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Family matters: involuntary parental unemployment during childhood and subjective well-being later in life

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ABSTRACT

We are the first to examine how parental unemployment experienced during early-, mid- and late-childhood affects adult life satisfaction. Using German household panel data, we find that parental unemployment induced by plant closures and experienced during early (0-5 years) and late (11-15 years) childhood leads to lower life satisfaction at ages 18-31. Nevertheless, parental unemployment can also have a positive effect depending on the age and gender of the child. Our results are robust even after controlling for local unemployment, individual and family characteristics, parental job loss expectations, financial resources, and parents' working time when growing up. These findings imply that the adverse effects associated with parental unemployment experienced at a young age tend to last well into young adulthood and are more nuanced than previously thought.

Keywords: life satisfaction, parental unemployment, company closures, life-cycle analysis, German Socio-Economic Panel

JEL Codes: I31, J01, J65.

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1. Introduction

The negative effects of unemployment for those directly affected by it are well-documented. Unemployment is not only associated with worse labor market outcomes (e.g. Couch & Placzek, 2010; Davis & Wachter, 2011), but also with a decline in physical and mental health (e.g. Eliason & Storrie, 2009; Gerdtham & Johannesson, 2003; Paul & Moser, 2009), chronic stress (Baum et al., 1986), lower life satisfaction (see Winkelmann (2014) for a review), and can even lead to suicide (Avdic & Chevalier, 2016; Millner et al., 2014). These negative economic and psychological effects can persist even after unemployed people return to work (e.g. Clark et al., 2001; Couch & Placzek, 2010; Winkelmann, 2014).[1] Unemployment can also increase the likelihood of family dissolution (e.g., Charles & Stephens, 2004; Doiron & Mendolia, 2012) and may have negative well-being spillover effects to other family members such as co-habiting spouses and children (e.g. Nikolova & Ayhan, 2018; Powdthavee & Vernoit, 2013).

While a large literature in economics has explored the relationship between family characteristics in early childhood and adult outcomes such as academic achievement and earnings (e.g. Cunha & Heckman, 2008; Goodman et al., 2011; Hilger, 2016; Oreopoulos et al., 2008), there remains a dearth of studies about the effects of childhood circumstances on psychological well-being later in life (Powdthavee et al., 2017).[2] Thus, much less is known about

[1] Regional unemployment can also indirectly affect individual well-being, as even people who have jobs may worry about the possibility of becoming unemployed in the future, fear crime and social tension, or feel bad about the unfortunate fate of those around them (Di Tella et al., 2003; Frey & Stutzer, 2002).

[2] Notable exceptions include Layard et al. (2014), Frijters et al. (2014), and Clark and Lee (2017). First, using the British Cohort Study (1970), Layard et al. (2014) examine which childhood characteristics predict income, educational attainment, employment and partnership status, self-reported health, emotional health, and life satisfaction at the age of 34, with life satisfaction being the over-arching well-being measure that the authors consider. The paper finds that the child's emotional health and conduct are the most important predictors of adult life satisfaction. The paper also documents that income and education are among the least important determinants of life satisfaction at the age of 34. Second, mainly utilizing information from the 1958 National Child Development Survey, Frijters et al. (2014) further conclude that socio-economic status variables up to the age of 16 are poor predictors of adult life satisfaction (at the ages of 33, 42, 46, and 50). Child conduct and social problems predict some portion of adult life satisfaction. Finally, relying on the Wisconsin Longitudinal study Clark and Lee (2017) conclude that circumstances at age 18 are good predictors of well-being (happiness and eudaimonia) later in life,

how parental unemployment experienced as a child impacts one's life satisfaction over the life course.

In this paper, we offer two contributions to this line of research. The first one is substantive. Specifically, to our knowledge, we present the first evidence on the relationship between exogenous parental unemployment experienced during childhood and young Germans' life satisfaction later in life. Thus, we add to the emerging literature on the long-term effect of family circumstances during childhood on psychological well-being across the life course (Layard et al., 2014; Frijters et al., 2014). A distinctive feature of our research is that we consider the possibility that the psychological consequences of parental unemployment differ across the different stages of child development (Gauvain & Cole, 2004; Piaget, 1971; Vygotsky, 1978). Thus, we systematically examine the effect of parental unemployment at ages 0-5, 6-10, and 11-15, which allows us to study whether there is a long-term effect on children's psychological well-being depending on the timing of parental unemployment in childhood. We also empirically demonstrate that the relationship between parental unemployment and life satisfaction is heterogeneous and nuanced depending on the child's and parent's gender.

