

Schoon, Ingrid; Mullin, Annabel J. C.

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## Crime involvement and family formation: Evidence from the British birth cohort study

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**Crime involvement and family formation:  
Evidence from the British Birth Cohort Study**

Ingrid Schoon \*# and Annabel J.C. Mullin\*

\*University College London, Institute of Education

# Wissenschaftszentrum Berlin (WZB)

**Corresponding Author**

Ingrid Schoon

University College London, Institute of Education

20 Bedford Way

London WC1H 0AL

Tel: +44(0) 2076126238

Email: [I.Schoon@ioe.ac.uk](mailto:I.Schoon@ioe.ac.uk)

## **Crime involvement and family formation:**

### **Evidence from the British Birth Cohort Study**

Previous studies have established the association between marriage and committed relationships and a reduction of offending across the life course (Bersani, Nieuwbeerta, & Laub, 2009; Laub, Nagin, & Sampson, 1998; Sampson, Laub, & Wimer, 2006). This evidence has been established among samples of high risk offenders (Bersani, Laub, & Nieuwbeerta, 2009; Farrington & West, 1995; Horney, Osgood, & Marshall, 1995; Laub & Sampson, 2003; Sampson, et al., 2006), general population samples (King, Massoglia, & MacMillan, 2007; Maume, Ousey, & Beaver, 2005; Warr, 1998), for men and women (Giordano, Cernkovich, & Rudolph, 2002), and in studies using official and self-report data (Blokland & Nieuwbeerta, 2005; King, et al., 2007). There is also evidence to suggest that parenthood can play a role in the desistance process, especially among women (Giordano, Seffrin, Manning, & Longmore, 2011; Kreager, Matsueda, & Erosheva, 2010). It is assumed that strong ties to social institutions, like a committed relationship or marriage, can inhibit offending due to informal social control and increasing social capital (Sampson & Laub, 1993). Yet, little is known about the long-term consequences of crime involvement in adolescence regarding partnership and family formation.

Research has shown that early delinquency can play a role in shaping subsequent life trajectories, yet the study of marriage and partnership formation as the outcome and early contact with the criminal justice system as predictor has received little attention. Previous research has pointed to reduced opportunities for marriage among young offenders as well as marital instability (Farrington & West, 1995; Western, Lopoo, & McLanahan, 2004; Western & McLanahan, 2000); and has shown that early delinquency is associated with a greater involvement in risky sexual behaviours as compared to their non-delinquent peers, which places them at an increased risk for unplanned and also teenage parenthood (Guagliardo,

Huang, & D'Angelo, 1999; Stouthamer-Loeber & Wei, 1998). Yet, evidence from longitudinal studies (Doherty & Ensminger, 2013; Doherty, Green, & Ensminger, 2012), especially among general population samples (Hobcraft, 1998; Huebner, 2005, 2007) is still rare. Furthermore, most studies have concentrated on delinquency among males, not taking into account potential gender differences in pathways.

The present paper adds to previous research in a number of ways. First, we use nationally representative longitudinal data from the British Cohort Study (BCS70) to examine the association between crime involvement and the odds of experiencing various life-course events by age 30 (cohabitation, marriage, parenthood) among men and women. Age 30 can be considered as a stage in adulthood when major investments in partner selection and family commitments are made (Arnett, 2000; Erikson, 1968; Heckhausen, 1999; Levinson, 1986). Furthermore, most studies have shown that delinquent behaviour peaks in late adolescence or early adulthood, and on the whole is followed by a more settled life style (Bushway, Krohn, Lizotte, Phillips, & Schmidt, 2013; Nagin, Farrington, & Moffitt, 1995). Second, the analysis takes into account a set of individual and family background characteristics to control for potential confounding factors, including own experiences in the labour market (i.e. time spent in unemployment or out of the labour force). Third, most previous research has focused on pathways of delinquent males, with little evidence on experiences of delinquent females (Uggen & Kruttschnitt, 1998). Fourth, while previous studies have mainly analysed effects of criminal behaviour overall, we distinguish different patterns of crime involvement over the life course.

### **Crime involvement and family formation**

The paper adopts an integrated developmental life course framework (Farrington, 2005) to examine the role of crime involvement in shaping subsequent life transitions. The life course perspective emphasizes the dynamics of development, the unfolding of human lives and

stability and change in behaviour over time. Within the paradigm of life-course criminology it is assumed that changing life circumstances and connections to social institutions can produce different life course trajectories, and that variation in offending is linked to the timing of life events (Nagin, Farrington & Moffitt, 1995; Sampson & Laub, 1993; Thornberry, 1987). Life course theories also argue that multiple social, personal, economic and other factors influence crime involvement. According to the interactional theory of delinquency these multiple factors have to be considered in conjunction, although different factors may be more or less important at different stages of the life course, and can act to initiate, reinforce or even reduce crime involvement (Thornberry, 1987; Thornberry & Krohn, 2005). As individuals make important transitions in their lives, such as from being single to entering a relationship and/or marriage, from unemployment to being employed, or becoming a parent, their social interactions change and so does the importance of different influences on crime involvement.

Crime involvement is thought to reduce opportunities for committed relationships and marriage in three primary ways (Huebner, 2005). First, the stigma associated with delinquency can affect the chances of establishing a committed relationship by reducing the pool of marriageable partners. Second, limited opportunities to gain further education and/or work experience can make it difficult to be a viable partner in the marriage market. Third, crime involvement may reduce the likelihood of that young adults are able to sustain relationships, and thus have a higher propensity to dissolve relationships.

