



School absenteeism and educational attainment- Evidence from the Scottish Longitudinal Study



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Introduction

School absences have been a major policy concern in Scotland and around the world. Absenteeism is predicted to rise in the coming years due to the long-term scarring effect of the Covid-19 pandemic. For example, in Scotland, school absences rose after the school closures, and these were due to non-Covid-19 and Covid-19 related reasons (Sosu & Klein, 2021; Public Health Directorate, 2022). Socioeconomic inequalities in school attendance have also risen sharply since the first period of school closures (Sosu & Klein, 2021).

Mounting evidence, predominantly from the US, suggests that school absences overall are harmful to children's educational attainment (e.g., Aucejo & Romano, 2016; Gottfried, 2010). Where studies have considered the difference between authorised and unauthorised absences, unauthorised absences were more harmful to attainment (Gershenson et al., 2017; Gottfried, 2009). However, these broad categorisations may include various reasons that impact attainment differently. For example, we do not know whether different reasons for absenteeism (e.g., truancy or sickness) have an equally negative impact on children's attainment. Knowing the influence of these specific reasons can highlight why absences are harmful to attainment and help guide policy and intervention design.

Our research addressed these gaps in knowledge by examining the extent to which specific reasons for absences influence school attainment in Scotland.

Aims

First, our research investigated to what extent school absences overall are linked to attainment in national exams at the end of compulsory schooling (S4, age 15-16) and post-compulsory schooling (S5/S6, age 16-18) in Scotland.

Second, we examined whether the link between school absences and attainment varies with the reason for absence (truancy, sickness absence, exceptional domestic circumstances, and family holidays).

Data

Our data comes from the Scottish Longitudinal Study (SLS), a large-scale, anonymised record study linking various administrative and statistical data in Scotland. The SLS covers 5.3% of the Scottish population, selected using 20 semi-random birthdates. Our data included 2001 census data linked to administrative school records and Scottish Qualification Authority (SQA) data from 2007 to 2010. The administrative school records included reasons for absence, while the SQA data provided records of exam grades. The census data allowed us to adjust our analyses for key household socioeconomic information and background characteristics. We considered two student cohorts who were in their last year of compulsory schooling (S4) in 2007 and 2008 respectively and who were followed into the final year of post-compulsory schooling (S6) in 2009 and 2010.



We measured absenteeism by the proportion of days a pupil was absent from school during S4 and S5. The possible reasons for absence were truancy, sickness absence, exceptional domestic circumstances, and family holidays. Educational attainment was measured using grades from the national exams given at the end of S4 and S5/S6. We then converted information on number of subjects taken, level of difficulty, and grades into an extended version of the Universities and Colleges Admissions Service (UCAS) tariff points score (for more details, see section 3.3 in Scottish Government, 2012).

Key Findings

First, we examined the link between absence and attainment at the end of compulsory schooling in S4 (see left-hand side of graph presented in Figure 1). Our findings confirmed that *overall absences* negatively influenced educational attainment. A one percentage point increase in days absent was associated with a decrease of 3% of a standard deviation in tariff scores. Additionally, we found that different types of absence were linked with attainment. Specifically, a percentage point increase in *sickness absence* and *truancy* decreased academic attainment by 4% of a standard deviation. In addition, a one percentage point increase in absences due to *family holidays* was associated with a decrease by 3% of a standard deviation in the tariff score. *Exceptional domestic circumstances* were associated with a drop by 2% of a standard deviation in the tariff score. In all analyses, we adjusted for socioeconomic and demographic characteristics such as free school meals, neighbourhood deprivation, age and ethnicity (see Notes under Figure 1). All effects were statistically significant at conventional criteria.

In a second step, we carried out the same analysis on academic achievement at the end of post-compulsory schooling S5/S6, further adjusting for academic achievement at S4 (see centre graph in Figure 1). This analysis confirmed that *overall absences* had a negative influence on academic achievement, with a one percentage point increase in days absent associated with a decrease of 2% of a standard deviation in tariff scores. Regarding the specific reasons for absence, we found that absences due to *exceptional domestic circumstances* showed a negative influence on S5/S6 attainment, with a decrease of 5% of a standard deviation (SD) in tariff scores, followed by *truancy* (2% of a SD in tariff scores), *family holidays* (2% of a SD in tariff scores) and *sickness absence* (1 % of a SD in tariff scores).

