FAITH PRIMARY SCHOOLS:

BETTER SCHOOLS OR BETTER PUPILS?

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Abstract

Quality of childhood schooling is increasingly seen as important for life chances, because adults' success in the labour market is closely linked to early educational attainments. However, economic and educational research has had little success in finding resource-based interventions that are effective in rising school standards. Government policy in England currently favours policies based on incentives, governance and competition, and in particular the expansion of the faith-schools sector – largely because it is believed that faith (church) schools offer higher educational standards. The issue has received considerable empirical attention in the US, but assessment of the claim is difficult because of selection of pupils into faith schools according to family characteristics that are correlated with pupil achievement. We control for selection on religious schooling by tracking pupils over time and comparing attainments of pupils who exhibit different levels of commitment to religious schooling and residential choices. In particular, we ask whether the faster growth in attainments between ages 7 and 11 for pupils attending church primary schools is really a school-quality effect of whether it is a characteristic of pupils from families who display religious commitment in other ways – e.g. by their choice of secondary school or choice of residence. Our results suggest that, once family preferences and selection into religious education are controlled for, faith schools have a fairly small effect on pupil educational progression in primary school – this effect being between zero and under one-percentile on test scores at the age 11, relative to scores at age 7.

1. Introduction

Quality of childhood schooling is increasingly seen as important for life chances, because adults' success in the labour market is closely linked to early educational attainments. However, economic and educational research has had little success in finding resource-based interventions that are effective in rising school standards. Government policy in many countries now favours policies based on incentives, governance, increased choice and competition. In England, this idea has become linked with the expansion of the Faith schools sector (church-affiliated schools) because they symbolise choice and diversity in the education system, because they are models of the kind of practice in admissions and governance that policy makers wish to promote, and – crucially – because it is claimed that they offer higher educational standards. This claim is, however, a difficult one to assess, because pupils that choose and get chosen by Faith schools differ from the population of pupils in ways that are correlated with educational achievement. In this paper we present some new evidence on the effectiveness of Faith schools in the English context, using a national census of pupils which allows us to carefully match pupils who attended Faith schools in the Primary school phase with similar pupils in the Secular (non-faith) Primary phase, based on their prior attainment, family characteristics, place of residence, and the commitment to Faith-education that is revealed in their subsequent choice of secondary school.

Schooling and religion have had a long alliance. Traditionally, churches have run schools in part as a way to disseminate their religious message and in part because of their wider charitable and community responsibilities. These days, church-affiliated schools are formally integrated into the fabric of many educations systems, and in Britain provide some education to around one-third of all pupils in the state-sector. These faith schools continue to be popular,

and, as with the Catholic schools in the US, their average pupil outcomes appear favourable when compared to other types of school. Also, the heterogeneity offered by church schools in terms of religious character, pupil admissions and governance is seen by some as encouraging diversity and a reinforcing school choice; yet, others argue this may be culturally, socially and economically divisive.

Whatever one's views here, the fundamental question that has taxed researchers in recent decades, particularly in the US, is whether or not pupils really benefit from attending a Faith school rather than a Secular school, or whether Faith-schools simply attract and admit high-ability children with better family backgrounds. This is a question of pressing policy relevance in Britain because government policy has taken on-board the idea that Faith schools perform well and is trying to replicate their institutional arrangements in schools more widely (DfES White Paper 2005, DfES Education bill 2006). Surprisingly perhaps, there is almost no evidence on the issue for Britain that makes any serious attempts to separate out the causal effect of Faith schools from pure selection, and there are serious doubts about the the credibility of the strategies used in much of the US empirical work (Altonji, Elder and Taber, 2002).

With this in mind, our paper provides estimates of the impact of various types of English primary school on pupil attainment at age-11 using a census of pupils matched to current and historical records of attainment. Research that has tried to measure the "Catholic school" effect in the US has, typically, made use of instruments for church school attendance, such as family religion, neighbours' religion and place of residence. We agree with arguments that these instruments are not credible when the point of the exercise to purge estimates of family background and ability-related effects, because family religion is correlated with other family

characteristics (explicitly so if it is claimed that church-school attendance affects pupil outcomes) and because families choose where to live on the basis of which school they wish to attend. Indeed, it is likely to be impossible to find instruments that induce random assignment to Faith schools, because school and residential choice is always subject to personal preference and any random assignment without compulsion could be undone by individual action. Therefore, it is clear we cannot be completely conclusive in terms of a parameter that characterises the 'causal' influence of Faith schools; but we can present estimates under different specifications that provide a good indication of the likely range of effects and the relative role that selection and institutional differences make.

Our empirical strategies are, in outline, as follows. Contrary to previous literature, we argue that consideration of the process of residential means that it is better to *control* for precise residential location, rather than use it as an instrument. To this end, we exploit the geographical detail in our data set to compare outcomes for primary school pupils who live in the same postcode (10 or so housing units, or a street) but attend different schools. Our methods also take advantage of the fact that we can observe pupils at two phases of their education. Some never attend a Faith school, some attend a Faith primary school but not a Faith secondary school or vice-versa, some attend Faith schools in both phases. We argue that these patterns of choice are revealing about unobserved family preferences and characteristics, and comparison of the association between Faith school attendance and attainment amongst these different groups is informative about the relative role of selection vis-à-vis institutional arrangements. Lastly, we take the now-standard matching approach to the evaluation of 'treatment' effects when there is selection on observable characteristics. Our results suggest that most of the observed educational advantage of Faith schools is due to non-random

selection into Faith schools, and the 'causal' impact of attending a Faith school between ages 7 and 11 is at most equivalent to 0.7 percentiles in the distribution of pupil test scores at age 11.

The paper has the following structure. The next section outlines some of the literature and critiques its methods. In Section 3 we explain the different types of school that exist in the English school system and the data that we will be using. Section 4 sets out our empirical approach in more detail, and Section 5 presents and discusses the results that arise from these approaches. Section 6 concludes.

2. Methods used in previous studies

By far the bulk of existing academic work on the impact of Faith schools on education originates in the US, and has focussed on Catholic schools – largely springing from the influential work of Coleman (1982). Most of the subsequent research there finds that attendance at a Catholic school raises graduation rates and sometimes test scores, though there is variation across different demographic and geographical groups and across subject areas. Our discussion will focus on whether there is anything we can learn from the methodological approaches in the US and international literature rather than the results per-se. For Britain, evidence on the performance benefits of Faith schools is fairly limited: Schagen et al. (2002) provide no clear evidence that Faith Secondary schools perform any better in terms of progress in Science or Maths between ages 12 and 14, or between 15 and 16. Pupils in Faith schools do show slightly faster progress in English, and also seem to pass more subjects overall in their age-16 exams. In a study limited to two London boroughs with only 7 religious schools, Prais (2005) finds quite strong Faith school advantages in Maths, particularly amongst weakest pupils. Neither of these studies takes any steps to controls for pupil background or otherwise deal with selection on unobservable characteristics that influence educational progress.