Our second contribution is methodological. We use rich longitudinal household-level information available in the German Socio-Economic Panel to identify the long-term consequences of parental joblessness using exogenous parental unemployment entry. Specifically, our identification strategy relies on company closures, which have been widely used in the literature to causally investigate various consequences of unemployment (e.g. Chadi & Hetschko, 2017; Kassenboemer & Haisken DeNew, 2009; Nikolova & Ayhan, 2018; Schmitz, 2011). Furthermore, by controlling for (lagged) parental job loss expectations and a rich set of

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even after controlling for contemporaneous covariates. All three studies show that childhood characteristics predict only a minor percent of the variation in life adult life satisfaction.

individual, parental, and family characteristics, we can test whether firm closures are unanticipated and address the limitation that only a self-selected sample of parents will remain in the firm until it closes. Ideally, we would like to have a large administrative dataset and information on mass layoffs, which can be viewed as a natural experiment and strengthen the causal interpretation of our findings (Todd and Wolpin, 2003). However, even if available, administrative data are unfeasible in our case as they do not contain information on psychological well-being. Instead, we rely on plant closings as a source of exogenous variation in parental joblessness. Thus, our findings can be interpreted as causal under the assumption that parental unemployment due to company closures is unrelated to family characteristics that we either do not control for or cannot measure. We test the robustness of our findings indirectly by using dismissals and volutnary parental unemployment and directy by controlling for the Big 5 personality traits of both parents and their children.

We further complement our empirical work by drawing on theories from economics and psychology that emphasize the critical role of childhood experiences for developmental outcomes over the life course (e.g. Becker & Tomes, 1986; Elder & Conger, 1995). We argue that theoretically the long-term consequences of parental unemployment can be both positive and negative. On the one hand, parental unemployment can not only significantly limit families' ability to invest in essential resources (e.g. high-quality education, healthcare, or housing) that can create safe and cognitively-enhancing learning environment (Kalil & Ziol-Guest, 2008; Couch & Placzek, 2010; Davis & Wachter, 2011), but also increase children's exposure to stress and affect social interactions within the family. In turn, a higher exposure to stress can impair children's cognitive and emotional development and cause enduring systematic inflammatory response, which can lead to negative developmental cascade throughout the life course, thus

increasing the risk of psychopathology in later life (Danese & Baldwin, 2017). At the same time, unemployed parents may increase the time spent in childcare, which can have positive consequences for the child's human capital development and well-being later in life. Parental unemployment can also make some children more resilient to adversity, which, in turn, can lead to greater success and thus higher psychological well-being in adulthood.

Our main finding is that young adults who experience parental unemployment in childhood are more likely to report lower levels of life satisfaction in adulthood (at ages 18-31) if parental unemployment occurred at ages 0-5 or 11-15. We explain this by suggesting that the psychological cost of parental unemployment may be higher for young children because negative experiences accumulate over the life course and stressful life events early in life have stronger effect on outcomes later in life (Arbeit, 2013; DiPrete & Eirich, 2006). Older children, on the other hand, may feel pressure to take more responsibility in the family (Arbeit, 2013) and start developing abstract thinking (ages 11-15), which can make them more aware of social stigma associated with parental unemployment or their disadvantaged socio-economic status (Gauvain & Cole, 2004; Piaget, 1971). At the same time, there is some heterogeneity according to the child's gender and whether the mother or the father became jobless. Boys, for example, tend to be more negatively affected by parental unemployment compared to girls, possibly because at younger ages girls show better emotional self-regulation (Matthews et al., 2009). Finally, we also find that parental joblessness can even have positive consequences for some young adults likely due to the parental investment and the quality of the time unemployment parents spend with their kids. These results are robust even after controlling for the average state unemployment rate and household income during childhood, suggesting that we are not picking up the consequences of

growing up in a recession or in poverty. Further robustness checks confirm the validity of our main findings.

