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Children of the Reunification: Gendered Effects on Intergenerational Mobility in Germany

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Abstract

Reunified Germany presents an interesting test case for testing intergenerational transmission of opportunity from a gendered perspective. Former Eastern Germany used to have a much higher female labour force participation and more gender egalitarian institutions. We use the German Socio-Economic Panel to look at the effects of mothers and fathers education on both sons and daughters income in post-reunification Germany. Further we explore the extent to which effects on child income are moderated via child's education and whether the strength of transmission displays non-linearities across the income distribution. It is shown that educational moderation matters more for Western Germany and that non-linearities are stronger in father-son transmissions. Gendered transmission differs between East and West in a way that is coherent with the different roles of women.

Introduction

Intergenerational Mobility Research has seen a an increasing focus on understanding the institutional underpinnings that generate differing mobility patterns (Whelan et al., 2012). Much of the focus in the literature comparing institutions has been directed towards documenting and interpreting cross-national differences in social and income mobility (Corak, 2006). Another trend in the intergenerational mobility literature has been an increased focus on the transmission to daughters (Chadwick and Solon, 2002). Whereas traditionally most work was focused on father son income and status transmission the increasing labour market integration of women has made understanding transmission mechanisms for women increasingly important. Our work positions itself at the intersection of these trends. Using the German Socio-Economic Panel, we look at sons' and daughters' earnings in East and West Germany from 1992-2012 and at the effects that father and mother education had on them. By comparing gendered transmission in East and West Germany, we can look at two systems with originally different institutions and persisting differences in gender norms as well as in female labour market integration, that suddenly come together under the same institutional setting. We show that for East and West-Germans working in re-unified Germany differently gendered patterns of intergenerational transmission persist. We extend the literature on gendered effects

by exploring the extent to which parent effects on wages are differently moderated by child education for sons and daughters and by looking at whether non-linearities in intergenerational transmission matter. It is shown that the effects of having a highly educated father are particular advantageous in the top end of the male income distribution of sons whereas effects are much less extremely distributed for daughters. Also having a university educated mother is more important for boys in the West whereas it matters more for girls in the East. This is interpreted in light of different parental investment into children due to the stronger predominance of the male breadwinner model in Western Germany. On the other hand having a mother who went through vocational training is particularly advantageous for daughters in Western Germany whereas it shows no effect in the East. We interpret this as a role-model effect, given that in the West much less mothers worked, having a working mother had a greater effect on daughters than in the East where working mothers were the norm.

Background

East and West Germany

Shortly after the Berlin Wall came down and the politics of reunification began the former German chancellor Willy Brandt remarked "what belongs together will now grow together". Prior to reunification the German Democratic Republic (now Eastern Germany) had experienced 40 years in which it implemented a socialist system, with a centrally planned economy, and employment policies aimed at promoting workers and guaranteeing full employment . Meanwhile Western Germany defined its system under the term social market economy ("Soziale Marktwirtschaft") and had a conservative-corporatist welfare state (Esping-Andersen, 1990). Prior to reunification Eastern Germany aimed for a succinctly more gender egalitarian system, with symmetrical gender roles, supported by broad universal child care. Even though full parity was never achieved (Kolinsky, 2003) working mothers were the norm in Eastern Germany, while this was not the case in the West. Reunification in 1989, bringing abrupt, unexpected, political and institutional change to Eastern Germany while leaving the West mostly unchanged is often regarded as a rare political natural experiment. Rosenfeld et al (Rosenfeld et al., 2004) use this perspective to provide a summary of gender differences in the East and the West before and after reunification, with particular emphasis on the labour market. While there has been some convergence, labour force participation of women has remained systematically higher in the East (Pestel, 2016) despite initially high female unemployment rates.
Wages in the East have been rising closer towards western German values, despite remaining significantly lower (Krueger and Pischke, 1992) and have become equally dispersed from what used to be a more egalitarian income distribution, with Eastern and Western Gini coefficiients being about equal now. (Frick and Goebel, 2008). Despite some convergence, labour markets as well as gender norms continue to differ between the East and the West. Comparing Eastern and Western German mobility patterns thus provides the unique opportunity to compare people that grew up in different systems, with different institutions, norms

and family investment strategies and that find themselves in a not identical but institutionally unified labour market all of a sudden.

Several Studies have looked at intergenerational earning as well as at educational mobility for Germany. The earnings mobility in Germany is found to be somewhat higher than in Scandinavian countries and significantly lower than in the US (Bratberg et al., 2016). Ermish analyzes intergenerational mobility in Germany from an assortative mating perspective and finds that spousal earnings correlations are significantly higher than in Great Britain (Ermisch et al., 2006). Riphahn and Trubswetter compare parent to child educational transmission in East and West Germany and find parental education to matter less for child education in the East relative to the West.(Riphahn and Trübswetter, 2011)

Intergenerational Mobilty

The literature on intergenerational mobility has grown substantially over the last 2 decades. Five trends in this literature particularly influenced our research design and questions.

First, the field has been marked by methodological and data improvements. Original estimates of father-son earnings elasticities for the US were quite low, at around 0.2 or less (Solon, 2002). Since then we learned to adjust for age and lifecycle effects and started using longitudinal datasets to average income across many years to correct for measurement error and avoid temporary income fluctuations that downward bias estimates. (Behrman and Taubman, 1990) (Solon, 2002) (Black and Devereux, 2011). These improvements led to the conclusion that intergenerational elasticities are much higher, meaning intergenerational mobility is lower than we initially assumed. The importance of averaging incomes over as long a period as possible is illustrated by Mazumder (Mazumder, 2005) who found estimates of intergenreational elasticities rise by 30% from around 0.4 to around 0.6 when increasing the years he averages income over from 7 to 16 . Another approach, adopted for example by Chetty et al (Chetty et al., 2014) is using rank regressions rather than income elasticities since they tend to fluctuate less depending on model specification.

Second, in order to gain a better understanding of the institutional underpinnings promoting mobility (Whelan et al., 2012) comparing mobility across countries with different economic systems, institutions and values is increasingly common. Reviews of these comparisons are provided by Corak (Corak, 2006), Bjorklund and Jantti (Jäntti and Björklund, 2009), and Blanden (Blanden, 2013). Breen and Jonsson provide an overview of the cross-national sociology literature on the intergenerational transmission of status (Breen and Jonsson, 2005). A topic of particular interest in the cross-country literature has been the relationship between inequality and mobility. Corak (Corak, 2013) documents a positive relationship between inequality and earnings elasticities of countries, meaning more equal countries have more mobility. Chetty (Chetty et al., 2014) finds similar patterns for the US, whereas work on PSID data by Bloome (Bloome, 2015) finds no relationship between inequality experienced in childood and mobility.

Third, the literature has grown increasingly concerned with not simply calculating transmission coefficients but with identifying pathways through which intergenerational transmission happens, in particular education. One approach is to construct path models. Piraino (Piraino, 2007) looks at the effects of education in Italy and finds that it mediates about 1/3 of the intergenerational transmission of income. A similar analysis of mediation of income transmission via education is done by Esping-Andersen and Wagner (Esping-Andersen and Wagner, 2012) for 5 European countries, finding significant cross-country variation in direct and indirect income transmission. Blanden et al (Blanden et al., 2014)use path models to explain different pathways explaining intergenerational mobility in the United States and in Great Britain finding greater importance for educational pathways in the United States and for occupational choice in Great Britain . A second approach towards identifying pathways of income transmission consists of evaluating policy reforms. Black, Devereux and Salvanes (Black et al., 2005) try to identify the causal contribution of parental education to mobility by exploiting a policy reform changing compulsory schooling laws in Norway and conclude that there are very little causal effects of education on intergenerational transmission. Bigger estimates are found in work on school reform in Finnland which finds a reduction in intergenerational income elasticity of 23% due to obligatory schooling laws (Pekkarinen et al., 2009). A third approach aims at disentangling the effects of enviroment and on genetics on intergenerational transmission. Bjorklund et al (Björklund et al., 2006) show that genetics acconts for 40-50% of intergenerational income transmission by comparing origin effects for adopted children in Sweden. Liu and Zeng find similarly big effects for data on US adoptees (Liu and Zeng, 2009).

