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How to cite this publication

Please cite the final published version:

Nielsen, A. A. (2019). Parental Social Bonds and Adolescents' Convictions. *Deviant Behavior*, 40(1), 1-18. <https://doi.org/10.1080/01639625.2017.1410631>

Publication metadata

Title:	Parental Social Bonds and Adolescents' Convictions
Author(s):	Alva Albæk Nielsen
Journal:	<i>Deviant Behavior</i> , 40(1), 1-18
DOI/Link:	https://doi.org/10.1080/01639625.2017.1410631
Document version:	Accepted manuscript (post-print)

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Parental social bonds and adolescents' convictions

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Suggested running head: Parental social bonds and adolescents' convictions

This paper has not been published elsewhere and has not been submitted simultaneously for publication elsewhere.

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Parental social bonds and adolescents' convictions

Abstract

Social control theory suggests that adolescents are more likely to deviate when their parental bonds are weak or broken. However, are strong bonds to unconventional parents also a protective factor, or do they increase the risk of delinquency? There is almost no empirical evidence on this puzzle. Combining Danish survey and register data (N=2,677), this study uses fixed effects linear regressions and finds that parental convictions do not moderate the effect of strong parental social bonds. Rather, the main result shows that indirect supervision (mother knowing the adolescent's friends) reduces the risk of child conviction, irrespective of maternal conviction.

Introduction

Social control theory (Hirschi 1969; Sampson and Laub 1993) suggests that individuals deviate when their bonds to society are weak or broken. However, Hirschi (1969) discusses whether social bonds to unconventional parents will still produce conventional child behavior – or the opposite. The puzzle has both theoretical and policy implications. If bonds to unconventional parents foster deviance, the main argument in social control theory needs to be reformulated as follows: “Individuals deviate when their bonds *to conventional institutions and significant others* are weak or broken.” The policy implications would be that social projects targeting vulnerable youth should actively seek to reinforce social bonds to others than the youth's parents if those parents have a deviant lifestyle. Alternatively, parental training programs need to focus specifically on how to express and enhance expectations of conventional child behavior, even if the parents themselves deviate.

A large literature investigates the association between attachment to parents and adolescent delinquency (Agnew 1985; Cernkovich and Giordano 1987; Childs, Sullivan, and Gullledge 2011; Costello and Vowell 1999; Gault-Sherman 2012; Higgins, Jennings, and Mahoney 2010; Jang 1999; Krohn and Massey 1980; Mack et al. 2007; Miller et al. 2009; Ranking and Kern 1994;

Schroeder, Higgins, and Mowen 2014; Wright and Cullen 2001), and supervision and adolescent delinquency (Aseltine 1995; Cernkovich and Giordano 1987; Childs et al. 2011; Costello and Vowell 1999; Hirschi 1969; McCord 1991; Wright and Cullen 2001). While a separate literature engages with intergenerational transmission of crime and delinquency (see, e.g., Andersen L. H. 2016; Farrington, Ttofi, and Crago 2017; Huebner and Gustafson 2007; Murray, Loeber, and Pardini 2012; Nijhof, de Kemp, and Engels 2009; van de Rakt, Nieuwbeerta, and de Graaf 2008; Roettger and Swisher 2011; Rowe and Farrington 1997), none of the previously mentioned literature on attachment and supervision examines if parental delinquency moderates the effect of attachment.

The current paper therefore investigates the impact of parental attachment and supervision on adolescents' convictions for adolescents with convicted and non-convicted parents and thereby contributes to the literature by investigating whether parental crime has a moderating effect on the social bonds.

Even though scholars such as Sampson and Laub (1993) underline the dynamic nature of social bonds, most empirical research on social bonds and delinquency still consists in cross-sectional between-individual analyses. The research that does investigate changes in social bonds suggests that a relatively large share of young people experiences changes in their parental attachment during adolescence (Higgins et al. 2010; Schroeder et al. 2014). While some find that attachment to parents continues to be of importance throughout adolescence (Jang 1999) and into young adulthood (Johnson et al. 2011) in explaining deviance, others suggest that parental attachment diminishes in importance over the years (Schroeder et al. 2014; Thornberry et al. 1991).

The current literature that does look into the dynamics of social bonds is mainly descriptive, one exception being Childs et al. (2011), who use a fixed effects (FE) approach. Although descriptive research adds to our knowledge of the associations between attachment and delinquent behavior, the estimates are likely to be biased if used to make causal explanations. The reason for this is that it is not random who has strong parental attachment and who does not – and who deviates and who does not. The current study therefore investigates parental attachment and supervision for

adolescents aged 15 and 18 with an FE approach, which eliminates the selection bias of all time-invariant personal and social characteristics. This study thus aims at making causal claims, while acknowledging that time-varying unobserved factors may still be present.

Furthermore, all of the previously cited literature uses measures of attachment, supervision, and delinquency from the same survey. However, this poses the threat of common source bias. This study uses a measure of attachment from a Danish prospective survey on a sample of the birth cohort 1995 and uses up-to-date Danish administrative register data on convictions to measure the young person's law violations. With the FE approach and data from two different sources, the current study thus takes the literature a major step closer to an unbiased estimate of the effects of parental social bonds on child delinquency.

Review of the literature

Attachment

According to Hirschi (1969), individuals deviate when their social bonds to society are weak or broken. Social bonds consist of *attachment* to significant others (such as parents, peers, and partners), *commitment* and *involvement* in conventional activities, and *beliefs* in conventional norms and values. Hirschi underlines the importance of strong parental attachment, which will inhibit a young person from offending, primarily out of concern for how the parents will react. Attachment in Hirschi's work is an emotional closeness, making the parents "psychologically present" in the event of the young person considering committing a crime – even when they are not physically present (Hirschi 1969).

