The Boys are Back in Town: The Effects of Child's Gender on Young Fathers' Crime

Christian Dustmann[*] and Rasmus Landersø[†]

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Abstract

Using a research design based on the randomness of a child's gender, we address two questions: First, do life course events such as marriage and childbearing lead to termination of criminal activity (desistance) and if so, are these effects permanent? Second, does a reduction in the criminal activity of one individual affect the criminal behavior of other young men in the neighborhood? We find that if the child is a son rather than a daughter, young fathers are convicted of a significantly lower number of crimes in the first years after the child's birth. Similar reductions in criminal convictions are also observable among other young men living in the father's immediate neighborhood when the child is born. We corroborate these findings using victimization data, which show a significant reduction in victimization rates in the same neighborhoods for the first five years after the child's birth.

[*] University College London and Centre for Research and Analysis of Migration (CReAM)
[†] Rockwool Foundation Research Unit, Copenhagen

1. Introduction

This paper addresses two important questions in the literature on the determinants of crime: Do individual life course events such as marriage or childbirth lead offenders to terminate serious criminal participation (desistance) and if so, are such effects persistent?[1] Does the reduction in criminal activity of one individual affect the criminal behavior of others living in the immediate neighborhood?[2] The key challenge in addressing both questions is to establish causality, which in the first case, means finding exogenous variation in life course events and in the second, exogenously reducing the criminal activity of one individual in a potential crime network. Obviously, these two issues are related: any exogenous variation in life course events that leads to a reduction in the crime intensity of a focal individual will also create exogenous variation that may help address the second question.

In this paper, we follow this line of thought using a particular life event that is arguably random: fathering a boy versus a girl. The key idea of our research design is to first use the randomness of child gender to investigate whether young fathers respond differently to the birth

[1] See, for example, discussions of desistance in the literature by Laub and Sampson (1993, 2001), Laub, Nagin, and Sampson (1998), Warr (1998), Piquero, Farrington, and Blumstein (2007), and Farrington (2007) and discussions of desistance in relation to marriage and fatherhood by Farrington and West (1995), Skaldhamar and Hovde (2009), and Sampson, Laub, and Wimer (2006).

[2] There are numerous studies on the possible spillovers in delinquent behavior in economics. In early non-experimental work Case and Katz (1991) identifies a positive relationship between neighborhood crime and criminal behavior among youth. Ludwig and Kling (2007) find no evidence of higher violent crime arrest rates among participants of the Moving to Opportunity (MTO) program in communities with higher crime rates, while Damm and Dustmann (2014), using the random assignment of refugees in Denmark, find robust effects of assignment to a high crime neighborhood as a child on later criminal activity. These findings are consistent with Bayer, Hjalmarsson, and Pozen (2009), who demonstrate that juvenile offenders serving time in the same correctional facility affect each other's subsequent criminal behavior. Other studies on spillover in delinquent behavior include Carrell and Hoekstra (2010) who show that children from troubled families decrease their peers' test score outcomes and increase misbehavior; Deming (2011), who provide evidence that peer effects may be one explanation for a gain in school quality leading to a significant reduction in crime; Sacerdote (2001), who identifies peer effects on joining social groups; and Kremer and Levy (2008), who report that being assigned a roommate who drank prior to college has a sizeable effect on males' academic performance.

of a boy than to the birth of a girl. We in fact find robust evidence that fathers who have a boy reduce their criminal activity in the first years after the child's birth relative to fathers who have a girl. We then use this exogenous variation in criminal activity to address the second question by analyzing whether having a son rather than a daughter leads to measurable changes in the criminal behavior of a father's potential neighborhood peers, and in victimization rates in the father's immediate neighborhood.

Our study focuses on young men who father a child between the ages of 15 and 20, an age range in which crime rates peak. For this group of males, we find sizeable and significant effects of having a son versus a daughter on the fathers' criminal behavior, measured either as conviction probabilities or as the number of convictions for crimes committed in the years after the child's conception (or birth). Specifically, the probability of being convicted for a crime is about 18% lower for fathers of boys than for fathers of girls in the first year after the child's birth,[3] an effect that remains significant for three years after becoming a parent, with an increase in the absolute accumulated effect.

For peers, defined as all young men in the 14–25 age range living in the father's immediate neighborhood when the child is born, we find that the birth of a boy rather than a girl reduces the crime convictions of other young men by about 6% in the first year after the child is born. Again, the absolute accumulated effect increases (and remains significant) until five years after the birth. For both fathers and peers, we do not find any differences in crime conviction rates before the child is conceived (fathers) or born (peers). We find that young men who had prior contact with the father or who had convictions prior to the child's birth are the most

[3] Because we have no natural control/treatment state for child gender, throughout the paper, % reductions refer to reductions relative to the sample mean. If instead we evaluate effects relative to the mean of girls versus boys, an effect of X% relative to the sample mean changes to approximately $\frac{X}{1\pm 0.5X}$.

responsive to the birth of a boy relative to the birth of a girl, but also that peers who had no prior contact or convictions display significant responses in criminal convictions as well. The latter finding suggests that *onset* of criminal careers is sensitive to spillovers generated by peers. Finally, we show that the child gender effect is driven primarily by fathers whose crime propensity prior to the child's conception is high, and that the spillover onto peers is likewise concentrated in neighborhoods where fathers have a high pre-conception crime propensity.

In a final step we turn to victimization rates, which are available for a subset of our sample years. Although, on the one hand, constructed from individual crime reports that omit crimes against commercial properties (e.g., shoplifting), victimization rates are, on the other hand, robust to child gender-related changes in the perpetrator's behavior that may lead to changes in conviction rates but not in crimes committed. They are also a more complete measure of local crime intensity than convictions, which pick up only crimes in which the perpetrator is convicted; a mere fraction of crimes committed or reported. Again, while we find no differences in the *pre-birth period* between victimization rates in neighborhoods of young men who father a boy rather than a girl, we find significant differences for the first five years post-birth. In addition, when we address which neighborhood individuals are most affected, our analysis suggests that the birth of a boy leads to a reduction in violent crime predominantly against victims who themselves had crime convictions before the child's birth, which is a novel insight into the offender-victim overlap.

Our results therefore suggest not only that certain life course events do indeed impact criminal behavior (if only for a short period) but that spillover effects on other young men in the neighborhood are substantial and can be measured not simply by peer convictions but also by victimization rates. Our evidence further suggests that responses in crime reduction are most

pronounced for young men who were previously involved in criminal activity, who also account for most of the reduction in violent crime victimization.

As to the possible mechanisms underlying young fathers' responses to their firstborn's gender, we find, in line with existing papers (e.g., Dahl and Moretti, 2004; Lundberg and Rose, 2002, 2003)[4] that young men who father a boy are more likely to be employed or enrolled in education (rather than idle), more prone to delay the birth of a second child, more inclined to live with the child's mother if they did not do so before the birth, or, if not cohabiting with the mother, are far more likely to be awarded custody. [5] We also find some evidence of reduced domestic violence when the child is a boy. Interestingly, the gap in criminal activity between fathers of boys and girls begins to emerge even before the child is born, just after the child's gender is detectable by ultrasound.[6] This observation suggests that incapacitation resulting from increased attention to boys is unlikely to be the sole explanation for our findings. Rather, like Dahl and Moretti (2004), we conclude that the reasons for behavioral differences probably relate to preferences, possibly supported by concerns about serving as a positive role model when the child is a boy.

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[4] In early work on how child gender may affect parental behavior, Lundberg and Rose (2002, 2003) find that fathers tend to work more after the birth of a son, and have higher hourly earnings and different expenditure patterns. Dahl and Moretti (2004) also provide evidence that having a boy rather than a girl decreases the probability of divorce or having another child, and increases probabilities of paternal custody and marriage. Houser et al. (2015) finds that parents display different levels of dishonesty in front of sons versus daughters. Taken together, these papers suggest that child gender may induce serious behavioral responses in parents, particularly fathers.

[5] A related strand of research investigates the effects of child gender on political views and attitudes towards female rights. Warner (1991), Warner and Steel (1999), and Oswald and Powdthavee (2010) show that parents tend to sympathize more with female rights and vote more liberal when they have a girl rather than a boy. Washington (2008) extends this finding to congressmen and -women in the U.S. and shows that legislators' voting behavior, on reproductive rights in particular, is affected by their number of daughters.

[6] In Denmark, all mothers are offered pre-birth tests, including ultrasound testing, at about 190 and 150 days before delivery.

Our paper contributes to the large body of social science literature concerned with life course events that lead to *desistance* from crime,[7] a process that sociologists and criminologists have long argued may be affected by such events as marriage, social relationships, and/or fathering a child.[8] To date, however, there is little conclusive causal evidence as to whether life course events do indeed lead to desistance from criminal behavior and/or whether such events induce permanent or only temporary desistance (Clark and Cornish 1985). The fundamental problem in answering these questions is the lack of any obvious social control-treatment experiment that randomizes individuals into a desistance-inducing social event. We address this fundamental identification problem by using child gender as the exogenous event and establishing a clear behavioral pattern in which the birth of a boy leads to a higher degree of desistance than the birth of a girl. By drawing on unique administrative data that allow reconstruction of young men's complete early life courses, we are also able to investigate how persistent these effects are. Our paper thus provides the first causal evidence that life course events are important predictors of desistance from crime.

Our paper also contributes more generally to the literature on spillovers in delinquent behavior, by isolating endogenous interaction from contextual interaction (see Manski, 1993, 2000).[9] This distinction is important because only endogenous effects create social multipliers

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[7] Sociological research on criminal careers defines three stages of criminal behavior development over the life course: onset, continuation, and desistance (the cessation of criminal activity; see Piquero, Farrington, and Blumstein, 2007), defined by Laub and Sampson (2001) as the causal process that supports the termination of offending.

[8] A large body of the criminological and sociological literature debate over whether criminal behavior is purely age driven (see, e.g., Hirschi and Gottfredson, 1983) or mediated by life course (Sampson and Laub, 1992), but the findings in both strands are inconclusive because of a lack of exogenous variation. Uggen (2000), among others, stresses the inherent difficulty of obtaining general and non-experimental causal evidence on the effects of life course events.

[9] In the former, an individual's propensity to engage in crime varies with the contemporaneous criminal behavior of the peer group, while in the latter it varies with the "exogenous" or "contextual" characteristics of neighborhood residents.

(see Manski, 1993; Glaeser, Sacerdote and Scheinkman, 1996; 2003). However, endogenous effects are difficult to identify from contextual effects in research designs based on randomization of individuals into different environments (e.g., neighborhoods as in Damm and Dustmann, 2014, and Kling, Ludwig, and Katz 2005, or classrooms as in Deming, 2011). Our design manipulates one individual's behavior and measures the impact in terms of the behavioral responses of potential peers in the neighborhood. Hence, any measured effect on peer behavior must be due to an endogenous effect induced by changes in the contemporaneous behavior of the focal individual.[10] In this way, we not only contribute further evidence to the literature on spillover effects in delinquent behavior but offer a novel identification strategy to isolate endogenous effects.

By measuring the responses of potential neighborhood peers to exogenous manipulation of the focal individual's criminal behavior, our analysis also contributes to the literature on crime networks and the "key player" hypothesis (Ballester, Calvo-Armengol, and Zenou, 2006). A "key player" in a crime network is an individual whose removal from the network produces the largest reduction in the network's criminal activity (see Ballester, Calvo-Armengol, and Zenou, 2006, 2010; Lindquist and Zenou, 2014). The central feature is the key player's connectivity to other individuals in the network, while the core mechanism is the spillover of this individual's behavior onto that of other agents. By detecting such spillovers empirically using a strong research design, we thus provide evidence that such spillovers occurs.

Our paper also adds new insight into the causes of crime *onset*, by illustrating that crime conviction probabilities after birth are also affected by the gender of the child for individuals

[10] This interpretation assumes that potential peers do not react to the *gender* of the child, which we believe is plausible.

who had no prior convictions. This is in line with the hypothesis that spillovers are an important factor for the start of criminal careers.

Our analysis of victimization data shows a robust response of victimization to child gender, which supports our neighborhood results. Moreover, in demonstrating that for both property and violent crime, the most robust reduction occurs among individuals who were themselves involved in earlier criminal activity, our paper contributes to a growing body of criminological literature that stresses the connection between offending and victimization.[11] Although the robust association identified in this literature between victimization risk and delinquent behavior may well be attributable to such common factors as at-risk lifestyle (see Entorf, 2013), the important question remains of whether an exogenously induced reduction in violent crime in a neighborhood predominantly affects victims who are themselves past offenders. While several studies establish the association between membership in delinquent networks and violent victimization (see, e.g., Schreck, Fisher, and Mille, 2004), in this paper we provide first causal evidence that it is indeed this group that is most affected, thereby shedding light on the differential responses of different victim groups to crime reduction.

The paper unfolds as follows: In the next section, we introduce the institutional settings of criminal justice in Denmark and describe our data and samples. In Section 3, we outline our empirical approach for identifying the effects of child gender. In Section 4, after confirming the randomness of child gender using balancing tests, we show the effects of child gender on the father's criminality, explore the mechanisms underlying his responses, identify the effects on

[11] Early work by von Hentig (1948) demonstrating the victim-offender overlap was followed by numerous studies showing the association between delinquent behavior and victimization risk. For example, an early study by Jensen and Brownfield (1986), as well as work by Lauritsen, Sampson, and Laub (1991), argues that lifestyle characteristics for delinquent behavior strongly affect the criminal victimization of teenagers and young adults, an observation confirmed in later studies (e.g., Wittebrood and Nieuwbeerta, 1999; Schreck, 1999).

peers in his immediate neighborhood, and investigate the effects on crime victimization. Section 5 concludes the paper.

2. Background, Data, and Descriptives

2.1 Criminal Justice and Youth Crime in Denmark

In Denmark, the age of criminal responsibility is 15, which is high by international standards.[12] Moreover, Denmark, unlike many other countries, has no juvenile justice system, so from age 15 onward, young people are considered fully responsible for their criminal acts and subject to imprisonment, albeit in separate facilities from adult prisoners.[13]

In our analysis, we measure individual criminal activity based on charges and convictions for offenses against the criminal code, which are recorded from the age of 15 onward. [14] We define convictions as court rulings of the suspect's guilt that result in a sentence (either a fine, conditional withdrawal of a charge, or a suspended or sentence to imprisonment). A suspect is considered not guilty if a "not guilty" verdict was recorded or the indictment was dropped (Statistics Denmark, 2005, p. 39).

In the Central Police Register, charges and convictions are categorized into eight different types of offenses: sexual assault, violent crime, crimes against property, other offenses against the Penal Code, offenses against the Traffic Act, offenses against the Drugs Act, offenses against the Arms Act, and offenses against the Tax Acts or other special acts. Individuals convicted for violation of the Penal Code (e.g., violent crime, crimes against property) or the

[12]The UK, in comparison, sets the age of criminal responsibility at 10, while only a few U.S. states have any limit, usually set between 6 and 12 years (see http://www.unicef.org/pon97/p56a.htm for more detail).

[13] See the Danish Service Act (https://www.retsinformation.dk/Forms/R0710.aspx?id=167849, accessed 02-25-2015). For an excellent overview of the youth crime justice system in Denmark, see Kyvsgaard (2003).

[14] Criminal behavior in the U.S. is most commonly measured by arrests, which in Denmark are not as frequent (see *Retsplejeloven*. Article 755, part 1).

