The “Friday effect”: school attendance over the week

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Abstract

Using newly released detailed data on school absences, we find a "Friday effect". Children are much less likely to attend schools in England on a Friday. We find that this pattern holds for different schools and for both authorised (mainly illness) and unauthorised absence. Furthermore, we document a social-gradient in the "Friday effect" for unauthorised absences, where the effect is larger in more deprived areas. We also show the effect in secondary schools is bigger in areas with more persistent absence. Eliminating the "Friday effect" could lead to a 1.71% of a standard deviation increase in test scores and 0.8% increase in income in the longer run.

JEL Classification: I20, I24
Keywords: school attendance, absences, inequality

I. Introduction

COVID-19 pandemic-related school closures and resultant loss of face-to-face teaching hindered learning for millions of pupils, in the UK and across the world (Betthäuser et al., 2022). Despite great efforts by schools to adapt and deliver teaching online, on average less material was covered in a remote setting than in person. This was particularly the case for schools with higher proportion of pupils on free school meals (Office for National Statistics, 2021). Already disadvantaged children, such as those without computer access at home or whose parents were not in a position to assist their learning, have been more adversely affected by the switch to online learning (Major et al., 2021). This effect was not limited to academic performance only. Physical absence from school also meant less socialisation, no access to free school meals, perhaps also no respite from an unsettled household.

The return to face-to-face teaching did not mean return of all pupils to the classroom. Absences overall and persistent absences remained high, hindering any efforts to equalise opportunities. Over 28% of primary pupils and 40% of secondary pupils who qualified for free school meals (FSM) were persistently absent during the 2021/22 autumn term (Office for National Statistics, 2022). The UK government has committed to reducing absences in schools (Ofsted, 2022). In early 2022 it asked schools to sign up to a daily attendance tracker trial, collecting real-time data from school registers. Its aim is to tackle the issue of absences when they arise and give schools and local authorities better oversight of patterns of absence.

The focus on increasing attendance is dictated by its strong relationship with academic achievement and social mobility. Attendance is also a safeguarding issue. Long-run persistent absence could be symptomatic of something other than illness. Pupils with higher absences are less likely to pass key exams. For example, in 2018/19, pupils who did not pass English and maths GCSEs had an absence rate of 8.8%, compared with 5.2% among pupils who just passed in both subjects, and 3.7% among pupils who achieved grade 5 or above.[1] Although the causal nature of this relationship is not obvious[2], a number of papers have found that attendance is important for outcomes, in both primary and secondary school settings (Goodman, 2014; Aucejo

[1] Grades 4-9 are passing grades.

[2] Those with more family resources may have better attendance and better outcomes. At the same time, it may be resources that drive outcomes rather than school attendance.

and Romano, 2016; Liu et al., 2021). Cattan et al. (2022) go further and not only show that absence has detrimental effects on school performance but also on later labour market outcomes. School absences can also exacerbate inequality; those most likely to miss out are those from less privileged backgrounds, potentially with an already lower academic performance.

This paper takes the positive relationship between attendance and school outcomes as given and aims to establish whether there is a significant pattern of attendance by day of the week. While this exercise is descriptive in nature, understanding of the pattern of absences (if any) is key to the debate about improvements in attendance and thus attainment. When schools and policymakers understand regularities in pupils' behaviour, they will be better placed to identify policies to boost attendance and mitigate the negative effects of absence.[3]

One such policy could be communicating this pattern to parents–it might be the case that communicating an usual pattern of attendance may change parents' behaviour or make them more aware about which days their children might not be going to school. Furthermore, there have been a number of interventions that have focused on reminders. For example Bergman and Chan (2021) exploited school information systems to automate high-frequency text messages to inform about class absences. This increased class attendance by 12%. The intervention was relatively low cost, in comparison to the life-time returns to attending school. Knowing the days of the week where attendance is lowest would help to further develop similar information interventions and improve their cost effectiveness.

Identifying a pattern of attendance over the day-of-the-week could also be useful for teachers. Under the assumption that the pattern of absence is fixed and cannot be changed, teachers may use this information to focus the most important lessons on the days of highest attendance.

To the best of our knowledge this is the first paper that examines the impact of day-of-week on school attendance. The lack of evidence on patterns of attendance over the day of the week stems from a lack of data. In this paper we use new daily attendance data at local authority level collected by the Department for Education (DfE) from the beginning of the academic

[3]Aucejo and Romano (2016) examine the relative merits of extending the school year as opposed to extending the school calendar. While they find that extending school year does have an impact on attainment, there are greater effects of reducing absence (i.e. increasing the time in school within the current school calendar). Furthermore, there are significant costs to extending the calendar, or the week. https://educationendowmentfoundation.org.uk/education-evidence/teaching-learning-toolkit/extending-school-time

year 2022/23. We find that overall absence on Fridays is 1.36 percentage points (17%) higher relative to Mondays. This effect is evident for both authorised and unauthorised absences. We also document a social gradient in the "Friday effect" with the impact being larger in more deprived areas. We also find, particularly in secondary schools, that the "Friday effect" is larger in areas that have a greater amount of persistent absence.[4] Finally, using our own calculations and those from studies that had examined the causal effect of the impact of absence on test scores and long run income, we document that eliminating the "Friday effect" would lead to an improvement of 1.71% of a standard deviation in test scores and 0.8% increase in later life income.

II. Background

School attendance policy in England.

All schools must keep an attendance register in accordance with regulation 6 of the Education (Pupil Registration) (England) Regulations 2006 as amended.[5] Schools must take the attendance register at the beginning of each morning session and once during each afternoon session. On each occasion they must record whether every pupil is:

- Present;
- Absent;
- Attending an approved educational activity as defined in regulation 6(4); or
- Unable to attend school due to exceptional circumstances

Schools must record whether the absence of a pupil of compulsory school age is authorised or not.[6] Schools must also record the nature of the circumstances where a pupil is unable to attend due to exceptional circumstance. Specifically, absences are reported under the following

[4]DfE defines persistent absence as 10% of days missed.

[5]This does not include those where all the pupils are boarders.

