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Risky Moms, Risky Kids?
Fertility and Crime after the Fall of the Wall

Abstract

Following the collapse of the Berlin Wall, the birth rate halved in East Germany. Despite their small sizes, the cohorts conceived during this period of socio-economic turmoil were, as they grew up in reunified Germany, markedly more likely to be arrested than cohorts conceived a few years earlier. This is consistent with negative parental selection during the period of turmoil. We highlight risk attitude as an important selection mechanism, beyond education and other observable characteristics, which explains: (i) why some women did not alter their fertility decisions during these uncertain economic times, (ii) that this risk preference was passed on to their children and (iii) that risk preference is correlated with criminal participation. Maternal selection along risk preference might thus be an important mechanism explaining the greater criminal activity of the children conceived after the fall of the Wall.

JEL-Codes: J130, K420.

Keywords: fertility, crime, parental selection, economic uncertainty, risk attitude.

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1. Introduction

Fertility decisions are affected by changes in the economic environment, which may result in cohorts of different sizes. Additionally, as individuals react differently to environmental stimuli, parents are selected on distinctive margins along the business cycle. The importance and nature of this parental selection on child outcomes is often difficult to identify causally, and to separate from cohort size effects. In this paper we rely on a large socio-economic shock – the fall of the Berlin Wall – to document a large change in the criminal activity of the cohort conceived during a period of economic turmoil in East Germany.

Moreover, we investigate a previously unexplored mechanism that links parental selection and the criminal propensity of children: risk preference. First, we provide novel evidence that a high level of risk preference is correlated with a greater probability of criminal participation, even after conditioning on age and education level. Second, we document how risk preference affects fertility decisions under an uncertain economic environment and third, their strong transmission across generations. These stylized facts put together point to individual risk preference as an important individual trait that could explain why certain cohorts are more involved in criminal activities than others.

The most convincing estimates of the effect of parental selection on child outcomes have come from changes to fertility decisions due to new birth control technology or large shifts in the economic environment. Examples of the first mechanism include the introduction of new contraceptive methods or the legalization of abortion. Both have been associated with substantial improvements in the economic outcomes among future cohorts (e.g. Gruber, Levine and Staiger, 1999 and Bailey, Malkova and McLaren, 2019). Bailey et al. (2019) suggest that up to 1/3rd of the increase in the income of the average child following the legalization of the pill is driven by parental selection. Most relevant to this paper is a series of articles by Donohue and Levitt (2001, 2004, 2008 and 2019) arguing that the legalization of abortion reduced the

crime rate by 20% and was responsible for up to half of the US crime drop observed since the 1990s.[1] Their suggested mechanism is that fewer "unwanted" children – who would have had a greater probability of having negative outcomes due to lack of parental investment – were born. Thus, the resulting cohorts were positively selected i.e., the mean characteristics of parents were better after abortion became legal, which led to better outcomes on average for their children. Similarly, the sudden ban on abortion in Romania in 1966 led to parental selection and had a large effect on children's outcomes, including crime (Pop-Eleches, 2006) but this "appears to be driven by cohort size effects rather than selection or unwantedness effects" (Hjalmarssson et al., 2021). Indeed, separating the parental selection and cohort size effects is challenging when both have similar impacts on child outcomes.

The second part of the literature has relied on the business cycle which, by altering the opportunity costs of having a child and impacting on family income, affects fertility decisions (Becker, 1960). The substitution and income influence parental selection in opposite directions. Dehejia and Lleras-Muney (2004) demonstrate that children born during booms have *positively* selected mothers in terms of education and marital status, resulting in better health outcomes at birth. Similarly, Del Bono, Weber and Winter-Ebmer (2012), and Huttunen and Kellokumpu (2016) show that following plant closures, highly educated women delayed their fertility longer than less educated women.

Rather than relying on business cycle variations, we follow Chevalier and Marie (2017) and exploit a natural experiment that generated severe short-term political and economic uncertainty. Following the fall of the Berlin Wall in November 1989 former East Germany

[1] The validity of Donohue and Levitt's findings on the effect of abortion on crime has been subsequently debated by Cook and Laub (2002), Foote and Goetz (2008) and Joyce (2004, 2009). These concerns were mostly addressed in responses by Donohue and Levitt (2004, 2008 and 2019). Moreover, Ananat et al. (2009) argue that using abortion as an identification strategy is potentially problematic: since abortion reduces the marginal costs of pregnancy, its legalization also increases the number of conceptions, thus while the change in the availability of legal abortion is potentially exogenous, the abortion ratio is not.

transitioned rapidly from a planned economy to a capitalist economy, and experienced a profound economic shock as well as, following German reunification, large financial transfers. Simultaneously it experienced a large drop in fertility, with the crude birth rate plunging by 50% over a three-year period. Since fertility in West Germany was largely unaffected, it provides a control group for a difference-in-differences estimation strategy. Several papers have relied on the German reunification as a natural experiment. [2] While the assumptions behind this identification have been recently questioned by Becker, Mergele and Woessman (2020), our approach differs in some important way since we only compare individuals who grew up in post-reunification Germany, and only differ by having been conceived before or after the fall of the Berlin Wall. Our identification does not rely on cultural dissimilarities between the two parts of Germany, but only that some cohorts were conceived at a time of great economic uncertainty in the East but not in the West, and crucially grew-up in the same country. Chevalier and Marie (2017) demonstrate that children conceived in East Germany after the collapse of the communist regime (the 'Children of the Wall' or CoW) were negatively selected along maternal characteristics, resulting in worse educational outcomes than their peers. This paper differs in important dimensions. First, we provide evidence of another mechanism, so far ignored in the literature, that relates economic shock to parental selection: risk preferences. Second, we demonstrate that risk preference is correlated with criminal activity, providing a direct route by which parental selection along this dimension would result in differences in criminal propensity between cohorts. Note that we investigate the criminal activities several years after the fall of the Wall for cohorts that, for most of their lives, lived in the newly unified Germany. Therefore, we are not capturing the immediate criminal response of moving from a

[2] We are not the first to use German re-unification as a natural experiment to investigate the occupational effect on precautionary (Fuchs-Schündeln and Schündeln, 2005) and household saving (Fuchs-Schündel, 2008), preference for redistribution (Alesina and Fuchs-Schündeln, 2008), consumption behaviour (Bursztyn and Cantoni, 2016) or the economic impact of networks (Burchardi and Hassan, 2013).

communist to a capitalist regime but the effect that the economic uncertainty had, via parental selection, on future crime.[3]

Compared to Donohue and Levitt (2001, 2004, 2008, 2019) we have detailed measures of arrest for specific age-groups by State (Land) rather than an overall crime rate. This allows us to account for unobservable characteristics at the State-level, such as a policing strategy that would affect the probability of arrest at a given period for all age groups We also include State-specific time trends, allowing us to identify separately cohort-specific effects and time effects. We show that for cohorts conceived before the fall of the Wall, the trends in arrest rates are very similar between East and West Germany, confirming the credibility of using West German cohorts as a control group. However, individuals in cohorts conceived in East Germany in the three years following the fall of the Wall are 28% more likely to have been arrested. These effects are observed at all ages (at different points in time), for all crime types and, interestingly, as strongly for women as for men. These results are not sensitive to a battery of robustness checks. Furthermore, in a placebo test we detect no impact for the cohorts born just before the fall of the Wall who were exposed to this socio-economic shock at a very young age but not to parental selection.

We cross-validate these estimates with a survey of teenagers confirming that even after controlling for own educational attainment, CoWs were 40% more likely to self-report having been in contact with the police by age 12 to 14, which suggests that the greater proclivity for criminal activity is not solely driven by lower educational attainment or different household characteristics. Altogether, these results support the argument that the greater criminal participation is driven by parental selection rather than a change in the economic environment in early childhood.

[3] Dusek (2012) for example estimates that the collapse of the communist regime in the Czech Republic was followed to a sharp rise in crime, due to a reduction in policing.

In the second part of the paper, we investigate a plausible mechanism linking fertility decisions of mothers in times of uncertainty and criminal proclivity of children. While a few papers have investigated intergenerational correlation in criminal activity (Hjalmarsson and Lindquist, 2012; Eriksson et al., 2016; Bhuller et al, 2018), the mechanism linking criminal ability between generations has been neglected. Here, we suggest risk preference as a potential factor. Crime is inherently a risky activity, fertility decisions at a time of socio-economic turmoil might also be linked to maternal risk preferences, and risk preferences are transmitted between generations, making risk a plausible mechanism for the greater proclivity of CoW to commit crime.

We use various micro-level evidence to highlight all these channels. First, there are few previous evidence that risk preference correlates with criminal activity[4]. We make use of the newly released SOEP Innovation Panel to document that high preference for risk correlates with having been in contact with the police or justice system over one's lifetime. The effect is non-linear and concentrated at high level of risk preference with high-risk individuals twice more likely to have been in contact with the police over their lifetime.

Second, we show that in periods of high economic uncertainty, mothers are selected along their risk preferences, even after controlling for other important predictors of risk preference, such as age at birth and education level. This mechanism was at play during the period following the fall of the wall resulting in mothers, who gave birth to CoW, being 14% more likely to have a high-risk preference.

Third, risk preferences are correlated between generations [Kimball et al. (2009), Dohmen et al. (2012), Black et al. (2017)]. Of particular interest in the context of fertility decisions taken during periods of high economic uncertainty and criminal activity, is that the correlation in risk preference between parents and children is especially strong at the tails of the risk preference

[4] Agan (2011) and Reyna et al, (2018) provide some evidence that individuals with higher preference for risk are more prone to criminal behavior.

distribution (Charles and Hurst, 2003). Indeed, we find that the intergenerational transmission of risk preference was especially strong for high risk individuals, resulting in CoW being 14 percentage points more likely than their peers to have a risk preference, even after accounting for education, income and maternal characteristics.

Finally, we confirm that this intergenerational transmission of risk preferences is due to parental selection and not due to environmental factors at the time of birth by observing similar increased preference for risk among the *siblings* of the CoW who were not conceived during the high uncertainty period; i.e. the risk preference of children is driven by the risk preference of their mother, not the period of time in which they grew.

Our paper makes three contributions. First, we highlight the central role that risk preferences play in the relationship between economic uncertainty and parental selection. While risk preferences are correlated with some of the observable characteristics related to future child outcomes, maternal age at birth, education, or income, it is a distinct source of parental selection which had been unknown until now. Second, we confirm that risk preferences, especially in the risk-loving tail, are substantially transmitted across generations. Since high risk individuals also have a higher probability of engaging in crime, this selection of mothers along their risk preference in period of economic uncertainty is an important factor in explaining why some cohorts are more crime prone than others. Third, we also contribute to the recent discussion on whether parental selection or cohort size drives the fertility-crime relationship. In our case negative parental selection and small cohort size affect future crime in opposite directions, we confirm that, as originally conjectured by Donohue and Levitt (2001), parental selection, not cohort size, is an important predictor of the future criminality of a cohort.

2. Institutional Background and the Fertility Drop

2.1 East Germany and German re-unification

At the 1945 Potsdam Conference the Allied Forces partitioned Germany into the Soviet Administered Zone which became the German Democratic Republic or "East Germany", and the other three zones that merged into the Federal Republic of Germany or "West Germany". From there on, there was little exchange between the two countries, epitomize by the construction of the Berlin Wall in 1961. On 9th November 1989, following a mis-understanding by a central committee spokesman, the borders between East and West Germany were declared immediately opened, leading to the dismantling of the Berlin Wall and popular calls for reunification, which despite initial denial happened by the 3rd October 1990. Within less than 12 months, East Germany unexpectedly transitioned from communism and isolation from the Western world to capitalism and integration with West Germany. This resulted in a large recession; GDP had dropped by over a third by 1991, grew rapidly between 1992 and 1994 but was still under its initial level in 2000. Unemployment, almost unknown under the communist regime quickly rose above 15% and remained at high level. Moreover, individuals who under the communist regime had little control about most economic decisions had to navigate a new capitalist society. However, this shock transition was softened by the roll out of the generous West German welfare system and large fiscal transfers, which in 1991 and 1992 represented more than 50% of East Germany's GDP. As capital from the West flowed in, productivity and wages rose rapidly. Altogether, despite the recession and high unemployment rate disposable income rose rapidly, reaching 77% of West Germany's level by 1994. Overall, "*the transition brought an immediate increase in both political freedom and living standards, yet also a large rise in economic uncertainty [..]".* (Hunt, 2006a) This uncertainty was perhaps best reflected in two demographic events: within a year, 5% of the East German population migrated west, and the number of births fell by 50%.