In the US these Catholic schools are the dominant type of "Faith" school, though the context there is very different from that in England: in the US Catholic schools are private-sector schools whereas English Faith schools are part of the state school system. Nevertheless, the key issue that has taxed US researchers investigating the effects of Catholic schooling on achievement is the same issue that we will need to confront: there is clearly non-random selection of pupils into Faith schools, such that Faith school attendance is correlated with unobserved pupil-family characteristics that are educationally advantageous. Almost all approaches try to find an explicit source of random variation in the probability of Catholic school attendance that is otherwise uncorrelated with educational attainment and can be used as an instrument. Disappointingly, many of the instrument choices do not seem credible on deeper reflection, and the evidence in Altonji, Elder and Taber (2002) is not supportive of any of those that are commonly used.

The first typical instrument is family religion, on the basis that being Catholic is (obviously) a strong determinant of attendance at a Catholic school. This approach is used, for example, by Noel (1982), Evans and Schwab (1995), in part of Neal (1997). However, opinion seems divided on whether family religion is related to educational outcomes other than through Catholic school attendance, and most recent studies seem to disregard it as a plausible instrument. On a priori grounds, it seems most likely that religious beliefs influence all sorts of family attitudes and economic outcomes; this is especially true if attendance at a Catholic school does raise attainments, the probability of graduation, future earnings and hence family resources in future generations – which is what most of these schooling studies imply. The range of family outcomes that are correlated with religiosity may be much wider; Gruber (2005) finds evidence that religious participation is correlated with education, income, lower

rates of disability, and, perhaps unsurprisingly, with more marriage and less divorce. Moreover there is another strand of literature that links religious beliefs to economic growth, ranging from sociological work such as Weber (1905) to macroeconomic studies such as Barro and McCleary (2003). In a similar vein, Guiso et al. (2003) use international data to show a link between religion and social attitudes that are conducive to positive economic outcomes. On balance, we are not convinced that family religion is a useful instrument for Faith school attendance.

Another approach has been to use instruments that try measure the local 'supply' of Faith schooling. Neal (1997) uses both the number of Catholics as proportion of the local population as an instrument, with the justification that Catholic schools charge lower fees in predominantly catholic areas, and the geographic density of Catholic schools on the basis that this lowers costs of access. The same ideas are applied in Grogger and Neal (2000), and in Figlio and Stone (1999), who go further and include all sorts of geographical and area-demographic variables in their instrument set. None of these ideas are convincing theoretically. Observational evidence on the proximity of place of residence to faith schools is clearly related to family's preferences over schooling because the decision to live near a faith school is based on the intention to attend that school. This role of schools in housing choices is evident in the voluminous empirical literature on the influence of schools on housing demand (Black, 1999; Gibbons and Machin, 2006; Kain, Staiger and Reigg, 2005). Similarly, demographic characteristics such as the local proportion of people with religious affiliation must be related to pupil's family background because his or her family has made choices to live in this type of community. In particular, one reason why a locality may have high concentrations of, say, Catholic families is because these families want their children to attend a local Catholic school.

In this case it is spatial correlation in family preferences over schooling that incidentally generates an association between Catholic school attendance and local Catholic density. Other approaches have tried to use interactions of these instruments, whilst controlling for their levels (e.g. Sander, 1996) though the theoretical basis for this is uncertain, and the testing in Altonji, Elder and Taber (2002) suggests it is not satisfactory.

Given the weaknesses in the IV approach, some have tried other methods: Jepsen (2003) simply controls for pupil background characteristics and for the school-median test scores of pupils soon after they enter school. Unfortunately he only has data on prior attainments for a different cohort of pupils, not the pupils who's outcomes are being measured, but still he finds no impact of Catholic schools on test scores. In a different approach, Altonji, Elder and Taber (2005) infer the degree of selection bias in the Catholic school effect from the extent of selection on observable pupil characteristics, and conclude that whilst there is an impact on high school and college graduation rates, there is no influence on test scores.

The approach we will follow is closer to those in these more recent US studies, but we have the advantage of a large dataset on the population of pupils in England, containing information on pupil's prior attainments, demographics and details on precise geographical location. Before discussing our methods, we outline the institutional context for Faith schools in England, and the details of this dataset we use to investigate them.

3. Institutional context and data

3.1. School types and governance

Primary schools in the state-sector in England fall into a number of different religious categories, and differ in terms of the way they are governed, the ownership of the school

buildings, and who controls pupil admissions. The key differences between these school types – Community, Foundation, Voluntary Aided and Voluntary Controlled – are set out in Table 1. In addition there is a small private, fee-paying sector, which we do not consider here[1]. All state schools are funded largely by central government, through Local Education Authorities that are responsible for schools in their geographical domain. Schools other than Community schools are also linked in some way to a church or other charitable organisation.

All schools are run by a Governing Body composed of members elected from amongst parents and staff (Parent Governors and Staff Governors), appointed by the Local Education Authority (LEA Governors), appointed by the church or charitable foundation that owns the school premises (where relevant – Foundation Governors), and appointed from the community (e.g. local businesses) by the Governing Body. The Governing Body sets the strategic direction of the school, draws up school policies, sets targets and monitors performance, although day-to-day running is down to the headteacher and his or her leadership team. The constitution of the Governing Body is important because it determines how much influence various 'stakeholders' have in the way the school is run – in particular, the balance between control by the Local Education Authority (LEA) and control by the church or charitable foundation. Moreover, in Voluntary Aided and Foundation schools the Governing body of the school that is responsible for admissions and has some flexibility in selecting pupils[2]; in other cases it is the Local Education Authority that handles admissions centrally. Schools are further

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[1] They educate around 6-7% of pupils in England as a whole.

[2] Although the national Code of Practice on Admissions must be adhered to, and this forbids explicit selection by aptitude at Primary school level.

differentiated according to who owns the school premises – either the LEA, or the church/charitable organisation that is linked to a school's Foundation or Voluntary Aided status. In the first case the LEA is also classed as the employer; in the second it is the Governing body; but in both cases the Governing body is responsible for making staff appointments at the school, including the appointment of the headteacher. These distinctions are important when we consider the role of Faith schools, because schools that are Faith schools are often different in other ways than just religious affiliation – as shown in Table 1.

