

Delinquency after Secondary School: Exploring the Consequences of Schooling, Working and Dropout

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Abstract

This study focuses on delinquent behaviour after secondary school, and investigates the relationship with different educational careers. More specifically, it analyses whether delinquent behaviour increases or decreases among young people with subsequent full-time schooling (without and with educational problems), youths who are working full time or part time, and jobless youths. The sample contains 273 lower-educated youths, aged between 17 and 19 years old, who were questioned while they were still in secondary school during the NSCR School Project on one or more occasions between 2002 and 2004. A mixed-design ANOVA revealed that educational careers do affect changes in delinquency, independently from other factors. Respondents who had attention or other problems in their further education and, in particular, respondents who combined schooling and work appeared to have increased their level of delinquency most strongly. Respondents who left school for a full-time job were not significantly more involved in delinquency.

Keywords

Delinquency, Dropout, Joblessness, School Factors, Working.

Introduction

The relationship between school-related factors and delinquency is an established finding in criminology. Multiple studies have revealed associations between delinquent behaviour and school-related factors such as achievement, low commitment, weak attachment and truancy (for an overview, see Gottfredson 2001). Many studies have also reported a relationship between school dropout and delinquent behaviour, although there has been disagreement over the nature of this relationship (for example, Elliot and Voss 1974; Jarjoura 1993; Sweeten et al. 2009; Thornberry et al. 1985).

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Despite the wealth of research on school factors and delinquency, less is known about what happens after young people have finished secondary (compulsory) schooling. Most self-report studies on delinquency are concentrated on the 12–18 year age period, primarily because they are conducted in secondary school classrooms (see Junger-Tas et al. 2003; Zauberman 2009). Longitudinal studies that have followed up young people into their twenties (see Thornberry and Krohn 2003 for an overview) do not specifically focus on delinquent behaviour after high school and its relationship with educational careers. Only a few studies provide detailed information about the delinquent behaviour of older adolescents (for example, Donker 2004; Loeber et al. 2003; Terlouw and Bruinsma 1994; Wilson et al. 2006). These studies indicate that delinquent behaviour is prevalent in late adolescence, although the type of offences committed may change (for instance, vandalism seems to decrease, buying stolen goods seems to increase).

A number of studies have focused on the relationship between dropout in high school and later criminal careers (for example, Jarjoura 1993; Thornberry et al. 1985), but few of them cover the period right after the end of secondary school. This is unfortunate, since educational careers diverge sharply during this period. A large proportion of those who finish secondary school continue in education (with or without problems), others stop going to school and get a job, and some become jobless and stay at home. The paths that young people take after secondary school are shaped by personal factors and choices, family and peer influences, school experiences and – importantly – the opportunities for young people from different backgrounds in the labour market. It is highly probable that different educational trajectories influence involvement in delinquent behaviour, but our insights about their effects are limited.

The current study focuses on a sample of 273 lower-educated youths, aged between 17 and 19 years. These respondents were questioned on one or more occasions between 2002 and 2004, while they were in secondary school. They were revisited at home during the school year 2006/7, after they had left (or should have left) their secondary school and entered a new phase in their life. Most of them were still undertaking some form of subsequent education, but not always without problems or absences. Some of them were doing work, full time or part time, in combination with education, and some were jobless and not in school. The aim of this study is to investigate whether delinquent behaviour has developed differently among these categories of youths and whether these changes in offending can be attributed to the school/work situation independently from other important risk factors. To accomplish this, a mixed-design ANOVA was conducted in which control variables were entered as covariates. The following research questions were formulated at the beginning of the study:

- What is the prevalence of different types of delinquency during and after (compulsory) secondary education?
- To what extent do categories of youths varying in school and work situations differ in their level and development of offending?
- To what extent do these differences remain after controlling for the effects of important other explanatory variables, and which of these explanatory variables are significantly related to changes in delinquency after secondary school?

Previous studies and perspectives

Work and delinquency during adolescence

In general, having a (steady) job is regarded as a strong protective factor against offending (for example, Sampson and Laub 1993; Uggen 2000). It offers an income, leads to informal social control from colleagues and bosses, and provides a positive, non-deviant identity. However, there are indications that the relationship between work and delinquency can be different during the period of adolescence. Self-report studies reveal that employed adolescents (up to the age of 19) are more involved in offending compared with other youths (for example, Bachman and Schulenberg 1993; Ploeger 1997; Van der Laan and Blom 2006). This somewhat surprising finding has been explained in different ways (see Ploeger 1997). Some scholars have suggested that is the result of a selection effect, in which youths who are relatively more delinquent and less motivated for education more often seek employment earlier in their life. Others have proposed that work leads to more independence and less control from parents. It has also been suggested that working leads to more exposure to potentially deviant peers (on the work floor, but also because job income is spent during weekends on social activities).

