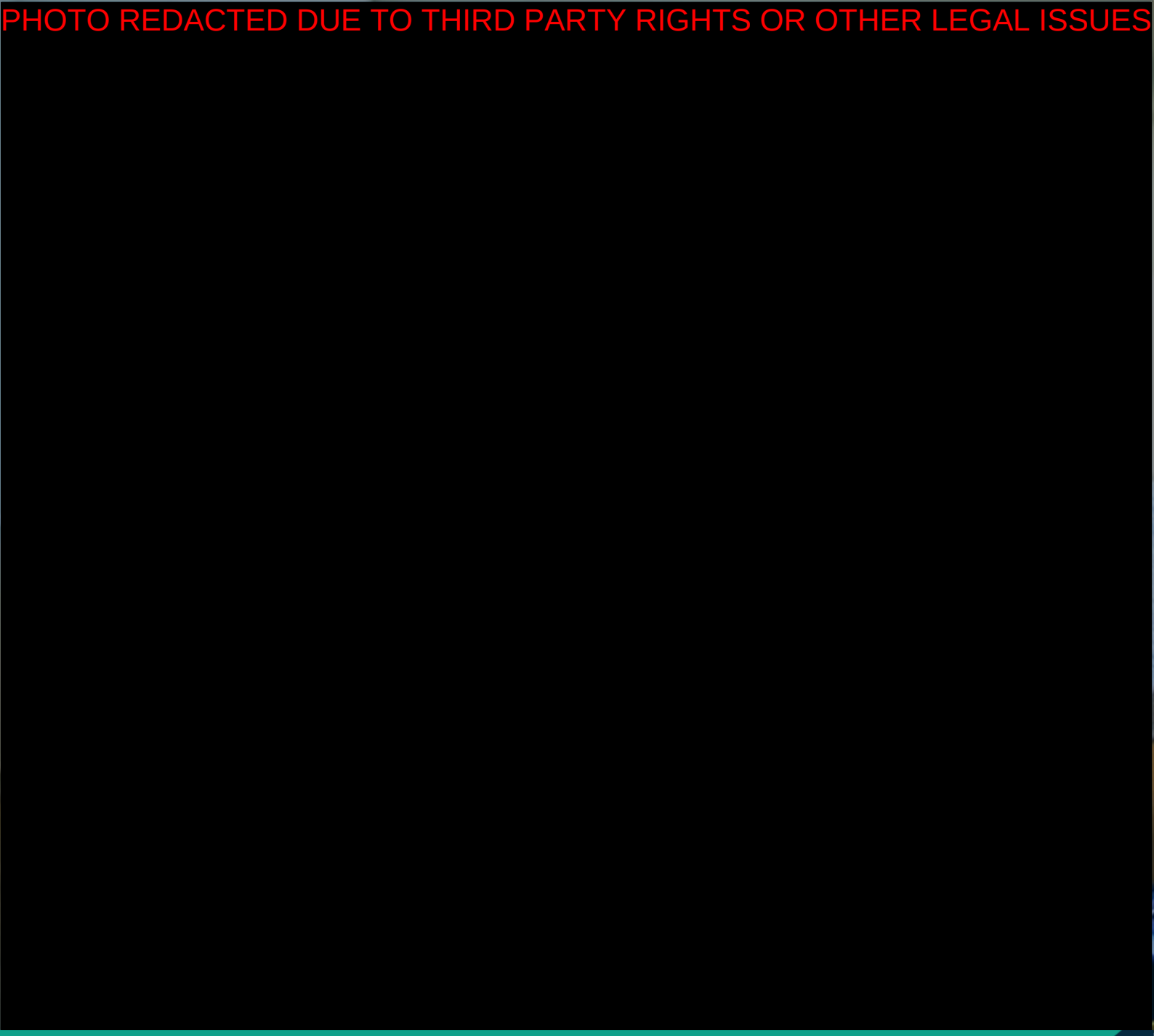


A longer school day: the attainment benefits of an extra hour a week

Louis Hodge and Oana Gavriloiu

October 2024

About the Education Policy Institute

The Education Policy Institute is an independent, impartial, and evidence-based research institute that promotes high quality education outcomes, regardless of social background. We achieve this through data-led analysis, innovative research and high-profile events.

About the authors

Louis Hodge is Associate Director for School Systems and Performance at the Education Policy Institute.

Oana Gavriloiu is a Researcher at the Education Policy Institute.

Acknowledgements

This report has been kindly funded by the Law Family Educational Trust.
http://www.lawfamilyeducationaltrust.org/

We would like to thank Jon Andrews and Natalie Perera for their analytical and editorial advice, and Allen Joseph for their help with quality assurance.

Data acknowledgements

This publication contains work undertaken in the Office for National Statistics Secure Research Service using data from ONS and other owners and does not imply the endorsement of the ONS or other data owners.

This publication includes analysis of the National Pupil Database (NPD):
https://www.gov.uk/government/collections/national-pupil-database

The Department for Education is responsible for the collation and management of the NPD and is the Data Controller of NPD data. Any inferences or conclusions derived from the NPD in this publication are the responsibility of the Education Policy Institute and not the Department for Education.

Contents

Executive summary

In its 2022 white paper 'Opportunity for all: strong schools with great teachers for your child', the previous government proposed a minimum threshold of 32.5 weekly hours (6.5 hours per day on average) of school time for all state-funded mainstream schools.[1] Potential benefits stated included more opportunities for learning, socialisation with peers, and enrichment. The deadline to meet this expectation was deferred to September 2024, and the Department for Education issued further non-statutory guidance.[2]

Whilst we have recently seen a change of government, there have been no indications that this position has changed. Furthermore, in opposition, the Labour party's mission to 'break down barriers to opportunity' identified the importance of a wide range of experiences across the curriculum, including the stated the aim to

> "deliver a broader education...too many are denied the opportunity to participate in arts, digital and sports subjects that develop life skills, like communication, teamwork, and digital skills, which are essential for their futures."[3]

The Government has subsequently announced a review of the curriculum and assessment.[4]

There is a relative wealth of evidence on the effect that increased time in school has on a range of outcomes, in particular academic attainment, which we have summarised previously.[5] However, studies have tended to focus on either cross-country comparisons or policy changes in specific countries around the world. None of these studies have focused on England, where historically there has not been any systematic collection of data from schools on the length of time pupils spend in school each week.

To help ensure schools deliver the new 32.5-hour week expectation, three mechanisms have been put in place. First, schools are now required to publish their total weekly hours on their websites. Second, Ofsted will start to monitor the length of school days as part of their inspections and, where relevant, require schools to justify not meeting the minimum expectation. Finally, the Department for Education has now started collecting data on the total compulsory time pupils spend in school per week through the spring school census.[6]

This report uses this new Department for Education data collection to investigate:

1. Differences in the length of the school week by observed school-level characteristics, and

[1] Department for Education (2022) *Opportunity for all: strong schools with great teachers for your child*
[2] Department for Education (2023) *Length of the School Week: Non-Statutory Guidance*
[3] Labour Party (2024) *Breaking down the barriers to opportunity*
[4] HM Government (2024) *Government launches Curriculum and Assessment Review*
[5] Gavriloiu (2024) *An evidence review into the length of the school day*
[6] The spring census takes place in January every year.

2. the associations between time in school and pupil attainment, at both the end of primary school (key stage 2) and the end of secondary school (key stage 4)

Our first line of enquiry, finds that the majority of schools are now delivering the 2022 white paper commitment. In general, we find that differences by observed school-level characteristics are small. One exception is free schools, who deliver school weeks that are on average around one hour longer than at the typical school. Similarly, academically selective schools deliver longer school weeks on average. Whilst the data does not allow us to understand how this extra time is spent, these systematic differences do raise questions about how some schools are able to deliver longer days. We recommend further investigation into how and why free schools are able to systematically deliver longer school weeks.

Our second line of enquiry provides the first England specific estimation of the associations between time in school and attainment. We find that an additional hour a week of school is associated with a 0.015-0.022 standard deviation improvement in test scores. In secondary schools, an additional hour of weekly school time is associated with a 0.171 grade improvement in one GCSE subject.

The plausible benefits of additional school time are not limited to improvements in pupil attainment. Existing evidence suggests additional time in school is positively correlated with pupils' overall well-being, socio-emotional and other later life outcomes.[7] However, due to data constraints and the broader challenges in quantifying these other outcomes, this report focuses exclusively on academic attainment in national exams.

Our results show that the positive associations between time in school and attainment are consistent across various specifications and align with the wider evidence that also concludes across a range of contexts that effects at the margin are positive, albeit relatively modest. Our estimates are derived from models that use schools as the unit of interest. Although we condition on observable factors, given our fixed effect approach, we cannot conclude that these findings are causal, they can only be viewed as strong associations.

Increased time in school is found to be associated with higher academic attainment suggesting there are benefits from setting out clear expectations for schools on the length of their school weeks. However, the magnitudes are relatively modest and in order to maximise the benefits of extra time, further consideration should be given to what activities take place in this additional time. More broadly, given the constraints (cost and otherwise) on increasing time in school further, it is important to better understand which mix of activities during the school day deliver the best outcomes for pupils.

