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Humanities &
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Understanding school attendance, educational attainment, and labour market outcomes

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1. Executive Summary

Pupil absenteeism is a long-standing issue in the UK, particularly among disadvantaged children. It is one of the biggest challenges facing education and the problem has worsened significantly since the Covid-19 pandemic. For instance, the overall absence rate in England increased from 4.3% in 2018 to 7.2% in 2024. Similar trends have been observed across Wales, Scotland, and Northern Ireland. Socioeconomic disparities in absenteeism also widened post-pandemic, making it a critical focus for the UK's education policy agenda.

Understanding how pupil absences affect educational and labour market outcomes is crucial. Frequent absences can negatively impact national exam performance due to missed teacher-led lessons and peer interactions. While the negative consequences of absenteeism on attainment are well-documented in the US, fewer studies have explored this in the UK. Additionally, most studies on absenteeism have typically used limited measures of absences at specific school stages despite the dynamic nature of pupil absences throughout a child's education.

Absenteeism will likely have long-term effects on educational attainment and labour market outcomes, as early-life skills and dispositions influence long-term outcomes. In other words, school absence is a key vulnerability that can trap young people in a cycle of poorer educational and labour market outcomes. Few studies have examined this possible long-term relationship between absenteeism and outcomes such as post-school qualifications or labour market participation.

The mechanisms by which absences affect attainment are likely multifaceted. Absenteeism can impact psychosocial factors such as risky behaviour and educational motivation, with consequences for academic achievement. The relationship between absenteeism and outcomes may also differ by sociodemographic group (e.g. gender, socioeconomic background). Still, the role of psychosocial factors or variations of absence effects across sociodemographic groups have yet to be thoroughly studied.

Objectives and Significance

This study contributes to understanding the role of absenteeism in shaping educational attainment and labour market outcomes in the UK. It addresses knowledge gaps by examining short- and long-term effects, the impact of absences at different school stages, typical absence trajectories, reasons for absences, and the role of psychosocial factors. It also investigates variations by sociodemographic characteristics.

The study is timely in the post-COVID-19 context, providing evidence to help policymakers and practitioners make informed decisions about tackling absenteeism and its consequences. Understanding the extent, timing, reasons, and affected groups provides crucial information for effective interventions.

Methodology

The research design involves a secondary data analysis using linked birth cohort and school administrative data. These longitudinal datasets are suitable due to their large representative samples and comprehensive variables, which allow for a robust analysis.

The study uses the 1970 British Cohort Study (BCS70) to examine long-term effects of school absences. The BCS70 tracks over 17,000 individuals born in England, Wales, and Scotland in 1970, with data collected at multiple life stages.

For more recent data, the study uses the Millennium Cohort Study (MCS) and school administrative data from England, Wales, and Scotland. The MCS follows approximately 19,000 individuals born in the UK between 2000 and 2002, with seven sweeps to date.

In England, MCS data is linked with the National Pupil Database (NPD), resulting in an analytical sample of 8,139 pupils. In Wales, MCS data is linked with the Secure Anonymized Information Linkage (SAIL) databank, resulting in a sample of 1,730 pupils. In Scotland, MCS data is limited to the end of key stage 1 (age 7) and linked administrative data, with an analytical sample of 1,407 pupils.

Key Findings

Short- and Long-term Impact: School absences significantly harm both short-term school attainment and long-term educational and labour market outcomes. The negative impact of absences on educational attainment is consistent across UK nations.

Stage-specific impact: Absences during all stages of schooling negatively affect educational attainment, but absences during the transition from primary to secondary school and early to middle stages of secondary school are especially harmful due to multiple transitions (e.g., changes in school, friends and teachers) faced by pupils.

Absence Trajectories: Patterns of increasing absence trajectories are rooted in early primary schooling and emerge during the transition from primary to secondary school. Increasing absence trajectories across children's schooling are most detrimental to attainment. However, consistently moderate levels of absences also have significant negative consequences.

Authorised vs. Unauthorised Absences: Both types of absences harm educational attainment equally in each year of schooling. However, cumulative unauthorised absences are the most detrimental with Strongly Increasing Unauthorised absence trajectories having the most negative impact on educational attainment.

Psychosocial Factors: Decreased educational motivation and increased problem and risky behaviours partly explain the negative association between absences and attainment. By contrast, prosocial behaviour and self-esteem did not mediate the association between absences and achievement in our study.

Sociodemographic Consistency: The negative impact of absenteeism is consistent across sociodemographic groups. However, disadvantaged sociodemographic groups are more likely to be absent, necessitating targeted interventions to improve overall attendance.

Policy and Practice Recommendations

Targeted interventions: Develop targeted interventions addressing the root causes of absenteeism, particularly for vulnerable groups, to break the cycle of intergenerational disadvantage.

Support for lost learning: Implement policies to help pupils recover lost learning, such as additional tuition and catch-up homework.

Home/School Engagement: Foster strong partnerships between schools and families by developing programs that actively engage parents and caregivers in the educational process. Building trust and collaboration between home and school can help identify and address barriers to attendance early, ensuring that students receive the necessary support from both their families and educators.

Lifelong learning opportunities: Provide more opportunities for lifelong learning, such as adult education classes, to help chronically absent pupils acquire essential skills for future success.

Health screening and interventions: Incorporate health interventions, such as mental health screening or chronic disease management, for pupils who are frequently absent to address underlying health issues affecting their education and future employment.

Early identification: Use school administrative data to identify pupils with emerging absence patterns and provide early support to prevent escalation. This will require professional development and support for schools in analysing school absences data.

Address all levels of absenteeism: Focus not only on persistent absenteeism but also on moderate absences, as they accumulate over time and significantly impact achievement.

Early support systems: Target attendance issues early in primary school to address absences before they escalate.

Critical transition support: Implement interventions such as academic bridging programs or peer mentorship programs to prevent absences during the critical transition period from primary to secondary school.

Equal emphasis on all types of absences: Address both authorised and unauthorised absences with equal importance to reduce overall absenteeism.

Enhance educational motivation: Develop interventions that help absent pupils master concepts and experience educational success to build their motivation.

Reduce problem and risky behaviours: Implement strategies to address problem and risky behaviours. This is because risky behaviours increase the likelihood of pupils being absent from school and are exacerbated by school absences.

Universal focus on attendance: Address absenteeism for all pupils with a national approach, reducing stigma and encouraging comprehensive school attendance initiatives.

Conclusion

This study provides crucial evidence on the detrimental effects of school absences on educational and labour market outcomes in the UK. Addressing pupil absenteeism is essential to improve educational and labour market outcomes and break the cycle of disadvantage, particularly in the post-COVID-19 context. The study highlights the need for targeted, stage-specific interventions that address both authorised and unauthorised absences. The findings suggest that a comprehensive approach involving health screening, early identification, and support, as well as addressing psychosocial factors, is essential for mitigating the negative impacts of absenteeism.

Research Output

Three academic articles and one policy brief have been produced so far within this project, providing further details to the results in this report. The references are as follows:

Academic articles:

Dräger, J., Klein, M. & Sosu, E. (2024). The long-term consequences of early school absences for educational attainment and labour market outcomes. *British Educational Research Journal*, 00, 1–19. <https://doi.org/10.1002/berj.3992>

Dräger, J., Klein, M., & Sosu, E. M. (2024). Trajectories of school absences across compulsory schooling and their impact on children's academic achievement: An analysis based on linked longitudinal survey and school administrative data. *PloS one*, 19(8), e0306716. <https://doi.org/10.1371/journal.pone.0306716>

Dräger, J., Klein, M., & Sosu, E. (2024, March 13). Does the impact of pupil absences on achievement depend on their timing? <https://doi.org/10.35542/osf.io/nwzqh>

Policy brief:

Dräger, J., Klein, M., & Sosu, E. (2023). Trajectories of school absences and pupils' academic performance. University of Strathclyde. <https://doi.org/10.17868/strath.00086856>

2. Introduction

Pupil absenteeism has always been a major issue in the UK (Department for Education, 2020), especially among disadvantaged children (Klein et al., 2020). However, absences have risen significantly following the Covid-19 pandemic. For example, the overall absence rate in England increased from 4.3% in 2018 to 7.2% in 2024 (Department for Education, 2024). Similar trends in school absences have been observed in Wales, Scotland, and Northern Ireland (Department for Education Northern Ireland, 2023; Scottish Government, 2022; Welsh Government, 2023a). Socioeconomic disparities in pupil absences also widened when children returned to school post-pandemic (Sosu & Klein, 2021). Reducing school absenteeism and tackling the consequences of absences is therefore at the top of the UK's education policy agenda (e.g., House of Commons Education Committee, 2023) and across devolved nations (Education Scotland, 2023, Welsh Government, 2023b). Understanding how absences affect children's short- and long-term educational and labour market outcomes is critical. Frequent school absences can negatively influence national exam performance because pupils miss teacher-led lessons and peer interactions that could stimulate their learning and development (Morrissey et al., 2014). The detrimental consequences of school absences on attainment are well documented in the United States (e.g., Aucejo & Romano, 2016; Gottfried, 2010; Kirksey, 2019). Few studies in the UK have investigated the relationship between school absenteeism and attainment (Attwood & Croll, 2006; Department for Education, 2016; Klein et al., 2022), and they have typically used limited measures of absences at specific school stages. However, the effects of pupil absences on achievement may vary depending on the timing and persistence of absences, as well as the reason for missing school (authorised vs unauthorised) throughout a child's educational career.

Pupil absences can also have long-term effects on children's educational attainment and labour market outcomes because individuals' long-term capabilities are based on skills and dispositions acquired earlier in life (Heckman, 2006). As a result, absenteeism is a key vulnerability likely to trap young people in a cycle of poorer educational and labour market outcomes due to a lack of relevant academic skills or dispositions required for success in life (Ansari & Pianta, 2019). For instance, absenteeism has been shown to have long-term effects on life-course outcomes such as political engagement and fertility (Ansari et al., 2020). However, few studies have examined the relationship between absenteeism and long-term outcomes such as post-school qualifications or labour market outcomes (Cattan et al., 2023; Klein & Sosu, 2024a).

While missing out on teacher-led curriculum content, with its associated learning loss, is likely the most important explanation for the adverse effects of pupil absences on achievement, the mechanisms by which absences affect attainment are likely multifaceted and complex (Ansari & Pianta, 2019; Gottfried, 2014). Absenteeism, for example, can impact psychosocial factors such as pupils' risky behaviour or educational motivation, with consequences for their academic achievement (Busch et al., 2014; Symonds et al., 2022). Whether and to what extent these psychosocial factors explain the association between absenteeism and educational attainment remains unanswered.

The relationship between school absenteeism and short- and long-term outcomes may differ by sociodemographic group (for example, family socioeconomic status or ethnicity). Pupils from privileged backgrounds may have a "compensatory advantage" over pupils from disadvantaged backgrounds, such as access to resources and networks (Bernardi, 2014). However, the extent to which these associations differ across sociodemographic groups has yet to be thoroughly studied (Klein & Sosu, 2024b).

This study contributes to our understanding of the role of school absenteeism in shaping educational attainment and labour market outcomes in the UK. *First*, we addressed existing knowledge gaps by providing critical evidence on pupil absences' short- and long-term effects. *Second*, we investigated whether the impact of school absences on children's attainment varies according to when they occur during their schooling. *Third*, we identified typical absence trajectories from primary to the end of secondary school and examined how these trajectories influence attainment. *Fourth*, we investigated whether and to what extent the impact on educational attainment varies by reason for absence (unauthorised vs authorised). *Fifth*, we investigated the role of specific psychosocial factors

(externalising behaviour, prosocial behaviour, risky behaviour, self-esteem, educational motivation) in explaining the relationship between school absences and educational attainment. *Finally*, we looked into whether and to what extent the relationship between school absences and educational attainment varies by sociodemographic characteristics (family socioeconomic status, gender, ethnicity, SEND).

The study is timely in the post-COVID-19 context because it provides policymakers and practitioners with evidence to help them make informed decisions about tackling absenteeism and its consequences. Understanding the extent of, when, why, and for whom school absences have short- and long-term consequences provides policymakers and practitioners with the information they need to intervene most effectively to mitigate the negative impact.

Our report is organised as follows: In the following section (Chapter 2), we briefly explain our methodology, which includes the data and analytical approaches. Chapter 3 summarises our findings on pupil absences' short- and long-term effects on educational attainment and labour market outcomes. Chapter 4 investigates the impact of dynamic aspects of absences on children's educational attainment, including the timing and trajectory of absences. Chapter 5 presents findings on the causes of absence and educational attainment. Chapter 6 investigates the role of psychosocial factors in explaining the link between absence and achievement. Chapter 7 presents findings on how the absence-attainment association varies by sociodemographic group. In Chapter 8, we conclude and provide policy and practice recommendations.

3. Methodology

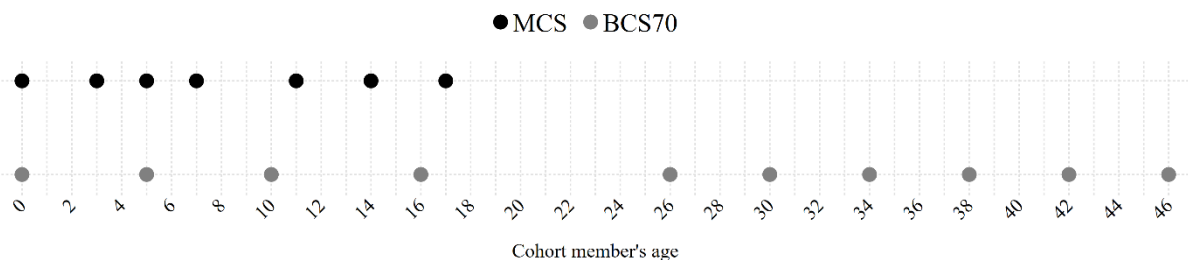
3.1 Research design and data

Our research design is a secondary data analysis based on linked birth cohort and school administrative data. These prospective longitudinal datasets are suitable because they are based on large representative samples from birth cohort data and contain key variables of interest as well as a rich set of covariates, allowing us to answer our research questions confidently.¹

We used the 1970 British Cohort Study (BCS70) to examine the long-term effects of school absences on educational attainment and labour market outcomes. The BCS70 tracks more than 17,000 people born in England, Wales, and Scotland in 1970. Data were collected at birth, ages 5, 10, and 16, as well as at four-year intervals between 26 and 46 (see Figure 1 for an illustration).

We used rich longitudinal data from the Millennium Cohort Study (MCS, Joshi & Fitzsimons, 2016) and school administrative data from England, Wales, and Scotland to investigate the role of dynamics, reason, psychosocial factors, and variation across sociodemographic groups in the relationship between absences and school attainment. The MCS follows the lives of approximately 19,000 young people born in the UK between 2000 and 2002. The MCS has completed seven sweeps (9 months, ages 3, 5, 7, 11, 14, and 17; see again Figure 1).

Figure 1. Sweeps across different birth cohorts.



For England, we used the English MCS sample with register data from all MCS pupils in state schools in England, the National Pupil Database (NPD, Jay et al., 2019) via the UK Data Service. The NPD database includes attendance data from year 1 to year 11 and achievement data at key stages 1, 2, and 4. It was successfully matched to the MCS, with 8,206 participants consenting to data linkage in sweep 4 (age 7). We excluded pupils who lacked achievement data, e.g., for not sitting exams, from our analysis.² This resulted in an analytic sample of $N = 8,139$ pupils.

For Wales, we used the Welsh MCS sample linked to their administrative attendance and attainment data across compulsory schooling via the Secure Anonymized Information Linkage (SAIL) databank (Lyons et al., 2009; Tingay et al., 2019). The Welsh school administrative data were successfully linked to 1,735 participants who consented to data linkage in sweep 4 (age 7). After excluding all pupils with incomplete achievement measures, the remaining sample size is $N = 1,730$.

For Scotland, we used the Scottish MCS sample linked to school administrative data at sweep 4 (age 7), including attendance data obtained through the UK Data Service. Unlike England and Wales, the linked Scottish school administrative data is limited to the end of key stage 1 and does not include attainment

¹ Our findings are based on representative samples, as we use inverse probability weighting and multiple imputation to account for panel attrition and item non-response.

² Inverse probability weights are used to appropriately handle both potentially non-random consent to data linkage and the availability of achievement data.

data (Johnson & Setakis, 2015).³ As a result, in Scotland, we rely on attainment measures at the end of compulsory schooling⁴ in the MCS. Our analytical sample consists of 1,407 pupils.

3.2 Key variables

Our key variables include the following:

School absences:

We used information on pupil absences through school administrative data linked to the MCS. Pupil absences are measured as the percentage of days missed during a given year. This is because the number of possible days varies by year and across pupils within a year. The linked NPD included absence data for England from years 1 to 11. The linked Welsh school administrative data contained absence data from years 2 to 11. In Scotland, absence data were available in year two via the linked Scottish school administrative data.

In England and Wales, the linked school administrative data allow us to distinguish between authorised and unauthorised absences. Authorised absences require permission from a teacher or other authorised school representatives and are only granted if a satisfactory explanation for the absence, such as illness, is provided. Unauthorised absences are those for which the school has not granted permission.

The BCS70 measured school absences when children were ten years old. Teachers were asked how many days the child missed school for any reason during the previous term.

School attainment:

In the MCS, we measure school attainment with the performance in national exams at the end of compulsory schooling.

For England and Wales, we used GCSE attainment at the end of KS4 (year 11), which was taken from the linked school administrative data in each context. Each GCSE qualification is available in a specific subject area. English and mathematics are compulsory “core subjects”. Pupils typically take at least five GCSEs, although the exact number varies from pupil to pupil.

Specifically, four different outcomes are considered:

1. We consider if a pupil *passed five or more GCSEs*, including maths and English. Pupils passed a GCSE in any subject if their point score was greater than or equal to four.
2. *Attainment 8 score (England)/Capped 9 score (Wales)*. The Attainment 8 score is calculated by adding the points from the pupils' eight best-performing GCSE subjects (Department for Education, 2024). Each grade a pupil gets is assigned a point score from 9 (the highest) to 1 (the lowest). English and maths are counted twice. Three GCSE subjects must be from qualifications contributing to the English Baccalaureate (EBacc), such as sciences, languages, or history. The Capped 9 score is the equivalent for Wales (Welsh Government, 2019): a pupil's 9 best exam results, which must include English or Welsh First Language or Literature, Mathematics or Numeracy, and a Science GCSE.
3. *GCSE Maths* attainment
4. *GCSE English* attainment

For Scotland, we measured school attainment at the end of compulsory schooling using MCS survey data on whether pupils passed National 5 English or Maths. This is equivalent to passing GCSE English

³ Unfortunately, entire school administrative data for Scotland, including attendance and exclusion as well as attainment data at the end of compulsory schooling, have not yet been linked to the MCS.

⁴ In England, students must remain in compulsory education or training until the age of 18. We use the term "compulsory school" to refer to the period when attendance at a formal school is mandatory.

and Maths. We also used survey data from England and Wales on these GCSE measures to compare the relationship between school absences and achievement across countries.

Educational outcomes:

In the BCS70, we measured long-term *educational attainment* as the highest academic or vocational qualification individuals obtained by age 42 (Dodgeon & Parsons, 2011).

We distinguish between:

- 1) *No qualification*
- 2) *Lower-level school qualification* or vocational equivalent (poor O-levels, CSE grades 2-5, National Vocational Qualification (NVQ) level 1)
- 3) *Middle-level school qualification* or vocational equivalent (good O-levels, 2+ AS levels or 1 A level, NVQ level 2)
- 4) *Higher level school qualification* or vocational equivalent (more than one A level, NVQ level 3),
- 5) *First degree* or vocational equivalent (diploma, degree or PCGE, NVQ level 4),
- 6) *Higher degree* or vocational equivalent (higher degree or NVQ level 5).

Labour market outcomes

All measures of labour market outcomes are derived from the BCS70.

We measured *social class destination* using the National Statistics Socioeconomic Classification (NS-SEC). We used the dominant social class destination between the ages of 32 and 42.

We distinguished between:

- 1) *Salariat class*: Higher and lower managerial, administrative, and professional occupations (NS-SEC 1 – 2),
- 2) *Intermediate class*: Intermediate occupations, small employers, and own account workers (NS-SEC 3 – 4),
- 3) *Working class*: lower supervisory and technical, semi-routine or routine occupations (NS-SEC 5 – 7),
- 4) *Non-employed*: Inactive, unemployed, in education, or looking after home (NS-SEC 8).

We also measured the *number of months in unemployment* from age 32 to 42 and *earnings* as the gross weekly earnings reported at age 42.⁵

Psychosocial factors:

Using the MCS, we measured five psychosocial factors (externalising behaviour, prosocial behaviour, risky behaviour, self-esteem, and educational motivation) at the ages of 11 and 14.

For the assessment of *externalising behaviour* and *prosocial behaviour*, we relied on the parent-reported version of the Strength and Difficulties Questionnaire (SDQ, Goodman, 1997), a widely recognized and extensively used instrument in children's psychosocial development. The externalising behaviour component encompasses the conduct problems and hyperactivity/inattention subscale.

Risky behaviour was measured as the number of risk-prone activities (antisocial behaviour, gambling, smoking, alcohol, and illicit drug use) reported by pupils.

Self-esteem was reported by pupils and measured with the Rosenberg Self-esteem Scale (Rosenberg, 1965).

⁵ Earnings at age 42 are only observed for employed individuals (71% in our sample). We address non-random selection into employment with inverse probability of censoring weighting (Dräger et al., 2024).

Educational motivation was measured with an MCS scale, including six items such as “How often do you try your best at school?”, “How often do you find school interesting?”, “How often do you feel unhappy at school?”, “How often do you get tired at school?”, “How often do you feel school is a waste of time?”, “How often do you find it difficult to keep mind on work at school?”.

Sociodemographic characteristics

To test whether the association between absence and school attainment varies by sociodemographic group, we used the following measures in the linked MCS-NPD data: family socioeconomic status (parental education, family income), child’s gender, child’s ethnicity, and pupils’ SEND status.

The *child’s gender* (male, female) was measured as reported by the main parent/carer of the cohort member at the time of entry in the MCS sample.

The *child’s ethnicity* (White, Mixed, Indian, Pakistani, Bangladeshi, Black Caribbean, Black African, or Other) was measured as reported by the main parent/carer at the time of entry into the MCS sample.

Family socioeconomic status (SES) is captured using two different key variables:

- *Household income*: income quintiles using household OECD-equivalised income.
- *Parental education*: highest educational qualification among parents differentiating NVQ or equivalent levels: NVQ1 (e.g. GCSE D-G), NVQ2 (e.g. GCSE A-C), NVQ3 (e.g. A levels), NVQ4 (e.g. HND), and NVQ5 (e.g. Degree).

The *child’s Special Education Needs and Disability (SEND) status* was measured using information from the matched NPD record differentiating no SEN, SEN without statement, and SEN with statement. Precisely, we followed this procedure:

- If the child’s provision type under the SEN Code of Practice has either *Statement (S)* or *EHC Plan (E)*, we coded the child as *SEN with the statement*.
- If the NPD reported the child’s provision type under the SEN Code of Practice as either *School Action (A)*, *School Action Plus (P)*, or *SEN support (K)*, we coded the child as *SEN without a statement*.
- If the NPD reported the child’s provision type under the SEN Code of Practice as No SEN (N), we coded the child as *no SEN*.

Covariates

In both MCS and BCS70, we selected baseline and time-varying covariates that are risk factors for school absences and known to be associated with school attainment, as well as educational and labour market outcomes. Key covariates include multiple measures of socioeconomic status, child and family demographics, birth conditions, parental involvement, educational motivation and aspirations, maternal and child health, children’s cognitive ability, and children’s behavioural problems. For a list of covariates in the MCS and BCS70, see Appendix Table A1.

3.3 Analytic approach

We used regression-based approaches, such as OLS regression, linear probability models, and two-way fixed effects regressions, to examine the short- and long-term effects of pupil absences on school achievement, education, and labour market outcomes.

To investigate whether the impact of school absences on children’s attainment varies by school year, we estimated separate regressions for absences each year. We accounted for all confounders, including previous absences, that were measured prior to the year of the absence and estimated their impact on attainment at the end of compulsory schooling.

To identify typical joint trajectories of authorised and unauthorised absences from primary to secondary schooling, we used k-means for longitudinal data (Genolini et al., 2013). We used a regression-with-

residuals approach to model the relationship between absence trajectories and school attainment (Wodtke, 2018), appropriately adjusting the analysis for time-varying covariates.

We used path analysis to investigate the role of psychosocial factors in the relationship between absences and school achievement and included all psychosocial factors in a single model. To address issues of reverse causality, the models account for psychosocial factors measured prior to absences. We used two-way fixed effects regressions with interaction terms between absences and sociodemographic characteristics to investigate how the absence-attainment association varies across sociodemographic groups.

To account for the systematic loss of follow-up and non-random consent to data linkage, we used inverse probability of attrition weights in our analyses. To account for item non-response, we imputed missing values on covariates using Categorisation and Regression Trees (Burgette & Reiter, 2010). We generated 20 imputed datasets and used Rubin's rules to calculate standard errors. To address item non-response specifically in our path analysis on the role of psychosocial factors, we employed Full Information Maximum Likelihood (FIML).

4. Consequences of pupil absences on short- and long-term outcomes

4.1 Short-term outcomes

To understand the short-term impact of pupil absences, we investigated to what extent they are harmful to attainment at the end of Key Stage 4 (KS4). As a first step, we considered the association between pupil absences in year 2 (KS1) and attainment at the end of compulsory schooling across England, Wales, and Scotland. For the second step, we analysed the cumulative impact of pupil absences from year 1 to year 11 on GCSE attainment in England and Wales. The last step involved an investigation of the extent to which changes in absences across pupils' schooling are associated with attainment progress from KS1 to KS4.

The association between pupil absences and school attainment at the end of compulsory schooling.

Table 1 shows descriptive statistics for pupil absences and school attainment in our MCS samples from England, Wales, and Scotland. In England and Scotland, pupils missed, on average, about 5% of all possible sessions in year 2. Wales had slightly higher average pupil absences (5.60%) than other countries.

