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Rising Inequality, Declining Mobility: The Evolution of Intergenerational Mobility in Germany

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Rising Inequality, Declining Mobility: The Evolution of Intergenerational Mobility in Germany*

Julia Baarck, Moritz Bode, Andreas Peichl

October 31, 2025

This paper is the first to show that intergenerational income mobility in Germany has decreased over time. We estimate intergenerational persistence for the birth cohorts 1968-1987 and find that it rises sharply for cohorts born in the late 1970s and early 1980s, after which it stabilizes at a higher level. As a step towards understanding the mechanisms behind this increase, we show that parental income has become more important for educational outcomes of children. Moreover, we show that the increase in intergenerational persistence coincided with a surge in cross-sectional income inequality, providing novel evidence for an "Intertemporal Great Gatsby Curve".

Keywords: *Intergenerational Mobility, Social Mobility, Income, Education, Inequality.*
JEL Classification: *J62, I24, D63*

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1 Introduction

To what extent are children's opportunities in life determined by the socioeconomic status of their parents? The answer to this question matters in many regards. First of all, it is tightly linked to the concept of equality of opportunity and, therefore, to people's perceptions of how fair a society is. If a person's income depends mostly on circumstances beyond their control, such as their parents' income or education, as opposed to individual choices and effort, then this would generally be regarded as unfair (Roemer and Trannoy 2016; Hufe et al. 2022). Indeed, perceptions and beliefs about intergenerational mobility shape people's preferences for redistribution (Alesina and La Ferrara 2005; Krawczyk 2010; Alesina et al. 2018). Moreover, a low degree of intergenerational mobility may not only be undesirable due to equity and fairness concerns, but also from the viewpoint of efficiency. The innovative capacity of a society cannot be fully leveraged if the probability of becoming an inventor is high for children of rich parents but very low for equally talented children of poor parents (Bell et al. 2019).

What is the level of intergenerational income mobility in Germany and how did it evolve over time? We answer these questions for the birth cohorts 1968-1987 using recent data from the German Socio-Economic Panel. For the youngest cohorts in our sample born in the 1980s, we estimate a rank-rank slope of 0.342, i.e., a parent income rank increase of 10 percentiles on average translates into a child rank increase of 3.42 percentiles. This persistence greatly exceeds estimates of previous studies on Germany (Bratberg et al. 2017; Kyzyma and Groh-Samberg 2020). Notably, our estimate is very similar to that of Chetty et al. (2014a) for the US birth cohorts 1980-1982, suggesting that intergenerational income mobility in Germany is not higher than in the US – in contrast to what was previously thought.

Furthermore, we are the first to show that intergenerational income mobility decreased in Germany over the observed period. We provide evidence for a strong increase in intergenerational persistence for cohorts born in the second half of the 1970s and first half of the 1980s; cohorts that were not included in most previous studies. The magnitude of this increase is substantial: Depending on the specification, the estimated rank-rank slope increases by 57%-106%. As a step towards understanding the mechanisms behind this increase in income persistence, we show that the parental income rank has become much more important for *educational* outcomes of children over the same time period, complementing research on educational mobility in Germany (Dodin et al. 2024; Wößmann et al. 2023; Heineck and Riphahn 2009). This is the case for A-level attainment, college attainment, and years of education in general.

Moreover, we show that the increase in intergenerational income persistence coincided with rising cross-sectional income inequality, providing evidence for an "Intertemporal Great Gatsby Curve" (Krueger 2012; Corak 2013; Durlauf et al. 2022) in Germany. During the late 1990s and early 2000s, Germany experienced a surge in income inequality, both overall and specifically within cohorts (see, e.g., Dustmann et al. 2009; Blömer et al. 2024). This was the period when the cohorts from our sample experiencing decreasing intergenerational mobility entered the labor market. Correspondingly, the chance of moving up the income distribution relative

to their parents was much smaller for children born in the 1980s, who entered the labor market after the rise in inequality, than for those born in the 1960s or early 1970s. This is consistent with recent findings for the US and Canada (Davis and Mazumder 2024; Connolly and Haeck 2024).

Our findings are related to the large economic literature exploring the topic of intergenerational mobility with respect to economic outcomes (see Solon 1999; Black and Devereux 2011; Mogstad and Torsvik 2023 for summaries). In recent years, researchers have started focusing on the evolution of mobility over time, made possible by datasets covering longer time horizons (Lee and Solon 2009; Chetty et al. 2014b; Pekkarinen et al. 2017).

Although several studies examine intergenerational income mobility in Germany, none of them investigate the development systematically over a long time frame. In fact, only two studies – one for income and one for education – analyzed some time trend. First, Kyzyma and Groh-Samberg (2018) use data until 2014 and compute different measures of income mobility for the cohort groups 1968-1972 versus 1973-1977, i.e., for the first part of our analysis period. They find suggestive evidence for an increase in income persistence for these cohorts. Second, for mobility in terms of educational achievement, Dodin et al. (2024) find that the importance of parent income for children's A-level attainment has remained constant over time for the birth cohorts 1980-1996, i.e. the later part of our analysis period, despite an increase in the A-level share of children from low-income families. We add to the literature by analyzing both income mobility and educational mobility over a longer time frame, which allows to detect the pattern of rising persistence for the birth cohorts in the 1970s and 1980s.

The paper is structured as follows. In Section 2, we describe the mobility measurement and introduce the data. Section 3 presents our results on the level and evolution of relative intergenerational income mobility in Germany. Subsequently, Section 4 explores educational mobility as a potential driver behind changes in income mobility. Finally, Section 5 makes the connection to income inequality in Germany. Section 6 concludes.

2 Measurement and Data

We first introduce and discuss the advantages of using rank-rank slopes to measure intergenerational mobility. We proceed with presenting the data source and giving details on the construction of outcome variables and sample restrictions.

2.1 Mobility Measurement

To measure intergenerational mobility, we follow the seminal paper by Chetty et al. (2014a) for the United States and focus on percentile rank specifications. These have been employed for many different countries (see, e.g., Corak 2020; Acciari et al. 2022; Kenedi and Sirugue 2023), including Germany (Bratberg et al. 2017; Kyzyma and Groh-Samberg 2020; Dodin et al. 2024; Boustan et al. 2025). Based on the joint distribution of parent and child income ranks, we

estimate the rank-rank slope (RRS), which is the OLS estimate of the regression

$$R_{child,i} = \alpha + \beta R_{parent,i} + \varepsilon_i \,, \tag{1}$$

where R denotes the percentile rank in the respective income distribution. Thus, the rank-rank slope coefficient β, which equals the Spearman correlation coefficient, is a measure of positional mobility (Deutscher and Mazumder 2023). An increase in the parent rank of 10 percentiles is associated with an average increase in the child rank of 10β percentiles.

The RRS has a number of advantages compared to the traditional intergenerational elasticity (IGE) measure of mobility. Most importantly, it is more robust to attenuation bias and lifecycle bias than the IGE (Chetty et al. 2014a; Nybom and Stuhler 2017). Kyzyma and Groh-Samberg (2020) confirm this robustness for the German case using a comparatively small sample. Moreover, the RRS allows for the inclusion of observations with zero gross income, which are dropped when the IGE is computed (Mogstad and Torsvik 2023). In terms of the relationship with inequality, the RRS is invariant to changes in intragenerational inequality since the marginal income distributions of parents and children are transformed to uniform ones.

This paper takes advantage of all these favorable properties of rank-based measures. In particular, the relative robustness of the RRS to the number of years and the age range over which income is measured allows for the inclusion of more parent-child pairs. This is valuable since a small sample size is the biggest limitation when examining the trend of intergenerational mobility using survey data.

2.2 Data and Outcomes

For the empirical analysis, we use data from the German Socio-Economic Panel (GSOEP), a representative annual household panel survey launched in 1984. It contains a wide range of variables on about 30,000 individuals in 15,000 households each year (Schröder et al. 2020). Crucially, it is possible to link parents with their children and observe the income of both over time. In fact, the GSOEP is presently the only data source for Germany with this feature and therefore the only data source suited to investigate intergenerational income mobility (Bönke et al. 2024).[1]

Following the recent literature on relative intergenerational income mobility, we use annual pre-tax household income as the primary measure of parental resources. Intuitively, it is combined parental income rather than the individual income of one parent that matters for the opportunities of the child. As a robustness check, we use individual labor income of parents. Our main income definition for children is individual labor earnings, but we again implement robustness checks using pre-tax household incomes for children. All incomes are measured in 2015 Euros, based on the consumer price index of the Federal Statistical Office. Household incomes are adjusted to household size and composition using the modified OECD scale.

[1] Unfortunately, administrative data that allows linking children and parents does not exist for Germany.

We compute individual percentile ranks in the sample distributions of child and parent lifetime income, denoted as $R_{child,i}$ and $R_{parent,i}$. Chetty et al. (2014a) proxy child lifetime income as an average over the income observations at ages 30-32. In this paper, child income is also taken in the thirties, but averaged over ages 30-35 to obtain more precise estimates. Following Corak (2020), parent lifetime income is proxied when the child is 15-19 years old. Additionally, the parent must be between 30-60 years old during that time. Parent income is taken from the father's questionnaire if he is present and from the mother's questionnaire if not.[2] In the baseline specification, all observations with zero gross income are included. Robustness results are provided for more restricted samples as well.

Ideally, one would like to rank a child's income relative to all other children from the same birth cohort and the parental income relative to all other parents with children in the same birth cohort (as done, e.g., in Chetty et al. 2014b and Davis and Mazumder 2024). However, our baseline sample only contains between 63 and 114 matched parent-child pairs in each child birth cohort. This is not enough to compute reliable within-cohort ranks. Therefore, we partition the sample into subgroups, each containing four birth cohorts. This decision is based on a trade-off. On the one hand, including more cohorts in a subgroup increases the size of the distributions, which, by itself, implies more reliable percentile ranks. On the other hand, including more cohorts may bias the rankings because younger cohorts tend to have higher incomes due to real economic growth. Robustness checks for different subgroup sizes are presented in the Appendix.

Percentile ranks are then computed within the cohort subgroups. For example, the lifetime income of a child born in 1968 is ranked against the lifetime incomes of all children born in the four years between 1968-1971. Similarly, the lifetime income of a parent with a child born in 1968 is ranked against the lifetime incomes of all parents with children born between 1968-1971.