2.2 The Fertility Drop

Figure 1 shows the total fertility rate (TFR) between 1980 and 2005 for East and West Germany.[5] In West Germany the TFR remains stable throughout the period. TFR in East Germany had been slowly declining, but from 1990 fell precipitously from 1.57 to 0.78 by 1993. It slowly recovered thereafter to converge to the West German level, in line with the evolution of GDP per capita in East Germany which started to rebound strongly in 1993 (Hunt, 2006a). Between 1948 and 2008, the only time where the difference in the growth rate of fertility differed between East and West Germany (Figure A1) is between 1991 and 1993. We define the East German children born in this period as the Children of the Wall (CoW). They were conceived after the fall of the Wall and during the period of greatest economic uncertainty. The determinants of the fall in birth numbers are extensively discussed in Chevalier and Marie (2017) who conclude that the drop in births is mostly driven by economic uncertainty with a minor effect from migration.[6] Importantly, abortion, the main birth control in East Germany at the time, did not majorly contribute to the fall in birth rate.[7] Fertility decisions appear to have been altered at time of conception; i.e. unlike in the case of the introduction of abortion law in the US, the children born after the fall of the Wall were 'wanted' (Donohue and Levitt (2001). However, Chevalier and Marie (2017) document that mothers who gave birth in this period were younger, less educated, and in less stable relationships. They also document strong selection on characteristics that may be crucial to child development, such as parental investment in educational inputs and emotional relationships with their children. As such, the

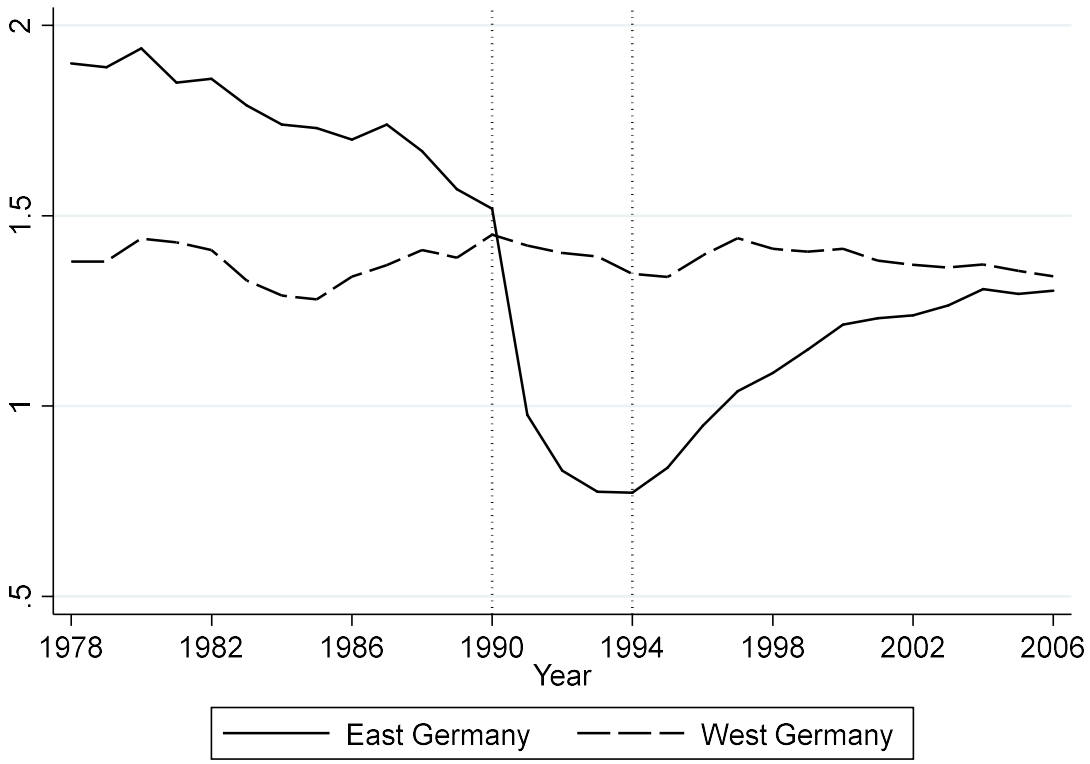
[5] The total fertility rate is the hypothetical number of children for a woman whose fertility is computed as the sum of all age specific fertility rates. $TFR = \sum_{i=15}^{49} ASFR_i$

[6] From November 1989 to December 1990, almost 800,000 East Germans moved to the West. The flow was reduced to about 220,000 in 1991 and 1992. By 1993, the net migration between East and West was below 100,000 (German Federal Statistical Office). While large, this flow could not have generated the drop in fertility observed. Eberstadt (1994) for example estimates that the migration flow is responsible for about 10% of the drop in total births. We show that all our results are robust to taking into account this potential additional migration effect on parental selection.

[7] To test whether this fertility drop is driven by abortion, we regressed the State-level abortion ratio (number of reported abortions per number of live births) on pre-and post-1990 year indicators. Apart from a slightly significant rise in 1991 in East Germany, we otherwise can reject that abortion plays any significant role in explaining the fertility drop observed.

cohort born in the aftermath of the Berlin Wall was not only smaller but also strongly negatively selected.

Figure 1: Total Fertility Rate in East and West Germany from 1978 to 2006



Notes: Authors' own calculations based on administrative population data from the Federal Institute for Population Research (http://www.bib-demografie.de). The two vertical lines define the cohort of "Children of the Wall".

This large local and temporal change in fertility decisions, provides the ideal set-up for investigating the effect of parental selection on child outcomes.

3. Data Sources and Empirical Strategies

The paper is composed of two parts. First, we provide evidence on the greater propensity to commit crime for the CoW cohort. Second, we investigate risk preference as a plausible source of parental selection and as a mechanism to an increased proclivity to engage in crime. The project is thus composed of various datasets which we describe below.

3.1 The Data

3.1.1 State Level Arrest Data

The crime analysis is mostly based on a state level panel of arrest data which was provided by the German Federal Bureau of Investigation (Bunderkriminalamt) for the years 1993 to 2014.[8] For each of the 16 German State the data report the annual number of arrest in the State, by age group. We exclude Berlin, the only State which straddles the old East/West border, and separately identify the 5 Eastern and 10 Western States . Crucially the data is provided for 12 age groups, which allow us to separately identify cohort and time effects, as the CoW are observed in different age groups at different period of time. For each year, we compute an indicator (*PropCoW*) of the proportion of an age-group that is treated (born between 1991 and 1993 in East Germany). This indicator is 0 when the CoW are either too young or too old for the age-group of interest, or living in a Western State. Since most age-groups include two birth cohorts, half of the individuals are considered treated when the CoW cohorts enter it, the full age-group is considered treated in the following two years, and only half treated three years later, as the CoW exit it.[9] The values this indicator takes across years for the different age groups are reported in Table A1. The data is also collected separately by gender and by type of crime, which allows us to test for potential heterogeneous effects.

[8] We are grateful to Daniel Focke from the Bundeskriminalamt (www.bka.de) for providing us with this data. We follow the standard BKA classification, the 2010 Police Crime Statistics Yearbook – List of Offences (http://www.bka.de/nn_195196/SharedDocs/Downloads/EN/Publications/PoliceCrimeStatistics/pks2010ListOfOffenses,templateId=raw,property=publicationFile.pdf/pks2010ListOfOffenses.pdf) to aggregate the more than 400 sub-categories into five broad crime groups which together represent 85% of all arrests: violent and sexual; thefts and burglaries; fraud and forgery; criminal damage, and drug offences.

[9] These proportions do not account for the CoW cohorts being smaller and thus are likely to under-estimate the treatment effect, nor that the criminal propensity differs by age, within an age group. To solve this problem, we weight all regressions by State/year age-group population. This approach is justified by carrying out a Breutsch-Pagan test that detects heteroscedasticity in the residuals of the un-weighted regression, the procedure recommended by Solon, Haider, and Wooldridge (2015) to justify empirically the use of group sample size weights to improve the precision of estimation.

Table A2 of the Appendix reports the average arrest rate of individuals aged 10 to 24 for all crimes between 1993 and 2014, and by sub-category, in East and West German States. It reveals that levels of all crimes, except fraud, are higher in the East, which might be expected given that these States face relatively worse economic conditions (this can be seen in the almost twice higher unemployment rate faced by East Germans during this period, reported in the same table). These level differences in crime rates are not an issue for our identification approach if trends are similar for pre-CoW cohorts, something we carefully document below.

3.1.2 Individual Level Data: German Youth Survey (DJI)

We complement the State level crime panel analysis with the 2003 youth survey of the "Deutsches Jugend Institut", a nationally representative survey of children conducted in 2003[10]. We limit our analysis to the 1,523 children aged 12 to 14 whose births most closely straddle the fall of the Wall (i.e. those born between January 1989 and June 1991, with treatment defined as being conceived post-November 1989 in the East). This dataset is the only individual level data that includes self-reported information on having had "contact with the police". While limited in the scale and quality of its crime measure, the DJI survey has several advantages over the cohort level data. First, CoW are more precisely defined since we know month of birth, not just year. Second, we can control for individual level characteristics that might be correlated with the propensity to commit a crime, such as education and family characteristics. Third, we can deal with selection issues related to migration by keeping children still living in the state of their birth (we do not know the state of birth, only that the child still resides in the state in which she was born).

Descriptive statistics for the DJI survey are provided in Table A3 of the Appendix separately for the children born in East and West Germany. The most notable differences between the two

[10] The DJI data and documentation is available from https://surveys.dji.de/index.php?m=msw,0&sID=46

groups are that East Germans are from slightly smaller families and far less likely to have a non-national parent. There is otherwise little difference about the proportion who are enrolled in the higher secondary track, Gymnasium[11]. Regarding the measure of criminal activity contained in this survey, about 4.5% of children from West Germany in this report ever having contact with the police, while this is 5.1% for East German respondents. Given that the rate of official police contact registered for the age-group 12 to 13 was 5.1% in 2003 (from data presented in previous section), these rates self-reported in the DJI appear very plausible.

3.1.3 Individual Level Data: The German Socio-Economic Panel (SOEP)

To investigate the effect of risk preference on fertility decisions and its transmission across generations we rely on the German Socio-Economic Panel (SOEP), a large longitudinal survey of private households carried out annually in West Germany since 1984, and in the former East Germany since 1990. The SOEP provides retrospective information on location in 1990 to allocate CoW status, so these estimates are not affected by subsequent migration decisions. We use data from 1990 to 2014 comprising more than 50,000 unique individuals. The SOEP includes detailed personal characteristics and extensive questionnaires for all members of the households, including retrospective information when necessary. We focus our analysis on women who gave birth in Germany between 1982 and 1997, and their children.

The main survey is augmented by topic specific modules, in particular focusing on mothers, young adults (aged 17), and risk preferences, from which we extract self-reported risk measures.[12] Since 2004, risk attitude has been measured with the following question "*On scale 1-10, how likely are you to take risks in your life?"*[13]. We observe risk attitude information –

[11] Secondary education tracking occurs at an early age in Germany (between 11 and 12) and being enrolled in what is considered the highest track of secondary school (i.e. Gymnasium) is a good proxy for high future educational outcome.

[12] A detailed description of the dataset is available in Wagner, Frick, and Schupp (2007) and at http://panel.gsoep.de/.

[13] We compute an individual risk preference level by using all answers to this question available in post-2004 waves of the SOEP, then summing and averaging by the number of times an answer was given.

and multiple other individual characteristics, including measures of education – for 5,114 mothers and 5,346 of their children born between 1982 and 1997 in either East or West Germany in the SOEP data. For the analysis we define a *high-risk* indicator equal to one for individuals with risk preference above the group (mother or children) median.

The general risk attitude has been extensively validated and correlates with risky behaviour in the lab and the field (Dohmen et al., 2011). While maternal risk preference is measured after the fall of the Wall, this should still be a good proxy for previous risk preference. Schildberg-Hörisch (2018) concludes her review stating that "Individual risk preferences appear to be persistent and moderately stable over time (p148)", while Dohmen et al (2011) report only a slow linear decline in risk preference with age. The high uncertainty following the transition from communism, could also have directly affected risk preference. However, the literature is inconclusive on how experiencing a large risky event affects risk preference. For example, surviving an earthquake can result in greater risk tolerance (Hanaok et al., 2018) or greater risk aversion (Beine et al., 2020). Kettlewell (2019) note any changes to risk preference following a shock are short-lived. Since our preferred risk measure is based on being in the tail of the risk preference distribution, any change that keeps the ranking of preferences between individuals constant would only marginally affect which individuals are classified as high risk at the margin.

Children's risk preference is measured for the first time at age 17 using the same general risk question. We define similarly high risk individuals as those who have a risk preference higher than the median child. In Figure A2 of the Appendix, we depict the distribution of risk preference for mothers and children, highlighting the rightward shift of the later given the younger age at which, on average, they answer the risk attitude question. As such, high-risk individuals are those with a value of risk greater than 5 at the mother's generation and greater than 6 for the children. Using the same data, Dohmen et al. (2012) shows that risk preferences

are transmitted between generations, with a correlation of 0.14 between generations[14]. Importantly, Charles and Hurst (2003) noted that the "risk transmission is stronger in the tails of the distribution".

In Table A4 of the Appendix, we present basic descriptive statistics of the main SOEP sample we use in our subsequent analysis, separately for the mothers and their children born in East or West Germany. Families are on average slightly smaller in the East and women become mothers for the first time at a younger age. Households are clearly wealthier in the West, despite measures of education levels not differing much across areas for both mothers and their children. Reported risk attitudes are somewhat more different for mothers than for their children, which is perhaps not surprising as (longer) exposure to Communism has been shown to affect preferences (Alesina and Fuchs-Schündeln, 2008). The fact that risk levels are quite similar in East and West Germany however may hide large differences across cohorts, and especially for the Children of the Wall and their mothers.

3.1.4 Risk Preference and Criminal Participation: SOEP Innovation Sample

Since 2009, the SOEP also includes a yearly Innovation Sample, which include a separate smaller independent set of participants (initially 1,531 households), which has been expanded and refreshed regularly (see Zweck and Glemser, 2020 for details). In 2018, the Innovation Sample included, for the very first time in the SOEP, a question linked to potential criminal participation by asking respondents if they had "Ever got into trouble with the police or judiciary". Among the 4,845 respondents to the Innovation Sample in 2018, 13.5% answered positively. Crucially, general risk preference has also been elicited for some of the Innovation Sample participants, using the same measure as for the main SOEP panel survey. This leaves

[14] Black et al. (2017) use variations in financial investment to measure preference for risk, and reports an intergenerational transmission of risk preferences, with the effect being driven by nurture.

us with 2,763 participants for which we have both a measure of risk preference and of criminal activity over their lifetime[15].

