

Examining the Causal Relationship between Educational Experience and Criminal Conviction Using Linked Data

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“It must be evident to those who have been in the practice of observing children with attention, that much of good or evil is taught to or acquired by a child at a very early period of its life” (Robert Owen, 1816)



Strong links between positive educational experience and offending

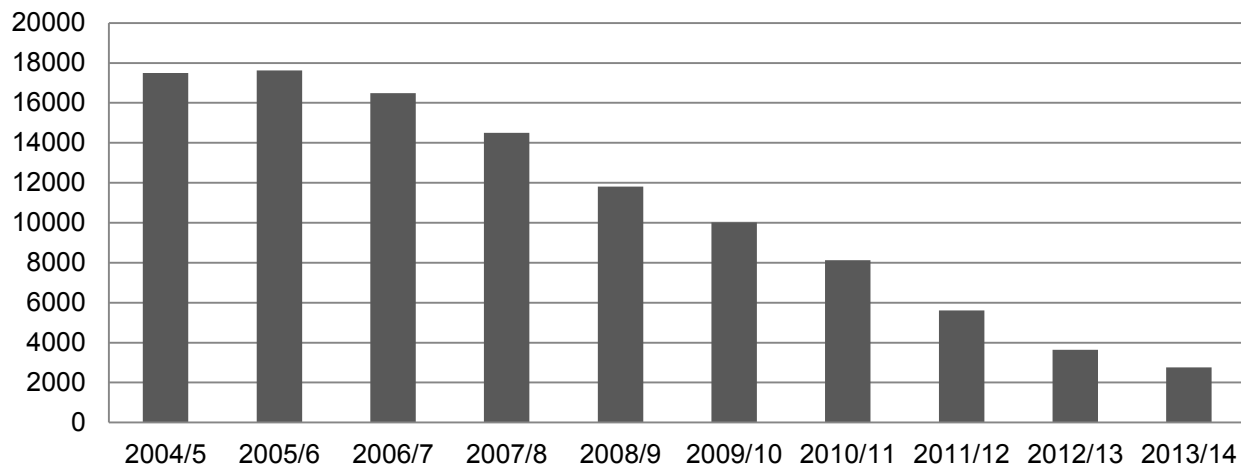
- Educational attainment **increases the chances of legitimate work**, improves income levels, thus reducing likelihood of offending (Lochner 2004)
- Greater time spent in education **reduces time available for participation** in criminal activity (Machin et al 2011)
- Commitment to education influences crime through its **effect on patience and risk aversion** (Oreopoulos 2007)
- Early **development of non-cognitive skills** (e.g. motivation and social adjustment) impacts more on later offending than cognitive skills (Reynolds et al 2010)
- Education in prison **reduces recidivism** and increases post-release earnings (Steurer and Smith, 2003)

Strong links between truancy, school exclusion and offending

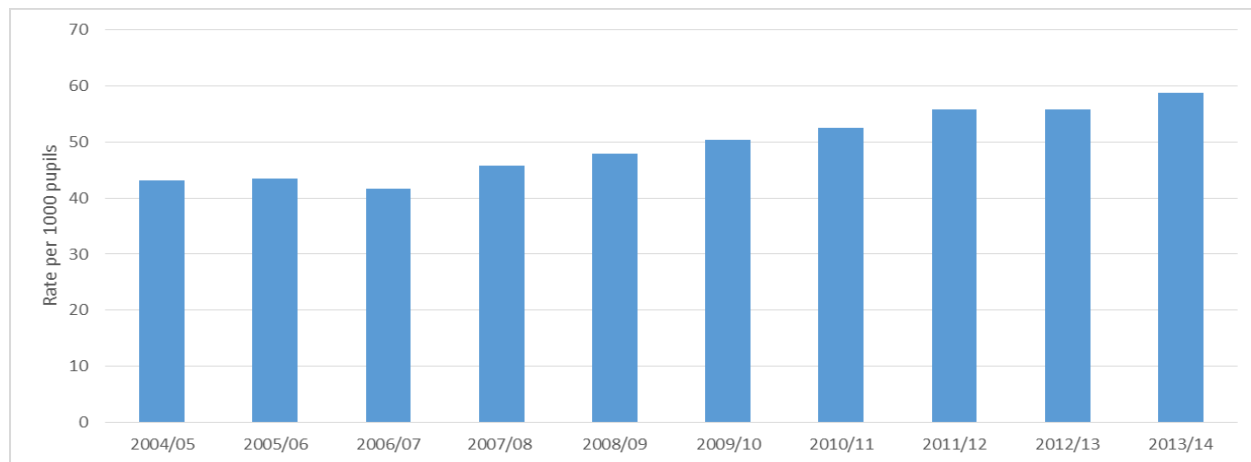
- School exclusion **increases the likelihood of arrest** (Monahan et al 2014), **the probability of early school drop out** and **involvement in the criminal justice system** in the US (Losen & Gillespie, 2012)
- UK research also shows very poor outcomes for those excluded from school including **significant risk of offending** (Powis et al 1998, Berridge et al 2001, Spencer and Scott 2013)
- Studies have consistently concluded (for both males and females) that **the odds of offending for truants is greater** by a factor of 3+ compared to non-truants (Arthur 2015)
- Scottish research has shown that truancy and school exclusion are two of the primary factors that predict chronic criminal conviction trajectories and early imprisonment (McAra and McVie 2010).
- Increasing evidence of a **'school-to-prison' pipeline** (Krezmien et al 2014)

