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Gender Differences in Adolescents' Socioemotional Development and their Later Economic Consequences*

Ghazala Azmat, Katja Maria Kaufmann and Yasemin Özdemir

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Abstract

We exploit a large exogenous shock to study socioemotional development (SED) during adolescence and the consequences on relevant economic outcomes, focusing on gender differences. Using novel, longitudinal, microdata on cohorts of East German adolescents before and after a large macro shock (the German Reunification), we causally estimate the impact on SED, finding substantial negative effects in the short run. These effects are similar for male and female youth. In terms of how these changes in SED impact behavior, however, we find stark differences by gender, observing important changes in externalizing behavior and behavioral control problems among males only as opposed to changes in internalizing behavior among females only. Ultimately, the effects on longer-run outcomes (subjective health, wellbeing, education) are grave and similar for both genders.

JEL Classification: D91, I12, I31, J13, J16, J24

Keywords: socioemotional development, youths, gender, behavior, health, education

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1 Introduction

There is a strong and growing interest in the importance of socioemotional development (or noncognitive skills) by economists and scientists more generally. From several perspectives, the literature has investigated the development and formation of these skills (Cunha and Heckman, 2007; Cunha et.al., 2010; and Kosse et al., 2020). Important links have been established between socioemotional development and economic and educational outcomes (see, for example, Heckman et.al., 2006; Borghans et al., 2008; Almlund et al., 2011; Heckman et.al., 2013; Deming, 2017; Jackson et al., 2020; and Bütikofer and Peri, 2021). What is less well understood, however, is whether the determinants of socioemotional development differ by gender and whether socioemotional development and changes in noncognitive skills manifest differently for males and females in terms of behavior and longer-term outcomes.

Understanding the gender differences in the determinants and consequences of socioemotional development is important for researchers and policy makers alike. From a biological perspective, the medical literature has well-established evidence in favor of the "fragile males" hypothesis, showing that the male fetus is more at risk than the female fetus, and certain disadvantages exist in utero and continue throughout life (Trivers and Willard, 1973; Kraemer, 2000). From a behavioral perspective, males have been found to engage more in unhealthy (or "risky") behavior, which has important consequences for health outcomes, such as the development of cardiovascular disease (Juutilainen et al., 2004). Consistent with these literatures, in economics it has been shown that for school-aged children a worse home or school environment has a stronger impact on disruptive behavior and schooling outcomes for boys (Bertrand and Pan, 2013; Fortin et. al., 2015; Brenøe and Lundberg, 2018; Autor et.al., 2019 and Autor et.al., 2021; Li and Lundberg, 2020) and that early childhood interventions that enrich the environment of disadvantaged children are more effective in terms of improving the behavior and health outcomes of boys than of girls (Conti et.al., 2016).[1] However, disadvantage, or shocks to one's environment, could impact other dimensions of behavior, such as internalizing one's feelings and its link to poor mental health. These dimensions have received relatively less attention, despite the growing concern about them, especially among adolescents.[2]

[1] In terms of differences in the longer-run effects of disadvantage during childhood (lower income families, poor quality schools, single-parent households), the results are somewhat mixed (see, Chetty et. al., 2016; Brenøe and Lundberg, 2018; and Li and Lundberg, 2020).

[2] According to the Centers for Disease Control and Prevention (CDC), suicide attempts and thoughts have nearly doubled for US children and teenagers over the last decade, with the rate of 6.7 suicides per 100,000 people in 2007 increasing to 11.8 suicides per 100,000 people by 2017. The agency determined that suicide is the second leading cause of death among teenagers aged 15 to 19. Additionally, for the

Importantly, the role of internalizing behavior could differ by gender.

In this paper, we use the quasi-experiment of the German Reunification in October 1990 to causally study the effect of a large macro shock to East German youths' socioemotional development (SED) and the consequences of these changes on a wide range of behavioral outcomes, including externalizing and internalizing behaviors, as well as long-term consequences for their health, life satisfaction and educational outcomes as young adults. Reunification prompted some of the most important structural changes in Germany's recent history (see Hunt, 2002, and Krueger and Pischke, 1995, for a detailed overview). East Germany transitioned from a socialist system with a planned economy to a capitalistic and democratic system, in line with that of West Germany, in a very short time period. The enormous and rapid economic, cultural, and political changes implied a drastic rise in uncertainty in the environment for East Germans (Krueger and Pischke, 1995; Hunt, 2008). Work in psychology (see, for instance, Kirkcaldy et.al., 1999; Krauss and Faas, 1994; and Schmitt and Maes, 1998) provides descriptive evidence that after Reunification, East German adults exhibited substantially higher stress and anxiety levels, with important implications for their mental wellbeing, and the incidence of suicides increased.[3] The focus of this paper is on East Germans during their adolescence – a particularly relevant time for socioemotional development – and, more importantly, to provide causal evidence of the macro shock on changes in SED in the short run and on their longer-run implications.

We use novel and detailed longitudinal microdata on cohorts of East German individuals followed from childhood to early adulthood, before and after Reunification, containing direct measures of SED (specifically, the levels of Impulse Control and Self-Confidence) to causally estimate the impact of Reunification on changes in adolescents' SED. We then link this change to the adolescents' *externalizing* behaviors, problems of *behavioral control*, and *internalizing* behavior.[4] Socioemotional skills and the widely used "Big Five" taxonomy of personality traits (McCrae and Costa, 1987) often encompass self-confidence/esteem and impulse control, as well as a broad set of other factors, such as adaptability, grit, problem solving, and teamwork (Waddell 2006; Duckworth et

first time in more than thirty years, mental health problems have displaced physical conditions as the leading causes of disabilities among U.S. children (Slomski, 2012). See also 'It's Life or Death': The Mental Health Crisis Among U.S. Teens - NYT: https://www.nytimes.com/2022/04/23/health/mental-health-crisis-teens.html

[3] According to this literature, the changes and the resulting adaptive pressures, as well as the political revolution in East Germany, threatened individuals' psychological identity.

[4] *Externalizing* behaviors are measured with variables such as fighting, destroying things, trouble with the police. *Behavioral control* problems are measured by substance abuse and smoking, and changes in *internalizing* behavior are measured via (repeated) suicidal thoughts.

al. 2007; Almlund et al., 2011; Farrington et al. 2012; Kautz et al., 2014; Alan et al., 2019; Jackson et al., 2020).[5] Interestingly, the data in our analysis predate the validation of these measures, allowing us to investigate, in a real-world "historic" setting, changes in SED and their economically relevant consequences in the longer run.

Methodologically, we apply a difference-in-differences (DID) framework that uses variation in the timing of Reunification for the two cohorts of surveyed students, who have a three-year age gap. Specifically, we analyze the change in SED of the *younger* "treated" cohort in the short period before and after Reunification, when the cohort was aged 12/13 and 13/14, respectively, using, as the counterfactual trend, the evolution of the *older* "control" cohort's SED between the same ages (before Reunification).[6] We find that, shortly after Reunification (compared with just before), there is an immediate and sizeable impact on youths' impulse control skills and self-confidence. Reunification led to a decrease of 31 percent of a standard deviation in the impulse control level, while it decreased youths' self-confidence by more than 40 percent of a standard deviation. Importantly, we find a gender-neutral negative (decreasing) impact of the shock on impulse control and a negative (decreasing) effect on self-confidence, which –if anything– is somewhat larger for girls than boys.

When we estimate the link between changes in SED and the different types of behavior, however, we see striking gender differences. Consistent with the "fragile male" hypothesis and gender asymmetries in "acting out", we see an increase in *externalizing* behavior, as well as more negative *behavioral control* problems only for males. However, turning to *internalizing* behaviors, such as suicidal thoughts, which are often linked to depression and other mental health problems, we see that changes in SED are strongly associated with increases in internalizing behavior, but only for females. Specifically, the analysis estimates the link between the change in SED between ages 12 and 14 (i.e., when the younger cohort experienced Reunification) and respondents' behaviors in later adolescence. The estimation does not simply focus on the correlation between SED at a certain age and later behavior, but, by holding the level of SED at age 12 (i.e., prior to renunification) constant, as we do, we measure how the change in SED between ages 12 and 14 – during which time reunification impacted those skills for the "treated" group – is differentially linked to later outcomes for males versus females.[7] While our focus

[5]The "Big Five" report that impulse control is a related trait of conscientiousness, and self-confidence can be a facet of extroversion, or 'not self-confident', a facet of neuroticism/emotional stability

[6]We explicitly test for the "parallel trends" assumption, showing that the pre-Reunification trends ("pretrends") of the two cohorts are indeed very similar

[7]In our specification, we (indirectly) control for potential time-constant factors that contribute to a correlation between SED and long-run outcome (such as family background characteristics) and focus on

is on the link between socioemotional (noncognitive) skills and long-run behaviors and outcomes, Reunification might also have an impact on cognitive skills. We show that our results are robust to the inclusion of controls for (levels and change in) cognitive skills.

Finally, we analyze the impact of changes in SED of these adolescents on their later health and education outcomes as young adults (aged 18 to 21) in a similar manner, showing that changes in SED play an important role for both genders. In the longer run, global measures on life satisfaction, wellbeing, and objective academic success are gravely affected by a negative shock on SED and in a very similar way for both genders. With respect to health outcomes, we find that both SED components are linked to life satisfaction and subjective wellbeing; however, for young men, the link with impulse control is more important, while for young women, self-confidence plays a larger role. Decreased impulse control and decreased self-confidence are all linked to worse health outcomes. This is the case for both males and females. Finally, in terms of educational attainment, less impulse control and lower self-confidence are associated with a lower probability of completing the Abitur degree and the entrance certificate for college education, and again, the effects are very similar for males and females.

Our findings stress the importance of studying and promoting SED at early ages, as well as the importance of better policy targeting around SED. Moreover, the results highlight that the SED of both male and female students is affected by the shock, albeit on somewhat different dimensions, and the eventual economic consequences are similar. From an academic and policy perspective, these results are key since there has been an overwhelming focus until recently on *externalizing* behavior, with a primary focus on conduct in the classroom, such as attendance and disciplinary incidents (e.g., fighting and disturbances), biasing attention toward the behavior of male youths and thereby fostering investments in skills and SED that put a stronger focus on males than on females. While our results support the "fragile male" hypothesis for externalizing behaviors, we also provide evidence that negative shocks affect young women in important other dimensions, namely, mental health, and ultimately have similar consequences for longer-run health, life satisfaction and educational success.