Fourth, it has become increasingly clear that intergenerational transmission for the poor, the middle class and the rich does not necessarily follow the same logic. This has sparked a literature exploring non-linearities in transmission. Atkinson already observed that intergenerational transmission seemed to be particularly strong among the poor and the rich in his early study on England (Atkinson et al., 1983). The idea that there might be non-linearities in intergenerational earnings tranmission has been theorized by Becker and Tomes (Becker and Tomes, 1986) who stress the role of credit constraints potentially making intergenerational elasticities particularly strong among the poor. An early example of an empirical explotation of non-linearities is the work by Behrman and Taubman (Behrman and Taubman, 1990) who analyze PSID data using a quadratic log of parental income. Couch and Lillard (Couch and Lillard, 2004) look at the father-son income elasticity in the US and Germany and find that it is declining in father's income in the US, but not so in Germany, providing some evidence that credit constraints might matter more in the American context. They cannot confirm the same hypothesis for Germany. Grawe (Grawe, 2004) uses quantile regression on the father son earnings association to analyze the role of credit constraints in Canada and ends up rejecting a credit-constraints explanation. Corak and Heisz's analysis of Canadian administrative data comes to broadly similar conclusions (Corak and Heisz, 1999).

Fifth, while the literature has initially only looked at father-son earnings-elasticities it is now increasingly looking at the effects of mothers and at the effects on daughters as well. The stronger focus on son-father transmission is due to the historically higher labour force participation of men, allowing for a more complete sample of the population when looking at male earnings. Chadwick and Solon are among the first to lookg at the intergenerational income elasticity of American daughters (Chadwick and Solon, 2002). Jantti et al (Jäntti et al., 2006) looks at father-daughter elasticities for a variety of countries and find them to be significantly smaller than father-son associations. The cross-country patterns remain similar however, showing smaller intergenerational elasticities for the four Nordic countries and larger ones for the US and UK. One explanation for differences in son and daughter intergenerational transmission has been put forward by Raum et al (Raaum et al., 2007). Building on an argument already made by Chadwick and Solon (Chadwick and Solon, 2002) they argue that assortative mating leads better off and more educated women to also marry high-earning men to a greater degree leading them to work less on their own and strive less for high earning jobs thus reducing the direct intergenerational elasticity we measure. However the study does also show that men and women have very similar intergenerational persistence in educational patterns. Using NLSY data Farre and Vella (Farré and Vella, 2007) show that the intergenerational transmission of gender attitudes tends to affect mobility relations among mothers and their daughters in particular via its effects on labour market participation.

All of these trends have influenced our work. While we do not provide cross-country comparisons, looking at a natural experiment which suddenly unites two different systems provides a different way of adding to the comparative literature. We alsolook at how education influences parental effects on income by employing a path modelling strategy. Since in the former GDR with its focus on the proletariat, education was explicitly aimed to have less of a stratifying effect on the social structure than in the capitalist West. Looking whether this results in child-education being less of a moderator of income transition thus provides an interesting test of the degree to which moderation of income via education is context-dependent. Further the differences in gender norms and in labour market integration of women in the East, which continue to persist allows the intra-german comparison to shed light on potential institutional underpinnings of differences between mother and father effects as well as of differences in parental effects on daughters or sons income respectively. Finally, we are, to our knowledge the first to systematically explore how non-linearities vary according to gender of children and fathers. We do so via quantile regression models of father and mother education on the income of children of both sexes.

Data

Since 1992 was the first year in which the German Socio-Economic Panel fully integrated data on Eastern Germans we look at data for the twenty years from 1992 to 2012. Our sample is restricted to Germans of non-immigrant background who were recorded in full employment and between the ages of 30 and 55.

Mazumder (Mazumder, 2005) argues that intergenerational estimates are more reliable when averaging income over as many years as possible to avoid the effects of temporary income shocks or measurement error. We take average incomes for individuals across all years for which we have observations and exclude any individuals for which we do not have at least two years of observations to average across. As can be seen in Table 1 on average we have about 12-13 years of observations for an individual. In order to control for time and age effects on income we record the average year and age for the years across which we observe an individual. Information on parents is retrieved from background questions asked to the children. The two variables we record for parents are whether they completed a university degree and whether they went through vocational training. University degrees where relatively rare in the parent generation and about 10% of fathers and 4% of mothers have a completed university degree in our sample. Vocational training is very particular to the German system and generally consists of doing an apprenticeship within a company which generally directly leads to a job afterwards. Many civil service jobs also train their employees on the job in vocational training programs. 92 % of our male sample and 90% of our female sample either have a university degree or received vocational training, highlighting the fact that vocational training represents the standard pathway into employment for those who do not go into tertiary education. It is worth keeping in mind that these numbers are upward biased relative to the total population by the fact that we do only observe employed individuals. In the parent generation employees without vocational degrees where still more common. Unfortunately we do not have information on whether parents were employed, but in particular for mothers which often remained out of the labour force, a vocational degree is a good indicator that the mother was part of the work-force. Further we include controls for child and family background, those are whether the individual says to have been raised in a small town or on the countryside, the number of siblings and whether the individual reports to have passed at least 5 years living with a single parent.

Model

We estimate the effect of parental education on son's and daughters log earnings separately according to the following model

$$ln(Y_i^{Child}) = \alpha + \beta_M Ed_i^{Mother} + \beta_F Ed_i^{Father} + \beta_c C_i + \varepsilon_i \tag{1}$$

Here Ed_i^{Mother} and Ed_i^{Father} are vectors consisting of two binary variables for whether mother's and father's have a university degree and whether they have a vocational degree. C_i is a set of controls consisting of age and age squared, the average year of the income observations for individual i and the set of background controls, consisting of the number of siblings, growing up in a rural environment, and growing up with a single parent. We go on to estimate model 1 separately for sons and daughters and for West and East Germany, as well as for all of Germany together. Since in the case of parental education we are regressing a dummy on a log variable, the coefficient can be roughly interpreted as a percentage change in income. For example a coefficient of 0.3 for β_F means that having a father that has gone to university roughly results in

a 30% higher income.

In order to look at the degree to which the effects of parental education on income are moderated via the effects that those parental characteristics have on child education we follow a setup similar to Blanden et al (Blanden et al., 2014) in setting up a path model. We first estimate the effect of parental education on children's educational outcome.

$$Ed_i^{Child} = \alpha_1 + \lambda_F Ed_i^{Father} + \lambda_M Ed_i^{Mother} + \lambda_c C_i + \upsilon_i \tag{2}$$

Here the coefficient vectors λ_F and λ_M give us the effect that parental education has on the probability of sons and daughters to obtain a university degree or to go into vocational training respectively.

In the next step we then include the values for children's education into equation 1.

$$ln(Y_i^{Child}) = \alpha_2 + \gamma_{Ed} Ed_i^{Child} + \delta_M Ed_i^{Mother} + \delta_F Ed_i^{Father} + \delta_c C_i + \zeta_i \tag{3}$$

This gives us the effect of parental education on child's income net of it's effect on child's education via δ_F and δ_M. This is thus the direct effect of background on income, that is not moderated via the education channel.

The total effect of parental education on child's income is the direct effect δ_M for mothers or δ_F for fathers and the effect of parental education on child's education, λ_M or λ_F multiplied with the coefficient capturing the effect for child's education on child's income γ_{Ed}. By generalizing the coefficients for men and women we obtain.

$$\beta = \lambda * \gamma_{Ed} + \delta \tag{4}$$

Since we are mainly interested in explaining child income we report only the results for model 1 and model 3 which hence allow us to fully understand the decomposition of parent-education to child-income effects into direct and indirect components. Since form equation 4 it follows that we can recalculate the indirect effect simply by taking

$$\lambda_M * \gamma_{Ed} = \beta_M - \delta_M \tag{5}$$

In order to gain a better understanding of the effects of German reunification and to see how transmission mechanism evolve over time and whether there is convergence between the West and the East, we decided to separately estimate model 1 for three different birth cohorts. Those born before 1960 were at least 30 at the time of reunification and had mostly already completed their vocaional training or tertiary education as well as the integration into the respective Eastern or Western German labour market. Those born between 1960 and 1970 were between 19 and 29 when the wall fell and thus competed their education as well as their labour market integration in a time of transition. Those born after 1970 were 18 or younger

at the time of reunification and thus had to do their post-secondary education as well as integrate into the labour market completely in the newly reunified Germany

As discussed non(linearities play a big role in intergenerational transmission but remain underassessed in the literature on gendered transmission. The more compressed wage distribution among women as well as the fact that nurturing, transmitted, gender roles and social and cultural capital might differ among educated fathers and mothers lead one to suspect that transmission of father and mother effects might not display the same non-linearities. Further effects of the same parental characteristic on sons and daughters might also play out in different parts of the income distribution. To assess this we estimate both model 1 and model 3 in quantile regression form. This allows us to look at overall non-linearities in the effects of parental education on child's income as well as on non-linearities in the direct effects net of education.