Educational outcomes of children are measured in several ways: Years of completed education when aged 30, A-level attainment, and college degree.[3]

2.3 Sample Definition

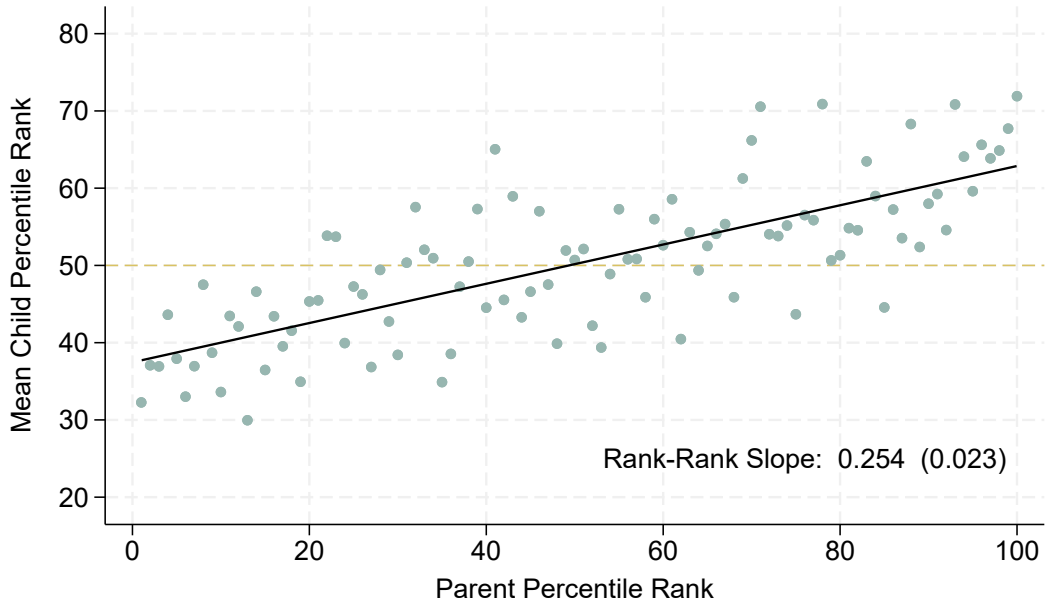
Given our approach of income measurement detailed above, we include the child birth cohorts between 1968-1987 in the baseline sample. The lifetime income of parents in our sample is then computed between 1983-2006, and the lifetime income of children between 1998-2020. Appendix Table A1 illustrates this cohort structure. The last two child birth cohorts, 1986 and 1987, are only observed at ages 30-34 and 30-33, respectively, since the last available income observations in the GSOEP v38 are from 2020. The baseline sample contains 1,756 matched parent-child pairs in total, with 858 sons and 898 daughters.[4] Means of key variables are comparable between

[2] For about 95% of children in our baseline sample, parent income comes from the father's questionnaire.

[3] The variables on educational attainment were constructed closely following Dodin et al. (2024) to allow for comparability.

[4] Note that our data requirements are very strict as we need to observe the children during ages 30-35 and their parents when aged 30-60 while the children are 15-19. Due to panel attrition and refreshment samples, this reduces the number of parent-child pairs that can be used for the analysis compared to the cross-sectional sample size of the full population. Yet, results are very similar with and without using the population weights

Figure 1: Rank mobility curve



Notes: This figure presents a binned scatterplot of the relationship between child and parent income percentile ranks. There are 100 data points, one for each parent percentile rank. Children are ranked against all other children in a four-year cohort group, based on mean individual labor earnings at ages 30-35. Parents are ranked against all other parents who have children in the same cohort group, based on mean equivalized household income when the child is aged 15-19. Ranks are residualized on the number of available years income is averaged over to proxy lifetime income. The black line minimizes the sum of squared residuals. The slope of the line is equal to the rank-rank slope.

the matched children and parents in our baseline sample and other unmatched individuals in the GSOEP (see Appendix Table A2). Further summary statistics for the baseline sample are presented in Appendix Table A3. Not surprisingly, the average child income is larger than the average parent income and the average child has completed more years of schooling than the average parent.

3 Rank Mobility in Germany

As a starting point, Figure 1 plots the average child income rank against the parent income rank for all cohorts pooled together. Income ranks in this case are based on our preferred specification, with equivalized household income for parents and individual labor earnings for children. The linear fit is sometimes referred to as the rank mobility curve (Bratberg et al. 2017). The slope of this curve is equal to the RRS, as defined in equation 1. Since the slope is positive, a higher parental income rank is associated with a higher child income rank. The estimated rank-rank slope is 0.254, implying that a parent rank increase of 10 percentiles on average translates into a child rank increase of 2.54 percentiles.

provided by the GSOEP (see Appendix Table A5 discussed below) suggesting that selection is not a big issue.

Table 1: Rank-rank slope estimates

	(1) All observations	(2) Only cohorts 1968-1977	(3) Only cohorts 1978-1987
Panel A: Household income both			
Rank-rank slope	0.327	0.251	0.395
	(0.025)	(0.035)	(0.037)
Parent-child pairs	1,429	775	654
Panel B: Individual labor income child, household income parent			
Rank-rank slope	0.254	0.166	0.342
	(0.023)	(0.033)	(0.034)
Parent-child pairs	1,756	933	823
Panel C: Individual labor income both			
Rank-rank slope	0.219	0.153	0.279
	(0.024)	(0.035)	(0.034)
Parent-child pairs	1,756	933	823

Notes: This table presents estimates of the rank-rank slope for the baseline sample, based on all observations (column 1), only children born between 1968-1977 (column 2), and only children born between 1978-1987 (column 3). All regressions control for the number of available years child and parent income is averaged over to proxy lifetime income. Robust standard errors are reported in parentheses.

In Table 1, we present estimates of the RRS for the whole sample (column 1) as well as separately for the child birth cohorts 1968-1977 (column 2) and 1978-1987 (column 3). Additionally, we probe how the results differ across income definitions. Note that the sample is smaller when based on child household income because all children that still live together with their parents when aged 30-35 are dropped in this specification.

The finding that rank persistence is higher for household income than for individual labor income is in line with other work (e.g., Rohenkohl 2023). Overall, our estimates are comparable to those of other studies. Using household income for both parents and children, Bratberg et al. (2017) estimate a RRS of 0.245 for the cohorts 1957-1976, similar to our estimate of 0.251 for cohorts 1968-1977. Estimates by Dodin et al. (2024) based on individual labor earnings for children and household income for parents yield a RRS of 0.341 for the cohorts from 1980, which is very close to our estimate of 0.342 for almost the same cohorts 1978-1987.

The most striking result from Table 1 is the substantial increase in rank persistence, independent of specification, between the older and younger cohort group. This increase can also be detected graphically when plotting separate rank mobility curves for the two cohort groups (see Appendix Figure A1). The decline in mobility is particularly pronounced at the bottom of the parent income distribution. Although mirroring recent findings for other countries (Chetty et al. 2024; Connolly and Haeck 2024; Markussen and Røed 2020; Deutscher and Mazumder 2020; Ahrsjö et al. 2025), such a time trend has not yet been established in the literature for

the German context. As we show in Appendix Table A4, income mobility declined for both sons and daughters in our sample.

Many previous studies, such as Bratberg et al. (2017) or Kyzyma and Groh-Samberg (2020), have concluded that intergenerational income mobility is much higher in Germany than in the US. Yet, these studies relied on child birth cohorts only up until the mid-1970s and hence could not take into account the significant subsequent decline in mobility that we are documenting here. Based on our estimates, income mobility in Germany seems very much comparable to that in the US. For example, using the US National Longitudinal Survey of Youth (NLSY79), Bratberg et al. (2017) estimate a RRS of 0.395 for pre-tax household income, which exactly matches our estimate for the German cohorts born between 1978-1987.

As we show in Appendix Table A5, our RRS estimates and our finding of increasing rank persistence are robust to several adjustments of the methodology and sample. Results are similar when leaving out controls for the number of available income observations, proxying child lifetime income over a longer age range, using different cohort group sizes for the computation of percentile ranks, excluding observations with zero lifetime income, using post-government household income to measure parental resources, employing survey weights, and dropping all children still living with their parents at age 30-35. Furthermore, our estimates are virtually unchanged when we exclude households situated in East Germany in 1989, as is done in some of the literature (e.g., Schnitzlein 2009) to avoid capturing one-off effects of the reunification.[5] Finally, one might be worried that a changing share of children with migration background might be driving the results. However, controlling for migration background does not affect our results, as shown in the last panel of Appendix Table A5.

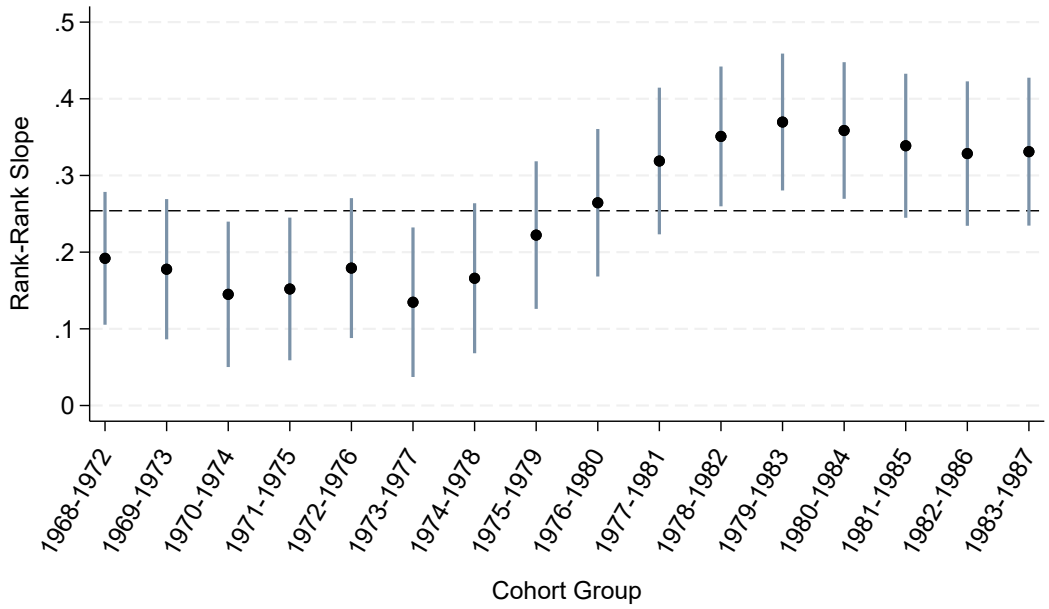
Next, we explore the evolution of income mobility in Germany in more detail. As in our baseline, we rely on individual earnings of children and household income of parents to measure income mobility in the following (and report findings for other specifications in the Appendix).

Due to the small number of parent-child pairs in each cohort, we cannot reliably estimate cohort-specific rank-rank slopes. Following Kyzyma and Groh-Samberg (2018), we therefore employ a rolling-window approach with window size five, such that the first window contains the cohorts 1968-1972, the second window the cohorts 1969-1973, and so on. This way, the effect of gradually including younger cohorts becomes visible. Computing the RRS based on the copula of five cohorts yields reasonably precise estimates.