Hirschi's work has had major influence on the criminological field and has influenced the work of, among others, Sampson and Laub (1993; Laub and Sampson 2003). With their informal social control theory and their empirical work on the Glueck data, Sampson and Laub investigate how social bonds affect crime in both adolescence and adulthood. Their empirical research shows that low levels of parental supervision and weak parental attachment are associated with delinquency in adolescence. The child is considered to have a strong attachment to his parents if parent and child

display a close association and the child expresses admiration for the parent(s) (Sampson and Laub 1993). Sampson and Laub (1993) furthermore note that few studies include the measurement of perceived attachment from both the child and the parents, even though this provides a “fuller specification of the attachment variable” (Sampson and Laub 1993, p. 70). This is still the case today, and none of the reviewed research except Sampson and Laub (1993) include both measures.

Several scholars find that stronger parental attachment is associated with lower adolescent delinquency (Cernkovich and Giordano 1987; Childs et al. 2011; Costello and Vowell 1999; Gault-Sherman 2012; Higgins et al. 2010; Jang 1999; Krohn and Massey 1980; Mack et al. 2007; Miller et al. 2009; Ranking and Kern 1994; Savage 2014; Schroeder et al. 2014; Wright and Cullen 2001). Furthermore, some find that only maternal and not paternal attachment is of importance (Aseltine 1995; Miller et al. 2009) – and some only use maternal attachment (Mack et al. 2007; Schroeder et al. 2014).

Others, however, find that parental attachment is insignificant for the prediction of adolescents’ delinquency (Agnew 1985), both for girls and boys (Chappel, McQuillan, and Berdahl 2005) and regardless of the seriousness of the delinquency (Agnew 1985). A recent meta-analysis of 74 published and unpublished manuscripts, which use bivariate associations, finds that poor attachment in general is significantly linked to delinquency, but with small to moderate effects sizes (Hoeve et al. 2012).

Overall, however, both theory and the literature suggest that attachment is an important aspect of the social bonds to parents, and the current study therefore includes this aspect in the empirical analyses. It does so with survey measures representing both the young person and the mother’s perspectives.

Supervision

Sampson and Laub (1993) consider supervision “suitable” if the mother is directly monitoring her child or has made arrangements with another responsible adult to watch the child’s activities.

Cernkovich and Giordano (1987), on the other hand, argue that adolescents' attachment to parents is multidimensional. They include control and supervision as one of the dimensions and identify support, caring, trust and intimate communication as the other dimensions. Ranking and Kern (1994) also have a multidimensional approach and use the dimensions intimacy of communication, affectional identification, supervision, and family activities (Ranking and Kern 1994). With this work, the scholars follow the line of Hirschi (1969), who, while theoretically stressing attachment as an emotional closeness, empirically investigates attachment with items tapping into supervision, intimacy of communication, and affectional identification ("would you like to be the kind of person your mother/father is?"). Other scholars also include a broader understanding of "attachment", such as Jang (1999), who includes time spent with family. Another example is Childs et al. (2011), who include family practices such as praise, trust, and parental knowledge of friends in the attachment measure. Since Hirschi's (1969) theoretical work stresses the emotional part of attachment and Sampson and Laub (1993) distinguish between emotional attachment and supervision, I will follow this line of work and estimate the importance of attachment and supervision separately.

Some evidence suggests that supervision is important regardless of whether the supervision takes place indirectly through knowing the child's whereabouts and company (Cernkovich and Giordano 1987; Costello and Vowell 1999; Hirschi 1969; Wright and Cullen 2001) or directly through a physical presence (McCord 1991; Sampson and Laub 1993). However, other scholars find no significant association between indirect supervision and delinquency (Aseltine 1995; Childs et al. 2011), including when supervision (in this case, called "monitoring") is measured by how much the parents are in charge of the child's everyday life, such as friends, clothes, bedtime, food, and so on (Gault-Sherman 2012).

This study includes measures of parental knowledge of the young person's friends and whereabouts. As seen from the previous review, these are measures that are frequently used when the literature estimates the impact of indirect supervision.

The dynamic nature of social bonds

Sampson and Laub's theory is a life-course theory that emphasizes the dynamic nature of social bonds. Social bonds might change during the life course, promoting or attenuating delinquent behavior. According to Sampson and Laub (1993), the importance of social bonds shifts from parents and peers in childhood and adolescence to a partner and work in adulthood. This is backed by the work of Thornberry (1987), who builds his dynamic "interactional theory" on both social control and social learning theory. Thornberry argues that while parental attachment has an influence on delinquency during the whole adolescence period, the importance vastly diminishes from early adolescence to later adolescence. While he and other colleagues find empirical support for this argument (Schroeder et al. 2014; Thornberry et al. 1991), other research has found parental attachment to continue to be of significant importance for delinquency and offending throughout adolescence (Jang 1999) and into young adulthood (Johnson et al. 2011).

One aspect is whether the *importance* of social bonds to parents for delinquency changes – another aspect is whether the social bonds themselves change over time. Newer research stresses the importance of viewing social bonds as flexible and attachment to parents as both dynamic and stable. While most adolescents experience stable maternal attachment over the years, a share of around 15 percent (Schroeder et al. 2014) experience changing attachment. Others find this share to be higher. Higgins et al. (2010) identify five distinct trajectories that maternal and paternal attachment take from the ages 12 to 16. While 36 percent of youth experienced stable maternal attachment and 50 percent experienced stable paternal attachment, the rest of the sample experienced changes, with either increased or decreased attachment over the period. Importantly, the research shows that these changes were associated with delinquency. This research thus gives strength to the argument that parental attachment continues to be of importance for delinquency throughout adolescence, while the attachment itself is subject to fluctuation and changes. For this reason, the current study includes data on young people over a timespan of three years instead of only investigating social bonds cross-sectionally.

