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Does Regime Change Affect Intergenerational Mobility? Evidence from German Reunification

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Abstract

This study uses the natural experiment of German reunification and a difference-in-differences approach to test whether the political and economic transition in East Germany in 1990 affected intergenerational occupational and educational mobility. Results obtained using data from the German Socio-Economic Panel Study show that German reunification did neither strongly affect occupational nor educational mobility. These findings are robust to operationalizing social origin in various ways. Admittedly, reunification may have had small or long-term effects on occupational and educational mobility that cannot be uncovered with the data and research design employed in this study. However, the findings rule out that there were large, short- or medium-term effects of German reunification on intergenerational mobility. These findings are at odds with theories that argue that institutional change has strong, immediate causal effects on intergenerational mobility.

Introduction

Children are influenced in their educational and occupational outcomes by their parents' resources (Blau and Duncan, 1967; Sewell, Haller and Portes, 1969; Jencks et al., 1972). Many studies on intergenerational social mobility, that is the association between children's and parents' educational and socioeconomic positions, have examined cross-national variation in mobility (e.g. Grusky and Hauser, 1984; Ganzeboom, Luijkx and Treiman, 1989; Erikson and Goldthorpe, 1992; Ishida, Müller and Ridge, 1995; Breen, 2004; Corak, 2013). However, cross-national comparisons cannot identify the factors that causally affect intergenerational mobility because countries differ in more aspects from each other than any analysis could control for (Torche, 2015). In addition, institutions are not randomly distributed across countries, as they are decided upon by governments.

Identifying the effects of political and economic institutions on intergenerational mobility requires exogenous variation in these institutions (Torche, 2015). Such variation is brought about through a rapid change in the institutional setting in one country. For instance, several recent studies estimated the effects of extending the minimum school leaving age on intergenerational educational and occupational mobility in several European countries (Betthäuser, 2017; Grätz, 2020; Sturgis and Buscha, 2015) and the United States (Rauscher, 2014, 2016). Previous research also estimated the effects of reforms that extended the minimum school leaving age and moved school tracking to a later age on income mobility in Finland (Pekkarinen, Uusitalo and Kerr, 2009) and on educational mobility in Sweden (Meghir and Palme, 2005). In addition, van de Werfhorst (2018) analyzed the effects of reforms in the age at tracking in the

education system in several European countries on the associations between social origin and children's skills. My study contributes to this growing body of research that identifies the factors causally influencing intergenerational mobility by using German reunification as a natural experiment to estimate the effects of regime change on (relative) occupational and educational mobility. Regime change is one of the most radical forms of institutional change a country can experience. This makes the analysis of regime change valuable to research on intergenerational mobility in general.

Previous research analyzed changes in the associations between family socioeconomic background and occupational outcomes during the transition from a state-centered socialist to a market economy in Hungary (Bukodi and Goldthorpe, 2010; Lippényi and Gerber, 2016), Russia (Gerber and Hout, 2004), and 13 Central and Eastern European (CEE) countries (Jackson and Evans, 2017). These four studies identified the effects of regime change on occupational mobility by comparing occupational mobility between a cohort preceding and a cohort following the transformation. Causal interpretations of the empirical analyses reported in these studies rested on the assumption that there were no confounding changes occurring in these countries simultaneously to the political and economic transformation. However, several confounding changes could have influenced intergenerational mobility, for instance, demographic changes related to the Second Demographic Transition (Lesthaeghe, 2014).

Using the natural experiment of German reunification in 1990, I address this shortcoming of previous research. Under the assumption that West Germany provides a valid control case for East Germany, analyzing this natural experiment allows me to implement a difference-in-differences (DID) research design comparing intergenerational mobility of East Germans before and after reunification to intergenerational mobility of the same cohorts of West Germans. By these means, this study improves on previous research in terms of causal inference and contributes to our understanding of the factors causally affecting intergenerational mobility. Although Germany is a specific historical case, the analysis of this case is relevant for research on regime change in general, as regime changes in other countries were accompanied by similar institutional changes and an economic recession as in East Germany (see, for instance, the Central and East European countries studied by Gerber and Hout, 2004; Bukodi and Goldthorpe, 2010; Lippényi and Gerber, 2016; Jackson and Evans, 2017). In general, it is likely that any regime change from a state-centered socialist to a market economy

brings about changes in the labour market and in the education system. The transition from a state-centred to a market economy seems also to be inevitably linked to an economic recession, as the former socialist state-owned companies have to compete suddenly on a free market.

Three opposing hypotheses can be formulated on how regime change may affect intergenerational mobility. First, the combination of market transition and modernization theory predicts that intergenerational mobility should have increased due to reunification because of a reduction in educational inequality and increasing returns to education (Kerr et al., 1960; Treiman, 1970; Bell, 1973; Nee, 1989; Jackson and Evans, 2017). Second, intergenerational mobility could have decreased because of reunification due to the economic and political uncertainty accompanying the transformation process leading employers to rely more on informal channels and on social origin as a signal of ability (Diewald, 1995; Goldthorpe, 1996; Gerber and Hout, 2004; Benton et al., 2015; Jackson and Evans, 2017) and because of earlier tracking in the education system, which is often argued to decrease educational mobility (Pfeffer, 2008; van de Werfhorst, 2018; Klein, Barg and Kühhirt, 2019). Third, reunification may also not have had any impact on intergenerational mobility. Such a finding could be brought about if all previously mentioned processes operated but cancelled each other out. Alternatively, some researchers have argued that institutions have no strong effects on intergenerational mobility (Lipset and Zetterberg, 1959; Featherman, Jones and Hauser, 1975; Grusky and Hauser, 1984; Erikson and Goldthorpe, 1992; Clark, 2014). This perspective also expects reunification not to have had any impact on intergenerational mobility. I test these competing theoretical predictions against each other.

In addition, I differentiate between the short- and the medium-term consequences of regime change estimating the effects of German reunification on intergenerational mobility of two post-reunification cohorts. The first cohort entering the labour market after reunification experienced the changes in labour market institutions following reunification but was already too long in school to be affected by the changes in the age at tracking in the education system. Their treatment was to enter the labour market after the transition from a state-centred socialist to a market economy. The second cohort, however, was affected by the changes in educational institutions, including the changes in the age at tracking, and therefore intergenerational mobility of these men and women can have been affected by both

changes in labour market institutions and changes in the education system.

Background and Theoretical Considerations

Historical Context

Between 1949 and 1990 Germany was divided into two states. Whilst the Federal Republic of Germany (FRG) in West Germany became a capitalist society following the Second World War, the German Democratic Republic (GDR) in East Germany was a state-centred socialist country. In 1990, the GDR joined the FRG, in accordance with the West German constitution (Diewald, Goedicke and Mayer, 2006). Both the education system and the labour market showed institutional differences between the GDR and the FRG with possible consequences for the process of the intergenerational transmission of educational and socioeconomic advantage.