Figure 2, the key graph of this paper, presents RRS estimates over time for the 16 rolling cohort groups with corresponding 95% confidence intervals. The estimated RRS for cohorts born in the late 1960s and early 1970s is roughly constant over time at a level between 0.14 and 0.19. However, when younger cohorts are added successively, rank persistence rises sharply to levels above 0.3, an increase of about 100%. The peak is reached with the cohorts born in the early 1980s. The RRS stabilizes at around 0.33 for the youngest cohorts in our sample. A similar

[5] With the "Sample C", the SOEP was extended in 1990 to include households that were situated in the German Democratic Republic before the reunification. Yet this pertains only to 23 parent-child pairs from our baseline sample.

Figure 2: Evolution of rank mobility in Germany over time



Notes: This figure shows the evolution of relative intergenerational income mobility, measured by the rank-rank slope, for rolling child birth cohorts with window size 5. Children are ranked based on average individual labor earnings when aged 30-35. Parents are ranked based on average equivalized household income when the child is 15-19 years old. The dashed line indicates the estimated rank-rank slope for the whole sample which is 0.254 (see Table 1). All regressions control for the number of available years child and parent income is averaged over to proxy lifetime income. 95% confidence intervals for the estimates are displayed.

trend can be documented when household income (Appendix Figure A2) and individual income (Appendix Figure A3) are used for both parents and children. Controlling for employment outcomes of children changes the level of rank persistence but not the trend, suggesting that the decline in income mobility is not driven by changing unemployment patterns in Germany (see Appendix Figure A4).

When child lifetime income is proxied over the longer age range 30-40 instead, the dynamic RRS estimates are virtually unchanged, as shown in Appendix Figure A5. This lessens concerns of lifecycle bias, that is, mismeasurement of lifetime incomes due to differential earnings growth over life cycles (Haider and Solon 2006). Note, however, that we can implement this robustness test only up until the cohort group 1976-1980, as younger cohorts have not reached age 40 at the time of the latest survey wave (see Appendix Table A1).

4 Educational Mobility as Potential Mechanism

The observation of a decrease in income mobility in Germany raises the question about potential drivers. Theoretical models of intergenerational income persistence – such as Becker and Tomes (1979), Becker et al. (2018), or Nybom and Stuhler (2024) – emphasize parental investments in children's human capital as a pivotal channel. Against this backdrop, it seems natural to

investigate the role of children's education in shaping income mobility in Germany over time.[6]

There are two dimensions to this channel (see Markussen and Røed 2020): (i) the degree to which parental income determines children's educational attainment, and (ii) the returns to education in the labor market. If one of these links becomes stronger, one would expect an increase in intergenerational income persistence as a result. In Appendix Figures A7, A8, and A9, we show that the returns to A-level attainment, college attainment, and overall years of education (dimension ii) have not followed a clear trend over time for the cohort groups in our sample. The same holds when child income ranks (i.e., relative income) is used as the dependent variable instead of log child lifetime income (see Appendix Figure A10). These results are in line with Fuchs-Schündeln et al. (2010).

In contrast, the importance of parental income for children's educational attainment has increased considerably (dimension i). To show this, we regress child years of education on the parental income rank, for rolling child birth cohorts (as before). Figure 3 depicts the evolution of this parent income gradient (red line) together with our RRS estimates from before (blue line). The gradient exhibits a very similar evolution as the RRS, rising markedly for cohorts born in the late 1970s and early 1980s, before stabilizing at a much higher level. In Appendix Figure A11, we document that both the gradient with respect to children's A-level attainment and the gradient with respect to college attainment have followed a similar trend.[7]

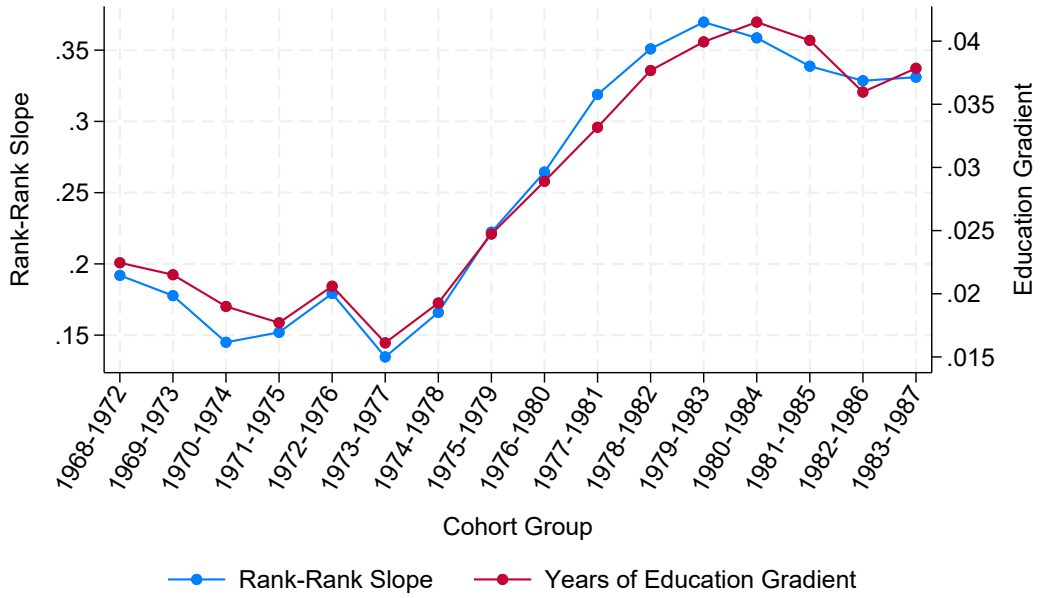
Dodin et al. (2024) also estimate the A-level gradient in Germany, using data from the *Mikrozensus*. The oldest children in their sample are born in 1980. They show that the A-level gradient has remained constant at around 0.0052 for cohorts born between 1980-1996: An increase in the parent rank of 10 percentiles increases a child's probability of attaining an A-level degree by 5.2 percentage points on average. We are able to replicate their estimate with the GSOEP data, based on the younger cohorts in our sample (1980-1987). Indeed, our dynamic estimates of the A-level gradient, as depicted in Appendix Figure A11, reach a plateau at a level of roughly 0.0052 after the cohort group of 1978-1982. Thus, our findings complement those of Dodin et al. (2024), revealing that there was an increase in the A-level gradient in Germany for cohorts born *pre*-1980.[8]

[6] The recent literature has also explored the role of changes in the *parent* generation for explaining trends in income mobility (Markussen and Røed 2020; Nybom and Stuhler 2024). Specifically, a shift towards "meritocracy", meaning a stronger correlation of inherent abilities and income, may increase mobility in the parent generation. Since the more highly rewarded skills are passed on to the child generation to some degree, income mobility subsequently deteriorates. We indeed find a rising correlation between parental education and parental income in the data (the statistic employed by Nybom and Stuhler 2024). To gauge how this impacted income mobility, we compare the evolution of the correlation and the RRS between younger and older parents (employing a median split by parent age at child birth). While the RRS exhibits a very similar trend for both younger and older parents, the correlation of parent education and parent income rises only really for younger parents (see Appendix Figure A6), challenging the argument that a rise in "meritocracy" was instrumental in the decline in mobility. Instead, changes in the child generation are the more likely cause.

[7] Note, however, that the college gradient likely picks up some of the rise in the A-level gradient since an A-level degree is a prerequisite for attending college.

[8] We also examine odds ratios for A-level and college attainment as an alternative measure of educational mobility, following Dodin et al. (2024). As we show in Appendix Figure A12, the odds ratios follow a similar upward trend as the education gradients and the RRS. The odds ratio of college attainment is higher than that of A-level attainment and exhibits a more pronounced increase over time. Consistent with Dodin et al.

Figure 3: Income mobility and education gradient over time



Notes: The blue line depicts our estimates of relative income mobility, as in Figure 2. The red line presents estimated coefficients from regressions of child years of education (at age 30) on the household income rank of the parent, for rolling child birth cohorts with window size 5. The education gradient can be interpreted as the increase in child years of education due to an increase of the parent income rank of one percentile.

One concern is that these findings reflect the effect of parental education rather than parental income. For instance, Karlson and Landersø (2025) find that the relationship between parents' years of schooling and their children's years of schooling in Denmark has increased significantly for children born in the 1970s and 1980s. However, we do not find a similar increase in Germany (see Appendix Figure A13), which is consistent with Heineck and Riphahn (2009). In fact, the previous finding of an increasing parental income gradient with respect to children's educational attainment holds conditional on parental education (see Appendix Figure A14).

The time period we are studying was a time of expanding access to both secondary and tertiary education in Germany (Hadjar and Becker 2006; Jürges et al. 2010). Strikingly, our results suggest that children from low-income parents have benefited much less from this expansion. In particular, this is the case for college attainment. While the share of college-educated children in the bottom quartile of the parental income distribution has barely budged over time, it has approximately doubled for children of higher-class parents. A very similar pattern has been documented for the US with respect to the expansion of post-secondary education among child birth cohorts between the 1960s and 1980s.[9]

A potential explanation for the increase in educational persistence, which happens for the same cohorts as the increase in income persistence, could come from changes in the German

(2024), the odds ratio with respect to A-level attainment is decreasing somewhat for children born in the 1980s.

[9]See Belley and Lochner (2007), Bailey and Dynarski (2011), as well as Jackson and Holzman (2020).

need-based student aid scheme (*Bundesausbildungsfoerderungsgesetz*, BAfoeG), which has the explicit goal of promoting equal opportunities for educational attainment (Herber and Kalinowski 2019). BAfoeG provides financial support for students from low-income parents pursuing higher education (both A-level and college) if their parents' and their own incomes do not exceed certain thresholds. During the 1990s, the BAfoeG aid amounts and the parent income allowance stagnated in nominal terms and declined in real terms (Baumgartner and Steiner 2006) while additionally the eligibility for the program was restricted.[10] As a result, the share of students receiving BAfoeG fell from 26% in 1991 to 12.6% in 1998 (Bundestag 1997 2007). Among these, a smaller fraction profited from the maximum amount of aid (Destatis 2025). Consequently, government expenditure on BAfoeG plummeted. As need-based financial aid for students can significantly affect enrollment (Nielsen et al. 2010; Steiner and Wrohlich 2012; Fack and Grenet 2015), it is plausible that the described policy changes widened the enrollment and attainment gap between children from high- and low-income parents. This explanation also aligns with the time period, as the birth cohorts in the 1970s and early 1980s likely made their decision on whether to pursue higher education during the 1990s, specifically during the years when BAfoeG aid reached its low point.