Finally, we carried out a robustness check using a first difference (FD) model. In this model, we investigated whether a change in school absences is associated with attainment progress between S4 and S5/S6 (see graph on the right-hand of Figure 1). This model showed that a one percentage point change in *overall absences* reduced attainment by 2% of a standard deviation in tariff scores. A separate model including all specific reasons also confirmed their statistically significant negative associations with attainment, except for *family holidays*.

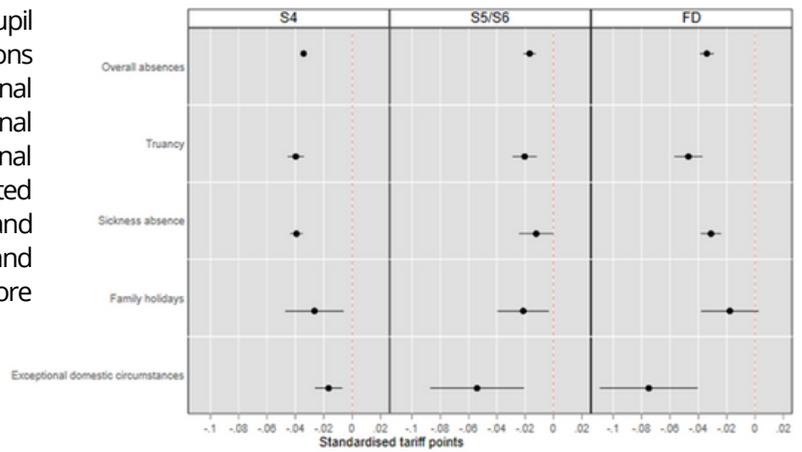


Figure 1: Association between absence and academic achievement at the end of S4, S5/S6 and first differences model (with 95%-confidence intervals)

Source: Scottish Longitudinal Study, own calculations

Note: Models either include overall absences or all specific measures of absences; Covariates included in S4 attainment model: Parental education, parental class, free school meal (FSM) registration, neighbourhood deprivation, family structure, number of siblings, pupil health, long-term parental illness, parental caring responsibilities, additional support needs, temporary exclusion, mother's age at birth, place of residence, ethnicity, pupil sex, pupil age, and pupil cohort; covariates included in S5/S6 attainment model: all covariates from previous model + achievement in S4; FD= first difference model; covariates in FD model: FSM registration and additional support needs (time-varying characteristics).

Three additional pathways between school absences and attainment

The Faucet Theory is the common explanation behind the relationship between absences and attainment (Alexander et al., 2001). This theory argues that students improve their skills and make learning gains with frequent exposure to schooling. However, when the 'faucet' is 'turned off' (i.e., students are absent from school), they stop improving their skills, thus leading to lower attainment.

Our finding that overall absences reduce academic achievement supports the faucet theory. However, our results add nuance by showing that different reasons for absence uniquely impact attainment. Table 1 summarises three additional ways in which attainment might be affected:

Table 1: Additional pathways between absences and attainment

Behavioural Pathway	The unique impact of truancy suggests that absences influence attainment through negative behavioural pathways. This is because truancy is associated with risky behaviours such as alcohol consumption, drug abuse or criminal activities (e.g., Eaton et al. 2008; Rocque et al., 2016) which can, in turn, lead to lower academic achievement.
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Health Pathway Sickness-related absences may signal long-term underlying health conditions that can, in turn, negatively affect academic achievement. Our finding that sickness absences have a detrimental impact on attainment suggests health as an additional pathway.

Psychosocial Pathway Generally, absences reduce interactions with peers and teachers, possibly leading to less integration and a feeling of alienation. This can make it difficult for students to participate in classroom activities and harm learning. In other words, our findings suggest that a psychosocial pathway may also be at play.