Hypotheses

Given the originally more strongly stratified nature of the Western German system and the fact that the transition from one system to another might have devalued certain pathways of skill and privilege transmission we arrive at the following hypothesis about East-West Differences:

$Hyp_{EastWest}$: We expect overall parent-child transmissions to be stronger in Western Germany but we expect this difference to shrink for younger cohorts entering the labour market after the fall of the Wall.

Given that educational stratification and transmission is very strong in Western Germany and used to be less strong in the East with its focus on the proletariat we expect:

$Hyp_{Moderation}$: Moderation of status transmission by education will be stronger in Western Germany than in the East

Given that university was a clear marker of the elite, particuarly in the parent generation and that vocational training has the focus of successfully integrating the less-skilled into the labour market we expect that :

$Hyp_{Non-Linear}$: Parental university education will have strong effects in the upper end of the income distribution while vocational training will lift up the bottom

Finally we have a series of hypotheses about gendered transmission in the German context. Given the more male-focused labour market and gender norms in Western Germany, parental resource, time and capital investment into advancing boys careers made more sense in the West from a returns to investment perspective. Hence we expect.

$Hyp_{Gender1}$: The effects of parental university backgrounds will be bigger for boys relative to girls in Western Germany

Since vocational training for mothers can be seen as an indicator that the mother was actively working, we expect it to serve a role model effect, particularly for girls. This effect might matter more in Western Germany where female labour force participation was lower compared to the East where having a working mother was the societal norm. Hence we expect:

$Hyp_{Gender2}$: Mothers vocational training will matter more for girls than for boys particularly in Western Germany

Results

The results obtained from estimating model 1 and model 2 are reported in table 2 for the sample of sons and table for the sample of daughters. Model 1 giving us the total direct (Dir) effect of parental education on child income β. Model 3 the which gives us the effect of parental income after controlling for moderation (Mod) are always reported next to each other. Column (1) and (2) report effects for the West-German sample (3) and (4) for the East German sample and (5) and (6) for the sample of all Germans. Column (7) and (8) report estimations for all Germans as well but we test for whether differences in parental transmission between the West and East are significant by interacting parental education with whether the parents lived in Eastern Germany before 1989. In table and 5 we report only model 1 measuring the total effect of parental education on child outcomes, for the east, west and the entire sample with interactions. The sample is split by cohorts for which the model is estimated separately to look at whether effects are changing over time. The reasons of parsimony we present the results of the quantile regressions graphically, by plotting the coefficients we obtain in the different models next to each other. Each graph contains estimations for one varible. e.g. the effects of the father having a university degree plotted next to each other for the sample of West, East and All Germans. On top we see the estimates for the total direct effect from model 1 and on the bottom the effects that persist, net of child's education as obtained by δ in model 3.

East-West Differences

The most clearly significant effect in all models is having a father which attended university, which has a significant positive impact on both sons and daughters earnings in the East and the West. Maternal University Education on the other hand seems to matter much less. and Interestingly only has a significant positive effect on Sons in the West, while even displaying negative (even though insignificantly so) coeffi-

cients for girls in the West. Paternal Vocational training consistently has small and insignificant effects in both parts of Germany and maternal vocational training only seems to have significant effects in the West. To assess whether East-West Differences are significant look at the interaction terms in column (7) of table 2 for sons and table for girls. None of the differences can be found to be significant. Looking at the coefficients however, tells us that University educated fathers and mothers matter relatively more for sons in the West and relatively more for daughters in the East, which is broadly in line with our expectations of more son-centered high-status transmission in the labour market in Western Germany. Also, given its closer adherence to a male-breadwinner model, the lower transmission to girls might be the effect of assortative mating leading to a stronger reduction in female incomes in Western Germany Ermisch et al. (2006). Both father and mother vocational training matter less in the East even though not significantly so. Overall, we find consistently higher transmission coefficients for sons, across all measures in the West while a more mixed picture emerges for girls. Given that none of our interaction effects are significant we cannot affirm $Hyp_{EastWest}$ of an overall stronger intergenerational transmission in the West, even though at least for sons, results point in that direction. To asses changes over time we look at table 5. We can see that the transmission effects for father university are becoming weaker in the East and the West for both sexes. The same holds true for maternal vocational training. Overall there is little sign however that coefficients are becoming more equal for later cohorts, hence we cannot confirm that there are clear signs of convergence in the transmission patterns as of yet.

Moderation

When looking at the differences between the direct effect of parental education (reported in the colums Dir) and he effect of parental education on childs income that does not get transmitted via the effect that parental education has on child education (reported in the colums Mod). we can see that in Western Germany most effects of parental university education on child income pass via it's effects on education and that coefficients are thus much reduced in the moderated model. In the East this is much less the case, particularly for paternal university education and the effects in the moderated model remain significant. Vocational training effects while generally weaker also show much less signs of moderation where they matter (mothers). Overall we see this as a confirmation of $Hyp_{Moderation}$ that stratification in Western Germany is more strongly driven by educational stratification. This can also be seen in the coefficients for child's own uniersity attendance and its effects on income. Differences in the effects of university attainment in the two Germany's can be seen in column 8 of table 2 and where the interaction of Child's own university with being in Eastern Germany shows that a university education matters significantly less for overall income attainment in the East. Hence a parental investment strategy less focussed on child's education made relatively more sense in the East compared to the West.

Non-linearities

Our $Hyp_{Non-linear}$ stated that parental university education would matter more strongly in the top of the income distribution. As figure 2 shows this is definitely true for the effect of paternal university education on sons and even more so for sons in the West. However maternal university education does seem to lift sons in the middle up more than help those at the top, showing that mothers might transmit status via different mechanisms. Also for daughters no significant non-linearities can be found. Paternal Vocational training does seem to have small positive effects at the bottom of the distribution whereas effects become negative at the top, which might be associated to barriers encountered due to the mostly working class background associated with vocational training. For maternal vocational training, which we presume to have a role model effect in Western Germany, where many mothers did not work, shows strong positive effects at the lower end of the distribution for daughters(Fig. 9, hence seeing a working mother might matter particularly for girls in poorer families. Overall a much more nuanced picture than proposed in $Hyp_{Non-linear}$ emerges. Non-linearities seem to differ quite strongly by gender and are most pronounced in the effects of father university education on sons income.

Gender

In $Hyp_{Gender1}$ we postulated that in Western Germany parental tertiary education would matter more for boys than in the East. Results can be interpreted in a returns to human capital perspective, where investing in sons makes more sense in an institutional setup where they are more likely to be the sole or main breadwinners or it can be interpreted in an assortative mating framework, where due to differences in norms high status women in the West have more of a tendency to reduce their labour supply after finding a high statues partner and hence income does not measure the parental investmtents and their payoffs well for Western women. $Hyp_{Gender2}$ was about vocational training of mothers having stronger effects on girls, in particular in Western Germany. We do find that maternal vocational training matters more in the West. Having a working mother seems to matter more, when it is less of a norm. However effects are almost equally strong for boys and for girls.

Conclusion

For the case of the two formerly separated Germany's we have shown that intergenerational transmission from parental education to child's income follows distinct logics for sons and for daughters and that those logics are dependent on the institutional setup. In the less gender-egalitarian West, parental university education seems to have bigger positive effects on sons income relative to girls than in the East. On the other hand having a mother who obtained vocational training, which is a good indicator of labour market participation matters more in the West than in the East, where female labour market participation was much more of a norm. We also document than non-linearities in income transmission differ by gender. The effects of father unversity on sons income are highly non-linear and matter particularly for top incomes. This is not

the case for the effects of maternal unversity education or for the effects of paternal university education on daughters.

References

Atkinson, A. B., A. Maynard, and C. Trinder (1983). *Parents and children: Incomes in Two generations*. Heinemann.

Becker, G. S. and N. Tomes (1986). Human capital and the rise and fall of families. *Journal of Labor Economics 4*(3 Pt. 2), 1–47.

Behrman, J. R. and P. Taubman (1990). The Intergenerational Correlation Between Children's Adult Earnings and their Paerents' Income: Results from the Michigan Panel Survey of Income Dynamics. *The Review of Income and Wealth 36*(2), 115–127.

Björklund, A., M. Lindahl, and E. Plug (2006). The Origins of Intergenerational Associations: Lessons from Swedish Adoption Data*. *Quarterly Journal of Economics 121*(3), 999–1028.

Black, B. S. E., P. J. Devereux, and K. G. Salvanes (2005). Why the Apple Doesn ' t Fall Far : Understanding Intergenerational Transmission of Human Capital. *The American Economic Review 95*(1), 437–449.