Table 1: Primary school categories in England

Type	Faith	Governors	Admissions authority	Assets owned by	Employer
Community	Secular	Parents >30% Staff <30% LEA 20% Community 20%	LEA	LEA	LEA
Foundation	Mostly secular, some C. of E.,	Parents >30% Staff <30% Foundation <25% LEA <20% Community 10%	Governors	Church or charity	Governors
Voluntary Aided	Mostly C. of E. or Catholic, some other faith, some secular	Foundation >50% Parents >30% LEA <10% Staff (<30%)	Governors	Church or charity	Governors
Voluntary Controlled	Mostly C. of E., some other faith, some secular	Parents >30% Staff <30% Foundation <25% LEA <20% Community 10%	LEA	LEA	LEA

Note: C. of E. means Church of England.

Because of our emphasis on Faith schools, we re-arrange these into four school types that we feel best characterise their religious affiliation and governance/admissions arrangements. The breakdown is as follows

- *Secular, Controlled*: includes schools that have no religious affiliation and are Community or Voluntary Controlled

- *Secular, Autonomous*: includes schools that have no religious affiliation but are Foundation or Voluntary Aided

- *Faith, Controlled*: includes schools that have a religious affiliation and are Voluntary Controlled

- *Faith, Autonomous*: includes schools that have a religious affiliation and which are Foundation or Voluntary Aided

The goal of our empirical work will be to explore differences in attainment of pupils in these schools in the Primary phase, and to consider to what extent any differences can be attributed to Faith-affiliation. First, however, we need to briefly explain the way attainment is assessed in English Primary schools, and describe the data we will bring to bear on this question.

3.2. National curriculum and assessment

Compulsory education in England is organised into five stages referred to as Key Stages. In the Primary phase, pupils enter school at age 4-5 (or earlier if the school has nursery provision) in the Foundation Stage (not to be confused with Foundation *schools*) and then move on to Key Stage 1, spanning ages 5-6 and 6-7. At age 7-8 pupils move to Key Stage 2, sometimes – but not usually – with a change of school[3]. At the end of Key Stage 2, when pupils are 10-11 children leave the Primary phase and go on to Secondary school where they

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[3] In some cases there are separate Infants and Junior schools that cover Key Stage 1 and 2 respectively. Sometimes there are Infants and Junior schools on the same site, or different departments within the same school. A few LEAs still operate a Middle School system, which bridge the Primary and Secondary phases; we do not consider these schools in our analysis.

progress through Key Stage 3 and 4. At the end of each Key Stage, pupils are assessed on the basis of standard national tests (SATS) and progress through the phases is measured in terms of Key Stage Levels, ranging between W (working towards Level 1) and Level 5+ in the Primary phase. A point system can also be applied to convert these levels into scores that are intended to represent about one term's (10-12 weeks) progress.

3.3. The data

The UK's Department of Education and Skills (DfES) collects a lot of data on school pupils centrally, because the pupil assessment system is used to publish school performance tables and because information on pupil numbers and characteristics are necessary for administrative purposes – in particular to determine funding. A National Pupil Database (NPD) holds information on each pupil's assessment record in the Key Stage SATS throughout their school career. Since 2002, the DfES has also carried out a Pupil Level Annual Census (PLASC) which records information on pupil's school, gender, age, ethnicity, language skills any special educational needs or disabilities, entitlement to free school meals and various other pieces of information (prior to 2002 this information was collected only at school level). Importantly, the PLASC data has information on postcode of residence: a postcode is typically 10-12 neighbouring addresses, so we will be able to control very carefully for residential location.

These two databases (PLASC and NPD) can be spliced together at pupil level to give a large and detailed dataset on pupils along with their test histories. The test histories contain details on the "Levels" reached in the core subject areas – Maths, English, Science (Science only beyond Key Stage 1) – and, for Key Stage 2 and beyond, the raw scores in the component tests. We use information on two cohorts: those aged 10-11 and sitting their Key Stage 2 SATS

in 2002 and 2003, who took their Key Stage 1 SATS in 1998 and 1999 respectively. We can also deduce to which school these pupils are assigned when they move on to Secondary school in 2003 and 2004. Various other data sources can be merged in at school level – in particular each school's religious affiliation and the institutional types described above in Section 3.1 – which are available from the DfES 'Edubase' system.

We will use this large an complex combined data set – which gives us information on around 1 million pupils in over 14000 Primary schools in England – to estimate the influence of Faith schools on pupil progress through Key Stage 2 (between ages 7 and 11). In the next section we set out the empirical model more precisely.

4. Model

As can be seen above in our consideration of previous efforts in Section 2, measurement of the effectiveness of church schools presents a difficult challenge. Families with a preference for church-affiliated schools or schools with a religious tradition or religious ethos may, on average, have characteristics that influence academic progress in their children. In addition, in the English context, many Faith schools at both Primary and Secondary level have (or had until recently) much greater control over their own pupil admissions than do most Secular schools. The reason for this is that Faith schools (and other schools classed as *Voluntary Aided* or *Foundation*; see Section 3.1) were allowed to interview families – ostensibly to determine their religious or other ethical convictions; however, it has long been suspected that this leads to some form of covert selection based on parental and pupil characteristics that are correlated with pupil ability. West (2005) and West and Hind (2003) provide detailed qualitative analyses of this issue. Clearly, both these factors can lead to differences between church and non-church schools in terms of the distribution of pupil and family background characteristics at time of

school entry. These forms of school-side and family-side selection together mean that pupils are sorted into schools along lines of ability, with higher strata over-represented in church schools. As discussed above (Section 2) we do not believe there are any credible instruments for Faith school attendance – at least not in the English setting and current policy environment. But we do have a wealth of information on the residential location and school attendance history of our pupils which, we argue, we can turn to our advantage..

The basic model we will estimate is a standard pupil-level 'value-added' model of educational attainment, which measures the statistical association of school attendance and other characteristics with progress at school between the ages of 8 and 11. In our two-period empirical setup, attainment of pupil i in school j at stage two (h_{ij2}) builds on prior attainment at stage one (h_{ij1}), and is modified by school-type factors (β_j) and observable personal and family characteristics x'_{ij2}.

$$h_{ij2} = \beta_j + x'_{ij2}\gamma + f\left(h_{ij1}\right) + \eta_{i2} + \varepsilon_{ij2} \qquad (1)$$

The key empirical problem is that family-side selection of schools and school-side selection of pupils before stage two means that unobserved pupil-family characteristics η_{i2} that influence the rate of progress between stage and stage 2 are correlated with school choice, so $E[\eta_{i2} | h_{ij1}, x_{ij2}, j = k] \neq E[\eta_{i2} | h_{ij1}, x_{ij2}, j \neq l]$. Estimates of β_j that do not control for η_{i2} are biased estimates of the expected impact of Faith-School attendance. Since we regard selection on prior ability or attainment as particularly important, we allow these to enter our model in a very general way as indicated by $f\left(h_{ij1}\right)$.