Parental offending

Hirschi suggests that parental attachment might work differently depending on who the parents are (Hirschi 1969). Unconventional parents might be less opposed to unconventional activities, meaning that the child's attachment to its parents is no longer a protective factor. For this reason, a child might become delinquent *because* of its attachment to unconventional parents, who promote criminal values. Lack of attachment in this case might therefore produce the opposite effect than for children with conventional parents (Hirschi 1969). Hirschi investigates this puzzle by looking into the attachment and offending by children with "lower-class fathers." Father's history of welfare benefits, unemployment, occupational status, and race identifies lower-class status. Hirschi concludes that attachment to fathers is a protective factor, regardless of social class. However, what this result really shows is that the "lower class" is not as unconventional as suggested. A better measure of parents' unconform values, and the ability of these values to predict children's delinquency and offending, would be parental delinquency and offending.

Sampson and Laub (1993) include parental arrests and convictions in their empirical work. They argue that attachment and supervision *mediate* structural factors such as parental socio-economic status and criminal history. However, while Hirschi argues that parental crimes might also *moderate* attachment to parents, Sampson and Laub do not follow this theoretical line, but rather seem to believe that attachment to parents affect and protect everyone uniformly.

A vast literature engages in the intergenerational transmission of crime. Research has shown that parents' convictions increase the risk of convictions for their offspring (Farrington et al. 2017; van de Rakt et al. 2008; Rowe and Farrington 1997) and that even grandparents' arrests are predictive of young boys' delinquency (Farrington et al. 2001). One study shows that parental incarceration increases the risk for male youth of theft, while parental arrest and convictions had no association to child delinquency (Murray et al. 2012). Others also find that fathers' incarceration is associated with an increased risk of delinquency and adult arrest (Roettger and Swisher 2011) and

that maternal incarceration is associated with an increased risk of adult convictions (Huebner and Gustafson 2007). Furthermore, the duration and frequency of paternal incarceration predict the level of risk of offspring's criminal convictions, violent crimes, and prison sentences (Andersen L. H. 2016). One study finds that children with two offending parents are more likely to offend than if they have one or no offending parents (Nijhof et al. 2009). While one study found that the frequency of parental offending and father's seriousness of offending were positively associated with the child's frequency and seriousness of offending, curiously, the same study found that mothers' seriousness of offending was inversely associated with that of her child's (Nijhof et al. 2009).

In light of these research results, it is surprising that none of the previously reviewed literature on the impact of parental attachment and supervision investigates whether this impact is uniform or affects the child differently, depending on whether the parents themselves are delinquent. As stated in the introduction to this paper, the current study aims to fill this gap in the literature.

Data

Data for this study come from The Danish Longitudinal Survey of Children (DALSC) and official administrative register data. Every member of the Danish population has a Central Personal Register (CPR) number, used for all contact with official bodies. Statistics Denmark collects these data, anonymizes the CPR number, and provides researcher access afterwards. The survey used in this study has been merged with the register data, meaning that the study uses a panel of information on all young survey respondents and their parents from 1980 to 2013, including official information on individual crime and health.

The survey consists of three separate surveys. This study uses "The Danish survey," which consists of 6,000 randomly selected children from Denmark born between September 15 and October 31, 1995, by mothers with Danish citizenships. The survey has been used in a wide range of international publications within the social sciences (Baviskar 2010; Esping-Andersen et al. 2011;

Greve 2011; Gupta, Deding, Lausten 2013; Gupta and Simonsen 2010; Loft 2011, McIntosh and Munk 2013).

The DALSC Danish survey is a prospective survey. The mothers of the children (or, in a few cases, the father if he was the primary caretaker) were surveyed in 1996, 1999, 2003, 2007, 2011, and 2014. The children themselves were surveyed in 2007, 2011, and 2014, when they were 11, 15, and 18 years old. The methods used to collect the data are web surveys and face-to-face interviews. The current study uses data on all children who answered the survey at the ages of 15 and 18 (N=3,746) but excludes those whose mothers did not participate in both years as well (N=386). Furthermore, children who do not live at home with at least one birth or adoptive parent are excluded (N=312). Several respondents have missing values or answer “don’t know” to certain items. Regarding attachment to mother, 39 young people have missing values in either 2011 or 2014. Others have no data on attachment to fathers (N=146), while a share of mothers have missing values about their knowledge about their children’s friends (N=162) and whereabouts (N=160). Furthermore, some mothers have missing values regarding how close they perceive their relationship with their child to be (N=60). For comparability across constructs, the current study uses those who do not have missing values in either of the variables, since STATA will omit these observations in the estimations. The final sample thus consists of N=2,677.

While the study has imposed some exclusion criteria, the major loss in sample size comes from non-responses. Compared to the original sample of N= 6,000 children, the N=3,746, this is an attrition of 39 percent. A recent report analyses the attrition from the original sample to 2014 with up-to-date register data (Andersen D. 2016). It shows that families and children with low socio-economic statuses had lower response rates than others, which means that young people in less privileged circumstances are underrepresented in the sample. It is a well-known fact that the most vulnerable in a population are often the least likely to respond to surveys (Uhrig 2008), but it is nevertheless important to remember when interpreting the results.