Black, S. E. and P. J. Devereux (2011). *Recent developments in intergenerational mobility*, Volume 4. Elsevier B.V.

Blanden, J. (2013). cross-country rankings in intergenerational mobility: A comparison of approaches from economics and sociology. *Journal of Economic Surveys 27*(1), 38–73.

Blanden, J., R. Haveman, T. Smeeding, and K. Wilson (2014). Intergenerational mobility in the united states and great britain: A comparative study of parent-child pathways. *Review of Income and Wealth 60*(3), 425–449.

Bloome, D. (2015). Income Inequality and Intergenerational Income Mobility in the United States. *Social Forces 93*(3), 1047–1080.

Bratberg, E., J. Davis, B. Mazumder, M. Nybom, D. D. Schnitzlein, and K. Vaage (2016). A Comparison of Intergenerational Mobility Curves in Germany, Norway, Sweden, and the US. *Scandinavian Journal of Economics 119*(1), 72–101.

Breen, R. and J. Jonsson (2005). Inequality of Opportunity in Comparative Perspective: Recent Research on Educational Attainment and Social Mobility. *Annual Review of Sociology 31*(1), 223–243.

Chadwick, L. and G. Solon (2002). Intergenerational Income Mobility among Daughters. *The American Economic Review 92*(1), 335–344.

Chetty, R., N. Hendren, P. Kline, and E. Saez (2014). Where is the Land of Opportunity? The Geopgraphy of Intergenerational Mobility in the United States. *Quarterly Journal of Economics 129*(4), 1553–1623.

Corak, M. (2006). Do Poor Children Become Poor Adults? Lessons from a Cross-Country Comparison of Generational Earnings Mobility. *Research on Economic Inequality 13*(1993), 143–188.

Corak, M. (2013). Income Inequality, Equality of Opportunity, and Intergenerational Mobility. *Journal of Economic Perspectives 27*(3), 79–102.

Corak, M. and A. Heisz (1999). The Intergenerational Earnings and Income Mobility of Canadian Men: Evidence from Longitudinal Income Tax Data. *The Journal of Human Resources 34*(3), 504–533.

Couch, K. and D. Lillard (2004). Non-linear patterns of intergenerational mobility in Germany and the United States. In M. Corak (Ed.), *Generational Income Mobility in North America and Europe*, Chapter 8, pp. 190–206. Cambridge: Cambridge University Press.

Ermisch, J., M. Francesconi, and T. Siedler (2006). Intergenerational Mobility and Marital Sorting *. *116*(1999), 659–679.

Esping-Andersen, G. (1990). *The three worlds of welfare capitalism*. Cambridge: UK: Polity Press.

Esping-Andersen, G. and S. Wagner (2012). Asymmetries in the opportunity structure. Intergenerational mobility trends in Europe. *Research in Social Stratification and Mobility 30*(4), 473–487.

Farré, L. and F. Vella (2007). The Intergenerational Transmission of Gender Role Attitudes and its Implications for Female Labor Force Participation. *IZA Discussion Paper Series* (2802).

Frick, J. R. and J. Goebel (2008). Regional income stratification in unified Germany using a Gini decomposition approach. *Regional Studies 42*(4), 555–577.

Grawe, N. D. (2004). Reconsidering the Use of Nonlinearities in Intergenerational Earnings Mobility as a Test for Credit Constraints. *Journal of Human Resources 39*(3), 813–827.

Jäntti, M. and A. Björklund (2009). Intergenerational Income Mobility and the Role of Family Background. In B. Nolan, W. Salverda, and Timothy M. Smeeding (Eds.), *The Oxford Handbook of Economic Inequality*. Oxford: Oxford University Press.

Jäntti, M., B. Bratsberg, K. Røed, O. Raaum, E. Österbacka, A. Björklund, and T. Eriksson (2006). American exceptionalism in a new light : a comparison of intergenerational earnings mobility in the Nordic countries, the United Kingdom and the United States. *IZA Discussion Paper* (1938), 1–40.

Kolinsky, E. (2003). Gender and the Limits of Equality in East Germany. In *Reinventing gender: women in Eastern Germany since unification*, pp. 100–127. London: Frank Cass.

Krueger, A. and J.-S. Pischke (1992). A Comparative Analysis of East and West German Labor Markets: Before and After Unification.

Liu, H. and J. Zeng (2009). Genetic ability and intergenerational earnings mobility. *Journal of Population Economics 22*(1), 75–95.

Mazumder, B. (2005). Fortunate Sons: New Estimates of Intergenerational Mobility in the United States Using Social Security Earnings Data. *Review of Economics and Statistics 87*(2), 235–255.

Pekkarinen, T., R. Uusitalo, and S. Kerr (2009). School tracking and intergenerational income mobility: Evidence from the Finnish comprehensive school reform. *Journal of Public Economics 93*(7-8), 965–973.

Pestel, N. (2016). Marital Sorting, Inequality and the Role of Female Labour Supply: Evidence from East and West Germany. *Economica*, 104–127.

Piraino, P. (2007). Comparable Estimates of Intergenerational Income Mobility in Italy. *The B.E. Journal of Economic Analysis & Policy Contributions 7*(2).

Raaum, O., B. Bratsberg, K. Røed, E. Österbacka, T. Eriksson, M. Jäntti, and R. A. Naylor (2007). Marital Sorting, Household Labor Supply, and Intergenerational Earnings Mobility across Countries. *B.E.Journal of Economic Analysis & Policy: Advances in Economic Analysis & Policy 7*(2), 1–46.

Riphahn, R. T. and P. Trübswetter (2011). The intergenerational transmission of educational attainment in East and West Germany.

Rosenfeld, R. A., H. Trappe, and J. C. Gornick (2004). Gender and Work in Germany: Before and after Reunification. *Annual Review of Sociology 30*(2004), 103–124.

Solon, G. (2002). A Benchmark Measure of Intergenerational Mobility. *Journal of Economic Perspectives 16*(3), 59–66.

Whelan, C., B. Nolan, G. Esping-Andersen, B. Maitre, and S. Wagner (2012). THE ROLE OF SOCIAL INSTITUTIONS IN INTERGENERATIONAL MOBILITY. In T. M. Smeeding, R. Erikson, and M. Jantti (Eds.), *Persitence, Power and Privilege: The Comparative Study of Intergnerational Mobility*, pp. 331–367. New York: Russell Sage Foundation.