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the link between changes in SED and long-run behavior. Moreover, since we are interested in differential links between SED and long-run outcomes for females versus males, we also control for time-varying factors (between age 12 and 14) that are linked to long-run outcomes in the same way for males and females.

2 Background

Until 1945, East and West Germany were united as a single country. When separation occurred after Germany's defeat in the Second World War, it was exogenously imposed by the winning Allies. In the fall of 1989, change swept through Eastern Europe and led to the fall of the Berlin Wall in November 1989. On October 3, 1990, East Germany joined the Federal Republic of Germany (FRG), creating a sovereign unified German state ("Reunification"). Significantly, the former German Democratic Republic (GDR), instead of experiencing a change of government within its borders or independence like other countries in this area, ceased to exist as a separate state. In this process, East Germany switched from state socialism to liberal democratic capitalism in a short period of time and without a gradual transition.

This large and unexpected change in the entire economic and political system created a substantial amount of uncertainty. Upon Reunification, the economic system in East Germany was replaced and led to a substantial rise in unemployment (Hunt, 2008; Krueger and Pischke, 1995).[8] Bhaumik and Nugent (2011), for example, show that economic uncertainties (especially employment-related uncertainty) driven by reunification led to an important decrease in childbirths. In general, the consequences of reunification had important effects on individuals' stress levels and wellbeing. Psychologists have described how Reunification led to substantially higher stress levels related to the adaptive pressures associated with the changes as well as the increased threat of unemployment (Kirkcaldy et.al., 1999). Krauss and Faas (1994), among others, note that beyond the changes in economic pressure, the political revolution in East Germany threatened individuals' psychological identity and the previously held notion that individuals have only one reality, which could lead to increased anxiety. Krauss and Faas (1994) conducted extensive interviews during which they saw "very intense and powerful feelings", which ranged from "visible euphoria about the anticipation of more closeness and new possibilities for the relationships to anxiety over being accepted or outright panic."

Our study focuses on the impact of Reunification on the socioemotional development of adolescents and young adults, during a critical developmental period. Moreover, we provide causal evidence on the impact of a macro shock on these youth's SED, whether/how the impact differs by gender and analyze its long-run consequences in terms of behaviors, health, and economic success.

[8] During state socialism under the GDR, there was no official unemployment; i.e., people were employed even when their productivity was low, which changed upon Reunification.

3 Data

3.1 Longitudinal Study of Students in East Germany

The microdata used in the following analysis come from the Longitudinal Study of Students (1985-1995).[9] The study followed two parallel cohorts of students in East Germany from 1985 to 1995, when students were between 9 and 21 years of age. This study is unique in that it followed students for several years prior to and several years after the Reunification of Germany. Students in the younger cohort were surveyed from ages 9/10 to 18/19 (i.e., from academic grade 3 to grade 12), while students in the older cohort were surveyed in the same calendar years from ages 11/12 to 20/21 (i.e., from academic grade 5 up to first years of university / vocational training).

The goal of the study was to understand the determinants of the development of cognitive abilities, socioemotional skills, and mental health as well as of values, goals, and attitudes during childhood and adolescence until (young) adulthood. The data are ideal for our purpose in that the survey followed the same individuals from before to after German Reunification, covering a wide range of topics, including educational achievement and attainment, as well as socioemotional development, (psychological) wellbeing measures, and health-related behaviors and outcomes. Importantly, the survey asked students about their socioemotional development and their psychological wellbeing at several points in time before and after Reunification, allowing us to study whether and to what extent these measures are impacted by Reunification and relate to long-run outcomes. Given the longitudinal nature of the study, we can link changes in socioemotional development (specifically, impulse control and self-confidence) to longer-run, postreunification behavioral, educational and health outcomes when students are young adults.

The surveyed sample was selected using multistage sampling, wherein first regions within East Germany and then schools were randomly selected, and then all students in the relevant academic cohorts were surveyed. All surveys were self-administered, ensuring students' anonymity (i.e., personally identifiable information was separated from the survey responses).

[9]The study, in Germany called *Schülerintervallstudie Fähigkeiten/Risiko 1986-1995*, was initiated by the Central Institute for Youth Research, Leipzig (*Zentralinstitut für Jugendforschung (ZIJ)*) and continued by the German Youth Institute Munich, Regional Office Leipzig (*Deutsches Jugendinstitut München, Regionale Arbeitsstelle Leipzig*) The data are available at the GESIS Data Archive, Cologne, at the Leibniz Institute for the Social Sciences. A description of the study can be found at https://search.gesis.org/research_data/ZA6117

3.2 Variable description

In our short-run analysis on how Reunification affected the socioemotional and cognitive development of male and female youth, our main outcome of interest is the socioemotional development (SED) of young adolescents (aged 12 to 14 years old), as measured by their levels of impulse control and self-confidence.[10] We measure self-confidence as the extent of agreement with the statement *"I struggle with low self-confidence"*. To measure impulse control, individuals are asked about their agreement with the following statements: *"When provoked, I lose my temper"* and *"I have destroyed things out of anger"*, which are combined using factor analysis. The survey elicits students' level of agreement with the above statements, where possible answers range from 1 ("very strongly agree") to 4 ("do not agree at all"). Thus, higher-value answers imply higher self-confidence and higher impulse control (for an overview of the different measures, see Table A.1a).

We complement our analysis of socioemotional (noncognitive) skills by examining the impact on individuals' cognitive skills (see, e.g., Heckman et.al., 2006; and Cunha and Heckman, 2007). To do this, we compute an index of cognitive ability derived from a principal component analysis based on outcomes in two standardized tests (verbal and math) and school-based German and math grades. The two SED and the index of cognitive skills are all standardized to allow us to interpret regression coefficients in terms of standard-deviation changes.

In the second part of our analysis, we link changes in socioemotional skills around the time of Reunification to later outcomes, measured when individuals are aged 18 to 21. We classify these outcomes into the following five categories: *externalizing* behavior, *internalizing* behavior, *behavioral control* issues, *health* outcomes, and *educational* outcomes, which are described below (for an overview, see Table A.1b).

In terms of externalizing behavior, we measure self-reported deviant behavior during the past 12 months. We use principal component analysis to create one index of externalizing behavior. There are three main measures: (1) *Physical fighting*, which captures whether the individual has deliberately beaten or hurt someone, (2) *Destroy property*, which captures whether the individual has deliberately destroyed or damaged private or

[10] According to the American Psychological Association (APA) dictionary of psychology (APA, n.d.), self-confidence is defined as the trust in one's own abilities and judgment, while impulse control is defined as the ability to resist an impulse or temptation and the ability to control its translation into an action. Problems with impulse control are considered a disorder. For instance, individuals with intermittent explosive disorder (IED), which is an impulse control disorder, experience sudden episodes of anger and have aggressive outbursts (see, Grant and Potenza, 2011). This type of anger management is directly measured in our Impulse Control variable.

public property, and (3) *Trouble with police*, indicating whether the individual has had problems with the police due to his or her actions.

For internalizing behavior, we create an index measuring individuals' suicidal tendencies based on the following two variables. (1) The *Suicidal thoughts* variable captures whether the individual has thought of committing suicide at least once, and (2) the *Repeated suicidal thoughts* variable indicates whether the individual has had thoughts of committing suicide more than once.

With respect to behavioral control problems, we combine, via principal component analysis, the incidence of substance abuse and cigarette consumption. *Substance abuse* captures whether the individual consumes alcohol on a weekly basis (within the last three months of the interview) and/or has consumed at least two different types of drugs (within the last 12 months of the interview), and *Cigarette smoking* indicates whether the individual is a regular smoker.

The health/well-being measures consist of (1) *Subjective health*, an indicator that ranges from 1 ("poor") to 5 ("very good") and refers to the current health status as perceived by the young adult, and (2) *Life satisfaction*, which measures the individual's satisfaction with life in general. It is defined in four categories (where 1 is "not at all satisfied" and 4 is "completely satisfied").

Finally, we measure education with the obtainment of the "Abitur", a certificate that qualifies for college admission. To obtain the Abitur, students must successfully attend the academic track until grade 12 and pass a centralized exam.

3.3 Summary statistics

In Table 1, we present, by gender, the summary statistics of the SED and the index of cognitive skills measures in early adolescence (Table 1a) and behaviors and long-run outcomes in late adolescence/early adulthood (Table 1b). The first column of Table 1 presents averages for girls, the second column presents averages for boys, and the third column tests for a difference between the two. Overall, boys report lower levels of impulse control and higher levels of self-confidence than girls at the same age, while they fare lower in terms of the cognitive skill index.

Table 1b shows that the prevalence of externalizing behavior is higher for young men than for young women of the same age. Among men, the externalizing behavior index is on average 37 percent of a standard deviation higher than among women. However, internalizing behavior is on average 35 percent of a standard deviation higher for young

women than for young men.[11] With respect to behavioral control problems, the gender differences are less stark than those that appear in terms of externalizing and internalizing behavior. Young men score on average 16 percent of a standard deviation higher on the behavioral control index than young women.

Health and educational outcomes are relatively similar among young women and men. They report similar levels of life satisfaction, while young men report a slightly higher level of subjective health. There are no gender differences in obtaining the university entry exam (the Abitur), with approximately 40 percent taking it.

4 Empirical Methodology

4.1 Short-run effects of Reunification on SED

We causally estimate the effect of a macro shock on SED using the quasi-experiment of German Reunification in October 1990, whereby students' birth cohort and the timing of Reunification jointly determine their exposure to the change in regime. We apply a difference-in-differences (DID) framework that uses variation in the timing of Reunification for the two cohorts of students, who have a three-year age gap, to identify its effect on SED. We analyze the change in SED of the younger cohort before and after Reunification, using as a control for the counterfactual trend, the evolution of the older cohort's SED between the same grades (before Reunification). Importantly, the regime change allows us to isolate a change in SED that is not driven by age effects.