Dependent variable: convictions

Data on convictions come from the Central Criminal Register, administered by the National Commissioner of the Danish Police. Convictions are law violations where guilt has been established and either the court or the prosecution service has taken a legal decision. The data include both felony offenses and misdemeanors punished with fines.

An individual's offenses are not registered until the person is 15 years old. Offending at age 15 in this study is captured by convictions from the young person's 15th birthday to their 16th birthday, while offending at age 18 is captured by a variable measuring the number of convictions in the time period afterwards, from the person's 16th to their 18th birthday.

"Any convictions" is a dichotomous variable that measures whether the young person was convicted during the period. "Number of convictions" measures the number of convictions during the period. The variable counts each law violation separately. This means that if a person has committed, for instance, three robberies on different dates, the variable takes the value three. It also means that if a person commits a robbery while drunk-driving, the variable takes the value two since two different laws have been violated.

Independent variables: attachment and indirect supervision

Data on attachment come from the survey DALSC. The child's perception of its attachment to parents is measured by combining 12 items from the questionnaire. The items all use the same 5-point Likert scale ranging from "always" to "never." Six items are about the mother and read as follows: "You can count on your mother to listen to you," "You can ask your mother for advice," "You can count on your mother to help, if you have a problem," "Your relationship with your mother is important to you," "You trust your mother," and "You experience that your mother loves you." The same six items is repeated about the father.

"Attachment to mother" and "attachment to father" are two summative scales synthesizing the items previously described. The answer: "always" is assigned the highest value = 5, while "never"

the lowest value = 1. The scales thus initially range from 6 to 30. However, a few persons answer “I don’t know” to some of the items, which is handled as missing values. Because of these missing values, the scales are divided with the number of questions answered – and end up ranging from 1 to 5.

Chronbach’s alpha for items regarding mothers and fathers, respectively, are between 0.80 and 0.92 and thus show a high internal consistency.

The study measures mothers’ perception of the attachment between herself and her child from an item in DALSC asking mothers “How close is the relationship between you and your son/daughter?” The item takes the values 1-3 and was recoded so that a higher value reflects a closer relationship. “Don’t know” was coded as “missing.”

Indirect supervision consists of two measures: mother’s knowledge of friends and mother’s knowledge of whereabouts at ages 15 and 18. The measures come from two items on a 5-point Likert scale ranging from “always” to “never,” as well as the option to answer: “don’t know.” “Don’t know” counts as “missing,” while higher values on the scales reflect that the mother more often knows the child’s friends and whereabouts.

Moderators: parental convictions

Parental conviction is measured for mothers and fathers separately when the child is 15 and 18. Like adolescents’ convictions, the variables use administrative registers. The variables are dichotomous, like the first of the child-conviction variables, and show if the parent received a conviction during the time period. Parental conviction when the child is 15 is measured in the three years up to (and including) the year when the child turned 15, that is, in the years 2008, 2009, and 2010. Parental offending at age 18 is measured as convictions from the measurement at age 15 and up to the year when the young person turned 18, that is, in the years 2011, 2012, and 2013.

Controls

Since all time-invariant personal characteristics will be removed by the fixed effects, classic controls such as gender and ethnicity are already controlled for by default.

However, I do add controls for parental psychiatric diagnoses. Psychiatric diagnoses are in the administrative registers and are likely to be time variant. Furthermore, a psychiatric illness might affect the attachment between parent and child. The controls are based on the register recording individuals' contact with ERs, hospitals, and outpatient care. Diagnoses at age 15 are measured dichotomously, taking the value 1 if the person has been in contact with ERs, hospitals, and outpatient care because of a psychiatric diagnosis in the three years up to (and including) the year when the child turned 15, that is, in the years 2008, 2009, and 2010. Diagnoses at age 18 is also dichotomous, taking the value 1 if the person has been in contact with ERs, hospitals, and outpatient care because of a psychiatric diagnosis from the measurement at age 15 and up to the year when the young person turned 18, that is, in the years 2011, 2012, and 2013.

Method

Fixed effects

When one attempts to estimate the causal effect of parental attachment on offending, the problem of selection bias arises. It is not random who has a strong relationship with their parents and who does not. For instance, we might imagine that a less empathic person has a worse relationship to his or her parents and a higher risk of violent behavior. If we cannot observe "empathy" and control for it in the analyses, the estimations of the impact of attachment on offending will be biased. The same line of argument can be used for a wide range of other potentially confounding variables. With the FE approach, all time-invariant variation – both observed and unobserved – is controlled for (Allison 2009), which is a major step towards an unbiased estimate of the effect of attachment on offending.

Common source bias

If the dependent and independent variables come from the same source, for instance, the same survey wave, common source bias might be a problem. In this study, bias would occur if the answers to the items regarding parental attachment, indirect supervision, and offending were affected by, for instance, social desirability measurement error. Since the error for the items relating to attachment and the error relating to offending are likely to be correlated, common source bias occurs. A large share of the reviewed literature on attachment and supervision uses self-reported data, with both the independent and dependent variables coming from the same survey (see, e.g., Agnew 1985; Cernkovich and Giordano 1987; Chappel et al. 2005; Childs et al. 2011; Costello and Vowell 1999; Gault-Sherman 2012; Higgins et al. 2010; Jang 1999; Mack et al. 2007; Miller et al. 2009; Ranking and Kern 1994). The vast majority of the previously reviewed literature is thus in risk of common source bias. While differencing might reduce the problem, as the FE model does, it does not eliminate it if the measurement error is not constant over time (Favero and Bullock 2014).