Using this unique data, we find that individuals who have ever been arrested score almost 1 full point higher in their willingness to take risk, than those who have not (5.8 for the former compared to 4.9 for the latter). They are also 14 percentage points more likely to be categorized as high-risk individuals: 56 percent have a risk level above the median, compared to only 42 percent for those stating to never having been in trouble with the police. There is almost no documentation of the direct relationship between risk and crime. Agan (2011) is an exception and, using the NLSY, reports that a one standard deviation increase in risk preference is associated with a 1.6 percent increase in the probability of having even been convicted, even after controlling for race, gender, age, family background, or family fixed effects. An important contribution of this paper is thus also to provide more evidence of the risk-crime correlation.

3.2 Empirical Strategy

For all outcomes the identification relies on a differences-in-differences approach which exploits the natural experiment provided by the fall of the Berlin Wall and the subsequent drop in the birth rate in East Germany. We compare the outcomes of children who were conceived in the aftermath of the fall of the Berlin Wall to individuals conceived before (or after 1994 in a few cases). The counterfactual is provided by the non-treated individuals from States in the former West Germany, which enable us to control for common macro shocks and time trends, since by the time we observe outcomes Germany had been reunified.

3.2.1 Cohort Level Analysis – Arrest Rate

[15] This sample of individuals for which we have both risk and crime measures has unfortunately almost no overlap with the main SOEP sample used in the rest of our analysis (different individuals sampled). We thus can only use it to present stylized facts about the link between these two outcomes at the individual level to support or not our cohort level investigation of an existing link between crime preference and criminal participation.

We measure cohort-level criminal participation Y_{ast} as the number of arrestees (A) per 1,000 individuals in a given age-group (a) in State (s) at time (t) of size N, and can be written as:

$$Y_{ast} = \ln\left(A_{ast} / \frac{N_{ast}}{1000} \right)$$

We estimate the natural logarithm of the arrest rate in a differences-in-differences specification where β is the estimate of the criminal propensity of the CoW:

$$Ln(Y_{ast}) = \beta PropCoW_{ast} + \delta Z_{st} + \sum_{t=1}^{T} \gamma_t Yr_t + \sum_{a=1}^{A} \rho_a Age_a + \sum_{s=1}^{S} \alpha_s S_s + \mu_{st} + \varepsilon_{ast} \qquad (1)$$

As previously defined, $PropCoW$ is an interaction between an ex-GDR State indicator and the proportion born between 1991 and 1993 in a specific age-group; it is a measure of the intensity of the treatment, reflecting the fraction of a birth cohort, in a given state, which was conceived in the three years following the fall of the Wall. The estimated coefficient β is interpreted as the elasticity of the arrest rate. *Age, Yr*, and S_s are sets of dummies for age group, year and State were the arrest took place, respectively. We also include a set of time varying State-specific controls (Z) to account for local factors that may impact criminal participation: overall and youth unemployment, proportion of foreign born per age group, and number of police personnel per 1,000 inhabitants. In our favored specification we relax the assumption of common trends between States and instead include state-specific year fixed effects (μ_{st}). ε_{ast} is an error term assumed to be independent and normally distributed across age-groups, States and time. Each cell is weighted by the population size of the age-group, in the State for the year, and standard errors are clustered at the State-year level. We also estimate the model separately by gender and by type of crime and conduct additional robustness checks by i) varying the definition of the treated cohorts and ii) assessing the impact of internal migration.

3.2.2 Individual Level Analysis – Self Reported Police Contact

To assess contact with the police at the individual level, we define treated individuals (*CoW'*) as being born from August 1990 onwards (*born90*), the first cohort to be conceived after the fall of the Wall, and living in one of the East German States. Note, that the DJI allows us to define cohort in a more precise way, those born exactly 9 months after the fall of the wall. Another advantage of the DJI is to include a dummy on whether the respondent currently lives in the state of her birth. While we have no information on the state of birth, this allows us to assess the sensitivity of our results to internal migration by excluding movers in some specifications.

Due to the small sample size and the number of birth cohorts, we use a quadratic in month of birth to control for age effects. Additional controls include gender, number of siblings, whether parents were born in Germany, current State of residence fixed effects (S_i) and own educational achievement, proxied by secondary education track. The observations are weighted so that the sample is representative, and the standard errors are clustered at the year of birth and State of residence level. The base specification is thus:

$$Police_i = \alpha + \beta CoW'_i + \delta Born90_i + \sum \gamma_s S_s + f(MoB_i) + \rho X_i + \varepsilon_i \qquad (2)$$

3.2.3 Individual Level Analysis – Risk Preference

This section provides evidence on three different relationships: i) the correlation between risk and arrest, ii) evidence of maternal selection along the risk preference dimension at the time of the fall of the wall, iii) intergenerational transmission of risk preferences between generations, for the cohorts of individuals born around the fall of the wall.

To assess the correlation between risk preference and crime we estimate the following model:

$$Arrest_i = \beta\, Risk_i + \beta_1 X_i + \varepsilon_i \qquad (3)$$

In the most extensive specification, the set of individual controls include gender, age, education level and state of residency. Note again that the Innovation Sample differs from the SOEP. It is a small representative sample of the population which does not allow us to track the children of the Wall, nor allow us to match children with their parents. The regression is run using a linear probability model for two different measures of risk, overall risk level, and high-risk.

Turning now to the effect of risk preference on maternity decision, and thus potentially highlighting a new mechanism linking parental selection to child's criminal activity we first show that in period of economic uncertainty, the probability of giving birth within the next 12 months depends on risk preference. However, this cannot be shown directly for the cohort of interest since the measures of risk was not available at the time of the fall of the Berlin Wall. Instead, we first show that economic uncertainty has a differential effect on fertility decisions for women with low and high risk preference. Then, following our difference in differences framework we assess whether mothers who conceived after the fall of the Wall were selected along their risk preference ($Risk_i^m$):

$$Risk_i^m = \alpha + \beta CoW_i + \gamma East_i + \theta YoB_i + \rho\, X_i^m + \varepsilon_i \qquad (4)$$

Since the SOEP does not provide information on the month of birth, CoW now takes the value 1 if the mother gave birth in the East between 1991 and 1993 and 0 otherwise. $East$ is a dummy having a child in East Germany, and YoB is a set of year of birth dummies to account for potential cohort effects. X is a vector of individual level characteristics which include total number of children, age, and years of education.

We then assess whether the level of risk preference at the child's generation ($Risk_i^c$) differs between CoW and their peers. Combined with evidence that a higher level of risk preference correlates with a greater propensity to commit crime, and those mothers were selected along their risk preference this would provide a plausible mechanism by which CoW became more

likely to engage in crime. To assess whether the risk preference of CoW, is mechanically driven by their mother's greater preference for risk, we also consider a specification which also directly controls for maternal risk preference ($Risk_i^m$):

$$Risk_i^c = \alpha + \beta CoW_i + \beta_1 Risk_i^m + \gamma East_i + \theta YoB_i + \rho X_i^c + \varepsilon_i \quad (5)$$

Child level controls are gender, number of siblings, years living in single mother household. Importantly, we check the robustness of the estimates to controlling for individual education achievement and family income.

As a final check, we estimate equation (5) where we replace CoW by their older *siblings*, those born in East Germany *before* the fall of the wall who have a sibling born between 1991 and 1993. If the effects are similar for older siblings and CoW, this would suggest that the effect is driven by some fixed characteristic of the family rather than from being born in a period of socio-economic upheaval. All SOEP based regressions are weighted by cohort size to account for the large changes in cohort sizes during the period and standard errors are clustered by state-cohort interactions.[16]

4. Criminal Participation of the 'Children of the Wall'

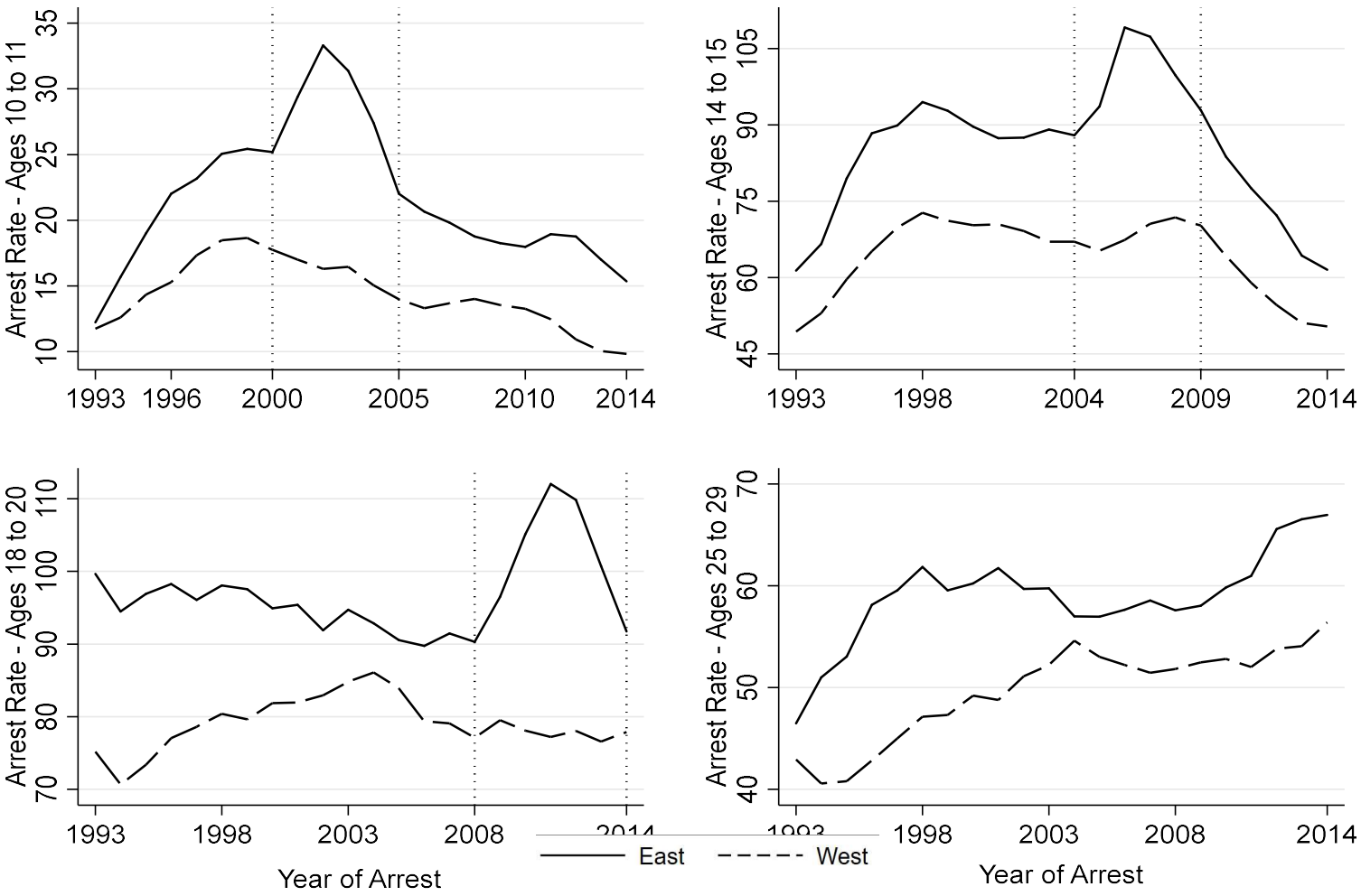
4.1 Graphical Illustration

We first illustrate the evolution of criminal participation from 1993 to 2014 in former East and West Germany using arrest rates for four distinctive age-groups. Figure 2 reports the arrest rates for individuals aged 10 to 11 (top left), aged 14 to 15 (top right), aged 18 to 20 (bottom left) and aged 25 to 29 (bottom right).[17]

[16] Clustering is a crucial issue here since the results from Donohue and Levitt (2001) were criticized by Joyce (2004) and Foote and Goetz (2008) for only being significant because of artificially low standard errors as a result of inappropriately clustering at the state*cohort level rather than just state. The argument is that a wider cluster better accounts for potential correlation between cohorts. Foote and Goetz (2008) indeed show that using state only generates much larger standard errors. Here we tried both State*year of birth and State (as well as East*year of birth) as clusters. The former was constantly giving us larger standard errors. To be conservative we therefore decided to report those throughout.

[17] Similar patterns are observed for the other age groups.

Figure 2: Arrest Rate per 1,000 Population in East and West Germany for Selected Age Groups from 1993 to 2014



Notes: Authors' own calculation from administrative arrest data by age groups at the State level (Federal Criminal Police Office: www.bka.de). Vertical dotted lines indicate the year before and after Children of the Wall (i.e. born East between 1990 and 1993) appear among the age groups presented in each of the graphs.