The "treatment" of interest is that of regime change on the SED of the younger cohort following Reunification in October 1990. The older cohort serves as the "control" group for the (counterfactual) trend across grades for the younger cohort. This group captures how SED would have evolved if there had been no Reunification. For instance, the older cohort is aged 14 in 1988, which is prereunification, while the younger cohort is aged 14 in 1991, which is postreunification. The empirical design is such that we focus

[11] In Appendix Table A.2, we compare our measures of externalizing and internalizing behaviors with similar measures from a US survey targeted at the surveillance of risky behaviors among youths, the "Youth Risk Behavior Surveillance" survey of 12th graders from 1995. Although there are some differences in the survey questions and reference periods (and the US sample is slightly younger), the average incidence and patterns in terms of gender differences are similar. For example, in our survey of 18- to 21-year-old East Germans, the likelihood of female (male) youths getting into fights is 2-3 percent (10 percent). A similar gap exists among the 18-year-old students in the US sample, with 6 percent (16 percent) for females (males). In terms of suicidal thoughts, in our sample, 34 percent (20 percent) of female (male) youths reported having *ever had thoughts* about committing suicide at least once, while 24 percent (16 percent) of US 12th graders reported having *seriously thought* about attempting suicide *in the past 12 months* (i.e., the definition is stricter and the reference period shorter).

on the grades directly pre- and postreunification for the younger cohort, which allows us to identify the short-run effects of Reunification and helps compute the correct standard errors (Bertrand et.al., 2004). More generally, we estimate the following equations:

$$SED_{ic} = \beta_0 + \beta_1 T_i + \beta_2 P_{ic} + \beta_3 (T_i P_{ic}) + \beta_4 F_i + X_{ic}\delta + \epsilon_{ic} \tag{1}$$

$$SED_{ic} = \beta_0 + \beta_2 P_{ic} + \beta_3 (T_i P_{ic}) + D_i + \epsilon_{ic} \tag{2}$$

where SED_{ic} is the measure of the SED of student i in cohort c. T_i is a dummy variable indicating "treated cohort" (i.e., taking the value of one if the individual belongs to the younger cohort and zero otherwise), and P_{ic} indicates the "post" period, representing the student's age. Since we restrict the analysis to ages 12 to 14, P_{ic} is a dummy variable that takes the value of one if the age of the individual is 14 (where age 12 is the excluded category); F_i is a gender dummy variable taking the value of one if the student is female. X_{ic} is a vector of predetermined individual-specific characteristics. In a second specification, we include individual fixed effects D_i (see Equation (2)).

To understand the importance of gender differences in the impact on SED, we estimate Equations (1) and (2) by fully interacting the specification with the female dummy variable F_i, leading to:

$$\begin{aligned} SED_{ic} = \beta_0 + \beta_1 T_i + \beta_1^F (T_i F_i) + \beta_2 P_{ic} + \beta_2^F (P_{ic} F_i) \\ + \beta_3 (T_i P_{ic}) + \beta_3^F (T_i P_{ic} F_i) + \beta_4 F_i + X_{ic}\delta + (X_{ic} F_i)\delta^F + \epsilon_{ic} \end{aligned} \tag{3}$$

$$SED_{ic} = \beta_0 + \beta_2 P_{ic} + \beta_2^F (P_{ic} F_i) + \beta_3 (T_i P_{ic}) + \beta_3^F (T_i P_{ic} F_i) + D_i + \epsilon_{ic} \tag{4}$$

The main coefficients of interest are β_3 and β_3^F, which capture the effect of a change in regime (β_3) and whether this effect differs by gender (β_3^F). The interaction term ($T_i P_{ic}$) takes the value of one if a student is from the younger cohort and is 14 years old, which is in the postreunification period for the young cohort, while $T_i P_{ic} F_i$ takes the value of one if the student is female, in the young cohort and in the postreunification period. All equations are estimated using ordinary least squares with standard errors clustered at the individual level. We also show that results are robust to clustering at the school level.

One potential alternative way to apply the difference-in-differences approach is to compare the young and the old cohorts in the same years before and after Reunification.

However, the older cohort is also likely affected by Reunification, such that we would have to expect a response within the "control" group as well if we were to use this alternative strategy. In our application of the difference-in-differences approach, on the other hand, we compare the younger and older cohorts at the same age. In this way, the older cohort is not affected by reunification since the cohort is at the relevant age before reunification. Moreover, it allows us to carefully control for age (life-cycle) effects, which are likely to be particularly important during adolescence. More specifically, we control for how the younger cohort's socioemotional development would have developed without Reunification by making use of the change in these measures within the control group at the same ages.

Under the parallel trend assumption, the assumption is that without German Reunification, the younger cohort's psychological development between ages 12 and 14 would have been the same as that of the older cohort between ages 12 and 14. We provide evidence in favor of the parallel trend assumption by conducting a placebo test in which we compare the evolution of the SED for the younger cohort in the preperiod with that of the older cohort.

4.2 Linking SED to adolescent behavior and long-run outcomes

To analyze the impact of SED on students' later outcomes as young adults (aged 18 to 21), we link the changes in SED during ages 12 to 14 to their externalizing behaviors, internalizing behaviors, and behavioral control problems, as well as to health and education outcomes in young adulthood.

Our interest is not in the effect of the macro shock on long-run outcomes per se but on how the changes in SED are linked to adolescent behaviors and longer-run outcomes. Since, by construction, we do not observe long-run outcomes before Reunification for these youths (as they would be too young) and, at this point, the older cohort is affected by Reunification as well, the empirical strategy is therefore to analyze how the change in SED between ages 12 and 14 (i.e., when the younger cohort experienced Reunification) affects the long-run behavior and other outcomes *differentially by gender* controlling for SED at age 12 (i.e., prior to Reunification). In other words, we do not focus on the correlation between SED at a certain age and longer-run outcomes, but, by holding the level of SED at age 12 constant, we measure how the change in SED between age 12 and 14 – during which time Reunification impacted those skills, as shown in our short-run analysis – is differentially linked to longer-run outcomes for males versus females.

We therefore estimate the following equation:

$$B_{ic} = \gamma_0 + \gamma_1 \Delta SED_{ic} + \gamma_1^F (\Delta SED_{ic} F_i) + \gamma_3 SED_{ic,pre} + \gamma_3^F (SED_{ic,pre} F_i) + \gamma_5 T_i + \gamma_5^F (T_i F_i) + \gamma_6 F_i + \epsilon_{ic} \quad (5)$$

where B_{ic} is an indicator for a certain behavior (or a measure of health, wellbeing or education) of individual i in cohort c, T_i is an indicator for belonging to the young (treated) cohort, F_i is an indicator for being a female, $SED_{ic,pre}$ captures the level of a certain socioemotional skill at age 12 (i.e., before Reunification for both cohorts), and ΔSED_{ic} captures how a certain SED indicator changed from age 12 to age 14 (i.e., before vs. after Reunification for the young cohort). We interact each of the variables with the indicator for being female.

The coefficient of interest is γ_1^F, which measures how the change in SED between ages 12 and 14 differentially affects individuals' later behavior and outcomes for females versus males. Given the specification above, we (indirectly) control for potential time-constant factors that contribute to a correlation between SED and long-run outcome (such as family background characteristics) by holding the level of SED at age 12 constant to focus on the link between changes in SED and long-run behavior. Moreover, since we are interested in differential links between SED and long-run outcomes for females versus males, we also control for time-varying factors (between age 12 and 14) that are linked to long-run outcomes in the same way for males and females.

Last, while our focus is on the link between socioemotional (noncognitive) skills and long-run behaviors and outcomes, Reunification might have, of course, also affected cognitive skills.[12] Thus, any correlation we observe between changes in SEDs and long-run outcomes might be confounded with a potential link in terms of changes in cognitive skills and long-run outcomes if the link is differential by gender.

We therefore estimate a second specification:

$$B_{ic} = \gamma_0 + \gamma_1 \Delta SED_{ic} + \gamma_1^F (\Delta SED_{ic} F_i) + \gamma_2 \Delta COG_{ic} + \gamma_2^F (\Delta COG_{ic} F_i) + \gamma_3 SED_{ic,pre} + \gamma_3^F (SED_{ic,pre} F_i) + \gamma_4 COG_{ic,pre} + \gamma_4^F (COG_{ic,pre} F_i) + \gamma_5 T_i + \gamma_5^F (T_i F_i) + \gamma_6 F_i + \epsilon_{ic} \quad (6)$$

[12] Heckman et. al. (2006) and Cunha and Heckman (2007) show that the two skill dimensions, cognitive and noncognitive skills, are both necessary and sufficient to explain success in many aspects of social and economic life (such as wages, schooling, etc.) and to explain the phenomenon of risky behaviors among youths.

where $COG_{ic,pre}$ captures the level of cognitive skills at age 12 (i.e., before Reunification for both cohorts), and ΔCOG_{ic} captures how cognitive skills changed from age 12 to age 14 (i.e., before vs. after Reunification for the young cohort). We thereby shed light on how the change in SED between ages 12 and 14 is differentially linked to long-run outcomes for females versus males, while controlling for the change in cognitive skills between the same ages and the level in cognitive skills at age 12 (i.e., prior to Reunification for both cohorts), both interacted with a dummy variable for females to also control for differential effects by gender of cognitive skills and changes in cognitive skills.

5 Results: Short-run Effects of Reunification on SED

Table 2 shows that the macro shock of Reunification had drastic effects on adolescents' SED between ages 12 and 14. Panel A presents the impact of Reunification on impulse control and self-sonfidence employing a difference-in-differences approach, as discussed in the previous section. Columns (1) and (2) show that Reunification led to a substantial decrease in terms of impulse control (by 32 percent of a standard deviation). The results are very similar without and with controls for individual fixed effects (compare Columns (1) and (2)). Similarly, Reunification led to a substantial decrease in the level of self-confidence of 47 percent of a standard deviation (Columns (3) and (4), without and with individual fixed effects, respectively). At the same time, there is no significant effect of Reunification on cognitive skills (see Columns (5) and (6)).