In his study, Ploeger (1997) found partial evidence for a selection effect: working youths were already more delinquent than their counterparts while they were still in school. There was also evidence for a separate effect of greater exposure to delinquent peers among working youths. Changes in the relationship with parents, however, were not found to have a mediating effect. In a series of later studies, Apel and colleagues investigated whether part-time working in combination with schooling enhances delinquent behaviour among adolescents (for example, Apel et al. 2006; Apel et al. 2007). Using matched sample comparisons, they found that selection effects were completely responsible for relatively higher involvement in delinquent behaviour among working adolescents. Once earlier levels of delinquency were entered in the analysis, hours spent at work did not have an additional effect on delinquency. The most recent study (Apel et al. 2007) even suggests that work may decrease offending among those who already had high levels of delinquency prior to their working career.

The research literature also suggests that youth unemployment increases delinquent behaviour. In general, criminological studies report significant associations between being unemployed and breaking the law (see Hagan 1993), and this seems to be equally true for young people (for example, Duster 1987; Vettenburg et al. 1984). However, this may also be the result of a selection effect in which young people who are already delinquent have a higher chance of becoming unemployed. To investigate this possibility (among others), Farrington et al. (1986) used data on police contacts within a high-risk sample of London youths between the ages of 14 and 18. The findings show that official crime rates were higher during periods of unemployment than during periods of employment or schooling, indicating that the association is not completely owing to selection effects.

Dropout and delinquency

In general, a clear and strong relationship is found between dropping out of school and delinquency, especially more serious forms of offending (for example, Blom et al. 2005; Chavez

et al. 1994; Elliott and Voss 1974). Dropouts appear to have more police contacts and to report more offences than young people who have finished their secondary education.

However, there has been debate about how to interpret the apparent causal association between dropout and delinquency. One issue is whether other factors are responsible for offending in addition to school dropout. Drennon-Gala (1995) reported that dropout is strongly correlated with weak support by parents and teachers, low commitment and low morality. He suggests that these correlations may be responsible for the relation between school leaving and delinquency. Krohn et al. (1995), however, found that dropout and delinquency are still correlated with each other, even after controlling for a number of background variables and common risk factors. In the Netherlands, Blom et al. (2005) also found that dropout was still correlated with police contacts, after controlling for basic background factors such as ethnicity, gender and socioeconomic status.

A number of longitudinal studies have investigated whether dropping out from school is actually followed by an increase in the level of delinquency. The results of these studies vary: some studies do find an association between dropout and a subsequent increase in delinquency (Jarjoura 1993, 1996; Thornberry et al. 1985), whereas others do not (Bachman et al. 1978; Krohn et al. 1995). In the 1970s, a quite influential study even reported a reverse relationship, in which dropout during the school period was followed by an average decrease in self-reported delinquent behaviour and police contacts (Elliott and Voss 1974). To explain this surprising finding, the authors suggested that the school situation can be very demotivating for some categories of students. Once released from this burden, students would have less motivation for delinquent behaviour. Thornberry et al. (1985) did not replicate these findings in their study, but instead found that the number of police contacts after dropping out of school increased, despite the fact that dropouts already had more police contacts than others while they were still in school.

Jarjoura explicitly took the reasons for dropping out into account in his analyses (Jarjoura 1993, 1996). His findings indicated that, when students dropped out because they disliked school, or because they were expelled from school, all types of delinquency increased. However, when students left school because of low grades, financial problems or problems at home, there was no change in delinquency at all. Second, it appeared that dropouts from poor families did not increase their level of delinquency after they had left school (Jarjoura 1996). Delinquency even decreased when poor students left school to get a job or to get married. Recently, Sweeten, Bushway and Paternoster (2009) also studied whether dropout had an effect on subsequent delinquency, depending on the reason for leaving school. In general, they did not find an effect from dropping out on subsequent delinquency. Dropouts did appear to differ in their general level of offending, but did not change their behaviour after controlling for relatively stable differences between them and non-dropouts. However, leaving school for economic reasons was followed by a decrease in delinquency, more specifically for males.

In short, there is some evidence for a 'dropout effect' on delinquent behaviour. Dropouts seem to have an elevated level of offending while they are still in school because they differ on a number of other aspects from non-dropouts. It is also clear that the effect of dropping out may be dependent on the reason for leaving school and the new situation after the event. Perhaps somewhat surprisingly, dropping out to work rather seems to have a decreasing effect on delinquent behaviour for many young people.