[7] Pires and Urzua (2010) *Longer school days, better outcomes*

Key Findings

- In 2023/24, only a fifth of primary schools and a quarter of secondary schools had school weeks shorter than 32.5 hours. The majority of schools at both phases already meet, or exceed, the new expectation. 40 per cent of secondary schools and 59 per cent of primary schools report having exactly 32.5-hour weeks.
- Secondary schools tend to have slightly longer average school weeks than primary schools, by approximately 20 minutes. There is also a greater variance between secondary schools. In 2023/24, the difference between the 20th and 80th percentile of the distribution was half-an-hour for primary schools (32.25–32.75) and one and three-quarter hours for secondary schools (32–33.75).
- Free schools have noticeably longer school weeks than other types of school. In 2023/24, primary free schools had on average almost an additional hour of school time per week compared to the average primary school. At secondary, free schools have school weeks that are over one hour longer, whilst Community and Foundation secondary schools have school weeks that are almost half an hour shorter than the average secondary school.
- Academically selective secondary schools have, on average, a school week that is almost one hour longer than non-selective schools. Ofsted 'Outstanding' schools and those located in London also tend to have longer school weeks. 'Outstanding' schools have school weeks that are between 10 and 20 minutes longer, and pupils attending schools in London have over half an hour extra time in school a week, compared to the typical school.
- At the school level there is no identifiable link between the proportion of pupils eligible for free school meals (FSM) and the length of the school week.
- Additional time in school is associated with a small, yet positive, effect on overall attainment in both primary and secondary school. Our analysis indicates that an additional hour of school per week is associated with an increase in test scores of between 0.015-0.022 standard deviations.
- We derive estimates using data from both 2023 and 2024, but our estimates are more robust in 2024 when the sample size was substantially larger. Compared to our primary school findings (effect size of 0.020), the magnitudes of the associations at secondary were found to be slightly smaller. At secondary an additional hour of school a week is estimated to be associated with a 0.018 standard deviation improvement in Attainment 8 score.
- The associations with English/reading test scores are slightly larger than for maths, contrary to the literature, but differences are small. At primary the association of an additional hour a week with maths scores is an increase of 0.017 standard deviations compared with 0.022 standard deviations for reading scores.
- We convert these effect sizes into grades. An additional hour of school a week in primary schools is associated with improvements in Key Stage 2 scaled scores of 0.053 and 0.066

for maths and reading, respectively.[8] In secondary schools, an additional hour of weekly school time is associated with a 0.17 grade improvement in one GCSE subject.

- At secondary, an additional hour has a substantially larger association with attainment in language subjects, 0.045 standard deviations. This is twice the effect estimated for any other subject area, 0.020 for English, 0.015 for science, 0.013 for maths, and 0.015 for humanities. It is plausible this larger association with respect to languages is due to factors we cannot observe in the data, given the available measures of prior attainment and relatively low take-up of language subjects.
- Again, we convert these effect sizes into grades. An additional hour of school a week at secondary school is associated with a 0.063 grade improvement in language GCSEs, much larger than the estimated 0.018 grade improvement in English, 0.014 in maths, 0.016 in science, and 0.017 in humanities GCSEs.

[8] Key stage 2 assessments in reading and mathematics provide outcomes on a "scaled score" basis. Scaled scores run from 80 to 120 and pupils who score 100 or above are said to have achieved the expected standard.

Data

All analysis in this report uses data from the National Pupil Database (NPD). The NPD holds data on the educational experience of all pupils in state schools throughout England. This provides a rounded picture of pupil characteristics, such as gender, free school meal (FSM) eligibility, special educational needs and disability (SEND) status, English as an additional language (EAL), and ethnicity, as well as detailed attainment records for all national assessments and examinations, including subject-level results. We can link this data with school characteristics, for instance the school type, Ofsted rating, admissions policies, and geographical location.

One constituent part of the NPD is derived from the school census', which are collected on one day in each school term – autumn (October), spring (January) and summer (May). Since January 2023, the spring census collection has asked schools to return the average weekly compulsory amount of time pupils spend in school. However, it has not yet been made mandatory for schools to return this information. In January 2023, 4,908 primary schools (32%) and 907 secondary schools (28%) reported the length of their school weeks in the census. The number of responding schools has increased substantially, though, and, in January 2024, 14,437 primary schools (95%) and 3,084 secondary schools (95%) responded. For the purposes of this analysis, we define primary schools as those with pupils at the end of key stage 2 and secondary schools as those with pupils at the end of key stage 4. This means not all state-funded schools are included, for example infant schools are excluded.

It is important to note this data collection only asks schools to report the **total** number of hours spent in school per week (to the nearest 15 minutes). It does not distinguish between the different activities that may be taking place in that time. Time in school likely consists of some mix of formal lessons, break and lunch times, and extra-curricular activities. However, the relative mix of these vary across schools.[9]

Unfortunately, whilst we have a near complete sample of data with the average length of school weeks in the 2023/24 academic year, the 2023/24 KS2 and GCSE results are not yet available in the NPD. Our statistical analysis is therefore focused on two cohorts of pupils who were in the school years 6 and 11 (the end of key stage 2 and key stage 4 respectively) in the academic year 2022/23. We link KS2 and KS4 attainment outcomes for these pupils with recorded information about both their individual (FSM, SEND etc.) and school (school type, Ofsted rating etc.) level characteristics. This pupil dataset is then linked with the length of school weeks reported in both 2022/23 and 2023/24.

Linking to the 2022/23 time in school data benefits from responses being in the same year that the other information is recorded, however, pupils will have likely spent between 5 and 7 years at the school and weekly time may have fluctuated over this period. The main benefit of linking to the

[9] Baines and Blatchford (2019) *School break and lunch times and young people's social lives*

2023/24 data is that the response rate is much higher, increasing the size of the usable sample. The downside though is this data was collected after these pupils had left the school.

A full list of variables used in this analysis that follows can be found in Annex A.

Part 1: The length of the school week in England

Previous surveys have provided some insight into the extent to which the length of the school day in England varies across different schools. Baines and Blatchford (2019) and Department for Education commissioned work, IFF Research (2021) both suggest that most schools have days that last between 6 and 7 hours (30 to 35 hours per week) and the mean average time in spent in school is around 6.5 hours a day or 32.5 hours a week. In this section we show the data collected as part of the spring school census confirm similar average school days to these studies. We also utilise the relatively larger sample size to more closely explore the variation between schools with different characteristics.

In 2024, the data suggests that primary schools had an average school week of 32.6 hours, equivalent to just over 6.5 hours per day. Pupils in secondary schools spend slightly longer at school, 32.9 hours per week on average, but this translates to only an extra 4 minutes on average a day compared to primary schools. 40 per cent of secondary schools and 59 per cent of primary schools report having exactly 32.5-hour weeks.

Table 1: Summary of school responses to the spring school census, 2023 and 2024

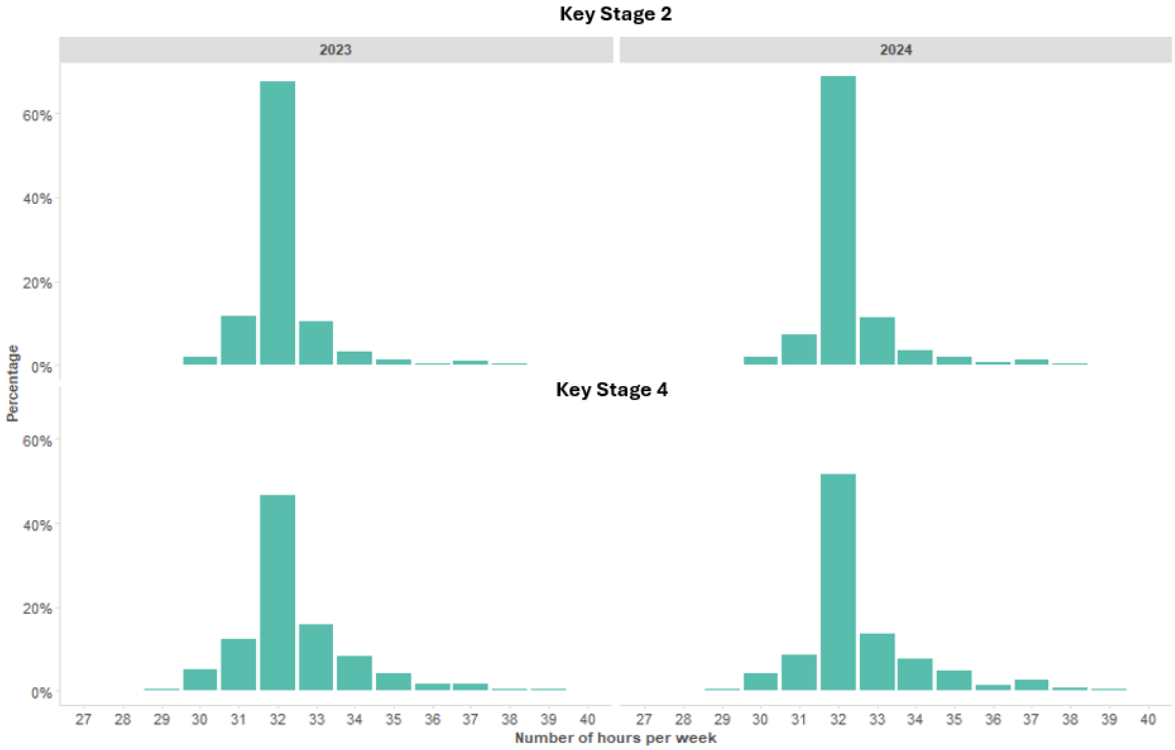
	KS2		KS4	
	January 2023	**January 2024**	**January 2023**	**January 2024**
Mean average hours per week	32.6	32.6	32.8	32.9
Standard deviation	2.8	1.5	3.3	2.1
Number of respondent schools	4,908	14,437	907	3,087
Total number of schools (2023)		**15,257**		**3,246**

Source: Spring school census 2023 and 2024

Interestingly, the variance amongst secondary schools is larger than it is for primary schools. For example, there is a considerably larger percentage of secondary schools with long, 34.5 hours plus, weeks – 13.8 per cent of secondary schools, compared with 5.7 per cent of primary schools. At the other extreme there are more secondary schools that do not yet meet the 32.5-hour expectation set to come into force in September 2024. A fifth of primary schools and a quarter of secondary schools that responded to the 2024 spring school census had school weeks shorter than 32.5 hours.

Despite the substantially smaller sample size in 2023, compared to 2024, Figure 1 illustrates that the distribution of responses is similar. The sample mean average has remained almost exactly the same, however, the larger number of responses has reduced the level of variance in the sample.

Figure 1: Distribution of the length of the school week



Source: Spring school census 2023 and 2024

To isolate changes over time, we focus on only those schools who responded to the spring school census in both 2023 and 2024. Table 2 shows that again the mean average, even for this subset, saw little change over the period, although in both primary and secondary settings slightly more schools increased the number of weekly hours than reduced them. 1 in 7 secondary schools increased their hours whilst 1 in 8 primary schools did likewise. It tentatively indicates that there was a movement towards slightly longer school weeks between 2023 and 2024. These are though the raw responses from schools, and it is possible that some of this movement is a result of data entry errors.

