

LSE Research Online

Andrew Eyles, Stephen Machin and Silva Olmo

Academies 2: the new batch - the changing nature of academy schools in England

Article (Published version)

Refereed

Original citation:

Eyles, Andrew, Machin, Stephen and Olmo, Silva. (2017) *Academies 2: the new batch - the changing nature of academy schools in England*. [Fiscal Studies](#) . ISSN 0143-5671

DOI: [10.1111/j.1475-5890.2017.12146](https://doi.org/10.1111/j.1475-5890.2017.12146)

Reuse of this item is permitted through licensing under the Creative Commons:

© 2017 The Authors
CC BY 4.0

This version available at: <http://eprints.lse.ac.uk/79988/>
Available in LSE Research Online: October 2017

LSE has developed LSE Research Online so that users may access research output of the School. Copyright © and Moral Rights for the papers on this site are retained by the individual authors and/or other copyright owners. You may freely distribute the URL (<http://eprints.lse.ac.uk>) of the LSE Research Online website.

Academies 2 – The New Batch: The Changing Nature of Academy Schools in England*

ANDREW EYLES,[†] STEPHEN MACHIN[‡] and OLMO SILVA[§]

[†]*Department of Economics, University College London; Centre for Economic Performance, London School of Economics
(A.Eyles@lse.ac.uk)*

[‡]*Department of Economics and Centre for Economic Performance, London School of Economics
(S.J.Machin@lse.ac.uk)*

[§]*Department of Geography and Environment and Centre for Economic Performance, London School of Economics
(O.Silva@lse.ac.uk)*

Abstract

The English education system has undergone large-scale restructuring through the introduction of academy schools. The most salient feature of these schools is that, despite remaining part of the state sector, they operate with more autonomy than the predecessors they replaced. Two distinct periods of academy school introduction have taken place, under the auspices of different governments. The first batch was initiated in the 2002–03 school year by the Labour government of the time, and was a school improvement programme directly aimed at turning around badly performing schools. The second batch involved a mass academisation process following the change of government in May 2010 and the Academies Act of that year, which resulted in increased heterogeneity of new academies. This paper compares the two batches of introduction with the aim of getting a better understanding of their similarities and differences,

* Submitted September 2015.

The authors would like to thank participants at the CEP Education Work-in-Progress seminar, the editors (Claire Crawford and Matthias Parey) and a referee for their comments and suggestions.

Keywords: academies, pupil intake.

JEL classification numbers: I20, I21, I28.

and their importance for education policy. To do so, we study what types of schools were more likely to change to academy status in the two programmes, and the impact of this change on the quality of new pupil enrolments into the new types of school. Whilst we do point out some similarities, these are the exception rather than the norm. For the most part, our analysis reveals a number of marked dissimilarities between the two programmes, in terms of both the characteristics of schools that became academies and the changes in pupil intakes that occurred post-conversion.

Policy points

- Over the past two decades, academies have become central to secondary education in the state sector in England. Despite remaining part of the state sector, academies are able to operate with more autonomy than the predecessor schools they replaced.
- Initially introduced by the Labour government in 2002 as part of a targeted school improvement programme, academies have become part of a ‘big push’ for autonomy in state education promoted by the government since 2010.
- We compare the characteristics of schools converting during the two batches of academy introduction – i.e. before and after 2010 – and the characteristics of pupils enrolling in the two types of academies following conversion.
- We find the two programmes to be very different, in terms of both the characteristics of schools that became academies and the changes in pupil intake that occurred post-conversion.
- This means that – despite a widespread tendency to do so – it is not possible to extrapolate the lessons learnt from the first batch of academies to the second one.

I. Introduction

A feature of the evolving nature of education systems in a number of countries has been the introduction of school reforms operating through the creation of new school types. The best-known recent examples of these are free schools (*friskolor*) in Sweden, charter schools in the United States and academy schools in England. These new school types have mostly been introduced from a premise that the pre-existing education system was not delivering high enough standards for children. Whilst there are notable differences between them (in particular, whether they are brand-new schools or conversions from existing schools), they all represent movements away from what can be thought of as the traditional, state-controlled, local or community school. More specifically, these new schools are typically decentralised from local

authority / municipality / school district control, and thus have more operational autonomy.

This paper focuses on the academy schools of England. The introduction of academies, which began in the early 2000s, is turning out to be one of the most radical and encompassing programmes of school reform seen in the recent past amongst advanced countries. Unlike traditional community schools, academies are autonomous, state-funded schools which are managed and run outside the local authority's control. In almost all cases, they are conversions of existing predecessor schools that inherit pupils already enrolled in the school. In essence, academies are school 'takeovers' which, because of their nature, enable schools to operate with considerably more autonomy and strategic independence than they did in their predecessor state.¹

At present, around 2,100 of England's secondary schools (or about 65 per cent of them) and a further 3,400 primary schools (about 23 per cent) have become academies.² Whilst the first academies were introduced in the 2002–03 school year by the Labour government in power at the time, the vast majority became academies after the change of government in May 2010. The newly elected Conservative–Liberal-Democrat coalition quickly ushered in the 2010 Academies Act, a legislative change that widened the academies' remit. Prior to the Act, only secondary schools could become academies, and in order to convert they were required to sign up a sponsor. After the Academies Act, there was more heterogeneity, as primaries were also allowed to become academies, and a sponsor was no longer required for conversion to take place.

In fact, the introduction of the Act dramatically changed the aim of the programme. While the Labour government introduced academies as a remedial programme aimed at replacing failing schools, the coalition government expanded the programme as part of a project aimed at introducing greater autonomy and competition into the state school sector. While new Labour-type 'sponsored' academies have continued to open, most of the expansion of the academy sector has come from 'converter' academies: high-performing schools that change their institutional arrangements to acquire greater freedom in terms of budgeting, hiring of staff, pay and working condition negotiations, performance management, taught curriculum and length of the school day. To put things in perspective, 'converters' represent more than 80 per cent of the expansion of the academy sector in the past six years.

¹They are different from most US charter schools, which are typically set up from scratch. A closer comparison to the typical charter school in England is the free schools, a recent addition to the education landscape. These are new schools often set up by parent or community groups. Conversely, the closer US comparison to English academies would be 'in-district' charters, where an already existing public school is converted to a charter as a school takeover. Although these are less commonplace than the other US charters, there are places where conversions of public schools to charters have taken place (such as Boston and New Orleans – see Abdulkadiroglu et al. (2016)).

²In England, secondary schooling takes place from ages 11–12 to 15–16 (Years 7 to 11) and primary schooling from ages 4–5 to 10–11 (Years 1 to 6).

Since May 2010, there have been further developments in the scale and scope of the academy programme. In March 2016, the new Conservative government announced that all schools would have to become, or be in the process of becoming, academies by 2022. However, following strong resistance from parents, teachers' associations and local councils – as well as some politicians – the plan was officially abandoned in October 2016. Nevertheless, it is still the case that the government aspires to have as many schools as possible voluntarily gaining academy status, although the model seems to have fallen somewhat down the current education policy agenda and has become one of 'encouragement' rather than 'compulsion'. Notwithstanding these recent developments, the stark differences in the purposes of the academies programme before and after May 2010 have remained.

The aim of this paper is to compare and contrast these two (pre- and post-May-2010) programmes. One reason why this investigation is needed is the continued extrapolation of findings from the first programme to the post-May-2010 conversions, by policymakers, media commentators and – in some cases – academics. The extent to which this extrapolation is valid depends on the extent to which the two programmes – and, more precisely, the schools becoming academies before/after May 2010 – are alike.

To uncover what similarities and differences characterise the two regimes, we undertake an empirical study of academy conversions that took place between the academic years 2002–03 and 2012–13, with two particular research questions in mind. First, we study the characteristics of secondary schools that gain academy status. It is well documented that the pre-2010 conversions were underachieving schools usually serving disadvantaged inner-city neighbourhoods. A general perception, as well as the nature of the coalition government's academy programme, suggests that this is not true for the new batch of academies. In this paper, we present rigorous empirical evidence on the validity or otherwise of this perception.³

The second focus is on how academy conversion impacts on a school's pupil intake and to what extent this differs between the two regimes. Early evidence suggests that, post-conversion, the Labour academies enrol pupils with higher end-of-primary-school test scores and other advantageous background characteristics (for example, fewer pupils eligible for free school meals).⁴ We therefore consider how similar this trend has been for the pre- and post-May-2010 academy schools.

To preview our findings, we find that the programmes are significantly different in terms of the school characteristics that are associated with

³Note that we focus on secondary schools as there were no primary academies during the Labour period. See Eyles, Machin and McNally (2016) for a study of primary school academisation post-2010.

⁴Machin and Wilson, 2008; Machin and Vernoit, 2011; Wilson, 2011; Eyles and Machin, 2015.

conversion – in particular, school average Key Stage 4 (end-of-secondary-schooling) attainment, incidence of pupils eligible for free school meals (a proxy for low family income) and inspectorate (Ofsted) ratings. Schools converting under the two policy periods are also different in terms of the quality of new enrolments to the school as measured by pupils' prior Key Stage 2 (end-of-primary-schooling) achievement and eligibility for free school meals. This clearly shows that the programmes are not *prima facie* comparable, and therefore that findings from the earlier conversions cannot be meaningfully extrapolated to later conversions. That said, we also highlight some commonalities, suggesting that a more careful and nuanced comparison could in some circumstances be undertaken. We discuss this later in more detail, but one clear instance is that comparing Labour-type 'sponsored' academies in both regimes may be a relatively legitimate comparison to draw. Conversely, any extrapolation from 'sponsored' academies to coalition 'converters' would be a distorted comparison likely to lead to biased conclusions.

Our evidence contributes to a small but growing literature on the nature and effects of academy schools. The first round of studies focused on a small number of early Labour academies and investigated the effect of conversion on pupil achievement at the end of secondary schooling.⁵ More recently, Eyles and Machin (2015) conducted a comprehensive causal evaluation of the Labour academies programme, studying both intake and end-of-secondary-school performance effects, while Eyles, Hupkau and Machin (2016) investigated a longer-term post-compulsory-schooling impact of academies (mainly studying students' university enrolment). The authors found significant changes in the ability composition of pupils enrolling at academies after conversion. This result echoes the findings of Wilson (2011). However, no empirical investigation has so far been undertaken to quantitatively assess the (dis)similarities between the Labour and coalition government academies. Our study fills this gap.

Our work also contributes to a larger literature on the effect of different school types on pupil enrolment and performance. While research on the impact of attending different types of schools is extensive,⁶ there is much less evidence on what happens when the type of school attended by pupils changes. One study closely related to this paper, albeit from an earlier period, is the analysis of grant-maintained (GM) schools by Clark (2009) in England in the late 1980s and early 1990s.⁷ Clark documented significant test score improvements, but provided limited evidence on changes in pupil intake.

In the US, the growing body of work on charter schools is clearly related to our work because charters have similarities to academies even though most

⁵Machin and Wilson, 2008; PricewaterhouseCoopers, 2008; National Audit Office, 2010; Machin and Vernoit, 2011.