Current approach

In the past, various theoretical perspectives have been used to understand the eventual effects of youth employment, unemployment and dropout on delinquent behaviour. Several authors have adopted strain theory to understand the detrimental effect of youth unemployment and the positive effect of dropping out from school (for example, Elliot and Voss 1974); others have utilized control theory to derive hypotheses about the potential increase in delinquency after leaving school (for example, Thornberry et al. 1985). Social learning theory has been mentioned in a study on work and delinquency among adolescents (Ploeger 1997), and social identity theory has been used to derive hypotheses about the effects of dropping out (Sweeten et al. 2009). The current study is exploratory, not wedded to a particular theory, partly because studies about the relationship between work, dropout and delinquency have been rather inconclusive in the past. Nevertheless, it is possible to formulate a number of general expectations.

First, based on earlier findings, it can be expected that the general prevalence of delinquent behaviour in our sample will still be substantial after finishing secondary school, but the most prevalent types of offence will probably have altered.

Second, it is expected that those who undertake further education without any problems will have the lowest level of delinquency. In general, students in this category will have relatively high levels of motivation and school-based social bonds, and will be capable of continuing their education despite the lack of any obligation to do so. We can also expect that students who are not successful in their school career and who seem to have less motivation and capacity to attend school will have elevated levels of delinquency.

Third, it is expected that those who have left school are relatively more delinquent than others, but probably they were already more delinquent while they were still in school. On average, this category of youths appears not to be sufficiently motivated or bonded to school to fulfil the needs of a prolonged educational career. However, it is also expected that school leavers who find themselves in satisfactory jobs will tend not to increase their level of delinquency, because their demotivating situation has come to an end and a new – positive – identity has been found. This category may even decrease their offending. However, school leavers who do not find a job and remain unemployed at home will probably have increased their level of delinquency, owing to the lack of a satisfactory social role and a decrease in informal social control.

Fourth, it is reasonable to believe that the situation after secondary school will have only a modest effect on the level of delinquency. Earlier research has shown that there may be selection effects at work, which lead relatively more delinquent youths to drop out of school more often than others. Therefore, we can expect the educational career to be only one of the many potential influences on delinquent behaviour after secondary school, such as having a weak bond with parents, low levels of self-control and relatively deviant moral attitudes.

Methods

Data

The data for this paper were collected as a follow-up to the NSCR School Project, which included a longitudinal survey of secondary school students in The Hague and several

other cities in the vicinity. This study took place during 2002–4 at 12 schools that were mainly focused on general and vocational training (VMBO), a basic type of education that accounts for about half of Dutch students in this age group. This focus on relatively lower-educated city youths was chosen to increase the likely prevalence of problem behaviour among the respondents. The sample consisted of two cohorts: a younger cohort of students who were questioned three times, in the 1st, 2nd and 3rd grade; and an older cohort who were questioned twice, in the 3rd and 4th (last) year. Respondents participated on a voluntary basis during school time and completed their questionnaires on computers in a classroom. The parents of the students were informed of the study and could refuse to allow the participation of their child (passive consent).

During the autumn and winter of 2006, respondents from a subsample were revisited in a small follow-up study. This time, they were surveyed at their home address, because almost all of them had finished their secondary education and were dispersed over a large number of schools or were not attending school at all. This type of research is much more labour intensive than conducting surveys at school, and therefore the follow-up was limited to a subsample of the original study: respondents from the youngest cohort who lived in The Hague (or a place attached to that city) the last time they were visited. It was also decided that the study should not limit itself to those respondents who had participated in every wave of the original study. From earlier attrition analyses, we knew that respondents who did not participate in all waves are often the ones who are more problematic in behaviour or situation. Therefore, we tried to recruit all of the respondents who had participated at least once during the entire school period.¹

In total, the research population consisted of 607 students who took part in any of the earlier survey waves. It was not always easy to contact these respondents and to convince them to take part in the follow-up study. Some of the students had moved, and their new addresses had to be discovered. Others were repeatedly not at home, or did not answer their phone or doorbell. The research team tried to visit potential respondents at least three times at different times.² Nevertheless, it was inevitable that only part of the research population could be recruited in the follow-up study. The researchers succeeded in obtaining 273 usable questionnaires from students who had participated in the earlier study, almost half of the research population. That is higher than could be reached with mail-based surveys, but lower than is usually achieved in large-scale longitudinal studies with abundant financial and personnel resources.

