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THE EFFECT OF EDUCATION POLICY ON CRIME: AN INTERGENERATIONAL PERSPECTIVE

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ABSTRACT

We study the intergenerational effect of education policy on crime. We use Swedish administrative data that links outcomes across generations with crime records, and we show that the comprehensive school reform, gradually implemented between 1949 and 1962, reduced conviction rates both for the generation directly affected by the reform and for their sons. The reduction in conviction rates occurred in many types of crime. The key mediators of this reduction in child generation are an increase in education and household income and a decrease in crime among their fathers.

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1 Introduction

Policies that increase education can have long-lasting impacts on a number of important life outcomes, including earnings and employment. Several studies show that they can also reduce crime (Lochner and Moretti, 2004; Machin, Marie, and Vujić, 2011), consistent with theoretical predictions by Becker (1981), Freeman (1999) and Lochner (2004), among others.[1] An outstanding question, however, is the extent to which such policies have intergenerational effects, improving standards of living and other outcomes, including crime, which is the focus of this paper.

Sweden, like many other industrialized countries in the postwar period, introduced a comprehensive school reform that was gradually implemented across its municipalities from the late 1940s until its complete roll-out in the early 1960s. The reform increased compulsory schooling and introduced several other changes, including a uniform curriculum and abolishing selection into academic and vocational tracks in 6th grade (at age 12). Meghir and Palme (2005) show that the reform increased schooling and earnings, while Hjalmarsson, Holmlund, and Lindquist (2015) show that the reform caused a reduction in convictions. Putting these results together with the further evidence we present here, it is clear that the reform led to substantial improvements in the exposed generation.

Our focus in this paper is the effect of the reform on participation in crime among the children of those originally exposed. There are several reasons why one may expect such an intergenerational impact. The hypothesis is based on Becker and Tomes (1979) who developed the theory of intergenerational transmission of human capital and on Cunha and Heckman (2007) and Cunha, Heckman, and Schennach (2010) who characterize theoretically and empirically the process of skill formation, which depends on parental skills and investments in their children. Consistent with these ideas, we expect the improved human capital

[1] Examples include Grogger (1998), Gould, Weinberg, and Mustard (2002) Machin and Meghir (2004), Edmark (2006), Williams and Sickles (2002), Freeman (1996), Gallipoli and Fella (2008) and from the literature on criminology and sociology Sabates (2008) and Sabates and Feinstein (2008).

of those directly treated by the reform to lead to better investments in children (Cunha, 2007; **?**) as well as an increased productivity of these investments due to complementarity with parental human capital in the production function for child skills (see Cunha, Heckman, and Schennach, 2010).

Evidence that increased investments, better childhood environments, and early education can improve a broad set of outcomes including health and crime can be found both from randomized intervention studies, such as the Perry pre-school experiment and the Abcederian, (Heckman, Moon, Pinto *et al.*, 2010; Campbell, Conti, Heckman *et al.*, 2014; Schweinhart, Montie, Xiang *et al.*, 2005; Gertler, Heckman, Pinto *et al.*, 2014), as well as observational ones (Cunha and Heckman, 2008; Cunha, Heckman, and Schennach, 2010; Attanasio, Meghir, and Nix, 2020; Currie and Moretti, 2003, among others). In turn, improved child human capital increases the opportunity cost of crime and may reduce crime participation, as we argue based on a simple model in the appendix and as shown empirically by, e.g. Machin and Meghir (2004).

The sociology literature has emphasized role models as a potential transmission channel (Merton, 1938; Coleman, 1988) and Dahl, Kostøl, and Mogstad (2014) provide empirical evidence of intergenerational persistence of disability insurance claims, which can be attributed to the transmission of information and norms. The strong intergenerational correlation in criminality (Hjalmarsson and Lindquist, 2012, 2013) and the decrease in parental crime caused by reform (see Hjalmarsson, Holmlund, and Lindquist, 2015, and here) suggest this channel. Finally, the effects of peers through neighborhoods and schools have been shown to have an impact on child outcomes (Chetty, Hendren, and Katz, 2016; Billings, Deming, and Ross, 2019; Chyn and Katz, 2021); this is an additional channel that we investigate.

For our empirical analysis, we link administrative data on all convictions and prison sentences in Sweden between 1973 and 2010 with educational and demographic information on two generations. Our empirical approach uses difference-in-differences, comparing changes in the crime rate and other outcome variables across cohorts in municipalities that imple-

mented the reforms at different times. Exposure to the reform is based on the municipality of birth of the parent. We conduct detailed robustness analyses, testing for parallel trends and using placebo contrasts to validate the analysis.

The results show a significant decline of 0.8 percentage points in conviction rates among the sons of men exposed to the reform, corresponding to a 3 percent fall in overall crime. The decline is seen in most types of crime, including violence, fraud, and a broad category of miscellaneous offenses ("other"). There is no effect on participation in crime among daughters, but their crime rates are much lower to begin with, leaving less room for improvement.[2] We define treatment in two ways: whether the father was exposed to the reform, or whether the mother was exposed to the reform. We find that the intergenerational transmission was triggered by the father being exposed rather than by the mother. We discuss this in some detail and provide supporting evidence for why this was the case. One factor is that fewer women were below the new compulsory education threshold than men.

We first show that the reform improved key outcomes of human capital among men in the parental generation, including increases in schooling, earnings, cognitive and social skills,[3] better outcomes of the marriage market (measured by the earnings of the spouse), and crucially overall household income. The effects on women exposed to the reform are much more limited, most likely because the proportion of women at the compulsory schooling threshold for the 1945-55 cohorts that we considered was much lower. Their level of education increased, but the effect is smaller than for men. Moreover, unlike men, the income of their household did not increase, they did not move to neighborhoods with lower crime rates, or placed their children in schools with peers less involved in crime. In addition, we find much less scope for a role-model effect from mothers affected by the reform: Unlike fathers, the reform did not cause them to decrease their participation in crime, probably because it was already lower by a factor of almost 4, allowing much less scope for improvement.

After documenting the first-generation effects of the reform, we then show that outcomes

[2]The crime rate for women is less than a quarter of that for men.
[3]See also, Lager, Seblova, Falkstedt *et al.*, 2017

other than crime improved for the children of fathers exposed to the reform. These include significant increases in school GPA and employment and better health for sons, as well as a reduction in welfare dependency for daughters. The results are all consistent with improvements in the parent generation driving growth in the human capital of their children, which in turn led to a reduction in their participation in crime for boys.

We do not observe parental investments in children, which would allow us to measure this link directly. Thus, to strengthen the argument linking improvements in parental outcomes to crime participation in the next generation, we implement a mediation analysis, similar to Heckman, Pinto, and Savelyev (2013). This shows that the most important transmission mechanism is the increase in fathers' education, followed by the decrease in fathers' participation in crime and the increase in household income, which is consistent with results in the literature on child development (Dahl and Lochner, 2012, for example).

The paper is organized as follows. We first provide a brief description of the reform followed by a section on our administrative data, documenting the crime rates, and presenting descriptive evidence on intergenerational associations in crime. Next, we outline the channels through which extended education might affect crime participation in two generations. After that, we present our empirical strategy and show the main results. We then present evidence supporting the mechanisms we hypothesized and implement a mediation analysis. We close with a discussion of the results and the mechanisms underlying them, followed by a concluding summary. The appendix includes a simple model, robustness analyses, and supplementary results.

2 The Comprehensive School Reform

Before the implementation of the comprehensive school reform, the pupils attended a common basic compulsory school (*folkskolan*) until grade 6. After sixth grade, students were selected to continue one or (mainly in urban areas) two years in basic compulsory school or

to attend a three-year junior secondary school (*realskolan*). The selection of students in the two different school tracks was based on their previous grades. The prereform compulsory school was in most cases administered at the municipality level. The junior high school was a prerequisite for the subsequent high school, which, in turn, was required for higher education.

In 1948 a parliamentary school committee proposed a reform that increased compulsory schooling to nine years, abolished tracking, and instituted a new comprehensive school teaching a national curriculum. As a result, compulsory schooling increased by one to two years, depending on the area. The new system only affected schooling after the 6th grade and not before.[4]

Table 1: Timing of Implementation and Municipality Characteristics

Dependent variable: first cohort implemented	(1) All municipalities	(2) Excluding Stockholm
Municipality Population in 1960	0.036	0.083
	(0.039)	(0.074)
Municipality Income level in 1960	-0.072***	-0.074***
	(0.012)	(0.012)
Municipal Tax rate in 1960	-0.654***	-0.662***
	(0.066)	(0.067)
Observations	984	983

Notes: Significance levels *** p<0.01, The dependent variable is the cohort for which the reform was first implemented in the municipality.

The proposed new school system was gradually introduced to the 1,055 Swedish municipalities and parts of city communities from 1949 to 1962 and was implemented for the cohort of students who were in fifth grade at the time or for those who were currently in the first grade, effectively delaying the start of the program.[5] In our analysis, we include people born between 1945 and 1955 and their children. Appendix Figure 1 shows the number of observa-

[4]For further details see Meghir and Palme (2003), Meghir and Palme (2005), Holmlund (2007), Marklund (1980), and Marklund (1981) Similar reforms have been adopted in many other countries, which makes the study of their effects of wide interest. England introduced very similar reforms in the mid-60s and in 1973.

[5]The purpose of gradual implementation was to evaluate the reforms from an administrative perspective (National School Board, 1959; Marklund, 1981).

tions in our sample in each year's birth cohort and the proportion of the parent generation assigned to the reform. The rollout was not random and was decided by the government in consultation with the local authority. Based on a regression of the cohort of implementation for each municipality, we find that early implementers had higher income and a higher local tax rate. The size of the municipality population had no effect (Table 1).[6]

3 Data

Our data are taken from the Swedish population census. Using the multigenerational register from Statistics Sweden (2003) we link two generations: the *parent generation* consisting of all individuals born in Sweden between 1945 and 1955 and who as a result attended school during the gradual implementation of the new education system; and their children, called the *children generation*. Information on educational achievement is obtained by linking these data to the education register.

To obtain convictions, which is our measure of crime, we link these data with records from the Swedish National Council for Crime Prevention.[7] This provides all convictions at the individual level, as well as the type of crime and the date it was committed.[8]. Crime records start in 1973 and the gradual transition to the new educational system covers the cohorts born between 1945 and 1955. However, when estimating reform effects on crime for the parent generation, we use data for the 1952-55 cohort, who were 18-21 years old in 1973 when records began. They are followed until 2010 when they are 55-58.

For the child generation, we observe the conviction history from age 15, when legal criminal responsibility begins and convictions start to be recorded. We follow them until age

[6]We do not have crime rates by municipality early enough to check whether implementation was correlated with the crime rate.

[7]Convictions, an important outcome themselves, closely track trends in reported crimes as shown in Appendix Figure 6, indicating that the relationship between crime participation and convictions is stable over time.