The education system of the GDR had one main school type, the *Polytechnische Oberschule*, which everyone attended up to the age they could leave school with a first degree after 10 years of schooling (Matthes, 2004; Mayer and Schulze, 2009). Contrary to that, West Germany had three different school tracks that led to different educational degrees. Notwithstanding these institutional differences, most children received a similar level of schooling either by leaving school after completing the *Polytechnische Oberschule* in the GDR or by completing one of the lower tracks of the West German education system (Mayer and Schulze, 2009). In both the GDR and the FRG, a well-developed vocational system facilitated the transition from school into the labour market (Solga and Konietzka, 1999). A major difference between the GDR and the FRG was the lower amount of children who received an *Abitur* degree (a requirement to study at university) in the GDR due to a strict limitation of the admittance of pupils to the track leading to the *Abitur* degree. Even more limited was access to university in the GDR and attending university often required joining the military or the ruling party (Mayer and Schulze, 2009). After reunification, East Germany adopted the West German education system. This resulted in a rapid educational expansion in terms of *Abitur* degrees in East Germany (Kesler, 2003). Given the central role of education in the status attainment process (Blau and Duncan, 1967; Sewell, Haller and Portes, 1969; Ishida, Müller and Ridge, 1995) and the role of educational expansion in shaping intergenerational mobility (Breen, 2010; Pfeffer and Hertel, 2015),

changes in the education system due to reunification could have affected intergenerational mobility.

The education system was not the only institution that was affected by reunification. The labour market situation of East Germans changed immediately following reunification. Their new labour market experience was characterized by a high level of unemployment, a shortage of vocational and internship positions, and a devaluation of the previously important political loyalty to the GDR regime (Kesler, 2003; Matthes, 2004; Solga, 2006; Mayer and Schulze, 2009). Nevertheless, there was stability in terms of labour market transitions facilitated by the FRG recognizing the educational and vocational degrees obtained in the GDR (Mayer, Diewald and Solga, 1999). The unemployment rate of East German men born in 1971, most of whom started vocational training before reunification, was only slightly higher than the unemployment rate of their West German counterparts (Mayer and Schulze, 2009). Unemployment of East German women from the same generation was higher than of West German women, although with 10 per cent still rather low (Mayer and Schulze, 2009). In addition, the large majority of East German men and women who were in employment remained in the same occupation between 1989 and 1993 (Mayer, Diewald and Solga, 1999). These findings suggest that the transition to new jobs in the new economic system occurred rather smoothly for most East Germans. However, it is less clear how the entry into the labour market for the generation who made the school-to-work-transition after reunification was affected by the transformation and what role social origin played in this process. This research question is the focus of my study.

Theoretical Expectations of the Effects of Reunification on Intergenerational Mobility

Changes in the institutions in East Germany brought about by reunification can have led to changes in intergenerational mobility. I distinguish between three competing hypotheses about the direction of these changes. According to the first hypothesis, occupational and educational mobility increased due to German reunification because a high socioeconomic position of the parents provided less of an advantage after the regime change and under the new economic system. Modernization theory predicts a decline in the association between social origin and education due to the transition from a state centered to a market economy (Kerr et al., 1960; Treiman, 1970; Bell, 1973). In addition, market transition theory argues that this transition is accompanied by

an increase in the returns to education (Nee, 1989). In combination, these two processes should lead to weaker associations between social origin and occupational outcomes in market transition economies such as East Germany (Jackson and Evans, 2017). Therefore, the combination of market transition and modernization theory predicts that German reunification reduced the intergenerational transmission of educational and socioeconomic advantage, that is led to increases in educational and occupational mobility. These increases in intergenerational mobility may, however, become rather visible in the medium than in the short term, as the first cohort who entered the labour market after reunification had already (almost) completed their schooling when reunification happened.

The second hypothesis argues that occupational and educational mobility decreased due to German reunification because social origin influences educational and occupational outcomes more in cases in which other information is less valuable. During and after a regime change, other signals, such as educational degrees obtained in the old education system may be valued less by the new employers. The employers may therefore rely more on the information provided by the educational and socioeconomic positions of their parents as signals of applicants' abilities (Goldthorpe, 1996). In addition, social networks and connections played a particularly important role in the labour market in the GDR (Diewald, 1995). These networks and social connections may also have played an important function in the transition to a new economic system. In line with this expectation, informal channels to find a job have been particularly important after reunification in East Germany (Benton et al., 2015). Moreover, Jackson and Evans (2017) argued that the removal of restrictions in terms of transmitting economic capital across generations and a reduction in efforts to increase the educational attainment of working class children after regime change contributed to a decrease in intergenerational mobility. According to Solon's (2004) model of intergenerational mobility, increasing returns to education will, contrary to the claims by Jackson and Evans (2017), lead to lower intergenerational mobility. There are therefore several reasons to expect that intergenerational mobility declined due to German reunification.

In addition, the change from an education system with late to one with early tracking should have reduced educational mobility if early tracking does reduce educational mobility (Pfeffer, 2008; van de Werfhorst, 2018; Klein, Barg and Kühhirt, 2019). However, because the first cohort entering the labour market after reunification was already too old to be affected by the new age at tracking, this cohort cannot be influenced by changes in the age at tracking. This perspective therefore expects intergenerational mobility to decrease only for the second post-reunification cohort.

Finally, a third possibility is that intergenerational mobility does not vary across advanced, industrialized societies (Lipset and Zetterberg, 1959; Featherman, Jones and Hauser, 1975; Grusky and Hauser, 1984; Erikson and Goldthorpe, 1992; Clark, 2014). This perspective hypothesizes that institutions do not strongly affect intergenerational mobility and predicts that German reunification did not alter the intergenerational transmission of educational and socioeconomic advantage. Research on the summer learning gap has shown that most socioeconomic differences in academic performance are due to processes operating within families (e.g. Downey, von Hippel and Broh, 2004; Holtmann and Bernardi, 2019). In addition, effectively maintained inequality theory (Lucas, 2001) claims that parents from socioeconomically advantaged backgrounds find in each education system ways to transmit advantage across generations. Therefore, this theory expects also a high intergenerational transmission of education and, as a consequence, of occupation in the GDR. Levels of educational mobility may not have changed due to reunification because socioeconomically advantaged families kept on transmitting their advantage across generations. Therefore, these perspectives predict that reunification did neither affect educational nor occupational mobility. There is also a second possibility. If processes of increasing and decreasing social mobility occurred at the same time, we will also observe no effect of reunification on intergenerational mobility.