For comparison across England, Wales, and Scotland, our information on school attainment is limited to the survey data and entails information on whether pupils have passed the GCSE or National Five exams in Math and English. In England (69%), Wales (69%), and Scotland (72%), a similar proportion of pupils passed their GCSE/National Five exams in English. However, GCSE/National 5 maths achievement varies across the countries. While 88% of pupils in Wales passed GCSE Maths, pass rates were 69% for England and 49% for Scotland.⁶

Table 1. Descriptive statistics of pupil absences and school attainment in England, Wales, and Scotland.

	England		Wales		Scotland	
	Mean / Proportion	SD	Mean / Proportion	SD	Mean / Proportion	SD
Pupil absences (% , year 2)	5.06	4.90	5.60	4.92	5.00	5.53
<i>School attainment</i>						
GCSE/National 5 English	0.69	-	0.69	-	0.72	-
GCSE/National 5 Maths	0.69	-	0.88	-	0.49	-
N	8,139		1,730		1,407	

Source: MCS, linked education administrative datasets for England, Wales, and Scotland. *Note:* weighted by inverse probability of attrition weights and multiple imputed.

Table 2 shows associations between second-year pupil absences and school attainment. The Table shows results from unconditional models that do not account for background covariates and conditional models that account for these covariates. After controlling for covariates, a 1 per cent increase in pupil absences is associated with a 0.4 percentage point lower likelihood of obtaining a GCSE/National 5 in English in all countries. This means that a pupil who is persistently absent from school (10% or more sessions) has a 4 percentage points lower likelihood of passing GCSE/National 5 in English compared to a pupil who is never absent. We found the same magnitude of associations between pupil absences and the likelihood of passing GCSE/National 5 Maths in England, Scotland, and Wales. All effects are statistically significant at the 10% level.⁷

⁶ For England, we calculated the same information from the NPD data. The percentages are close to the survey information. In the NPD data, 72% of pupils obtained a GCSE in English and 66% in Maths.

⁷ For England, we used the same attainment measures from the NPD data and found similar effect sizes for the association between school absences in year 2 and GCSE English and Maths.

Table 2. Association between pupil absences (year 2) and school attainment in England, Wales, and Scotland.

	England		Wales		Scotland	
	Unconditional	Conditional	Unconditional	Conditional	Unconditional	Conditional
Passed GCSE/National 5 English						
Pupil absences (year 2)	-.013*** (.001)	-.004** (.001)	-.019*** (.002)	-.004 ^τ (.002)	-.014*** (.001)	-.004** (.001)
Passed GCSE/National 5 Maths						Conditional
Pupil absences (year 2)	-.014*** (.001)	-.004** (.001)	-.013*** (.002)	-.004 ^τ (.002)	-.015*** (.01)***	-.004* (.001)
N	8,139	8,139	1,730	1,730	1,407	1,407

Source: MCS, linked education administrative datasets for England, Wales, and Scotland. *Note:* Effect sizes obtained from linear probability models, weighted by inverse probability of attrition weights and multiple imputed, standard errors in parentheses; Conditional = controlling for covariates (see Appendix Table A1).

^τ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The cumulative impact of pupil absences (year 1-11) on GCSE attainment.

In this section, we investigated the cumulative impact of pupil absences from year 1 to year 11 on GCSE attainment in England and Wales.⁸ Table 3 presents descriptive statistics for our cumulative absence measure and four attainment measures.

Table 3. Descriptive statistics of average pupil absences (year 1 to year 11) and GCSE attainment in England and Wales

	England		Wales	
	Mean	SD	Mean	SD
Average absences (% , year 1 to year 11)	5.15	4.05	5.60	4.48
<i>School attainment</i>				
Passed five or more GCSEs	0.54	-	0.61	-
Attainment 8/Capped 9 score	45.10	19.99	369.12	100.49
GCSE English score	9.42	4.65	39.30	11.91
GCSE Maths score	8.54	4.70	76.42	27.67
N	8,139		1,730	

Source: Linked MCS-NPD data for England and Wales. *Note:* Weighted by inverse probability of attrition weights and multiple imputed.

Over the 11-year period, pupils in England missed, on average, 5.2% of all possible sessions. As with pupil absences in year 2 (see again 4.1.1), Wales has slightly higher average absences across compulsory schooling than England. In Wales, pupils missed an average of 5.6% of all possible sessions.

While 54% of pupils passed five or more GCSEs in England, the share of pupils obtaining at least five GCSEs is 61% in Wales. The average Attainment 8 score is 45.10 (range: 0–90), the GCSE English score is 9.42 (range: 0–18), and the GCSE Maths score is 8.54 (range: 0–18) in England.⁹ The average Capped 9 score is 369.12 (range: 0–522), the GCSE English score is 39.30 (range: 0–58) and the GCSE Maths score is 76.42 (range: 0–116) in Wales.

Table 4 depicts the relationship between average pupil absences (years 1–11) and GCSE attainment in England and Wales. The first model is unconditional, whereas the second model is conditional, which means it controls for covariates.

Findings from the unconditional association for England show that a one percentage point increase in cumulated absences is associated with a 4.0 percentage point lower likelihood of obtaining five or more GCSEs, a 10.5% reduction in a standard deviation (SD) in the Attainment 8 score, an 8.5% reduction in the GCSE English score, and a 9% reduction in the GCSE Maths score. The unconditional results show slightly larger effect sizes of cumulative absences across all achievement measures in Wales than in England. For example, a one-percentage-point increase in average absences from years one to eleven is associated with a 12% SD decrease in the Capped 9 score.

After adjusting for covariates, all effect sizes were reduced but statistically significant at the 0.1% level. In England, every one percentage point increase in cumulative absences is associated with a 2.2 percentage point decrease in the likelihood of obtaining five or more GCSEs. An increase in cumulative absences lowers the Attainment 8 score by 6.4% SD, the English GCSE score by 5.2% SD, and the Maths GCSE score by 5.5% SD. The negative effect sizes of cumulative absences in Wales are similar

⁸ In contrast to the previous section, which compared all countries in Great Britain using MCS survey data on attainment, we used linked MCS-NPD data, allowing us to consider more detailed NPD attainment measures.

⁹ The range for English and Maths is 0 to 18 because we used the same information as for the Attainment Score, which included grades that were double counted for these subjects.

to those in England for obtaining five or more GCSEs and the GCSE Maths score, but they are slightly more negative for the Capped 9 score and the GCSE English score.

Table 4. Association between average pupil absences (year 1 to year 11) and GCSE attainment in England and Wales.

	England		Wales	
	Unconditional	Conditional	Unconditional	Conditional
5 or more GCSEs				
Average pupil absences (year 1 to 11)	-.040*** (.001)	-.022*** (.001)	-.044*** (.003)	-.021*** (.003)
Attainment 8/Capped 9				
Average pupil absences (year 1 to 11)	-.105*** (.003)	-.064*** (.001)	-.120*** (.006)	-.072*** (.006)
GCSE English				
Average pupil absences (year 1 to 11)	-.085*** (.003)	-.052*** (.001)	-.111*** (.006)	-.063*** (.007)
GCSE Maths				
Average pupil absences (year 1 to 11)	-.090*** (.003)	-.055*** (.001)	-.106*** (.005)	-.053*** (.005)
N	8,139	8,139	1,730	1,730

Source: Linked MCS-NPD data for England and Wales. Note: Effect sizes obtained from linear probability models and linear regressions, weighted by inverse probability of attrition weights and multiple imputed, continuous outcomes are standardised, standard errors in parentheses; Conditional = controlling for covariates (see Appendix Table A1).

† $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The association between within-pupil changes in school absences and attainment progress.

In this section, we investigate whether within-pupil changes in absences are associated with attainment progress. This within-pupil analysis allows us to control for time-constant unobserved heterogeneity between pupils that may confound the association between absences and achievement. To do so, we used measures of Maths and English attainment after year 2 (KS1, age 7), year 6 (KS2, age 11) and year 11 (KS4, age 16). The percentage of pupil absences is calculated over the same years.

Table 5. Associations between within-pupil absences and English and Maths progress in England and Wales.

	England		Wales	
	Pooled OLS	FE	Pooled OLS	FE
English attainment				
Pupil absences	-.032*** (.001)	-.016*** (.001)	-.045*** (.003)	-.019*** (.003)
Math attainment				
Pupil absences	-.031*** (.001)	-.016*** (.001)	-.045*** (.003)	-.016*** (.003)
N	8,139	8,139	1,730	1,730

Source: Linked MCS-NPD data for England and Wales. Note: Effect sizes obtained from pooled OLS regressions and two-way fixed effects regressions (FE) including individual and school year fixed effects, weighted by inverse probability of attrition weights and multiple imputed, English and Maths attainment is standardised, standard errors in parentheses.

† $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5 depicts the relationship between pupil absences and attainment in Maths and English using pooled OLS regressions and fixed effects (FE) regressions. Unsurprisingly, effect sizes are reduced by half (England) or more than half (Wales) when only within-pupil variation is used, i.e. the analysis is adjusted for time-constant unobserved heterogeneity among pupils. However, effect sizes are still large and statistically significant at the 0.01% level. In England, a one percentage point increase in pupil absences corresponds to a 1.6% decrease in English and Maths scores. Similarly, in Wales, a one percentage point increase in pupil absences results in a 1.9% SD decrease in English and 1.6% in Maths.

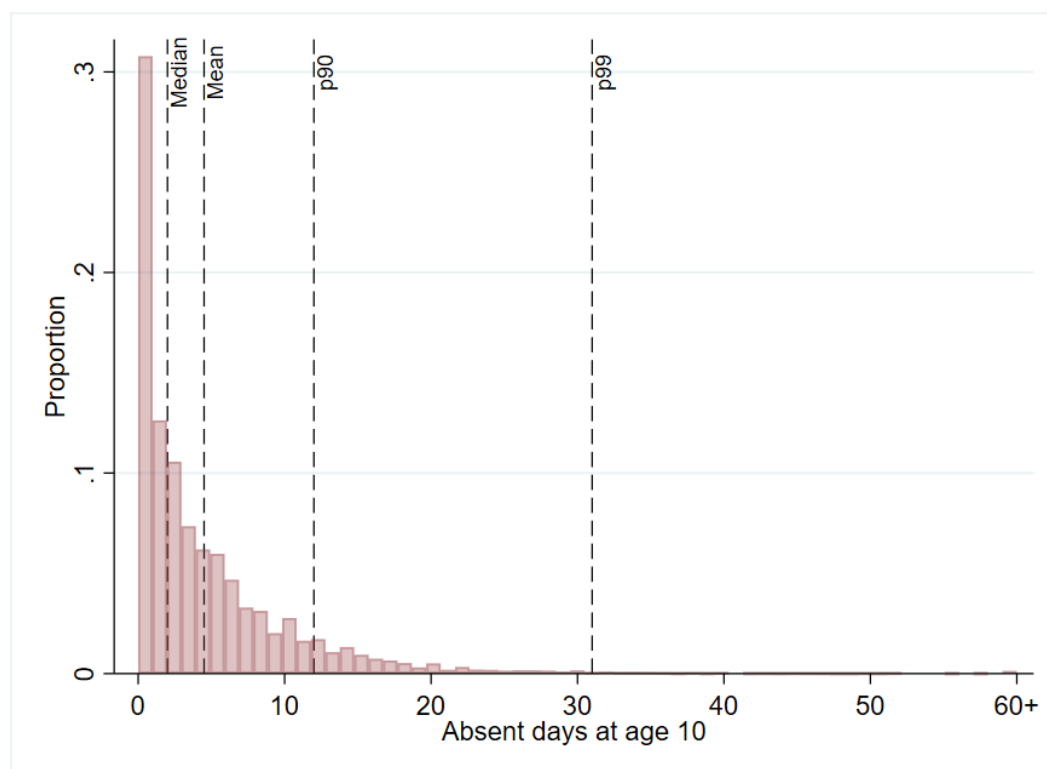
Overall, chapter 4.1 demonstrates that pupil absences are detrimental to children's attainment in England, Wales, and Scotland, even after controlling for risk factors of absences that are also associated with attainment. The negative effects of pupil absences on attainment persist even after accounting for any unobserved time-constant differences between pupils. Cumulative absences have a significant negative impact on GCSE attainment – slightly more so in Wales than in England.

4.2 Long-term outcomes

After establishing the links between pupil absences and short-term outcomes, we investigated the extent to which pupil absences have long-term effects on educational attainment and labour market outcomes in mid-adulthood. For this analysis, we used BCS70 data, which includes survey information from teachers on pupil absences at age ten and outcomes between the ages of 32 and 42. In our analyses, we control for a wide range of covariates (see Appendix Table A1).

Figure 2 depicts the distribution of pupil absences at age 10 (year 6) in the BCS data.¹⁰ It shows that pupil absences are highly skewed, with the median (two days) significantly lower than the mean. On average, pupils were absent for 4.5 school days (6.9% of the possible school days). Ten per cent of pupils missed 12 or more days.

Figure 2. Distribution of pupil absences at age 10 (year 6).



Source: BCS70. Note: N=13,776, unweighted, multiple imputed.

Table 6 provides descriptive statistics for our outcomes of educational and labour market outcomes. In our BCS sample, at age 42, 12.6 % of individuals had no qualification, 8.2% had a lower-level school qualification (e.g., no A-levels, NVQ 1), 25.4 % had a middle-level school qualification (e.g., 1 A-level, NVQ 2), 15% had a higher-level school qualification (e.g., more than one A-level, NVQ 3), 31.9% had

¹⁰ Teachers were mostly surveyed between March and July and asked about pupil absences in the previous term, so they mostly referred to the spring term.

a first degree, and 7% had a higher degree. Regarding social class, 36.8 % of individuals predominantly belonged to the salariat class, 20.9% to the intermediate class, 27.7% to the working class, and 14.6% were predominantly non-employed (e.g., inactive, unemployed, or in education) between age 32 and age 42.¹¹ Individuals aged 32 to 42 were unemployed for an average of 2.4 months (SD = 12.21). Employees earned an average of £593.43 per week (SD = 506.80).

Table 6. Descriptive statistics for long-term outcomes

	Proportion/ Mean	SD	N
Educational attainment at age 42			8,535
No qualification	12.61	-	
Lower-level school qualification	8.18	-	
Middle level school qualification	25.38	-	
Higher level school qualification	14.95	-	
First degree	31.90	-	
Higher degree	6.98	-	
Dominant social class, age 32-42 (N=9,012)			9,012
Salariat class	36.80	-	
Intermediate class	20.86	-	
Working class	27.71	-	
Non-employed	14.62	-	
Months unemployed, age 32-42	2.40	12.21	9,082
Gross weekly earnings in £ at age 42	593.43	506.80	5,798

Source: BCS70. *Note:* Samples differ as outcomes were not imputed. Descriptive statistics are weighted with inverse probability of attrition weights to correct for non-random attrition.

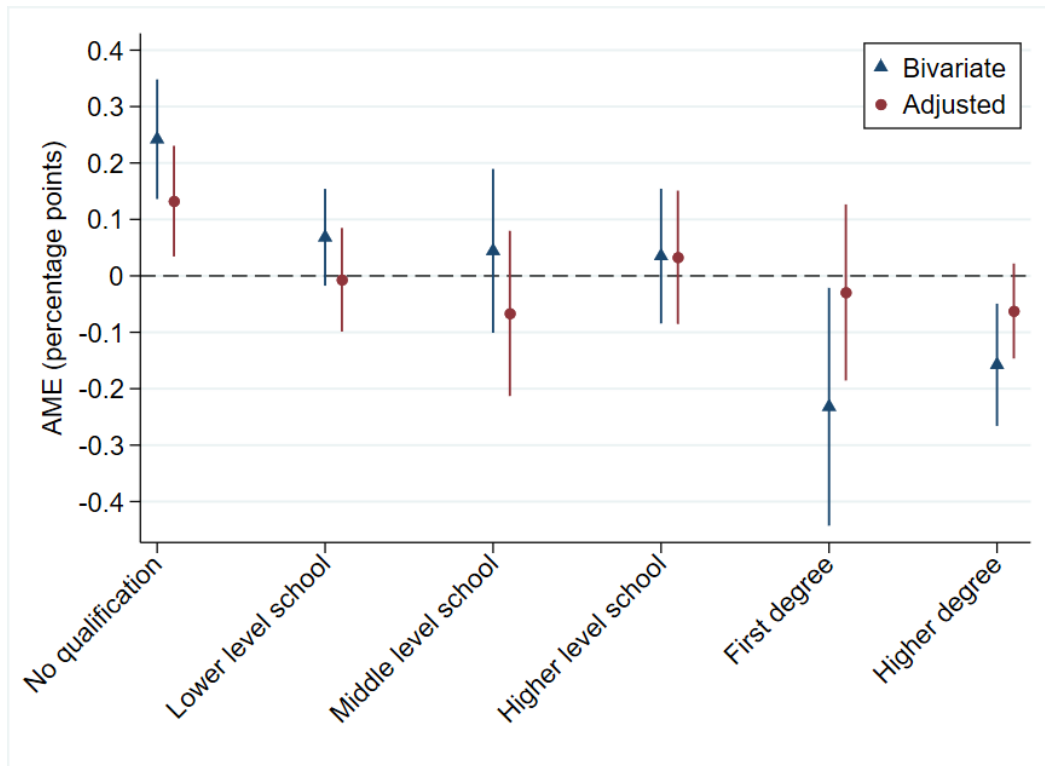
Educational attainment

Figure 3 depicts unconditional associations (blue triangles) between school absences and educational attainment, as well as associations conditional on confounders (red dots) at age 42. According to the unconditional model, school absences increase the likelihood of not having a qualification and decrease the likelihood of obtaining a first or higher degree. However, after controlling for covariates, only the association between school absences and no qualification is statistically significant (the 95% confidence intervals do not overlap with zero). Individuals who missed five days of school at age 10 (the average in our sample) have a 0.66 percentage point [$5 * 0.24$ percentage point, one day effect shown in graph] increased likelihood of not having any qualification at age 42.¹² We found the same patterns at age 30, 34, and 38, though the effect of school absences on the risk of no qualifications is statistically non-significant (see Appendix Figure A1).

¹¹ The National Socioeconomic Classification (NS-SEC) is used to determine social class position. The Salariat Class includes managerial, administrative, and professional occupations. The Intermediate Class includes intermediate occupations, small employers, and own account workers. The Working Class positions include lower supervisory and technical, semi-routine or routine occupations. For more information see <https://www.ons.gov.uk/methodology/classificationsandstandards/otherclassifications/thenationalstatisticssocioeconomicclassificationnssecbasedonsoc2010>

¹² It is worth noting that 12.61% of individuals have no qualification in our BCS sample. In relative terms, five days of school absences at age ten, therefore, increases the risk by 5.2%.

Figure 3. Associations between school absences (days) and educational attainment at age 42

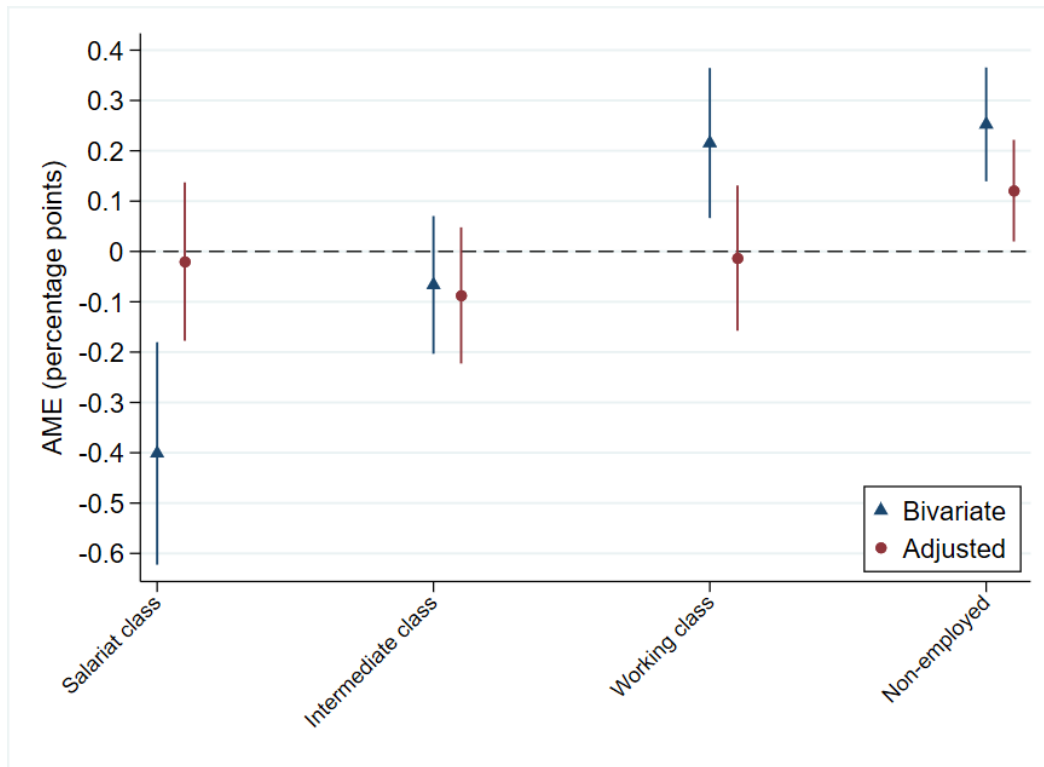


Source: BCS70. Note: N=8,535. Multiple imputed and weighted by inverse probability of attrition weights. Vertical lines indicate 95% confidence intervals. Average Marginal Effects (AMEs) are calculated based on the regression coefficients of a multinomial logistic regression.

Labour market outcomes

Figure 4 shows unconditional associations between school absences at age ten and the predominant social class destination between the ages of 30 and 42 (blue triangles), as well as associations conditional on covariates (red dots). According to the unconditional model, school absences are associated with a lower likelihood of entering a salariat class position and a higher likelihood of being employed in a working-class position or being non-employed. After controlling for risk factors of absence, the associations between school absences and the salariat and working classes are statistically non-significant (95% confidence intervals overlap with zero). However, even after controlling for covariates, the link between school absences and non-employment remains statistically significant. Individuals who missed five days of school at age 10 (the average in our sample) are 0.6 percentage points more likely to be non-employed than those who have never been absent. We found similar results when we looked at individuals' social class destination at ages 30, 34, 38, or 42 (Figure A2 in the Appendix). We found no negative impact of school absences on months of unemployment or earnings after controlling for covariates (see Table A2 in the Appendix).

Figure 4. Associations between school absences (days) and social class destination



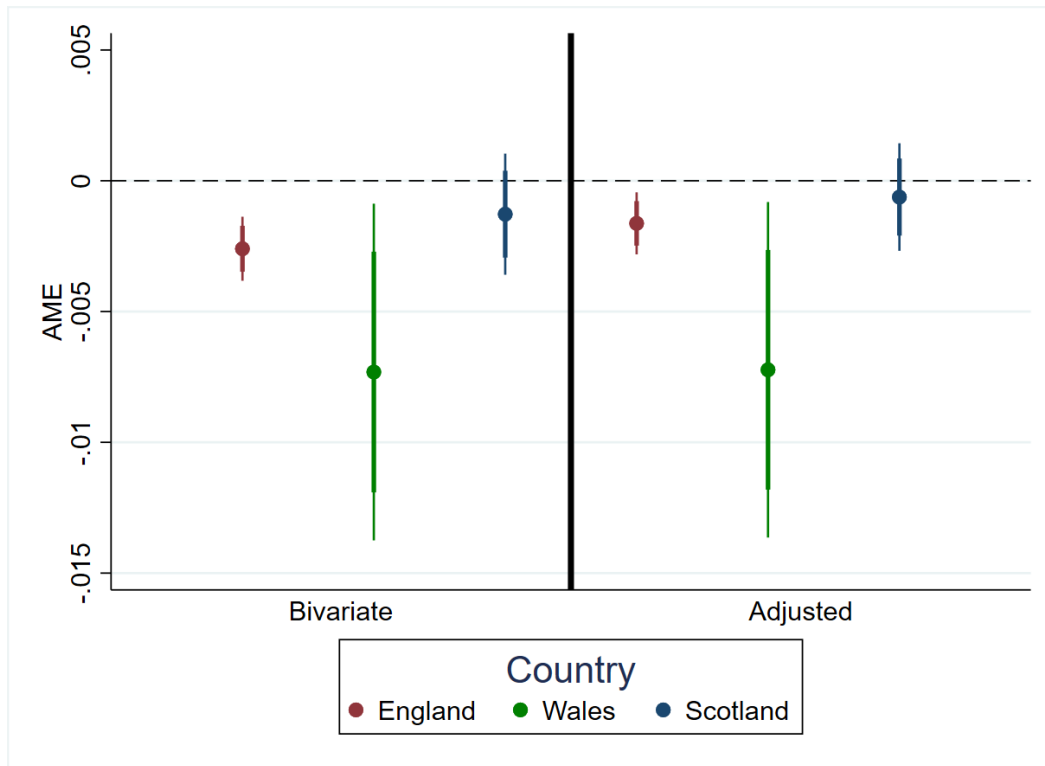
Source: BCS. Note: N=9,012. Multiple imputed and weighted by inverse probability of attrition weights. Vertical lines indicate the 95% confidence interval. Average Marginal Effects (AMEs) are calculated based on the regression coefficients of a multinomial logistic regression.

Given that our findings show that school absences have a negative impact on the likelihood of having qualifications at age 42 and participating in the labour market in Great Britain, we conducted country-specific analyses with the BCS70 on these outcomes.

Figure 5 depicts the relationship between school absences at age ten and the likelihood of having any qualification at age 42 in England, Wales, and Scotland. In all countries, we discovered that school absences reduce the likelihood of obtaining any qualifications, both unconditionally and conditionally. However, the negative relationship between school absences and obtaining a qualification is statistically significant in England and Wales but not in Scotland. This is the case with the unconditional and conditional models. The negative impact of school absences on achieving any qualifications is greater in Wales than in England and Scotland.¹³

¹³ The difference between Wales and England (and Scotland) is statistically significant because the 84% confidence intervals (thick vertical lines) do not overlap in the conditional model (MacGregor-Fors & Payton, 2013).