The plain/dotted lines are for East and West Germany, respectively and the vertical lines mark the year of arrival and departure of the CoW from each specific age-group (i.e. the period in which the proportion of the cohort treated, as reported in Table A1, is positive). Figure 2 clearly illustrates four facts. First, the arrest rate of East German cohorts peaks when the cohorts born between 1991 and 1993 enter an age-group, even at very young ages. When the CoW leave an age group, the East German arrest rate returns to trend. This pattern becomes increasingly pronounced as the cohorts age. Second, all graphs in Figure 2 indicate that youth arrest rates are higher in East German States than in Western ones. This is well documented and perhaps not surprising considering the important differences in relative economic deprivation between the two parts of the country but highlights the importance of including State-specific fixed effects. Third, these graphs provide evidence supporting the common trend hypothesis. For each age-group, the arrests rates have similar evolutions in both regions for pre-treatment cohorts, especially for older age-groups as arrest becomes more common. We additionally test for the significance of a coefficient on differences in pre-trends and find that it is very close to zero and non-significant.[18] Fourth, the increase in arrests observed for the CoW cohort is unlikely to be driven by unobserved time effects like changes in policing activity, since the effect is observed at different dates for the different age-groups but always when the fraction of CoW in an age-group is positive. In our favored specification, we will nonetheless include State-specific time fixed effects to capture the effect of any State specific policy change in a given year.

4.2 Statistical Results

4.2.1 Baseline Crime Results

[18] We do this by regressing an interaction of East and being born before 1991 on arrest rates and this gives us a coefficient of -0.004 with a standard error of 0.007.

Table 4 – Change in Overall Arrest Rates of 'Children of the Wall' Cohorts byAge Groups and Gender

	Dependent Variable = Log (Arrest Rate per 1,000 Pop)				
		All		Men	Women
Proportion of Cohort that are CoW	**(1)**	**(2)**	**(3)**	**(4)**	**(5)**
i – All Age Groups aged 10 and over	0.366***	0.297***	0.329***	0.326***	0.409***
	(0.029)	(0.031)	(0.030)	(0.031)	(0.035)
N = 3,960					
[Mean Arrest Rate]		[52.3]		[78.5]	[23.4]
ii – Aged up to 24 Only	0.351***	0.335***	0.352***	0.344***	0.463***
	(0.022)	(0.031)	(0.030)	(0.030)	(0.039)
N = 2,310					
[Mean Arrest Rate]		[70.4]		[105.7]	[31.2]
iii – Aged 14 to 24 Only	0.273***	0.242***	0.285***	0.312***	0.311***
	(0.018)	(0.025)	(0.021)	(0.024)	(0.023)
N = 1,650					
[Mean Arrest Rate]		[84.7]		[128.6]	[35.6]
Age Group, State, and Year Fixed Effects (FEs)	Yes	Yes	Yes	Yes	Yes
State Time Varying Controls (% Unemp, % Foreigners, # Police)	No	Yes	Yes	Yes	Yes
State Specific Time FEs	No	No	Yes	Yes	Yes

Note: The time varying controls are annual measures of overall unemployment, youth unemployment rates; proportion foreign born by age groups; and number of police officers per 1,000 population. Robust standard error clustered at the State and year level in parenthesis. Mean arrest rate per 1,000 population for respective group in square brackets. Estimates are weighted by population size. ***,**, * denotes p<0.01, p<0.05, and p<0.1, respectively.

Table 4 reports estimates on the elasticity of arrest for various specifications of equation (1). Specification (1) includes age-group, State, and year dummies only; the time varying State controls specified above are added in (2); and (3) adds State-time specific fixed effects, so that we only exploit the variations in the share of CoW between age-group within a State. The last two columns present the results of this most restrictive specification separately by gender. The results are reported for all age-groups aged 10 and over (row (i)), for individuals aged 10 to 24 (row (ii)), since older cohorts do not contribute to the identification of CoW, and finally, excluding children younger than 14, which is the age of criminal responsibility in Germany (row (iii)).[19]

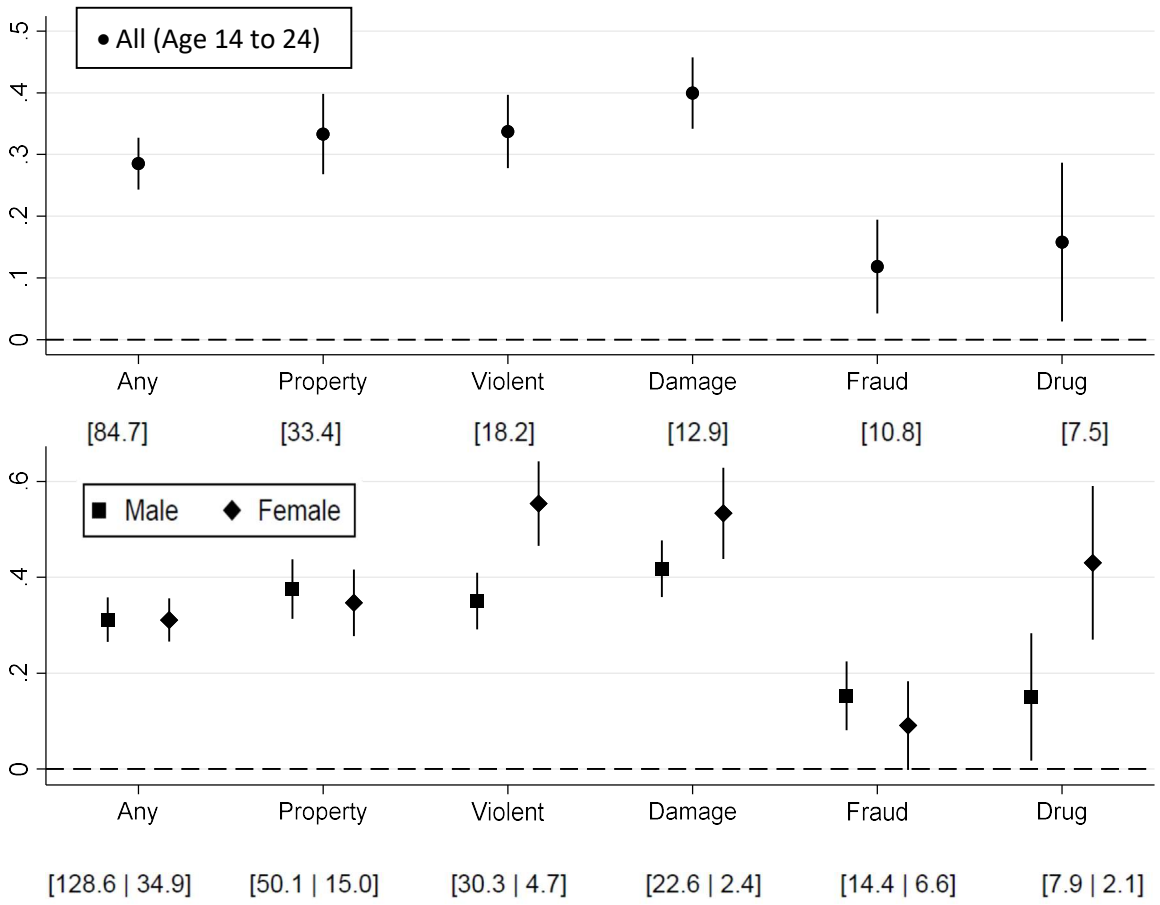
The coefficients represent the elasticities of arrest rate to the fraction of CoW in the cohort. For all specifications and samples, we find that the CoW engaged disproportionally more in criminal activities. Using the most constraining specification and the most restricted sample (i.e. column (3) of row (iii)), we find that the arrest rate for CoW is 28.5% greater than for their older/younger and Western peers. The high criminality of the CoW is consistent with the negative parental selection hypothesis, and despite its small size, the cohort conceived in the aftermath of the fall of the Wall committed a disproportionally high amount of crime. Surprisingly, and maybe because parental selection is a priori identical for boys and girls, the CoW effects on criminal activities are indistinguishable by gender, but from a much lower base level for women.

4.2.2 Results by Crime Category

Could the results be driven by specific police policies? It seems unlikely that police could clearly identify a CoW cohort member compared to somebody born in an adjacent year. Moreover, this targeting would have changed over-time so that the CoW kept on being targeted by the police as they aged.

[19] Note that in Germany, minors between 14 and 18 years of age are charged as juveniles. Minors below 14 are under the age of criminal responsibility and generally not liable to prosecution.

Figure 3: Change in Arrest Rates of 'Children of the Wall' Cohorts by Crime Type and Gender



Notes: The State time varying controls are yearly measures of overall unemployment, youth unemployment rates, proportion foreign born by age groups, and number of police officers per 1,000 population. All regressions include State specific time fixed effects and are weighted by State-age group population size with standard errors clustered at the State-year level (i.e. similar to specification 3 in Table 1). Average baseline arrest rates per 1,000 population in Eastern States when no cohorts are treated are in square brackets [].

Cohort targeting by the police is unlikely, however, the police in East German States might have targeted specific crimes, in which the cohort of interest had also specialized. To test this mechanism, we report the estimates for our preferred specification by crime category for individuals aged 14 to 24, and separately by gender (Figure 3). The numbers in square brackets are the average arrest rates per 1,000 population at base line (East German pre-CoW cohorts) for each crime type and by gender (i.e. [men | women]). We note that for this age group, most arrests are for three crime categories (theft and burglary, violent and sexual offences, and criminal damage), with the first category alone representing almost 50% of the total. Men are on average arrested much more than women (three times more for theft and burglary and nine times more for criminal damage).

We estimate significant positive elasticities of being a CoW on arrest for all types of crime. The smallest effects are for fraud and drug crimes, for which arrest rates increase by 11% and 17% respectively, while for criminal damage the CoW are 40% more likely to be arrested than individuals from a control cohort. For the three main crime categories, arrests increase by 33% to 40% in an age-group including CoW. Moreover, the crime-specific estimates are similar or larger for women than men. The rise of arrest is prevalent across crimes which suggests that our results are unlikely to be driven by police strategies specifically targeting the CoW cohort, or specific crimes that the CoW cohort would have been disproportionally engaged in.

4.2.3 Robustness of Crime Results

Figure 4 report the results from a series of robustness checks using the sample of 14 to 24 years old. The estimates for each regression are displayed as a black circle with a line representing +/- 2 standard errors on either side. To facilitate comparisons, we also report our favored baseline estimate (vertical dashed line) and its confidence interval (vertical dotted lines).

Figure 4: Robustness Checks of Cohort Level Crime Results

Description of Robustness Check Specifications R1-R6
Sample size & mean dependent variable for specification

Main Coefficient = 0.285
and 95% CI = [0.213 to 0.357]

R1- Internal migration: control for of *proportion of potential mothers* moving from East to West (i.e. % migration of fertility age women)
Sample Size = 1,650 and Mean of Dependent Variable = 84.6

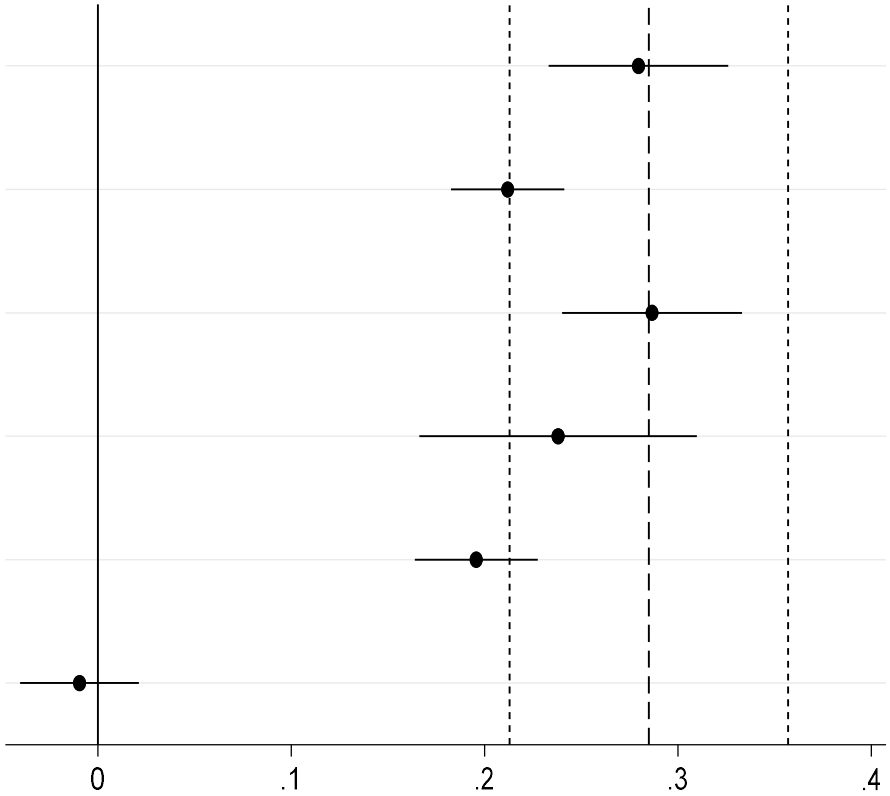
R2- Extending CoW sample to also include children born East in 1990 (i.e. CoW now defined as East * 1990-1993)
Sample Size = 1,650 and Mean of Dependent Variable = 84.5

R3- Extending CoW sample to also include children born East in 1994 (i.e. CoW now defined East * 1991-1994)
Sample Size = 1,650 and Mean of Dependent Variable = 84.4

R4- Exclude all cohorts born after 1993 (i.e. no post-1994 cohorts included in control group)
Sample Size = 1,345 and Mean of Dependent Variable = 84.3

R5- Exclude all cohorts born after 1993 *and* only include 3 cohorts before 1991 (i.e. pre = 1988-1990 & post = 1991-1993)
Sample Size = 480 and Mean of Dependent Variable = 84.3

R6- Placebo: Treated born from 1987 to 1989 (all post-1990 cohorts dropped as treated)
Sample Size = 1,320 and Mean of Dependent Variable = 85.8



Note: The Main Coefficient is from our preferred specification estimating the impact of being a Child of the Wall on arrest rates as in row (iii), column (3), Table 1. The long dash line is the coefficient estimate, dotted lines are lower and upper bound of confidence interval, the solid line marks the zero effect. All regressions include State time varying controls overall unemployment, youth unemployment rate, proportion foreign born by age groups, and number of police officers per 1,000 population, and State specific time fixed effects. Cells are weighted by State, age group and population size. The coefficients for each regression are displayed as a black circle with a line representing +/- 2 standard errors on either side of it.