These competing hypotheses guide the empirical analysis estimating the effects of German reunification on occupational and educational mobility. Previous research, relying on before and after comparisons of regime changes in Russia, Hungary, and other CEE countries found a decline in social mobility as a result of regime change (Gerber and Hout, 2004; Bukodi and Goldthorpe, 2010; Jackson and Evans, 2017)[1].

There is no study estimating the effect of German reunification on occupational mobility. On the one hand, most studies on intergenerational occupational mobility in Germany included only West Germany (Ishida, Müller and Ridge, 1995; Müller and Pollak, 2004; Breen and Luijkx, 2007; Mayer and Aisenbrey, 2007). On the other hand, research on occupational mobility in East Germany after reunification did not compare social mobility between East and West Germany (Solga, 2006). The few examples of research that included both East and West Germans in the same analysis focused

mostly on cohorts who entered the labour market before reunification and did not identify the effect of reunification on occupational mobility (Mayer and Solga, 1994; Pollak and Müller, 2004; Grätz and Pollak, 2016; Hertel, 2017).

There are, however, three studies that compared educational mobility in East and West Germany between pre- and post-reunification cohorts. Kesler (2003) estimated differences in the association between social origin and educational attainment before and after reunification in East and West Germany. She found an increase in educational mobility in East Germany for the post-reunification cohort.

More recently, Klein, Barg and Kühhirt (2019) estimated the associations between parental and children's Abitur (a high school degree, comparable to A-levels in the United Kingdom) attainment for different cohorts. Whilst Klein, Barg and Kühhirt (2019) found evidence for a change in educational mobility between the cohort born in 1959–1961 to the cohort born in 1971 in the GDR, the relevant estimates of their analyses for my research question are the associations between parental and child education in the immediate pre- and post-reunification cohorts, which they estimated using data from the German General Social Survey (GSSS) and the German Microcensus (GMC). For both data sets, they found very similar estimates between parental and child education before and after reunification. In the GSSS data, they found a statistically insignificant (indicated by overlapping confidence intervals) increase in the association between parental and child education between the immediate pre-reunification (born 1969–1974) and the first cohort after reunification (born 1975–1981). In the GMC data, they found a statistically insignificant (indicated by overlapping confidence intervals) and substantively small decrease in educational mobility between the pre- (1973) and the post-reunification (1975) cohort. To sum up, their results from two different data sets point in different directions but for both data sets changes across cohorts are not generalizable to the population level. Overall, these findings suggest that educational mobility was not affected by German reunification. Admittedly, the estimates reported in Klein, Barg and Kühhirt (2019) are imprecise due to small sample sizes but my analysis provides evidence for the same conclusion with higher statistical precision due to larger sample sizes.

In another recent study, Betthäuser (2019) reported estimates of the associations between parental social class and three levels of children's education across six cohorts in East and West Germany. He claimed that the associations between parental social class and child

education increased due to reunification. He did neither report nor discuss DID estimates of the effects of reunification on educational mobility. These estimates are needed to answer my research question and they are difficult to construct based on the figures, which he used to present his results. Eyeballing these differences from the figures, changes between the cohort immediately preceding and the cohort immediately following reunification seem, however, to be in the size of at most a few percentage points and therefore substantively small. In addition, many of the significance tests comparing the pre- (1970–1974) and the post-reunification cohorts (1975–1989) in East Germany reported in the online appendix of his study were not significant and indicated therefore no change in the association between parental social class and children's educational attainment across cohorts in East Germany[2]. Overall, my reading of his results is that they are not incompatible with the idea that reunification had no or very small effects on educational mobility.

In addition, Betthäuser's (2019) study has several methodological problems. First, his models suffer from overcontrol bias, as he controls for age in addition to defining the cohorts based on year of birth (which is by definition a function of age). Second, the models do not address the well-known problems in the comparisons of logistic regression models across samples and in the interpretation of interaction effects in such models (Ai and Norton, 2003; Angrist and Pischke, 2009; Mood, 2010; Karlson, Holm and Breen, 2012). Third, his analyses were limited to one indicator of social origin (social class) and no robustness checks with other indicators of social origin were reported. This seems in particular crucial as Klein, Barg and Kühhirt (2019) used parental education as a measure of social origin. A problem in using parental social class as a measure of social origin in this kind of analysis is also that parental social class may be affected by reunification itself (whilst parental education is less likely to be influenced by reunification), making the resulting estimates of intergenerational mobility more difficult to interpret. In the following analyses, I use both parental education and parental occupation as measures of social origin to test the robustness of findings. However, I give preference in the interpretation of results to parental education as a measure of social origin.

These three studies distinguished between East and West Germany based on the country of residence at the time of the survey or during the completion of schooling. Contrary to that, I use information on where East and West Germans lived before reunification. This procedure allows me to avoid bias arising from movement

between East and West Germany after reunification, as these movement decisions were endogenous to reunification.

Data and Methods

Data

My study uses data on a sample of men and women who were born in Germany between 1970 and 1981 from the German Socio-Economic Panel Study (SOEP; version 33.1, DOI: 10.5684/soep.v33.1) (Goebel et al., 2019). The SOEP is one of the longest-running panel studies worldwide. The survey is based on random samples of both East and West German households. The sampling of West German households started in 1984. The sampling of East German households started in June 1990, some months ahead of German reunification. These data are therefore ideally suited to estimate the effect of reunification on intergenerational mobility. My analyses use data combining information from the waves covering the years 1991–2016.

Variables

Occupation and education

I use two variables to operationalize respondent's occupation around age 34. For both variables, I use information on three years for each respondent between ages 33 and 35 in order to reduce measurement error[3]. The first measure is the occupational status of the respondent's job measured via the International Socio-Economic Index (ISEI) of occupational status (Ganzeboom, de Graaf and Treiman, 1992). I use the average value observed between ages 33 and 35 as the measure of occupational status. I standardize the resulting measure to have a mean of 0 and a standard deviation of 1[4]. The second measure is respondent's highest class position, measured within the same age range as ISEI. I construct a dummy variable which is coded as 1 if the highest class position of a respondent between ages 33 and 35 was in the service class, as it is defined in the EGP (Erikson Goldthorpe Portocarero) class schema (EGP classes I and II) and as 0 for all other classes (Erikson and Goldthorpe, 1992; Breen, 2004)[5]. In addition, I use years of education as a measure of educational attainment. I use the highest value reported between ages 33 and 35.