In this study, the dependent variable, conviction, comes from administrative data, while the key independent variables, attachment and indirect supervision, come from survey answers. In this way, the study solves the problem of common source bias by using independent sources of data, as suggested by Favero and Bullock (2014).

Linearity

This study employs linear regressions. When the outcome is dichotomous, measuring whether the young person offended or not during the time period, the study employs a fixed effect linear probability model (FE LPM).¹ When the outcome is the number of offenses, the study employs an FE OLS.

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¹ However, the study does perform logistic regressions as a robustness check.

Descriptive statistics

[table 1 around here]

As seen from Table 1, the mean attachment to mother increases from ages 15 to 18, while the mean attachment to father decreases. The former is in the opposite direction of what would be expected from the theory. However, the standard deviation of attachment to both mother and father also increases from ages 15 to 18, suggesting that the young people in the sample experience a more diverse range of parental attachment the older they become. At the same time, mothers' perception of attachment decreases over the years. Also as expected, the average mother thinks she knows less about her child's friends and whereabouts at the age of 18 than at the age of 15. However, levels of attachment, perceived closeness, and knowledge of friends and whereabouts are quite high in both years.

[table 2 around here]

Tables 2 and 3 show the distribution of convictions for the young people. While the number of convictions at age 15 is very limited, more than four percent receives a conviction before their 18th birthday. Nevertheless, the vast majority of the young people have not been registered in the official registers for law violations. This might make it difficult to find any statistically significant results since the FE procedure only uses changes in status; in other words, individuals offending at age 15 but not at age 18, or individuals not offending at age 15 but offending at age 18.

[table 3 around here]

Results

In the following, the results from the FE estimations are presented.² Because of a low correlation between attachment to mother and attachment to father (0.38 at age 15 and 0.29 at age 18), multicollinearity is not a likely problem, and the study therefore runs the estimations including measures on both mother and father simultaneously. Table 4 displays the results when convictions are regressed on one social bonds variable at the time. In the simple regression, the young person's own assessment of attachment to either mother or father does not seem to matter. However, mother's perception of attachment between herself and her child has an effect and lowers the risk of any conviction. Mothers' knowledge of the young person's friends and whereabouts are also statistically significant and lowers the risk of any conviction.

[table 4 around here]

Table 5 shows the results when the study investigates parental criminality as a moderator and adds a wide range of control variables. In the first regression, child conviction is regressed on parental attachment and parental convictions. In the next regression, interaction terms are included to investigate whether parental crime moderates attachment. None of the estimations yield significant results. In the following regression, the study includes the indirect supervision variables and all controls but exclude the interaction terms. As the only variable, knowledge of friends is significant and in the expected direction. Finally, the study estimates a model including all variables and interaction terms. Knowledge of friends continues to be the only significant variable.

[Figure 1 around here]

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² The study uses STATA, version 13.1, xtreg, fe.

Figure 1 shows the marginal effect of the interaction terms between parental conviction and parental attachment for the average young person in the sample. When the parent has no conviction, the estimated effects of attachment on child offenses are negative, meaning that attachment reduces the risk of child conviction. However, the confidence intervals cover both negative and positive values, meaning that these effects are not significant. When the parent has at least one conviction, the estimates are positive, suggesting that attachment might increase child conviction. Again, however, these estimates are not statistically significant. The graphs also illustrate that the confidence intervals are large for convicted parents, especially for mothers. This is due to few observations since few parents have convictions.

[table 5 around here]

Table 6 shows the FE results when the study investigates the effect of indirect supervision. While both knowledge of friends and whereabouts are significant when only the interaction terms are included, the interaction terms themselves regarding indirect supervision and maternal convictions are insignificant. Furthermore, only knowledge of friends is significant when all controls are added.

[Figure 2 around here]

Figure 2 shows the marginal effects for the interaction terms from the full model. The estimates of the marginal effects of maternal knowledge of friends are negative, both for convicted and non-convicted mothers. This means that maternal knowledge of friends reduces the risk of child convictions in both cases. Regarding knowledge of whereabouts, the estimate is negative for non-convicted mothers but positive for convicted mothers. When the mother has no conviction, the estimates are statistically significant. However, when the mother has at least one conviction, the

confidence intervals are quite large, a possible explanation for the lack of statistical significance of the interaction terms.

[table 6 around here]

Finally, the study tests whether the results change if mother's perception of attachment is used (see table 7). Attachment is significant but is not moderated by parental crime – and the significance disappears when all controls are added. Again, only knowledge of friends is significant and in the expected direction in the final model.

[Figure 3 around here]

Figure 3 shows the marginal effects for the interaction term. Attachment seems to reduce the risk of child conviction – but is statistically insignificant both when the mother has and does not have a conviction.

[table 7 around here]

In order to test the robustness of the results, the study conducts logistic analyses instead of using the two LPM models. In these models, the interaction terms are not included.³ Appendix 1 displays the results and shows that using the logistic model does not change the conclusions.

The FE estimator is always consistent. However, it might not be the most efficient estimator (Allison 2009). Because of this, the study runs a series of Hausman tests on the main models containing all controls and interaction terms. When the study uses a five percent significance level, only one test suggests an FE estimation. However, if a 10 percent significance level is used, four out of

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³ The study uses STATA, version 13.1, xtlogit, fe.

five tests suggest the FE model. One needs to be extremely careful when introducing the risk of bias, and the FE model is therefore still preferred. However, Appendix 2 shows the random effects (RE) regressions for the four models, for which the Hausman test suggested the RE estimations.⁴ As illustrated, knowledge of whereabouts is highly significant and in the expected direction in all models. Knowledge of friends, on the other hand, is only significant in the first estimation. Contrary to the FE models, mother's history of convictions now moderates the effect of knowledge of whereabouts. While increasing knowledge of the young person's whereabouts decreases the risk of child convictions, this crime-reducing effect is neutralized, and in fact reversed to an increased risk of child conviction, if mother has been convicted. However, because of the risk of selection bias in the RE models, one should be careful not to put too much emphasis on this result.