The GSOEP elicits information about BAfoeG grants and scholarships received in the previous year. Unfortunately, we are not able to tell these two income sources apart. Notwithstanding, Appendix Figure A15 shows that the parent income gradient with respect to children's college attainment (conditional on A-level degree) is essentially flat for children who have received BAfoeG (and/or scholarship payments) in at least one year when aged 18-35.[11] This implies that the government program was effective in boosting educational mobility and that the described constraints on the program in the 1990s may thus have contributed to the declining mobility that we have documented. Of course, the flatter gradient could also stem from selection into BAfoeG. For example, low-income children with high cognitive and non-cognitive skills might be more likely to go to college (and hence be eligible for BAfoeG), yet receiving BAfoeG might not be causal for their enrollment and graduation.[12]

5 Inequality and Mobility Over Time

Finally, we investigate how *income inequality* evolved over time, connecting it to the observed increase in *income persistence* in the framework of the Great Gatsby Curve.

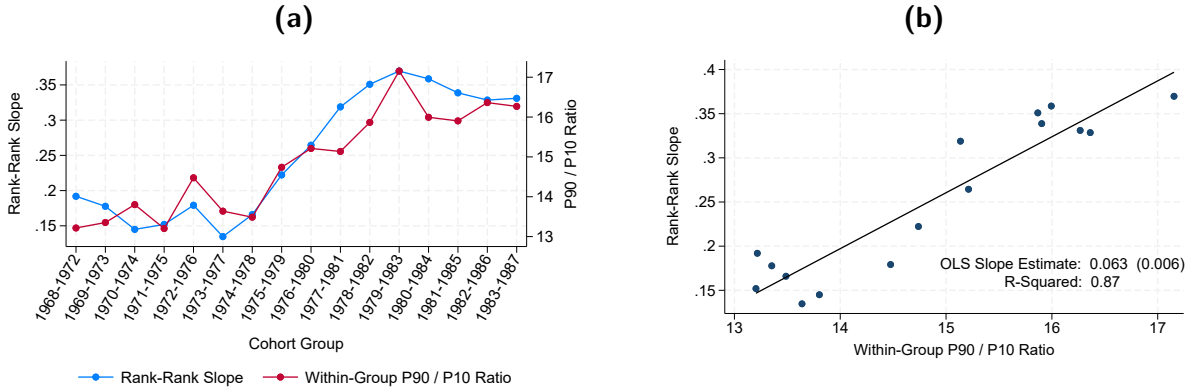
The evolution of intergenerational income mobility over time, as depicted in Figure 2, is quite

[10] The share of students eligible for receiving BAfoeG aid for their college education declined from 67.5% in 1991 to 59.5% in 1998 (Bundestag 1997 2007). In the 1980s, the access to BAfoeG for pupils in secondary education (*Schüler-BAfoeG*) was restricted and the student aid was converted into a loan-based scheme. A reform in 1996 shortened the maximum duration students could receive financial aid from BAfoeG (Bundesgesetzblatt 1996).

[11] In our baseline sample, 24% of children received BAfoeG aid and/or scholarship payments in at least one year when aged 18-35.

[12] This comes down to the extensively studied question whether financial aid has mainly inframarginal effects on students' outcomes (see Angrist et al. 2021 and the references cited therein).

Figure 4: Rank mobility and income inequality: The Intertemporal Great Gatsby Curve



Notes: (a): Shows the evolution of relative intergenerational income mobility (blue line), measured by the rank-rank slope, together with the evolution of intragenerational income inequality (red line), measured by the P90/P10 percentile ratio of lifetime incomes within cohort groups, for rolling child birth cohorts with window size 5. Inequality is estimated based on all children in these cohort groups, not only those that could be matched with parents. (b): Depicts the relationship of (a) as a scatterplot, where each point represents one cohort group. The linear fit in black is the least squares line and can be interpreted as the "Intertemporal Great Gatsby Curve".

similar to the evolution of cross-sectional income inequality in Germany during the 1990s and 2000s, i.e., during the years when the birth cohorts included in our sample successively entered the labor market. When measured by the Gini coefficient or the 90/10 percentile ratio, inequality of gross household incomes as well as gross individual earnings remained fairly constant in the first half of the 1990s, rose sharply during the second half of the 1990s and the early 2000s, and declined somewhat in the years after the financial crisis (Blömer et al. 2024). The main driver behind this trend has been the dispersion of labor incomes (Biewen and Juhasz 2012), which has been linked to skill-biased technological change and de-unionization (Dustmann et al. 2009), as well as an increasing importance of firm-specific wage premia (Card et al. 2013).

The relationship between intergenerational mobility and income inequality is encapsulated in the so-called "Great Gatsby Curve" (GGC, Krueger 2012). It suggests a negative correlation between income inequality at one point in time and mobility across generations. While the GGC is most often displayed as a cross-country relationship (Corak 2016; Blanden et al. 2023), it can also be viewed as an intertemporal one (Durlauf and Seshadri 2018). Indeed, Aaronson and Mazumder (2008) and Davis and Mazumder (2024) find that rising income inequality in the US during the 1980s went hand in hand with declining relative intergenerational income mobility.

To shed more light on this issue in the German context, Figure 4 charts the evolution of *intra*generational inequality together with our RRS estimates from Figure 2. Dustmann et al. (2009) show that a large part of the rise in wage inequality in Germany took place within cohort/age groups. We therefore compute inequality as the 90/10 percentile ratio of lifetime incomes within a cohort group.[13] The rolling cohort groups are the same as those used for the

[13]The *level* of intragenerational inequality we estimate is higher than in most other studies. This is due to the

dynamic estimation of the RRS.

Figure 4 shows that the two measures evolve more or less in parallel, providing suggestive evidence for an intertemporal GGC in the German context.[14] As demonstrated in Appendix Figure A16, a very similar relationship is found when the variance of log lifetime earnings is used as a measure of inequality, instead of 90/10 ratio. Of course, it is important to note that the intertemporal GGC represents a simple correlation that might not reflect any kind of causal relationship between the increasing intergenerational income persistence and increasing wage inequality for the same cohorts. Indeed, the theoretical literature on the underlying mechanisms behind the GGC is far from conclusive (Corak 2013; Durlauf et al. 2022; Deutscher and Mazumder 2023). Still, the relationship is striking, given that the RRS is not mechanically influenced by changes in intragenerational inequality, unlike the IGE.

6 Conclusion

This paper documents new facts on intergenerational mobility in Germany. The empirical analysis is based on recent survey data from the GSOEP, which allows for the inclusion of child birth cohorts from the 1960s up until the 1980s. We find that relative intergenerational income mobility declined substantially over time, reaching levels comparable to the US. The degree to which a child's position in the income distribution is determined by their parents' relative income is much higher for cohorts born in the 1980s than for those born in the late 1960s or early 1970s.

We propose a steepening parental income gradient with respect to children's educational attainment as a proximate explanation. In other words, educational attainment became more class-dependent, despite public efforts at the time to facilitate broad access to higher education (Hadjar and Becker 2006; Heineck and Riphahn 2009). Even with constant returns to education, this translates into higher intergenerational income persistence. Behind the steepening gradient could be changes in the German need-based student aid program BAfoeG during the 1990s.

Remarkably, the increase in intergenerational rank persistence mirrors the rise in cross-sectional income inequality in Germany during the 1990s and 2000s, providing evidence for an "Intertemporal Great Gatsby Curve". To use the analogy of Chetty et al. (2014b): Not only have the rungs of the income ladder grown further apart (rising inequality), but children's chances of climbing up the ladder (relative to their parents) have worsened at the same time (declining mobility). Combined with the finding of Bönke et al. (2024), that the share of children earning more than their parents (absolute mobility) has declined from 81% to 59% for the cohorts 1962-1988, this paints a rather pessimistic picture of children's opportunities in Germany.

fact that we include individuals with zero or very low gross lifetime incomes to ensure consistency with the mobility estimation.

[14] At the same time, intragenerational inequality in our sample's parent generations has also increased. This is documented by Bönke et al. (2015), who use data from social security records.

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Appendix

Table A1: Cohort Structure

	Year																						
Birth cohort	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
1968	15	16	17	18	19																			
1969		15	16	17	18	19																		
1970			15	16	17	18	19																	
1971				15	16	17	18	19																
1972					15	16	17	18	19															
1973						15	16	17	18	19														
1974							15	16	17	18	19													
1975								15	16	17	18	19												
1976									15	16	17	18	19											
1977										15	16	17	18	19										
1978											15	16	17	18	19									
1979												15	16	17	18	19								
1980													15	16	17	18	19							
1981														15	16	17	18	19						
1982															15	16	17	18	19					
1983																15	16	17	18	19				
1984																	15	16	17	18	19			
1985																		15	16	17	18	19		
1986																			15	16	17	18	19	
1987																				15	16	17	18	19

	Year																						
Birth cohort	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	
1968	30	31	32	33	34	35																		
1969		30	31	32	33	34	35																	
1970			30	31	32	33	34	35																
1971				30	31	32	33	34	35															
1972					30	31	32	33	34	35														
1973						30	31	32	33	34	35													
1974							30	31	32	33	34	35												
1975								30	31	32	33	34	35											
1976									30	31	32	33	34	35										
1977										30	31	32	33	34	35									
1978											30	31	32	33	34	35								
1979												30	31	32	33	34	35							
1980													30	31	32	33	34	35						
1981														30	31	32	33	34	35					
1982															30	31	32	33	34	35				
1983																30	31	32	33	34	35			
1984																	30	31	32	33	34	35		
1985																		30	31	32	33	34	35	
1986																			30	31	32	33	34	
1987																				30	31	32	33	

Notes: Numbers indicate children's age in years where parent lifetime income is proxied (upper part of the table) and where child lifetime income is proxied (lower part of the table).