Drugs Act have a criminal record for 2–5 years after conviction or release from prison depending on the sentence.[15] Throughout the analysis, we omit offenses against the Traffic Act and combine the remaining offenses into three categories: property crimes, violent crimes, and other offenses (including sexual and drug crimes) (see appendix Table A1 for a more detailed breakdown). We illustrate in Figure 1 the crime convictions rates for males in Denmark, where the horizontal axis shows the age at which a crime that individual was later convicted of was committed and the vertical axis shows the probability of conviction with a peak at around ages 19-20.

2.2 Data and Samples

We use register-based data on the full Danish population, spanning the period from 1980 until 2012. We consider four samples: a main sample of first time fathers and corresponding mothers, a family sample, a neighborhood sample, and a victim sample. These four samples are constructed using information from seven different types of register: a national birth register, demographic register, crime register, income register, education register, occupational register, and residential register. Each register includes a unique individual identifier that allows us to merge the data.

2.2.1 Primary samples: Fathers and mothers

We merge data from the national birth register, which includes such factors as birth date, gestational length, and birth weight for all births in Denmark from 1973 onward, with data from the national demographic register, which also includes exact birth dates, together with unique identifiers for parents and home address. We are thus able to identify each child's parents,[16] as

[15] In our data, we observe all charges and convictions even after the criminal record has been deleted from the individual's file.

[16] Parents are identified through the legal assignments of maternity and paternity (see next subsection). Although some children may have legal fathers that are not also biological fathers—whether known or unknown to

well as the parents' date of birth, providing a link between all births in Denmark and the parents' birth dates. This information enables us to determine whether a child is the father's first or subsequent child, his exact age at the time of the child's birth, and whether the parents were living together before and after the birth. Combining the birth data and gestational length allows us to estimate the approximate time of conception.

We define our main sample as all males who had their first child between 1991 and 2004 and were under 21 when that child was born, and we describe in the next section how fathers are linked to the mothers.[17] We only consider observations that include information on both the father and mother at the time of the child's birth, that reference live births, and that can be merged with neighborhood information.[18] These constraints result in a final sample of 2,803 first time fathers and corresponding mothers.

We use crime registers on charges, convictions, and incarcerations reported to Statistics Denmark by the Danish police and courts, using individual identifiers and case specific codes to link the criminal registers to the remaining register data sources. The crime registers contain information on the precise dates of crime, arrests and incarcerations, charges, convictions, as well as types of crime. To these data we add information on wage earnings (income register reported to Statistics Denmark by the national tax authority), educational enrollment and

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the mother and/or father—the crucial mechanism in our study is whether the male considers himself the child's father. In this respect, we deem legal assignment of paternity to be the most accurate measure.

[17] We define 2004 as our cutoff point because we only have crime-data until 2012, which allows us to consider crimes for which individuals were convicted up to five years after a child's birth, while taking into account that the Danish Ministry of Justice reports that it takes three years for 95% of the cases to be processed through the courts.

[18] Because our neighborhood classification is constructed in 2004 (see below), we are unable to match some fathers from earlier cohorts to neighborhoods. We also exclude young fathers living in the same neighborhood who have their first child in the same year. These exclusions result in a loss of 776 observations. We limit our results to the sample that can be matched uniquely to a neighborhood in a given year to ensure compatibility with the neighborhood analysis. Nevertheless, results for the full sample are very similar.

attainment (educational register educational institutions nationwide), and occupation (occupational register or collected by Statistics Denmark every November).

2.2.2 Establishing Paternity

Whereas the link between child and mother is straightforward, the father's identity is less clear. In the Danish register data, a child's father is the individual given legal paternity upon birth of the child. If the mother is married or has been separated for less than six months, paternity is automatically given to the husband unless the mother reports otherwise or the paternity is contested (see below). If the mother is not married at the time of the birth, she is asked to report who the father is. Once the mother and the reported father have both signed a "Care and Responsibility Declaration", paternity is formally recognized and cannot be withdrawn, with the declaration having a similar effect as a court order. The father or mother may raise objections until the child reaches 6 months, although if the father is under 18 at the time of the child's birth, a legal guardian must appear before the State Administration.

If the father and/or mother do not sign a declaration within one month of the birth, the mother must inform the State Administration of the probable fathers. Paternity is then recognized if the State Administration receives a written acknowledgement of paternity from one of these candidates. If the mother refuses to inform the State Administration of any candidates, she is called in for an interview that serves two purposes: First, the State Administration informs the mother of the possible consequences of not reporting a father (both financial and in terms of the child's well-being). Second, the administration seeks to ascertain whether the mother is withholding information. If such withholding is suspected, the case is transferred to the courts and a formal investigation initiated.

If an individual is not reported as a likely father but still believes that he is the father, he may file a paternity suit. If an individual is reported as the father but denies paternity, the State Administration may decide that DNA testing is needed. If for some reason, the State Administration cannot resolve the case, it is brought before the courts[19] and both the mother and all possible fathers are obliged to appear and testify to when they had intercourse. The court may also decide that DNA testing is in order. If any parties disagree with the ruling, the matter may be appealed and brought before higher courts. If any of the parties do not appear, the case is forwarded to the police.

2.2.3 Neighborhood data

The neighborhood sample consists of individuals living in the father's vicinity in the year the child was born. Using the demographic register, we link the unique home address of the father on January 1 of the year of the child's birth, to a disaggregation of Denmark into individual neighborhood grids based on addresses in 2004 (see Damm and Schultz-Nielsen, 2008). Damm and Schultz-Nielsen (2008), by grouping 431,000 georeferenced hectare cells that encompass Denmark's entire area, construct two different types of neighborhoods: 9,400 small neighborhoods and 2,296 larger neighborhoods, each containing 150–600 households (275–1,100 individuals) or 600–1,100 households (1,100–2,500 individuals), respectively. Such cell aggregation identifies compact clusters while maximizing homogeneity in type of housing, type

[19] Such legal recourse is relatively rare: in 2014, only 1,803 paternity cases were brought before the courts, around 3 percent of total births. None were appealed to higher courts (see Statistics Denmark, http://www.dst.dk/pukora/epub/upload/17958/staa.pdf). In the full population of children born in Denmark between 1991 and 2004, 1.85% of children have no recorded father; however, there is no difference in the mean share of boys in the group of children with a recorded father versus those with no recorded father (0.51 for both). Among mothers aged 20 or under at childbirth, 4.12% have no assigned father, representing 10% of all cases of "no recorded father" in the full population. Again, the share of boys in the groups with and without assigned fathers is identical (the *p*-value of a test on equal shares is 0.496).

of ownership, and number of inhabitants within each grid.[20] Nevertheless, because the smallest of the small neighborhoods comprise only a few housing blocks, they may be too small to include relevant peers. Conversely, neighborhoods that are too large may include many individuals who have no connection to the focal individual, which will dilute the effect of child gender. We therefore combine the two neighborhood categories to obtain a set of neighborhoods more homogeneous in magnitude.[21]

We link this neighborhood information to the residential registers, allowing us to identify all individuals living within a given neighborhood in a particular year. We discard 248 neighborhood grids in which more than one father from our main sample had his first child in a given year. We also discard focal individuals and their family members from the neighborhood sample. We then link to demographic characteristics and limit the neighborhood sample to males aged between 14 and 25 at the time of the child's birth. Next, we link each individual to information on charges, convictions, and incarcerations from the crime registers. The result is a sample of 186,740 individuals living in 2,114 different neighborhoods.

In Figure A1, we report the distribution of the population sizes in these neighborhoods and the distribution of peer group sizes (males aged 14–25 at the time a child was born), whose tails contain very large or very small neighborhoods. We therefore enhance the homogeneity of neighborhood size and increase precision by discarding those below the 5th and above the 95th

[20] The neighborhood grids are constructed by maximizing an objective function of the following eight criteria mentioned in order of priority: inhabited by by at least 150 households, unaltered across the years, delineated by physical barriers, comprising a contiguous cluster of cells, compact, homogeneous in type of housing and ownership, relatively small, and homogeneous in terms of number of inhabitants (see Damm and Schultz-Nielsen, 2008, for further information).

[21] We use the small neighborhoods as default but assign individual to the large neighborhoods if a given small neighborhood contains fewer than seven roads. Our results are robust to using only the small neighborhood definition.

percentiles. The resulting estimates are similar to those when only the upper 1st percentile is discarded, albeit less precise.

2.2.4 Victim sample

Since 2001, the Danish register data has also contained information about individuals who report having been the victim of a crime. Matching victim information to the neighborhoods in which a first child was born to a father under 21 from 2001 to 2004 results in 717,358 observations from 699 different neighborhoods. Because each reported crime is registered with a personal identifier for the victim and the reported date of the crime, we can merge this information with the demographic register data and match an address to each victim using unique individual identifiers. We are thus able to identify the exact number of individuals within a given neighborhood who were victims of a crime and relate the date of the crime to the date on which a male under 21 in that neighborhood became the father of a child.

2.3 Descriptives

2.3.1 Sample characteristics

Figure 2 shows the age distribution of the young fathers and corresponding mothers at the time of the firstborn's birth. Whereas our sample selection truncates the distribution of fathers at age 20, the age distribution of the mothers is quite symmetric around age 20, with a sizeable fraction being over 20 at childbirth. The fractions of very young fathers (those who were 14, 15, or 16 at conception) are small. Not surprisingly, the largest share of fathers is 20-years-old when the child is born, far younger than the modal age of 29 revealed by our distribution plot of first time

fathers in Denmark between 1991 and 2004 (Appendix Figure A2).[22] This variation from the norm is reflected in Table 1, which shows summary statistics for the main sample of fathers (column 1), differences in these characteristics according to whether the child is a boy or a girl (column 2) and the *p*-value for the null hypothesis that these characteristics are the same (column 3). For comparison, we also report characteristics for a random sample of the full Danish population with same age and year profiles as the main sample (column 4).[23]

Comparing columns 1 and 4 reveals stark differences in average characteristics between our sample of fathers and a random representative sample of other youths who were of the same age in the same year. Individuals under 21 who father a child tend to have less schooling but are far more likely to be redshirted while at school. The share of non-natives is more than threefold the average population's share[24] and the young fathers are also more likely to live in households with lower household income. Their parents are 17% points less likely to be married or cohabiting, and their fathers (mothers) have 1.5 (2) years less education, are 16% points (20% points) less likely to be employed, and 5% points (7% points) more likely to be registered as unemployed. All these data suggest that individuals who father a first child when they are under 21 are from disadvantaged backgrounds. In Appendix Figure A3 we illustrate that this deprived family background existed all during the young fathers' childhood. Figure A3.A and A3.B show that their parent's employment rates were consistently below the employment rates of the

[22] There were no nationwide initiatives targeting young parents between 1991 and 2004, apart from the general services that all parents receive: pre-natal ultrasound screening, GP and mid-wife counseling, and post-natal home-nurse visits.

[23] This sample is drawn from the full Danish population with the same age and year weights as the main sample; that is, it has the same proportion of individuals *x* years olds in year *t* as the main sample of individuals who are first time fathers in year *t* at age *x*.

[24] Immigration to Denmark increased substantially during the 1980s and 1990s. The non-native share of 15-20 year olds in the data period we consider (0.04) was below the full population average share because immigrants (whether refugees or family-reunified) were mainly adults or children. Hence, it was not until the children aged that the non-native share of 15-20 year olds reached the levels of other age groups.

average child's parents, while Figure A3.C shows that the young fathers were 10% points more likely to be born into a broken home, with their parents being more likely to be separated throughout their childhood.

2.3.2 Crime and convictions

We link the criminal convictions, charges, incarcerations, and victimization data from the criminal register to both the main sample and the neighborhood sample, matching the individual's date of birth with the exact date of the crime and type of crime committed. We define "crime" as any criminal act for which the individual is later convicted with no ongoing appeal.[25] For victims, we measure victimization as a reported crime against a person or his/her property, no matter whether that report resulted in a conviction.

In addition to the overall body of crime ("all crime"), we define three broad categories: "property crime," "violent crime," and the residual "other crime." Property crime (from the most to the least prevalent in our sample) encompasses theft, fencing, aggravated vandalism, fraud, burglary, forgery, and economic crimes. Violent crime (similarly prioritized) covers simple violence, severe or life threatening violence, threats, violence against or obstructing a public servant, failure to help or assist an individual in (life-threatening) danger, cohesion, and attempted murder or homicide. Other crime (in order of prevalence) includes possession of drugs, sale of drugs, possession of weapons/explosives, giving false testimony in courts, and sexual crimes (e.g., rape).

We follow crimes leading to a conviction up to five years after the birth of the child. Our precise information on the timing of births and crime allows us to determine the exact time between the first child's birth and the individual's criminal activity. Using this information, we

[25] If an appeal was still ongoing in 2013, the initial conviction is not recorded in our data.

construct variables for being convicted of a crime (and the number of convictions) within the first, second, third, fourth, and fifth year after the child's birth. We also distinguish convictions by type of crime. Because we observe crime on a daily level and the child's gestational length, we can measure the father's criminal activity from either the point of conception or from the compulsory ultrasound test that allows parents to know the child's gender.

Table 2 reports the fractions of individuals who committed any crime for which they were later convicted (from the "all crimes," "property crime," and "violent crime" categories) before the child was conceived. This comprehensive list includes young fathers, male family members, other young males in the neighborhood, a random sample of males from the overall population matched by age and year to the young fathers, and a random sample of males from the full population. As the table shows, not only are the young fathers highly crime prone (34% with a conviction for a crime committed before the pregnancy compared to 12% of matched males in the overall population), they also come from families whose other male members have a high conviction probability: 30% versus 16% for the overall Danish male population. Most convictions are for property crimes, with a 29% probability of having committed at least one crime before the pregnancy and a 7% probability of having committed at least one violent crime. Thus, the conviction rates of the young fathers in our sample before their child's birth are nearly three times as high as those of young men in other parts of Denmark, suggesting that our sample captures young men who are very likely to engage in criminal behavior. In contrast, the crime conviction rates for other young men in the neighborhood are only slightly (1% point) higher than the national average. These observations suggest that the young fathers' families may be particularly prone to criminal activities, with the young fathers themselves among the most crime prone individuals in the neighborhood.

In addition, as illustrated by Table 3, young fathers who carry a conviction for a crime committed before the mother's pregnancy are also far more likely to be convicted after the child is born. This tendency is clear from both the number of pre-pregnancy convictions and the number of convictions during the first five years post-birth (row/columns 1 to 5, respectively, top coded at 4). According to the conditional row probabilities, reported underneath the numbers for the respective category, the probability of not being convicted in the first five years post-birth for those with no pre-pregnancy conviction is 80% (column 1), which reduces to 55%, 35%, 16%, and 16%, respectively, for those who have committed 1 to 4 or more crimes pre-pregnancy. Table 4 reports the probability of conviction for a crime (panel A) and the number of convictions (panel B)—both year by year and accumulatively for the first five post-birth years—for all crimes (first pair of columns) and then separately for violent, property, and other crimes. As the table shows, the conviction probability of a young father for a crime committed in the first year post-birth is about 13.5% and remains of similar magnitude for the next four years. It accumulates over that period, however, so that five years post-birth, the probability that the young father has been convicted for a crime committed in the post-birth period is about 34% overall. Breaking this statistic down for the three crime categories reveals an 11% conviction probability for violent crimes, 23% for property crimes, and 17% for other crimes.