⁶Neal, 1997; Gibbons and Silva, 2011.

⁷GM schools were renamed as foundation schools in the Schools Act 1998.

charters are new schools while academies are not.⁸ A smaller number of studies have focused on the less frequent conversions of already existing schools to charters⁹ or the introduction of charter-like practices to US public schools.¹⁰ Most of these studies analysed the causal effect of charter attendance on students' performance by exploiting the use of lotteries by oversubscribed schools; therefore, they cannot provide (by construction) evidence on the effect of charter conversion on pupil intake. Finally, the evidence on Swedish free schools¹¹ is also related to our work – in particular, the analysis by Böhlmark and Lindahl (2007), who show that free schools tend to enrol pupils from better-off families and affect the composition of pupils in public sector schools.

Although the background of the academy policy differs from both the US charters and the Swedish free school programme, we believe our work sheds light on related issues about school reform that are of general interest. First, we provide evidence on how the characteristics of pupils and schools change as the impetus of the programme changes from addressing underperformance to providing more autonomy to *all* schools. Second, we provide such evidence in a setting where expansion of a more autonomous school sector has not happened at the margin, but has taken centre stage and become a reality for more than 60 per cent of secondary schools over a six-year period. These features make the ongoing English academy reform a truly exceptional experiment in terms of its scale and celerity. Given the growing trend towards more decentralised and autonomous education systems, our work is relevant for academics and policymakers alike.

The remainder of the paper is structured as follows. In Section II, we discuss the institutional context and the data we use in our empirical analysis. In Section III, we spell out in more detail the methods that we use. Section IV presents our results on the association between school characteristics and the probability of converting to academy status, while Section V discusses our results on changes in pupil intake. Finally, Section VI provides conclusions.

II. Institutional context and data

1. The English school system

Compulsory education in England is organised into Key Stages (KSs) that stretch over the course of primary and secondary education. In terms of primary schooling, pupils enter school at age 4–5. This is known as the Foundation Stage. They then move on to KS1 (up until age 6–7), before finishing at KS2.

⁸ See Hoxby and Murarka (2009), Angrist et al. (2010), Abdulkadiroglu et al. (2011) and Dobbie and Fryer (2011).

⁹ Abdulkadiroglu et al., 2016.

¹⁰ Fryer, 2014.

¹¹ Ahlin, 2003; Björklund et al., 2005; Sandström and Bergström, 2005.

The latter covers the last four years of primary schooling (completing at age 10–11), and ends with the externally marked KS2 standardised national tests (SATs) where proficiency in English, mathematics and science is assessed.

Secondary schooling covers age 11–12 through to age 15–16 and is divided into KS3 (the three years up to age 13–14) and KS4 (ages 14–15 and 15–16), which marks the end of compulsory education. At the end of KS4, pupils sit externally marked academic (GCSE) and/or vocational (NVQ/BTEC) tests in a range of subjects, although English, maths and science are compulsory for every student at this stage. In our analysis, we focus on secondary schooling because this is where the majority of conversions to academies have taken place and because there were no primary school academies prior to May 2010.

For each of the Key Stages, the central government sets learning targets (levels) and runs a national curriculum. Average attainments within a school at the various Key Stages, as well as measures of school value added, are published alongside other school characteristics (such as size and composition) in annual performance tables. These are highly salient in the education and policy debate and the media. They are also routinely used by parents when choosing a school for their children.

Despite the principle of ‘free choice’ guiding the process of school applications and admissions practices, parental freedom to choose is limited when schools are oversubscribed. When this occurs, various admissions criteria are used to prioritise students, usually favouring those who live nearby, those with special educational needs or in the care of the local authority (LA) and those with siblings in the school. Religious schools can prioritise students according to their faith, while a small proportion of secondary schools select on admissions tests (grammar schools).

The institutional arrangements of secondary schools determine more precisely whether the school, as opposed to the LA, holds responsibility for admissions and the margin of freedom the school enjoys over taught curriculum, personnel management and strategic decision-making. Secondary schools can take one of the following alternative structures: community schools, voluntary-controlled (VC) schools, foundation schools, voluntary-aided (VA) schools and, since their introduction in the early 2000s, academy schools.¹² Although academies are the focus of our work, we briefly discuss the structures of other school types for comparison.¹³

¹² Any of these school types can be a selective ‘grammar’ and admit pupils on the basis of entry tests.

¹³ One final school type was community technology colleges (CTCs), which enjoyed relative autonomy from the LA. In particular, the majority of their governing body was filled with representatives of the sponsor – usually a business or voluntary group – and the school had control over staffing and admission decisions. However, CTCs followed the national teaching curriculum and were characterised by a strong emphasis on technological, scientific and practical subjects. CTCs represented a very small share of the secondary education sector and nearly all have converted to academies, so we do not consider this group in our analysis.

Community and VC schools are mainly managed by the LA and by a governing body predominantly composed of members of staff and LA representatives. Since the majority of VC schools are religiously denominated, their governing body also includes members of the foundation supporting the school. Responsibility for recruiting, human resources decisions and admissions is in the hands of the LA. As a result, these schools are characterised by very little autonomy.

Voluntary-aided and foundation schools are similarly structured even though VA schools are mainly religiously denominated while foundation schools are not. These two types of school are run as partnerships between the state and voluntary sectors, and their associated foundations have a significant representation on their governing bodies. These institutional arrangements grant VA and foundation schools more autonomy than community and VC institutions.

Lastly, academy schools enjoy a much larger degree of autonomy than other school types in the state system. Academies were gradually introduced by the Labour government in September 2002 with the aim of replacing failing schools. The programme was designed as a targeted intervention aimed at addressing underperformance by changing organisational structure, providing schools with more autonomy and linking schools to government-approved sponsors enlisted to drive educational improvements. Indeed, sponsors – usually educational charities or business groups – were seen as crucial in bringing to schools a more entrepreneurial ‘ethos’.

The election of the Conservative–Liberal-Democrat coalition government in May 2010 dramatically changed the aims of the programme. The Academies Act of June 2010 allowed as many schools as possible – including primaries – to ‘convert’ to academies and removed the requirement that would-be academies had to find a sponsor. Although a number of new Labour-type ‘sponsored’ academies have opened since, more than 80 per cent of the expansion of the academy sector has happened through coalition-type ‘converters’.

Importantly, in the new regime, greater emphasis is put on the voluntary process of conversion to academy status. While schools classed as ‘eligible for intervention’ can still have sponsored academy status imposed upon them, underperforming (rather than failing) schools can now voluntarily enter into discussions with sponsors – mainly large well-performing chains of schools (for example, the Ark or Harris Federation networks) – and become academies under their aegis in order to address low standards. On the other hand, all that is required from would-be ‘converters’ is that they discuss the possibility of converting with ‘such persons as they think appropriate’; typically, this includes parents, members of staff, pupils, and the foundation or religious body backing the school (if any). They must then register their intention to apply with the Department for Education (DfE) and send in information about school attainment, pupil progress and school finances for the past three years,

before finally providing the most recent school report prepared by the school inspectorate (Ofsted).

The last is a key determinant of approval for conversion. Ofsted visits schools every three to five years (although this frequency depends on school performance, with poor performers visited more often) and inspections result in publicly available reports rating schools from ‘Outstanding’ to ‘Inadequate’ on their overall quality as well as on specific aspects such as teaching, management and pupil behaviour.¹⁴ Originally, schools with an ‘Outstanding’ overall rating were fast-tracked and pre-approved for conversion by the DfE. However, as the coalition and then Conservative governments continued their push to expand the programme, schools with a ‘Good, with Outstanding Features’ rating as well as schools displaying upward trajectories in attainments and quality of management / teaching practices were subsequently allowed to convert. Broadly speaking, the process of (voluntary) conversion can take between three and five months, though the time lapse can expand and the exact timing depends on specific aspects of the proposed conversion and the volume of new applications.

Despite these differences, both ‘sponsored’ and ‘converter’ academies enjoy similarly wide margins of autonomy. Although they remain part of the state sector, they fall outside the control of the LA in terms of key strategic decisions and day-to-day management. These are administered by the head teacher and a self-appointed board of governors with a limited number of representatives from the LA. 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, academies enjoy more autonomy in terms of the majority of the taught curriculum (except for English, maths, science and IT, where they have to follow the national curriculum), as well as in the structure and length of the school day.

According to the Department for Education (2014) survey of academies’ freedoms, 63 per cent of secondary academies have changed the performance management system for their teachers following conversion, 60 per cent have changed the curriculum offered and 51 per cent have changed school leadership. On the other hand, only 10 per cent and 6 per cent have increased the length of the school day or school term respectively – mainly because of opposition from teachers. Interestingly, the majority of schools report that they converted to academy status in order to ‘gain greater freedom to use funding as they see fit’ and ‘raise educational standards’, and approximately 70 per cent claim that the changes introduced following conversion either moderately or substantially improved attainments.

¹⁴More details on Ofsted, its inspections and the possible outcomes are provided in Eyles and Machin (2015).

2. Data construction and sample selection

The main data source used in our analysis is the National Pupil Database (NPD). The NPD is obtained by linking several centrally gathered data sets that collect information on the characteristics of all pupils in state-maintained primary and secondary schools, their attainment at the various Key Stages, and the characteristics of the schools they attend. These databases are used by the DfE to assess schools' performance and funding needs and, as such, are highly reliable and contain very few missing observations.

A core element of the NPD is the Pupil Level Annual School Census (PLASC) data, which contain information on the characteristics of pupils in each year of compulsory schooling. These data comprise both time-varying characteristics – such as free school meal eligibility status (a proxy for low parental income) and special educational needs status – alongside time-invariant factors such as ethnicity. The data also contain the identity of the school attended by students in every year of their schooling. The school attended in Year 7 is a crucial piece of information since it allows us to identify the school where pupils start their secondary education and to evaluate any effect of academy conversion on pupil intake.

Since its inception in 2002, PLASC has been collected each January; in addition, there have been collections in May and October since 2006. We use the January collection because this contains all relevant pupil-level information and is available in all the years that we study.

For our analysis, we also gather data on pupils' KS2 and KS4 attainment. For KS2, we focus on test scores across the three compulsory subjects assessed at this stage – English, maths and science. Test scores in science span the 0–80 range (coming from the sum of two separate papers each marked out of 40), while the English and maths tests are marked out of 100 (both composed of the sum of two separate test scores, each marked out of 50). We use KS2 test scores averaged across the three subjects.¹⁵ At KS4, we consider attainment in the more academic GCSEs and the vocationally oriented GNVQs and BTECs.¹⁶ GCSEs are graded A*–G and the points score calculations give an A* a score of 8 and a G a score of 1, with grades in between going up in increments of 1. GNVQs/BTECs are converted into GCSE equivalents before being assigned a point score. The point measure used in the analysis refers to the grades obtained in the best eight qualifications. Capping qualifications at the best eight allows us to deal with the possibility that pupils entering many exams, but performing poorly in all of them, would still appear to do well. However, this restriction is inconsequential for our results.