Table A2: Comparison between matched and non-matched parents and children

Mean of (...)	Matched parents	All parents	Matched children	All children
Age	46.39	45.98	31.93	32.53
Equivalized household income	14,248	14,952	27,511	25,590
Individual labor earnings	21,693	22,883	23,520	21,344
Years of education	11.72	11.67	12.99	12.65
N	1,756	5,980	1,756	12,035

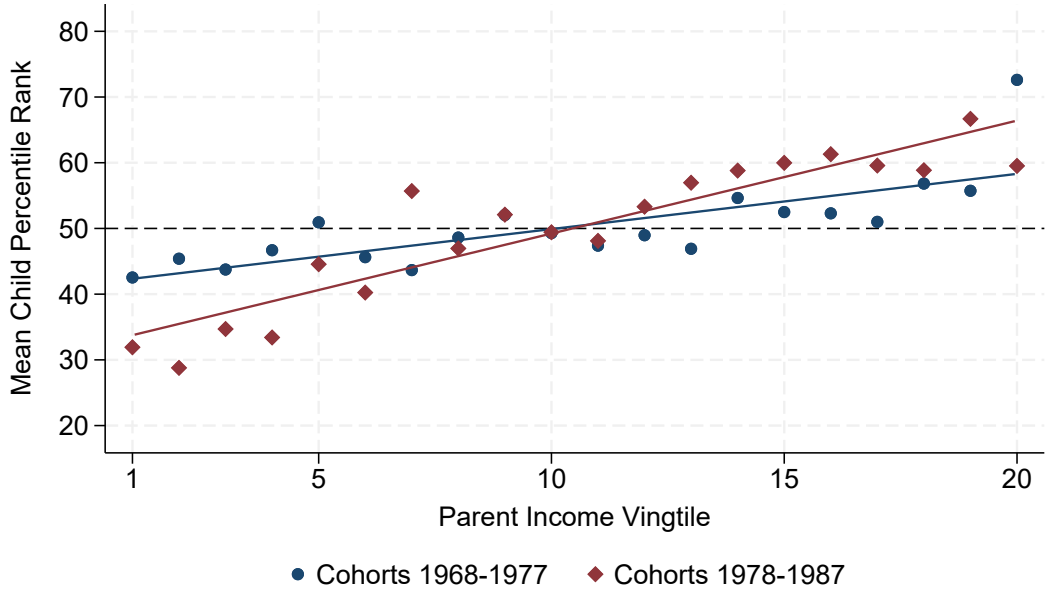
Notes: This table presents comparative means for the matched parents and children from our baseline sample and all parents and children in the GSOEP from child birth cohorts 1968-1987 (including those that could not be matched). Age refers to the mean age at which lifetime income is measured (during ages 30-35 for children, and when the child is aged 15-19 for parents). Income variables refer to real pre-government income in 2015 euros. Years of education are measured at age 30. Individuals from the migration samples (2013-2020) are not included, since these are disproportionately unemployed, less educated, and information on parental income is missing.
Source: GSOEP v38.

Table A3: Summary statistics for main variables

	mean	sd	min	max
Age parent	46	5.82	30	60
Age child	32	0.85	30	35
Equivalized household income parent	14,248	11,092	0	101,579
Equivalized household income child	27,511	18,682	0	160,067
Individual labor earnings parent	21,693	19,968	0	198,080
Individual labor earnings child	23,520	18,375	0	159,999
Years of education parent	11.72	2.83	7	18
Years of education child	12.99	2.80	7	18

Notes: This table presents summary statistics (mean, standard deviation, minimum value, maximum value) for our baseline sample of matched parent-child pairs (N=1,756). Age refers to the mean age at which lifetime income is measured (during ages 30-35 for children, and when the child is aged 15-19 for parents). Income variables refer to real pre-government income in 2015 euros.
Source: GSOEP v38.

Figure A1: Rank mobility curves for older and younger cohorts



Notes: This figure presents binned scatterplots of the relationship between child and parent income percentile ranks, separately for the cohort groups 1968-1977 and 1978-1987. Due to reasons of graphical presentation, we show the relationships in 20 bins (parent income vingtiles). Children are ranked against all other children in a four-year cohort group, based on mean individual labor earnings at ages 30-35. Parents are ranked against all other parents who have children in the same cohort group, based on mean equivalized household income when the child is aged 15-19. Ranks are residualized on the number of available years income is averaged over to proxy lifetime income.

Table A4: Rank-rank slope estimates by gender

	(1) All observations	(2) Only cohorts 1968-1977	(3) Only cohorts 1978-1987
Panel A: Baseline			
Rank-rank slope	0.254	0.166	0.342
	(0.023)	(0.033)	(0.034)
Parent-child pairs	1756	933	823
Panel B: Only sons			
Rank-rank slope	0.234	0.123	0.348
	(0.030)	(0.039)	(0.047)
Parent-child pairs	858	469	389
Panel C: Only daughters			
Rank-rank slope	0.255	0.154	0.345
	(0.031)	(0.044)	(0.043)
Parent-child pairs	898	464	434

Notes: This table presents estimates of the rank-rank slope separately for sons and daughters. Panel A shows our baseline estimation for all children pooled together. Following Davis and Mazumder (2024), we calculate percentile ranks separately for the sample distributions of sons' and daughters' lifetime incomes. Robust standard errors are reported in parentheses.

Table A5: Robustness of rank-rank slope estimates

	(1) All observations	(2) Only cohorts 1968-1977	(3) Only cohorts 1978-1987
Baseline estimation			
Rank-rank slope	0.254	0.166	0.342
	(0.023)	(0.033)	(0.034)
Parent-child pairs	1756	933	823
No controls for number of income observations			
Rank-rank slope	0.263	0.189	0.348
	(0.023)	(0.033)	(0.033)
Parent-child pairs	1756	933	823
Child lifetime income proxied over ages 30-40 (baseline: 30-35)			
Rank-rank slope	0.257	0.164	0.348
	(0.023)	(0.033)	(0.033)
Parent-child pairs	1757	934	823
Cohort group size 3 (baseline: 4)			
Rank-rank slope	0.245	0.163	0.334
	(0.024)	(0.033)	(0.037)
Parent-child pairs	1622	933	689
Cohort group size 5 (baseline: 4)			
Rank-rank slope	0.257	0.165	0.347
	(0.023)	(0.033)	(0.034)
Parent-child pairs	1756	933	823
Excluding observations with zero income			
Rank-rank slope	0.236	0.167	0.304
	(0.024)	(0.034)	(0.034)
Parent-child pairs	1663	881	782

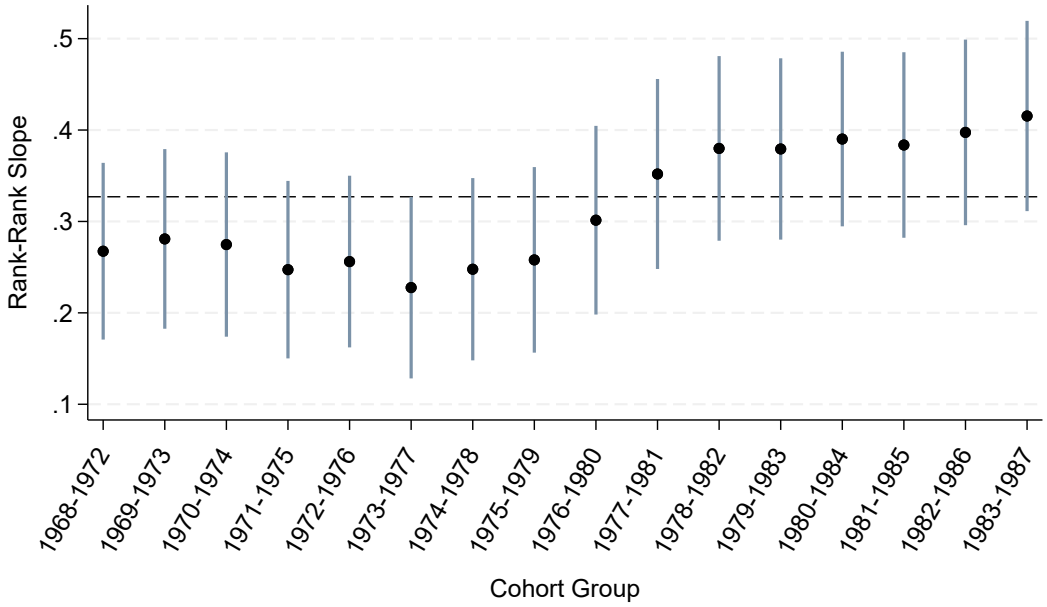
Continued

Table A4: Robustness of rank-rank slope estimates – continued

	(1) All observations	(2) Only cohorts 1968-1977	(3) Only cohorts 1978-1987
Using post-government household income to measure parental resources			
Rank-rank slope	0.261	0.188	0.335
	(0.023)	(0.032)	(0.033)
Parent-child pairs	1756	933	823
Using survey weights			
Rank-rank slope	0.253	0.159	0.316
	(0.037)	(0.050)	(0.057)
Parent-child pairs	1690	909	781
Dropping children living with their parents when aged 30-35			
Rank-rank slope	0.261	0.171	0.360
	(0.026)	(0.036)	(0.037)
Parent-child pairs	1429	775	654
Excluding households situated in East Germany in 1989			
Rank-rank slope	0.250	0.160	0.340
	(0.024)	(0.033)	(0.034)
Parent-child pairs	1,733	916	817
Controlling for migration background fixed effects (3 categories)			
Rank-rank slope	0.243	0.147	0.337
	(0.024)	(0.033)	(0.034)
Parent-child pairs	1,756	933	823

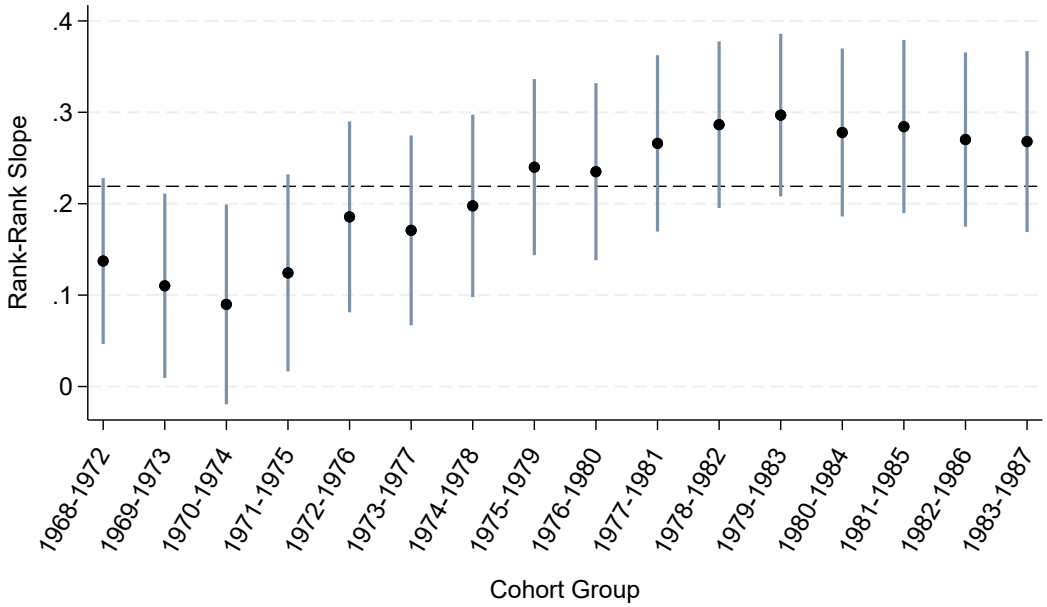
Notes: This table presents robustness results on our rank mobility estimation for the whole sample (column 1), only for cohorts 1968-1977 (column 2), and only for cohorts 1978-1987 (column 3). All estimates are obtained using individual labor income for children and equivalized household income for parents. The baseline estimation is the one from Table 1 (Panel B), that is, child lifetime income is measured over ages 30-35, observations with zero lifetime income are included, percentile ranks are computed within cohort groups of size 4, and controls for the number of available years lifetime income is proxied over are included. With respect to Panel 3, note that the income of children born after 1980 is not observed until age 40, see Appendix Table A1. Regarding Panel 4, children born after 1985 are not considered in order to accommodate the cohort group size 3. Robust standard errors in parentheses.