Adopting a life course perspective of family unemployment allows us to demonstrate that the intergenerational psychological costs of unemployment are more nuanced than previously thought. Given that a life course perspective can show the point in time at which public policy interventions can be most effective (Layard et al., 2014, p.2), our findings suggest that programs targeting unemployed parents can also help to alleviate the persistent psychological burden on children. Finally, because subjective well-being is associated with positive outcomes in many life domains (De Neve et al., 2013), such childhood policy interventions can potentially provide life-long benefits.

2. Literature on the Well-being Consequences of Parental Unemployment

Several recent studies have documented the contemporaneous spillover effects of parental unemployment on the well-being of co-resident children. For example, using British panel data, Powdthavee and Vernoit (2013) show that parental joblessness is positive for children's happiness when the child is up to 11 years old but negative or insignificant for older co-resident children.[3] A similar study for Germany finds that the life satisfaction of male children aged 17-25 declines following their father's unemployment (Kind & Haisken-DeNew, 2012). Bubonya et al. (2017) also reveal that parental unemployment only worsens co-resident female children's mental health in Australia. While these studies examine the contemporaneous effect of parental unemployment, we still know very little about how parental unemployment in the past affects

[3] The authors also show that five consecutive years of paternal unemployment (from the age of 11 to 15) reduces girls' happiness with life by 1.4 points (on a 1-7 scale), while five consecutive years of maternal unemployment reduces boys' life satisfaction by 2.4 points (on a 1-7 scale). Furthermore, a working paper by Powdthavee and Vernoit (2012) looks at the happiness of children who are 11-15 years old resulting from three continuous years of parental unemployment. The authors find that the father's unemployment over the past three years reduces happiness with life by about 0.3 points on a scale of 1 to 7. Maternal unemployment has no such associated effects.

children's psychological well-being over the life course. We propose that parental unemployment experienced in childhood could impact adult life satisfaction through both positive and negative channels.

To our knowledge, no other paper investigates how exogenous parental unemployment during childhood affects the life satisfaction of young Germans later in life. Nevertheless, our study is most similar in its contribution to a study by Ermisch et al. (2004), who examine how parental joblessness during childhood affects a range of outcomes, including psychological distress (measured using the GHQ-12), educational attainment, inactivity, early childbearing, and smoking. Relying on sibling fixed-effects estimators and British Household Panel Study data, the authors find that parental unemployment during childhood increases the probability of experiencing psychological distress later in life, especially if it occurred during the ages of 11-15.[4] However, our study differs in important ways such as the identification method, relying on exogenous variation in parental unemployment, the choice of the outcome variable(s), the dataset, and the years of analysis. We also acknowledge that Pinger (2016) studies how parental unemployment at age 16 affects educational outcomes and demonstrates that parental unemployment is unassociated with the adult child's mental health (but has a small positive effect on physical health).

3. Mechanisms

[4] A related paper by Powdthavee (2014) exploits British panel data to examine how childhood characteristics mediate the relationship between unemployment and life satisfaction and mental health for adults aged between 16 and 29 years. He finds that while the coefficient estimate on own unemployment is negative and statistically significant in both the life satisfaction and mental health regressions, that on father's unemployment at ages 11 and 15 is positive and statistically significant for both life satisfaction and mental health, while maternal unemployment is negative but insignificant in both regression. Maternal unemployment has small and negative effects on the life satisfaction of men aged 16-29 but positive and significant effects on women aged 16-29. The paper by Powdthavee (2014) differs from our research in that it examines life satisfaction at much earlier ages (with most of the respondents being in their teens), does not rely on exogenous unemployment entry, and uses UK panel data.

Two theoretical perspectives elucidate the economic and psychological impact of early childhood experiences on development and well-being in later life. The first perspective—largely advanced by economists—is based on the "investment" model proposed by Becker and Tomes (1986). According this model, joblessness can diminish families' economic ability to invest in the necessary resources to promote children's achievement and well-being later in life (Brooks-Gunn & Duncan, 1997; Cunha et al., 2010; Duncan et al., 1998; Heckman & Carneiro, 2003).[5] More specifically, economic setbacks can significantly inhibit families' ability to afford high-quality education, proper healthcare, housing in safer neighborhoods, nutritious food, clothing, toys, games, or books (Yeung et al., 2002), which are critical for creating a safe and cognitively rich learning environment (Kalil & Ziol-Guest, 2008). Because brain development in early childhood requires psychosocial stimulation and energy (Aboud & Yousafzai, 2015), living in an economically-depressed environment—which often accompanies family unemployment—can significantly impair children's psychological development over the life course.[6] For instance, children who receive a generous amount of attention and verbal and cognitive stimulation by more sensitive and responsive caregivers tend to be more advanced in all realms of development (Lamb & Ahnert, 2007; Phillips & Lowenstein, 2011).