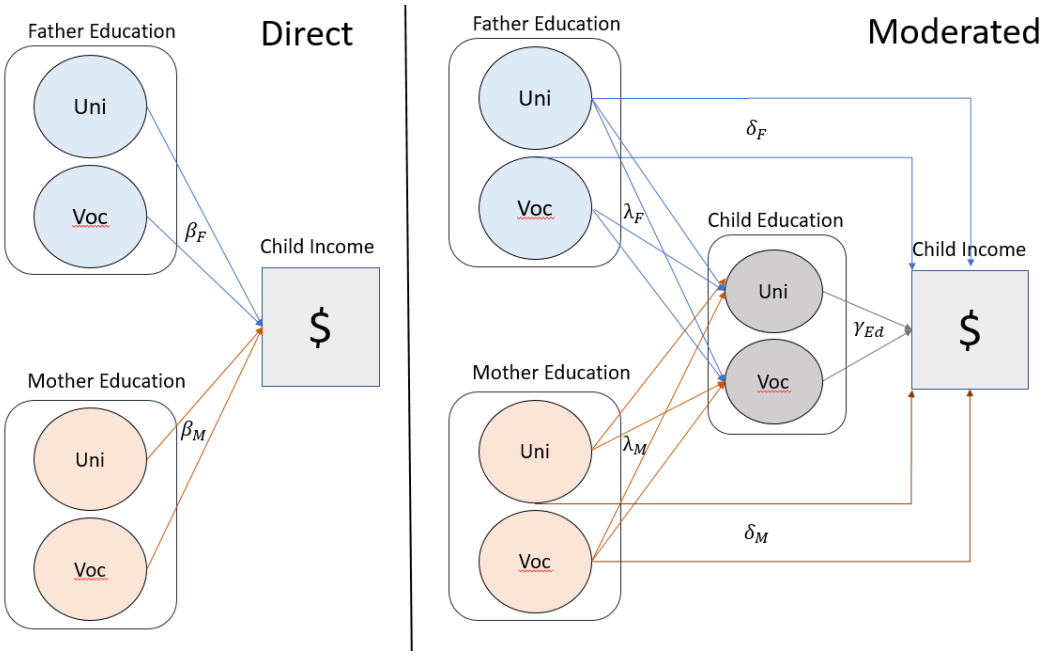

Figure 1: Direct and Moderated Model

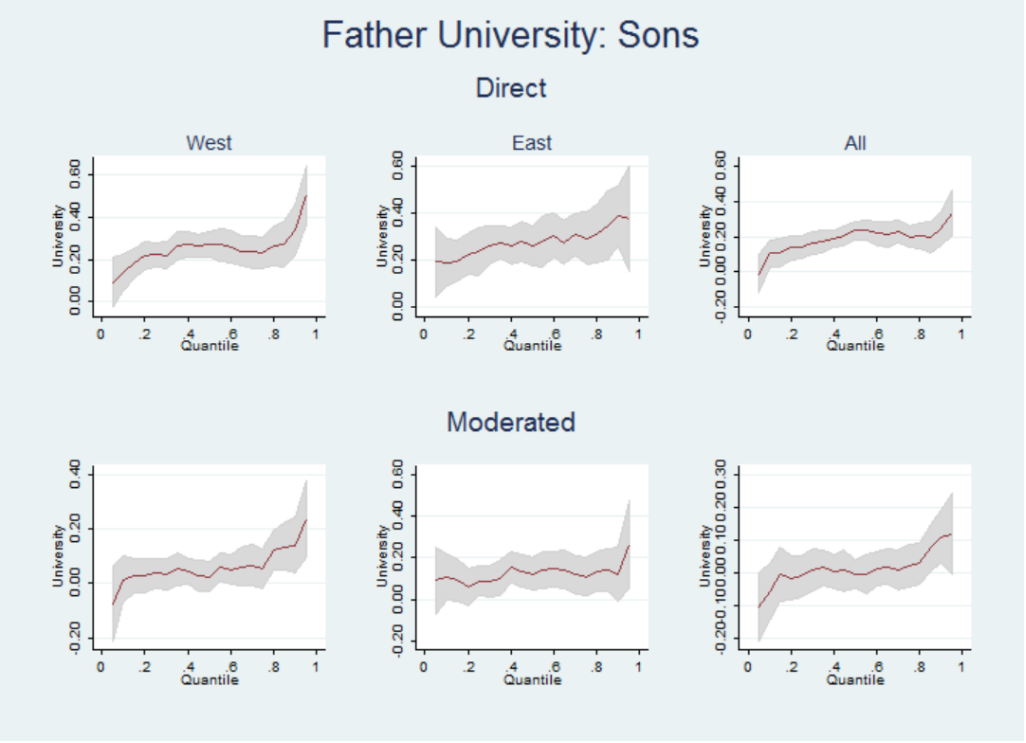

Figure 2: Quantile Regression: Father University Effects on Son's Income

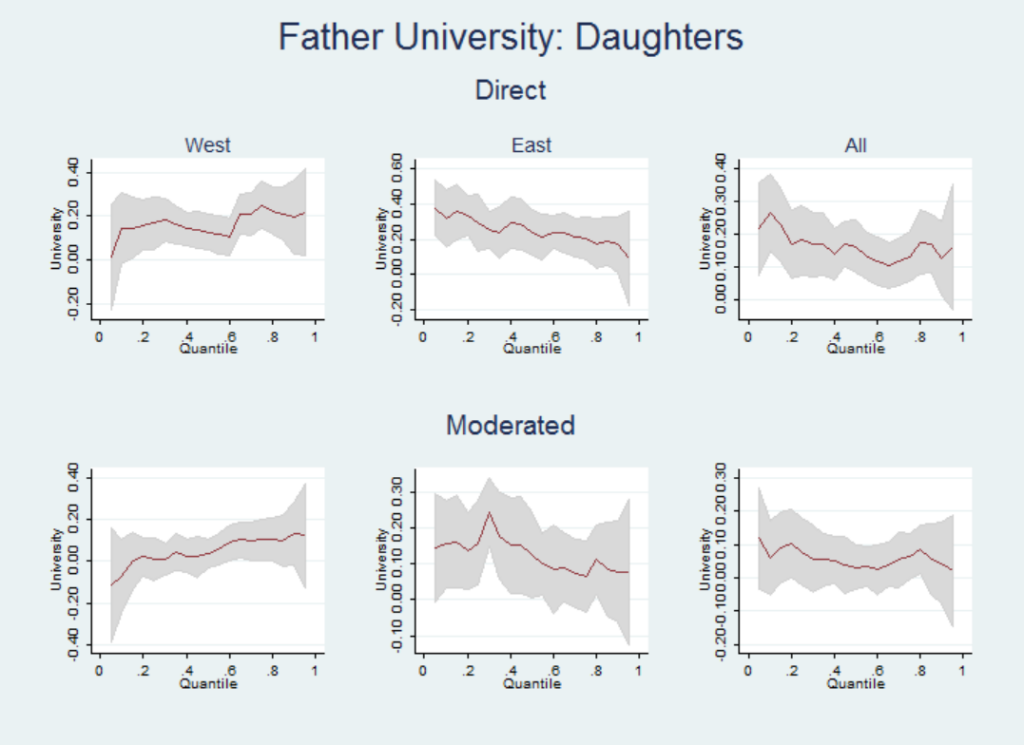

Figure 3: Quantile Regression: Father University Effects on Daughter's Income

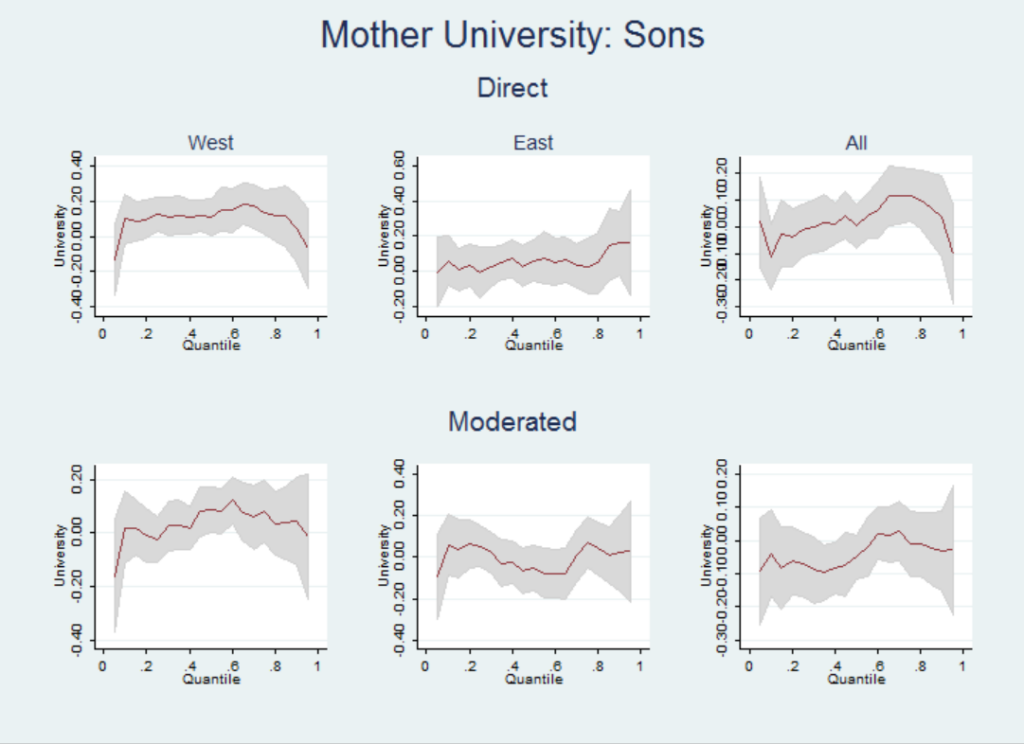

Figure 4: Quantile Regression: Mother University Effects on Son's Income

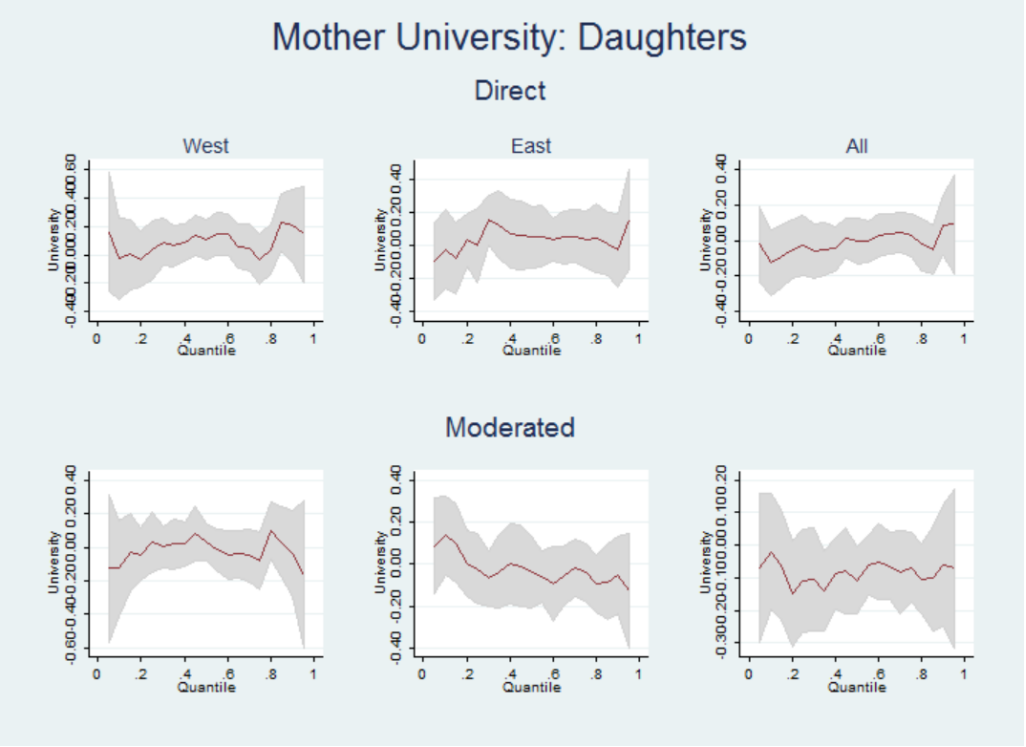

Figure 5: Quantile Regression: Mother University Effects on Daughter's Income

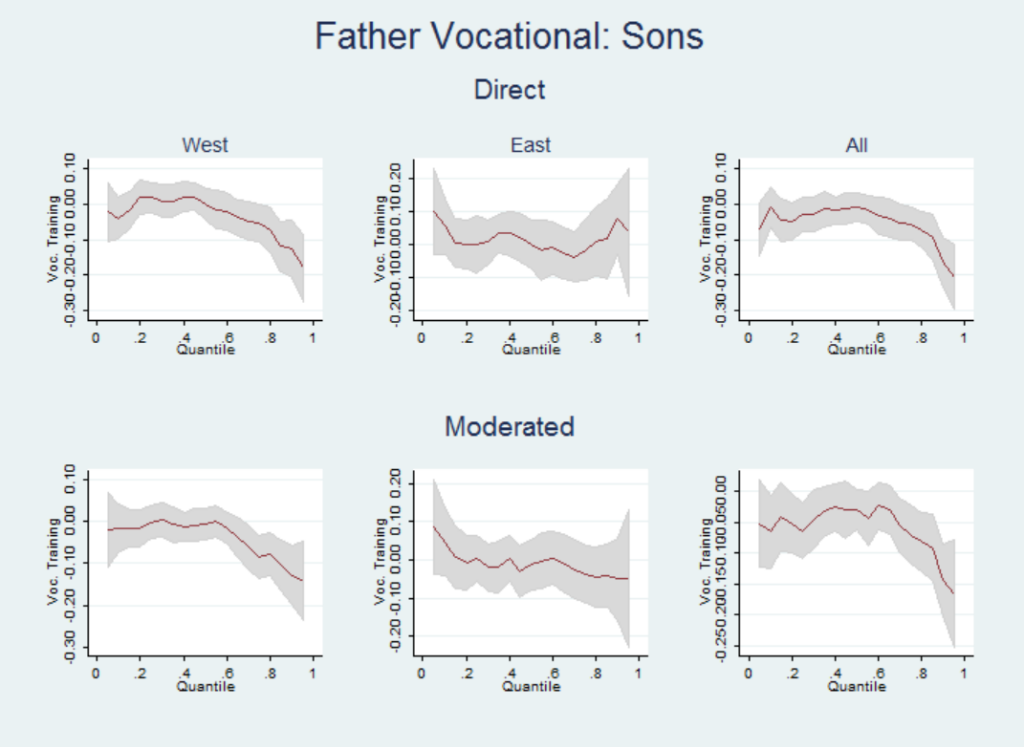

Figure 6: Quantile Regression: Father Vocational Effects on Son's Income

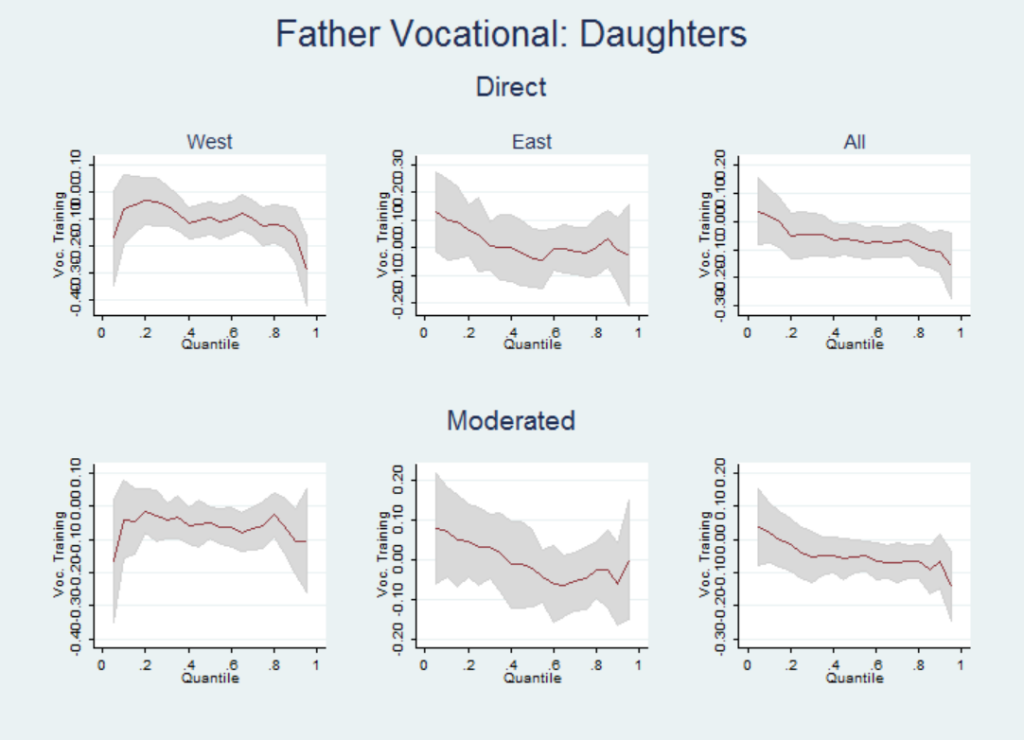

Figure 7: Quantile Regression: Father Vocational Effects on Daughter's Income

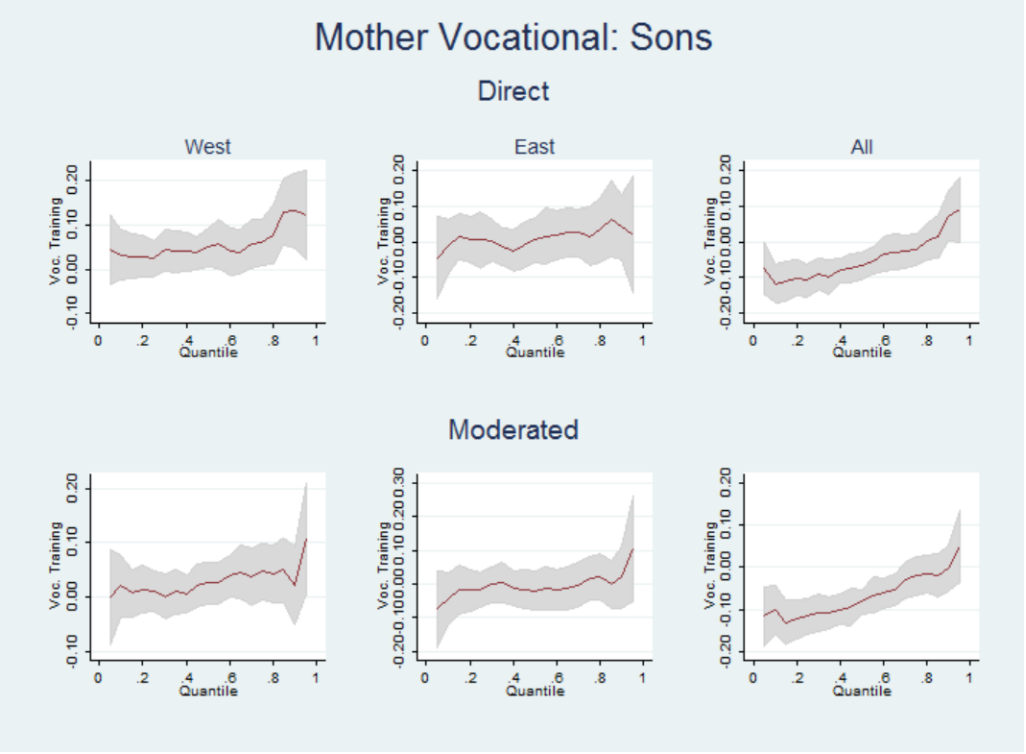

Figure 8: Quantile Regression: Mother Vocational Effects on Son's Income

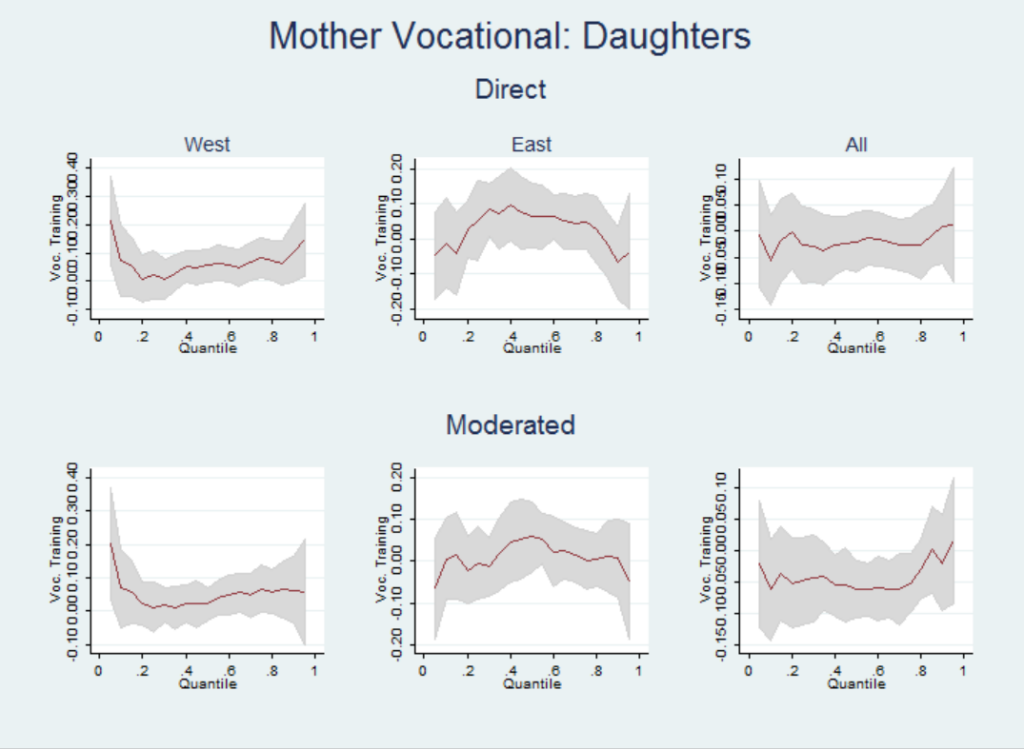

Figure 9: Quantile Regression: Mother Vocational Effects on Daughter's Income

	Sons			Daughters		
	West	East	All	West	East	All
Avg. Year	2001.99	2001.34	2001.68	2002.79	2001.62	2002.24
Number of Years	12.32	13.12	12.20	12.49	13.23	12.35
Yearly Earnings	44458.32	26418.06	39304.83	30833.30	21991.63	27470.21
