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Parental Job Loss and Children's Socioeconomic Disadvantage*

Niko Eskelinen Laura Jernström Henri Salokangas

Abstract

Using high-quality administrative data, we study how parental labor market shocks affect children's socioeconomic disadvantage. We find that the job loss of both fathers and mothers significantly increases the likelihood that children will experience a range of socioeconomic disadvantage indicators in adulthood, including being not in education, employment, or training (NEET), reliance on social assistance, and the use of unemployment benefits. In relative terms, we find that parental job loss increases children's risk of socioeconomic disadvantage by up to 4.5% for sons and up to 3.9% for daughters. These effects persist for more than a decade after parental job displacement. The adverse impacts are particularly pronounced for boys and children exposed at older ages, suggesting heterogeneous vulnerability based on gender and developmental stage. Our results indicate that good labor market conditions – particularly in the case of fathers – may mitigate the adverse effects of parental job loss.

1 Introduction

A substantial body of research has demonstrated that job loss can have detrimental effects on families. Job loss has been documented to have negative effects on the earnings and

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stability of worker's careers (Ruhm, 1991; Jacobson et al., 1993; Eliason and Storrie, 2006; Huttunen et al., 2011). Beyond the labor market, job loss has been found to affect the (mental) health of the workers and their spouses (Black et al., 2015; Browning et al., 2006; Browning and Heinesen, 2012; Eliason, 2012; Sullivan and von Wachter, 2009; Gathmann et al., 2025). Additionally, job loss may undermine relationship stability of the workers (Eliason, 2012) and contribute to family conflict, including incidents of physical violence (Kalil and Wightman, 2010; Bhalotra et al., 2025). In addition to the adverse effects that job loss has on the lives of the displaced individuals and their spouses, job loss in the family has been found to affect children. Although inconclusive and heterogeneous at times, previous studies have documented parental job loss to have effects on educational (Rege et al., 2011; Stevens and Schaller, 2011; Coelli, 2011; Hilger, 2016; Di Maio and Nisticò, 2019; Mörk et al., 2020; Carneiro et al., 2022; Bingley et al., 2023), labor market (Oreopoulos et al., 2008; Hilger, 2016; Huttunen and Riukula, 2024; Mörk et al., 2020) and health outcomes of the children (Lindo, 2011; Schaller and Zerpa, 2019; Mörk et al., 2020). Prior literature has largely focused on the average outcomes such as educational attainment or probability of employment while less is known about how parental job loss affects children's well-being at the extremes of the distribution such as falling outside of education and the labor market. As the effects of parental job loss are not necessarily linear, outcomes at the lower end cannot be inferred directly from average effects. From the policy perspective, the extreme outcomes may be especially meaningful as they include large costs not only to the individual but to society in the form of long-term dependence on public support and outcomes with harmful spillovers such as antisocial behavior.

A few studies have focused on the more severe outcomes for the children including Oreopoulos et al. (2008) that found that father's job loss increases (early teenage) sons' recipience of social assistance and unemployment benefits in the Canadian context, while Britto et al. (2022) find that parental job loss increases the likelihood that (early teenage) children drop out of school, work informally, commit crime and experience a teen-pregnancies in the Brazilian context.[1] Notable about the current evidence on the implications on children's socioeconomic disadvantage is that it covers the effects of parental job loss occurring at school age (ages 7 to 15) leaving the effects of parental job loss in infancy, early child-

[1] With a close connection to our study, Gregg et al. (2012) find that children of parents who changed industry after economic downturn spend more time as NEET in the UK, while Huttunen and Riukula (2024) do not find evidence in the Finnish context that father's job loss due to plant closure at school age would affect children's probability of being in the NEET situation or to commit crime at the age of 16.

hood and late adolescence unaddressed. Similarly, previous studies have suffered from data limitations, such as the lack of administrative data and short follow-up periods, and have focused predominantly on men (sons).

In this paper, we study how parental job loss affects children's risk of experiencing socioeconomic disadvantage later in life. Using rich administrative data from Finland, we focus on job losses resulting from plant closures and estimate their effects using linear probability models. The data allow us to track both children and their parents, covering a wide range of demographic, socioeconomic, educational, labor market, and social welfare outcomes. We observe parental job losses that occur at any point between a child's birth and age 17 and follow the children into early adulthood (ages 18-–29), enabling us to assess long-run impacts. To reduce the selection bias, we compare children whose parents lost their jobs due to plant closures with children whose parents did not experience the event of plant closure during the same period. Plant closures are used to limit the influence of individual worker characteristics on job loss. To further reduce concerns about confounding, we focus on closures that occurred during Finland's severe recession in the early 1990s, following the collapse of the Soviet Union. This period saw an 8% decline in GDP and 16% age point rise in unemployment (Huttunen et al., 2011), leading to widespread firm closures that were largely driven by macroeconomic forces rather than firm- or worker-specific factors.[2] We also use entropy balancing to improve the covariate balance of our sample.

We focus on three commonly used measures of disadvantage: the probability of receiving social assistance (Oreopoulos et al., 2008), the probability of receiving unemployment benefits (Vauhkonen et al., 2017; Wiborg and Hansen, 2009; Wiborg and Møberg, 2010) and the probability of NEET (not in employment, education or training), which has been regarded as an important indicator and conceptual tool for capturing young adulthood disengagement, vulnerability, and social exclusion (Contini et al., 2019). We also shed light on the role of the potential mechanisms mediating the effects of job loss by analyzing families earnings losses following displacement and by examining the heterogeneous effects of parental job loss by the timing of parental job loss, the local labor market conditions

[2] Gathmann et al. (2025) document that plant closures that occurred during the 1990s recession compared to non-recession years in the Finnish context are more randomly selected in terms of worker's earnings.

and families socioeconomic status.

We find that both father's and mother's job loss increases the risk of socioeconomic disadvantage of both sons and daughters. Using our pooled sample of sons and daughters, we find that a father's job loss increases the risk of children's socioeconomic disadvantage in two out of three proxies: the cumulative probability of receiving social assistance (increase of 1.4 p.p.) and of receiving unemployment benefits (increase of 0.8 p.p.). Further, we find that not only father's but also mother's job loss increases the risk of children's socioeconomic disadvantage. This result is statistically significant across all three of our proxies of children's socioeconomic disadvantage: the cumulative probability of being NEET (increase of 0.9 p.p.), receiving social assistance (increase of 1.5 p.p.) and of receiving unemployment benefits (increase of 0.8 p.p.). Put differently, we find that a father's job loss increases the number of disadvantaged children by 8 – 14 for every 1,000 displaced fathers. Similarly, a mother's job loss is found to increase the number of disadvantaged children by 8 – 15 for every 1,000 displaced mothers. Compared to the sample mean, we find that parental job loss increases children's risk of socioeconomic disadvantage by up to 3.9% following fathers' job loss and up to 3.8% following mothers' job loss.

When looking at the effects of parental job loss for sons and daughters separately, we find that a father's job loss increases the cumulative probability of NEET and of receiving social assistance and unemployment benefits by the age of 29 for sons between 1 – 1.7 p.p. (up to 4.5% relative to baseline). For daughters, a father's job loss is followed by a 1.1 p.p. (3.2% relative to baseline) increase in the cumulative probability of receiving social assistance before the age of 29. As with the pooled sample, when looking at the effects by parent-child pairs, the results for mother's job loss are very similar to those of father's job loss. We document that mother's job loss increases the risk of socioeconomic disadvantage for our three proxies of disadvantage by 1 – 1.4 p.p. (up to 3.5% relative to baseline) for sons and increases the cum. probability of receiving social assistance by 1.4 p.p. (3.9% relative to baseline) for daughters. As we document adverse effects due to parental job loss for boys across all three of our indicators of disadvantage and only for social assistance recipience when it comes to daughters, we note that parental job loss may involve important asymmetries between sons and daughters.

In line with the previous literature, we document that parental job loss induces considerable earnings losses, which likely mediate its adverse effects. By investigating the heterogeneous effects of parental job loss, we find indication that a parental (maternal) job loss at the time of the child's pre-teens and teens may have more adverse effects compared to other age phases. We further document that poor local labor market conditions may drive the adverse effects of parental job loss - especially in the case of a father's job loss. These findings suggest that supportive public policy may be particularly important for families with children in their pre-teen and teenage years at the time of parental job loss. Likewise, the role of policies supporting re-employment of the parents may help mitigate the adverse effects of parental job loss.

Our paper makes several contributions. First, as any one measure of socioeconomic disadvantage may not alone capture the risk of socioeconomic disadvantage[3], we add to the literature by estimating multiple proxies of socioeconomic disadvantage and by providing a more comprehensive understanding of the risks of parental job loss in terms of different measures of disadvantage. In particular, we provide plausibly causal evidence on the effects of parental job loss on children's risk of being outside of education and labor market (NEET) in youth. Second, as different phases of childhood are associated with different protective factors and public services and may be thereby associated with different vulnerabilities, we add to the literature by examining the effects of parental job loss throughout childhood and youth covering ages from birth to late teens (ages 0–17) and track children throughout young adulthood (ages 18–29). Third, as previous literature has focused mainly on the father's job loss (on sons), we contribute by examining not only the effects of a father's but also the effects of a mother's job loss on both sons' and daughters' socioeconomic disadvantage.

We add to the literature on the effects of parental job loss in terms of more severe outcomes of disadvantage (Oreopoulos et al., 2008; Gregg et al., 2012; Britto et al., 2022). In the broader context, our paper adds to the literature on the effects of parental job loss on children (Rege et al., 2011; Stevens and Schaller, 2011; Coelli, 2011; Hilger, 2016; Di Maio and Nisticò, 2019; Huttunen and Riukula, 2024; Lindo, 2011; Schaller and Zerpa, 2019). Further, we add to the literature on the heterogeneous effects of parental job loss by the

[3]See Jernström and Sirniö (2023), for example, who note that the NEET measure may include significant heterogeneity and reflect different types of transition stages.

timing of job loss (Mörk et al., 2020; Carneiro et al., 2022; Bingley et al., 2023; Huttunen and Riukula, 2024).