[5] Consistent with this economics perspective, a large body of literature shows that involuntary-displaced workers suffer substantial income loses that are persistent over the life course (Couch & Placzek, 2010; Davis & Wachter, 2011; Farber, 2005). Empirical estimates suggest an immediate 33 percent earning loss and a loss as high as 15 percent even six years after displacement, with a cumulative lifetime earning loss of roughly 20 percent (Brand, 2015; Couch & Placzek, 2010).

[6] Consistent with the investment perspective, an emerging body of literature in economics also shows that parental job loss affects children's long-term outcomes such as college attainment, earnings, and own unemployment (Hilger, 2016; Oreopoulos et al., 2008; Pan & Ost, 2014). For example, Pinger (2016) demonstrates that parental unemployment decreases German adolescents' probability of completing upper secondary education and that the majority of the effect is attributable to the decreased resources, cognitive performance, and academic confidence. Oreopolous et al. (2008) find that Canadian children of displaced fathers earn about 9 percent less compared to similar children whose fathers did not become displaced. Pan and Ost (2014) show that parental job loss between the ages of 15-17 reduces college enrollment by 10 percentage points. Studies emphasize the deleterious effects of the father's joblessness, while maternal unemployment is often found to be much less detrimental educational outcomes later in life (Rege et al., 2011; Stevens & Schaller, 2011). Note that Mäder et al. (2015) show that while there is a correlation between parental unemployment during childhood and the adult child's unemployment status, the relationship is not causal.

A lack of economic resources may also lead to feelings of envy, jealousy, or perceptions of unfairness as children engage in social comparisons with their more economically-fortunate peers (Clark & Oswald, 1996; Ferrer-i-Carbonell, 2005; Clark et al., 2008; de Botton, 2008). Such feelings of relative deprivation can arise because children feel that they lack resources and qualities that are deemed socially desirable (Easterlin, 1995; Festinger, 1954; Frank, 2005). For instance, previous studies document that children of displaced workers tend to report lower self-esteem, experience behavioral problems, and are more likely to drop out or be expelled from college (Johnson et al., 2012; Stevens & Schaller, 2011). Given that low socio-economic status correlates with poor physical health (see Matthews & Gallo, 2011), enduring systematic inflammatory response in early childhood can significantly increase the risk of psychopathology in later life, including symptoms of depression and psychosis (Danese & Baldwin, 2017; Khandaker et al., 2014).

Furthermore, social stigma associated with parental unemployment, low socio-economic status, or excessive reliance on public assistance can decrease social interactions with peers, teachers, or parents (Rubin et al., 2009; Schneider et al., 2000). In turn, more socially-withdrawn children are at greater risk of experiencing socio-emotional difficulties while growing up, including loneliness, anxiety, depression, low self-esteem, and self-blame (see Rubin et al., 2009). In addition to these internalizing problems, childhood withdrawal may also lead to peer difficulties including rejection, victimization, and poor friendship quality (Oh et al., 2008; Rubin et al., 2002; Rubin et al., 1990). These negative outcomes can have long-term consequences and persist into adolescence and adulthood (Asendorpf & Denissen, 2006; Rubin et al., 2009).

The second theoretical perspective is based on the view that “family stress” due to unemployment can spillover to children and significantly impair their psychological

development over the life course (e.g. Elder & Conger, 1995). A substantial body of literature in the social sciences supports this view by showing that involuntary unemployment is associated with a decline in physical and mental health (e.g. Eliason & Storrie, 2009; Gerdtham & Johannesson, 2003; Kuhn et al., 2009; Marcus, 2013; Sullivan & Von Wachter, 2007; Wanberg, 2012)[7], chronic stress (Baum et al., 1986), and lower levels of subjective well-being (Clark & Oswald, 1994; Gerlach & Stephan, 1996; Kassenboehmer & Haisken-DeNew, 2009; Winkelmann & Winkelmann, 1995; 1998). Empirical studies in economics even suggest that joblessness depresses mental health and lowers life satisfaction more than any other single factor at the individual level (Powdthavee & Vernoit, 2013, p.1).