¹⁵All observations from the 2010–11 school year use the average of English and maths alone since science tests became fully teacher-assessed in 2010.

¹⁶GCSE stands for General Certificate of Secondary Education, GNVQ for General National Vocational Qualification and BTEC for Business and Technology Education Council.

Finally, the NPD also collects information at the school level – in particular, data on school types and institutional arrangements – through the Annual School Census and Edubase. We use these data in conjunction with files provided by the DfE, which give information on all academies that have opened (or are in the process of doing so), to identify schools that become academies, their time and mode of conversion ('sponsored' or 'converter' route), and the predecessor school that underwent transformation.

We use this information to construct two data sets. The first one is a school-level panel of secondary schools covering the period spanning the school years 2002–03 to 2012–13. This data set includes all schools meeting our selection criteria (explained below) and comprises an indicator for whether the school is an academy in a given academic year alongside a rich set of school-level characteristics measured in the *previous* year. We use this data set to study which school characteristics are associated with conversion to academy status and investigate whether these associations change from the Labour government years to the coalition government period. For our analysis, we only retain secondary schools that cover the whole of the KS3 and KS4 phases (age 11–12 to age 15–16) over the sample period 2002–03 to 2012–13; therefore, we drop middle schools (which stop at or before KS3) and upper secondary schools (which start after age 11–12). This restriction is motivated by the fact that our goal is to analyse the link between academy conversion and school characteristics – in particular, the KS4 attainment of the predecessor school and average KS2 attainment of the (age 11–12) intake at the school. Middle and upper secondary schools do not have the complete set of information we plan to use.¹⁷

Table 1 reports the cumulative number of open academies in our sample of secondary schools over the years covered by our investigation.¹⁸ We define a school as being open as an academy in a given academic year if it became an academy in or before September of that year. For instance, a school that converted in September 2011 would be classed as being an academy from the 2011–12 academic year, whereas a school opening in October 2011 would be classed as opening in 2012–13. A school's first year of treatment is thus the first full academic year that it begins with academy status. We studied the extent to which our results are robust to this definition.

¹⁷There were approximately 3,500 secondary schools in England in 2002; of these, 300 were middle schools, 228 were upper schools and a further 42 were classed as junior or senior schools that did not admit pupils of either age 11–12 or age 15–16. We only consider schools that had pupils aged 11–12 to 15–16 in *all* years of our analysis. This cuts the sample further because of school closures and missing data in some years (this occurs if, for instance, some institutions became middle schools midway through the sample). In some robustness checks, we re-estimated all our results using an unbalanced panel that included schools with missing years (but still dropped middle/upper schools). Our findings were completely unchanged.

¹⁸Note that these numbers do not precisely match the official statistics published by the DfE because of the restrictions we impose on our data. However, our data reproduce the main trends in terms of sector expansion and the relative importance of 'sponsored' and 'converter' academies.

TABLE 1
Number of academies over time: overall and by conversion type

<i>Academic year</i>	<i>Overall</i>	<i>Converter</i>	<i>Sponsored</i>
2001–02	0	0	0
2002–03	3	0	3
2003–04	9	0	9
2004–05	11	0	11
2005–06	18	0	18
2006–07	32	0	32
2007–08	57	0	57
2008–09	94	0	94
2009–10	152	0	152
2010–11	231	23	208
2011–12	878	629	249
2012–13	1,266	963	303
2013–14	1,470	1,101	369
2014–15	1,494	1,114	380
2015–16	1,595	1,168	427

Note: The table reports number of academies opening in different years. The sample only considers schools that are in the sample every year between 2001–02 and 2012–13. Data on academies opening refer to data available up to May 2016. Three of the sponsored academies assigned to the academic year 2010–11 opened before May 2010. They are therefore treated as part of the Labour years. Total number of secondary schools in the sample: 2,716 (out of approximately 3,500 secondary schools in England; see body text and footnote 17 for data construction and sample restrictions).

Overall, academies went from representing just a few exceptional cases in the early 2000s to covering more than half of secondary schools by 2016. There are, of course, no ‘converters’ prior to the school year 2010–11. Interestingly, the table shows that most of the academy sector expansion between 2010–11 and 2012–13 occurred through the ‘converter’ route. The number of ‘sponsored’ academies underwent a sizeable increase in the same period – from 208 to 303. However, ‘converters’ went from zero in 2009–10 to just under a thousand three years later. This represents more than 80 per cent of the overall expansion of the academy sector in this period.

Although our analysis only covers the period up to the school year 2012–13, we also collected information on schools that converted in 2013–14, 2014–15 and 2015–16. We use data published online by the DfE in May 2016 to track academies already opened by this point.¹⁹ Consistent with the post-2010 trend, the figures for these last three school years continue to show that the expansion of the academy sector is mainly occurring through ‘conversions’.

¹⁹<https://www.gov.uk/government/publications/open-academies-and-academy-projects-in-development>.

Nevertheless, a number of Labour-type ‘sponsored’ academies have continued to open during the coalition government period.

The second data set that we construct is a pupil-level database that assigns pupils to the school they attend at the beginning of secondary school (when children are aged 11–12 and right after the KS2 exams). We use this data set to study whether schools converting to an academy change their pupil intake post-conversion. For most of our analysis, we only consider schools that convert to academies during the coalition government years – that is, from the academic year 2010–11 to present. This is because Wilson (2011) and Eyles and Machin (2015) have already presented evidence on the impact of Labour’s academies on pupil intake, reporting positive effects. However, in some cases, we provide complementary evidence for the Labour years. We apply the same restrictions as in the school-level data set. Furthermore, we only consider the following pupils: (i) pupils enrolled at academies that open between 2010–11 and 2012–13 and in the time window covering six school years prior to conversion and up to two school years after conversion; and (ii) pupils enrolled at academies that will open between 2013–14 and 2015–16 and in the time window going from six school years to one school year prior to conversion. These restrictions are applied so that our analysis of the effect of academy conversion on pupil intake composition compares the changes in the composition of *actual* academies (pre- and post-conversion) with changes in the composition of *future* academies. We return to this point in the next section, where we discuss our empirical methods.

III. Empirical methods

1. Research design I: school characteristics and academy conversion

In the first part of our analysis, we investigate which characteristics predict academy conversion and whether the association between these characteristics and academy status changes between the Labour and coalition government periods.

In order to do so, we estimate the following linear probability model for school s in year t :

$$(1) \quad A_{st} = \alpha + X'_{s,t-1}\Gamma \times I(t \leq 2010) + X'_{s,t-1}\Lambda \times I(t > 2010) \\ + \vartheta_{s,t-1} + \lambda_{s,t-1} + \tau_t + \varepsilon_{st},$$

where A_{st} is a dummy variable coded equal to 0 when school s is not an academy, 1 in the school year in which school s starts operating as an academy, and missing after that point; $X'_{s,t-1}$ is a set of school attributes measured in the school year prior to the conversion; $I(t \leq 2010)$ is a binary indicator taking the value 1 for observations up to the school year 2009–10 (and 0 otherwise)

identifying the ‘Labour years’; and $I(t > 2010)$ is a binary indicator taking the value 1 for observations from the school year 2010–11 onwards (and 0 otherwise) identifying the ‘coalition years’.²⁰ $\vartheta_{s,t-1}$ identifies a set of dummies characterising the institutional type of the predecessor school (for example, community or voluntary-controlled – see Section II.1), while $\lambda_{s,t-1}$ is a set of dummies denoting the local authority in which the predecessor school is located (as well as the academy – there are no cross-LA relocations) and τ_t are school-year dummies. Finally, ε_{st} is an error term, which we assume to be uncorrelated with all other observable characteristics in the model. However, we allow for a degree of autocorrelation in the residuals within schools over time, and cluster standard errors at the school level.

The main parameters of interest are Γ and Λ , which capture the associations between school characteristics and the probability of conversion in the ‘Labour years’ and in the ‘coalition years’, respectively. The differences between these coefficients (and their statistical significance) are key to this paper since they allow us to test the notion that the nature of academies has changed since the Academies Act of 2010.

The way in which we have specified the dependent variable makes our analysis similar to a transition model where schools are ‘at risk’ of becoming academies. This allows us to isolate the effect of school characteristics at time $t-1$ on the probability of conversion at time t – without confounding this estimate with an effect of these characteristics on the probability of being an academy from time t onwards (i.e. survival). Since academies do not convert back to non-academy status, the observations after conversion has occurred do not add any useful element of variation to our analysis and are essentially disregarded (by coding our dependent variable as missing).

We are also interested in analysing whether the association between school characteristics and academy status changes for different types of academies. For example, during the coalition government years, we observe schools becoming ‘converter’ (coalition-type) as well as ‘sponsored’ (Labour-type) academies. Moreover, both types of academies can be ‘stand-alone’ or be part of a ‘chain’ – that is, belong to a group working together under a shared structure and jointly administered by an academy trust.

To test for these differences, we estimate the following model:

$$(2) \quad A_{st}^{subgroup} = \alpha + X'_{s,t-1} \Theta + \vartheta_{s,t-1} + \lambda_{s,t-1} + \tau_t + \varepsilon_{st},$$

²⁰Three academies that we classify as belonging to the academic year 2010–11 – i.e. open before September 2010 – actually converted before May 2010. We assign them to the Labour years. Additionally, a very small number of sponsored academies open by September 2010 applied during the Labour years but were approved during the coalition period. We assign these ‘hybrid’ schools to the coalition years. However, we have experimented with different cut-off dates to assign schools to the pre-/post-2010 period. Our checks show that our results are robust. This is because the vast majority of the post-2010 academies are ‘converters’, for which there is no ambiguity.

which redefines the dependent variable to take the value 1 only for academy transitions into a specific subgroup – for example, only ‘chain academies’ – and taking values 0 or missing as previously discussed. In order to test whether the effects of school characteristics on the probability of becoming an academy are significantly different across subgroups, we set the problem up as a seemingly unrelated equation system so that our tests for the differences in the Θ parameters take into account the joint variance/covariance structure of the error terms across equations.

2. Key descriptive statistics: school-level data

Table 2 presents descriptive statistics of the main variables that we use in our school-level analysis. The dependent variable ‘Academy’ (A in the equations) takes a mean value of 0.045 across the period, although this figure varies substantially from the Labour years (0.007) to the coalition years (0.161).