The remainder of the paper is organized as follows. In Section 2, we briefly review the related literature. Section 3 outlines the setting and the empirical strategy, while Section 4 describes the data used in the analysis. Section 5 presents the results regarding parental job loss including an analysis of the possible mechanisms and heterogeneous effects. Section 6 concludes.

2 Literature

2.1 Effects of Parental Job Loss - A Brief Overview of the Literature

The previous literature has demonstrated that parental job loss can have harmful effects on children's educational achievement, and labor market and health-related outcomes. Parental job loss has been suggested to reduce grades, lower school completion rates, and increase dropout rates (Britto et al., 2022; Di Maio and Nisticò, 2019). Parental job displacement due to layoffs and business failures is also linked to a decrease in both college and university enrollment (Coelli, 2011; Hilger, 2016). It has been estimated that a parental job loss due to layoffs can reduce community college and university enrollment by as much as 10 percentage points (Coelli, 2011). However, some studies have suggested that the effects of parental job loss on children's educational outcomes are asymmetric by parental gender. For instance, Rege et al. (2011) found that paternal job loss due to plant closure reduces children's graduation year grade point average (GPA) by 6% of a standard deviation, whereas maternal job loss is not found to have a significant effect on GPA. On the contrary, Mörk et al. (2020) report only a small negative effect on children's compulsory school GPA following maternal job loss, while paternal job loss is not found to have any effects on the children. The evidence on the asymmetric effects of parental job loss in the current literature appears to be inconclusive, thus leaving the question on the adverse effects empirically unresolved.

Parental job loss has been found to have negative effects not only on children's educational outcomes but also to lead to poorer performance in the labor market, potentially reflecting the long-term impact of the educational effects, for example. Some studies have found

that a father's job loss due to a plant closure reduces their children's later life annual earnings (Oreopoulos et al., 2008; Hilger, 2016; Huttunen and Riukula, 2024). Further, previous research has reported that parental job loss can lead to career choices with lower predicted earnings possibly due to weakened informal ties to the labor market (Huttunen and Riukula, 2024). The empirical findings on the relationship between parental job loss and children's earnings, however, are inconclusive, as other studies have failed to find evidence of an impact on earnings following parental job loss (see Bratberg et al. 2008).

Some research, near to our work, has also studied the link between parental job loss and more adverse young adulthood outcomes. For instance, Oreopoulos et al. (2008) find that parental job loss in the early teens (ages 10 – 14) increased the likelihood of receiving unemployment insurance and social assistance. These effects are found to be largely driven by the experiences of children in the lowest income brackets. On the other hand, Huttunen and Riukula (2024) find no evidence of effects of paternal job loss on the probability of committing crime or being in NEET state at the age of 16 in the Finnish context. However, it should be noted that as not being the main focus of their study, these outcomes are measured only at the age of 16 making the follow-up period relatively short. Similarly, for other indicators of social disadvantages, using data from Brazil, Britto et al. (2022) have suggested a link between parental job loss in the early teens (ages 9 – 15) and outcomes such as criminal behavior, early pregnancies and the likelihood of working informally. Closely related to this, in a survey-based study on Great Britain, Gregg et al. (2012) find that children whose fathers had changed industry after an economic downturn, spent 1.6% more time in NEET state.

In addition, parental job loss can impact children's health, both in early childhood and later life. Studies have shown that children born after parental job displacement tend to have a lower birth weight (Lindo, 2011) and may experience increased anxiety depression or incidence of injuries depending on the parent's gender and socioeconomic status. For example, father's displacement is linked to anxiety and mood disorders (low-SES families) and injuries (high-SES families) (Högberg and Baranowska-Rataj, 2023; Schaller and Zerpa, 2019). On the other hand, the evidence for health effects is not straightforward as Mörk et al. (2020) find no effects on the hospitalization of the children up to 10 years after experiencing a parental job loss between ages 2 and 18. Similarly, Bubonya et al.

(2017) find no effects on the mental health of adolescent children following a parental job loss. These inconsistencies may stem from variations in institutional settings, contextual differences, differences in modeling approaches and modeled outcomes as well as the potential heterogeneous effects of job loss on children's outcomes.

2.2 Harmful to Whom? The Heterogeneous Effects of Parental Job Loss

Growing evidence suggests that the effects of parental job loss vary not only by parental gender but also by the gender of the child. Hérault and Kalb (2016) find strong within-gender transmission patterns in Australia: the unemployment outcomes of the sons correlate with those of their fathers, while daughters' labor market trajectories are more closely linked to their mothers. This aligns with the view that parental role models, particularly same-gender ones, shape expectations, labor force attachment, and resilience to shocks.

This idea resonates with broader findings on gendered responses to family disadvantages. Bertrand and Pan (2013) and Autor et al. (2019) document that boys from disadvantaged backgrounds are more sensitive to home environments than girls, with disruptive behavior, school suspensions, and educational deficits emerging more strongly among boys raised in single-parent households. Chetty et al. (2016) further show that boys raised in low-income, single-mother households are less likely than girls to achieve favorable adult outcomes, particularly in areas with weak neighborhood and schooling environments. Taken together, these studies suggest that boys' development is more dependent on the family structure and stability. Prior studies on parental job loss support this insight. Studies from Norway (Bratberg et al., 2008) and Finland (Huttunen and Riukula, 2024) report that the detrimental effect of fathers' job displacement on sons in Norway is stronger than the effect on daughters.

In addition to potential to gender-specific differences and asymmetries in the effects of parental job loss, its intergenerational effects may also vary according to several other factors. One factor contributing to the heterogeneous effects may be the child's age at the time of parental job loss (Huttunen and Riukula, 2024).[4] Prior evidence suggests

[4] As well known, a large body of economic literature has studied the role of age phases in human capital formation. For this literature, see e.g. Cunha et al. (2006); Cunha and Heckman (2007); Heckman and Mosso (2014).

that, in terms of educational outcomes, children in their teenage years may be the most affected by parental job loss (Carneiro et al., 2022; Huttunen and Riukula, 2024), which may be linked to important transitional stage of teenage years. Relatedly, a negative association with parental unemployment periods and children's educational enrollment and performance during adolescence has been documented, while seeing no such link during early childhood (Lehti et al., 2019). This suggests that children in their teens may be most vulnerable to the negative effects of parental job loss, particularly during crucial periods of adolescence when educational decisions are being made. Still, evidence on the timing of the effects of parental job loss on children's educational outcomes is somewhat inconclusive as the findings of Bingley et al. (2023) in the Danish context suggest that parental job loss occurring during infancy leads to most harmful effects on the educational outcomes of the children.

The effects of parental job loss may also vary based on the parental socioeconomic status and family resources. For instance, parents with a higher socioeconomic status generally have greater resources and provide opportunities to pave the way for more advantageous socioeconomic positions (Breen and Jonsson, 2005). In general, greater access to various types of resources in the family is known to be more advantageous. Research has also found that parents can actively use their extensive pool of resources to buffer or compensate for the adverse effects of negative life course events (Bernardi, 2014). Based on the research and theory on compensatory effects, it can be assumed that high-SES parents are also better able to compensate the potential harmful effects of parental job loss as well.

The effects of job loss can be heterogeneous not only at the family level but also at the contextual level. Contextually, institutional settings, such as different welfare policies (benefits and services) can play an important role. Additionally, local labor market characteristics, such as regional employment rates or the local industry structure may have an effect on how families can cope with consequences of job loss. For example, in families residing in areas with abundant labor market opportunities, the effects of job loss may be less detrimental as there may be better opportunities for re-employment.

2.3 Mechanisms Between the Effects of Parental Job Loss and Later Life Socioeconomic Disadvantages of the Children

Clearly, there are several mechanisms that might explain the adverse effects of parental job loss on children's later life outcomes. One commonly mentioned and empirically studied mechanism in the literature is the reduction in family income resulting from job loss (Britto et al., 2022; Di Maio and Nisticò, 2019; Hilger, 2016). Income loss can restrict resources at the family level, leading to further consequences in the life of family members. The reduced family income may reduce parental investments and have adverse effects on children e.g. in terms of lowered cognitive or social-behavior development (Dahl and Lochner, 2012; Cooper and Stewart, 2021). Despite the potential income losses, families with large resources may be in a better position to compensate for the adverse effects of the job loss or other adverse life course events (Bernardi, 2014).

Further, a job loss in the family may increase stress and family conflict, which in turn can affect family dynamics and the emotional and psychological well-being of both parents and children. More specifically, increased stress and heightened tension within the family can disrupt the home environment, leading to negative outcomes in children's behavior and academic performance, for instance. The loss of income and the psychological toll of job loss, such as anxiety or depression, can also affect parental investment, parenting quality and emotional availability, which can further have an effect on later life socioeconomic attainment and children's other outcomes in life (Kalil and Wightman, 2010).

Moreover, the existing literature suggests that parental job loss may affect children through multiple mechanisms beyond income loss, including stress transmission, changes in parenting behavior, and shifts in children's expectations. Peter (2016) highlights how involuntary maternal job loss can impair children's non-cognitive skills, such as socio-emotional regulation and locus of control, especially in preschool and adolescent years in Germany. Further, for instance, health can also serve as a potential mechanism through which parental job loss contributes to children's later life socioeconomic disadvantages. Later life health problems such as mental health disorders as well as somatic conditions are powerful predictors of socioeconomic disadvantages (Mikkonen et al., 2021). Similarly, if a parental job loss impacts early health (see Lindo 2011) it may further affect children's later life socioeconomic outcomes by reducing the individual's physical functioning or

capability to carry out mental work. Previous research on early health adversities has shown, that early health adversities and even health at birth are linked to numerous socioeconomic and health related factors, as well as cognitive development and capabilities (Almond et al., 2018; Cozzani and Härkönen, 2023).