Most of the previous literature on faith school effects has had to make to without information on prior-attainments and has used instruments – typically geographical – to deal

with selection on unobservables (including unobservable which influence the level of attainment at stage 1). But basic theories of urban economics tell us that choice of place of residence is revealing of the benefits of different locations to different types of people, and that similar people sort into neighbourhoods and communities according to these benefits and the income that they have available to pay for housing. Given this, it seems to us that one of the most fundamental things to do when looking for evidence of performance advantages in Faith schools is to *control* for place of residence, rather than use it to predict Faith school attendance as is common in instrumental variables approaches. The geographical detail and density of pupils in our data means we are able to do this quite effectively, by comparing outcomes for pupils who live in the same postcode, but attend different schools. At least then we are comparing pupils with families who exhibit similar preferences over choice of housing, neighbourhood and local amenities.

There is, however, an obvious difference between two families attending different types of school, even if they are close geographical neighbours: the type of school they attend may reveal preferences over school type, or attributes of the pupil that schools are able to observe when making admissions decisions and these preferences and attributes may be correlated with pupil progress[4]. However, we can use our data to work out where pupils attend school when they leave the Primary phase and go on to a new Secondary school at age 12. One thing this

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[4] In the US private Catholic school setting, these factors are theoretically related to the benefits of choosing a faith school, since attendance at a private school rather than a pubic school imposes financial costs. In England, conditional on place of residence, admission to a state faith-school does not incur high additional costs relative to a non-faith school. The only likely cost is the effort of demonstrating some religious commitment through church attendance.

allows us to do is eliminate family differences that are expressed in Secondary school choice by allowing for Secondary school fixed effects when we estimate (1). Moreover, the range of school types in Primary school is replicated at the Secondary phase, and so, we argue, school assignment at age-12 is revealing both about the preferences of families regarding faith schooling and their 'suitability' for faith schooling in the eyes of Faith school admissions authorities. Clearly, families that commit to Faith schooling over both schooling phases are not likely to be suitable 'control group' members for the kind of pupils who attend non-Faith schools in both phases. Conversely, families who only attend Faith schools in the Secondary phase are potentially good controls for families who attend Faith schools only in the Primary phase; both types of family show no distaste for Faith schools and are clearly of acceptable social calibre. The underlying assumption behind this approach is that selection into Faith schools occurs along similar lines of family background in the Primary and Secondary phases. We assume, in line with the evidence in West (2005) and West and Hind (2003), that any school-side selection is on the basis of pupil and family characteristics and not explicitly on past academic *progress*, because neither Primary or Secondary schools have any measure of a pupil's prior academic progress at the time they admit them[5].

Our different sample comparisons are likely to generate a range of estimates of the Faith-School effect on attainment; which one to trust depends entirely on assumptions about which groups we believe are better matched in terms of unobservable characteristics – something which we are unable to test. However, even bearing this in mind, we claim that a lot can be

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[5] Primary school pupils admit pupils before any testing has taken place and pupils apply and receive admissions offers to Secondary schools before they have taken their age-11 Key Stage 2 SATS.

learnt about the relative role of selection and institutional difference by comparison of the relationship between Faith-Primary attendance and attainment in these different groups. In our view, this is the best that can be done when school selection occurs on the basis of unobservable pupil-family characteristics and no credible instrument is available.

5. Results and discussion

5.1. Descriptive statistics

The basic facts about the association of a pupil's age-11 attainment and the type of primary school he or she attends is summarised in Table 2. The school categories were explained in Section 3 above.

The Table shows the means and standard deviations of pupil test scores in standard age-11 SATS tests, where the raw test scores are converted into percentiles. In all the empirical analysis that follows we will work with an average of the pupil's percentile in the Maths and English distribution because there were no interesting differences between these two subjects (see Appendix Table 10). The summary statistics for this average are shown in Row 1 for the whole sample, and then split by broad school type in Rows 2–6. These figures show the key feature that we wish to analyse: pupils emerging from primary schools that are broadly classified as Faith-schools under our definitions (see Section 3) have higher levels of attainment than those emerging from Secular schools. The difference is about four and three-quarters of one percentile in the pupil test score distribution.

Table 2: Age-11 attainments by school type; descriptive statistics

Variable	Mean	Std.Dev.	Percentage of Age-11 pupils
Average KS2 Score, Mathematics and English (percentiles)	50.50	26.61	100%
Faith (Controlled or Autonomous)	53.85	26.17	29.21%
Faith, Controlled	52.43	26.46	9.94%
Faith, Autonomous	54.58	25.99	19.27%
Secular (Controlled or Autonomous)	49.12	26.66	70.79%
Secular, Controlled	49.00	26.67	68.18%
Secular, Autonomous	52.17	26.78	2.61%
Faith C. of E.	52.95	26.37	18.98%
Faith Catholic	55.52	25.72	10.24%
Autonomous (Faith or Secular)	54.30	26.03	21.88%

Note: the total number of observations is 929958. Pupils attending or moving to schools with other religious denominations are dropped from the sample; they amount to about 0.6% of the sample (6387) pupils. Autonomous schools include (secular and faith) Foundation and Voluntary Aided schools. C. of E. means Church of England.

Splitting this up into the finer school classifications defined in Section 3, we can see that the apparent 'Faith school' effect in Row 2 is more specifically associated with Faith schools that we class as Autonomous[6] – which means, amongst other things, that they operate admissions policies that are potentially 'covertly' selective. These schools require parents to apply directly to the school, the school reviews the applicants and were (at the time our data was collected) allowed to interview families prior to admission. The question we want to address is to what extent this Faith school 'advantage' is simply a product of differences in background characteristics between those who enter Faith schools and those who do not.

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[6] The usual headline indicators for Primary school performance are the proportions reaching Level 4 in their age-11 SATS; on this metric, in English 83.3% of age-11 Faith, Autonomous pupils reach the target, whereas only 76.5% of Secular, Controlled pupils do; in Maths 80.7% of Faith, Autonomous pupils reach the target, compared 74.6% in Secular, Controlled schools.