In order to be conservative in introducing the risk of bias, the FE model is the preferred specification. The study thus conducts FE OLS estimations with the dependent variable "number of convictions" (Appendix 3). The results are the same as in the LPM case: Knowledge of friends is the only statistically significant social bonds variable and reduces the risk of child convictions.

Discussion and conclusion

This study finds no impact of attachment on adolescents' convictions once all controls are added, regardless of whether attachment is reported by the child or the mother. However, mothers' knowledge of their children's friends significantly reduces the risk of child conviction when the study employs a linear FE approach. This is the case regardless whether the dependent variable is "any convictions" or "number of convictions." As a robustness check, the study employs logistic analyses and RE regressions. The results suggest that the importance of the mother's knowledge of her child's whereabouts might be underestimated in the linear FE models. Overall, the results thus show that indirect supervision is the most important aspect of the parental social bond in crime prevention for the sample of Danish youth in this study.

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⁴ The study uses STATA, version 13.1, xtreg, re.

In the main models, parental convictions do not moderate attachment or indirect supervision. However, not finding significance is not a proof that such an effect does not exist. Especially regarding indirect supervision, one alternative explanation for the lack of significance – that the insignificant result is due to lack of statistical power in the FE models – is supported by the RE models, which also exploit cross-individual variation. In these models, maternal conviction indeed moderates the influence of knowing the child's whereabouts. However, there is a greater risk of omitted variable bias in the RE models.

The FE result suggests that parents with unconventional behavior do not necessarily have unconventional values for their children. This finding is supported by a study showing that parents with a criminal history actively disapproved of their children's criminal behavior and in no way communicated anti-establishment attitudes to their children (West and Farrington 1977 in Rowe and Farrington 1997). The policy implications for this would be that social projects aimed at at-risk youth should strive to enhance the social bonds between young people and their parents, even if the parents themselves engage in deviant behavior.

This study thus contributes to the literature in several ways. It investigates the seriously under-researched question of whether the impact of social bonds on child convictions differs depending on parental offending. The results suggest that it is not the case. The study furthermore acknowledges that social bonds might change during adolescence and thus moves beyond a simple cross-sectional analysis. In doing so, the study takes a major step towards conducting unbiased estimates of the impact of parental social bonds on child convictions. It does so by using a FE approach, controlling for all time-invariant personal and social characteristics that might cause self-selection bias. Furthermore, the study eliminates the problem of common source bias, a problem vastly overlooked in the criminological empirical literature. Finally, the study uses up-to-date prospective data, with a sample of children born in 1995. This way, the results reflect current adolescents and their family life.

Nonetheless, this study has its own limitations, the main one being that the direction of the causality is not clear. Parents and their children affect each other on a daily basis. If the social bonds are weakened, the child has an increased risk of deviating. However, this effect might not be one-directional, and it is very likely that increased child deviation has an impact on the parent-child relationship (Thornberry 1987). Empirical evidence backs up this claim (Thornberry 1991; Gault-Sherman 2012), and while the current study's estimate of the impact of social bonds can be expected to be less biased than what is seen in the previous literature, the study cannot claim strict causality – simply because the parent-child relationship is interactive by nature, and parents and children therefore influence each other's behavior over time (Gault-Sherman 2012).

Another aspect is that while the FE approach controls for time-invariant characteristics, it does not eliminate the unobserved time-variant characteristics. This might cause bias in the estimations if unobserved personal characteristics affecting both crime and social bonds change. Unfortunately, this is likely since adolescence is a time of change and development. Therefore, while the FE approach takes us one step closer to an unbiased estimate, it is unlikely to take us all the way.

The majority of the empirical research reviewed in this study regarding attachment and supervision uses a delinquency measure that contains at least one illegal act. That being said, much of the research includes both criminal and non-criminal activities. However, non-serious delinquency has previously been shown to be more strongly associated with attachment than serious delinquency (Ranking and Kern 1994; Krohn and Massey 1980). The current study uses convictions from official criminal registers as well as a sample with less disadvantaged youth than the general population of young people. I am thus making the “hard test” of the theory, and while this gives credibility to the significant estimates of indirect supervision, it means that both attachment and the moderating effects of parental crime might turn out to be significant with less restrictive samples.

Future research should therefore continue to move towards an unbiased estimate of the impact of parental social bonds on adolescents' crime and delinquency. Whether parental crime has a moderating effect on the impact of parental social bonds is furthermore a severely under-researched

puzzle. More research on this is needed in order to validate the results from this study and to gain a deeper understanding of how social bonds in a family influence adolescents' crime and delinquency.

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Appendix

Appendix 1: Logistic FE models, coefficients.

	Any convictions	Any convictions
Attachment mother	-0.147 (0.501)	
Attachment father	-0.421 (0.361)	
Knowledge of friends	-1.104** (0.355)	-1.053** (0.353)
Knowledge of whereabouts	-0.581 (0.310)	-0.516 (0.313)
Mother convicted	-0.590 (0.753)	-0.542 (0.731)
Father convicted	-0.073 (0.537)	-0.067 (0.542)
Mother psychiatric care	16.476 (1,739.320)	14.917 (928.492)
Father psychiatric care	1.525 (1.152)	1.711 (1.150)
Attachment (mother's perspective)		-0.330 (0.334)
Observations	252	252
Number of individuals	126	126

Standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05.