3. Empirical Approach and Identification

In our empirical analysis, we proceed in three steps. First, we investigate the effect that the birth of a boy versus a girl has on the young father's criminal behavior. Second, we analyze the effect of this same event on males between 14 and 25 living in the father's immediate neighborhood when the child is born. And third, we estimate the effect of the birth of a child to a young father

on victimization in the same neighborhood. For the first two steps of our analysis, the estimations assess the effect of having a boy rather than a girl on convictions for a crime committed in any of the five years after the child's birth. Given that about 1 in 7 crimes reported lead to a conviction, our crime measure is only an approximation of total criminal behavior.[26] As long as the birth of a son versus a daughter does not change behavior that affects the probability of being convicted apart from criminal conduct, differences in conviction probabilities between the fathers of a boy versus a girl reflect changes in criminal behavior. To address this we use victimization data on *all* reported crimes by individuals, which not only provide interesting insights but also serve as a check of whether our observations are indeed related to crimes committed per se and not simply to behavioral adjustments.[27]

We use crime convictions in two ways. First, we compute the probability that an individual has committed a crime for which he is convicted in the years after the child's birth. Second, we use the *number* of convictions. We report results on both measures.[28] We then compute the yearly and the aggregate effects of child gender on criminal convictions for each of the first five years post-birth. For our analysis of crime convictions of young fathers, we estimate regressions of the following form:

$$y_{it} = \alpha + \beta G_{i0} + \mathbf{X}_{i,-1}\boldsymbol{\gamma} + u_{it}, \qquad (1)$$

where y_{it} measures the probability (or the number) of criminal convictions of individual i, either in year t after the child's birth or accumulated from the birth until year t. The dummy G_{i0} for

[26] The clearing rates of crime in 2012 are 14% for property crime, 78.9% for violent crime, and 83.2% for other crimes, with a weighted average of about 18%.

[27] We also check the possibility that child gender affects the fathers' avoidance of conviction once charged with a crime by regressing fathers' ratio of charges to convictions for post-birth crimes on child gender. That coefficient in year one after the child's birth is -0.001 (std. error 0.031), implying no boy/girl difference in the ratio of convictions to charges.

[28] An alternative would be to use crime *charges*, which produces similar results to those reported here (available from the authors upon request).

child gender equals 1 if the child is a boy and zero otherwise, while β is the parameter of interest, which measures the causal effect of child gender on crime outcomes. The vector $\mathbf{X_{i,-1}}$ collects variables that represent individual-specific characteristics or family characteristics, measured both at the time of the child's conception and while the gender of the child still cannot be known.[29] Given the randomness of child gender (implying that $\mathrm{E}(\mathrm{u_{it}}|\mathrm{G_{i0}}) = \mathrm{Cov}\left(\mathrm{G_{i0}}, \mathbf{X_{i,-1}}\right) = 0$), these variables will only improve the precision of our estimates. Regressing individual crime convictions *before* conception on the child's gender serves as a placebo test for our key identifying assumption: that child gender is not related to individual-specific unobservables that affect criminal behavior.

In the second step, which seeks to identify potential spillover of the boy versus girl effect onto young men living in the neighborhood, we focus on all males in the 14–25 age range residing in the father's immediate vicinity in the year of the child's birth. Specifically, we estimate regressions of the following form:

$$\tilde{y}_{\mathrm{jt}}^{\mathrm{n(i)}} = \mathrm{a} + \mathrm{bG_{i0}} + \mathrm{v_{jt}}, \qquad (2)$$

where $\tilde{y}_{\mathrm{jt}}^{\mathrm{n(i)}}$ measures the probability of a conviction (the number of convictions) of peer j (excluding the father and his family members) t years after the child's birth in neighborhood $n(i)$ where father i is living when the child is born. The parameter b is the difference in peer convictions between neighborhoods in which the child is a boy and neighborhoods in which the child is a girl. This parameter measures not only the direct effect that the father's reduced criminal activity (induced by having a boy) has on his peers' criminal activity but also any

[29] The vector $\boldsymbol{X_{i,-1}}$ includes the father and mother's age; preconception cohabitation status, years of schooling, and income (if any), as well as indicators for crime convictions in the father's family before the child's conception.

feedback effects through peers influencing each other. The overall effect thus depends on the dynamics of criminal behavior dependence in the individual's peer group.

Running regressions for peers on the individual level allows us to interact peer responses to child gender with variables characterizing the peers' relationship with the father (or their previous criminal records), which we do using an extended regression:

$$\tilde{y}_{\mathrm{jt}}^{\mathrm{n(i)}} = \mathrm{c} + \mathrm{dG_{i0}} + \mathrm{fx_{j,-1}} + \mathrm{gG_{i0}} * x_{j,-1} + w_{\mathrm{jt}}, \qquad \text{(2-a)}$$

where $x_{j,-1}$ is an indicator function for whether individual j had contact with the father before the child's conception or whether individual j had a conviction before the child's birth. When estimating regressions (2) and (2-a) on the individual level of peers, we implicitly weight the spillover from the father onto young men in each neighborhood by the size of the group of young men living in that neighborhood. Whether we should weight by neighborhood size is, however, not clear. While the weighted regressions are our main specification, weighting each neighborhood equally produces similar estimates, as we will show below. Moreover, because the neighborhoods are heterogeneous in size - implying that outliers would be weighted disproportionately - we exclude the largest and smallest 5% of neighborhoods from our estimations.[30] As before, regressing peers' crime convictions before the child's conception on child gender serves as a placebo test for the identifying assumption that the latter is unrelated to unobservables that affect peers' criminal behavior in neighborhood $n(i)$.

We run similar regressions for the victim sample, with the dependent variable $\tilde{y}_{\mathrm{jt}}^{\mathrm{n(i)}}$ representing whether individual j living in neighborhood $n(i)$ was a victim of crime in year t after the child's birth. As for (2), we also run these regressions on the individual level. In addition, we interact

[30] We illustrate below that including all neighborhoods except the largest 1% produces very similar results.

child gender with whether the potential victim had a previous conviction, resulting in estimation equations similar to (2) and (2-a).

4. Results

4.1 Balancing tests

As pointed out in the last section, the key assumption for our identification strategy is the randomness of child gender with respect to any other preconception characteristics. The 0.504 share of boys in our sample of 2,803 children is very similar to the 0.512 share of boys in the population of all 979,372 births measured between 1991 and 2004 (with a *t*-test *p*-value of equal means of 0.399), which is a first indication of no selective determination of fatherhood based on child gender in our sample. As a first balancing test of this assumption, we inspect the differences in characteristics between fathers of boys versus father of girls and their *p*-values (Table 1, columns 2 and 3). The *p*-values in column 3 indicate no significant differences between child gender and the characteristics of the fathers, their parents, or the neighborhoods in which they live.

As an additional test, in Table A2 we first predict the father's probability of receiving a crime conviction in the first five post-birth years (rows 1–5) using different sets of preconception explanatory variables and then regress these predictions on child gender. Column 1 uses only individual characteristics of the father before the child is conceived to predict future crime conviction propensities, while columns 2 and 3 add in characteristics of the father's parents and the neighborhood of residence at time of the child's birth. All estimated coefficients are basically zero with large standard errors, confirming that in none of these specifications is child gender correlated with future predicted criminal behavior. We then regress child gender directly on these

same three different sets of covariates for both mothers and fathers (see Table A3) and report the *F*-test values of the null hypothesis that all covariates are jointly equal to zero, as well as the R-squared. Again, in no case can the null hypothesis be rejected: *p*-values range between 0.66 and 0.94.

One possible concern with our findings is the existence of selective abortions, which could induce a correlation between the child's gender and the father's criminal propensity. Not only does our balancing tests above and the similarity between the share of boys in our sample and that in the overall population suggest that this issue is not a problem, but abortions motivated by child gender are practically impossible in Denmark. Whatever the reason, abortion is only possible up until week 12 of the pregnancy, after which only abortions by medical indication are legal. Nevertheless, we test for whether selective abortion could be a confounding factor using the following rationale: If a fraction of mothers have selective abortions until they become pregnant with a child of the desired gender, then past abortions should be correlated with the gender of non-aborted children. In Table A4, which reports estimates for all relevant abortions in terms of gender selectivity,[31] the results show that the mothers' previous abortions are not significantly associated with the gender of their live-born child.

4.2 The Effect of Child Gender on Parental Convictions

After having established the orthogonality of child gender to the preconception characteristics of the father, his family, and the neighborhood of residence, we now report the first set of results, which establishes a causal effect of child gender on the father's crime conviction rate. Figure 3

[31] The results reported here do not sum up to all aborted pregnancies because they exclude very early or spontaneous abortions, which may not be recorded or even recognized by the mother, and medical abortions that are not reported to the mother's GP. However, as explained above, gender is unknown at these early stages until the mother is scanned at a public hospital, which is included in our analysis because we measure all abortions after that stage.

provides a first visual analysis of this effect. The figure shows the accumulated number of crime convictions of young fathers from three years prior to their child's birth to five years after it, distinguishing between the fathers of boys (solid line) versus girls (dashed line) for all males in our sample who had their first child between 1991 and 2004 and were aged 15–20 when the birth occurred.

Prior to the child's conception, there are no differences between the average number of crime convictions for individuals who will later father a boy versus a girl. After the child is born (indicated by the zero line), however, the two crime conviction rates diverge and the difference increases slightly over the next five years, with fathers of boys accumulating fewer crime convictions than fathers of girls. Sixty months after conception, fathers who had a boy have committed roughly 0.12 fewer crimes than fathers who had a girl.

We provide more detail in Tables 5a and 5b, which present estimates of the effect of child gender on the *probability* (5a) of being convicted for a crime and the *number of convictions* (5b) for each of the first five years after the child's birth. We report results for all crime convictions and the three categories of violent crimes, property crimes, and other crimes; estimates of the yearly and accumulated effects, and the probability of having received a prison sentence in any of the five post-birth years (last row of Table 5a). The first column in each of the two tables also summarizes the effect of giving birth to a girl versus a boy on the probability of a conviction (number of convictions) in the year *before* estimated conception, which serves as a placebo test for unobservables affecting gender as well as crime propensities. As already suggested by Figure 3, the estimates are small in every specification and insignificant throughout.

For the post-birth years, the numbers in the first two rows in Table 5a indicate about a 2.5 to 3.4 percentage point reduction in the probability of being convicted of a crime in the first two years after the child is born when the child is a boy rather than a girl. Given the overall 13.5% who are convicted of a crime in the first year after the child's birth of (see Table 4), these numbers translate into a 19% reduction in crime conviction probabilities for fathers of sons rather than daughters in the first post-birth year, an effect that increases slightly in year two. In year three, the effect is smaller (-2.2 percentage points) and statistically significant only at the 10% level, but it fades away in later years. The accumulated effect remains significant at the 5% level until three years after the child's birth, with an accumulated effect of about 4.4 %-points in year three. The pattern is similar for the number of crime convictions (Table 5b), with the accumulated effects remaining significant until year five post-birth. Breaking overall crime down into property and violent crimes reveals a reduction in convictions for violent crime in year two after the birth, as well as a reduction in convictions for other crimes, with the largest reduction in conviction probabilities (number of convictions) in property crimes.

The last row of Table 5a reports the differences in the probability of receiving a prison sentence (suspended or imprisonment) for a crime committed in any of the five years after the child's birth. Fathering a boy rather than a girl reduces this probability by about 2.9 percentage points in year two after the child's birth. Given that 9% of the young fathers receive at least one prison sentence for a crime committed during year two post-birth, this decrease corresponds to a nearly 30% overall reduction.

Imprisonment may thus keep some young fathers away from crime. For instance, in the first post-birth year, convicted individuals spend an average of two weeks in prison, with the most crime prone being the most incapacitated by imprisonment. It is therefore worth exploring

how large the gender effect would be in each post-birth year if incapacitation through imprisonment had not occurred. We investigate this question in Table A5 by dividing the (accumulated) number of convictions by the fraction of the year that the individual is not incarcerated. Compared to the numbers in Table 5b, these estimates are higher, albeit with a similar overall pattern.[32] To assess how the effect of child gender translates into overall crimes committed by the father, in panel B of the table we report the estimates from panel A corrected by the municipality and crime-type specific clearance rates for the year in which each crime was committed. This calculation assumes that clearance rates for fathers are the same as the municipality average, which is likely to be a plausible approximation. The estimates can thus be interpreted as the average number of *crime* reductions by fathers of boys versus girls. Overall, the boy effect reduces the number of crimes in year one by 0.43, which increases to 1.5 crimes by year three.

4.2.1 Child gender and other parental outcomes

We now delve more deeply into why young fathers adjust their criminal behavior according to child gender by investigating behavioral responses similar to those examined in other studies (see, e.g., Lundbergh and Rose, 2002, 2003, and Dahl and Moretti, 2008). One possible explanation is that raising boys is more time consuming than raising girls, a point discussed in Dahl and Moretti (2008), Olson (1983), and Kvist, Nielsen, and Simonsen (2011), among others. Having a boy rather than a girl may thus lead to an incapacitation effect by simply leaving less time for the fathers to engage in criminal activity. If so, this impact should be notable only after the child's birth. The last columns in Tables 5a and 5b, however, indicate a reduction in criminal

[32] The post-birth number of days incarcerated, crimes committed, and child gender are all correlated, so the estimates differ from those obtained by dividing the estimates in Table 5a by the share of not incarcerated.

activity as early as the last 175 days of the pregnancy, by which time the child's gender is in principle known to the parent.[33] Moreover, the estimated coefficient is negative in all regressions and significant for crime overall and for property crime, providing indication that the fathers change their criminal behavior from the moment they potentially learn their child's gender. This observation is incompatible with the hypothesis that the reduction in crime is the result of an incapacitation effect and points to other reasons for a father's change in criminal behavior. It is consistent, however, with Dahl and Moretti's (2008) finding that the gender of the child *in utero* affects the likelihood of a shotgun wedding.

Other reasons for the responses identified may be a stronger preference for boys than for girls, inducing more responsible behavior or role modeling by the father, perhaps in the belief that a father's criminal behavior may have more detrimental consequences for sons than for daughters.[34] Such thinking may be informed by experiences in the father's own childhood or (ongoing) adolescence, in which case, we should observe other behavioral changes that are compatible with more responsible behavior.

To explore this latter, Table 6 reports a variety of behavioral outcomes, some similar to those examined in previous studies. The first three rows of the table report the probabilities of completing a secondary school, and the probability and accumulated probability of being employed or enrolled in some form of education as opposed to being neither employed nor enrolled. Despite a slight increase in the completion of lower secondary school by year five after

[33] The "during pregnancy" column refers to criminal activity during the pregnancy and after the compulsory medical tests, including the ultrasound that establishes child gender, which information is passed onto the parents if requested.

[34] In an early study, Rubin, Provenzano, and Luria (1974) demonstrate that young fathers describe newborn infants using very different adjectives depending on child gender (e.g., "soft," "fine featured," and "weak" for girls but "strong," "alert," and "well-coordinated" for boys). There is also evidence in the sociological and child development literature that fathers play a more important role in sons' development and upbringing (see Lamb, 1976, 1987; Morgan, Lye, and Condran,1988). Hetherington, Cox, and Cox (1978) show that the absence of a father has a more severe and enduring impact on boys than on girls.

the child's birth, the probability of being employed or enrolled in education is consistently higher, an effect that accumulates to close to 3 percentage points in post-birth years three and four. The baseline of being employed or enrolled in education is about 68% in year one post-birth, meaning that the year one effect translates into a 4% increase.[35] Row 4 of the table reports the probability that fathers who were previously not cohabiting with the mother will move in with her. A gap between parents of girls and boys emerges after the birth and the probability is significantly higher for parents who had a boy in post-birth year two. If the first child is a boy rather than a girl, the probability of having another child in the year following the birth is significantly lower, with the period between the first and next child (row 5) being about one quarter of a year longer.

The last two rows of Table 6 report estimates of the probability that in couples not cohabiting at the time of the birth, the father has custody of the child. This probability is 1.4 and 3.9% points higher in post-birth years one and two, respectively, relative to mean probabilities of 1.5 and 14.7%. Finally, using data from hospital records, we show that giving birth to a boy rather than a girl reduces the probability that the mother is hospitalized with fractures, an indicator for domestic violence, although most of these estimates are admittedly not significantly different from zero.