TABLE 2
Descriptive statistics: school-level data

	<i>Mean</i>	<i>Standard deviation</i>
Academy	0.045	0.206
KS4 attainment [$t-1$]	42.22	11.08
Proportion FSME [$t-1$]	0.154	0.129
Proportion male [$t-1$]	0.506	0.188
Proportion white British [$t-1$]	0.790	0.254
KS2 attainment [$t-1$]	64.58	6.795
Ofsted Grade 1 [$t-1$]	0.225	0.418
Ofsted Grade 2 [$t-1$]	0.435	0.496
Ofsted Grade 3 [$t-1$]	0.295	0.456
Ofsted Grade 4 [$t-1$]	0.045	0.208
Community school [$t-1$]	0.585	0.493
Voluntary-controlled school [$t-1$]	0.027	0.163
Voluntary-aided school [$t-1$]	0.177	0.382
Foundation school [$t-1$]	0.204	0.403
School in Labour-held council [$t-1$]	0.260	0.439
School in Conservative-held council [$t-1$]	0.451	0.497
Percentage of schools that are academies in local authority [$t-1$]	3.495	8.684

Note: Number of observations: 28,391 in 2,716 schools. Number of observations drops when considering Ofsted scores, due to missing reports for the early years (23,813 in 2,702 schools). ‘Academy’ is coded as 0 for years in which schools are not academies, 1 for the first year in which the school becomes an academy and missing for all years after the school has become an academy. KS4 attainment is the point score calculated across the best eight subjects and includes GCSE equivalents. KS2 attainment is the point score calculated over English, maths and science. FSME indicates pupils eligible for free school meals. Ofsted Grades are as follows: 1 = Outstanding; 2 = Good; 3 = Requiring improvement; and 4 = Inadequate.

This marked difference is due to the fact that many more academies opened since 2010–11. The figures for the school characteristics we consider (measured in the school year prior to conversion) reveal that our set of schools is broadly representative of secondary schools in England. Approximately 15 per cent of the pupils are eligible for free meals and nearly 80 per cent are white British.²¹ KS2 attainment of pupils aged 11–12 in their first year of secondary school has a mean value of approximately 65, while KS4 scores of pupils aged 15–16 are, on average, just above 42. In terms of Ofsted inspections, the most recurrent grade is ‘Grade 2’ (Good) at around 43.5 per cent. Many schools achieve ‘Grade 1’ (Outstanding; 22.5 per cent) and ‘Grade 3’ (Requiring improvement; 29.5 per cent). Only 4.5 per cent receive a low ‘Grade 4’ evaluation (Inadequate). Approximately 60 per cent of all predecessor schools are either community (58.5 per cent) or VC schools (2.7 per cent), which have little autonomy prior to becoming academies.

3. Research design II: academy conversion and school intake

In the second part of our analysis, we investigate whether schools converting to academy status change their pupil intake following conversion. In order to do so, we use pupil-level data (described in Section II.2) and estimate the following model:

$$(3) \quad B_{ist} = \alpha_s + \tau_t + \delta A_s \times I(E \geq t = c) + \xi_{ist},$$

where B_{ist} denotes the background of pupil i (aged 11–12) starting secondary school s in school year t ; α_s and τ_t denote school and time fixed effects respectively; A_s denotes whether the school becomes an academy at some point during the observation window; and $I(E \geq t = c)$ is an indicator variable taking the value 1 for all school years in which the school is operating as an academy. Finally, ξ_{ist} is an error term, which we assume to be uncorrelated with all other observable characteristics in equation 3. We allow for a degree of autocorrelation in the residuals of pupils in the same school and over years, and cluster standard errors at the school level.

The main coefficient of interest is δ , which captures the effect of academy conversion on intake. One concern with our specification is that it only controls for time-fixed school unobservables; however, schools that become / do not become academies could differ along other unobservable dimensions that might be time varying and/or time trending. In order to mitigate this problem, we only estimate the model in equation 3 using observations from the following subset of pupils (already discussed in Section II.2): (i) pupils enrolled at schools

²¹In order to make all schools in the sample comparable, these variables are measured for pupils between the ages of 11 and 16.

that become academies between 2010–11 and 2012–13 and in the time window covering six school years prior to conversion and up to two school years after conversion; and (ii) pupils enrolled at schools that will become academies between 2013–14 and 2015–16 and in the time window going from six school years to one school year prior to conversion. This approach basically compares the evolution of the intake at schools that *actually open* as academies during our observation period (pre- and post-conversion) with the evolution of the intake at schools that *will open* as academies in the near future. Identification rests on the assumptions that the two groups of schools are on similar trends and share similar (possibly time-varying) unobservables, and that the timing of the actual opening is ‘as good as random’.

The empirical model in equation 3 imposes an average effect of academy conversion on intake quality that is constant across all post-conversion years. To relax this assumption, we estimate the following flexible event study specification where we allow for separate ‘academy effects’ in the different school years pre- and post-conversion:

$$(4) \quad B_{ist} = \alpha_s + \tau_t + \sum_{e=c-5}^{e=c+2} \delta_e A_s \times I(E = e) + \xi_{ist},$$

where the expression $I(E = e)$ denotes a set of indicators that separately identify the school years prior to conversion year c (from $c-5$ to $c-1$, with $c-6$ being the excluded baseline year) and at/after conversion (from c to $c+2$), and the δ_e s capture the effect of academy status on intake in each specific year. Note that estimates of δ_e for the years prior to conversion allow us to determine whether *actual* converters (the ‘treated’ schools) differ from *future* converters (the ‘control’ schools) in the years leading up to the ‘switch’ to academy. This helps us assess the validity of our assumption that treated and control schools would have had parallel trends in the outcome variable in the absence of treatment.

As for the school-level analysis of the determinants of conversion, we are interested in whether the effects on intake are heterogeneous for different types of academies. In particular, we are interested in heterogeneity along the margins of ‘sponsored’ versus ‘converter’ and ‘stand-alone’ versus ‘chain’ academies. In order to assess these differences, we interact the variable A_s in equation 3 with an indicator denoting whether the academy belongs to one of these groups.

4. Key descriptive statistics: pupil-level data

Table 3 presents descriptive statistics on the characteristics of pupils in our sample. These are the variables we use to characterise pupils’ backgrounds

TABLE 3
Descriptive statistics: pupil-level data

	<i>Mean</i>	<i>Standard deviation</i>
KS2 attainment	67.06	16.37
Pupil is FSME	0.143	0.350
Pupil is male	0.506	0.500
Pupil is white British	0.830	0.376
School in Labour-held council [$t-1$]	0.191	0.393
School in Conservative-held council [$t-1$]	0.591	0.492
Percentage of schools that are academies in local authority [$t-1$]	0.145	0.220

Note: Number of observations: 1,895,614 (1,714,974 for KS2) pupils in 1,440 schools. Sample includes: observations up to 2012–13 for academies opened in 2010–11, 2011–12 and 2012–13 in the time window [$c-6, c+2$] around opening date c (treated group) and observations up to 2012–13 for academies that will open in 2013–14, 2014–15 and 2015–16 in the time window [$c-6, c-1$] (control group). KS2 attainment is the point score calculated over English, maths and science. FSME indicates pupils eligible for free school meals.

(i.e. the variables B_{ist} in equations 3 and 4). KS2 attainment of pupils when they enter secondary school (aged 11–12) are on average 67 points, 2½ points above the corresponding figure in the school-level panel. This discrepancy is explained by the fact that the pupil-level data only focus on more recent cohorts and KS2 scores have been rising over time. The percentage of pupils eligible for free meals (at 14.3 per cent) is close to the figure found at the school level, as is the percentage of pupils who are white British (at 83 per cent). Finally, approximately 58 per cent of the pupils are in schools that were either community or VC schools prior to conversion (not tabulated). This figure is close to what we find in the school-level panel (at 61 per cent).

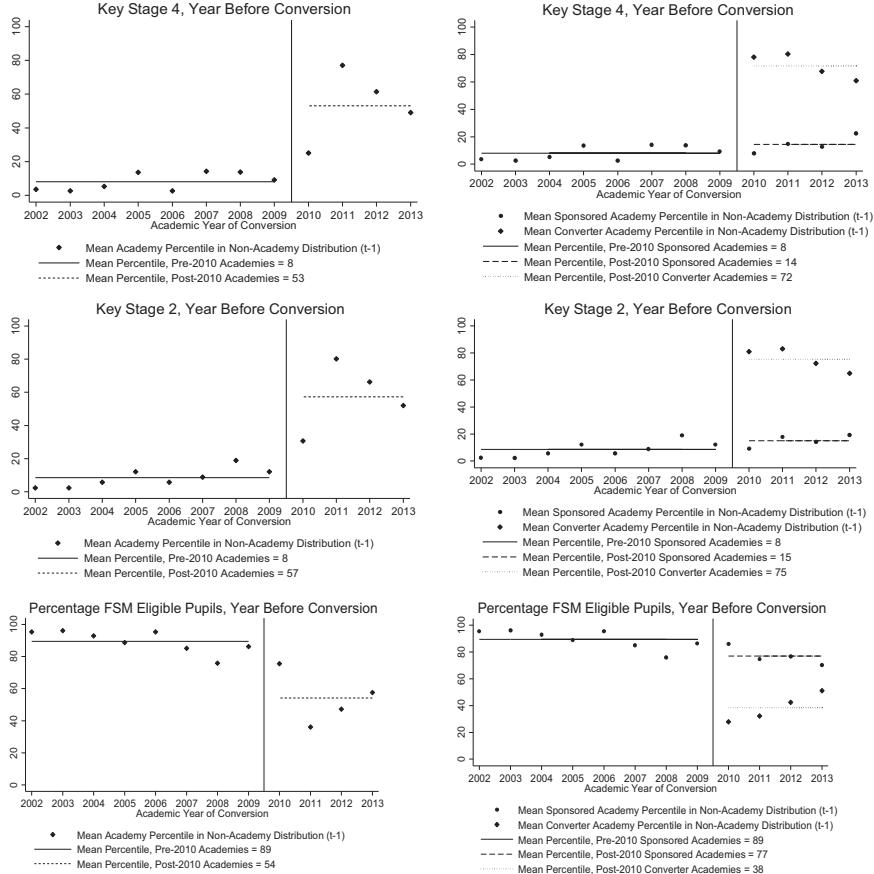
IV. The changing characteristics of academies

1. Preliminary graphical evidence

We present our first set of results graphically in Figure 1. The three left-hand-side plots display the mean academy percentile in the non-academy distribution of school characteristics in the year prior to conversion for the following three attributes: KS4 attainment (top left panel), KS2 attainment (central left panel) and percentage of pupils eligible for free school meals (bottom left panel). The figure also reports the mean percentile for academies that convert during the Labour government years and the mean percentile for those converting during the coalition government years. The approach we take in Figure 1 is an adaptation of the methods used in the labour economics research of Juhn, Murphy and Pierce (1993), and highlights changes in the characteristics of

FIGURE 1
The changing profile of academies

Labour versus coalition years *Sponsored versus converter academies*



Note: All panels in the figure present the mean academy percentile in the non-academy distribution in the school year prior to conversion for the characteristics in the headings of the plots (dots). The left panels also show the mean percentile for the Labour years (solid line) and the mean percentile for the coalition years (dashed line). The right panels instead show the mean percentile for the coalition years for sponsored academies (dashed line) and the mean percentile for the coalition years for converter academies (dotted line). On the horizontal axes, years refer to the beginning of the academic year (for example, 2002 refers to 2002–03).

converting schools, before and after the Academies Act of June 2010, in a descriptive and intuitive way.