Our first concern is that the first years following the fall of the Wall were characterized by a large migration from East to West. Specification R1, accounts for internal migration by including for each year and age-group a measure of the net proportion of potential mothers who migrated to another state.[20] While significant by itself, maternal migration only very marginally affects our estimate. We take this as further evidence that internal migration is not driving our results.

In R2 and R3, we test the robustness of our results to alternative definitions of CoW. Children born from August 1990 were conceived after the collapse of the Wall, so the 1990 cohort should be considered partly treated. In R2, we include the 1990 in the treated group. Including the 1990 cohort in our treatment, weakens our results since the cohort is only partially treated, but not significantly so. In R3, we expand our base definition of CoW to include children born in 1994, the year by which birth rates rebounded in the Eastern States. Altering the definition of the treated cohorts does not substantially change our conclusion that CoW are more likely to be arrested.

If prospective parents who had delayed fertility decisions during the period of uncertainty decided to have children as the crisis receded, the post-1993 cohorts are potentially positively selected, and, in R4, we exclude them from the analysis. The point estimate is slightly reduced, consistent with the hypothesis of positive parental selection for the cohorts born after 1994, and less precisely estimated but remains undistinguishable from our favored estimate. In R5, we further tighten the window of cohorts used as controls and only keep those born three years before and after the fall of the Wall to ensure that treated and control individuals faced the same environment when growing up in reunified Germany. The point estimate drops to 0.2 but remains significantly different from 0 and statistically undistinguishable from the baseline

[20] We are indebted to the Federal Statistics Office (www.destatis.de) for providing us with this administrative dataset. Unfortunately, this information only starts in 1991 for the Eastern States which is just after the largest outflow had taken place. We calculate this by taking the ratio of the net number of women aged 15 to 40 who migrated into a State in a given year on the number of 15 to 40 years old women already residing in that State.

estimate. Finally, in R6, we present a placebo test where we assume that the treated cohorts were those born between 1987 and 1989 and drop all the subsequent cohorts. If the environment young children were exposed to after the collapse of the Berlin Wall had an effect on crime, we would expect these cohorts born just before the collapse of the communist regime to also have increased arrest rate. We reject this assumption as the placebo coefficient is a precisely estimated zero. These checks are reassuring about the definition of CoW that we adopted and the stability of the estimated CoW effects, and points to parental selection, not the environment when growing up as the potential channel.

4.2.4 Corroborative Micro Evidence

We now provide corroborative micro evidence that children conceived after the fall of the Berlin Wall did experience more contact with the police in their youth. While small the 2003 DJI survey of youths allows us to precisely define the CoW as being born after August 1990 in one of the Eastern States. It also allows us to control for the educational track of children, a plausible mechanism for the greater proclivity of CoW to participation in crime. The estimates of equation (2) presented in our Empirical Strategy section above are reported in Table 5.

In column (1), we estimate that CoW are 1.7 percentage points more likely to report having had contact with the police, which translates into a 39% increase from the baseline for non-CoW children, higher but consistent with our estimate based on cohort-level arrest rates.[21] In column (2) we account for the child's own educational attainment by including dummies for the secondary education track currently enrolled in. Chevalier and Marie (2017) have shown that the CoW had worse educational outcomes, which could by itself affect their criminal participation (Lochner and Moretti [2004] and Machin et al. [2011], Bell et al. [2021]). The point estimate increases to 2.1 percentage points; the greater propensity of CoW to engage in

[21] Similar results are obtained when using a dummy for East rather than controlling for state of residence, or when including dummies for month of birth rather than a quadratic in month of birth.

crime is thus not driven by their lower educational attainments. Finally, in column (3), we test whether our results are sensitive to internal migration.

Table 5 – Corroborative Micro Evidence on Criminal Participation – German Youth Survey (DJI) – Age 12-14

Dependent Variable:	**Contact with Police**		
	(1)	**(2)**	**(3)**
Child of the Wall (Born East* > July 1990)	0.017** (0.009)	0.021*** (0.007)	0.023*** (0.009)
Born > July 1990	0.002 (0.019)	0.002 (0.020)	0.017 (0.022)
Individual Controls	Yes	Yes	Yes
Education Track	No	Yes	Yes
Drop if Moved State	No	No	Yes
Mean of Dep Variable	0.044	0.044	0.040
Mean Effect Size	0.389	0.480	0.581
Sample Size	1,521	1,521	1,300

Note: Dependent variable are dummies for responding positively to the following question: "Have you already experienced trouble with the police". Child of the Wall is the interaction of being born after August 1990 and living in an East German State. Individual Controls are: gender (dummy), a quadratic in birth, number of siblings (continuous), and parents born abroad (dummy). Education Track is a set of dummies for the current educational track. Drop if Move State only uses the sample of individuals who report to not have moved state since birth. All regressions are weighted by sample weights. Robust standard errors clustered by year of birth (3) and state (15) of birth reported in parenthesis. Source: DJI – German Youth Survey - 2003.

Since the DJI does not report the State of birth but only whether a respondent lives in the State of her birth, we test the potential bias due to migration by leaving out movers. Fourteen percent of respondents have moved between States since birth. Excluding the movers creates some selections, but any bias due to migration is likely to be small since excluding movers does not significantly alter the estimated probability of reporting a contact with the police. In all instances the estimates for the non-mover populations are not statistically different to those for the full population, whether controlling for education or not. We take this as confirming that internal migration is unlikely to be a mechanism biasing our results. Altogether, the micro level

results strongly corroborate the findings from the cohort level analysis that the CoW are much more likely to be criminally active. Moreover, they indicate that this greater criminality cannot be explained by education or migration decisions.

4.2.5 Our Crime Results in Perspective

Consistent with the negative parental selection hypothesis of Donohue and Levitt (2001), we find that the cohorts of children born in former East Germany during a period of great economic uncertainty are 28% more likely to be arrested. This is despite the CoW cohorts being much smaller, which in theory should have a positive effect on outcomes (e.g., via smaller class sizes and reduced labor market competition).[22] The legalization of abortion in the U.S. resulted in fewer children being born, to mothers with relatively better parental characteristics; thus Donohue and Levitt could not distinguish between the smaller cohort size and the positive selection into fertility effects, attributing all to the latter. The bias may indeed be large. Pop-Eleches (2006) and Hjalmarsson et al. (2021) estimate that at least 50%, and potentially all, of the effect of abortion reforms on crime in Romania may be due to cohort size. We are also unable to separate the cohort size from the parental selection effects but since the two operate in opposite directions, we can argue that our estimates represent a lower bound of fertility selection on the next generation criminal activity.[23]

Our most conservative estimates state that the arrest rate of CoW is almost 30% higher than expected. These large effects are consistent with Donohue and Levitt (2001, 2004, 2008, and 2019), who concluded that the legalization of abortion reduced crime rates by about 20% and was responsible for 50% of the drop in crime observed in the U.S. in the 1990s. By comparison,

[22] Smaller cohorts could also have opened opportunities in the crime market. However, we think this is unlikely since the CoW represent only three birth cohorts and thus a small fraction of all potential criminals.

[23] Note however that our econometric modelling which includes cohort size weights in all regressions should mostly take into account the impact of having fewer individuals among the treated cohorts on the estimated crime coefficient.

early childhood interventions such as the Abecedarian project (ABC) and Carolina Approach to Responsive Education (CARE), programs that engaged participants from birth to the age of 5, decreased the male arrest rate by 25% to 50% for misdemeanors and have no significant effects on felony (Garcia et al., 2019).

Our results do not mean that overall crime will increase in East Germany. Indeed, since for these cohorts the reduction in cohort size (50%) is larger than the increase in arrest rate per capita (28%), the overall arrest rate fell from 8.6 in 2005 to 7.7 in 2011 in former East Germany. This explains why the high propensity of the CoW to commit offences has until now remained unnoticed and has yet to enter the policy debate. This does not change the value of our findings, which are perhaps the most robust evidence to date that parental selection has a very strong effect on child offending behavior.

5. The Fertility-Crime Relationship: Risky Mom, Risky Kids?

We now explore a new mechanism that may explain why parental selection might lead to criminal propensity: risk preference. Chevalier and Marie (2017) document that the mothers of CoW were *negatively* selected on a number of observed characteristics: younger, less educated, and in less stable relationships. Moreover, these mothers differed in their investments in their children's education, and in the quality of the emotional relationship. We extend this analysis by investigating the role played by risk attitude[24].

Potentially, economic uncertainty could lead to selection into parenthood along risk preferences, whereby parents with a higher preference pay discount the economic environment when making fertility decisions. If risk preferences are transmitted across generations, and if

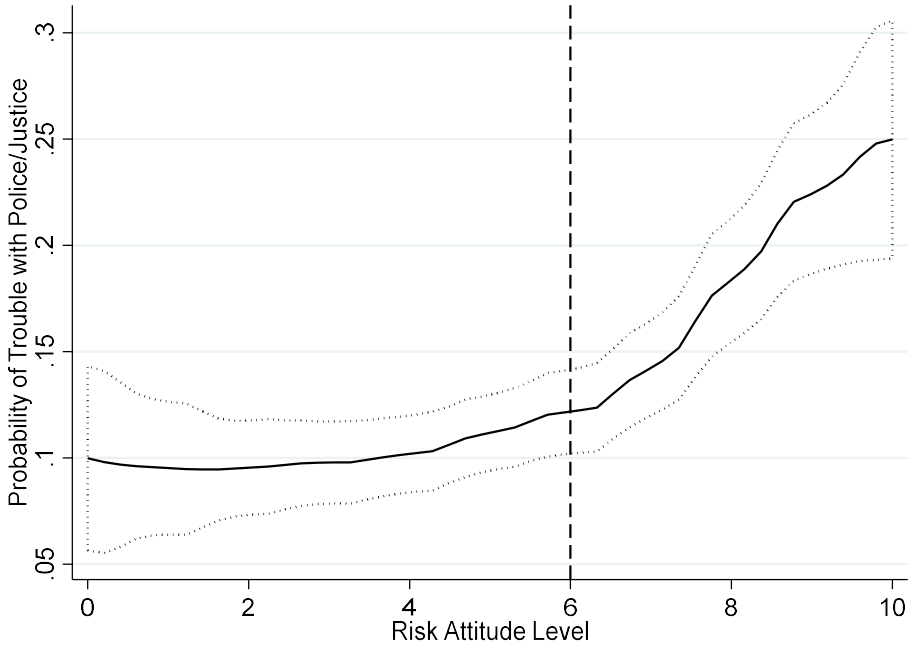
[24] It would of course also be of interest to investigate the paternal selection into fertility and the transmission of paternal risk. However, Children of the Wall are much more likely to be raised by a single mother who never had a stable partner. This family structure probability was shown to increases by almost 80 precent by Chevalier and Marie (2017). Observing a father and being born a CoW are thus both highly correlated which means that using paternal risk measures only available for those present in the data would bias our estimates.

risk preference is positively correlated with crime, this would be a direct mechanism by which parental selection could affect criminal predisposition. This section provides empirical evidence on these three steps. First, we highlight the correlation between risk preference and criminality. Second, we show that mothers of CoW were positively selected along the risk preference dimension. Third, this higher risk preference was also transmitted to their children. Taking those findings togethers, the selection of mothers along their risk preference appears a plausible mechanism for the greater proclivity of the CoW towards criminal participation.

5.1 Risk Level and Criminal Participation

Figure 5 reports the relationship between a general measure of risk preference and reporting having ever been in trouble with the police or criminal justice system.

Figure 5: Risk Attitude and Criminal Participation – Individual Level Evidence



Notes: The graph reports the correlation between an individual's risk attitude level and own reporting of ever having been in trouble with the police or criminal justice system. The vertical dashed line marks the median risk level for this sample. It is based on responses from 2,742 individuals who participated in the 2018 wave of the GSOEP Innovation Sample (https://paneldata.org/soep-is/) – the only time a crime related question was ever asked in this panel dataset – for whom we were also able to match risk attitude level answers from either the 2017 Innovation Sample wave (if they participated in both the 2017 and 2018 waves) or from any wave of the GSOEP Core questionnaire (https://paneldata.org/soep-core/) which we use throughout the paper.

Table 6: Risk Attitude and Criminal Participation – Individual Level Evidence

	Dependent Variable = Ever in Trouble with the Police/Justice									
	(1)	**(2)**	**(3)**	**(4)**	**(5)**	**(6)**	**(7)**	**(8)**	**(9)**	**(10)**
Risk Level	0.017*** (0.003)		0.013** (0.003)		0.008*** (0.003)		0.009*** (0.003)		0.009** (0.003)	
High Risk	-	0.062** (0.013)		0.046*** (0.013)-	-	0.032 ** (0.013)-		0.030*** (0.013)		0.029** (0.013)
Gender	No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year of Birth	No	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Years of Education	No	No	No	No	No	No	Yes	Yes	Yes	Yes
State of Residence	No	No	No	No	No	No	No	No	Yes	Yes
Sample Size	2,742	2,742	2,742	2,742	2,740	2,740	2,720	2,720	2,720	2,720

Note: The coefficients reported are correlation estimates from a dummy indicating that an individual has having been in trouble with the police or criminal justice system on the same individual's risk attitude level continuously, or on a dummy for being high-risk (if risk level is above median, i.e. 6). Individual characteristics that could strongly influence both risk and crime participation are added sequentially: i.e. gender (dummy), year of birth (continuously), years of education (continuously), and state of residence (dummies). This is based on responses from 2,742 individuals who participated in the 2018 wave of the GSOEP Innovation Sample (https://paneldata.org/soep-is/) – the only time a crime related question was ever asked in this panel dataset – for whom we were also able to match risk attitude level answers from either the 2017 Innovation Sample wave (if they participated in both the 2017 and 2018 waves) or from any wave of the GSOEP Core questionnaire (https://paneldata.org/soep-core/) which we use throughout the paper. ***,**, * denotes p<0.01, p<0.05, and p<01, respectively.