Appendix 2: RE LPM models

	Any convictions	Any convictions	Any convictions	Any convictions
Attachment mother	0.004 (0.006)	0.003 (0.006)		
Attachment father	-0.002 (0.004)	-0.002 (0.004)		
Knowledge of friends	-0.007* (0.004)	-0.007 (0.004)	-0.007 (0.004)	-0.007 (0.004)
Knowledge of whereabouts	-0.017*** (0.004)	-0.017*** (0.005)	-0.017*** (0.004)	-0.017*** (0.004)
Mother convicted	-0.002 (0.009)	-0.040 (0.043)	-0.002 (0.009)	0.000 (0.040)
Father convicted	0.002 (0.007)	0.002 (0.007)	0.002 (0.007)	0.002 (0.007)
Mother psychiatric care	0.029 (0.028)	0.029 (0.028)	0.029 (0.028)	0.029 (0.028)
Father psychiatric care	0.071 (0.037)	0.071 (0.037)	0.072* (0.037)	0.072* (0.037)
Mother convicted # knowledge of friends		-0.017 (0.053)		
Mother convicted # knowledge of whereabouts		0.054*** (0.015)		
Attachment (mother's perspective)			-0.001 (0.004)	-0.001 (0.004)
Mother convicted # Attachment (mother's perspective)				-0.001 (0.015)
Constant	0.122*** (0.035)	0.123*** (0.035)	0.131*** (0.025)	0.131*** (0.025)
Observations	5,354	5,354	5,354	5,354
Number of individuals	2,677	2,677	2,677	2,677

Robust standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05.

Appendix 3: FE OLS models

	Number of convictions	Number of convictions	Number of convictions	Number of convictions	Number of convictions
Attachment mother	-0.001 (0.014)	-0.006 (0.014)	-0.003 (0.014)		
Attachment father	-0.009 (0.010)	-0.009 (0.011)	-0.008 (0.010)		
Knowledge of friends	-0.022** (0.008)	-0.022** (0.008)	-0.019* (0.008)	-0.022* (0.008)	-0.021* (0.008)
Knowledge of whereabouts	-0.015 (0.010)	-0.015 (0.010)	-0.016 (0.010)	-0.015 (0.010)	-0.015 (0.010)
Mother convicted	0.003 (0.022)	-0.325 (0.320)	-0.028 (0.240)	0.003 (0.022)	0.066 (0.098)
Father convicted	-0.023 (0.019)	-0.034 (0.077)	-0.024 (0.019)	-0.023 (0.019)	-0.023 (0.019)
Mother psychiatric care	0.124 (0.068)	0.123 (0.068)	0.123 (0.068)	0.124 (0.068)	0.124 (0.068)
Father psychiatric care	0.149 (0.098)	0.150 (0.098)	0.145 (0.098)	0.149 (0.098)	0.149 (0.098)
Mother convicted # Attachment mother		0.068 (0.066)			

Father convicted # Attachment father		0.002			
		(0.019)			
Mother convicted # knowledge of friends			-0.206		
			(0.208)		
Mother convicted # knowledge of whereabouts			0.227		
			(0.185)		
Attachment (mother's perspective)			-0.007	-0.005	
			(0.011)	(0.011)	
Mother convicted # Attachment (mother's perspective)				-0.026	
				(0.037)	
Constant	0.242**	0.263**	0.239*	0.205**	0.202**
	(0.093)	(0.090)	(0.094)	(0.066)	(0.066)
Observations	5,354	5,354	5,354	5,354	5,354
R-squared	0.011	0.012	0.014	0.011	0.011
Number of individuals	2,677	2,677	2,677	2,677	2,677

Robust standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05.

Tables and figures

Table 1: Descriptive statistics of sample, all variables

	Count	Age 15		Age 18		Range of scale	
		Mean	Sd.	Mean	Sd.	Max.	Min.
Attachment mother (child's perspective)	2,677	4.76	0.38	4.78	0.41	5	1
Attachment father (child's perspective)	2,677	4.66	0.57	4.64	0.64	5	1
Attachment (mother's perspective)	2,677	2.47	0.52	2.35	0.52	3	1
Mother knows one's friends	2,677	4.31	0.56	4.12	0.62	5	1
Mother knows one's whereabouts	2,677	4.65	0.52	4.50	0.59	5	1
Ever convicted, young person	2,677	0.00	0.07	0.04	0.21		
Number of convictions, young person	2,677	0.00	0.07	0.06	0.32		
Ever convicted, mother	2,677	0.05	0.23	0.05	0.22		
Number of convictions, mother	2,677	0.06	0.29	0.06	0.28		
Ever convicted, father	2,677	0.13	0.33	0.12	0.33		
Number of convictions, father	2,677	0.16	0.57	0.17	0.62		
Ever psychiatric care, young person	2,677	0.02	0.14	0.03	0.17		
Number of psychiatric care events, young person	2,677	0.03	0.26	0.05	0.37		
Ever psychiatric care, mother	2,677	0.01	0.11	0.02	0.12		
Number of psychiatric care events, mother	2,677	0.02	0.38	0.04	0.47		
Ever psychiatric care, father	2,677	0.01	0.09	0.02	0.12		
Number of psychiatric care events, father	2,677	0.02	0.38	0.04	0.57		
Total N	2,677						

Data: DALSC Danish sample and Statistics Denmark, own calculations.