The top two panels provide fairly sharp evidence of these changes: the KS4 and KS2 percentiles of schools that convert during the Labour period

(measured up to 2008–09 for conversions up to 2009–10) are substantially lower than those for the coalition period. The average Labour academy percentile is very low, at 8 for both KS4 and KS2. This finding is not surprising: Labour’s ‘sponsored’ academies were among the worst-performing schools and academisation was seen as a way to improve standards. In sharp contrast, the average KS4 and KS2 percentiles for the years following the election of the coalition government were above the median, at the 53rd and 57th percentiles for KS4 and KS2, respectively. Strikingly, in the first full school year after the Academies Act of June 2010 (that is, for conversions in the school year 2010–11 with characteristics measured in 2009–10), academies’ average percentiles are around 80 for both KS2 and KS4.

In the bottom panel of the figure, we investigate whether similarly sharp changes can be detected in the school composition in terms of pupils’ eligibility for FSM (i.e. a measure of family disadvantage). The figure shows that, during the Labour years, the average percentile for FSM eligibility was close to 90. This pattern changes substantially during the coalition period. Indeed, the average percentile falls to 54, and the drop is substantially more pronounced (down to under 40) if a focus is placed on the first full school year after the Academies Act of June 2010.

The three right-hand-side panels investigate whether the pattern we detect by bundling together post-2010 ‘converter’ and ‘sponsored’ academies masks substantial heterogeneity. We find that this is the case. Post-2010 ‘sponsored’ academies are relatively similar to pre-2010 ‘sponsored’ academies, albeit slightly less disadvantaged and poorly performing. Conversely, separating out the post-2010 ‘converters’ clearly shows that the new type of schools gaining academy status via this route are radically different from schools converting via the ‘sponsored’ route. The average KS4 percentiles of pre-2010 and post-2010 ‘sponsored’ academies are respectively 8 and 14, whereas the average KS4 percentile for ‘converters’ is 72. A similar pattern emerges when looking at KS2 percentiles. Lastly, the average percentile for FSM eligibility was 89 for pre-2010 ‘sponsored’ academies, moving down to 77 for post-2010 ‘sponsored’ academies and dropping to 38 for ‘converters’.

2. Main regression analysis

In this subsection, we provide more formal evidence on the changes in the nature of academies by estimating the model laid out in equation 1 for studying the effect of school and local characteristics measured at time $t-1$ on the probability of conversion at time t . Our estimates are presented in Table 4. The table has the following structure. Columns 1–3 present simple models that only consider KS4 attainment, the incidence of FSM-eligible pupils and the percentages of male and white British pupils. Columns 4–6 add further controls for Ofsted ratings and predecessor school types as well as LA dummies. Lastly,

TABLE 4
Predessor characteristics and probability of conversion: Labour versus coalition years

	(1) Labour years	(2) Coalition years	(3) Difference- in-difference	(4) Labour years	(5) Coalition years	(6) Difference- in-difference	(7) Labour years	(8) Coalition years	(9) Difference- in-difference
Standardised KS4	-0.006*** (0.001)	0.034*** (0.006)	0.040*** -0.215***	-0.003** (0.001)	0.011* (0.007)	0.014** -0.187***	-0.004*** (0.007)	0.014** (0.001)	0.018** (0.007)
point score [$t-1$]									
Proportion FSME	0.043*** (0.010)	-0.172*** (0.056)	-0.215*** (0.058)	0.120*** (0.018)	-0.067 (0.056)	-0.187*** (0.058)	0.084*** (0.017)	0.024 (0.059)	-0.060 (0.060)
[$t-1$]									
Proportion male [$t-1$]	0.002 (0.005)	0.003 (0.023)	0.001 (0.023)	0.003 (0.004)	0.020 (0.021)	0.017 (0.022)	0.003 (0.004)	0.022 (0.022)	0.019 (0.023)
Proportion white	0.005 (0.004)	0.023 (0.020)	0.018 (0.021)	0.013* (0.008)	0.037* (0.020)	0.024 (0.021)	0.012 (0.008)	0.035* (0.020)	0.023 (0.021)
British [$t-1$]									
Ofsted Grade 2 [$t-1$]				-0.006*** (0.002)	-0.120*** (0.012)	-0.114*** (0.012)	-0.004*** (0.002)	-0.119*** (0.012)	-0.115*** (0.012)
Ofsted Grade 3 [$t-1$]				-0.001 (0.002)	-0.169*** (0.013)	-0.168*** (0.014)	-0.000 (0.002)	-0.174*** (0.013)	-0.174*** (0.014)
Ofsted Grade 4 [$t-1$]				0.013* (0.007)	-0.148*** (0.025)	-0.161*** (0.026)	0.016* (0.007)	-0.152*** (0.025)	-0.168*** (0.026)
Voluntary-controlled				0.004 (0.005)	-0.003 (0.023)	-0.007 (0.025)	0.005 (0.005)	-0.005 (0.024)	-0.010 (0.026)
school [$t-1$]				0.005* (0.002)	-0.065*** (0.010)	-0.070*** (0.010)	0.003 (0.002)	-0.062*** (0.010)	-0.065*** (0.010)
Voluntary-aided									
school [$t-1$]									

(Continued)

TABLE 4
Continued

	(1) Labour years	(2) Coalition years	(3) Difference- in-difference	(4) Labour years	(5) Coalition years	(6) Difference- in-difference	(7) Labour years	(8) Coalition .years	(9) Difference- in-difference
Foundation school [t-1]				-0.005* (0.003)	0.127*** (0.012)	0.132*** (0.012)	-0.001 (0.003)	0.118*** (0.013)	0.119*** (0.013)
Percentage of academics in local authority [t-1]							0.045 (0.060)	0.183*** (0.047)	0.138** (0.066)
School in Labour-held council [t-1]							0.010* (0.005)	-0.054*** (0.013)	-0.064*** (0.012)
School in Conservative- held council [t-1]							0.006 (0.006)	0.020 (0.012)	0.014 (0.012)
<i>Mean of dependent variable</i>	0.007	0.161	—	0.008	0.161	—	0.008	0.161	—
Local authority effects	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes

Note: The table reports coefficients, with standard errors clustered at the school level in parentheses. Number of observations: 28,391 in 2,716 schools in columns 1–3 and 23,813 in 2,702 schools in all other columns. Discrepancies in the number of observations are due to missing Ofsted inspection grades. KS4 point score is calculated across the best eight subjects and includes GCSE equivalents. Omitted Ofsted group: Grade 1 (Outstanding). Omitted school type: community school. * significant at 10 per cent level; ** significant at 5 per cent level; *** significant at 1 per cent level or better.

columns 7–9 include a control for the percentage of secondary schools that are academies in the LA where the school is located as well as dummies indicating whether the local council is (majority) Labour-held or (majority) Conservative-held.²² Further, columns 1, 4 and 7 focus on the Labour years, while columns 2, 5 and 8 show the estimates for the coalition period; columns 3, 6 and 9 present the difference in the effects between the two periods.

Starting with the first three columns, our results show that during the Labour years lower KS4 attainment and a higher share of pupils eligible for FSM were positively and significantly associated with the probability of conversion. This pattern is completely reversed during the coalition years: higher KS4 attainment and a lower percentage of FSM-eligible pupils are strongly associated with a higher probability of becoming an academy. As shown in column 3, the differences in these associations are not only striking – the coefficients push in clearly opposing directions – but also highly significant. As for the percentage of male and white British pupils in the school, we find that these are not strongly associated with academisation during either period, and their effects do not change significantly.²³

In columns 4–6, we include LA dummies as well as Ofsted ratings and predecessor school types. The omitted categories are respectively ‘Grade 1’ (Outstanding) and community schools. Note that since we are not able to collect consistent Ofsted data for the late 1990s and early 2000s, we lose some schools for which we are unable to gather inspection results pre-conversion. Our results show that during the Labour years, schools with the lowest inspection results – Grade 4 schools – were more likely to become academies. This finding is completely reversed during the coalition years: the coefficient on this dummy in column 5 is negative and significant, and column 6 shows that this difference is highly significant. Similarly, we find that ‘Requiring improvement’ schools are significantly less likely to become academies after 2010. Lastly, we find that ‘Good’ schools are less likely to become academies than ‘Outstanding’ schools in both periods. Although this is somewhat puzzling for the pre-2010 ‘sponsored’ academies, the stronger and significantly more negative effect after 2010 is in line with expectations. In terms of predecessor school types, we find evidence that foundation schools are more likely to convert after 2010 and VA schools are more likely to become academies before 2010. Finally, we find that controlling for Ofsted ratings does not substantially affect the change in the association between the percentage of FSM-eligible pupils and academy conversion. However, the change in the association between academy and KS4 test scores is reduced – although it remains sizeable and significant. This is

²²The omitted group includes councils held by the Liberal Democrats or other party or with no clear majority.

²³Note that we re-estimated these regressions using non-linear probit models to account more properly for the small probability of academisation – especially in the Labour years. We found very similar results, which are available on request.

not surprising since Ofsted inspections incorporate a broader assessment about the quality of teaching, which should translate into higher KS4 attainments (at least in as much as these do not solely capture family background and pupils' own ability, as opposed to school effectiveness).²⁴

The last three columns of Table 4 add controls for the percentage of academies in the LA and the party controlling the local council. We find that a higher percentage of academies in the year prior to conversion has a positive and significant effect on academisation during the coalition years but not during the Labour years. Furthermore, we find that schools in Labour-held councils were slightly more likely to convert during the Labour years (with a marginally significant positive coefficient), but much less likely to become academies after 2010. The difference in the association with this variable between the two periods is highly significant. Conversely, we do not detect any significant pattern or change in Conservative-held councils. As for the variables already included in the previous specifications, these mainly retain their size and significance. The only exception is the effect of the incidence of FSM-eligible students at the school, which is now found to switch much less between the two periods. This change is explained by the inclusion of the Labour-held council dummy, which is strongly correlated with local (and school) levels of deprivation.

How sizeable are the effects we have documented? To answer this question, we first use the estimates of the first three columns of Table 4 – bounding our calculations from above. A one standard deviation increase in KS4 test scores corresponds to an 85 per cent ($= 0.006/0.007$) decrease in the probability of becoming an academy during the Labour years. Conversely, a one standard deviation improvement in KS4 test scores would increase the probability of becoming an academy during the coalition period by 21 per cent. Stated differently, a school one standard deviation below average KS4 attainment (approximately at the bottom 15th percentile assuming KS4 scores follow a normal distribution) would be 85 per cent more likely to become an academy during the Labour years, but 21 per cent less likely to do so during the coalition period. If we use the estimates in columns 4–6, the impact of a one standard deviation improvement in KS4 would be a 40 per cent reduction for the Labour years and a 7 per cent increase for the coalition years. Although these numbers are clearly smaller, it should be noted that they stem from variation in KS4 achievement *conditional on* Ofsted records and are likely to provide a lower bound to the overall effect of academic quality on academisation in the two regimes. Lastly, note that the estimates capturing the change in the effect of

²⁴In Table A1 in the online appendix, we present additional results where we replace KS4 attainments of Year 11 pupils – as a measure of school 'output' – with the KS2 attainments of Year 7 students – as a proxy for 'intake' quality. We find consistent results. This is because school average KS2 and KS4 achievements are highly correlated.

attainment on the probability of becoming an academy range from 4 percentage points (column 3) to 1.4 percentage points (column 6). This means that a one standard deviation change in attainment would have pushed schools in opposing directions by around 1.4–4 percentage points before and after the Academies Act of 2010. Scaled against an average probability of conversion over the whole period of 4.5 per cent, this is a very sizeable change.