The follow-up sample of 273 students has a quite even distribution with regard to gender, with somewhat more girls (56.0 percent) than boys (44.0 percent). The ages range from 17 to 19, with a mean age of 17.98 and a modal age of 18.0 (59.3 percent). The sample contains a relative large proportion (50.5 percent) of ethnic minority youths (with one or both parents born abroad). The largest ethnic categories are Surinam and Turkish (15.8 percent and 14.3 percent, respectively, of the sample), and there is also a substantial proportion of respondents of Moroccan origin (7.3 percent) and Dutch Antillean background (2.9 percent). All in all, the sample can be seen as a rough representation of older adolescents with lower education in an urbanized area in the Netherlands. Attrition analyses show that the follow-up sample contains slightly more girls than the non-responding group, but does not differ significantly with regard to age and ethnic background. The non-responders had a slightly higher average score on delinquent

behaviour than those in the follow-up sample, which is in line with earlier experiences that it is relatively difficult to reach youths with more problematic behaviour. These findings indicate that the sample has a limited bias, but also enough variance in behaviour to conduct meaningful analyses.

Measures

Delinquent behaviour was measured using self-report questions about 12 different offences, ranging from painting graffiti and stealing small items from shops to burglary and robbery. Respondents were asked whether (and how often) they had committed these offences during the past school year, which was marked by the summer break to provide respondents with a reference point. In the follow-up, the respondents were asked to report simply about approximately the last 12 months. Though these formulations are not exactly the same, they both provide an insight into the recent level of delinquent behaviour during a period of about a year, a period that minimizes ‘telescoping effects’. The wording of the delinquency items was based on existing national and international self-report instruments (see the International Self-Reported Delinquency study – Junger-Tas et al. 2003).

For analytical purposes, item responses were combined into a *total delinquency* scale, constructed by counting the number of offence types. This ‘variety scale’ was used to indicate the overall level of delinquency, because the 12 offences are very different in seriousness. A ‘frequency scale’ based on how often each of the 12 items was reported would be biased towards high occurrences of relatively mild offences (see Bendixen et al. 2003).³ The alphas of the total delinquency scale ranged from .68 to .71 in the four waves of the study.

Because the aim of this paper is to compare the delinquency levels of respondents during their high school period with their delinquency after this period, it was necessary to construct a summary measure based on the three study waves of the original study. That was complicated, because some of the respondents had participated in only one or two of the three earlier survey waves.⁴ To calculate an average score for the secondary school period, the available scores for a respondent were summed and then divided by the number of waves in which he or she participated. To account for differences in mean levels over the three survey waves, each score was adjusted to the level of the final (third) wave of the NSCR School Project.

School/work situation was established by a number of questions in the follow-up survey. First, we asked whether the respondents still attended school and, if so, whether they had moved on to a higher form of education. If they were still at school, we also asked whether they truanted and, if so, how often. Further, we asked whether respondents had a job (and what kind of job). We also asked how many hours they were at school, and how many hours at work. Finally, if respondents indicated that they neither went to school nor had a job, we asked what their daily routine was, to ascertain whether respondents were really jobless and staying at home. Using these questions, respondents were categorized as either: (1) attending further education without any problems (171 students); (2) still going to school but with educational problems – still in secondary school⁵ or reporting serious truancy, i.e. staying away from school regularly for several hours or days (18 students); (3) employed part time and studying part

time (32 students, including students following a programme that combines work and education); (4) having a full-time job (and not going to school; 39 students); or (5) jobless and at home (13 students).

Five other independent variables were entered in the analysis to investigate whether the association between the school/work situation and (changes in) delinquency might be a spurious one: sex, bond with parents, level of self-control, moral attitudes and time spent with peers. These variables represent important criminological theories and appeared to be related to delinquency in earlier analyses of the NSCR School Project. To maintain enough statistical power, the number of variables that could be included had to be limited. 'Being a member of an ethnic minority' was left out of the analysis because it was not correlated with delinquency or changes in delinquency. A variable reporting delinquent peers was correlated with own delinquency, but this variable was excluded because the causality of the correlation is questionable. Reporting delinquent peers is for an important part the result of selection processes, co-offending and misperception of peer behaviour (see Weerman and Smeenk 2005).

Sex was simply measured by asking respondents whether they were a boy or a girl. *Bond with parents* comprised a scale consisting of five items with response categories on a five-point Likert scale ranging from 'completely disagree' to 'completely agree'. These items indicate whether respondents like their parents and have a positive relationship with them.⁶ Alphas over the four waves ranged from .58 to .71. *Self-control* is a measure that consisted of three subscales (impulsivity, risk-seeking, anger) adapted from Grasmick et al. (1993). It contains 12 items (with five-point response categories)⁷ and alphas ranged from .70 to .79. *Morality* consisted of four items (with five-point response categories) that indicate to what extent respondents are willing to bend the law;⁸ alphas ranged from .58 to .75. These items were formulated in such a way that overlap with the self-report delinquency questions is minimized, to prevent associations that one could interpret as tautological. *Time spent with peers* consisted of five items (with three-point response categories) indicating how often and how long respondents are in the company of their friends;⁹ alphas ranged from .79 to .82.

