

# **School Structure, School Autonomy and the Tail**

**Stephen Machin and Olmo Silva**

**Special Paper No. 29**

**March 2013**

## **Centre for Economic Performance Special Paper**

Stephen Machin is Research Director of the Centre for Economic Performance and Director of the Labour Markets Programme at CEP, London School of Economics and Political Science. He is also a Professor of Economics at University College London. Olmo Silva is a Research Associate in the Education and Skills Programme at CEP and a Senior Lecturer in the Department of Geography and Environment, London School of Economics and Political Science.

## **Abstract**

In this paper, we survey the UK-based literature on school structures and school autonomy to identify settings in which alternative and more autonomous school arrangements can improve the educational attainments of pupils in the bottom tail of the achievement distribution. We also present new evidence on the effect of school academies on the age-16 GCSE attainment of students of different abilities up to 2009, before the Coalition Government changed the nature of the Labour academy programme. Within the UK education system, academies enjoy substantial autonomy in terms of management of their staff, taught curriculum, length of the school day and other aspects of their day-to-day functioning. Our results show that schools that converted to academies between 2002 and 2007 improved their overall age-16 GCSEs results by further raising the attainments of students in the top half of the ability distribution, and in particular pupils in the top 20% tail. Conversely, we find little evidence that academies helped pupils in the bottom 10% and 20% of the ability distribution. Finally, we find little evidence that late converters (2008 and 2009) had any beneficial effects on pupils of any ability. We conclude our research by comparing the experience of UK academies to that of US charter schools and Swedish free schools, and by providing some insights into the reasons why UK academies did not serve ‘the tail’ as is the case for some US charter schools.

## **Acknowledgements**

We would like to thank James Vernoit for help with the data and Dale Basset for insightful comments.

# **School Structure, School Autonomy and the Tail**

**Stephen Machin and Olmo Silva**

## **Introduction**

The idea that different school structures and degrees of autonomy can improve standards is one that has become popular in some quarters. What is more, some of the newer school structures – like academy schools in England, charter schools in America, and free schools in Sweden – often have a preponderance of ‘tail’ students. Thus it is natural to ask whether there is scope for different school structures – and the differing degrees of autonomy associated with them – to alleviate the tail by raising standards.

These issues form the focus of this Chapter, where we ask what can be said about this extremely important aspect of education policy by looking at the most convincing and up-to-date research evidence. We try to identify situations where evidence points to a beneficial impact on pupils in the tail of the achievement distribution, and assess whether we can find scope for these alternative institutional arrangements to work in English schools. In doing so, we will revise both the theoretical arguments and the empirical evidence on the effects of alternative school arrangements and autonomy on students in the tail of the ability distribution. To begin with, we will discuss why more autonomous school structures could have an impact on students’ attainment and school composition. We will then discuss in more detail the nature of school structures in England, and place academies in this context. We will finally review some related empirical evidence coming from the UK, the US and Sweden.

## **School autonomy and alternative school structures: Why should they work?**

Partly motivated by the inconclusive evidence on the effectiveness of resource-based interventions (Hanushek, 2003), governments around the world tend to favour policies based on accountability, autonomous school structures, and choice in the ‘schooling market’ to improve standards. The rationale for this focus rests with the idea that more autonomy and flexibility in school arrangements, coupled with quasi-market incentives, can spur teaching innovation and address low achievements. But what are the main ‘ingredients’ of models of education centred on autonomy and choice?

Accountability lies at the heart of these modes of schooling provision. In these settings, pupils are assessed on the basis of standardised examinations and this allows parents and policy makers to identify good and bad schools, impose sanctions and targets, and undertake closure and restructuring. Crucially, within an accountability framework, standardised tests are made publicly available via league tables to all potentially interested ‘stake-holders’, i.e. parents, practitioners and government analysts. This implies that schools are not only accountable to the local governments or other funding bodies – e.g. the ‘sponsor’ in the case of some of the English academies – but more widely and directly to parents, who can ‘shop around’ for school quality (Tiebout, 1956). All in all, the scope of accountability is to gather and spread information about school achievements and to allow monitoring of education progress and teaching staff performance.

Accountability by itself may provide sufficient incentives for schools to improve performance. This could occur because of ‘name-and-shame’ mechanisms, or through specifically targeted interventions aimed at addressing problems identified by the gathering of information. Accountability might also raise teacher and pupil motivation, and increase parental involvement in their child’s education. However, it is generally argued that accountability will produce most of its effects when coupled with mechanisms that: (1) increase parental choice; and (2) grant schools some autonomy to restructure their governance and respond to the competitive pressures introduced by parental choice.<sup>1</sup>

Why should school choice and autonomy spur better educational standards? Arguments in support of these positive effects use standard efficiency explanations from economic theory that broadly fall into two categories: (1) those based on the better matching of pupil needs and school provision; and (2) those based on market discipline incentives. The first argument suggests that gains arise through the efficient allocation of pupils to schools according to personal tastes and pedagogic needs. If schools are allowed some autonomy to differentiate, then pupils can choose the education-service provider that better caters for their needs. This more efficient ‘matching’ of pupils and schools will lead to higher academic achievements. The second argument is based on competition among schools and market-type incentives. If parents are given freedom to choose the school that they prefer, good schools will attract more students and will expand, whereas bad schools will lose pupils and

---

<sup>1</sup>LeGrand (1991, 1993), Machin and Vignoles (2005) and Burgess et al. (2006) present a discussion of the English school choice experience, while Hoxby (2004) gives a detailed analysis of the topic for the US.

eventually close. In order to remain in the market and keep up with their competitors, schools will have to monitor and improve teaching practices, thus raising educational attainments.