Within this perspective, increased family stress due to joblessness can disrupt the structure of family relations and thus inhibit child development. Unemployment not only has spillover effects at the couple level (Nikolova & Ayhan, 2018), but it can also inhibit healthy family functioning and increase the likelihood of divorce (e.g. Charles & Stephens, 2004; Doiron & Mendolia, 2012; Hansen, 2005; Rege et al., 2007). In turn, marital conflict can negatively affect children's development and permanently scar them (e.g. Cummings & Davies, 2011; Gruber, 2004).

Finally, joblessness has been previously linked to an increased prevalence of risky behaviors such as smoking, heavy drinking, and the use of psycho-active drugs (see Henkel, 2011 for a review), which can also affect parenting. Psychological stress associated with unemployment can also inhibit the emotional warmth of parents and lead to more disengaged and punitive parenting practices (Kessler et al., 1989). In turn, ineffective parenting can lead to poor developmental outcomes and adjustment in children over the life course (Phillips & Lowenstein, 2011).

[7] Some studies find no causal effects of unemployment on physical health (Browning et al., 2006; Kuhn et al., 2009; Schmitz, 2011). However, Kuhn et al. (2009) find associated mental health effects.

We view these two perspectives as complementary rather than as mutually exclusive. Thus, parental job loss can affect children's future psychological well-being, partly through limiting access to essential resources (such as education and a safe and cognitively-enhancing environment) and partly by increasing childhood exposure to stress, which can be interdependent. In turn, higher exposure to stress in childhood can cause enduring systematic inflammatory response, which can then impair cognitive and emotional development of key behavioral domains (Danese & Baldwin, 2017). Consequently, these "hidden wounds" can lead to developmental cascades through childhood and adolescence and substantially increase the risk of psychopathology in later life.

Of course, children's experiences following parental unemployment are likely to be heterogeneous. Previous theoretical and empirical studies suggest that unemployment can also have a positive effect on children's psychological well-being (e.g., Vandell & Ramanan, 1992; Moore & Driscoll, 1997; Howard, Dryden, & Johnson, 1999; Powdthavee & Vernoit, 2013). Several mechanisms can explain this potential positive effect. First, parents face various constraints and trade-offs when maximizing their utility function. On the one hand, time spent working can increase family income which can positively affect parents' ability to invest in essential resources such as high-quality education, health, or housing that can create a safe and cognitively-rich learning environment (Kalil & Ziol-Guest, 2008; Couch & Placzek, 2010; Davis & Wachter, 2011). On the other hand, time spent earning an income means less time spent with children. Because childcare is often viewed as a major input in the production function of human capital development, especially at an early age (Becker & Tomes, 1986; Powdthavee & Vernoit, 2013; Ermisch & Francesconi, 2013), an insufficient parental time investment can have a negative effect on the children's cognitive and psychological development in later life. Thus, one

possible mechanism through which joblessness can positively influence children's psychological well-being could be that unemployed parents allocate more time to childcare. In support of this, Knabe et al. (2010) report that unemployed people in Germany spend almost twice as much time in childcare as their employed counterparts, which is also the only activity that the jobless enjoy more compared to employees. However, this positive effect can depend on the quality of care and the timing of unemployment, with young children likely benefiting more from parental unemployment compared to older children. Previous research, for instance, suggest that the positive (contemporaneous) effect of parental unemployment found at earlier ages is either null or negative for older kids (Powdthavee & Vernoit, 2013).

Second, studies on resilience suggest that children may develop coping strategies and support structures as a result of previous experience of adversity, which can allow them to minimize the negative effects of stressful events such as parental unemployment (Howard et al., 1999; Masten & Narayan, 2012). On the one hand, children of unemployed parents may become more motivated to stay in school longer and do well to avoid their parents' misfortune later in life. On the other hand, such children may develop pessimistic attitudes towards their own chances of success based on their parents' labor market experience, which can lower their motivation and lead to disengagement from school or work (Barling et al., 1998). This relationship, however, is more likely to manifest itself if parental unemployment occurs among older children when they develop independent and abstract thinking (Gauvain & Cole, 2004; Piaget, 1971; Vygotsky, 1978).