Table 2: Schools that reported weekly hours in the 2023 and 2024 spring school census

		KS2	KS4
Mean average hours per week	January 2023	32.6	32.8
	January 2024	32.5	32.8
Percentage of schools	Reduced hours	4.5%	6.2%
	Increased hours	11.8%	13.9%
	Same hours	83.7%	79.9%
Number of schools responding in both 2023 and 2024		**4,789**	**889**

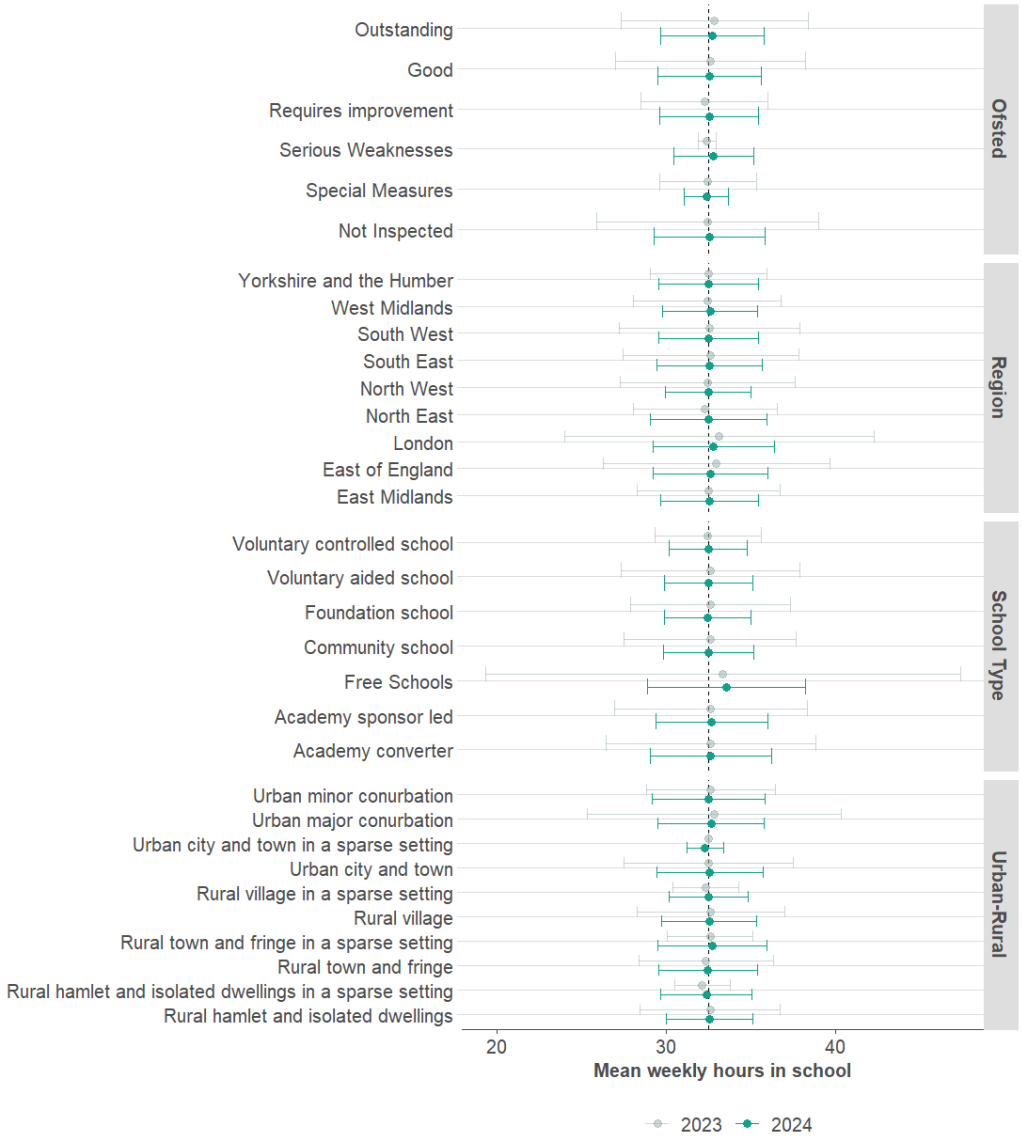
Source: Spring school census 2023 and 2024

A key consideration, particularly in 2023, when the response rate was much lower, is to what extent our sample is representative of the whole population. We find that the response samples

broadly match the population across several key characteristics both at the school and pupil level. We see that the overall pupil demographics in the sample broadly match those in the population in terms of pupils eligible for free school meals, identified as having special educational needs or disabilities (SEND), or English as first language (EAL). Additionally, the mix of schools in the samples is similar to the population, including across type of school, geographic location, and Ofsted grade. Exact comparisons can be found in Annex B.

Around 95% of schools reported their weekly school hours in the 2024 spring school census. This near complete sample allows us to conduct more accurate and detailed analysis across different school level characteristics. We therefore focus our commentary largely on the 2024 data, but data from the 2023 census are presented alongside for comparison. Figure 2 compares the differences in average weekly hours between primary schools of different types, different Ofsted grades, and geographically.

Figure 2: Differences in average weekly hours by school characteristics, primary school

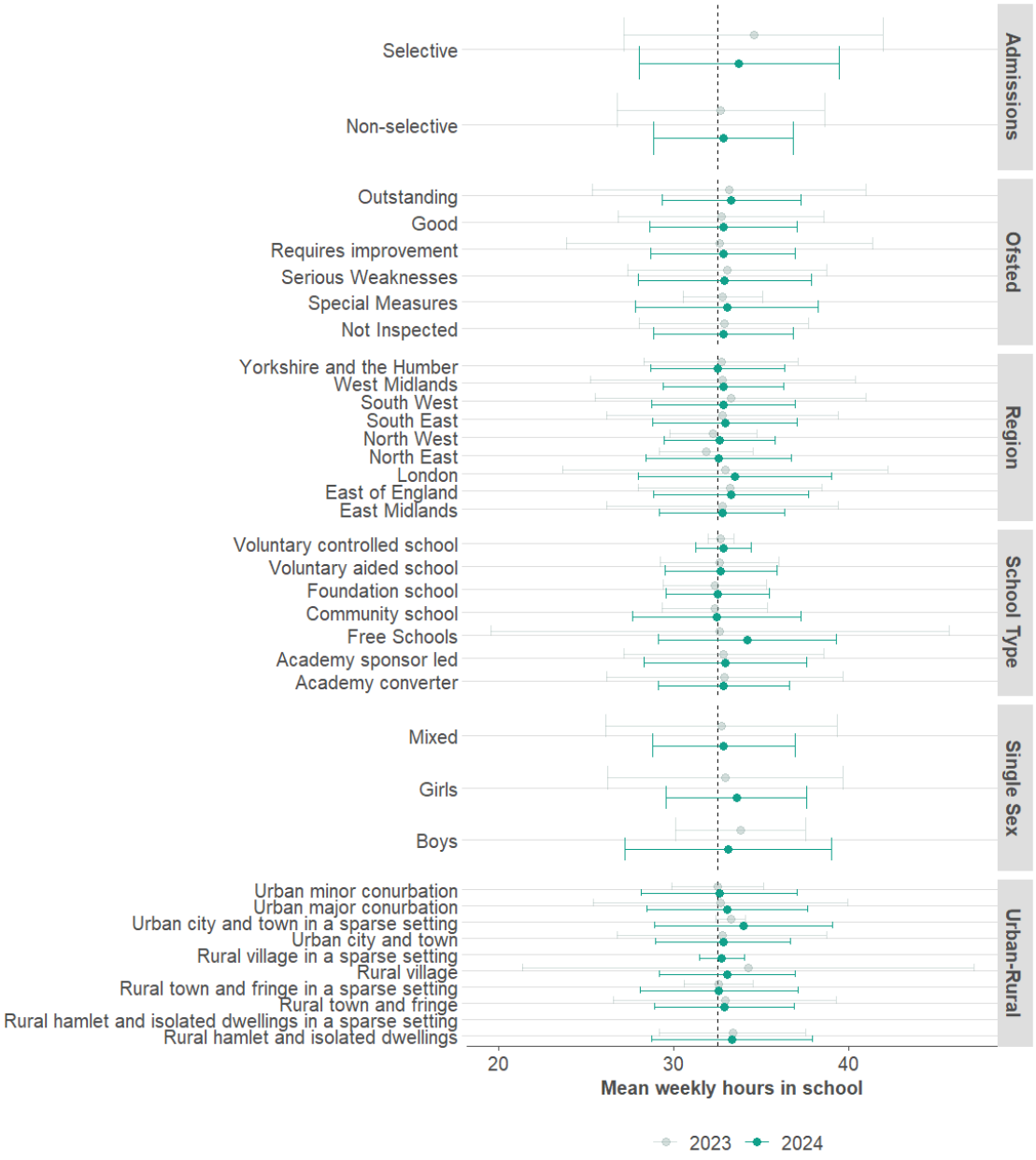


Source: Source: Spring School Census and Get Information About Schools.

Note: Dashed line shows 32.5 hours per week, points are mean averages and bars indicate 1 standard deviation higher and lower than the average.

The average length of the school week in primary schools does not appear to vary substantially across schools with different characteristics or by geographic location. One exception is free schools. In 2024, primary free schools had on average almost an additional hour of school time per week compared to the average primary school. Primary schools located in London also appear to have slightly longer school weeks on average, but the difference from the overall average is less than 15 minutes per week. 'Outstanding' primary schools have a school week that is on average around 10 minutes longer than the typical primary school.

Figure 3: Differences in average weekly hours by school characteristics, secondary school



Source: Spring school census and Get Information About Schools.
Note: Dashed line shows 32.5 hours per week, points are mean averages and bars indicate 1 standard deviation higher and lower than the average.