Pathways from early crime involvement to reduced opportunities in the marriage market and continued delinquency can also be understood as a result of cumulative disadvantage (Sampson & Laub, 1993) where a pathway could occur for multiple reasons. For example, delinquents might engage in behaviours such as heavy drinking, aggressive and anti-social behaviour that make them less attractive to potential partners or less likely to maintain a long-term relationship (Bersani et al., 2009). They might also have difficulties in keeping a

steady job, which in turn impacts on their social and human capital, and their ability to attract a committed partner (Huebner, 2005).

Life course theory does not however only assume continuity in development but also takes into account changes in deviant behaviour over time. Many studies have shown that offending peaks during adolescence and gradually declines with age (Farrington, 1986, 2005). While static theories of criminal behaviour do not attempt to explain the age-crime relationship and assume a unitary aging process (Gottfredson & Hirschi, 1990), life course theory takes into account heterogeneity in human development. It assumes that changes in life circumstances during and after adolescence, such as entering a committed relationship or finding stable work, can influence subsequent delinquent behaviour (Farrington & West, 1995; Laub et al., 1998; Nagin, et al., 1995; Thornberry & Krohn, 2005). For example, turning points that allow individuals to desist from crime include marriage and the development of a stable career. Yet, life course events are not unconditional determinants of desistance, and events such as a marriage can provide opportunities for desistance as well as for continuity of deviant behaviour, depending on the constellations of multiple social, personal, economic and other factors and the interactions of a developing individual in a changing context.

Moreover, typological theories have argued that the aggregated age-crime curve can be disaggregated into different delinquent trajectories, such as adolescence-limited and life course persistent delinquency (Loeber & Hay, 1997; Moffitt, 1993; Nagin, et al., 1995). While life course persistent delinquency is apparent only in a small minority, adolescent limited delinquency is more common, relatively temporary and has been described as a nearly normative pattern of antisocial behaviour (Moffitt, 1993). It has been argued that these typologies are important for understanding the causes of delinquent development and associated outcomes (Loeber & Farrington, 2000; Moffitt, 1993). For example, persistent

offenders are assumed to have missed out on opportunities and practice of prosocial behaviour during childhood, and compared to persistent offenders adolescence-limited offenders are understood to have the capacity to make use of opportunities for change and to engage in conventional crime-reducing pathways to adulthood, such as education, work, marriage (Moffitt, 1993). In addition Thornberry (1987) has identified other patterns of change, such as that of the 'late bloomers', i.e. those who begin offending beyond the modal onset years of adolescence, which were confirmed in later studies (Odgers et al., 2008; Stattin, Kerr, & Bergman, 2010), as well as intermittent offending or sporadic experimenters. Thornberry does not ascribe these patterns to different etiologies defined by age of onset but argues that the multiple causes of delinquency vary in their magnitude across persons due to the combination of risk factors and available protective, or 'offsetting', factors.

In this paper we do not focus on the causes of delinquency, but on the outcomes of patterns in crime involvement regarding partnership and family formation. Previous evidence using longitudinal data shows inconsistent findings. For example, a study using a male only sample from the 1979 US National Longitudinal Survey of Youth found that incarceration is negatively associated with marriage (Huebner, 2005), especially for White males (Huebner, 2007). Data from the Dutch Criminal Career and Lifecourse Study does however suggest that there is only a small and short lived impact of confinement on the probability of marriage (Apel, Blokland, Nieuwebeerta, & van Schellen, 2010).

Very few studies have looked at gender differences in the life course consequences of delinquent behaviour (Block, Blokland, van der Werff, van Os, & Nieuwebeerta, 2010; Estrada & Nilsson, 2012). There is evidence of higher levels of aggressive and nonaggressive conduct problems and delinquency among males and that fewer females follow a delinquent trajectory (Lahey et al., 2006; Loeber & Hay, 1997; Moffitt & Caspi, 2001; Moffitt, Caspi, Rutter, & Silva, 2001), yet there are few gender differences in the early child risk correlates (Lahey et

al., 2007; Van Hulle, Rodgers, D'Onofrio, Waldman, & Lahey, 2007; Wong, Slotboom, & Bijleveld, 2010). Evidence from the UK 1958 cohort suggests that early contact with the police is associated with teenage parenthood and unstable relationships among both males and females (Hobcraft, 1998). Analysis of the US Young Adult Follow-up Study found that despite persistence of problem behaviour from adolescence to young adulthood, there was little evidence of 'spillover' effects into other domains of adult functioning, such as family formation and friendships (Jessor, Donovan & Costa, 1991). However, the sample of this study comprised mostly middle-class youth for whom early delinquency did not appear to be a major handicap. Findings from the Chicago Woodlawn community study of urban African Americans suggest that adolescent delinquency predicts the reduced probability of marriage among males but not females, while timing and stability of marriage were not significantly associated with delinquency for both males and females (Doherty & Ensminger, 2013). Other evidence from longitudinal data seems to suggest that female delinquents had more negative life outcomes than corresponding groups of males, as for example regarding being in a stable relationship or mental health, (Bergman & Andershed, 2009; Estrada & Nilsson, 2012; Giordano, et al., 2002; Lanctot, Cernkovich, & Giordano, 2007; Odgers, et al., 2008).