All these findings are remarkably in line with estimates by Dahl and Moretti (2008), who find that fertility is higher in families whose first child is a girl, that fathers of boys are more likely to live with their children and have custody after a divorce, and that mothers are more likely to be married at childbirth. They also report that once child gender is in principle known through ultrasound tests, it significantly affects shotgun weddings. We find in addition that

[35] Admittedly, all these responses could interact with crime behavior so that part of this effect could be induced by lower crime propensities among the young fathers.

fathers of boys have a higher probability of being employed or at school in the first years after their child's birth, in line with findings by Lundberg and Rose (2002). Dahl and Moretti (2008) interpret their findings as indicative of a gender bias among American parents, which, according to our results, may also discourage young fathers from engaging in criminal activity.

4.3 The Effect of Child Gender on Crimes Committed by Others

We now turn to the question of whether young fathers' crime-related responses to the birth of a son or daughter spill over onto other young men living in the immediate neighborhood. To do so, we estimate equations (2) for individuals living in the father's immediate vicinity in the year of the child's birth and who are aged between 14 and 25 at that time. We run all regressions on the individual level and cluster standard errors by neighborhood.

Figure 4 illustrates the evolution of the accumulated average number of crime convictions for peers living in the father's neighborhood from 24 months pre-birth up until 5 years post-birth, with the solid and dashed lines representing neighborhoods in which a girl or boy is born, respectively. Whereas no differences in average crime conviction rates are observable among peers in girl-child versus boy-child neighborhoods *before* the child's birth, *after* the event, rates drop noticeably in boy-child neighborhoods. This gap opens in the first three years post-birth and remains roughly constant until the end of the observation period.

4.3.1 Estimated parameters

In Table 7, as in Table 5, we report estimates first for all crime convictions and then for the three categories: property crimes, violent crimes, and other crimes. Again, the first row shows the year by year effects, while the second displays the aggregated effects. The coefficient estimates measure the difference in average crime conviction rates in the respective year per 10 peer individuals when a boy is born as compared to a girl. Panel A reports the impact of having a boy

versus a girl on the share of *convicted criminals* per 10 male individuals aged 14–25 living in the focal individual's immediate neighborhood, while panel B reports the share of *convictions*. The panel A estimates reveal that, if the focal father has a son rather than a daughter, the number of individuals convicted for a crime committed in the neighborhood drops by 0.026 per 10 individuals in the first year after the child's birth, an effect that accumulates to 0.068 over the next four years with quite precisely determined parameters. Given that the average number of individuals convicted for crimes committed in the first post-birth year per 10 individuals about 0.53 and accumulates to 1.53 by year five, these estimates suggest about a 4.9% reduction in convicted individuals in year one and around a 4.4% accumulated reduction by year five. Once the crimes are broken down by type, reductions are again observable for individuals convicted for both property and violent crimes, with estimates being most precisely determined for violent crimes. The panel B estimates, which use the same specifications but with number of crime convictions as the left-hand variable, are slightly larger, suggesting that those who reduce their criminal activity are on average offenders who are convicted of more than one crime.

In the regressions reported in Table 7, we implicitly weight neighborhoods by size, giving more weight to neighborhoods with a larger number of peers. However, as previously discussed, it remains unclear whether more weight should be given to neighborhoods in which a large number of unconnected peers may dilute potential spillovers. Hence, in Appendix Table A6, we report in Panel A the same regressions as in Table 7, but with each neighborhood given the same weight. Although some estimates become slightly larger, the pattern is very similar to that revealed in Table 7. Finally, in panel B we include all neighborhoods except for the largest percentile. The estimates are again very similar to those in panel A.

All the above findings provide strong evidence that the birth of a boy rather than a girl affects not only the father but also the father's peers living in the same neighborhood. If we exclude the possibility that these peers are directly affected by the birth of a boy versus a girl in the same way that the father is then these estimates are compatible with spillover effects of the father's criminal behavior onto that of other young men in the vicinity, with possible additional feedback effects between peers.

To gain some insight into the magnitude of the spillover effects, we use the results and sample sizes from Table 5a and Table 7 to estimate the spill-over effect on neighborhood peers of the father being convicted of one additional crime. We find that one such conviction translates into 0.11 crime convictions per each individual aged 14–25 in the immediate neighborhood over the subsequent five years.[36]

We now investigate heterogeneity in these spillovers, according to peers' potential relationship with the father and their own criminal past.

4.3.2 Peer Heterogeneity

Spillover effects from a father to other young men in the neighborhood should be larger for peers who engaged in criminal activity before the child was born. These effects may also be more pronounced for young men who had previous contact with the father. To investigate these conjectures, for each young man in our neighborhood sample, we determine whether he was convicted of a crime before the baby's birth (17.6% of the sample) and whether he had probable previous contact with the father through attending the same school or living in the same street the year prior to conception (1.6% of the sample). Although this latter is admittedly an imperfect

[36] Table A5 shows an accumulated effect by year five of -0.173 (corrected for incarceration). Table 7 shows an accumulated neighborhood effect by year five of -0.192 per 10 individuals, which translates into 0.11 (= 0.0192/0.1728) crime convictions per peer for each of the father's crime convictions.

measure, we still expect the boy effect to be stronger if any such contact took place.[37] Moreover, any differences in effects between peers who had and had not previously committed a crime for which they have been convicted should provide insights into whether spillover affects peers' onset or continuation of delinquent behavior. On the one hand, we expect individuals with previous convictions to be more responsive to changes in the father's criminal behavior, not only because of their connection to the father through a crime network but because, given their criminal history, they are more likely to respond than individuals without convictions. To investigate these suppositions, we interact the gender dummy G_{i0} in the peer regressions with the respective indicator variable.

The results are presented in Table 8, in which the left and right panels report the interactions of child gender with a peer having a previous conviction and a peer having any potential contact with the father, respectively. The results in panel A indicate that peers with a previous conviction at the time of the child's birth have substantially higher and consistent responses, for violent crime in particular, with estimated effects that are 2–3 times larger than for individuals with no conviction. Yet the estimates also reveal significant reductions for peers with no such convictions, indicating that the criminal behavior of one focal young father significantly affects the onset of his peers' criminal trajectory. The regressions in panel B are similar but with added interactions related to possible contact between the father and his peers. The estimates again point in the expected direction, with effects 2–4 times larger when the individual attended the same school or lived in the same street as the father.

[37] This expectation is based on the assumption that the "contact" category as defined is selected such that it contains more individuals that react to the father's crime responses.

4.3.3 Father's crime propensity and spillovers.

We illustrate above that our sample of young fathers consists of young men who are particularly crime prone, with more than 1 in 3 having had a conviction before the child is conceived. Nevertheless, many young fathers in our sample may be unlikely to engage in criminal activity at all so that whether the child is a boy or a girl has no impact on either their own criminal activities or those of their peers. In such neighborhoods, we should find little evidence for spillovers to other peers. To investigate this proposition, we construct a crime potential index for each individual father, combining preconception information on the individual himself with that of the family and the immediate neighborhood. After normalizing this index to range between 0 and 1, we create an indicator variable equal to one if the uniformly distributed index is larger than 0.6. We then run the same regressions as before but adding in the indicator variable and an interaction with child gender.

In Figure A4, we show that fathers' criminal accumulated convictions for crimes committed in the first five post-birth years are flat at low values of the index, but then increase steeply, with a pronounced boy-versus-girl difference becoming visible for larger index values.[38] Figure A5 shows the number of peer crime convictions along the distribution of the father's crime propensity. The conviction pattern very much mirrors that of the fathers themselves, with the gap between boy-child versus girl-child neighborhoods opening up after being initially flat. In Table A8, we provide further estimates where the boy dummy is interacted with an indicator variable for crime propensity. The impact of son versus daughter on peer crime convictions is far

[38] Appendix Table A7 reports the detailed estimates, which confirm that it is fathers with a higher crime index who mainly drive the boy-versus-girl conviction gap. In panel B of that table, we also report estimates using a dummy for any preconception convictions as an alternative indicator, which, being very similar to those in panel A, support the same conclusion

more pronounced for neighborhoods in which the father's crime propensity is high (an index score above 0.6). This larger effect in neighborhoods with more crime prone fathers has two possible explanations: only crime prone fathers respond by reducing their criminal activity and/or fathers who are more predisposed to crime are also better connected to crime prone peers who may have a larger influence on their behavior. At the same time, the fact that we find no sizeable effects in neighborhoods in which the father has no criminal record or a low crime index score strengthens the interpretation that the effects on peers are driven by the fathers' behavior.

4.4 Victims and the Victim-Offender Relation

As previously explained, because victimization data are only available from 2001 onward, we explore the relation between child gender and crime victimization using a subset of the years used for the father and peer data. We run the same regressions for victims as for fathers and peers, but we now use as our dependent variable whether an individual in the father's neighborhood of residence at the time of the child's birth reported being a victim of crime in any of the subsequent five years.[39] As Figure 5 shows, in the three years before the child's birth, there is no difference in monthly victimization rates between boy-child and girl-child neighborhoods. However, after the birth, the two lines diverge, with victimization rates becoming higher in girl-child neighborhoods.

We investigate this observation further in Table 9,[40] which displays estimates for the gender dummy obtained by regressing reported yearly victimizations on child gender for all potential victims living in the neighborhood when the child was born. These estimates do show a

[39] The estimates for the father and neighborhood samples that correspond to the time period for which we have victim information (see Appendix Table A8) are less precise than for the overall samples but point in the same direction.

[40] Because the outcomes in the figure are measured on a monthly basis, they correspond to those in the table when multiplied by 12.

difference in reported victimizations for overall crimes in the post-birth years, which accumulate until year five. Specifically, if the focal father has a boy rather than a girl, there are 0.06 fewer victimizations per 10 individuals within the first five post-birth years, which corresponds to a 5% reduction relative to the mean. The effects are particularly pronounced for violent crimes (7% reduction), which is not surprising given that property crime in the victimization data do not cover crimes directed at commercial property (e.g., shoplifting). Nevertheless, these results support our findings on males in the father's neighborhood of residence at the time of the child's birth and suggest that the birth of a son, relative to the birth of a daughter, does indeed lead to a reduction of criminal activity in the area.

As discussed in the introduction, the criminology literature on the victim-offender overlap documents a strong positive association between victimization and violent conduct, and between violent conduct and victimization risk, a pattern that Berg et al. (2012) claim is "among the most durable empirical findings" in that body of research. This literature, however, is mainly descriptive and argues predominantly for common factors that lead to this association, such as socioeconomic background and daily risky activity shared by both groups. It does not speak, therefore, to the questions of whether *exogenously induced changes* in crime intensity in a neighborhood affect individuals differently according to socioeconomic characteristics and daily routines, and whether previous offenders are among the most responsive victims. Because victimization may in turn lead to offending, these latter are important aspects for crime prevention policies because they may engender multiplier effects by reducing potential revenge crime. Our research design allows us to shed light on this question by investigating whether the birth of a boy versus a girl leads to a larger reduction in violent crimes against former offenders

by exogenously inducing a reduction in violent criminal activity by young men in the neighborhood.

To this end, in Table 10 we re-estimate the same regressions as in Table 9 but interact child gender with whether the victim had a conviction before the birth of the child. The results indicate that the reduction in victimization reports is larger for individuals convicted for a crime committed before the mother's pregnancy. For violent crimes particularly (although also for property crimes to some extent), the reductions in victimization are mainly driven by previous offenders and accumulate nearly tenfold during the first five post-birth years. This increase, which is larger than the accumulated effects observed for criminal convictions among other young men in the neighborhood, implies certain interesting dynamics that may hint at multiplier effects induced by the offender-victim-offender relation. For the "other crime" category (mainly violation of restraint orders, indecent exposure, and sex crimes), reductions in victimization are not driven by individuals with a prior conviction. Further inspection shows that around 85% of the victims of "other crime" are females. One possible interpretation is that – while violent crime reduction affects mainly young men who in some form have been involved in criminal activity earlier – the reduction in other crimes is not concentrated on previous offenders.

5. Discussion and Conclusions

This paper establishes a number of key findings. First, we demonstrate that an exogenously induced life course event, fathering a boy versus a girl, leads young men aged 15–20 to desist from crime. This effect is sizeable and persists for about three years after the child is born. Second, we show that this same event also leads to sizeable reductions in the crime convictions of other young men living in the father's immediate neighborhood in the year of the child's birth.

Assuming (quite plausibly) that these reductions are not due to the *direct* effect of child gender on these other youth's crime behavior, the effects identified not only suggest spillovers in criminal activity but provide evidence of spillovers in crime that result from *endogenous* (rather than *contextual* or *exogenous*) effects. This finding is particularly important in that it supports the hypothesis of the existence of crime multipliers. In addition, the research design, being based on exogenously manipulating the crime behavior of one individual in a particular neighborhood and measuring its effect on others, provides evidence for the (difficult to test) core assumption of key players in crime networks, which asserts that spillovers in crime behavior occur between individuals due to endogenous effects. In addition, our finding that the reduction in peers' crime convictions is partly driven by individuals who had no conviction before the child's birth provides evidence that spillovers may be an important channel for crime onset.

We further show that these child gender-induced reductions in criminal activity lead likewise to a reduction in victimization rates, thereby corroborating the findings on spillovers of crime to peers in the neighborhood. More important, we establish that the largest effects occur in the violent crimes category for individuals who have themselves been offenders. Not only are these effects far more sizeable than for other potential victims, but they accumulate over the first five post-birth years with a larger factor than the spillovers on other young men in the neighborhood. This finding is in line with the hypothesis that the victim-victimizer nexus creates potential multiplier effects through a circle of victimization and retaliation. Understanding this dynamic better offers a fascinating research agenda, one in which the design proposed here may serve as a means for establishing causal relations.