Social origin

Different measures of social origin capture different dimensions of family background that may have different associations with occupational outcomes and educational attainment (e.g. Björklund and Jäntti, 2000; Bukodi and Goldthorpe, 2013; Mood, 2017). Therefore, I employ and compare results for three measures of social origin. First, I use parental education based on the highest educational degree achieved by one of the parents as a measure of social origin. This variable is a dummy variable that is coded as 1 if one of the parents obtained the highest German secondary school leaving certificate (*Abitur*) or an equivalent qualification and as 0 for all other educational degrees. Second, I use a measure of parental occupational status (Parental ISEI) when the respondent was around 15 years old (Ganzeboom, de Graaf and Treiman, 1992). Following the dominance approach, the highest occupational status of one of the parents is used in the analysis (Erikson, 1984). Similar to respondent's occupational status, I standardize this variable to have a mean of 0 and a standard deviation of 1. Third, I employ a measure of parental social class, measured as well when the respondent was 15 years old. I construct a dummy variable which is coded as 1 if one of the parents had an occupation in the service class of the EGP class schema (EGP classes I and II) (Erikson and Goldthorpe, 1992; Breen, 2004) and as 0 for all other classes or if both parents were unemployed[6]. As discussed above, I focus mainly on the measure of parental education because parents' occupational positions may have been affected by reunification, whilst parents' education is more likely to have remained unchanged.

Country of residence in 1989 (origin country)

GDR and FRG origin refer to the state a respondent lived in the year preceding reunification (1989). After 1989 there was considerable movement between East and West Germany. The variable I use is not affected by the endogeneity of these movement decisions. Respondents who lived in the GDR are coded as having a GDR origin (*East Germans*) and respondents who lived in the FRG are coded as having a FRG origin (*West Germans*). There are some respondents who lived abroad in 1989; they are dropped from the analysis[7].

Cohorts

I split the sample used in the analysis into three cohorts. The comparison of these cohorts between East and West Germany allows me to identify the effect of reunification on intergenerational mobility. In order to identify the causal effect of reunification on intergenerational mobility, it is important to limit the analysis to men and women who entered the labour market close to reunification. At the same time, small sample sizes make it

Table 1. Number of respondents by cohort and country of residence in 1989 (referred to as 'origin')

Cohort	GDR origin (East Germany)	FRG origin (West Germany)
Cohort 1: Born 1970–1973 (pre-reunification cohort)	365	907
Cohort 2: Born 1974–1977 (first post-reunification cohort, short-term effects of reunification)	578	1,177
Cohort 3: Born 1978–1981 (second post-reunification cohort, medium-term effects of reunification)	621	1,185

Source: German Socio-Economic Panel Study (SOEP), version 33.1 (doi:10.5684/soep.v33.1).

necessary to agglomerate several birth years into larger birth cohorts (Rauscher, 2016). I define the following three birth cohorts: cohort 1 (pre-reunification cohort): 1970–1973 and cohort 2: 1974–1977 (first post-reunification cohort, to look at the short-term effects of reunification), and cohort 3: 1978–1981 (second post-reunification cohort, to look at the medium-term effects of reunification)[8]. Table 1 reports the number of respondents in each cohort. In the following, I explain in detail why the cohorts were defined in this way.

Cohort 1 includes those respondents who experienced mostly the entry into the labour market before reunification and cohorts 2 and 3 include those respondents who mostly entered the labour market after reunification. This splitting of the sample assumes a crucial age for making the school-to-work transition at age 16, in line with the education systems in the GDR and in the FRG. Age 16 is the usual age of finishing lower secondary education, the so-called *Hauptschule* in the FRG and the *Polytechnische Oberschule* in the GDR. Certainly, parents influence their children's educational performance before that age but these influences are unlikely to have been affected by German reunification. What can have been affected by reunification, however, is the transition to the labour market that happens at or after age 16. The split of the cohorts in the discussed way allows me to isolate the effect of reunification on intergenerational mobility. Contrary to cohort 2, cohort 3 was not only affected by changes in the labour market but also by the changes in the age at tracking in the education system. This cohort allows me therefore to look at the medium-term effects of reunification.

The precise cut-off to define the pre- and the post-reunification cohorts is, and has to be, arbitrarily chosen by the researcher. Every choice is going to misclassify some respondents but a choice has to be made in order to proceed with the analysis and this definition minimizes the misclassification. It is crucial to apply a birth year-based approach and not to define cohorts based on their year of labour market entry. The latter would lead

to sample selection bias because those who stay longer in education enter the labour market at a later age. In addition, reunification may have affected the timing of labour market entry. The birth year-based approach ensures that the definition of the pre- and the post-reunification cohorts is not affected by reunification. Furthermore, reunification may have affected the decision to stay longer in education (Kesler, 2003). Defining a later point of labour market entry would bias the estimator by conditioning on the endogenous process of continuing education after age 16. Putting the threshold at age 16 ensures that the analysis does not condition on education as everyone attends school up to this age.

Gender

I include gender as a control variable in all models. In additional analyses, I estimated intergenerational mobility separately for men and women. I did not find statistically significant gender differences in the effect of reunification on social mobility but the sample sizes are low. Therefore, it is difficult to draw strong conclusions about gender differences in the impact of German reunification on occupational and educational mobility. I report the separate models for men and women in Supplementary Tables S7 to S12.

Table 2 reports descriptive statistics on all variables used in the analysis. There are missing values on both independent and dependent variables, in particular on the social origin variables. For that reason, I apply a multiple imputation routine using chained equations and 30 imputations. Following recommendations in the literature, I do not regress on imputed values of dependent variables (von Hippel, 2007). Therefore, sample sizes differ across models using different dependent variables.

Table 2 also reports descriptive statistics separately for the pre- and the two post-reunification cohorts. The comparisons across cohorts show little differences on observed characteristics. In particular, respondents from the different cohorts are virtually identical in their occupational statuses and educational attainments. This is

Table 2. Descriptive statistics

Variable	All			Cohort 1 (1970–1973)		Cohort 2 (1974–1977)		Cohort 3 (1978–1981)	
	Mean	SD	N	Mean	SD	Mean	SD	Mean	SD
Male	0.44	0.50	4,833	0.48	0.50	0.42	0.49	0.42	0.49
GDR (German Democratic Republic) origin	0.32	0.47	4,833	0.29	0.45	0.33	0.47	0.34	0.48
Occupational status around age 34 (ISEI, standardized)[a]	0.05	1.02	4,261	0.05	1.00	0.08	1.03	0.03	1.03
Service class (EGP class schema) around age 34	0.46	0.50	4,261	0.43	0.50	0.48	0.50	0.46	0.50
Years of education around age 34	13.03	2.78	4,833	12.86	2.61	13.18	2.83	13.01	2.84
Parental occupational status (ISEI, standardized) [a]	0.11	1.01	4,408	0.04	0.99	0.15	1.02	0.11	1.00
Parent service class (EGP class schema)	0.40	0.49	4,408	0.38	0.48	0.42	0.49	0.40	0.49
Parent *Abitur* (completion of the upper track in secondary school)	0.22	0.42	4,452	0.17	0.37	0.24	0.43	0.24	0.43

Notes: Parent service class indicates a high level of parental occupation. Parent *Abitur* indicates a high level of parental education.