Figure A2: Rank-rank slope estimates: Household income for both



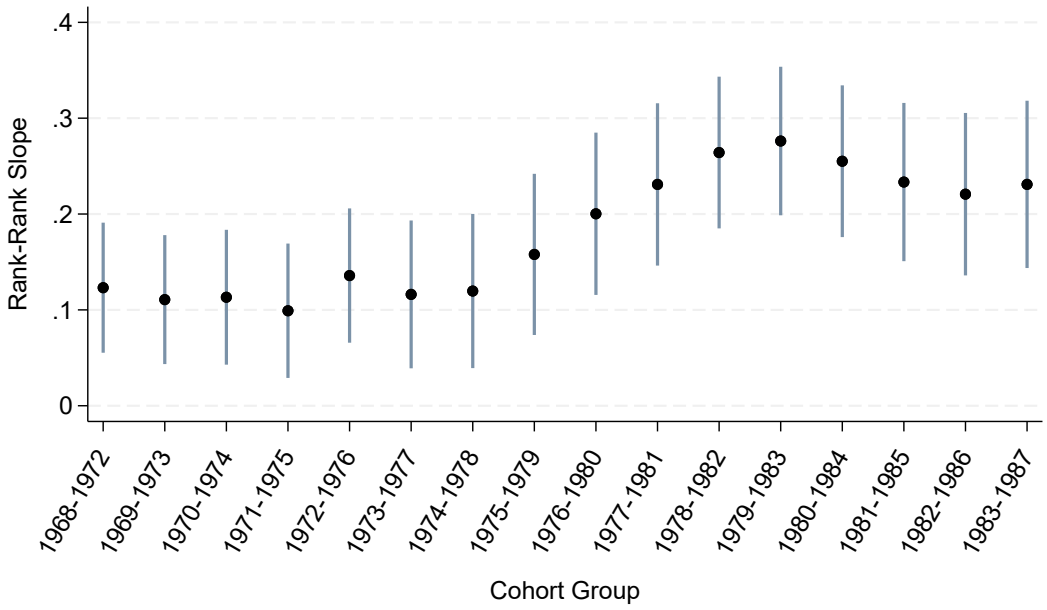
Notes: The figure shows the evolution of relative intergenerational income mobility, measured by the rank-rank slope, for rolling child birth cohorts with window size 5, based on equivalized household income for both parents and children. The dashed line indicates the estimated rank-rank slope for the pooled sample which is 0.327. All children living in the same household as their parents when aged 30-35 are excluded from the sample. All regressions control for the number of available years child and parent incomes are averaged over to proxy lifetime income. 95% confidence intervals for the estimates are displayed.

Figure A3: Rank-rank slope estimates: Individual labor income for both



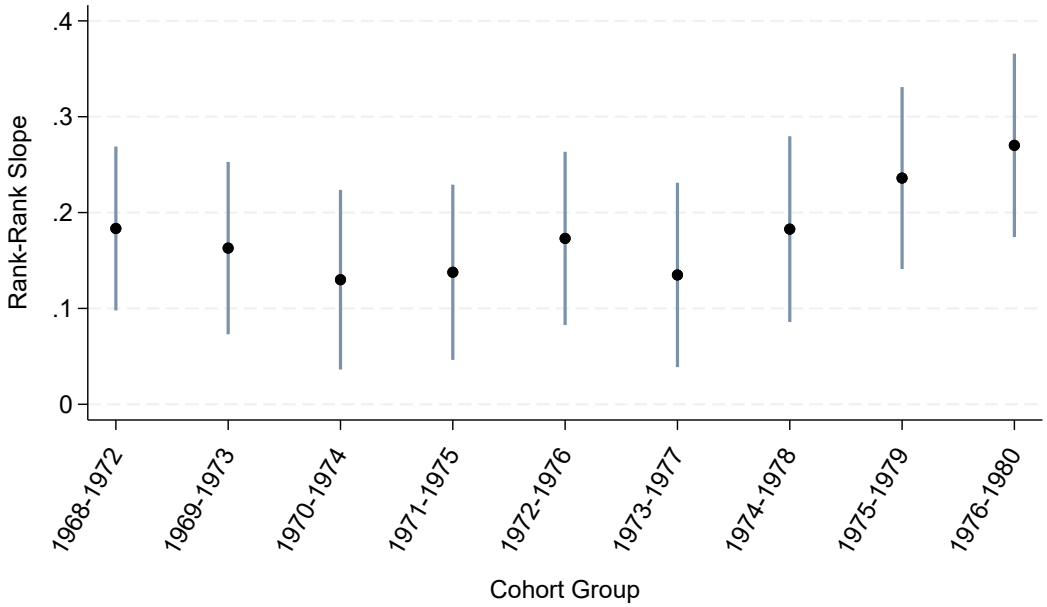
Notes: The figure shows the evolution of relative intergenerational income mobility, measured by the rank-rank slope, for rolling child birth cohorts with window size 5, based on individual labor earnings for both parents and children. The dashed line indicates the estimated rank-rank slope for the pooled sample which is 0.219. All regressions control for the number of available years child and parent incomes are averaged over to proxy lifetime income. Controlling for the gender of the parent from whose questionnaire individual earnings are taken does not affect the results. 95% confidence intervals for the estimates are displayed.

Figure A4: Rank-rank slope estimates when controlling for child employment



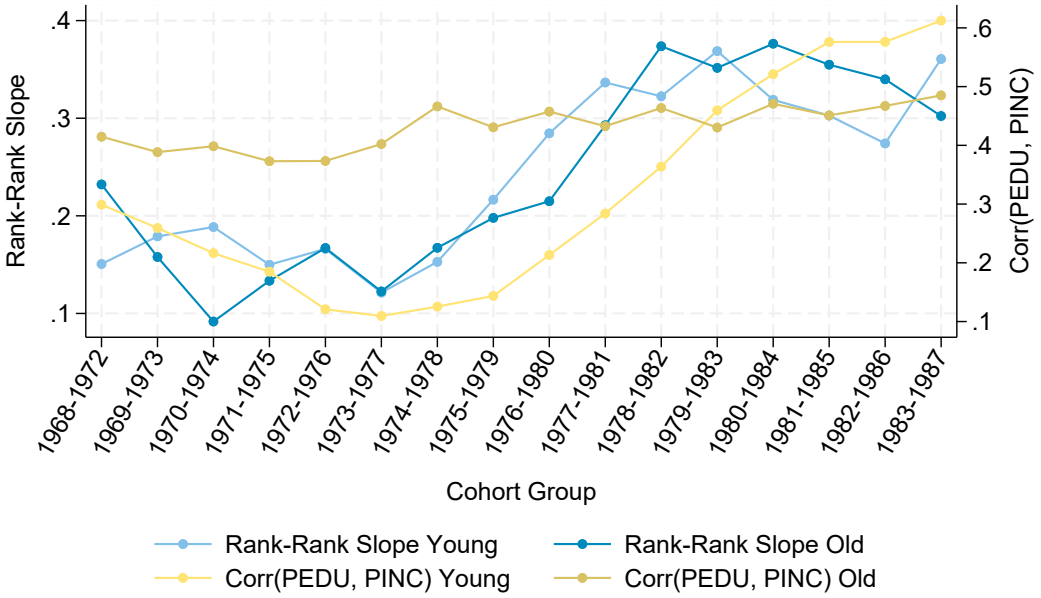
Notes: This figure shows the evolution of rank mobility over time for rolling child birth cohorts with window size 5, based on individual labor earnings for children and equivalized household income for parents, and controlling for children's employment outcomes. Specifically, child employment is measured as the share of years the child is employed (positive wages and working at least 52 hours annually) when aged 30-35, i.e., during the years lifetime income is proxied. 95% confidence intervals for the estimates are displayed.

Figure A5: Rank-rank slope estimates for child age range 30-40



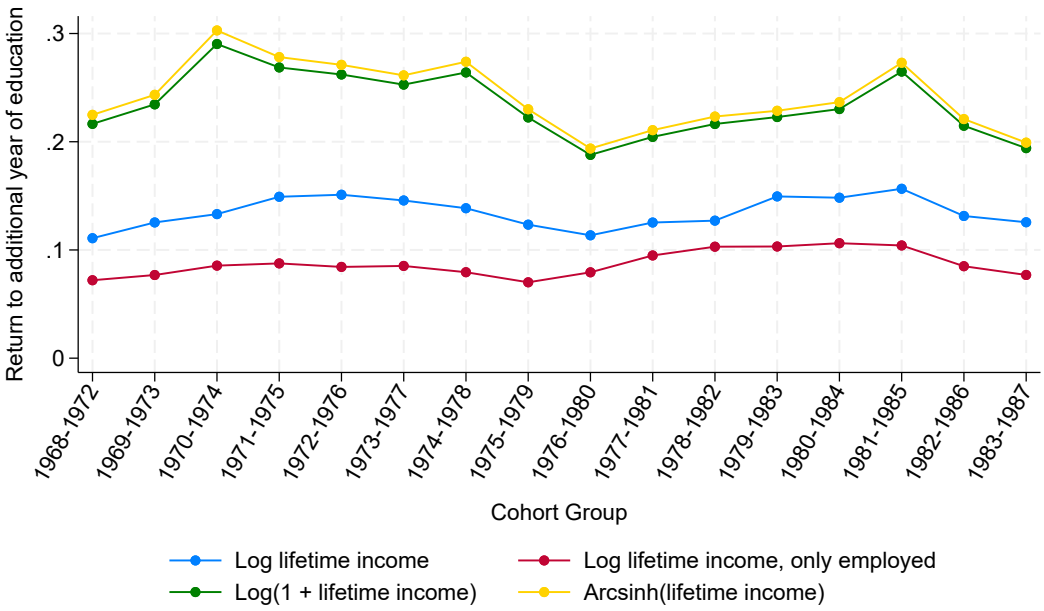
Notes: The figure depicts dynamic estimates of the rank-rank slope for rolling child birth cohorts with window size 5, based on individual labor earnings for children and equivalized household income for parents. In contrast to the baseline specification in Figure 2, child lifetime income is averaged over ages 30-40 (instead of 30-35) to gauge the prevalence of lifecycle bias. As we do not observe the income of children born after 1980 until age 40, the estimates are only shown until the cohort group 1976-1980. 95% confidence intervals for the estimates are displayed.