In order to assess the magnitude of the effect of the percentage of pupils eligible for FSM at the school, we consider a 10 percentage point change from the mean of 15.4 per cent. This corresponds to approximately 75 per cent of a standard deviation change (i.e. 10 percentage points over 12.9 per cent). Using the first three columns of Table 4, we find that, during the Labour years, an increase in the percentage of FSM-eligible pupils of this magnitude would have approximately corresponded to a 60 per cent increase in the probability of becoming an academy. Conversely, during the coalition years, this same increase would have basically reduced the probability of conversion to zero. The change in the association between the percentage of FSM-eligible students and the probability of becoming an academy pre-/post-2010 is similar in columns 3 and 6, at -0.215 and -0.187, or around 2 percentage points for a 10 percentage point change. Benchmarked against the average probability of conversion across all years (of 4.5 per cent), the change in the effect of this variable is also very substantial.

3. Further results

In Table 5, we present additional results on the changing nature of academies. All regressions enter school characteristics simultaneously and control for both LA dummies and predecessor school type.²⁵

In panel A of the table, we investigate whether the changes in the associations between the Labour years and the coalition years reflect the differences between ‘sponsored’ and ‘converter’ academies. We find that the patterns in the coefficients closely resemble our previous findings: the association between KS4 attainment and ‘sponsored’ academies is negative and significant, but it becomes positive and significant for ‘converters’. On the other hand, the association between the share of FSM-eligible pupils and ‘sponsored’ academies is positive and significant, but it becomes negative (though insignificant) for ‘converters’. Once again, we find that for both variables, the change in these associations is significant. Note also that rescaled against the probability of converting through a ‘sponsored’ or a ‘converter’ route (respectively at 1.1 per cent and 3.4 per cent), the magnitudes of the associations presented in panel A of Table 5 are similar to those displayed

²⁵We do not tabulate the effects of predecessor school types or of the shares of white British and male pupils because these show no relevant changes or patterns compared with the estimates in Table 4.

TABLE 5

Predecessor characteristics and probability of conversion: further results

A. Sponsored versus converter

	(1) Sponsored academies	(2) Converter academies	(3) Difference- in-difference
Standardised KS4 point score [$t-1$]	-0.006*** (0.001)	0.008*** (0.002)	0.014*** (0.002)
Proportion FSME [$t-1$]	0.108*** (0.014)	-0.016 (0.015)	-0.124*** (0.020)
Ofsted Grade 2 [$t-1$]	-0.007*** (0.001)	-0.026*** (0.003)	-0.019*** (0.004)
Ofsted Grade 3 [$t-1$]	0.002 (0.002)	-0.051*** (0.004)	-0.053*** (0.004)
Ofsted Grade 4 [$t-1$]	0.032*** (0.007)	-0.055*** (0.005)	-0.087*** (0.009)

B. Chain versus stand-alone

	(1) Chain academies	(2) Stand-alone academies	(3) Difference- in-difference
Standardised KS4 point score [$t-1$]	-0.006*** (0.001)	0.008*** (0.002)	0.014*** (0.002)
Proportion FSME [$t-1$]	0.063*** (0.015)	0.029* (0.015)	-0.034 (0.022)
Ofsted Grade 2 [$t-1$]	-0.018*** (0.003)	-0.016*** (0.003)	0.002 (0.005)
Ofsted Grade 3 [$t-1$]	-0.019*** (0.003)	-0.030*** (0.004)	-0.011** (0.005)
Ofsted Grade 4 [$t-1$]	0.001 (0.006)	-0.024*** (0.005)	-0.025*** (0.009)

Note: The table reports coefficients, with standard errors clustered at the school level in parentheses. Number of observations: 23,813 in 2,702 schools. KS4 point score is calculated across the best eight subjects and includes GCSE equivalents. Omitted Ofsted group: Grade 1 (Outstanding). The regressions also control for the proportion of male pupils, the proportion of white British pupils, school type dummies (community, voluntary-controlled, voluntary-aided and foundation) and local authority dummies. Omitted school type: community school. Number of converter academies open within observation window: 963, all during coalition years. Number of sponsored academies open within observation window: 155 during Labour years and 148 during coalition years. Number of academies in chains: 108 sponsored academies open during Labour years, 107 sponsored academies open during coalition years and 292 converter academies.

* significant at 10 per cent level; ** significant at 5 per cent level; *** significant at 1 per cent level or better.

in Table 4. Consistent with the evidence presented in Figure 1, this suggests that most of the dichotomy between the Labour years and the coalition years can be explained by the difference in the relative number of schools becoming academies via the ‘converter’ route.

In panel B, we investigate whether the association between school characteristics and conversion differs for academies that belong to chains and those that are stand-alone. This distinction is important given the prevalence of multi-academy trusts (MATs) post-2010. Ladd and Fiske (2016) argue that the recent White Paper on academies emphasises the ‘scaling up of what works’ aspect of the programme much more than the potential for an academised system to foster competition. We find that stand-alone academies have significantly higher KS4 test scores in the year prior to conversion than academies in chains. The size of the difference in this association is similar to what we found before. On other hand, we find that chain academies are not significantly more likely to have a higher fraction of FSM-eligible pupils prior to conversion than stand-alone academies. Although the point estimate on the percentage of pupils eligible for FSM is higher for schools that convert to chain academies (at 0.063) than for stand-alone ones (at 0.029), the two coefficients are not statistically different. Finally, we find similar patterns to those documented before with respect to the Ofsted ratings, although the patterns are less stark and significant. Note that whereas approximately 70 per cent of the ‘sponsored’ academies in our analysis are in chains, only 30 per cent of the ‘converters’ are. This suggests that the chain/stand-alone margin substantially overlaps with the ‘sponsored’/‘converter’ one, reinforcing our conclusion that differences along this latter margin explain the majority of the pre-/post-2010 differences.

V. Academies and changes in intake composition

1. Main regression analysis

Table 6 presents our first set of results on changes in intake composition. This comes from estimates of the empirical models in equations 3 and 4 in Section III.3. The four different columns look at different aspects of a school’s intake: column 1 focuses on the (standardised) KS2 test scores of pupils; column 2 focuses instead on whether or not the student is eligible for FSM; and columns 3 and 4 investigate the effect of academisation on the probability that enrolled pupils are male or white British.

Panel A reports estimates of the average effect of conversion during the coalition period on intake by pooling all post-conversion years. The results in column 1 show that becoming an academy during the coalition period leads to a small increase in the KS2 scores of enrolled pupils. Recall that KS2 tests are taken at the end of primary school (i.e. they are a measure of prior ability)

TABLE 6

*Conversion and changes in school intake***A. Coalition years: intake effects**

<i>Dependent variable:</i>	(1) <i>Standardised KS2 point score</i>	(2) <i>Pupil is FSME</i>	(3) <i>Pupil is male</i>	(4) <i>Pupil is white British</i>
Academy × Post-conversion {E ∈ [c, c+2]}	0.010* (0.006)	-0.006*** (0.002)	-0.002 (0.002)	-0.004* (0.002)

B. Coalition years: timing analysis of intake effects

<i>Dependent variable:</i>	(1) <i>Standardised KS2 point score</i>	(2) <i>Pupil is FSME</i>	(3) <i>Pupil is male</i>	(4) <i>Pupil is white British</i>
Academy × {E = c-5}	-0.015** (0.007)	0.001 (0.003)	0.002 (0.002)	-0.005 (0.004)
Academy × {E = c-4}	-0.007 (0.012)	-0.001 (0.004)	0.004 (0.004)	-0.007 (0.007)
Academy × {E = c-3}	-0.009 (0.015)	-0.003 (0.005)	0.006 (0.004)	-0.008 (0.008)
Academy × {E = c-2}	-0.007 (0.017)	-0.007 (0.006)	0.005 (0.005)	-0.008 (0.008)
Academy × {E = c-1}	0.004 (0.018)	-0.005 (0.006)	0.004 (0.005)	-0.009 (0.008)
Academy × {E = c}	0.006 (0.019)	-0.010 (0.006)	0.002 (0.006)	-0.013 (0.009)
Academy × {E = c+1}	0.019 (0.020)	-0.016** (0.007)	0.001 (0.007)	-0.013 (0.009)
Academy × {E = c+2}	0.077*** (0.029)	-0.002 (0.010)	-0.005 (0.010)	-0.007 (0.010)

C. Labour years: intake effects

<i>Dependent variable:</i>	(1) <i>Standardised KS2 point score</i>	(2) <i>Pupil is FSME</i>	(3) <i>Pupil is male</i>	(4) <i>Pupil is white British</i>
Academy × Post-conversion {E ∈ [c, c+2]}	0.070*** (0.016)	-0.019*** (0.006)	-0.004 (0.007)	-0.041*** (0.011)

Note: The table reports coefficients, with standard errors clustered at the school level in parentheses. Number of observations in panels A and B: 1,895,614 (1,714,974 for KS2) pupils in 1,440 schools. Samples in panels A and B include observations up to 2012–13 for academies opened in 2010–11, 2011–12 and 2012–13 in the time window [c–6, c+2] around opening date c (treated group) and observations up to 2012–13 for academies that will open in 2013–14, 2014–15 and 2015–16 in the time window [c–6, c–1] (control group). Number of observations in panel C: 333,903 (322,788 for KS2) pupils in 303 schools. Sample in panel C includes observations up to 2009–10 for academies opened between 2002–03 and 2009–10 in the time window [c–6, c+2] around opening date c (treated group) and observations up to 2009–10 for sponsored academies that will open in 2010–11, 2011–12 and 2012–13 in the time window [c–6, c–1] (control group). KS2 is calculated over English, maths and science. * significant at 10 per cent level; ** significant at 5 per cent level; *** significant at 1 per cent level or better.

and that we are considering the school where pupils start their secondary education. Our findings therefore suggest that coalition academies slightly improve their composition in terms of students' ability by approximately 1 per cent of a standard deviation. Column 2 shows that after conversion, the coalition-period academies also attract pupils who are less likely to be eligible for FSM. This effect is precisely estimated and corresponds to approximately a 4 per cent reduction in the probability that an FSM-eligible pupil is enrolled at an academy. Lastly, columns 3 and 4 show that academies do not change their composition in terms of gender, and change it only marginally in terms of ethnic background, after conversion. The negative conversion effect on the probability that a white British student is enrolled in the school is borderline significant and only represents a 0.5 per cent reduction.