Using Table 3, we analyze whether the macro shock affects the SED of adolescent boys and girls differently. Columns (1) and (2) show that (with and without fixed effects), impulse control decreases similarly for both genders. This finding is important in that if one were to focus only on changes in *behavior* (such as disruptive and aggressive behavior) following a major life disruption, one would observe those changes predominantly in boys, while girls would appear to be unaffected (or less affected). This could give the impression that the SED of boys is more severely affected by adverse shocks (see the literature discussion in the introduction). However, by directly measuring SED, we show that the effects are similar for both girls and boys. As we will discuss in the next section, what differs by gender is how SED is *linked* to different types of behavior. Columns (3) and (4) show that compared to adolescent boys, the self-confidence of girls is more negatively impacted by the macro shock, in that girls' self-confidence levels decrease by 68 percent of a standard deviation but only by 20 percent of a standard deviation for boys. This again highlights that, if anything, girls are more strongly affected by the

shock than boys. Finally, Columns (5) and (6) show that there is no significant effect of Reunification on cognitive skills for either gender.

Using Panel B of Tables 2 and 3, we conduct a placebo experiment to test whether the pretrends in SED are similar for the two cohorts. We estimate a differences-in-differences specification (without and with fixed effects) comparing the evolution of both groups' SED before age 12. The results are consistent with the parallel trend assumption (both for the pooled sample and separately by gender) in that the pretrends for both cohorts are very similar (the estimated coefficient is close to zero and insignificant). This lends support to our causal interpretation of the effect of Reunification on youths' socioemotional skills.[13]

6 Results: Adolescent Behaviors and Longer-run Outcomes

In this section, we study how the changes in socioemotional skills among adolescents resulting from the macro shock transmit to their later behavior and outcomes. We look at their behavior (externalizing, internalizing and control issues), (psychological) health and wellbeing, and educational outcomes.

To do this, we link the change in SED before and after Reunification to outcomes approximately five years later when the youths have become young adults (ages 18 to 21). As described in the previous section, we control for SED at age 12 (i.e., prior to Reunification) and for level differences in outcomes by cohort and gender and analyze how the change in SED between ages 12 and 14 (i.e., when the younger cohort experienced Reunification) affects adolescents' behavior and longer-run outcomes differentially by gender. The specification (indirectly) controls for potential time-constant factors that contribute to a correlation between SED and long-run outcome (such as family background characteristics) by holding the level of SED at age 12 constant. Since we are interested in differential links between SED and long-run outcomes for females versus males, we also control for time-varying factors (between age 12 and 14) that are linked to long-run outcomes in the same way for males and females.

Summary Tables 4 and 5 present the results of how the changes in *socioemotional* skills are linked to the different long-run outcomes displayed in the different columns of the table. Table 4 presents the results for externalizing behavior (Columns (1) and (2)), internalizing behavior (Columns (3) and (4)), and behavioral control problems (Columns (5) and (6)). Table 5 shows the results for subjective health (Columns (1)

[13] In Online Appendix Tables A.9 and A.10 we show that our results are robust to clustering standard errors at the school level.

and (2)), life satisfaction (Columns (3) and (4)) and earning of a college qualification (Columns (5) and (6)). In all specifications, we include controls for pre-Reunification levels of socioemotional and cognitive skills, cohort, and a gender dummy variable. In addition, we control for the changes in cognitive skills between ages 12 and 14. We only display the main coefficients of interest (i.e., the coefficients on the change in the (SED or cognitive) skill indicator in Columns (1), (3) and (5), and in Columns (2), (4), and (6) additionally the coefficients on the interactions thereof with gender). The differential link between changes in socioemotional skills and longer-run outcomes by gender is the focus of this analysis.[14] In the following subsections, we describe our main findings.

6.1 Adolescents' Behavior

In Table 4, Columns (1) and (2) show that externalizing behavior in young adulthood is strongly linked to changes in impulse control in adolescence. A one-standard-deviation increase in impulse control post- versus pre-Reunification decreases externalizing behavior by 16 percent of a standard deviation (significant at the one percent level). While male and female youths' socioemotional indicators (specifically, impulse control) are similarly affected by Reunification, the change in impulse control is linked to externalizing behavior as a young adult only for males. For men, a one-standard-deviation increase in the level of impulse control decreases externalizing behavior by 33 percent of a standard deviation (significant at the one percent level).

The coefficient on the interaction of the change in impulse control with the female dummy variable is of similar magnitude as the main effect but of the opposite sign with 29 percent of a standard deviation (significant at the 5 percent level), suggesting that there is no effect on women's externalizing behavior. Changes in self-confidence and cognitive skills, on the other hand, do not influence externalizing behavior, with coefficients close to zero (see Online Appendix Table A.3 for the full set of coefficients).

In Columns (3) and (4), we show that, unlike the externalizing behavior effects, any impact of the shock on internalizing behavior is almost entirely driven by female youths. Both socioemotional indicators are negatively related to the longer-run propensity toward suicidal thinking (see Online Appendix Table A.4 for the full set of coefficients). We find that a one-standard-deviation increase in impulse control decreases internalizing behavior by 11 percent of a standard deviation (significant at five percent). This effect

[14] For the full set of coefficients for each of the longer-run outcomes and the set of coefficients in the shorter specification without controls for the level and change in cognitive skills, see Online Appendix Tables A.3 to A.8. In the Online Appendix Tables A.11 and A.12 we show that our results are robust to clustering standard errors at the school level.

does not differ significantly by gender, but the point estimate is larger for females. A fall in self-confidence is strongly and significantly related to internalizing behavior, where a one-standard-deviation decrease in self-confidence increases internalizing behavior by 11 percent of a standard deviation (significant at the 5 percent level). This effect is driven entirely by young women, for whom the coefficient on the interaction term is 29 percent of a standard deviation (while the main effect is zero).

We next analyze the effect of changes in SED on later engagement in "risky" behavior – often referred to in the psychology literature as behavioral control issues – which combines information on substance abuse (alcohol and drugs) and smoking behavior. Columns (5) and (6) of Table 4 display the effect on behavioral control problems.[15] We find that a change in impulse control is negatively related to problems of behavioral control. A one-standard-deviation increase in impulse control leads to a 14 percent of a standard deviation decrease in behavioral control problems. This effect is again driven by young men, for whom an increase in impulse control decreases behavioral control problems by 24 percent (significant at one percent), while the coefficient on the interaction with the female dummy is of the opposite sign with 17 percent of a standard deviation (significant at ten percent). Increases in self-confidence are linked positively to behavioral control problems, but again only for males. A one standard deviation increase in self-confidence in early adolescence increases behavioral control problems in early adulthood by 10 percent of a standard deviation.

In summary, given the overall negative effect of the Reunification on young adolescents' SED in the short-run, these links imply that the negative effect during adolescence is transmitted into worse behavioral outcomes in young adulthood. Impulse control decreased among both genders but is only for young men a relevant measure linked to externalizing behavior. Thus, in line with the literature, an increase in the expression of externalizing behavior among men would be observed. Indeed, we do find that the key relevant psychological measure is impulse control, but only for young men. In terms of the impact of changes in SED on internalizing behavior, we find that changes in both impulse control and self-confidence are relevant. At the same time, self-confidence, which is only a relevant measure linked to internalizing behavior among young women, decreased due to the Reunification, especially for young females, leading to a higher prevalence of internalizing behavior among young women.

[15]The full set of coefficients for behavioral control problems can be found in Online Appendix Table A.5.

6.2 Longer-Run Outcomes

Table 5 shows that changes in both SED measures are strongly linked to later health and wellbeing outcomes.[16] Columns (1) to (4) show substantial positive effects of increases in impulse control and in self-confidence on longer-run subjective health and life satisfaction. A one-standard-deviation increase in impulse control post- versus pre-reunification increases subjective health by 11 percent of a standard deviation, and a one-standard-deviation increase in self-confidence increases subjective health by 9 percent of a standard deviation. The effects on the life satisfaction measure are similar and amount to an increase of 8 percent of a standard deviation for both SED measures.

Interestingly, the effects are similar for males and females. For subjective health as well as life satisfaction, most of the interaction terms with gender are close to zero and not significant, with the exceptions of self-confidence being more strongly linked to life satisfaction for women (significant at 5 percent). Thus, while changes in SED due to adverse shocks are linked to behaviors (whether externalizing or internalizing) in very different ways for males and females, their longer-run impact on health and wellbeing appears to be similar.

We are also interested in whether changes in SED among adolescents have lasting economic impacts. We investigate the longer-run effects of the change in SED on individuals' likelihood of obtaining the "Abitur", which is the school-leaving certificate for the highest educational track, namely, the academic track, and a requirement for college admission. We find that changes in impulse control have important and significant effects on the likelihood of Abitur completion. A one-standard-deviation increase in impulse control increases the likelihood of qualifying for college by 4.4 percentage points, which is equivalent to an increase of nearly 20 percent. The effects of changes in impulse control on Abitur completion are very similar for males and females.[17]

While changes in cognitive skills between ages 12 and 14 are generally not related to young adults' behavioral or health/well-being outcomes, they are linked to the academic outcome we investigate. Increases in the indicator of cognitive ability (composed of math and German grades and a standardized score) are linked (at the 1 percent level) to a higher likelihood of obtaining a college qualification (increase of 10 percentage points). Intuitively, increased performance in school and in terms of cognitive skills during critical ages of 12 to 14 (for example, due to studying harder) leads to better grades and academic performance/attainment in the longer run.

[16] The full set of coefficients can be found in Online Appendix Tables A.6 and A.7.
[17] The full set of coefficients can be found in Online Appendix Table A.8.

7 Conclusion

In this paper, we identify the lasting impacts of a macro shock on young adults' behaviors, as well as on their health and educational outcomes, propagated via causal changes induced by the shock to their socioemotional development as young adolescents. We document that the short-term effects of reunification on socioemotional development are similarly negative for boys and girls, and this is transmitted to longer-term health, wellbeing, and educational success in a similarly negative manner. This is despite the common perception that males are more strongly impacted by (negative) circumstances or changes in their environment. While our results support the "fragile male" hypothesis if attention is restricted to certain behaviors/outcomes, by broadening our focus, we show that negative effects on socioemotional skills *manifest* themselves in very different ways by gender. Adverse shocks and circumstances negatively affect externalizing and self-control (risky) behaviors, but only (or mostly) for boys, as predicted by the "fragile male" hypothesis. However, it is important to take into account that for girls (and only for them), internalizing behaviors related to mental health problems are instead strongly impacted. Ultimately, in the longer run, (adverse) changes in socioemotional development have similarly negative impacts on subjective health measures, life satisfaction and educational success of both young men and women.