[8]There are five types of punishments in the Swedish judicial system: fines, prisons, parole, probation, and special medical treatment. Pecuniary fines that are decided in courts and included in our data are related to the convicted person's income and, in most cases, paid in smaller installments

29, estimating the effects on the most important part of the criminal life cycle. Their fathers may have been born any time in the 1945-55 period of gradual reform implementation since we only need information on the type of school system attended by the parent (and not their crime history).[9]

Table 2 shows the conviction rates in general and by type of crime, conditional on conviction. We categorize crimes into seven types: violent crimes, property crimes, fraud and tax evasion, traffic crimes, drug and trafficking violations, sex crimes, and others, which do not fit the above definitions.[10] Since individuals can have multiple convictions, these columns add up to more than 100.

During the observation period, 34 percent of men in the parent generation have been convicted at some point. Of these, 21 percent have a conviction for a property crime, 18 percent for fraud (including tax evasion), and 33 percent for "other" crimes (defined in the appendix and below). One in five convictions led to a prison sentence. Finally, 58 percent of convictions relate to serious traffic offenses that lead to a court appearance, including drunk driving, causing a serious accident *et cetera*. Minor offenses that lead to a direct fine without a court appearance are not included.

The child generation, shown in the two lower panels, displays a lower, but still substantial, conviction rate of 24 percent (by age 29). The distribution changed somewhat with an increase in the relative importance of property crime. The child generation has half the incarceration rate (conditional on a conviction) over the age range when we observe them. Finally, women in both generations have about a third of the conviction rate of men, with some small changes in the distribution by types of crime.

As we show in the Appendix Figure 2, crime decreases drastically with age, the most relevant window being the adolescent years to about 30. Moreover, crime has fallen quite substantially across cohorts in the generation of children.[11]

[9]For this sample of sons we match education information of paternal grandfathers, used in the X-vector of controls in the regressions, from the education census for 61.5 percent of cases.

[10]Table 10 in the Appendix provides a detailed description of each category.

[11]Additional support for such high conviction rates in Sweden is provided by Hjalmarsson and Lindquist

Table 2: Conviction Rates for the Parent and Child Generations, by Type of Crime

	Percent convicted by crime type conditional on being convicted							
	Total	**Violent**	**Property**	**Fraud**	**Traffic**	**Drugs**	**Other**	**Prison**
			Men in Parent Generation: at least one conviction					
All	33.94	14.97	21.02	18.16	57.96	17.04	33.23	19.65
			Women in Parent Generation: at least one conviction					
All	9.08	5.71	26.94	17.81	45.34	13.71	15.77	5.77
			Sons in Child Generation: at least one conviction					
All (15-29)	23.69	19.23	33.07	12.28	46.03	13.63	31.18	10.26
			Daughters in Child Generation: at least one conviction					
All (15-29)	7.92	8.64	53.17	18.49	17.60	18.49	18.49	1.40

Notes: Table shows proportion ever convicted over the observed age range. Convictions by type are proportions of that type conditional on having been convicted at least once. For the parent generation "All" includes the whole sample of men born 1945-55 ($N = 447,382$). For the child generation: "All (15-29)" includes the whole sample of sons born on or before 1993 ($N = 426,721$). "Other" crimes include defamation, family law, vandalism, hazardous general crimes, crimes against public order, violation of general business, Crimes against national security, misconduct, Environmental law, Alcohol law, Weapon and knife law, Immigration law, Copyright law, Working environment law, visiting rights law - harassment of ex-spouse, etc., privacy and data protection. See Appendix for all crime definitions.

We assign people in the 1945-1955 cohort to the reform based on whether their birth municipality implemented the new system for their cohort, avoiding the potential bias induced by parents moving municipalities as a result of the reform.[12] We then assign people in the child generation to the reform depending on whether their father was assigned.

We complete our description by showing the association between schooling and crime, as well as the intergenerational association of crime rates, in Table 3. All regressions include dummies for the municipality of birth of the father and cohort effects. One year of schooling for men in the parent generation is associated with a decrease in the probability of a conviction of 2.2 percentage points (pp). In the generation of children, an extra year of education for the father is associated with a 0.9pp reduction in crime for sons and 0.21pp for daughters. A similar association is true with respect to mother's education. The strong association with education is also true for prison sentences.

(2012, 2013), Grönqvist (2011) and von Hofer (2014).

[12] We thank Helena Holmlund who provided the matching algorithm - see Holmlund (2007). Based on survey data in which we observe both the birth municipality and the schooling, the discrepancy is only 9.9 percent. 5.3 percent moved to a non-reform municipality and 4.6 percent moved in the other direction. This leads to a potential attenuation factor of 0.901.

Table 3: Education, Crime and Intergenerational Persistence

Panel A: Association between Crime and Education

	Parent Generation				Child Generation			
	Men, $N = 725,723$		Women, $N = 698,029$		Sons, $N = 460,770$		Daughters, $N = 436,004$	
	Convicted	Prison	Convicted	Prison	Convicted	Prison	Convicted	Prison
Own education	-2.181	-0.976	-0.554	-0.092	-	-	-	-
	(0.018)	(0.009)	(0.012)	(0.003)				
Fathers' education	-	-	-	-	-0.944	-0.186	-0.209	-0.012
					(0.024)	(0.008)	(0.015)	(0.002)
Mothers' education	-	-	-	-	-0.837	-0.205	-0.282	-0.012
					(0.026)	(0.010)	(0.017)	(0.002)
$\overline{y}$	33.1%	7.2%	9.7%	0.6%	27.1%	3.4%	8.7%	0.2%

Panel B: Intergenerational Persistence in Crime

	Sons, $N = 488,194$		Daughters $N = 461,461$	
	Convicted	Prison	Convicted	Prison
Father conviction/prison	0.133	0.116	0.046	0.024
	(0.002)	(0.007)	(0.001)	(0.003)
Mother conviction/prison	0.126	0.070	0.075	0.006
	(0.001)	(0.002)	(0.002)	(0.001)
$\overline{y}$	27.1%	3.4%	8.7%	0.2%

Notes: Associations between years of schooling and probabilities of conviction in the child generation scaled by 100, so they are interpreted as percentage points.. Dependent variables for men born 45-55: indicator variables for having ever been convicted or having received a prison sentence between 1973-2010. Dependent variables for sons/daughters: indicator variables for having ever been convicted or having received a prison sentence between ages 15 and 29. Robust standard errors in parentheses clustered by own birth municipality or by father's birth municipality. Includes own birth cohort and birth municipality indicator variables, or father's cohort and father's birth municipality indicator variables.

There is also a strong intergenerational correlation in crime, as illustrated in the lower panel of the same table, although less so for daughters.[13]

4 Intergenerational Transmission of the Reform

The educational reform to which parents were exposed can affect participation in crime by their children through various channels.

The Human Capital Channel. Exposure to the reform improved human capital and earnings in the parental generation, as we show below. As pointed out by Becker and

[13]See Haider and Solon (2006) on the importance of aligning ages when carrying out intergenerational regressions. In our cases, the alignment of the ages only matters when looking at prison sentences, where the alignment increases the coefficient from 6.2 to 9.1.

Tomes (1979), the resulting increase in parental wealth will imply an increase in the demand for child utility by altruistic parents, leading to increased investments in their children's development and improved outcomes (see Cunha and Heckman, 2007; Dahl and Lochner, 2012; Caucutt and Lochner, 2020; Carneiro, García, Salvanes *et al.*, 2021). The effect of these investments will be reinforced if parental human capital is complementary to investments in the production function of child human capital (see Cunha, Heckman, and Schennach, 2010), providing an additional direct route for the transmission of intergenerational skills. This channel should manifest itself through an improvement in the overall human capital of the child, which is what we document in Section 7.

In turn, improved human capital can increase the opportunity cost of crime as the relative return to legal work increases, leading to a decrease in crime participation, as empirically shown by Machin and Meghir (2004). In the Online Appendix Section A.1 we provide a simple model illustrating this intergenerational channel, operating through human capital.

Parent as a Role Model. There is strong intergenerational persistence in participation in crime. Hjalmarsson and Lindquist (2012) shows that sons (daughters) are 2.06 (2.66) more likely to participate in crime if their fathers have been convicted. This association may be attributable in part to unobservables correlated across generations, but there are theories that posit a causal link in parent-child behavior through a role model channel (see, for example, Bethencourt and Kunze, 2022). In terms of empirical results establishing causal links in behavior between generations, Dahl, Kostøl, and Mogstad (2014) show that participation in disability insurance in the parent generation increases the chance of receiving disability insurance in the child generation, given income. A similar argument underlies the mechanisms proposed by Dustmann and Landersø (2021), where young men reduce their participation in crime when they father a son because they want to avoid transmitting criminal behavior.

Similar arguments are made in early work in sociology by Merton (1949) on the impor-

tance of role models for career development and human behavior in general and by Coleman (1988), who discusses the relation between the formation of social and human capital.

Neighborhood Effects. The increase in education and household income induced by the exposure of fathers to the reform may have affected both affordability and preference for improved residential neighborhoods and better schools for children, improving the quality of peers. Thus, a third potential mechanism for the intergenerational effect of the reform on crime is neighborhood and school choice.

As implied by models of social interactions (Manski, 1993; Brock and Durlauf, 2001; Glaeser, Sacerdote, and Scheinkman, 1996), moving to better neighborhoods with lower crime rates and schools with better peers could lead to a decrease in crime because children are exposed to peers who are less involved in illegal activities. Studies have provided evidence of a causal link between neighborhood quality and child development, with implications for participation in crime (Chetty, Friedman, Hendren *et al.*, 2018; Ye, 2024).

In an overview article on neighborhood effects, Chyn and Katz (2021) conclude that higher quality schools associated with higher SES neighborhoods affect risky behavior, such as teenage pregnancies and criminality (Hastings and Weinstein, 2008; Deming, 2011; Dobbie and Fryer Jr, 2015), and exposure to crime in the neighborhood or among school mates during childhood increases the probability of participating in crime later (Damm and Dustmann, 2014; Billings, Deming, and Ross, 2019).

5 Empirical Strategy

Our main outcome variable is the overall conviction rate, which we also break down by type of crime. For the parent generation, individuals are aged 18-65 and for the child generation 15-29. Since we observe convictions rather than offending, a key assumption for interpreting our results is that the reform did not affect the relationship between the two.

The reform was not randomized, so we control for possible differences between the treat-

ment and comparison groups using difference-in-differences. We compare the change in convictions between cohorts in municipalities that implemented the reform for the younger cohort but not the older one to the change in convictions across the same cohorts living in municipalities where they were not affected by the change in policy.