Source: German Socio-Economic Panel Study (SOEP), version 33.1 (doi: 10.5684/soep.v33.1).

[a]The means of these variables are not 0 because they are standardized using also the three previous cohorts (cohorts X, Y, and Z), which are used to test the parallel trends assumption.

because the cohorts I look at attended school and entered the labour market after the periods of educational expansion and occupational upgrading. The cohorts differ more on the social origin variables. Even these differences are, however, small. What is more, the DID approach controls for changes across cohorts by not only comparing across cohorts but also by comparing between East and West Germany. Therefore, any changes across cohorts that occurred simultaneously in East and West Germany are controlled for by this approach.

Analytical Strategy

The empirical analysis is motivated by the idea that German reunification provides a natural experiment that can be used to estimate the consequences of regime change for intergenerational mobility. This approach requires that the timing of German reunification was random. The assumption is needed so that respondents who belong to the cohort who entered the labour market immediately before and the cohorts who entered the labour market immediately after reunification do not differ on unobserved characteristics (in addition to being similar on observed characteristics, as demonstrated by Table 2). There is enough historical evidence to support this assumption. The timing of Germany reunification

was unforeseeable (Diewald, Goedicke and Mayer, 2006). There is no reason why the cohorts used to identify the effect of German reunification should differ in other aspects than their exposure to different institutional regimes.

Under this assumption, the effect of regime change on intergenerational mobility can be identified using a DID approach (Card and Krueger, 1994; Angrist and Pischke, 2009). The DID estimator compares the pre- and the two post-reunification cohorts between East and West Germany. The DID estimate of the effect of reunification on intergenerational mobility of the first post-reunification cohort δ_2, that is the short-term effect of reunification, can be calculated in the following way:

$$\delta_2 = \text{(Intergenerational Mobility [cohort 2, East]} - \text{Intergenerational Mobility [cohort 1, East])} - \text{(Intergenerational Mobility [cohort 2, West]} - \text{Intergenerational Mobility [cohort 1, West])} \quad (1)$$

The DID estimate of the effect of reunification on intergenerational mobility of the second post-reunification cohort $\delta3$, that is the medium-term effect of reunification, is constructed similarly by comparing cohort 3 to cohort 1.

The DID estimator controls for simultaneously occurring events that were experienced by both East and West Germans. The DID estimator, however, does not control for simultaneously occurring events which were unique to East Germans; that is, however, also not the aim of the analysis. Different reforms were introduced in the context of reunification that affected the educational and occupational outcomes of East Germans. These reforms are all part of the effect of regime change that this analysis estimates. It is impossible to estimate the effects of specific reforms that occurred in the context of Germany reunification with the research design employed in this study. My analysis, however, does not aim at doing this but is only interested in estimating the total effect of German reunification, as an example of a regime change, on intergenerational mobility[9].

The interpretation of the DID estimator as identifying the causal effect of reunification on intergenerational mobility rests on two untestable assumptions. The first assumption is known as the Stable Unit Treatment Value Assumption (SUTVA). SUTVA states that the values of a treated person should not be influenced by the values of all other persons (Morgan and Winship, 2015). This assumption could be violated if the movement of East Germans to West Germany influenced the labour market outcomes of West Germans. However, for the following two reasons the assumption is plausible. First, the occupational attainment of West Germans may not have been affected by the behavior of East Germans if there were enough jobs available for West Germans. The lower unemployment rate in West than in East Germany makes this assumption plausible. Second, West Germans could also move to East Germany after reunification. Even if there had been a scarcity of jobs in West Germany following reunification, there were also new jobs emerging for West Germans in East Germany. For these two reasons, it is not obvious why reunification should have affected intergenerational mobility of West Germans. Nevertheless, it has to be kept in mind that the interpretation of the DID estimator relies on the validity of SUTVA.

A major concern in previous research relying on before and after comparisons to estimate the effect of regime change on intergenerational mobility was that the estimates of the effect of regime change could have been confounded by economic recessions occurring simultaneously to regime change (Jackson and Evans, 2017). However, I do think that such a concern is misplaced. An economic recessions seem to me to be a necessary element of a transition from a state-centered socialist to a market economy. Conditioning on the economic recession would therefore lead to overcontrol bias. I am interested in the total effect of regime change on intergenerational mobility and the effect of the economic recession is a necessary part of the total effect. This total effect is also the quantity social scientists should be interested in, as any regime change from a state-centred socialist to a market economy is likely to be accompanied by an economic recession.

The second assumption underlying the comparison of cohort differences between East and West Germany is the assumption that intergenerational mobility of East Germans would have experienced the same trend as intergenerational mobility of West Germans in the absence of reunification. I provide some check of the plausibility of this assumption by comparing intergenerational mobility for East and West Germans between three cohorts preceding the cohorts included in my main analysis. I distinguish between the three cohorts based on the following years of birth: Cohort X: 1958–1961, Cohort Y: 1962–1965, and Cohort Z: 1966–1969. As can be seen from the comparisons of intergenerational mobility across these three birth cohorts (reported in Supplementary Tables S1–S3), East and West Germany experienced the same trend in intergenerational mobility before reunification. In both East and West Germany, occupational and educational mobility did not change before reunification. For that reason, the parallel trends assumption holds.

I estimate the components of equation 1 by running separate regressions to predict intergenerational mobility for the different country–cohort combinations. I am doing this to obtain separate estimates of intergenerational mobility for each component of the DID estimator. Compared to an approach which estimates changes in intergenerational mobility by combining all country–cohorts and estimating the interactions between those, the approach I follow relies on two further assumptions. First, the constants have to cancel each other out. This is likely to be the case, as the outcome levels are actually very similar across cohorts, as can be seen from the descriptive statistics reported in Table 2. This table shows that the three outcome variables (occupational status, service class, and years of education) do not differ across cohorts. Second, the error terms of the four separate models need to cancel each other out. This assumption is likely to hold as well, as there are no reasons to assume that the error terms do systematically vary across the country–cohort samples.

As discussed above, I distinguish between the short- and the medium-term consequences of German reunification. For this reason, I compare the estimates of the associations between social origin and occupational and

educational outcomes between the two cohorts following reunification (cohorts 2 and 3). With the present research design, it is impossible to estimate the long-term effects of reunification on intergenerational mobility, as the effects of reunification are (and can only be) identified for cohorts who entered the labour market close to reunification. The later cohorts entered the labour market after reunification, the more likely it is that unobserved variables confound the estimates. To look at the long-term consequences of reunification we would, however, need to look at cohorts who entered the labour market long after reunification. For them, a causal effect of reunification cannot be identified with the research design employed in this study or any other research design that I am aware of.