University	0.27	0.26	0.27	0.24	0.35	0.28
Vocational	0.63	0.70	0.65	0.62	0.62	0.62
Father						
University	0.10	0.11	0.10	0.09	0.10	0.10
Voc. Training	0.43	0.53	0.47	0.42	0.51	0.45
Mother						
University	0.04	0.06	0.05	0.03	0.05	0.04
Voc. Training	0.28	0.46	0.34	0.26	0.43	0.32
Background						
Rural	0.59	0.63	0.61	0.60	0.61	0.61
Single Parent	0.06	0.08	0.09	0.06	0.08	0.09
Age	42.78	42.07	42.38	41.70	42.16	41.73
Observations	13573	4416	19579	13958	4753	20281

Table 1: Summary Statistics

	West		East		All		All	
	(1) Log Inc Dir	(2) Log Inc Mod	(3) Log Inc Dir	(4) Log Inc Mod	(5) Log Inc Dir	(6) Log Inc Mod	(7) Log Inc Dir	(8) Log Inc Mod
Father								
University	0.238***	0.072	0.222***	0.141**	0.231***	0.094*	0.236***	0.073
	(5.00)	(1.47)	(4.41)	(2.88)	(6.18)	(2.51)	(4.94)	(1.49)
Voc. Training	-0.004	-0.013	0.012	0.001	0.004	-0.002	0.011	0.010
	(-0.18)	(-0.58)	(0.33)	(0.04)	(0.17)	(-0.11)	(0.49)	(0.48)
University*East							-0.035	0.051
							(-0.48)	(0.70)
Vocational*East							-0.046	-0.076
							(-1.11)	(-1.93)
Mother	ref.	ref.	ref.	ref.	ref.	ref.	ref.	ref.
University	0.153*	0.082	0.069	0.001	0.138*	0.074	0.143	0.069
	(2.00)	(1.14)	(0.80)	(0.01)	(2.22)	(1.33)	(1.89)	(0.98)
Voc. Training	0.075**	0.053*	0.024	0.013	0.064**	0.043*	0.068**	0.045