Finally, both of these mechanisms can depend on the unemployed parent's gender, whereby maternal unemployment may be positively associated with the adult child's life satisfaction, while paternal unemployment may have the opposite effect. According to the gender identity

hypothesis (Akerlof & Kranton, 2000), people derive "identity utility" from adhering to the social norms related to one's gender. For example, across cultures, men are typically viewed as more assertive and focused on material success (Hofstede, 2001). Forret et al. (2010) find that men with children are far more likely to perceive unemployment as a defeat due to societal expectations that they should be providing for their families. Women, on the other hand, tend to have identities as mothers and as wives. For example, women are more likely to accept lower paying jobs in order to achieve a better work-family balance (Valcour et al., 2007). Specifically, women with children may feel greater responsibility for the emotional well-being of their family (Greenhaus & Foley, 2007) and may prefer to work part-time (Booth and van Ours, 2008). Because majority of childcare responsibilities are carried by women regardless of labor force status (Hochschild & Machung, 2003), women may see unemployment as an opportunity to fulfill additional family-related duties and investing in their children's development. Thus, upon becoming unemployed, men – traditionally viewed as "breadwinners" – may avoid housework and spending time with the children, while unemployed women may substitute market work with household work (Grogan & Koka, 2013), including increasing parenting time, which may have long-term well-being benefits.[8] These effects may be further affected by the child's gender. Girls, for example, may be more effective in coping with adverse life situations in early life because they have higher levels of inhibitory control, emotional understanding, prosocial and internalizing behavior than boys (Matthews et al., 2009).

4. Empirical strategy

[8] Given these traditional social roles regarding child rearing and breadwinning, it is not surprising that some previous studies on the topic have focused primarily on estimating the effects of maternal unemployment on children's educational and cognitive outcomes (e.g., Bernal, 2008; Ermisch & Francesconi, 2013).

For each child *i* belonging to family *j*, the effect of parental unemployment on life satisfaction later in life *Y* can be modeled as (e.g., Francesconi et al., 2010; Lang & Zagorsky, 2001):

$$Y_{ij} = \beta U^{P}_{ij} + \lambda X_{ij} + \alpha_j + \varepsilon_{ij} \quad (1)$$

where $\boldsymbol{U^P}$ is a binary indicator for parental unemployment (at ages 0-5, 6-10, 11-15), which takes the value of 1 if at least one of the parents experienced parental unemployment due to firm closure and 0 if both the mother and father remain in the initial labor market state. In some specifications, we separately examine paternal and maternal joblessness due to company closings. $\boldsymbol{X}$ is a vector of the child's socio-demographic and household controls, including the father's and mother's characteristics, as explained below. The error term comprises both a family-specific part α_j and a random idiosyncratic part ε_{ij}.

Our empirical strategy relies on comparing children with fathers and mothers working as private employees (or non-working mothers), some of whom experience an exogenous unemployment shock during childhood (treatment group), while others remain in the initial labor market condition (comparison group). To make the treatment and comparison groups as similar as possible, we ensure that all parents initially have the same labor market status, we control for parental job loss expectations and a number of adult child-level, parent-level and family-level characteristics, which should further mitigate selection issues.

Given that parental unemployment occurred in childhood, while life satisfaction is measured in adulthood, reverse causality is not a concern. The main identification threat is that the effect of parental unemployment on life satisfaction later in life may be biased due to an unobservable or unmeasurable causal factor (i.e., the error term is correlated with parental unemployment). For example, parental mental illness or risky behaviors such as drug use during childhood may be

associated with parental employment status, the family environment, parental investments in the children, and children's later-in-life well-being outcomes. Conversely, parents who are likely to hold on to their jobs may also be more likely to take good care of their children (Ermisch et al., 2004). Furthermore, as discussed above, if unemployment is voluntary or expected, parents, and especially mothers, may view joblessness as an opportunity to increase their parental time investments.