From a policy perspective, our study highlights several important results. First, it provides evidence for a causal link between uncertainty and youths' socioemotional development. We show that among early-adolescent East Germans, impulse control and self-confidence changed substantially within a relatively short time span from before to after Reunification (using as a counterfactual trend the development of a slightly older cohort between the same ages prior to Reunification). Second, these changes had a lasting impact on these adolescents, impacting their outcomes as young adults. These findings highlight the importance of studying and promoting socioemotional development at early ages. Third, focusing on gender differences, we show that similar shocks to socioemotional development affect the behavior of boys and girls very differently. This is also important from the point of view of policy, as it suggests that careful targeting is needed. While a great deal of attention has been given to problems related to the externalizing behavior of boys, especially in the classroom, less attention has been given to severe problems in internalizing behavior (related to mental health problems) in girls. However, as we highlight, externalizing behaviors and self-control problems as well as internalizing behaviors related to mental health problems are affected in the short run and appear similarly relevant for longer-run health, wellbeing and (educational) success.

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Tables

Table 1: Descriptive Statistics by Gender

(a) Variables in early adolescence

	Variable	Female	Male	Diff.
SED	Impulse Control	0.1833	-0.0610	-0.24***
		[0.9167]	[0.9511]	[0.00]
	Self-Confidence	-0.0644	0.1355	0.20***
		[0.9973]	[0.8908]	[0.00]
Cognitive Skills	Cognitives	0.4297	0.1622	-0.27***
		[0.9258]	[0.9192]	[0.00]

(b) Variables in late adolescence/ early adulthood

	Variable	Female	Male	Diff.
Behaviors	Externalizing Behavior	-0.1672	0.2024	0.37***
		[0.5756]	[1.3398]	[0.00]
	Internalizing Behavior	0.1577	-0.1909	-0.35***
		[1.1392]	[0.7585]	[0.00]
	Behavioral Control Problems	-0.0724	0.0877	0.16*
		[0.9458]	[1.0568]	[0.03]
Long-run Outcomes	Subjective Health	0.0141	0.1713	0.16*
		[1.0169]	[0.9375]	[0.03]
	Life Satisfaction	-0.0097	0.0165	0.03
		[1.0053]	[0.8756]	[0.71]
	College Qualification	0.4335	0.3943	-0.04
		[0.4963]	[0.4896]	[0.32]

Notes: In Panel (a), we pool both cohorts and show the means of the socioemotional measures for youths at ages 12/13 and 13/14 (i.e. before and after Reunification for the young cohort) as in the analysis of short-run effects. In Panel (b), we display means of the longer-run outcomes when youths are between ages 18 and 21, using the same (pooled) sample as in the short-run analysis. *Impulse Control* combines the students' strength of disagreement with loosing temper and destroying things out of anger using factor analysis, hereby a higher value indicates better impulse control. *Self-Confidence* captures students' indication of having problems with low self-confidence as measured on a scale from 1 to 4, where 1 is "very strongly agree" and 4 is "do not agree at all". The *Cognitives* measure combines academic performance in German and Math using factor analysis wherein a higher value indicates higher cognitive skills. *Externalizing Behavior* is measured by an index combining the incidence of physical fighting, having destroyed property, and having had trouble with the police; hereby higher values imply stronger expressions of externalizing behavior. *Internalizing behavior* is captured by an index based on the student's (repeated) suicidal thoughts with higher values indicating more internalizing behavior. *Behavioral Control Problems* is an index based on cigarette consumption (indicator for regular/ occasional consumption) and substance abuse indicating that the student consumes alcohol on a weekly basis and/ or has consumed at least 2 different types of drugs; again higher values imply stronger behavioral control problems. *Subjective Health* captures the self-reported rating of the current health and increases with better levels of health. *Life Satisfaction* captures students' satisfaction with overall life and increases with the level of satisfaction. *College Qualification* is an indication of whether an Abitur degree (university entrance requirement) was obtained.

Table 2: The Effect of Reunification on Socioemotional Development

Panel A	**Main Results**					
	SED: Impulse Control		SED: Self-Confidence		Cognitives	
	[1]	[2]	[3]	[4]	[5]	[6]
Treated Cohort x Post Reunification	-0.317***	-0.317***	-0.469***	-0.469***	-0.049	-0.049
	[0.078]	[0.078]	[0.082]	[0.082]	[0.040]	[0.040]
Treated Cohort (Young)	0.043		0.042		0.039	
	[0.071]		[0.070]		[0.068]	
Post Reunification (Age 14)	0.043	0.043	-0.017	-0.017	0.107***	0.107***
	[0.047]	[0.047]	[0.048]	[0.048]	[0.020]	[0.020]
Constant	0.094**	0.111***	0.110**	0.126***	0.247***	0.263***
	[0.046]	[0.019]	[0.043]	[0.019]	[0.043]	[0.009]
N Observations	1504	1504	1504	1504	1504	1504
N Individuals	752	752	752	752	752	752
Individual FE	NO	YES	NO	YES	NO	YES
R-squared	0.012	0.028	0.035	0.074	0.002	0.032
Panel B	**Placebo-Tests**					
Treated Cohort x Post Reunification	0.031	0.036	0.094	0.096	0.014	0.010
	[0.077]	[0.076]	[0.086]	[0.087]	[0.038]	[0.034]
Treated Cohort (Young)	-0.030		-0.033		0.040	
	[0.075]		[0.075]		[0.066]	
Post Reunification	0.041	0.041	-0.017	-0.017	0.157***	0.177***
	[0.047]	[0.047]	[0.049]	[0.049]	[0.025]	[0.021]
Constant	0.017	0.004	0.023	0.010	0.239***	0.245***
	[0.046]	[0.019]	[0.045]	[0.021]	[0.042]	[0.009]
N Observations	1488	1488	1486	1486	1456	1456
N Individuals	752	752	752	752	752	752
Individual FE	NO	YES	NO	YES	NO	YES
R-squared	0.001	0.003	0.001	0.002	0.008	0.145

Notes: * denotes significance at the 10% level, ** denotes significance at the 5% level, and *** denotes significance at the 1% level. Standard errors clustered at individual level are displayed in brackets. In columns [1]/[2] and [3]/[4] effects of the Reunification on SED measures Impulse Control and Self-Confidence, and in columns [5]/[6] effects on the cognitive skill measure are displayed, respectively. Treated Cohort takes value 1 for the younger cohort and 0 for the older cohort. Post-Reunification takes the value 1 if the student is aged 13/14 (this is pre-Reunification for the older cohort (year 1987) and post-Reunification for the younger cohort (year 1991)) and 0 when aged 12/13 (i.e., pre-Reunification for both cohorts). In Panel B, we perform a placebo test that compares the change in outcomes of both cohorts in the pre-Reunification period (prior to age 13) to lend support to the parallel trend assumption.

Table 3: The Effect of Reunification on Socioemotional Development by Gender

Panel A	**Main Results**					
	SED: Impulse Control		SED: Self-Confidence		Cognitives	
	[1]	[2]	[3]	[4]	[5]	[6]
Treated Cohort x Post Reunification	-0.253**	-0.253**	-0.200*	-0.200*	-0.076	-0.076
	[0.119]	[0.119]	[0.121]	[0.121]	[0.062]	[0.062]
Treated Coh. x Post Reuni. x Female	-0.113	-0.113	-0.486***	-0.486***	0.046	0.046
	[0.158]	[0.158]	[0.164]	[0.163]	[0.082]	[0.082]
N Observations	1504	1504	1504	1504	1504	1504
N Individuals	752	752	752	752	752	752
Individual FE	NO	YES	NO	YES	NO	YES
R-squared	0.035	0.029	0.052	0.086	0.024	0.034
Panel B	**Placebo-Tests**					
Treated Cohort x Post Reunification	-0.076	-0.050	0.187	0.180	-0.012	-0.037
	[0.114]	[0.114]	[0.117]	[0.118]	[0.060]	[0.053]
Treated Coh. x Post Reuni. x Female	0.191	0.155	-0.173	-0.157	0.040	0.084
	[0.154]	[0.153]	[0.171]	[0.172]	[0.077]	[0.069]
N Observations	1488	1488	1486	1486	1456	1456
N Individuals	752	752	752	752	752	752
Individual FE	NO	YES	NO	YES	NO	YES
R-squared	0.025	0.005	0.005	0.004	0.030	0.150

Notes: * denotes significance at the 10% level, ** denotes significance at the 5% level, and *** denotes significance at the 1% level. Standard errors clustered at individual level are displayed in brackets. In columns [1]/[2] and [3]/[4] effects of the Reunification on SED measures Impulse Control and Self-Confidence, and in columns [5]/[6] effects on the cognitive skill measure are displayed, respectively. Treated Cohort takes value 1 for the younger cohort and 0 for the older cohort. Post Reunification takes the value 1 if the student is aged 13/14 (this is pre-Reunification for the older cohort (year 1987) and post-Reunification for the younger cohort (year 1991)) and 0 when aged 12/13 (i.e., pre-Reunification for both cohorts). In Panel B, we perform a placebo test that compares the change in outcomes of both cohorts in the pre-Reunification period (prior to age 13) to lend support to the parallel trend assumption.