What do trends and patterns in offending, attainment, exclusion and truancy tell us?

Number of people aged under 18 referred to the CHS on offence grounds, 2004/5 to 2013/14

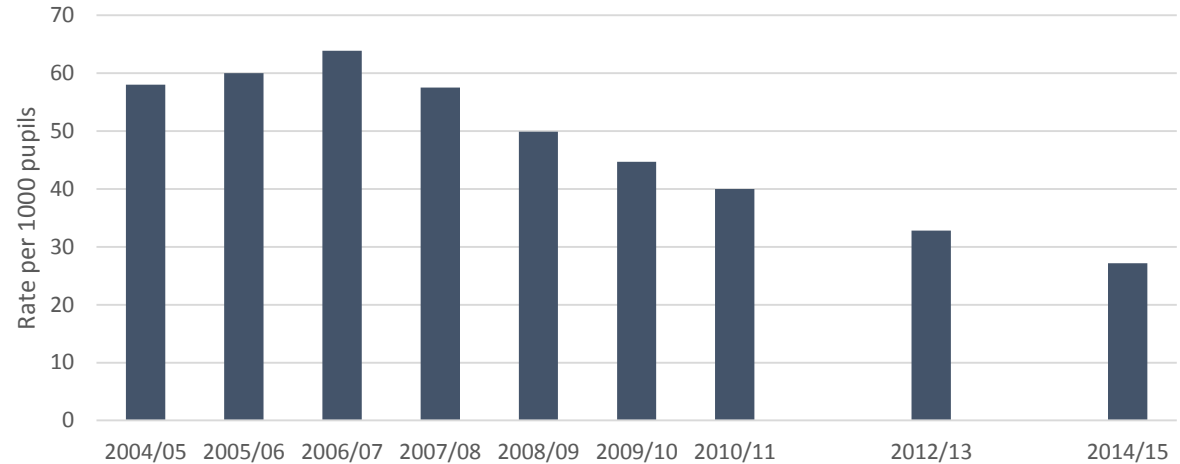


School leavers attaining one or more qualifications at SCQF Level 6 or above, 2004/05 to 2013/14