Differentiating between official delinquent status and self-reported juvenile delinquency, Lanctôt et al. (2007) found, based on data from the Ohio Life Course Study (OLS), that having been in a juvenile delinquent institution significantly influences outcomes across multiple domains (e.g. employment, family formation and mental health), especially for females, while self-reported delinquency is mainly predictive of difficulties with behaviour problems (i.e. drug and alcohol related problems and criminal involvement) and did not show spill-over effects to other life domains. This finding applied for both males and females.



Diversity in the findings reported above can be due to the variations in sample composition (i.e. age, ethnicity, social status), socio-cultural context, measurement and timing of crime involvement and institutionalization, as well as the measurement and timing of outcome variables. To gain a better understanding of the links between crime involvement and family formation and how these differ for males and females more evidence is needed, especially from longitudinal general population samples that provide sufficient controls.

### **Research questions and hypotheses**

The aim of this study is to assess whether crime involvement (operationalised with questions about contacts with the police during the life course) is associated with the likelihood of entering a committed relationship and the step into parenthood; and whether the probability of family formation varies for different life course patterns of crime involvement and gender. In particular we test five hypotheses: First, based on the assumption of heterogeneity in human development we expect to identify different patterns of crime histories, in particular regarding adolescent limited and persistent delinquency. Second, using self-reported delinquency and not official delinquent status we might find, in line with Lanctôt et al. (2007) that self reported crime involvement does not necessarily spill over to other life domains, such as establishing a committed relationship. Third, according to the assumption of cumulative disadvantage, and in contrast to our second hypothesis, we would expect an association between continued crime involvement and reduced opportunities in the marriage market. Fourth, we expect that early delinquency is associated with the timing of life events, in particular teenage parenthood (Doherty et al., 2012). The timing of life events is one of the key principles of the life-course perspective (Elder, 1998) and according to the assumption of cumulative disadvantage we would expect early crime involvement to be associated with accelerated transitions, i.e. teen parenthood (Thornberry, Smith, & Howard, 1997), which in turn influences opportunities for education and employment participation, especially for females. Fifth, we expect women to

experience more negative consequences as a result of early crime involvement than men, as delinquent women are considered to be more stigmatized than men because they break not only the law but also the norms and expectations associated with being female (Estrada & Nilsson, 2012). Lastly, according to the assumption of interactive processes (Thornberry & Kahn, 2005) we expect continuity and change in behaviour where the longer term effect of crime involvement on family formation depends on the constellations of multiple social, personal, economic and other factors, including for example a stable family background, educational attainment or attachment to the labour market (Sampson & Laub, 2005; Thornberry, 1987).

In our analysis we control for a number of factors that have been found to predict delinquency (Kazemian, Farrington, & Le Blanc, 2009; Loeber & Hay, 1997) as well as relationship stability (Amato, 1996; Axinn & Thornton, 1992). These factors include indicators for parental social status, maternal education, parental divorce or separation, variation in individual characteristics, such as behaviour adjustment pre-adolescence, own educational attainment, alcohol problems, as well as variations in attachment to the labour market, i.e. time spent in unemployment or being out of the labour force. Controlling for these factors takes into account potential alternative explanations or confounding factors.

## DATA AND METHOD

The paper is based on a sub-sample of the multi-disciplinary longitudinal British Birth Cohort Study (BCS70). This is a large scale representative sample of British children that were born during a particular week in 1970 (Elliott & Shepherd, 2006). The sample is primarily white with about 3 percent ethnic minority children, representing the ethnic composition in Britain at the time (Schoon, 2006). The entire sample comprises 16,571 individuals with eight waves of data collection at ages 0, 5, 10, 16, 26, 30, 34, 38 and 42. Information on the study

participants was gathered from different sources. The scope of the study during the years has broadened from a medical focus at birth to physical and educational development at age 5, educational and social development at ages 10 and 16, then to economic development during the adult years. In 2000, at age 30 years, 15,503 cohort members were eligible to take part in the follow-up survey (94% of the original cohort who were alive and living in the UK). Of these 11,072 participants completed the questions regarding delinquency and indicators of partnership- and family formation (response = 71%). At age 16 the cohort study was affected by a teacher strike which resulted in a much reduced sample (Shepherd, 1997). We have information from 5,876 respondents on delinquent behaviour by age 16. Linking the data longitudinally we achieved an analytic sample of 4,658 cohort members who completed questions on contacts with the police at age 16 years and regarding police contacts and family status at age 30 (40% male).

#### *Assessment of delinquent behaviour*

The assessment of delinquent behaviour is based on information collected at ages 16 and 30 comprising self-reports of contacts with the police between the ages 10 to 16, and ages 17 to 30. For both assessments at age 16 and age 30 the same 6 questions (yes / no response alternatives) were used: have you been (a) moved on by police, (b) stopped and questioned by police, (c) let off by the police with a warning, (d) arrested and taken into station, (e) cautioned by police, and (f) found guilty by court. Table 1 gives an overview of delinquent behaviours at ages 16 and 30 separately for males and females. A summary score was computed comprising answers to items d, e and f. Respondents who gave affirmative answers to the three items d, e or f were identified as having had serious crime involvement and contact with the police and the judicial system.