Table 2: Number of convictions, young people aged 15

		Age 15	
Number of convictions per person		N	Percent
	0	2,665	99.55
	1+	12	0.45
Total		2,677	100

Data: DALSC Danish sample and Statistics Denmark, own calculations.

NB: Because of guidelines for ensuring anonymity, cells containing N<3 must be collapsed. Because of this, the number of convictions larger than 0 has been collapsed.

Table 3: Number of convictions, young people aged 18

Number of convictions per person	Age 18	
	N	Percent
0	2,559	95.59
1	101	3.77
2	9	0.34
3	4	0.15
4+	4	0.15
Total	2,677	100

Data: DALSC Danish sample and Statistics Denmark, own calculations.

NB: Because of guidelines for ensuring anonymity, cells containing N<3 must be collapsed. Because of this, the number of convictions larger than 3 has been collapsed.

Table 4: FE LPM – Young people’s convictions explained only with social bonds

	Any convictions	Any convictions	Any convictions	Any convictions	Any convictions
Attachment mother	-0.008 (0.011)				
Attachment father		-0.011 (0.008)			
Attachment (mother’s perspective)			-0.017* (0.008)		
Knowledge of friends				-0.018*** (0.005)	
Knowledge of whereabouts					-0.015* (0.007)
Constant	0.061 (0.054)	0.074 (0.038)	0.066*** (0.020)	0.100*** (0.021)	0.095** (0.030)
Observations	5,354	5,354	5,354	5,354	5,354
R-squared	0.000	0.001	0.002	0.004	0.002
Number of individuals	2,677	2,677	2,677	2,677	2,677

Robust standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05.

Table 5: FE LPM – young people’s convictions, attachment, and parental crime as moderators

	Any convictions	Any convictions	Any convictions	Any convictions
Attachment mother	-0.003 (0.012)	-0.008 (0.012)	-0.002 (0.012)	-0.006 (0.012)
Attachment father	-0.010 (0.009)	-0.011 (0.010)	-0.009 (0.009)	-0.010 (0.010)
Knowledge of friends			-0.016** (0.005)	-0.016** (0.005)
Knowledge of whereabouts			-0.012 (0.007)	-0.012 (0.007)
Mother convicted	-0.017 (0.013)	-0.322 (0.286)	-0.016 (0.013)	-0.316 (0.284)
Father convicted	-0.008 (0.009)	-0.075 (0.049)	-0.009 (0.009)	-0.072 (0.049)
Mother psychiatric care			0.060 (0.034)	0.060 (0.034)
Father psychiatric care			0.064 (0.046)	0.064 (0.046)
Mother convicted # Attachment mother		0.064 (0.059)		0.063 (0.058)
Father convicted # Attachment father		0.014 (0.011)		0.014 (0.011)
Constant	0.089 (0.056)	0.117* (0.056)	0.195** (0.065)	0.222*** (0.065)
Observations	5,354	5,354	5,354	5,354
R-squared	0.002	0.003	0.009	0.011
Number of individuals	2,677	2,677	2,677	2,677

Robust standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05.

Table 6: FE LPM – young people’s convictions, indirect supervision, and parental crime as a moderator

	Any convictions	Any convictions	Any convictions
Attachment mother			-0.002 (0.012)
Attachment father			-0.008 (0.009)
Knowledge of friends	-0.018*** (0.005)		-0.015** (0.005)
Knowledge of whereabouts		-0.015* (0.007)	-0.013 (0.007)
Mother convicted			-0.155 (0.182)
Father convicted			-0.009 (0.009)
Mother psychiatric care			0.057 (0.034)
Father psychiatric care			0.063 (0.046)
Mother convicted # knowledge of friends	-0.020 (0.013)		-0.061 (0.055)
Mother convicted # knowledge of whereabouts		-0.011 (0.013)	0.198 (0.184)
Constant	0.100*** (0.021)	0.095** (0.030)	0.195** (0.065)
Observations	5,354	5,354	5,354
R-squared	0.004	0.002	0.011
Number of individuals	2,677	2,677	2,677

Robust standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05.

Table 7: FE LPM – Young people’s convictions and attachment from mother’s perspective

	Any convictions	Any convictions	Any convictions	Any convictions
Attachment (mother’s perspective)	-0.017* (0.008)	-0.016* (0.008)	-0.012 (0.008)	-0.011 (0.008)
Knowledge of friends			-0.015** (0.005)	-0.015** (0.005)
Knowledge of whereabouts			-0.011 (0.007)	-0.011 (0.007)
Mother convicted	-0.017 (0.013)	0.031 (0.060)	-0.016 (0.013)	0.034 (0.060)
Father convicted			-0.009 (0.009)	-0.009 (0.009)
Mother psychiatric care			0.059 (0.034)	0.060 (0.034)
Father psychiatric care			0.064 (0.046)	0.064 (0.046)
Mother convicted # Attachment (mother’s perspective)		-0.019 (0.025)		-0.021 (0.025)
Constant	0.067*** (0.020)	0.065** (0.020)	0.166*** (0.037)	0.163*** (0.037)
Observations	5,354	5,354	5,354	5,354
R-squared	0.003	0.003	0.010	0.010
Number of individuals	2,677	2,677	2,677	2,677

Robust standard errors in parentheses. *** p<0.001, ** p<0.01, * p<0.05.

Figure 1: Marginal effect of attachment to mother and father for the average young person, respectively

Figure 2: Marginal effect of indirect supervision for the average young person

Figure 3: Marginal effect of attachment (mother's perspective) for the average young person