Greater variation in the average length of school weeks by school level characteristics is observed across secondary schools, compared to primary schools. Again, free schools have noticeably longer school weeks, on average they have school weeks that are over one hour longer than the typical secondary school, whilst Community and Foundation schools have school weeks that are almost half an hour shorter. Secondary schools in London have on average an additional half an hour of school time a week, and in the East of England school weeks are on average 20 minutes longer than the national average.

There is also greater variation in average time in school across secondary schools in different rural and urban settings. For instance, secondary schools located in an 'urban city and town in a sparse setting' have average school weeks that are an hour longer than is typical nationally. However, the number of schools in these settings is small (8), with the vast majority (82%) of secondary schools being located either in an 'Urban city and town' or 'Urban major conurbation'. Given the small numbers of schools in sparse and rural areas, caution should be taken when interpreting this variation. These findings are though consistent with those of Baines and Blatchford (2019) who find that breaks are longer in schools located in more rural areas.

In 2024, 'Outstanding' secondary schools had marginally longer average school weeks, just over 20 minutes longer than the typical secondary. The average length of school week amongst schools with other Ofsted grades are consistently closer to the national average. This is the same pattern we observed in Figure 2 in relation to primary schools. Given pupil attainment plays a role in determining Ofsted's judgements, this gives some early indications that there may be some correlation between attainment and time in school, something we explore in much greater detail in the next section.

For secondary schools, we also explore whether average weekly time is different in school with differing admissions policies, by gender or academics. Academically selective secondary schools have on average, a school week that is almost one hour longer than non-selective schools. Single-sex schools also tend to have longer school weeks than mixed schools. In 2024, girls' schools had a 45 minute longer school week on average than co-ed secondary schools.

Approximately 30% of single-sex schools are selective as opposed to only 1.6% of co-ed schools. Given this high level of overlap between selective and single-sex schools it is not immediately obvious which feature is the driver of the differences observed in Figure 3. However, Table 3 shows a two-way tabulation which illustrates that the difference in average hours per week is greater when comparing non-selective to selective schools than when comparing co-educational to single-sex schools.

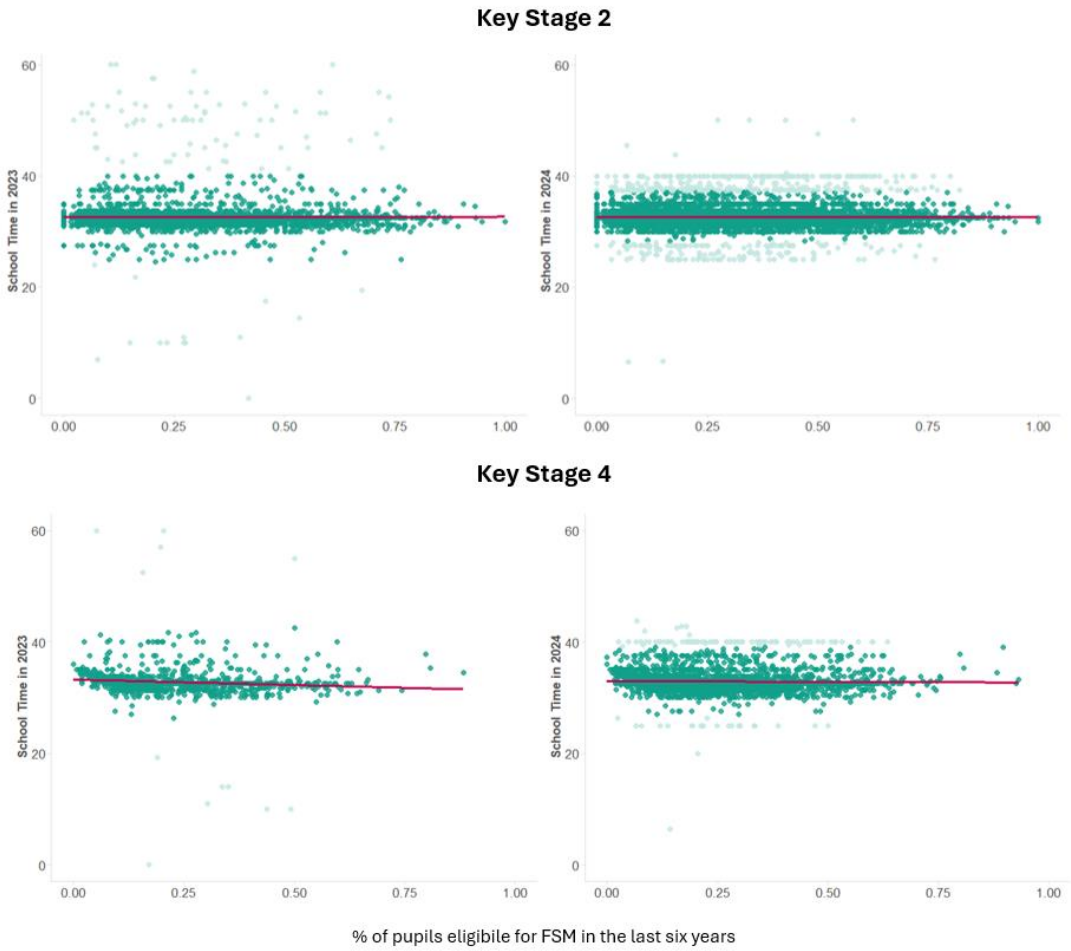
Table 3: Two-way comparison of selective and single sex secondary schools, 2024

	Co-ed	**Boys**	**Girls**	
Non-selective	32.7	33.0	33.0	*+0.3*
Selective	33.5	33.8	34.2	*+0.3–0.7*
	+0.8	*+0.8*	*+1.2*	

Source: Spring school census 2024

We also explore whether pupil characteristics, in particular the proportion of pupils eligible for free school meals in the last 6 years (FSM6), is related to the length of the school week. Figure 4 illustrates that this relationship is typically non-existent. A slight negative correlation is detected for secondary schools in 2023, although this correlation is not present in 2024 suggesting this may be driven by the relatively small sample size in 2023. Baines and Blatchford (2019) highlight a negative correlation between the duration of breaktimes and the percentage of pupils receiving FSM at the primary school phase, so taking these findings together would imply schools with higher rates of FSM have more instruction time.

Figure 4: The correlation between the percentage of pupils eligible for free school meals in the last 6 years (FSM6) and the length of school weeks



Source: Spring school census 2023 and 2024

Note: The light green dots indicate outliers (schools with averages that differ from the mean by more than ± three standard deviations)

Part 2: Time in school and pupil attainment

The previous section focused on describing the data collected on the length of school weeks as part of the spring school census in 2022/23 and 2023/24. It identified some small differences across schools with different characteristics, but that typically the average school week has a similar length, regardless of school characteristics, particularly at primary. In this section we explore whether we can identify a relationship between the weekly amount of time in school and academic attainment at the end of both primary and secondary school.

Prior studies

There is an extensive literature on both the theoretical and empirical effects of time in school on a range of outcomes. In our recent review of this literature,[10] we identified five 'facts' that appear to be robust to different contexts and study designs:

- Extending core teaching hours has positive but small effects, especially at the margin. This is found to be true in both cross-country comparisons and quasi-experimental settings.
- After-school programmes are more effective when they are mandatory. In-school programmes, taking place before, during, or after the regular school day, have a larger impact than summer schools or weekend tutoring, highlighting the need for integration within the school day.
- Additional hours have a greater effect on test scores when pupils are instructed by the same teachers who conduct their regular classes. This emphasises the importance not just of specific training and experience, but also of fostering a well-established connection between students and teachers.
- Non-academic extracurricular activities can have a positive impact on pupil academic achievements. Whilst a direct improvement in academic attainment may not always be evident, participation in activities such as sports clubs may contribute substantially to the holistic development of pupils.
- One-to-one or small group tuition is most effective, but it is costly. Tutoring sessions are more likely to have a significant and positive impact on pupil academic outcomes when conducted in a one-on-one setting or in very small groups of two to three participants and a teacher. However, this is often prohibitively costly.

Our data does not reveal which activities are taking place whilst children are at school, simply the total compulsory time per week. The studies most relevant to the analysis we undertake in this report are therefore those that explore the impact of total additional hours in school at the margin, rather than specific intervention programmes, such as Lavy (2015) and Bingley et al. (2018).

In a cross-country study, Lavy (2015) estimates the effect of instructional time on PISA scores using data from over 50 countries. They estimate that increasing instructional time by one hour per

[10] Gavriloiu (2024) *An evidence review into the length of the school day*

week is associated with an increase in overall test scores of 0.058 standard deviations, and the association is larger when considering mathematics and science scores in isolation (0.071).

In Denmark, Bingley et al. (2018) find that an extra weekly hour of instructional time enhances performance in Danish and mathematics examinations at the conclusion of the 9th grade by 0.06 standard deviations.

We compare the magnitude of our own estimates with these findings, and findings from other studies, below.

Methods

To go beyond simple statements about the correlation between the length of time in school and attainment, we employ various regression designs and specifications. Whilst we are not able use a quasi-experimental or other causal design, we are able to control for a wide range of factors in our models. All our findings should therefore be viewed as strong associations rather than causal estimates.

The data used to estimate our models is again taken from the National Pupil Database, described above. In particular we utilise the novel collection of the number of weekly hours from schools in the spring school census in January 2023 and January 2024. The spine of our data are the two cohorts that completed key stage 2 and key stage 4 respectively in 2023/24. This approach allows us to leverage the increased precision of the 2024 data while maintaining consistency with the 2023 outcomes and controls. Before conducting this analysis all schools that reported a school week length of more than three standard deviations from the mean were removed from the sample. This is an attempt to remove extreme outliers that are likely as the result of data entry errors.

Using schools as the unit of observation, we first estimate a series of linear models using OLS. We regress average school level attainment on the length of the school week, before including successively more covariates to control for potential confounders. We control for pupil characteristics (this includes prior attainment, ethnicity mix, and the percentage of FSM6, SEN support, EHCP, girls, and EAL pupils at the school), school characteristics (this includes school type, selectivity and sex-mix) and geographic location (region and rurality). These are all observed characteristics that we know are related to academic attainment.

