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IZA DP No. 12788

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ISSN: 2365-9793

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ABSTRACT

Parental Job Loss and Children's Careers*

We study the effect of parental job loss on children's outcomes using administrative data from Finland. We focus on two channels through which parental job loss can affect children's careers: 1) by affecting the child's field of study choices and 2) by weakening social ties to the labor market. We find evidence supporting both mechanisms: a father's job loss decreases the likelihood of the child choosing the father's field of study or finding employment in the father's plant. Children of displaced fathers have lower earnings; however, we find no effects on the outcomes measured before the study choices are made.

JEL Classification: I24, J24, J63

Keywords: job loss, childhood income, study field, social ties, education, earnings

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* We thank Janet Currie, Libertad Gonzales, Thomas Lemieux, Katrine Loken, Kjell Salvanes, Tuomo Suhonen, Andrea Weber and the seminar participants at the Norwegian School of Economics, Helsinki GSE, INSAE Economic Day, Rennes, EALE and SOLE conferences. Huttunen gratefully acknowledges financial support from the Finnish Academy and Yrjö Janhnsson Foundation. Riukula thanks the Yrjö Janhsson Foundation and Finnish Cultural Foundation for financial support.

1 Introduction

Several studies have documented that workers losing their jobs suffer long-lasting employment and earning losses (Jacobson et al. 1993 Couch and Placzek 2010 Huttunen et al. 2011). Displaced workers may face difficulties finding employment in the same field or suffer subsequent job losses and less stable employment relationships (Stevens 1997 Farber 2010). The negative consequences of job displacement may affect other family members, and there is some evidence that children of displaced parents have worse schooling and labor market outcomes than children of nondisplaced parents (Rege et al. 2011 Oreopoulos et al. 2008 Hilger 2016). However, little is still know about the mechanism by which parental job displacement affects children's later outcomes. While the income shock leading to lower investment in children is one factor acknowledged in the literature,[1] parental job loss may also directly influence the children's own education choices. Negative information about the expected returns of the parent's schooling choice can diminish the intergenerational occupational correlation.[2] Finally, parental job displacement can directly influence children's career opportunities by dimishing the role of parents in the job-finding process. Kramarz and Skans (2014) show that many children find their first job in their parent's establishments. When a parent loses his/her job, the child loses this direct link to the parent's employer.

In this paper, we provide new evidence on the intergenerational effects of job displacement by investigating its effects on children's schooling and career choices. Specifically, in addition to estimating the effect of parental job loss on rich set of schooling and labor market outcomes, we analyze whether parental job loss affects the likelihood of children to choose the same field of study as the parent or work in the same plant as the parent. We focus on workers who lost their jobs in plant closures

[1] Several studies have shown that income changes during childhood influence children's human capital development and children's skills (e.g. Hoynes et al. 2016 Dahl and Lochner 2012).

[2] E.g. van de Werfhorst et al. (2001) Long and Ferrie (2013) document that there is a clear intergenerational correlation in the field of study choices and occupations.

during a deep recession in Finland in the early 1990s and follow all family members for 23 years after the job loss event. We document that job loss during these years results in a long-lasting income loss for the families and that the displaced workers were very similar to the nondisplaced workers during the crisis years, mitigating any selection problems we may encounter. Furthermore, we exploit the timing of parental job loss and compare the outcomes of the children whose parents were laid off before and after the time the children made the decision about their field of study or entered the labor market. To distinguish the human capital channel from the effects stemming from the child's own educational choices, we analyze the effect of parental job loss on outcomes before schooling choices are made, such as school grades and criminal behavior.

The key to our analysis is the Finnish administrative register data spanning the years 1988-2016, which allow us to follow both the children's and parents' outcomes before and after the job loss event, even when they are outside the labor force. The unique personal identification codes also allow us to link children to their parents and workers to their plants and merge the outcomes from the school application registry, sentence records, and employment statistics for all family members. Using these data, we create unique information on the family links, that is, whether a child chooses the same field of study as the parent and whether the child finds employment in the plant where the parent is employed.

We find that a father's job loss decreases the likelihood that a child will choose the same field of study as the parent. Children of displaced fathers are also less likely to find employment in the parent's plant. We also find that children of displaced fathers have slightly (-2.2 %) lower earnings at age 30, but there is no effect on length of schooling or outcomes measured before schooling choices are made, such as school grades at the age of 16 years and juvenile crime. Additionally, we do not find any effects on earnings or study choices for children who had already made their first educational decisions when their fathers lost their jobs. The results provide two new

mechanisms by which parental employment shocks can affect children: 1) by affecting the choices related to the field of study and 2) by weakening the informal ties to the labor market provided by the parents.

Our study builds most directly on the papers that have examined the impacts of parental job loss in mass layoff events on children's medium or long-term outcomes. The previous studies using administrative data report partly mixed results. Rege et al. (2011) find that paternal job loss significantly decrease children's graduation year GPA in Norway, while other papers using a similar strategy and administrative registers find no effects on school grades (Bratberg et al. 2008 Mork et al. 2019). Oreopoulos et al. (2008) find that children whose fathers experienced job loss have lower earnings (-9 %) and are more likely to be unemployed and on social assistance than those whose fathers did not lose their jobs. More recently, Hilger (2016) examines the timing of parental layoffs and compares the outcomes for children whose parents experienced any unemployment before and after the outcome is measured. He finds a very small effect of parental layoffs on children's educational attainment and no effect on earnings. [3] [4]

Our paper makes several contributions to the current literature. First, we analyze how parental job displacement affects children's choices regarding field of study. While there is much research focusing on explanations involving study choices (Altonji and Zimmerman 2017), no previous study has examined how parental employment shocks affect children's field of study and occupational choices. This lack of research is surprising, given that a family can play an important role in the educational decisions

[3]Fradkin et al. (2019) use a similar strategy as Hilger (2016) to analyze whether parental unemployment around the time of entry into the labor market affects the job search behavior of adult children. He finds that children whose parents recently lost a job find their first job more quickly.

[4]Our study also builds on the literature on how childhood income and resources are associated with children's later outcomes. It is often argued that low-income families may be credit constrained and thus underinvest in their children's education (Becker and Tomes 1976). There is increasing research that aims to isolate the causal effect of childhood income shocks (Løken 2010 Løken et al. 2012) or policies, such as the expansion of EITC or food stamps (e.g. Hoynes et al. 2016 Dahl and Lochner 2012), on later outcomes. These studies find consistent evidence that income in early childhood affects children's health, cognitive skills, and labor market outcomes.

(Zafar 2013 Joensen and Nielsen 2018) and there is a strong association with parent's and child's field of study choices (van de Werfhorst et al. 2001 Long and Ferrie 2013).[5] Moreover, field of study is known to be a key determinant of future labor market outcomes (Kirkeboen et al. 2016 Altonji and Zimmerman 2017).

Second, we study how parental job displacement affects children's social ties to the labor market by diminishing the likelihood that children find employment in their parent's plants. Kramarz and Skans (2014) shows that parents are an important determinant of where young workers find their first jobs, especially when the parent's position is "strong" (long tenure, high wage). Job displacement both reduces the likelihood of employment and affects the relative position of the workers in their firms. When a parent loses his/her job, the likelihood that a child will find employment in the same plant or firm as the parent decreases.

Third, our paper examines the timing of parental job displacement using rich set of medium- and long-term outcomes of children. Most previous papers focus on parental job displacements or layoffs that occur in late childhood or early adulthood.[6] Our study extends the analysis to younger children and aims to examine the importance of the timing of job loss. Moreover, we use a rich set of outcomes from age 15 to 30 in order to understand whether the differences in outcomes in children are observed before the children make their first field of study choices.

Our paper is also related to recent studies that analyze how aggregate economic conditions affect schooling decisions of young individuals. Butikofer et al. (2018)

[5] van de Werfhorst et al. (2001) lists several reasons for intergenerational correlations in the field of study choices: 1) Parents provide children accurate information about labor market opportunities of their field of study. 2) Parents acts as role models to their children, influencing children to choose education fields in the same branch as they are educated or occupied in. 3) Children take their parents status as a reference points, and are more attracted to their fields.

[6] Rege et al. (2011) focuses on children who were in 7th grade at the time of parental job displacement (i.e., 13 years of age), Bratberg et al. (2008) focuses on children who were 12-15 years of age, Oreopoulos et al. (2008) focuses on children who were 10-14 years of age, Hilger (2016) focuses on children between 12 and 28 years of age, and Fradkin et al. (2019) focuses on young adults at time of entry into the labor market. The only exception is a study by (Mork et al. 2019), who analyzes the effects of parental job loss on health and schooling outcomes using data from younger children as well.

show that individuals living in local labor markets most affected by the Norwegian oil boom were less likely to continue to obtain higher educational degrees and instead began working in the oil-boom industry. Atkin (2016) finds that the expansion of export manufacturing opportunities in Mexico increased the dropout rates for young cohorts. Our paper adds to this literature by examining how negative economic shocks affecting close family members influence child's educational choices.