	(2.90)	(2.25)	(0.84)	(0.45)	(3.00)	(2.23)	(2.65)	(1.90)
University*East							-0.013	0.009
							(-0.10)	(0.08)
Vocational*East							-0.011	0.012
							(-0.28)	(0.33)
Son								
University		0.420***		0.341***		0.391***		0.418***
		(16.56)		(9.50)		(18.39)		(16.48)
Vocational		0.030		-0.002		0.026		0.034
		(1.18)		(-0.05)		(1.17)		(1.36)
University*East								-0.119**
								(-2.78)
Vocational*East								-0.051
								(-0.98)
Controls								
East					-0.499***	-0.480***	-0.466***	-0.380***
					(-30.01)	(-30.01)	(-15.86)	(-6.53)
Rural	-0.029	-0.024	-0.071**	-0.057*	-0.036*	-0.030*	-0.036*	-0.030*
	(-1.55)	(-1.38)	(-2.73)	(-2.35)	(-2.30)	(-1.99)	(-2.31)	(-2.03)
Siblings	-0.015***	-0.008**	-0.017***	-0.012*	-0.016***	-0.010***	-0.016***	-0.010***
	(-5.31)	(-3.04)	(-3.50)	(-2.52)	(-6.55)	(-4.31)	(-6.53)	(-4.27)
Single Parent	-0.032	-0.041	0.204*	0.198**	0.032	0.025	0.029	0.023
	(-0.69)	(-1.04)	(2.18)	(2.80)	(0.69)	(0.64)	(0.65)	(0.61)
Observations	3584	3584	1462	1462	5046	5046	5046	5046

t statistics in parentheses

Constant and controls for age, age squared and year are included but not reported

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2: Direct and Moderated Parental Effects on Son's Log Income

