

Are school leavers' post-school destinations associated with their school attendance during secondary education?

Evidence from the Scottish Longitudinal Study

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- School absenteeism is associated with
 - lower academic achievement (e.g., Gottfried, 2009, 2010, 2014; Ready, 2010)
 - higher risk of school exclusion (e.g., Allenworth and Easton, 2007; Rumberger, 1995)
 - higher risk of school dropout (e.g., Alexander et al., 2001a; Bowman-Perrott et al., 2011)
- Studies mainly focus on impact of overall absences, but less so on the reason for absence (Hancock et al., 2017)
- Studies on the longer-term consequences of school absences for post-school outcomes are rare (Ansari et al., 2020)

School absenteeism and post-school destinations

- Faucet theory: Students enhance their skills through frequent exposure to schooling; stop making educational gains once the exposure is turned off (Alexander et al., 2001b).
- Students' long-term capabilities and outcomes are built on skills and dispositions acquired earlier in the life course (e.g., Heckman et al., 2006)

→ School absenteeism is a key vulnerability that likely locks young people into path dependencies of disadvantaged life course trajectories

- **Unauthorised absences (truancy, temporary exclusion)**
 - link to problem behaviour, e.g. alcohol, substance abuse, crime and delinquency (e.g., Henry and Huizinga, 2007; Hirschfield and Gasper, 2011)
 - lack of socio-emotional skills (e.g., Santibañez and Guarino, 2021) and greater externalizing behaviour (e.g., Ansari and Gottfried, 2021)
 - **Authorised absences (sickness)**
 - Underlying health conditions
 - Greater internalizing behaviour (e.g., Ansari and Gottfried, 2021)
- School absences may be detrimental to post-school destinations via educational attainment or directly

Research Questions

- **RQ1:** Are school absences associated with students' post-school destinations (NEET status, occupational attainment)?
- **RQ2:** Are school absences differently associated with post-school destinations depending on the reason for absenteeism (truancy, temporary exclusion, sickness absence)?
- **RQ3:** To what extent does educational attainment mediate the association between school absences and post-school destinations?
 - Does the mediating role of educational attainment vary across the reason for absence?

- Comprehensive schooling system: primary education lasts from P1 to P7 and secondary education from S1 to S6.
- National examinations at the end of S4 (compulsory) and S5/S6 (post-compulsory) → highly consequential for entry into higher education, and labour market outcomes (e.g., Iannelli et al., 2016; Iannelli and Duta, 2018)
- Curriculum differentiation in secondary school
 - no compulsory subjects (exception: English and Maths until S4)
 - flexible number of subjects
 - Choice of level of difficulty

Data: Scottish Longitudinal Study (SLS)

- Large-scale, anonymised linkage study using data from current Scottish administrative and statistical sources:
 - **Census data** (1991, 2001, 2011)
 - Vital events data (births, deaths, marriages, etc.)
 - NHS central register (migration into and out of Scotland)
 - **School education data** (school census, attendance and exclusion, SQA, 2007-2010, 2011-2013)
 - Pollution and weather data
- Designed to capture 5.5 per cent of the Scottish population
- Sample selected using 20 semi-random birthdates
- NHS health data (e.g., maternity and birth records) can be linked but are not part of the core SLS database

Our SLS sample

Table 1. Structure of School Census Data by cohort

STAGE COHORT	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13
2007 School Census				p1	p2	p3	p4	p5	p6	p7	s1	s2	s3	s4	s5	s6
2007 Exam results expected																
2008 School Census			p1	p2	p3	p4	p5	p6	p7	s1	s2	s3	s4	s5	s6	
2008 Exam results expected																
2009 School Census			p1	p2	p3	p4	p5	p6	p7	s1	s2	s3	s4	s5	s6	
2009 Exam results expected																
2010 School Census		p1	p2	p3	p4	p5	p6	p7	s1	s2	s3	s4	s5	s6		
2010 Exam results expected																
Number of pupils	cohort -2	cohort -1	cohort 0	cohort 1	cohort 2	cohort 3	cohort 4	cohort 5	cohort 6	cohort 7	cohort 8	cohort 9	cohort 10	cohort 11	cohort 12	cohort 13
All	3005	2878	2903	3020	2994	3001	2919	3050	3226	3206	3412	3261	3376	3367	2582	1535

Source: Raab (2013)

- SLS sample: two student cohorts in S4 in 2007 and 2008 who were followed into S5 and S6 (cohorts 10 and 11).
- Analytic sample:
 - Presence during Census 2001 and 2011
 - Mother and/or father identified from household information
 - SQA achievement records available

