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Schools: the evidence on academies, resources and pupil performance

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CENTRE *for* ECONOMIC PERFORMANCE

CEP ELECTION ANALYSIS

Schools: the Evidence on Academies, Resources and Pupil Performance

- The UK continues to perform at about the OECD average in international rankings of pupil achievement with an unchanged performance over the last 10 years.

- Under the coalition government, half of secondary schools have become academies: schools that are more autonomous and funded directly by central government rather than through local authorities. Research evidence suggests that under Labour, there was a large improvement in the first 100 or so schools to become 'city academies' within four years of their conversion.

- Generalising from these early academies is difficult because the schools that have converted since 2010 have very different characteristics. For example, the early academies were set up in disadvantaged areas whereas the current 4,403 academies have relatively advantaged pupils in schools formerly rated as 'outstanding'.

- The schools budget has remained stable as a proportion of GDP since 2010 (6% in 2011), even though the average class size in primary schools is high by OECD standards (25 versus 21). Research evidence indicates that school spending matters for pupil achievement, especially for disadvantaged pupils.

- There is broad agreement that high quality teaching matters hugely for pupil achievement, but the parties differ on where they place emphasis on the curriculum. The Conservatives emphasise basic skills in literacy and numeracy at primary school, whereas Labour's emphasis is on a broader curriculum in secondary school and the post-16 agenda.

- David Cameron has promised an expansion of free schools – schools similar to academies except that they are new entrants rather than converters. One of the concerns about this policy is whether or not it will be implemented with a view to meeting the projected demand for places in different areas of the country arising from demographic changes.

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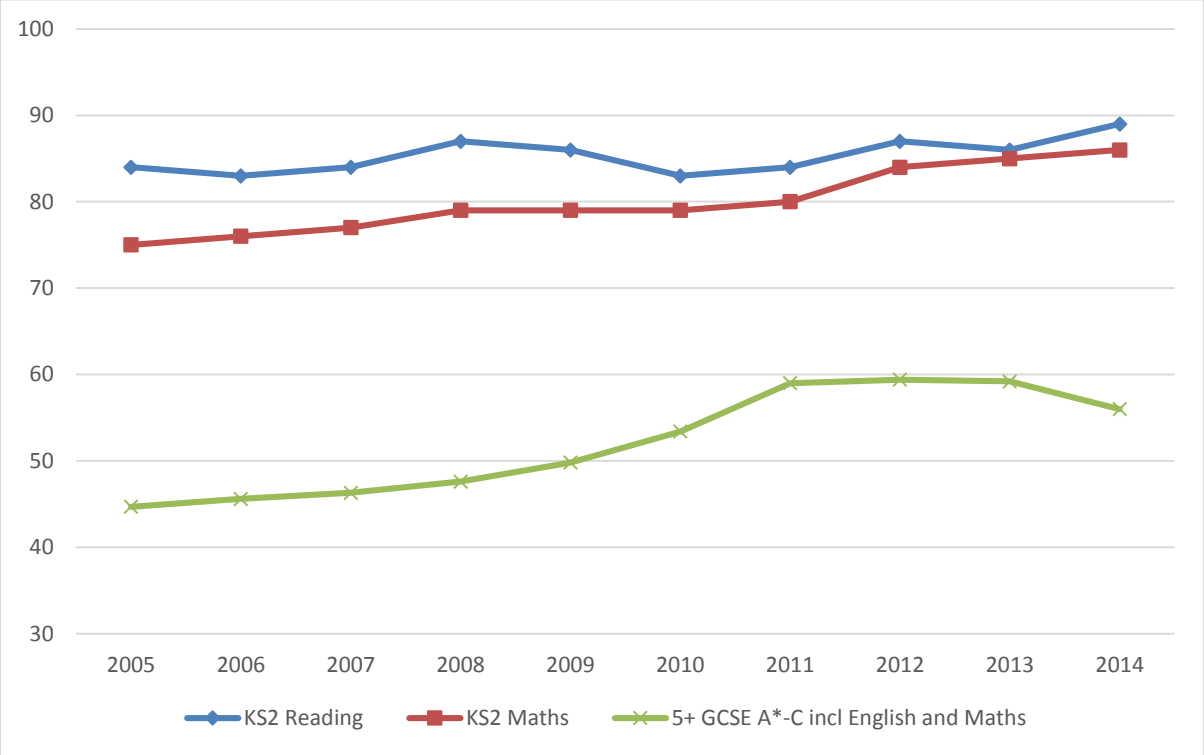
How are the UK's schools performing?