Policy and practice implications

Previous studies have found that unexcused absences are more negatively associated with achievement than excused absences (Gershenson et al., 2017; Gottfried, 2009). Not surprisingly, research and policy have focused on reducing and mitigating the harmful impact of unexcused absences. However, our findings show that excused absences (e.g., sickness-related or exceptional domestic circumstances) are equally detrimental to achievement. Therefore, researchers, policymakers and practitioners should devote equal attention to understanding how excused and unexcused absences impact schooling outcomes. This is particularly important considering that sickness-related absences are on average higher than other reasons for school absenteeism in Scotland (Klein et al., 2022).

Our research has three implications for designing interventions:

1. Aside from reducing absences, interventions should also focus on *mitigating the impact of absences* on attainment and other outcomes. For example, absences such as those relating to sickness cannot entirely be avoided. Interventions therefore need to ensure that students can catch up with their missed schooling; for example, through additional tutoring for missed lessons, or strengthening parental involvement to support children with missed lessons.
2. Interventions that focus on school absenteeism should consider *why students are absent from school*. As our research shows, different reasons behind absences were uniquely associated with academic attainment. This finding suggests that health, behavioural or psychosocial pathways should be important considerations for designing interventions. Knowledge of specific reasons will aid the design of successful interventions to improve attainment by incorporating support that addresses the underlying reasons for absenteeism.
3. Tackling school absences in their various forms is not only a schooling issue but should involve other professionals, such as health workers, psychologists, or social services. We, therefore, recommend a *multi-agency approach* when implementing strategies to mitigate the harmful impact of school absences.

Key Points

- School absences are detrimental to educational attainment in national exams at the end of compulsory (S4) and post-compulsory schooling (S5/S6) in Scotland.
- Truancy, sickness-related absences, and absences due to exceptional domestic circumstances each have a unique negative impact on educational attainment at both stages.
- Our findings suggest three additional pathways through which absence may affect academic achievement: a behavioural pathway, a health pathway, and a psychosocial pathway.
- Our research challenges previous assumptions that unexcused absences are more harmful than excused absences and calls for equal emphasis on tackling all forms of school absence.
- Research and interventions need to focus on mitigating the harmful consequences of school absenteeism, considering the reason for absence.

References

- Alexander, K. L., Entwisle, D. R., & Olson, L. S. (2001). Schools, achievement, and inequality: A seasonal perspective. *Educational Evaluation and Policy Analysis*, 23(2), 171–191. <https://doi.org/10.3102/01623737023002171>
- 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>
- Eaton, D. K., Brener, N., & Kann, L. K. (2008). Associations of health risk behaviors with school absenteeism. Does having permission for the absence make a difference? *Journal of School Health*, 78(4), 223–229. <https://doi.org/10.1111/j.1746-1561.2008.00290.x>
- Gershenson, S., Jackowitz, A., & Brannegan, A. (2017). Are student absences worth the worry in U.S. primary schools? *Education Finance and Policy*, 12(2), 137–165. https://doi.org/10.1162/EDFP_a_00207
- Gottfried, M. A. (2009). Excused versus unexcused: How student absences in elementary school affect academic achievement. *Educational Evaluation and Policy Analysis*, 31(4), 392–415. <https://doi.org/10.3102/0162373709342467>
- Gottfried, M. A. (2010). Evaluating the relationship between student 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>

Klein, M., Sosu, E. M., & Dare, S. (2022). School Absenteeism and Academic Achievement: Does the Reason for Absence Matter? *AERA Open*. <https://doi.org/10.1177/23328584211071115>

Public Health Directorate (2022) Coronavirus (COVID-19): trends in daily data. <https://www.gov.scot/publications/coronavirus-covid-19-trends-in-daily-data/>

Rocque, M., Jennings, W. G., Piquero, A. R., Ozkan, T., & Farrington, D. P. (2016) The Importance of School Attendance: Findings From the Cambridge Study in Delinquent Development on the Life-Course Effects of Truancy. *Crime & Delinquency*, 63(5), 592-612. <https://doi.org/10.1177/001128716660520>

Scottish Government. (2012). Summary statistics for attainment, leaver destinations and healthy living, No. 2: 2012 Edition. <https://dera.ioe.ac.uk/15020/1/00395665.pdf>

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