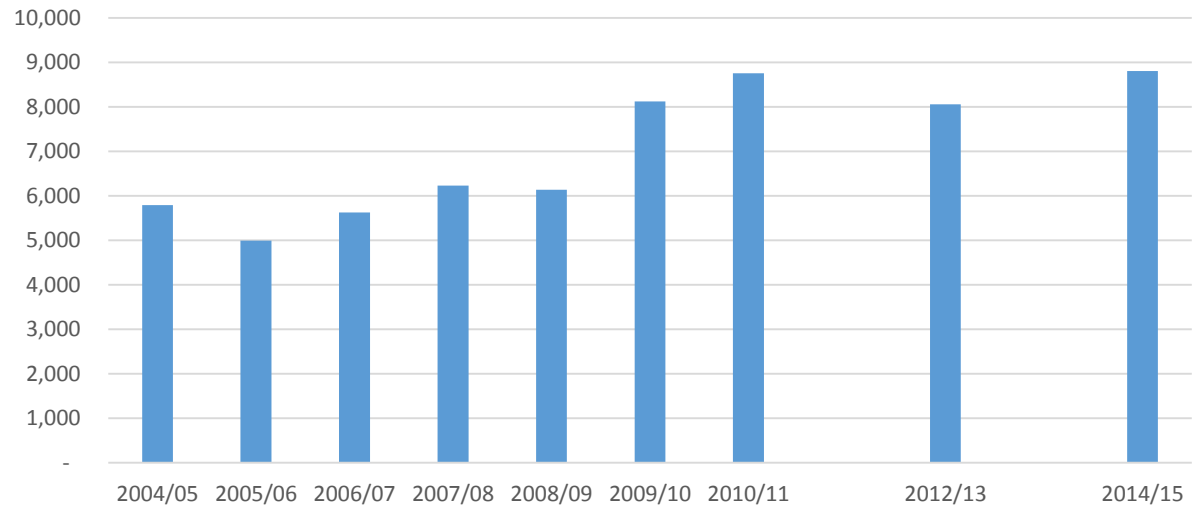


What do trends and patterns in offending, attainment, exclusion and truancy tell us?

Rate of school exclusions per 1000 pupils, 2004/5 to 2013/14



Number of pupils absent due to unexplained absence (including truancy), 2004/5 to 2013/14



Key research questions based on trends in Scotland

- To what extent is the rise in school attainment related to the fall in offending behaviour?
- To what extent is the fall in school exclusion related to the drop in offending behaviour?
- Has the increase in truancy had any impact on offending behaviour?
- Can any causal inference be drawn in terms of these relationships?
- Can we answer these questions using the available data?

- Sources of data on crime/offending:
 - School-based national surveys (tend to focus on substance use)
 - Scottish Crime & Justice Survey (includes questions on disposals only)
 - Occasional bespoke surveys (often geographically limited)
 - Administrative data from children's hearings, police, courts, prisons, etc
- Sources of data on school education/attainment/exclusion:
 - Cohort studies (e.g GUS, MCS, mental health study)
 - School census (attendance, exclusion, ethnicity, gender, disability, etc)
 - SQA data (attainment – all subjects examined from S4 onwards inc. type and level)
 - Administrative data from local authorities (held by ScotXed and used mostly for school comparisons).

The Edinburgh Study of Youth Transitions & Crime

- A longitudinal study of offending pathways amongst 4,300 young people (Smith & McVie 2003)
- Aim to study offending within 3 main contexts:
 - Individual development and change through the life-course
 - Physical and social structure of neighbourhoods
 - Impact of interaction with agencies of social control & law enforcement
- Six annual sweeps of self-completion surveys in Edinburgh schools (mainstream, independent and special) from 1998-2003 + sweep 7 (2009-11) to map *criminal justice* careers to age 24
- A complex study design with many different components of data collection (quantitative and qualitative), requiring careful management, data linkage and complex modes of data analysis.

Birth to age 11	Age 12	Age 13	Age 14	Age 15	Age 16	Age 17	Age 18-25
	Self completion questionnaires						Face to face survey
		Face to face interviews				Face to face interviews	
		Teacher evaluation	Survey of parents	SQA Examination results			
	School records on attendance and exclusion						
Police juvenile liaison officer records							
	Social work records						
	Children's hearings records						
	Scottish criminal records (convictions)						
Geographical information system of Edinburgh neighbourhoods							



- University held database (no ‘third party’)
- Controlled by a data manager – linked relational databases – restricted access
- Unique identifiers for each individual
- Dummy identifier used for data linkage purposes
- Names used during data collection, then removed and destroyed as soon as identifiers attached
- All data collected by the research team – required detailed access negotiations & consent procedures
- Overseen by an Academic & Policy Advisory Group