Table 4: Adolescent Behaviors

	Externalizing Behavior		**Internalizing Behavior**		**Behav. Control Problems**	
	[1]	[2]	[3]	[4]	[5]	[6]
Change in SED						
Impulse Control	-0.163***	-0.331***	-0.109**	-0.080	-0.141***	-0.240***
	[0.057]	[0.117]	[0.050]	[0.059]	[0.050]	[0.084]
Impulse Control x Female		0.289**		-0.047		0.175*
		[0.124]		[0.096]		[0.103]
Self-Confidence	-0.004	0.087	-0.112**	0.082	0.096**	0.228***
	[0.050]	[0.107]	[0.052]	[0.059]	[0.048]	[0.074]
Self-Confidence x Female		-0.157		-0.288***		-0.208**
		[0.114]		[0.094]		[0.095]
Change in Cognitives						
Cognitives	-0.020	-0.069	0.066*	0.058	-0.052	-0.081
	[0.058]	[0.090]	[0.036]	[0.037]	[0.039]	[0.056]
Cognitives x Female		0.079		0.019		0.052
		[0.115]		[0.068]		[0.077]

Notes: * denotes significance at the 10% level, ** denotes significance at the 5% level, and *** denotes significance at the 1% level. Standard errors clustered at individual level are displayed in brackets. Each column represents a separate regression for which the coefficient on the change in SED and change in cognitives are displayed, i.e., the change between age 12/13 to 13/14 (prior versus post-Reunification for the young cohort). Columns [1]/[2] report the effects of the SED changes on externalizing behavior, which is an index based on the propensity to fight, destroy property, and having had trouble with the police. Columns [3]/[4] report the effects on internalizing behavior index based on (repeated) suicidal thoughts. Columns [5]/[6] report effects on behavioral control problems measured by an index capturing cigarette consumption and substance abuse (alcohol and drugs). Higher values of each behavioral variable imply stronger expressions of the given behavior. All regressions control for the level of the relevant SED measure and cognitive skill at age 12/13 (i.e., prior to Reunification for the young cohort), treatment assignment indicating whether the student belongs to the young cohort, and gender. All outcome variables are measured after the reunification, when students are aged 18 to 21. The full set of coefficients, including all included controls are displayed in Online Appendix Tables A.3 to A.5.

Table 5: Long-run Outcomes

	Subjective Health		**Life Satisfaction**		**College Qualification**	
	[1]	[2]	[3]	[4]	[5]	[6]
Change in SED						
Impulse Control	0.112**	0.175**	0.088*	0.144**	0.044**	0.052*
	[0.048]	[0.071]	[0.047]	[0.065]	[0.020]	[0.031]
Impulse Control x Female		-0.122		-0.103		-0.012
		[0.097]		[0.094]		[0.041]
Self-Confidence	0.090*	0.067	0.083*	-0.048	0.007	0.011
	[0.048]	[0.073]	[0.047]	[0.067]	[0.019]	[0.033]
Self-Confidence x Female		0.028		0.221**		-0.002
		[0.098]		[0.094]		[0.041]
Change in Cognitives						
Cognitives	-0.034	-0.014	0.034	0.046	0.091***	0.099***
	[0.037]	[0.051]	[0.031]	[0.039]	[0.014]	[0.023]
Cognitives x Female		-0.032		-0.029		-0.013
		[0.073]		[0.062]		[0.029]

Notes: * denotes significance at the 10% level, ** denotes significance at the 5% level, and *** denotes significance at the 1% level. Standard errors clustered at individual level are displayed in brackets. Each column represents a separate regression for which the coefficient on the change in SED and change in cognitives are displayed, i.e., the change between age 12/13 to 13/14 (prior versus post-Reunification for the young cohort). Columns [1]/[2] report effects on subjective health which increases in a better assessment. Columns [3]/[4] reports effects on life satisfaction where increasing values indicate higher satisfaction with life in general. Columns [5]/[6] report effects on the college qualification measured by whether an Abitur degree was obtained. All regressions control for the level of the relevant SED measure and cognitive skill at age 12/13 (i.e., prior to Reunification for the young cohort), treatment assignment indicating whether the student belongs to the young cohort, and gender. All outcome variables are measured when students are aged 18 to 21. The full set of coefficients, including all included controls are displayed in Online Appendix Tables A.6 to A.8.

ONLINE APPENDIX – For Online Publication

A. Tables

Table A.1: Variable Description

(a) Variables in early adolescence

	Variable	Description
SED	Impulse Control	Combined score of 2 items, which measure the students' agreement with loosing temper and destroying things out of anger using factor analysis. A higher value indicates better impulse control skills.
	Self-Confidence	Problems with low self-confidence. Captures students' indication of having problems with low self-confidence as measured on a scale from 1 to 4, where 1 is "very strongly agree" and 4 is "do not agree at all".
Cognitive Skills	Cognitives	Combined score of 2 standardized sub-tests and school grades in Math and German. The measure is created using factor analysis wherein a higher value indicates higher cognitive skills.

(b) Variables in late adolescence/ early adulthood

	Variable	Description
Behaviors	Externalizing Behavior	Combined index based on physical fighting, destroying property, and having been in trouble with the police due to rampage.
	Internalizing Behavior	Combined index based on (repeated) suicidal thoughts.
	Behavioral Control Problems	Combined index based on cigarette consumption (indicator for regular/ occasional consumption) and substance abuse indicating that the student consumes alcohol on a weekly basis and/ or has consumed at least 2 different types of drugs.
Long-run Outcomes	Subjective Health	Subjective health assessment increasing in better general health status. It is measured on a scale from 1 to 5, where 1 is "bad" and 5 is "very good".
	Life Satisfaction	Satisfaction of overall life increasing in the level of satisfaction. The scale ranges from 1 ("not at all") to 4 ("completely").
	College Qualification	Indication of whether an Abitur degree was obtained. The successful completion of the degree allows for university enrollment.

Table A.2: Comparison of Measures

	Longitudinal Study of Students			**Youth Risk Behavior Surveillance**		
survey country	Germany			USA		
sample age	18-21 year olds			18 year olds (12th grade)		
survey year	1995			1995		
	definition	female	male	definition	female	male
physical fight	have been or started a physical fight at least once in past 12 months	2.38%	9.32%	at least once in past 30 in physical fight on school property	5.6%	15.5%
suicidal thoughts	thought about committing suicide at least once	34.88%	19.95%	thought seriously about attempting suicide during past 12 months	23.9%	16.3%
smoking behavior	currently smoking (regularly/ occasionally)	38.55%	36.15%	smoked at least on one of the past 30 days	34.4%	42.0%
drinking behavior	drank alcohol at least 1-2 times per month during past year[1]	63.04%	74.35%	drank alcohol on at least one day out of the past 30 days	53.6%	59.5%
	drank alcohol at least once per week during the past 3 months[2]	37.77%	57.72%	episodic heavy drinking (drank at least 5 drinks in one occasion during the past 30 days)	31.6%	46.5%

1 Corresponds to the variable *Alcohol Consumption: Regular* used in the analysis.

2 Corresponds to the variable *Alcohol Consumption: Heavy* used in the analysis.

Table A.3: Outcome: Externalizing Behavior

	Externalizing Behavior			
	[1]	[2]	[3]	[4]
Δ Impulse Control	**-0.166*** **	**-0.324*** **	**-0.163*** **	**-0.331*** **
	[0.059]	**[0.119]**	**[0.057]**	**[0.117]**
Δ Impulse Control x Female		**0.279** **		**0.289** **
		[0.125]		**[0.124]**
Δ Self-Confidence	**-0.009**	**0.089**	**-0.004**	**0.087**
	[0.051]	**[0.108]**	**[0.050]**	**[0.107]**
Δ Self-Confidence x Female		**-0.163**		**-0.157**
		[0.115]		**[0.114]**
Δ Cognitives			**-0.020**	**-0.069**
			[0.058]	**[0.090]**
Δ Cognitives x Female				**0.079**
				[0.115]
Treated Cohort (Young)	0.100	0.124	0.102	0.126
	[0.075]	[0.144]	[0.075]	[0.141]
Treated Cohort x Female		-0.030		-0.030
		[0.155]		[0.153]
Female	-0.323***	-0.316***	-0.294***	-0.340***
	[0.072]	[0.094]	[0.070]	[0.102]
Impulse Control (Pre)	-0.199***	-0.396***	-0.193***	-0.386***
	[0.065]	[0.124]	[0.062]	[0.116]
Impulse Control (Pre) x Female		0.364***		0.354***
		[0.132]		[0.124]
Self-Confidence (Pre)	0.037	0.179*	0.044	0.186*
	[0.049]	[0.097]	[0.049]	[0.097]
Self-Confidence (Pre) x Female		-0.241**		-0.244**
		[0.107]		[0.107]
Cognitives (Pre)			-0.112***	-0.201**
			[0.041]	[0.082]
Cognitives (Pre) x Female				0.165*
				[0.088]
Constant	0.145*	0.106	0.166**	0.146
	[0.078]	[0.089]	[0.081]	[0.095]
N Observations	723	723	723	723
N Individuals	723	723	723	723
R-squared	0.061	0.082	0.071	0.097

Notes: * denotes significance at the 10% level, ** denotes significance at the 5% level, and *** denotes significance at the 1% level. Standard errors clustered at individual level are displayed in brackets. Each column represents a separate regression for which the coefficient on the change in SED and change in cognitives are displayed, i.e., the change between age 12/13 to 13/14 (prior versus post-Reunification for the young cohort). This table reports the effects of the SED changes on Externalizing Behavior, for a detailed description of this variable see Table A.1. The outcome variable is measured after the reunification, when students are aged 18 to 21.