#### *Insert Table 1*

### *Assessment of partnership and family formation by age 30*

Based on information derived from the family histories collected retrospectively at age 30 we derived indicators of partnership and family status at different life stages, differentiating between:

- Ever being married before age 30
- In a long term relationship (5 years or longer) at age 30. This category comprises cohort members who are living in a stable relationship with the same partner for 5 years or more (cohabitation or marriage). Although 5 years might seem to be somewhat arbitrary choice to define a stable relationship, there is evidence to suggest that divorce is most common in the first 4 years of marriage (National Center for Health Statistics, 1990). There is also evidence that 90% of cohabiting families experience changes in family structure within five years (Graefe & Lichter, 1999), and that five years is a critical period to establish stability in cohabitating couples (Qu, 2003; Haskey, 2001). Thus, taking a 5-years threshold seems to be reasonable to gain an approximation of family structure and the stability of the partnership.
- Teen parenthood (parent before age 20)
- Living with a partner and child at age 30

### *Control Variables*

*Parental social class* at birth is measured by the Registrar General's measure of occupational social class (RGSC), assessed by the current or last held job of the cohort member's father.

Where the father was absent, the social class (RGSC) of the mother was used. For the purpose of this analysis, RGSC is coded as: I & II: managerial and professional; III skilled manual or non-manual; IV & V semi- or unskilled (Leete & Fox, 1977)

*Mother's education* was coded as (1) left school at the minimum age or (0) stayed on.

*Family stability*: This indicator was coded (0) if the cohort member was living with both natural parents in early childhood (birth to age 10), and (1) if either or both parents were no longer with the cohort member (due to death, divorce, separation, or other).

*Ethnicity* of the adolescent was coded as (0) White versus (1) other ethnic groups. Given the ethnic diversity in the UK, the different ethnic groups were too numerous and the n of each group was too small to examine differences among the groups individually in our model.

*Behaviour adjustment at age 10* was measured using a modified version of the Rutter A-Scale (Rutter, Tizard, & Whitmore, 1970). The modified version comprises eight items, assessing conduct problems, attention deficit disorder and emotional problems on a three-category scale from 0 to 2 (does not apply, applies somewhat, certainly applies). A high score indicates behaviour maladjustment. The Rutter A-Scale has good test–retest reliability (Elander & Rutter, 1996).

*Truanting*: assessed at age 10 with one item asking the teacher if the cohort member truant from school. Responses were scored on a visual analogue scale where the teacher had to indicate the degree to which a student truant (ranging from not at all to a great deal).

*Highest qualifications* achieved at age 30 measured using the National Vocational Qualification indicator (none, NVQ levels 1 - 2 (O-level equivalent), NVQ level 3 (A-level equivalent), and NVQ levels 4 – 5 (degree level qualifications and above)

*Economic activity* between ages 16 to 30: based on the employment histories collected retrospectively at age 30 we derived number of months being unemployed as well as number of months being out of the labour force.

*Problem drinking (ever)* was identified with the CAGE at age 30, assessing problem drinking with 4 questions with yes/no response alternatives: Have you ever felt you ought to cut down on your drinking? Have people annoyed you by criticising your drinking? Have you felt bad

or guilty about your drinking? Have you had a drink first thing in the morning to steady your nerves or to get rid of a hangover? Cohort members who gave a positive response to two or more of these 4 questions were categorized as problem drinkers.

#### *Handling item missingness*

An analysis of response bias showed that the achieved sample did not differ from the target sample across a number of critical variables (social class, parental education, and gender), despite an under-representation of males and of the most disadvantaged groups (Elliott & Shepherd, 2006; Plewis, Calderwood, Hawkes, & Nathan, 2004). Item non-response ranged from 7% for the indicator of parental social class, 8% for mothers education, 27% for parental divorce at age 10, up to 29% for behaviour adjustment in childhood and between 40 and 42% for truanting, highest qualifications achieved, months unemployed and alcohol problems.

To account for missingness in the data, multiple imputation was applied. STATA 13 implements chained equations (MICE), which can handle variables of different measurement types. It is a principled, simulation-based approach for analyzing incomplete data. The objective is not to predict missing values as close as possible to the true ones, but to handle missing data in a manner that results in valid statistical inference, correcting for measurement error in the data (Royston, Carlin, & White, 2009; Rubin, 1996). Twenty data sets were imputed for the analytic sample. The estimates from the imputed datasets are pooled to generate a single set of estimates.

## RESULTS

#### *Patterns of crime involvement*

Linking the data collected at age 16 and age 30 we identified 4 patterns of crime involvement or serious contact with the police across the life course with large enough sample sizes for both males and females. We found cohort members who did not report any serious contacts

with the police at any of the observation points (not delinquent), those who desisted from early crime involvement (adolescence limited crime involvement), those who persisted (serious crime involvement at both ages), and late onset crime involvement (i.e. after age 16). Table 2 gives the prevalence of the different patterns for males and females separately. The majority of cohort members did not report any serious crime involvement or contact with the police at any of the observation points. The level of crime involvement identified in this table and the gender split reflects other UK studies on gender and crime (Graham & Bowling, 1995). The late onset group among males in our sample is particularly large. This might be due to the longer exposure period from age 17 to 30 versus early onset measured between ages 10 to 16.