3 The Setting and Empirical Strategy

3.1 Institutional Setting

This study's empirical analysis is based on the Finnish register data. Finland has been typically characterized by a universalistic and generous welfare state offering comprehensive social security with an extensive array of social services and various forms of financial support. Generally, intergenerational comparisons of socioeconomic heritance have identified Finland, as well as other Nordic countries, as some of the most egalitarian countries in the world (Björklund et al., 2002; Grätz et al., 2021). If adverse effects of parental job loss are observed in Finland, it can be expected that these effects may be even more pronounced in less generous welfare contexts, particularly where socioeconomic inheritance is stronger, social security systems are weaker, benefits less generous and education involves financial costs.

In Finland, unemployment benefits are one of the key components of the social security system. Unemployment benefits are paid from two different systems. Besides state provided basic unemployment allowance, unemployed individuals who are members of the unemployment funds, typically through the labor unions, and meet certain conditions can receive an earnings-related unemployment allowance, which provides a higher level of support based on the previous earnings. The conditions for receiving basic and earning related allowances are identical, but the earnings-related allowance requires membership in an unemployment fund. Payment of the unemployment allowance starts after the person officially registers as an unemployed job seeker. The duration of the unemployment allowance depends on the working history and age and it ranges from 300 to 500 days. If the unemployment period lasts longer than the unemployment allowance period, the unemployed are entitled to receive a labor market subsidy, which is indented to cover the basic economic needs of an average family.

Further, all parents are eligible for parental allowances. Parental allowance for a single child is paid for 320 working days, within the period up until the child turns two years old. On the top of parental allowances, child benefit is paid for children until they are 17 years old. Low-income households can also apply for housing allowance to manage their housing costs. As a last resort form of income security, individuals or families can apply for means-tested social assistance which is provided when their income and resources are insufficient to cover their daily expenses. Given Finland's comparatively generous social security system, which offers a substantial safety net during periods of unemployment, the potential adverse effects of parental job loss via the income channel may be less severe than in countries with less comprehensive welfare systems.

3.2 The Finnish Great Depression

Our study focuses on the impacts of parental job loss occurring during the Finnish recession of the early 1990s. There were two main reasons for the sharp deterioration in unemployment. First, Finland went through a series of deregulations in domestic bank lending that resulted in a twin banking crisis (Jonung et al., 2009). One crucial deregulatory action was allowing foreign private borrowing while maintaining pegged exchange rates. This eventually led to a considerable increase in capital inflows and bank lending as nominal interest rates were reduced. While the Bank of Finland attempted to defend the currency peg against speculative attacks, the fragility of the monetary policy eventually led to a series of devaluations of the Finnish *markka*, which dramatically increased the costs of foreign loans for Finnish businesses and households. As asset prices plummeted and credit losses increased, Finland faced a severe banking crisis.

The second contributor to the Finnish Great Depression was the collapse of the Soviet Union in 1991. Exports to the Soviet Union accounted for about 20% of Finnish exports in the late 1980s. Many of the exported products were often specialized and primarily exported to the Soviet Union. Moreover, Soviet imports, such as oil, were relatively cheap for Finland. When the Soviet Union abruptly canceled these favorable trade arrangements on December 6, 1990, Finnish firms faced an unanticipated shock that helped to amplify the banking crisis. Consequently, Finnish real GDP fell by 10% between 1990 and 1994.

Figure 1 visualizes the repercussions of the Finnish Great Depression on unemployment

rates, contrasting these rates with those of Sweden and the United States. While the neighboring country Sweden also witnessed a considerable increase in unemployment during the same period (from 2% to 9%), the Finnish recession led to an unprecedented surge in unemployment rates for a developed country after World War II. The magnitude of the unemployment spike was three times what the United States experienced during the Great Recession of 2008—2010 and took a longer time to recover to levels comparable to other countries. The severity of the economic downturn was more comparable to the Great Depression of the 1930s, which ignited the use of the term "the Finnish Great Depression" (Gorodnichenko et al., 2012; Knüpfer et al., 2017; Gulan et al., 2021).

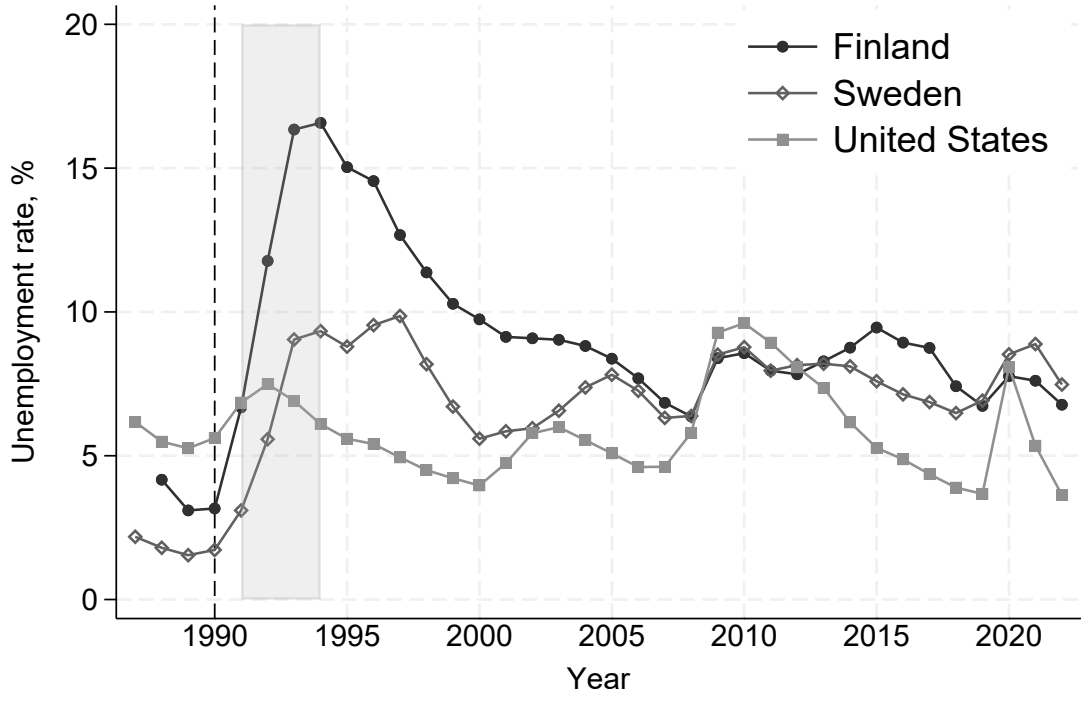


Figure 1: Unemployment rate in Finland, Sweden and United States in years 1988–2022

Notes: The graph illustrates the annual unemployment rates in Finland, Sweden, and the United States from 1988 to 2022. The shaded area highlights the years 1991–94, during which unemployment rates were rising in Finland. The data are derived from the OECD Infra-annual Labour Statistics.

3.3 Empirical Strategy

To analyze the effects of parental job loss, we adopt an empirical strategy broadly used in the literature. This approach relies on the idea that when a plant closes, the resulting job loss is less dependent on the characteristics of the individual worker compared to regular job dismissal. The identifying assumption is that the child outcomes of the displaced

parents would have evolved similarly to the outcomes of the children of non-displaced parents in the absence of displacement, conditional on our control variables. This implies that plant closures are not correlated with any unobservable factors that would affect children's socioeconomic disadvantage, conditional on the controls. We use plant closures that followed from the sudden shock to the Finnish economy as a source of exogenous variation in the likelihood of a parent losing a job.

As visible in Table 1, our sample of the treated and non-treated is not completely balanced in terms of the observables. Given that the job displacement within our sample does not appear to be completely randomly assigned, we adopt matching methods to ensure a close balance of confounding covariates across treated and control individuals. Pre-processing the data prior to parametric modelling can reduce model dependence in regression models when deriving the average treatment effects for the treated (Ho et al., 2007). For pre-processing, we adopt an entropy balancing approach, which is a data pre-processing procedure that reweights the data set so that the covariate distributions of the data satisfy a set of specified moment conditions (mean, variance, and skewness) (Hainmueller, 2012; Hainmueller and Xu, 2013). We implement the weighting using a vector of covariates, X_{ib}, which includes an indicator for the base year, base year measures for the child's and parent's age, the parent's education level (measured on three levels), the number of children, an indicator for being married, the plant size, tenure, annual earnings, industry and province. Additionally, we include the base year measures for the other parent's employment status and (three-level) education level when applicable. Adjusting for these characteristics aims to ensure that the children of displaced parents are compared with children of non-displaced parents with similar expected career trajectories absent the job displacement. The weights are computed such that balance is achieved between the treatment and control group in all included covariates in at best in three moments (mean, variance, skewness), minimizing the relative entropy, or divergence, relative to a set of uniform base weights (Källberg and Waernbaum, 2023). In our preferred specification, we use the weights achieved through the entropy balancing procedure, and do not add any control variables, as adding them would not change the point estimates (Hainmueller, 2012). We test the sensitivity of our results to the model specification in Section 5.1.1.

We start by estimating a linear probability regression model of the following form:

$$Y_{ib} = \alpha + \beta ParentDisplaced_{ib} + \epsilon_{ib}, \tag{1}$$

where Y_{ib} denotes an outcome (the cumulative probability of NEET, social assistance, unemployment benefit recipience) for child i measured by the age of 29; $ParentDisplaced_{ib}$ denotes an indicator of whether the child belongs to the treatment group in base year sample b and ϵ_{ib} is an idiosyncratic error term. β is the parameter of interest that shows the effect of parental job loss. We cluster standard errors at the parental level.