Notice that some important assumptions underlie this model of school provision. First, schools are able to signal their overall quality to parents via information provided in performance tables, and this drives enrolment patterns. Second, resources follow pupils – so that pupils are valuable ‘assets’ for schools – and funding is linked to schools’ capacity to attract students. Third, schools are granted some flexibility to experiment with different teaching methods and to specialise so that they can cater for specific needs or tastes. Schools should also be given some autonomy to manage their teaching body in ways that improve performance and motivation, and to use personnel practices that facilitate the hiring and retaining of talented instructors and managers. Finally, good schools should be allowed to expand in order to accommodate extra demand for their services, and new schools should be allowed in the market if there is demand for their activities. On the other hand, underperforming schools should be allowed to fail and close.

Although models of school provision centred on autonomous structures and choice could deliver improvements in standards, a number of drawbacks have been highlighted. For example, schools could respond to an increase in competition by reducing their teaching effort and going ‘down-market’ in order to serve only parents with weak preferences for school quality. Moreover, pupil might travel further distances to attend the school of their choice with consequent detrimental effects on achievement because of lateness, fatigue or absence.

However, the most overarching concerns relate to distributional issues. First of all, although wider school choice could boost some pupils’ achievements, these benefits may come at the cost of increased between-school segregation and the gains may not be equally distributed, i.e. school autonomy and choice might not be a ‘tide to lift all boats’. The argument behind this claim is two-fold. On the one hand, better-off parents might be more effective at exploiting school choice – e.g. because of awareness of educational opportunities and familiarity with the education system – and gain access to high-quality education, while segregating students with the most disadvantaged backgrounds into ‘sink-schools’. On the other hand, when standardised exams (feeding into league tables) are high-stakes because they determine reputation and student roll, school have incentives to cherry-pick students with the ‘right’ background (a practice called ‘cream-skimming’).

A related worry is that – even if school do admit disadvantaged pupils – they might try to ‘game’ or ‘twist’ the system. For example, teachers might coach only students that are most likely to perform well in standardised tests and neglect pupils at the bottom of the ability distribution in order to maximise school ratings. Similarly, schools might exempt more poor-performing students from sitting exams when facing short-run incentives to improve performance, or place more students from low socio-economic backgrounds into special education needs to mitigate their adverse impact on the league tables. Finally, it has been argued that that autonomy coupled with accountability based on league tables might push teachers to train students only to perform well in standardised tests, a problem often

referred to as teaching-to-the-test. It is however worth noting that the theoretical considerations in Lazear (2006) suggest that teaching-to-the-test might be more ‘efficient’ – i.e. produce more learning – when there are disproportionately many high-cost learners in the class. In this sense, predictable high-stakes tests which can be drilled by the teachers might favour students in the tail, who would otherwise leave school even without this basic level of learning.

## **School structures in the English system and academies in context**

Secondary schools in the state-sector in England fall into a number of categories that differ in terms of their governance, management of the teaching staff and control over pupil admissions. Currently, secondary schools can take one of the following six alternative structures: community schools, voluntary controlled schools, foundation schools, voluntary aided schools, city technology colleges, and – since their introduction in the early 2000s – academy schools. In the next paragraphs, we briefly discuss how these school types are structured and highlight their autonomy – or lack of it – in terms of governance and admissions. This will set the ground for a discussion of school academies, which enjoy the most autonomous structures within the state-school system.<sup>2</sup>

Starting with community schools, these institutions are mainly organized and managed through the local education authority (LEA) and their governing body is predominantly composed by members of the staff and representative of the LEA. Responsibility for recruiting, human resources decisions and admissions is in the hands of the LEA. As a result, these schools are characterised by very little autonomy and tend to admit local students or students who are assigned to the school by the LEA if they cannot be accommodated in the school of their choice.<sup>3</sup> Next, voluntary controlled schools are similar to community schools in that admissions and employment decisions solidly rest in the hands of the LEA. However, the majority of these schools is religiously denominating and associated to one of the main faiths (mainly Church of England). As a consequence, their governing body also includes members of the foundation supporting the school.

Voluntary-aided and foundation schools enjoy more autonomy than voluntary controlled and community schools and are similarly structured, except for the fact that foundation schools are predominantly secular whereas voluntary aided schools are mainly religiously denominating (Catholic and Church of England). These schools are run as a partnership between the state and the voluntary sector, and the foundation (or the governing body of the school) is responsible for hiring and firing decisions, personnel management and admissions. Note also that the governing body of these schools has a smaller proportion of members of the LEA and a significant representation of members of the

---

<sup>2</sup> The English secondary school market also includes a set of independent (private and fee paying) school. Their management body makes autonomous decisions in terms of hiring and firing of staff, the teaching content, structure and length of the school day, and the procedures for pupil selection and admissions.