## **Insert Table 2**

### *Partnership and family formation*

Four separate outcomes were considered: a) ever being married before age 30; b) in a long term relationship (5 years of longer) at age 30; c) having a child before age 20; and d) living with a partner and child at age 30 to reflect patterns of family formation at different stages of the life course. A descriptive analysis of how the outcomes relate to the 4 delinquency types is given in Table 3. Slightly more men who reported either late onset or persistent crime involvement had ever been married by age 30 than men who did not report any crime involvement or only adolescent limited crime involvement (desisters). Compared to all other groups more of the men who reported persistent crime involvement had been a teenage parent, were in a stable relationship at age 30 and were living with a partner and child at 30. In contrast women who reported persistent crime involvement reported the lowest rates of ever being married or being in a stable relationship by age 30. They also reported the highest rates of teenage parenthood. Women who desisted from crime involvement reported the highest rates of being in a stable relationship compared to all the other groups, and women who

desisted or who reported no crime involvement reported the highest rates of being ever married.

### **Insert Table 3**

For each of the individual outcomes logistic regression models were fitted to investigate the association between different patterns of delinquency (never delinquent, adolescent limited crime involvement, persistent crime involvement, and late crime involvement) and partnership and family formation. We first assess the direct associations (Table 4). Then we control for family background (parental social status, education, family structure), individual characteristics (behaviour adjustment, truanting), indicators of human capital (highest qualifications and economic activity between ages 16-30), and problem drinking (see Tables 5 and 6).

### **Insert Table 4**

Table 4 shows that there were no significant associations between the three delinquent patterns and ever being married for both men and women. Men who reported persistent crime involvement were more likely in a stable relationship and living with a partner and child at age 30 compared to men who reported no crime involvement. Among women, adolescent limited crime involvement was associated with an increased likelihood of being in a stable relationship and of living with a partner and child by age 30. Compared to the reference group, all three patterns of crime involvement are associated with an increased likelihood of teenage parenthood. This applies for both men and women.



### **Insert Table 5**

Adding the control variables does not fully explain the significant association between crime involvement and patterns of family formation among men (Table 5). There is however a decrease in the association between crime involvement and teenage parenthood, suggesting a partial explanation. Regarding the association between persistent crime involvement and being in a stable relationship there is an increase in the association. Moreover, after adding the controls there is now a significant association between persistent crime involvement and ever being married. These findings suggest that for some associations the control variables act as confounders that accentuate the effect. Regarding ever being married, we find independent risk effects for maternal education, no experience of unemployment or alcohol problems in young adulthood. Being in a stable relationship is associated with having A-levels, no long-term unemployment, no alcohol problems, and being White. For teenage parenthood low parental social status and conduct problems at age 10 appear to be independent risk factors. Living with a partner and child is independently associated with low maternal education, less than degree level qualifications and no alcohol problems in young adulthood.

### **Insert Table 6**

Among women the control variables explain associations between adolescent limited and late onset crime involvement and teenage parenthood as well as between adolescent limited crime involvement and living with a partner and child at age 30. After adding the controls we find significant associations between adolescent limited crime involvement and being in a stable relationship by age 30, and for persistent crime involvement and teen motherhood. Furthermore, ever being married is more likely for women with less than degree level

qualifications, no experience of long term unemployment and no alcohol problems in young adulthood. Being in a stable relationship by age 30 is associated with the same control variables, yet we also see an independent effect for coming from a semi or unskilled family background, suggesting that women from less privileged family background are more likely to cohabit than marry. Teenage parenthood is more likely for women from less privileged family background (low social status, low parental education, experience of parental divorce by age 10), those who showed early conduct problems and truanting, and had low level or no qualifications. Living with a partner and child is associated with a less privileged family background (low parental social class), less than degree level qualifications and no experience of unemployment or alcohol problems in young adulthood.

## DISCUSSION

The aim of this paper was to assess the potential consequences of crime involvement for family formation. Numerous previous studies have shown that a committed relationship or marriage tends to be associated with a reduction in offending (for a review see (Laub & Sampson, 2001), yet few have explored the long-term association between adolescent and adult crime involvement and family formation. This paper contributes to the debate by using evidence from a nationally representative UK longitudinal study enabling us to control for a set of individual and family background characteristics, including a focus on gender differences in transition pathways, and distinguishing different patterns of crime involvement over the life course. The findings support assumptions of integrated life course theories pointing to heterogeneity in developmental pathways, changes over the life course, and dynamic interactions between multiple social and individual factors in shaping patterns of family formation among cohort members who reported to have been in contact with the police.

We could identify four distinct patterns of crime involvement: cohort members who did not report having contact with the police at any of the observation points, adolescent-limited crime involvement (desisters), persistent, and late onset crime involvement. We also find significant differences in the probability of establishing a committed relationship between the different patterns of crime involvement, as well as evidence of cumulative disadvantage and accelerated life course transitions among cohort members who reported early police contacts. There are furthermore gender differences in the observed patterns.

The typology used here is understood as only a descriptive categorization, which enables us to assess variations in patterns of crime involvement up to age 30. The subjective nature of these categories has advantages and disadvantages. We identified cohort members who reported repeated serious police contacts over a 20-year span (age 10 to 30). At the same time the contact does not necessarily reflect official delinquent status (e.g. being arrested and taken into station, cautioned by police) and thus could possibly be a reflection of criminal justice error or unfortunate circumstances experienced by those who were not actually guilty but because of mistaken identity or context, such as being present at a fight, were subjected to criminal justice interest. The findings have to be interpreted with this caveat in mind.