A natural place to start an assessment of the UK's education system is with the pupil performance measures published at age 16. In England, Wales and Northern Ireland, educational performance in secondary schools is often measured by the percentage of pupils attaining five or more GCSEs at grades A*-C (including English and maths). Currently, England and Wales are performing similarly to one another at GCSE (performance in Wales used to be considerably lower than in England), whereas average performance in Northern Ireland is higher than both. It is perhaps more informative to use international tests when making comparisons (see below) because of differences between countries in how GCSEs are taught.

In England, the performance indicator for primary education is the percentage of pupils achieving the required standard (as defined by the national curriculum) at the end of key stage 2 (age 11). Figure 1 shows how the measures of primary and secondary school performance have evolved in England since 2004-05.

Figure 1: Percentage of pupils achieving required standard by age 11 and 16 in England



Source: Department for Education. UK.

If we compare the most recent (2014) figures to the year of the last general election in 2010, all measures show an improvement. But for key stage 2 reading, the indicator has fluctuated within a narrow band with no clear trend (83-89% of pupils achieving the target). There has been a more convincing upward trend in maths (from 79% of pupils achieving the target in 2010 to 86% in 2014). For GCSEs, there has been an increasing trend up to 59% in 2011, after

which there has been no change and a small dip in 2014, probably reflecting changes to the exam and to what can be included in the indicator.

This still leaves 40% of all 16 year olds without at least five 'good GCSEs' – a grade C or better in five subjects including English and maths. This qualification matters for pupils not only because of what it represents in terms of achievement but also because it gives them access to A-level courses in sixth form colleges or a BTEC level 3 at a college of further education. Thus, the opportunities for the 40% without this qualification are much more restricted.

National statistics can be difficult to interpret because there is always the suspicion that results could be driven by 'teaching to the test' and/or attempts by schools to manipulate their performance (for example, by encouraging pupils to take easier subjects). The muted performance since the last general election could reflect either no improvement or measures introduced to try to make the system tougher (for example, reducing 'easy' options for pupils). International tests may be a more useful barometer as these problems do not arise.

But the news is not good for the most high profile international test, the Programme for International Student Assessment (PISA). This is a survey of the educational achievement of 15 year olds organised by the OECD. In 2012, there were 65 participating countries.

There has been no significant change in UK performance in reading or maths since 2006, which is at the OECD average (494 points).[1] The current ranking for the UK is 26th place for maths (just behind France) and 23rd place for reading (just ahead of the United States) out of 65 countries, which is broadly similar to the previous PISA performance in 2009. Within the UK, scores for maths were similar for England and Scotland; lower for Northern Ireland; and lowest in Wales. In both Wales and Northern Ireland, the scores deteriorated a little from the PISA scores in 2009; in England and Wales, they were almost unchanged.

More bad news for England and Northern Ireland is shown in the OECD's 2013 survey of adult skills, the Programme for the International Assessment of Adult Competencies (PIAAC). This suggests that younger people in the UK are not performing better than older people with respect to tests of either literacy or numeracy; whereas in most other countries, younger cohorts are doing much better. Specifically, those aged 16-24 performed worse than those aged 55-64. This left the young age group in the UK ranked 21st out of 23 OECD countries for literacy and 20th out of 23 for numeracy.

Given current relatively weak performance – and the difficulty in shifting performance – the aspirations of the education secretary, Nicky Morgan, for the UK to be within the top five countries of PISA in 2020 is most probably unattainable.[2] The current fifth ranking country (South Korea) is well ahead of the UK in PISA. South Korea is 59 points and 36 points ahead

[1] It is difficult to make comparisons with earlier versions of PISA. In 2000, the UK did not meet the OECD school response rate for PISA 2000. In 2003, participation rates both at school and pupil level did not meet OECD requirements and the UK was excluded from international comparisons.

[2] http://www.bbc.co.uk/news/uk-31079515

of the UK in maths and reading respectively. This translates to the UK being between one and one and a half school years behind the top five, which is an extremely large gap to bridge.

Educational performance needs to improve, not least because of its impact on economic growth, as argued by the LSE Growth Commission (Besley and Van Reenen, 2013). Hanushek (2012) suggests that 100 points on the PISA assessment is related to a two percentage point difference in annual growth rates of GDP per capita.

There is no quick fix for problems of poor educational performance, particularly since it is not only about what goes on in schools.[3] Countless studies demonstrate that most variation in pupil test scores is due to family background, parental inputs, natural pupil abilities and purely random variation, which are not easily manipulated by educational policy directly targeted to the school environment. Among the important policy issues for schools are what to emphasise in the national curriculum, school autonomy and accountability, and overall school resources.

The national curriculum: an emphasis on basic skills?