[6]There is no requirement for schools to record whether the absence of pupils not of compulsory school age is authorised or not, but where possible schools should use the national attendance and absence codes to help them monitor their attendance and to form good attendance habits.

headings: overall absence; made up of authorised and unauthorised absence. Authorised absences are then further split into 1) exclusion, 2) traveller allowances, 3) holiday, 4) illness, 5) religious observance, 5) study leave and 6) other. Unauthorised absences can be categorised as: 1) holiday, 2) other, 3) no reason yet given. Pupils can also be marked as arriving late (both for authorised and unauthorised absence).

Penalty notices for non-attendance

The Education Act of 1996 in the United Kingdom (UK) empowers head teachers to issue Penalty Notices for unauthorised absences from school. This means that when a pupil has five or more days of unauthorised absences in any term[7] or if the child persistently arrives late for school after the close of registration, their parents or guardians may receive a Penalty Notice of £60 if paid within 21 days, rising to £120 if paid within 28 days. A report on the effectiveness of these fines (Crowther and Kendall, 2010) found that 79% of local authorities said penalty notices were "very successful" or "fairly successful" in improving school attendance. However, they are less successful when the family situation is more complex. It could also be the case that parents are willing to pay the fine as it could just been see as an additional cost of going on holiday outside of term time where the prices are cheaper, this is in line with the rationale of Gneezy and Rustichini (2000) where a fine is seen as a price.

III. Data

This paper relies on a new data source provided by the Department for Education (DfE) on daily attendance and absence in state schools. We use data on the first two terms of the academic year 2022/23. The data begins on 12th September and runs through to 31st March 2023. Half-term and other break periods are excluded from the data by construction, i.e. there are no reports on days that schools are shut. For most areas of England the breaks within the observed period included: 24th–28th October (half-term), 19th December – 2nd January (Christmas) and 13th–17th February (half-term). The data is provided at the local authority (LA) level and there are 152 LAs that are responsible for education in England. Attendance is also broken down by school type: primary, secondary and special educational needs (SEN). We focus solely on

[7]Where no acceptable reason has been given for the absence.

primary and secondary school attendance.

The data is derived from regular school registers automatically submitted to the DfE each day by participating schools. It includes the attendance codes, described in Section II, for each pupil on their registers during the morning and afternoon sessions. The data provided relates to the attendance of 5 to 15 year old (i.e. compulsory school age) pupils in state schools.

Table 1 presents the summary statistics of absence overall, by type of absence, school type and day of the week. Across all schools 7.7% of sessions were missed. The majority of these absences are authorised (67.3%). Of those authorised absences over 80% are due to illness, with appointments (5.5%), exclusions (3.3%), and other reasons not specified (9.3%) making up the majority of the remaining authorised absences. The reasons for unauthorised absences, by their very nature, are much less clear with 71% of unauthorised absences being for some unknown ("other") reason. This is most likely truancy or the reason has not been provided. Holidays that were taken during term time but for which the parents were not given permission make up 15.1%.

There are some differences between primary and secondary schools that are of note. Illness is a greater component of authorised absences in primary schools compared to secondary. The largest differences are among the unauthorised absences, where the rate of unauthorised absences in secondary schools is 12% higher than that of primary schools. Composition of unauthorised absences is quite different between the schools, with a greater proportion of unauthorised absences for primary schools being due to holidays and secondary being due to reasons not given or 'other".

We next show the data over time. Figure A.1 plots the data aggregated by week, in Panel A for primary schools and in Panel B for secondary schools. It is clear that absences increase over time in the autumn, with particularly high rates close to Christmas (week 51). There is then a significant drop in the New Year with much less volatility in the second term. There is an increase, albeit much smaller, in the run up to Easter (week 64). This is true of both types of schools and both types of absences. There is more variation in the levels of authorised absence, presumably following periods of viral illnesses (e.g. spike in week 42 and a lower level of absence following half term). In Table 1 we also present summary statistics for the

overall absences by day of the week. It is clear that absences fall after Monday, are the lowest on Wednesday and then start climbing up, with the highest values on Friday. This is the case for schools combined and separately for primary and secondary schools.

IV. Estimation strategy and results

In order to show the effects by day of the week we estimate the following equation:

$$y_{st} = \beta + \delta_1 Tue + \delta_2 Wed + \delta_3 Thu + \delta_4 Fri + Week_t + LA_s + \varepsilon_{st} \quad (1)$$

where y_{st} is the absence rate in local authority s on day t, Tue through to Fri are a set of day of the week dummies, $Week_t$ are a set of week of the year dummies capturing weekly variation in attendance and LA_s are local authority fixed effects capturing any time-invariant factors that may influence absence at the local authority level. Given the short window of the analysis, these could include policies or support to reduce absence that are provided at the local authority level. We cluster the standard errors at the local authority level.

A. Baseline Results

The results can be found in Table 2, for the entire sample (Panel A), and for primary (Panel B) and secondary (Panel C) schools separately. For all three groups there is a clear pattern emerging, similar to that found in the summary statistics. Pupils are less likely to be absent on Tuesday and Wednesday (relative to Monday) and more likely to be absent on Friday. Looking at schools as a whole, the "Friday effect" is stronger for authorised than unauthorised absences and the difference is statistically significant. For primary schools, absences are lower than on Monday for all other days of the week except for Friday. However, the effects are larger in magnitudes for authorised absences. A similar pattern emerges for secondary schools, though here a fall in overall absences relative to Mondays is only present for Tuesdays and Wednesdays. Absences rise by Thursday. Furthermore, no fall on Tuesday and Wednesday is present for authorised absences. We compare the effects between types of schools and find statistically significant differences for all days. However, the difference for Fridays is the largest with the

coefficient for secondary schools of 2.02 and for primary schools of 0.70 for total absences.