Models are estimated for primary and secondary schools separately. For primary schools we focus on key stage 2 results in maths and reading, and for secondary schools, we use a wider array of key stage 4 attainment measures - Attainment 8, Progress 8, GCSE grades in maths and English as well as the scores obtained in each EBacc pillar. All the outcome measures are standardised to aid interpretation of regression coefficients and allow comparisons across measures. We also convert these estimated effect sizes into average grade effects.

In the previous section we used Ofsted judgements as a school characteristic by which to split our sample by and explore variation in the average length of school week. None of our regression models in this section use these Ofsted judgements as a control variable. Ofsted judgements are,

in part, a reflection of the academic attainment achieved by a given schools' pupils, the very outcome we are seeking to isolate. Therefore, it is analogous to the problem of using post-treatment controls which create a version of traditional selection bias.[11] Ofsted grades could have been considered as an outcome in our regression framework. However, Ofsted inspections occur on a much less frequent basis than annual KS2 and KS4 tests. This means there is a much higher likelihood that the length of school week will have changed between the two measurements. In addition, the resulting point estimates would also be much harder to interpret, given the categorical scale.

The relatively low response rate in 2023 (32% of primary and 28% of secondary schools gives rise to potential biases in our results. Returning data on the length of school week was voluntary for schools, so it is plausible that certain types of schools had a systematically higher likelihood of responding to the question than others. Whilst analysis in Annex B suggests that the difference in makeup of the sample of schools is similar to those that did not, we also estimate a series of models using inverse probability weighting (IPW).

The IPW method reweights individual observations by a weight equal to the inverse of the probability of their inclusion in the sample. In practice this is achieved using a two-step process. In the first step we estimate the probability p of a school being in the sample. To do this we estimate a logistic regression, where the outcome is a binary variable indicating whether a given school responded to the question in the survey and the explanatory variables are a set of school level characteristics – we use school type, region and rurality in our models. A linear model is then estimated using just the sample of schools that responded to the question, but weighting each observation by $1/p$, the inverse of the probability estimated by the first stage logistic regression.

The resulting IPW estimates should give a more accurate representation of the likely effects in the overall population of schools as they attempt to account for any self-selection in the sample. However, even with this more robust method we can only account for bias arising from observed factors and bias may still be present in our estimates. As a result, we place more emphasis on our findings using the 2024 responses given the much larger sample. For completeness we also estimate IPW models for the 2024 data, although given the 95% response rate, we expect the weighting to have only a very small impact on the magnitude of estimated coefficients.

[11] Angrist and Pischke (2009) *Mostly harmless econometrics*

Results

Primary school (KS2)

Reading attainment

In their final year of primary school, pupils sit national key stage 2 (KS2) tests in reading and maths. We first attempt to identify whether there is an association between time in school and KS2 reading scores. As described above, we estimate a series of regression models, using both OLS and IPW, with increasing numbers of control variables. The estimated coefficients for weekly school hours from each model are presented in the first two rows of Table 4. Test scores have been standardised, so the estimated coefficients represent the standard deviation improvement associated with an extra hour of school time per week.

The first two columns of Table 4 report the estimated coefficients from univariate specifications with no controls for potential confounders. These estimates suggest that extending the school week by one hour results in a 0.04-0.06 standard deviation improvement in reading scores. In subsequent columns the models control for a range of potential confounders observed in the data. Controlling for pupil characteristics including prior attainment, reduces the magnitude of the estimated effect substantially to around 0.022-0.024 standard deviations. However additional controls for geographic location and school type do little to alter the magnitude of the coefficient on school time.

Our models indicate that an additional hour of school per week at primary school is associated with an increase in reading test scores by around 0.022 of a standard deviation. This result is statistically significant at the 95% level and robust across both the addition of further controls and to the use of an IPW model to account for sample selection. Whether we use the data collected on the length of school weeks in 2023 or 2024 also makes very little difference to the estimated magnitude of effects.

Maths attainment

We next estimate equivalent models but with standardised KS2 maths test scores as the outcome of interest. The estimated coefficients for weekly school hours from each model are displayed in the bottom panel of Table 4. Similar patterns to reading are observed. Univariate specifications suggest an hour of extra school per week is associated with a 0.045-0.060 standard deviation improvement in KS2 maths scores. This again falls substantially with the inclusion of pupil characteristics in our models to between 0.019 and 0.025.

Models that control for our full set of observed confounders indicate that a one hour increase in weekly school time is associated with a 0.017-0.023 standard deviation increase in KS2 maths test scores. Again, this result is robust across different models and years.

Comparing the fully controlled 2024 IPW models between the two subjects does provide some indictive evidence that the effects on maths scores may be smaller than those on reading score – the difference in coefficients is around 0.005 of a standard deviation (0.017 compared to 0.022).

Whilst the difference is small, it appears at odds with the existing literature, which suggests that time in school typically has a greater impact on maths skills.[12] However, we are only able to observe total time in school and not the activities taking place, so we are unable to make any conclusions about whether additional learning time spend on maths is more productive than if it is spent on reading.

[12] Battistin and Meroni (2013) *Should We Increase Instruction Time in Low Achieving Schools? Evidence from Southern Italy*; Jensen (2013) *Working Longer Makes Students Stronger? The Effects of Ninth Grade Classroom Hours on Ninth Grade Student Performance*; Hincapie (2016) *Do Longer School Days Improve Student Achievement? Evidence from Colombia*

Table 4: Coefficients for weekly hours in school estimated from OLS and IPW regressions, KS2 reading and maths attainment

		OLS	IPW	OLS	IPW	OLS	IPW	OLS	IPW
Reading	**2023**	0.0413***	0.0401***	0.0225**	0.0222**	0.0218**	0.0215**	0.0216**	0.0215**
		(0.0120)	*(0.0116)*	*(0.0089)*	*(0.0092)*	*(0.0089)*	*(0.0090)*	*(0.0089)*	*(0.0091)*
	2024	0.0594***	0.0590***	0.0236***	0.0238***	0.0214***	0.0216***	0.0220***	0.0222***
		(0.0103)	*(0.0098)*	*(0.0077)*	*(0.0076)*	*(0.0076)*	*(0.0075)*	*(0.0077)*	*(0.0076)*
Maths	**2023**	0.0477***	0.0451***	0.0235**	0.0206**	0.0223**	0.0196**	0.0225**	0.0201**
		(0.0118)	*(0.0112)*	*(0.0092)*	*(0.0091)*	*(0.0092)*	*(0.0089)*	*(0.0092)*	*(0.0090)*
	2024	0.0604***	0.0601***	0.0190**	0.0191**	0.0149*	0.0149*	0.0165**	0.0173**
		(0.0102)	*(0.0101)*	*(0.0080)*	*(0.0078)*	*(0.0079)*	*(0.0077)*	*(0.0079)*	*(0.0078)*
Pupil characteristics		✖	✖	✓	✓	✓	✓	✓	✓
Geographic location		✖	✖	✖	✖	✓	✓	✓	✓
School type		✖	✖	✖	✖	✖	✖	✓	✓

Pupil characteristics consists of school average prior KS1 maths and reading attainment, % FSM6, % SEN support, % EHCP, % girls, % EAL, major ethnicity mix. Geographic location consists of region and urban-rural category.

*Significance: *** 99%, ** 95%, * 90%.*

Secondary school (KS4)

Headline attainment and progress

In the final year of secondary school, pupils sit GCSE (and equivalent) exams. The two headline measures used in performance tables are Attainment 8 and Progress 8, which assess attainment and progress across a basket of eight subjects.[13] As at KS2, we estimate a series of regression models, where the outcome of interest is either Attainment 8 or Progress 8, using both OLS and IPW, with increasing numbers of control variables. The estimated coefficients for weekly school hours from each model are presented in the first two rows of Table 5. Outcome measures have again been standardised, so the estimated coefficients represent the standard deviation improvement associated with an extra hour of school time per week.

The estimated coefficients from models using the 2023 data are reported in the first and third row of Table 5. Whilst the coefficients on the length of school week are significant in a univariate model (columns 1 and 2), once we control for potential confounders, we find no statistically significant effect of weekly hours on either Attainment 8 or Progress 8 scores. The point estimates are larger in the IPW models, which adjust for sample selection, but remain insignificantly different from zero.

The equivalent models estimated using the weekly hours reported in 2024 do however result in statistically significant associations between the length of school weeks and both Attainment 8 and Progress 8 scores, even after confounders are included. The reason for the differences in estimated coefficients between 2023 and 2024, which we do not observe at primary, is unknown but plausibly because our secondary 2023 models are underpowered - the sample size of secondary schools is around 900 in 2023, compared to just over 3,000 in 2024.

Similar to the results for attainment at primary school, the addition of pupil characteristics reduces the magnitude of the school time coefficient substantially, when either attainment or progress are the outcome of interest. Models estimated using the 2024 data and controlling for all the available confounders, indicate that an extra hour of school per week is associated with a 0.018 standard deviation increase in Attainment 8 and a 0.028 standard deviation increase in Progress 8 scores.

Prior attainment at key stage 2 in both maths and reading are included in the set of pupil characteristics controlled for in the Attainment 8 models, but not the Progress 8 models. This makes the two specifications somewhat comparable given controlling for prior KS2 attainment is similar to measuring progress. However, Progress 8 captures the progress of individual pupils whilst controlling for school level prior attainment captures school level progress. Also, the underlying distribution of Progress 8 already incorporates prior attainment whilst the Attainment 8 distribution does not, leading to the effect sizes being related to quite different underlying

[13] The basket must consist of English (language or literature), maths, the best three English Baccalaureate (EBacc) subjects (such as sciences, languages and humanities), and the best three other subjects (can include additional EBacc subjects). English and maths are double weighted in calculations.

distributions. We explore this further below with a conversion from effect sizes to grade improvements.

