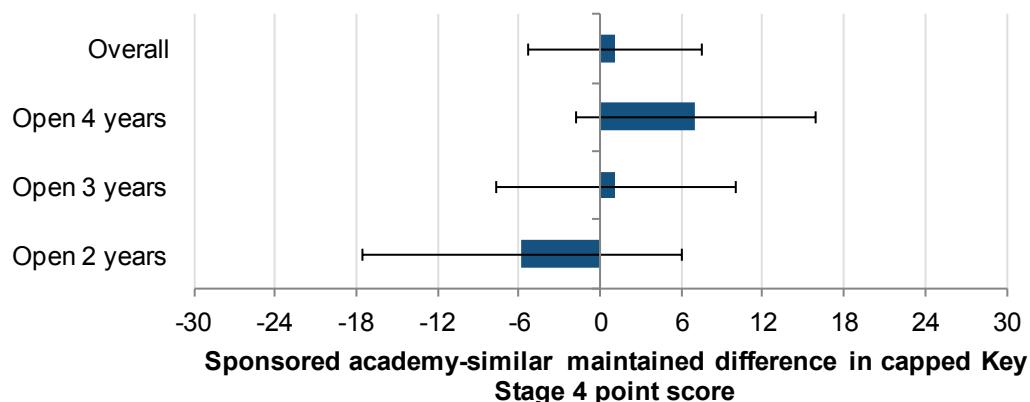


Figure 3.2 Difference between sponsored academies and similar maintained schools in 2014 percentage achieving 5 A*-C including English and maths

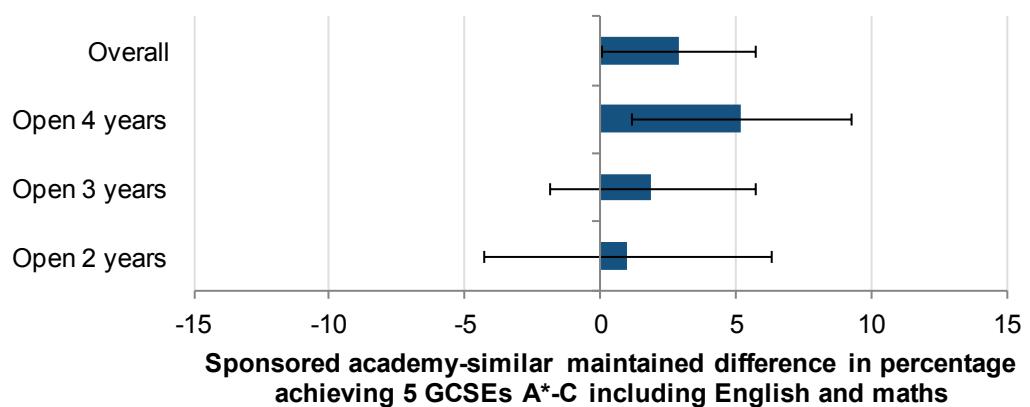
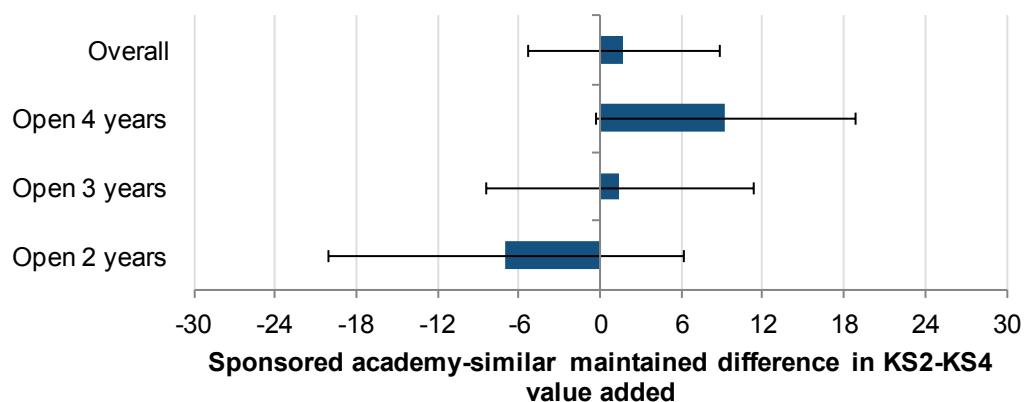


Figure 3.3 Difference between sponsored academies and similar maintained schools in 2014 Key Stage 2 to Key Stage 4 value added



3.3.3 Changes to the treatment of equivalent qualifications

How have the methodological changes to the way GCSE performance tables are calculated affected the difference between sponsored academies and similar maintained schools? Previous research has shown differences in the performance improvement in sponsored academies compared with similar maintained schools depending on whether equivalent qualifications are included or not (Worth, 2014; DfE, 2012b).

Table 3.2 shows a comparison of sponsored academies and similar maintained schools in terms of 2013 capped Key Stage 4 points (including equivalent qualifications) and 2013 GCSE points (excluding equivalents). The comparison of 2014 Key Stage 4 points, which includes some equivalent qualifications that have been counted towards the point score differently (see section 2.1.4), is also shown to enable comparison. When equivalents were included, the analysis shows that sponsored academies had a higher average capped point score in 2013 compared to similar maintained schools. When equivalents were excluded, sponsored academies had a lower average capped point score in 2013 than similar maintained schools, though the difference was not statistically significant.