Figure 5. Associations between school absences (days) and likelihood of having any qualifications at age 42 across England, Wales, and Scotland

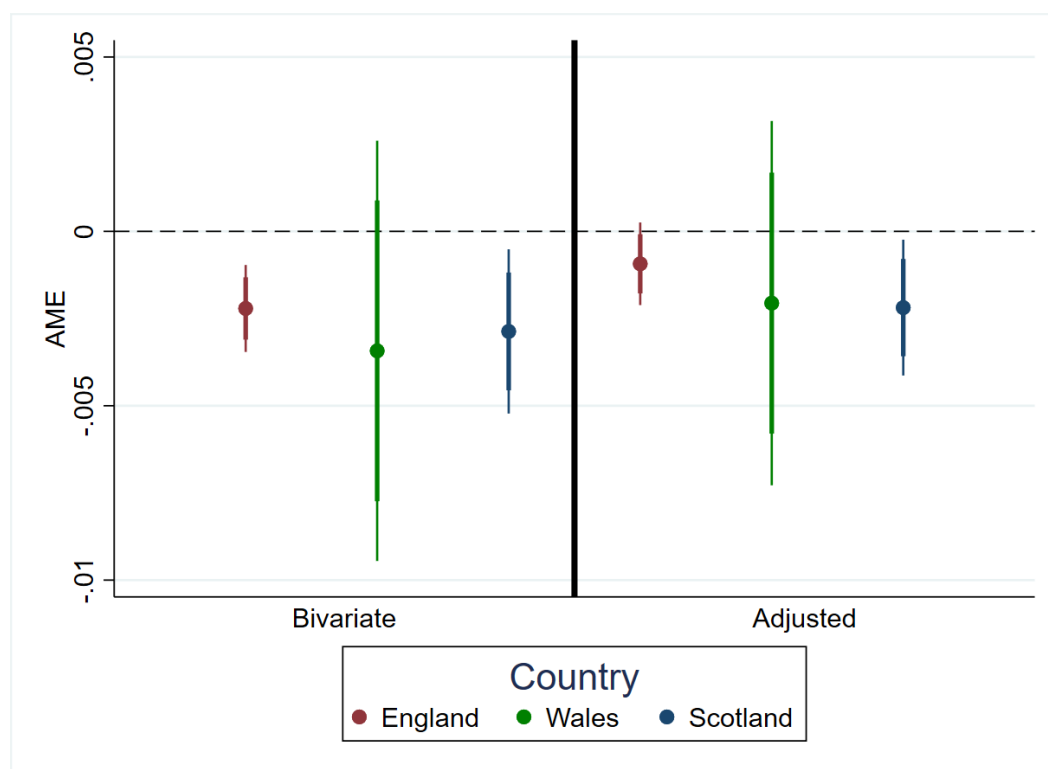


Source: BCS70. Note: N=8,535. Multiple imputed and weighted by inverse probability of attrition weights. Vertical thin lines indicate 95% confidence intervals; vertical thick lines indicate 84% confidence intervals. Average Marginal Effects (AMEs) are calculated based on separate logistic regressions for each country.

Figure 6 depicts the relationship between pupil absences at age ten and the likelihood of predominantly participating in the labour market between the ages of 32 and 42 in England, Wales, and Scotland. In all countries, we discovered that school absences reduce the likelihood of labour market participation in both the unconditional and conditional models. In the conditional model, Scotland has a statistically significant negative relationship between school absences and labour market participation, but England and Wales do not. While the effect size is slightly smaller in England, effect sizes are comparable in Wales and Scotland.¹⁴

¹⁴Wales has a larger confidence interval than Scotland and, in particular, England because of its smaller sample size. Note that the differences between countries are statistically insignificant because the 84% confidence intervals (thick vertical lines) overlap (MacGregor-Fors & Payton, 2013).

Figure 6. Associations between school absences (days) and likelihood of predominantly participating in the labour market (age 32-42) across England, Wales, and Scotland



Source: BCS70. Note: N=8,535. Multiple imputed and weighted by inverse probability of attrition weights. Vertical thin lines indicate 95% confidence intervals; vertical thick lines indicate 84% confidence intervals. Average Marginal Effects (AMEs) are calculated based on separate logistic regressions for each country.

The role of educational attainment for the association between school absences and labour market outcomes

In our final analysis of the long-term consequences of pupil absences, we investigated to what extent the association between pupil absences and being predominantly non-employed between ages 32 and 42 is due to differences in individuals' educational attainment. Table 7 presents two models. Model 1 adjusts for covariates, while Model 2 also accounts for educational attainment at age 30. The effect size for school absences in model 1 corresponds to the red dot ("adjusted") for non-employed in Figure 4. In model 2, the effect size for pupil absences is reduced by one-sixth, implying that individuals' educational attainment partly accounts for the association between pupil absences and non-employment in mid-adulthood. For the most part, pupil absences are directly associated with non-employment regardless of educational attainment.

Table 7. Associations between school absences at age 10 and being predominantly non-employed (age 32-42)

	Model 1	Model 2
Pupil absences at age 10	0.0012* (0.0005)	0.0010 [†] (0.0005)
Covariates	Yes	Yes
Educational attainment at age 30		Yes

Source: BCS. Note: N=9,012. Multiple imputed and weighted with inverse probability of attrition weights. Average Marginal Effects (AMEs) are calculated based on nested logistic regressions.
[†] $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Overall, the findings show that pupil absences have long-term negative consequences for the likelihood of obtaining any qualifications and participating in the labour market in mid-adulthood. While the effects of pupil absences are small, they may be underestimated because we only had data on absences from the spring term of year 6 (age 10). The negative consequences are likely to be greater when considering the impact of cumulative absences throughout schooling on long-term outcomes (see section 4.1.2 on GCSE attainment). The relationship between school absences and non-employment is only partly due to individual differences in educational attainment.

5. Dynamics of absences and attainment

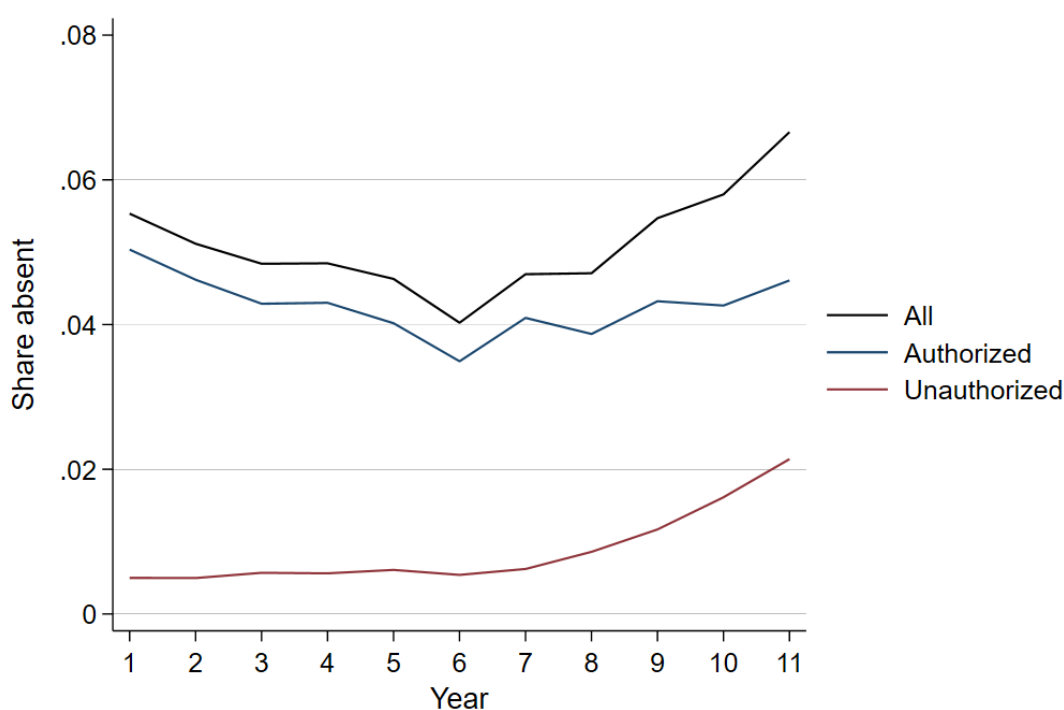
In this chapter, we consider whether the timing and trajectories of absences matter for pupils' school attainment at the end of compulsory schooling.

5.1 Trends in pupil absences across schooling

Figure 7 shows pupils' average absences throughout compulsory schooling (years 1–11) for our MCS sample in England. The black line represents all absences, the blue line represents authorised absences, and the red line represents unauthorised absences.

The total absence rate decreases slightly from 5.5% in year 1 to 4% in year 6 (the last year of primary schooling) and then increases to 6.7% in year 11. In primary school (years 1–6), authorised absences follow a similar downward pattern as overall absences (from 5% to 3.5%) but increase to almost the same level as in the first years throughout secondary schooling (4.6%). Unauthorised absences remain stable at around 0.6% throughout primary schooling but then rise to 2.1% at the end of secondary schooling.

Figure 7. Average absences across pupils' schooling in England

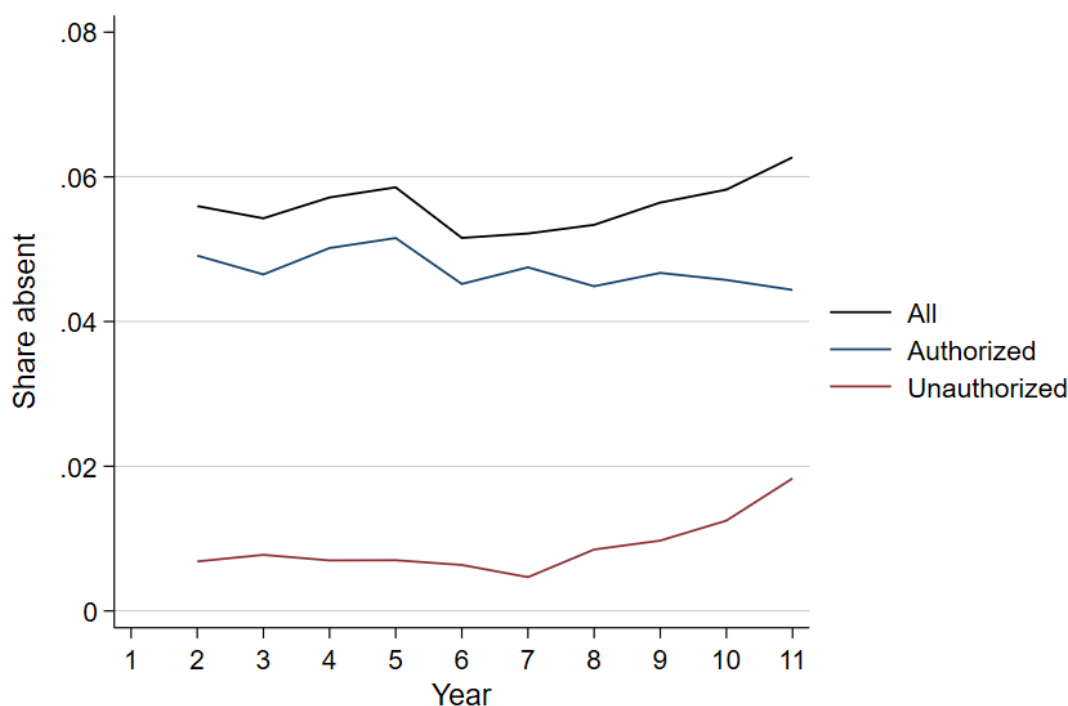


Source: Linked MCS-NPD for England. N=8,139. Multiple Imputed and weighted with inverse probability of attrition weights.

Figure 8 shows pupils' average absences throughout compulsory schooling (years 2–11) in Wales.¹⁵ Average absences are slightly higher in Wales than in England, particularly in the early stages. However, the trend across school years is very similar for total absences and unauthorised absences. Unlike in England, we do not see an increase in authorised absences across secondary schooling.

¹⁵ We had no access to pupil absence data in year 1 in the Welsh school administrative data.

Figure 8. Average absences across pupils' schooling in Wales



Source: Linked MCS-NPD for Wales. N=1,730. Multiple Imputed and weighted by inverse probability of attrition weights.

5.2 Timing of pupil absences across schooling and GCSE attainment

After establishing trends in pupil absences across school years, we consider whether the association between pupil absences and GCSE attainment is dependent on the timing of absences. For summary statistics on GCSE attainment in England and Wales, see Table 3.

Figure 9 shows associations between absences in each year between years 1 and 11 and the likelihood of obtaining five or more GCSEs and the Attainment 8 score in England. It indicates the year-specific effects of overall absences (black dots on the left-hand side), authorised absences (blue dots in the centre), and unauthorised absences (red dots on the right-hand side). Effect sizes are shown for a 10-percentage point difference in absences, corresponding to a difference between never absent and what is typically defined as persistently absent (absence rate of 10% or above).

Total absences in all years are negatively associated with a reduced likelihood of pupils attaining five or more GCSEs. Except for absences in years 3 to 5, all effects are statistically significant at the 0.05 level. The average effect of pupil absences across all years is a 4.6 percentage point reduction in the likelihood of achieving five or more GCSEs. The effects of pupil absences in years 3–5 on GCSE attainment are less pronounced than in years 1 and 2. However, there is a sharp increase in the negative impact of absences on obtaining five or more GCSEs from year 5 to year 6. In year 5, a 10-percentage point increase in absences is associated with a 2.2 percentage point reduction in the likelihood that pupils obtain five or more GCSEs. By contrast, in year 6, the reduced likelihood of achieving five or more GCSEs amounts to 6.5%. Absences in years 7 to 9 continue to be more detrimental than absences in years 1–5. Absences in years 10 to 11 are as detrimental to attainment as absences in years 1 and 2 but more harmful than absences in years 3–5.

We found very similar patterns of year-specific associations between total pupil absences and the Attainment 8 score. Absences in every year significantly reduce the Attainment 8 score. Again, we see

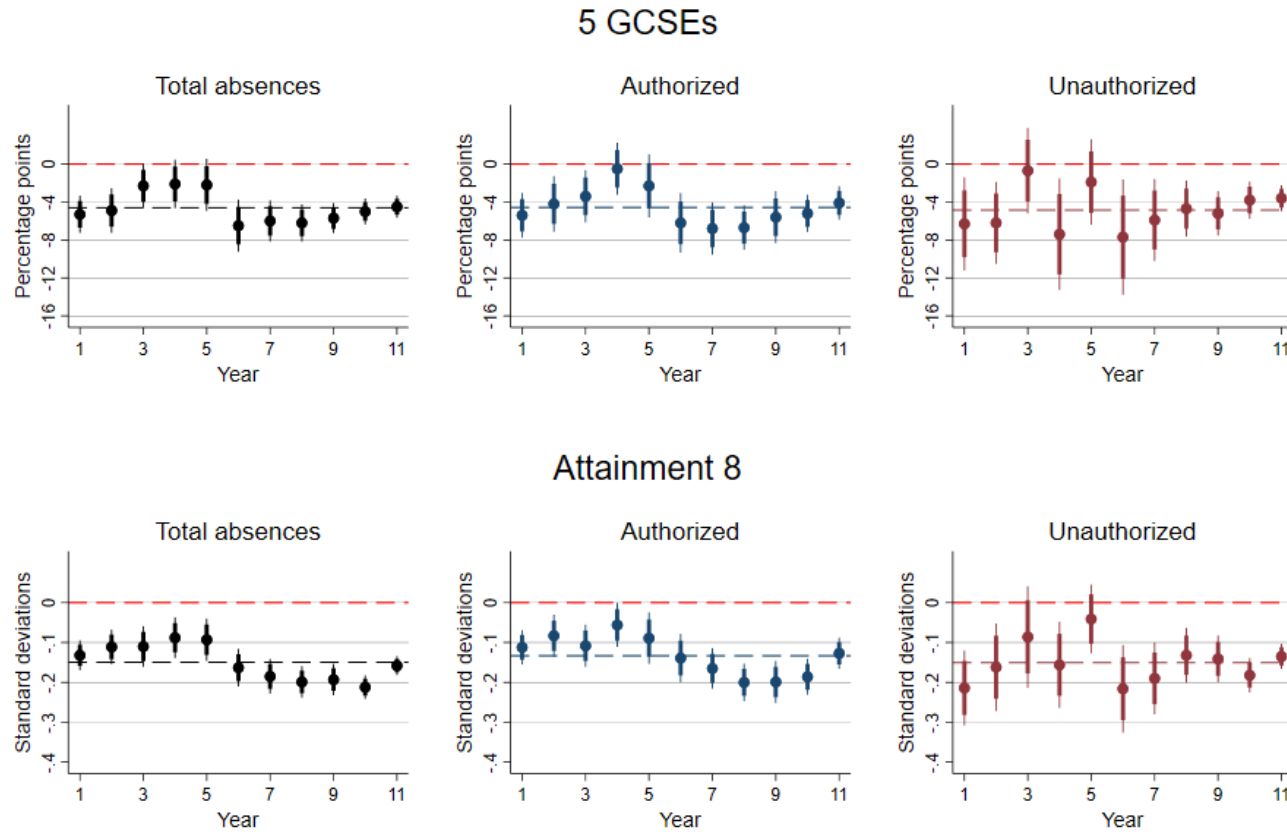
a sharp increase in the harmful effect of absences on attainment from year 5 to year 6. The divide between years 1–5 and years 6–10 is more strongly pronounced than for our outcome of attaining five or more GCSEs.

Across all outcomes, the associations between year-specific authorised absences and attainment mirror those found for total absences (see blue dots in the middle column of Figures 2 and 3). By contrast, the association between unauthorised absences and attainment (see red dots in the right column of Figures 2 and 3), although somewhat similar, does not exactly follow this temporal pattern.

We also investigated whether and to what extent we find these timing-specific effects of pupil absences when considering attainment in GCSE English and GCSE Maths. Figure A3 in the Appendix confirms these temporal patterns of year-specific absences on English and Maths attainment in England.

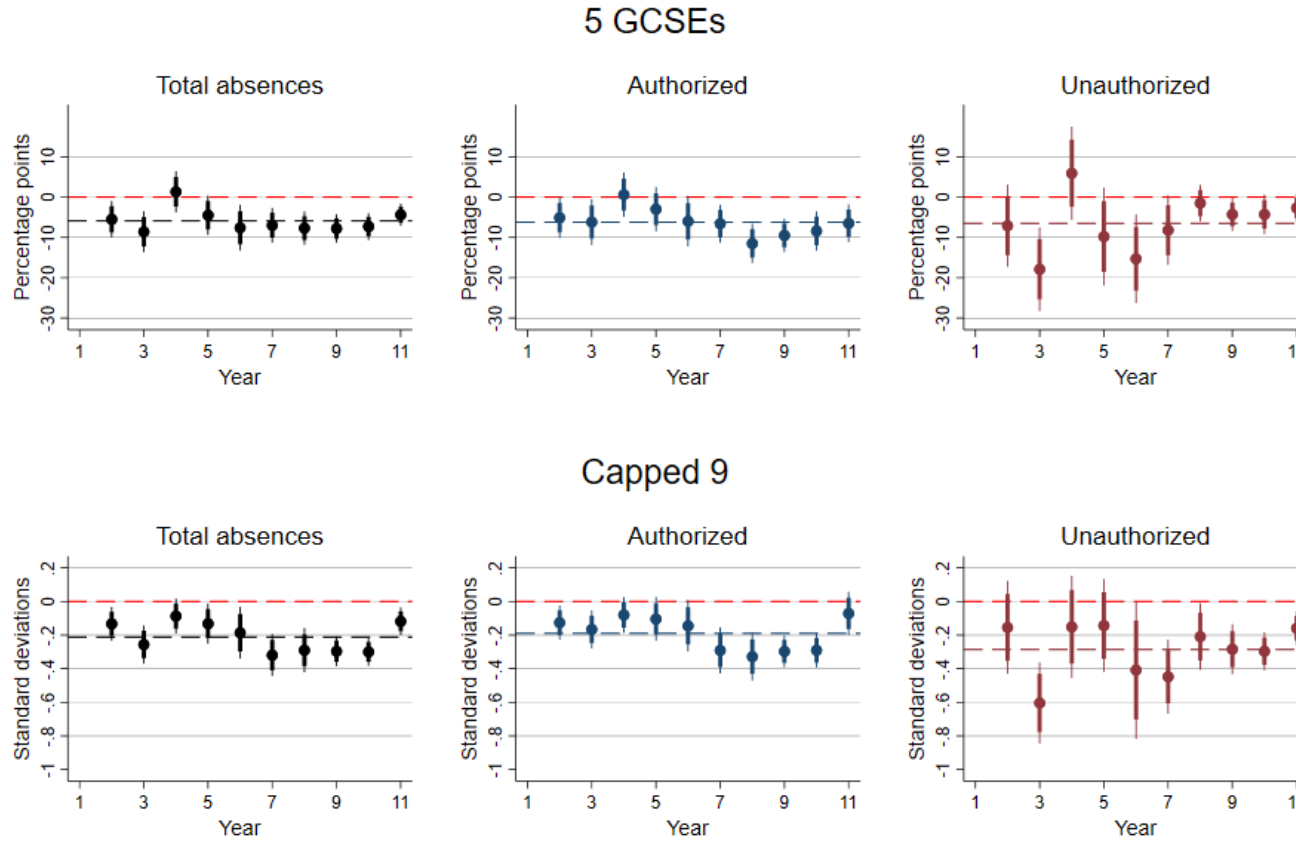
Figure 10 shows associations between absences in each year between years 2 and 11 and the likelihood of obtaining five or more GCSEs and the Capped score in Wales. The negative association between school absences and GCSE attainment in Wales is somewhat greater than in England. For instance, averaged across school years, a 10-percentage point increase in total absences is associated with a 5.9 percentage-point reduction in the likelihood of obtaining five or more GCSEs (compared to 4.6% in England). Regarding timing effects of absences on attainment, we found similar patterns in Wales, suggesting that pupil absences are more harmful from year six onwards. As for England, trends of authorised absence effects mirror those of total absence effects, while trends for unauthorised absence effects do not systematically follow the pattern for total absences. These patterns can also be seen if we consider GCSE English and GCSE Maths for Wales (see Figure A4 in the Appendix).

Figure 9. Association between pupil absences and five or more GCSEs and Attainment 8 score by timing of absence in England.



Source: Linked MCS-NPD data for England. N=8,139. *Note:* Multiple Imputed and weighted by inverse probability of attrition weights. Estimates derived from year-specific linear probability models and OLS regressions adjusting for covariates, including previous absences. Black dots: estimates for total absences, blue dots: estimates for authorised absences, red dots: estimates for unauthorised absences. The thin vertical lines represent the 95%-confidence intervals. The thick vertical lines indicate the 84%-confidence intervals. The dashed horizontal lines show the average effect across all years.

Figure 10. Association between pupil absences and five or more GCSEs and Capped 9 score by timing of absence in Wales.



Source: Linked MCS-NPD data for Wales. N=1,730. *Note:* Multiple Imputed and weighted by inverse probability of attrition weights. Estimates derived from year-specific linear probability models and OLS regressions adjusting for covariates, including previous absences. Black dots: estimates for total absences, blue dots: estimates for authorised absences, red dots: estimates for unauthorised absences. The thin vertical lines represent the 95%-confidence intervals. The thick vertical lines indicate the 84%-confidence intervals. The dashed horizontal lines show the average effect across all years.

5.3. Pupil absence trajectories and GCSE attainment

Typical absence trajectories

In this section, we identify typical absence trajectories across years 1 to 11 among pupils in England and Wales (years 2 – 11). We further investigate to what extent these absence trajectories are associated with GCSE achievement. In Chapter 4.1.2, we considered the effect of average absences across compulsory schooling on attainment. While average absences offer a good summary of pupils' absences across schooling, they do not consider when pupils are more or less absent over time. Trajectories, therefore, provide a holistic perspective of pupil absence dynamics over time.

To identify clusters of pupils with similar joint trajectories of authorised and unauthorised absences from years 1 to 11, we used a longitudinal k-means approach. From this analysis, we identified five typical joint authorised–unauthorised absence trajectories. Figure 11 shows these five clusters with their mean trajectories of authorised and unauthorised absences from year 1 to year 11.

Approximately two-thirds of pupils follow a *Consistently Low Absence (CLA)* trajectory. Over 11 school years, pupils in this cluster had an average of 2.6% authorised absences and 0.3% unauthorised absences.

The second largest cluster has approximately 28% of pupils and is distinguished by *Consistently Moderate Authorised Absences (CMAA)*. In most years, authorised absences in this cluster fell between 6% and 8%, while unauthorised absences were still relatively low (around 1%).

There is a 3.5% cluster of pupils with *Moderately Increasing Unauthorised Absences (MIUA)*. This trajectory is characterised by an increase from 2-3% of unauthorised absences in year 1 to 6 to 17% in year 11. It also entails a relatively high degree of authorised absences (7-8%), which remains stable throughout.

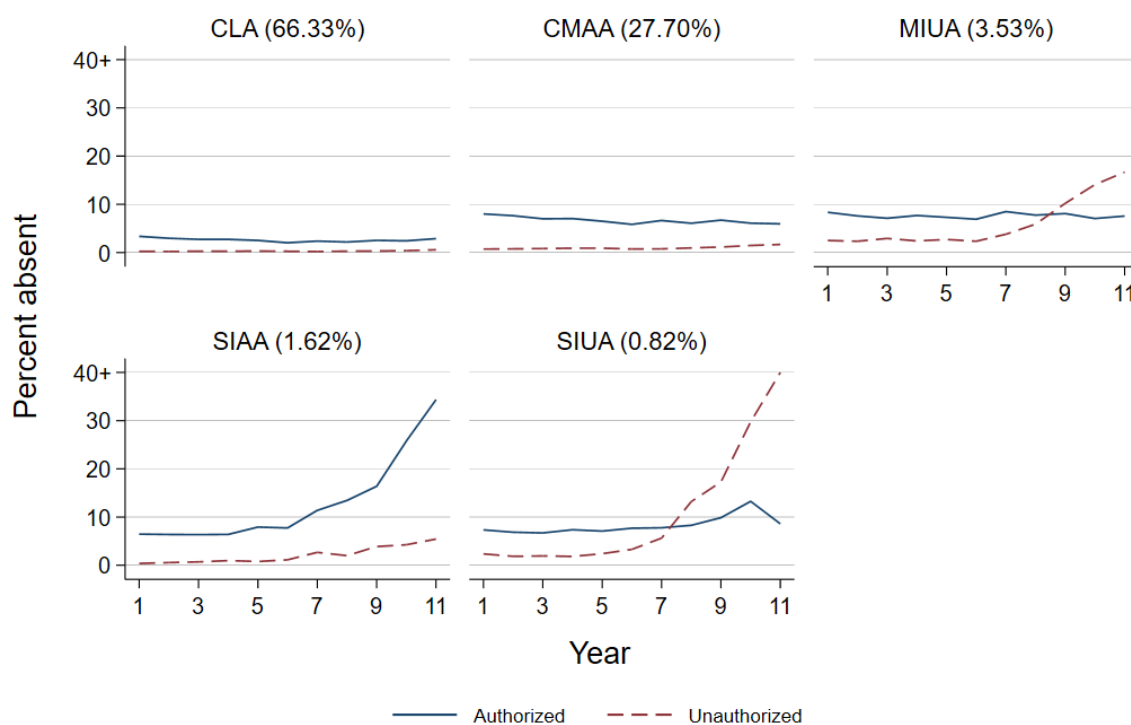
The cluster of *Strongly Increasing Authorised Absences (SIAA)* accounts for 1.62% of our pupil sample. Authorised absences in this cluster increased from approximately 7% in primary school to more than 30% in year 11. Unauthorised absences rose in secondary school but remained below 6% even in the final years.