In recent speeches, the prime minister David Cameron and Nicky Morgan have emphasised a 'war on illiteracy and innumeracy'. They mean to pursue this by prescribing changes in primary school on the content of teaching and how learning is tested (for example, knowing times tables off by heart, accurate punctuation, grammar and spelling). The recent curriculum focus for Labour (as reflected in their leader Ed Miliband's recent speech to a school in Haverstock[4]) is to broaden provision at the secondary phase such that creative and vocational subjects get more attention than at present. Labour have also emphasised an 'apprenticeship guarantee' (by 2020) for all school leavers who achieve the required grades.

The differences in emphasis of the two biggest parties are not mutually exclusive. The emphasis on literacy and numeracy, however, makes sense in light of the continual poor performance of young people in these areas and the apparent stagnation over time (described above). Without an adequate foundation in basic skills, too few people have the prerequisites for good quality educational or vocational options later on in life.

Autonomy and accountability

Several countries have enabled a certain proportion of state-funded schools to operate with greater autonomy than the norm. The structure and rules differ between (and sometimes within) countries, but they also have much in common – for example, 'charter schools' in the United

[3] The 'London effect' has been much discussed following the rapid improvement seen in London schools. But Burgess (2014) shows that this can be attributed to the faster growth of immigration in London: the children of immigrants tend to show faster improvement in test scores than the children of natives).
[4] http://press.labour.org.uk/post/110805266184/speech-by-ed-miliband-on-education-at-haverstock.

States; 'free schools' in Sweden and 'academies' in England. The rationale is that by giving schools more freedom, they might be better able to respond to local circumstances and become more innovative. There is descriptive evidence that more autonomous schools have better management practices (for example, Bloom et al, 2015). But there is a 'health warning' from Andreas Schleicher of the OECD, which is that autonomy needs to be accompanied by a culture of peer learning and accountability to be effective.[5]

In England, sponsored academies are run by their sponsors (for example, a charity or university) and boards of governors. They have responsibility for employing all staff, agreeing pay and conditions, freedom over most of the curriculum (except for core subjects) and all aspects of school organisation. The programme commenced in 2000 and was originally devised for a limited number of schools in disadvantaged areas (about 200 under Labour).

The programme has massively expanded under the coalition government and is no longer aimed specifically at schools in disadvantaged areas. From 2010, any school that has been rated as 'outstanding' by Ofsted is allowed to become an academy on a fast-track route (so called 'converter academies'). Other schools may also apply, with some additional conditions. There are also schools that appear to be either pressurised or required to become academies. Over time, many of the original requirements to become an academy have been removed.[6] As of January 2015, there were 4,403 open academies[7] – over half of all secondary schools and about 10% of primary schools.

As the expansion of the academies programme is very recent, it is too soon to make a judgement on the overall impact of the programme. But there have been evaluations of schools that became academies up to 2008-09 (Eyles and Machin, 2015; Eyles et al, 2015; Machin and Silva, 2013; Machin and Vernoit, 2011). These studies compare outcomes for pupils attending academy schools from 2002-03 to 2008-09 with those who attend schools that convert to academies later.

Eyles and Machin (2014) find that GCSE performance increases by around 0.2 of a standard deviation for pupils who spend four years in an academy school (that is, those who enrol in year 7 and the school converts the following year). Furthermore these gains are twice as large if the school converts from a community school (the school with the least initial autonomy).

Although these effects are quite large on average (perhaps 20 PISA points), they have not been spread equally. Machin and Silva (2013) find that the benefits are concentrated among pupils of medium to high prior attainment (as measured by attainment at the end of primary school) and do little to help the lowest achieving pupils. Nevertheless, these pre-2010 converters typically had a *much* higher proportion of pupils on free school meals (FSM, an indicator of economic disadvantage) and lower scores at both GCSE and key stage 2 than the national

[5] https://www.tes.co.uk/article.aspx?storycode=6323243.
[6] Bagaria et al (2013) give a good discussion of policy details and the evolution in the 'academy' movement over time.
[7] https://www.gov.uk/government/publications/open-academies-and-academy-projects-in-development.

average (Eyles et al, 2015). So although the policy did not reach the worst performers within schools, it did improve things for a generally disadvantaged population.

The differences between pre- and post-2010 academies make extrapolation tricky. Post-2010 converters are the mirror image of the early academies because they have a more advantaged intake with higher prior performance.

Although there is a political consensus behind academies, there remain concerns. So far, academies are mainly focused among secondary schools: will they work in the smaller and more numerous primary schools? Do the leaders and governors of such schools have the breadth of expertise and the time to take on the responsibilities of greater autonomy?