The difference in 2014 average capped point score is in between the two, which suggests that the short-term improvement in pupil progress in sponsored academies found in previous research was driven to some extent by differences in the use of equivalent qualifications.

The changes to the methodology for the Key Stage 4 performance tables seem to have had a disproportionate impact on sponsored academies, albeit in a relatively small way.

Table 3.2 Difference between sponsored academies and similar maintained schools in average 2013 & 2014 capped Key Stage 4 points

| | Average | Regression model |
|--|---------|------------------|
| Key Stage 4 points in 2014 (2014 methodology) | | |
| Sponsored academy | 276.1 | |
| Similar maintained | 278.4 | |
| Difference | -2.3 | 1.0 |
| 95% confidence interval | | (-5.4 – 7.5) |
| Key Stage 4 (including equivalents) points in 2013 | | |
| Sponsored academy | 330.5 | |
| Similar maintained | 325.0 | |
| Difference | 5.5 | 7.5 |
| 95% confidence interval | | (1.1 – 13.9) |
| GCSE (excluding equivalents) points in 2013 | | |
| Sponsored academy | 214.4 | |
| Similar maintained | 228.0 | |
| Difference | -13.6 | -7.9 |
| 95% confidence interval | | (-16.3 – 0.6) |
| Controls for prior attainment | No | Yes |
| Controls for pupil characteristics | No | Yes |

Note: Differences may not exactly match due to rounding.

3.3.4 Narrowing the gap

Table 3.3 presents a comparison between sponsored academies and similar maintained schools of the gap in capped Key Stage 4 points between pupils eligible for free school meals and those pupils that are not. On average, pupils eligible for FSM achieved a lower capped Key Stage 4 point score than their peers not eligible for free school meals in both sponsored academies and similar maintained schools. The gap is around 52 points nationally, which is equivalent to around 8 GCSE grades per pupil: for example, the difference between 8 C grades and 8 D grades. The average gap in the sample of sponsored academies and similar maintained schools is smaller, at around 46 points. The attainment gap between FSM and non-FSM pupils tends to vary on average with the proportion of pupils that are eligible for FSM: schools with higher proportions of FSM pupils tend to have a smaller FSM gap on average. We account for this factor in the regression analysis.

Overall, the FSM gap is slightly smaller in sponsored academies, by around half a GCSE grade per pupil. This is equivalent to a narrowing of the existing FSM gap between schools by around 5%. The findings from regression analysis of the FSM gap, which takes into account underlying average differences between schools in the proportion eligible for free school meals and prior attainment, are very similar. However, the difference is not statistically significant, and is likely to be simply down to chance.

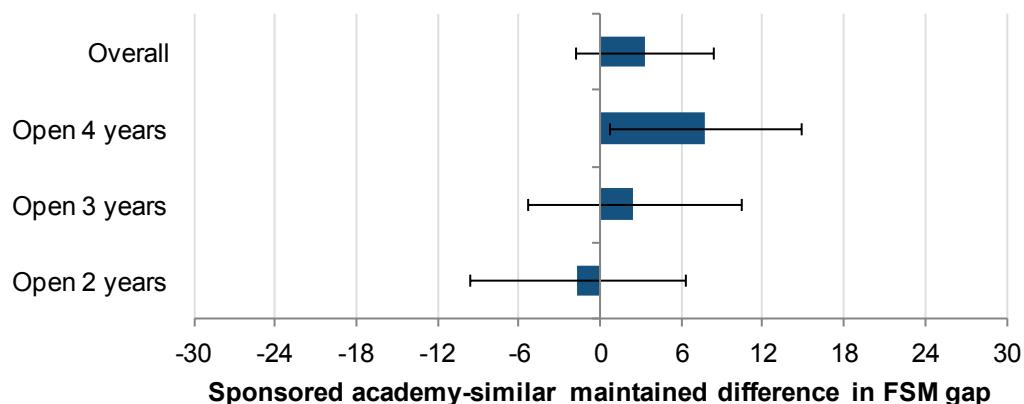
Table 3.3 Difference between sponsored academies and similar maintained schools in the Key Stage 4 points gap between FSM-eligible and non-FSM pupils

| | Average | Regression model |
|---|---------|------------------|
| Sponsored academy | -44.7 | |
| Similar maintained | -47.2 | |
| Difference | 2.5 | 3.3 |
| 95% confidence interval | | (-1.8 – 8.4) |
| Control for prior attainment | No | Yes |
| Control for proportion eligible for free school meals | No | Yes |
| Control for pupil characteristics | No | Yes |

Note: Differences may not exactly match due to rounding.

Comparing sponsored academies that have been open for different lengths of time suggests sponsored academies might be narrowing the FSM gap compared to similar maintained schools as they are open for longer. However, the trends should be interpreted cautiously given the small numbers of sponsored academies opened each year. The average FSM gap among sponsored academies that have been open for four years is 16% narrower than similar maintained schools, whereas the average gap among sponsored academies open for two years is 4% wider than in similar maintained schools.

Figure 3.4 Difference between sponsored academies and similar maintained schools in 2014 FSM gap



3.3.5 High and low attaining pupils

Table 3.4 presents the gap in capped Key Stage 4 points between pupils with low Key Stage 2 scores when they entered secondary school compared to those with average Key Stage 2 attainment, and pupils of high attainment when they entered secondary school compared to those with average attainment. The figures are shown for sponsored academies and similar maintained schools. As would be expected, pupils with low Key Stage 2 attainment tend to have lower Key Stage 4 point scores than those with average Key Stage 2 attainment, and the opposite is true for pupils with high prior attainment.