The relationship between risk and crime is flat until a risk preference of 4, and becomes positive thereafter, especially for individuals with a self-evaluated risk preference greater than 6. Compare to someone with the median risk (4.5), an individual with a risk preference of 8 is twice as likely to have ever been in trouble with the police. Table 6 reports estimates for different specifications of eq(3). Even after controlling for age, gender, education, and state of residence the positive correlation between risk preference and having been in trouble with the police remains. In the most extensive specification, an additional point on the risk preference scale is associated with a 0.01 percentage point increase in the probability of having been in trouble with the police, i.e. a 7.5% increase at the baseline. The effect is highly non-linear; being high-risk (i.e. risk preference greater than 6) increases the probability of having been in contact with the police by 22% compared to baseline.

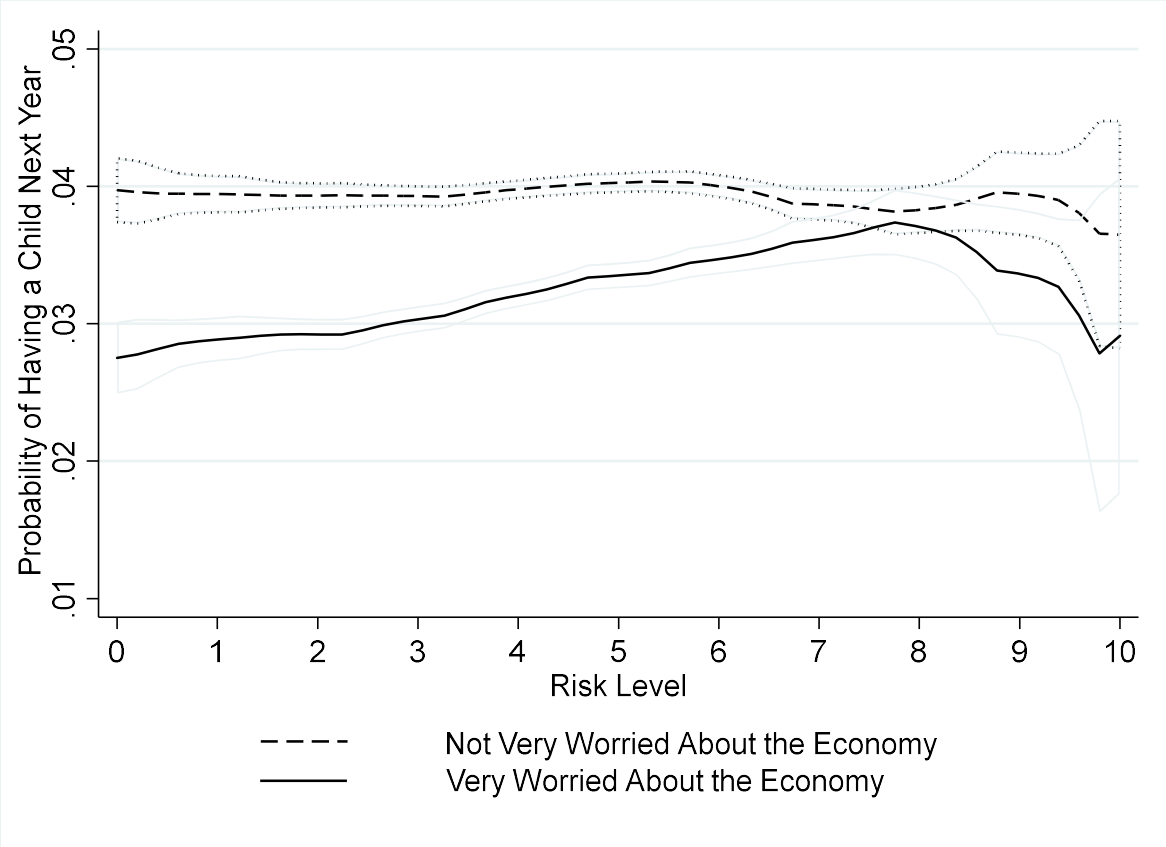
While this new evidence does not provide a causal effect of risk attitude on criminal participation, it does support the idea that there is a strong correlation between the two at the individual level, especially for those with high levels of risk preference.

5.2. Risk Level and Fertility Decision

In this section we highlight that maternal risk preference correlates with fertility decisions[25]. First, we document that risk preferences affect fertility decisions under economic uncertainty. This is the crucial mechanism affecting selection into motherhood during the transition from communism to capitalism. Since the risk preference variable is only available from 2004 onwards, we conduct this exercise for all women aged 17 to 47 surveyed in the SOEP during the 2004-2014 period, and not for the period around the fall of the Wall. Note, that the period covered the great recession, so it includes some substantial variations in economic environment.

[25] Previous work has highlighted that risk preference correlates with teenage motherhood (Gruber, 2001).

Figure 6: Fertility Decision by Risk and Level of Worry About the Economy

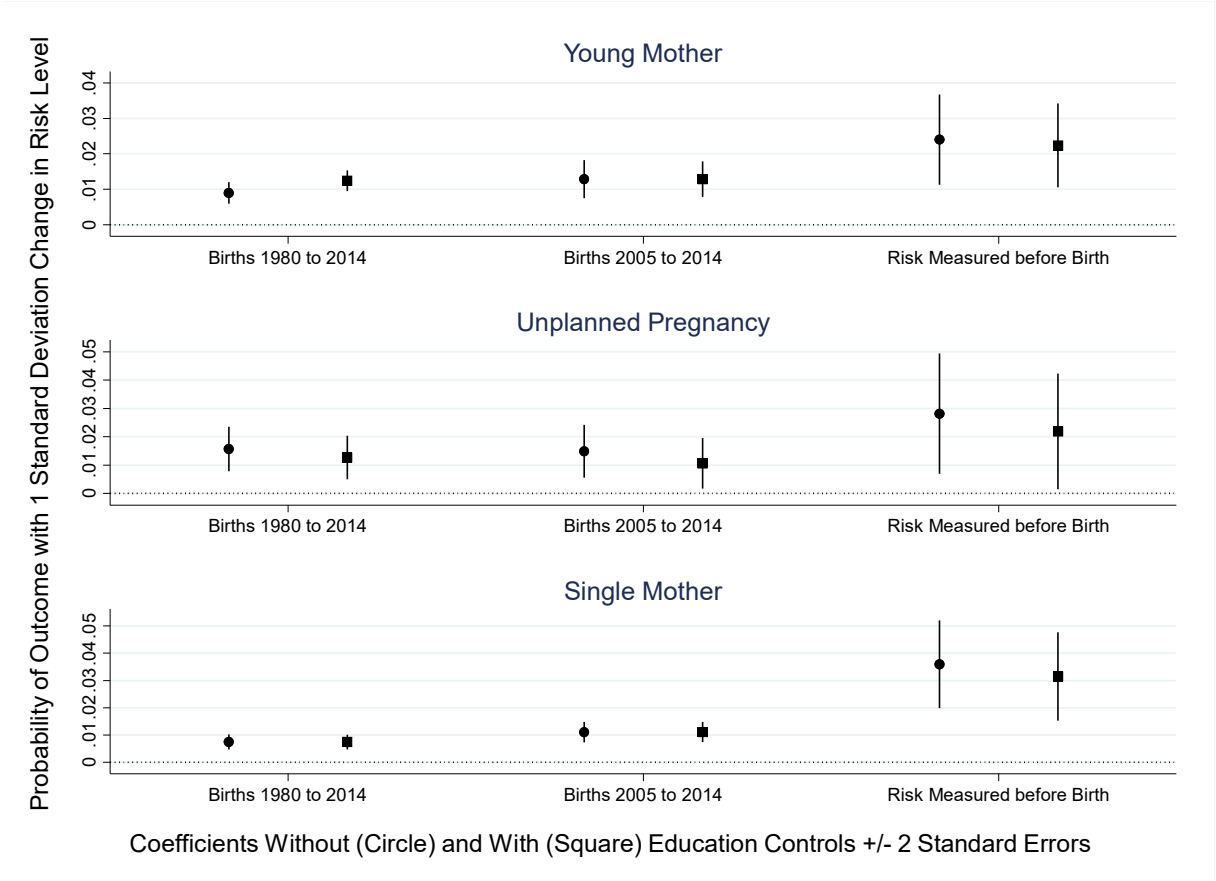


Note: The graph plots the estimated probability of having a child in the period 1990-2000 separately for individuals reported to be very worried about the economy ('very' = 1 and 'somewhat'/'never = 0) or not by risk level for all women aged 17 to 47 surveyed in SOEP during this period. The probit model that generates these coefficients also includes controls for years of education and includes age and year dummies. The thin lines depict the 95% confidence intervals

In Figure 6 we report the probability of giving birth by the self-reported level of worry about the economy 12 months ago, and separately by risk preference. In period of positive views about the economy, risk preference has no effect on fertility decisions, with about 4% of women giving birth within 12 months, at all level of risk preference. However, when economic worry raises, risk-averse women become about 25% less likely to give birth, while high-risk women, only very slightly reduce their fertility; the drop in fertility is insignificant for women with a risk preference greater than 7. As such, in periods of high worry about the economy, the composition of new mothers tilts towards mothers with a higher preference for risk. This might even under-estimate the selection if high risk preference also reduces self-perceived worry

about the economy. The discounting of the economic environment when taking fertility decisions is consistent with the greater risk preference of mothers who gave birth after the fall of the Wall. Second, we document the association between maternal risk preferences and fertility decisions which are associated with worse child outcomes in the long run: low maternal age at birth (Young Mother), birth planning (Unplanned Pregnancy), and relationship status (Single Mother).

Figure 7: Probability of Fertility Outcome by Risk Level, Without and With Education Controls, Various Samples



Note: The figure reports coefficient estimates of the impact of a one standard deviation change in risk level for the probability of three different fertility outcomes for women. These are: Young Mother (having a child before age 23), Unplanned Pregnancy (pregnancy was not planned), and Single Mother (was not with father at time of birth). Each coefficient is produced by regressing a dummy of the outcome on a woman's risk level and controls for year of birth of the child. The circles are estimates without education controls and the squares are from models which also include completed years of education of each mother. The solid lines around both the circles and squares indicate the value of + and – 2 standard errors around these coefficients. All data is for mothers surveyed GSOEP for whom we have risk attitude information. We report results for three distinct samples to show the sensitivity of our findings: for all women who had a child between 1980 and 2014 (Birth 1980 to 2014; N = 14,506), only for women who had a child once the risk question was introduced in GSOEP (Births 2005 to 20014; N = 3,644), and only for women for whom we observe risk before the birth of their child (Risk Measure before Birth; N = 763).

In Figure 7, we report the estimates of the effect of a one standard deviation increase in risk preference on the probability of experiencing each of these outcomes. To reduce concerns about reverse causality of motherhood on risk attitude, the analysis is conducted controlling or not for education and for three different subsamples. The first sample: "Birth 1980 to 2014", includes all women but, for many of them, risk is measured many years after they experienced a birth. In the second sample, "Birth 2005 to 2014", risk attitude is contemporaneous with the fertility decision, but the birth could have happened before or after risk preference was measured. The third sample, "Risk measured before Birth", only includes women for whom we have a risk measure before the birth of a child i.e. there is no reverse causality. For all outcomes and all samples, we report significantly positive estimates that do not statistically differ if we control for education or not. Importantly, in the most restrictive sample, the estimated coefficients are even larger, if somewhat less precise, as sample sizes decrease. Altogether, we find that risk-loving mothers are more likely to have children at a young age, an unplanned pregnancy and be single mothers at the time of birth, characteristics that are all associated with a greater probability of the child engaging in criminal activities (see Hunt, 2006b or Murray et al., 2010 for examples).

5.3 Mother/Child Risk Attitude and its Transmission

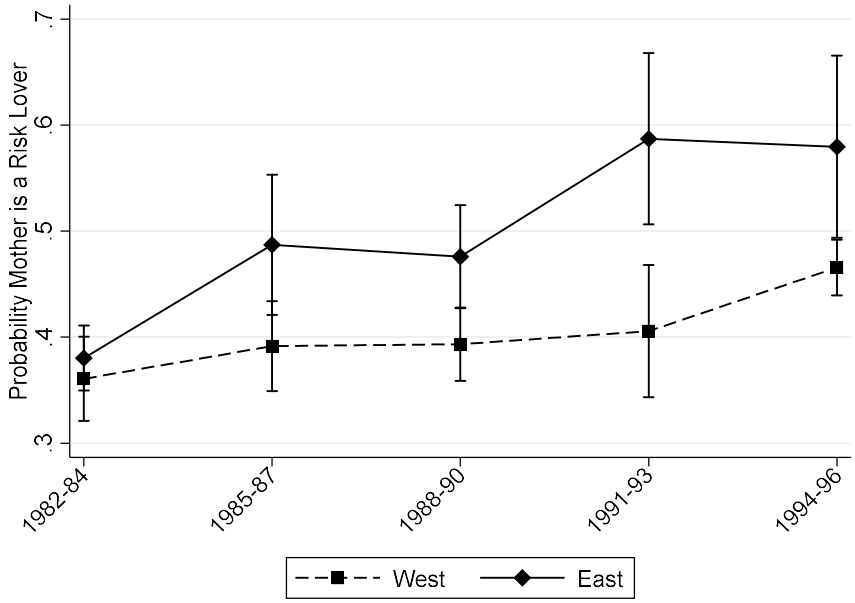
In this section, we formally test the importance of risk preferences in explaining fertility decisions around the fall of the wall, and how it transmits across generations using the unique setting of our natural experiment combined with individual data on stated preference for risk.