There are more than 1,000 municipalities and 11 cohorts, making a probit or a logit with fixed effects impractical. Thus, we estimate the impacts using OLS in the linear probability model (LPM).[14] For all results we present below, we use the regression.

$$y_{i,m,t} = \alpha + \beta_1 R_{i,m,t} + \gamma_1' t_i + \gamma_2' m_i + \gamma_3' X_{it} + \epsilon_{i,m,t}, \tag{1}$$

where i denotes individual, m municipality and t cohort; $y_{i,m,t}$ is one if a conviction is observed and zero otherwise; $R_{i,m,t}$ is the reform indicator, which equals one if the individual belongs to a municipality and cohort that has been assigned to the new school system; t_i and m_i are indicators denoting the cohort and the birth municipality of the individual; X_{it} is the grandfather's education, which we include to improve precision since there is such a strong intergenerational association between education and crime. Finally, $\epsilon_{i,m,t}$ is assumed conditionally independent of $R_{i,m,t}$.[15] All standard errors are clustered at the level of the municipality of the parent generation. Following the discussion of our main results we present a set of robustness checks, with details in the appendix.

5.1 Definition of Treatment

For the parent generation (which is the one directly treated), treatment is defined as having been born in a municipality where the birth cohort of the individual concerned attended the reformed school system. Hence, impacts are interpreted as an intention to treat effect, be-

[14] To check whether using an LPM biases the results we ran a Monte Carlo experiment replicating the crime rates across municipalities and imposing an average effect of the reform equal to what we obtain. Assuming the data were generated by a normal probability model (probit), then using an LPM only biased the results upward by 5 percent with respect to the true average effect - a difference that is statistically indistinguishable in our data.

[15] The general assumptions underlying the method of Difference in Differences are discussed in Heckman and Robb (1985), Heckman, Ichimura, Smith *et al.* (1999) and Athey and Imbens (2006).

cause some people may have moved to a different municipality at the time of their secondary education, although mobility was limited.[16]

For the child generation, the definition of treatment is potentially more complex because either parent could have been treated. Moreover, whether both or only one parent is treated (or indeed none) is endogenous because marital sorting is affected by the reform, as we show in Section 7. We therefore explore two treatments: (1) whether the father was exposed to the reform and (2) whether the mother was exposed to the reform. Most of the results for this second treatment are presented in the online Appendix because we find no intergenerational effects of mothers being exposed to the reform. We discuss below why this is the case and present supporting evidence.

6 Results

6.1 The Reform and Crime in the Child Generation

Table 4 shows the impact of fathers' exposure to the reform on convictions in the *child generation*.[17] The reduction in conviction rates is approximately 0.79 percentage points (pp henceforth) (p-value$<$0.002), which represents a reduction of 3.4 percent.[18] In terms of percentage reduction, this is similar to the decline in crime attributed to the reform among fathers. The incidence of multiple convictions shows a large decrease of 0.43 pp (p-value 0.03), representing a reduction of 5.8 percent. A corresponding table for the effect on crime when the mother was exposed to the reform is provided in Appendix Table 12. This shows that the impact of the mothers' reform exposure on child conviction rates is an order of magnitude smaller and insignificant at any reasonable significance level. Importantly, the difference in the impact of the father being exposed to the reform as opposed to the mother is significant (p value 0.048 for "any" and 0.009 for "multiple"). Hence, the second-generation

[16] See Meghir and Palme (2005).
[17] Detailed results on the parents are presented in the Appendix and discussed below.
[18] The reduction is equally significant if we exclude traffic crimes.

effects are entirely driven by fathers being exposed to the reform, an issue discussed below.

Table 4: Impact of the Reform on Crime in the Child Generation

Men and Women of the child generation born 1960-93, Convictions for ages 15-29.								
	Convictions		Breakdown by type of crime					
	Any†	Multiple††	Violent	Property	Drugs	Traffic	Fraud	Other†††
Men, $N = 410,476$								
Reform	-0.791***	-0.428**	-0.265*	-0.026	0.102	-0.446*	-0.223*	-0.408**
	(0.253) [0.0018]	(0.196) [0.019]	(0.117) [0.09]	(0.154) [>0.5]	(0.109) [>0.5]	(0.173) [0.057]	(0.096) [0.090]	(0.152) [0.047]
Mean of dep var, %	23.54	7.34	4.49	7.74	3.18	10.8	7.024	7.32
Women, $N = 388,135$								
Reform	0.156	0.004	0.091	0.111	0.004	0.108	-0.049	-0.129*
	(0.158) [0.32]	(0.072) [>0.5]	(0.049) [0.36]	(0.119) [>0.5]	(0.044) [>0.5]	(0.075) [0.40]	(0.073) [>0.5]	(0.047) [0.052]
Mean of dep var, %	7.92	1.51	0.68	4.21	0.77	1.39	1.46	0.83

Notes: Results are percentage points. †**Any convictions**: having ever been convicted. ††**Multiple Convictions**: two or more convictions at different times. †††**Other** see footnote 20. Appendix Table 10 gives all crime definitions. For the types of crime the counterfactual is "not that crime", whether that is no conviction or some other conviction. The **sample** are sons and daughters of men born 1945-55 who are fully observed from age 15-29. All regressions include a full set of father's birth municipality, father's birth cohort indicator variables, and grandfather's education levels. **Robust standard errors**, clustered by municipality of father's birth ($N = 981$), in parentheses; ***p*-values** in square brackets. In columns 3-8, these are **adjusted for multiple testing** for 6 hypotheses using the Romano and Wolf (2005) stepdown approach. *, ** and ***: p-value <0.1, <0.05 and < 0.01 respectively reflecting the p-values given in the square brackets.

Next, we break down the overall conviction rate into six types of crime reported in Table 2. To adjust for multiple testing, we report stepdown p-values as proposed by Romano and Wolf (2005) (RW).[19] The decline is present and significant across the board, with the exception of "Property" and "Drug" related crimes. Specifically, "Violent" crime declined by 0.27 pp (RW p-value 0.09), "Traffic" related crimes by 0.45pp (RW p-value 0.057) "Fraud" by 0.22pp (RW p-value 0.09) and "Other" by 0.41pp (RW p-value 0.047).[20] The percentage reductions relative to the mean incidence of these four types of crime are similar and lie between three and six percent. The 95 percent confidence intervals for "Property" and

[19] In each case the outcome is one if a conviction for that type of crime took place and zero in all other cases.

[20] **Other** crimes includes defamation, family law, vandalism, hazardous general crimes, crimes against public order, violation of general business, Crimes against national security, misconduct, Environmental law, Alcohol law, Weapon and knife law, Immigration law, Copyright law, Working environment law, visiting rights law - harassment of ex-spouse etc., privacy and data protection.

"Drugs" do not exclude an equivalent drop. Finally, it is worth pointing out that, on the basis of conventional single-hypotheses testing, all effects are highly significant, other than property crimes and drug-related crimes.

For women in the child generation, the impacts are much smaller, which is not surprising given that their baseline crime rates are almost a quarter of those of men. However, even here we see a reduction in the category "other crime" by 0.129pp representing a 15.5 percent reduction, with a RW stepdown p-value of 0.052 (and a conventional single hypothesis p value of 0.006).

Finally, we also estimate the effect of parental exposure to the reform on prison sentences but find a very small and insignificant effect for sons of fathers exposed to the reform (-0.015 pp, st. error 0.093).[21] Prison in Sweden is reserved for the more serious cases. As we documented in Table 2, only 10.26% of the convictions for men and 1.40% for women carry a prison sentence in the child generation.[22] An interpretation of this finding is that the reform affected mainly offenses that were not classified as of the most serious nature that merited incarceration.

In summary, exposure of fathers to the educational reform has caused large and significant reductions in the crime rates of their sons. We now discuss the robustness of the results and then present evidence on the mechanisms that have led to these improvements.

6.2 Robustness Checks

The key assumption underlying our empirical approach is that the growth in crime rates between cohorts would have been the same across all municipalities in the absence of the reform. In Appendix section A.4 we present in detail three alternative tests that strongly support this parallel trends assumption. We summarize the conclusions here. First, the impacts are unchanged when including municipality-specific linear trends (p value 0.85) and

[21] There is also no effect on daughters. In the parent generation the effect was also very small: -0.149 percentage points, st. error 0.160

[22] This was higher in the parent generation, where 19.65% of convictions for men and 5.77% for women carried a prison sentence.

the linear trends themselves are not significant (p-value 0.23). This is also true for the parent generation directly exposed to the reform. Second, we carry out Placebo tests and show that the impacts are all indistinguishable from zero unless we use the correct date of the reform in each municipality. Finally, we show graphically that the residuals from the crime regressions are not correlated with municipality-specific trends. All approaches lead to the same conclusion and provide strong support for our empirical approach.

7 Mechanisms

Section 4 identified three interrelated channels through which the impact of the reform could influence criminal behavior in the next generation: the "human capital channel", the "role model channel" and the "neighborhood and peer effect channel". To provide evidence on these channels, we first show that parental and, in particular, fathers' human capital indicators, labor market outcomes, and household income improved. We then show that the indicators of child human capital also improved, consistent with the idea that parents with higher human capital invest more in their children, as illustrated by the model in Appendix Section A.1. We complete the argument by showing that the likelihood that children were raised in lower-crime neighborhoods and schools, which, added to the fact that parental crime also declined, is evidence that children had better role models and peers. Finally, we address the question of why we do not see similar impacts when we consider mothers exposed to the reform.

We finish our discussion with a mediation analysis that allows us to quantify the relative importance of the main factors: parental education, parental participation in crime, and parental household income.

Table 5: Reform Effect on Parent Human Capital Outcomes.

	(1) Fathers	(2) Mothers	p-value (1)-(2), %
Own Education, years	0.319***	0.206***	< 1
	(0.024)	(0.022)	
Spouse's Education, years	0.057	0.093***	51.7
	(0.061)	(0.035)	
Own Log Earnings (%)	0.964**	0.293	18.7
	(0.403)	(0.328)	
Spouse's Earnings (SEK) at age 40	1,022**	1,449**	90.4
	(402)	(559)	
Log Household Income (%)	1.021***	-0.323	< 1
	(0.344)	(0.332)	
Married	0.002	-0.005*	9.9
	(0.003)	(0.003)	
White Collar Worker	0.012***	0.002	1.8
	(0.003)	(0.003)	
Spouse White Collar Worker	0.004	-0.002	23.0
	(0.004)	(0.003)	
Cognitive Skills (prop of STD)	0.144**	-	
	(0.054)		
Non-Cognitive Skills (prop of STD)	0.171***	-	
	(0.077)		

Notes: Standard Errors clustered at the municipality level ($N = 981$). **Spouse's Earnings** is reported in levels to retain the relatively common zero earnings. Baseline earnings for female spouses (relevant to column 1) are 146,560 SEK and for male spouses (relevant to column 2), 248,297 SEK. **log Household income** is ln(mean total income of the parent and their spouse at child age 0 to 5), and reported in percent. **Married** is an indicator for being married to the other biological parent (the mother for fathers and *vice versa*) when the child is 5 years old. **White collar worker** is an indicator variable for white-collar professions (including business owners but excluding farmers) in 1985 or 1990 (whichever is closest to age 40). Cognitive and non-cognitive skills are only available for men through military enlisting.