Table 5: Coefficients for weekly hours in school estimated from OLS and IPW regressions, Attainment 8 and Progress 8

		OLS	IPW	OLS	IPW	OLS	IPW	OLS	IPW
Attainment 8	**2023**	0.1180***	0.1144***	0.0063	0.0084	0.0049	0.0060	0.0036	0.0036
		(0.0182)	*(0.0225)*	*(0.0081)*	*(0.0106)*	*(0.0081)*	*(0.0106)*	*(0.0084)*	*(0.0111)*
	2024	0.1364***	0.1353***	0.0199***	0.0199***	0.0198***	0.0198***	0.0182***	0.0183***
		(0.0119)	*(0.0141)*	*(0.0055)*	*(0.0061)*	*(0.0054)*	*(0.0060)*	*(0.0056)*	*(0.0063)*
Progress 8	**2023**	0.0687***	0.0706***	0.0119	0.0162	0.0086	0.0114	0.0074	0.0085
		(0.0172)	*(0.0217)*	*(0.0131)*	*(0.0176)*	*(0.0132)*	*(0.0175)*	*(0.0140)*	*(0.0188)*
	2024	0.1012***	0.1014***	0.0280***	0.0281***	0.0270***	0.0271***	0.0277***	0.0279***
		(0.0119)	*(0.0133)*	*(0.0091)*	*(0.0098)*	*(0.0090)*	*(0.0096)*	*(0.0095)*	*(0.0103)*
Pupil characteristics		×	×	✓	✓	✓	✓	✓	✓
Geographic location		×	×	×	×	✓	✓	✓	✓
School characteristics		×	×	×	×	×	×	✓	✓

Pupil characteristics consists of school average prior KS2 maths and reading attainment, % FSM6, % SEN support, % EHCP, % girls, % EAL, major ethnicity mix. Geographic location consists of region and urban-rural category.
School characteristics consists of school type and admissions policy (gender and academic selectivity)

*Significance: *** 99%, ** 95%, * 90%.*

Variation by subject

As with attainment at the end of primary school we can also explore variation in the associations between time in school and attainment in different subjects. We first estimate the effects on maths and English test scores, both of which are compulsory GCSEs for all pupils. Additionally, we use the EBacc subject groupings to further understand variation across a wider range of different subjects, in particular science, humanities and languages. Table 6 presents the estimated coefficients from OLS and IPW models that include controls for all he confounders we observe.

As with our results using headline attainment and progress measures as the outcome, we find statistically insignificant coefficients on weekly time in school when using the 2023 data but positive and statistically significant coefficients when using the data reported in 2024. As discussed above, this is plausibly due to a smaller sample size in 2023 leading to underpowered models. In what follows we therefore focus only on the variation across the models estimated using the 2024 data.

Looking specifically at maths and English we find that an extra hour of school a week is associated with a 0.0166 standard deviation improvement in GCSE English scores and a 0.0155 standard deviation improvement in GCSE maths scores. This mirrors the pattern uncovered at primary, that effects on English/reading scores are slightly larger than for maths. The magnitudes of these associations at KS4 are however slightly smaller than those we estimated for KS2. This is consistent with previous studies that also find large effects of additional school time for younger pupils.[14]

In the subsequent columns of Table 6 we estimate models where the outcome variables are the standardised scores in each of the different EBacc pillars. All our attainment variables are standardised, making comparisons between different subject areas more appropriate. Again, using the weekly length of school reported in 2023, none of the estimated coefficients on school time are statistically significant. Using the 2024 data however, all coefficients are statistically significant, and we identify variation across different subject pillars.

An additional hour has a substantially larger association with attainment in foreign language subjects, 0.0448 standard deviations. This is twice the effect estimated for any other subject area, 0.0209 for English, 0.0155 for science, 0.0150 for maths, and 0.0148 for humanities. In the case of humanities however, the estimated coefficient is not significantly different from zero at the 90% significance level (z-score = 1.64).

The larger association between the length of school week and foreign language test scores compared to other subjects is unexpected. There are though three considerations which may explain at least some of the differences. First, whilst the regression models control for prior

[14] Nickow, Orepoulos, and Quan (2020) *The Impressive Effects of Tutoring on PreK-12 Learning: A Systematic Review and Meta-Analysis of the Experimental Evidence;* Education Endowment Foundation (2021) *Extending school time*

attainment at KS2, this is necessarily only maths and reading scores, and no other subjects. There is a weaker correlation between these KS2 outcomes and GCSE test scores in foreign languages compared to GCSE English, maths and science. Potentially the models for foreign languages (and humanities) therefore suffer from omitted variable bias.

Second, the number of pupils entering the EBacc language pillar is much lower than for other subjects.[15] A lot more schools in our sample have very low average score for the language component of the EBacc, suggesting that few pupils at some schools sit a language GCSE. This again may introduce bias to the resulting estimates if there is an association between the likelihood of pupils taking languages and some unobserved school level factor. Finally, due to limitations of the data we cannot observe how time in school is spent. It is plausible though that these differences are due to which subjects are typically the focus of any extra time.

[15] Language EBacc pillar - 44.7%, Humanities EBacc pillar – 81.7%, Science EBacc pillar - 94.7%. Department for Education (2024) *Key stage 4 performance, Academic year 2022/23*

Table 6: Coefficients for weekly hours in school estimated from OLS and IPW regressions, GCSE English and maths, and EBacc subjects

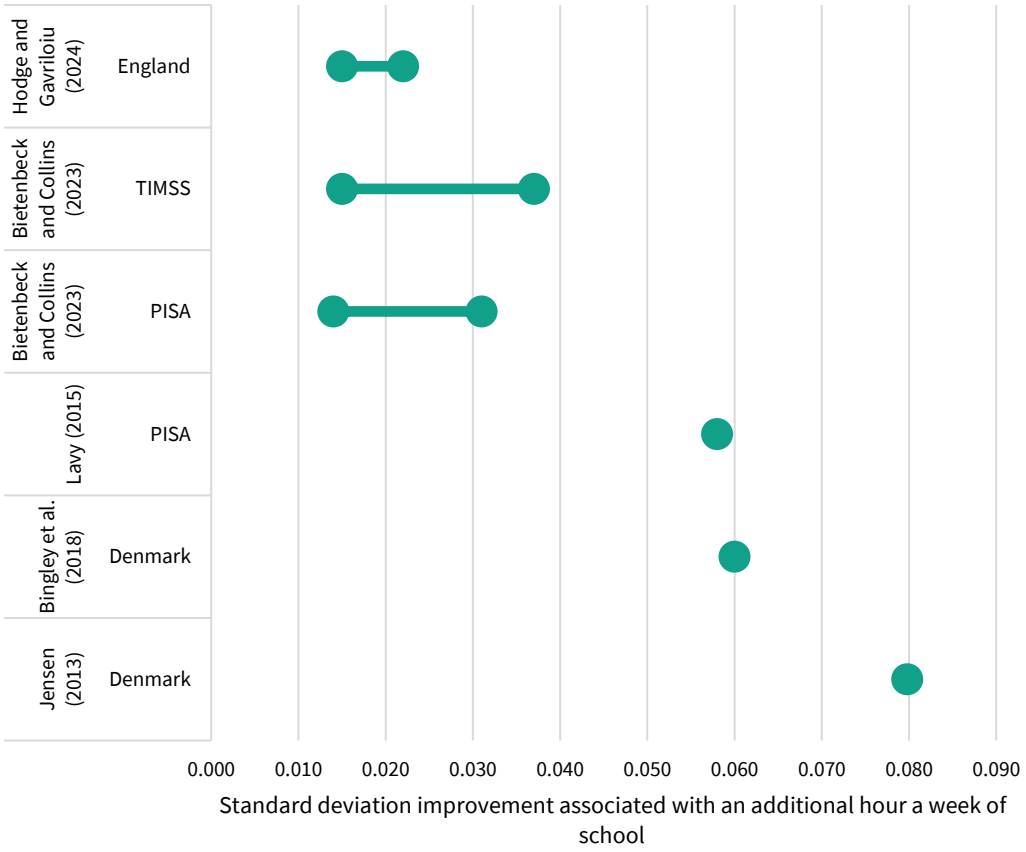
		GCSE		EBacc				
		English	***Maths***	***English***	***Maths***	***Science***	***Humanities***	***Languages***
2023	***OLS***	0.0027	0.0058	0.0013	0.0043	0.0092	-0.0074	0.0121
		(0.0087)	*(0.0083)*	*(0.0095)*	*(0.0083)*	*(0.0098)*	*(0.0123)*	*(0.0126)*
	IPW	0.0033	0.0052	0.0017	0.0036	0.0090	-0.0064	0.0146
		(0.0110)	*(0.0106)*	*(0.0109)*	*(0.0105)*	*(0.0121)*	*(0.0146)*	*(0.0146)*
2024	***OLS***	0.0168***	0.0155***	0.0208***	0.0149***	0.0155**	0.0146*	0.0451***
		(0.0059)	*(0.0057)*	*(0.0060)*	*(0.0057)*	*(0.0063)*	*(0.0084)*	*(0.0085)*
	IPW	0.0166***	0.0155**	0.0209***	0.0150**	0.0155**	0.0148	0.0448***
		(0.0064)	*(0.0061)*	*(0.0075)*	*(0.0061)*	*(0.0076)*	*(0.0090)*	*(0.0090)*

All models control for pupil characteristics (school average prior KS2 maths and reading attainment, % FSM6, % SEN support, % EHCP, % girls, % EAL, major ethnicity mix), geographic location (region and urban-rural category), and school characteristics (school type and admissions policy (gender and academic selectivity))
*Significance: *** 99%, ** 95%, * 90%*

The magnitude of effects

We have estimated a series of models that find the association between an additional hour of school per week and test scores ranges between 0.015 of a standard deviation (KS4 maths) and 0.022 of a standard deviation (KS2 reading). Figure 5 compares the magnitude of these estimates with the existing literature where an equivalent association between the length of the school week and test scores has been estimated. We replicate the positive effect of weekly school time found in other studies, but the magnitude of our estimates is lower than many previous studies, both within-country (Jensen, 2013; Bingley et al., 2018) and cross-country (Lavy, 2015). However, our estimates are similar in magnitude to a recent cross-country study (Bietenbeck and Collins, 2023) which finds effect sizes of between 0.014 and 0.037 using data from two international assessments, PISA and TIMSS.[16]

Figure 5: Comparison of estimated effect sizes across other studies



Note: The figure presented from Jensen (2013) uses the finding that one additional hour per year increases maths scores by 0.21% of a standard deviation and assumes a 38-week school year.