The analysis shows the attainment gaps for low- and high-ability pupils in sponsored academies and similar maintained schools are very similar. Regression analysis indicates that the differences are not statistically significant. There is no evidence that sponsored academies systematically support the progress made by pupils dependent on their prior attainment. Analysing the prior attainment gaps by the year sponsored academies were opened shows no increasing or decreasing trend in gaps over time.

Table 3.4 Difference between sponsored academies and similar maintained schools in the capped Key Stage 4 point score gap between pupils with average Key Stage 2 attainment and pupils with low and high Key Stage 2 attainment

| | Average | Regression model |
|--|---------|------------------|
| Gap between low and average Key Stage 2 pupils | | |
| Sponsored academy | -90.7 | |
| Similar maintained | -91.2 | |
| Difference | 0.5 | 1.7 |
| 95% confidence interval | | (-4.2 – 7.6) |
| Gap between high and average Key Stage 2 pupils | | |
| Sponsored academy | 70.6 | |
| Similar maintained | 71.2 | |
| Difference | -0.7 | 0.0 |
| 95% confidence interval | | (-4.4 – 4.5) |
| Control for prior attainment | No | Yes |
| Control for proportion of low- and high-KS2 pupils | No | Yes |
| Control for pupil characteristics | No | Yes |

Note: Differences may not exactly match due to rounding.

3.4 Conclusions

The differences in overall school performance between sponsored academies that have been open for between 2 and 4 years and a group of similar maintained schools are generally small and mostly not statistically significant. The difference in the percentage of pupils who achieved 5 or more A* to C grades (including equivalent qualifications), including English and mathematics was statistically significant. Previous research has found significant differences between sponsored academy schools and similar maintained schools, though comparison with 2013 school performance data suggests that some of the difference between those conclusions and the ones presented here is likely to be due to the changes in the way school league tables were calculated in 2014 (Worth, 2014). The changes seem to have differentially affected the GCSE results of sponsored academies.

There is some evidence of an upward trend in comparative performance of sponsored academies compared to similar maintained schools the longer they are open. This is consistent with other research (Machin and Vernoit, 2011), which has looked at sponsored academies over a longer time period and showed that positive impacts were only seen in academy schools that had been open for 4 or more years. However, a competing explanation is that 2009/10 academies are different from those later 2011/12 academies. For example, the funding DfE gives to new sponsored academies has reduced by 83% between 2010 and 2014, which might have influenced the extent of school improvement measures that were possible to deliver (NAO, 2014).

There is no significant difference between sponsored academies and similar maintained schools in terms of the attainment gap between pupils eligible for FSM and those that are not. There is tentative evidence of a trend in sponsored academies closing the FSM gap as they are open for longer, though it is difficult to draw firm conclusions given the small number of schools. There is no evidence of any particular gains made by pupils that have low or high prior attainment, relative to their peers with average KS2 attainment, that are associated with sponsored academy status.

4 Converter academies

4.1 Key Findings

This analysis shows that there is no significant difference in overall school performance between converter and similar maintained schools. Converter academies open for two years significantly outperform similar maintained schools in 2014, though the differences are small and there is no evidence of an upward trend in the performance of converter academies compared to similar maintained schools the longer they are open.

There is evidence that the attainment gap between pupils eligible for free school meals and pupils that are not is narrower in converter academies than in similar maintained schools. However, the difference of less than one GCSE grade per pupil represents just 6% of the overall gap between disadvantaged pupils and their peers, which is a relatively modest difference.

4.2 Matching

Schools that chose to become converter academies were schools that were judged to be performing highly according to their Ofsted rating, or good exam performance data. Indeed, becoming a converter academy during the 2009/10 academic year was restricted to schools with an 'outstanding' Ofsted rating. The data shows that converter academies had higher proportions of pupils achieving 5 A*-C including English and maths than average, and lower proportions of pupils eligible for free school meals. The schools were more likely than average to have an 'outstanding' or 'good' Ofsted rating. Therefore, a good comparison group of maintained schools should reflect these differences to act as a proxy for what might have happened to the converter academies if they hadn't become academies.

Appendix Tables A1.4 – A1.6 show the average characteristics of converter academies and all maintained schools, and the differences, which are generally statistically significant. The latter columns show the differences between converter academies and a matched group of maintained schools, and shows that the matched maintained schools have very similar characteristics. Indeed, the average differences between converter academies and the group of matched maintained schools are not statistically significant.

However, the comparison group for converter academies is comprised of schools that were maintained schools at the time the academy schools became academies and that are still maintained schools in 2014. School actively chose to become converter academy status, subject to an assessment of their suitability. Matching schools on their characteristics makes it likely that a large proportion of the comparison schools would have been eligible to choose to become a converter academy, but chose not to. Schools that chose to become academies might have been expecting to benefit more from academy status than those that

chose not to, so we might expect any comparisons to be favourable to converter academies. This possibility is worth bearing in mind, as it could bias the comparisons made.

4.3 Findings

4.3.1 Key Stage 4 results in 2014

Table 4.1 compares the 2014 Key Stage 4 results of converter academies and similar maintained schools using the three different measures. The averages show that performance in both converter academies and similar maintained schools are above the national average in terms of capped Key Stage 4 points (average = 315.0) and the percentage of pupils achieving 5 A*-Cs including English and maths (average = 52.6). The schools are also slightly above the national average value added of 1000. However, the analysis of interest is to compare averages in the two groups.