7.1 Intergenerational Transmission of Human Capital

7.1.1 Reform Effects on Parent Human Capital

The education reform increased educational attainment and earnings as documented for the 1948 and 1953 birth cohorts in (Meghir and Palme, 2005). In this section, we expand the

set of results that reflect human capital and consider the impact on all affected cohorts. We also look at outcomes on the marriage market, since one of the channels for improving home environments is improved matches.

Table 5 shows the estimated effects on human capital outcomes in the parental generation. For men, education increases by 0.32 years (p-value 0), earnings increase by about 1 percent (p-value 0.017), and the probability of becoming a white collar worker also increases by 1.2 percent (p-value 0). This is important because white-collar jobs imply higher income, more stable employment (Medlingsinstitutet, 2023), and better amenities, including more generous income insurance programs, which also affect economic resources throughout the life cycle. There is also a substantial increase in cognitive and non-cognitive skills, measured at military enlistment: 14 percent of a standard deviation (SD) for cognitive (p-value 0.008) and 17 percent of a SD for noncognitive (p-value 0.03).[23] Finally, the marriage market for men exposed to the reform improves, with their spouses earning significantly more (1,022 SEK per year, p-value 0.01). This is consistent with positive assortative matching and an improvement in the prospects of the marriage market of men exposed to the reform, resulting from improved human capital (Chiappori, Costa-Dias, and Meghir, 2018). All this adds up to a highly significant increase in household income for men exposed to the reform by approximately 1 percent (p-value 0.003), which has been shown to improve child outcomes (Dahl and Lochner, 2012; Carneiro, García, Salvanes *et al.*, 2021).[24]

The effects on mothers exposed to the reform are also apparent, but weaker. On the positive side, education increased, albeit by 1/3 less than for men (0.21 of a year, p-value 0), and their marriage market matches improved with their husbands being *slightly* better educated (by 0.093 of a year, p-value 0.008) and earning more (1,449 SEK per year, p-value

[23]On reform effect on cognitive and noncognitive skills, see also Lager, Seblova, Falkstedt *et al.* (2017). The results are restricted to men since the data are obtained from enlistment tests and the compulsory military service only applied to men for the birth cohorts under study. See, e.g. Lindqvist and Westman (2011) for a detailed description of these scores.

[24]If we instead estimate the effect on levels (SEK 2017), the result is similar: point estimate 3,663, se=1,322 for fathers and point estimate 398, se=1,240 for mothers. The mean of the dependent variable is 408,319.

0.01). However, her earnings and income in her household did not increase. Consistently, she did not become more likely to be a white-collar worker. Finally, there is some evidence that she is less likely to be married to the father of her children, when the child is five although the effect is not strongly significant (-0.5 percent p-value 0.1). So, while we see effects on women exposed to the reform, they are certainly muted and do not lead to increased household resources. A factor in this is that prereform compulsory schooling was less binding for women. For the 1945-55 cohorts, the average share at or below the compulsory schooling threshold was 20 percent among men, but only 13 percent among women. The overall average level of education for women was 0.34 years higher than that of men and on a stronger trend: the average growth in education for women for these birth cohorts was 0.56 years, compared to 0.36 years for men (in the untreated municipalities between cohorts 1945 and 1955). In addition, growth stalled to zero for men born after 1949, while rapid growth continued for women for at least another two cohorts.

All these results point to a strong effect of the reform on fathers' human capital and a clear indication that home environments improved and household resources increased for children of exposed fathers, which can lead to higher investments in children. The implication is that child human capital should also increase. We now turn to this.

7.1.2 Intergenerational Effects on Child Human Capital

In panel A of Table 6 we find a 1.2 percentile increase in school GPA (RW p-value 0.05). Schooling itself does not increase and there is no impact on women. Panel B shows significant impacts on men's health with a reduction in hospitalization by 2.4 days (RW p value 0.02), representing a 17 percent reduction, and in prescribed drugs by 31 doses (RW p-value 0.09) representing a 2.8 percent decline. These substantial improvements are consistent with the findings in Campbell, Conti, Heckman *et al.* (2014) showing that the Abcedarian Early Childhood Development Intervention improved adult health.

In Appendix Table 13 we break down the prescription drugs into various categories and

Table 6: Skills, Education, and Health for the Child Generation

	Sons	Daughters
Panel A: *Education*		
GPA‡‡ last year of compulsory schooling (percentile)	0.012**	0.002
	(0.0055), [0.050]	(0.0058), [>0.5]
Years of schooling	0.015	0.019
	(0.012), [0.198]	(0.013), [0.178]
Panel B: *Health*		
Hospitalization, days over 1987-2015	-2.40**	-0.21
	(0.81), [0.02]	(0.78), [>0.5]
Average hospitalization days	14.22	24.04
All prescribed drugs total daily doses over 2006-2015	-30.711*	-7.623
	(14.417), [0.089]	(20.31), [>0.5]
Average doses over the period	1,079.9	2,581.3
	Sons	
Panel C: *Cognitive and noncognitive skills*‡		
IQ, verbal test	0.139†	
	(0.076), [0.396]	
IQ, number series test	0.020	
	(0.066), [>0.5]	
IQ, spatial	0.141	
	(0.105), [0.446]	
IQ, mechanical	-0.001	
	(0.083), [>0.5]	
Noncognitive test	0.0065	
	(0.018), [>0.5]	

Notes: Estimated effects of father's exposure to the reform. Standard errors clustered at the municipality level in round brackets ($N = 981$). Romano Wolf step down p-values adjusting for multiple testing, separately for men and women and for each group (Cognitive and noncognitive skills (5), Education (2), Health (2)) in square brackets. *** significance at 1% ** Significance at 5% and * Significance at 10% all based on the RW p-values. †Significant at 10% with single hypothesis test but not with multiple testing. ‡Cognitive and noncognitive tests are administered to conscripts, who are all male. Here they are measured in standard deviation units. The cognitive tests are IQ-type tests and the noncognitive ones are scores from psychological assessments. No such tests are available for women ‡‡GPA: grade point average awarded centrally.

find that for men the overall reduction is driven by a decline in the use of nervous system drugs (RW p-value 0.055) and specifically painkillers (RW p-value 0.014), pointing to a possible improvement in mental health. For women we also find a reduction in prescribed drugs driven by a decrease in drugs for the respiratory system (p-value 0.012), which could

be pointing to a decline in smoking, and to drugs that have a "calming effect" (RW p-value 0.038), again pointing to improved mental health.

Finally, in Panel C of Table 6 we present the results of cognitive and non-cognitive skills in the generation of children, which are available only for men. Cognitive skills improve by about 14 percent of a standard deviation with a p-value for a single hypothesis test of 0.067, which is consistent with the other improvements. However, based on Romano-Wolf step-down p-values for the entire Panel C, the impact is not significant.[25]

Table 7: Labor Market Outcomes of the Child Generation

	(1) Sons	(2) Daughters
Annual Earnings, SEK	11,494 (6,554), [0.287]	5,240 (4,769), [0.495]
Employment (pp)	2.28** (0.89), [0.040]	1.22 (1.37), [0.960]
Unemployment (pp)	-1.87** (0.72), [0.040]	0.01 (0.83), [0.980]
Welfare receipt (pp)	-2.22 (1.10), [0.190]	-2.57** (1.01), [0.050]

Notes: Estimated effects of father's exposure to the reform. **pp** is percentage points. Data for the period 2000-2010. Fixed effects for *Year*, *Year of birth* (of the father and child) and *Municipality* included in the specification. SEK measured in 2000 prices. SEK 11,494 and SEK 5,240 correspond to 1,546 and 705 2023 US $, respectively. Standard errors are clustered at the municipality level in round brackets (N = 981). Romano Wolf stepdown p-values for four hypotheses for Sons and Daughters separately in square brackets. ** Significance at 5% and based on the RW stepdown p-values.

We now turn to longer-term labor market outcomes for the child generation, measured at 40 years of age and presented in Table 7.[26] We find that men's employment, defined as positive labor income, increased by 2.3 percentage points (RW stepdown p-value 0.04), and unemployment, measured as receipt of unemployment benefits, declined by approximately the same amount (RW p-value 0.04). In the same direction, there is an increase in annual

[25] Lundborg, Nilsson, and Rooth (2014) presents similar evidence for children of cohorts of parents different from ours, including early cohorts, barely affected by the reform.

[26] See Haider and Solon (2006) for a motivation of choice of age group for evaluating labor market outcomes.

post-tax earnings of SEK 11,500 and a decline in welfare dependency. Both are individually significant at the 10% and the 5% levels, respectively, but not when we adjust for multiple testing. For women, only the decline in welfare dependency is significant.

The Human Capital Channel. In summary, exposure of the father to the reform caused a significant improvement in test scores, health, and labor market outcomes of their sons. This establishes that human capital in the generation of children increased as a result of the father's exposure to the reform. In turn, we have argued with our model in the Appendix Section A.1 that this is expected to reduce crime, as we actually documented in Table 4. However, there are further channels to investigate, and we turn to them now.

7.2 Role Models and Peer Effects

Parental Crime and Role Models Parental involvement in crime can encourage similar behavior in their children through a role model channel. We therefore consider a potential causal impact of the reform, running through reduced crime behavior of fathers, which in turn influences children.[27]

In Panel A of the Appendix Table 11 we show the effects of the reform on crime in the *parent generation*. The analysis is carried out for the subset of people born in the period 1952-55 for whom we have criminal records from a young enough age, when most crimes are committed. For these results, we include all adults, regardless of whether they have children. For men, the reform significantly reduced the incidence of having any conviction by 1.5pp, and importantly it also significantly reduced the incidence of repeat convictions by 1.5pp from a lower base, representing a decline of about 8 percent. For women, we find no impacts, but this is not surprising, given that their conviction rate at baseline is about a third of that of men. These results confirm earlier findings of the impact of compulsory schooling reforms on crime in the US (Lochner and Moretti, 2004), in the UK (Machin,

[27]Strong intergenerational associations in criminality have been documented in Table 3 and Hjalmarsson and Lindquist (2012).

Table 8: Estimated Effects of the Reform on Peer Crime Rate.