Our models are designed to estimate standardised effect sizes. This allows comparisons to be drawn between our own results, e.g., across phases, and also between the magnitude of our

[16] PISA (Programme for International Student Assessment) is administered by the OECD. TIMSS (Trends in International Mathematics and Science Study) is administered by the IEA.

estimates and other studies (Figure 5). However, the magnitude of effects in terms of actual grades is also of interest and policy relevant. This conversion can be performed by multiplying the effect size by the standard deviation of the distribution. The resulting figures are shown in Table 7.

At KS2, we find increasing weekly school time by one hour is associated with improvements in scaled scores of 0.053 and 0.066 for maths and reading, respectively.[17] At key stage 4, an extra hour of weekly school time is associated with a 0.171 increase in Attainment 8 score, and a 0.013 increase in Progress 8 scores. A one-point increase in Attainment 8 score is approximately equivalent to a one grade improvement in one GCSE subject, so an extra hour a week of school time is associated with a 0.17 grade improvement in one GCSE subject.

The Attainment 8 model would suggest a larger grade effect than the Progress 8 model.[18] This indicates that the reason for the difference in effect sizes between attainment and progress measures which we highlighted earlier is indeed due to differences in the underlying distributions, caused by adjusting for prior attainment.

Amongst EBacc subjects, that association with an additional hour of school per week is again relatively higher for languages (0.063 GCSE grades) compared to all other subjects, and greater for English (0.018 grades) compared to maths (0.014 GCSE grades). However, when looking specifically at English language and maths GCSEs the grade improvements are in fact the same (0.014 GCSE grades). The larger association with English EBacc is therefore likely driven by the fact that English literature can also be used in the EBacc pillar, if a pupil is awarded a higher mark than in English language.

Table 7: Comparison of estimated effect sizes across other studies

Phase	Subject	Effect size	Standard deviation	Grade improvement
Key Stage 2	Reading	0.022	2.992	0.066
	Maths	0.017	3.074	0.053
Key Stage 4	Attainment 8	0.018	9.335	0.171
	Progress 8	0.028	0.481	0.013
	EBacc English	0.021	0.839	0.018
	EBacc Maths	0.015	0.922	0.014
	EBacc Science	0.016	1.008	0.016
	EBacc Humanities	0.015	1.164	0.017
	EBacc Language	0.045	1.414	0.063
	GCSE English	0.017	0.814	0.014
	GCSE Maths	0.016	0.916	0.014

[17] Key stage 2 assessments in reading and mathematics provide outcomes on a "scaled score" basis. Scaled scores run from 80 to 120 and pupils who score 100 or above are said to have achieved the expected standard.

[18] Multiplying Progress 8 scores by 10 results in figures being on the same scale as Attainment 8.

For the average school (with a 32.5-hour week) an additional hour a week of school is equivalent to a 3.1% increase in school time. Pupils typically spend 4 years at primary school between KS1 and KS2 and 5 years at secondary school between KS2 and KS4. This additional hour a week of school translates to 12.3% and 15.4% of a year respectively.

Our estimated average effect size for primary (across maths and English) is 0.020, implies that 1 additional year of schooling is associated with a 0.16 standard deviation improvement in test scores. For secondary given both the longer time period our effect is measured over and its smaller magnitude (0.018), one year of additional schooling is associated with only a 0.12 standard deviation improvement in test scores.

EEF (2018) assume that one additional year of schooling improves test scores by 1 standard deviation, whilst Hattie (2015) suggests a more modest 0.4 standard deviation improvement. These conversions would imply that the effect of an additional hour per week are in the region of 0.049-0.062 (Hattie, 2015) and 0.123-0.154 (EEF, 2018) respectively. These are considerably larger effects than we estimate above, 0.020 and 0.018 respectively.

Our results imply a month of progress is equivalent to a smaller standard deviation improvement in test scores than suggested by common conversion factors. However, our estimates are based on additional schooling, not necessarily learning, as we are unable to observe what learning takes place in any additional time. This means we may be underestimating the standard deviation improvement.

Whilst these types of conversions are only intended to create rules of thumb, they are widely used in policy circles to compare educational interventions in terms of months of progress. Notwithstanding the caveat above, our results would tentatively suggest that educational interventions may be more impactful in terms of months of learning than previously thought.

Table 8: Converting effect sizes to years of learning

Phase	Number of school years	1 additional hour per week as a percentage of one school year	Study	Effect size for 1 additional year of schooling	Effect size for 1 additional hour per week
KS2	4	12.3%	EEF (2018)	1.00	*0.123*
			Hattie (2015)	0.40	*0.049*
			Hodge and Gavriloiu (2024)	*0.16*	0.020
KS4	5	15.4%	EEF (2018)	1.00	*0.154*
			Hattie (2015)	0.40	*0.062*
			Hodge and Gavriloiu (2024)	*0.12*	0.018

Note: figures in italics are calculated

Conclusion

In Part 1, we showed that in 2023/24, a fifth of primary schools and a quarter of secondary schools had school weeks shorter than 32.5 hours, the new expectation.

We also established that the length of school weeks does not often vary substantially with school level characteristics. One clear exception is free schools. Free schools have noticeably longer school weeks than other types of school. In 2023/24, primary free schools had on average almost an additional hour of school time per week compared to the average primary school. Whilst secondary free schools had, on average, school weeks that were over one hour longer than the typical secondary school. Ofsted 'Outstanding' schools and those located in London also tended to have longer school weeks, but the average differences are small. Interestingly, at the school level we find no evidence of a link between the percentage of pupils eligible for free school meals (FSM) and the length of the school week.

In Part 2, we further explored the associations between time in school and pupil attainment. The key takeaway is that a positive association is detectable, albeit the magnitude is typically small. Across a range of specification, an extra hour of school per week is estimated to be associated with an increase in test scores of between 0.015 and 0.022 of a standard deviation. An extra hour of secondary school a week is found to be associated with a 0.17 improvement in one GCSE subject.

We do though uncover some interesting variation. The magnitudes of the associations are slightly smaller for attainment at secondary school compared to primary school; and the associations with attainment in reading/English are slightly larger than for maths across both phases. At secondary, where we conduct further analysis by subject, we find time in school has an association twice as large for languages compared to other EBacc pillars.

Our results must though be viewed in conjunction with some caveats. First, our measure of school time measures the weekly amount of time spent in school. This means we do not observe which activities are taking place (instruction vs breaks vs extra-curricular activities), nor how the school day is structured (number vs length of lessons) and so we are not able to ascertain which activities or timetable are most closely linked to improved attainment. These may help to explain why the magnitudes of our estimates (~0.02 standard deviations) are lower than those found in some previous studies that look explicitly at instructional time in school (~0.06 standard deviations).[19]

Secondly, all our estimates are derived from linear models. These assume each additional hour of schooling, regardless of the starting point, returns the same improvement in attainment. Previous studies indicate that there is an inflection point, beyond which additional school time results in diminishing returns on student attainment.[20] It is likely that most schools in England are past this point, but perhaps the returns for schools with significantly fewer hours than average do stand to

[19] Lavy (2015); Bingley et al. (2018)
[20] Lavy (2015); OECD (2020)

gain more. Encouragingly though, our results suggest that we have not reached the point of no returns in England.

Despite these caveats, this report provides the first England specific estimation of the associations between time in school and attainment and adds to the wider evidence that also concludes across a range of contexts that effects at the margin are positive, albeit relatively modest. Whilst increased time in school is found to be associated with higher academic attainment, further consideration should be given to what activities take place in any extra time and to whether the additional cost of increasing school time could be used on other interventions which in turn could result in larger impacts on attainment.

Annexes

Annex A: Variables

Table A1 contains all the variables used in the regression models. The two types of variables are either 'dependent' or 'control'. The variables within the 'control' group can be further separated into two categories: (1) pupil characteristics from the NPD aggregated at school level, (2) school-level variables from the 'Get Information About Schools' (GIAS) dataset and the spring census in the case of the 'school time' variable.

Table A1: Source and type of variables used in regression analysis

Variable	Type	Source
Standardised Average *Attainment* 8 score	Dependent	KS4 Pupil (NPD)
Average *Progress 8* score	Dependent	KS4 Pupil (NPD)
Standardised average GCSE English/Maths score	Dependent	KS4 Pupil (NPD)
Standardised average point score in EBacc pillar	Dependent	KS4 Pupil (NPD)
Standardised Average Score in Maths and Reading	Dependent	KS2 Pupil (NPD)
Standardised prior attainment in Maths and Reading at Key Stage 2	Control	KS4 Pupil (NPD)
Standardised prior attainment in Maths and Reading at Key Stage 1	Control	KS2 Pupil (NPD)
Weekly school time in the 2023/2024 census	Independent	Spring Census
Percentage of pupils eligible for FSM in the last six years	Control	KS2 and KS4 Pupil (NPD)
Percentage of pupils with SEN	Control	KS2 and KS4 Pupil (NPD)
Ethnicity breakdown (%)	Control	KS2 and KS4 Pupil (NPD)
Gender breakdown (%)	Control	KS2 and KS4 Pupil (NPD)
Urban/Rural Setting	Control	GIAS
Region	Control	GIAS
School Type	Control	GIAS
Single-sex or Mixed school	Control	GIAS
Admission Type	Control	GIAS

Annex B: Representativeness of the sample

Tables B1-B7 present the variations between the 2023 and 2024 samples and the overall population across a set of important pupil and school-level factors for both KS2 and KS4.