The results suggest the average performance of pupils in converter academies and similar maintained schools is very similar. Overall, the difference in capped Key Stage 4 points is 1 point: less than one GCSE grade per pupil difference in favour of converter academies. The difference in the proportion achieving 5 A*-C grades is 0.7 percentage points, and the difference in value added is 0.5 points.

Comparing the average differences between converter academies and similar maintained schools using regression analysis, which takes account of average underlying differences in the characteristics of the pupils such as their prior attainment and the proportion eligible for free school meals, confirms that the differences are small. The 95% confidence intervals indicate that the differences are not statistically significant. Because the number of converter academies and the number of similar maintained schools are both large we can be confident in the precision of the difference. The analysis suggests the school improvement benefits of becoming a converter academy are limited in the short term.

Table 4.1 Difference between converter academies and similar maintained schools in average GCSE outcomes

| | Average | Regression model |
|------------------------------------|---------|------------------|
| Capped Key Stage 4 point score | | |
| Converter academy | 335.1 | |
| Similar maintained | 334.0 | |
| Difference | 1.0 | 0.8 |
| 95% confidence interval | | (-0.9 – 2.4) |
| Percentage achieving 5 A*-C | | |
| Converter academy | 65.6 | |
| Similar maintained | 65.0 | |
| Difference | 0.7 | 0.6 |
| 95% confidence interval | | (-0.3 – 1.4) |
| Value added | | |
| Converter academy | 1007.9 | |
| Similar maintained | 1007.4 | |
| Difference | 0.5 | 1.1 |
| 95% confidence interval | | (-0.8 – 3.0) |
| Controls for prior attainment | No | Yes |
| Controls for pupil characteristics | No | Yes |

Note: Differences may not exactly match due to rounding.

4.3.2 Comparing earlier and later academies

Comparing the three cohorts of converter academies to their respective comparison groups shows no particular trend towards high performance in converter academies that have been open for longer. Because only 25 schools became converter academies in 2009/10 the comparative results for those schools should be treated with caution. Converter academies open for two years outperform similar maintained schools in 2014 by 2.4 Key Stage 4 points (less than half a GCSE grade per pupil), 1.4 percentage points of pupils achieving 5 A*-C grades and 1.1 value added points. The 95% confidence intervals show that these differences are statistically significant, though the differences are small.

Figure 4.1 shows the difference in Key Stage 4 point score between converter academies and similar maintained schools with 95% confidence intervals. It shows the differences for each of the three cohorts of academy schools and results from all three combined. The estimated differences are from the regression model, so take into account the average underlying characteristics of the pupils, such as prior attainment and the proportion eligible for FSM. Figure 4.2 shows the same for the percentage achieving 5 A*-C grades including English and maths and Figure 4.3 shows the same for value added.

Figure 4.1 Difference between converter academies and similar maintained schools in average 2014 capped Key Stage 4 points

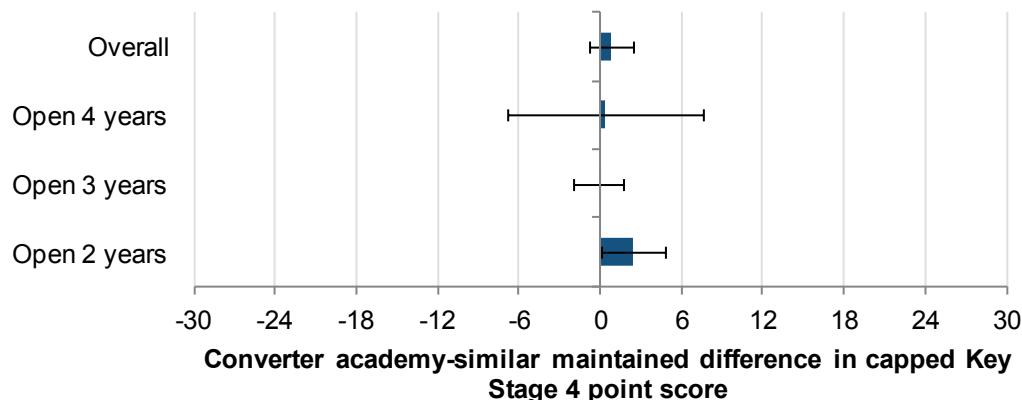


Figure 4.2 Difference between converter academies and similar maintained schools in 2014 percentage achieving 5 A*-C including English and maths