<sup>3</sup> Admission to schools is based on parental preference, but over-subscribed schools prioritise pupils on the basis of various school-specific criteria. For secular schools, priority is given to children with special educational needs, children with siblings in the school and to children who live closest. For Faith schools, regular attendance at local designated churches is foremost. More details are provided in Gibbons et al. (2008).

foundation. In particular, in voluntary aided schools, members appointed by the foundation cover at least 50% of the available seats.

Similarly to these schools, city technology colleges (CTCs) also enjoy substantial autonomy from the LEA. In particular, the majority of their governing body is filled with representatives of the sponsor (usually a business, faith or voluntary group) and the school acts as its own admission authority. Moreover, the governing body of the school has substantial control over staffing decisions. However, CTCs follow the national curriculum and are characterised by a strong emphasis on technological, scientific and practical subjects.

Lastly, academy schools enjoy a larger degree of autonomy than any other school type in the state system. Academies were gradually introduced into the English school system by the Labour Government starting from September 2002. Whilst there are differences in the nature of their introduction in different LEAs, the main aim of the Labour policy was to replace existing failing local schools through conversion to academies.<sup>4</sup> Although academies remain part of the state sector and are non-selective, non-fee-charging state-funded schools, they broadly fall outside the control of the LEA in terms of key strategic decisions and day-to-day management. In fact, academies are managed by a private, independent sponsor through a largely self-appointed board of governors. This body has responsibility for hiring the staff, negotiating pay and working conditions, and deciding on matters such as career development, discipline and performance management. Furthermore, some academies (depending on their funding arrangements) enjoy more autonomy in terms of the majority of the taught curriculum (except for English, Maths, Science and IT), as well as of the structure and length of the school day. Finally, these schools can select up to 10% of their pupils with a clear aptitude in the academy's chosen specialism.

Note that with the election of the Conservative-Liberal Democrat Coalition Government in 2010, the nature of academies has altered. Many of the new converter academies are not the kinds of disadvantaged institutions that were the typical type of converting school under the Labour-sponsored academies model. Moreover, since only two years have passed since the Academies Bill 2010 changed the nature of academy schools (and newly introduced free schools), we will not discuss the experience and likely effects of the new wave of academies.<sup>5</sup> We will instead confine our attention to the Labour Academies, i.e. those introduced up to the academic year 2008/9. By this date, there were 130 academies operating, comprising approximately 4.5% of secondary schools.<sup>6</sup>

---

<sup>4</sup> Note that some academies were also introduced as new schools in some particular areas, or as a way of successful (mainly private, fee-charging) schools to expand their pupil intake.

<sup>5</sup> As of July 1 2012, the number of open academies had expanded hugely to 1957.

<sup>6</sup> More details on the introduction and functioning of the Labour academies can be found in Machin and Wilson (2008), Machin and Vernoit (2011), Wilson (2011).

## **School structures and school autonomy: Evidence from England**

We will now discuss the UK evidence on the effects of school structure and autonomy on both pupils' performance and school intake. When thinking about the impact of school autonomy, the most pertinent example is the one of academy schools. However, at present, very limited evidence has been collected on this relatively recent 'policy experiment'. Therefore, we begin by reviewing more generally what we know about some closely related topics, namely the effects of accountability, other forms of school autonomy and choice in the 'education market'.

To begin with, a broad literature has investigated the effects of the education reforms of the late 1980s which lead to the publication of performance tables in 1992 and the introduction of parental choice as the guiding principle for pupils' assignment to schools (see Glennester, 1991). For example, Levacic (2004) reports that secondary school head-teachers respond to competitive pressures due to the introduction of performance tables, and Bradley et al. (2000) show that secondary schools that performed better than their neighbours attracted more pupils. More recently, Burgess et al. (2010) study the abolition of performance tables in Wales and find that reducing accountability significantly worsens school effectiveness.

One very illustrative example based on the reforming experience of the late 1980s is Clark (2009). The author investigates whether secondary schools that were handed more autonomy following conversion to grant maintained (GM) status (roughly corresponding to foundation schools today) performed better than schools that did not convert. More specifically, the author exploits the fact that parents with children enrolled at the school had to vote on the decision to become GM, and compares the performance of 'narrow winners' to the performance of 'narrow losers' to identify the effects of autonomous structures. The author finds that becoming a GM school is associated with significant improvements in the proportion of pupils achieving five or more GCSEs at A\*-C grades (or equivalent). Moreover, this advantage increases over time, with schools improving at an increasing rate after conversion to their more autonomous structure. The author also finds that student 'quality' (i.e. pupil intake) improves in schools converting to GM status, suggesting that they might become more selective, or that parental preferences for these schools might change upon conversion. On the other hand, the author does not investigate whether the effects of more autonomy are heterogeneous according to students' background, so that it is hard to say whether GM status improved learning of students in the tail.