Table B1: Representativeness of the sample - pupil characteristics

Pupil characteristic	Primary			Secondary		
	2023	2024	Population	2023	2024	Population
FSM6	28.8%	29.1%	29.1%	22.8%	24.2%	24.3%
EAL	21.7%	22.2%	22.1%	17.1%	17.3%	17.6%
Girls	49.1%	49.3%	49.3%	49.8%	49.4%	49.4%
SEND support	15.9%	15.9%	16.0%	12.1%	12.3%	12.4%
EHCP	3.3%	3.3%	3.3%	2.4%	2.4%	2.4%
Total number of pupils	**196,318**	**582,578**	**640,086**	**165,665**	**541,330**	**587,401**

Table B2: Representativeness of the sample - school type

School Type	Primary			Secondary		
	2023	2024	Population	2023	2024	Population
Academy converter	28.9%	29.9%	29.1%	51.4%	49.5%	48.9%
Academy sponsor led	10.3%	11.2%	10.9%	22.1%	24.4%	24.1%
Community school	32.2%	31.0%	31.6%	8.5%	8.2%	8.5%
Foundation school	2.7%	3.0%	3.2%	5.4%	4.4%	4.7%
Free Schools	1.2%	1.4%	1.3%	6.1%	7.2%	7.2%
Voluntary aided school	14.4%	14.1%	14.3%	6.2%	5.5%	5.9%
Voluntary controlled school	10.3%	9.4%	9.6%	0.4%	0.6%	0.6%
Total number of schools	**4,908**	**14,437**	**15,257**	**907**	**3,084**	**3,246**

Table B3: Representativeness of the sample – region

Region	Primary			Secondary		
	2023	2024	Population	2023	2024	Population
East Midlands	12.9%	9.5%	9.8%	8.9%	8.4%	8.7%
East of England	9.8%	11.2%	11.5%	11.6%	11.0%	11.1%
London	10.6%	11.4%	11.3%	13.9%	15.1%	15.2%
North East	4.2%	5.1%	5.1%	4.6%	4.5%	4.6%
North West	17.8%	15.8%	15.6%	12.7%	14.0%	14.0%
South East	12.2%	14.7%	14.5%	17.5%	15.5%	15.3%
South West	9.1%	10.8%	11.2%	10.0%	9.8%	9.6%
West Midlands	10.9%	10.5%	10.3%	12.4%	11.8%	11.8%
Yorkshire and the Humber	12.5%	11.0%	10.9%	8.4%	9.8%	9.7%
Total number of schools	**4,908**	**14,437**	**15,257**	**908**	**3,087**	**3,246**

Table B4: Representativeness of the sample – admission type

Admission type	Secondary		
	2023	2024	Population
Non-selective	87.9%	87.9%	88.0%
Selective	6.5%	5.1%	5.0%
N/A	5.6%	7.0%	7.0%
Total	**908**	**3,087**	**3,246**

Table B5: Representativeness of the sample – urban/rural

Urban/Rural	Primary			Secondary		
	2023	2024	Population	2023	2024	Population
Rural hamlet and isolated dwellings	5.2%	4.5%	4.5%	1.9%	1.5%	1.5%
Rural hamlet and isolated dwellings in a sparse setting	0.7%	0.5%	0.5%	N/A	N/A	0.1%
Rural town and fringe	10.0%	10.3%	10.3%	10.1%	9.3%	9.4%
Rural town and fringe in a sparse setting	0.5%	0.4%	0.5%	1.1%	0.9%	1.0%
Rural village	13.4%	12.3%	12.5%	2.0%	1.8%	1.8%
Rural village in a sparse setting	1.2%	0.9%	0.9%	N/A	0.2%	0.2%
Urban city and town	36.8%	37.1%	37.1%	48.5%	46.3%	46.2%
Urban city and town in a sparse setting	0.1%	0.1%	0.1%	0.3%	0.3%	0.2%
Urban major conurbation	28.1%	30.7%	30.5%	33.5%	36.1%	36.1%
Urban minor conurbation	4.0%	3.2%	3.2%	2.7%	3.6%	3.5%
Total number of schools	**4,908**	**14,437**	**15,257**	**905**	**3,085**	**3,246**

Table B6: Representativeness of the sample – single-sex/co-educational

	Secondary		
	2023	2024	Population
Mixed	88.9%	89.1%	89.1%
Girls	7.2%	6.4%	6.3%
Boys	4.0%	4.5%	4.6%
Total	**908**	**3,087**	**3,246**

Table B7: Representativeness of the sample – Ofsted rating

Ofsted rating	Primary			Secondary		
	2023	2024	Population	2023	2024	Population
Good	82.7%	81.6%	81.1%	67.9%	70.1%	69.5%
Outstanding	9.5%	10.9%	10.8%	17.7%	15.0%	14.8%
Requires improvement	7.1%	7.0%	7.4%	11.7%	12.8%	13.0%
Serious Weaknesses	0.2%	0.2%	0.2%	1.6%	1.4%	1.6%
Special Measures	0.4%	0.3%	0.5%	1.1%	0.8%	1.0%
Total number of schools	**4,595**	**13,449**	**15,257**	**872**	**2,955**	**3,246**

Annex C: Underlying data

Table C1: Underlying data – Figure 1

Bandwidth	KS2		KS4	
	2023	2024	2023	2024
23.5 < x ≤ 24.5	<3	<3	<3	<3
24.5 < x ≤ 25.5	9	49	0	19
25.5 < x ≤ 26.5	9	33	<3	<3
26.5 < x ≤ 27.5	28	78	<3	10
27.5 < x ≤ 28.5	6	17	<3	3
28.5 < x ≤ 29.5	<3	14	4	9
29.5 < x ≤ 30.5	97	271	46	126
30.5 < x ≤ 31.5	563	1,057	110	269
31.5 < x ≤ 32.5	3,272	9,952	417	1,595
32.5 < x ≤ 33.5	512	1,636	141	422
33.5 < x ≤ 34.5	150	527	74	235
34.5 < x ≤ 35.5	61	269	37	147
35.5 < x ≤ 36.5	23	87	16	44
36.5 < x ≤ 37.5	47	208	16	84
37.5 < x ≤ 38.5	18	60	4	21
38.5 < x ≤ 39.5	8	30	5	14
39.5 < x ≤ 40.5	13	140	15	76
40.5 < x ≤ 41.5	3	<3	3	<3
41.5 < x ≤ 42.5	4	<3	3	<3
42.5 < x ≤ 43.5	<3	<3	<3	<3

Table C2: Underlying data – Figure 5

Study	Data source	Effect size	
		Min	Max
Jensen (2013)[21]	Denmark	0.080	
Bingley et al. (2018)	Denmark	0.060	
Lavy (2015)	PISA	0.058	
Bietenbeck and Collins (2023)	PISA	0.014	0.031
Bietenbeck and Collins (2023)	TIMSS	0.015	0.037
Hodge and Gavriloiu (2024)	*England*	*0.015*	*0.022*

[21] The figure presented from Jensen (2013) uses the finding that one additional hour per year increases maths scores by 0.21% of a standard deviation and assumes a 38-week school year.

References

Angrist, J.D. and Pischke, J-S. (2009) *Mostly harmless econometrics*. Princeton University Press.

Baines, E. and Blatchford, P. (2019) *School break and lunch times and young people's social lives: A follow-up national study*. UCL Institute of Education.

Battistin, E. and Meroni, E.C. (2016) 'Should We Increase Instruction Time in Low Achieving Schools? Evidence from Southern Italy'. *Economics of Education Review*, 55(C), pp. 39–56.

Bietenbeck, J. and Collins, M. (2023) 'New Evidence on the Importance of Instruction Time for Student Achievement on International Assessments', *Journal of Applied Econometrics*, 38(3), pp. 423–31.

Bingley, P., Heinesen, E., Krassel, K.F. and Kristensen, N. (2018) *The Timing of Instruction Time: Accumulated Hours, Timing and Pupil Achievement*. IZA Discussion Paper No. 11807. Bonn, Germany: IZA - Institute of Labor Economics.

Department for Education (2022) *Opportunity for all: strong schools with great teachers for your child*, CP 650, H.M. Government.

Department for Education (2023) *Length of the School Week: Non-Statutory Guidance.*

Department for Education (2024) *Key stage 4 performance, Academic year 2022/23*. Official Statistics.

Education Endowment Foundation (EEF) (2018) *Sutton Trust-EEF Teaching and Learning Toolkit & EEF Early Years Toolkit: Technical appendix and process manual*. Working document v.01.

Education Endowment Foundation (EEF) (2021) *Extending school time.* EEF Teaching and Learning Toolkit.

Gavriloiu, O. (2024) *An evidence review into the length of the school day*. Education Policy Institute.

Hattie, J. (2015) *What Works Best in Education: The Politics of Collaborative Expertise*. London, UK: Pearson.

Hincapie, D. (2016) *Do Longer School Days Improve Student Achievement? Evidence from Colombia*, IDB Working Paper Series, No. IDB-WP-679. Washington, DC: Inter-American Development Bank (IDB).

HM Government (2024) *Government launches Curriculum and Assessment Review*, Press release.

IFF Research Ltd (2021) *COVID-19 School Snapshot Panel Findings from the March Survey*. Research Report RR118. Department for Education.

Jensen, V.M. (2013) 'Working Longer Makes Students Stronger? The Effects of Ninth Grade Classroom Hours on Ninth Grade Student Performance', *Educational Research*, 55(2), pp. 180–94.

Labour Party (2024) *Breaking down the barriers to opportunity*.

Lavy, V. (2015) ‘Do Differences in Schools’ Instruction Time Explain International Achievement Gaps? Evidence from Developed and Developing Countries’, *The Economic Journal*, 125(588), pp. F397–F424.

Nickow, A., Oreopoulos, P. and Quan, V. (2020) *The Impressive Effects of Tutoring on PreK-12 Learning: A Systematic Review and Meta-Analysis of the Experimental Evidence*. NBER Working Papers No. 27476. National Bureau of Economic Research.

OECD (2020) *PISA 2018 Results (Volume V): Effective Policies, Successful Schools*. Paris, France: OECD Publishing.

Pires, T. and Urzua, S. (2010) *Longer school days, better outcomes?*. Northwestern University.