For our analysis of the mechanisms related to the parent's outcomes after job loss, we utilize the panel structure of our data and estimate the earnings losses of the parent in dynamic form. The specification for the parental outcomes can be expressed as:

$$Y_{ibt} = \alpha_{ib} + \beta Displaced_{ib} + \sum_{\substack{t \neq -1; \\ t=-4}}^{20} \gamma_t I_{bt} + \sum_{\substack{t \neq -1; \\ t=-4}}^{20} \delta_t I_{bt} \times Displaced_{ib} + \epsilon_{ibt}, \tag{2}$$

where Y_{ibt} is the outcome for parent i in the year relative to job loss, t, in the base year sample b; the indicator $Displaced_{ibt}$ for parental job loss, I_t is the year relative to the job loss and the coefficient δ_t of their interaction gives the dynamic treatment effects in the base year b. We also include the individual fixed effects (α_{ib}), while ϵ_{ibt} is an idiosyncratic error term. As for the main results estimated with Equation (1), we use entropy balancing and formulate our weights using covariates in vector X^*_{ib} that includes an indicator for the base year, base year child's and parent's age, base year measures for the parent's level of education (measured on three levels), number of children, indicator for being married, plant size, tenure, annual earnings, industry and province. We cluster standard errors at the parental level.

4 Data

Linked administrative data — Our empirical analyses are based on nationwide linked individual-level register data that cover the population of Finland over the period 1987–2020. We linked two primary datasets: i) register-based information from FOLK data (longitudinal data modules on personal data) on income, labor market outcomes, benefit

recipience, sociodemographic characteristics, and ii) linkages between family members provided by Statistics Finland. Because the data are routinely collected from nationwide administrative sources, the only sources of attrition are emigration and mortality. The data have been pseudonymized and analyzed using Statistics Finland's remote access system.

Outcomes — We use three proxies of socioeconomic disadvantage: Cumulative probabilities of not being in employment, education or training (NEET), receiving social assistance and receiving unemployment benefit. These proxies are measured annually for ages 18–29. NEET refers to a status where an individual is not registered as a student, is not employed, not in conscription and has earnings below the poverty line (annual income less than 60% of the annual median earnings). We further restrict the people in NEET status to not be parents of children below the age of one. Receiving social assistance refers to receiving any social assistance during a year and unemployment benefits receiving any unemployment benefits during a year.

Moderators — To study heterogeneity in the impacts of parental job loss, we use three potential moderators: the child's age at the time of parental displacement, the parent's socioeconomic status (education level and earnings group) and change in the local labor market, all of which are categorized on three levels. The child age at displacement is divided to pre-school ages (ages 0–6), primary school age (7–12) and pre-teens/teens (13–17). This division broadly aligns with the earlier literature showing that the timing of parental income affects for human capital accumulation differently across these age groups (Carneiro et al., 2021). The prior literature on the intergenerational impacts of parental unemployment also suggests age heterogeneity in the effects, and that teenage years are particularly vulnerable for education (Brand and Simon Thomas, 2014) and health outcomes (Martínez-Jiménez, 2023). Parental education is divided to primary, secondary and tertiary education levels similarly to Huttunen and Riukula (2024). To define local labor market situation, we use the approach by Knüpfer et al. (2017) and calculate the increase in unemployment rate in 12 Finnish regions and 71 occupation categories between the pre-depression years 1987–1990 and depression years 1991–93. The aim of this variable is to capture the heterogeneous change in local labor market caused by the Finnish Great Depression in each the region-occupation strata. For simplicity,

we divide the local labor market change into three equally sized groups: low change (unemployment rate changes -6.2 – 6.2 pp.), medium change (6.3 – 10.3 pp.) and large change (10.4 – 46.7 pp.) in the local unemployment rate.

Study population — Our study population consists of children whose parent had worked at least for one year in a private sector firm with 10–1000 workers in the years 1990–93. We consider these years as "base years". This period is particularly suitable for studying the impacts of job displacement because Finland was hit by an unusually severe economic depression (often referred to as the Finnish Great Depression), which was externally exacerbated by the collapse of the Soviet Union (Gorodnichenko et al., 2012). Consequently selection into plant closures in terms of worker characteristics is less concerning, e.g., relative to the Great Recession. Following the prior literature using a similar setting and research design (Huttunen and Kellokumpu, 2016; Huttunen and Riukula, 2024; Gathmann et al., 2025), we define our job loss variable as an indicator that gets value one if a person is displaced between b and $b+1$ in a base year b, and zero otherwise.

We draw the sample separately for each base year, separately for men (father) and women (mother), meaning a parent can be observed a maximum of three times in the control group but only once in the treatment group (if displaced multiple times, only the first base year is included). Each base-year sample is linked to children aged 0 to 17 at the base year using parent-child linkage files provided in the FOLK data. We then stack (or pool) these four base-year samples for sons and daughters. We focus on children who were aged 0–17 in the base year with a parent working aged up to 54 years and working in a private sector establishment with 10–1000 employees. To ensure that parents are attached to the labor market, we require each to have at least one year of tenure. Our final analysis samples consist of a total of 960,906 children for father's job displacement and 659,128 for mother's job displacement.

Descriptive analysis — Table 1 shows the means, standard deviations and p-values from a comparison of baseline characteristics between the displaced and the non-displaced groups (period b). Columns (1) – (3) report the descriptive statistics for the unweighted samples and columns (4) – (6) show the sample weighted with entropy balancing. Entropy balancing was conducted using the first moments in the binary indicators (including

Table 1: Descriptive Statistics

	Unweighted comparison					Entropy balance weighted comparison				
	Control group		Treatment group			Control group		Treatment group		
	Mean	SD	Mean	SD	P(dif)	Mean	SD	Mean	SD	P(dif)
Panel A. Father Displaced										
Child characteristics:										
Child age	8.35	5.16	8.23	5.16	<0.001	8.23	5.16	8.23	5.16	1
Parent characteristics:										
Father's age	38.52	6.50	38.18	6.54	<0.001	38.18	6.54	38.18	6.54	1
Education Level:										
Primary	0.27	0.44	0.28	0.45	<0.05	0.28	0.45	0.28	0.45	1
Secondary	0.40	0.49	0.41	0.49	<0.001	0.41	0.49	0.41	0.49	1
Tertiary	0.33	0.47	0.31	0.37	<0.001	0.31	0.46	0.31	0.46	1
Parent tenure	3.17	1.53	2.70	1.42	<0.001	2.70	1.43	2.70	1.42	1
Plant size	165.25	211.22	71.26	96.15	<0.001	71.28	96.19	71.26	96.15	0.95
Earnings	36,832.90	17,845.24	35,561.41	18,291.60	<0.001	35,561.51	18,291.65	35,561.41	18,291.60	1
Married	0.86	0.35	0.84	0.37	<0.001	0.84	0.37	0.84	0.37	1
Number of children	2.02	1.06	1.97	1.04	<0.001	1.97	1.06	1.97	1.04	1
Observations	932,594		28,312		960,906	932,594		28,312		960,906
Panel B. Mother Displaced										
Child characteristics:										
Child age	9.20	5.18	9.11	5.22	<0.05	9.11	5.22	9.11	5.22	1
Parent characteristics:										
Mother's age	37.33	6.34	36.80	6.19	<0.001	36.80	6.19	36.80	6.19	1
Education Level:										
Primary	0.31	0.46	0.34	0.47	<0.001	0.34	0.47	0.34	0.47	1
Secondary	0.39	0.49	0.40	0.49	<0.001	0.40	0.49	0.40	0.49	1
Tertiary	0.32	0.46	0.26	0.44	<0.001	0.26	0.44	0.26	0.44	1
Parent tenure	3.07	1.52	2.70	1.41	<0.001	2.70	1.42	2.70	1.41	1
Plant size	145.47	196.09	72.22	85.42	<0.001	72.23	85.44	72.22	85.42	0.97
Earnings	23,307.94	10,622.76	22,023.57	10,143.92	<0.001	22,023.63	10,143.95	22,023.57	10,143.92	1
Married	0.79	0.41	0.77	0.42	<0.001	0.77	0.42	0.77	0.42	1
Number of children	1.91	0.86	1.87	0.81	<0.001	1.87	0.84	1.87	0.81	1
Observations	644,926		14,202		659,128	644,926		14,202		659,128

Notes: The means and standard deviations of sample background characteristics in the unweighted samples and in samples weighted with entropy balancing for father's job displacement (Panel A) and mother's job displacement (Panel B). Entropy balancing was conducted using first moments in binary indicators (including province of residence and industry dummies not reported) and three moments in non-binary variables (parent income, plant size, parent tenure).

province of residence and industry dummies not reported) and three moments in non-binary variables (the child's age, parent's age income and plant size). We report the characteristics separately for father's (Panel A) and mother's (Panel B) job displacement for the pooled samples of sons and daughters.

In the unweighted sample (columns (1)–(3) in Table 1), both the fathers and the mothers in the treatment groups are slightly younger, less educated, have less tenure, work in smaller plants, have lower earnings, are less likely to be married and have fewer children relative to the control group. While the magnitudes of these differences are relatively small, they are all statistically significant (column (3)) in Table 1). As a result, in our preferred specification, each individual is given a weight that is constructed with the entropy balancing procedure in order to minimize the baseline differences between the treated and the controls (Källberg and Waernbaum, 2023). When we produce entropy balancing weights, and weight the control group according to these, the result is an almost perfect balance in covariates in means (columns (4)–(6) in Table 1).