In a related piece, Gibbons and Silva (2011) study the effect of attending an autonomous school – i.e. a voluntary aided or a foundation school – during primary education for more recent years (i.e. mid-2000s). Their approach exploits access to information about pupils' place of residence, previous academic records and future (secondary) school choice to control for factors that influence the propensity to attend an autonomous school. The authors' results suggest that although more autonomous schools tend to admit pupils with educationally advantageous backgrounds, there are no



clear performance benefits from autonomous structures. The authors find that this is true irrespective of pupils' background: students eligible for free meals, carrying special education needs and with low early test scores (age-7/Key Stage 1 achievements) in more autonomous schools finish primary education neither better nor worse than comparable students in LEA-controlled community schools. However, Gibbons et al. (2007) find that primary schools with autonomous governance respond to a greater degree of competition with other local schools by raising their pupils' achievements: their students' Key Stage 1-to-Key Stage 2 value-added improves by about 1.6 point for each additional competitors, or about 16-19 weeks of progress in one of the core subjects, i.e. English or mathematics. The authors also find that effect is somewhat larger for pupils from disadvantaged background – i.e. those eligible for free-school meals – although the data is 'thin' and inference less precise. This suggests that pupils in the tail might benefit from studying at more autonomous schools when these have to compete with other local institutions. On the other hand, the authors find no evidence that increased school competition improve standards for pupils in schools that fall more heavily under the control of the LEA (e.g. community schools). These patterns lend some support to the idea that increased parental choice can lead to an improvement in standards in education when coupled with a sufficient degree of school autonomy. Consistent results are also documented in Gibbons and Silva (2008) who investigate the effectiveness of secondary schools in more dense urban environments, where the most disadvantaged students –i.e. those in the tail – tend to live. The authors show that students attending more urban secondary schools perform better than those enrolled at more isolated rural institutions, and suggest that a likely explanation of their findings lies in greater school choice and competition in denser urban environments.

As discussed above, the main concern with increased school autonomy and choice is that these arrangements might trigger perverse school behaviour, and in particular efforts to 'game the system' and 'cream-skim' the best students. Evidence on the first issue is fairly scant, even though Burgess et al. (2005) show results consistent with the idea that accountability and autonomy have diverted teachers' attention away from low ability pupils towards students most likely to achieve high marks and improve school rankings. In contrast, more research effort has been directed at understanding the effects of choice and autonomy on segregation. Among others, Bradley et al. (2000), Bradley and Taylor (2002), Goldstein and Noden (2003), and Burgess et al. (2004) all suggest that increased parental choice and differentiated school-markets (i.e. different schools with different structures) are associated with more polarization in secondary schools. Gibbons and Silva (2006) analyse this issue at the primary school level and find that more school choice tends to exacerbate polarisation of primary schools by student attainment, although this effect is not statistically significant. On the other hand, Gorard et al. (2003) show that secondary schools became less socially segregated in the 1990s after the introduction of the market-oriented reforms during the late 1980s, and Burgess et al. (2010) find no evidence of reduced sorting in Welsh school after the abolition of performance tables in 2001.

Direct evidence on the effect of autonomous structures as embodied by the academy schools is much more limited. Two early studies were conducted by Machin and Wilson (2008) and Price Waterhouse Coopers (PWC, 2008). The former looked at possible improvements in the GCSE performance of academy schools relative to the achievement of a matched group of schools, and found modest and insignificant effects. Conversely, PWC (2008) compared the evolution of achievements in academies to the attainment in the national average, and found large and significant effects. However, as Machin and Wilson (2008) argue, comparing achievements at academies to the average national performance is very problematic and results by PWC (2008) should be interpreted with caution. Interestingly, both Machin and Wilson (2008) and the PWC (2008) agree that – back in 2008 – it might have been too early to draw conclusions on the general effectiveness of academies. More recent evidence collected in Machin and Veroit (2011) presents a rosier picture: the authors show that moving to a more autonomous school structure by converting to an academy generates improvement in terms of pupils' performance at the end of secondary school. Importantly, the authors find that these results are stronger for academies that experienced the largest increase in their school autonomy (i.e. from community schools to academies) and only significant and sizeable for academies that opened earlier on (i.e. up to the academic year 2006/7). These early reformers experience improvements in the fraction of pupils obtaining 5 or more A\*-C GCSEs of around 18% of a standard deviation, or approximately 3.5 percentage points from an average of 30%.

Machin and Veroit (2011) and Wilson (2011) study changes in the pupil intake composition of schools becoming academies. Both studies find that the Key Stage 2 scores of year-7 pupils entering academies significantly improved after conversion. Further, both papers document that this improvement occurred in 'one shot' as schools changed their status and that the jump was sizeable at approximately 1.5-3% improvement in average Key Stage 2 achievements. Wilson (2011) further documents that this average improvement was accompanied by a significant reduction of the standard deviation of the Key Stage 2 scores of the incoming cohorts of year-7 pupils at converting academies, implying that overall these schools reduced their intake of pupils from the lower tail of the ability distribution. Finally, the author documents that converting academies enrolled approximately 12.5% fewer pupils who are eligible for free school meals, reinforcing the impression that academies became more 'exclusive'. It should however be noticed that – lacking information on parental preferences – neither study can tell apart whether changes occurred because of school admissions practices or changes in parental preferences for this type of more autonomous schools.

One thing remarkably absent from these studies on the effects of academies is an investigation of whether any improvements in school performance occurred by 'lifting' pupils in the tail or by further pushing up students at the top of the ability distribution. Using the same data and approach as Machin and Veroit (2011), we next turn to this question. In a nutshell, we investigate the Key Stage 4 (GCSE) performance effects of academy conversion across the distribution of pupil prior attainment, whereas Machin and Veroit (2011) only looked at average effects. For comparison, they found an

average improvement of 0.148 of a standard deviation in the fraction of pupils obtaining 5 or more A\*-C GCSEs for early academy conversions, but could not reject a zero impact for later conversions.