5.2. Differences in pupil background and initial attainment

Firstly, we demonstrate that there are indeed important and significant differences between school types in terms of the observable characteristics of pupils at the beginning of the age 7-11 phase. Table 3 reports the overall means and standard deviations of age-7 attainment and background characteristics in Row 1, and the results from a regression of these characteristics on school-type dummies (with Secular, Controlled schools as the baseline) in Rows 2-5.

Table 3: Prior attainment and pupil background by Primary school type

	No controls				*Postcode fixed effects*			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Age-7 KS1 Points	Free Meal Eligible	White	English First Language	Age-7 KS1 Points	Free Meal Eligible	White	English First Language
Mean	44.752	0.163	0.845	0.903	44.339	0.194	0.850	0.914
(Std.Dev.)	(10.212)	(0.369)	(0.362)	(0.296)	(10.301)	(0.395)	(0.357)	(0.280)
Faith, Autonomous	1.657	-0.047	0.033	0.037	0.542	-0.031	0.013	0.023
	(0.075)	(0.003)	(0.005)	(0.004)	(0.075)	(0.002)	(0.003)	(0.003)
Faith, Controlled	1.289	-0.080	0.074	0.061	0.212	-0.020	0.001	0.005
	(0.097)	(0.003)	(0.006)	(0.005)	(0.096)	(0.003)	(0.003)	(0.003)
Secular, Autonomous	1.209	-0.067	0.036	0.029	0.710	-0.030	0.013	0.007
	(0.232)	(0.007)	(0.014)	(0.012)	(0.192)	(0.006)	(0.007)	(0.007)
Secular, Controlled	44.273	0.181	0.831	0.889	44.19	0.203	0.847	0.909
	(0.042)	(0.002)	(0.003)	(0.003)	(0.033)	(0.001)	(0.001)	(0.001)

Note: The top part of the table shows raw means and standard deviations across all schools. The bottom part shows means for Secular Controlled schools, and mean differences for other school categories with respect to Secular Controlled schools. Means and mean differences in the bottom part of the Table are obtained from regressions at the pupil level without controls or controlling for postcode fixed effects; standard errors clustered at the schools level. Sample size: no controls 929958; Postcode fixed effects: 470607

It is evident from this table that pupils in all types of Faith school and in secular schools that run their own admissions, are at an advantage over pupils in standard non-selective and Secular primary schools, both in terms of initial attainment and background characteristics that

are usually associated with educational disadvantage. Pupils start off in these schools with attainments that are, one average, 1.2 to 1.7 points (1 point is equivalent to one term) ahead of their counterparts in non-selective secular schools. This is around 15% of one standard deviation – about the same as that advantage in terms of final attainment at age-11 reported in Table 2. For sure, this may be because these pupils have already spent some time in Faith schools prior to age-7 and may have reaped some educational benefits, However, pupils in Faith and Autonomous schools are also much less likely to be on a low income that entitles them to free school meals, more likely to be white and more likely to have English as their first language. The advantage of these schools in terms of lower free school meal entitlement also amounts to 15-20% of one standard deviation, and it is hard to see that how these differences can be a *consequence* of Faith school attendance.

Some of these differences may be explained by differences in geographical setting, but not all: Columns 5-8 report the same regressions once we include postcode-level fixed effects and show that many differences persist even across pupils who live in the same street but attend different types of school. These are less marked in terms of ethnicity and languages, but still strong in terms of free meal entitlement and prior attainment. In Faith schools, pupils start at the beginning of our period some 0.5 to 0.7 terms ahead of secular, non-selective pupils who live in the same street and are about 3 percentage points less likely to be eligible for free meals (on a base of 20 percent).

5.3. *Regression estimates of progress between ages 8 and 11*

Next we turn to our regression estimates of the model in Equation (1), in which we try first to control for these observable differences between pupils. Later we will try to restrict our

sample in such a way as to minimise the difference in unobservable attributes between the Faith and Secular school groups. The results of the first exercise are shown in Table 4.

Table 4: School type and mean age-11 attainment;
conditional on initial attainment, background and place of residence

	(1)	(2)	(3)	(4)
Faith, Autonomous	5.582	2.337	1.671	0.876
	(0.212)	(0.158)	(0.126)	(0.161)
Faith, Controlled	3.425	0.918	0.022	-0.159
	(0.274)	(0.199)	(0.164)	(0.190)
Secular, Autonomous	3.168	0.925	1.093	0.651
	(0.606)	(0.453)	(0.337)	(0.395)
Age-7 attainment	No	Yes	Yes	Yes
Individual and School Level Controls	No	No	Yes	Yes
Postcode Fixed Effects	No	No	Yes	No
Postcode-Secondary School Fixed Effects	No	No	No	Yes
Schools	14821	14821	14431	14013
Observations	929958	929958	470607	230369

Note: Regressions at the pupil level; standard errors clustered at the Primary school level. Baseline: Secular, Autonomous (community) schools. Controls with descriptive statistics are listed in Appendix Table 8.

The dependent variable here is the pupil-mean of the Maths and English percentiles that we described in Table 2. Column (1) provides information on the raw differences between schools, similar to that in Table 2, by regressing this measure of age-11 attainment on school-type dummies. In Column (2) we control for initial attainment groups at age 7. Note, we have a lot of observations – up to 1 million – in our data set, which means we can be quite flexible in the way we control for prior attainment at age 7. Although we do not have the age-7 test score percentiles, we can categorise age-7 attainment by the combination of "Levels" reached in each of the three subject areas – Maths, Reading and Writing. After taking account of empty cells and aggregating cells with low counts this gives us 183 dummy variables that classify initial attainment groups. Controlling for age-7 attainment in this way more than halves the

differences between mean age-11 attainment of pupils attending different types of school[7], although pupils in Faith schools and Autonomous schools still appear to do better, even when starting from the same age-7 base. In Faith, Autonomous schools, pupil attainments are nearly 2.5 percentiles above pupils in the same age-7 attainment group in non-selective secular schools[8].

Column (2) introduces the school and pupil level controls detailed in Appendix Table 9 alongside postcode-of-residence fixed effects. This gives us a much smaller sample (since we need multiple school types per postcode). Comparing neighbouring pupils with similar characteristics in this way attenuates the gap between Secular, Controlled schools and other school types still further – in fact we find no evidence of an advantage for pupils in Faith schools over Secular schools when these schools do not have autonomy over their own admissions. However, pupils emerge with a slightly average higher level of attainment from Autonomous schools – both Faith and Secular – than they do from schools that are more closely controlled by the Local Education Authority. One must suspect that this advantage is at least in part to do with selection on pupil characteristics that are correlated with progress between ages 7 and 11, but which we are not able to observe. However, we cannot rule out the

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[7] In part this is because the age-7 attainment may in turn be affected by school type since pupils may spend up to three years in the same school before their age-7 tests.