Table A.4: Outcome: Internalizing Behavior

	Internalizing Behavior			
	[1]	[2]	[3]	[4]
Δ Impulse Control	**-0.111****	**-0.085**	**-0.109****	**-0.080**
	[0.050]	**[0.059]**	**[0.050]**	**[0.059]**
Δ Impulse Control x Female		**-0.042**		**-0.047**
		[0.096]		**[0.096]**
Δ Self-Confidence	**-0.115****	**0.076**	**-0.112****	**0.082**
	[0.052]	**[0.058]**	**[0.052]**	**[0.059]**
Δ Self-Confidence x Female		**-0.282*****		**-0.288*****
		[0.094]		**[0.094]**
Δ Cognitives			**0.066***	**0.058**
			[0.036]	**[0.037]**
Δ Cognitives x Female				**0.019**
				[0.068]
Treated Cohort (Young)	0.118	-0.081	0.125*	-0.073
	[0.075]	[0.081]	[0.076]	[0.082]
Treated Cohort x Female		0.322**		0.316**
		[0.147]		[0.148]
Female	0.339***	0.215**	0.330***	0.217**
	[0.070]	[0.087]	[0.071]	[0.093]
Impulse Control (Pre)	-0.134**	-0.091	-0.134**	-0.089
	[0.053]	[0.059]	[0.052]	[0.059]
Impulse Control (Pre) x Female		-0.063		-0.069
		[0.102]		[0.102]
Self-Confidence (Pre)	-0.164***	-0.012	-0.165***	-0.014
	[0.052]	[0.053]	[0.052]	[0.052]
Self-Confidence (Pre) x Female		-0.230**		-0.226**
		[0.093]		[0.094]
Cognitives (Pre)			0.018	0.041
			[0.039]	[0.039]
Cognitives (Pre) x Female				-0.031
				[0.073]
Constant	-0.230***	-0.164***	-0.234***	-0.173***
	[0.055]	[0.057]	[0.056]	[0.058]
N Observations	723	723	723	723
N Individuals	723	723	723	723
R-squared	0.073	0.097	0.077	0.102

Notes: * denotes significance at the 10% level, ** denotes significance at the 5% level, and *** denotes significance at the 1% level. Standard errors clustered at individual level are displayed in brackets. Each column represents a separate regression for which the coefficient on the change in SED and change in cognitives are displayed, i.e., the change between age 12/13 to 13/14 (prior versus post-Reunification for the young cohort). This table reports the effects of the SED changes on Internalizing Behavior, for a detailed description of this variable see Table A.1. The outcome variable is measured after the reunification, when students are aged 18 to 21.

Table A.5: Outcome: Behavioral Control Problems

	Behavioral Control Problems			
	[1]	[2]	[3]	[4]
Δ Impulse Control	**-0.141*** **	**-0.233*** **	**-0.141*** **	**-0.240*** **
	[0.050]	**[0.084]**	**[0.050]**	**[0.084]**
Δ Impulse Control x Female		**0.167**		**0.175***
		[0.103]		**[0.103]**
Δ Self-Confidence	**0.096** **	**0.233*** **	**0.096** **	**0.228*** **
	[0.048]	**[0.074]**	**[0.048]**	**[0.074]**
Δ Self-Confidence x Female		**-0.214** **		**-0.208** **
		[0.095]		**[0.095]**
Δ Cognitives			**-0.052**	**-0.081**
			[0.039]	**[0.056]**
Δ Cognitives x Female				**0.052**
				[0.077]
Treated Cohort (Young)	-0.143*	-0.230**	-0.147*	-0.236**
	[0.074]	[0.114]	[0.075]	[0.114]
Treated Cohort x Female		0.147		0.151
		[0.149]		[0.149]
Female	-0.081	-0.139	-0.060	-0.164
	[0.075]	[0.097]	[0.074]	[0.101]
Impulse Control (Pre)	-0.236***	-0.304***	-0.233***	-0.299***
	[0.052]	[0.084]	[0.052]	[0.086]
Impulse Control (Pre) x Female		0.130		0.127
		[0.106]		[0.108]
Self-Confidence (Pre)	0.093*	0.226***	0.097**	0.232***
	[0.050]	[0.074]	[0.049]	[0.073]
Self-Confidence (Pre) x Female		-0.212**		-0.218**
		[0.098]		[0.098]
Cognitives (Pre)			-0.072*	-0.145**
			[0.040]	[0.061]
Cognitives (Pre) x Female				0.136*
				[0.081]
Constant	0.114*	0.130*	0.128**	0.160**
	[0.063]	[0.072]	[0.064]	[0.074]
N Observations	723	723	723	723
N Individuals	723	723	723	723
R-squared	0.043	0.055	0.049	0.064

Notes: * denotes significance at the 10% level, ** denotes significance at the 5% level, and *** denotes significance at the 1% level. Standard errors clustered at individual level are displayed in brackets. Each column represents a separate regression for which the coefficient on the change in SED and change in cognitives are displayed, i.e., the change between age 12/13 to 13/14 (prior versus post-Reunification for the young cohort). This table reports the effects of the SED changes on Behavioral Control Problems, for a detailed description of this variable see Table A.1. The outcome variable is measured when students are aged 18 to 21.

Table A.6: Outcome: Subjective Health

	Subjective Health			
	[1]	[2]	[3]	[4]
Δ Impulse Control	**0.117****	**0.177****	**0.112****	**0.175****
	[0.049]	**[0.072]**	**[0.048]**	**[0.071]**
Δ Impulse Control x Female		**-0.119**		**-0.122**
		[0.097]		**[0.097]**
Δ Self-Confidence	**0.096***	**0.069**	**0.090***	**0.067**
	[0.049]	**[0.076]**	**[0.048]**	**[0.073]**
Δ Self-Confidence x Female		**0.030**		**0.028**
		[0.100]		**[0.098]**
Δ Cognitives			**-0.034**	**-0.014**
			[0.037]	**[0.051]**
Δ Cognitives x Female				**-0.032**
				[0.073]
Treated Cohort (Young)	-0.115	-0.006	-0.125*	-0.019
	[0.076]	[0.103]	[0.076]	[0.103]
Treated Cohort x Female		-0.217		-0.209
		[0.150]		[0.151]
Female	-0.166**	-0.084	-0.186**	-0.103
	[0.073]	[0.096]	[0.074]	[0.099]
Impulse Control (Pre)	0.161***	0.199**	0.156***	0.189**
	[0.052]	[0.081]	[0.051]	[0.078]
Impulse Control (Pre) x Female		-0.078		-0.067
		[0.104]		[0.102]
Self-Confidence (Pre)	0.111**	0.054	0.105**	0.052
	[0.049]	[0.081]	[0.049]	[0.080]
Self-Confidence (Pre) x Female		0.094		0.087
		[0.102]		[0.101]
Cognitives (Pre)			0.089**	0.097
			[0.040]	[0.059]
Cognitives (Pre) x Female				-0.016
				[0.080]
Constant	0.218***	0.186***	0.202***	0.170**
	[0.060]	[0.068]	[0.060]	[0.068]
N Observations	746	746	746	746
N Individuals	746	746	746	746
R-squared	0.044	0.049	0.053	0.059

Notes: * denotes significance at the 10% level, ** denotes significance at the 5% level, and *** denotes significance at the 1% level. Standard errors clustered at individual level are displayed in brackets. Each column represents a separate regression for which the coefficient on the change in SED and change in cognitives are displayed, i.e., the change between age 12/13 to 13/14 (prior versus post-Reunification for the young cohort). This table reports the effects of the SED changes on Subjective Health, for a detailed description of this variable see Table A.1. The outcome variable is measured when students are aged 18 to 21.

Table A.7: Outcome: Life Satisfaction

	Life Satisfaction			
	[1]	[2]	[3]	[4]
Δ Impulse Control	**0.087***	**0.141****	**0.088***	**0.144****
	[0.047]	**[0.064]**	**[0.047]**	**[0.065]**
Δ Impulse Control x Female		**-0.104**		**-0.103**
		[0.093]		**[0.094]**
Δ Self-Confidence	**0.081***	**-0.053**	**0.083***	**-0.048**
	[0.047]	**[0.067]**	**[0.047]**	**[0.067]**
Δ Self-Confidence x Female		**0.223****		**0.221****
		[0.093]		**[0.094]**
Δ Cognitives			**0.034**	**0.046**
			[0.031]	**[0.039]**
Δ Cognitives x Female				**-0.029**
				[0.062]
Treated Cohort (Young)	-0.031	-0.019	-0.026	-0.016
	[0.070]	[0.092]	[0.069]	[0.092]
Treated Cohort x Female		0.008		0.008
		[0.139]		[0.138]
Female	-0.027	-0.028	-0.027	0.011
	[0.070]	[0.089]	[0.071]	[0.095]
Impulse Control (Pre)	0.107**	0.105	0.107**	0.102
	[0.047]	[0.067]	[0.047]	[0.067]
Impulse Control (Pre) x Female		0.005		0.008
		[0.094]		[0.094]
Self-Confidence (Pre)	0.104**	0.034	0.105**	0.033
	[0.052]	[0.059]	[0.051]	[0.060]
Self-Confidence (Pre) x Female		0.107		0.113
		[0.098]		[0.098]
Cognitives (Pre)			-0.005	0.061
			[0.038]	[0.048]
Cognitives (Pre) x Female				-0.123
				[0.075]
Constant	0.027	0.027	0.028	0.016
	[0.055]	[0.061]	[0.056]	[0.061]
N Observations	746	746	746	746
N Individuals	746	746	746	746
R-squared	0.021	0.031	0.023	0.035

Notes: * denotes significance at the 10% level, ** denotes significance at the 5% level, and *** denotes significance at the 1% level. Standard errors clustered at individual level are displayed in brackets. Each column represents a separate regression for which the coefficient on the change in SED and change in cognitives are displayed, i.e., the change between age 12/13 to 13/14 (prior versus post-Reunification for the young cohort). This table reports the effects of the SED changes on Life Satisfaction, for a detailed description of this variable see Table A.1. The outcome variable is measured when students are aged 18 to 21.

Table A.8: Outcome: College Qualification

	College Qualification			
	[1]	[2]	[3]	[4]
Δ Impulse Control	**0.040**	**0.045**	**0.044****	**0.052***
	[0.025]	**[0.037]**	**[0.020]**	**[0.031]**
Δ Impulse Control x Female		**-0.005**		**-0.012**
		[0.050]		**[0.041]**
Δ Self-Confidence	**0.010**	**-0.012**	**0.007**	**0.011**
	[0.023]	**[0.039]**	**[0.019]**	**[0.033]**
Δ Self-Confidence x Female		**0.035**		**-0.002**
		[0.049]		**[0.041]**
Δ Cognitives			**0.091*****	**0.099*****
			[0.014]	**[0.023]**
Δ Cognitives x Female				**-0.013**
				[0.029]
Treated Cohort (Young)	0.366***	0.340***	0.373***	0.347***
	[0.040]	[0.059]	[0.030]	[0.045]
Treated Cohort x Female		0.053		0.048
		[0.080]		[0.062]
Female	0.035	0.012	-0.049	-0.067*
	[0.038]	[0.047]	[0.031]	[0.040]
Impulse Control (Pre)	0.031	0.040	0.013	0.021
	[0.026]	[0.041]	[0.021]	[0.034]
Impulse Control (Pre) x Female		-0.014		-0.011
		[0.053]		[0.044]
Self-Confidence (Pre)	0.033	0.006	0.024	0.022
	[0.024]	[0.040]	[0.019]	[0.032]
Self-Confidence (Pre) x Female		0.043		0.006
		[0.050]		[0.040]
Cognitives (Pre)			0.318***	0.319***
			[0.016]	[0.024]
Cognitives (Pre) x Female				-0.001
				[0.032]
Constant	0.251***	0.265***	0.178***	0.188***
	[0.031]	[0.035]	[0.026]	[0.029]
N Observations	625	625	625	625
N Individuals	625	625	625	625
R-squared	0.131	0.133	0.421	0.422

Notes: * denotes significance at the 10% level, ** denotes significance at the 5% level, and *** denotes significance at the 1% level. Standard errors clustered at individual level are displayed in brackets. Each column represents a separate regression for which the coefficient on the change in SED and change in cognitives are displayed, i.e., the change between age 12/13 to 13/14 (prior versus post-Reunification for the young cohort). This table reports the effects of the SED changes on College Qualification, for a detailed description of this variable see Table A.1. The outcome variable is measured when students are aged 18 to 21.