Some respondents had missing values on one or more of the items of a scale (for most of the items this varied from 0 to 2 percent, in the worst case 4 percent of the responses on an item were missing). The missing values were imputed in SPSS by using the EM (expectation-maximization) method. This is an iterative procedure that calculates the most likely values for missing items based on the non-missing items of the respondent and the averages for the other respondents. Further, the separate three-wave scores of the respondents on the independent control variables were also combined into an average 'during high school' measure in the same way as the delinquency measure (controlling for the general tendency in each of the waves).

Table 1 shows descriptives for the independent control variables that were used in this study. Paired *t*-tests are used to analyse whether the average score during high school and after high school have changed significantly. The results indicate that there was quite some development among the respondents after high school: respondents became more self-controlled and developed more conventional moral attitudes, and the respondents appear to spend more time with their friends after high school than during that period.

Table 1. Descriptive statistics of the independent control variables

	Mean score (weighted) during school period (SD)	Mean score after school period (SD)	Paired <i>t</i> -test: <i>t</i> -value
Bond with parents (range 0–20)	17.55 (2.51)	17.60 (3.05)	0.26 n.s.
Level of self-control (range 1–48)	23.59 (8.33)	26.77 (8.79)	5.78**
Moral attitude (range 0–16)	11.33 (2.84)	12.42 (3.70)	4.50**
Time spent with peers (range 0–8)	5.25 (2.19)	5.62 (1.59)	2.76**

Notes: Standard deviations are shown in parentheses. The last column shows the *t*-value, which indicates whether the difference in the average during and after secondary school is statistically significant.

** $p < .01$; * $p < .05$; + $p < .10$; n.s.: non-significant.

Analytical strategy

The analysis will take place in several steps. First, the development of delinquent behaviour is explored by presenting prevalence figures for each offence and mean delinquency scores during and after high school. Wilcoxon tests and a paired *t*-test are used to analyse whether changes are significant.

In a second step, delinquency scores during and after high school are presented for each of the five school/work situation categories, to get a first impression of the differences between categories. Changes within the categories are scrutinized with paired *t*-tests.

In the third and most important step, changes in delinquency for each category are analysed with a mixed-design (or split-plot) ANOVA in which the five control variables are entered as covariates. This analytical technique enables between-subject differences (in this case, differences in delinquent behaviour between the five categories) to be distinguished from within-subject differences (changes in delinquency within each category). It also investigates whether the changes within the categories are not due to differences between categories with regard to the independent control variables. Since we are interested in the development of delinquency within the five categories, change scores for the control variables (that is, the difference between scores during and after high school) are entered in the analysis. Further, a transformation was conducted on the dependent variable (total delinquency) because a Levene's homogeneity test revealed that the error variances of the original variable differed significantly over the five categories. In the presented analysis, the square root of the delinquency measure was used, which resulted in a satisfactory result for the Levene's homogeneity test.¹⁰ The Box M statistic, a relatively strict test for the homogeneity of intercorrelations (equally distributed covariance matrices for the five categories) indicated that there is still some heterogeneity,¹¹ which implies that the results should be interpreted with caution.

Findings

First, we present the general tendencies in offending. Table 2 shows the proportions of all respondents who were involved in each of the separate delinquency items during and

Table 2. Delinquent behaviours of respondents during and after the secondary school period

	Percent in last wave during secondary school	Percent in the follow-up, after secondary school
Graffiti	13.9	16.5
Destroying property	7.0	8.1
Shoplifting items worth < €5	11.0	15.8
Shoplifting items worth > €5	2.9	5.1
Buying stolen goods	9.2	21.2**
Stealing a bike or moped	4.8	8.8 ⁺
Stealing a car	1.5	2.2
Burglary	1.1	2.6
Robbery	1.1	0.7
Other theft	4.0	1.8
Fighting/assault without wounding	16.5	21.2
Fighting/assault with wounding	8.1	13.2*
Any of the above offences	36.2	46.5

** $p < .01$; * $p < .05$; ⁺ $p < .10$; n.s.: non-significant; Wilcoxon test.

after the high school period. The last row shows the proportion of respondents involved in any of the 12 offences. For each respondent, the most recent prevalence data were used in the analysis, to obtain the most relevant comparison.¹²

Table 2 shows that 'buying stolen goods' substantially increased from the last measurement during high school, from 9.2 to 21.2 percent. After high school, it became the most prevalent type of offence among the respondents who participated in the follow-up study, together with 'assault without wounding'. The asterisk indicates that a Wilcoxon test showed that significantly more respondents began with this offence in the follow-up than stopped. In general, all offence types except 'robbery' and 'other theft' became more prevalent. However, except for 'buying stolen property', there are only two other offences that changed significantly: 'theft of a bike/moped' (from 4.8 to 8.8 percent, one-sided significant) and 'assault with wounding' (from 8.1 to 13.2 percent).