The gender differences in reported patterns of crime involvement are marked particularly in terms of the numbers involved, which is the case throughout the literature. Men were at least thrice as likely to report contact with the police than women (Table 1), apart from "moved on by police" by age 16. Unusually, women were more likely to have been moved on at 16 than at 30, while every other contact increased with age for men and women apart from this one. Recent police reform has been focusing on the "stop and search" provision but this might be something to examine further.

Regarding the outcomes, we find that crime involvement is associated with an increased risk of teenage parenthood. After adding the controls, this applies to males with any

pattern of crime involvement, and females who report persistent crime involvement. For both men and women the findings support the assumptions of cumulative disadvantage and the timing of life course transitions. There appears to be a vicious cycle linking family adversity (i.e. low parental social status, and for women also low levels of maternal education and parental divorce), and early conduct problems to persistent crime involvement and fast life course transitions, i.e. teenage parenthood. Early parenthood can however mean a turning point associated with desistance, or it can bring with it continuity or even set off crime involvement. Moreover, for men early and even persisting crime involvement does not reduce opportunities regarding family formation. The findings thus support the assumption of interactive processes where life events can provide opportunities for continuity, desistance or onset of deviant behaviour, depending on the constellations of multiple, social, personal, economic and other factors in a young persons' life (Thornberry & Kahn, 2005).

Regarding entry into marriage or a stable relationship we find distinct gender differences, suggesting that the pathways into early procreation and establishing a committed relationship are different. For men we find that persistent crime involvement is associated with an increased likelihood of ever being married, being in a stable relationship or living with a partner and child(ren) at age 30. The findings suggest that for males persistent crime involvement does not spill over into the domain of partnership formation. However, we do not know the characteristics of the partner or the quality of the relationship to enable us to assess if the relationship is actually supporting continued crime involvement. Nor do we know if the partnership is with the parent of the own child, and more research is needed to delineate the exact family formation patterns and association with crime involvement. Notably in our paper we used self reported crime involvement and not official delinquent status, and the findings concur partly with Lanctôt et al. (2007) who suggested that self reported delinquency is mainly predictive of difficulties with behaviour problems and does not necessarily bring with

it spill-over effects to other domains of adult functioning<sup>1</sup>. Thus, in assessing the impact of delinquency or crime involvement on patterns of family formation one has to take into account how delinquency was assessed (self report or official institutional data) and at which stage of the life course.

For women we find a positive association between adolescent limited crime involvement and being in a stable relationship at age 30. This finding could indicate that self reported crime involvement, if it does not continue beyond age 16, carries no stigma regarding partnership formation. The finding also suggests potential turning points, which could either reflect normative maturation processes (Moffitt, 1993) or the role of stable relationships as potential protective factors, inhibiting crime involvement especially among women (Sampson & Laub, 2005; Thornberry, 1987). It could however also be that a certain amount of risk taking renders men and women more attractive as partners.

In interpreting the findings a number of limitations have to be considered. Although we adopted a developmental life course perspective using longitudinal data, the relationship between crime involvement and partnership and family formation could be due to selection effects. We controlled for a number of potentially confounding variables, including structural and individual characteristics. However, we did not address the issue of selection directly, which should be an area for future research. Furthermore, as in all longitudinal studies, we encountered attrition between sample waves, especially among the most disadvantaged and male cohort members. We used multiple imputation to address this problem, yet our findings might still provide a more conservative estimate regarding the role self reported crime involvement in shaping family formation. Moreover, the cohort study was not originally conceptualized as a longitudinal study of delinquency or crime involvement and we had to make do with already collected data. Thus, we had to rely on self-reported contacts with the

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<sup>1</sup> In this context, teenage parenthood could be considered as a reflection of risk behaviour.

police, which could be subject to potential response bias. Not only was the data self reported but also retrospective and this lends itself to certain concerns about the validity of recall, especially regarding underreporting of crime involvement, and for men, of parenthood. Our assessment of crime involvement is based on indicators capturing two long periods (ages 10 to 16 and ages 17 to 30) affecting the conceptualization of the four patterns of crime involvement. It might be possible that someone identified as showing ‘persistent’ crime involvement came into contact with the police at the age of 16 and 17, while someone with an adolescent limited pattern came into contact with the police at 15 and 16 years. Moreover, our group ‘late onset’ is relative large among men, comprising a fifth of the male sample, which might partly be due the longer exposure period. Future research should enhance on this and provide a more clear-cut assessment of patterns in crime involvement, as well as the causal ordering of events. For example, we cannot be certain whether family formation problems or successes come after or before the reported offending event.

Nonetheless, a great strength of our study is the use of a large longitudinal data set, which enabled us to follow a cohort of adolescents who reported early contact with the police up to age 30. We could control for a number of confounding factors, although we could not address all possible alternative explanations regarding variations in crime involvement and partnership formation. We have large enough sample sizes to identify different trajectories of crime involvement and to analyze pathways of male and female transitions. In addition we were able to examine stability of partnerships and the timing of family formation up to age 30. Forming a stable relationship and living with a partner and child by that age was more likely for cohort members with below degree level qualifications, while those with degree level qualifications postponed the step into family formation. Future studies should assess outcomes beyond age 30 to gain a better understanding of the generalisation of findings across different stages of the life course.