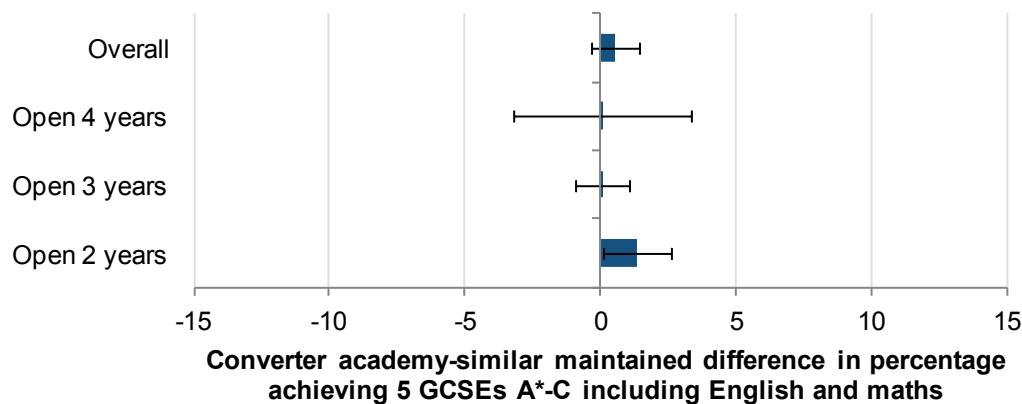
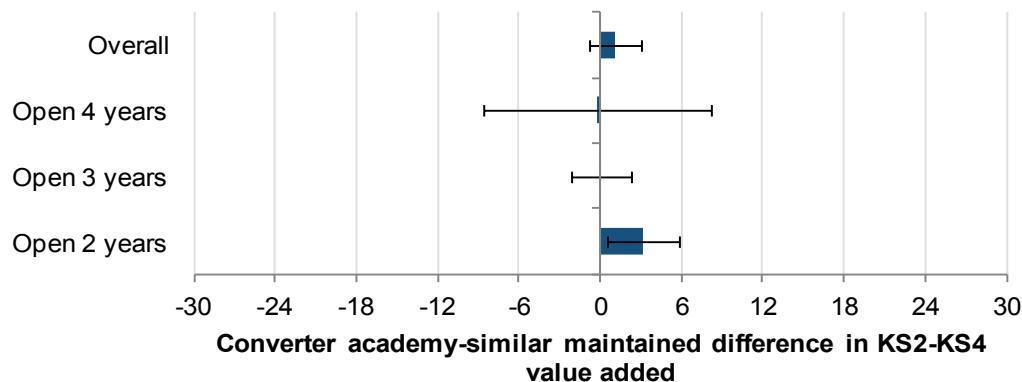


Figure 4.3 Difference between converter academies and similar maintained schools in 2014 Key Stage 2 to Key Stage 4 value added



4.3.3 Changes to the treatment of equivalent qualifications

How have the methodological changes to the way GCSE performance tables are calculated affected the difference between converter academies and similar maintained schools? Table 4.2 shows a comparison of converter academies and similar maintained schools in terms of 2013 capped Key Stage 4 points (including equivalent qualifications) and 2013 GCSE points (excluding equivalents). The comparison of 2014 Key Stage 4 points is also shown to enable comparison. The analysis shows that converter academies had a slightly higher average capped point score in 2013 compared to similar maintained schools when equivalents were included. When equivalents were excluded, converter academies had a slightly lower average capped point score in 2013 compared to similar maintained schools, though the difference is not statistically significant. The difference in 2014 average capped point score is in between the two.

This analysis suggests that the changes to the methodology for the Key Stage 4 performance tables have had a differential impact on converter academies compared to similar maintained schools. However, the magnitude of this differential impact is very small, and is smaller than the differential impact on sponsored academies.

Table 4.2 Difference between converter academies and similar maintained schools in average 2013 & 2014 capped Key Stage 4 points

| | Average | Regression model |
|--|---------|------------------|
| Key Stage 4 points in 2014 (2014 methodology) | | |
| Converter academy | 335.1 | |
| Similar maintained | 334.0 | |
| Difference | 1.0 | 0.8 |
| 95% confidence interval | | (-0.9 – 2.4) |
| Key Stage 4 (including equivalents) points in 2013 | | |
| Converter academy | 360.4 | |
| Similar maintained | 356.4 | |
| Difference | 4.0 | 4.0 |
| 95% confidence interval | | (2.3 – 5.6) |
| GCSE (excluding equivalents) points in 2013 | | |
| Converter academy | 313.4 | |
| Similar maintained | 314.6 | |
| Difference | -1.2 | -1.6 |
| 95% confidence interval | | (-3.9 – 0.8) |
| Controls for prior attainment | No | Yes |
| Controls for pupil characteristics | No | Yes |

Note: Differences may not exactly match due to rounding.

4.3.4 Narrowing the gap

Table 4.3 presents a comparison of the gap in capped Key Stage 4 points between pupils eligible for FSM and those pupils that are not between converter academies and similar maintained schools. On average, pupils eligible for free school meals achieve a lower capped Key Stage 4 point score than their peers not eligible for free school meals in both converter academies and similar maintained schools. The gap is around 52 points, which is equivalent to around 8 GCSE grades per pupil: for example, the difference between 8 C grades and 8 D grades.

Overall, the FSM gap is slightly smaller in converter academies, by around half a GCSE grade per pupil. This is equivalent to a narrowing of the existing FSM gap between schools by around 6%. The findings from a regression analysis of the FSM gap, which takes into account underlying average differences between schools in the proportion eligible for free school meals and prior attainment, are very similar. The difference is statistically significant, suggesting the difference is unlikely to be a chance difference.

Comparing the FSM gap between converter academies and similar maintained schools that were opened in different years does not suggest there is any trend.

Table 4.3 Difference between converter academies and similar maintained schools in the Key Stage 4 points gap between FSM-eligible and non-FSM pupils

| | Average | Regression model |
|---|---------|------------------|
| Converter academy | -51.8 | |
| Similar maintained | -54.7 | |
| Difference | 2.9 | 4.6 |
| 95% confidence interval | | (2.1 – 7.1) |
| Control for prior attainment | No | Yes |
| Control for proportion eligible for free school meals | No | Yes |
| Control for pupil characteristics | No | Yes |

Note: Differences may not exactly match due to rounding.