Pupils with *Strongly Increasing Unauthorised Absences (SIUA)* constitute 0.82% of pupils. Their level of unauthorised absences is moderate in primary school but substantially increases throughout secondary schooling. Pupils in this cluster miss, on average, 60% of their sessions due to unauthorised reasons in year 11.

We used the same longitudinal k-means approach for Wales and identified three typical clusters (see Figure A5 in the Appendix). As with England, we have a cluster of *Consistently Low Absence (CLA)* trajectories that includes around 74% of the pupil sample. The second cluster follows a *Consistently Moderate Authorised Absences (CMAA)* trajectory and includes 24% of the pupils. The third cluster entails trajectories of *Increasing Unauthorised Absences (IUA)* and includes 2% of the pupils. Unauthorised absences in this cluster increase up to 34% in year 11.¹⁶

¹⁶ Compared to England, we did not detect distinct trajectories of moderately and strongly increasing unauthorised absences. In addition, we did not find a typical trajectory of increasing authorised absences. However, this may be driven by the smaller size of the Welsh sample compared to the English sample.

Figure 11. Mean authorised and unauthorised absences over time by trajectory cluster in England.



Source. Linked MCS-NPD data, N=7,218, *Note.* Weighted by inverse probability of attrition weights. CLA=Consistently Low Absence, CMAA=Consistently Moderate Authorised Absences, MIUA=Moderately Increasing Unauthorised Absences, SIAA=Strongly Increasing Authorised Absences, SIUA=Strongly Increasing Unauthorised Absences. Mean absences above 40% are truncated.

Absence trajectories and GCSE attainment

Now, we turn to the question to what extent the typical absence trajectories identified are associated with GCSE attainment. Figure 12 shows the differences in attainment by absence trajectory compared to the *Consistently Low Absence (CLA)* trajectory. The estimates are derived from conditional models adjusting for risk factors of absences.

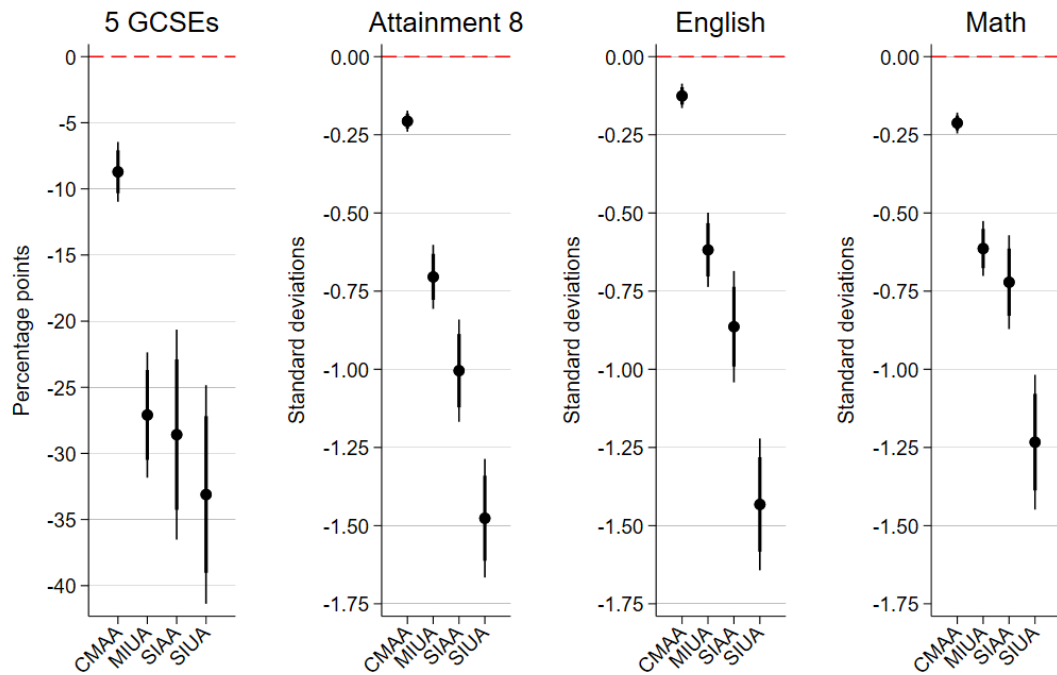
Regarding passing five or more GCSEs, pupils with moderate or increasing absence trajectories perform worse than those with the CLA trajectory. A *Strongly Increasing Unauthorised Absence (SIUA)* trajectory decreases pupils' likelihood of obtaining five or more GCSEs by 33.1 percentage points. For pupils with a *Strongly Increasing Authorised Absence (SIAA)* trajectory, the likelihood is lowered to 28.6 percentage points; for pupils with a *Moderately Increasing Unauthorised Absence (MIUA)*, it is 27.1 percentage points; and for pupils with a *Consistently Moderate Authorised Absence (CMAA)* trajectory it is 8.7 percentage points. All effects are statistically significant at the 5% level. However, the effects of SIUA, SIAA, and MIUA on obtaining five or more GCSEs are not statistically different (as indicated by the 84%-confidence intervals).

For our outcomes of Attainment 8, English GCSE score, and Maths GCSE score, we see the same patterns. The negative impact on achievement increases from CMAA, MIUA, and SIAA to its most severe for SIUA. Other than for attaining five or more GCSEs, the differences between the three increasing absence trajectories MIUA, SIAA, and SIUA are much more pronounced for Attainment 8. The effects of each trajectory on Attainment 8 scores were significantly different from each other (as all 84%-confidence intervals do not overlap). Effect sizes are large, particularly for the increasing trajectories. For instance, pupils with a SIUA trajectory have an Attainment 8 score that is 1.48 standard

deviations lower than pupils with a *CLA*. Even pupils with a *CMAA* trajectory score 0.21 SD lower on the Attainment 8 score than pupils with consistently low absences.

The large negative consequences of absence trajectories other than *CLA* for GCSE achievement are also confirmed in the Welsh context (see Figure A6 in the Appendix). For instance, pupils with an increasing authorised absence (*IUA*) trajectory have a Capped 9 score that is 1.60 SD lower than those with low absences.

Figure 12. Absence trajectories and GCSE attainment in England



Source. Linked MCS-NPD data for England, N=7,218. *Note.* Weighted by inverse probability of attrition weights. Reference category: Consistently Low Absence (*CLA*). *CMAA*=Consistently Moderate Authorised Absences, *MIUA*=Moderately Increasing Unauthorised Absences, *SIAA*=Strongly Increasing Authorised Absences, *SIUA*=Strongly Increasing Unauthorised Absences. Thick vertical lines indicate the 84%-Confidence Interval, and thin vertical lines the 95%-Confidence Interval.

6. Reason for absence and attainment

In this chapter, we investigate to what extent the detrimental impact of pupil absences on school attainment is dependent on the reason for absences. First, we consider the association between average authorised and unauthorised absences across years 1 to 11 and GCSE attainment. Then, we investigate whether differences in the impact of authorised and unauthorised vary across school years.

Differences in the cumulative impact of authorised and unauthorised absences (years 1-11) on GCSE attainment

We investigate the cumulative impact of authorised and unauthorised pupil absences from year 1 to year 11 on GCSE attainment in England and year 2 to year 11 in Wales. Table 8 shows the descriptive statistics (see section 4.1.2 for attainment measures).

Table 8. Descriptive statistics of average authorised and unauthorised pupil absences (year 1 to year 11) and GCSE attainment in England and Wales.

	England		Wales ^a	
	Mean	SD	Mean	SD
Average authorised absences (% , year 1 to year 11)	4.23	2.86	4.72	3.20
Average unauthorised absences (% , year 1 to year 11)	0.88	1.96	0.89	2.14
<i>School attainment</i>				
Passed five or more GCSEs	0.54	-	0.61	-
Attainment 8/Capped 9 score	45.10	19.99	369.12	100.49
GCSE English score	9.42	4.65	39.30	11.91
GCSE Maths score	8.54	4.70	76.42	27.67
N	8,139		1,730	

Source: Linked MCS-NPD data for England and Wales. *Note:* Weighted by inverse probability of attrition weights and multiple imputed.

^a Estimates for Wales are based on absences from year 2 to year 11.

Over the 11-year period, pupils in England missed, on average, 4.2% of school that were authorised. Absences attributed to unauthorised reasons were 0.88% over the same period. While average unauthorised absences were similar in Wales and England, the percentage of authorised absences is, on average, slightly higher in Wales (4.7%) than in England (4.2%).

Table 9 shows associations between authorised and unauthorised absences (years 1 to 11 – England; 2 to 11 – Wales) and GCSE attainment in England and Wales. The first model is unconditional, while the second model is conditional, i.e. it controls for covariates.

Both authorised and unauthorised average absences across years 1 to 11 are negatively associated with GCSE attainment in England and Wales. Across both settings, all types of absences have a statistically significant impact on all attainment outcomes in both conditional and unconditional models. Unauthorised absences are generally more detrimental to GCSE attainment than authorised absences, although these differ across attainment measures.

When adjusting for covariates (conditional), the effect of unauthorised and authorised absences does not differ substantially for obtaining five or more GCSEs (England and Wales) and GCSE Maths (Wales). However, unauthorised absences are much more detrimental to attainment than authorised absences when considering Attainment 8/Capped 9 and GCSE English. Controlling for covariates, the

effect of unauthorised absences on Attainment 8 and GCSE English is between 1.55 and 1.92 times more harmful than authorised absences in England (see column “Ratio” in Table 3). The difference is particularly pronounced for GCSE English in Wales: unauthorised absences are 3.31 times more detrimental to the GCSE English score than authorised absences.

Table 9. Association between authorised and unauthorised absences (year 1 to year 11) and GCSE attainment in England and Wales.

	England		Wales	
	Unconditional	Conditional	Unconditional	Conditional
5 or more GCSEs				
Average authorised absences	-.033*** (.002)	-.020*** (.002)	-.041*** (.004)	-.021*** (.004)
Average unauthorised absences	-.052*** (.003)	-.025*** (.003)	-.049*** (.007)	-.020*** (.005)
Difference in effect	.019*** (.005)	.005 (.004)	.008 (.009)	-.001 (.007)
Ratio	1.57	1.23	1.20	.95
Attainment 8/Capped 9				
Average authorised absences	-.082*** (.005)	-.053*** (.003)	-.097*** (.009)	-.057*** (.008)
Average unauthorised absences	-.144*** (.007)	-.082*** (.006)	-.161*** (.015)	-.102*** (.012)
Difference in effect	.062*** (.010)	.029** (.008)	.063** (.021)	.045** (.016)
Ratio	1.76	1.55	1.66	1.79
GCSE English				
Average authorised absences	-.062*** (.005)	-.039*** (.004)	-.075*** (.009)	-.035*** (.008)
Average unauthorised absences	-.124*** (.007)	-.075*** (.006)	-.175*** (.018)	-.116*** (.014)
Difference in effect	.062*** (.010)	.036*** (.009)	.100*** (.023)	.081*** (.017)
Ratio	2.00	1.92	2.33	3.31
GCSE Maths				
Average authorised absences	-.074*** (.004)	-.049*** (.003)	-.095*** (.009)	-.048*** (.006)
Average unauthorised absences	-.117*** (.007)	-.066*** (.006)	-.128*** (.014)	-.062*** (.009)
Difference in effect	.043*** (.009)	.017* (.008)	.033 (.020)	.014 (.013)
Ratio	1.58	1.35	1.35	1.29
N	8,139	8,139	1,730	1,730

Source: Linked MCS-NPD data for England and Wales. *Note:* Effect sizes obtained from linear probability models and linear regressions, weighted by inverse probability of attrition weights and multiple imputed, continuous outcomes are standardised, standard errors in parentheses; Conditional = controlling for covariates (see Appendix Table A1). Difference in effect = Unauthorised absence effect – Authorised absence effect; Ratio = Unauthorised absence effect/Authorised absence effect.

† $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

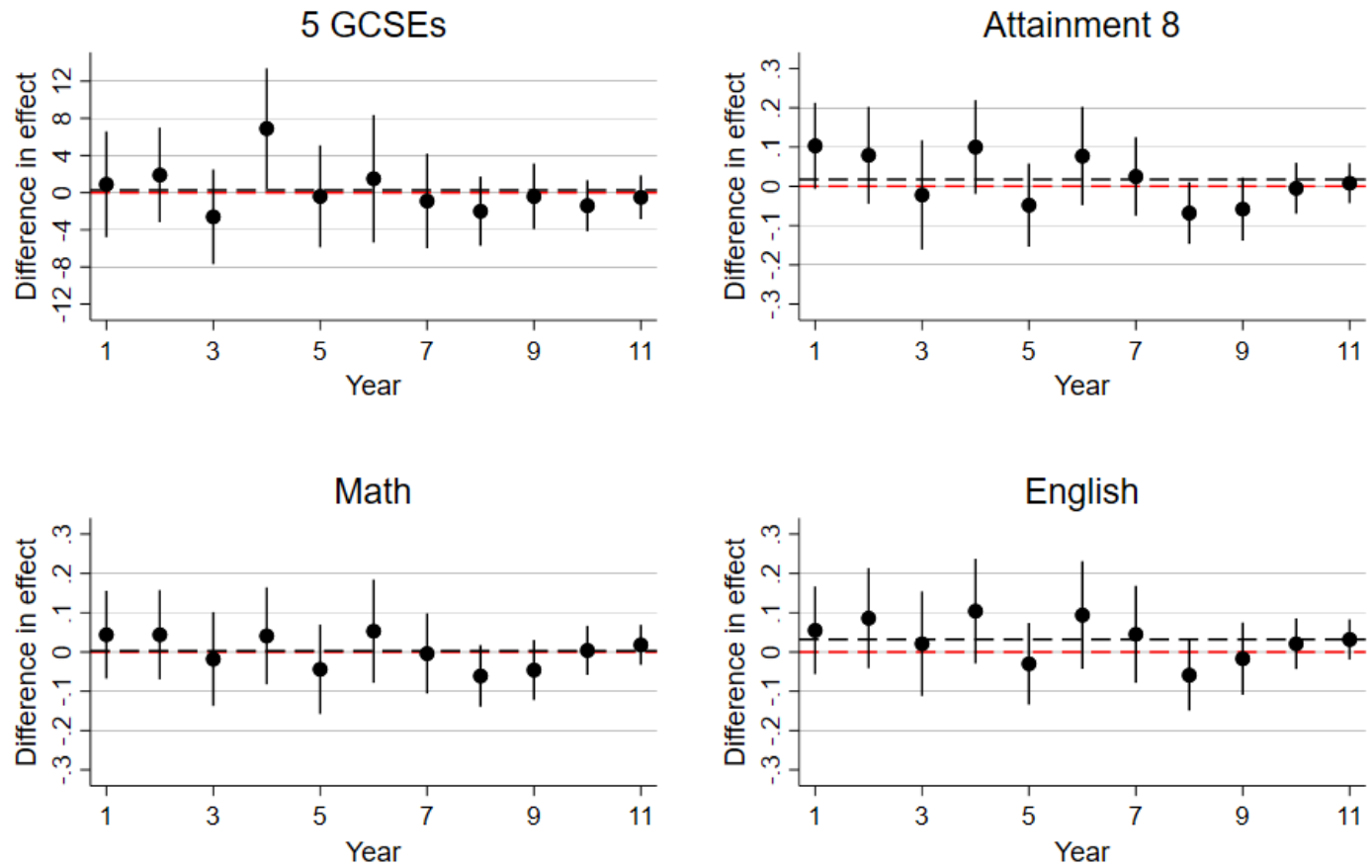
Differences in year-specific effects of authorised and unauthorised absences on GCSE attainment.

Figure 13 depicts the difference in the effect between authorised and unauthorised absences for each school year separately. Positive values indicate that unauthorised absences are more detrimental to academic performance than authorised absences, while negative values indicate vice versa. In the early years of schooling, unauthorised absences appear to have a greater negative impact on academic performance than authorised absences. However, this disparity diminishes or even reverses in later years. As with the cumulative impact, these patterns are strongest for Attainment 8 and GCSE English and weakest for obtaining five or more GCSEs and GCSE Mathematics. In each school year, however,

the difference in the effect of year-specific authorised and unauthorised absences is statistically non-significant for each outcome.

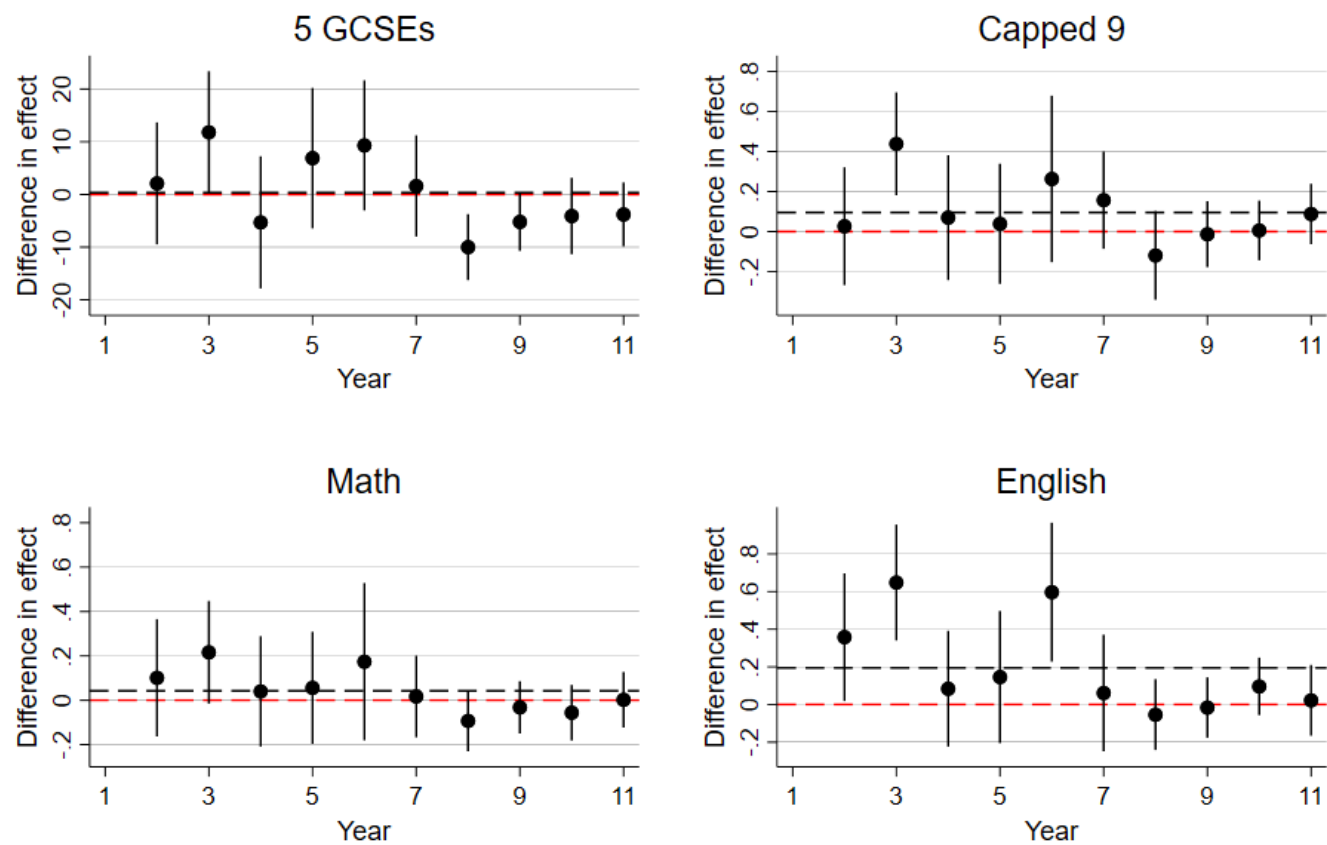
Figure 14 shows similar patterns for Wales. Unauthorised absences appear more detrimental to achievement than authorised absences in earlier years but have similar or less harmful effects in later years. In most school years, however, the difference in the effect on our achievement outcomes between authorised and unauthorised absences is statistically insignificant.

Figure 13. Difference in the effect of authorised and unauthorised absences for each school year in England.



Source. Linked MCS-NPD data for England, N=8,139. *Note:* Multiple imputed and weighted by inverse probability of attrition weights. Positive values indicate that unauthorised absences have larger effects. The dashed vertical line shows the average difference in the effect of authorised and unauthorised absences across all years. Thin vertical lines indicate the 95%-confidence intervals.

Figure 14. Difference in the effect of authorised and unauthorised absences for each school year in Wales.



Source. Linked MCS-NPD data for Wales, N=1,730. *Note:* Multiple imputed and weighted by inverse probability of attrition weights. Positive values indicate that unauthorised absences have larger effects. The dashed vertical line shows the average difference in the effect of authorised and unauthorised absences across all years. Thin vertical lines indicate the 95%-confidence intervals.

7. The role of psychosocial factors in the absence–attainment association

In this chapter, we investigate to what extent the association between pupil absences at age 12 and GCSE attainment at the end of year 11 is explained by psychosocial factors at age 14. Our psychosocial factors include pupils' externalising behaviour, prosocial behaviour, risky behaviour, educational motivation, and self-esteem. All covariates, including lagged measures of achievement and psychosocial characteristics, were measured at or before age 11. We used path analysis to investigate the indirect effects of absences on achievement via psychosocial factors. As the psychosocial factors are interrelated, we consider them in one model.

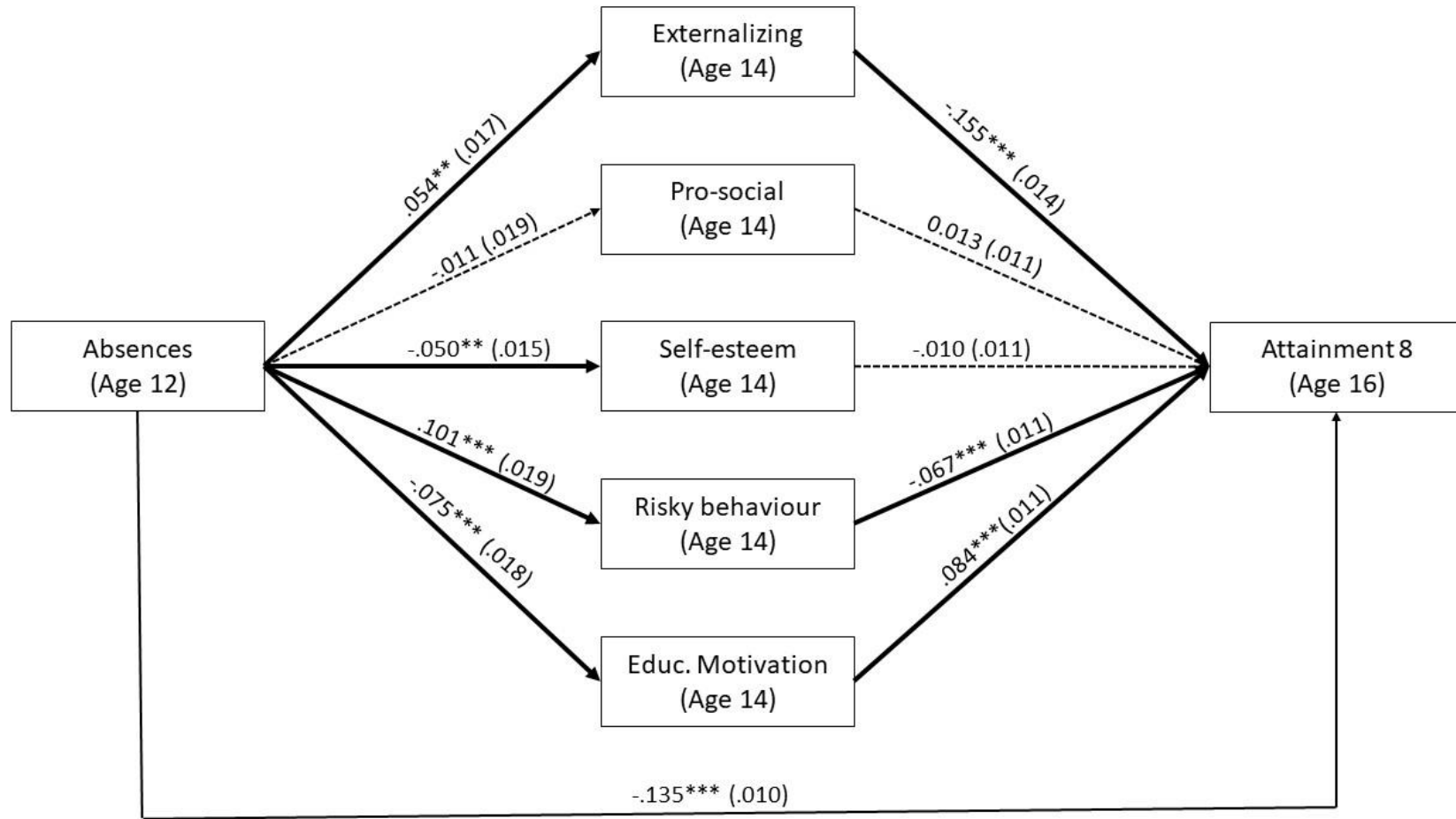
Figure 14 show the standardised effects for associations between pupil absences and psychosocial factors as well as associations between psychosocial factors and the Attainment 8 score in England. Figure 15 shows the same relations for Capped 9 in Wales.