The remainder of the paper is organized as follows: Section 2 describes the educational system in Finland and the data sets. Section 3 describes the empirical set up and presents evidence on how parental job loss influences children's schooling choices and the labor market outcomes of children. Section 4 illustrates the possible mechanisms by which children's outcomes are affected and shows how job displacement affects family outcomes. Section 5 offers conclusions.

2 Institutions and data

2.1 Educational system in Finland

Our analysis aims to shed light on the question of how parental employment and income losses during childhood influence children's schooling and labor market choices. Specifically, we aim to study how a child's educational choices are influenced by the parent's job displacement. Figure 1 describes the structure of the schooling system in Finland. The child first makes a choice about his or her field of study at the end of the compulsory schooling period, i.e., at the end of 9th grade, which is the spring of the year when the child turns 16 years of age. The child then chooses between (an academic) high school track, which is referred to as general education, or a vocational schooling track. When choosing a vocational track, the child chooses a specific program that leads to vocational qualifications, such as a hairdresser or an automechanic. The secondary schooling (high school or vocational) period is typically 2 to 3 years.

Next, the student chooses when he or she finishes the secondary school program and decides whether to pursue a college education or not. The student can choose either a university or a polytechnic program. The polytechnic institutes and universities typically provide students with different occupational qualifications. For example, medical doctors are educated only in universities, while nurses are educated at polytechnic institutes. It is of course possible that a person decides to obtain a higher educational degree at a university after having obtained a polytechnic degree.

2.2 Data sources

Our primary data set is Finnish longitudinal employer-employee data (FLEED), which covers all Finnish residents between the age of 16 and 70 years from 1988-2016. The unique person identification codes allow us to follow individuals over time. Unique child and spouse codes allow us to link workers to their children and spouses and analyze the outcomes of all family members over time. Likewise, unique firm and plant codes allow us to identify each worker's employer and examine whether their plant is closing.

The labor market outcomes come from FLEED. We have two income measures. Earnings are measured as annual taxable labor income, and income includes components such as regular labor income; income as self-employed; and benefits received while on sick leave, unemployed or on parental leave. We define family income as the sum of income for the worker and the spouse. Income and earnings in euros are deflated to year 2013 using the national consumer price index. The information of education choice for both the child and the parent comes from the degree register. The register contains detailed information on the highest degree the person has obtained by the given year. The first digit defines the level, and the next five digits define the field of the obtained degree. We use this variable to create indicators for the highest level the child has obtained and their choice of field of study. Moreover, we create the expected earnings variable based on the detailed study choice variable. That is,

we measure mean earnings for individuals aged 35 years with the given 6-digit study choice.

To measure the intergenerational correlation of schooling choices, we construct a variable that describes whether the individual has the same study choice as his or her parent. For this variable, we collapse the information of education to two-digit fields and three educational levels: primary, secondary and tertiary. Primary means no educational qualifications after the first degree, secondary means high school or a vocational degree, and tertiary means a polytechnic or a university degree. Table A1 provides the distribution of the father's study choices. There are 18 different study choice categories for the displaced and nondisplaced workers, where compulsory schooling is one category. The results show that 35% of the parents have no qualifications after completing high school. Approximately 17% of the children in our sample of the nondisplaced workers have the same study choice at age 30 years as the father had in the base year (Table 2). Finally, we measure the importance of family ties in the labor market by creating an indicator of whether the parent and child are working together in the same establishment when the child is 20, 25 and 30 years of age.

As medium-term outcomes we use GPA and juvenile crime. The information on offences committed between ages 15-17 comes from sentence records that contain all Finnish court cases for individuals who are at least 15 years old for the years 1987-2016. The 9th grade point average (GPA) is obtained from school application records. These records contain information on grades for all 9th graders in Finland in the years 1990-2015.

2.3 Sample

We focus on parents who were working in private sector plants employing 10-500 workers in Finland in the years 1991-1993. We label these years as "base years" b. We further restrict the analysis to workers who had at least three years of tenure

in the base year. We construct separate samples for each base year b by including observations of each worker three years prior to the base year b and 20 years after the base year. In the analyses, we pooled these three base year samples to a panel spanning the years 1988-2016.

In line with earlier studies, displaced workers are understood to be individuals who involuntarily separate from their jobs due to exogenous shocks. We label workers as displaced if their plant closed during b and $b+1$ or if they separated from a plant during b and $b+1$ that closed the following year, i.e., between $b+1$ and $b+2$. The comparison group consists of all workers who were not displaced between years b and $b+1$. Importantly, we allow workers in the control group to separate for other reasons than displacement, such as voluntary job changes and sickness.[7]

In the main analysis, we restrict the sample to parents who had children aged 7-15 years at the time of job loss (base year). We follow these children until age 30 years, to obtain information on completed education and labor market careers. Moreover, these children were still in compulsory school at the time of parental job loss and had not yet made their first schooling/tracking decisions. To analyze the impact of the timing of parental job loss, we extend the child's age range to 1-26 years. Specifically, we use the older age groups (children whose parents lost their jobs in early adulthood) as a comparison group for the children whose parents lost their jobs when they were younger and had not yet made their schooling decisions.

Table 1 describes the background characteristics of the displaced and nondisplaced workers and their children in our male and female samples.[8] By most characteristics, parents who experienced a plant closure during the deep recession in Finland were very similar to the parents who did not experience a job loss during that period. Their education, family status and size were similar. Unsurprisingly, the variables

[7]Our approach closely follows the approach cited in Huttunen and Kellokumpu (2016) Huttunen et al. (2011).

[8]When examining the effects of female job loss, we restrict the analysis to women who were employed full-time in the base year b; when considering the effects of male job loss, the restrictions are made for males. Our main focus on the paper is the sample of fathers.

that significantly differ between displaced and non-displaced workers are plant size and tenure, indicating that plant closures occur more often in small and young plants. In the analysis, we control for these characteristics.

To illustrate what type of income and employment shock plant closure was to these families, we plot the annual earnings, employment status, and annual taxable income (including benefits) for both the worker and his family in Figure 2. The evaluation of earnings before job loss was very similar in the displaced and nondisplaced groups. Job displacement occurred between the end of year 0 and the end of year 1. We can observe that during that time, a significant gap opens in the outcomes between the displaced and nondisplaced workers. The figure highlights two important aspects of our set up. First, workers who lost their jobs because of plant closure during the deep recession in Finland were very similar to the nondisplaced workers. Second, job loss resulted in a large and long-lasting income loss to the families, which translated into a large gap in cumulative family income. Children who were relatively young at the time of job loss were exposed to this income shock for a longer period of time.

3 Parental job displacement and child's schooling and labor market outcomes

3.1 Specification

After having documented how sizable the income loss for displaced families is, we turn our focus on children's outcomes. The base specification we estimate is as follows:

$$Y_{cibt} = \alpha_{cib} + \beta X_{ibt} + \delta_j D_{cib} + \epsilon_{cibt} \tag{3.1}$$

In equation 3.1, Y_{cibt} is the outcome of child c of parent (worker) i in the base year sample b at time t. Our main outcome variables are 1) indicator of whether the child has a tertiary degree, 2) child's employment status, 3) child's annual earnings,

4) child's predicted earnings (based on the highest degree obtained), 5) indicator of whether the child has the same study choice, i.e., same level and one-digit field as the parent, 6) indicator of whether the child has a higher educational level than the parent, 7) indicator of whether the child is employed in the public sector, and finally, 8) an indicator of whether the child is employed in the same workplace as the parent. Most of these outcome variables are measured when the child is 30 years of age to make sure they have had time to make their educational decisions; however, for the indicator of whether the child is working in the same plant as the parent, we use information of the child at 25 or 20 years of age, as we want to measure the importance of finding the first job with help from the parents. X_{ibt} is a vector of observable pre-displacement parent characteristics from the base year b, such as the indicators for the parent's choice of study (field and level), dummies for the parent's industry, dummies for the region, tenure, plant size, and a full set of dummies at the same age of the parents, and dummies at the same age as the child. The variable D_{cib} is the variable of main interest. This is a dummy variable indicating whether the parent's job displacement occurred in the base year b. Basically, our specification compares the outcomes of children with similar parents (education level and field, industry) where one lost a job due to plant closure and the other one did not. As shown in table 1 and Figure 2, the parents who lost their jobs due to plant closures during a deep recession in Finland were very similar to the parents who did not lose a job, and thus the displacement indicator will capture the effect of parental job loss, especially conditionally on the predisplacement controls.

3.2 Main results

Table 2 reports how father's job displacement during childhood affects the child's schooling and labor market outcomes at age 30. We find no evidence that the father's job loss affects the educational level of the child. Additionally, there is no effect on the probability of being employed at age 30. The father's job loss was however associated

with lower (-2.2%) annual earnings at the age of 30 years. Since some of the children may still be in school or in the early phase of their career, we used the educational choice information to create a measure of the predicted earnings. Column 7 shows that the estimated effect of the father's job loss on predicted earnings is negative, but not statistically significant and smaller than for the actual earnings.