5.3.1. Are Mothers and Children of the Wall High-Risk Individuals?

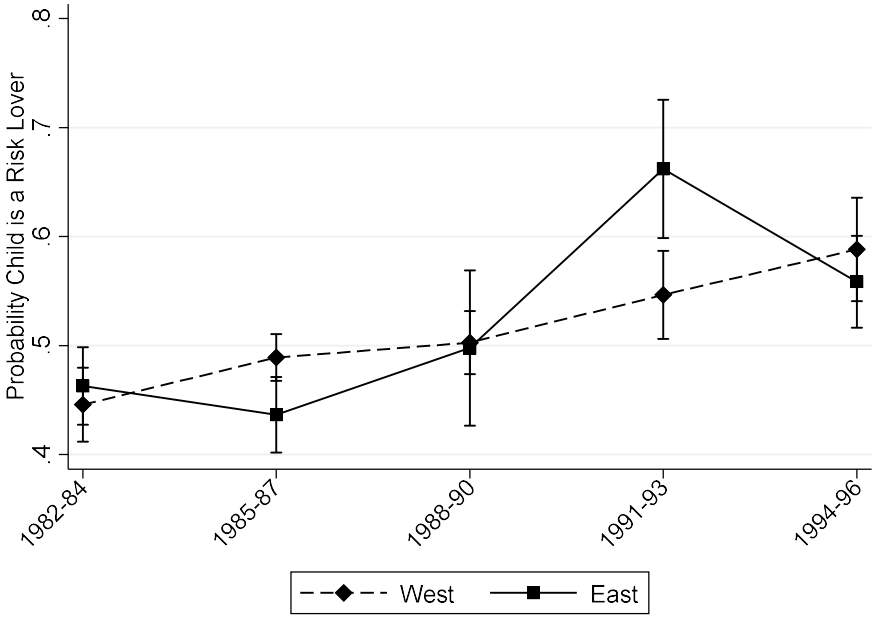
Figure 8 reports the proportion of high-risk individuals by 3-year birth cohorts, separately for mothers (Panel A) and children (panel B).

Figure 8: Probability of Being High-Risk by Cohort, East and West Germany, for Mothers and Children birth/born 1982-1996

A: Mothers – by year gave birth (3-year cohorts)



B: Children (age 17)– by year of birth (3-year cohorts)



Note: The graphs report estimated coefficients (+/-2 standard errors) from regressing the probability of an individual being high-risk (i.e. having a risk level above the group median) on the 3-year cohort she belongs to in East or West Germany. For mothers, Panel A, we also control for age, year of birth of the child and total number of children. For the children, Panel B, we also control for gender, number of siblings, and birth order. All regressions are weighted for sample size and the standard errors clustered at the State level.

East German mothers are on average more likely to be classified as high-risk than their West German counterparts. It is however clear that it is only for those giving birth between 1991 and 1993 that the gap in risk preferences between the two groups is statistically significant. Similarly, at the child generation, risk preferences of West and East Germans have converged, but the fraction of risk-loving children jumps sharply by more than 10 percentage points for the CoW cohort, making it the only cohort significantly more risk-loving than its West German counterparts.

Figure 8 highlights very similar pre-trends in risk preference and, for both the mothers of CoW and the CoW themselves, a sharp increase in the fraction of high-risk individuals. This pattern appears consistent with CoW mothers being selected along their risk preferences and having transmitted this preference to their children. We test this hypothesis further by running the differences-in-differences specification of equation (4) using "high risk" as the outcome of interest and present the results in Table 7. Our base specification includes a number of individual characteristics (e.g. age, year of birth, number of children/siblings). We find that the probability of being high-risk increases by about 14 percentage points, for both mothers of CoW (column (1)) and their children (column (4)). As risk preference might be correlated with educational attainment and income (Balsa et al. 2014), we control for educational attainment in columns (2) and (5),[26] and family income (columns (3) and (6)). While significant, neither of these controls alter the estimates that both mothers and CoW are 14 percentage points more likely to be high risk. Finally, in column (7), we explore the intergenerational risk transmission by including, in the child specification, a dummy for mother's risk preference (see equation 5).

[26] For mother, this is approximated by years of education, for children education is right censored and we rely on secondary education track instead.

Table 7 – Risk Attitude of Mothers, 'Children of the Wall' and their siblings

	Dependent Variable = High Risk Individual								
	Mother			Children				Siblings	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Child of the Wall [i.e. East * 91-93]	0.139** (0.054)	0.139** (0.053)	0.138** (0.053)	0.140*** (0.043)	0.142*** (0.044)	0.148*** (0.042)	0.138*** (0.044)	0.185** (0.082)	0.158* (0.082)
Mother is Risk-Loving	-	-		-	-	-	0.110*** (0.021)	-	0.119*** (0.031)
Birth/Born East	0.033 (0.027)	0.022 (0.027)	.021 (.028)	-0.030 (0.022)	-0.029 (0.022)	-0.027 (0.022)	-0.035 (0.022)	-0.042 (0.027)	-0.049* (0.027)
Education	No	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Family Income	No	No	Yes	No	No	Yes	Yes	Yes	Yes
Age & Year of Birth & # Children/Siblings	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Male & Birth Order	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Sample Size	4,431			3,815				1,694	

Note: Child of the Wall takes the value 1 for giving birth (mother) or being born (children) between 1991 and 1993 in East Germany, and zero otherwise. Sibling of Child of the Wall is the dummy equal to 1 for all individuals who have a sibling born between 1991 and 1993 in East Germany, zero otherwise. Education is years of schooling for mothers and an indicator for enrollment in lower school track when aged 17 for children and sibling. Family Income is the log of net income (i.e. after taxes and transfer) mothers report in each survey year. Risk attitude measures come from the average of the 2004, 2006, and every year from 2008 to 2014 of questions on the willingness to take risk ranked between 0 (minimum) and 10 (maximum). High risk is then defined as a dummy for risk preference above the group median. Robust standard errors clustered by child year of birth and East/West reported in parenthesis. ***,**, * denotes p<0.01, p<0.05, and p<01, respectively.

The greater risk preference of COW is not solely driven by the greater risk preference of their mothers. A child is on average 11 percentage points more likely to be risk-loving if her mother was risk-loving, consistent with previous literature.[27] However, over and above this "natural intergenerational transmission", CoW are still almost 14 percentage points more likely to be high-risk which is in line with Alan et al. (2017) who highlight the role of maternal involvement as a moderator for the intergenerational correlation in risk preference[28]. The high transmission of risk for the generation of children born around the fall of the wall is also consistent with Chevalier and Marie (2017) findings that the mothers of CoW differ in their parenting style.

5.3.2. Can Environmental Factors Explain Higher Risk Transmission?

The greater preference for risk among CoW might stem also from the specific environment in which these children were conceived. Even by comparing those born just before and after the fall of the Wall – i.e. those who grew up in mostly the same environment – we may still not be able to rule out environmental concerns linked to antenatal or post-birth stress, which can have long term consequences on various outcomes (Barker, 1995; Conti et al. 2012). To first test this assumption, we split mothers by their risk preference type and assess the risk preferences of their children for each 3-year birth cohort. We present this graphically in Figure 9.

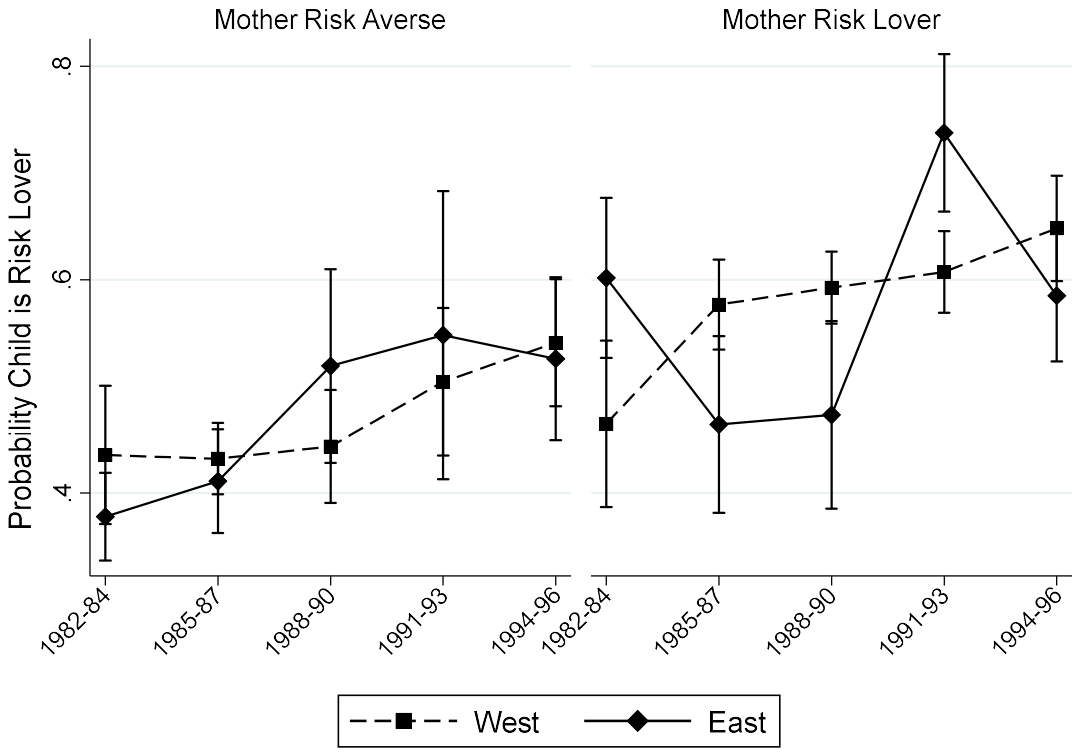
For risk-averse mothers, there is a general increase over time in the probability of their children being risk-loving, but this is similar by region and the trends are smooth. For risk-loving mothers, the transmission of preferences to their children jumps up for the cohort born in 1991-1993 in East Germany.

[27] Kimball et al. (2009) show that in the PSID the correlation in risk preferences between child and mothers and siblings are about 0.2 and 0.5 respectively. Similar intergenerational correlation is reported in Dohmen et al. (2012) for Germany.

[28] We tested for potential gender differences in mother risk transmission. For both the direct maternal effect and the *CoW* effect we could not detect any statistical difference between the estimated effects for boys compared to girls.

Since this jump in intergenerational preference for risk is not observed for risk-averse mothers, it is unlikely to be driven by environmental factors.[29]

Figure 9: Probability of Child Being Risk-loving by Maternal Risk Preference Level



Note: The graphs report estimated coefficients (+/-2 standard errors) from regressing the probability of a child being risk-loving (i.e. having a risk level above the median) on the 3-year cohort she belongs to in East or West Germany. The left-hand graph is for children of risk averse mothers and the right hand graph is for children of high risk mothers. In all regressions we also control for child gender, number of siblings, and birth order and they are weighted for sample size and the standard errors clustered at the State level.

Additionally, we test whether this high transmission of risk preference is driven by maternal characteristics rather than the environment. Specifically, we assess whether older siblings of CoW (i.e. born before 1991) also have a greater preference for risk compared to their peers,

[29] Potentially riskier mothers are more sensitive to environmental shocks (i.e. there exists a multiplier effect between own risk and a stressful environment). Investigating this further goes beyond the scope of this paper.

using specifications akin to columns (6) and (7) of Table 7.[30] The results are presented in final two columns of the same table focusing on 'Siblings' results. Indeed, older siblings of CoW are disproportionally risk-loving, which is unlikely to be driven by early environmental conditions, since these individuals where born in the stable environment of communist East Germany. Moreover, we find a very similar pattern even when mother's own risk level is included. The intergenerational transmission of risk preference is almost identical to the one identified for CoW (+11.2% vs 11.9%), but the additional effect of being born in a family including a CoW remains large if only marginally significant, even if these children were not born during the period of high economic uncertainty. We thus conclude that mothers, rather than the environment, contributed to the higher predisposition for risk of CoW and of their siblings. The mothers of COW were positively selected along their risk preference and had a strong ability to transmit this preference to their children.

7. Conclusion

We demonstrate that the economic environment affects cohort size but also cohort compositions, with important consequences for the outcomes of children. In particular, the economic uncertainty that followed the collapse of the Berlin Wall in 1989 led to a 50% drop in births over a three-year period in East Germany, but also to a change in the parental composition of the cohort. This can be clearly seen in the criminal behavior of their children. Children born in former East Germany after the regime change are at least 28% more likely to be arrested than those from previous cohorts. We can exclude that the changes in arrest rate are driven by other social changes following German reunification or police targeting, since it is observed for all crime types and at different time periods, but only for the cohort born

[30] Note that this is not a differences-in-differences specification as CoW siblings are born in different periods and we do not therefore include a specific cohort dummy to capture this first difference (the second difference between East and West remains unchanged). We still include year of birth dummies, which will mostly capture differences across time that could have affected outcomes for these children.

immediately after the fall of the Wall. Interestingly, the increase in crime is similar for both boys and girls. Since the cohort size and the parental selection effects go in opposite directions, our estimate of the parental selection effect is a lower bound. Our results are thus in line with Donohue and Levitt's claim (2001, 2019) that parental selection and not cohort size reduction was the factor driving the crime reduction in the US in the 1990s, and contradict Hjalmarson, Mitrut, and Pop-Eleches (2021), who attribute the crime reduction after a change in abortion law in Romania to cohort size effects only.