	West		East		All		All	
	(1) Log Inc Dir	(2) Log Inc Mod	(3) Log Inc Dir	(4) Log Inc Mod	(5) Log Inc Dir	(6) Log Inc Mod	(7) Log Inc Dir	(8) Log Inc Mod
Father								
University	0.195***	0.068	0.280***	0.150**	0.208***	0.080*	0.197***	0.067
	(3.78)	(1.40)	(5.46)	(3.25)	(5.30)	(2.17)	(3.85)	(1.40)
Voc. Training	-0.074	-0.052	0.068	0.052	-0.040	-0.030	-0.051	-0.021
	(-1.96)	(-1.52)	(1.57)	(1.32)	(-1.30)	(-1.05)	(-1.38)	(-0.62)
University*East							0.037	0.028
							(0.51)	(0.42)
Vocational*East							0.050	-0.022
							(0.94)	(-0.44)
Mother								
University	-0.062	-0.166	0.123	0.039	0.023	-0.048	-0.063	-0.172
	(-0.53)	(-1.48)	(1.71)	(0.58)	(0.28)	(-0.60)	(-0.53)	(-1.52)
Voc. Training	0.088*	0.062	0.047	0.022	0.080**	0.056*	0.091**	0.064
	(2.51)	(1.87)	(1.30)	(0.67)	(2.96)	(2.13)	(2.61)	(1.89)
University*East							0.216	0.282*
							(1.57)	(2.17)
Vocational*East							-0.042	-0.026
							(-0.85)	(-0.54)
Daughter								
University		0.427***		0.365***		0.386***		0.412***
		(10.51)		(10.12)		(13.23)		(10.19)
Vocational		0.099**		-0.040		0.055		0.090*
		(2.70)		(-1.06)		(1.84)		(2.43)
University*East								-0.065
								(-1.18)
Vocational*East								-0.130*
								(-2.42)
Controls								
East					-0.355***	-0.403***	-0.377***	-0.277***
					(-15.98)	(-18.95)	(-9.90)	(-4.58)
Rural	-0.054	-0.060*	-0.023	-0.029	-0.050*	-0.055**	-0.048*	-0.054**
	(-1.92)	(-2.23)	(-0.71)	(-1.00)	(-2.22)	(-2.62)	(-2.15)	(-2.60)
Siblings	-0.016***	-0.010*	-0.003	0.001	-0.013***	-0.007*	-0.012***	-0.007
	(-3.53)	(-2.29)	(-0.59)	(0.15)	(-3.37)	(-2.02)	(-3.36)	(-1.92)
Single Parent	0.031	0.049	0.089	0.085	0.051	0.060	0.052	0.060
	(0.48)	(0.73)	(1.12)	(1.20)	(1.01)	(1.18)	(1.02)	(1.17)
Observations	1575	1575	1104	1104	2679	2679	2679	2679

t statistics in parentheses

Constant and controls for age, age squared and year are included but not reported

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3: Direct and Moderated Parental Effects on Daughter's Log Income

	West			East			All		
	(1) Log Inc <1960	(2) Log Inc 1960-70	(3) Log Inc >1970	(4) Log Inc <1960	(5) Log Inc 1960-70	(6) Log Inc >1970	(7) Log Inc <1960	(8) Log Inc 1960-70	(9) Log Inc >1970
Father									
University	0.247**	0.282***	0.201*	0.194*	0.254**	0.227*	0.033	0.166*	0.014
	(3.14)	(3.79)	(2.57)	(2.53)	(2.95)	(2.44)	(0.45)	(2.09)	(0.19)
Voc. Training	0.024	-0.011	0.054	-0.019	0.029	0.087	0.018	-0.017	0.054
	(0.68)	(-0.29)	(0.69)	(-0.39)	(0.44)	(1.10)	(0.61)	(-0.50)	(0.74)
University*East							0.032	0.011	0.158
							(0.31)	(0.09)	(1.25)
Vocational*East							-0.089	0.056	-0.012
							(-1.90)	(0.78)	(-0.11)
Mother									
University	-0.016	0.205*	0.210	0.075	0.058	0.078	-0.017	0.064	0.185
	(-0.09)	(2.22)	(1.72)	(0.45)	(0.36)	(0.77)	(-0.10)	(0.80)	(1.52)
Voc. Training	0.087*	0.078	-0.046	0.010	0.007	0.005	0.053	0.058	-0.075
	(2.57)	(1.71)	(-0.58)	(0.24)	(0.15)	(0.06)	(1.76)	(1.37)	(-1.04)
University*East							-0.083	-0.017	-0.081
							(-0.36)	(-0.12)	(-0.46)
Vocational*East							-0.054	-0.059	0.103
							(-1.14)	(-0.94)	(0.95)
Son									
University							0.496***	0.391***	0.300***
							(11.73)	(9.89)	(5.83)
Vocational							0.071	0.034	-0.038
							(1.66)	(0.88)	(-0.71)
University*East							-0.104	-0.084	-0.026
							(-1.70)	(-1.14)	(-0.25)
Vocational*East							-0.058	-0.144	0.118
							(-0.86)	(-1.84)	(0.92)
Controls									
East							-0.447***	-0.277**	-0.460**
							(-6.22)	(-3.01)	(-3.27)
Rural	-0.057*	0.006	-0.028	-0.073	-0.031	-0.152**	-0.047*	0.003	-0.049
	(-2.15)	(0.18)	(-0.65)	(-1.91)	(-0.70)	(-2.76)	(-2.33)	(0.10)	(-1.46)
Siblings	-0.016***	-0.015**	-0.017*	-0.013*	-0.022*	-0.020	-0.010**	-0.009*	-0.013*
	(-4.04)	(-3.08)	(-2.29)	(-2.20)	(-2.18)	(-1.62)	(-3.14)	(-2.10)	(-2.17)
Single Parent	0.092	-0.150*	-0.017	0.202	-0.008	0.351**	0.056	-0.108	0.126
	(1.16)	(-2.08)	(-0.29)	(1.13)	(-0.06)	(2.71)	(0.88)	(-1.91)	(1.83)
Observations	1592	1456	536	665	474	323	2257	1930	859

t statistics in parentheses

Constant and controls for age, age squared and year are included but not reported

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4: Cohort Models for Son's Log Income

	West			East			All		
	(1) Log Inc <1960	(2) Log Inc 1960-70	(3) Log Inc >1970	(4) Log Inc <1960	(5) Log Inc 1960-70	(6) Log Inc >1970	(7) Log Inc <1960	(8) Log Inc 1960-70	(9) Log Inc >1970
Father									
University	0.226*	0.221**	0.091	0.377***	0.263**	0.158	0.129	0.045	0.039
	(2.49)	(2.88)	(0.96)	(4.91)	(3.04)	(1.35)	(1.69)	(0.63)	(0.46)
Voc. Training	-0.028	-0.028	-0.277**	0.159**	-0.046	0.064	0.008	0.002	-0.214*
	(-0.45)	(-0.56)	(-2.83)	(2.82)	(-0.62)	(0.43)	(0.15)	(0.04)	(-2.42)
University*East							0.009	0.103	-0.032
							(0.08)	(0.99)	(-0.23)
Vocational*East							0.007	-0.091	0.318*
							(0.11)	(-1.06)	(2.06)
Mother								ref.	
University	0.028	0.069	-0.104	0.175	0.138	0.081	-0.173	-0.018	-0.187
	(0.12)	(0.49)	(-0.62)	(1.65)	(1.04)	(0.69)	(-0.72)	(-0.17)	(-1.10)
Voc. Training	0.140**	0.054	0.108	0.041	0.170**	-0.106	0.133**	0.002	0.095
	(2.68)	(0.96)	(1.21)	(0.95)	(2.65)	(-0.75)	(2.69)	(0.04)	(1.13)
University*East							0.339	0.014	0.235
							(1.32)	(0.09)	(1.18)
Vocational*East							-0.100	0.054	-0.213
							(-1.54)	(0.67)	(-1.41)
Daughter									
University							0.499***	0.415***	0.311***
							(9.67)	(5.27)	(3.49)
Vocational							0.111*	0.100	0.022
							(2.27)	(1.56)	(0.23)
University*East							-0.180*	-0.040	0.101
							(-2.57)	(-0.44)	(0.63)
Vocational*East							-0.189**	-0.131	-0.011
							(-2.62)	(-1.59)	(-0.06)
Controls							ref.	ref.	ref.
East							-0.249**	-0.322***	-0.289
							(-2.86)	(-3.52)	(-1.46)
Rural	-0.061	-0.020	-0.049	-0.021	-0.052	0.023	-0.040	-0.047	-0.029
	(-1.40)	(-0.46)	(-0.73)	(-0.48)	(-0.97)	(0.30)	(-1.29)	(-1.39)	(-0.59)
Siblings	-0.014*	-0.020**	-0.023	0.005	-0.011	-0.023	-0.003	-0.012*	-0.015
	(-2.22)	(-2.72)	(-1.67)	(0.63)	(-1.49)	(-1.46)	(-0.62)	(-1.97)	(-1.49)
Single Parent	0.030	0.061	-0.037	0.247	0.118	-0.032	0.131	0.107	-0.013
	(0.37)	(0.54)	(-0.35)	(1.72)	(1.32)	(-0.23)	(1.94)	(1.36)	(-0.14)
Observations	613	641	321	512	385	207	1125	1026	528

t statistics in parentheses

Constant and controls for age, age squared and year are included but not reported

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5: Cohort Models for Daughter's Log Income