We identify equation (1) using unemployment entry due to plant closings, which not only provides exogenous variation in unemployment that is uncorrelated with unobservable variables at the individual and family level, but is also a reasonable proxy for involuntary unemployment (Chadi, 2010). Thus, our main assumption is that company closures happen involuntarily and independent of family circumstances and household characteristics that simultaneously influence parental unemployment entry and the child's life satisfaction later in life.

Nevertheless, even if parents cannot influence company closures, they may expect them, and thus decide to stay or look for another job. Company closures rarely happen overnight and thus parents with specific characteristics might choose to stay until the firm goes out of business, rather than find new employment, likely because have had good reasons to do so (Kassenboemer & Haisken De-New, 2009). For example, women or workers with high tenure and high firm-specific knowledge may be less flexible in changing their jobs (Kassenboemer & Haisken De-New, 2009). In this case, any negative effects of parental unemployment on satisfaction later in life that we identify may be overestimated.

Similarly to Nikolova and Ayhan (2018) and Marcus (2013), we address this concern by controlling for the lagged expectations of both parents to lose their job in the next two years. We note that we rely on observational data, and thus we cannot eliminate all sources of endogeneity.

Yet, the combination of relying on plant closures and conditioning on the (lagged) job loss expectations, parental and family characteristics, should in principle allow us to recover the causal effect of parental unemployment on life satisfaction later in life under the assumption mentioned above. Thus, our estimates can be interpreted as the *local average treatment effect* (LATE).

Given that life satisfaction is an ordinal variable, we should technically estimate equation (1) using an ordinal logit or probit regression. Since ignoring the ordinality of the data holds little consequence for the end result (Ferrer-i-Carbonell & Frijters, 2004; Frijters & Beatton, 2012), we follow the common practice in the literature to estimate the subjective well-being regressions using pooled ordinary least squares (OLS) and Generalized Least Squares (GLS) random effects estimators.[9] Our preferred specifications are the models estimated using random effects, which net out the influence of unobservables that are uncorrelated with the explanatory variables. This decision is also supported by the Breusch-Pagan Lagrange multiplier test, which favors the use of a random effects estimator over OLS. Since our key independent variables – parental unemployment and most of our controls – such as gender, birth order, migration background, local unemployment conditions – are exogenous, this assumption may not be unreasonable. All specifications use robust standard errors, clustered at the level of the adult child. We also offer specifications which control for parental personality traits, which are described in Section 7.

5. Data, analysis sample, and variables

Cohort studies are arguably optimal to study life-cycle well-being as they provide long time spans, a large number of observations, and real-time measurement of key socio-demographic and family variables rather than retrospective accounts (Clark, 2014). Given a lack of German cohort

[9] Because we have multiple measurements of subjective well-being later in life (at ages 18-31), ideally, we would have liked to use fixed effects (within-child) estimators to net out time-invariant unobservables but cannot as most variables in our analyses are time-invariant.

data, we utilize information from the German SOEP (Version 32.1). Since 1984, the SOEP is a representative panel of all household members aged 17 and older (Wagner et al., 2007) and contains rich longitudinal information on well-being and labor market characteristics, income, household composition and finances, as well as personal biography. [10] Respondents are followed if they move to other households, which allows us to include in our analyses adult children who leave the parental home.

Several features make the SOEP a particularly opportune data source for our analytical purposes.[11] First, a key advantage is that since 1985, the SOEP has a question on the reasons for job termination and since 1991, the answers have included a category for "place of work closed," (Kassenboehmer & Haisken-DeNew, 2009), which allows us to create the exogenous unemployment entry treatment variable.[12] Second, because the panel has followed parents and their children for about quarter of a century, we can investigate the long-term well-being consequences of parental unemployment that happened over the entire childhood stage. The longitudinal information also lets us measure household variables such as household income over the entire childhood, which mitigates issues associated with transitory shocks and reporting or measurement error (Siedler, 2011). As in Sielder (2011), conditioning on household income allows us to better distinguish the long-term consequences of parental unemployment from any consequences of growing up in poverty. Finally, all information regarding the parents comes from their own contemporaneous responses rather than from the children retrospectively, which minimizes reporting errors (Siedler, 2011).