To examine how a parent's job displacement affects a child's career choices, we estimate the effect of the job displacement on the child making the same study choice (field and level) as the parent. The results in the fifth column indicate now that children whose father lost his job due to a plant closure are 1.3 percentage points more likely to choose a different study choice than the parent. When compared with the mean of 17%, we can conclude that the father's job displacement decreases the likelihood of the child choosing the father's field of study by approximately 8%. Children seem to be more likely to choose a different field of study rather than moving to a higher (or lower) educational level (column 6). Children may be slightly more likely to work in public sector jobs, but the effect is not statistically distinguishable from zero.

To analyze the importance of social ties in the job-finding process, in column 8, we report the effect of job displacement on the probability of the child working in the same plant as the parent at age 25 years. The results indicate a significant, albeit a small decrease, in the probability that a child would work in the same plant as the father. However, since 3.4% of children work in the same plants as their fathers at age 25 years, the 0.6 percentage point reduction corresponds to a 17 % decrease.[9]

In the above results, we pooled all educational levels. This means that for some children, choosing a field of study that was different from the parent could mean moving beyond the compulsory education (as compulsory schooling is one of our study choice categories); for others, it could be choosing a different university track.

[9]The share is lower than found by Kramarz and Skans (2014) who report that approximately 10 % of the children are employed in the first stable jobs with their parents in Sweden. Our measure corresponds to working with a parent in one point of time, at age 25, and thus is likely to differ from their measure.

To investigate whether choices at some educational levels were influencing our results, we split the sample according to the father's educational level. In Table 3, we split the sample according to whether the father has no degree, a secondary degree or a tertiary degree and estimate the effect separately for these groups. According to the results, children whose parents have no educational degrees and experienced job displacement earn 5% less and are 3% less likely to be employed at age 30 years than children of similar parents who did not lose their jobs due to plant closures. They are also slightly more likely than children of nondisplaced parents to obtain more than compulsory schooling i.e., a different education choice than their parents. However, the effect is not precise. Furthermore,the probability of children finding employment in the same workplace as the parents by age 20 years is significantly reduced for this group.[10]

Panel b) reports the results for children of fathers that have a secondary degree. There is no precise effect of job displacement on earnings, although the coefficient is negative for both real and predicted earnings. The effect on the probability of choosing a different study choice than a father for children whose father has a secondary degree is again negative but imprecise. However, for children of fathers who have a tertiary degree, the father's job loss clearly increased the probability of choosing a different field of study than their fathers as shown in panel c). We find no effect on earnings, but the effect on predicted earnings is much larger than that for the other two groups. Additionally, we find that the father's job displacement increases the probability that the child works in the public sector, which is characterized by longer contracts and slightly lower pay. Children are also significantly less likely to work in the same plant with their parents.

Overall, the results indicate important heterogeneity according to the father's educational level. The effect of the father's educational level on children's earnings

[10]For this group, we report the effect of displacement on employment in the same plant as the parents by age 20 years instead by age 25, since workers with basic or vocational qualifications find their first jobs younger. For children of highly educated parents, we estimate the effect of displacement on the employment of the child in the same plant as the father at age 25 years.

was driven by the lowest education category. This may reflect that the income loss after job displacement was more severe for families with a low level of education (see Huttunen and Kellokumpu 2016) or that social ties provided by the parents matter more in the job-finding process for individuals with a low level of education. Within all educational levels, we find that children tend to move to fields of study that are different than their parents and that for highly educated individuals, these choices are safer and reflect lower expected earnings.

3.3 Timing of job loss

The timing of job loss may be important. As reported in Section 2.1, children make their first schooling decisions at the age of 16 years at the end of compulsory schooling. The next choices are made after upper secondary school (after academic high school or vocational school), typically at the age of 19 years. On one hand, a parent's job loss can have a more direct effect on schooling choices if it happens around the time children are making their decisions. On the other hand, children who were young when the job loss occurred were exposed to the income shock for a much longer period of time than children who were in their adolescent years before making their first schooling decisions.[11] To investigate this more carefully, we analyze how the effects of parental job loss depend on the child's age at the time of job loss. Moreover, we can exploit the timing of parental job displacement to investigate the credibility of our research design. If parental job loss affects children's schooling choices, and other outcomes through schooling choices, we should not see effects for children who had already made their schooling decisions.

We extend the analysis to older children, and report the effect of paternal job displacement by child's age at time of job loss in Figure 3. We have the outcomes

[11] A recent study considers human capital accumulation as a dynamic process. Returns to investments made while a person is young are higher than returns on investments in later life (see Cunha and Heckman 2007 Heckman and Carneiro 2003). This is for two reasons: 1) Early investments are harvested over a longer time period. 2) Early investments raise the productivity of later investments, suggesting that there is dynamic complementarity in investments at different stages of childhood.

measured at age of 30 only for children who are at least 7 years old in 1993 (i.e. 30 years old in 2016). Hence, we restrict the analysis to children who were between 7-25-years-old at the time of job loss. Panel a) shows the effect of father's job displacement on child's earnings at age 30. The effect shows up especially for children who were in mid childhood, but there is no earnings effect for children that are older than 16. Panel b) reports the results for the probability to choose the same study field as parent. The results show that father's job loss has a negative effect on all children who were between 8-16 years old. After the age of 16, the effect disappears and becomes more imprecise. For 7-year-olds there is no effect, which may be explained by the fact that they still have several years before the schooling decisions are made. Panel c) reports the results for the probability to work in the same plant with father at age 25. As expected, this effect is stronger for older children, who are close to the age when outcome is measured and when their father loses his job. The effect is partly mechanical; those parents who lose their jobs are less likely to work at all, and thus, the likelihood to be employed in the same plant with offspring is also reduced. The last panel reports the effect on compulsory school GPA (measured at grade 9, i.e., when children are 16 years of age). For this outcome, we can also include the younger children, i.e., those who were 1-6 years of age at the time of parental job loss. We find no effect of the father's job displacement on school grades for any age groups. Thus, our results indicate no clear effect on child outcomes measured before school choices are made.

To investigate this more, the upper panel of Table 4 reports how father's job displacement affects child's medium term outcomes that are measured before schooling choices are made: Grade point average (GPA) from the 9th grade and the probability of committing a crime at age 15-16. Despite the long-lasting negative income shock to families, we find no evidence that the father's job loss would negatively affect a child's school grades in the 9th grade or criminal behavior at the age 15-16 years. The last column reports the effect on a child's NEET status, which is assigned a value

of 1 if the child is not in education, employment or training. We find no effect on any of these medium-term outcomes. The results suggest that parental job loss in Finland does not lead to a large reduction in investments on human capital during childhood and may partly reflect the institutional set up; a large majority of children are enrolled in public schools, and there are little differences in the school quality between neighborhoods.

The following panels in Table 4 report outcomes at ages 20, 25 and 30 years. The idea is to look at which stage the effects of the father's job loss on the child's schooling and labor market outcomes begin to appear. As explained in Section 2.1, children choose either vocational or academic high school track at the age of 16 years, which they normally finish by the age of 20 years. In panel b) we find that paternal job loss affects the likelihood that a child has obtained a field of study different from that of his or her father already by age 20. There is a negative effect on the probability of the child working in the same plant as the father when the child is aged 20 and 25 years. We find no impact on the level of education, indicating that parental job loss does not affect the length of education or time of graduation. The effect on school choice begins to appear more clearly at age 25 years, but the earnings effects do not show up until the age of 30 years. In Finland, the time to complete a course of study at a university is long, and some of the students may still be enrolled at the university at the age of 25 years. The results support the hypothesis that a father's job displacement can influence later outcomes through schooling choices.

To further analyze whether the effect of parental job displacement works through child's schooling decisions we include older children to the analysis and split the sample into those whose father lost a job before the child made his first education choice (aged 15 years and younger) and those whose father lost a job when the child was at a later age (16-26 years). In the specification in Table 5, we interact the displacement dummy with under16 - dummy and include the displacement dummy and a full set of child age dummies. The results indicate, that father's job displacement only affects

earnings and schooling choices of children who are younger than 16 at the time of father's job loss. This indicates that the effect of father's job displacement on labor market outcomes can work through affecting child's schooling decision. However, parental job displacement decreases the likelihood to work in the same plant with father, also for the children whose father loses his job when they are older than 16 years of age. This is expected as a father's job loss can have an instant effect on his employment and the probability to work in the same plant as the child. The table thus serves as a robustness check for our set-up. If displaced parents would differ significantly from non-displaced parents, we could see clear differences in child outcomes that were determined before parent's job displacement occurred.[12]

3.4 Heterogeneity by gender and maternal job loss

The results indicate that the father's job loss decreases the probability that the child would choose the same field of study as the father or the child would be employed in the father's workplace. The correlation between the father's career choice and the child's career choice may be stronger for boys than for girls. Table 5 reports the effect of the father's job displacement on child outcomes according to the gender of the child. We find that the father's job loss has a larger and more precise effect on schooling choices for the sons, but the magnitude of the effect is similar for both genders when compared with the baseline probability of choosing the same field of study as the father. The magnitude of the earnings loss is slightly larger -2.4 % for males than for the whole sample.