Figure 1 summarizes the findings from our new analysis, while the actual results from our statistical regression approach are presented in Appendix Table 1. In the top plot, pupils are ranked by their Key Stage 2 total score (percentile) within their secondary school (e.g. the bottom 10% at the school), whereas in the bottom plot they are ranked within the national distribution (e.g. the bottom 10% nation-wide).<sup>7</sup> This alternative ranking allows us to account for the possibility that pupils in the middle of the ability distribution at an academy school might still be in the tail nation-wide since academies enrol the most disadvantaged students. Our findings reveal that the positive average effect of early converters documented by Machin and Vernoit (2011) and reported in the first pair of bars arises from significant effects higher up the distribution of students' early test scores. There are positive, statistically significant (represented by a full bar in the plots) effects in the 50<sup>th</sup>-to-80<sup>th</sup> and top 20 percentiles of the within-school distribution. Similarly, there are positive and sizeable effects in the 25<sup>th</sup>-50<sup>th</sup> and top 20 percentiles in the national distribution, and very large positive effects for pupils in the 50<sup>th</sup>-to-80<sup>th</sup> percentile of the national distribution. Although these effects are not significant, they are clearly much larger than those for pupils at the bottom of the ability distribution. Indeed, irrespectively of whether we rank pupils by the school or national ability distribution, the effects of academy conversion are insignificantly different from zero – and possibly negative for later conversions – in the bottom 10% and 20% of the ability distribution, suggesting no beneficial effects on tail students in academies.

## **What do we learn from other countries' experiences? The case of US and Sweden**

England is not the only country where reforms aimed at giving schools more autonomy and freedom to innovate have taken place. In the US, charter schools – a type of institution similar to academies with significant autonomy in terms of management and decision making – have spread across many states since their introduction in the 1990s. Similarly, a reform implemented in Sweden in 1992 brought to the 'education market' free-schools – i.e. private schools competing with public institutions for students and public funding, but privately managed and with significant autonomy in terms of their day-to-day activities and long-term choices. Since we believe these experiences provide some useful lessons for the 'academies experiment' in the UK, we briefly review some related evidence.

Starting with the US, a number of studies have obtained causal estimates of the effect of charter schools by exploiting the fact that oversubscribed institutions use lotteries to allocate places, therefore by-passing the problem of selection of different pupils into charter schools.<sup>8</sup> One of the earliest

<sup>7</sup> More details about our regressions are provided in the note to the table.

<sup>8</sup> Note that there are also a number of studies not based on lotteries. For example, using propensity score matching, CREDO (2009) shows that charter schools are no better (or worse) than neighbouring traditional public schools. However, results from non-experimental methods are prone to biases due to students' selection into schools; see discussion in Hoxby and Murarka (2007).

studies by Abdulkadiroglu et al. (2009) focuses on the impact of the Boston charter schools on pupil attainments. The authors find significant improvement in pupils' test scores both in middle and high schools, and for both English and Mathematics – with the latter improving more. Interestingly, the authors also show that pupils in the tail – i.e. those with particularly low attainments before enrolling at a charter school – benefit the most. Similarly, Hoxby and Murarka (2009) find positive and significant effects of charter school attendance for students 'lotteried in' the New York City charter schools. The authors' findings show that, for both reading and mathematics, these beneficial effects increase for each additional year spent at a charter school between 3<sup>rd</sup> and 8<sup>th</sup> grade. The authors also find that these effects are remarkably similar for boys and girls, and for students of Black and Hispanic origins, suggesting that students in the tail might benefit from charter school attendance. A related study by Dobbie and Fryer (2009) investigates the educational attainments of children enrolled at charter schools associated with the Harlem Children's Zone (HCZ) initiative in New York. The authors find that attendance at an HCZ school significantly increases pupils' achievement, with sizeable improvements in English and mathematics for both primary and secondary school students. The authors also show that the programme benefits pupils of all abilities, which attained roughly similar benefits from attending HCZ charters. Finally, Angrist et al. (2010) evaluate the impact of a group of charter schools in Lynn (Massachusetts) managed by the Knowledge is Power Program (KIPP). These charter institutions specifically aim at improving achievements of low income students that qualify for free school meals and were set-up by teachers who qualified through the Teach for America programme. The authors find that pupils enrolled at KIPP schools between grade five and eight experience sizeable improvements in their English and mathematics achievements. Importantly, they find that these benefits are particularly strong for pupils with special education needs, lower prior attainments and poor command on English. Stated differently, the benefits of attending a KIPP school are stronger for pupils in the tail.

It should be noted that none of these studies can properly investigate whether charter schools have more selected intake composition, since the allocation of places at over-subscribed schools is done by lotteries. However, most of these charter schools tend to cater very disadvantaged (and mainly ethnic-minority) urban students and thus predominantly enrol students in the bottom tail of the achievement distribution. For example, Hoxby and Murarka (2009) report that the New York City schools they analyse locate in very deprived areas and attract students who are substantially poorer than those at an average public school in New York City.