4.3.5 High and low attaining pupils

Table 4.4 presents the gap in capped Key Stage 4 points between pupils with low Key Stage 2 scores when they entered secondary school compared to those with average Key Stage 2 attainment, and pupils of high attainment when they enter secondary school compared to those with average attainment. The figures are shown for converter academies and similar maintained schools. As would be expected, pupils with low Key Stage 2 attainment tend to have lower Key Stage 4 point scores than those with average Key Stage 2 attainment, and the opposite is true for pupils with high prior attainment.

The analysis shows the attainment gaps for low- and high-ability pupils in converter academies and similar maintained schools are very similar. Regression analysis indicates

that the differences are not statistically significant. There is no evidence that converter academies systematically support the progress made by pupils with different levels of prior attainment. Analysing the prior attainment gaps by the year converter academies were opened shows no increasing or decreasing trend in gaps over time.

Table 4.4 Difference between converter academies and similar maintained schools in the capped Key Stage 4 point score gap between pupils with average Key Stage 2 attainment and pupils with low and high Key Stage 2 attainment

| | Average | Regression model |
|--|---------|------------------|
| Gap between low and average Key Stage 2 pupils | | |
| Converter academy | -90.7 | |
| Similar maintained | -91.2 | |
| Difference | 0.5 | 1.7 |
| 95% confidence interval | | (-4.2 – 7.6) |
| Gap between high and average Key Stage 2 pupils | | |
| Converter academy | 70.6 | |
| Similar maintained | 71.2 | |
| Difference | -0.7 | 0.0 |
| 95% confidence interval | | (-4.4 – 4.5) |
| Control for prior attainment | No | Yes |
| Control for proportion of low- and high-KS2 pupils | No | Yes |
| Control for pupil characteristics | No | Yes |

Note: Differences may not exactly match due to rounding.

4.4 Conclusions

This analysis shows that there is no significant difference in overall school performance between converter academies and similar maintained schools. The average difference between converter academies and similar maintained schools in 2013 was somewhat similar whether equivalent qualifications were included or excluded, so the 2014 changes to the school performance tables methodology are not an important factor contributing to this conclusion. Unlike for sponsored academies, there is no evidence of a trend towards performance increasing relative to similar maintained schools over time. Converter academies open for two years significantly outperform similar maintained schools in 2014, though the differences are small. It is still too early to judge the full impact of converter academy status on pupil progress because almost all converter academies have been open for three years or less.

There is evidence that the attainment gap between pupils eligible for free school meals and pupils that are not is narrower in converter academies than in similar maintained schools. However, the difference of less than one GCSE grade per pupil represents just 6% of the overall gap between disadvantaged pupils and their peers, which is a relatively modest

difference. There is no evidence of any particular gains made by pupils that have low or high prior attainment, relative to their peers with average KS2 attainment, that are associated with converter academy status.

5 Discussion

Growth in the number of academy schools to more than 4,000 in 2015 makes continued evaluation of the impact structural changes are having on schools important for informing how future policy develops. This report presents comparisons between sponsored and converter academies and groups of similar maintained schools, which is a more robust method of analysing the association between academy status and GCSE outcomes than comparing levels of school performance and of comparing trends. The analysis shows that the amount of attainment progress made by pupils in sponsored and converter academies is not greater than in maintained schools with similar characteristics. In almost all analyses the difference in average GCSE outcomes is small and not statistically significant.

The analysis in this report is limited because it compares sponsored academies and converter academies to groups of similar maintained schools and does not explore variation between academies of different types. Other research has investigated the extent of variation in school performance between academies that are in different academy chains run by different sponsors (Hutchings *et al.*, 2014; DfE, 2015). The extent to which academies use autonomy to make changes to the way the school operates might also have influenced what impact academy status has had. This research looks at the association between academy status and a school's own subsequent GCSE results, but there may also be a competitive impact of academy schools on other neighbouring schools.

This research also only considers existing schools that became academy schools and not newly set up academy schools, known as free schools. It will be interesting to compare the performance of pupils in free schools with other types of school, and to analyse the impact academy status has had on primary schools.

Sponsored academies

The analysis presented in this report found that the differences in school GCSE performance between sponsored academies that have been open for between 2 and 4 years and a group of similar maintained schools are generally small and mostly not statistically significant. This finding conflicts somewhat with previous research on sponsored academies, though the most extensive study of the performance of sponsored academies only found significant performance improvement in schools that had been academies for more than four years (Machin and Vernoit 2011). Further analysis comparing GCSE results in 2013 and 2014 suggests that changes to the way school league tables were calculated in 2014 have differentially affected the GCSE results of sponsored academies, because of the differential use of equivalent qualifications in sponsored academies compared to similar maintained schools.

There is also tentative evidence in this analysis of a trend towards greater improvement the longer a sponsored academy is open, which is consistent with previous research. However, there could be competing explanations. The amount of Department for Education funding available to sponsors when a school becomes a sponsored academy has reduced by 83% between 2010 and 2014, which might have reduced the long-term effectiveness of

academisation among schools that have become sponsored academies recently. Also, local authorities have been much more active in giving warning notices to maintained schools in recent years: the comparisons made in this report may be reflecting improvement in underperforming maintained schools offsetting improvement that is occurring in sponsored academies (NAO, 2014).