An additional analysis revealed that the average level of offending among the respondents also increased. During secondary school, the mean total delinquency score (corrected for waves of participation) was 0.74; after high school it was 1.17. This difference is significant ($t = 3.80$, $p < .01$) and confirms the general trend apparent from Table 2.

Table 3 presents the differences between respondents' school/work categories in their average delinquency levels during and after high school. There are several interesting differences. First, it appears that those who are still undertaking education and appear not to have attendance problems (the first row) have relatively low levels of delinquency. This level, however, does increase slightly (but significantly) when they have finished high school. Second, it appears that those with a problematic follow-up school situation, as well as those who combine school and work, had relatively low levels of delinquency while they were in high school but relatively high levels afterwards. The increase for those who combine school and (part-time) work is remarkable and statistically significant. Third, it appears that those who get a full-time job after high school had relatively

Table 3. Mean delinquency scores among categories during and after secondary school

Category during follow-up:	Mean score during secondary school (SD)	Mean score after secondary school (SD)	t-value (paired t-test)
Full-time education	0.59 (0.92)	0.92 (1.52)	3.11**
Problematic school attendance	0.84 (0.98)	1.72 (2.24)	1.88 ⁺
Combining work and school	0.55 (1.03)	1.81 (2.42)	3.03**
Only working	1.49 (2.04)	1.28 (1.93)	-0.47 n.s.
No work / no school ('dropout')	0.73 (1.18)	1.85 (2.34)	1.70 n.s.

Notes: Standard deviations are shown in parentheses. The last column shows the t-value, which indicates whether the difference in the average during and after secondary school is statistically significant.

** $p < .01$; * $p < .05$; ⁺ $p < .10$; n.s.: non-significant.

high levels of delinquent behaviour while they were in high school. Interestingly, this level does not increase after high school, but rather seems to decrease, although this finding is not statistically significant. Finally, those respondents who were neither working nor attending school in the follow-up appear to be involved in relatively high levels of delinquency after high school, but the increase compared with their school period is not statistically significant.

In Table 4, the results of the mixed-design ANOVA are presented: the top panel shows the 'within-subject' effects on changes in delinquency; the bottom panel shows the 'between-subject' effects. The *F*-value indicates the ratio between the variance in delinquency within a particular variable relative to the total variance; the partial eta squared is an indication of the effect size of a particular variable (adjusted for the measurement scale).

Table 4. Mixed-design ANOVA: within and between subjects effects on delinquency score (square root transformed)

	F-value and significance	Partial eta squared
<i>Within-subject effects</i>		
Changes (time)	9,593**	.035
Sex (being a girl)	3,008 ⁺	.011
Changes in bond with parents (* time)	2,076	.008
Changes in self-control (* time)	4,458*	.017
Changes in morality (* time)	7,141**	.026
Changes in time with peers (* time)	0.435	.002
School / work situation (* time)	2,667*	.039
<i>Between-subject effects</i>		
Intercept	92,432**	.260
Sex (being a girl)	12,759**	.046
Changes in bond with parents	4,089*	.015
Changes in self-control	2,280	.009
Changes in morality	2,942 ⁺	.011
Changes in time with peers	47,487**	.153
School / work situation	1,855	.027

** $p < .01$; * $p < .05$; ⁺ $p < .10$

Table 4 reveals several interesting findings. First, there is a significant estimate for the changes variable ('time' in the terminology of the mixed-design ANOVA). This implies that there is a general increase in delinquency, which is still significant once the other variables are entered in the analyses. Second, several of the control variables appear to be having significant within-subject effects on changes in delinquency (in mixed-design terminology: interaction effects with 'time'). More precisely, changes in self-control and morality are significantly related to a decrease in offending. Being female is also (one-sided significantly) related to decreasing delinquency. Third, and most importantly, the school/work situation of the respondents has a significant effect on changes in the level of delinquency, net of sex and other control variables. The estimated effect size (partial eta squared of .039) is the largest of all the within-subject effects, though it should still be regarded as a small to moderate effect.