[8] We have tried other specifications of the value-added model. A common alternative assumption is that $h_{ijt} = \left(\alpha + \beta_j + x'_{ij}\gamma + \varepsilon_{ij} \right)t$, so that $\left(h_{ij2} - h_{ij1} \right) = \alpha + \beta_j + x'_{ij}\gamma + \varepsilon_{ij}$, in which case we can just regress the difference between pupil's age-11 and age-7 point scores on school type dummies and other background characteristics. The results from this exercise convey a similar message to that in Table 4. See Appendix Table 11.

possibility that there are real advantages in the more autonomous governance structures of Voluntary Aided and Foundation Schools that fall in this "Autonomous" school category[9].

We argued in Section 4 that unobservable characteristics and preferences that are correlated with choice of primary school are likely to be closely correlated with choice of secondary school. Because of this, pupils who go on to the same secondary school are likely to be better matched in terms of unobservable characteristics than are pupils who attend different secondary schools. Bearing this in mind, Column (4) includes secondary-school-residence fixed effects in the regression. The results reveal that there is still a gap between pupils emerging from Autonomous primary schools and those from baseline schools, even within groups who live in the same postcode (at age-11) and go on to attend the same secondary school at age 12. It has to emphasised that this gap in mean attainments is small – around at around 0.7-0.9 percentiles of the pupil distribution. One thing that does seem to be clear here is that being a Faith school is not, in itself an indicator or higher educational standards: Faith, Autonomous schools have mean attainments that are only 0.2 percentiles higher than Secular, Autonomous schools, and not significantly so (the F-test for equality of the two parameters has a p-value of 0.5840). Pupils from Faith schools seem to do slightly worse than pupils from Secular schools when admissions are not under their control.

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[9] In reference to the US literature, we point out here that the advantage of Faith, Autonomous schools is dominated by Catholic schools. If we split the Faith, Autonomous category into Church of England and Catholic schools in the final specification in Table 4, we find that the coefficient on Catholic schools (1.515 , with s.e. 0.232) is around three time bigger than that on Church of England schools (0.579, with s.e. 0.192).

5.4. Regression estimates on samples restricted by future school-sector choice

As we have noted above, many Faith and Secular schools are potentially covertly selective (on the basis of place of residence, family background and pupil characteristics) and any Faith-school advantage could be equally well ascribed to this difference in admissions procedure as to any impact of religious affiliation or ethos. As described in Section 4, these differences in admissions arrangements also apply at Secondary level, and we have information on each pupil's assignment to Secondary school after age-11. This, we argue is informative about pupil or family preferences over school type, and about other personal attributes that may be observed by schools but cannot be observed by us. The pattern of transitions between Primary and Secondary phases is shown in Table 5.

Table 5: School-type transitions between Primary and Secondary phase

Current School (Age 11)	Future School (Age 12)				
	Faith, Autonomous	Faith, Controlled	Secular, Autonomous	Secular, Controlled	Total
Faith, Autonomous	9.87	0.16	2.05	7.15	19.25
	(91,774)	(1,526)	(19,408)	(66,497)	(179,205)
Faith, Controlled	0.68	0.22	1.84	7.20	9.95
	(6,343)	(2,044)	(17,147)	(66,948)	(92,482)
Secular, Autonomous	0.14	0.01	1.43	1.02	2.60
	(1,310)	(122)	(13,295)	(9,531)	(24,258)
Secular, Controlled	3.52	0.51	11.20	52.80	68.20
	(32,714)	(4,785)	(104,897)	(491,617)	(634,013)
Total	14.20	0.91	16.60	68.20	100.00
	(132,141)	(8,477)	(154,747)	(634,593)	(929,958)

Note: The table presents cell percentages; total numbers in parentheses. Columns and rows may not sum up; this is due to rounding.

About 54% of our sample stays in the Secular sector in both phases, with just over half in Community schools controlled by the Local Education Authority; around 10% stay in Faith sector, with most of these in Autonomous schools. Our basic claim in what follows is that

pupils in the second category are unlikely to good matches for pupils in the first category in terms of their unobservable characteristics. We may improve our estimates by focussing on pupils who, whilst not showing total commitment to religious schooling, do at some stage in their school careers seem willing and eligible to attend Faith schools. So, in Table 6 we show what happens to our estimates of the Faith school performance gap when we cut the sample in ways that try to make our 'control' group pupils more similar to our 'treatment' group pupils in terms of their attachment to Faith-based schools and their likelihood of admission to these schools.

Table 6: School type and mean age-11 attainment; various pupil sub-samples

	(1)	(2)	(3)
	Excluding Faith or Autonomous Stayers across both phases	Excluding Faith or Autonomous Stayers across both phases	Excluding Stayers across both phases within all school types
Faith, Autonomous	0.905	0.765	-0.004
	(0.152)	(0.175)	(0.222)
Secular, Autonomous	0.081	0.070	-1.352
	(0.430)	(0.489)	(0.517)
Faith, Controlled	-0.142	-0.151	-1.319
	(0.167)	(0.193)	(0.246)
Age-7 attainment	Yes	Yes	Yes
Individual and School Level Controls	Yes	Yes	Yes
Postcode Fixed Effects	Yes	No	Yes
Postcode-Secondary School Fixed Effects	No	Yes	No
Schools	14094	13432	11125
Observations	406463	217957	157720

Note: Regressions at the pupil level; standard errors clustered at the Primary school level. Baseline: Secular, Autonomous (community) schools. Column 1 and 2 sample excludes pupils who attend Faith schools or Autonomous schools in both Primary and Secondary phases. Column 3 sample excludes pupils who attend the same type of schools in both periods. Controls with descriptive statistics are listed in Appendix Table 9.

In Column (1) we repeat the specification of Table 4 Column (3) with postcode fixed effects and pupil-level controls, but on a restricted sample from which we eliminate pupils who

exhibit a persistent attachment to Faith schools or schools that we classify as Autonomous – i.e. excluding pupils in the first three diagonal cells of the transition matrix of Table 5. In Column (2) we extend this to include postcode-secondary school fixed effects (comparable with Table 4, Column (4)). Estimates from both these specifications are similar to what we had before, except that we now find no significant impact from Secular, Autonomous schools[10]. Only Faith, Autonomous schools seem to offer any performance advantage in this specification, and again it is under one-percentile in terms of pupil test scores.