5 Results

5.1 Children's Socioeconomic Disadvantage

We start by estimating the effects of parental job loss on the pooled samples of sons and daughters. Table 2 shows the effects of a father's (Panel A) and a mother's (Panel B) job loss on the cumulative probabilities of children being NEET, to receive social assistance or unemployment benefits in their youth and early adulthood (by the age of 29). We find that both a father's and a mother's job loss increases the risk of socioeconomic disadvantage of the children in their youth and early adulthood. Together, our results suggest that parental job loss leads to an increase of 8 to 15 additional disadvantaged children for every 1,000 displaced parents. In terms of percentage, these effects correspond to an increase of up to 4%. The magnitude of the effects of father's job loss ranges from 0.2 to 1.4 percentage points (p.p.) or up to 3.9% relative to baseline. Importantly, we find that the negative effects on the children appear to be similar in magnitude be it the father's or the mother's job loss, which has not been documented previously in the context of children's socioeconomic disadvantage. The point estimates are even slightly more pronounced in magnitude following the mother's job loss (0.8 – 1.5 p.p. or up to 3.8%) compared to a

father's job loss.

Table 2: Effects of Parental Job Loss for the Combined Samples of Sons and Daughters

	(1) NEET	(2) Social Assistance	(3) Unemployment Benefits
Panel A. Sons and Daughters			
Father Displaced	0.00230	0.0137***	0.00842***
	(0.00309)	(0.00329)	(0.00321)
Y Mean	0.322	0.354	0.634
N	960,906	960,906	960,906
Panel B. Sons and Daughters			
Mother Displaced	0.00885**	0.0145***	0.00777*
	(0.00432)	(0.00458)	(0.00443)
Y Mean	0.335	0.377	0.643
N	659,128	659,128	659,128

Notes: The table reports the effects on the cumulative probabilities of being NEET, receiving social assistance and receiving unemployment benefits after father's (panel A) and mother's (panel B) job loss by the age of 29 for the pooled samples of sons and daughters. Clustered robust standard errors in parentheses. Symbols *. ** and *** refer to statistical significance 10%, 5% and 1% of the point estimates relative to the control group.

Prior literature has documented meaningful asymmetries between genders in terms of parental job loss. To more closely examine the gender differences in the context of children's socioeconomic disadvantage, we split our sample into pairs of mother (father) – daughter and mother (father) – son. We show these results in Table 3. It appears, that in terms of the cumulative probabilities of being in NEET status, the pairwise-estimates reveal some possibly important asymmetries between genders. Looking at the estimates reported in Table 3, we find that both a father's (Panel A1) and a mother's (Panel B1) job loss has a precisely estimated negative effect on the cumulative probability of socioeconomic disadvantage for sons measured with all of our three proxies for socioeconomic disadvantage. The point estimates correspond to an increase of 10 – 17 additional disadvantaged sons for every 1,000 displaced parents. However, for daughters, the effects of parental job loss appear only in terms of an increased risk of receiving social assistance (Panels A2 and B2 of Table 3). In terms of magnitude, the effects for daughters are fairly similar compared to sons at 10 – 14 additional disadvantaged daughters per 1,000 displaced workers. In relative terms, we find that parental job loss increases the risk of socioeconomic disadvantage in youth and early adulthood for up to 4.5% for sons and up to 3.9% for daughters. Although similar in magnitude, we consider the evidence as stronger

for sons as we find that parental job loss increases socioeconomic disadvantage for sons across all three proxies. Together, our results suggest that the loss of a job, whether by the mother or father, increases the risk of children's socioeconomic disadvantage for both sons and daughters.

Table 3: Effects of a Father's or Mother's Job Loss on Sons and Daughters Separately

	(1) NEET	(2) Social Assistance	(3) Unemployment Benefits
Panel A1. Sons			
Father Displaced	0.0101**	0.0167***	0.0105**
	(0.00427)	(0.00466)	(0.00448)
Y Mean	0.304	0.372	0.634
N	491,640	491,640	491,640
Panel A2. Daughters			
Father Displaced	-0.00561	0.0106**	0.00648
	(0.00448)	(0.00463)	(0.00459)
Y Mean	0.340	0.334	0.634
N	469,266	469,266	469,266
Panel B1. Sons			
Mother Displaced	0.0100*	0.0141**	0.0119*
	(0.00594)	(0.00648)	(0.00617)
Y Mean	0.310	0.401	0.646
N	336,250	336,250	336,250
Panel B2. Daughters			
Mother Displaced	0.00847	0.0138**	0.00391
	(0.00627)	(0.00646)	(0.00634)
Y Mean	0.361	0.353	0.639
N	322,878	322,878	322,878

Notes: The table shows the effects on the cumulative probabilities of being NEET, receiving social assistance and receiving unemployment benefits after father's (panels A1 and A2) or mother's (panels B1 and B2) job loss by the age of 29 for sons and daughters separately. Clustered robust standard errors in parentheses. Symbols *. ** and *** refer to statistical significance 10%, 5% and 1% of the point estimates relative to the control group.

Our findings on the effects of a father's job loss on the receipt of social assistance and unemployment benefits are in line with the evidence on the Canadian context by Oreopoulos et al. (2008).[5] However, due to the considerably larger share of individuals on

[5] Oreopoulos et al. (2008) find that sons are 2 percentage points more likely to receive social assistance and 4 percentage points more likely to receive unemployment benefits at ages 25 to 33 following a father's

public support in Finland plausibly due to the more lenient Nordic welfare system, the effects are considerably smaller in the Finnish context in percentage terms (1 –4 % vs. 20 –30% found by Oreopoulos et al. (2008)). In the UK, Gregg et al. (2012) find that children of likely displaced [6] fathers spend 1.3–1.6% more time as NEET, which is larger compared to our estimated effect of a father's displacement for the pooled sample of sons and daughters (imprecisely estimated 0.2 p.p. or 0.7% reported in Table 2, Panel A). However, in comparison to the effects we find following a mother's job loss, and the effects on sons following a father's and mother's job loss separately on the cumulative probability of NEET, our estimates are somewhat larger in percentage terms compared to the UK context (around 3% for each point estimate of being NEET reported in Table 2 and Table 3).

Overall, the effects of parental job loss on children's socioeconomic disadvantage in the Finnish context appear to be relatively moderate in magnitude. However, in terms of economic meaningfulness of the effects, poor attachment to the labor market and society in youth may translate into considerable implications on wellbeing and equality over the life cycle if children are set on worse trajectories early on (See e.g. Heckman and Mosso (2014)), which may be particularly important in the context of disadvantaged youth (Heckman, 2006). Further, when considering the generalizability of the results to other institutional contexts, the evidence from a Nordic welfare state context is likely to represent a lower bound.

5.1.1 Robustness of the Main Results on Children's Socioeconomic Disadvantage

Validity. Using plant closures as the source of job loss may raise concerns regarding the generalizability of our results, as plant closures are a specific type of job loss. For example, job loss due to plant closure may have a relatively smaller component of social stigma because all the colleagues of the displaced also lose their job, and the independence of individual worker characteristics and displacement may be salient to the workers themselves. Further, using job loss due to plant closures during recessions as a proxy for job

job loss in Canada.

[6] Gregg et al. (2012)'s proxy of job loss differs somewhat of ours due to data limitations; the authors use survey data and a proxy of job loss defined as those working in industries hit in the 1980's recession and who had changed industry when observed 6 years after the recession.

loss may limit the generalizability of the results.[7] To address these concerns regarding the validity of our results, we estimate Equation (1) using an indicator for job loss that includes both job losses due to plant closure and due to mass layoff. We define a worker as displaced in a mass layoff if at least 30% of the workers in a given plant lose their job between b and $b+1$.[8]

We report our results on the combined indicator of plant closures and mass layoffs in Appendix Table 5. The results are very similar to the estimates in Table 2, which provides reassurance regarding the generalizability of our results. The point estimates for the mass layoff sample are even larger than when using only plant closures as the source of job loss reported in Table 2. However, since those losing their jobs in mass layoffs may be a more selected group, the higher estimates may in part reflect the worse baseline status of the displaced compared to the non-displaced. With potentially less social stigma and less selection, we consider estimates for the effects of parental job losses due to a plant closure as a lower bound compared to job losses that occur independently of plant closures.[9]

Sensitivity to model specification. We check whether our results are sensitive to the choice of specification in terms of weighting and inclusion of covariates. If we assume a job loss due to a plant closure to be independent of any individual worker characteristics, adding covariates should not change our results in any meaningful way. To check the sensitivity of our results for the model specification, we run three alternative specifications along with our preferred model with only weights obtained by entropy balance. In Appendix Table 6, we report the baseline effects with only the base year fixed effects (columns (1), (5) and (9)), the results with weighted observations (columns (2), (6) and (10)) and the results with only the full vector of covariates X_{ib} (columns (3), (7) and (11))

[7] Gathmann et al. (2025) find that in the Finnish context there appears to be a trade-off between internal and external validity when comparing plant closures that happened during the 1990's recession and outside of it. While not documenting any meaningful differences in the pretrends of earnings between the displaced and the non-displaced during the 90s recession, outside of this period the workers working in closing plants appear to be more selected .

[8] While considered to be a largely exogenous source of job loss, there is evidence that mass layoffs may include selection on worker characteristics (Böckerman et al., 2024), thus introducing concerns regarding the internal validity of using mass layoffs as the source of job loss. Inherently, while plant closures may perform better in terms of identifying a true causal relationship between parental job loss and children's outcomes compared to mass layoffs, using mass layoffs may extend the external validity of our results as they would resemble a more general type of job loss.

[9] A noted threat to this conclusion would be imposed by general equilibrium effects of job losses due to closures of plants that are large with respect to the (economic) area. To account for this, we restrict our sample to parents working in plants that have a max. of 1000 workers and control for area and industry.

on our three proxies for sosioeconomic disadvantage. Finally, in columns (4), (8) and (12), we report our results including both the weights and the vector of covariates. As discussed in Section 4 and Section 3.3, it appears that our samples are not completely in balance in terms of observables, leading us to prefer the specification including the weights obtained by entropy balance. Examining Appendix Table 6, it appears that if anything, the weighted results are more conservative compared to the specification using only the vector of covariates. The higher point estimates with only the full vector of covariates (columns (3), (7) and (11)) may reflect the slight selection visible in Section 4.