Regarding the Swedish experience, a number of studies have investigated the competition effects exerted by the introduction of independent free-schools on either state school performance or on aggregate achievements at the municipality level. These studies include Ahlin (2003), Björklund et al. (2005), and Sandström and Bergström (2005), with results ranging from statistically insignificant estimates to very large effects. However, the early version of the work by Bohlmark and Lindahl (2007) is the only study that carefully decomposes whether any improvement in attainments at the

municipal level can be explained by state schools responding to the free-school competitive threat by raising standards, or by free-schools being more effective and expanding their market shares. The authors show that the former channel explains most of the improvements in overall achievements, but also provide some evidence that free-schools – with their more autonomous structures – are more effective at educating children. Note that this effect is small – especially compared to the results found for the US charter schools – at approximately 1 percentile or 4% of a standard deviation, and that Bohlmark and Lindahl (2007) do not report whether these results are stronger for weaker pupils with more disadvantaged background. Finally, the authors investigate whether the increased availability of private schools in the municipality has worsened school level segregation along the lines of parental income, education and immigration status. Their results show that more private schools tend to ‘siphon away’ from public schools children whose parents have higher education levels and who are not first-generation immigrants. This suggests that Swedish free-schools tend to enrol pupils not coming from the bottom tail of the ability distribution.

## **Concluding remarks**

The notion that different school structures can be a route to deliver improved educational performance has become a popular one. Indeed, reforms to school structures – and their autonomy and governance – have been a feature of recent education policies in countries like England, Sweden and the United States. But does autonomy work? And does it offer scope to improve the lot of disadvantaged students in the lower tail of the education distribution?

Our conclusion is probably not, or at least not in England and in the case of Labour’s sponsored academies. Whilst there is a paucity of robust and coherent evidence to draw upon, it does not seem unreasonable to say that, on balance, the evidence that does exist at best shows only small beneficial effects on overall pupil performance and very little consistent evidence of improvements for tail students. Nevertheless, there are some success stories coming from the US, suggesting that, in some situations, autonomous schools can improve the performance of disadvantaged students, and narrow some of the most persistent educational disparities, such as the black-white achievement gap.

What could explain the different performance of the US charters and UK academies? Although very speculative, one possible explanation rests with the details of the functioning of American charter schools. One of the defining features of these institutions is that they operate on the basis of a ‘charter’, i.e. a performance contract granted for three to five, defining the school’s mission and goals, as well as the type of students it aims to attract. Charter schools are then held accountable to their sponsor (for example a local school board), which assesses whether these stated aims have been achieved and – if not – eventually revokes the charter. As of 2012, approximately 15% of all charter schools closed because they failed to achieve their goals. This generates sharp incentives for these schools to ‘perform’ and achieve their contractual aims. Since the majority of charter schools serve impoverished urban areas with the specific aim of improving the attainment of disadvantaged pupils –

and is held accountable for their improvements – it is not surprising that these institutions have been effective at educating the ‘tail’.

On the other hand, English academies cater a mix of students of different abilities, and are held accountable on the basis of the same performance tables used by other schools in the country. These tend to focus schools’ attention on final attainments – such as the proportion of student achieving 5 A\*-C GCSEs – rather than measures of educational progression – such as contextual value-added. As discussed above and elsewhere in this book (see the chapter by Dale Basset), this has the potential to distort schools incentives towards coaching students most likely to perform well in the national exams in order to maximise school ratings, and neglect pupils at the bottom of the ability distribution. Unfortunately, the evidence we have collected seems to back this pessimistic intuition.

In conclusion, it may be that in the longer run the best academies will flourish and spread their practices across the education market in a tide that lifts all boats and so raises the achievement of pupils of all abilities. However, in order to guarantee that these more autonomous institutions can make a difference for the tail, new ‘rules of the game’ should be designed to make sure that schools have incentives to focus on the most disadvantaged student and, at the same time, are held accountable for their improvements.

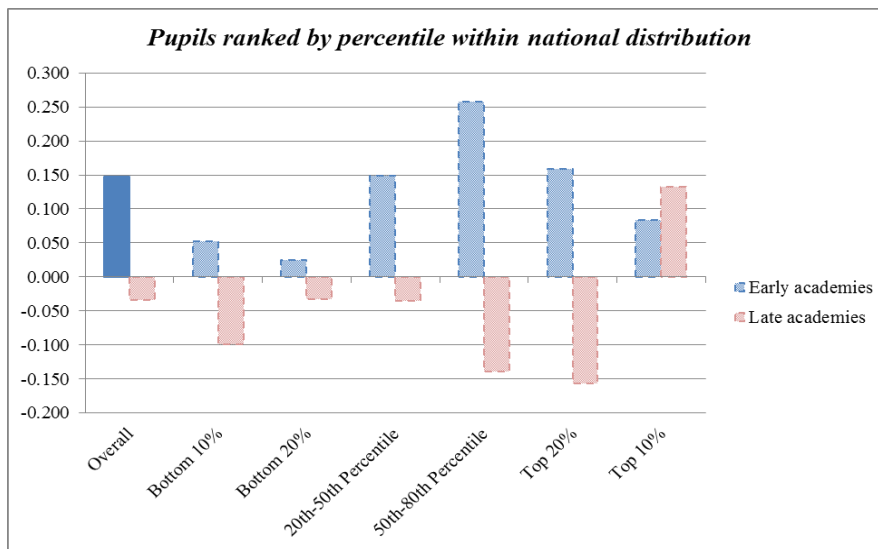
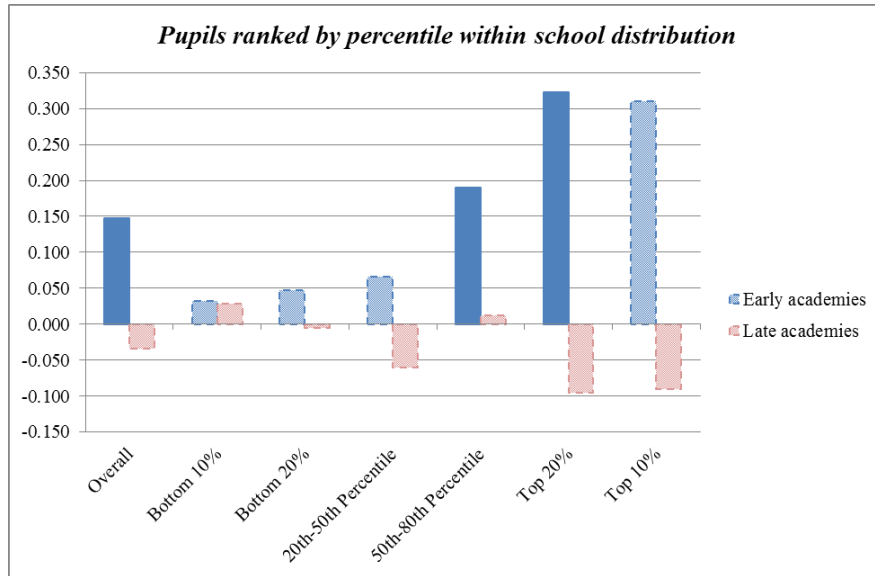
## References