Thus far, we have focused on the father's job loss. Table 7 shows the results for maternal job loss. The sample size is now smaller than when analyzing the effects of male displacements. The sample consists of all mothers of 7-15 year old children that

[12]Several recent studies have examined the timing of layoffs and the study effect of parental job loss on child outcomes. For example Hilger (2016) Fradkin et al. (2019) both define layoffs using information on the change in a parent's unemployment status, which is arguably less exogenous than plant closures

were working in base year b in plants with 10-500 workers, who had at least one year tenure, and who were not displaced from their job in previous years. We find no effect on children's outcomes. Hence, our results show that males are especially sensitive to their father's job loss, while mother's job loss does not influence child outcomes. There is no effect of maternal job loss on female children neither (not reported). These results are in line with Dryler (1998) who show that boys' educational choices are more strongly correlated with their father's educational choices than their mother's choices, but no such a same-gender effect is found for females.

4 Parental job displacement and family outcomes

This section describes the possible mechanism by which parental job displacement can affect children.

4.1 Earnings and employment shock

To illustrate the magnitude of the income loss that resulted from parental job loss, we follow a standard procedure in the displacement literature (Jacobson et al. 1993 Davis and Von Wachter 2011 Huttunen et al. 2011). We estimate an event-study style fixed effect regression where the outcome is the annual taxable family income (deflated to year 2013 euros):

$$Y_{ibt} = \alpha_{ib} + \beta X_{ibt} + \sum_{j=-3}^{20} \delta_j D_{b,t-j} + \gamma_t + \epsilon_{ibt} \tag{4.1}$$

In equation 4.1, Y_{ibt} is the annual earnings, probability to be employed, annual income or family income for worker i in base year sample b at time t. X_{ibt} is a vector of observable pre-displacement characteristics from base year b and current year age and age squared. The variables $D_{(b,t-j)}$ are the variables of main interest. These are dummy variables indicating whether a displacement occurred in year $t-j$, t being

the observation year. The associated parameters measure the earnings or income differentials in pre- and post-displacement years $j \in [-3, ..., 20]$ of displaced workers relative to the nondisplaced workers.

The specification also includes base-year specific time dummies, γ_t, to ensure that we compare earnings of displaced and nondisplaced workers in the same base year sample and with the same distance to the base year (-3 to 20). Finally, we also include base-year specific individual fixed effects, α_{ib} to control for permanent differences in earnings between displaced and nondisplaced workers (in a given base year b). When including worker base year fixed effects, we cannot include any time-invariant base year controls. We cluster standard errors by individual i to allow for correlation of the error terms, ϵ_{ibt}, across different time periods t and base years b for individual i. Figure 4 plots the estimates for each year since job loss. As shown already with descriptive figures, job loss results in a loss of large earnings, employment and income for the families affected. In the second year after the job loss, the effect on total family income is 6,000 euros, which corresponds to an 11% reduction in the annual family income.[13]

The figure illustrates how parental job loss has a long-lasting effect on childhood income. The magnitude of the loss depends on the timing of the job loss. Children who were born at approximately the time when their parents lost their jobs are likely to have a much larger reduction in cumulative family income than children who experienced a loss just a few years before the child turns 16 years of age and makes their first schooling choice. We illustrate this in Table A2. The effect of paternal job loss for children aged 7 years is -4.93% of the cumulative family income during the years when they are 8-16 years of age, while the effect for children aged 15 years is -0.52%, as they experience the shock for only one year. Naturally, the income shock affects the children after they turn 16 years of age and they have completed their first

[13]We follow Davis and Von Wachter (2011) and Huttunen and Kellokumpu (2016) and calculate the percentage effect compared to counterfactual earnings of displaced. The counterfactual earnings is calculated as the mean of nondisplaced earnings + estimated FE estimate for a given year.

schooling choices. Our results on child outcomes indicated no clear pattern on the effects with timing of parental job displacement. This suggests that the size of the cumulative family income shock is not the key determinant of children's labor market outcomes later in life.

4.2 Other channels

Parental job loss may also influence child outcomes through mechanisms other than by directly influencing field of study choices or through income loss. Several studies have shown that job loss decreases fertility (Lindo 2011 Huttunen and Kellokumpu 2016 Del Bono et al. 2012), increases the risk of divorce (Eliason 2012 Browning et al. 2006), and increases regional mobility (Huttunen et al. 2018). Individuals who have suffered job loss are more likely to receive unemployment benefits and rely on welfare benefits (Huttunen et al. 2011)[14] All these mechanisms can directly influence children's outcomes later in life.

To examine these other mechanism, we investigated the effect of paternal job loss on regional mobility, probability of divorce, fertility, and probability of being unemployed, as shown in Figure 5. In line with previous studies, we find that a father's job displacement increases regional mobility. We find no clear effect on probability of divorce or fertility. We acknowledge that families' moving decisions may be one channel through which child's schooling choices are affected. If job loss makes the family more likely to move, it may also influence the schooling and employment options that children encounter. To study this more carefully, we interacted the job displacement variable with an indicator for moving within 5 years after job loss as shown in Table 8. The results show no difference in job displacement effects between children of families that move to new regions after job loss and those in families that remain, indicating that moving decisions are not driving the results. However, moving

[14]Dahl et al. (2014) show that the receipt of a welfare program by one generation causes increased participation in the next generation.

decision is endogenous, and thus the result may reflect differential selection of these families.

5 Conclusions

While there is a large literature discussing whether the roots in the intergenerational income correlations lie in nature or nurture, we still know little about the mechanism how shocks to parent's own career affect children. Specifically, there is no evidence on the direct effects of parental career shocks on child's own educational and career choices. In this study we analyze the effects of parental job displacement during a deep recession in Finland in the early 1990's that resulted in a sudden, large and long-lasting income shock to families, on children's schooling choices and later outcomes. Our results show that father's job loss decreases the likelihood that the child chooses the same study choice as parent. They are also less likely to find employment in their parent's establishments. We also find that children of displaced fathers have (-2.2 %) lower earnings and lower expected earnings based on their chosen study fields. Father's job loss has a larger and more precise effect on schooling choices for children with highly educated parents. For these children, father's job displacement increases the probability to work in the public sector.

Our analysis reveals that the effects of parental job loss are driven by children who had not yet made their educational decisions. Children who have already made their schooling choices are not affected. Despite resulting in a large and long-lasting family income loss, we find no effect of parental job loss on medium-term outcomes that are measured before children make their study choices, such as school grades or juvenile criminal behavior. Neither do we find that children whose parents lose their jobs when they are younger, and thus experience much more long-lasting reduction in family income, are more affected. Thus these results indicate that the income shock is not the main channel through which parental job displacement affects children. The

modest effect on can also reflect the fact that parental resources may not matter to the same extent to child's human capital accumulation in Finland than in other countries. Nevertheless, our results indicate that parental career shocks can still influence child outcomes through schooling choices. Children may reconsider the expected returns to different fields, and put more weight on secure income than on other aspects. Children also lose their direct social ties to their parent's employment that can help in the early career development.

Our findings add to the literature that has examined the importance of childhood resources on later life outcomes. Several papers have documented that parental job displacements and other types of income shocks are associated with lower earnings in adulthood. Our study contributes to the literature by showing that the income and employment shocks experienced by the parents may have a direct impact on children's schooling choices and career opportunities. The children may move to a different field of study that is more likely to provide a more stable employment and a smaller risk of inactivity. This choice may even come at the expense of lower earnings.

References

Altonji, J. G., and Zimmerman, S. D. (2017). "The costs of and net returns to college major." In *Productivity in Higher Education*, University of Chicago Press.

Atkin, D. (2016). "Endogenous skill acquisition and export manufacturing in mexico." *American Economic Review*, *106*(8), 2046–85.

Becker, G. S., and Tomes, N. (1976). "Child endowments and the quantity and quality of children." *Journal of political Economy*, *84*(4, Part 2), S143–S162.

Bratberg, E., Nilsen, O. A., and Vaage, K. (2008). "Job losses and child outcomes." *Labour Economics*, *15*(4), 591 – 603.

Browning, M., Moller Dano, A., and Heinesen, E. (2006). "Job displacement and stress-related health outcomes." *Health economics*, *15*(10), 1061–1075.

Butikofer, A., Dalla Zuanna, A., and Salvanes, K. G. (2018). "Breaking the links: Natural resource booms and intergenerational mobility." *NHH Dept. of Economics Discussion Paper*, (19).

Couch, K. A., and Placzek, D. W. (2010). "Earnings losses of displaced workers revisited." *American Economic Review*, *100*(1), 572–89.

Cunha, F., and Heckman, J. (2007). "The technology of skill formation." *American Economic Review*, *97*(2), 31–47.