When adjusting for covariates, pupil absences are significantly associated with higher externalising behaviour, higher risky behaviour, lower self-esteem, and lower educational motivation. For instance, a 1 SD increase in pupil absences increases externalising behaviour by 0.054 SD. By contrast, pupil absences are not associated with prosocial behaviour. In turn, controlling for covariates and pupil absences, externalising and risky behaviour significantly reduce pupils' Attainment 8 score while school motivation significantly increases it. There are no statistically significant associations between prosocial behaviour, self-esteem, and the Attainment 8 score. While pupil absences reduce self-esteem, self-esteem does not influence attainment. Net of these psychosocial factors, pupil absences have a strong direct impact on the Attainment 8 score.

Consequently, externalising behaviour, risky behaviour, and educational motivation contribute to explaining the association between pupil absences and Attainment 8, while prosocial behaviour and self-esteem do not in our analysis. Overall, 13.5% of the total effect of pupil absences on the Attainment 8 score is due to effects through these psychosocial factors.

We found the same patterns of associations in the Welsh context (see Figure 15). The contribution of psychosocial factors (16.3%), particularly externalising behaviour, to the absence–attainment association is somewhat larger than in England.

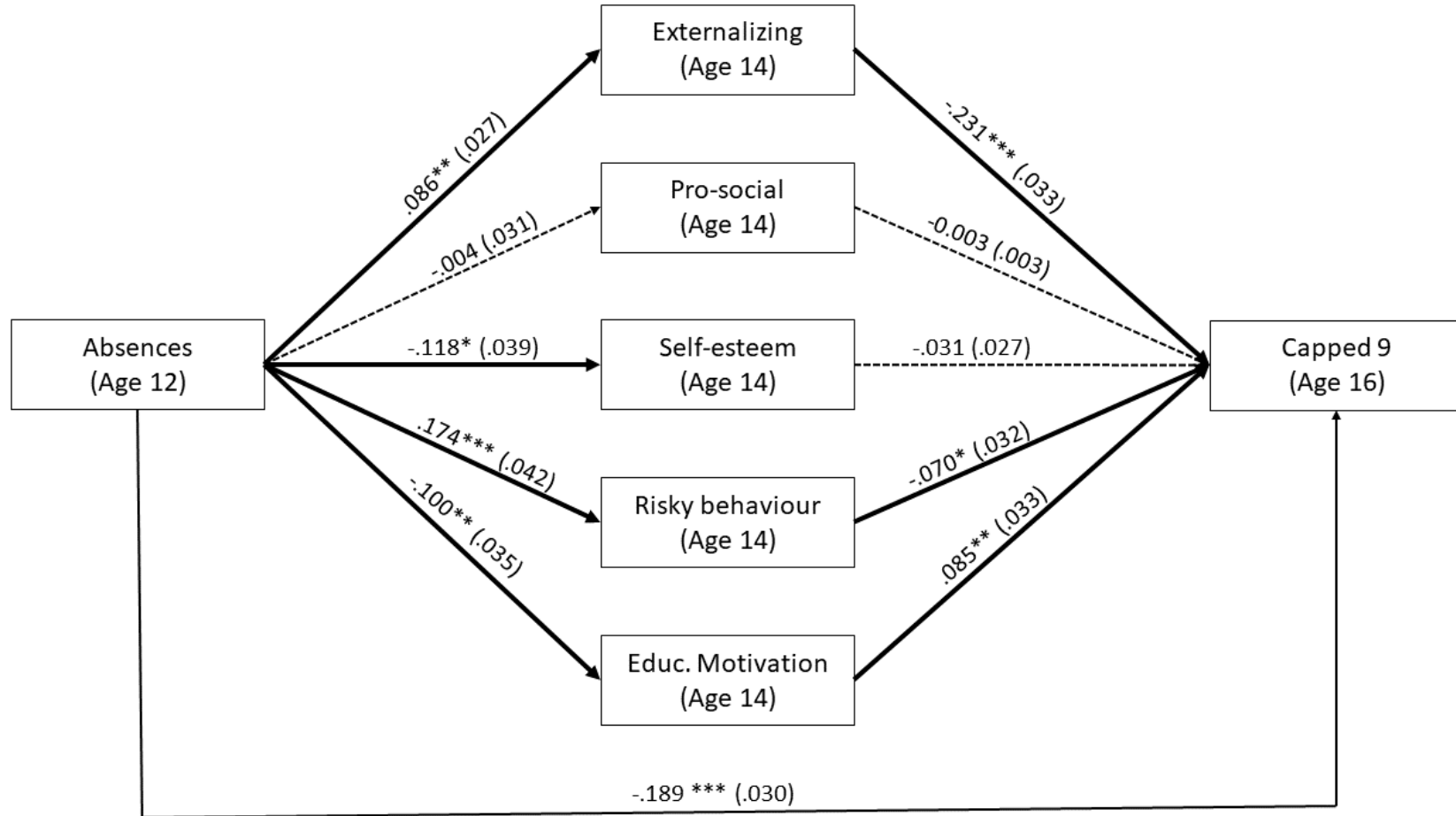
Figure 15. The role of psychosocial factors in the association between pupil absences and GCSE attainment in England



Source. Linked MCS-NPD data for England, N=7,204. Note: Weighted by inverse probability of attrition weights. Full Information Maximum Likelihood (FIML) for missing data. Standardised path coefficients shown.

*** p < .001; ** p < .01; * p < .05. Solid lines indicate p < .05; dashed lines indicate p > .05.

Figure 16. The role of psychosocial factors in the association between pupil absences and GCSE attainment in Wales



Source. Linked MCS-NPD data for Wales, N=1730. Note: Weighted by inverse probability of attrition weights. Full Information Maximum Likelihood (FIML) for missing data. Standardised path coefficients shown.
 *** p < .001; ** p < .01; * p < .05. Solid lines indicate p < .05; dashed lines indicate p > .05

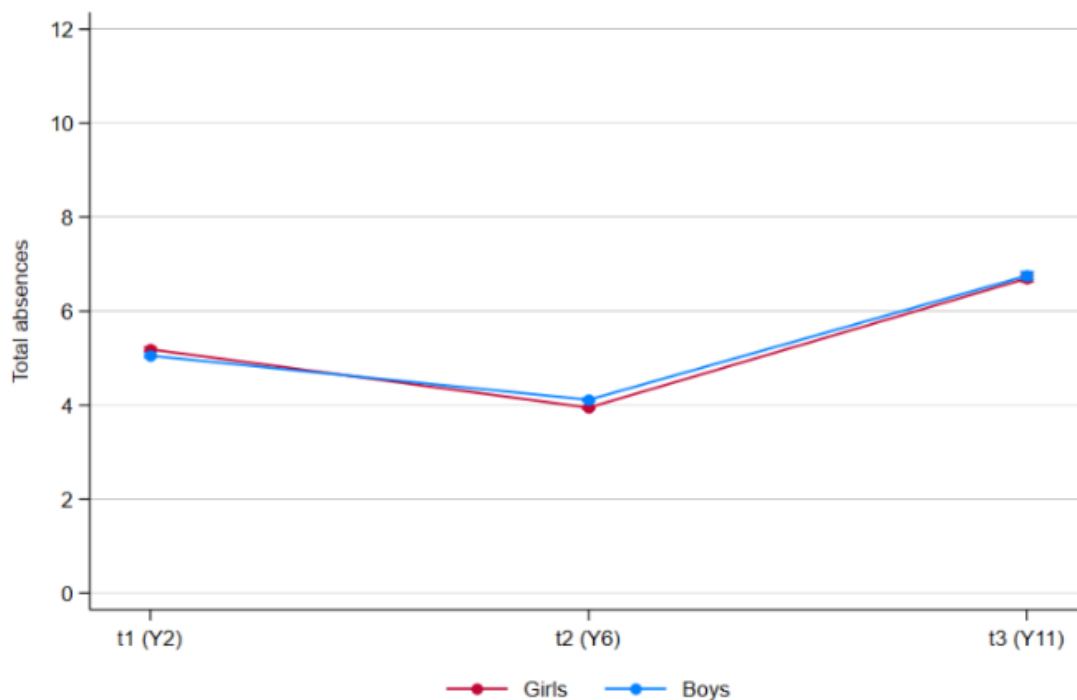
8. The association between school absences and attainment across sociodemographic groups

In this chapter, we explore whether and to what extent the association between pupils' absences and their attainment varies across sociodemographic groups in England. As in chapter 4.1.3., we used two-way fixed effects regressions to control for unobserved factors that may confound the association between absences and achievement. We estimated variation across sociodemographic groups in the effect of absence changes (total, authorised, unauthorised) on Math and English progress over three periods (years 2, 6, and 11) for different sociodemographic groups.¹⁷ We consider the following sociodemographic groups: gender, ethnicity, SES, and SEND (for measurement details see Chapter 2).

8.1. Pupil's gender

The analytical sample is fairly split in terms of gender representation: 48.5% girls and 51.5% boys (N = 7,908).¹⁸ Figure 15 shows that boys and girls do not differ in their absence rate across the three periods. Similar trends for boys and girls can also be found for authorised and unauthorised absences (see Figures A7 and A8 in the Appendix).

Figure 17. Total absence rate by pupil's gender over time



Source: Linked MCS-NPD data for England. *Note:* Weighted by inverse probability of attrition weights and multiple imputed.

Table 10 reports the effects of within-pupil changes in total absences on, respectively, English and Maths attainment overall and, separately, for boys and girls.

¹⁷ We present stratified models as they are easier and more intuitive to interpret, but we use fully interacted models to test for the statistical significance of the observed difference in the effect of absences on attainment between sociodemographic groups.

¹⁸ The analytic sample is somewhat smaller than in previous analyses (N = 7,908) as we did not impute the SEND status for cohort members for whom information in the NPD was unavailable.

Overall, a one percentage point increase in total absences is associated with a 0.016 SD reduction in English attainment and a 0.016 SD reduction in Maths attainment (see again the same effect sizes for the FE model in Table 5). The impact of overall absences on English and Maths attainment is negative and statistically significant for both boys and girls. The magnitude of the effect is somewhat larger for boys. However, the difference in the effect of absences for boys and girls is only statistically significant when considering Maths.

Overall, authorised, and authorised absences have a statistically significant negative impact on English and Math attainment. Unauthorised absences have a somewhat more detrimental impact on attainment than authorised absences. However, the difference is only statistically significant for Maths.

When stratifying the analysis by pupil's gender, the impact of both types of absences on English and Maths is negative and statistically significant for boys and girls. Both authorised and unauthorised absences are somewhat more detrimental for boys than for girls. The difference between authorised and unauthorised absences is statistically non-significant for girls and only statistically significant for boys when considering Maths attainment.

Table 10. Association between pupil absences and English and Maths attainment by pupil's gender.

		English	Maths	N
Overall	Total absences	-.016 *** (.001)	-.016 *** (.001)	7,908
Girls	Total absences	-.015 *** (.002)	-.014 *** (.001)	3,902
Boys	Total absences	-.017 *** (.001)	-.018 *** (.001)	4,006
Overall	Authorised absences	-.015 *** (.002)	-.014 *** (.001)	7,908
	Unauthorised absences	-.019 *** (.002)	-.019 *** (.002)	
	Difference	.004 (.002)	.005 * (.002)	
Girls	Authorised absences	-.013 *** (.002)	-.013 *** (.002)	3,902
	Unauthorised absences	-.017 *** (.002)	-.015 *** (.002)	
	Difference	.004 (.003)	.002 (.003)	
Boys	Authorised absences	-.016 *** (.002)	-.015 *** (.002)	4,006
	Unauthorised absences	-.020 *** (.003)	-.022 *** (.003)	
	Difference	.004 (.003)	.008* (.003)	

Source: Linked MCS-NPD data for England. *Note:* All models include pupil and year fixed effects. Weighted by inverse probability of attrition weights and multiple imputed. English and Maths attainment is standardised, standard errors are reported in parentheses. Difference = Authorised absence effect – Unauthorised absence effect.

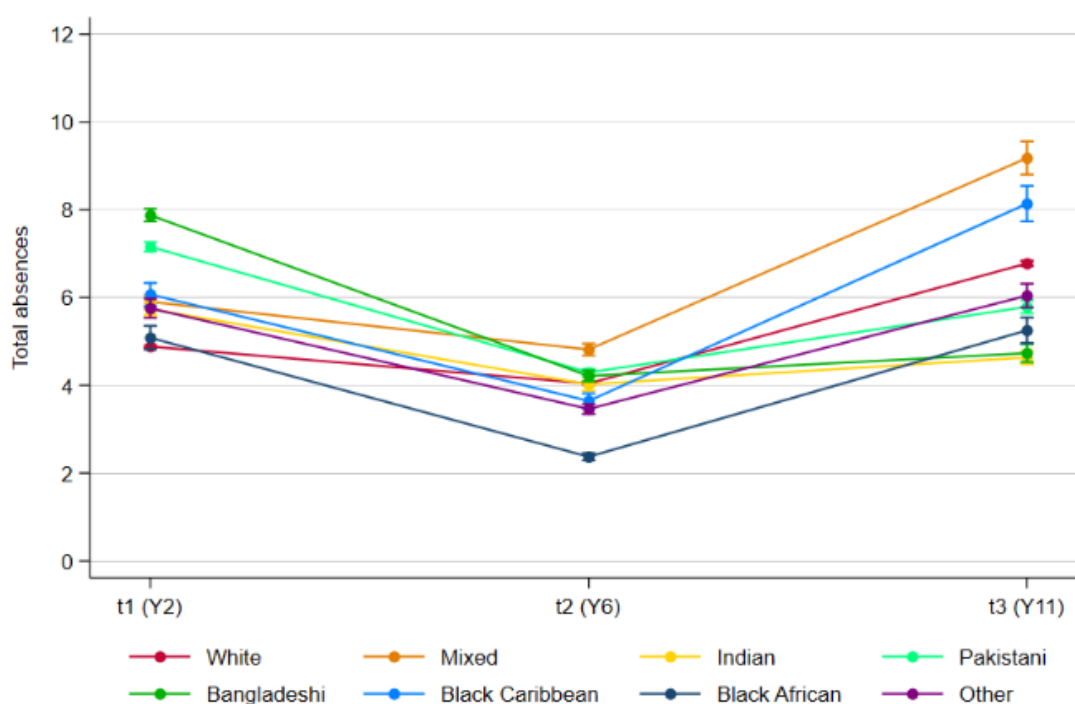
[†] $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

8.2. Pupil's ethnicity

Our sample is predominantly composed of *White* pupils (82.9%), with the next two largest groups being *Pakistani* (4.1%) and *Mixed* (3.9%) pupils. *Indian*, *Black African*, and *Other* pupils make up around 2% of the sample each, whilst *Black Caribbean* and *Bangladeshi* are around 1.5% each.

Figure 16 shows the total absence rate by pupil's ethnicity across schooling. The figure illustrates differences in the patterns of absenteeism of pupils from different ethnicities over time. For instance, pupils of Indian and Bangladeshi backgrounds have higher absence rates in year two than all other groups. This is mainly due to higher authorised absences in these groups (see Appendix Figures A8 and A9). However, this difference does not emerge in later years. By contrast, pupils of Mixed and Black Caribbean backgrounds have higher absence rates in year 11 than other groups. While pupils of Mixed backgrounds have heightened authorised and unauthorised absences compared to other groups, pupils of Black Caribbean backgrounds have higher absence rates due to unauthorised reasons. This difference was not evident in the previous years.

Figure 18. Total absence rate by pupil's ethnicity over time



Source: Linked MCS-NPD data for England. Note: Weighted by inverse probability of attrition weights and multiple imputed.

Table 11 reports the effects of within-pupil changes in total absences on, respectively, English and Maths attainment for the overall sample and, separately, for pupils of different ethnicities. While the negative impact of absences on attainment is larger for pupils of *Mixed*, *Black Caribbean* and *Other* backgrounds, it is much smaller for pupils of *Indian* and *Black African* backgrounds and not statistically significant. These differences in the impact of absences are more pronounced when considering English than Maths. However, few pairwise comparisons of the absence effect on attainment reveal statistically significant differences between ethnic groups.

When considering authorised and unauthorised absences separately and stratifying the analysis by pupil's ethnicity, patterns like those noted for total absences emerge (see Appendix Table A3). For pupils of *Mixed* and *Black Caribbean* backgrounds, the larger negative impact of absences on attainment is predominantly visible for those that are unauthorised. Likewise, unauthorised absences have a much stronger impact on attainment than authorised absences for *Bangladeshi* and *Pakistani* pupils.

Table 11. Association between pupil absences and English and Maths attainment by pupil’s ethnicity.

		English	Maths	N
Overall	Total absences	-.016 *** (.001)	-.016 *** (.001)	7,908
White	Total absences	-.015 *** (.001)	-.016 *** (.001)	6,089
Mixed	Total absences	-.021 *** (.004)	-.022 *** (.004)	289
Indian	Total absences	.002 (.008)	.001 (.006)	287
Pakistani	Total absences	-.018 *** (.006)	-.016 ** (.005)	521
Bangladeshi	Total absences	-.015 * (.007)	-.013 * (.006)	214
Black Caribbean	Total absences	-.031 [†] (.017)	-.023 [†] (.012)	124
Black African	Total absences	-.006 (.008)	-.001 (.008)	202
Other	Total absences	-.035 *** (.010)	-.019 * (.009)	182

Source: Linked MCS-NPD data for England. *Note:* All models include pupil and year fixed effects. Weighted by inverse probability of attrition weights and multiple imputed. English and Maths attainment is standardised, standard errors are reported in parentheses.

[†] $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

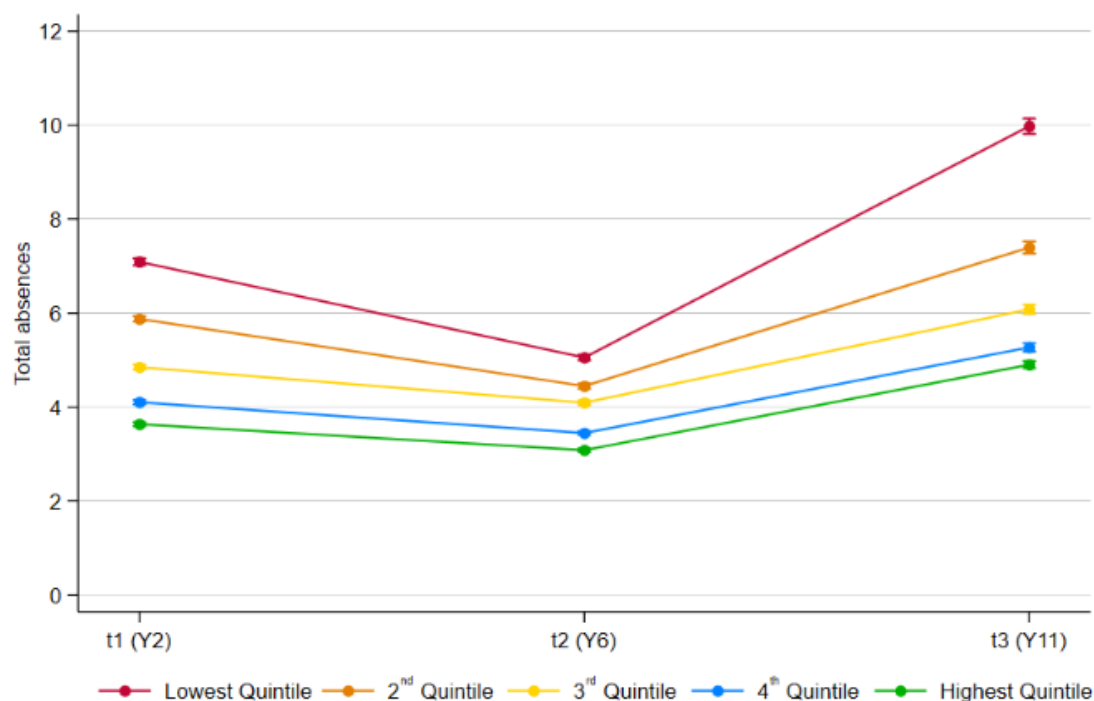
8.3. Family SES

Aside from household income quintiles, we used parents’ highest educational qualification as an indicator of family SES. The distribution in our sample is as follows: No qualification 12.6%, NVQ level 1 – 6.6%, NVQ level 2 – 26.2%, NVQ level 3 – 15%, NVQ level 4 – 33.5%, NVQ level 5 – 6.1%.

Figure 19 shows the total absence rate by household income over time. Pupils from lower household income quintiles are more frequently absent from school than those from higher income quintiles. The initial absence gap in year 2 becomes smaller in year six and then much stronger again in year 11 due to a sharp rise in absences among pupils from lower-income quintiles. This rise is predominantly driven by absences due to unauthorised reasons (see Appendix Figures 11 and 12). Similar SES gradients in school absenteeism are confirmed when considering parents’ highest educational qualification (see Appendix Figure A13-A15).

Table 12 reports the effects of within-individual changes in total absences on, respectively, English and Maths attainment overall and for the five income quintile groups. The impact of pupil absences on attainment is negative and statistically significant for all household income groups. There are no significant differences in the impact of absences on attainment in English and Math across pupils’ economic backgrounds. Both authorised and unauthorised absences have a statistically significant and negative effect on English and Maths attainment for pupils in all household income groups (see Appendix Table A4). Unauthorised absences are somewhat more detrimental to pupils’ attainment than authorised absences among pupils in the highest income quintiles. Authorised and unauthorised absences are equally harmful to pupils in the lowest income quintiles.

Figure 19. Total absence rate by pupil’s income quintile over time



Source: Linked MCS-NPD data for England. Note: Weighted by inverse probability of attrition weights and multiple imputed.

Table 12. Association between pupil absences and English and Maths attainment by household income.

		English	Maths	N
Overall	Total absences	-.016 *** (.001)	-.016 *** (.001)	7,908
Lowest quintile	Total absences	-.017 *** (.002)	-.016 *** (.002)	1,569
Second quintile	Total absences	-.015 *** (.002)	-.014 *** (.002)	1,617
Third quintile	Total absences	-.016 *** (.003)	-.017 *** (.003)	1,629
Fourth quintile	Total absences	-.016 *** (.003)	-.015 *** (.003)	1,601
Highest quintile	Total absences	-.020 *** (.005)	-.020 *** (.004)	1,460

Source: Linked MCS-NPD data for England. Note: All models include pupil and year fixed effects. Weighted by inverse probability of attrition weights and multiple imputed. English and Maths attainment is standardised, standard errors are reported in parentheses.

† $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 13 reports the effects of within-individual changes in total absences on, respectively, English and Maths attainment overall and for the six parental education groups. The impact of pupil absences on attainment is negative and of similar magnitude across all parental education groups. As with household income, we do not find much heterogeneity in the impact of total absences on attainment across pupils’ educational backgrounds. Unauthorised absences are somewhat more detrimental to attainment than authorised absences among pupils whose parents have higher educational qualifications (see Appendix Table A5). No such difference exists among pupils with lower educational backgrounds.

Table 13. Association between pupil absences and English and Maths attainment by parental education

		English	Maths	N
Overall	Total absences	-.016 *** (.001)	-.016 *** (.001)	7,908
None	Total absences	-.017 *** (.002)	-.016 *** (.002)	1,024
NVQ Level 1	Total absences	-.016 *** (.003)	-.016 *** (.003)	487
NVQ Level 2	Total absences	-.017 *** (.002)	-.016 *** (.002)	2,019
NVQ Level 3	Total absences	-.016 ** (.003)	-.016 ** (.003)	1,159
NVQ Level 4	Total absences	-.016 *** (.003)	-.017 *** (.002)	2,672
NVQ Level 5	Total absences	-.017 (.011)	-.020 * (.009)	504

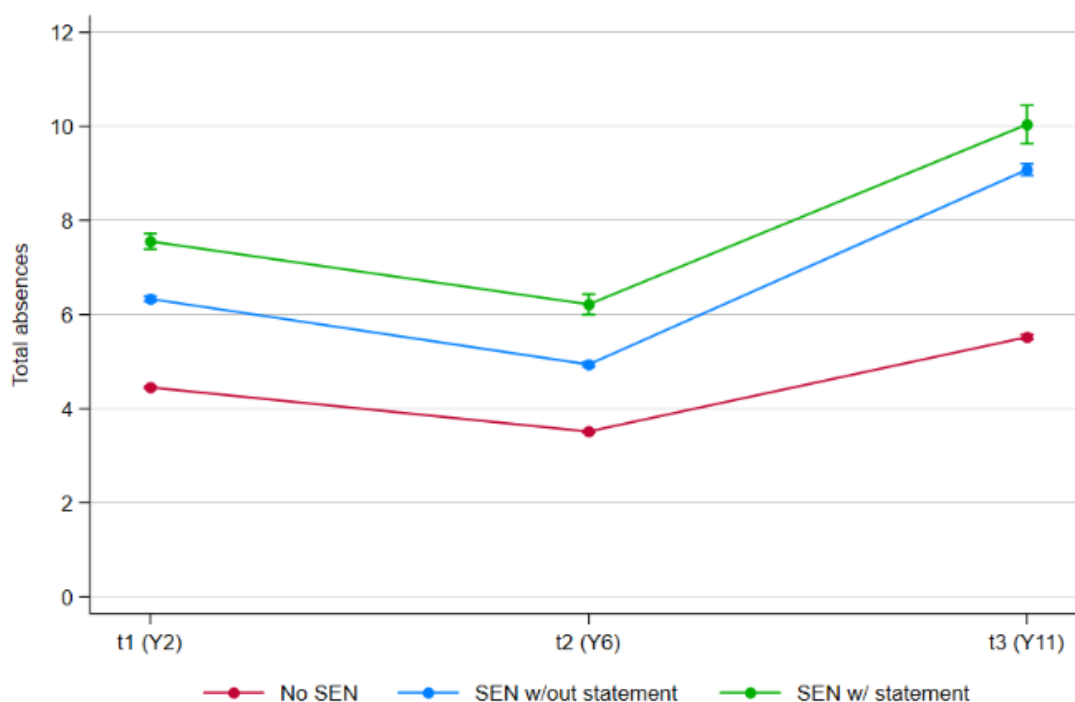
Source: Linked MCS-NPD data for England. Note: All models include pupil and year fixed effects. Weighted by inverse probability of attrition weights and multiple imputed. English and Maths attainment is standardised, standard errors are reported in parentheses.