I use OLS regression models to predict the associations between social origin and occupational status (ISEI) as well as those between social origin and educational attainment (measured through years of education). Linear probability models (LPM) are employed to predict the associations between social origin and access to the service class. I employ LPM because of the clear interpretation of the estimates and their comparability across different samples (Angrist and Pischke, 2009; Mood, 2010). All analyses were conducted using Stata 15.1.

Results

I present the results of my analyses in Tables 3–5. These tables report the estimates of intergenerational mobility obtained using the three indicators of social origin and

the two occupational outcome variables as well as educational attainment (years of education). I discuss the estimates separately for each outcome.

Occupational Status

Table 3 reports estimates of occupational mobility based on models regressing respondent's occupational status, measured by ISEI, on indicators of social origin. All models are estimated separately so that the total association between each indicator of social origin and respondents' occupational status (ISEI) is estimated. The models are estimated separately for each cohort and country of residence in 1989.

The central finding of the comparisons across cohorts and origin countries before and after reunification is a pattern of general similarity in the association between social origin and occupational status. Within the East German sample, the pre-reunification cohort (cohort 1) has an association between parental education and own occupational status of 0.70 meaning that children with highly educated parents have, on average, a by 0.70 standard deviations higher occupational status. The association decreases slightly for the first post-reunification cohort to 0.68 (cohort 2) and increases slightly to 0.79 for the second post-reunification cohort (cohort 3). These changes are statistically not significant. These findings suggest that no change in intergenerational mobility occurred across cohorts in East Germany. In West Germany, the association between parental and respondent's occupational position does also not vary across cohorts.

Table 3. Estimates of intergenerational occupational mobility from OLS regression models predicting occupational status (ISEI)

	GDR origin (East Germany)			FRG origin (West Germany)			DID estimates	
	Cohort 1 (1970–1973)	Cohort 2 (1974–1977)	Cohort 3 (1978–1981)	Cohort 1 (1970–1973)	Cohort 2 (1974–1977)	Cohort 3 (1978–1981)	δ_2	δ_3
Parent *Abitur*	0.70*	0.68*	0.79*	0.91*	0.85*	0.83*	0.04	0.17
	(0.13)	(0.09)	(0.09)	(0.10)	(0.08)	(0.08)	(0.20)	(0.20)
Parent service class	0.55*	0.58*	0.68*	0.70*	0.63*	0.68*	0.10	0.15
	(0.11)	(0.09)	(0.08)	(0.07)	(0.07)	(0.06)	(0.17)	(0.17)
Parental occupational	0.27*	0.33*	0.43*	0.41*	0.39*	0.40*	0.07	0.17
status	(0.05)	(0.04)	(0.04)	(0.03)	(0.03)	(0.03)	(0.08)	(0.08)
N	346	499	561	843	967	1,045		

Notes: Each cell reports an estimate of the association between an indicator of social origin and the outcome variable estimated on a separate model that includes a control for respondent's sex (not shown). Standard errors in brackets. δ_2 is the DID estimate comparing cohort 2 to cohort 1. δ_3 is the DID estimate comparing cohort 3 to cohort 1. The DID estimates were calculated using the unrounded values of the estimates of intergenerational mobility. I conducted significance tests of the DID estimates using a Bonferroni correction to account for multiple hypotheses tests; none of the DID estimates in this table was statistically significant with the critical value $\alpha = 0.05/2 = 0.025$.

Source: German Socio-Economic Panel Study (SOEP), version 33.1 (doi: 10.5684/soep.v33.1).

*P < 0.05 (refers to the regression coefficients).

Table 4. Estimates of intergenerational occupational mobility from linear probability models predicting service class position

	GDR origin (East Germany)			FRG origin (West Germany)			DID estimates	
	Cohort 1 (1970–1973)	Cohort 2 (1974–1977)	Cohort 3 (1978–1981)	Cohort 1 (1970–1973)	Cohort 2 (1974–1977)	Cohort 3 (1978–1981)	δ_2	δ_3
Parent *Abitur*	0.34*	0.28*	0.33*	0.34*	0.33*	0.34*	−0.05	−0.01
	(0.06)	(0.05)	(0.04)	(0.05)	(0.04)	(0.04)	(0.10)	(0.10)
Parent service class	0.26*	0.22*	0.28*	0.33*	0.27*	0.29*	0.02	0.05
	(0.05)	(0.05)	(0.04)	(0.04)	(0.03)	(0.03)	(0.09)	(0.08)
Parental occupational status	0.12*	0.13*	0.17*	0.18*	0.15*	0.16*	0.04	0.07
	(0.03)	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)	(0.04)	(0.04)
N	346	499	561	843	967	1,045		

Notes: Each cell reports an estimate of the association between an indicator of social origin and the outcome variable estimated on a separate model that includes a control for respondent's sex (not shown). Standard errors in brackets. δ_2 is the DID estimate comparing cohort 2 to cohort 1. δ_3 is the DID estimate comparing cohort 3 to cohort 1. The DID estimates were calculated using the unrounded values of the estimates of intergenerational mobility. I conducted significance tests of the DID estimates using a Bonferroni correction to account for multiple hypotheses tests; none of the DID estimates in this table was statistically significant with the critical value $\alpha = 0.05/2 = 0.025$.

Source: German Socio-Economic Panel Study (SOEP), version 33.1 (doi: 10.5684/soep.v33.1).

*P < 0.05 (refers to the regression coefficients).

Table 5. Estimates of intergenerational educational mobility from OLS regression models predicting years of education

	GDR origin (East Germany)			FRG origin (West Germany)			DID estimates	
	Cohort 1 (1970–1973)	Cohort 2 (1974–1977)	Cohort 3 (1978–1981)	Cohort 1 (1970–1973)	Cohort 2 (1974–1977)	Cohort 3 (1978–1981)	δ_2	δ_3
Parent *Abitur*	2.34*	2.38*	2.36*	3.16*	3.20*	3.07*	0.01	0.11
	(0.26)	(0.22)	(0.22)	(0.25)	(0.19)	(0.20)	(0.47)	(0.47)
Parent service class	1.25*	2.06*	1.75*	2.24*	2.44*	2.59*	0.61	0.16
	(0.24)	(0.21)	(0.21)	(0.18)	(0.17)	(0.16)	(0.40)	(0.40)
Parental occupational status	0.69*	1.11*	1.20*	1.37*	1.40*	1.50*	0.39	0.38
	(0.11)	(0.10)	(0.10)	(0.09)	(0.08)	(0.08)	(0.19)	(0.19)
N	365	578	621	907	1,177	1,185		

Notes: Each cell reports an estimate of the association between an indicator of social origin and the outcome variable estimated on a separate model that includes a control for respondent's sex (not shown). Standard errors in brackets. δ_2 is the DID estimate comparing cohort 2 to cohort 1. δ_3 is the DID estimate comparing cohort 3 to cohort 1. The DID estimates were calculated using the unrounded values of the estimates of intergenerational mobility. I conducted significance tests of the DID estimates using a Bonferroni correction to account for multiple hypotheses tests; none of the DID estimates in this table was statistically significant with the critical value $\alpha = 0.05/2 = 0.025$.