Dahl, G. B., Kostøl, A. R., and Mogstad, M. (2014). "Family welfare cultures." *The Quarterly Journal of Economics*, *129*(4), 1711–1752.

Dahl, G. B., and Lochner, L. (2012). "The impact of family income on child achievement: Evidence from the earned income tax credit." *American Economic Review*, *102*(5), 1927–56.

Davis, S. J., and Von Wachter, T. M. (2011). "Recessions and the cost of job loss." *Brookings Papers on Economic Activity*, *42*(2 (Fall)), 1–72.

Del Bono, E., Weber, A., and Winter-Ebmer, R. (2012). "Clash of career and family: Fertility decisions after job displacement." *Journal of the European Economic Association*, *10*(4), 659–683.

Dryler, H. (1998). "Parental role models, gender and educational choice." *The British Journal of Sociology*, *49*(3), 375–398.

Eliason, M. (2012). "Lost jobs, broken marriages." *Journal of Population Economics*, *25*(4), 1365–1397.

Farber, H. S. (2010). "Job loss and the decline in job security in the united states." In *Labor in the new economy*, 223–262, University of Chicago Press.

Fradkin, A., Panier, F., and Tojerow, I. (2019). "Blame the parents? how parental unemployment affects labor supply and job quality for young adults." *Journal of Labor Economics*, *37*(1), 35–100.

Heckman, J., and Carneiro, P. (2003). "Human capital policy." Tech. rep., National Bureau of Economic Research.

Hilger, N. G. (2016). "Parental job loss and children's long-term outcomes: Evidence from 7 million fathers' layoffs." *American Economic Journal: Applied Economics*, *8*(3), 247–83.

Hoynes, H., Schanzenbach, D. W., and Almond, D. (2016). "Long-run impacts of childhood access to the safety net." *American Economic Review*, *106*(4), 903–34.

Huttunen, K., and Kellokumpu, J. (2016). "The effect of job displacement on couples' fertility decisions." *Journal of Labor Economics*, *34*(2), 403–442.

Huttunen, K., Møen, J., and Salvanes, K. G. (2011). "How destructive is creative destruction? effects of job loss on job mobility, withdrawal and income." *Journal of the European Economic Association*, *9*(5), 840–870.

Huttunen, K., Møen, J., and Salvanes, K. G. (2018). "Job loss and regional mobility." *Journal of Labor Economics*, *36*(2), 000–000.

Jacobson, L. S., LaLonde, R. J., and Sullivan, D. G. (1993). "Earnings losses of displaced workers." *The American economic review*, 685–709.

Joensen, J. S., and Nielsen, H. S. (2018). "Spillovers in education choice." *Journal of Public Economics*, *157*(4), 158 – 183.

Kirkeboen, L. J., Leuven, E., and Mogstad, M. (2016). "Field of study, earnings, and self-selection." *The Quarterly Journal of Economics*, *131*(3), 1057–1111.

Kramarz, F., and Skans, O. N. (2014). "When Strong Ties are Strong: Networks and Youth Labour Market Entry." *The Review of Economic Studies*, *81*(3), 1164–1200.

Lindo, J. M. (2011). "Parental job loss and infant health." *Journal of Health Economics*, *30*(5), 869–879.

Løken, K. V. (2010). "Family income and children's education: Using the norwegian oil boom as a natural experiment." *Labour Economics*, *17*(1), 118–129.

Løken, K. V., Mogstad, M., and Wiswall, M. (2012). "What linear estimators miss: The effects of family income on child outcomes." *American Economic Journal: Applied Economics*, *4*(2), 1–35.

Long, J., and Ferrie, J. (2013). "Intergenerational occupational mobility in great britain and the united states since 1850." *American Economic Review*, *103*(4), 1109–37.

Mork, E., Sjogren, A., and Svaleryd, H. (2019). "Parental job loss and child human capital in the short and long run." Tech. rep., IFAU - Institute for Evaluation of Labour Market and Education Policy.

Oreopoulos, P., Page, M., and Stevens, A. H. (2008). "The intergenerational effects of worker displacement." *Journal of Labor Economics*, *26*(3), 455–483.

Rege, M., Telle, K., and Votruba, M. (2011). "Parental job loss and children's school performance." *The Review of Economic Studies*, *78*(4), 1462–1489.

Stevens, A. H. (1997). "Persistent effects of job displacement: The importance of multiple job losses." *Journal of Labor Economics*, *15*(1, Part 1), 165–188.

van de Werfhorst, H. G., de Graaf, N. D., and Kraaykamp, G. (2001). "Intergenerational Resemblance in Field of Study in the Netherlands." *European Sociological Review*, *17*(3), 275–293.

Zafar, B. (2013). "College major choice and the gender gap." *Journal of Human Resources*, *48*(3), 545–595.

Tables and figures

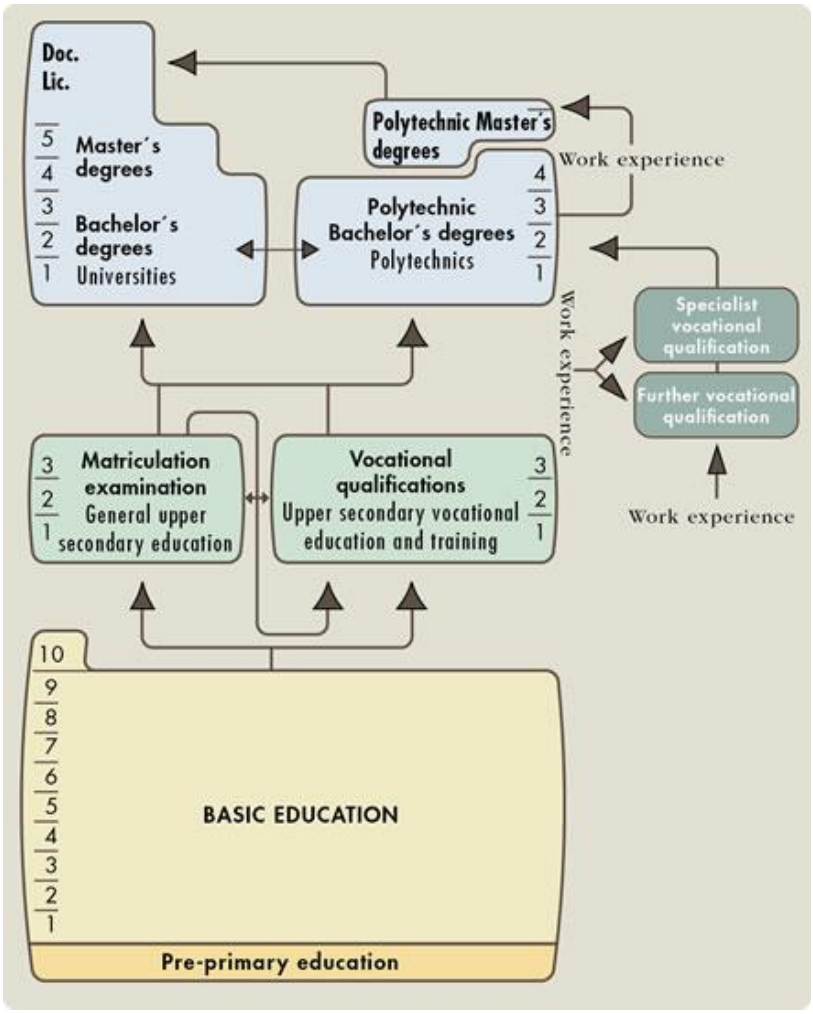
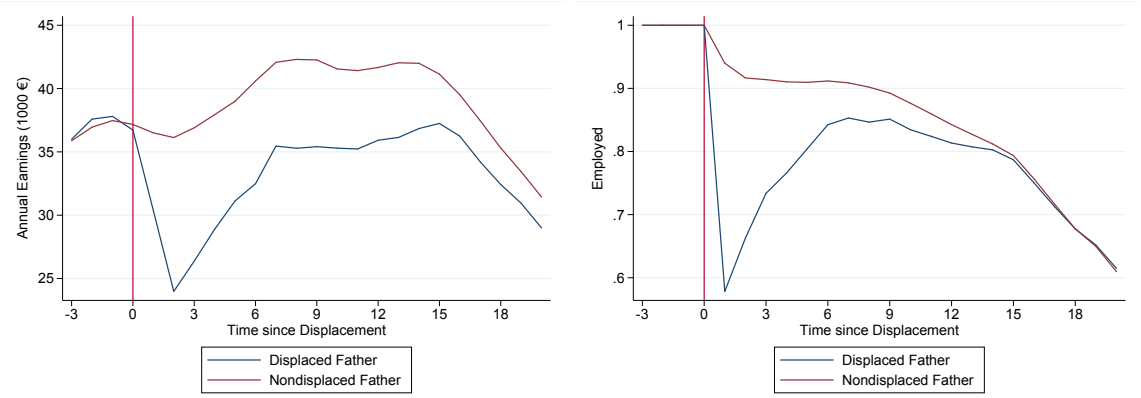
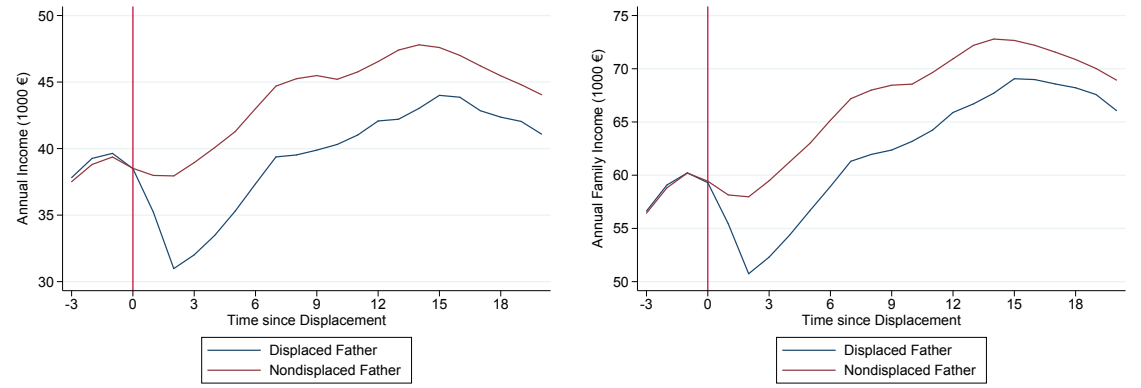