The between-subject results show that the general level of delinquency over both time moments is significantly related to sex and to changes in the bond with parents, morality and (especially) time with friends.¹³ Interestingly, the school/work situation is not significantly related to between-subject differences in delinquency, once one controls for other variables. This suggests that level differences between the five categories are mainly the result of underlying differences in the control variables.

To enhance the interpretation of the results, Figure 1 shows the estimated marginal means (net of the effects of the control variables) on the two time moments for the five school/work categories. The results are in line with Table 3 and show that most categories follow an increasing path of delinquent behaviour. For those undertaking full-time

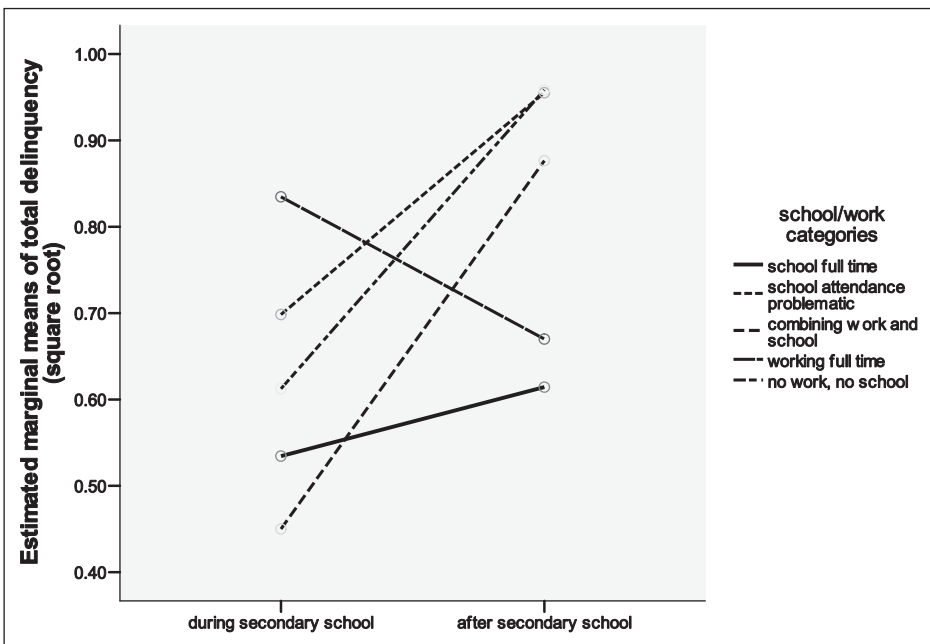


Figure 1. Estimated marginal means of delinquency score (square root transformed) for the five school/work categories

education, delinquency is relatively low and increases slightly. For those with problematic attendance at a follow-up school and those without work or schooling, delinquency is already quite high during high school and it appears to increase further. The most remarkable change can be found for those respondents who are now combining school and work: they had relatively low delinquency scores during high school, but their offending level substantially increases after high school. Another remarkable feature of this figure is that the line of those who are only working after high school crosses the other lines: for them, delinquent behaviour does not increase, but rather seems to decrease a little.

Discussion

This study sheds more light on the development of delinquent behaviour after secondary school in the Netherlands. More specifically, it offers new insights into the potential effects of diverging educational careers during this life period. The findings are based on a follow-up study of the NSCR School Project, in which 273 respondents were revisited after their secondary school period.

First, the findings show that delinquent behaviour is still very prevalent among respondents who have finished secondary schooling. The average level of delinquency was even seen to increase, although this may be partly attributable to experiment bias, since the follow-up questionnaire asked respondents about the last 12 months, whereas the secondary school survey asked about delinquency since the summer break (about 9 months). More importantly, the most prevalent type of offending shifted during this period. In line with earlier studies (for example, Donker 2004), 'buying stolen goods' had increased since the last measurement, but stealing a bike and assault with wounding also increased significantly.

Second, there appeared to be clear differences between the five school/work categories. In line with what was expected, those who went smoothly from secondary school to further education had the lowest mean levels of delinquent behaviour, and those with (attendance or other) problems during subsequent schooling were more involved in offending, especially after secondary school. Also in line with initial expectations was the finding that those who did not go to school at all were on average already more delinquent during secondary school than those who still went to school. These respondents also appeared to decrease their level of offending, in line with studies reporting that dropouts who obtain employment actually decrease their involvement in offending (for example, Jarjoura 1993). Those who became jobless did not significantly increase their level of offending, which is not in line with earlier studies on unemployment and delinquency (for example, Vettenburg et al. 1984). It is important to keep in mind that this category was not well represented in this study (13 respondents), and therefore far-reaching conclusions are not warranted. Nevertheless, this small group of respondents shows that becoming jobless does not necessarily lead to an increase in offending. Another unexpected finding was that respondents who combined work and school in the follow-up study were relatively less involved in delinquency when in secondary school, but more so afterwards. In earlier studies, part-time working appeared to be associated with relatively high levels of delinquency (for example, Apel et al. 2006), but it did not seem to increase after secondary school.