Alternative outcome measures. Longer periods as NEET have been found to be more strongly associated with adverse outcomes in other aspects of life (Bäckman and Nilsson, 2016; Jernström and Sirniö, 2023). It has been argued that, more than socioeconomic disadvantage, being one year as NEET can in some situations reflect the transition between education and labor market (Jernström and Sirniö, 2023). To take these concerns into consideration, we additionally estimate Equation (1) for stronger measures of socioeconomic disadvantage, namely, being at least two and being at least three years in NEET status, receiving social assistance or unemployment benefits. We report our results in Appendix Table 7. Comparing these results with the point estimates reported in Table 2, we confirm the results with our preferred proxies to be very similar to the results with the stronger proxies of socioeconomic disadvantage.

5.2 Potential Mechanisms and Heterogeneity

5.2.1 Impacts on Family's Economic Resources

Job loss has been found to induce considerable earnings losses. To understand why parental job loss increases the risk of socioeconomic disadvantage of the children, we analyze the potential role of the earnings channel in the context of children's socioeconomic disadvantage. In order to first understand the dynamic effects of parental job loss, we estimate Equation (2) and show the results in Figure 2. As reported previously for the Finnish context[10], we find that job displacement has a severe and long-lasting adverse effect on the family's economic resources.

As visible in Panels (a) and (b) of Figure 2, we find that job loss introduces considerable

[10]See e.g. Huttunen and Kellokumpu (2016); Huttunen et al. (2018); Huttunen and Riukula (2024) and Gathmann et al. (2025)

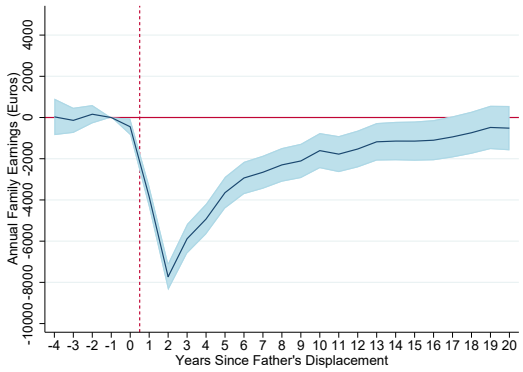
family earnings losses immediately after the displacement.[11] The effects are somewhat more pronounced for father's job loss (point estimate of -7,728 at $b + 2$) compared to mother's job loss (point estimate of -5,979 at $b + 2$). Contrasted to personal annual earnings losses (panels (c) and (d)) of Figure 2), we find suggestive indication of an added worker effect following mother's job loss. We likewise document considerable losses at the extensive margin. These results are shown in the panels (e) and (f)) of Figure 2 depicting the results from Equation (2) with the indicator for the displaced parent being employed as the outcome measure. We report the corresponding cumulative family and personal earnings losses following job loss in Table 4. Columns (1) to (3) include cumulative earnings losses by 2, 10 and 20 years after job loss, respectively. Panels A1 and A2 show the cumulative family earnings losses in the immediate ($b+2$), long ($b+10$) and very long run ($b+20$). As in the previous literature, we document considerable cumulative earnings losses both after fathers' and mothers' job loss in terms of both family and personal earnings.

As shown in Panel A1 and A2 of Table 4, we document that father's job loss reduces family's earnings by appr. 11k (or 9% reduction relative to baseline) immediately following job loss (column (1), Panel A1). These losses continue to grow over the follow-up period resulting in almost 45k losses (3% reduction relative to baseline) in the very long run (column (3), Panel A1). For mother's job loss, we find a similar reduction in family earnings in the immediate (point estimate of -7.5k corresponding to 5% reduction, column (1)) and long run (point estimate of -24k corresponding to 3% reduction, column (2)). Interestingly, as discussed above, the family earnings losses appear to be smoothed out over the very long run possibly due to a compensatory effect of spousal earnings.

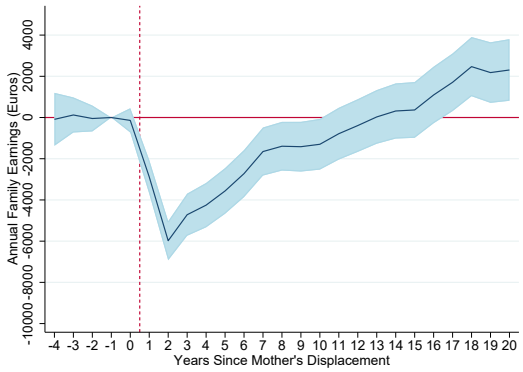
When looking at the cumulative losses in personal earnings following job loss, we likewise document sizable earnings losses for the displaced parents. For fathers, the estimated cumulative earnings losses are at approximately 13k (or 29%) reduction immediately after job loss resulting in appr. 67kk (or 11%) reduction twenty years after job loss (columns (1) - (3), Panel B1). The estimated cumulative earnings losses are slightly less for mothers at appr. 10k (or 26%) reduction in the immediate run and appr. 46k (or 10%) reduction in the very long run (columns (1) and (3), Panel B2). Overall, as depicted in each of the

[11] Our measure of family earnings includes the annual personal earnings from employment and entrepreneurial activities of the displaced and their current spouse.

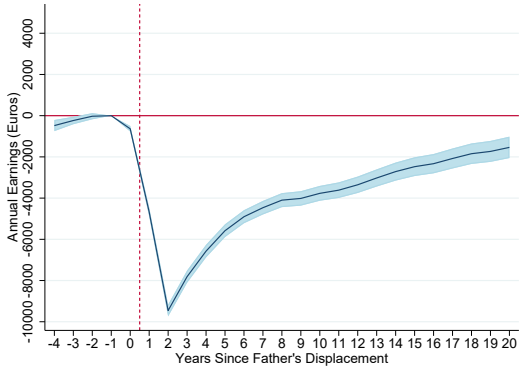
Panels of Figure 2 and in Table 4, the return of the family's economic resources to the baseline level appears to slow down after around a decade of displacement taking over twenty years to return to the pre-displacement level.



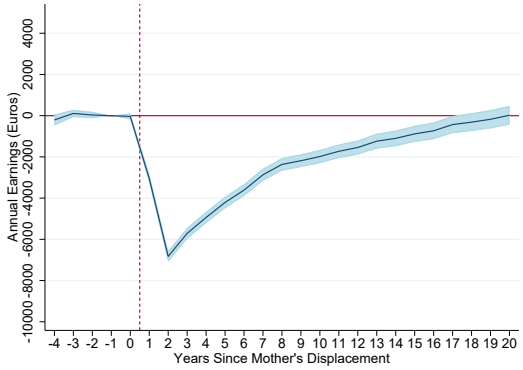
(a) Annual Family Earnings (Father's Job Loss)



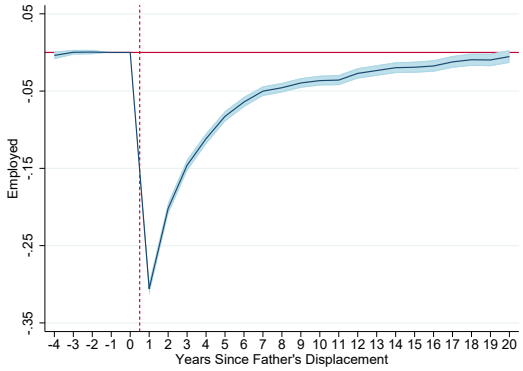
(b) Annual Family Earnings (Mother's Job Loss)



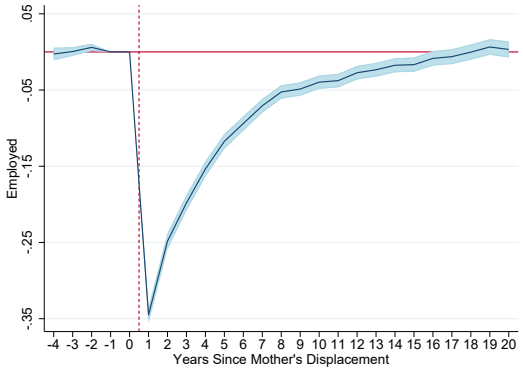
(c) Annual Personal Earnings (Father's Job Loss)



(d) Annual Personal Earnings (Mother's Job Loss)



(e) Annual Employment Share (Father's Job Loss)



(f) Annual Employment Share (Mother's Job Loss)

Figure 2: Dynamic Effects of Job Loss on Family's Economic Resources

Notes: The figure shows the dynamic effects of job loss from Equation (2) on the annual family earnings ((a) and (b)), personal annual earnings ((c) and (d)) and the probability of being employed ((e) and (f)) of the parent who is displaced in base year b. 95% confidence intervals.

Table 4: Effects of Job Loss on Family's Economic Resources

	(1)	(2)	(3)
	2 Yrs. After	10 Yrs. After	20 Yrs. After
Panel A1. Family Earnings			
Father Displaced	-10,732.9***	-34,194.9***	-44,874.8***
	(715.9)	(3,366.1)	(6,660.7)
Y Mean	119,831.1	681,679.6	1,439,539.9
N	535,363	535,363	535,363
Panel A2. Family Earnings			
Mother Displaced	-7,531.6***	-24,118.7***	-10,623.3
	(1,149.9)	(5,299.2)	(10,364.4)
Y Mean	138,537.1	770,806.3	1,630,341.2
N	405,294	405,294	405,294
Panel B1. Personal Earnings			
Father Displaced	-12,822.2***	-48,681.3***	-66,959.5***
	(307.8)	(1,640.8)	(3,478.4)
Y Mean	58,715.2	31,3574.5	631,703.9
N	535363	535363	535363
Panel B2. Personal Earnings			
Mother Displaced	-9,794.4***	-37,455.7***	-45,588.0***
	(265.8)	(1,404.1)	(3,007.9)
Y Mean	37,737.7	208,426.4	445,265.8
N	405,294	405,294	405,294

Notes: The table reports the cumulative family earnings losses and personal earnings losses following father's (Panels A1 and B1, respectively) and mother's (Panels A2 and B2, respectively) job loss by 2, 10 and 20 years after job loss. Clustered robust standard errors in parentheses. Symbols *. ** and *** refer to the statistical significance 10%, 5% and 1% of the point estimates relative to the control group.