Figure 1: The Finnish education system



(a) Annual Earnings

(b) Employment Share

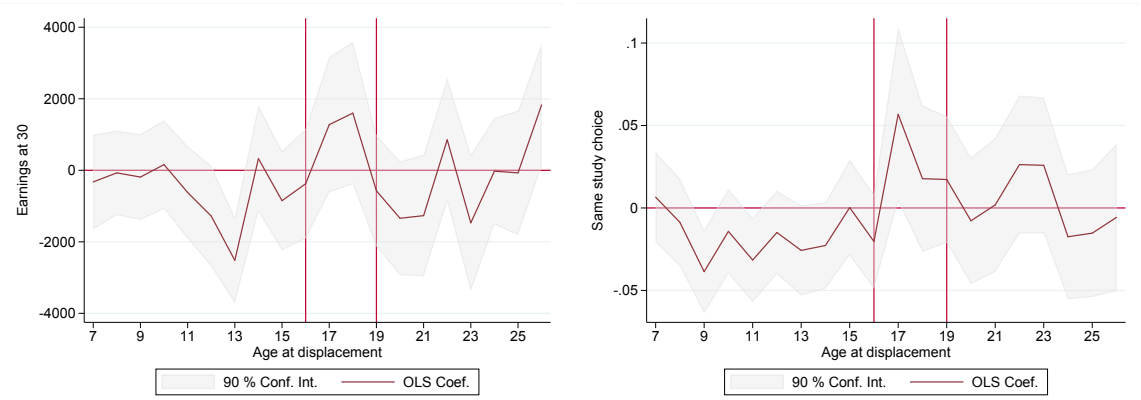


(c) Annual Income

(d) Annual Family Income

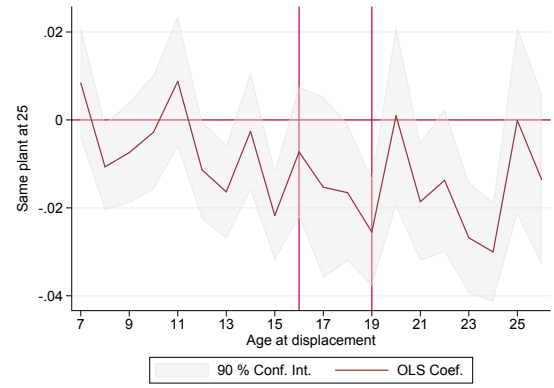
Figure 2: Annual Earnings, Income and Employment by Displacement Status

Notes: All fathers, with 7-15 year old children, working in private sector firms with between 10-500 workers and who had at least three years of tenure in base years (year 0) 1991-1993.

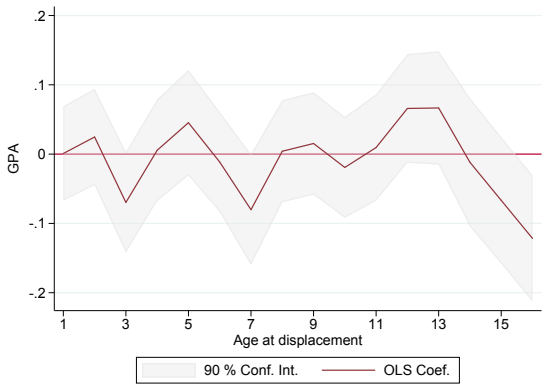


(a) Annual Earnings

(b) Same Study Choice as Father



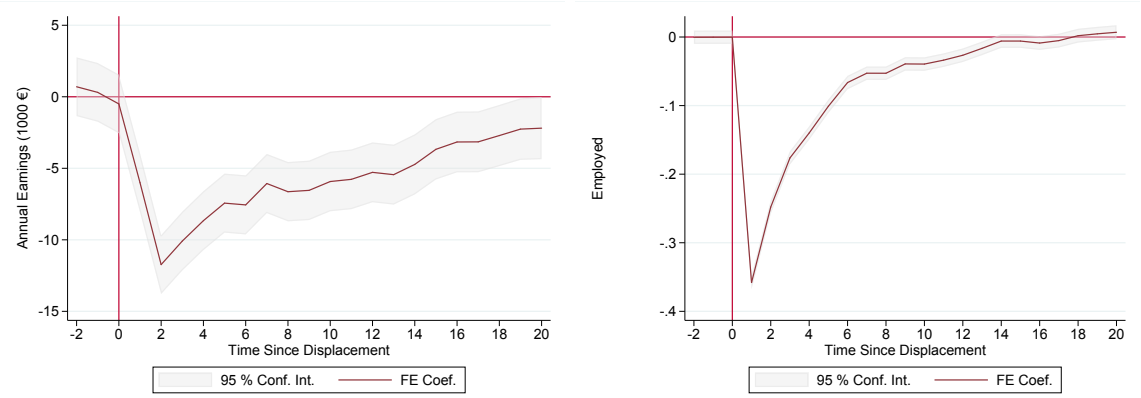
(c) Same Plant as Father



(d) GPA

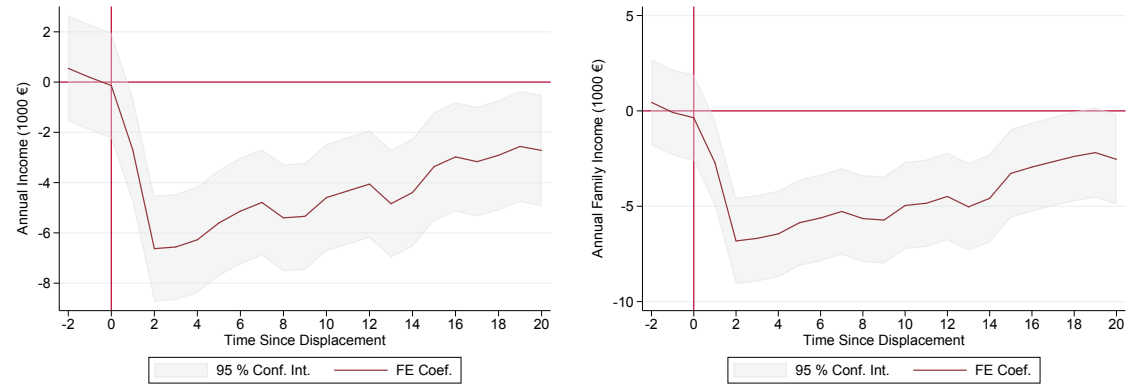
Figure 3: Effect of Father's Job Displacement on Child Outcomes by Child's Age

Notes: The figure displays coefficients and confidence intervals from equation 3.1 that is estimated separately by different groups by child's age in year 0.