	(1) Fathers	(2) Mothers
Panel A: Crime rate in neighborhood		
Reform effect (%)	-0.0869**	0.0809*
	(0.0360)	(0.0432)
Constant (conditional mean untreated group, %)	17.08	17.69
Panel B: Crime rate in schools		
Reform effect (%)	-0.0771**	0.0851**
	(0.0333)	(0.0335)
Constant (conditional mean untreated group, %)	16.52	17.28
Number of observations	666,054	465,543

Note: In Panel A, the outcome variable is the crime rate among youth aged 15-20 in the neighborhood (SAMS area) where the family resides when the child is 15. In Panel B, it is the crime rate among same-aged schoolmates of the child, during the year when the child attends 9th grade (age 15). Column 1 shows the effect of having a father exposed to the reform, while column 2 shows the effect of mothers' reform exposure. We use the leave one out for calculating the crime rate of the neighborhood and the school. Clustered standard errors in parentheses ($N = 981$).

Marie, and Vujić, 2011), and in Sweden using the same reform (Hjalmarsson, Holmlund, and Lindquist, 2015) and offer a potential mechanism through the direct influence of parental behavior on children.

We also investigated the impact of the reform on other potential mediators associated with worse child outcomes, including drug and alcohol abuse by the parent (as recorded in hospital registers), as well as on teen births, the number of children, and the age at first birth. These outcomes were not affected by the reform (see Appendix Table 14).

Peer Group and Neighborhood Effects The improved educational and income status of fathers may have affected the residential location and, in turn, the quality of the neighborhood and school and thus the peer group of the children during the formative years of upbringing.

Table 8 shows the results for the two different peer groups (neighborhoods and schools).[28] The sons of fathers affected by the reform are exposed to improved peer groups measured by the youth crime rate in the residential neighborhood and the school of attendance, respectively. This tells us that there was indeed a secondary effect of the school reform in that those treated on average moved to better neighborhoods where their children could attend schools with less criminality.

The picture for the sons of mothers exposed to the reform is different: The estimates point to a higher crime rate in the neighborhoods where the mothers treated by the reform live (p-value 0.06), as well as in the schools their children attend (p-values 0.01).

In Summary, the exposure of fathers to the reform improved the environment in which children were raised in various ways and made fathers better role models for their sons. The fathers were less involved in crime and the probability that they raised their children in better neighborhoods and placed them in schools with a lower rate of youth crime increased. These impacts add to the potential channels through which the educational reform reduced crime in the child generation.

7.3 Exposure to the Reform of Fathers v Mothers: Summing Up

The fact we find no significant effect of mothers being exposed to the reform on their sons' participation in crime may appear surprising, as there is empirical evidence on the importance of intergenerational transmission of human capital from both parents (Black and Devereux, 2011). However, a closer look at the full set of first-generation effects of the education reform reveals important differences between men and women.

It is true that the reform increased women's education and improved their matches in the marriage markets. However, the impacts are muted. Women's earnings did not increase, and women did not become more likely to be white collar workers (Table 5), leading to a zero

[28] We use the leave-one-out means of the conviction rates.

resource effect through the exposure of mothers to the reform, as shown by the null effect on total household income, despite the improved spousal income. Furthermore, on average, the reform did not cause women to move to neighborhoods with a lower crime or place their children in schools where the crime rate is lower; in fact, the opposite is true (Table 8). And, women's crime did not decrease (Appendix Table 11), which is not surprising since their crime rate is a third that of men (Table 2). Finally, there is some evidence of lower rate of marriage to the father of their children, pointing to more of their children being brought up in single-parent households. Thus, the pathways we describe for the impact of the reform on the generation of children through the exposure of the father are muted or totally closed when it comes to the exposure of mothers. They start from a better base (in schooling and crime, for example), and the reform, although it increases their education somewhat, does not improve their position much in most other dimensions, leading to the null effect on their own children.

7.4 Mediation Analysis

We bring together the key mechanisms in a mediation analysis, similar to that of Heckman, Pinto, and Savelyev (2013).[29] This is intended to quantify the channels for the intergenerational links that drive the overall effect. Specifically, we consider three mediators reflecting the resource channel, the role model channel and the direct effect of better educated fathers: family income, measured as average disposable income when the father was between the ages 45 and 49, father participation in crime and father education, respectively.[30] For this analysis, we chose parents born 1952-1955 who have children that we can observe for the entire age range 15-29 (that is, born no later than 1981). The observation period is from 1973 (when the crime records began) to 2010. In this way, we can observe near-complete crime records for fathers (which started in 1973) and crime records for their children in the age

[29] See also Heckman and Pinto (2015)

[30] We did not include indicators of human capital for children because it is an outcome determined simultaneously with participation in crime.

range over which most crimes are committed, while allowing for variability in the exposure to the reform for fathers. This reduces the sample size relative to the earlier analysis.

We start by reporting the impact of the reform on the mediators for this subsample based on the following regression and using our difference-in-difference strategy.

$$M_i^k = \beta^k R_i + \beta_k' X_i + \gamma_1' t_i + \gamma_2' m_i + u_i^k, \quad k = \{\text{crime, education and log household income}\}, \tag{2}$$

where R_i is an indicator that takes the value 1 when the father was exposed to the reform and X includes the education of the grandparents. The t_i and the m_i represent indicators of time and municipality. We then estimate the crime outcome equation:

$$y_i = \delta_0 + \delta_1 R_i + \delta_2 M_i^{education} + \delta_3 M_i^{crime} + \delta_4 M_i^{log\ hh\ income} + \gamma' X_i + \gamma_1' t_i + \gamma_2' m_i + v_i. \tag{3}$$

where y_i is equal to one when a conviction is observed for person i.

The results are presented in Table 9. The impacts of the reform on the mediators for this sample are given in the first three columns. Specifically, the first column shows that the reform increased the number of years of father schooling by about 0.3 years, similar to the results in Table 5, which uses a wider range of cohorts. Column 2 shows that the reform led to a 1.3pp decrease in crime (p -value 0.105), again very similar to that obtained in the whole sample (Table 11), where it is highly significant. Column 3 shows that the reform increased family disposable income by about 1.5 percent (p-value 0.058), which is not significantly different from the 1 percent increase in household income documented in Table 5.

In column 4 we present the impact of the reform for the children of the fathers included in columns 1-3 and obtain an estimate similar to that of Table 4. When we include fathers' education, the direct impact of the reform decreases from -1.1 percentage points (pp) to -0.43pp and is no longer significant (column 5). One year of parental schooling is associated with a 2pp decrease in child crime. Moving to column 6, we see that fathers' participation in crime is associated with a 10pp increase in child participation. Finally, column 7 shows that

Table 9: Mediation Analysis

	Parental Generation			Child Generation				
	Education	Crime	Log Household Income	Crime				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Father's Exposure to School Reform	0.316***	-1.269	1.50*	-1.090**	-0.433	-0.406	-0.562	-
	(0.046)	(0.783)	(0.79)	(0.522)	(0.527)	(0.530)	(0.531)	
Father's years of schooling				-	-2.019***	-1.670***	-1.265***	-1.266***
					(0.052)	(0.0044)	(0.046)	(0.046)
Father's crime				-	-	10.6***	9.0***	9.0***
						(0.236)	(0.243)	(0.241)
Log Household Income				-	-	-	-6.88***	-6.90***
							(0.265)	(0.264)
N	152,662	153,311	149,832	153,311	152,622	152,622	149,346	151,069

Notes: The coefficient in column 1 (education) is in units of years of education. All other coefficients where the dependent variable is binary (0/1) or log income, are multiplied by 100 and should be interpreted as impacts in percentage points. Sample: Men from the 1952-55 cohorts and their children. Those of the parent generation with no children are excluded. For results on the entire sample in the parental generation on educational attainment and household income, see Table 5 and for convictions in the parent generations, see Appendix Table 11. Family disposable income relates to households of fathers aged between 45 and 49, as defined by Statistics Sweden including income from labor, capital and government transfers and net of income taxes. All regressions include controls for grandfather's education, cohort fixed effects, and municipality fixed effects. Standard errors clustered at the municipality level in parentheses ($N = 981$).

there is a significant effect of household disposable income conditional on fathers' reform assignment, educational attainments, and participation in crime.

All three factors have a strong influence on crime in the child generation. To measure the influence of each factor, we take the last column and write out explicitly the way that the reform impacts crime:

$$\text{Total effect} = -1.18 = \underbrace{-0.562}_{\text{Direct}} - \underbrace{1.265 \times 0.316}_{\text{education}} - \underbrace{9 \times 0.01269}_{\text{crime}} - \underbrace{6.88 \times 0.015}_{\text{income}}$$

According to this decomposition, the direct effect accounts for 48 percent of the total effect (0.562/1.18), although this is imprecisely estimated and insignificant. Of the indirect impact through the mediating factors, 64.8 percent is accounted for by the increase in father's education, 18.5 percent by the decline in parental crime, and 16.7 percent by the

increase in household disposable income. Overall, the mediation analysis is consistent with the mechanisms discussed earlier and highlights the importance of the direct human capital channel, proxied here by father's education, the role model effect, and general improvement in household norms, proxied by the participation in crime by the father, and the resource effect, measured by the log of household disposable income.

Although the point estimates indicate a remaining direct impact of the reform, this is not significant, in contrast to the impacts through the key mediating factors. For completeness, we thus present in column 8 results when the direct effect is omitted. The coefficients on the mediators remain unchanged, and they do not account for the total effect of the reform confirming that other unaccounted-for channels may also be in operation.

8 Concluding Remarks

The comprehensive school reform of the 1950s and 1960s in Sweden increased schooling and led to improvements in a broad set of indicators of human capital, as well as reduced participation in crime for those exposed to the reform, particularly men. In this paper, we show that the reform caused a large and highly significant decline in crime among male children of fathers exposed to the reform. This is clearly an important benefit of reform, given the social cost of crime. The decline in crime is consistent with several other positive second-generation effects that we document here, including improved test scores, employment rates, and adult health outcomes, demonstrating that fathers who were exposed to the reform had children with improved developmental outcomes in many dimensions.

We then explored the mechanisms through which the reform led to intergenerational improvements. We identify theoretically three channels: improved resources in the households where children were being brought up, direct effects from having fathers with higher human capital, possibly because of the complementarity of education and child investments, and a role model effect, whereby lower criminal behavior among fathers leads to a better example

for the children. We find strong evidence for all channels: household resources improved, fathers acquired more education and showed improved cognitive and noncognitive skills, were more likely to become white collar workers and less likely to be involved in crime, were more likely to live in neighborhoods with lower youth crime, and moved their children to schools with better peers. All of these are factors that favor the improvement of child development and the reduction of involvement in crime. We summarize these channels through a simple mediation analysis, which demonstrates an important role for father education, father criminal participation, and household resources.

The results point to the potential of well-designed education policies to reduce crime and improve a wide set of outcomes, having far-reaching consequences over generations, as expected from the seminal work of Becker and Tomes (1979).

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A APPENDIX FOR ONLINE PUBLICATION

A.1 Theoretical Background

We consider two channels through which the educational reform could have reduced crime in the subsequent generation: one is through improvements in human capital; the other is through a direct influence of father's criminal behavior on the child.