We check the robustness of these results to periods of strike action by teachers (February-March 2023) and the potential effect of the "Fridays for future" movement. This movement is strike action in relation to tackling climate change.[8] Teachers across primary and secondary schools in the UK have been on strike on several occasions in 2022/23.[9] None of the strike days fall on Fridays. Furthermore, if a school was shut on a strike day, the attendance and absence data is not reported in the system. Nonetheless, one may be concerned that teachers' strikes affected attendance patterns of pupils. Therefore, we exclude weeks in which national or regional strikes took place from the analysis. The results are in line with the baseline and can be found in Table A.1. Furthermore, attendance on Fridays, particularly among secondary school pupils, may be disrupted by their participation in the "Fridays for Future" movement. To rule out this as a possible explanation of the effect, we track the dates and locations of the protests in the UK and exclude from the analysis these LAs where regular protests have been registered.[10] Again, these results are in line with the baseline and can be found in Table A.1.

B. Heterogeneity

Having established that absences are higher on Fridays (the "Friday effect"), we then explore whether this effect holds for different types of absence. Then we examine whether there are differences in the effect across different areas by deprivation and by levels of persistent absence. Finally, we document the extent to which the "Friday effect" differs by regions.

Absence type

Next we consider the daily patterns by reasons of absence. We run the specification as defined in Equation 1 now using the following dependent variables: illness, holiday (unauthorised and authorised separately), authorised study absence, authorised traveller absence, authorised absence due to religious holidays, other authorised and unauthorised absences as well as those classified as unauthorised as there is still yet to be a reason given, and absence related to COVID-19.

[8] https://fridaysforfuture.org/what-we-do/

[9] https://tinyurl.com/Strike-information

[10] The locations of regular protests in England include: Houston, Durham, Nottingham, London, Fareham and Brighton. In addition to this a one-off protest on Saturday, 13th May 2023 (outside of the data period), coinciding with the Eurovision contest final, took place in Barnstaple, Manchester, Liverpool, Whitley Bay.

Results are presented in Figure A.2. The "Friday effect" appears in illness-related absences. This could be for two main reasons. First, as children start the week they mix with their peers and this increases the chances that they catch illnesses, such as cold and flu. Second, they are not genuinely ill but parents allow their children to stay off school, reporting illness. We are unable with the data we have to distinguish between these two possibilities. The "Friday effect" also appears in unauthorised (other) i.e. those absences that are unexplained and are presumably due to truancy.

Deprivation

We next look at the social-gradient of the "Friday effect". Specifically, we split the local authorities into four quartiles based on the Income Deprivation Affecting Children Index (IDACI). The IDACI measures the proportion of all children aged 0 to 15 living in income deprived families in each lower-layer super output area (LSOA).[11] The LSOAs are then matched to the local authority and each local authority is given a rank along the degree of deprivation.

Figure 1 shows the day-of-the week effect by IDACI quartile, where the first quartile shows the least deprived LAs and the fourth quartile the most deprived. First, we note the "Friday effect" evident for all school types and for both authorised and unauthorised absences. It is not just something that we observe in poorer parts of the country. Second, for all schools there is a gradient in the "Friday effect" with estimates being the largest for the most deprived quartiles. This is the case mainly for unauthorised absences and in secondary schools.

Persistent absence

There is significant concern surrounding the persistent absence. In January 2023 the UK government launched an inquiry into the issue.[12] A child is defined as persistently absent by the Department for Education if they miss 10% or more of possible sessions. Over the first term (the period covering 16th September to 12 December) 25% of children were persistently absent (21.5% in primary schools and 29% in secondary schools).

It does not make sense to examine daily persistent absence given persistence is a long-run measure. Furthermore, we are unable to identify individual pupils in the data. However,

[11] A lower-layer super output area (LSOA) usually comprises of 1500 people on average.

[12] `https://tinyurl.com/persisentabsenceinquiry`

we can examine if a gradient in the "Friday effect" exists as it does by deprivation. Figure 2 shows the day-of-the week effects by quartile of persistent absences as measured at the local authority level. As persistence data is available at the local authority level by school type, the quartiles are therefore based on persistent absence by school type. The first quartile shows the LAs with the lowest persistent absence and the fourth quartile the most persistent absence. For all schools there is a gradient in the "Friday effect" with estimates being the largest for the local authorities with the most persistent absence. This is the case for both authorised and unauthorised absences. When we examine by school type it is clear that the gradient is only apparent in secondary schools. The gradient in secondary schools is stark, with the "Friday effect" being 76% larger in the quartile with most persistent absences as it is in the bottom quartile.

Regions

Next we explore the pattern across the nine regions of England, overall and by school type. Results can be found in Figure A.3. We document a number of interesting findings. First, the "Friday effect" is not an artefact of one particular region. Absences are quite significantly higher on Friday, as earlier documented. There is, however, some regional variation, particularly for overall and authorised absences, where the effect is lower in the South East and South West. Third, there is much less variation for unauthorised absences.

V. Discussion

How important is the "Friday effect"? To contextualise it, we carry out the following thought experiment: How much improvement in learning and longer run outcomes could we observe if we eliminated the "Friday effect"?

In this analysis we concentrate on the results for primary school children. This is because most long run studies on the causal effect of absence focus on primary schools as attendance at secondary school level is more likely endogenous. Table 3 shows three different scenarios. In scenario 1 we set the Friday effect to that of Wednesday, the best attended day. In scenario 2 we set both Monday (the next highest day of absence) and Friday to the Wednesday attendance level. In the last scenario we set all days to the Wednesday level. We then calculate the gain in

attendance that each of these scenarios would realise. Given that the school year consists of 190 days, scenario 1 leads to a 0.3% point increase, an equivalent of 0.54 days per year. Scenario 2 and 3 would result in a 0.43 and 0.50 percentage point increase.

The aforementioned Cattan et al. (2022) and Aucejo and Romano (2016) estimate the causal impact of absence on grades and maths respectively. They find a 1 day increase in absence leads to a 0.45% of a standard deviation decrease in overall grades (Cattan et al., 2022) and a 0.55% of a standard deviation decrease in maths (Aucejo and Romano, 2016). Therefore, assuming that these results from Sweden and the US are applicable in the current UK context, eliminating the "Friday effect" (scenario 1) translates to 1.71% of a standard deviation increase (0.54 increase in days per year $\times$ 0.45% SD effect size (from Cattan et al. (2022)) $\times$ 7 years of primary school) in overall grades and 2.09% of a standard deviation increase in maths test scores. In the most optimistic scenario we consider (scenario 3), these increase to 3% and 3.67% for overall grades and maths respectively.