It might reasonably be argued that if the response of pupils to 'treatment' in one of these school categories is heterogeneous, then these are downward biased estimates of the mean impact of these school types on pupil performance relative to the baseline Secular, Controlled schools. This is because we may have dropped from the sample those who benefited the most from Faith and Autonomous styles of schooling and so decided to stay in these types of school at Secondary level; at the same time we have retained those who may have benefited the most from Secular, Controlled Primary schooling and stayed in this sector. However, when we go on in Column (3) to exclude these pupils too (i.e. dropping pupils in the fourth diagonal cell in Table 5) we drive the estimated performance gap of Faith and Autonomous schools below zero, and none of the differences are significant. In other words, all the Faith primary school effect is driven by comparison of Faith school pupils with pupils who never attend a Faith school at any either educational phase.

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[10] This is probably because we are left with too few pupils in this category to allow comparison with other pupils living in the same postcode sector, so we are not highly confident about this.

There is however, at least one explanation for this finding other than there being no impact from Faith primary schools: if selection occurs at Secondary level, Faith Secondary schools may pick the pupils from Secular Primaries who are expected to make the best progress, and Faith-school pupils who are expected to make the least progress are excluded from Faith Secondary schooling and pushed out to the Secular sector. This is difficult to assess, but we are led to think otherwise if we look at the differences in *observable* characteristics in these groups. Suppose selection in our restricted sample occurs as described; we would now expect to see the patterns of selection attenuated or reversed in sign relative to the patterns in Table 3: pupils from Faith Primaries who do not attend Faith Secondaries will have more educationally disadvantageous characteristics on average than their counterparts in Faith Secondaries who did not attend Faith primary schools. As we can see from Table 7 below, this is not the case. In fact in terms of observable characteristics presented here there, there is little choose between the full sample, and the sample restricted to those who switch school types between the Primary and Secondary phase.

Of course, this difference in observable characteristics between the 'treatment' and 'control' groups in our restricted sample is not desirable if we want balanced samples in terms of these characteristics. The compelling point is that Faith Primary school pupils in this restricted sample still have *more favourable* background characteristics than their Secular Primary school counterparts, and yet, according to Column (3) in Table 6, show no difference on average in educational progress.

Table 7: Prior attainment and pupil background by Primary school type for pupils who switch school types across Primary and Secondary phases

Primary school	(1) Age-7 KS1 Points	(2) Free Meal Eligible	(3) White	(4) English First Language
Faith, Autonomous	0.561	-0.033	0.003	0.021
	(0.132)	(0.004)	(0.006)	(0.004)
Faith, Controlled	0.175	-0.025	0.003	0.012
	(0.139)	(0.004)	(0.006)	(0.004)
Secular, Autonomous	1.210	-0.038	0.005	0.011
	(0.273)	(0.009)	(0.010)	(0.011)
Secular, Controlled	44.53	0.177	0.851	0.915
	(0.075)	(0.002)	(0.003)	(0.002)

Table shows means for Secular Controlled schools, and mean differences for other school categories with respect to Secular Controlled schools. Means and mean differences are obtained from regressions at the pupil level with postcode fixed effects; standard errors clustered at the schools level. Sample as in Table 6, Column 3

What are we to make of these results? One thing that seems clear is that there is no unambiguous performance advantage of Faith or Autonomous schools that could not be attributed purely to pupil-side selection into these schools, or to school-side selection of those pupils likely to show the most progress. Pupils who attended Faith or Autonomous schools at Primary phase but not the Secondary phase do no better in Primary school than pupils who attend Faith or Autonomous schools at the Secondary phase but not the primary phase. The Faith/Autonomous school gap in attainments at primary phase seems largely attributable to differences between those pupil who choose to attend a Faith school at any stage in their school careers, and those who choose never to do so or are excluded from doing so by school selection procedures.

We concede, however, that the estimates we obtain under this sample-restricting strategy have a number of different interpretations and we have some concerns that we may be omitting pupils who benefit the most from Faith and/or Autonomous styles of schooling. An alternative

approach that is based on similar ideas but which has stronger precedent in the literature is to apply a propensity-score based matching approach (Rosenbaum and Rubin 1983, 1984). Since this is most easily applied when there is a single 'treatment' group, we restrict analysis to comparison of pupils who attend Faith, Autonomous schools (treatments) in the Primary phase with those who attend Secular, Controlled schools in the primary phase (controls). So, in this context, we need an index of the propensity of pupils to attend Faith, Autonomous Primary schools, based on observable factors, on the basis of which we can match pupils who actually attend Faith, Autonomous primary schools with others who do not, but exhibit a similar propensity. Our approach is to construct the propensity score using a linear probability model of Faith, Autonomous primary school attendance with pupil background factors, postcode dummy variables and, optionally, Secondary school sector choice as factors, then apply a well-known propensity score matching program[11]. The key outputs of this procedure are shown in Table 8.

The estimates shown in Row 1 are the Average Treatment Effect of attending a Faith, Autonomous at the primary phase; this is just the average difference between age-11 attainment of pupils in this treatment group and the control group pupils in Secular schools to whom they are most closely matched. In Columns (1)-(3) we do not match on future school choice, and the results are generally comparable with the regression estimates we obtained in Table 4. The Average Treatment Effect tends to fall as we increase the number of control group pupils ('neighbours') to which each treatment group member is matched, but levels off at around 1.7 percentiles.

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[11] We use psmatch2 for STATA, Leuven and Sianesi 2003.

Table 8: Faith, Autonomous school treatment effects: propensity score matching

	Not Including Future School Type Controls			Including Future School Type Controls		
	(1)	(2)	(3)	(4)	(5)	(6)
	Nearest Neigh, with replacement	Nearest 10 Neigh, with replacement	Nearest 25 Neigh, with replacement	Nearest Neigh, with replacement	Nearest 10 Neigh, with replacement	Nearest 25 Neigh, with replacement
Faith, Autonomous – ATT	2.277 (0.448)	1.736 (0.378)	1.712 (0.416)	1.214 (0.248)	0.726 (0.194)	0.647 (0.192)
Control group Mean	51.62	52.16	52.19	52.70	53.19	53.26

Note: Data at the pupil level. Analytical standard errors for average treatment on the treated (ATT) in parentheses. The sample only includes pupil attending either Faith, Autonomous primary schools or Secular, Controlled schools. The propensity score is estimated on all pupils using a linear regression model for the probability of attending a Faith, Autonomous primary school. Matching variables include the usual set of variables (KS1 level dummies, individual and school characteristics) and postcode-of-residence dummy variables; additionally Columns 4 to 6 include dummies for type of Secondary school attended at age-12. Columns 1 and 4 present ATT from nearest neighbour matching (with replacement); columns 2, 3, 5 and 6 use nearest 10 and 25 neighbours (with replacement). All estimates obtained on the common support.