- **Outcomes** (measured at Census 2011)
 - Not in Education, Employment, or Training (NEET): yes (1) vs. no (0)
 - International Socioeconomic Index of Occupational Status (ISEI)
- **Exposure**
 - Overall, truancy and sickness-related absences: Proportion of half-days a pupil was absent in S4
 - Temporary exclusion, exceptional domestic circumstances, family holidays: yes(1) vs. no(0) in S4
- **Mediator**
 - Educational attainment after S6: Unified Points Score Scale (extended version of the UCAS Scottish Tariff points system) taking into account number of subjects, level of difficulty and grade

- **Covariates:**
 - SES dimensions: parental class (NS-SeC), parental education, housing tenure (social rented vs. owned/private rented), free school meal eligibility, Scottish Index of Multiple Deprivation (SIMD)
 - Demographics: ethnicity, place of residence, child's sex, child's age, family structure, number of siblings, mother's age at birth
 - Health: child health, parental health, parental caring status, child's additional support needs

- To analyse the risk of NEET, we estimate **logistic regressions** and calculate average marginal effects (AMEs) to compare estimates across nested models (n = 4,039) (Mood, 2010)
- To analyse ISEI among the employed, we estimate **linear models by OLS** (n = 1,921)
- All analyses either include overall absenteeism or all specific forms (truancy, temporary exclusion, sickness absence)
- To correct for non-random selection into employment, we correct the ISEI analysis with **inverse probability of censoring weights**.
- **Mediation:** To decompose direct and indirect effects of school absences via educational attainment, we use the KHB (Karlson-Holm-Breen) method (Karlson et al., 2012)

Summary statistics (n = 4,039)

	Mean/Proportion	SD
Employment status		
Employment	0.48	
Education/Training	0.32	
NEET	0.20	
ISEI*	31.34	10.38
Absenteeism forms S4		
Overall	0.13	0.12
Truancy	0.02	0.04
Sickness absence	0.05	0.06
Temporary exclusion	0.04	

Source: Scottish Longitudinal Study, own calculations

Note: *n = 1,921, weighted by inverse probability of censoring weights

School absences and post-school destinations

	NEET*	M1	M2	ISEI	M1	M2
Overall absences	0.007 (0.000)***	0.006 (0.000)***			0.010 (0.028)	0.031 (0.031)
Sickness absence	0.009 (0.001)***	0.007 (0.001)***			0.030 (0.066)	0.054 (0.069)
Truancy	0.010 (0.001)***	0.006 (0.001)***			-0.064 (0.065)	-0.049 (0.064)
Temporary exclusion	0.185 (0.024)***	0.096 (0.026)***			-0.098 (1.819)	0.017 (1.857)
Confounders	No	Yes			No	Yes
n	4,039	4,039			1,921	1,921

Source: Scottish Longitudinal Study, own calculations

Notes: * Estimates refer to Average Marginal Effects (AMEs); ISEI analyses weighted by inverse probability of censoring weights; * p < .05, ** p < .01, *** p < .001. Cluster-robust standard errors in parentheses.

The mediating role of educational attainment

NEET	Overall absence	Sickness	Truancy	Temporary exclusion
Total	0.039 (0.003)***	0.048 (0.005)***	0.039 (0.009)***	0.658 (0.170)***
Direct	0.027 (0.039)***	0.034 (0.006)***	0.022 (0.009)*	0.491 (0.174)**
Indirect	0.012 (0.100)	0.014 (0.123)	0.017 (0.123)	0.167 (0.125)
% explained	31	29	42	25

Source: Scottish Longitudinal Study, own calculations

Notes: Decomposition via KHB method; Estimates refer to logit coefficients; * $p < .05$, ** $p < .01$, *** $p < .001$. Cluster-robust standard errors in parentheses.

Conclusion

- Overall and all specific forms of absenteeism (sickness, truancy, temporary exclusion) increase the risk of being NEET
 - Associations do not differ depending on the reason for absence
- School absences are not associated with early occupational attainment after school-leaving
- School absences increase the risk of being NEET net of educational attainment
 - The mediating role of education varies across the reason for absences; stronger for truancy and weaker for sickness and temporary exclusion

Next step: Moderation by SES

- High-SES students frequently absent from school can rely on parental social networks and social skills from their upbringing that are helpful when gaining employment
- Low-SES students do not have the socioeconomic resources to compensate for a lack of academic skills, qualifications, or behavioral dispositions associated with missing out on school.

→ Frequent school absences may be more detrimental to low-SES students' post-school destinations

Disclaimer

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For more information on the SLS, please visit: <http://sls.lscs.ac.uk>

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Thank you!