Converter academies

The analysis presented in this report found that there is no significant difference in school GCSE performance between converter academies and similar maintained schools. There is no evidence of a trend towards school performance increasing relative to similar maintained schools over time. It is still too early to judge the full impact of converter academy status on school performance because almost all converter academies have been open for three years or less, but the analysis presented here shows that there are no short-term benefits in improved school performance associated with converter academy status.

However, there is evidence that the attainment gap between pupils eligible for free school meals and those that are not is narrower in converter academies than similar maintained schools. Though a modest reduction in the FSM attainment gap of 6 per cent, this might show an increased focus on disadvantaged pupils being taken by converter academies.

References

- Cirin, R. (2014). *Do Academies Make Use of their Autonomy?* (DfE Research Report 366) [online]. Available:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/401455/RR366_-_research_report_academy_autonomy.pdf [17 April, 2015].
- Department for Education (2012a). *Attainment at Key Stage 4 by Pupils in Academies 2011* (DfE Research Report 223) [online]. Available:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/184062/DFE-RR223.pdf [17 April, 2015].
- Department for Education (2012b). *Replacing LACSEG with the Education Services Grant: Government Response to the Consultation on Funding Academies and Local Authorities for the Functions that Devolve to Academies* [online]. Available:
<http://webarchive.nationalarchives.gov.uk/20130401151715/https://www.education.gov.uk/publications/eOrderingDownload/replacing%20lacseg%20-%20government%20response.pdf> [17 April, 2015].
- Department for Education (2014a). *Performance of Converter Academies: an Analysis of Inspection Outcomes 2012 to 2013* (DfE Research Report 322) [online]. Available:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/269332/DFE-RR322 - Converter Academies Ofsted.pdf [17 April, 2015].
- Department for Education (2014b). *Provisional GCSE and Equivalent Results in England, 2013 to 2014* (Statistical First Release 41/2014) [online]. Available:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/366556/SFR41_2014_provisional_GCSE_and_equivalents.pdf [17 April, 2015].
- Department for Education (2015). *Measuring the Performance of Schools Within Academy Chains and Local Authorities* (Statistical Working Paper 09/2015)
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/415659/SFR09_2015.pdf [17 April, 2015].
- Great Britain. Parliament. House of Commons. Education Select Committee (2015). *Academies and Free Schools: Fourth Report of Session 2014–15* (HC 258) [online]. Available:
<http://www.publications.parliament.uk/pa/cm201415/cmselect/cmeduc/258/258.pdf> [17 April, 2015].
- Hutchings, M., Francis, B. and De Vries, R. (2014). *Chain Effects: the Impact of Academy Chains on Low Income Students* [online]. Available: <http://www.suttontrust.com/wp-content/uploads/2014/08/chain-effects-july-14-final-1.pdf> [17 April, 2015].
- Machin, S. and Vernoit, J. (2011). *Changing School Autonomy: Academy Schools and their Introduction to England's Education* (CEE Discussion Paper 123) [online]. Available:
<http://cee.lse.ac.uk/ceedps/ceedp123.pdf> [17 April, 2015].

National Audit Office (2010). *Department for Education: the Academies Programme* (HC 288) [online]. Available: <http://www.nao.org.uk/wp-content/uploads/2010/09/1011288.pdf> [17 April, 2015].

National Audit Office (2014). *Department for Education: Academies and Maintained Schools: Oversight and Intervention* (HC 721) [online]. Available: <http://www.nao.org.uk/wp-content/uploads/2014/10/Academies-and-maintained-schools-Oversight-and-intervention.pdf> [17 April, 2015].

Ofsted (2014). *Ofsted Annual Report 2013/14: schools report* [online]. Available: <https://www.gov.uk/government/collections/ofsted-annual-report-201314> [17 April, 2015].

Wilson (2011). *Are England's Academies More Inclusive or More 'Exclusive'? The Impact of Institutional Change on the Pupil Profile of Schools* (CEE Discussion Paper 125) [online]. Available: <http://cee.lse.ac.uk/ceedps/ceedp125.pdf> [17 April, 2015].

Worth, J. (2014). *Analysis of Academy School Performance in GCSEs 2013: Final Report* [online]. Available: <http://www.local.gov.uk/documents/10180/11431/Analysis+of+academies%27%20performance+in+GCSEs+2013/edfffb494-d32f-4f16-b8ae-d2ebba65f4f> [17 April, 2015].

Appendix A

Propensity score matching

Sponsored academies

Table A1.1 Characteristics of 2009/10 sponsored academies and unmatched and matched maintained schools

| | Unmatched | | | | Matched | | | |
|--|-----------|------------|------------|--------------|-----------|------------|------------|--------------|
| | Academies | Maintained | Difference | Significant? | Academies | Maintained | Difference | Significant? |
| Proportion achieving 5 A*-C including English & maths (2008) | 26.6 | 45.0 | -18.4 | Yes | 26.6 | 26.6 | 0.1 | No |
| Proportion eligible for free school meals (2008) | 26.8 | 15.1 | 11.7 | Yes | 26.8 | 27.5 | -0.7 | No |
| Ofsted rating: Good (2010) | 22% | 52% | -30% | Yes | 22% | 23% | -1% | No |
| Ofsted rating: Requires improvement (2010) | 62% | 44% | 18% | Yes | 62% | 66% | -4% | No |
| Ofsted rating: Inadequate (2010) | 16% | 4% | 11% | Yes | 16% | 11% | 4% | No |
| Number of schools | 45 | 1123 | | | 45 | 108 | | |