In panel B, we shed some light on the time profile of these effects. To do so, we estimate the model laid out in equation 4 in Section III.3. Column 1 shows a positive and significant effect on pupils' KS2 attainment two years after conversion (at 7.7 per cent of a standard deviation). However, we find almost no effect at the time of conversion (0.006) and a small but insignificant effect one year after (at 0.019). It is interesting to note that the coefficients on the years leading up to the time of conversion are small and insignificant (with the exception of $c-5$), suggesting that actual academies – the treated group – are balanced in terms of their pupils' ability relative to future academies – the control schools – before they switch. This lends some support to our identifying strategy, which assumes that the timing of conversion is 'as good as random' within the subset of schools we have chosen for our analysis (see Section III.3 for a discussion). Column 2 reveals that the average effect of conversion on FSM-eligible pupils found in panel A comes from the estimate of the impact in the year after the one in which the academy opened ($c+1$). Conversely, the impact at time c is still negative, but small and less precisely estimated (-0.010), while the impact at time $c+2$ is essentially zero. Once again, we find no evidence of differential pre-trends between treated (actual academies) and controls (future academies), lending support to our approach. Finally, columns 3 and 4 confirm that academies do not significantly change the gender and ethnic compositions of their students.

How robust are these findings? As discussed in Section III.3, our sample includes only pupils in schools that convert between 2010–11 and 2012–13 in a time window going from six years prior to conversion to up to two years after (treated schools) and pupils in schools that will convert in 2013–14, 2014–15 and 2015–16 from six years to one year prior to conversion (control schools). This approach was taken to reduce potentially unobservable time-varying differences between treated and control schools, and to guarantee we could test for pre-treatment effects using an equal number of (school-year)

observations for the two groups. However, this approach is not the only one we have experimented with.²⁶

To begin with, we redefine the control group to include all the observations on future converters between 2004–05 and 2012–13 (as opposed to between $c-6$ and $c-1$ from conversion – as for our main control group). The school year 2004–05 was chosen because it corresponds to $c-6$ for the first batch of converters (those with conversion year $c = 2010-11$). Thus we ‘block’ the beginning of the observation window of the control group to the first school year of the treated, and consider all periods up to the end of the sample (2012–13). Next, we deal with possible spillover effects across adjacent cohorts of converters. To do so, we use only pupils in future converters opening in 2015–16 to construct a comparison group. Finally, we drop all pupils in the comparison group of future converters and estimate our effects using the timing of opening of the actual converters. Reassuringly, all of these alternative approaches confirm our previous findings.

Before moving on, it is worth commenting on the size of the effects we have documented and comparing them with the impact of academy conversion during the Labour years. To do so, panel C of Table 6 considers pupils in schools that became academies between 2002–03 and 2009–10 (again in a time window spanning $[c-6, c+2]$ around the time of opening c) and pupils enrolled at schools that became ‘sponsored’ academies in 2010–11, 2011–12 and 2012–13 (from six years prior to conversion to 2009–10, before the election of the coalition government). This approach reproduces the method we have used to assess the effect of academies on intake during the coalition years, and uses the Labour-type ‘sponsored’ academies in the coalition period as controls for the academies of the Labour years. Our results show that Labour academies significantly change their intake after conversion (reconfirming the earlier findings of Wilson (2011) and Eyles and Machin (2015)). The effect on KS2 is precisely estimated and corresponds to a 7 per cent of a standard deviation change, on average, over the three periods post-conversion. This compares with a 1 per cent estimated effect for the academies opened during the coalition period. Further, we find that Labour academies significantly reduced their intake of pupils eligible for FSM. The estimated effect – at around 7 per cent of the baseline probability – is almost twice as sizeable as the one we found for the coalition years. Finally, Labour academies also attract fewer pupils of white British origin, but the effect is 10 times larger than the one we found for the coalition years and much more significant. We return to these comparisons below where we investigate the differences between ‘sponsored’ and ‘converter’ academies, as well as chain and stand-alone schools, during the coalition years.

²⁶Results are not tabulated for brevity. However, they are available in the working paper version of this paper (Eyles, Machin and Silva, 2015).

2. Heterogeneous effects on intake

In Table 7, we investigate whether the effects of conversion during the coalition years on intake are heterogeneous and depend on whether academies are ‘sponsored’ as opposed to ‘converters’ or on whether they are part of a chain instead of stand-alone institutions. We focus only on KS2 test scores and pupils’ eligibility for FSM since these are the variables where we detected the most significant effects previously.

The first three columns of panel A reveal some evidence of heterogeneity. Whereas ‘converter’ academies do not experience any change in the ability of their intake, ‘sponsored’ academies that open during the coalition years attract students with significantly higher KS2 test scores. The estimated effect corresponds to 5.3 per cent of a standard deviation, with the difference between the impact of ‘converter’ and ‘sponsored’ academies being significant. This pattern suggests that the small effect documented in Table 6 is driven by ‘converters’ and that ‘sponsored’ academies opening after the Academies Act of 2010 more closely resemble the ‘sponsored’ academies of the Labour period when it comes to changes in their pupil intake. Columns 4–6 of panel A focus on pupils’ eligibility for FSM and reveal yet another dimension of heterogeneity. We now find that ‘converters’ are associated with a reduction in the share of FSM-eligible pupils and drive the overall negative effect presented in Table 6. Conversely, ‘sponsored’ academies attract pupils who are more likely to be eligible for FSM after conversion, with an estimated effect of approximately 9 per cent. As shown in the last column, the difference between these two coefficients is significant. This suggests that along this margin, the ‘sponsored’ academies of the Labour period and of the coalition years are not very comparable.

In panel B, we provide evidence of the effect of chain and stand-alone academies on intake. The first three columns show that only academies in chains significantly alter their intakes along the dimension of KS2 scores. However, this effect is smaller than the one documented in panel A for ‘sponsored’ academies. Similarly, the difference in the effect of conversion between chain and stand-alone academies is less pronounced than the difference between ‘sponsored’ and ‘converter’ academies. Columns 4–6 show that stand-alone academies tend to attract pupils that are less likely to be eligible for FSM. The estimated effect is approximately 5 per cent of the baseline probability, and the difference between chain and stand-alone academies is marginally significant. Note that chain academies also tend to attract fewer FSM-eligible pupils, although the effect is not statistically different from zero and is significantly smaller than the impact of stand-alone conversions.

Given this heterogeneity, we also investigate whether there are interesting patterns when we consider conversion type and chain interactions (see Table A2 in the online appendix). Although the results become somewhat

TABLE 7
Conversion and changes in school intake, by conversion type

A. Coalition years: sponsored versus converters		<i>Pupil is FSME</i>			
<i>Dependent variable:</i>		<i>Standardised KS2 point scores</i>		<i>Standardised KS2 point scores</i>	
	(1) Sponsored academies	(2) Converter academies	(3) Difference-in- difference	(4) Sponsored academies	(5) Converter academies
Academy × Post-conversion	0.053*** (0.012)	0.004 (0.006)	-0.049*** (0.012)	0.013** (0.005)	-0.009*** (0.002)
B. Coalition years: chain versus stand-alone					
<i>Dependent variable:</i>		<i>Standardised KS2 point scores</i>		<i>Standardised KS2 point scores</i>	
	(1) Chain academies	(2) Stand-alone academies	(3) Difference-in- difference	(4) Chain academies	(5) Stand-alone academies
Academy × Post-conversion	0.022** (0.008)	0.005 (0.006)	-0.017* (0.008)	-0.003 (0.003)	-0.008*** (0.002)

Note: The table reports coefficients, with standard errors clustered at the school level in parentheses. Number of observations and sample constructions are the same as for panels A and B in Table 6. Number of sponsored/converter academies open within observation window: 148 and 963, respectively. Number of chain/stand-alone academies open within observation window: 399 (107 sponsored and 292 converters) and 712 (41 sponsored and 671 converters), respectively. * significant at 10 per cent level; ** significant at 5 per cent level; *** significant at 1 per cent level or better.

noisier, we still find that ‘sponsored’ academies in the coalition years experienced significant improvements in the average KS2 scores of their pupils, irrespective of whether they are in a chain or stand alone. This is not true for ‘converters’ of any type. We also confirm the pattern detected in panel A of Table 7 showing that ‘sponsored’ academies marginally increase their intake of FSM-eligible pupils. Furthermore, the negative effects we found for ‘converters’ overall is similar when we consider stand-alone and chain academies separately.

All in all, these results confirm the conclusions we drew from the analysis of school-level data: the most interesting dichotomy is the one between ‘converters’ and ‘sponsored’ academies. The patterns of heterogeneity in our findings lend support to the idea that ‘sponsored’ academies in the coalition years are partially comparable to the Labour-period ‘sponsored’ academies. However, the pattern of heterogeneity on the percentage of FSM-eligible pupils enrolled after conversion suggests that ‘sponsored’ academies of the coalition period might still be different from the ‘sponsored’ academies of the Labour years along important dimensions.

3. Further results

We conclude our analysis by studying whether the intake effects documented in Table 7 vary depending on the political party in control of the local council and on the percentage of secondary academies in the LA. Our results are presented in Table 8.

In columns 1–3, we focus on changes in the KS2 attainment of pupils. Irrespective of the party controlling the local council or the share of academies in the LA, we still find no evidence that ‘converter’ academies significantly change the ability of their intake. On the other hand, we find that post-2010 ‘sponsored’ academies increase their students’ ability, but this effect is declining in the percentage of secondary schools in the same area. In LAs with a zero percentage of academies, ‘sponsored’ academies increase the KS2 of their intake by almost 9 per cent of a standard deviation. This effect is smaller – at 6.4 per cent – in LAs with the average percentage of academies within our sample (12.3 per cent), and negligible – at less than 1 per cent – in areas with the highest concentration of academies (40 per cent or the 90th percentile of the distribution). Although this result should be interpreted with caution, the pattern suggests that in areas with more competition from other academies, ‘sponsored’ academies might find it hard to cherry-pick their students or to entice parents of better-achieving pupils to apply to join the school. Interestingly, we find no heterogeneity in intake effects when we consider differences between schools in areas with different political affiliations.

TABLE 8
Conversion and changes in school intake: political factors and incidence of academies

Dependent variable:	Standardised KS2 point scores			Pupil is FSME		
	(1) Sponsored academies	(2) Converter academies	(3) Difference-in- difference	(4) Sponsored academies	(5) Converter academies	(6) Difference-in- difference
Academy × Post-conversion	0.088*** (0.031)	0.011 (0.013)	-0.077** (0.033)	0.017 (0.015)	-0.012*** (0.003)	-0.029* (0.016)
Academy × Post-conversion × Labour	-0.008 (0.038)	0.008 (0.017)	0.016 (0.042)	-0.020 (0.018)	-0.008 (0.005)	0.012 (0.019)
Academy × Post-conversion × Conservative	-0.020 (0.033)	-0.012 (0.012)	0.008 (0.035)	-0.002 (0.016)	0.002 (0.003)	0.004 (0.016)
Academy × Post-conversion × % academies	-0.002** (0.001)	-0.000 (0.001)	0.002** (0.001)	0.001 (0.001)	0.000** (0.000)	-0.000 (0.001)
<i>Implied effect of interaction, evaluated at mean % academies</i>	<i>0.064** (0.030)</i>	<i>0.011 (0.012)</i>	<i>0.019 (0.015)</i>	<i>-0.009*** (0.003)</i>		

Note: The table reports coefficients, with standard errors clustered at the school level in parentheses. Number of observations and sample constructions are the same as for panels A and B in Table 6. ‘Labour’ and ‘Conservative’ identify whether the council where the school is located was held by a majority of the Labour or Conservative party in the academic year prior to conversion. Excluded group includes Liberal Democrat or other party majority and no clear majority. Number of sponsored/converter academies open within observation window by party majority as follows: sponsored/Labour: 35; sponsored/Conservative: 86; converter/Labour: 169; and converter/Conservative: 666. ‘Percentage (%) academies’ refers to secondary schools open as academies in the academic year prior to the school’s conversion. Sample mean of % academies is 12.3 per cent. * significant at 10 per cent level; ** significant at 5 per cent level; *** significant at 1 per cent level or better.