Furthermore, Cattan et al. (2022) find long run effects on earnings as a result of absence. Specifically, they find a 2.1% decrease for those aged 35–40 in income as a result of 10 additional days absent (0.21% per day) in primary school. The bottom row of Table 3 therefore shows that eliminating the "Friday effect" could result in a positive income effect of 0.8% (0.54 more days $\times$ 0.21% increase in income per day (from Cattan et al. (2022)) $\times$ 7 years of primary school) later in life.

VI. Conclusion

This is the first paper to document a "Friday effect" in school attendance. For both primary and secondary schools, and for both authorised and unauthorised absence, we show that absence from school is statistically and economically significantly higher on Fridays relative to the other days of the week. There is a social gradient in this effect. The "Friday effect" is greater in areas with more deprivation. In secondary schools, those areas that have greater levels of persistent absence have greater rate of absence on Fridays.

These results could help to develop policies that aim at reducing school absence. For example, providing information has been shown to have positive effects on attendance (Valente and

de Walque, 2022; Bergman and Chan, 2021). Further targeting or tailoring this treatment could potentially make it more cost effective or enhance its effects. Furthermore, knowing about the "Friday effect" could be useful in and of itself for schools. That the "Friday effect" is evident and that this is correlated with high degrees of persistent absence may also provide schools with an early warning sign that their attendance policies need attention. Conversely, if the "Friday effect" is persistent and hard to shift, then teachers may decide to depriortise important lessons on a Friday.

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Tables and Figures

Table 1: Summary Statistics

	All		Primary		Secondary	
	Mean	**s.d.**	**Mean**	**s.d.**	**Mean**	**s.d.**
Absence rate	7.702	3.527	6.195	2.860	9.209	3.487
Authorised absence rates						
Overall	5.183	2.556	4.614	2.269	5.753	2.697
Illness	4.174	1.943	3.921	1.651	4.427	2.167
Appointments	0.285	0.118	0.228	0.065	0.342	0.131
Religious observance	0.005	0.029	0.005	0.025	0.004	0.032
Study leave	0.005	0.076	0.000	0.002	0.009	0.108
Traveller	0.007	0.020	0.011	0.027	0.003	0.009
Holiday	0.037	0.078	0.052	0.102	0.021	0.032
Exclusions	0.171	0.637	0.024	0.161	0.318	0.861
Other	0.481	0.627	0.344	0.711	0.617	0.492
Covid	0.020	0.845	0.029	1.174	0.011	0.221
Unauthorised absence rates						
Overall	2.519	1.737	1.582	1.095	3.456	1.755
Holiday	0.380	0.599	0.475	0.568	0.284	0.613
Other	1.777	1.483	0.854	0.746	2.701	1.461
Late	0.164	0.111	0.134	0.071	0.194	0.133
Not given yet	0.197	0.363	0.118	0.143	0.277	0.481
Overall absence by day of the week						
Mon	7.586	2.900	6.416	2.503	8.757	2.798
Tue	7.353	3.213	5.922	2.536	8.783	3.181
Wed	7.193	2.867	5.682	2.453	8.706	2.418
Thur	7.386	2.787	5.784	1.977	8.989	2.547
Fri	8.911	4.954	7.114	4.037	10.711	5.131

Source: Department of Education, Pupil attendance in schools
Note: Percentage of sessions missed, overall, by absence type, school type and day of the week. Own calculations.

Table 2: The impact of day-of-the-week on school absence

	(1) Absence	(2) Authorised	(3) Unauthorised	authorised vs unauthorised (p-value)
A. All Schools				
Tue	-0.212***	-0.052***	-0.161***	*0.000*
	(0.026)	(0.022)	(0.009)	
Wed	-0.404***	-0.198***	-0.206***	*0.615*
	(0.025)	(0.018)	(0.011)	
Thu	-0.205***	-0.116***	-0.090***	*0.182*
	(0.031)	(0.023)	(0.012)	
Fri	1.359***	0.799***	0.561***	*0.000*
	(0.076)	(0.052)	(0.033)	
Observations	35,142	35,142	35,142	
R-squared	0.554	0.484	0.634	
Mean	7.702	5.183	2.519	
B. Primary				
Tue	-0.505***	-0.279***	-0.226***	*0.020*
	(0.024)	(0.021)	(0.009)	
Wed	-0.788***	-0.485***	-0.303***	*0.000*
	(0.027)	(0.023)	(0.011)	
Thu	-0.672***	-0.437***	-0.236***	*0.000*
	(0.033)	(0.026)	(0.014)	
Fri	0.703***	0.447***	0.256***	*0.000*
	(0.069)	(0.048)	(0.028)	
Observations	17,577	17,577	17,577	
R-squared	0.471	0.505	0.419	
Mean	6.195	4.614	1.582	
C. Secondary				
Tue	-0.081**	0.176***	-0.095***	*0.000*
	(0.040)	(0.034)	(0.014)	
Wed	-0.021	0.090***	-0.110***	*0.000*
	(0.032)	(0.022)	(0.015)	
Thu	0.262***	0.205***	0.057**	*0.000*
	(0.037)	(0.027)	(0.016)	
Fri	2.016***	1.150***	0.866***	*0.000*
	(0.069)	(0.048)	(0.028)	
Observations	17,577	17,577	17.577	
R-squared	0.527	0.485	0.693	
Mean	9.209	5.753	3.456	
Primary vs Secondary (p-value)				
Tue	*0.000*	*0.000*	*0.000*	
Wed	*0.000*	*0.000*	*0.000*	
Thu	*0.000*	*0.000*	*0.000*	
Fri	*0.000*	*0.000*	*0.000*	