- Abdulkadiroglu, A., J. Angrist, S. Dynarski, T. Kane and P. Pathak (2009): "Accountability and Flexibility in Public Schools: Evidence from Boston's Charters and Pilots", NBER Working Paper 15549.
- Ahlin, Å (2003): "Does school competition matter? Effects of a Large-scale School Choice Reform on Student Performance", Working Paper 2003:2, Department of Economics, Uppsala University.
- Angrist, J., S. Dynarski, T. Kane, P. Pathak, and C. Walters (2010): "Who Benefits from Charter Schools? Evidence from KIPP Lynn", NBER Working Paper 15740.
- Björklund, A, M. Clark, P.-A. Edin, P. Fredriksson, and A. Krueger (2005) "The market comes to education in Sweden: An evaluation of Sweden's surprising school reforms", Russell Sage Foundation, New York.
- Böhlmark, A and M. Lindahl (2007): "The Impact of School Choice on Pupil Achievement, Segregation and Costs: Swedish Evidence", IZA Discussion Paper No. 2786.
- Bradley, S., R. Crouchley, J. Millington, and J. Taylor (2000): "Testing for Quasi-Market Forces in Secondary Education", *Oxford Bulletin of Economics and Statistics*, vol. 62(3), 357-90.
- Bradley, S. and J. Taylor (2002): "The effect of the quasi-market on the efficiency-equity trade-off in the secondary school sector", *Bulletin of Economic Research*, vol. 54, 295-314.
- Burgess, S., A. Briggs, B. McConnell and H. Slater (2006): "School choice in England: Background Facts", CMPO Working Paper 06/159.
- Burgess, S., B. McConnell, C. Propper, D. Wilson (2004): "Sorting and Choice in English Secondary Schools", CMPO Working Paper 04/111.
- Burgess, S., C. Propper, H. Slater and D. Wilson (2005): "Who Wins and Who Loses from School Accountability? The Distribution of Educational Gains in English Secondary Schools", CMPO Working Paper 05/128.
- Burgess, S., D. Wilson, and J. Worth (2010): "A natural experiment in school accountability: the impact of school performance information on pupil progress and sorting", CMPO Working Paper 10/246.
- Clark, D. (2009): "Politics, Markets and Schools: Quasi-Experimental Estimates of the Impact of Autonomy and Competition from a Truly Revolutionary U.K. Reform", *Journal of Political Economy*, vol. 117(4), 745-783.
- CREDO (2009): "Multiple Choice: Charter Performance in Sixteen States", Center for Research on Education Outcomes, Stanford University.
- Dobbie, W. and R. Fryer (2009): "Are High Quality Schools Enough to Close the Achievement Gap? Evidence From a Social Experiment in Harlem", NBER Working Paper 15473.
- Gibbons, S., S. Machin and O. Silva (2008): "Choice, Competition and Pupil Achievement", *Journal of the European Economic Association*, vol. 6(4), 912-47.
- Gibbons, S. and O. Silva (2006a): "Competition and Accessibility in School Markets: Empirical Analysis Using Boundary Discontinuities", in T.J. Gronberg and D.W. Jansen (eds.), *IMPROVING SCHOOL ACCOUNTABILITY: CHECK-UPS OR CHOICE?*, *Advances in Applied Microeconomics*, Vol.14, Elsevier.
- Gibbons, S. and O. Silva (2008b): "Urban Density and Pupil Achievement", *Journal of Urban Economics*, vol. 63(1), 631-650.
- Gibbons, S. and O. Silva (2011): "Faith Primary Schools: Better Schools or Better Pupils?", *Journal of Labor Economics*, vol. 29(3), 589-635.