Figure A6: Changing meritocracy in the parent generation



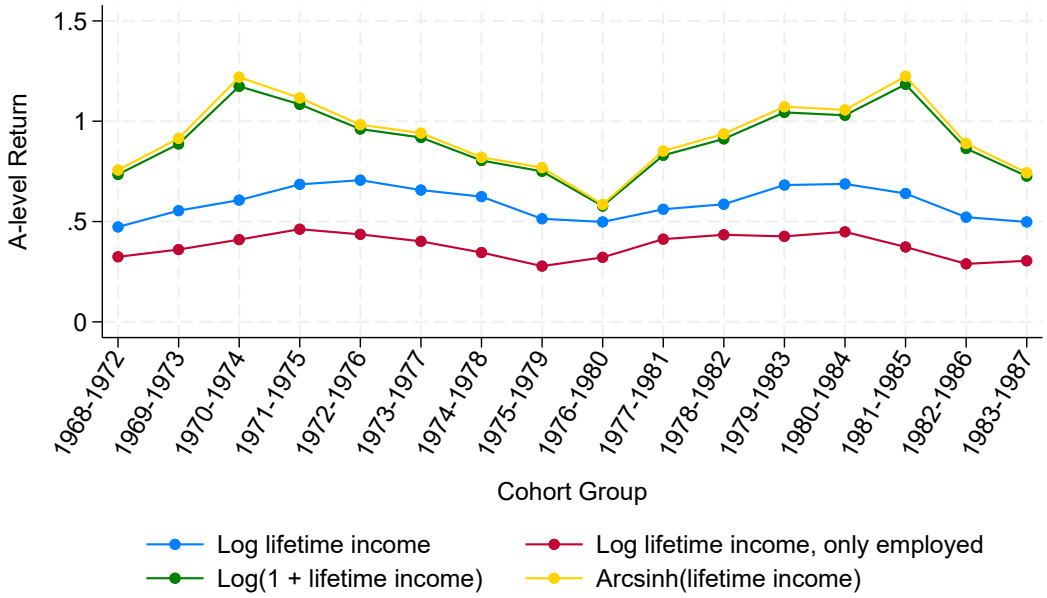
Notes: This figure examines the evolution of the rank-rank slope and of the correlation between parent education and parent income rank for rolling child birth cohorts, when the sample is split into younger and older parents. A median split by parent age at child birth is employed. The correlation between parent education and income was suggested by Nybom and Stuhler (2024) to quantify the degree "meritocracy" in the parent generation, i.e., the degree to which endowments are predictive of later income. In their model, a shift towards "meritocracy" in the parent generation can induce declining mobility in the subsequent child generation due to the heritability of endowments.

Figure A7: Return to additional year of education over time



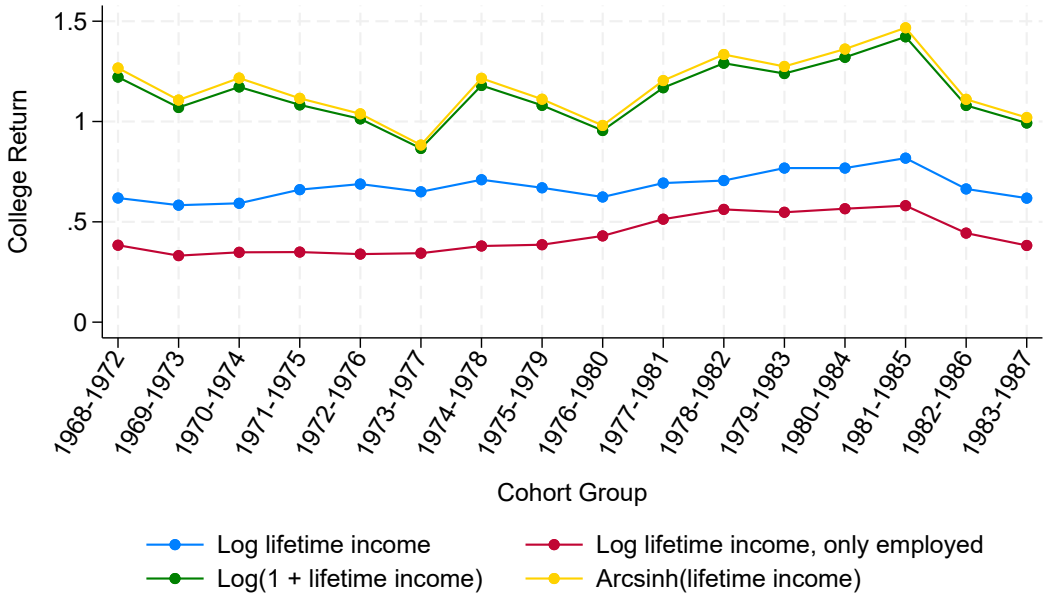
Notes: Returns are estimated by regressing log child lifetime income on completed years of education at age 30, controlling for gender.

Figure A8: Returns to A-level over time



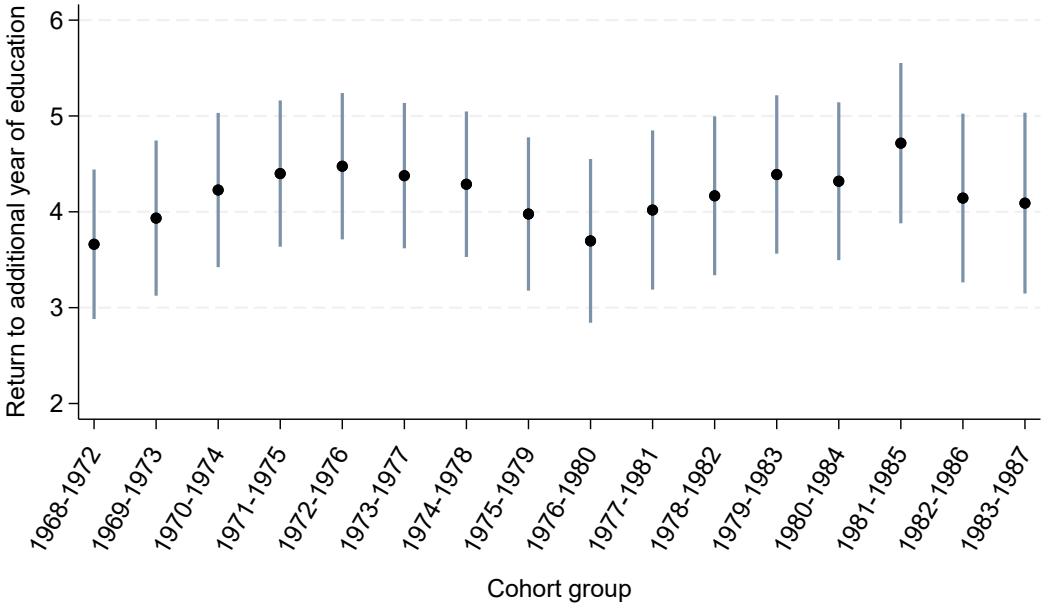
Notes: Returns are estimated by regressing log child lifetime income on an A-level dummy (as defined in Dodin et al. 2024), controlling for gender.

Figure A9: Returns to college over time



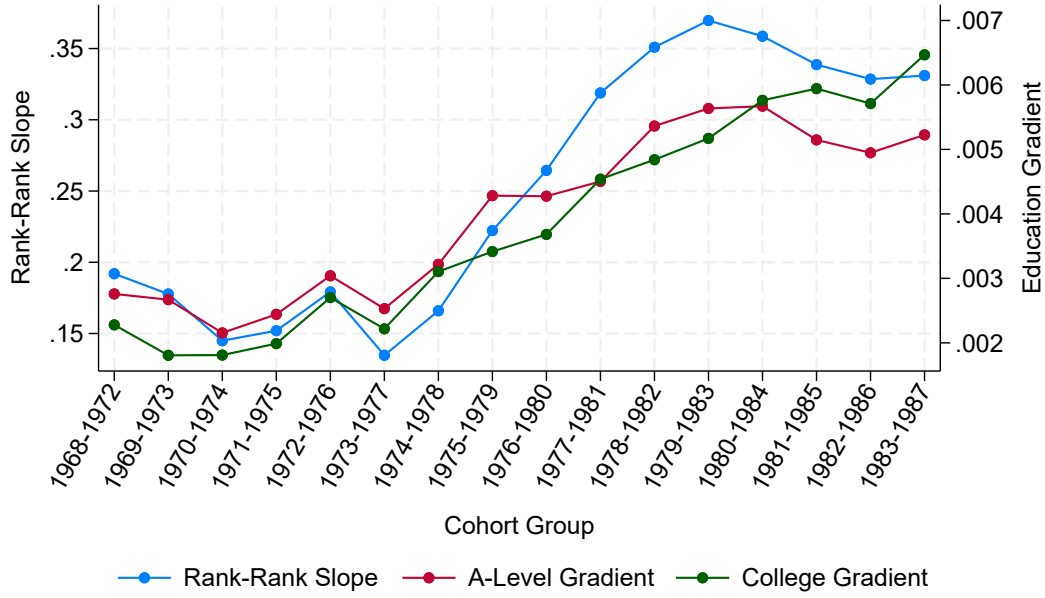
Notes: Returns are estimated by regressing log child lifetime income on a college dummy (as defined in Dodin et al. 2024), controlling for gender.

Figure A10: Return to additional year of education – based on income ranks



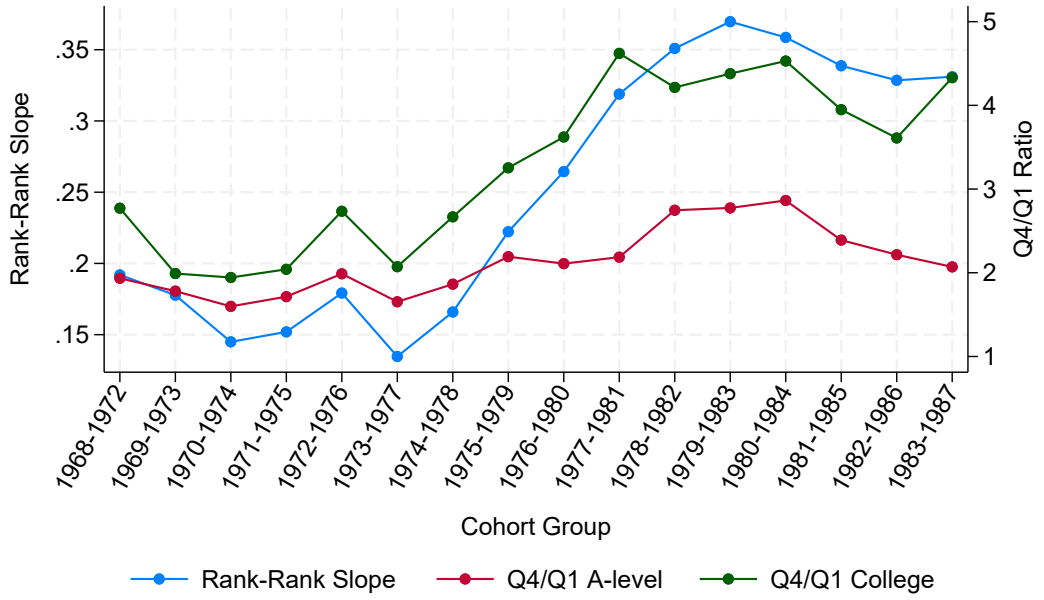
Notes: Returns are estimated by regressing child income percentile ranks on completed years of education at age 30, controlling for gender. 95% confidence intervals for the estimates are displayed.