In summary the study has shown diversity in patterns of crime involvement and heterogeneity regarding pathways to family formation. Furthermore, women appear to follow different pathways than men. After taking into account the control variables, women with adolescent limited crime involvement are more likely to be in a stable relationship by age 30 than women with other patterns of crime involvement (including those with no crime involvement). Among men persistent crime involvement is associated with a higher probability of entering a stable relationship or marriage. There is no clear evidence to support the assumption of stigma associated with self reported crime involvement to shape processes of family formation. Confirming assumptions of an integrative and interactive developmental approach we find that longer-term outcomes depend on the combination of risk factors and resources in a person's life. Life events such as becoming a parent or entering a relationship can provide opportunities for desistance as well as continuity or even onset of crime involvement. Future studies should aim to disentangle these processes in more detail, and assess outcomes at later stages of life, examining changes in family- and employment status and their association with crime involvement.

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Table 1: Crime involvement by age 16 and age 30 (proportion)

	Age 10-16 (n=5, 801)			Age 17-30 (n=11,072)		
	Men	Women	all	Men	Women	all
a. Moved on by police	.39	.22	.29	.34	.06	.19
b. Stopped and questioned by police	.38	.15	.25	.65	.19	.41
c. Left off with a warning	.28	.08	.17	.46	.13	.29
d. Arrested and taken into station	.11	.04	.07	.30	.06	.17
e. Cautioned by police	.14	.05	.08	.25	.05	.15
f. Found guilty by court	.04	.01	.03	.23	.04	.13
<b>Serious crime involvement (Summary index e+d+f)</b>	<b>.17</b>	<b>.06</b>	<b>.10</b>	<b>.38</b>	<b>.08</b>	<b>.23</b>



Table 2. Patterns of crime involvement in the longitudinal sample split by gender (n=4,658)

	<b>Men (n=1868)</b>		<b>Women (n=2790)</b>	
	n	%	n	%
No crime involvement	1,200	64.24	2,491	89.28
Adolescence limited	131	7.01	123	4.41
Persistent	161	8.62	42	1.51
Late onset	376	20.13	134	4.80

Table 3: Patterns of crime involvement and family formation by gender (descriptive statistics in %)

	<b>Men (n=1868)</b>				<b>Women (n=2790)</b>			
	No crime involvement	Desisting	Persisting	Late onset	No crime involvement	Desisting	Persisting	Late onset
Ever married	43.52	43.41	45.34	44.44	57.72	56.56	48.78	49.25
Stable relationship by 30	25.46	31.29	34.78	24.73	41.73	53.28	35.71	38.35
Teen Parent	1.42	4.58	6.83	5.08	7.49	15.45	35.71	15.15
Partner and Child at 30	27.61	29.46	45.34	33.60	45.38	59.84	65.85	63.43

Table 4: Predicting Relationship and Parenthood status at age 30 by crime involvement patterns (relative risk ratio and 95% Confidence Interval)

– Base model, no controls -

	Partnership				Family Formation			
Pattern of crime involvement	Ever married		Stable relationship at 30		Teen Parent		Partner and Child at 30	
Men	RRR	95% CI	RRR	95% CI	RRR	95% CI	RRR	95% CI
No crime involvement (ref)								
Adolescent Limited	.99	.69 - 1.43	1.34	.90 - 1.98	3.34**	1.29 - 8.63	1.16	.79 - 1.75
Persistent	1.08	.78 - 1.51	1.56**	1.10 - 2.22	5.10***	2.35-11.10	2.13***	1.52 - 2.99
Late onset	1.03	.82 - 1.31	.96	.74 - 1.26	3.76***	1.92 - 7.28	1.27	.99 - 1.64
<b>Women</b>								
No crime involvement (ref)								
Adolescent Limited	1.05	.73 - 1.51	1.61**	1.12 - 2.31	2.25**	1.35 - 3.75	1.80**	1.25 - 2.60
Persistent	1.47	.79 - 2.72	.78	.41 - 1.47	6.84***	3.58- 13.09	1.07	.57 – 2.00
Late onset	1.40	.99 - 1.99	.88	.61 - 1.25	2.20**	1.34 - 3.63	1.21	.85 - 1.72

Table note: (\*\*\*) p<.001, \*\* p<.01; \* p<.05)

Table 5: Predicting Relationship and Parenthood status at age 30 by crime involvement patterns (relative risk ratio and 95% Confidence Interval)  
 – Men only (with controls)

Pattern of crime involvement	Partnership				Family Formation			
	Ever married		Stable relationship at 30		Teen Parent		Partner and Child at 30	
No crime involvement (ref)								
Adolescent Limited	.93	.63 - 1.38	1.27	.84 - 1.93	2.90*	1.08 – 7.83	1.06	.68 - 1.63
Persistent	1.44*	1.00 – 2.08	1.74**	1.19 - 2.56	3.30**	1.39 – 7.83	2.14***	1.47 – 3.12
Late onset	1.16	.89 - 1.51	.95	.71 - 1.28	2.68**	1.29 - 5.59	1.22	.92 - 1.62
<b>Controls</b>								
Parental social status (ref: professional)								
Skilled	1.00	.78 - 1.29	1.28	.96 - 1.71	4.30*	1.00 -18.75	1.06	.79 - 1.43
Semi/unskilled	.83	.59 - 1.15	1.31	.90 - 1.91	6.95**	1.50 - 32.23	1.38	.96 – 2.00
Maternal education low (now base high)	1.36**	1.10 - 1.69	1.06	.84 - 1.35	1.43	.71 - 2.89	1.31*	1.03 - 1.67
Parental divorce by age 10	.89	.61 - 1.30	1.14	.76 - 1.71	2.19	.95 - 5.07	.93	.61 - 1.41
Ethnicity (base = 0 white, 1= nonwhite)	.89	.42 - 1.87	.08**	.01 - .62	0.00	0.00 - 0.00	0.33	.11 - 1.00
Emotional problems at 10	1.00	1.00 - 1.01	1.00	.99 - 1.00	1.01	.99 - 1.02	1.00	1.00 - 1.01