We start by discussing the human capital channel. We present the chain of events backwards, by showing how an increase in human capital can reduce crime. We then consider the problem of the parent generation and show how the policy reform can lead to an increase in child human capital through increased parental investments. The key ideas draw on Becker and Tomes (1979) and on Cunha, Heckman, and Schennach (2010). To preserve simplicity we use explicit specifications for preferences and the child human capital production function that can reflect key empirical findings from the literature.

A.1.1 Crime in the Child Generation

Denote child human capital by h, which we measure in monetary units, having normalized its price to one, without loss of generality. If a person does not participate in crime they obtain utility $V_h = F(h)$, where $F(h)$, is an increasing and concave function of h. To participate in crime an individual gives up $1-\alpha$ fraction of their lawfully earned income and if they are not caught, earn overall $y^c = \alpha h + r(h)$, where $r(h)$ is income from crime. If caught, they get no return from crime and incur utility cost $g(h)$. The probability of being caught is $p(h)$. The expected utility of crime participation with an uncertain outcome is $\tilde{V}_c = (1-p(h))F[\alpha h + r(h)] + p(h)(F[\alpha h] - g(h)) + e \equiv V_c + e$, where e is a random preference component, known to the individual, and drawn from a logistic distribution with

parameter $\mu > 0$. Hence the probability of crime participation P_c is given by

$$P_c \equiv Pr(e > V_h - V_c) = \frac{1}{1 + e^{\mu(V_h - V_c)}}. \tag{4}$$

In what follows prime denotes a derivative. Then the effect of increased human capital on participation in crime is given by

$$\frac{\partial P_c}{\partial h} = -P_c(1 - P_c)\mu \times$$
$$\left\{F'(h) + p'(h)\left[F^s - (F^f - g)\right] - \left[(1 - p(h))\left[\alpha + r'(h)\right]F^{s\prime} + p(h)[\alpha F^{f\prime} - g']\right]\right\} \tag{5}$$

where $F^s \equiv F[\alpha h + r(h)]$ and $F^f \equiv F[\alpha h] > 0$. A sufficient condition for crime participation to decline with human capital is that the probability of being caught ($p(h)$) remains constant (or indeed increases, $p'(h) \geq 0$) with respect to human capital and that the expected marginal psychic cost of crime is larger than the expected marginal utility of h when participating in crime $p(h)g' \geq (1-p(h))(\alpha + r'(h))F^{s\prime} + p(h)\alpha F^{f\prime}$. This ensures that the expected marginal utility of income from crime declines with human capital.

We now show how improving the human capital of the parent could improve that of the child. This provides the link we require from the original policy, which has been shown empirically to improve parental human capital.

A.1.2 Child Human Capital

Parents are linked to their children altruistically. Parental preferences over their own consumption (c_p) and child human capital (h) are assumed to be

$$V^p(c_p, h) = log(c_p) + \lambda U^k(h), \tag{6}$$

where λ is the altruism parameter and $U^k(h) = E_e max\{V_h, V_c + e\}$ is the expected child utility with respect to the random preference term e and with V_h, V_c defined above. The expectation

is taken with respect to the distribution of child random preferences, e. $V^p(c_p, h)$ is assumed increasing in child human capital, and with sufficient uncertainty on child preferences e it is differentiable in both c_p and h. We simplify the analysis by assuming that parents can only influence child utility by investing in their human capital and not by direct monetary transfers. Since we measure h in monetary units, it effectively represents lifetime income and is equal to lifetime consumption.

The production function of human capital is assumed to be $h = (\gamma_0 + \gamma_1 \varsigma_p)\, \iota_p \equiv \Gamma(\varsigma)\iota_p$ where ι_p are parental investments and ς_p is parental human capital. These may be complements or substitutes in the production of child human capital depending on the sign of γ_1.[31] The production function introduces two separate channels through which parental schooling can affect child skills: through the productivity of investments controlled by γ_1 and through the level of investments, which are a parental choice.

Given the above, parents choose c_p and ι_p to maximize utility, subject to the production function and the budget constraint $c_p + \iota_p = y_p(\varsigma_p)$, where $y_p(\varsigma_p)$ is parental income, which is increasing in human capital ς_p. The solution to the utility maximization problem implies the following investment relationship

$$\iota_p = y_p(\varsigma_p) - \frac{1}{\lambda U^k(h)'(\gamma_0 + \gamma_1 \varsigma_p)} \tag{7}$$

The effect of increasing parental human capital ς_p on parental investments in children is then given by

$$\frac{\partial \iota_p}{\partial \varsigma_p} = \frac{y_p' + \gamma_1 \frac{\lambda}{x^2} U^k(h)'\,(1+R)}{1 - \frac{\lambda}{x^2}\Gamma^2 U^k(h)''} \tag{8}$$

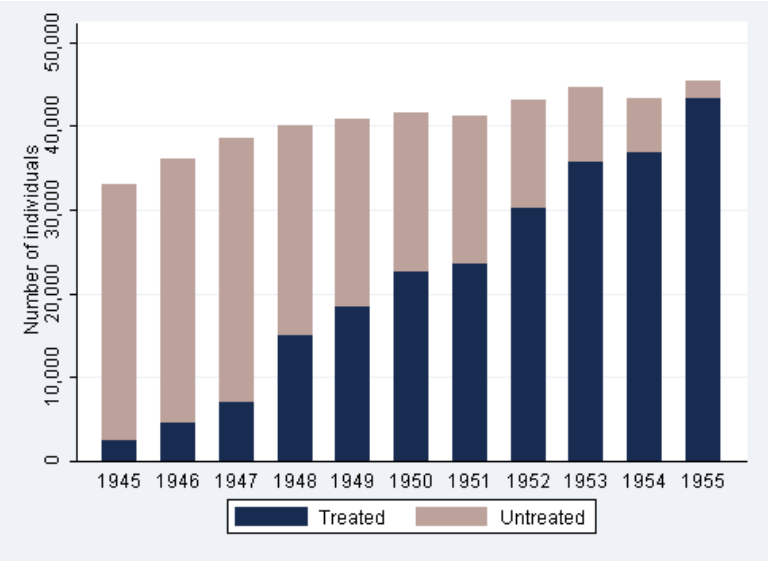
where $R = hU^k(h)''/U^k(h)'$ is the coefficient of relative risk aversion and $x = \lambda U^k(h)'(\gamma_0 + \gamma_1 \varsigma_p)$. The denominator is positive assuming concavity of $U^k(h)$. For $1+R \geq 0$ this expression

[31] We assume throughout that $\gamma_0 + \gamma_1 \varsigma_p \geq 0$. We ignore time inputs for simplicity. They can cause a trade-off between investing time in children and earning more. Still, empirically higher parental human capital is associated with improved human capital for children (**?**).

in positive if parental human capital (ς_p) and child investments are complements in the production function for human capital ($\gamma_1 \geq 0$). If they are substitutes ($\gamma_1 < 0$) the sign of the impact is ambiguous and depends on the return to parental human capital (y'_p). Given the literature on human capital production functions the most empirical relevant case is that of $\gamma_1 \geq 0$.[32] In turn improved investments raise child human capital as shown empirically by both experimental and observational studies.[33] Putting these arguments together, defines one of the channels through which the educational reform in Sweden reduced crime in both the exposed and the child generation.

A.2 Definitions and Implementation of the Reform

Figure 1: Number of individuals in sample assigned to the reform



For each conviction we have detailed information on the type of crime for the main violation within the conviction and the age when it was committed.[34] We categorize crimes

[32] See **?**, and Attanasio, Cattan, Fitzsimons *et al.* (2020) amongst others

[33] See Cunha and Heckman (2008); **?**); Gertler, Heckman, Pinto *et al.* (2014) and Attanasio, Cattan, Fitzsimons *et al.* (2020) amongst others.

[34] Types of crimes are detailed in several variables that specify the chapter, paragraph, moment, piece and point in the section of the relevant penal code (law-book). Details of the types-of-crime variables in the conviction data are in Brå Variabelbeskrivning Lagföringsregistret (2009) and the documentation of coding crime types can be found in Brå Kodning av brott (2010). The crime register also contains information on

Table 10: Description of the different types of crimes included in the study.

Type	Description
Violent Crimes	Crime against Chapter 3 or 4 in the Swedish Criminal Code. Includes murder, assault, battery as well crime against liberty and peace.
Property Crimes	Crime against Chapter 8 in the Swedish Criminal Code. Includes theft and robbery and stealing.
Traffic Crimes	Crime against the Road traffic regulation (The Highway Code in the US). Includes traffic crimes serious enough to lead to a court appearance such as driving under the influence of drink or drugs, causing serious accidents or serious speeding violations. It *excludes* minor traffic offenses, punishable by a fine without a court appearance
Fraud Crimes	Crime against Chapter 9, 10, 11, 14 and 15 in the Swedish Criminal Code. Includes embezzlement, breach of trust, dishonesty against creditors, falsification, tax fraud and perjury.
Other Crimes	Crimes against the following chapters of the Swedish Criminal Code: Chapters 5 (Defamation), 6 (Sexual Crimes), 7 (Crimes against the Family), 12 (Crimes Inflicting Damage), 13 (Crimes Involving Public Danger), 16 (Crime against Public Order), 17 (Crime against Public Activity), 19 (Crime against the Security of the Realm), and 20 (Misuse of Office)

into seven types: violent crimes, property crimes, fraud and tax evasion, traffic crimes, drug and trafficking violations, sex crimes and others containing crimes that cannot be categorized as any of the latter six categories.[35] The traffic crimes need to be serious enough to lead to a court case and do not include speeding and parking offenses. Table 10 shows our categorization.

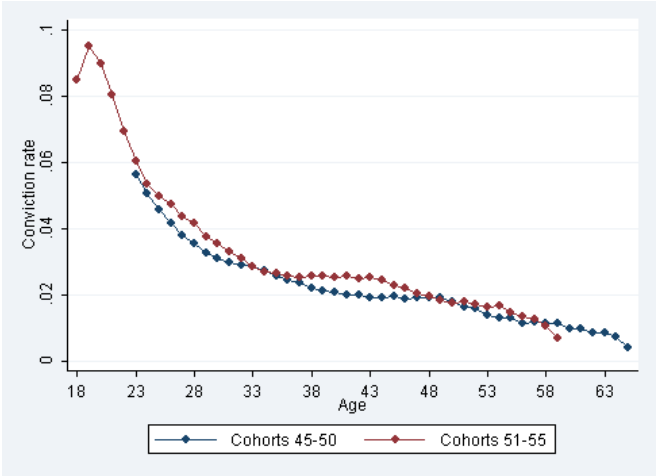
Figure 1 shows the number of observations in our sample in each year birth cohort and the proportion of the parent generation assigned to the reform.

the number of crimes within each individual's conviction, the date of conviction, the age of the offender, as well as the penalty for each crime.