The second part of the paper uses individual level panel data to document a new mechanism linking fertility decision of mothers and criminal inclination of their children. We provide several new insights. First, in periods of economic uncertainty, risk-averse women reduce their fertility, but high-risk women only do so to a small extent. This difference in reaction to the expected economic environment led to maternal selection along risk preferences through the business cycle. Second, consistent with this insight, we indeed find that mothers of CoW are 14 percentage points more likely to be 'high-risk', a preference that they strongly transmitted to their children, who are similarly 14 percentage points more likely than other children to be high-risk individuals. Third, the high preference for risk among CoW was not driven by the uncertain environment around birth, since their older siblings, born before the collapse of communism in East Germany also have elevated level of risk preference. This suggests that the high level of risk preferences was driven by family environment. Finally, using a different panel, we provide evidence that high-risk individuals are 22 percent more likely to have engaged in criminal activity over their lifetime. Combining all these evidence, we have provided supporting evidence for a new mechanism by which maternal selection has long-run consequences on the criminal activity of their children. Along the business cycle mothers are selected along their risk preferences, which they transmit to their children, and is a factor in the proclivity to commit crime.

Altogether, our findings have important implications for policy planners. Fertility decisions are affected by the business cycle, not only by birth control technology, and public policies should be adjusted for cohort composition not only cohort size. In this specific case, despite its small size, the cohort conceived after the fall of the Wall would have benefited from additional investment to compensate for their parents' characteristics. More generally, it could be very useful to measure parental risk more systematically in order to use it as a criteria – rather than just relying on education and income – to target early childhood intervention programs more efficiently.

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APPENDIX FOR ONLINE PUBLICATION

Table A1 – Proportion of 'Children of the Wall' by Crime-Age Groups from Official Arrest Data Available between 1993 and 2014

Year\Age Group	5-6	7-9	10-11	12-13	14-15	16-17	18-20	21-22	23-24
1993	0	0	0	0	0	0	0	0	0
1994	0	0	0	0	0	0	0	0	0
1995	0	0	0	0	0	0	0	0	0
1996	1/2	0	0	0	0	0	0	0	0
1997	1	0	0	0	0	0	0	0	0
1998	1	1/3	0	0	0	0	0	0	0
1999	1/2	2/3	0	0	0	0	0	0	0
2000	0	1	0	0	0	0	0	0	0
2001	0	2/3	1/2	0	0	0	0	0	0
2002	0	1/3	1	0	0	0	0	0	0
2003	0	0	1	1/2	0	0	0	0	0
2004	0	0	1/2	1	0	0	0	0	0
2005	0	0	0	1	1/2	0	0	0	0
2006	0	0	0	1/2	1	0	0	0	0
2007	0	0	0	0	1	1/2	0	0	0
2008	0	0	0	0	1/2	1	0	0	0
2009	0	0	0	0	0	1	1/3	0	0
2010	0	0	0	0	0	1/2	2/3	0	0
2011	0	0	0	0	0	0	1	0	0
2012	0	0	0	0	0	0	2/3	1/2	0
2013	0	0	0	0	0	0	1/3	1	0
2014	0	0	0	0	0	0	0	1	1/2

Note: 'Children of the Wall' are defined as being born in an Eastern Länder (State) between 1991 and 1993.

Table A2: State-Cohort Level Descriptive Statistics, 1993-2014, East and West

	East German States	West German States
Arrest rates:		
All crimes	74.3 (27.8)	58.9 (24.3)
Property	30.9 (14.3)	21.0 (10.2)
Violent	15.4 (7.55)	13.4 (7.60)
Damage	12.1 (6.27)	5.80 (3.12)
Fraud	9.09 (7.83)	9.36 (7.35)
Drug	5.85 (5.20)	8.23 (6.35)
Percentage male	52.2 (1.08)	51.1 (0.52)
Percentage foreign born	2.64 (1.43)	12.8 (4.20)
Unemployment rate	16.9 (3.06)	8.60 (2.33)
Police per 1,000 population	.525 (.049)	.424 (.073)
Observations	770	1,540

Notes: Arrest rates reported per 100,000 population in a specific state by crime type for age groups 10 to 24 between 1993 and 2014. These statistics all come from the Federal Criminal Police Office (BKA: https://www.bka.de/). Unemployment rate, proportion foreign, and police per 1,000 population are all yearly-state means for the relevant cohorts. These all come from the Federal Office of Statistics (DESTATIS: https://www.destatis.de/). All observations are weighted by cohort-age specific population.

Table A3: Descriptive Statistics from the 2003 German Youth Survey (DJI)– Children born 1989 to 1991 in East and West Germany

	Born in East German States	Born in West German States
	(1)	(2)
Contact with the police	0.051	0.045
	(0.207)	(0.211)
Male	0.534	0.495
	(0.500)	(0.499)
Age in years	13.64	13.55
	(0.675)	(0.728)
Number siblings	1.22	1.66
	(1.14)	(1.37)
Foreign parents	0.029	0.078
	(0.168)	(0.267)
Highest School Track	0.361	0.327
	(0.481)	(0.470)
Observations	415	1,108

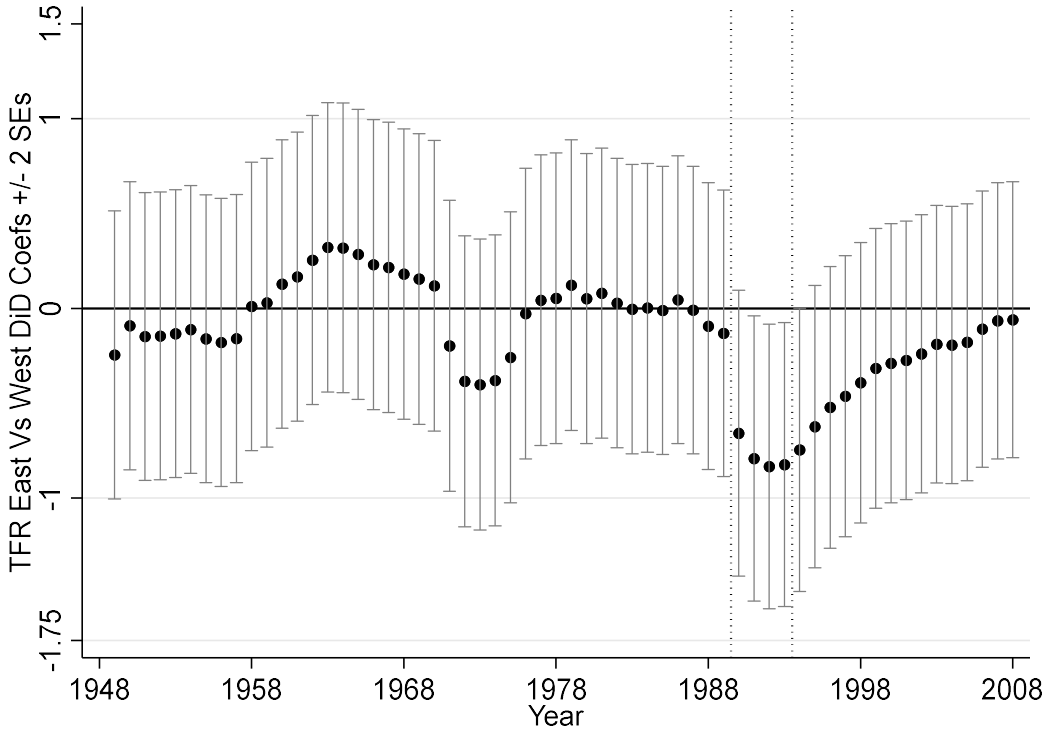
Note: Sample is all respondents to the 2003 youth survey born between January 1989 to June 1991 in either East or West German states. Contact with police is a dummy for responding positively to the following question: "Have you already experienced trouble with the police". Highest School Track is an indicator for respondent being enrolled in what is considered the highest school track of secondary education in Germany, Gymansium. The database and documentation for the this wave of the German Youth Survey are available on the DJI website here: https://surveys.dji.de/index.php?m=msw,0&sID=46

Table A4: Descriptive Statistics of Mothers and Children in German Socio-Economic Panel (SOEP) by East or West German Birth

	Mothers		Children	
	East	**West**	**East**	**West**
Risk Level (0 to10)	4.46 (1.65)	4.21 (1.82)	5.56 (1.57)	5.59 (1.96)
High Risk (> Median)	.503 (.500)	.419 (.494)	.503 (.500)	.531 (.499)
Male	-	-	.519 (.502)	.499 (.500)
Age in 2014	43.2 (4.73)	45.6 (4.98)	22.1 (4.06)	20.7 (3.48)
Age 1st Child	23.9 (4.35)	26.7 (4.73)	-	-
Number Children/Siblings	2.43 (1.13)	2.63 (1.16)	1.41 (1.12)	1.63 (1.16)
Years of Education	12.6 (2.25)	12.1 (2.56)	-	-
Highest School Track	-	-	.390 (.488)	.389 (.487)
Household Income	34.1 (22.4)	47.3 (32.3)	34.9 (22.4)	47.1 (31.9)
Sample size	1,113	4,001	1,157	4,189

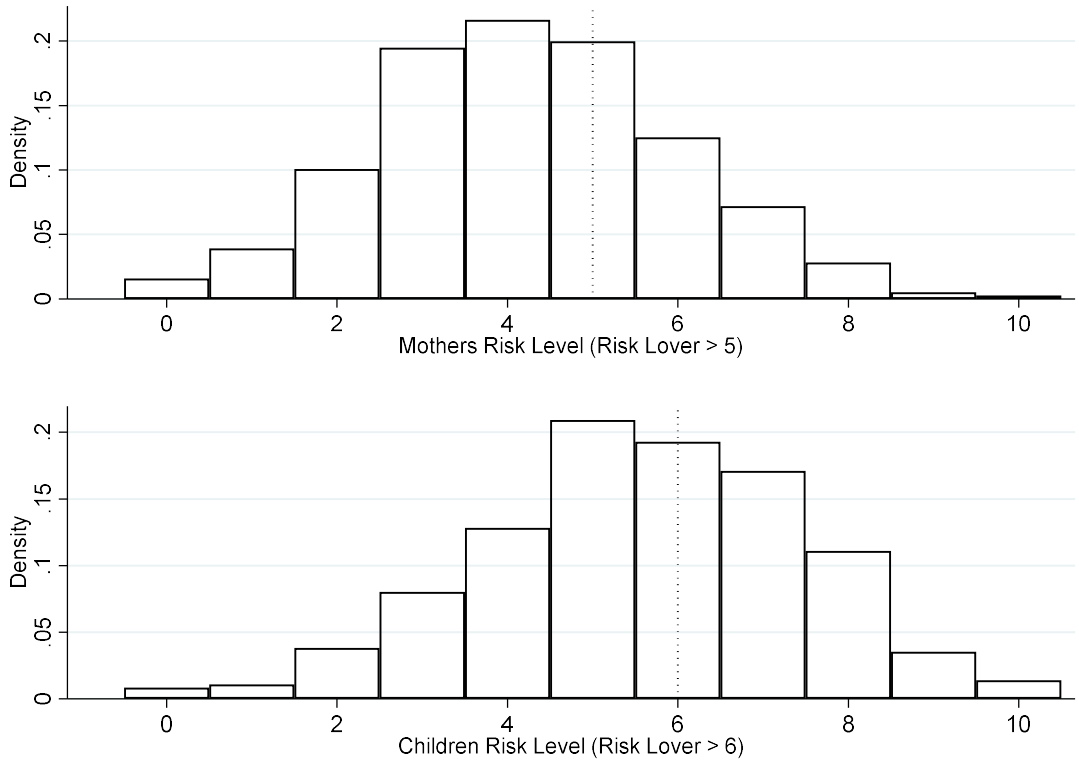
Notes: Sample of all mothers and their children born between 1982 and 1997 which we can match across generations and for whom we observe risk attitude in the SOEP. Risk attitude measures come from the average of the 2004, 2006, and every year from 2008 to 2014 of questions on the willingness to take risk ranked between 0 (minimum) and 10 (maximum). High risk is then defined as a dummy for risk preference above the group median. Education is completed years of schooling for mothers and an indicator for enrollment in the highest school track (Gymnasium) for children when aged 17. Family Income is the log of net income (i.e. after taxes and transfer) reported in each survey year. More information on the main SOEP dataset can be found here: https://paneldata.org/soep-core/.

Figure A1: Difference in Total Fertility Rate in East Vs West Germany - 1948 to 2008



Notes: Circle dots report year on year difference-in-difference estimates of East Vs West total fertility rates with bars indicating the size of the confidence interval. Vertical dotted lines indicate the year of births for cohorts we consider children of the wall. Source: same as Figure 1.

Figure A2 – Risk Attitude Distribution – Mothers and Children



Notes: The figure reports the distribution of answers for all mothers and children in our sample The risk measure come from the average of the 2004, 2006, and every year from 2008 to 2014 of questions on the willingness to take risk ranked between 0 (minimum) and 10 (maximum). High risk is then defined as a dummy for risk preference above the group median, 5 for mothers and 6 for children.