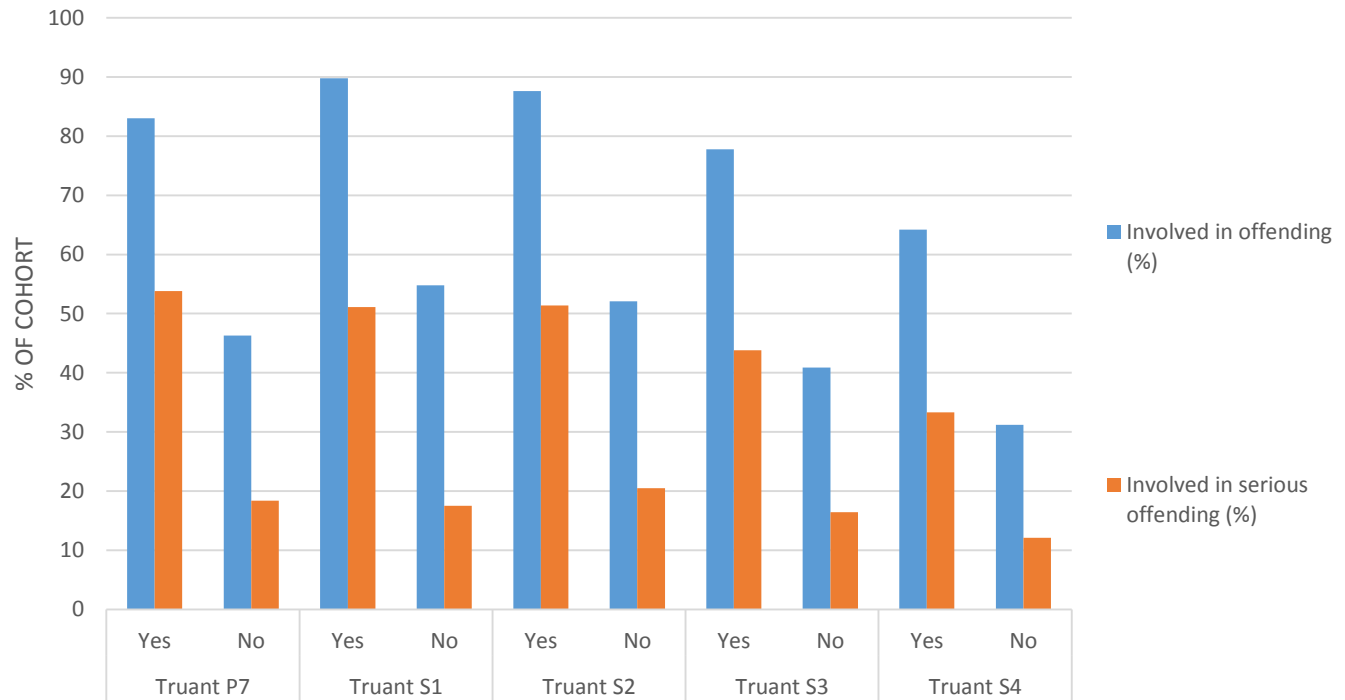
- Provides 'objective' measures of events (e.g. exclusion, conviction) which can test reliability of the self-reports OR saves you from including extraneous questions
- Gives a rich contextual picture of young people's lives and provides more opportunity to model complex social processes (e.g. multilevel modelling)
- Enables quasi-experimental design so that the impact of interventions can be tested (with longitudinal data)
- Highlights differences between individual reports and official records – system effects.

Questions that can be addressed by the Edinburgh Study data

1. Are truancy, school exclusion and educational attainment related to later offending behaviour (general and serious)?
2. Are these relationships mediated by earlier offending behaviour (which strongly predict later behaviour)?
3. What happens when we control for the effects of a variety of demographic factors known to influence offending behaviour?