- Glennerster, H. (1991): “Quasi-Markets for Education”, *Economic Journal*, vol. 101, 1268-1276.
- Goldstein, H. and P. Noden (2003): “Modelling social segregation”, *Oxford Review of Education*, vol. 29(2), 225-237.
- Gorard, S., C. Taylor and J. Fitz (2003): *Schools, Markets and Choice Policies*, Routledge Falmer, London.
- Hanushek, E. (2003): “The Failure of Input-Based Policies”, *Economic Journal*, vol. 113, F64-F98.
- Hoxby, C. (2004): “School Choice and School Competition: Evidence from the United States”, *Swedish Economic Policy Review*, vol. 10(2), 9-65.
- Hoxby, C. and S. Murarka (2007): “Methods of Assessing Achievement of Students in Charter Schools”, in M. Behrens (eds.), *CHARTER SCHOOL OUTCOMES*, The Analytic Press, New York.
- Hoxby, C. and S. Murarka (2009): “Charter Schools in New York City: Who Enrolls and How They Affect Student Achievement”, NBER Working Paper 14852.
- Lazear, E. (2006): “Speeding, Tax Fraud and Teaching to the Test”, *Quarterly Journal of Economics*, vol. 121(3), 1029-1061.
- Le Grand, J. (1991): *Equity and choice*, London, Harper Collins.
- Le Grand, J. (1993): *Quasi-markets and social policy*, London, Macmillan.
- Levacic, R. (2004): “Competition and the Performance of English Secondary Schools: Further Evidence”, *Education Economics*, vol. 12(2), 177-93.
- Machin, S and J. Veroit (2011): “Changing School Autonomy: Academy Schools and Their Introduction to England’s Education”, CEE Discussion Paper 123.
- Machin, S. and A. Vignoles (2005): *What’s the Good of Education?*, Princeton University Press.
- Machin, S. and J. Wilson (2008): “Public and Private Schooling Initiatives in England: The Case of City Academies”, in R. Chakrabarti and P. Peterson (eds.), *SCHOOL CHOICE INTERNATIONAL*, MIT Press, Cambridge, MA.
- PriceWaterhouseCoopers (2008): “Academies Evaluation Fifth Annual Report”, Annesley, Department for Children, School and Families (DCSF) Publications.
- Sandström, M. and Bergström, F. (2005): “School Vouchers in Practice: Competition Will Not Hurt You”, *Journal of Public Economics*, vol. 89, 351-380.
- Tiebout, C. (1956): “A Pure Theory of Local Expenditures”, *Journal of Political Economy*, vol. 64(5), 416-424.
- Wilson, J (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.



Figure 1: Academies and GCSE Performance –  
The Effect of Academy Conversion on Pupils of Different Abilities



**Note:** The outcome of interest is the fraction of pupils obtaining at least 5 A\*-C GCSE, and the bars show the effect of early and late academy conversions expressed as a fraction of the across-school variation (standard deviation) in the percentage of pupils achieving 5 A\*-C GCSE. Pupils are ranked by their KS2 total score within their secondary school in the top panel (e.g. the bottom 10% at the school) and in the national distribution in the bottom panel (e.g. the bottom 10% nation-wide). For details about the regression method and specification see notes to Appendix Table 1. Early academies are those converting before 2006/2007. Full bar represents significant effects (10% significance or better), shaded bars represent non-significant effects.

Appendix Table 1: Academies and GCSE Performance – The Effect of Academy Conversion on Pupils of Different Abilities

Pupil KS2 between:	Bottom10 pctiles	Bottom 20 pctiles	20 <sup>th</sup> -50 <sup>th</sup> pctile	50 <sup>th</sup> -80 <sup>th</sup> pctile	Top 20 pctiles	Top 10 pctiles
<i>Panel A: Pupils ranked by percentile within school distribution</i>						
Early Academies, Stand. Effect	0.032 (0.076)	0.047 (0.072)	0.066 (0.048)	0.190 (0.091)*	0.323 (0.175)*	0.310 (0.228)
Late Academies, Stand. Effect	0.028 (0.039)	-0.005 (0.037)	-0.061 (0.057)	0.012 (0.086)	-0.096 (0.142)	-0.091 (0.166)
<i>Panel B: Pupils ranked by percentile within national distribution</i>						
Early Academies, Stand. Effect	0.052 (0.135)	0.024 (0.082)	0.149 (0.102)	0.257 (0.161)	0.159 (0.274)	0.084 (0.280)
Late Academies, Stand. Effect	-0.100 (0.061)	-0.033 (0.052)	-0.035 (0.089)	-0.140 (0.142)	-0.157 (0.233)	0.132 (0.197)

**Note:** The dependent variable is the fraction of pupils obtaining at least 5 A\*-C GCSE. Pupils are ranked by their KS2 total score within their secondary school in Panel A (e.g. the bottom 10% at the school) and in the national distribution in Panel B (e.g. the bottom 10% nation-wide). Regressions include school fixed effects, year dummies, KS2 of pupils taking their KS4 exams and the following controls: proportion of pupils eligible for free school meals; proportion of pupils taking free school meals; proportion of pupils of White ethnic origin; pupil to qualified teachers ratio; proportion of pupils with special education needs, with statements; proportion of pupils with special education needs, without statements. Number of observations: 1560. Early academies are those converting before 2006/2007. Standard errors in parenthesis clustered at the school level. \*=10% significance or better.