Source: German Socio-Economic Panel Study (SOEP), version 33.1 (DOI: 10.5684/soep.v33.1).

*P < 0.05 (refers to the regression coefficients).

As a result, the DID estimates are statistically insignificant as well as close to zero and therefore also substantively small. The short-term effect of reunification on the association between parental education and offspring's occupational status δ_2 is estimated as $\delta_2 = (0.68–0.70) − (0.85–0.91) = 0.04$ (standard deviations). This finding implies that German reunification did not have a strong short-term effect on intergenerational mobility. The medium-term effect of reunification on occupational mobility $\delta_3 = 0.17$ is also substantively small and statistically insignificant.

Results are robust to using parental social class and parental occupational status as measures of social origin. For all measures of social origin, no effect of reunification on occupational mobility is found. The models do not rule out that reunification had small effects on occupational mobility, which cannot be uncovered with the statistical power of my analyses. In any case,

however, there were no large effects of reunification on occupational mobility.

Social Class

Table 4 reports estimates using social class position as the outcome variable. The estimates are taken from LPM predicting an occupation in the service class (EGP classes I and II). Findings for this outcome are very similar to those for occupational status. In East Germany, there was no change in intergenerational mobility across cohorts. Differences across cohorts are small in size and statistically insignificant. In addition, there was no change in social mobility across cohorts in West Germany.

As a consequence, the DID estimates are virtually zero. For instance, using parental education as an indicator of social origin gives a short-term DID estimate of $\delta 2 = (0.28 - 0.34) - (0.33 - 0.34) = -0.05$ (percentage points). This substantively small increase in occupational mobility is statistically insignificant. The medium-term DID estimate $\delta 3 = -0.01$ is also statistically insignificant and even smaller in size. The finding of virtually no effect of reunification on social mobility is found using all three indicators of social origin.

Educational Attainment

Finally, I analyze years of education as an outcome variable (Table 5). There is no change in educational mobility across the three cohorts in East Germany using parental education as a measure of social origin. In addition, there is neither a change in educational mobility across West German cohorts.

The DID estimate using parental education as a measure of social origin $\delta 2 = (2.38 - 2.34) - (3.20 - 3.16) = 0.01$ (years of education) is statistically insignificant and virtually zero[10]. The DID estimate of the medium-term effect of reunification on educational mobility $\delta 3 = 0.11$ is also statistically insignificant and substantively small. For that reason, educational mobility has not been strongly affected by reunification. In addition, the DID estimates using the other measures of social origin are, even though larger in size, also statistically insignificant.

Again, there may be small effects of reunification on educational mobility, which cannot be uncovered in my data. My results, however, rule out large effects of reunification on educational mobility, in line with the findings by Klein, Barg and Kühhirt (2019).

Robustness Checks

I conducted a robustness check using one larger pre- and one larger post-reunification cohort to increase the statistical precision of my estimates. These models are reported in Supplementary Tables S4–S6. The DID estimates, which can be derived from these models, are very small in size and statistically insignificant. Therefore, the comparison of larger cohorts fully supports the conclusion that German reunification did neither affect occupational nor educational mobility. These findings demonstrate that the reason for finding no evidence of an impact of reunification on intergenerational mobility is not low statistical power.

In addition, I estimated models using two alternative educational outcomes. First, I estimated models predicting *Abitur* (*Allgemeine* or *Fachhochschulreife*) attainment as an outcome. These models are comparable to those reported by Klein, Barg and Kühhirt (2019) and are reported in Supplementary Table S13. They fully support the conclusion of no effect of reunification on educational mobility, in line with Klein, Barg and Kühhirt's (2019) results. Second, I predicted tertiary education. These models are reported in Supplementary Table S14. There is no evidence that reunification affected socioeconomic differences in obtaining tertiary education. To sum up, these alternative educational outcomes fully support the conclusion that reunification had no large effect on educational mobility[11].

Discussion and Conclusions

Identifying the factors that causally influence intergenerational mobility increases our understanding of the transmission of advantage across generations. This study exploits the natural experiment of German reunification for this purpose. By these means, this study contributes to the literature analyzing the effects of regime change on social mobility (Gerber and Hout, 2004; Bukodi and Goldthorpe, 2010; Lippényi and Gerber, 2016; Jackson and Evans, 2017). The methodological contribution of my study to this literature is an improvement in terms of the identification of the effect of regime change on intergenerational mobility through employing a DID approach.

The analysis revealed that intergenerational occupational and educational mobility were not affected by the regime change in East Germany in 1990. Previous research only estimated the effect of German reunification on educational but not on occupational mobility. These studies produced mixed results (Kesler, 2003; Klein, Barg and Kühhirt, 2019; Betthäuser, 2019). The findings of the present manuscript support the view that

reunification had no substantively large effect on educational mobility. Differences between studies are likely to be due to differences in model specifications but the vast majority of models reported in the literature found no effects of reunification on educational mobility. The conclusion that reunification did not strongly affect the intergenerational transmission of advantage is, therefore, very robust.

The interpretation of the DID estimates rests on the assumptions that SUTVA is not violated and that West Germany provides a valid control case for East Germany. These assumptions are plausible but they cannot be empirically tested. The analysis found mostly no differences between the DID estimates and the estimates based on the naïve before and after comparison of East German cohorts, as there were no changes in intergenerational mobility across cohorts in West Germany. This result implies that, in the German case, there were no confounding, time-varying trends that biased the naïve before and after comparison. Whether results are generalizable to other case studies remain an open question that is best answered by applying a DID estimator to other case studies.

The question why the findings of my study differ from those of previous research on other countries, which mostly found a decrease in intergenerational mobility due to regime change (Gerber and Hout, 2004; Bukodi and Goldthorpe, 2010; Lippényi and Gerber, 2016; Jackson and Evans, 2017), also calls for applications of the DID estimator to other contexts. Differences in findings can be due to actual underlying differences across countries. It is possible that the integration of the GDR into the FRG reduced the negative effects of reunification on intergenerational mobility. However, without equalizing the methods used to analyze different cases, it cannot be ruled out that the observed variation across countries is due to methodological differences.