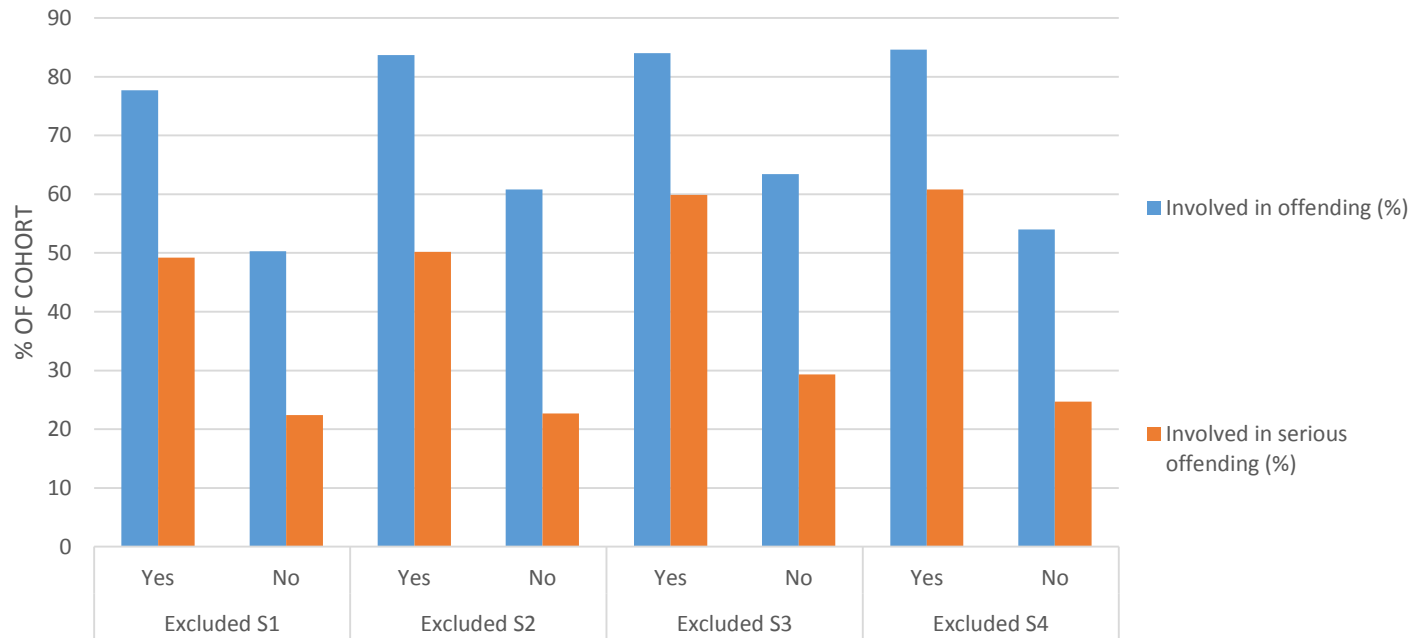
School truancy and prevalence of offending are related