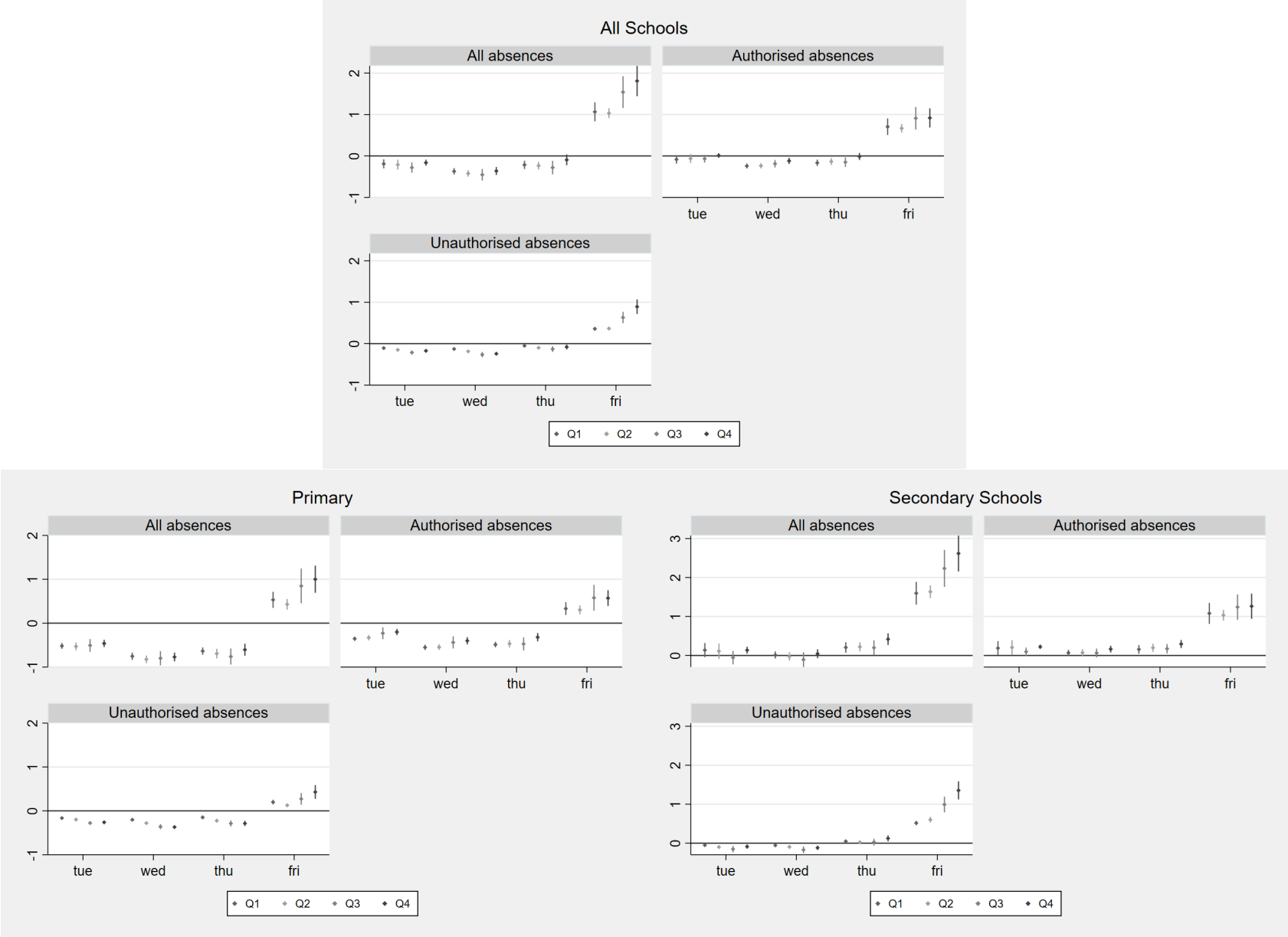
Note: All regressions as specified in Equation (1), include week-of-the-year and local authority fixed effects. The dependent variables are the percentage of sessions of school missed (all), and by absence type, authorised (an explanation has been given to and accepted by the school), and unauthorised absences are those where either an explanation has not been given or it has not been accepted.

Table 3: Potential consequences of eliminating the "Friday effect"

	Actual	Scenario 1	Scenario 2	Scenario 3
Monday	6.42	6.42	5.68	5.68
Tuesday	5.92	5.92	5.92	5.68
Wednesday	5.68	5.68	5.68	5.68
Thursday	5.78	5.78	5.78	5.68
Friday	7.11	5.68	5.68	5.68
Average absence rate	6.18	5.90	5.75	5.68
% point difference		0.29	0.43	0.50
Days difference per year		0.54	0.83	0.95
Effect on grades (% of a SD) (Cattan et al 2022)		1.71	2.60	3.00
Effect on maths (% of a SD) (Aucejo and Romano 2016)		2.09	3.17	3.67
Effects on income (%) (Cattan et al 2022)		0.80	1.21	1.40