5.2.2 Heterogeneity

In this section, we analyze the heterogeneity of the effects of parental job loss by the timing of parental job loss, the local labor market conditions, and the parent's socioeconomic status (education level at the time of job loss). Beyond understanding the channels of parental job loss on the children, we have two main goals: first, we aim to identify families and children that may require additional publicly provided support from the negative effects of parental job loss. Second, our findings may point future research toward investigating the protective effects of policies common to the groups for whom we do not see evidence of harmful effects of parental job loss. We begin by examining heterogeneity in the effects by the child's age at the time of parental job loss.

Child's Age at Parental Job Loss

To identify the age phase where children are the most affected by parental job loss, we estimate marginal effects of parental job loss for three age groups: early childhood (ages 0-6), primary school age (ages 7-12) and pre-teens/teens (13-17) at the time of parental job loss. Each of these age groups is associated with different likely usage of public services; in early childhood the children are likely to access services such as the Finnish child health clinic and kindergarten. Starting in the year that the child turns 7 years old, the majority of children go to publicly provided primary school, where they have access to a school nurse and universally provided health care services. In their pre-teens and teens, the majority of the children go to publicly provided secondary school, from where they continue to publicly provided upper secondary or to vocational school.[12] At this stage, adolescents also begin to move toward greater independence and may access a different set of services such as employer-provided health care services or student health care services.

In practice, we add an interaction term for the father's (mother's) displacement and child's base year age group in Equation (1). We report the marginal effects of parental job loss showing the differences in probabilities of each outcome of socioeconomic disadvantage by the age of 29 between each base age group.[13] We report the given marginal effects

[12] During our study period, compulsory education ended at the age of 16. Therefore, a small minority of children may have finished their formal education after secondary school.

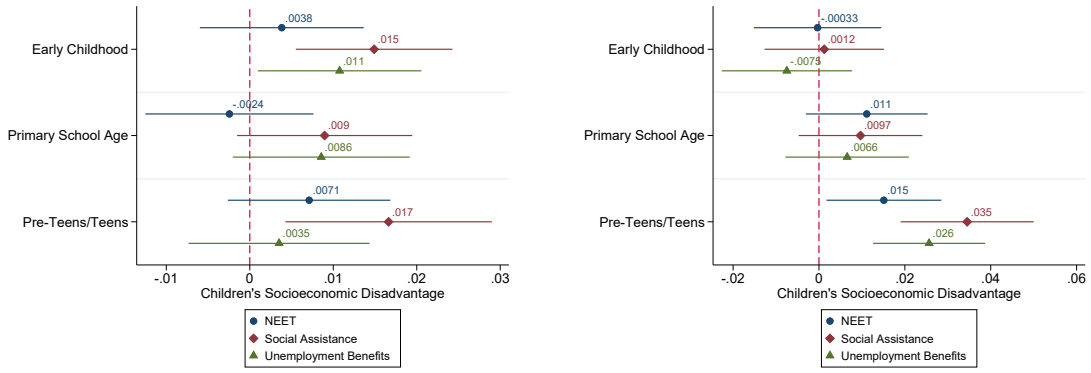
[13] The early childhood group is the reference group.

in Figure 3 for the pooled sample of sons and daughters. The identification strategy and the scope of this paper do not allow us to make causal statements on other factors besides parental job loss affecting the children's socioeconomic disadvantage. However, a notion that arises by looking at panel (b) of Figure 3 is that providing more support for children who are in their pre-teens or teenage years at the time of a mother's job loss might be especially beneficial for the well-being of the children. The estimated differences in probabilities between early childhood and pre-teen/teens groups range from 1.5 p.p. (p-value of 0.002) to 3.3 p.p. (p-value of 0.001).

These results imply that a mother's displacement may have disruptive effects on children who are at the age of transition to higher level education or the labor market. Further, the more severe effects of parental job loss for older children may reflect the difference in the outside option between older and younger displaced mothers; younger displaced mothers may choose to stay at home with children or even expand family. In contrast, older mothers may have completed their desired family size.[14] Older displaced mothers may also face more difficulties in re-employment at an older age compared to younger mothers. These effects may translate as job displacement to be of an less stressful event for younger mothers, which may explain less harmful effects of parental job loss in the early childhood period of the children. Future research is, however, needed to explain the channels behind the heterogeneous effects by age in the current context.

Our results are in line with the findings on the average measures of education and labor market outcomes from the Finnish and Norwegian context where it has been documented that parental job loss later in youth may hurt the education outcomes (Carneiro et al., 2022) and reduce earnings (Huttunen and Riukula, 2024) of the children. The evidence is however, somewhat mixed as Bingley et al. (2023) find that children exposed in infancy are harmed the most in terms of their schooling outcomes later in life in the Danish context. These results may reflect in part the different institutional settings and available public services in the countries. Further research is needed to determine whether public services provided in early childhood and primary school (e.g. school-based services) act as protective factors against the risk of socioeconomic disadvantage.

[14] Huttunen and Riukula (2024) find that job loss reduces fertility for women, an effect which is driven mainly by higher educated women. Their context differs from ours in that they focus also on individuals without prior children.



(a) Father's Job Loss

(b) Mother's Job Loss

Figure 3: Effects of Parental Job Loss on Children by Age of the Child at Job Loss

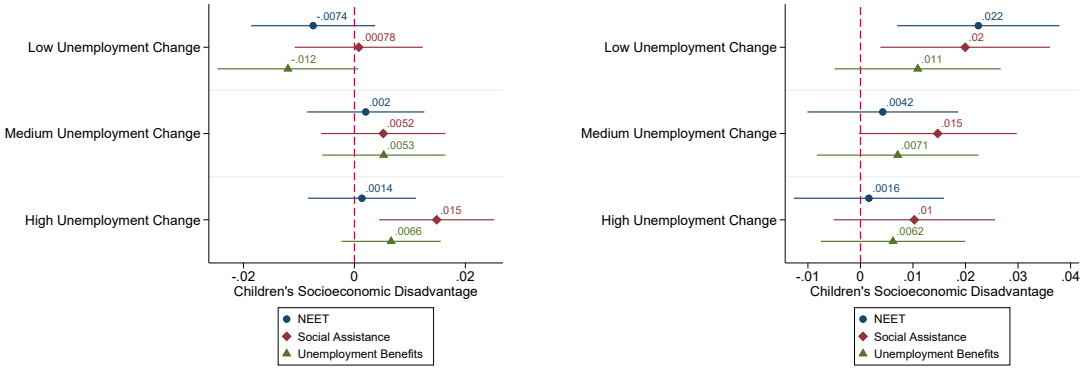
Notes: The figure shows the marginal effects of the job loss of a father (a) and a mother (b) on the cumulative probabilities of the children being NEET, receiving social assistance or receiving unemployment benefits by the age of 29 for three age groups: early childhood (ages 0-6), primary school age (7-12) and pre-teens/teens (13-17). Pooled sample of sons and daughters; 95% confidence intervals.

Local Labor Markets

A natural question from a policy perspective is whether the negative effects of parental job loss are driven, at least in part, by poor re-employment opportunities. Local labor market conditions are known to influence the earnings losses associated with job displacement (Athey et al., 2023). While our empirical strategy does not allow us to identify the causal effect of the duration of post-job loss unemployment, we investigate the heterogeneity of our effects by local labor market conditions. Specifically, we augment Equation (1) by including an interaction between the displacement indicator and a three-level measure capturing changes in the local unemployment rate.[15]

Figure 4 shows how the effects of parental job loss on children's risk of socioeconomic disadvantage vary by local labor market conditions. For a father's job loss, we find some indication that poor local labor market conditions may explain some of the adverse effects on the children. We document a statistically significant difference between the marginal effects between poor and good labor market conditions for two out of three of our proxies for socioeconomic disadvantage. We find a statistically significant difference in the marginal effect of receiving unemployment benefits of 1.9 p.p. between good and poor labor market conditions (p-value of 0.019); and a statistically significant difference

[15] We follow Knüpfer et al. (2017) in forming our measure of local labor market conditions.



(a) Father's Job Loss

(b) Mother's Job Loss

Figure 4: Effects of Parental Job Loss on Children by Local Labor Market Conditions

Notes: The figure shows the marginal effects of the job loss of a father (a) and a mother (b) on the cumulative probabilities of the children being NEET, receiving social assistance or receiving unemployment benefits by the age of 29 by earnings group. Local labor market conditions are divided in three parts as tertiles of base year earnings of the parent. Pooled sample of sons and daughters; 95% confidence intervals.

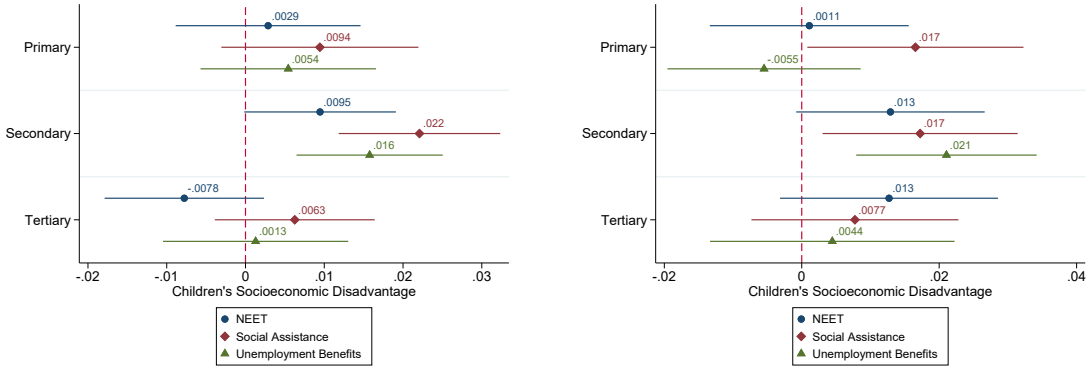
of 1.4 p.p. in the marginal effect of receiving social assistance (p-value of 0.076). However, the results point to a somewhat opposite conclusion for a mother's displacement (panel (b) of Figure 4), albeit none of the differences in marginal effects are significant for the results following mother's displacement.