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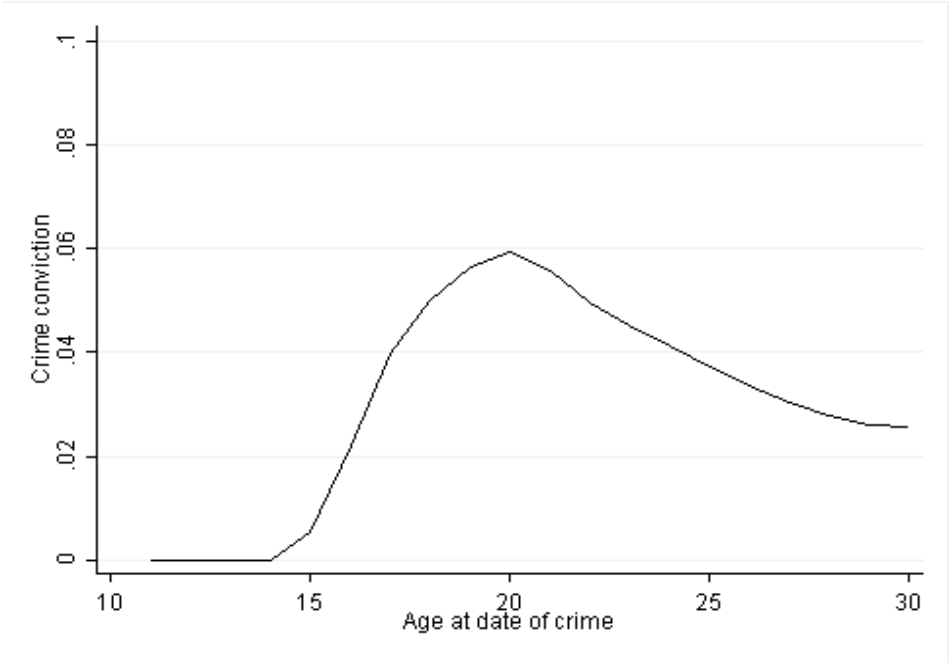
Table A1: Crime categorization: Crime categories in Danish Law and categorization of crime in our study

	Definitions			*Fraction convicted*	
Criminal Code	*Main categories of crime*	*Subcategories of crime*	*Our category*	*Prior to pregn.*	*Year 1 postbirth*
Penal Code	**1. All sexual crimes**				
		Incest	Other crime	0.004	0.001
		Rape	Other crime	-	-
		Pedophilia	Other crime	0.002	-
		Voyerism, flashing, palpation	Other crime	0.001	-
		Other sexual violations	Other crime	0.000	0.016
	2. Violent crimes	*Violence against public authority*	Violence	0.008	0.002
		Disturbance of public peace	Violence	-	-
		Murder, manslaughter	Violence	-	-
		Simple violence	Violence	0.049	0.016
		Major violence	Violence	0.009	0.006
		Threats	Violence	0.004	0.004
		Other violent assualts	Violence	0.002	0.001
	3. Property crimes	*Fraud*	Property crime	0.021	0.009
		Arson	Property crime	0.001	0.001
		Theft	Property crime	0.197	0.038
		Burglary	Property crime	0.088	0.019
		Robbery	Property crime	0.017	0.004
		Vandalism	Property crime	0.042	0.007
		Other property crime	Property crime	0.036	0.009
	4. Other crimes against the penal code	*Crime against/as public servant*	Other crime	0.002	0.001
		Drug smuggling or sales	Other crime	0.001	0.001
		Obstruction of justice	Other crime	0.005	0.001
		Restrain orders	Other crime	-	-
		Other crimes against penal code	Other crime	0.002	0.001
Traffic Act	**Violation of Traffic Act**	*Accidents and speeding*	Other crime	0.012	0.013
		Traffic accidents w. alcohol	Other crime	0.174	0.073
Drug Act	**Violation of Drug Act**	*Possession and/or sales of drugs*	Other crime	0.035	0.021
Weapons Act	**Violation of Weapons/Arms Act**	*Explosives, firearms, knives*	Other crime	0.033	0.011
Other Acts	**Smuggling, construction, health, and social fraud, and other special acts**		Other crime	0.021	0.016

Note: Table shows crime categories in Danish Law, by Criminal code, and how they are categorized in the paper (property crime, violent crime, other crime). The two right columns show the fraction of the main sample of fathers that has committed crime, by type of crime, before the mother's pregancy and after the child's birth, respectively. Source: www.retsinformation.dk and own calculations based on data from Statistics Denmark.

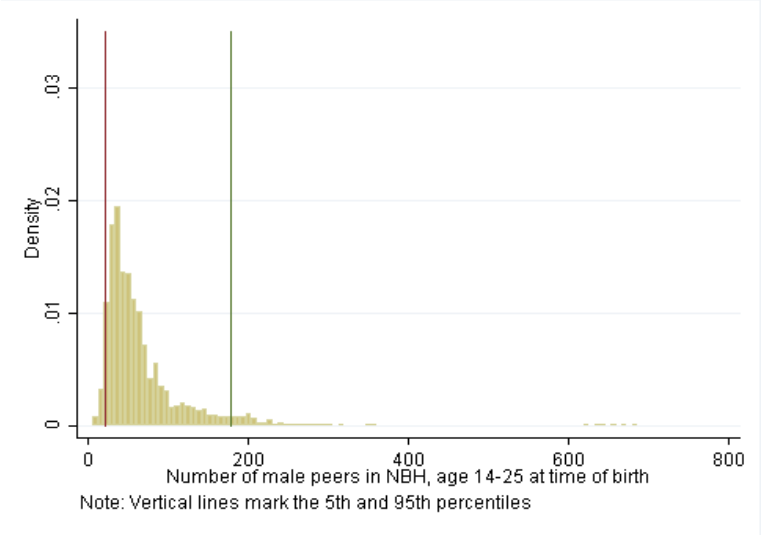
Figure 1: Density of crime Convictions



Note: Figure shows probability of crime conviction for the full population of males in Denmark in 2003, excluding traffic crimes; by age at date of the crime.
Source: Own calculations based on data from Statistics Denmark

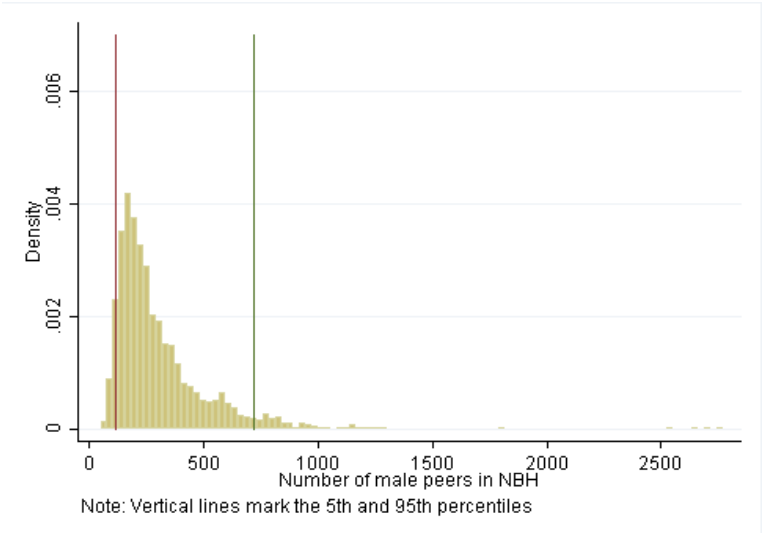
Figure A1: Distribution of neighborhood sizes

Figure A1.A Males in medium NBHs age 14-25 at childbirth



Note: Figure shows histogram of number of 14-25 year old males at time of childbirth in the neighborhoods. The left vertical line marks the 5th percentile of neighborhood sizes and the right verical line marks the corresponding 95th percentile.

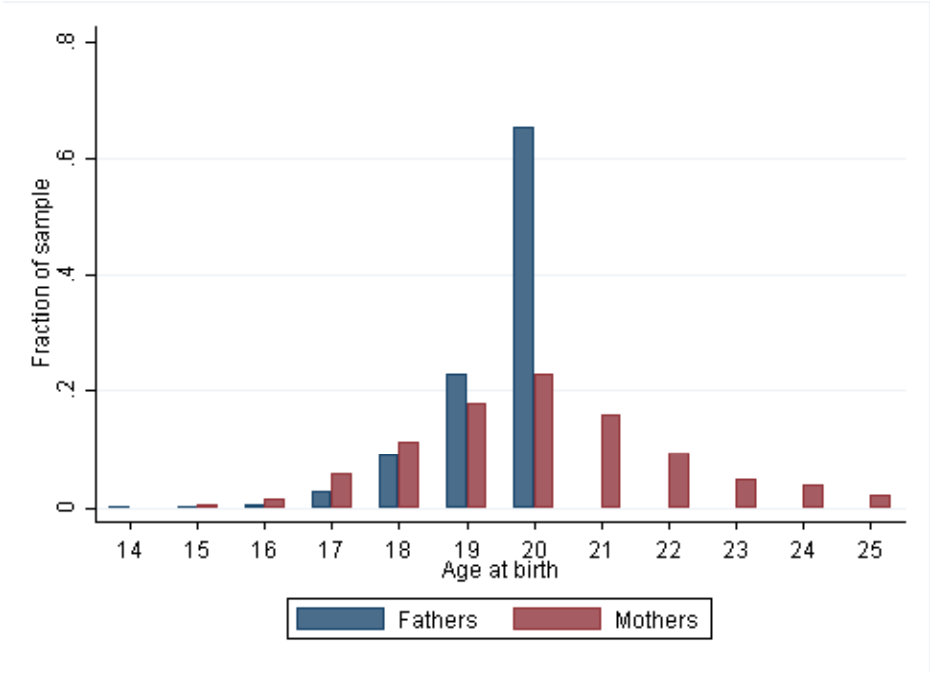
Figure A1.B All males age 10-60 in medium NBH at childbirth



Note: Figure shows histogram of number of 10-60 year old males at time of childbirth in the neighborhoods. The left vertical line marks the 5th percentile of neighborhood sizes and the right verical line marks the corresponding 95th percentile.

Source: Own calculations based on data from Statistics Denmark

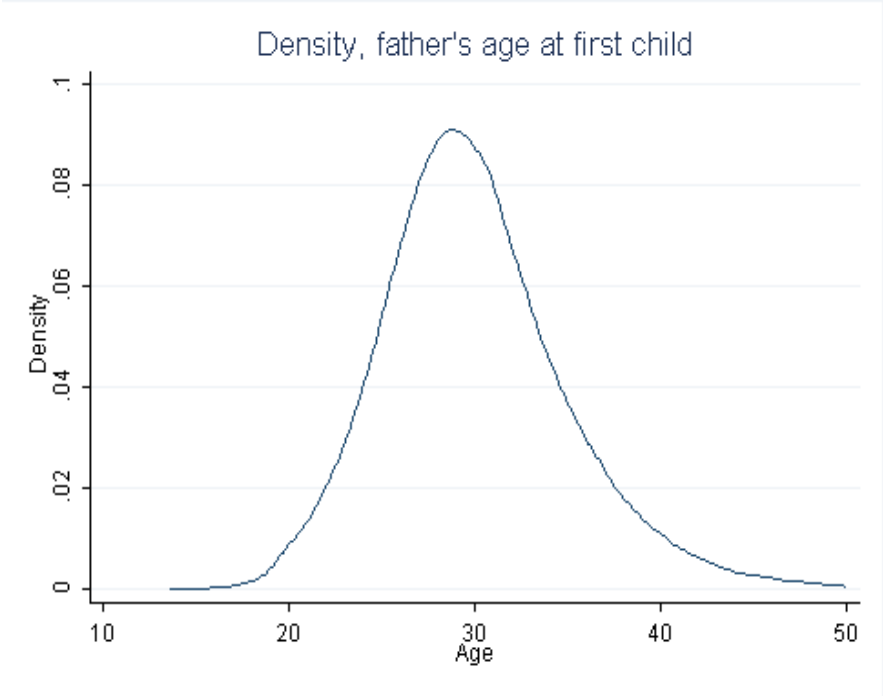
Figure 2: Histogram of father's and mother's age at birth



Note: Figure shows histogram of age at child birth for main sample of fathers and corresponding the mothers of the fathers' first child.

Source: Own calculations based on data from Statistics Denmark

Figure A2: Overall density of fathers age at birth



Note: Figure shows density of age at first child for full population of fathers year 1991-2004

Source: Own calculations based on data from Statistics Denmark

Table 1: Summary statistics of main sample

	All	Boy/Girl difference	P of difference	Random full population sample with same age/year profile as main sample
Wage income (1,000 2010USD)	14.533	-0.440	0.313	19.774
	11.544	0.436		13.018
Redshirted in primary school	0.246	-0.001	0.970	0.118
	0.431	0.016		0.323
Immigrant or descendant	0.142	0.015	0.254	0.040
	0.349	0.013		0.194
Parents are married or cohabitting	0.578	-0.020	0.176	0.750
	0.494	0.015		0.433
Parent's household wage income (1,000	59.464	-2.002	0.150	78.427
2010USD)	36.844	1.392		47.100
Father's years of schooling	10.556	-0.071	0.254	12.099
	2.824	0.107		3.139
Father's Father employed	0.687	0.007	0.664	0.851
	0.431	0.016		0.356
Father's Father unemployed	0.109	0.004	0.688	0.058
	0.289	0.011		0.234
Mother's Mother years of schooling	9.826	0.118	0.187	11.544
	2.373	0.090		2.976
Mother's Mother employed	0.602	0.003	0.883	0.800
	0.466	0.018		0.400
Mother's Mother unemployed	0.134	-0.003	0.838	0.067
	0.325	0.012		0.250
Number of observations	2,803			30,360

Note: The first column of the table shows summary statistics for the main sample of fathers and their parents. The second column shows mean differences of the variables by gender of child and the third column shows p-values from t-tests for differences of the means. The fourth coloumn show the equivalent measures for a sample drawn from the full Danish population with same age and year weights as the sample of first time fathers. Standard deviations appear below the sample mean.

*: p<0.10; **: p<0.05; ***: p<0.01

Source: Own calculations based on data from Statistics Denmark

Figure A3: Descriptives of Main Sample and Random Sample

Figure A3.A: Father's employment

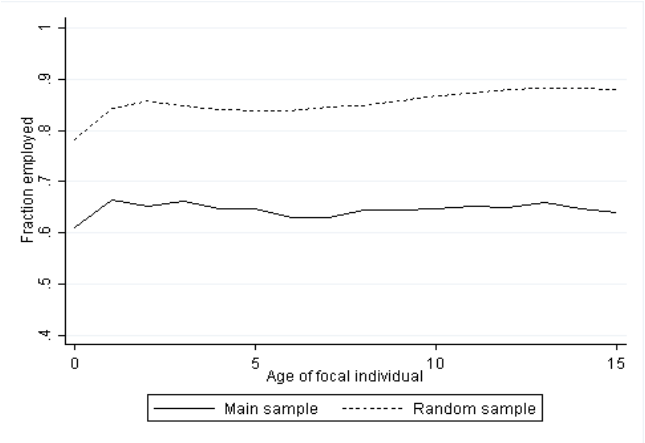


Figure A3.B: Mother's employment

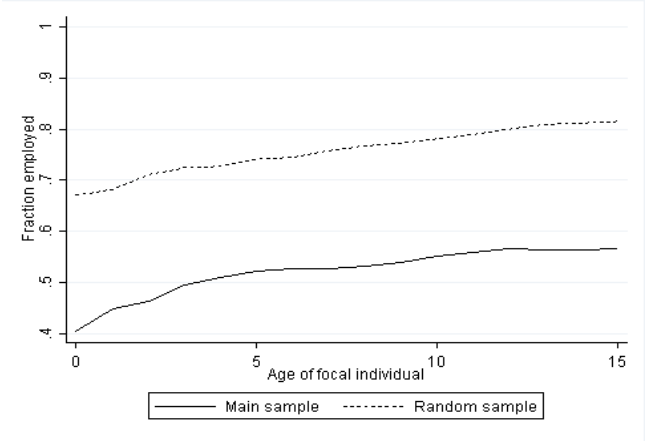
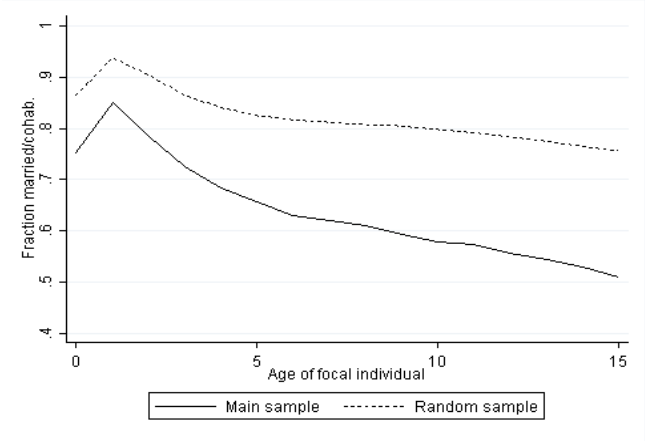


Figure A3.C: Parrents married or cohabitting



Note: Figures show average characteristics of the main sample and a random weighted sample with same age/year distribution as the main sample from age 0 to age 15. Figure A shows employment rates of the samples' fathers, Figure B shows employment rates of the samples' mothers, and Figure C shows the fraction of parents who are married or cohabiting.