Using standard errors clustered at school level

Table A.9: The Effect of Reunification on Psychological Measures

Panel A	**Main Results**					
	SED: Impulse Control		SED: Self-Confidence		Cognitives	
	[1]	[2]	[3]	[4]	[5]	[6]
Treated Cohort x Post Reunification	-0.317***	-0.317***	-0.469***	-0.469***	-0.049	-0.049
	[0.069]	[0.069]	[0.083]	[0.083]	[0.056]	[0.056]
Treated Cohort (Young)	0.043		0.042		0.039	
	[0.076]		[0.064]		[0.078]	
Post Reunification (Age 14)	0.043	0.043	-0.017	-0.017	0.107***	0.107***
	[0.043]	[0.043]	[0.044]	[0.044]	[0.028]	[0.028]
Constant	0.094*	0.111***	0.110**	0.126***	0.247***	0.263***
	[0.051]	[0.017]	[0.043]	[0.019]	[0.042]	[0.013]
N Observations	1488	1488	1486	1486	1456	1456
N Individuals	752	752	752	752	752	752
N Schools	62	62	62	62	62	62
Individual FE	NO	YES	NO	YES	NO	YES
R-squared	0.012	0.028	0.035	0.074	0.002	0.032
Panel B	**Placebo-Tests**					
Treated Cohort x Post Reunification	0.031	0.036	0.094	0.096	0.014	0.010
	[0.067]	[0.066]	[0.084]	[0.081]	[0.042]	[0.036]
Treated Cohort (Young)	-0.030		-0.033		0.040	
	[0.074]		[0.066]		[0.076]	
Post Reunification	0.041	0.041	-0.017	-0.017	0.157***	0.177***
	[0.044]	[0.044]	[0.045]	[0.045]	[0.026]	[0.020]
Constant	0.017	0.004	0.023	0.010	0.239***	0.245***
	[0.051]	[0.017]	[0.044]	[0.019]	[0.043]	[0.009]
N Observations	1488	1488	1486	1486	1456	1456
N Individuals	752	752	752	752	752	752
N Schools	62	62	62	62	62	62
Individual FE	NO	YES	NO	YES	NO	YES
R-squared	0.001	0.003	0.001	0.002	0.008	0.145

Notes: Standard errors clustered on school level are in brackets. "Treatment" takes value one (zero) if in the younger (older) cohort. "Post" representing the student's age. In Panel A, "Post" is a dummy variable that takes the value of one if the age of the individual is 13/14 (this is prereunification for the older cohort and post-Reunification for the younger cohort) and zero when aged 12/13 (i.e., prereeunification for both cohorts). "Treatment x Post" indicates changes in the outcome for the younger cohort, after versus before Reunification. In Panel B, we perform a placebo test that compares the change in outcomes of both cohorts in the prereunification period to lend support to the parallel trend assumption.

Table A.10: The Effect of Reunification by Gender

Panel A	**Main Results**					
	SED: Impulse Control		SED: Self-Confidence		Cognitives	
	[1]	[2]	[3]	[4]	[5]	[6]
Treated Cohort x Post Reunification	-0.253**	-0.253**	-0.200*	-0.200*	-0.076	-0.076
	[0.115]	[0.115]	[0.102]	[0.102]	[0.083]	[0.083]
Treated Coh. x Post Reuni. x Female	-0.113	-0.113	-0.486***	-0.486***	0.046	0.046
	[0.176]	[0.176]	[0.147]	[0.147]	[0.083]	[0.083]
N Observations	1504	1504	1504	1504	1504	1504
N Individuals	752	752	752	752	752	752
N Schools	62	62	62	62	62	62
Individual FE	NO	YES	NO	YES	NO	YES
R-squared	0.035	0.029	0.052	0.086	0.024	0.034
Panel B	**Placebo-Tests**					
Treated Cohort x Post Reunification	-0.076	-0.050	0.187*	0.180*	-0.012	-0.037
	[0.109]	[0.113]	[0.101]	[0.100]	[0.060]	[0.052]
Treated Coh. x Post Reuni. x Female	0.191	0.155	-0.173	-0.157	0.040	0.084
	[0.166]	[0.171]	[0.171]	[0.174]	[0.078]	[0.064]
N Observations	1488	1488	1486	1486	1456	1456
N Individuals	752	752	752	752	752	752
N Schools	62	62	62	62	62	62
Individual FE	NO	YES	NO	YES	NO	YES
R-squared	0.025	0.005	0.005	0.004	0.030	0.150

Notes: Standard errors clustered on school level are in brackets. "Treatment" takes value one (zero) if in the younger (older) cohort. "Post" representing the student's age. In Panel A, "Post" is a dummy variable that takes the value of one if the age of the individual is 13/14 (this is prereunification for the older cohort and post-Reunification for the younger cohort) and zero when aged 12/13 (i.e., prereeunification for both cohorts). "Treatment x Post" indicates changes in the outcome for the younger cohort, after versus before Reunification. In Panel B, we perform a placebo test that compares the change in outcomes of both cohorts in the prereunification period to lend support to the parallel trend assumption.

Table A.11: Adolescent Behaviors

	Externalizing Behavior		**Internalizing Behavior**		**Behav. Control Problems**	
	[1]	[2]	[3]	[4]	[5]	[6]
Change in SED						
Conflict resolution	-0.163***	-0.331***	-0.109**	-0.080	-0.141***	-0.240***
	[0.050]	[0.107]	[0.051]	[0.056]	[0.045]	[0.082]
Conflict resolution x Female		0.289**		-0.047		0.175*
		[0.117]		[0.096]		[0.102]
Self-Confidence	-0.004	0.087	-0.112**	0.082	0.096**	0.228***
	[0.064]	[0.121]	[0.053]	[0.049]	[0.045]	[0.078]
Self-Confidence x Female		-0.157		-0.288**		-0.208**
		[0.116]		[0.111]		[0.101]
Change in Cognitives						
Cognitives	-0.020	-0.069	0.066*	0.058	-0.052	-0.081*
	[0.051]	[0.083]	[0.039]	[0.038]	[0.035]	[0.048]
Cognitives x Female		0.079		0.019		0.052
		[0.111]		[0.066]		[0.069]

Notes: * denotes significance at the 10% level, ** denotes significance at the 5% level, and *** denotes significance at the 1% level. Standard errors clustered at school level are displayed in brackets. Each column represents a separate regression for which the coefficient on the change in SED and change in cognitives are displayed, i.e., the change between age 12/13 to 13/14 (prior versus post-Reunification for the young cohort). Columns [1]/[2] report the effects of the SED changes on externalizing behavior, which is an index based on the propensity to fight, destroy property, and having had trouble with the police. Columns [3]/[4] report the effects on internalizing behavior index based on (repeated) suicidal thoughts. Columns [5]/[6] report effects on behavioral control problems measured by an index capturing cigarette consumption and substance abuse (alcohol and drugs). Higher values of each behavioral variable imply stronger expressions of the given behavior. All regressions control for the level of the relevant SED measure and cognitive skill at age 12/13 (i.e., prior to Reunification for the young cohort), treatment assignment indicating whether the student belongs to the young cohort, and gender. All outcome variables are measured after the reunification, when students age aged 18 to 21.

Table A.12: Long-run Outcomes

	Subjective Health		**Life Satisfaction**		**College Qualification**	
	[1]	[2]	[3]	[4]	[5]	[6]
Change in SED						
Conflict resolution	0.112**	0.175**	0.088**	0.144**	0.044**	0.052*
	[0.052]	[0.067]	[0.043]	[0.057]	[0.018]	[0.028]
Conflict resolution x Female		-0.122		-0.103		-0.012
		[0.082]		[0.077]		[0.039]
Self-Confidence	0.090**	0.067	0.083**	-0.048	0.007	0.011
	[0.045]	[0.073]	[0.041]	[0.069]	[0.020]	[0.031]
Self-Confidence x Female		0.028		0.221**		-0.002
		[0.109]		[0.105]		[0.039]
Change in Cognitives						
Cognitives	-0.034	-0.014	0.034	0.046	0.091***	0.099***
	[0.035]	[0.045]	[0.034]	[0.035]	[0.020]	[0.029]
Cognitives x Female		-0.032		-0.029		-0.013
		[0.068]		[0.062]		[0.029]

Notes: * denotes significance at the 10% level, ** denotes significance at the 5% level, and *** denotes significance at the 1% level. Standard errors clustered at school level are displayed in brackets. Each column represents a separate regression for which the coefficient on the change in SED and change in cognitives are displayed, i.e., the change between age 12/13 to 13/14 (prior versus post-Reunification for the young cohort). Columns [1]/[2] report effects on subjective health which increases in a better assessment. Columns [3]/[4] reports effects on life satisfaction where increasing values indicate higher satisfaction with life in general. Columns [5]/[6] report effects on the college qualification measured by whether an Abitur degree was obtained. All regressions control for the level of the relevant SED measure and cognitive skill at age 12/13 (i.e., prior to Reunification for the young cohort), treatment assignment indicating whether the student belongs to the young cohort, and gender. All outcome variables are measured after the reunification, when students age aged 18 to 21.