† $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

8.4. Pupils' SEND status

Regarding pupils' SEND status, 67.2 % of our sample were categorised as no SEN, 28.9% had SEN without statement and 3.9% had SEN with a statement.

Figure 20. Total absence rate by pupil's SEND status



Source: Linked MCS-NPD data for England. Note: Weighted by inverse probability of attrition weights and multiple imputed.

Figure 20 shows the total absence rate by pupil’s SEND status. At all three time points, there are clear and consistent gaps in absence rates by pupils’ SEND status. While pupils with no SEN have the lowest absence rate, pupils with SEN but without a statement take on an intermediate position, and pupils with SEN and statement have the highest absence rate. These trends are mirrored when considering authorised absences (see Appendix Figure A16). For unauthorised absences, the divide between SEN with or without a statement and no SEN becomes much more pronounced over time, while the distinction between with or without a statement seems to matter less.

Table 14. Association between pupil absences and English and Maths attainment by SEND status.

		English	Maths	N
Overall	Total absences	-.016 *** (.001)	-.016 *** (.001)	7,908
No SEN	Total absences	-.019 *** (.002)	-.019 *** (.002)	5,400
SEN without statement	Total absences	-.017 *** (.001)	-.016 *** (.001)	2,220
SEN with statement	Total absences	-.014 *** (.005)	-.013 *** (.004)	288

Source: Linked MCS-NPD data for England. *Note:* All models include pupil and year fixed effects. Weighted by inverse probability of attrition weights and multiple imputed. English and Maths attainment is standardised, standard errors are reported in parentheses.

† $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 14 reports the effects of changes in total absences on, respectively, English and Maths attainment for the overall sample and, separately, for the three groups of pupils depending on their SEN status.

The impact of total absences on English and Maths attainment is negative and statistically significant for all groups of pupils. The magnitude of the absence effect is somewhat larger for pupils identified as *no SEN*, followed by pupils identified as *SEN without a statement*, and pupils identified as *SEN with a statement*. However, these differences in the absence effect are small and statistically non-significant.

When considering authorised and unauthorised absences separately (see Table A6), we further do not see any stark differences in the impact of these types of absences on attainment. However, for *pupils on SEN with a statement*, the impact of authorised absences on attainment is much less pronounced than for unauthorised absences and statistically non-significant. For pupils with *no SEN* and *SEN without a statement*, both authorised and unauthorised absences have a statistically significant impact on attainment.

Overall, we discovered no clear and consistent patterns of a more negative impact of absences on achievement for groups that are more likely to be absent from school. While there is no difference in absence rates between boys and girls, the impact of absences on achievement is slightly more negative for boys, particularly in maths. Pupils of mixed and Black Caribbean descent are more likely to be absent from school in later stages, and the impact of absences on achievement is also more pronounced among them. In contrast, pupils from socioeconomically disadvantaged backgrounds and with SEN status are more frequently absent, but the impact of absences, if any, is slightly less pronounced.

9. Conclusion and Recommendations

Addressing school absenteeism has long been a key policy imperative in the UK and worldwide. However, the significant increases in school absenteeism since the COVID-19 pandemic have sharply intensified attention on this issue, elevating it to a new level of urgency among policymakers, practitioners, and parents. In this report, we have presented new evidence about the short and long-term effects of school absence on pupils' educational attainment and labour market outcomes in the UK. We investigated how absence dynamics, such as trajectory, timing, and reason for absence, affect educational attainment. We provided unique evidence on whether the impact of absences on academic attainment and labour market outcomes varies across UK countries (England, Wales, and Scotland), as well as sociodemographic characteristics such as gender, ethnicity, SES, and SEND.

Our *key findings*, based on an analysis of birth cohort studies and linked school administrative data, show the following:

- School absences negatively impact the short-term outcomes of educational attainment at the end of compulsory school and the long-term outcomes of attainment and labour market participation in mid-adulthood.
- Absences during all stages of schooling negatively impact pupils' educational attainment. However, absences during the transition phase from primary to secondary school, as well as the early and middle stages of secondary school are especially harmful, likely due to the multiple transitions that pupils face at this stage.
- While patterns of increasing absence trajectories of school absences are rooted in early primary schooling, they emerge during the transition from primary to secondary school.
- Although increasing absence trajectories are the most harmful for educational attainment, even moderate absence levels throughout pupils' schooling have significant negative consequences.
- Both authorised and unauthorised absences harm educational attainment equally at all stages of schooling. However, cumulative unauthorised absences across schooling are more detrimental to attainment at the end of compulsory schooling than cumulative authorised absences. In addition, the Strongly Increasing Unauthorised Absence trajectory has the most detrimental impact on attainment compared to all other trajectories of absences.
- Our evidence suggests that the negative association between school absences and educational attainment is due in part to decreased educational motivation and increased problem and risky behaviours caused by absences.
- Absenteeism's negative impact on educational attainment is consistent across England, Wales, and Scotland and sociodemographic groups (family SES, gender, SEND, and ethnicity). However, because pupils from lower socioeconomic backgrounds, ethnic minority pupils (e.g., Indian, Bangladeshi, and Black Caribbean), and SEND pupils are more likely to be absent from school, policy and practice interventions that address the underlying challenges these groups face will be critical in improving overall school attendance levels in the UK.

Our findings have clear *implications for policy and practice*. Our key recommendations are as follows:

1. Targeted interventions to reduce absences

Given recent persistent increases in school absenteeism, particularly among vulnerable groups, there is a pressing need to develop targeted interventions to reduce absenteeism and break the cycle of intergenerational disadvantage in educational and labour market outcomes. These interventions must target the underlying causes of absenteeism. Crucially, there should be a focus on addressing the various risk factors, such as poverty experiences and consequences, as well as mental and physical health issues. Given various underlying causes of absences, tailored interventions are required to address the specific reasons for absenteeism among pupils and planning support for students and their families to overcome attendance barriers (Education Endowment Foundation, 2022). Given the important role of parents and carers, interventions

should emphasise fostering a strong and positive school-home relationship to increase school attendance.

2. Recover lost learning for missed school content

We recommend policy and practice interventions that prioritise helping pupils recover lost learning when they miss school. Being absent from school means missing out on vital learning. Existing policies should include approaches such as additional tuition during and after school (Education Endowment Foundation, 2024), as well as homework to catch up on what was missed during the absence. Some absences, such as those caused by illness or family circumstances, are unavoidable. As a result, there is an urgent need for policies that directly address the loss of learning caused by these circumstances.

3. Provide lifelong learning opportunities

Policy and practice should provide more targeted opportunities for lifelong learning so that chronically absent pupils can develop the skills they need to succeed in education and the labour market later. This is because frequent absences from school can result in gaps in foundational skills (e.g., basic literacy and numeracy).

4. Systematic health screening and interventions

We recommend that policies aimed at increasing school attendance, educational attainment, and labour market success include health screening and intervention for frequently absent children. Absences due to illness indicate underlying health issues, which jeopardise pupils' academic success and future participation in education and employment. For example, in our BCS sample, we discovered that illness was the leading cause of absences at age 10, predicting higher levels of non-employment at age 42. This finding is consistent with previous research in Scotland, where sickness-related absences were a significant predictor of pupils not being in education, employment, or training three years after completing compulsory education (Klein & Sosu, 2024a). Sickness absence is thus most likely a key indicator of chronic health conditions, with negative consequences for future labour market outcomes. Improving pupils' health and well-being will result in increased attendance at school.

5. Whole-system approach

Improving school attendance requires a comprehensive, collaborative effort among schools, policymakers, educators, parents/carers, and a range of service providers, including CAMHS (Child and Adolescent Mental Health Services) and substance use prevention services (Education Endowment Foundation, 2022). A whole-system approach is crucial for proactively identifying and supporting pupils at risk of poor attendance. Attendance Hubs play a key role in this approach by facilitating collaboration, data sharing, and the development of targeted interventions across schools and agencies (House of Commons Education Committee, 2023). Effective collaboration demands that these various stakeholders work together, share data more effectively, and identify pupils in need of support at an earlier stage. This holistic approach will ensure that all factors contributing to absenteeism, such as mental health issues or substance use, are addressed in a coordinated manner.

6. Support administrative data usage in schools

There is a need for support and training for schools in using school administrative data to identify pupils with different patterns of school absences, target support at an early stage and prevent absences from escalating in subsequent years. Our findings show that the pattern of increasing absence trajectories emerges in the latter half of primary school and accelerates upon entry into secondary school. As a result, implementing policy measures for early detection of attendance issues is critical, allowing for timely intervention and support to prevent further disruptions to pupils' educational experiences. Furthermore, the importance of sharing attendance data between primary and secondary schools cannot be overstated. This data-sharing will ensure continuity in monitoring attendance patterns and allow secondary schools to

anticipate and address potential attendance issues before they become more severe, thereby preventing further disruptions to pupils' educational experiences.

7. Address all levels of absenteeism

Policies and interventions should address all levels of absenteeism, not just pupils with persistent absences. Although our findings confirm that increasing absence trajectories have the greatest negative impact on academic achievement, we also discovered that moderate levels of absence throughout a pupil's academic career have a significant negative impact. Thus, the current policy of focusing on chronic/persistent absenteeism may exclude those with moderate absences that accumulate over time. They are also likely to be excluded from interventions if we focus solely on those with high rates of absence. For example, pupils in the Consistently Moderate Authorised Absence trajectory group missed approximately 80 school days more than pupils in the Consistently Low Absence trajectory group. These significant differences are overlooked when focusing solely on chronic absenteeism.

8. Address absences at all stages of schooling

Interventions to improve attendance are needed at all stages of schooling. Policies and programmes should address attendance issues early in primary school, as early absences are a significant risk factor for later absences. Early support systems collaborating with parents to encourage attendance will be critical before pupils enter the most critical years. Given most absences at this stage are authorised, policy and practice interventions to address the root causes of absences should be prioritised.

9. Focus on attendance during the transition from primary and secondary schools

A particular emphasis should be placed on improving school attendance during the transition from primary to secondary school, as this is the critical stage at which school attendance has the greatest impact on academic achievement in our study. The end of primary school is especially important for preparing pupils for the next stage of their education, and those who miss out on this crucial experience are likely to suffer in the long run. Understanding and addressing the causes of non-attendance during this period should be a top priority for policymakers and practitioners.

10. Put equal emphasis on authorised and unauthorised absences

We advocate for an equal emphasis on addressing unauthorised and authorised absences such as sickness absences. Both types of absences have an equal impact on achievement at each school stage, and policymakers should prioritise reducing both types of absences. There is a predominant current policy focus on unauthorised absences, and we recommend an equal emphasis on addressing absences for legitimate reasons. To this end, the House of Commons Education Committee (2023) recommends launching a public information campaign to guide parents on when children should and should not attend school due to sickness.

11. Focus on improving educational motivation

Our findings indicate that absences reduce educational motivation. Therefore, interventions should include opportunities for frequently absent pupils to master concepts and experience success in educational progress after they return to help them stay motivated in school. This is consistent with evidence from Bandura's Social Cognitive Theory, which states that the mastery of an activity and experiences of success within an activity increase pupils' motivation. Additionally, it is crucial to consider the role of pupils' sense of belonging in maintaining their motivation. A strong sense of belonging in school has been shown to foster engagement and commitment, making pupils more likely to attend regularly and participate actively in their education. Therefore, interventions should also aim to strengthen pupils' connections with their peers, teachers, and the school community, ensuring they feel valued and supported, which can further enhance their motivation and overall educational experience.

12. Focus on reducing problem and risky behaviour

Interventions targeting problem and risky behaviours are crucial for reducing the negative impact of school absences on academic achievement. School absences often exacerbate such behaviours, which in turn hinder successful reintegration and learning when pupils return. By addressing these behaviours, schools can better support pupils' reintegration, enhance their learning, and improve educational outcomes.

Moreover, the role of other stakeholders, including parents, carers, and community services, is vital. Collaborative efforts to address problem behaviours both at school and at home will create a more supportive environment for pupils, helping to reduce absences and promote sustained educational success. This multi-faceted approach will ensure that pupils receive consistent support, reinforcing positive behaviours and improving their overall educational experience.

13. Address school absences among all pupils on a national scale

The negative impact of absences on all pupils' educational outcomes, regardless of sociodemographic characteristics, is a call to action. We strongly recommend addressing school absences for all pupils on a national scale. This collective effort can help to encourage broader and whole-school approaches and, importantly, reduce the stigma associated with absences among specific groups of pupils. Additionally, by fostering a sense of belonging for all pupils, schools can create a more inclusive environment where every pupil feels valued and supported, further reducing absences and promoting better educational outcomes.

10. References

- Ansari, A., Hofkens, T. L., & Pianta, R. C. (2020). Absenteeism in the First Decade of Education Forecasts Civic Engagement and Educational and Socioeconomic Prospects in Young Adulthood. *Journal of Youth and Adolescence*, 49(9), 1835–1848. <https://doi.org/10.1007/s10964-020-01272-4>
- Ansari, A., & Pianta, R. C. (2019). School absenteeism in the first decade of education and outcomes in adolescence. *Journal of School Psychology*, 76, 48–61. <https://doi.org/10.1016/j.jsp.2019.07.010>
- Attwood, G., & Croll, P. (2006). Truancy in secondary school pupils: Prevalence, trajectories and pupil perspectives. *Research Papers in Education*, 21(4), 467–484. <https://doi.org/10.1080/02671520600942446>
- Aucejo, E. M., & Romano, T. F. (2016). Assessing the effect of school days and absences on test score performance. *Economics of Education Review*, 55, 70–87. <https://doi.org/10.1016/j.econedurev.2016.08.007>
- Bernardi, F. (2014). Compensatory Advantage as a Mechanism of Educational Inequality. *Sociology of Education*, 87(2), 74–88. <https://doi.org/10.1177/0038040714524258>
- Burgette, L. F., & Reiter, J. P. (2010). Multiple Imputation for Missing Data via Sequential Regression Trees. *American Journal of Epidemiology*, 172(9), 1070–1076. <https://doi.org/10.1093/aje/kwq260>
- Busch, V., Loyen, A., Lodder, M., Schrijvers, A. J. P., Van Yperen, T. A., & De Leeuw, J. R. J. (2014). The Effects of Adolescent Health-Related Behavior on Academic Performance: A Systematic Review of the Longitudinal Evidence. *Review of Educational Research*, 84(2), 245–274. <https://doi.org/10.3102/0034654313518441>
- Cattan, S., Kamhöfer, D. A., Karlsson, M., & Nilsson, T. (2023). The long-term effects of pupil absence: Evidence from Sweden. *The Economic Journal*, 133(650), 888–903. <https://doi.org/10.1093/ej/ueac078>
- Department for Education. (2016). *The link between absence and attainment at KS2 and KS4*. <https://www.gov.uk/government/publications/absence-and-attainment-at-key-stages-2-and-4-2013-to-2014>
- Department for Education. (2020). *Pupil absence in schools in England: 2018 to 2019*. <https://www.gov.uk/government/statistics/pupil-absence-in-schools-in-england-2018-to-2019>
- Department for Education. (2024). *Pupil attendance in schools, week 29 2024*. <https://explore-education-statistics.service.gov.uk/find-statistics/pupil-attendance-in-schools>
- Department for Education. (2024). *Secondary accountability measures (including Progress 8 and Attainment 8)*. <https://www.gov.uk/government/publications/progress-8-school-performance-measure>
- Department for Education Northern Ireland. (2023). *Pupil attendance*. Education. <https://www.education-ni.gov.uk/articles/pupil-attendance>
- Dodgeon, B., & Parsons, S. (2011). *Deriving Highest Qualification in NCDS and BCS70* (2011/1; Data Note). Centre for Longitudinal Studies.
- Dräger, J., Klein, M., & Sosu, E. (2024). The long-term consequences of early school absences for educational attainment and labour market outcomes. *British Educational Research Journal*, berj.3992. <https://doi.org/10.1002/berj.3992>
- Education Endowment Foundation (2022). Attendance Interventions: Rapid Evidence Assessment. <https://educationendowmentfoundation.org.uk/education-evidence/evidence-reviews/attendance-interventions-rapid-evidence-assessment>
- Education Endowment Foundation (2024). National Tutoring Programme: NTP Tuition Partners. <https://educationendowmentfoundation.org.uk/projects-and-evaluation/projects/national-tutoring-programme-ntp-tuition-partners>
- Education Scotland (2023). Improving Attendance: Understanding the Issues. <https://education.gov.scot/media/3kdenpq4/improving-attendance-understanding-the-issues-101123-pw.pdf>
- Genolini, C., Pingault, J. B., Driss, T., Côté, S., Tremblay, R. E., Vitaro, F., Arnaud, C., & Falissard, B. (2013). KmL3D: A non-parametric algorithm for clustering joint trajectories. *Computer Methods and Programs in Biomedicine*, 109(1), 104–111. <https://doi.org/10.1016/j.cmpb.2012.08.016>

- Goodman, R. (1997). The Strengths and Difficulties Questionnaire: A Research Note. *Journal of Child Psychology and Psychiatry*, 38(5), 581–586. <https://doi.org/10.1111/j.1469-7610.1997.tb01545.x>
- Gottfried, M. A. (2010). Evaluating the Relationship Between Pupil Attendance and Achievement in Urban Elementary and Middle Schools: An Instrumental Variables Approach. *American Educational Research Journal*, 47(2), 434–465. <https://doi.org/10.3102/0002831209350494>
- Gottfried, M. A. (2014). Chronic Absenteeism and Its Effects on Pupils' Academic and Socioemotional Outcomes. *Journal of Education for Pupils Placed at Risk (JESPAR)*, 19(2), 53–75. <https://doi.org/10.1080/10824669.2014.962696>
- Heckman, J. J. (2006). Skill Formation and the Economics of Investing in Disadvantaged Children. *Science*, 312, 1900–1902.
- House of Commons Education Committee (2023). *Persistent absence and support for disadvantaged pupils*. <https://committees.parliament.uk/publications/41590/documents/205047/default/>
- Jay, M. A., Mc Grath-Lone, L., & Gilbert, R. (2019). Data Resource: The National Pupil Database (NPD). *International Journal of Population Data Science*, 4(1). <https://doi.org/10.23889/ijpds.v4i1.1101>
- Johnson, J., & Setakis, E. (2015). *MCS4: A guide to the Linked Education Administrative Datasets*. Centre for Longitudinal Studies, Institute of Education, UCL.
- Joshi, H., & Fitzsimons, E. (2016). The Millennium Cohort Study: The making of a multi-purpose resource for social science and policy. *Longitudinal and Life Course Studies*, 7(4). <https://doi.org/10.14301/lles.v7i4.410>
- Kirksey, J. J. (2019). Academic Harms of Missing High School and the Accuracy of Current Policy Thresholds: Analysis of Preregistered Administrative Data From a California School District. *AERA Open*, 5(3), 233285841986769. <https://doi.org/10.1177/2332858419867692>
- Klein, M., & Sosu, E. (2024a). School absences, academic achievement, and adolescents' post-school destinations. *Oxford Review of Education*, 1–18. <https://doi.org/10.1080/03054985.2024.2308520>
- Klein, M., & Sosu, E. M. (2024b). School Attendance and Academic Achievement: Understanding Variation across Family Socioeconomic Status. *Sociology of Education*, 97(1), 58–75. <https://doi.org/10.1177/00380407231191541>
- Klein, M., Sosu, E. M., & Dare, S. (2020). Mapping inequalities in school attendance: The relationship between dimensions of socioeconomic status and forms of school absence. *Children and Youth Services Review*, 118, 105432. <https://doi.org/10.1016/j.childyouth.2020.105432>
- Klein, M., Sosu, E. M., & Dare, S. (2022). School Absenteeism and Academic Achievement: Does the Reason for Absence Matter? *AERA Open*, 8, 233285842110711. <https://doi.org/10.1177/23328584211071115>
- Lyons, R. A., Jones, K. H., John, G., Brooks, C. J., Verplancke, J.-P., Ford, D. V., Brown, G., & Leake, K. (2009). The SAIL databank: Linking multiple health and social care datasets. *BMC Medical Informatics and Decision Making*, 9(1), 3. <https://doi.org/10.1186/1472-6947-9-3>
- MacGregor-Fors, I., & Payton, M. E. (2013). Contrasting Diversity Values: Statistical Inferences Based on Overlapping Confidence Intervals. *PLoS ONE*, 8(2), e56794. <https://doi.org/10.1371/journal.pone.0056794>
- Morrissey, T. W., Hutchison, L., & Winsler, A. (2014). Family income, school attendance, and academic achievement in elementary school. *Developmental Psychology*, 50(3), 741–753. <https://doi.org/10.1037/a0033848>
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton University Press.
- Scottish Government. (2022). *School attendance and absence statistics*. <http://www.gov.scot/publications/school-attendance-and-absence-statistics/>
- Sosu, E. M., & Klein, M. (2021). *Socioeconomic disparities in school absenteeism after the first wave of COVID-19 school closures in Scotland*. <https://doi.org/10.31235/osf.io/f4jsy>
- Symonds, J. E., D'Urso, G., & Schoon, I. (2022). The long-term benefits of adolescent school engagement for adult educational and employment outcomes. *Developmental Psychology*. <https://doi.org/10.1037/dev0001458>
- Tingay, K. S., Bandyopadhyay, A., Griffiths, L., Akbari, A., Brophy, S., Bedford, H., Cortina-Borja, M., Setakis, E., Walton, S., Fitzsimons, E., Dezateux, C., & Lyons, R. (2019). Record linkage to enhance consented cohort and routinely collected health data from a UK birth cohort. *International Journal of Population Data Science*, 4(1). <https://doi.org/10.23889/ijpds.v4i1.579>

- Welsh Government. (2019). *The Capped 9 Points Score (Interim)*. <https://www.gov.wales/capped-9-points-score-interim>
- Welsh Government (2023a). Belonging, engaging, and participating. Guidance on improving learner engagement and attendance. https://www.gov.wales/sites/default/files/publications/2023-10/improving-school-attendance-guidance_0.pdf
- Welsh Government. (2023b). *Attendance of pupils in maintained schools: 5 September 2022 to 24 February 2023*. <https://www.gov.wales/attendance-pupils-maintained-schools-5-september-2022-24-february-2023>
- Wodtke, G. T. (2018). Regression-based Adjustment for Time-varying Confounders. *Sociological Methods & Research*, 004912411876908. <https://doi.org/10.1177/0049124118769087>

11. Appendix

Tables

Table A1. Covariates in MCS and BCS70

Dimension	Variable	MCS	BCS70
Socioeconomic status	Highest parental education	X	X
	Highest parental class	X	X
	Household income	X	X
	Housing tenure	X	X
	Neighbourhood deprivation decile	X	X
Demographics	Ethnicity	X	X
	Date of birth	X	
	Gender	X	X
	Family structure	X	X
	Household size	X	X
	Region	X	X
	Number of children in household	X	
Cognitive Ability/Achievement	Cognitive ability assessments	X	X
	Previous school attainment	X	
Attitude towards school	Pupil's attitude towards school	X	
	Parents' attitude towards school (reported by parents)	X	
	Pupil's educational aspirations	X	
	Parents' educational aspirations	X	X
Pupil behaviour	Internalising behaviour	X	
	Externalising behaviour	X	X
Pupil Health	Child has longstanding illness	X	
	General health	X	
Birth conditions	Birthweight	X	X
	Was in special care unit	X	X
	Mother smoked during pregnancy	X	X
	Mother's alcohol consumption during pregnancy	X	X
Parental involvement	Parents had meeting with teacher	X	X
	Joint learning-related activities	X	X
	Parenting attitudes		X
School characteristics	Stream	X	X
	Set (English and Math)	X	X
	School type	X	X
Disruptive events	Parents mental health problems	X	X
	Changed school	X	
	Moved residence	X	X

Note: Covariates in the BCS70 are all measured before age 10. For more information on measurement in the BCS70 see Supporting Information: <https://bera-journals.onlinelibrary.wiley.com/doi/full/10.1002/berj.3992>; Covariates in the MCS include time-constant and time-varying characteristics. For more information on measurement see Appendix at <https://osf.io/preprints/edarxiv/ch4jq>

Table A2. Associations between school absences (days), months in unemployment, and weekly gross earnings (log)

	Months in unemployment		Weekly gross earnings (log)	
	AME	SE	b	SE
Bivariate	0.054*	0.028	-0.004*	0.002
Adjusted	0.045	0.030	0.000	0.002
N	9,082		5,798	

Source: BCS70. Note: *Unemployment*: Multiple imputed and weighted to correct for attrition. *Earnings*: Multiple imputed and weighted to correct for attrition and selection into employment.

[†] $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A3. Association between authorised/unauthorised absences and attainment by pupil's ethnicity.

		English	Maths	N
Overall	Authorised absences	-.015 *** (.002)	-.014 *** (.001)	7,908
	Unauthorised absences	-.019 *** (.002)	-.019 *** (.002)	
	Difference	.004 (.002)	.005 * (.002)	
White pupils	Authorised absences	-.014 *** (.002)	-.013 *** (.002)	6,089
	Unauthorised absences	-.017 *** (.002)	-.019 *** (.002)	
	Difference	.003 (.003)	.005 * (.002)	
Mixed pupils	Authorised absences	-.014 ** (.005)	-.018 *** (.005)	289
	Unauthorised absences	-.030 ** (.009)	-.027 *** (.008)	
	Difference	.016 (.012)	.009 (.010)	
Indian pupils	Authorised absences	.000 (.009)	.000 (.007)	287
	Unauthorised absences	.011 (.019)	.005 (.017)	
	Difference	-.010 (.021)	-.005 (.018)	
Pakistani pupils	Authorised absences	-.013 [†] (.007)	-.010 (.007)	521
	Unauthorised absences	-.023 * (.007)	-.022 ** (.007)	
	Difference	.010 (.009)	.013 (.010)	
Bangladeshi pupils	Authorised absences	.001 (.011)	-.004 (.011)	214
	Unauthorised absences	-.027 *** (0.005)	-.019 ** (.006)	
	Difference	.028 * (.012)	.015 (.011)	
Black Caribbean pupils	Authorised absences	-.022 (.014)	-.022 [†] (.012)	124
	Unauthorised absences	-.038 (.027)	-.024 (.019)	
	Difference	.016 (.030)	.002 (.022)	
Black African pupils	Authorised absences	-.006 (.012)	.002 (.012)	202
	Unauthorised absences	-.007 (.010)	-.004 (.009)	
	Difference	.001 (.015)	.005 (.014)	
Other	Authorised absences	-.039 * (.018)	-.023 (.017)	182
	Unauthorised absences	-.031 [†] (.016)	-.015 (.013)	
	Difference	-.008 (.027)	-.008 (.025)	

Source: Linked MCS-NPD data for England. Note: All models include pupil and year fixed effects. Weighted by inverse probability of attrition weights and multiple imputed. English and Maths attainment is standardised, standard errors in parentheses. Difference = Authorised absence effect – Unauthorised absence effect.