Prevalence of offending by prevalence of truancy

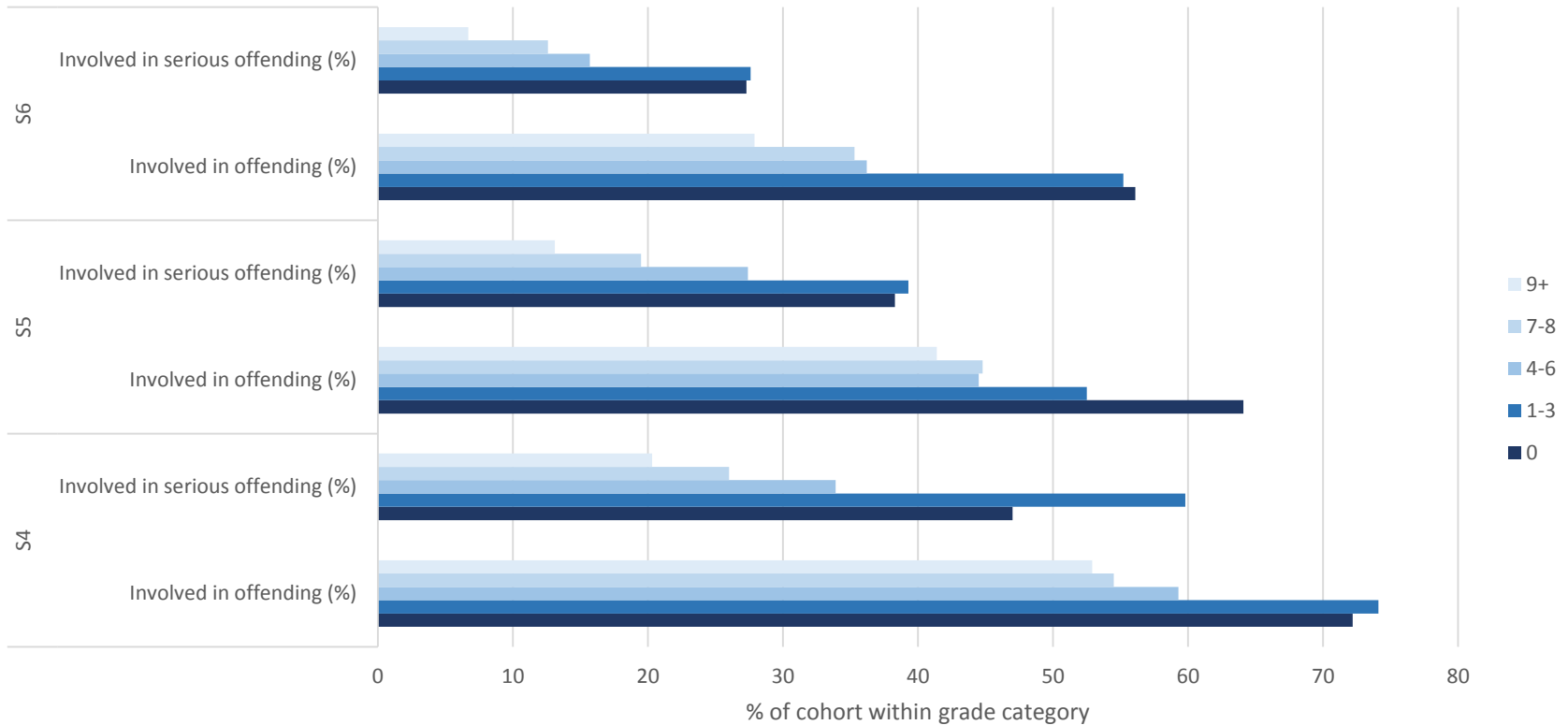


School exclusion and prevalence of offending are related

Prevalence of offending by prevalence of exclusion



School attainment and prevalence of offending are related



	Odds ratio		Odds ratio		Odds ratio	
Early truancy (P7)	1.491 *		0.802		0.818	
Frequency of truancy (S1-S4)	1.120 ***		1.023 *		1.029 *	
Interaction of Early truancy & Frequency of truancy	0.948 **		-		-	
Early exclusion (S1)	0.607		0.878		0.751	
Frequency of exclusion (S1-S4)	1.490 **		1.061		1.098	
Number of standard grades (Ref=0) - 1 to 6	0.438 **		0.587		0.601	
- 7 or more	0.625 *		0.879		0.879	
Early offending (S1)			2.921 ***		2.912 ***	
Frequency of offending(volume)			1.101 ***		1.105 ***	
Interaction early offending * frequency			0.941 ***		0.936 ***	
Gender (male)					1.22	
Socio-economic status (manual/unemployed)					0.958	
Ethnic group (white)					1.615	
Free school meal entitlement (yes)					0.639 *	
Living in top 10% most deprived areas (yes)					1.755 **	

Q3. Modelling the relationship between educational experience and **offending at age 16**, controlling for prior offending and demographic profile



	Odds ratio		Odds ratio		Odds ratio	
Early truancy (P7)	1.149		0.642 *		0.621 *	
Frequency of truancy (S1-S4)	1.099 ***		1.037 **		1.046 ***	
Interaction of Early truancy & Frequency of truancy	0.967 *		-		-	
Early exclusion (S1)	1.042		1.023		0.875	
Frequency of exclusion (S1-S4)	1.411 **		1.113		1.071	
Number of standard grades (Ref=0) - 1 to 6	0.81		1.15		1.113	
- 7 or more	0.727		0.997		0.912	
Early offending (S1)			2.316 ***		2.153 ***	
Frequency of offending(volume)			1.105 ***		1.104 ***	
Interaction early offending * frequency			0.941 ***		0.936 ***	
Gender (male)					2.394 ***	
Socio-economic status (manual/unemployed)					1.218	
Ethnic group (white)					1.688	
Free school meal entitlement (yes)					0.888	
Living in top 10% most deprived areas (yes)					1.374	

Q3. Modelling the relationship between educational experience and **serious offending at age 16**, controlling for prior offending and demographic profile



Conclusions

- Data linkage can significantly improve the range, quality and value of research findings on relationships between education and offending.
- School exclusion, truancy and low educational attainment all predict later offending behaviour; but these relationships largely disappear when prior offending is accounted for.
- Earlier truancy appears to be more strongly related to later offending behaviour than either school exclusion or attainment, even when controlling for prior offending.
- However, earlier findings have shown that school exclusion and truancy predict very poor system outcomes despite offending behaviour, which suggests they are instrumental in labelling processes.