In Columns (4)-(6) we match also on Secondary school-type; like before, when we restricted the sample for our regression estimates, this procedure only makes sense under the assumption that both current and future school choice depend on fixed pupil or family characteristics and not on any outcome that depends on primary school choice. These estimates converge at around 0.7 percentiles as we increase the number of pupils matched from the control group. This is somewhere above the zero effect we found in our regression estimates in the most restricted samples, but similar to the regression estimates we obtained in our most stringent specifications on less restricted samples (see for example Column 2 of Table 6). Again, it must be emphasised that even if this is an explicit educational benefit from attendance at a Faith school with autonomous governance and admissions arrangements, it is a very small one.

6. Conclusions

We have provided a number of estimates of the impact of attending a Faith school in England between ages 7 and 11, on age-11 attainments. Our approach has deliberately avoided instrumental variable strategies adopted by previous work in the field, because we do not believe that there are any credible instruments for Faith school attendance that are uncorrelated with family background, either directly or through residential sorting. Instead we have exploited the fact that we have around one million pupils in our database, which, in conjunction with precise details about place of residence, academic record and future school choice allows us to control quite carefully for factors that influence the propensity to attend Faith schools.

We make no claim to have put a precise number on the causal impact of Faith school attendance, and have indeed demonstrated the magnitude of any difference between Faith school pupils and Secular school pupils depends on the way we cut the sample. There is clear positive selection into Faith schools (and into schools that have autonomous admissions and governance arrangements) on the basis of observable characteristics that are favourable to education – even when we compare pupils that originate in the same block of residential housing. Once we control for this selection, our lowest estimates suggest that there is no difference between expected attainment in Faith Primary schools and expected attainment in any other school type; this is based on comparing pupils who swap in and out of Faith schooling between the primary and secondary phases. A more generous reading of the results suggests that pupils in Faith Primary schools which have autonomous governance and admissions structures progress marginally faster: a pupil starting in an autonomous Faith school at age 7 could expect to be one percentile higher in the distribution of pupil attainments

by age-11 than a comparable pupil attending a standard Secular school, even when these two pupils live in the same postcode and go on to choose the same Secondary school. The cumulative impact of this over 12 years of compulsory schooling could be substantial, and there may of course be other impacts, on staying on rates for example, that are outside the scope of this study. However, pupils in Faith schools that are under close Local Education Authority control do not progress any faster than similar pupils in comparable Secular schools; any performance impact from 'Faith' schools in England seems to be linked to autonomous governance and admissions arrangements, and not to religious affiliation.

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Appendix Tables

Table 9: Control variables: descriptive statistics

Variable	Mean	Std.Dev.	Min,Max
Pupil Level			
Female	0.496	0.499	0,1
Native language English	0.902	0.296	0,1
Native language not available	0.022	0.148	0,1
Native language not English	0.075	0.263	0,1
Pupil eligible for FSM	0.163	0.369	0,1
FSM eligibility status missing	0.022	0.146	0,1
Pupil with SEN	0.208	0.406	0,1
SEN status missing	0.022	0.147	0,1
White ethnicity	0.845	0.361	0,1
Black Caribbean ethnicity	0.014	0.116	0,1
Black Other ethnicity	0.016	0.124	0,1
Indian ethnicity	0.019	0.136	0,1
Pakistani ethnicity	0.023	0.149	0,1
Other Asian ethnicity	0.011	0.103	0,1
Other and mixed ethnicities	0.027	0.161	0,1
Missing ethnicity	0.046	0.211	0,1
Academic Year 2001/2002	0.499	0.500	0,1
School Level			
Total number of pupils	315.8	132.5	13,1292
Pupil/teacher ratio	23.14	3.096	4.3,72.2
Fraction of pupils eligible for FSM	0.169	0.145	0,0.94
Fraction of pupils with SEN	0.197	0.095	0,0.79
Fraction of Whites in school	0.844	0.254	0,1
Fraction of Caribbean Blacks in school	0.013	0.047	0,0.79
Fraction of Other Blacks in school	0.016	0.053	0,1
Fraction of Indians in school	0.019	0.070	0,1
Fraction of Pakistani in school	0.023	0.095	0,1
Fraction of Other Asian in school	0.011	0.053	0,1
Fraction of other and mixed ethnicity in school	0.027	0.051	0,1
Fraction with missing ethnicity in school	0.047	0.167	0,1
Ratio of classified to total pupils in school	0.409	0.431	0,1

Table 10: Conditional mean age-11 attainments of Faith school pupils relative to Secular school pupils.

	English			Maths			Mean of Maths and English		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Faith school (Controlled or Autonomous)	2.119 (0.142)	1.359 (0.143)	1.444 (0.120)	1.518 (0.153)	0.974 (0.157)	0.996 (0.131)	1.819 (0.136)	1.166 (0.136)	1.220 (0.112)
Age-7 attainment	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual and School Level Controls	No	Yes	Yes	No	Yes	Yes	No	Yes	Yes
Postcode Fixed Effects	No	No	Yes	No	No	Yes	No	No	Yes
Schools	14821	14821	14431	14821	14821	14431	14821	14821	14431
Observations	929958	929958	470607	929958	929958	470607	929958	929958	470607

Note: Regressions at the pupil level; standard errors clustered at the schools level. Controls with descriptive statistics are listed in Appendix Table 8.

Table 11: School type and mean value added between age 7 and age 11;
Conditional on background and place of residence

	(1)	(2)	(3)
Faith, Autonomous	0.548	0.336	0.253
	(0.069)	(0.060)	(0.077)
Faith, Controlled	0.074	-0.121	-0.206
	(0.088)	(0.082)	(0.093)
Secular, Autonomous	0.189	0.439	0.300
	(0.200)	(0.161)	(0.187)
Age-7 attainment	Yes	Yes	Yes
Individual and School Level Controls	No	Yes	Yes
Postcode Fixed Effects	No	Yes	No
Postcode-Secondary School Fixed Effects	No	No	Yes
Schools	14821	14431	14013
Observations	929958	470607	230369

Note: Regressions at the pupil level; standard errors clustered at the Primary school level. Baseline: Secular, Autonomous (community) schools. Controls with descriptive statistics are listed in Appendix Table 8.