Third, the effects of educational career appeared to remain after control variables were entered in the (mixed-design ANOVA) analysis. The within-subject effect of

'school/work situation' is significant and substantial. This independent (though still modest) effect is in line with studies that report long-term effects of dropout (especially Jarjoura 1993, 1996; Thornberry et al. 1985); but it contradicts studies suggesting that the effect of dropout or work is mainly owing to selection effects (Apel et al. 2007; Krohn et al. 1995). However, the school/work situation is clearly not the only factor associated with changes in delinquent behaviour. The findings suggest that developments in offending after secondary school are also affected by the sex of the respondent and by changes in self-control and moral attitudes. Nevertheless, the findings indicate that the school/work situation after secondary school may be crucial to the offending behaviour of at least some of the respondents.

Although the findings are intriguing, definitive conclusions are not warranted. This study has a number of limitations that needs to be kept in mind. The size of the sample is quite small, and the attrition rate in the follow-up was relatively high. At the same time, the retrieval of a relatively large proportion of 'hard to reach' respondents was achieved by including everyone who had been in one or more waves of the earlier study. A second limitation is that for some respondents there are data from only two or one of the waves of the earlier study – a negative consequence of this decision to include all former respondents. This limitation was reduced by calculating average scores for the complete secondary school period, controlling for the differences between waves. Nevertheless, it is inevitable that the loss of information led to some biases in the results. Third, the data do not perfectly meet the formal requirements of a mixed-design Anova (there is some heterogeneity of intercorrelations between the covariates), and therefore the size of effects may be slightly misestimated. Nevertheless, the employed analysis seems to be best suited for the questions at hand (the effect of educational career categories on changes in delinquency, net of between-subject differences). Furthermore, other methods that were explored (for example regression analyses with dummies for the different categories) did not reveal substantially different findings.

The limitations of this study imply that the findings should be taken as exploratory, revealing potential patterns that need to be corroborated in future studies. Nevertheless, there are a number of lessons that can be learned from this study. First, the period right after secondary school may be a very important one with regard to delinquent behaviour, worthy of greater research than has been conducted until now. Second, the educational career seems to be an important factor in understanding delinquency during this period. Third, dropping out of school may not be detrimental in all cases: this study confirms earlier findings that getting a full-time job may actually lead to less offending for some young people. Fourth, the combination of schooling and work may have a less positive effect on behaviour. Whether this is because such a situation leads to confusion or less motivation for either school or work, or whether it is merely the result of some underlying problem, is unclear and also needs to be investigated in a larger and more detailed future study.

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Notes

1. Analyses showed that we indeed succeeded in finding some relatively problematic students. The follow-up sample was less different from non-respondents with regard to their original delinquency than the sample from the third wave of the original study.
2. Financial and time constraints made it impossible to revisit all of the respondents. Some of them were visited only once or twice, but in all cases we left a questionnaire at their home address so they could complete it themselves.
3. However, the variety scale of delinquency and a frequency scale are highly correlated.
4. 169 respondents participated in all three earlier waves, 66 respondents in two waves, and 38 respondents in one wave.
5. This was the case for five respondents. We gathered them under the umbrella of having educational problems, because a separate category would be too small.
6. For example: 'My parents are nice to me', 'I don't like being with my parents (reverse coded)'.
7. Examples of items are: 'I say what I think immediately', 'I like to try out scary things', 'People had better stay away from me when I am angry'.
8. For example: 'It's all right to do something that is illegal now and then, as long as you don't get caught.'
9. For example 'How often do you spend time with your friends after school (almost never, some days, most or all days)'.
10. The test results for delinquency during and after high school are respectively 1.090 and 1.550 ($df = 4$), both non-significantly different from zero.
11. $F = 2.167$ ($df = 12, p = .011$).
12. The trends are similar when the analysis is limited to the respondents who participated in the last wave.
13. Unfortunately, including the general level of the four changing control variables in the model appeared to complicate the analysis too much to reach useful results. A model that included the level of bond with parents, self-control, morality and time with friends (but not the changes) shows that all four variables are related to between-subject differences in delinquency. The results regarding the school/work situation are similar to those presented here.

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