Another concern is what happens to the community role that used to be performed by local education authorities in relation to badly behaved pupils (exclusions) or pupils with special educational needs? Is there more of a danger that vulnerable pupils will slip through the net?

Protecting school resources

Schools have been protected from cash expenditure cuts imposed on many other government departments. As a result, education spending has stayed at roughly the same level (as a percentage of GDP) as it was in 2006. At 6% of GDP, this is higher than the OECD average (5.6%) and the proportions in France, Germany and the United States. But as Table 1 shows, compared with the OECD and all these countries, the average class size in primary schools is still higher in the UK (and did not change between 2006 and 2011). With population pressures growing, it will be hard to maintain even the (relatively) large average class size within the same budget.

Table 1: Resources and class sizes in schools

	Expenditure on education as a percentage of GDP (2011)	Average class size in primary education (2011)
UK	6.0%	25
United States	5.1%	21
Germany	5.0%	23
France	5.7%	21
OECD average	5.6%	21

Source: OECD Education at a Glance, 2014.

Does this matter? Researchers have found it very difficult to establish the relationship between school resources (usually measured by expenditure or the pupil/teacher ratio) and academic achievement. It is certainly not possible to make inferences simply by comparing the change in expenditure with the change in academic achievement. This is because in many school

systems, spending is disproportionately allocated to schools in disadvantaged areas (which tend to have lower results). Similarly, in many schools, weaker pupils are placed in smaller classes.

There is a huge body of research that tries to overcome these problems. A recent review by Gibbons and McNally (2013) focused on high-quality research designs in the last 10 years, which tended to support the positive effects of school resources on attainment, although there is a wide range of estimates about the exact magnitude of the effect.

CEP's own work on English primary schools (Gibbons et al, 2011) finds effects at the upper end of the range. About a 30% increase in average expenditure per pupil (over four years – between age 7 and 11) is expected to produce an increase in achievement of a level equivalent to 25-30 points on the PISA scale.

One notable point arising from our review is that increases in resources are usually more effective for disadvantaged schools and/or pupils. If this indicates that disadvantaged pupils are genuinely more responsive to resource-based interventions, then targeting resources at these pupils will lead to higher average achievement, as well as more equitable outcomes.

This bodes well for the 'pupil premium' policy, which provides additional resources for disadvantaged FSM pupils. The pupil premium started at £430 per pupil per year in 2010-11 (approximately £450 in 2009 prices) and rose to £1,300 in 2014-15 (approximately £1,150 in 2009 prices). But FSM pupils are only 17% of pupils nationally. Therefore, since the pupil premium is simply additional funding for some schools, and is not necessarily used for resources targeted specifically at FSM children, it amounts to additional income of at best about £100 per pupil initially, rising to £200 by 2014-15 (again at 2009 prices).[8]

According to our estimates, an additional £200 per student per year could be expected to raise achievement by around 5 points on the PISA scale. If the premium is spent on FSM pupils in schools with high proportions of FSM pupils, the effects could be substantially higher and the final pupil premium could go some way to closing the large gap between FSM and non-FSM pupils.

The Conservatives and Labour have made explicit commitments with regard to school expenditure over the next Parliament. The Conservatives say that they would protect school expenditure in cash terms whereas Labour say they would protect school expenditure in real terms. Neither have made an explicit commitment to protect expenditure in either the early years or post-16.

[8] Note, taking into account inflation and freezes in other sources of school funding, there may be no overall increase in funding, only a redistribution across schools and pupils.

Free schools

David Cameron, has promised a big expansion of free schools, which are like academies in that they have much autonomy but are new entrants rather than converters. Their new entrant status makes free schools more like charter schools in the United States, which have had mixed success. There is strong experimental evidence that urban charters, especially the 'no excuses' variety serving disadvantaged populations, can be very successful. But suburban charters have not done so well in terms of performance.

An additional problem with free schools is that they may not meet the need for supply in areas undergoing a larger population growth of young people. This depends on the extent to which free schools are set up in areas with a projected shortage of school places. The Select Committee report on academies and free schools finds mixed evidence on the extent to which this has happened to date.[9] It would certainly be of concern if the expansion of free schools were pursued without sufficient regard for the need to manage capacity in the system as a whole.

Conclusion

The parties seem to agree on the overall direction of travel in education policy – mass academisation and protecting school funding – even though they differ on where they place emphasis (for example, primary versus secondary school curriculum) and on the details of policy (for example, whether to protect school funding in nominal or real terms). There is surprisingly little discussion over the radical shake-up of the schools system under the academies programme. But the battleground is more clearly drawn over the desirability of free schools.

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[9] http://www.publications.parliament.uk/pa/cm201415/cmselect/cmeduc/258/258.pdf

Further reading

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