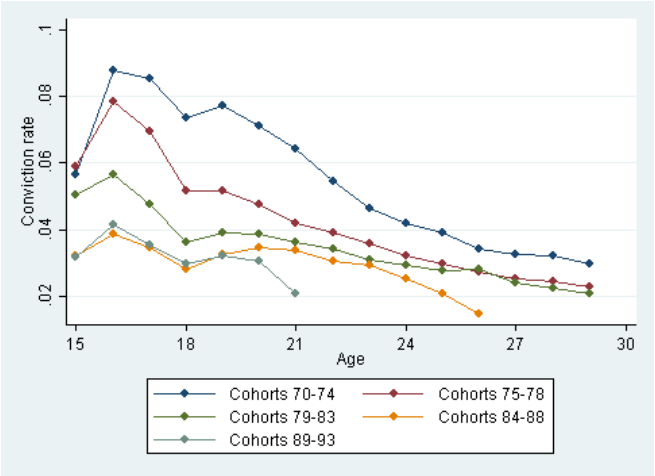
[35]Other crimes include defamation, family law, vandalism, hazardous general crimes, crimes against public order, violation of general business, Crimes against national security, misconduct, Environmental law, Alcohol law, Weapon and knife law, Immigration law, Copyright law, Working environment law, visiting rights law - harassment of ex-spouse etc., privacy and data protection.

Figure 2: Crime age profiles

(a) Age profile of crime rate for the Parent Generation by cohort



(b) Age profile of crime rate for the Child Generation by cohort



A.3 Education and Crime in the Parent Generation

We use the difference-in-differences regression (1) to estimate the impact of the reform on educational attainment for the parent generation for all potentially affected cohorts (1945-55). As in all results we use a reform assignment based on the municipality of birth. The the reform increased years of schooling by of 0.319 for men and 0.206 for women (see Table **??**). Both effects are highly significant and confirm earlier results by Meghir and Palme (2005) obtained on just two of the cohorts (1948 and 1952).

In Table 11 we show the effects of the reform on crime in the parent generation. The analysis is carried out for the subset of people born in the period 1952-55 for whom we have criminal records at a young enough age. Here we include all, whether they have children or not. For men the reform significantly reduced the incidence of having any conviction by 1.5 percentage points (pp) and importantly it also reduced significantly the incidence of repeat convictions by 1.5 percentage points from a lower base, representing a decline of about 8 percent. For women we find no impacts. These results confirm earlier findings of the impact of compulsory schooling reforms on crime in the US (Lochner and Moretti, 2004), in the

UK (Machin, Marie, and Vujić, 2011), and in Sweden using the same reform (Hjalmarsson, Holmlund, and Lindquist, 2015).

Table 11: Impact of the Reform on crime in the parent generation

	Convictions		Breakdown by type of crime					
	Any^{+}	Multiple^{++}	Violent	Property	Drugs	Traffic	Fraud	Other
Men born 52-55, Convicted at age 18-58, $N = 176,232$								
Reform	-1.464	-1.476	-0.364	-0.783	-0.427	-1.391	-0.334	-0.149
	(0.556)	(0.491)	(0.297) [>0.5]	(0.347) [0.12]	(0.294) [0.44]	(0.473) [0.018]	(0.269) [>0.5]	(0.419) [>0.5]
Mean of dep var %	38.62	18.90	6.16	9.37	7.23	22.59	7.02	13.66
Women born 52-55, Convicted at age 18-58, $N = 167,588$								
Reform	0.389	-0.033	0.039	-0.209	0.190	0.414	-0.120	-0.062
	(0.315)	(0.202)	(0.084)	(0.214)	(0.135)	(0.238)	(0.135)	(0.137)
Mean of dep var %	10.22	3.74	0.61	2.80	1.63	4.64	1.92	1.66

Notes: The impact is measured in percentage points and the dependent variable is percent of the population. Sample includes people from the 1952-55 cohorts, whether they have children or not. $^{+}$Any convictions: having ever been convicted. $^{++}$Multiple Convictions: two or more convictions at different times. Results are percentage points. Robust standard errors, clustered by birth municipality, in parentheses; Romano-Wolf step down p-values in square brackets for the six different types of crime. No RW p-values for women since no impact is significant at the individual significance level. All regressions include a full set of birth municipality, birth cohort indicator variables, and father's education levels.

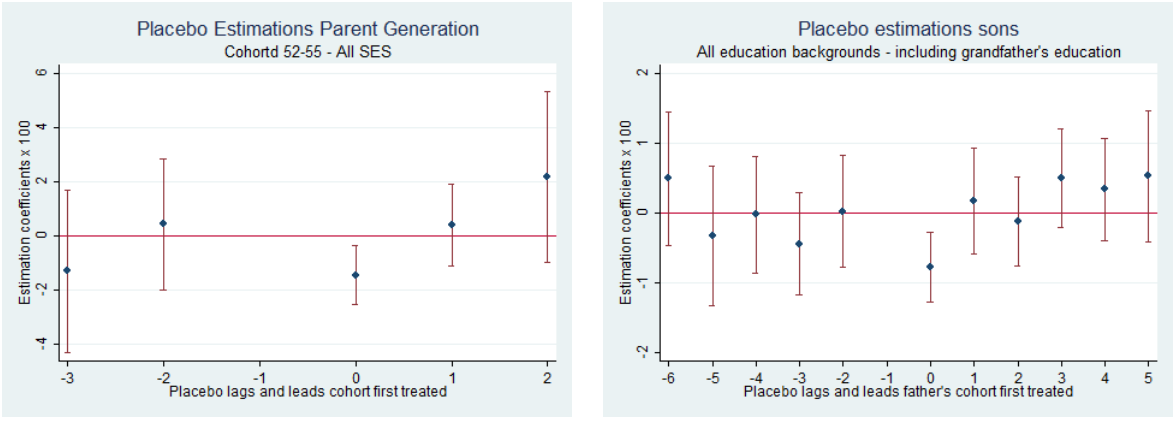
A.4 Robustness Tests: Common Trends Assumption

A key assumption underlying our empirical approach is that cohort effects are common across municipalities. The assumption may be violated if there are changes in the municipalities affecting cohorts in ways that are relevant for crime. We now bring to bear evidence on this issue using three different approaches. First, we repeat our estimation assuming that the reform took place at a different date than it actually did (placebo estimations). Second, we explicitly include municipality specific trends. Third, we plot residuals to show that they do not display a trend. In all the above we group municipalities by the earliest cohort for which they implemented the reform and we look for omitted trends specific to each of these groups.

Placebo Tests For the placebo estimations, where we pretend that the reform was implemented later, we only use the sample of sons whose fathers were treated by the reform. To construct placebo treatment and control groups we then pretend that the reform was implemented successively one year later, two years later, etc. We (falsely) assign the first treated cohort (the first two treated cohorts, the first three treated cohorts, etc.) in each municipality group to be untreated and the remaining ones to the treated group. This provides five placebo estimates.

Similarly, for the placebo estimations where we pretend that the reform was implemented earlier, we restrict the sample to sons whose fathers were not treated by the reform.[36] The placebo treatment groups are defined by (falsely) assigning the two last untreated cohorts (the three last untreated cohorts, the four last untreated cohorts, etc.) to the treated group and the remaining cohorts stay in the comparison group. This provides an additional five placebo estimates.

Figure 3: Placebo estimations sons



The results are all brought together in the right panel of Figure 3. Each dot represents the estimate assuming the reform took place at the specified period on the x-axis (relative to when it actually took place, which is the zero point). The outcome variable is the summary measure

[36] We require at least two treated cohorts and one untreated cohort in each municipality group to implement the estimator. This means that we start our first placebo estimation pretending the reform was implemented two years earlier than it actually was.

of any conviction. The vertical line around the dot represents the 95 percent confidence interval. The graph shows that the largest (in absolute value) and only significant effect is obtained when we use the correct timing for the reform assignment (that is at zero). In all other cases we estimate insignificant effects and no particular pattern shows up implying there is nothing systematic taking place biasing the results towards an effect on crime. Finally, we tested the joint hypothesis that each placebo effect is equal to the true effect. The p-value of this test, which was carried out using the bootstrap, is zero implying that the placebo and the real effects are indeed significantly different.

In the left panel of the Figure we show the results from the corresponding placebo tests for the fathers in the parental generation.

Including Differential Trends For our second approach, the inclusion of heterogeneous trends in the empirical specification, has a p-value of 0.23 for the child generation and 0.69 for the parent generation. Moreover, including them does not change the parameters either: the p-value for parameter equality between the model that allows for heterogeneous trends and the one that does not is 0.854 for the child generation and 0.797 for the parent generation.[37]

Residual Plots Our third approach to evaluate the common trends assumption is to plot residuals to show that they do not display a trend. In Figure 4 we plot the residuals from the difference-in-differences regressions for all convictions for sons (with the estimated average impact added back in). Each point corresponds to an average residual across cohorts in different municipalities grouped by their years to implementation.[38] The straight line on each graph is fitted by weighted least squares across the grouped residuals, with the weight

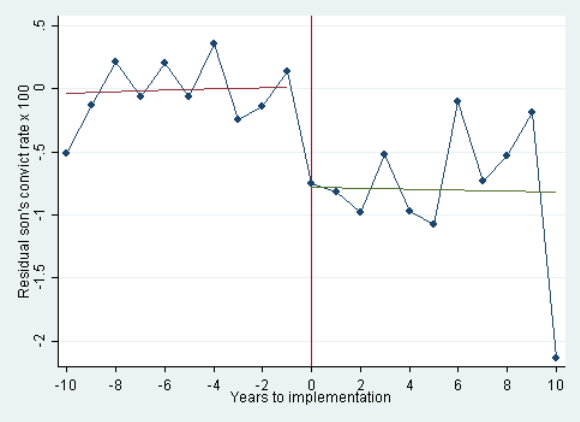
[37] Parameter values with differential trends available upon request.

[38] For example if municipality 1 implemented the reform for the 1948 cohort, this cohort would contribute to the zero point on the graph, the 1947 cohort contributes to -1 and so on. Going forward 1949 would contribute to +1, 1950 to +2 etc. This is repeated for all municipalities by time to implementation. The residuals are then averaged by this time to implementation because presenting these trends one by one is too noisy to be visually informative. Groups closer to zero include many more observations and are thus more precise.

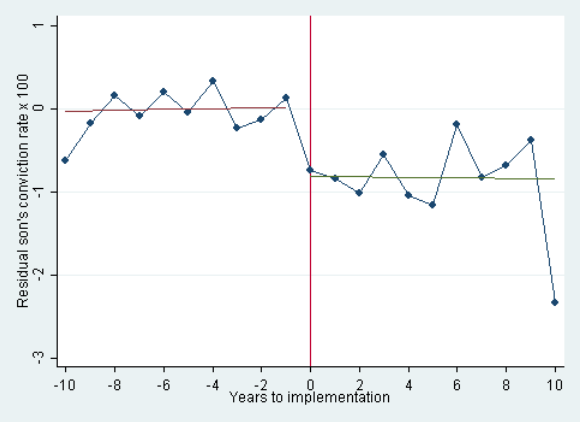
being the inverse of the variance in each group. In Figure 5 we plot the residuals from the same exercise for the type of crimes where the effects were significant.