(a) Annual Earnings

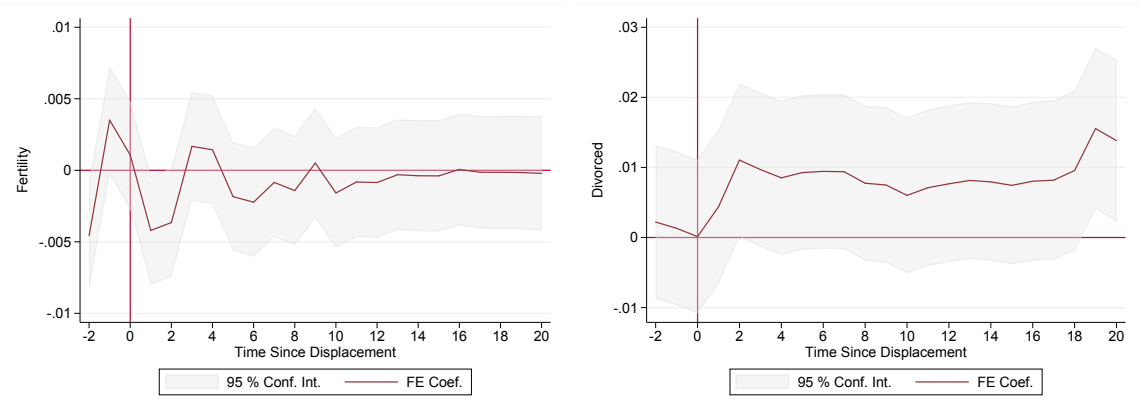
(b) Employment Share



(c) Annual Income

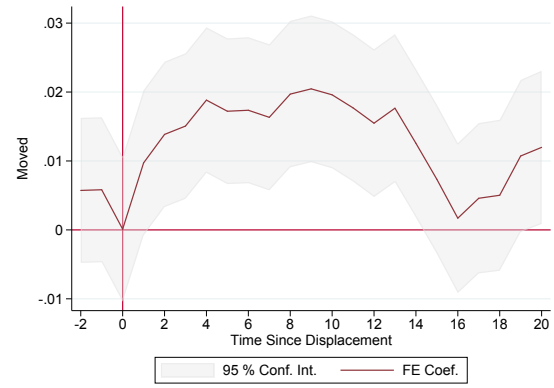
(d) Annual Family Income

Figure 4: Effect of Job Displacement on Earnings, Income and Employment.
Notes: The figure displays FE-coefficients and confidence intervals from equation. 4.1 for different outcomes.

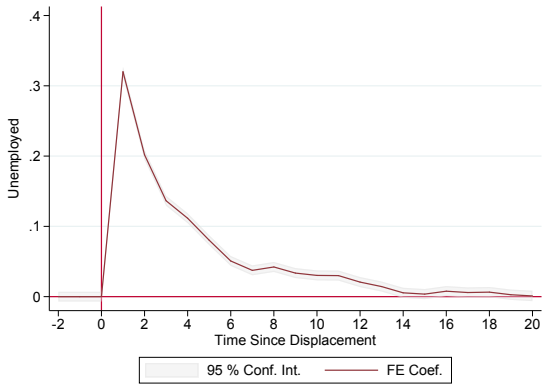


(a) Fertility

(b) Divorced



(c) Moved



(d) Unemployed

Figure 5: Effect of Job Displacement on Family Outcomes

Notes: The figure displays coefficients and confidence from equations that are estimated separately for each time period.

Table 1: Predisplacement characteristics.

A) Fathers	Displaced Mean	Not displaced Mean	P-value for difference p
Age t	39.46	39.48	0.82
Compulsory ed. t	0.35	0.35	0.72
Secondary ed. t	0.32	0.33	0.25
Tertiary ed. t	0.34	0.32	0.13
Annual income t	38,496.73	38,515.12	0.96
Annual earnings t	36,723.40	37,167.84	0.15
Annual family income t	59,300.97	59,435.37	0.77
Plant size t	65.18	123.24	0.00
Tenure t	2.93	3.27	0.00
Spouse employed t	0.77	0.77	0.74
Spouse displaced t	0.04	0.01	0.00
Observations	3,821	142,036	145,857
B) Children	Displaced Mean	Not displaced Mean	P-value for difference p
Child age t	10.66	10.70	0.23
Observations	5549	208392	213941
C) Mothers	Displaced mean	Not displaced mean	P-value for difference p
Age t	37.96	38.14	0.15
Compulsory ed. t	0.40	0.38	0.28
Secondary ed. t	0.33	0.35	0.06
Tertiary ed. t	0.28	0.27	0.41
Annual income t	25,994.31	25,524.87	0.06
Annual earnings t	24,324.02	24,199.98	0.61
Annual family income t	60,426.98	58,797.98	0.01
Plant size t	65.51	106.76	0.00
Tenure t	3.00	3.26	0.00
Spouse employed t	0.85	0.85	0.54
Spouse displaced t	0.08	0.02	0.00
Observations	1,707	84,973	86,680
D) Children	Displaced mean	Not displaced mean	P-value for difference p
Child age t	10.96	10.95	0.96
Observations	2,372	118,074	120,446

Notes: All fathers or mothers, with 7-15 year old children, working in private sector firms with 10-500 workers in 1991-1993 and who had at least 3 years of tenure.

Table 2: Effect of Father's Job Displacement on Child Outcomes at Age 30

	Tertiary Ed. (1)	Employed (2)	Earnings (3)	Predicted Earn. (35) (4)	Same Study Choice[a)] (5)	Higher Ed. than Father (6)	Public Sector (7)	Same Plant as Father[b)] (8)
Father Displaced	-0.002	-0.003	-575.476	-169.070	-0.013	0.002	0.008	-0.006
	(0.008)	(0.006)	(278.543)	(170.463)	(0.006)	(0.005)	(0.006)	(0.003)
Mean (not displaced)	0.428	0.804	25883.871	27352.178	0.173	0.411	0.212	0.034
Standard deviation	0.495	0.397	19,144.017	11,064.190	0.378	0.492	0.409	0.180
Observations	182,697	182,697	182,697	182,691	182,697	182,697	182,697	182,697
R-squared	0.112	0.016	0.033	0.107	0.033	0.549	0.011	0.014

Notes: Standard errors (clustered at plant level) in parentheses. Controls for fathers include: base year, study choice, industry, region and age dummies, tenure, marital status, plant size, year, child age in base year. [a)] Same as father [b)] at age 25. Sample: Children who were 7-15 years, whose fathers had at with three years of tenure in private sector firms with 10-500 workers in (base years) 1991-1993.

Table 3: Effect of Father's Job Displacement on Child's Outcomes by Father's Education Level

a) Primary	Tertiary Ed.	Employed	Earnings	Predicted Earn. (35)	Same Study Choice[a)]	Higher Ed. than Father	Public Sector	Same Plant as Father[b)]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Father Displaced	0.016	-0.023	-1215.254	162.037	-0.013	0.013	0.008	-0.009
	(0.013)	(0.011)	(426.528)	(251.555)	(0.009)	(0.009)	(0.011)	(0.005)
Mean (not displaced)	0.310	0.794	24,155.420	24,812.995	0.134	0.866	0.201	0.039
Standard deviation	0.463	0.404	17,698.477	9,481.268	0.341	0.341	0.401	0.194
Observations	61,643	61,643	61,643	61,643	61,643	61,643	61,643	61,643
R-squared	0.054	0.026	0.030	0.046	0.042	0.042	0.017	0.030
b) Secondary	Tertiary Ed.	Employed	Earnings 1	Predicted Earn. (35)	Same Study Choice[a)]	Higher Ed. than Father	Public Sector	Same Plant as Father[c)]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Father Displaced	-0.006	-0.002	-218.895	-225.101	-0.014	-0.006	-0.010	-0.006
	(0.014)	(0.011)	(469.871)	(267.440)	(0.011)	(0.014)	(0.011)	(0.005)
Mean (not displaced)	0.358	0.790	24,470.699	25,867.218	0.191	0.358	0.207	0.034
Standard deviation	0.480	0.407	17,978.200	9,922.834	0.393	0.480	0.405	0.182
Observations	59,305	59,305	59,305	59,305	59,305	59,305	59,305	59,305
R-squared	0.065	0.025	0.031	0.055	0.037	0.065	0.022	0.024
c) Tertiary	Tertiary Ed.	Employed	Earnings	Predicted Earn. (35)	Same Study Choice[a)]	Higher Ed. than Father	Public Sector	Same Plant as Father[c)]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Father Displaced	-0.013	0.013	-235.953	-442.544	-0.017	0.000	0.023	-0.009
	(0.013)	(0.009)	(549.672)	(333.403)	(0.010)	(.)	(0.011)	(0.004)
Mean (not displaced)	0.617	0.828	29,022.299	31,383.771	0.193	0.000	0.229	0.029
Standard deviation	0.486	0.378	21,168.559	12,407.081	0.395	0.000	0.420	0.169
Observations	61,749	61,749	61,749	61,743	61,749	61,749	61,749	61,749
R-squared	0.052	0.023	0.033	0.062	0.054	.	0.020	0.023

Notes: Standard errors (clustered at plant level) in parentheses. For sample and controls see text under table 2.