Conduct problems at 10	1.00	1.00 - 1.01	1.00	.99 - 1.01	1.02*	1.00 - 1.04	1.00	.99 - 1.01
Attention problems at 10	1.00	.99 - 1.00	1.00	.99 - 1.01	.99	.97 - 1.00	1.00	.99 - 1.00
Truancing at 10 (base = no)	1.16	.91 - 1.47	.96	.75 - 1.23	.69	.32 - 1.49	.89	.67 - 1.16
Highest qualifications at age 30 (ref=degree level)								
A-level	1.21	.94 - 1.56	1.35*	1.02 - 1.79	.86	.36 - 2.08	1.77***	1.34 - 2.34
Low-level	.95	.74 - 1.22	1.16	.87 - 1.4	1.67	.79 - 3.50	1.71***	1.30 - 2.26
None	.72	.42 - 1.26	1.68	.96 - 2.94	2.77	.92 - 8.30	2.77***	1.61 - 4.76
Experience of unemployment (ref. never)								
<12 months	.70*	.53 - .94	.94	.68 - 1.29	1.38	.65 - 2.96	.81	.58 - 1.12
12 months +	.47***	.32 - .68	.66*	.43 - 1.00	1.02	.42 - 2.49	.83	.56 - 1.22
Alcohol problems at 30 (CAGE)	.61***	.42 - .80	.67**	.50 - .92	.84	.37 - 1.82	.61***	.45 - .82

Table note: (\*\*\*) p<.001, \*\* p<.01; \* p<.05)

Table 6: Predicting Relationship and Parenthood status at age 30 by crime involvement patterns (relative risk ratio and 95% Confidence Interval)  
 – Women only (with controls)

Pattern of crime involvement	Partnership				Family Formation			
	Ever married		Stable relationship at 30		Teen Parent		Partner and Child at 30	
No crime involvement (ref)								
Adolescent Limited	.93	.63 - 1.37	1.53**	1.05 - 2.27	1.42	.80 - 2.54	1.43	.96 - 2.11
Persistent	.68	.33 - 1.37	.82	.40 - 1.67	5.68***	2.58 - 12.49	1.02	.50 - 2.09
Late onset	.72	.49 - 1.05	.93	.63 - 1.36	1.59	.89 - 2.86	1.12	.75 - 1.66
Parental social status (ref: professional)								
Skilled	1.06	.87 - 1.30	1.10	.89 - 1.35	1.47	.89 - 2.43	1.17	.95 - 1.46
Semi/unskilled	.96	.74 - 1.26	1.34**	1.02 - 1.76	2.19**	1.26 - 3.80	1.40*	1.06 - 1.85
Maternal education low	1.03	.86 - 1.22	1.04	.88 - 1.25	1.59*	1.00 - 2.29	1.07	.89 - 1.28
Parental divorce by age 10	.93	.70 - 1.24	.84	.62 - 1.12	1.61*	1.00 - 2.57	.96	.72 - 1.29
Ethnicity (base = 0 white, 1= nonwhite)	.87	.52 - 1.45	.81	.47 - 1.39	.54	.18 - 1.64	0.91	.53 - 1.58
Emotional problems at 10	1.00	1.00 - 1.01	1.00	1.00 - 1.0	1.00	.99 - 1.01	1.00	.99 - 1.00
Conduct problems at 10	1.00	.99 - 1.00	1.00	.99 - 1.01	1.02**	1.01- 1.03	1.00	.99 - 1.01

Attention problems at 10	1.00	.99 - 1.00	1.00	.99 - 1.00	1.00	.99 - 1.00	1.00	1.00 - 1.01
Truant at 10	.93	.77 - 1.11	1.05	.88 - 1.26	1.03	.73 - 1.43	.99	.82 - 1.18
Highest qualifications at age 30 (ref=degree level)								
A-level	1.45***	1.15 - 1.81	1.55***	1.23-1.94	1.70	.97 - 2.97	1.54***	1.22 - 1.95
Low-level	1.54***	1.27 - 1.87	1.71***	1.40 - 2.07	3.88***	2.52 - 5.98	2.27***	1.85 - 2.77
None	1.62*	1.06 - 2.49	1.97***	1.29 - 3.02	10.71***	5.98 - 19.20	3.32***	2.15 - 5.12
Experience of unemployment (ref. never)								
<12 months	.77	.60 - 1.01	.89	.69 - 1.17	.63	.34 - 1.16	.71*	.53 - .94
12 months +	.45***	.30 - .66	.48***	.31 - .72	1.50	.85 - 2.65	.46***	.30 - .72
Alcohol problems at 30 (CAGE)	.62**	.46 - .83	.57***	.41 - .79	.67	.35 - 1.29	.52***	.37 - .74

Table note: (\*\*\*) p<.001, \*\* p<.01; \* p<.05)

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