Columns 4–6 consider whether there is heterogeneity in the effect of conversion on the admission of FSM-eligible pupils. In this case, we find no evidence that ‘sponsored’ academies markedly change their intake. Both the main effect and an interaction with the percentage of academies in the LA are insignificant and small. The patterns are consistent with those presented in panel A of Table 7. The evidence for ‘converter’ academies is instead starker. Following conversion, these experience a reduction in the percentage of FSM-eligible pupils among their intake, of approximately 8 per cent of the baseline share of FSM-eligible students in areas with no other academies. However, this impact is diluted as the percentage of academies in the local area increases. ‘Converters’ in areas with the average density of secondary academies experience a decrease in FSM-eligible pupils of approximately 6 per cent, further shrinking to 2 per cent in areas with the top 10 per cent of academy concentrations. Once again, this suggests that ‘converters’ open in areas with more competition from other academies might find it hard to attract better-off parents and admit fewer pupils eligible for FSM.²⁷

VI. Conclusions

The last 15 years have seen radical developments in the English education landscape. The most salient change in terms of school structures has been the introduction of academies – autonomous schools that remain part of the state sector but operate outside the control of the local education authorities. Academies were first introduced by the Labour government in the early 2000s as a remedial school improvement intervention aimed at turning around failing schools. However, the coalition government elected in May 2010 quickly and dramatically changed the aims of the programme and pushed for an acceleration of the academisation of state education with the aim of promoting autonomy and competition and increasing educational standards.

The aim of this paper was to study whether the nature of academies has changed as a result of this shift. In order to do so, we have investigated and contrasted the characteristics associated with conversion during the Labour government years and the coalition government period. We have also studied how the composition of schools that became academies after 2010 changes as a result of conversion, and whether the association between academisation and changes in intake differs across different types of academies and in the Labour and coalition years.

²⁷In some additional extensions, we studied whether the evidence presented above is heterogeneous for academies whose predecessor was either a community or voluntary-controlled school (the least autonomous school types) as opposed to a foundation or voluntary-aided school. We found no evidence of strong and significant heterogeneous patterns. Furthermore, this additional dimension did not help shed light on the differences/similarities between the Labour and coalition years, or the ‘sponsored’ and ‘converter’ academies. As a consequence, the results are not tabulated (but are available from the authors).

Our evidence leaves no doubts that the second batch of academies differs markedly from the first. Schools that converted during the Labour years had low attainment and a high share of disadvantaged students before conversion. The opposite is true for schools that became academies after May 2010. We also find that the new academies tend to experience no changes in terms of the ability of the students they enrol, and some limited changes in the percentage of children eligible for free school meals. This is in contrast to evidence for the Labour academies, which shows significant improvements in the ability of enrolled students and more substantial declines in the percentage of disadvantaged pupils after conversion.

Altogether, this suggests that simple extrapolation from the evidence on the effects of the first batch of conversions to the second batch is not warranted and is potentially very misleading. This finding is important because extrapolation has been, and continues to be, commonplace among policymakers, media commentators and – in some cases – academics. Nevertheless, our results also point to some commonalities between the two programmes. ‘Sponsored’ academies – originally introduced by Labour but also proliferating during the coalition period – have fairly similar pre-conversion characteristics during both regimes. Moreover, they tend to change the ability of their pupil intake in similar ways across all years, though the change in the percentage of disadvantaged pupils they attract is somewhat different for the two batches. This suggests that a comparison of ‘sponsored’ academies in both regimes may be relatively legitimate and that an extrapolation of the lessons learned for the Labour academies might apply to a subset of coalition academies. Despite this, it is important to stress that the academy sector has predominantly expanded through the ‘converter’ route. Our analysis reveals that there is too little overlap between the nature of these academies and the Labour batch to warrant any meaningful extrapolation. Indeed, the fact that these schools were typically designated as ‘Good’ or ‘Outstanding’ before conversion means that they may not see the need to innovate post-conversion in the same way that the poorly performing ‘sponsored’ academies might.²⁸

More broadly, our paper holds important lessons for the debate about the consequences of autonomy in state education. The revamped academy programme launched in May 2010 is an experiment of unprecedented scale in which highly performing schools – as well as struggling schools – are allowed more independence with the hope that this will bring improvements in standards across the board. In the span of six years, these autonomous institutions have gone from being a minor part of the education system to representing more than 60 per cent of secondary and more than 20 per cent of primary schools.

One of the main concerns with such a vast expansion of autonomy and differentiation in education has been the risk of increased stratification,

²⁸ Academies Commission, 2013.

with students of different backgrounds segregated in different schools, either because of differential parental preferences for different types of schools or because of school admission practices. Our analysis reveals that these concerns are partly warranted. Intake composition in terms of pupils' academic ability clearly improved more for the Labour academies than for the coalition academies. Nevertheless, we also found that 'converter' academies enrol fewer pupils eligible for free school meals. Conversely, the intake of coalition 'sponsored' academies has become somewhat more skewed towards disadvantaged children. This suggests that, at least along this dimension, schools are becoming more stratified.

Although we are not yet able to tell whether this stems from parental free choice or school 'back door' (hidden) selection practices, understanding the mechanisms that lie behind this finding is an essential future research venture of relevance for designing policies that can help reap the potential benefits of more autonomous schooling, while at the same time mitigating any negative effects.

Supporting information

Additional supporting information may be found in the online version of this paper on the publisher's website:

- Appendix

References

- Abdulkadiroglu, A., Angrist, J., Dynarski, S., Kane, T. and Pathak, P. (2011), 'Accountability and flexibility in public schools: evidence from Boston's charters and pilots', *Quarterly Journal of Economics*, vol. 126, pp. 699–748.
- , —, Hull, P. and Pathak, P. (2016), 'Charters without lotteries: testing takeovers in New Orleans and Boston', *American Economic Review*, vol. 106, pp. 1878–920.
- Academies Commission (2013), *Unleashing Greatness: Getting the Best from an Academised System*, Report of the Academies Commission sponsored by the RSA and Pearson Think Tank.
- Ahlin, Å. (2003), 'Does school competition matter? Effects of a large-scale school choice reform on student performance', Uppsala University, Department of Economics, Working Paper no. 2003:2.
- Angrist, J., Dynarski, S., Kane, T., Pathak, P. and Walters, C. (2010), 'Inputs and impacts in charter schools: KIPP Lynn', *American Economic Review*, vol. 100, pp. 239–43.
- Björklund, A., Clark, M., Edin, P-A., Fredriksson, P. and Krueger, A. (2005), *The Market Comes to Education in Sweden: An Evaluation of Sweden's Surprising School Reforms*, New York: Russell Sage Foundation.
- Böhlmark, A. and Lindahl, M. (2007), 'The impact of school choice on pupil achievement, segregation and costs: Swedish evidence', IZA, Discussion Paper no. 2786.
- Clark, D. (2009), 'The performance and competitive effects of school autonomy', *Journal of Political Economy*, vol. 117, pp. 745–83.

- Department for Education (2014), *Do Academies Make Use of Their Autonomy?*, Research Report no. 366, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/401455/RR366_-_research_report_academy_autonomy.pdf.
- Dobbie, W. and Fryer, R. (2011), ‘Are high quality schools enough to close the achievement gap? Evidence from a social experiment in Harlem’, *American Economic Journal: Applied*, vol. 3, pp. 158–87.
- Eyles, A., Hupkau, C. and Machin, S. (2016), ‘Academies, charter and free schools: do new school types deliver better outcomes?’, *Economic Policy*, vol. 31, pp. 453–501.
- and Machin, S. (2015), ‘The introduction of academy schools to England’s education’, Centre for Economic Performance (CEP), Discussion Paper no. 1368.
- , — and McNally, S. (2016), ‘Unexpected school reform: academisation of primary schools in England’, *Journal of Public Economics*, forthcoming.
- , — and Silva, O. (2015), ‘Academies 2: the new batch’, Centre for Economic Performance (CEP), Discussion Paper no. 1370.
- Fryer, R. (2014), ‘Injecting charter school best practices into traditional public schools: evidence from field experiments’, *Quarterly Journal of Economics*, vol. 129, pp. 1355–407.
- Gibbons, S. and Silva, O. (2011), ‘Faith primary schools: better schools or better pupils?’, *Journal of Labor Economics*, vol. 29, pp. 589–635.
- Hoxby, C. and Murarka, S. (2009), ‘Charter schools in New York City: who enrolls and how they affect student achievement’, National Bureau of Economic Research (NBER), Working Paper no. 14852.
- Juhn, C., Murphy, K. M. and Pierce, B. (1993), ‘Wage inequality and the rise in returns to skills’, *Journal of Political Economy*, vol. 101, pp. 410–42.
- Ladd, H. and Fiske, E. (2016), ‘England confronts the limits of school autonomy’, Columbia University, Teachers College, National Center for the Study of Privatization in Education, Working Paper no. 232.
- Machin, S. and Vernoit, J. (2011), ‘Changing school autonomy: academy schools and their introduction to England’s education’, Centre for the Economics of Education (CEE), Discussion Paper no. 123.
- and Wilson, J. (2008), ‘Public and private schooling initiatives in England: the case of city academies’, in R. Chakrabarti and P. Peterson (eds), *School Choice International*, Cambridge, MA: MIT Press.
- National Audit Office (2010), *Department for Education: The Academies Programme*, <http://www.nao.org.uk/publications/1011/academies.aspx> (accessed 12 March 2011).
- Neal, D. (1997), ‘The effects of Catholic secondary schooling on educational achievement’, *Journal of Labor Economics*, vol. 15, pp. 98–123.
- PricewaterhouseCoopers (2008), *Academies Evaluation: Fifth Annual Report*, Nottingham: DCSF Publications.
- Sandström, M. and Bergström, F. (2005), ‘School vouchers in practice: competition will not hurt you’, *Journal of Public Economics*, vol. 89, pp. 351–80.
- Wilson, J. (2011), ‘Are England’s academies more inclusive or more “exclusive”? The impact of institutional change on the pupil profile of schools’, Centre for the Economics of Education (CEE), Discussion Paper no. 125.