Source: Own calculations based on data from Statistics Denmark

Table 2: Conviction Probabilities

Prior to pregnancy	Main sample of fathers	Male family members	Young males in neighborhood	R.S. of male population matched to fathers	R.S. of full male population 15-60
Crime	0.339	0.303	0.173	0.124	0.158
	(0.473)	(0.460)	(0.783)	(0.329)	(0.365)
Property crime	0.287	0.228	0.126	0.098	0.108
	(0.452)	(0.419)	(0.607)	(0.297)	(0.311)
Violent crime	0.065	0.076	0.016	0.019	0.028
	(0.247)	(0.265)	(0.150)	(0.136)	(0.166)
Number of observations	2,803	3,797	152,660	30,360	1,691,931

Note: Table shows the fraction of convicted offenders for the main sample of fathers, their male family members, young males in the main sample's neighborhood, a random sample of males with equal age-year distribution as the main sample, and a random draw of 10-60 year old males with same year distribution as the main sample. Male family member include fathers and brothers. Young males in neighborhood exclude main sample of fathers and family members. The random sample in column 4 has been drawn from the full Danish population with same age and year weights as the main sample. The random sample in column 5 has been drawn from the full male population of 15-60 years olds from 1991 to 2004 with same year distribution as the main sample of fathers. Standard deviations appear in parentheses below means

Source: Own calculations based on data from Statistics Denmark

Table 3: Crime Convictions before and after Birth

	After birth					
Before pregnancy	0	1	2	3	4 or more	Total
0	1,480	237	75	31	31	1,854
	0.798	*0.128*	*0.040*	*0.017*	*0.017*	*0.83*
1	263	84	56	29	46	478
	0.550	*0.176*	*0.117*	*0.061*	*0.096*	*0.22*
2	73	39	26	28	45	211
	0.346	*0.185*	*0.123*	*0.133*	*0.213*	*0.10*
3	16	24	17	20	23	100
	0.160	*0.240*	*0.170*	*0.200*	*0.230*	*0.05*
4 or more	25	16	25	20	74	160
	0.156	*0.100*	*0.156*	*0.125*	*0.463*	*0.08*
Total	1,857	400	199	128	219	2,803

Note: Table shows transition matrix of crime convictions before pregnancy and crime covictions after childbirth (by date of crime, not date of conviction) for the main sample of fathers.

Source: Own calculations based on data from Statistics Denmark

Table 4: Probability of Crime Convictions and Number of Crimes, by years after Childbirth

	Year-by-year	Accumulated	Year-by-year	Accumulated	Year-by-year	Accumulated	Year-by-year	Accumulated
Panel A: Probability of Crime Conviction								
	Crime		Violent crime		Property crime		Other crime	
Year 1	0.135	0.135	0.029	0.029	0.077	0.077	0.050	0.050
	0.274	*0.342*	*0.169*	*0.169*	*0.267*	*0.267*	*0.218*	*0.218*
Year 2	0.145	0.222	0.034	0.057	0.088	0.144	0.047	0.088
	0.352	*0.416*	*0.180*	*0.232*	*0.283*	*0.352*	*0.212*	*0.283*
Year 3	0.134	0.275	0.026	0.076	0.072	0.182	0.054	0.122
	0.341	*0.447*	*0.159*	*0.266*	*0.259*	*0.386*	*0.226*	*0.327*
Year 4	0.130	0.313	0.026	0.093	0.072	0.213	0.050	0.151
	0.336	*0.464*	*0.160*	*0.291*	*0.259*	*0.409*	*0.218*	*0.358*
Year 5	0.115	0.337	0.025	0.110	0.059	0.230	0.045	0.170
	0.318	*0.473*	*0.156*	*0.313*	*0.236*	*0.421*	*0.206*	*0.376*
Panel B: Number of Crime Convictions								
Year 1	0.185	0.185	0.030	0.030	0.097	0.097	0.057	0.057
	0.552	*0.552*	*0.180*	*0.180*	*0.380*	*0.380*	*0.267*	*0.267*
Year 2	0.199	0.384	0.036	0.066	0.109	0.206	0.054	0.112
	0.554	*0.909*	*0.197*	*0.284*	*0.384*	*0.602*	*0.262*	*0.399*
Year 3	0.186	0.570	0.027	0.093	0.092	0.299	0.066	0.178
	0.552	*1.260*	*0.169*	*0.352*	*0.375*	*0.822*	*0.304*	*0.575*
Year 4	0.187	0.757	0.029	0.122	0.096	0.394	0.062	0.240
	0.580	*1.609*	*0.184*	*0.424*	*0.410*	*1.041*	*0.316*	*0.720*
Year 5	0.154	0.910	0.026	0.148	0.077	0.471	0.050	0.291
	0.488	*1.898*	*0.169*	*0.484*	*0.343*	*1.230*	*0.253*	*0.837*

Note: Table shows mean probability of crime conviction and number of crime convictions for fathers from year 1 to year 5 after childbirth (defined by date of crime, not date of conviction) by crime-type. Standard deviations appear below the means.
Source: Own calculations based on data from Statistics Denmark

Table A2: Predicted crime conviction from pre-birth covariates

Difference girl/boy			
Year 1	0.001	0.002	0.002
	(0.005)	(0.005)	(0.005)
Year 2	0.001	0.002	0.002
	(0.005)	(0.005)	(0.005)
Year 3	0.001	0.001	0.000
	(0.005)	(0.005)	(0.005)
Year 4	0.000	0.001	0.001
	(0.005)	(0.005)	(0.005)
Year 5	0.001	0.001	0.001
	(0.004)	(0.004)	(0.004)
Observations	2,803	2,803	2,803
Father covariates	X	X	X
Grand parents covariates		X	X
Neighborhood covariates			X

Note: The table shows t-tests of linear predictions of crime conviction in the first 5 years after childbirth by gender of child. Post birth crime is predicted from pre-birth covariates. Father pre-birth covariates includes: married to mother, years schooling, redshirted, immigrant or descendant, income, employment, crimes. Grand-parents' covariates: married, income and years schooling grandfather, income and years schooling grandmother. Neigborhood covariates: Mean of the abovementioned variables for males in the neighborhood of the same age.

*: p<0.10; **: p<0.05; ***: p<0.01

Source: Own calculations based on data from Statistics Denmark

Table A3: Balancing tests

	Fathers			Mothers		
	Own covariates	Own and parental covar.	Own, parental, and NBH covar.	Own covariates	Own and parental covar.	Own, parental, and NBH covar.
Obs	2,803	2,803	2,803	2,709	2,709	2,709
R-squared	0.005	0.007	0.008	0.006	0.007	0.009
P(F)	0.54	0.54	0.77	0.38	0.46	0.67

Note: Table shows regression of gender of child (boy 0/1) on i) focal individual's characteristics, ii) focal individual's and his parents' characteristics, and iii) focal individual's and his parents' characteristics, and mean characteristics of neighborhood. Individual is aged=19, non-criminal and out of labor force is reference category. Father pre-birth covariates: married to mother, years schooling, redshirted, immigrant or descendant, income, employment, crimes. Grand-parents' covariates: married, income and years schooling gfather, income and years schooling gmother. Neigborhood covariates: Mean of the abovementioned for equal aged males in the neighborhood

*: p<0.10; **: p<0.05; ***: p<0.01

Source: Own calculations based on data from Statistics Denmark

Table A4: Probability of abortion previous to birth, boy vs girl

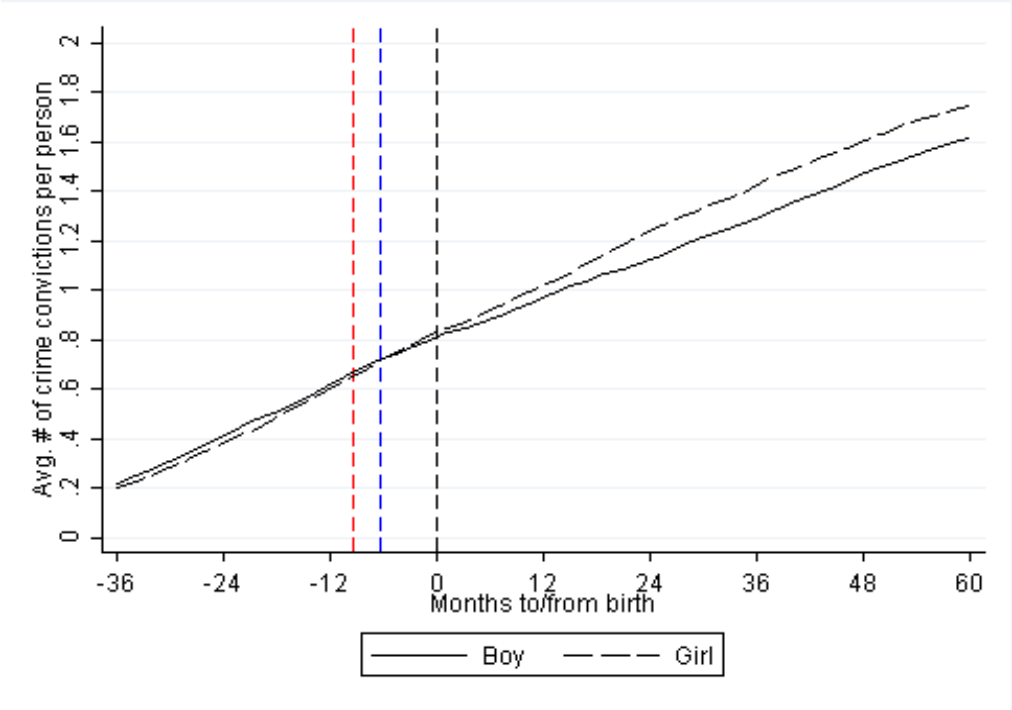
	Any abortion	*Planned abortion*	*Spontanious abortion*
Gender=boy	-0.011	0.009	-0.005
	(0.009)	(0.008)	(0.005)
Observations	2,791	2,791	2,791

Note: Table shows probability of mother having had an abortion before the childbirth in question regressed on gender (boy=1) of life-born child in question. Having a girl is reference catergory, i.e. the table shows the estimated difference from having a boy instead of a girl.

*: p<0.10; **: p<0.05; ***: p<0.01

Source: Own calculations based on data from Statistics Denmark

Figure 3: Number of Crime Convictions and Birth of Girl vs Boy



Note: Figure shows accumulated # of crimes per person before and after birth (0);
possibility of scan of child gender (-6), and conception (-9) for first time main sample of, by gender of child
Source: Own calculations based on data from Statistics Denmark

Table 5a: Probability of crime conviction, boy vs girl

Time relative to childbirth		Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	During pregnancy
Crime	Yearly	-0.008	-0.025**	-0.034***	-0.022*	0.013	-0.002	-0.014
		(0.012)	(0.013)	(0.013)	(0.013)	(0.012)	(0.012)	(0.010)
	Accumulated		-0.025**	-0.041***	-0.044***	-0.023	-0.017	
			(0.013)	(0.015)	(0.016)	(0.017)	(0.017)	
Violent crime	Yearly	0.003	0.005	-0.014**	-0.003	-0.001	-0.001	-0.002
		(0.005)	(0.006)	(0.007)	(0.006)	(0.006)	(0.006)	(0.005)
	Accumulated		0.005	-0.004	-0.001	0.001	-0.004	
			(0.006)	(0.009)	(0.010)	(0.011)	(0.012)	
Property crime	Yearly	-0.001	-0.017*	-0.028***	-0.011	0.008	-0.003	-0.015*
		(0.010)	(0.010)	(0.011)	(0.010)	(0.010)	(0.009)	(0.008)
	Accumulated		-0.017*	-0.034***	-0.039***	-0.027*	-0.023	
			(0.010)	(0.013)	(0.014)	(0.015)	(0.015)	
Other crime	Yearly	-0.008	-0.011	-0.008	-0.010	0.008	0.006	0.003
		(0.006)	(0.008)	(0.008)	(0.009)	(0.008)	(0.008)	(0.005)
	Accumulated		-0.011	-0.019*	-0.022*	-0.013	-0.008	
			(0.008)	(0.011)	(0.012)	(0.013)	(0.014)	
Prison sentence	Yearly	-0.003	-0.001	-0.029***	0.000	0.007	0.001	-0.004
		(0.008)	(0.010)	(0.011)	(0.010)	(0.010)	(0.010)	(0.007)
Observations		2,803	2,803	2,803	2,803	2,803	2,803	2,803

Note: Table shows results from OLS regression on probability of crime conviction the years before/after birth on gender of first child (boy=1). Having a girl is reference category, i.e. the table shows the estimated change from having a boy instead of a girl. 'During pregnancy' is defined as the last 175 days before birth. Standard errors appear in parentheses below coefficients.

OLS regression conditional on: crime before pregnancy, father's age, mother's age, married/cohabiting, father enrolled in education, fathers' income, mother enrolled in education, mother's income, crime in nearest family (all measured before conception).

*: p<0.10; **: p<0.05; ***: p<0.01

Source: Own calculations based on data from Statistics Denmark

Table 5b: Number of crime convictions, boy vs girl

Time relative to childbirth		Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	During pregnancy
Crime	Yearly	-0.005	-0.030	-0.074***	-0.028	0.008	0.003	-0.024*
		(0.017)	(0.020)	(0.021)	(0.021)	(0.022)	(0.018)	(0.014)
	Accumulated		-0.030	-0.104***	-0.132***	-0.124**	-0.121*	
			(0.020)	(0.033)	(0.046)	(0.059)	(0.069)	
Violent crime	Yearly	0.003	0.005	-0.016**	-0.003	-0.005	-0.002	-0.004
		(0.005)	(0.007)	(0.007)	(0.006)	(0.007)	(0.006)	(0.005)
	Accumulated		0.005	-0.011	-0.014	-0.019	-0.021	
			(0.007)	(0.011)	(0.013)	(0.016)	(0.018)	
Property crime	Yearly	0.002	-0.023	-0.045***	-0.011	-0.004	-0.002	-0.022**
		(0.013)	(0.014)	(0.014)	(0.014)	(0.015)	(0.013)	(0.010)
	Accumulated		-0.023	-0.068***	-0.079***	-0.082**	-0.084*	
			(0.014)	(0.022)	(0.030)	(0.038)	(0.045)	
Other crime	Yearly	-0.008	-0.012	-0.013	-0.013	0.016	0.007	0.002
		(0.006)	(0.010)	(0.010)	(0.011)	(0.012)	(0.010)	(0.006)
	Accumulated		-0.012	-0.026*	-0.039*	-0.023	-0.016	
			(0.010)	(0.015)	(0.022)	(0.027)	(0.031)	
Observations		2,803	2,803	2,803	2,803	2,803	2,803	2,803

Note: Table shows results from OLS regression on number of crime convictions the years before/after birth on gender of first child (boy=1). Having a girl is reference category, i.e. the table shows the estimated change from having a boy instead of a girl. 'During pregnancy' is defined as the last 175 days before birth. Standard errors appear in parentheses below coefficients.

OLS regression conditional on: crime before pregnancy, father's age, mother's age, married/cohabiting, father enrolled in education, fathers' income, mother enrolled in education, mother's income, crime in nearest family (all measured before conception).