Parent's Socioeconomic Status

Finally, we estimate whether the effects of parental job loss differ by the socioeconomic status (SES) of the parent in the base year. A higher SES of the parent may moderate the negative effects of parental job loss as higher stock of resources or better re-employment opportunities of the displaced parent may buffer the loss of economic resources. For example, Britto et al. (2022) document a strong gradient over parental pre-job loss income and the negative effects on children's schooling outcomes following parental job loss. Further, a higher SES may be associated with a broader skill set and higher resilience when encountering stressful events.

As above, we start by adding an interaction term of (3-level) parental educational attainment and displacement status into Equation (1).[16] We report the marginal effects of our

[16]The primary level education level is the reference group.



(a) Father's Job Loss

(b) Mother's Job Loss

Figure 5: Effects of Parental Job Loss on Children by the Parent's Education Level

Notes: The figure shows the marginal effects of the job loss of a father (a) and a mother (b) on the cumulative probabilities of the children being NEET, receiving social assistance or receiving unemployment benefits by the age of 29 for three groups by the displaced parent's education level; primary, secondary or tertiary level of education. Pooled sample of sons and daughters; 95% confidence intervals.

main outcomes of interest for the three groups of parental educational attainment at the time of job loss in Figure 5. We find no evidence that a higher level of parental education would moderate the effects of parental job loss. Instead, our results show some indication that the effect of parental job loss may be non-linear across parental education levels, such that the children of parents with secondary level education may encounter more negative effects (panel (b)) of Figure 5. These differences are not, however, precisely estimated.[17]

6 Conclusion

There is extensive evidence on the relationship between parental job loss and children's career and health outcomes, particularly regarding general trends such as education and employment. However, less is known about how changing family circumstances affect children's well-being at the extremes of the distribution such as falling outside of education and the labor market. In this paper, we provide novel evidence on how parental career shocks affect children's socioeconomic disadvantage in early adulthood. We exploit the Finnish Great Depression of the early 1990's as a research setting where there was a sudden and severe downturn, and where job displacement was relatively exogenous to worker characteristics. We use rich, nationwide Finnish administrative registers to study the

[17] When using earnings tertile as the proxy of the family's socioeconomic status, we find similar indication of non-linear effects of parental job loss.

implications of parental displacement for children's risk of socioeconomic disadvantage.

Overall, we conclude that a parental job loss appears to have a significant but relatively modest negative effect on children's socioeconomic disadvantage. Importantly, we document that not only a father's but also a mother's job displacement increases the risk of the socioeconomic disadvantage of the children. The magnitude of the effects are similar be it whether the mother or a father that loses their job and whether it is a son or a daughter. However, while we only find significant effects on the increase of the cumulative probability of receiving social assistance for daughters, for sons, the effects are visible in all of the used indicators of socioeconomic disadvantage, therefore indicating a possibly meaningful difference between the spillovers to sons and daughters. Our findings are in line with prior evidence from Great Britain (Gregg et al., 2012) and Canada (Oreopoulos et al., 2008). All though similar in magnitude in terms of percentage points changes, however, our estimates are much smaller compared to the Canadian context in relative terms. This finding may speak to the importance of the role of institutional context as moderating the effects of parental job loss.

In terms of the mechanisms, we confirm earlier evidence that earnings losses seem to play a role in mediating the effects of a job loss. In examining the heterogeneity in the effects of parental job loss, we find that children who are pre-teen/teenage years at the time of the (maternal) job loss, may represent an especially vulnerable group. These findings are in line with the evidence on educational outcomes from the Finnish (Huttunen and Riukula, 2024) Swedish (Mörk et al., 2020) and Norwegian (Carneiro et al., 2022) context, while contrast the findings from the Danish context (Bingley et al., 2023). Similarly, we find that local labor markets may play a role in mediating the negative effects of (paternal) job loss. These findings may help in identifying families and children who are in the most vulnerable positions in terms of shocks to family circumstances such as job loss. In conclusion, our findings highlight the long shadow cast by economic shocks on the next generation and underscore the role of family-level economic disruptions in shaping long-term inequalities. These results have implications for social and labor market policy, particularly in designing support mechanisms that buffer the intergenerational consequences of job displacement.

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A Online Appendix for the Manuscript 'Parental Job Loss and Children's Socioeconomic Disadvantage'

Table 5: Effects of Parental Job Loss due to Plant Closure or Mass Layoff on the Socioeconomic Disadvantage of the Children (Combined Sample)

	(1) NEET	(2) Social Assistance	(3) Unemployment Benefits
Panel A. Sons and Daughters			
Father Displaced	0.00635***	0.0229***	0.0168***
	(0.00284)	(0.00302)	(0.00295)
Y Mean	0.322	0.354	0.634
N	960906	960906	960906
Panel B. Sons and Daughters			
Mother Displaced	0.0116***	0.0173***	0.00989**
	(0.00406)	(0.00431)	(0.00417)
Y Mean	0.335	0.377	0.643
N	659128	659128	659128

Notes: The table reports the effects on the cumulative probabilities of being NEET, receiving social assistance and receiving unemployment benefits by the age of 29 after father's or mother's job loss due to plant closure or mass layoff. Combined samples of sons and daughters. Clustered robust standard errors in parentheses. Symbols *. ** and *** refer to statistical significance 10%, 5% and 1% of the point estimates relative to the control group.

Table 6: Sensitivity: Effects of Parental Job Loss on the Socioeconomic Disadvantage of the Children (Combined Sample)

	NEET				SA				UEB			
Panel A. Father's Displacement	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Father Displaced	0.00565*	0.00230	0.00312	0.00256	0.0218***	0.0137***	0.0145***	0.0140***	0.00810**	0.00842***	0.00955***	0.00858***
	(0.00305)	(0.00309)	(0.00295)	(0.00296)	(0.00323)	(0.00329)	(0.00305)	(0.00306)	(0.00810)	(0.00321)	(0.00292)	(0.00293)
Base year controls:												
EBW		✓		✓		✓		✓		✓		✓
Covariates			✓	✓			✓	✓			✓	✓
Base Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	960,906	960,906	960,906	960,906	960,906	960,906	960,906	960,906	960,906	960,906	960,906	960,906
Panel B. Mother's Displacement												
Mother Displaced	0.0138***	0.00885**	0.00742*	0.00813*	0.0249***	0.0145***	0.0119***	0.0135***	0.0106**	0.00777*	0.00681*	0.00727*
	(0.00427)	(0.00432)	(0.00419)	(0.00420)	(0.00450)	(0.00458)	(0.00417)	(0.00418)	(0.00435)	(0.00443)	(0.00400)	(0.00401)
Base year controls:												
EBW		✓		✓		✓		✓		✓		✓
Covariates			✓	✓			✓	✓			✓	✓
Base Year FE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
N	659,128	659,128	659,128	659,128	659,128	659,128	659,128	659,128	659,128	659,128	659,128	659,128

Notes: The table reports the effects on the cumulative probabilities of being NEET, receiving social assistance (SA) and receiving unemployment benefits (UEB) by the age of 29 after father's or mother's job loss. We report baseline results in columns (1), (5) and (9) with only base year fixed effects. Columns (2), (6) and (10) report results with only the entropy balancing weights (EBW) and base year FE. Columns (3), (7) and (11) report the results with only the full set of covariates and and base year FE. The results with both the full set of covariates and EBW along with base year FE are reported in columns (4), (8) and (12). Combined samples of sons and daughters. Clustered robust standard errors in parentheses. Symbols *. ** and *** refer to statistical significance 10%, 5% and 1% of the point estimates relative to the control group.

Table 7: More Severe Impacts of Parental Job Loss for Sons and Daughters

	At Least 2 years as...			At Least 3 years as...		
	(1)	(2)	(3)	(4)	(5)	(6)
	NEET	Social Assistance	Unemployment Benefits	NEET	Social Assistance	Unemployment Benefits
Panel A1. Sons and Daughters						
Father Displaced	-0.00053	0.00914***	0.0101***	-0.00199	0.00793***	0.00823**
	(0.00259)	(0.00914)	(0.00335)	(0.00222)	(0.00257)	(0.00321)
Y Mean	0.190	0.239	0.488	0.128	0.170	0.352
N	960,906	960,906	960,906	960,906	960,906	960,906
Panel B1. Sons and Daughters						
Mother Displaced	0.00583	0.0153***	0.0139***	0.00333	0.0153***	0.0177***
	(0.00367)	(0.00412)	(0.00465)	(0.00424)	(0.00523)	(0.00632)
Y Mean	0.199	0.259	0.504	0.126	0.196	0.383
N	659,128	659,128	659,128	659,128	659,128	659,128

Notes: The table reports the effects on the cumulative probabilities of being NEET, receiving social assistance and receiving unemployment benefits at least for two (columns (1)-(3)) and three (columns (4)-(6)) years after the father's (panels A1 and A2) and mother's (panels B1 and B2) job loss by the age of 29. Combined samples of sons and daughters. Clustered robust standard errors in parentheses. Symbols *. ** and *** refer to statistical significance 10%, 5% and 1% of the point estimates relative to the control group.