[†] $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A4. Association between authorised/unauthorised absences and attainment by household income.

		English	Maths	N
Overall	Authorised absences	-.015 *** (.002)	-.014 *** (.001)	7,908
	Unauthorised absences	-.019 *** (.002)	-.019 *** (.002)	
	Difference	.004 (.002)	.005 * (.002)	
Lowest quintile	Authorised absences	-.017 *** (.003)	-.015 *** (.002)	1,569
	Unauthorised absences	-.017 *** (.003)	-.017 *** (.002)	
	Difference	.001 (.004)	.002 (.003)	
Second quintile	Authorised absences	-.015 *** (.003)	-.012 *** (.003)	1,617
	Unauthorised absences	-.015 *** (.003)	-.016 *** (.003)	
	Difference	.000 (.004)	.004 (.004)	
Third quintile	Authorised absences	-.009 * (.004)	-.013 *** (.003)	1,629
	Unauthorised absences	-.027 *** (.005)	-.023 *** (.004)	
	Difference	.018 ** (.006)	.010 τ (.005)	
Fourth quintile	Authorised absences	-.013 *** (.003)	-.012 *** (.003)	1,601
	Unauthorised absences	-.024 *** (.006)	-.024 *** (.005)	
	Difference	.011 τ (.007)	.012 * (.006)	
Highest quintile	Authorised absences	-.015 *** (.005)	-.015 ** (.005)	1,460
	Unauthorised absences	-.036 ** (.012)	-.038 *** (.015)	
	Difference	.021 (.014)	.023 (.017)	

Source: Linked MCS-NPD data for England. Note: All models include pupil and year fixed effects. Weighted by inverse probability of attrition weights and multiple imputed. English and Maths attainment is standardised, standard errors in parentheses. Difference = Authorised absence effect – Unauthorised absence effect.

τ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A5. Association between authorised/unauthorised absences and attainment by parental education.

		English	Maths	N
Overall	Authorised absences	-.015 *** (.002)	-.014 *** (.001)	7,908
	Unauthorised absences	-.019 *** (.002)	-.019 *** (.002)	
	Difference	.004 (.002)	.005 * (.002)	
None	Authorised absences	-.017 *** (.004)	-.015 *** (.003)	1,024
	Unauthorised absences	-.017 *** (.004)	-.016 *** (.003)	
	Difference	.000 (.005)	.001 (.004)	
NVQ Level 1	Authorised absences	-.015 *** (.004)	-.014 *** (.004)	487
	Unauthorised absences	-.018 *** (.005)	-.019 *** (.004)	
	Difference	.003 (.007)	.005 (.006)	
NVQ Level 2	Authorised absences	-.016 *** (.003)	-.013 *** (.003)	2,019
	Unauthorised absences	-.019 *** (.003)	-.018 *** (.003)	
	Difference	.003 (.004)	.005 (.004)	
NVQ Level 3	Authorised absences	-.013 *** (.003)	-.015 *** (.003)	1,159
	Unauthorised absences	-.020 *** (.004)	-.017 *** (.040)	
	Difference	.007 (.006)	.002 (.005)	
NVQ Level 4	Authorised absences	-.011 *** (.003)	-.012 *** (.003)	2,672
	Unauthorised absences	-.028 *** (.006)	-.028 *** (.005)	
	Difference	.017 (.008)	.016 ** (.006)	
NVQ Level 5	Authorised absences	-.010 (.015)	-.013 (.013)	504
	Unauthorised absences	-.037 (.024)	-.039 [†] (.022)	
	Difference	.027 (.030)	.026 (.028)	

Source: Linked MCS-NPD data for England. Note: All models include pupil and year fixed effects. Weighted by inverse probability of attrition weights and multiple imputed. English and Maths attainment is standardised, standard errors in parentheses. Difference = Authorised absence effect – Unauthorised absence effect.

[†] $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A6. Association between authorised/unauthorised absences and English and Maths attainment by SEND status.

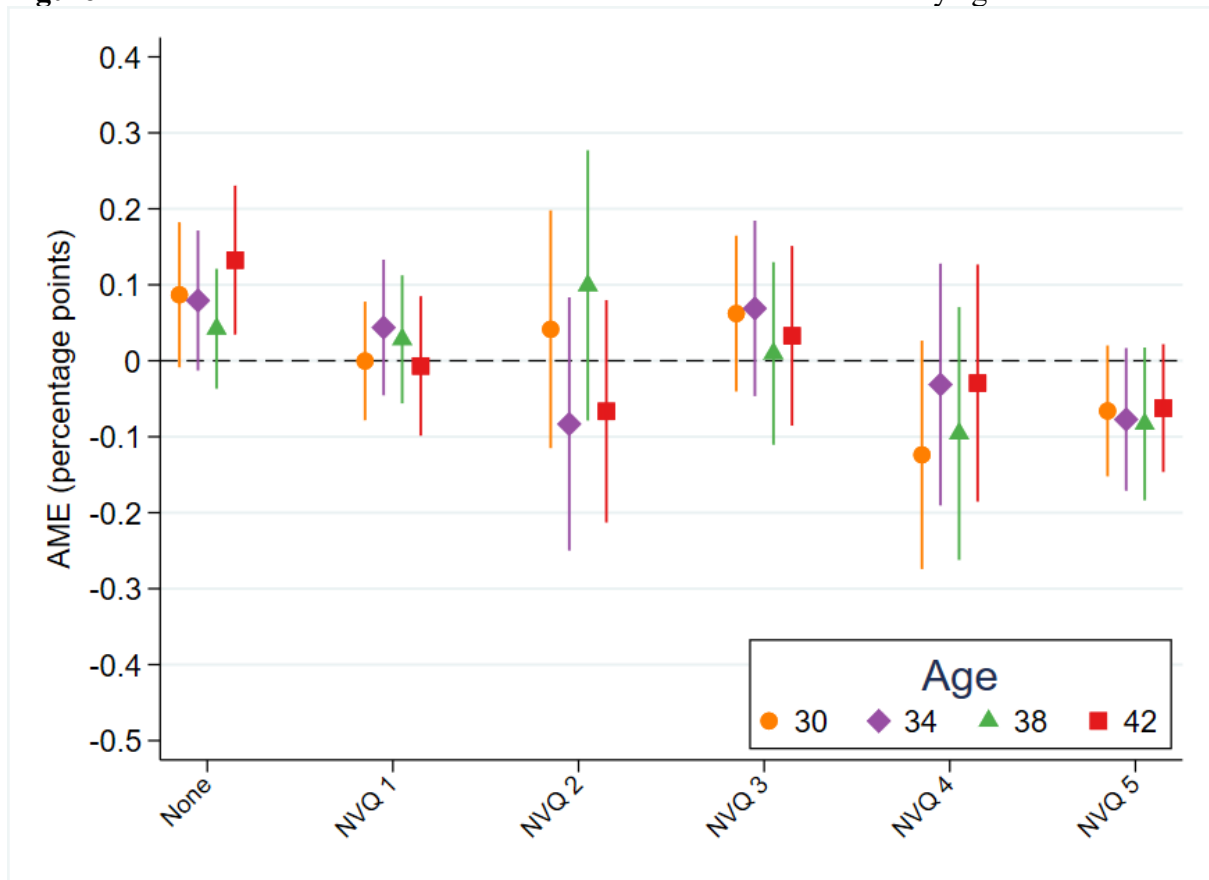
		English	Maths	N
Overall	Authorised absences	-.015 *** (.002)	-.014 *** (.001)	7,908
	Unauthorised absences	-.019 *** (.002)	-.019 *** (.002)	
	Difference	.004 (.002)	.005 * (.002)	
No SEN	Authorised absences	-.015 *** (.002)	-.015 *** (.002)	5,400
	Unauthorised absences	-.025 *** (.003)	-.023 *** (.003)	
	Difference	.010 ** (.004)	.008 * (.004)	
SEN without statement	Authorised absences	-.015 *** (.002)	-.013 *** (.002)	2,200
	Unauthorised absences	-.018 *** (.002)	-.018 *** (.002)	
	Difference	.003 (.003)	.005 ^τ (.003)	
SEN with statement	Authorised absences	-.008 (.007)	-.005 (.007)	288
	Unauthorised absences	-.020 * (.009)	-.023 ** (.008)	
	Difference	.012 (.013)	.017 (.011)	

Source: Linked MCS-NPD data for England. *Note:* All models include pupil and year fixed effects. Weighted by inverse probability of attrition weights and multiple imputed. English and Maths attainment is standardised, standard errors are reported in parentheses. Difference = Authorised absence effect – Unauthorised absence effect.

^τ $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

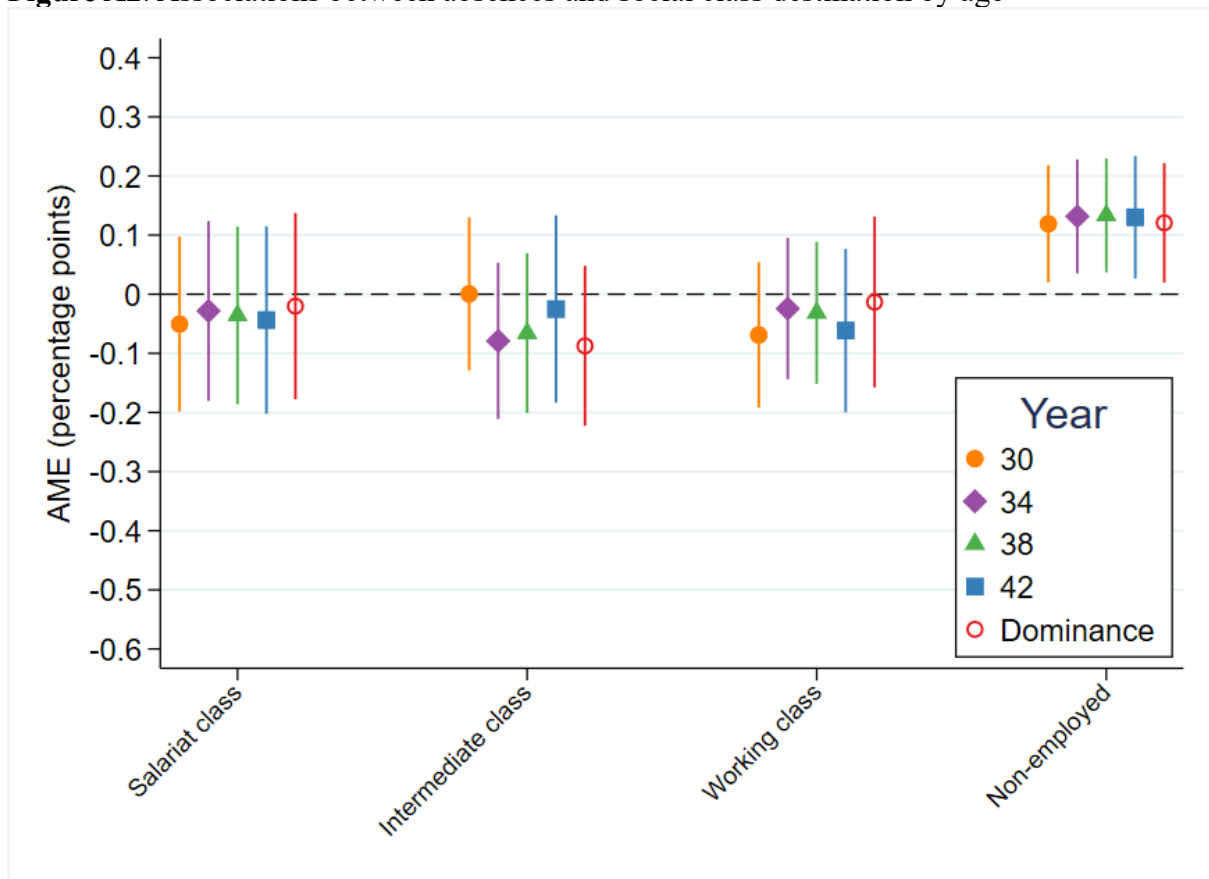
Figures

Figure A1. Associations between absences and educational attainment by age



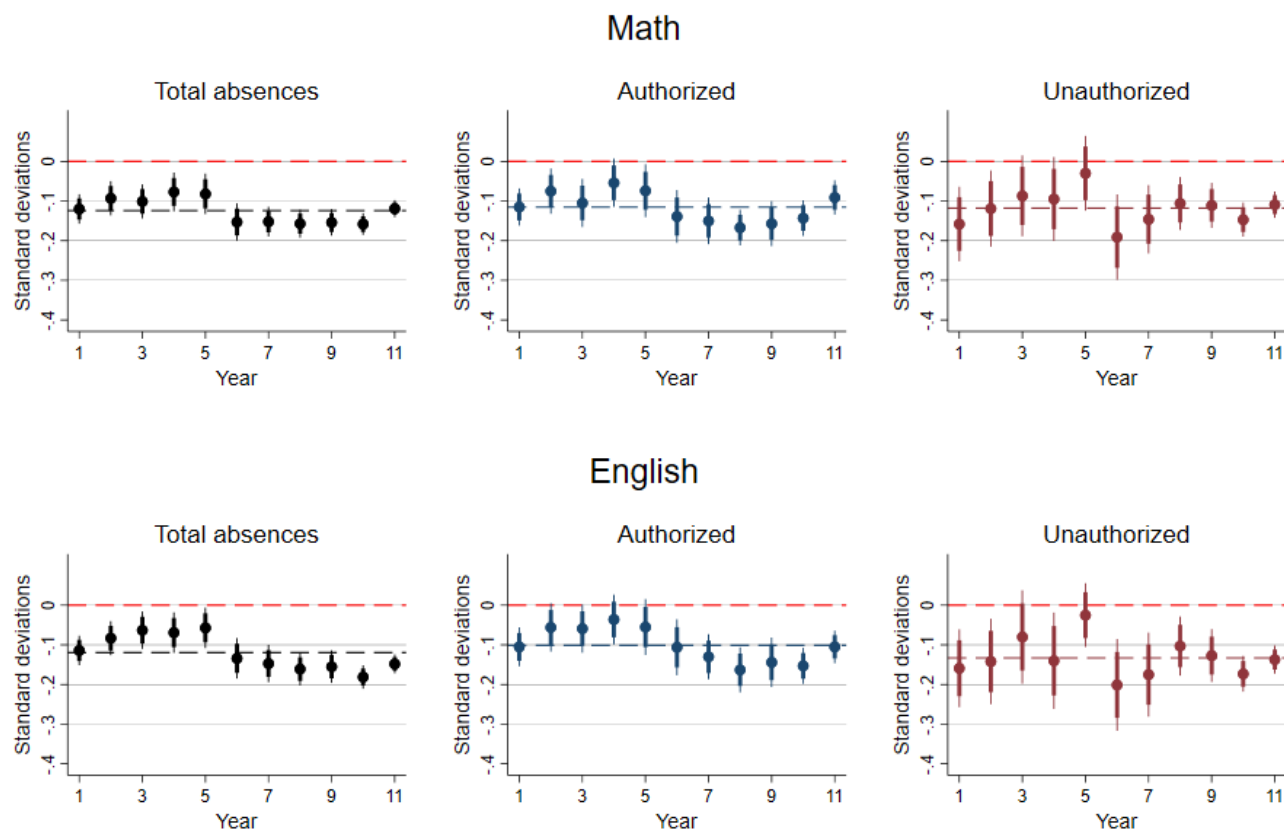
Source: BCS70; Note: Adjusted for risk factors, multiple imputed and weighted to correct for attrition.
N₃₀=9,758, N₃₄=8,432, N₃₈=7,751, N₄₂=8,535.

Figure A2. Associations between absences and social class destination by age



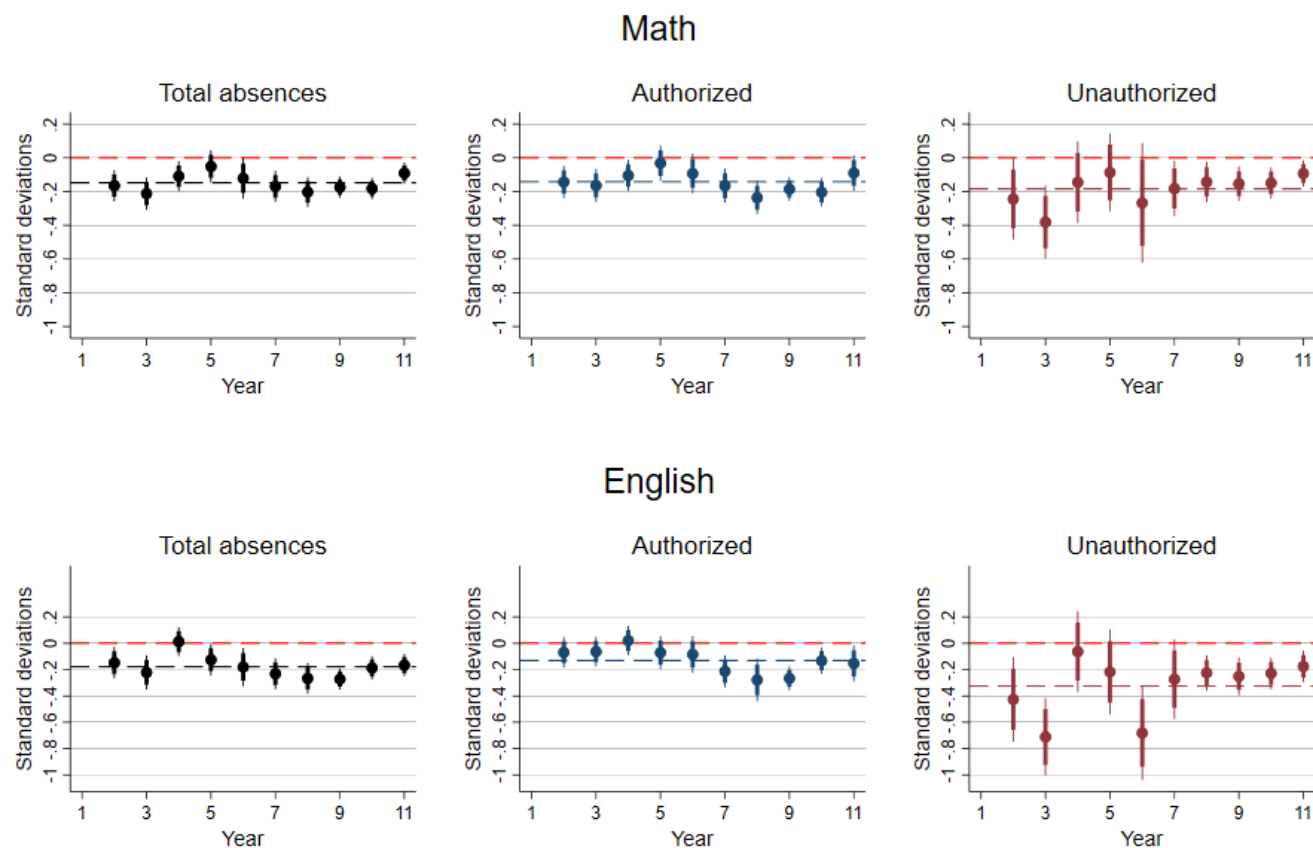
Source: BCS70; Note: Adjusted for risk factors, multiple imputed and weighted to correct for attrition.
 $N_{30}=10,382$, $N_{34}= 10,106$, $N_{38}= 9,449$, $N_{42}= 8,653$, $N_{\text{Dominance}}= 9,012$.

Figure A3 Association between pupil absences and GCSE English and Maths by timing for absence in England.



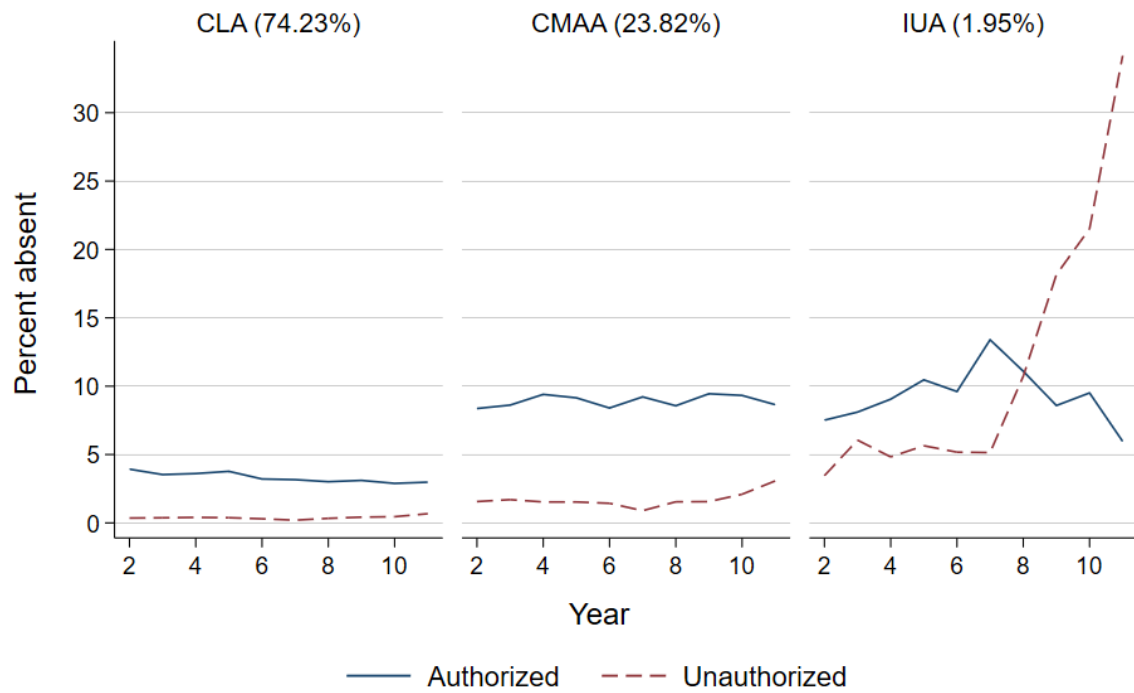
Source: Linked MCS-NPD data for England. N=8,139. *Note:* Multiple Imputed and weighted with inverse probability of attrition weights. Estimates derived from year-specific OLS regressions adjusting for covariates, including previous absences. Black dots: estimates for total absences, blue dots: estimates for authorised absences, red dots: estimates for unauthorised absences. The thin vertical lines represent the 95%-confidence intervals. The thick vertical lines indicate the 84%-confidence intervals. The dashed horizontal lines show the average effect across all years.

Figure A4 Association between pupil absences and GCSE English and Maths by timing for absence in Wales.



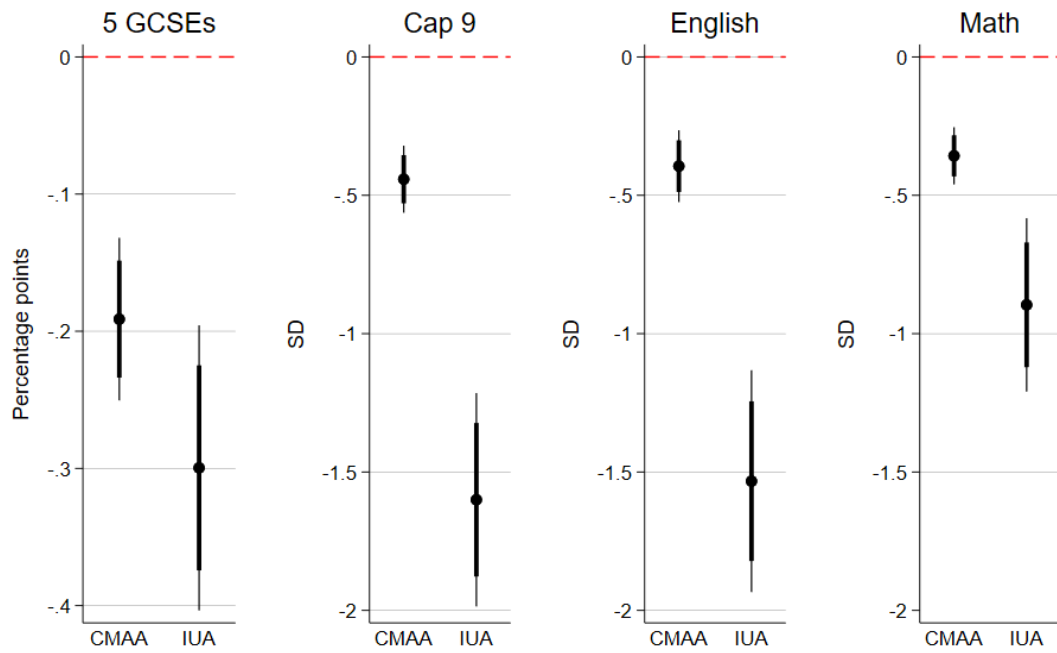
Source: Linked MCS-NPD data for Wales. N=1,730. *Note:* Multiple Imputed and weighted with inverse probability of attrition weights. Estimates derived from year-specific OLS regressions adjusting for covariates, including previous absences. Black dots: estimates for total absences, blue dots: estimates for authorised absences, red dots: estimates for unauthorised absences. The thin vertical lines represent the 95%-confidence intervals. The thick vertical lines indicate the 84%-confidence intervals. The dashed horizontal lines show the average effect across all years.

Figure A5. Mean authorised and unauthorised absences over time by trajectory cluster in Wales.