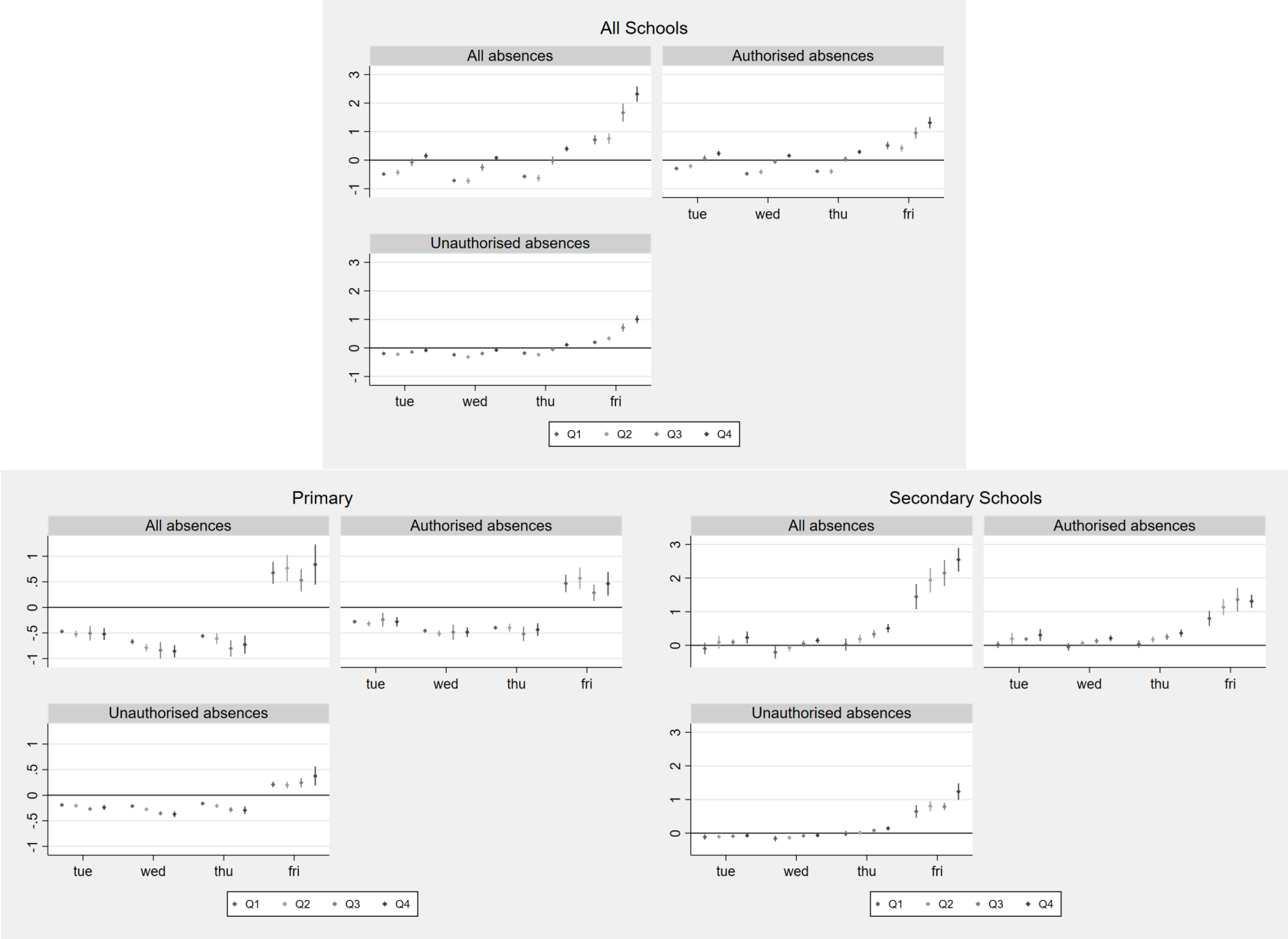
Note: Data for primary schools used in this exercise.
% point difference = the actual average absence rate - the scenario average absence rate.
Days difference per year = % point difference $\times$ 190 days of the school year (Long, 2021).
Effect on grades (% of a SD) = Days difference per year $\times$ 0.45% of a SD (taken from Cattan et al 2022) $\times$ 7 years of primary school.
Effect on maths (% of a SD) = Days difference per year $\times$ 0.55% of a SD (taken from Aucejo and Romano 2016) $\times$ 7 years of primary school.
Effects on income (%) (Cattan et al 2022) = Days difference per year $\times$ 0.21% increase in income per day less absent (taken from Cattan et al 2022) $\times$ 7 years of primary school.
Scenario 1: sets the Friday level of absence equal to that of Wednesday. Scenario 2: sets the Friday and Monday level of absence equal to that of Wednesday. Scenario 3: sets the all days to the level of absence equal to that of Wednesday.

Figure 1: Day-of-the-week effects by IDACI quartile & school type



Note: Each diamond represents a point estimate (with corresponding whiskers representing a 95% CI) from estimating equation 1. Income Deprivation Affecting Children Index (IDACI) measures the proportion of all children aged 0 to 15 living in income deprived families in each lower-layer super output area (LSOA). Q1 represents the first quartile (lowest level of deprivation), with Q4 representing the upper quartile (highest level of deprivation).

Figure 2: Day-of-the-week effects by quartile of persistent absences & school type



Note: Each diamond represents a point estimate (with corresponding whiskers representing a 95% CI) from estimating equation 1. Q1 quartile shows the effect for Local Authorities with the lowest persistent absence and Q4 shows the effect for Local Authorities with the most persistent absence.