Table A1.2 Characteristics of 2010/11 sponsored academies and unmatched and matched maintained schools

| | Unmatched | | | | Matched | | | |
|--|-----------|------------|------------|--------------|-----------|------------|------------|--------------|
| | Academies | Maintained | Difference | Significant? | Academies | Maintained | Difference | Significant? |
| Proportion achieving 5 A*-C including English & maths (2009) | 33.7 | 47.6 | -13.9 | Yes | 33.7 | 33.1 | 0.6 | No |
| Proportion eligible for free school meals (2009) | 18.0 | 15.4 | 2.6 | No | 18.0 | 18.6 | -0.6 | No |
| Ofsted rating: Good (2010) | 13% | 52% | -39% | Yes | 13% | 14% | -1% | No |
| Ofsted rating: Requires improvement (2010) | 53% | 44% | 9% | No | 53% | 57% | -4% | No |
| Ofsted rating: Inadequate (2010) | 34% | 4% | 30% | Yes | 34% | 29% | 5% | No |
| Number of schools | 32 | 1123 | | | 32 | 80 | | |

Table A1.3 Characteristics of 2011/12 sponsored academies and unmatched and matched maintained schools

| | Unmatched | | | | Matched | | | |
|--|-----------|------------|------------|--------------|-----------|------------|------------|--------------|
| | Academies | Maintained | Difference | Significant? | Academies | Maintained | Difference | Significant? |
| Proportion achieving 5 A*-C including English & maths (2010) | 33.6 | 51.4 | -17.8 | Yes | 33.6 | 33.9 | -0.3 | No |
| Proportion eligible for free school meals (2009) | 24.3 | 15.6 | 8.7 | Yes | 24.3 | 23.8 | 0.5 | No |
| Ofsted rating: Good (2012) | 14% | 48% | -34% | Yes | 14% | 11% | 3% | No |
| Ofsted rating: Requires improvement (2012) | 70% | 48% | 22% | Yes | 70% | 71% | -1% | No |
| Ofsted rating: Inadequate (2012) | 16% | 4% | 12% | Yes | 16% | 18% | -2% | No |
| Number of schools | 37 | 1083 | | | 37 | 81 | | |

Converter academies

Table A1.4 Characteristics of 2009/10 converter academies and unmatched and matched maintained schools

| | Unmatched | | | | Matched | | | |
|--|-----------|------------|------------|--------------|-----------|------------|------------|--------------|
| | Academies | Maintained | Difference | Significant? | Academies | Maintained | Difference | Significant? |
| Proportion achieving 5 A*-C including English & maths (2009) | 71.9 | 63.9 | 8.0 | Yes | 71.9 | 74.6 | -2.7 | No |
| Proportion eligible for free school meals (2008) | 5.0 | 15.2 | -10.2 | Yes | 5.0 | 4.8 | 0.2 | No |
| Ofsted rating: Outstanding (2010) | 100% | 100% | 0% | - | 100% | 100% | 0% | - |
| Number of schools | 25 | 189 | | | 25 | 55 | | |

Table A1.5 Characteristics of 2010/11 converter academies and unmatched and matched maintained schools

| | Unmatched | | | | Matched | | | |
|--|-----------|------------|------------|--------------|-----------|------------|------------|--------------|
| | Academies | Maintained | Difference | Significant? | Academies | Maintained | Difference | Significant? |
| Proportion achieving 5 A*-C including English & maths (2009) | 64.3 | 50.4 | 13.9 | Yes | 64.3 | 64.5 | -0.2 | No |
| Proportion eligible for free school meals (2009) | 8.1 | 15.4 | -7.3 | Yes | 8.1 | 8.5 | -0.3 | No |
| Ofsted rating: Outstanding (2011) | 51% | 17% | 34% | Yes | 51% | 52% | -1% | No |
| Ofsted rating: Good (2011) | 41% | 44% | -3% | No | 41% | 40% | 1% | No |
| Ofsted rating: Requires Improvement (2011) | 8% | 39% | -31% | Yes | 8% | 8% | 0% | No |
| Number of schools | 650 | 1275 | | | 650 | 721 | | |

Table A1.6 Characteristics of 2011/12 converter academies and unmatched and matched maintained schools

| | Unmatched | | | | Matched | | | |
|--|-----------|------------|------------|--------------|-----------|------------|------------|--------------|
| | Academies | Maintained | Difference | Significant? | Academies | Maintained | Difference | Significant? |
| Proportion achieving 5 A*-C including English & maths (2010) | 61.6 | 54.9 | 6.8 | Yes | 61.6 | 61.2 | 0.4 | No |
| Proportion eligible for free school meals (2009) | 10.3 | 15.4 | -5.1 | Yes | 10.3 | 10.2 | 0.1 | No |
| Ofsted rating: Outstanding (2012) | 24% | 17% | 7% | Yes | 24% | 26% | -1% | No |
| Ofsted rating: Good (2012) | 51% | 44% | 7% | Yes | 51% | 51% | 0% | No |
| Ofsted rating: Requires Improvement (2012) | 25% | 39% | -14% | Yes | 25% | 24% | 1% | No |
| Number of schools | 362 | 1275 | | | 362 | 631 | | |

**Local Government Association**

Local Government House

Smith Square

London SW1P 3HZ

Telephone 020 7664 3000

Fax 020 7664 3030

Email info@local.gov.uk

www.local.gov.uk

© Local Government Association, June 2015

For a copy in Braille, larger print or audio,
please contact us on 020 7664 3000.
We consider requests on an individual basis.