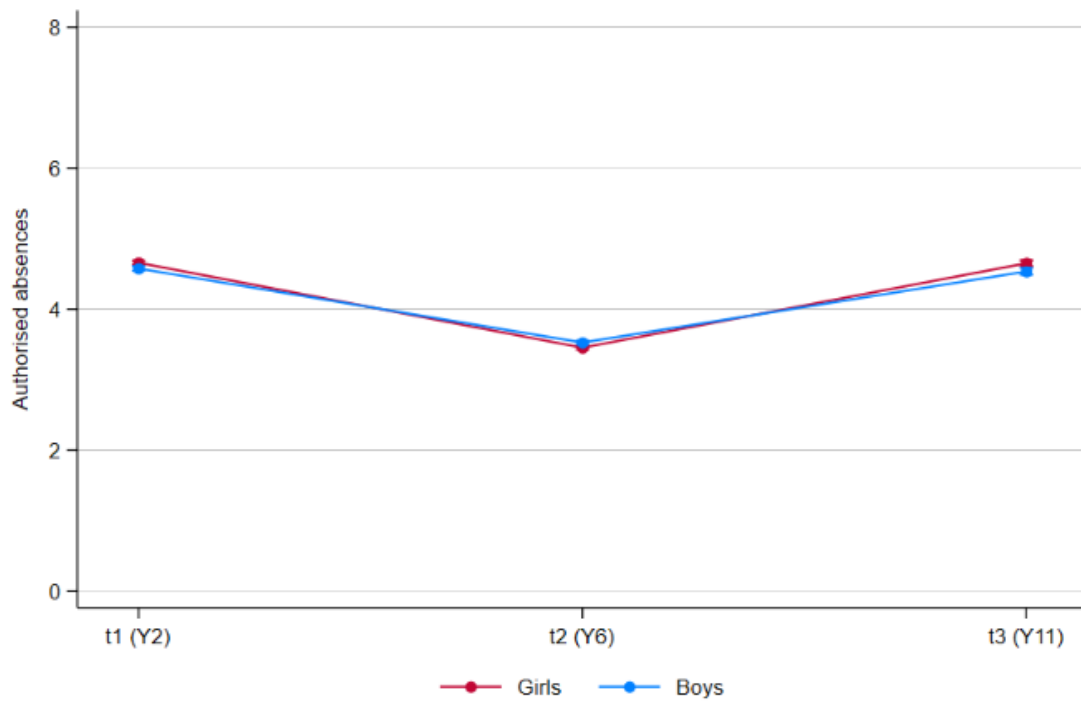
Source. Linked MCS-NPD data for Wales, N=1,651. *Note.* Weighted by inverse probability of attrition weights. CLA=Consistently Low Absence, CMAA=Consistently Moderate Authorised Absences, IUA= Increasing Unauthorised Absences.

Figure A6. Absence trajectories and GCSE attainment in Wales



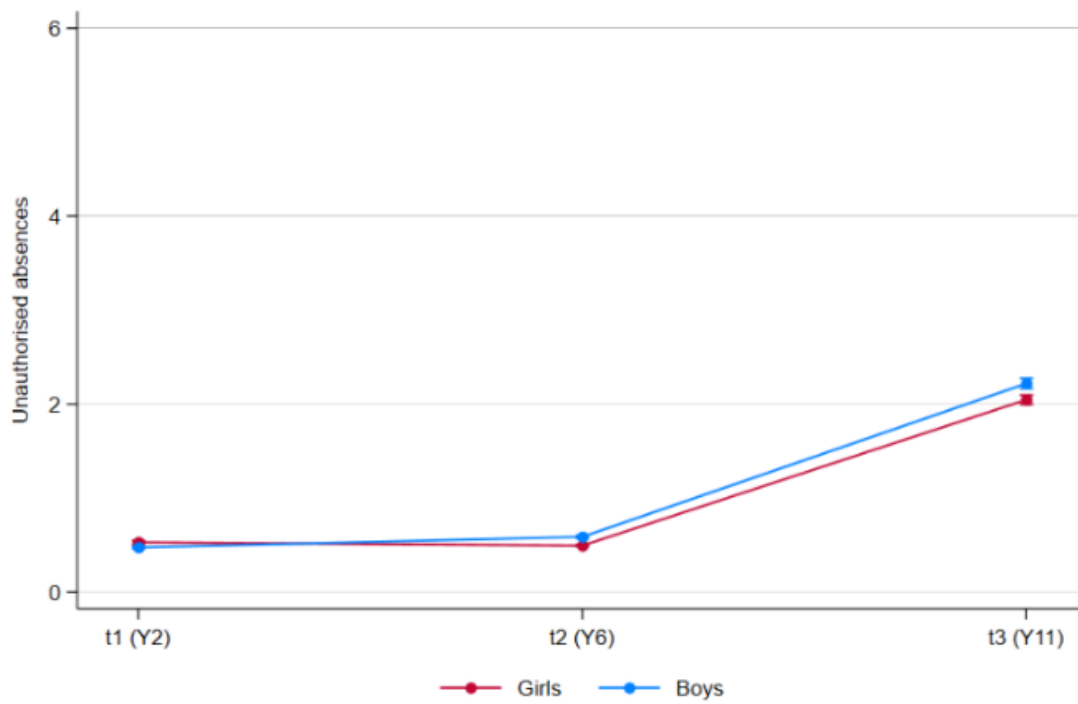
Source. Linked MCS-NPD data for Wales, N=1,651. *Note.* Weighted by inverse probability of attrition weights. CLA=Consistently Low Absence, CMAA=Consistently Moderate Authorised Absences, IUA= Increasing Unauthorised Absences. Thick vertical lines indicate the 84%-Confidence Interval, and thin vertical lines the 95%-Confidence Interval.

Figure A7. Authorised absence rate by pupil's gender over time



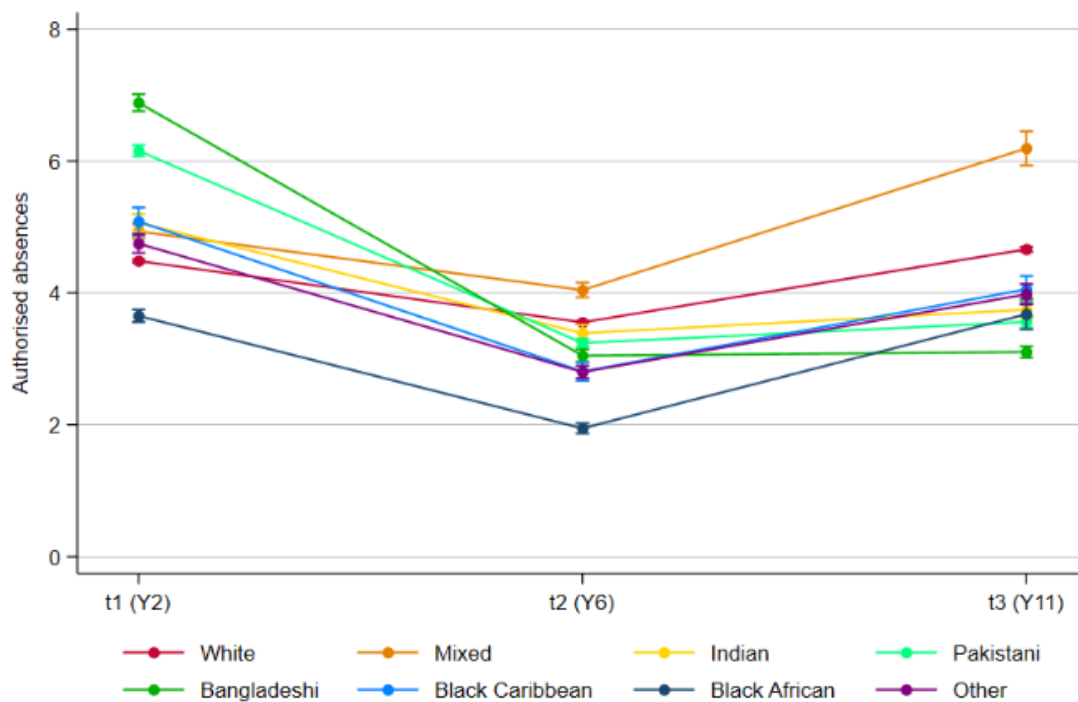
Source: Linked MCS-NPD data for England. *Note:* Weighted by inverse probability of attrition weights and multiple imputed.

Figure A8. Unauthorised absence rate by pupil's gender over time



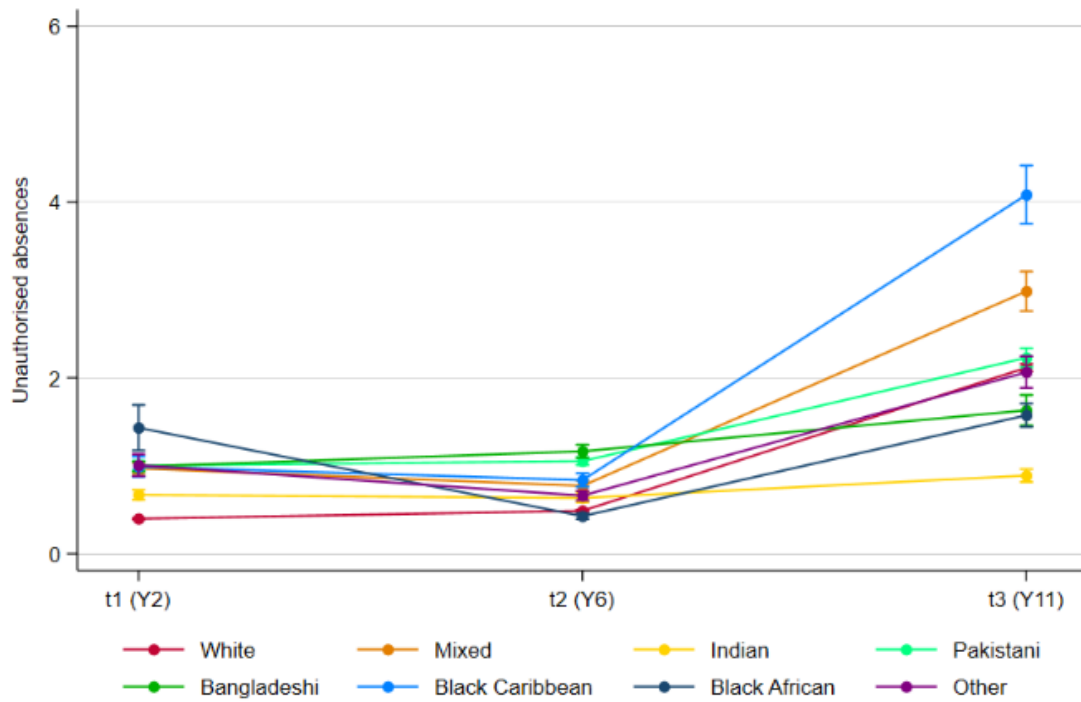
Source: Linked MCS-NPD data for England. *Note:* Weighted by inverse probability of attrition weights and multiple imputed.

Figure A9. Authorised absence rate by pupil's ethnicity over time



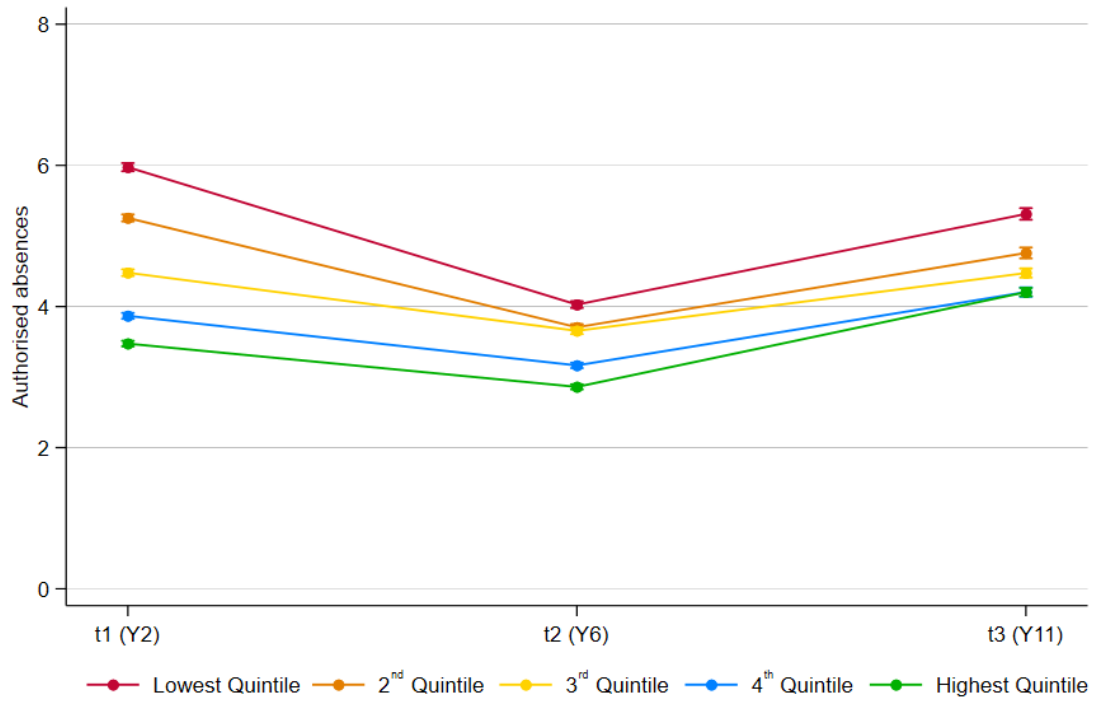
Source: Linked MCS-NPD data for England. *Note:* Weighted by inverse probability of attrition weights and multiple imputed.

Figure A10. Unauthorised absence rate by pupil's ethnicity over time



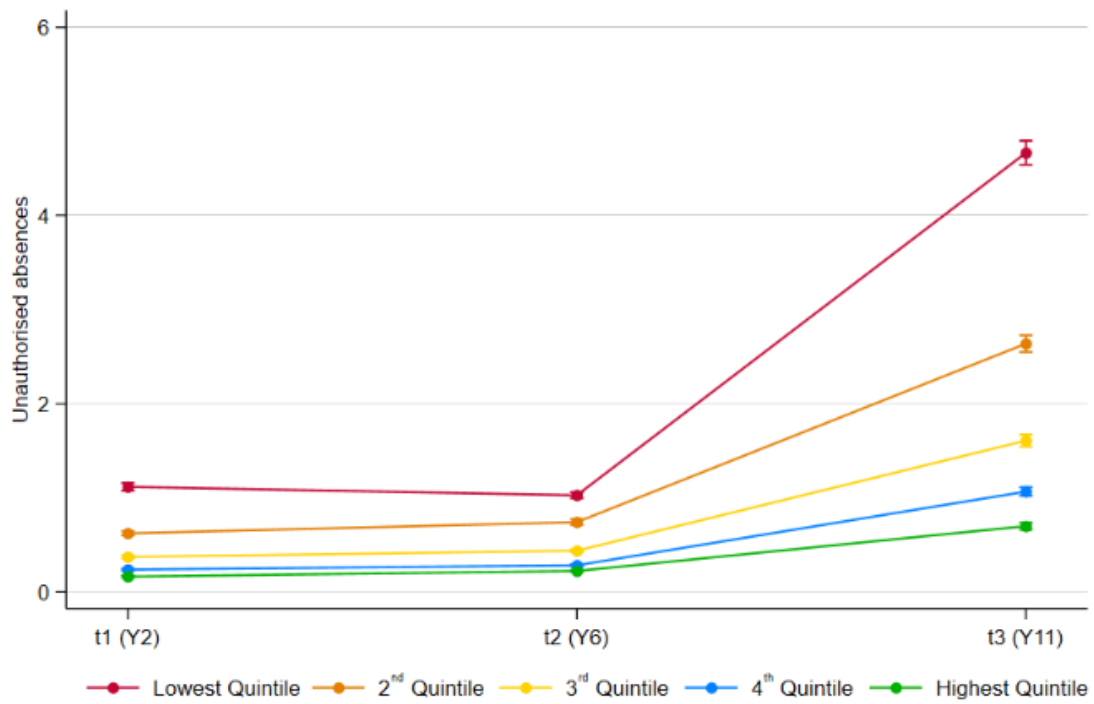
Source: Linked MCS-NPD data for England. *Note:* Weighted by inverse probability of attrition weights and multiple imputed.

Figure A11. Authorised absence rate by household income over time



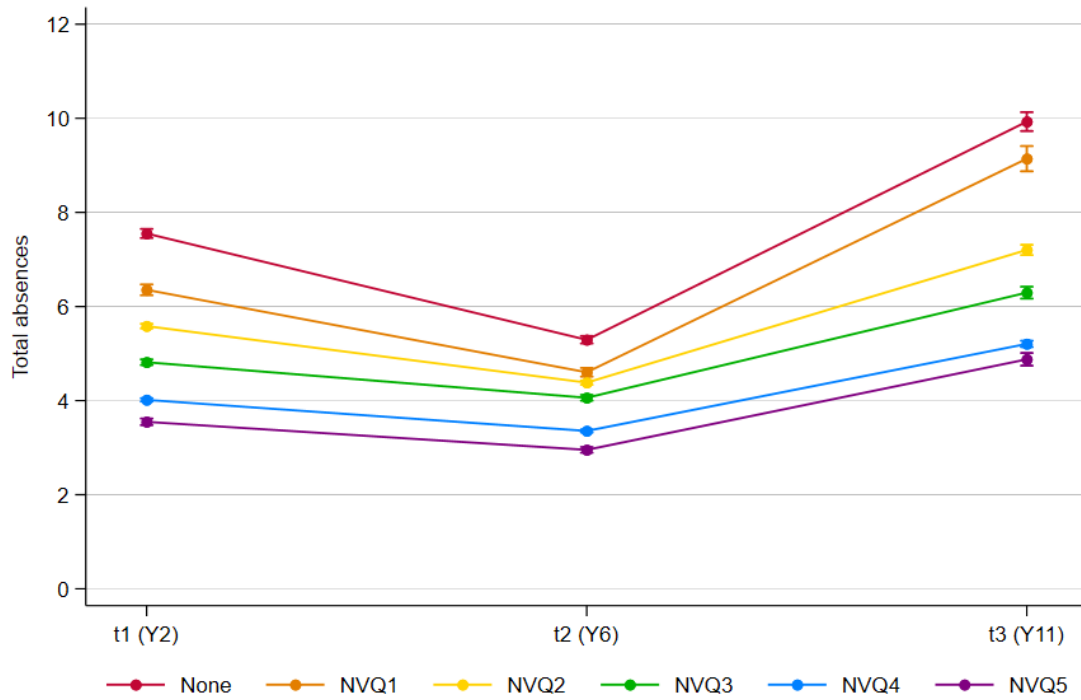
Source: Linked MCS-NPD data for England. *Note:* Weighted by inverse probability of attrition weights and multiple imputed.

Figure A12. Unauthorised absence rate by household income over time



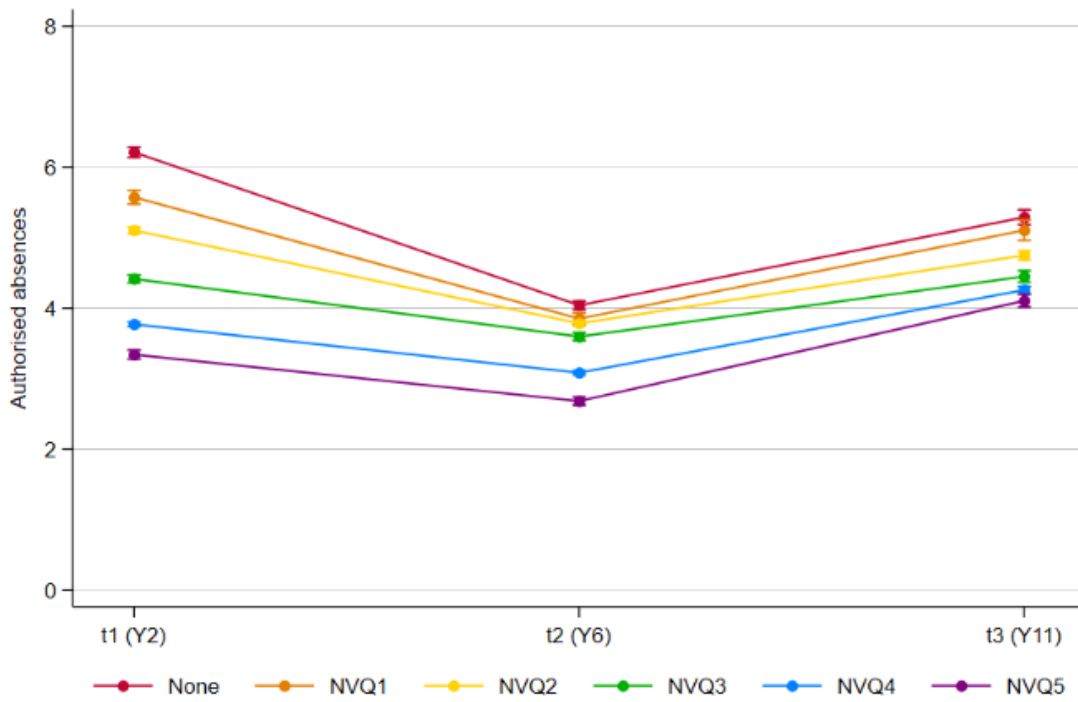
Source: Linked MCS-NPD data for England. *Note:* Weighted by inverse probability of attrition weights and multiple imputed.

Figure A13. Total absence rate by parental education over time



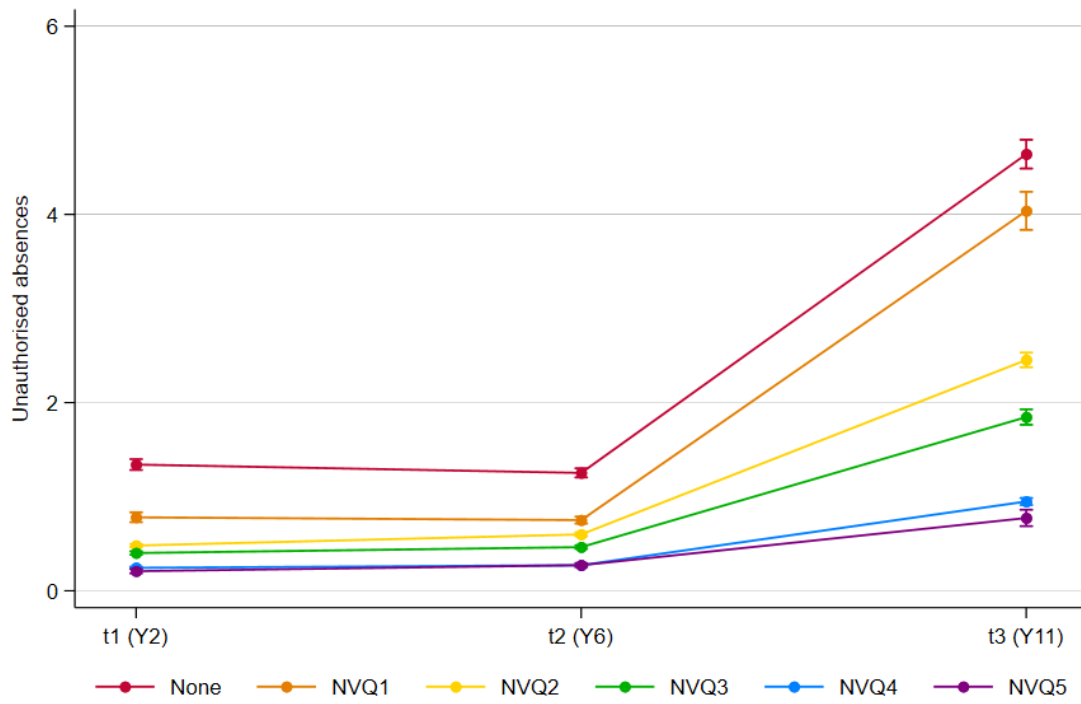
Source: Linked MCS-NPD data for England. *Note:* Weighted by inverse probability of attrition weights and multiple imputed.

Figure A14. Authorised absence rate by parental education over time



Source: Linked MCS-NPD data for England. *Note:* Weighted by inverse probability of attrition weights and multiple imputed.

Figure A15. Unauthorised absence rate by parental education over time



Source: Linked MCS-NPD data for England. *Note:* Weighted by inverse probability of attrition weights and multiple imputed.

Figure A16. Authorised absence rate by SEND status over time

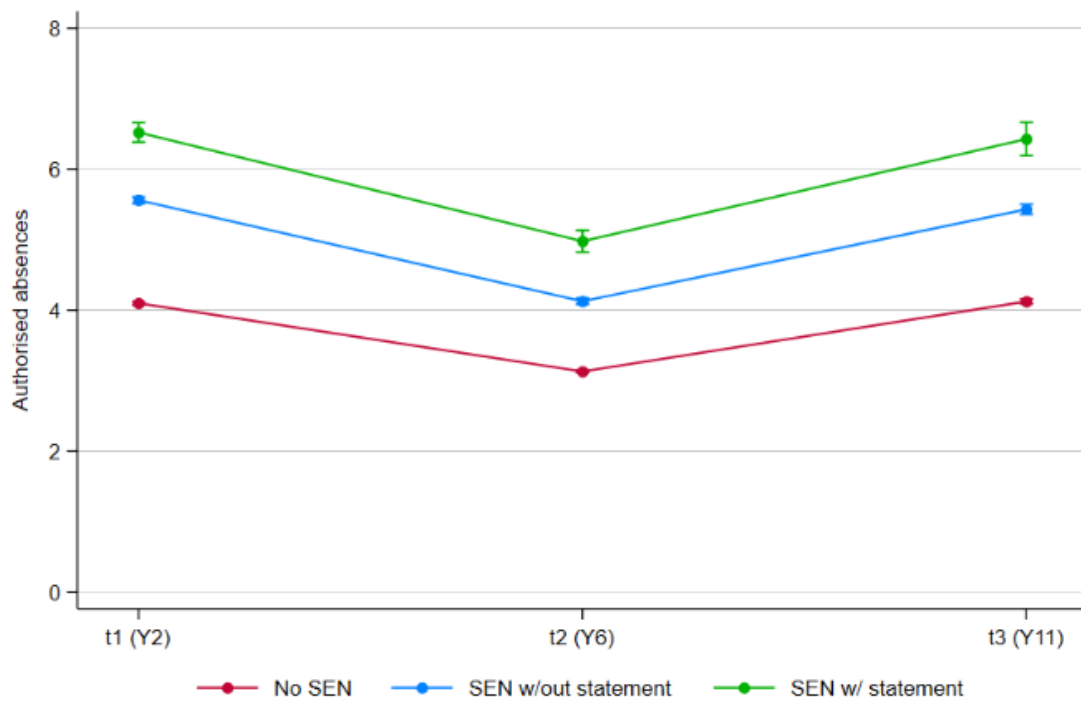


Figure A17. Unauthorised absence rate by SEND status over time