*: p<0.10; **: p<0.05; ***: p<0.01

Source: Own calculations based on data from Statistics Denmark

Table A5: Crime Convictions, Incarceration and Crimes Solved

Panel A: Accumulated Yearly number of crime convictions during time not in incarceration, boy vs girl

Time relative to childbirth	Year 1	Year 2	Year 3	Year 4	Year 5
Crime	-0.049**	-0.135***	-0.178***	-0.175**	-0.173*
	(0.025)	(0.045)	(0.0587)	(0.079)	(0.100)
Panel B: Accumulated yearly number of crime convictions during time not in incarceration corrected for rates of solved crimes, boy vs girl					
Crime	-0.434**	-1.130***	-1.496***	-1.333*	-1.252
	(0.217)	(0.386)	(0.535)	(0.732)	(0.951)
Observations	2,803	2,803	2,803	2,803	2,803

Note: Upper panel of the table shows results from OLS regression of accumulated number of crime convictions years 1-5 divided by the fraction of the year not incarcerated on gender of first child (boy=1). Having a girl is reference category, i.e. the panel shows the estimated change from having a boy instead of a girl. OLS regression conditional on crime before pregnancy, father's age, mother's age, married/cohabiting, father enrolled in education, fathers' income, mother enrolled in education, mother's income, crime in nearest family (all measured before conception). Standard errors appear in parentheses below coefficients.
Lower panel of the table shows results from OLS regression on number of crime convictions divided by the fraction of the year not in incarceration and by the rates of solved crime relative to reported crime in each neighborhood of the father, the years after birth on gender of first child (boy =1). Having a girl is reference category, i.e. the panel shows the estimated change from having a boy instead of a girl (all measured before conception). Standard errors appear in parentheses below coefficients. Standard errors calculated from 200 bootstraps.

*: p<0.10; **: p<0.05; ***: p<0.01

Source: Own calculations based on data from Statistics Denmark

Table 6: Behavioral Responses, Boy vs. Girl

	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5
Prob. of completing lower secondary schooling, in each year[A]		0.007	0.006	0.004	0.006	0.028*
		(0.005)	(0.015)	(0.017)	(0.017)	(0.016)
Prob. of employment or education enrollment, in each year[A]	0.003	0.027*	0.028*	0.033**	0.025	0.013
	(0.013)	(0.017)	(0.017)	(0.017)	(0.017)	(0.017)
Prob. of employment or education enrollment, accumulated[A]	0.003	0.027*	0.028**	0.030**	0.028**	0.025**
	(0.013)	(0.017)	(0.014)	(0.012)	(0.012)	(0.011)
Prob. of father cohabiting with mother[B]		0.027	0.043*	0.012	-0.011	-0.012
		(0.023)	(0.022)	(0.022)	(0.021)	(0.021)
Prob. of father and mother having subsequent children 0/1[C]		-0.010**	0.006	0.001	-0.035**	0.016
		(0.005)	(0.017)	(0.018)	(0.016)	(0.014)
Days until next child, measured until 8 years after birth (2nd stage tobit)[A]		87.732*				
		(49.896)				
Prob. of father only parent who lives with child (hold custody)[D]		0.014*	0.039*	-0.017	-0.031	-0.013
		(0.008)	(0.022)	(0.022)	(0.024)	(0.024)
Prob. of mother being hospitalized with fractures, accumulated[E]		-0.002	-0.010	-0.013	-0.022*	-0.022*
		(0.005)	(0.007)	(0.009)	(0.010)	(0.011)

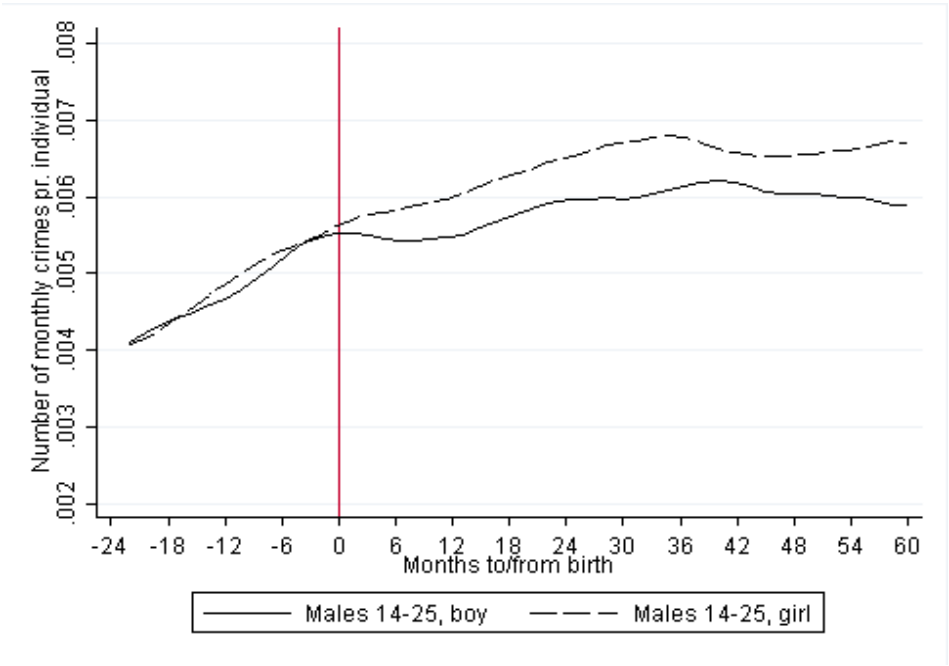
Note: Table shows estimates of child gender on other outcomes than crime for main sample of fathers. Having a girl is reference category, i.e. the table shows the estimated change from having a boy instead of a girl. Standard errors appear in parentheses below coefficients.

[A]: Full sample (2,803 observations); [B]: Mother and father not cohabiting before birth (1,964 observations); [C]: Mother and father cohabiting at time of birth (1,778 observations); [D]: Mother and father not cohabiting at time of birth (1,025 observations); [E]: Full sample until year 2001 as hospital data only runs until 2005 (2,227 observations)

*: p<0.10; **: p<0.05; ***: p<0.01

Source: Own calculations based on data from Statistics Denmark

Figure 4: Number of Crime Convictions, neighborhood peers, Girl vs Boy



Note: Figure shows monthly # of crimes by males age 14-25 per male person in main sample of father's neighborhood before and after birth (0); by gender of child

Source: Own calculations based on data from Statistics Denmark

Table 7: Crime Convictions, males in the neighborhood, boy vs. girl

		Panel A: Convicted individuals						Panel B: Number of convictions					
		Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5
Crime	Yearly	-0.013	-0.026	-0.033*	-0.036**	-0.018	-0.026	-0.024	-0.045*	-0.036	-0.053**	-0.023	-0.034
		(0.015)	(0.018)	(0.018)	(0.018)	(0.016)	(0.016)	(0.021)	(0.026)	(0.026)	(0.027)	(0.025)	(0.024)
	Accumulated		-0.026	-0.043*	-0.060**	-0.064*	-0.068*		-0.045*	-0.081*	-0.134*	-0.157*	-0.192*
			(0.018)	(0.026)	(0.030)	(0.034)	(0.036)		(0.026)	(0.049)	(0.071)	(0.091)	(0.110)
Property crime	Yearly	-0.009	-0.014	-0.028**	-0.018	-0.016	-0.016*	-0.018	-0.025	-0.027	-0.026	-0.014	-0.022
		(0.012)	(0.013)	(0.013)	(0.012)	(0.011)	(0.010)	(0.016)	(0.018)	(0.017)	(0.017)	(0.015)	(0.014)
	Accumulated		-0.014	-0.034*	-0.039*	-0.048*	-0.056**		-0.025	-0.052	-0.078*	-0.093	-0.115*
			(0.013)	(0.019)	(0.023)	(0.026)	(0.027)		(0.018)	(0.032)	(0.045)	(0.057)	(0.067)
Violent crime	Yearly	-0.000	-0.017***	-0.008	-0.015**	-0.010*	-0.008	-0.000	-0.019***	-0.010	-0.016**	-0.014**	-0.010*
		(0.004)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.005)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
	Accumulated		-0.017***	-0.023***	-0.035***	-0.043***	-0.047***		-0.019***	-0.029***	-0.045***	-0.058***	-0.068***
			(0.005)	(0.008)	(0.011)	(0.012)	(0.014)		(0.006)	(0.010)	(0.014)	(0.017)	(0.020)
Other crime	Yearly	-0.007	-0.001	0.001	-0.015	0.003	-0.001	-0.006	-0.002	0.002	-0.011	0.005	-0.002
		(0.006)	(0.009)	(0.009)	(0.010)	(0.010)	(0.010)	(0.008)	(0.011)	(0.011)	(0.012)	(0.012)	(0.013)
	Accumulated		-0.001	-0.002	-0.015	-0.012	-0.011		-0.002	0.000	-0.011	-0.006	-0.009
			(0.009)	(0.013)	(0.017)	(0.020)	(0.024)		(0.011)	(0.019)	(0.027)	(0.035)	(0.044)
	Observations	152,660	152,660	152,660	152,660	152,660	152,660	152,660	152,660	152,660	152,660	152,660	152,660

Note: Table shows results from OLS regression on probability of crime conviction (left) and number of crime convictions (right) per 10 14-25 year old males (at time of childbirth) in neighborhood the years before/after birth on gender of first child (boy=1), using neighborhoods within the 5th-95th percentiles of neighborhood sizes. Standard errors appear in parentheses below coefficients and are clustered by level of neighborhood. Estimation is performed on level of individuals, thus weighted by number of 14-25 year old males in each neighborhood.

Source: Own calculations based on data from Statistics Denmark

Table A6: Robustness Checks

Panel A: Neighborhoods Equally Weighted												
		Convicted individuals (accumulated)						Number of convictions (accumulated)				
	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5
Crime	-0.013	-0.026	-0.043*	-0.060**	-0.064*	-0.068*	-0.004	-0.046*	-0.069*	-0.114*	-0.128*	-0.161*
	(0.015)	(0.018)	(0.026)	(0.030)	(0.034)	(0.036)	(0.020)	(0.024)	(0.042)	(0.060)	(0.077)	(0.093)
Property crime	-0.009	-0.014	-0.034*	-0.039*	-0.048*	-0.056**	0.001	-0.032**	-0.047*	-0.070*	-0.077	-0.092
	(0.012)	(0.013)	(0.019)	(0.023)	(0.026)	(0.027)	(0.015)	(0.016)	(0.028)	(0.039)	(0.049)	(0.057)
Violent crime	-0.000	-0.017***	-0.023***	-0.035***	-0.043***	-0.047***	0.000	-0.013**	-0.023**	-0.036***	-0.048***	-0.062***
	(0.004)	(0.005)	(0.008)	(0.011)	(0.012)	(0.014)	(0.005)	(0.006)	(0.010)	(0.013)	(0.016)	(0.019)
Other crime	-0.007	-0.001	-0.002	-0.015	-0.012	-0.011	-0.004	-0.001	0.001	-0.008	-0.003	-0.007
	(0.006)	(0.009)	(0.013)	(0.017)	(0.020)	(0.024)	(0.008)	(0.010)	(0.016)	(0.023)	(0.030)	(0.037)
	152,660	152,660	152,660	152,660	152,660	152,660	152,660	152,660	152,660	152,660	152,660	152,660
Panel B: Using 0-99 percentile of neighborhood size distribution												
		Convicted individuals (accumulated)						Number of convictions (accumulated)				
	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5	Year -1	Year 1	Year 2	Year 3	Year 4	Year 5
Crime	-0.014	-0.025	-0.048*	-0.072**	-0.075**	-0.078**	-0.001	-0.034	-0.054	-0.096	-0.100	-0.130
	(0.014)	(0.018)	(0.026)	(0.031)	(0.035)	(0.037)	(0.020)	(0.023)	(0.041)	(0.059)	(0.075)	(0.090)
Property crime	-0.011	-0.014	-0.030	-0.040*	-0.046*	-0.051*	0.001	-0.028*	-0.040	-0.059	-0.061	-0.074
	(0.012)	(0.013)	(0.019)	(0.023)	(0.026)	(0.028)	(0.014)	(0.016)	(0.027)	(0.038)	(0.047)	(0.056)
Violent crime	-0.003	-0.016***	-0.025***	-0.039***	-0.048***	-0.055***	0.000	-0.012**	-0.021**	-0.034***	-0.045***	-0.060***
	(0.004)	(0.005)	(0.008)	(0.010)	(0.012)	(0.014)	(0.005)	(0.006)	(0.010)	(0.013)	(0.015)	(0.018)
Other crime	-0.003	0.000	-0.007	-0.022	-0.019	-0.023	-0.002	0.006	0.007	-0.002	0.007	0.004
	(0.006)	(0.009)	(0.013)	(0.017)	(0.020)	(0.024)	(0.008)	(0.010)	(0.016)	(0.023)	(0.030)	(0.037)
	177,329	177,329	177,329	177,329	177,329	177,329	177,329	177,329	177,329	177,329	177,329	177,329

Note: Table shows results from OLS regression on probability of crime conviction (left) and number of crime convictions (right) per 10 14-25 year old males (at time of childbirth) in neighborhood the years before/after birth on gender of first child (boy=1), using neighborhoods within the 5th-95th percentiles of neighborhood sizes. Standard errors appear in parentheses below coefficients and are clustered by level of neighborhood. Estimation is performed on level of individuals, thus weighted by number of 14-25 year old males in each neighborhood.

Source: Own calculations based on data from Statistics Denmark

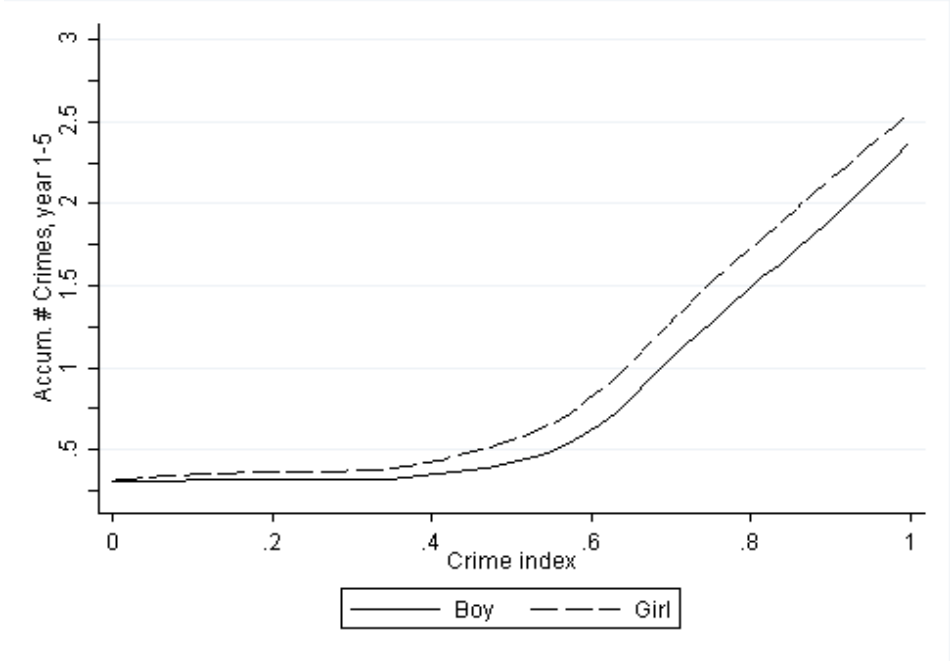
Table 8: Crime conviction and number of crime convictions, males in neighborhood, boy vs girl, interactions