ONLINE APPENDIX

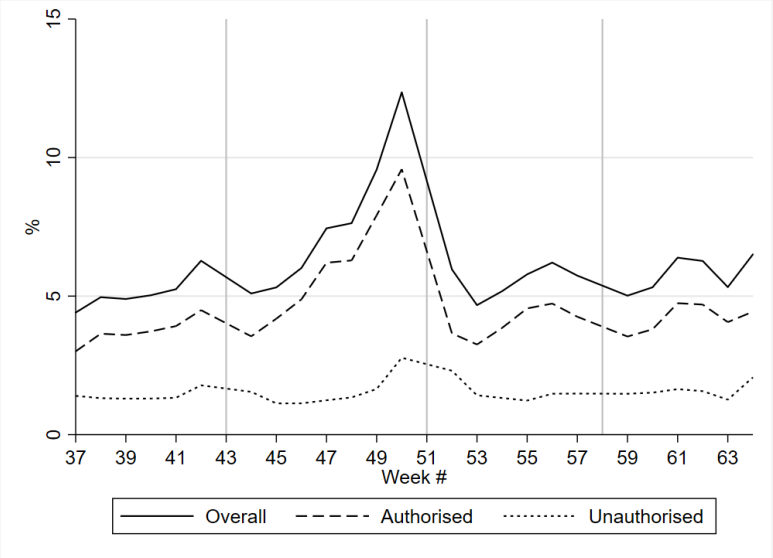
Supplementary Material

The "Friday Effect": School attendance over the week

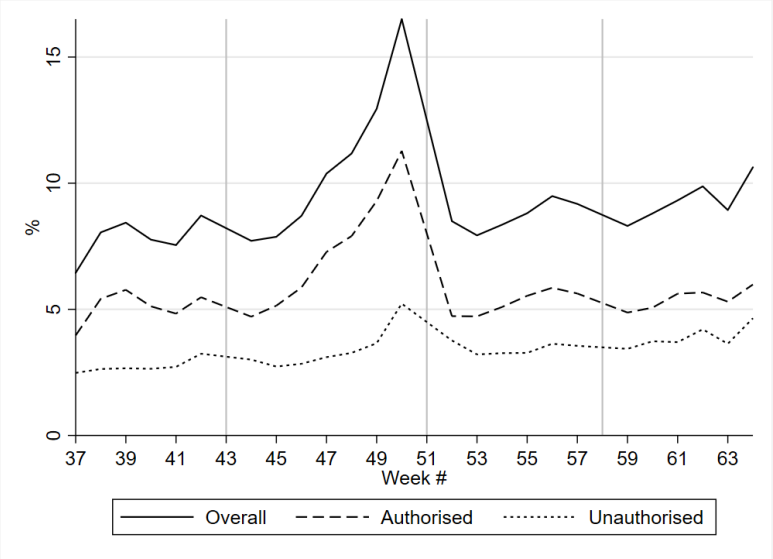
This Appendix reports additional analyses and results discussed in the main text, which could not be included due to space concerns.

Figure A.1: Weekly Absence Patterns by School Type

(a) Primary

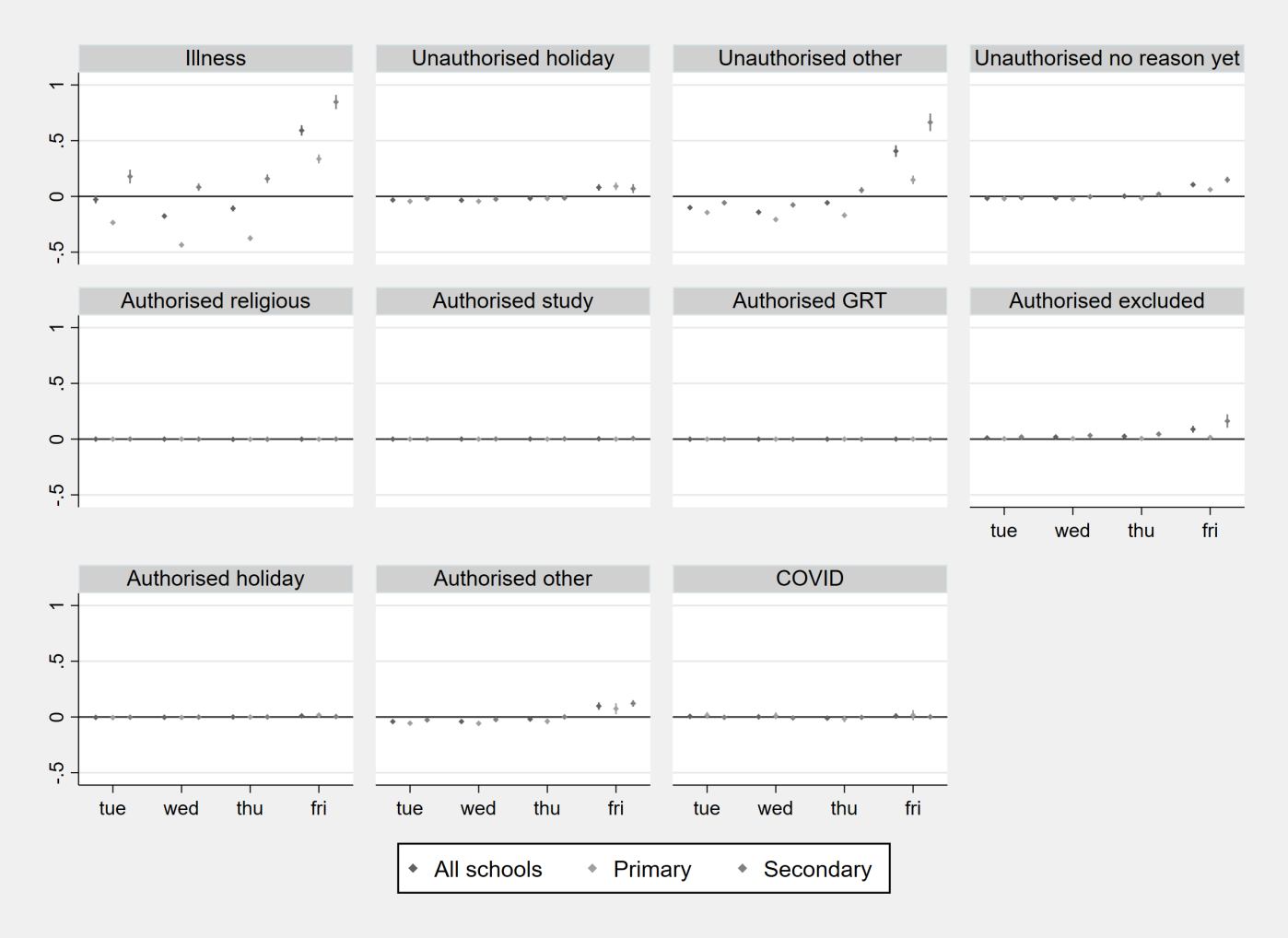


(b) Secondary



Note: Weeks 43, 51 and 58 were half-terms/school holidays and therefore there is no data for these weeks. Week 37 corresponds to 12th September 2022.