Independent of potential cross-country variation in the effects of regime change on intergenerational mobility, findings of the analysis of German reunification are of general importance for research on social mobility. First, most research on social mobility is concerned with describing the variation of social mobility over time and across countries. The findings of the present study suggest that the influence of institutions on cross-national variation in social mobility has to be qualified. My study shows that regime change does not always affect social mobility. An implication of this finding is that cross-country differences in intergenerational mobility may not be due to differences in institutions across countries.

Second, this study has provided an important methodological innovation using a natural experiment in social mobility research, a field dominated by descriptive analyses. It adds to other examples of research using quasi-experiments to analyze the effects of policy reforms on intergenerational mobility (Meghir and Palme, 2005; Pekkarinen, Uusitalo and Kerr, 2009; Rauscher, 2014; Sturgis and Buscha, 2015; Rauscher, 2016; Betthäuser, 2017; van de Werfhorst, 2018; Grätz, 2020). Future research, which will continue in this direction, will, in combination with the equally important descriptive analyses, lead us to obtain a picture of the evolution of social mobility from different but complimentary perspectives.

The main limitation of the present analysis is inherent to the chosen methodology that relies on one natural experiment in one specific institutional context. The results of a single case study may not generalize to other settings (Torche, 2015). The main suggestion for future research is therefore to exploit other natural experiments in order to evaluate their consequences for intergenerational mobility. A larger body of research using these approaches will allow us to provide a more reliable answer to the question of whether and how institutional change affects intergenerational mobility.

Notwithstanding this limitation, the results of my study question the idea that political and economic transformations necessarily affect social mobility. Even if the results of the present case study were not generalizable to other political and economic transitions, they suggest that political and economic changes do not always lead to changes in intergenerational mobility. These findings provide challenges to institutionalist theories that need to be expanded in order to account for when and under which circumstances social mobility is affected by institutional change.

Supplementary Data

Supplementary data are available at *ESR* online.

Notes

1 Previous studies differed in taking a cohort or a period approach to estimate the effects of regime change on intergenerational mobility. Similar to Bukodi and Goldthorpe (2010), my study takes a cohort approach. Contrary to that, Gerber and Hout (2004), Lippényi and Gerber (2016), and Jackson and Evans (2017) analyzed changes in social mobility across periods, that is to say their analyses focused on cohorts who entered the labor market before regime change took place. Previous research found a strong correlation between the

occupational position held before and after reunification in East Germany (Mayer and Schulze, 2009). Therefore, I focus on how German reunification affected intergenerational mobility across cohorts. To my mind, this is the more interesting question for theories of social mobility. This approach is also in line with a previous finding in research on educational mobility, according to which changes in educational mobility are driven by changes across cohorts (Breen and Jonsson, 2007).

2 What we really would be interested in are significance tests of DiD estimates. Betthäuser (2019) did not report such tests. Readers cannot calculate the significance tests themselves because the necessary standard errors were not reported.

3 This age bracket was chosen to ensure that for all respondents' occupational outcomes were measured at the same age. Usually studies of social mobility measure occupational outcomes at later ages. The most recent cohort in my data, however, was not older at the last survey wave. For that reason, only occupational outcomes at this rather young age can be compared. My analysis may overestimate occupational mobility if the association between social origin and occupation increases over the life course. However, occupation is largely stable over the life course in Germany (Manzoni, Härkönen and Mayer, 2014).

4 I also estimated models in which I standardized the measure of occupational status within each cohort to control for occupational upgrading across cohorts. This standardization within cohorts led to virtually identical results (results are reported in Supplementary Table S15).

5 Gerber and Hout (2004) argued that it was important to distinguish between a position in EGP class I or II. For that reason, I estimated models predicting a class position in EGP class I. These models led to the same results as the models predicting a class position in EGP classes I or II (results are reported in Supplementary Table S16).

6 I use dummy variables to operationalize parental social class and parental education as the statistical power (due to small sample sizes) is too low to employ more complex measures of social origin. As a robustness check, I estimated models using a more complex, four-category version of the EGP class schema, comparable to Betthäuser (2019). These models are reported in Supplementary Table S26 and they fully support the conclusion that reunification did neither affect occupational nor educational mobility.

7 Whilst I believe it is important for theoretical reasons to look at country of origin, I estimated all models also using state of residence in 2016 to define belonging to the East or the West German sample. These models, which are only available for the subset of all respondents who was interviewed in 2016, led to the same results as the analyses using country of origin. These models are reported in Supplementary Tables S17–S19. In addition, I tested the robustness of results by limiting the sample to respondents for whom I know that they were born in a West German state sharing a border with the GDR. (All East German states share borders with West German states, therefore this approach made no difference to the analysis of the East German sample.) These models are reported in Supplementary Tables S20–S22. They led to virtually identical estimates as the models reported in the main text.

8 Previous research defined the pre- and the post-reunification cohorts in various ways. Authors using the German Life History Study treated the cohort born in 1971 as the post- and all previous cohorts as pre-reunification cohorts (Matthes, 2004; Mayer and Schulze, 2009; Solga, 2006). Pollak and Müller (2004) defined birth years between 1926 and 1960 as pre-reunification and birth years between 1961 and 1980 as post-reunification cohorts. Kesler (2003) included birth years between 1965 and 1969 in the pre-reunification cohort and birth years between 1976 and 1981 in the post-reunification cohort. Betthäuser (2019) used those born 1970 to 1974 as the pre- and those born between 1975 and 1979 as the first post-reunification cohort. Klein, Barg and Kühhirt (2019) defined everyone born before 1974 as pre-reunification and everyone born after 1973 as post-reunification. It is the latter classification which comes closest to the one I use.

9 I estimate the effect of reunification on intergenerational mobility. Therefore, it is crucial not to control for variables that are endogenous to this process, that is variables that lie on the causal path running from social origin to respondents' occupational and educational outcomes and which could have been affected by reunification. Respondent's educational attainment and the occupational status (or class position) of their first job are such endogenous variables. Including them as control variables introduces overcontrol bias (Grätz, 2019) . For the same reason, I estimate models in which I include only one indicator of social origin.

Including several indicators of social origin into the same model leads to overcontrol bias (Grätz, 2019).

10 All reported estimates are rounded. The DID estimates were calculated using unrounded values.

11 I also estimated whether the returns of education, that is the ED association in the Origin-Education-Destination (OED) framework (Breen, 2004), changed as a result of reunification. These models are reported in Supplementary Table S23. In addition, Supplementary Tables S24 and S25 report the effects of reunification on the associations between social origin and occupational outcomes conditional on years of education. The estimates reported in Supplementary Tables S23–S25 are difficult to interpret because education and destination can both have been affected by reunification. Nevertheless, the results show that the returns of education did not change as a result of reunification. In addition, the association between social origin and occupational destination, conditional on education, was also not affected by reunification.

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