		Panel A: Z=Earlier Conviction					Panel B: Z=Pre-contact				
		Year 1	Year 2	Year 3	Year 4	Year 5	Year 1	Year 2	Year 3	Year 4	Year 5
Crime	Boy	-0.018	-0.039	-0.068*	-0.077	-0.095*	-0.046*	-0.078*	-0.114*	-0.124*	-0.149*
		(0.015)	(0.027)	(0.038)	(0.047)	(0.056)	(0.026)	(0.045)	(0.061)	(0.073)	(0.082)
	Boy*Z	-0.134	-0.159	-0.181	-0.185	-0.205	-0.044	-0.073	-0.197	-0.408	-0.334
		(0.099)	(0.155)	(0.189)	(0.208)	(0.220)	(0.140)	(0.240)	(0.311)	(0.363)	(0.402)
Property crime	Boy	-0.007	-0.021	-0.032	-0.039	-0.049	-0.024	-0.049	-0.069*	-0.077	-0.097*
		(0.011)	(0.019)	(0.026)	(0.031)	(0.036)	(0.018)	(0.030)	(0.041)	(0.048)	(0.054)
	Boy*Z	-0.083	-0.139	-0.175	-0.188	-0.229	-0.052	-0.068	-0.055	-0.220	-0.152
		(0.073)	(0.116)	(0.146)	(0.163)	(0.173)	(0.108)	(0.178)	(0.214)	(0.239)	(0.268)
Violent crime	Boy	-0.010**	-0.018**	-0.028***	-0.035***	-0.045***	-0.018***	-0.028***	-0.041***	-0.055***	-0.062***
		(0.004)	(0.007)	(0.010)	(0.012)	(0.014)	(0.006)	(0.010)	(0.014)	(0.017)	(0.020)
	Boy*Z	-0.052*	-0.062	-0.092*	-0.129**	-0.126*	-0.030	-0.076	-0.188**	-0.181*	-0.319**
		(0.027)	(0.042)	(0.055)	(0.065)	(0.075)	(0.035)	(0.061)	(0.089)	(0.108)	(0.133)
Other crime	Boy	0.000	-0.001	-0.015	-0.012	-0.012	-0.003	-0.003	-0.016	-0.013	-0.020
		(0.006)	(0.010)	(0.015)	(0.021)	(0.027)	(0.011)	(0.018)	(0.026)	(0.033)	(0.041)
	Boy*Z	0.001	0.040	0.059	0.075	0.050	0.031	0.072	0.058	0.014	0.111
		(0.049)	(0.078)	(0.100)	(0.120)	(0.139)	(0.049)	(0.094)	(0.141)	(0.186)	(0.213)
	Observations	152,660	152,660	152,660	152,660	152,660	152,660	152,660	152,660	152,660	152,660

Note: OLS regressions+A24 on number of crime convictions per 10 14-25 year old males (at time of childbirth) in neighborhood the years after birth on gender of first child (boy=1), variable Z: whether the individual peer had a crime conviction before childbirth (left, 17.6%) or whether the individual had lived on the same street or attended the same school as the focal individual the year prior to conception (right, 1.6%), and variable Z interacted with gender of child (boy=1). Standard errors appear in parentheses below coefficients and are clustered by level of the father in the main sample. Estimation is performed on level of individual, thus weighted by number of 14-25 year old males in each neighborhood.

Source: Own calculations based on data from Statistics Denmark

Figure A4: Accumulated Number of Crime convictions year 1-5 by crime index



Note: Figure shows local polynomial smooth of accumulated number of crime convictions from childbirth and the following five years across the estimated crime index for main sample of fathers; by gender of child.

Source: Own calculations based on data from Statistics Denmark

Table A7: Accumulated convictions and pre-conception crime propensity

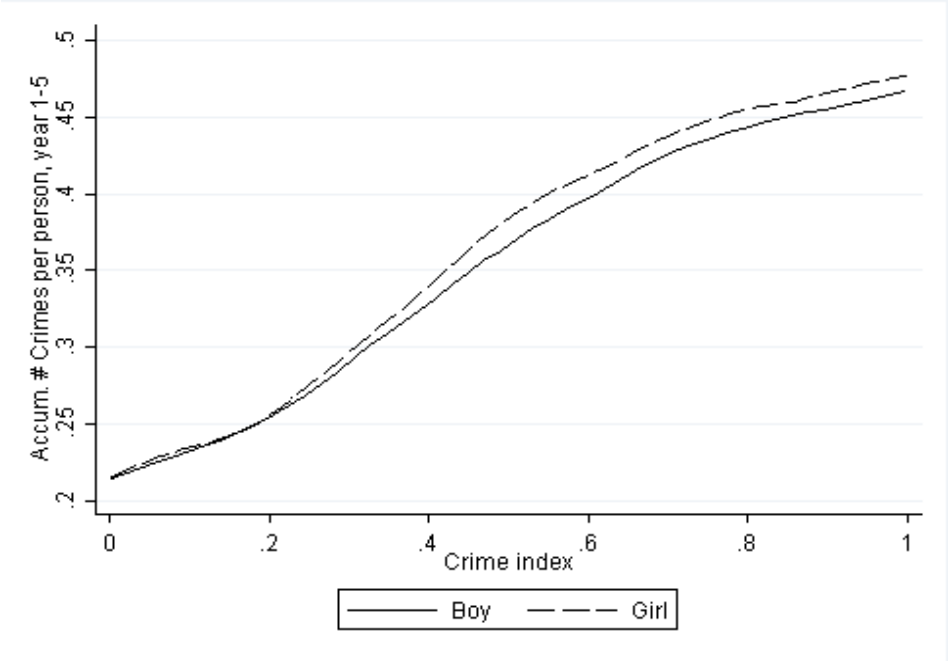
	Panel A: Z=**1**(Crime Index>0.6)				
Accumulated	Year 1	Year 2	Year 3	Year 4	Year 5
Boy	-0.0051	-0.0365	-0.0567	-0.0520	-0.0235
	(0.0257)	(0.0411)	(0.0561)	(0.0712)	(0.0839)
*Boy*Z*	-0.0617	-0.1698***	-0.1876**	-0.1794	-0.2435*
	(0.0408)	(0.0653)	(0.0893)	(0.1134)	(0.1335)
	Panel B: Z=**1**(Crime Conviction before Conception)				
Boy	-0.0123	-0.0340	-0.0641	-0.0627	-0.0400
	(0.0244)	(0.0387)	(0.0527)	(0.0669)	(0.0787)
*Boy*Z*	-0.0473	-0.1982***	-0.1862**	-0.1634	-0.2183
	(0.0419)	(0.0664)	(0.0906)	(0.1149)	(0.1351)
	2,803	2,803	2,803	2,803	2,803

Note: OLS regressions on number of crime convictions on gender of first child (boy=1), a dummy Z, boy*dummy Z. Standard errors appear in parentheses below coefficients. Other covariates (meassured before conception): crime before pregnancy, father's age, mother's age, married/cohabiting, father enrolled in education, fathers' income, mother enrolled in education, mother's income, crime in nearest family.

*: p<0.10; **: p<0.05; ***: p<0.01

Source: Own calculations based on data from Statistics Denmark

Figure A5: Accumulated Number of Crime Convictions years 1-5, male in neighborhood, by father's crime index



Note: Figure shows local polynomial smooth of accumulated number of crime convictions per person from childbirth and the following five years across the estimated crime index for neighborhood sample; by gender of child.
Source: Own calculations based on data from Statistics Denmark

Table A8: Accumulated Number of Crime Convictions, males in the neighborhood, boy vs. girl, interacted with father's criminal propensity

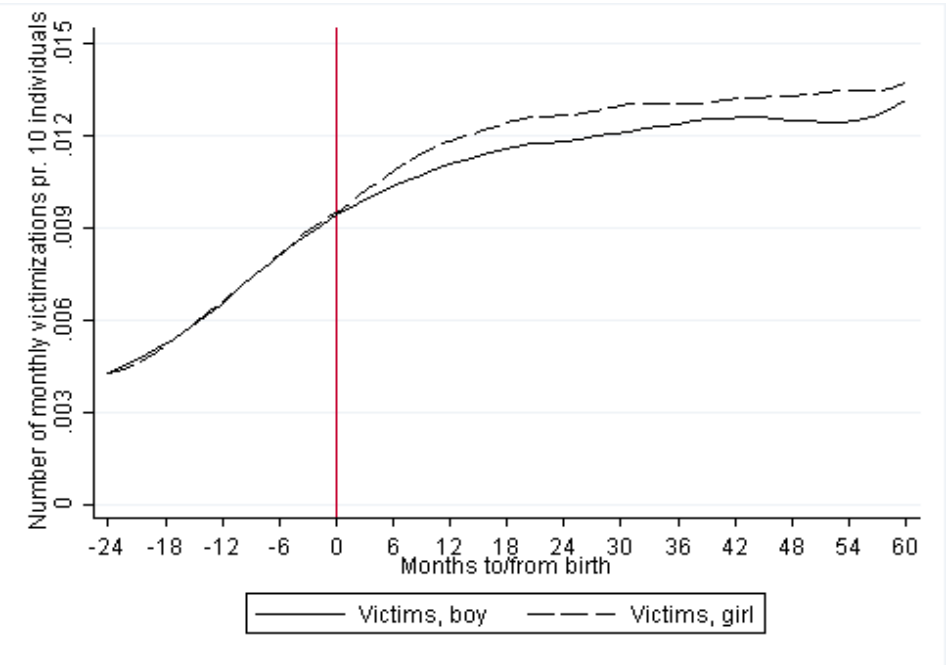
Accumulated, # of crime convictions						
PEERS AGE 14-25		Year 1	Year 2	Year 3	Year 4	Year 5
Crime	*Boy*	0.017	-0.001	-0.019	-0.013	-0.017
		(0.031)	(0.057)	(0.082)	(0.107)	(0.130)
	*Boy*1[crime_index>0.6]*	-0.121**	-0.147	-0.210	-0.263	-0.320
		(0.051)	(0.094)	(0.137)	(0.176)	(0.214)
Property crime	*Boy*	0.005	-0.002	0.001	0.014	0.011
		(0.021)	(0.038)	(0.054)	(0.066)	(0.078)
	*Boy*1[crime_index>0.6]*	-0.057	-0.093	-0.150*	-0.203*	-0.241*
		(0.035)	(0.063)	(0.089)	(0.112)	(0.132)
Violent crime	*Boy*	-0.002	-0.007	-0.014	-0.026	-0.026
		(0.007)	(0.013)	(0.018)	(0.023)	(0.027)
	*Boy*1[crime_index>0.6]*	-0.036***	-0.045**	-0.063**	-0.066*	-0.086**
		(0.012)	(0.020)	(0.027)	(0.034)	(0.040)
Other crime	*Boy*	0.014	0.009	-0.006	-0.001	-0.002
		(0.011)	(0.019)	(0.028)	(0.038)	(0.048)
	*Boy*1[crime_index>0.6]*	-0.029	-0.009	0.003	0.006	0.008
		(0.021)	(0.036)	(0.052)	(0.068)	(0.085)
	Observations	2,554	2,554	2,554	2,554	2,554

Note: Table shows results from OLS regression for neighborhoods within the 5th-95th percentile of neighborhood sizes on number of crime convictions per 10 14-25 year old males (at time of childbirth) in neighborhood the years before/after birth on gender of first child (boy=1) and that variable interacted with father's estimated crime index being larger than 0.6 (as well as the latter variable itself). Coefficients on 'Boy*1[crime index>0.6]' show the additional response to boy vs girl for individuals in neighborhoods where fathers have an estimated crime index>0.6. Regressions are weighted by number of 14-25 year old males in each neighborhood. Standard errors appear in parentheses below coefficients and are clustered by level of neighborhoods.

*: p<0.10; **: p<0.05; ***: p<0.01

Source: Own calculations based on data from Statistics Denmark

Figure 5: Number of Victimisation/10 individuals, Birth of Girl vs Boy



Note: Figure shows monthly # of victimizations per 10 individuals for peers in the focal individuals' neighborhoods before and after birth (0); by gender of child
Source: Own calculations based on data from Statistics Denmark

Table 9: Number of crime victimizations per 10 individuals, boy vs girl

		Year -1	Year 1	Year 2	Year 3	Year 4	Year 5
Crime	Yearly	0.006	-0.003	-0.017**	-0.013*	-0.008	-0.017**
		(0.006)	(0.008)	(0.007)	(0.007)	(0.007)	(0.007)
	Accumulated	0.006	-0.003	-0.020	-0.032*	-0.040*	-0.057**
		(0.006)	(0.008)	(0.013)	(0.017)	(0.022)	(0.027)
Violent crime	Yearly	0.001	-0.006	-0.009**	-0.009**	-0.006	-0.005
		(0.002)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
	Accumulated	0.001	-0.006	-0.015**	-0.024***	-0.029***	-0.034**
		(0.002)	(0.004)	(0.006)	(0.009)	(0.011)	(0.013)
Property crime	Yearly	0.006	0.003	-0.007*	-0.003	-0.003	-0.012***
		(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.005)
	Accumulated	0.006	0.003	-0.004	-0.007	-0.011	-0.023
		(0.004)	(0.004)	(0.007)	(0.010)	(0.013)	(0.016)
Other crime	Yearly	0.000	-0.001	-0.002**	-0.000	-0.000	-0.003**
		(0.000)	(0.002)	(0.001)	(0.001)	(0.001)	(0.001)
	Accumulated	0.000	-0.001	-0.004	-0.004	-0.004	-0.007*
		(0.000)	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)
Observations		662	662	662	662	662	662

Note: Table shows results from OLS regression on probability of crime victimization per 10 individuals (at time of childbirth) in neighborhood the years before/after birth on gender of first child (boy=1). Having a girl is reference category, i.e. the table shows the estimated change from focal individuals having a boy instead of a girl. Standard errors appear in parentheses below coefficients and are clustered by level of the father in the main sample. Estimation is performed on level of each individual, thus weighted by number of individuals in each neighborhood. Sample is censored such that only neighborhoods within the 5th-95th percentile of neighborhood sizes are used.

Source: Own calculations based on data from Statistics Denmark

Table 10: Numer of crime victimizations, boy vs girl, by prior crime/prior contact

		Year 1	Year 2	Year 3	Year 4	Year 5
Crime						
	Boy	0.003	-0.003	-0.004	-0.004	-0.011
		(0.005)	(0.008)	(0.010)	(0.013)	(0.016)
	Boy* prior crime	-0.021	-0.043**	-0.079***	-0.103***	-0.125***
		(0.015)	(0.022)	(0.028)	(0.034)	(0.039)
Violent crime						
	Boy	-0.001	-0.002	-0.003	-0.005	-0.005
		(0.002)	(0.004)	(0.005)	(0.007)	(0.008)
	Boy* prior crime	-0.017	-0.038**	-0.066***	-0.077***	-0.091***
		(0.011)	(0.016)	(0.021)	(0.024)	(0.028)
Property crime						
	Boy	0.004	0.000	0.000	0.001	-0.006
		(0.003)	(0.005)	(0.007)	(0.009)	(0.011)
	Boy* prior crime	-0.008	-0.010	-0.021	-0.031*	-0.036*
		(0.007)	(0.011)	(0.013)	(0.016)	(0.019)
Other crime						
	Boy	-0.002**	-0.003***	-0.004**	-0.004**	-0.005**
		(0.001)	(0.001)	(0.001)	(0.002)	(0.002)
	Boy* prior crime	0.003	0.005	0.007*	0.006*	0.005
		(0.003)	(0.003)	(0.004)	(0.004)	(0.004)
Observations		524,314	524,314	524,314	524,314	524,314

Note: Table shows regression on number of victimizations per 10 individuals in neighborhood in years after birth on gender of first child (boy=1). Conditioning variables: individual peer had a crime conviction before childbirth; individual has lived on the same street or attended the same school as the focal individual. Standard errors appear in parentheses below coefficients and are clustered by level of the father in the main sample. Estimation is performed on level of each individual, thus weighted by number of individuals in each neighborhood. Sample is censored such that only neighborhoods within the 5th-95th percentile of neighborhood sizes are used.
*: p<0.10; **: p<0.05; ***: p<0.01
Source: Own calculations based on data from Statistics Denmark