[a)] Same as father. [b)] at age 20. [c)] at age 25

Table 4: Effect of Father's Job Displacement on Child Outcomes at age 16, 20, 25 and 30

a) Outcomes age 16	GPA	Any Crime age 15-16	NEET		
Father Displaced	0.005	0.001	-0.001		
	(0.018)	(0.005)	(0.005)		
Mean (not displaced)	7.663	0.146	0.108		
Standard deviation	176,184	182,697	182,697		
Observations	0.147	0.026	0.033		
b) Outcomes age 20	Any Degree	Employed	Earnings	Same Study Choice[a)]	Same Plant than Father
Father Displaced	-0.000	0.001	-86.148	-0.009	-0.004
	(0.006)	(0.007)	(102.032)	(0.005)	(0.003)
Mean (not displaced)	0.814	0.383	5,847.875	0.153	0.033
Standard deviation	0.389	0.486	6,784.197	0.360	0.178
Observations	182,234	182,234	182,234	182,234	182,697
R-squared	0.050	0.044	0.063	0.151	0.015
c) Outcomes age 25	Any Degree	Employed	Earnings	Same Study Choice[a)]	Same Plant than Father
Father Displaced	-0.007	-0.000	-181.892	-0.013	-0.006
	(0.005)	(0.007)	(210.998)	(0.005)	(0.003)
Mean (not displaced)	0.883	0.710	17,634.643	0.156	0.034
Standard deviation	0.321	0.454	13,501.155	0.363	0.180
Observations	181,857	181,857	181,857	181,857	182,697
R-squared	0.046	0.018	0.021	0.044	0.014
d) Outcomes age 30	Any Degree	Employed	Earnings	Same Study Choice[a)]	Same Plant than Father
Father Displaced	-0.000	-0.003	-575.476	-0.013	-0.003
	(0.005)	(0.006)	(278.543)	(0.006)	(0.002)
Mean (not displaced)	0.905	0.804	25,883.871	0.173	0.019
Standard deviation8	0.293	0.397	19,144.017	0.37	0.135
Observations	182,697	182,697	182,697	182,697	182,697
R-squared	0.042	0.016	0.033	0.033	0.018

Notes: See text under table 2 for details. The sample in panel a) is children who were between 1-15 years old in base year. In panels b)-d) children who were between 7-15 years old in base year. [a)]Same as father.

Table 5: Effect of Father's Job Displacement by Child's Age at Job Loss

	Tertiary Ed.	Employed	Earnings	Predicted Earn. (35)	Same Study Choice[a)]	Higher Ed. than Father	Public Sector	Same Plant as Father[b)]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Father Displaced	0.001	-0.001	-64.627	76.302	0.004	-0.000	-0.001	-0.015
	(0.010)	(0.008)	(338.977)	(193.812)	(0.008)	(0.007)	(0.008)	(0.003)
Father Displaced	-0.002	-0.002	-500.431	-256.633	-0.021	0.005	0.008	0.009
*Under 16	(0.012)	(0.010)	(432.272)	(241.982)	(0.009)	(0.009)	(0.009)	(0.004)
Mean (not displaced)	0.413	0.796	24,676.148	26,223.659	0.173	0.484	0.198	0.036
Standard deviation	0.492	0.403	18,775.430	10,773.248	0.378	0.500	0.399	0.185
Observations	289,896	289,896	289,896	289,889	289,896	289,896	289,896	289,896
R-squared	0.105	0.016	0.047	0.131	0.031	0.550	0.012	0.013

Notes: Under 16 is an indicator that child's age at time of job loss is under 16. Standard errors (clustered at plant level) in parentheses. Sample includes children who were 7-26 years old in base year. For other details see text under table 2.
[a)] Same as father. [b)] at age 25.

Table 6: Effect of Father's Job Displacement on Child Outcomes by Child's Gender

a) Males	Tertiary Ed.	Employed	Earnings	Predicted Earn. (35)	Same Study Choice[a)]	Higher Ed. than Father	Public Sector	Same Plant as Father[b)]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Father Displaced	-0.008	-0.015	-762.501	-232.066	-0.019	-0.003	0.002	-0.009
	(0.010)	(0.008)	(427.932)	(250.587)	(0.009)	(0.007)	(0.007)	(0.005)
Mean (not displaced)	0.342	0.822	30,647.315	29,308.304	0.243	0.367	0.129	0.052
Standard deviation	0.474	0.383	20,406.364	11,806.699	0.429	0.482	0.335	0.222
Observations	93,740	93,740	93,740	93,736	93,740	93,740	93,740	93,740
R-squared	0.124	0.024	0.042	0.111	0.070	0.544	0.019	0.026
b) Females	Tertiary Ed.	Employed	Earnings	Predicted Earn. (35)	Same Study Choice[a)]	Higher Ed. than Father	Public Sector	Same Plant as Father[b)]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Father Displaced	0.005	0.011	-188.212	-21.433	-0.007	0.007	0.013	-0.003
	(0.011)	(0.008)	(336.942)	(202.707)	(0.006)	(0.007)	(0.010)	(0.002)
Mean (not displaced)	0.520	0.785	20863.602	25290.642	0.098	0.457	0.300	0.014
Standard deviation	0.500	0.411	16271.493	9810.092	0.297	0.498	0.458	0.118
Observations	88,957	88,957	88,957	88,955	88,957	88,957	88,957	88,957
R-squared	0.121	0.020	0.043	0.124	0.067	0.580	0.021	0.017

Notes: Standard errors (clustered at plant level) in parentheses. For sample and controls see text under table 2.

[a)] Same as father. [b)] at age 25.

Table 7: Effect of Mother's Job Displacement on Child Outcomes at Age 30

	Tertiary Ed.	Employed	Earnings 1	Predicted Earn. (35)	Same Study Choice[a)]	Higher Ed. than Mother	Public Sector	Same Plant as Mother[b)]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Mother Displaced	-0.002	0.002	171.469	86.974	0.006	-0.007	0.012	-0.002
	(0.010)	(0.009)	(417.980)	(232.002)	(0.008)	(0.008)	(0.009)	(0.004)
Mean (not displaced)	0.411	0.817	26,171.749	26,977.639	0.150	0.445	0.206	0.026
Standard deviation	0.492	0.386	18,961.327	10,832.293	0.357	0.497	0.405	0.159
Observations	107,019	107,019	107,019	107,018	107,019	107,019	107,019	107,019
R-squared	0.115	0.020	0.035	0.107	0.040	0.494	0.017	0.020

Notes: Standard errors (clustered at plant level) in parentheses. Controls for mothers include: base year, study choice, industry, region and age dummies, tenure, marital status, plant size, year, child age in base year. Sample: 7-15 year old children of mothers who had least three years of tenure and worked in private sector firms with between 10-500 workers in 1991-1993.
[a)] Same as mother. [b)] at age 25.

Table 8: Effect of Father's Job Displacement by Family's Moving Status

	Same study choice	Same study choice	Same study choice
Father Displaced	-0.013	-0.013	-0.015
	(0.006)	(0.006)	(0.006)
Moved by year 5		0.007	0.006
		(0.005)	(0.005)
Displaced*Moved by 5			0.013
			(0.019)
Mean (not displaced)	0.173	0.171	0.171
Standard deviation	0.378	0.377	0.377
Observations	182,697	182,697	182,697
R-squared	0.033	0.033	0.033

Notes: Moving is defined as living in different municipality in year 5 than in base year (year 0). For sample and controls see text under table 2.

Table A1: Distribution of Father's Study Field Choices

	All		Displaced		Not displaced	
	Freq	%	Freq	%	Freq	%
Primary degree						
Compulsory	51,166	35.08	1,330	34.81	49,836	35.09
Secondary degree						
General education	3,440	2.36	80	2.09	3,360	2.37
Educational Science (Teacher ed.)	11	0.01			11	0.01
Humanities and Arts	185	0.13			185	0.13
Social Science and Business	1386	0.95	39	1.02	1347	0.95
Natural Sciences	262	0.18	9	0.24	253	0.18
Technology	36,826	25.25	963	25.20	35,863	25.25
Agriculture and Forestry	1914	1.31	57	1.49	1857	1.31
Health and Welfare	202	0.14	3	0.08	199	0.14
Services	3,205	2.20	59	1.54	3,146	2.21
Tertiary degree						
Educational Science (Teacher ed.)	751	0.51	11	0.29	740	0.52
Humanities and Arts	12,239	8.39	281	7.35	11,958	8.42
Social Science and Business	2073	1.42	51	1.33	2022	1.42
Natural Sciences	27,618	18.93	865	22.64	26,753	18.84
Technology	3,266	2.24	65	1.70	3,201	2.25
Health and Welfare	865	0.59	3	0.08	862	0.61
Services	448	0.31	5	0.13	443	0.31
Total	145,857	100.00	3,821	100.00	142,036	100.00

Notes: All fathers with at least one child aged 7-15 with three years of tenure in private sector firms with between 10-500 workers in 1991-1993.

Table A2: Effect of Parental Job Displacement on Cumulative Family Income

Age when displaced	Years until 16	Cumulative Income Loss	Loss in %
15	1	2,704.47	-0.52
14	2	9,524.64	-1.65
13	3	16,207.71	-2.55
12	4	22,657.83	-3.25
11	5	28,521.50	-3.75
10	6	34,134.76	-4.13
9	7	39,409.64	-4.41
8	8	45,054.29	-4.69
7	9	50,779,64	-4.93

Notes: Cumulative income loss is obtained from the FE regression reported in Panel D of Figure 4.