Figure A.2: Day-of-the-week effects by reasons for absence

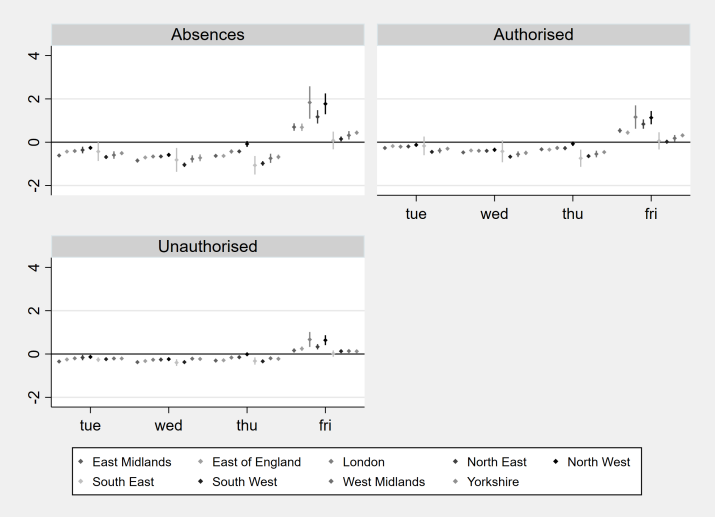


Note: Each diamond represents a point estimate (with corresponding whiskers representing a 95% CI) from estimating equation 1.

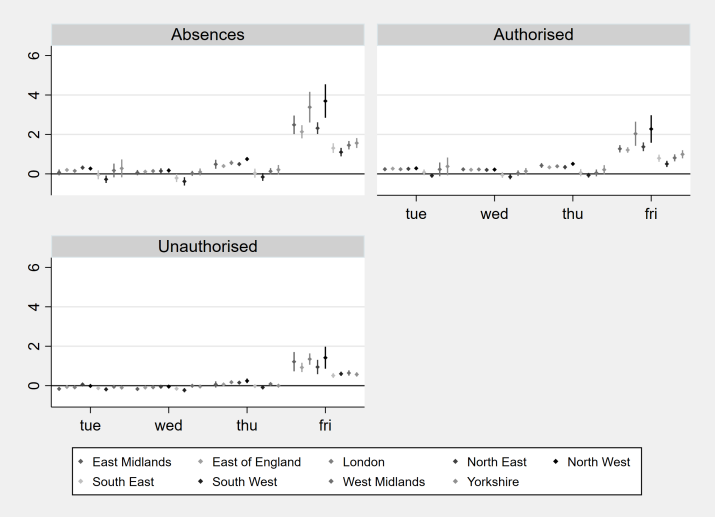
Figure A.3: Day-of-the-week effects by regions of the UK & school type

(a) All schools

(b) Primary



(c) Secondary



0tNote: Each diamond represents a point estimate (with corresponding whiskers representing a 95% CI) from estimating equation 1.

Table A.1: The impact of day-of-the-week on school absence: Robustness Checks

	Strike days			Fridays for Future		
	(1) Absence	(2) Authorised	(3) Unauthorised	(4) Absence	(5) Authorised	(6) Unauthorised
A. All Schools						
Tue	-0.180***	-0.0301	-0.149***	-0.134**	0.011	-0.145***
	(0.030)	(0.025)	(0.010)	(0.027)	(0.025)	(0.009)
Wed	-0.359***	-0.163***	-0.196***	-0.317***	-0.137***	-0.180***
	(0.028)	(0.020)	(0.012)	(0.020)	(0.017)	(0.010)
Thu	-0.152***	-0.068***	-0.084***	-0.102***	-0.044*	-0.058***
	(0.036)	(0.025)	(0.015)	(0.030)	(0.023)	(0.012)
Fri	1.475***	0.890***	0.585***	1.572***	0.953***	0.619***
	(0.086)	(0.058)	(0.037)	(0.088)	(0.059)	(0.041)
Observations	31,846	31,846	31,846	26,830	26,830	26,860
R-squared	0.546	0.480	0.620	0.537	0.446	0.650
B. Primary						
Tue	-0.475***	-0.261***	-0.214***	-0.453***	-0.231***	-0.222***
	(0.0278)	(0.0243)	(0.0101)	(0.0274)	(0.0246)	(0.0107)
Wed	-0.744***	-0.451***	-0.293***	-0.715***	-0.430***	-0.284***
	(0.0301)	(0.0243)	(0.0125)	(0.0292)	(0.0256)	(0.0120)
Thu	-0.616***	-0.387***	-0.229***	-0.586***	-0.376***	-0.210***
	(0.0376)	(0.0283)	(0.0153)	(0.0363)	(0.0289)	(0.0144)
Fri	0.826***	0.543***	0.283***	0.864***	0.571***	0.293***
	(0.0782)	(0.0542)	(0.0316)	(0.0829)	(0.0568)	(0.0347)
Observations	15,929	15,929	15,929	13,421	13,421	13,421
R-squared	0.468	0.503	0.409	0.407	0.440	0.385
C. Secondary						
Tue	0.116**	0.201***	-0.0847***	0.184***	0.253***	-0.0689***
	(0.0455)	(0.0383)	(0.0154)	(0.0413)	(0.0396)	(0.0105)
Wed	0.0246	0.125***	-0.101***	0.0807***	0.157***	-0.0765***
	(0.0364)	(0.0252)	(0.0162)	(0.0224)	(0.0202)	(0.0112)
Thu	0.312***	0.251***	0.0609***	0.381***	0.287***	0.0943***
	(0.0420)	(0.0293)	(0.0184)	(0.0324)	(0.0260)	(0.0146)
Fri	2.125***	1.236***	0.888***	2.280***	1.335***	0.945***
	(0.107)	(0.0743)	(0.0509)	(0.110)	(0.0753)	(0.0581)
Observations	15,917	15,917	15,917	13,409	13,409	13,409
R-squared	0.523	0.478	0.680	0.486	0.439	0.708

Note: All regressions as specified in Equation (1), include week-of-the-year and local authority fixed effects. The dependent variables are the percentage of sessions of school missed (all), and by absence type, authorised (an explanation has been given to and accepted by the school), and unauthorised absences are those where either an explanation has not been given or it has not been accepted. In columns (1)-(3) we exclude the weeks in which teacher strikes took place (i.e. w/c 30th Jan 2023, w/c 27th Feb 2023, w/c 13th March 2023). In columns (4)-(6) we exclude all LAs in which potential Fridays for Future strikes took place (i.e. county Durham, Nottinghamshire, all London LAs, Hampshire and Brighton and Hove)