Figure 4: Residual graph for overall conviction rate for sons

(a) Residual Graph including grandfather's education



(b) Residual Graph excluding grandfather's education

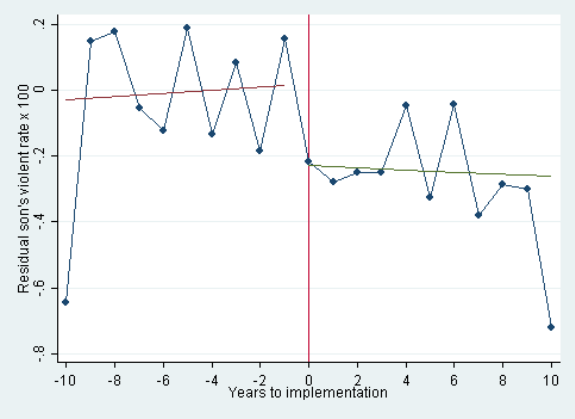


Note: Regression lines fitted to the grouped data using weighted least squares with the weights being the inverse of the variances of each group

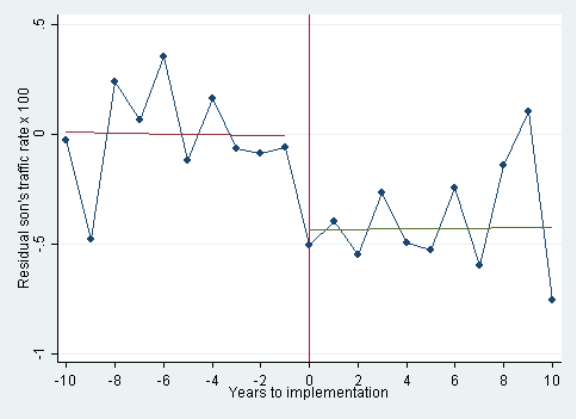
If there are systematic trends related to early or late implementing municipalities these would show up as a trend in these residuals because the composition of municipalities changes as we move along the x-axis to different times to implementation. However, these residuals display no significant trend either for the overall conviction rate or for each type of crime separately. This is true whether we condition on grandfathers education or not. We also tested formally for the null of zero slopes using a bootstrap-based test and the p-values are all above 0.2. Finally, we reach the same conclusion for daughters as well as for the parents - not shown here for brevity. This completes what we view as conclusive evidence that the results we present on the intergenerational impacts of the reform are robust and not a spurious artifact of other events in the data.

Figure 5: Correlation of Residuals with omitted trends

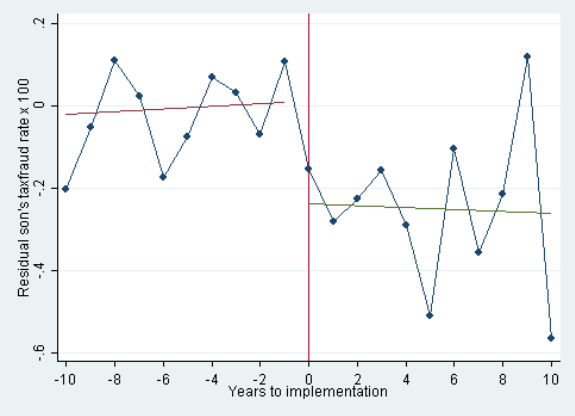
(a) Residual Graph Violent Crimes



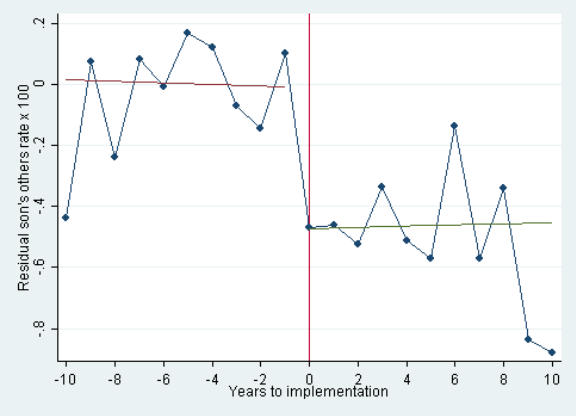
(b) Residual Graph Traffic Crimes



(c) Residual Graph Fraud Crimes



(d) Residual Graph Other Crimes



Note: Regression lines fitted to the grouped data using weighted least squares with the weights being the inverse of the variances of each group

A.5 Additional Results

Table 12: Impact of the Mother's exposed to the Reform on crime in the child generation

Men, $N = 429,114$								
	All	Multiple	Violent	Property	Drugs	Traffic	Fraud	Others
Reform	-0.092	0.232	0.122	0.255	0.023	-0.062	-0.021	0.030
	(0.337)	(0.198)	(0.107)	(0.188)	(0.100)	(0.201)	(0.095)	(0.168)
Men dep var	25.65	10.77	4.63	8.63	3.12	12.29	3.35	8.08
Women, $N = 405,710$								
	All	Multiple	Violent	Property	Drugs	Trafic	Fraud	Others
Reform	-0.067	0.089	0.048	-0.045	0.082	-0.024	0.050	-0.055
	(0.147)	(0.066)	(0.040)	(0.102)	(0.051)	(0.063)	(0.065)	(0.050)
Mean	8.11	1.55	0.63	4.13	0.75	1.63	1.54	0.91

Notes: $^{+}$Any convictions: having ever been convicted. $^{++}$Multiple Convictions: two or more convictions at different times. Results are percentage points. Robust standard errors, clustered by birth municipality, in parentheses; The sample are sons and daughters of women born 1945-55 who are fully observed from age 15-29. All regressions include a full set of mother's birth municipality, mother's birth cohort indicator variables, and grandfather's education levels. For the types of crime the counterfactual is "not that crime", whether that is no conviction or some other conviction.

Table 13: Reform Effects on Prescribed Drugs by Main ATC Code

	(1) Sons	(2) Daughters
Panel A: Breakdown of Prescribed Drugs		
Metabolism	-2.66	2.13
	(4.22) [>0.5]	(3.49) [>0.50])
Average doses over the period	165.5	190.8
Cardiovascular	3.91	1.25
	(4.84) [>0.5]	(3.05) [>0.50]
Average doses over the period	154.7	95.1
Nervous system (N)	-15.592*	-8.617
	(6.41), [0.055]	(8.36), [>0.50]
Average doses over the period	316.6	511.0
Respiratory	-3.79	-11.84**
	(3.71) [>0.5]	(4.38) [0.038]
Average doses over the period	197.9	263.9
Panel B: Breakdown of Nervous System Drugs		
Prescribed drugs, pain killers (N2)	-3.788**	0.261
	(1.35), [0.014]	(2.56), [>0.5]
Average doses over the period	41.8	80.9
Prescribed drugs, calming effect (N5)	-4.690	-10.084**
	(3.55), [0.19]	(3.63), [0.012]
Average doses over the period	96.2	122.9
Prescribed drugs, anti-depressive (N6)	-7.11	1.206
	(3.94), [0.19]	(5.28), [>0.5]
Average doses over the period	178.6	307.2

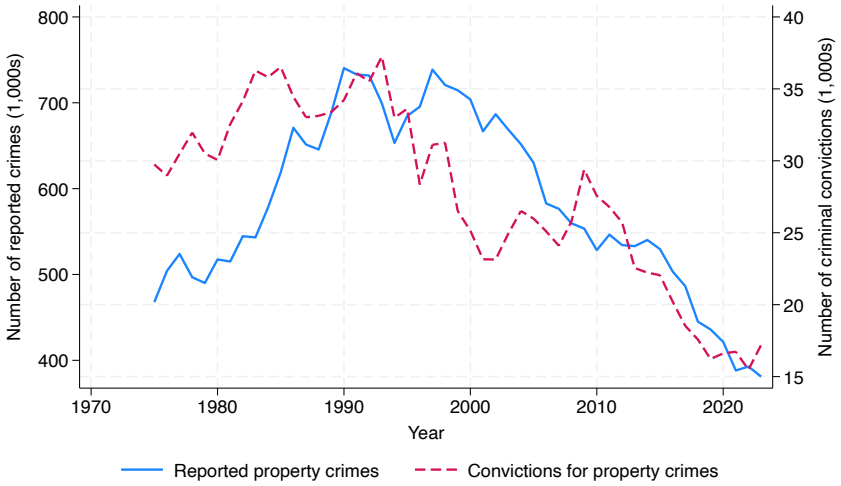
Notes: Standard errors clustered at the municipality level in round brackets. Romano Wolf step down p-values for each group (Cognitive and non-cognitive skills, Education, Health, drugs and breakdown of drugs) in square brackets. IN this men and women are treated separately *** significance at 1% ** Significance at 5% and * Significance at 10% both based on the RW p-values

Table 14: Reform effects on parental role models and parenting quality.

	(1) Fathers	(2) Mothers
Panel A: Parental criminality		
Probability convicted (%)	1.464***	0.389
	(0.556)	(0.315)
Probability multiple convictions (%)	1.476***	-0.033
	(0.491)	(0.202)
Panel B: Diagnoses associated with criminality		
Alcohol-related diagnosis	0.001*	0.000
	(0.001)	(0.001)
Spouse alcohol-related diagnosis	-0.001	-0.001
	(0.001)	(0.001)
Drug-related diagnosis	0.000	-0.000
	(0.001)	(0.001)
Spouse drug-related diagnosis	-0.000	-0.000
	(0.001)	(0.001)
Panel C: Outcomes related to parenting quality		
Child born when teenager (%)	0.096	-0.013
	(0.074)	(0.217)
Number of children	0.008	0.002
	(0.006)	(0.005)
Age at childbirth	0.025	0.011
	(0.034)	(0.037)

Notes: Column 1 shows effects of father exposure to the reform, column 2 shows effects of mother exposure. Outcome variables in Panel B are constructed as having any in-patient hospital visit related to alcohol or drug abuse in years 1987-2013 (child ages 15-20). Standard errors clustered at the municipality level in round brackets. *** significance at 1% ** Significance at 5% and * Significance at 10% both based on the RW p-values

Figure 6: Criminal convictions and reported crimes in Sweden 1973-2023



Note: The figure shows the evolution of reported crimes and court convictions in years 1973-2s023. Blue solid graph: annual number of property crimes reported to the police. Red dashed graph: annual number of criminal convictions for property crimes. Property crimes are chosen for their tendency to be always reported to the police for insurance purposes. Source: BRÅ (National Council for Crime Prevention), Crime Statistics. Date of access: 2025-01-16.