Figure A11: Income mobility and education gradients over time



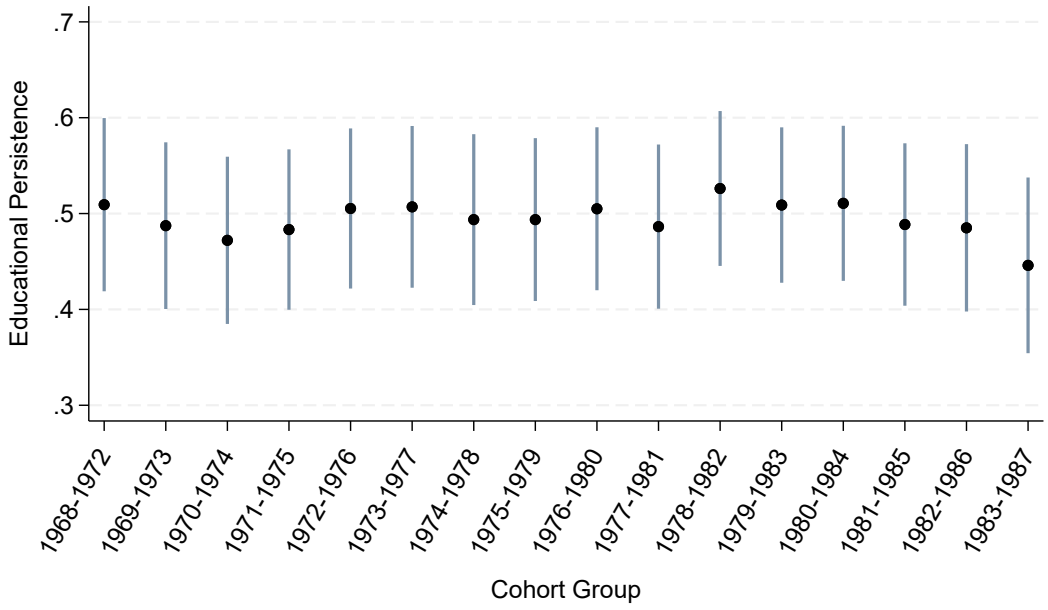
Notes: The blue line depicts our estimates of relative income mobility, as in Figure 2. The red line presents estimated coefficients from regressions of an A-level dummy (as defined in Dodin et al. 2024) on the household income rank of the parent. The green line shows estimated coefficients from regressions of a college dummy on the household income rank of the parent; all for rolling child birth cohorts with window size 5.

Figure A12: Income mobility and odds ratios over time



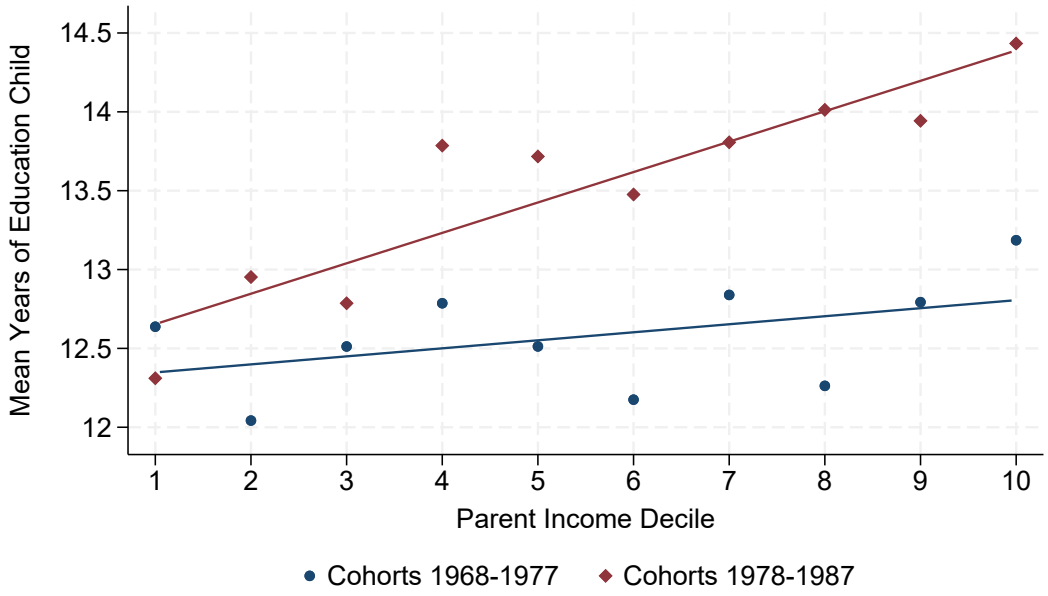
Notes: The blue line depicts our estimates of relative income mobility, as in Figure 2. The red line and green line show estimates of the odds ratio of obtaining an A-level and college degree, respectively, for rolling child birth cohorts. The odds ratio is defined as the probability of attainment for children from the top quartile of the parent income distribution relative to children from the bottom quartile of the parent income distribution. A high odds ratio indicates low intergenerational mobility.

Figure A13: Educational persistence over time



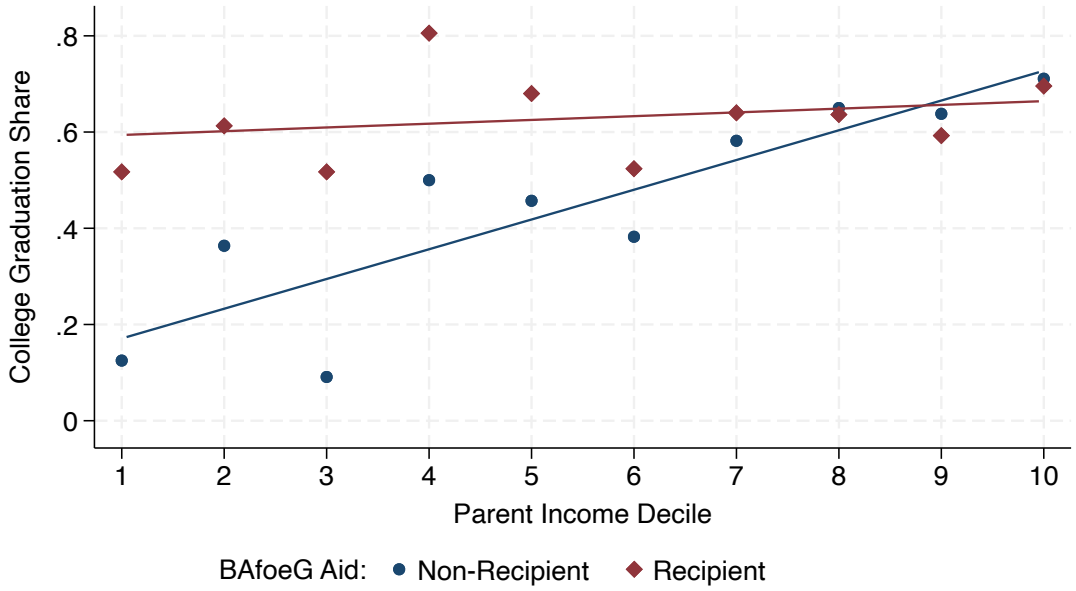
Notes: This figure shows estimated coefficients from regressions of child years of education on parent years of education (same measure as in Karlson and Landersø 2025), for rolling cohort groups with window size 5. 95% confidence intervals for the estimates are displayed.

Figure A14: Parent income gradient when controlling for parental education



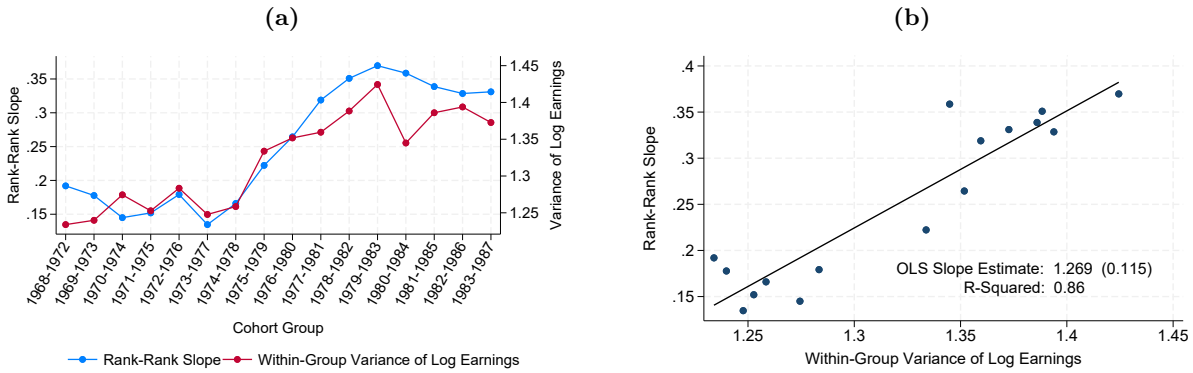
Notes: This figure depicts average years of child education by parent income decile, when controlling for parental years of education. The blue line represents the relationship for the birth cohorts 1968-1977 and the red line represents the relationship for children born between 1978-1987.

Figure A15: Need-based student aid and the college gradient



Notes: This figure shows the share of children born between 1968-1987 with a college degree by parent household income decile, conditional on having obtained an A-level degree. The red line represents the relationship for children who received BAfoeG student aid and/or a scholarship payment in any year when aged 18-35. The blue line represents the relationship for children who did not receive aid. BAfoeG is a need-based student aid scheme in Germany. Eligibility and aid amounts depend on parental and own income, own assets, as well as age and income of siblings and other household members.

Figure A16: Rank mobility and income inequality, using variance of log earnings



Notes: (a): Shows the evolution of relative intergenerational income mobility (blue line), measured by the rank-rank slope, together with the evolution of intragenerational income inequality (red line), measured by the variance of log lifetime incomes within cohort groups, for rolling child birth cohorts with window size 5. Inequality is estimated based on all children in these cohort groups, not only those that could be matched with parents. (b): Depicts the relationship of (a) as a scatter plot, where each point represents one cohort group. The linear fit in black is the least squares line and can be interpreted as the "Intertemporal Great Gatsby Curve".