[10] We do not use the mother and child questionnaires in the SOEP as they were only introduced in 2003 and the oldest children are now only 14 years old, which does not allow us to adopt a life-cycle perspective.
[11] Ours is not the first study to utilize the SOEP when studying childhood circumstances and later-in-life outcomes. For example, Siedler (2011) uses the SOEP to investigate how parental unemployment during childhood affects young adults' right-wing attitudes. Moreover, Francesconi et al. (2010) explore the relationship between childhood family structure and educational outcomes later in life using the SOEP.
[12] The answer related to company closure was excluded from the SOEP questionnaires in 1999 and 2000.

To study how parental unemployment during childhood influences the life satisfaction of young adults, we first link mothers and fathers using the partner identifier in SOEP and then match children to both of their biological or adoptive parents using the mother and father identifier variables. Mothers and fathers can be co-habiting or formally married. At this step, we ensure that children and their parents in our analysis sample are all SOEP respondents. We also require that the young adults in our sample (i) are born in 1984 or later; (ii) have parental labor market information over the childhood periods (0-5, 6-10-11-15 years); (iii) and have lived with both of their adoptive or biological parents over their entire childhood (from 0 to 15 years).

The first two restrictions ensure that information on the parents (age, education, income, labor market status) and family circumstances can be observed over the entire childhood. All parental information comes from the mother and father themselves rather than from the children's reports. Since we are measuring a spillover effect, the third condition ensures that children and parents lived in the same household during childhood, so that a spillover can occur. Adapting definitions from Marcus (2013) and Nikolova and Ayhan (2018), our treatment group comprises children whose parents lose their jobs due to plant closures and are registered unemployed at the German Employment Office (*Arbeitsamt*). We define three separate treatment groups, namely children whose parents experienced plant closings when the children were (i) 0-5 years old; (ii) 6-10 years old and (iii) 11-15 years old. In all three cases, the comparison group comprises parents who remain continuously employed (or mothers continuously out of the workforce) over the respective childhood period (0-5, 6-10, 11-15 years). In all three cases, the treatment group comprises of parents who switch from the initial labor market state (fathers who initially work as private employees and mothers either work as private employees or are out of

the workforce) to being jobless due to plant closure.[13] Either parent can experience unemployment in the treatment group. Parents in the treatment group can in principle experience unemployment due to plant closures more than once, though this only happens in a handful of cases. In separate specifications, we also split the parental unemployment variable into paternal and maternal unemployment. Our choice for the children's ages during treatment follows the development psychology literature, according to which children's cognitive and emotional development occurs in stages (Gauvain & Cole, 2004; Piaget, 1971; Vygotsky, 1978). Because younger children can do very little for or by themselves, they rely exclusively on other people for social interaction (Gauvain & Cole, 2004). As they grow older, however, they become increasingly more independent and self-sufficient. For instance, according to Piaget (1971), children enter a *formal operational stage* when they become 11 years old, which is marked by the ability to think abstractly and manipulate ideas and hypothetical situations not yet experienced. These years in the child's life also tend to be much more impressionable in terms of psychological development and possibly have stronger well-being effects in later life.

Our main dependent variable is the grown-up child's life satisfaction, measured at ages 18-31 on a scale of 0 (completely dissatisfied) to 10 (completely satisfied). Since we restrict the sample to those born in 1984 or later, adult children's ages range from 18 to 31. We also include a battery of individual, paternal, and family-level conditioning variables, which are based on the control variables included in similar studies (e.g., Francesconi et al., 2010; Siedler, 2011). In all specifications, following Guiliano and Spillimbergo (2013), we control for the annual state unemployment rate faced as a child, averaged over the years 0-5, 6-10, and 11-15 respectively, to

[13] The treatment group does not change if we also allow fathers to be out of the workforce or working in the period before they experience unemployment. The "private employee" category excludes pensioners, civil servants, the self-employed and those in military/community service and education. To capture the working-age population, we restrict parental ages to range between 18 and 67. Unemployed persons due to all other reasons other than plant closings are excluded from the treatment group and also from the comparison group.

net out the long-term life satisfaction consequences of growing up in a recession.[14] We also control for year of birth dummies, which capture commonly-shared experiences such as economic shocks and technological progress, as well as cohort-specific unobservable characteristics (Guiliano & Spillimbergo, 2013).

We further include age dummies for the grown-up child, the adult child's educational attainment, whether the adult child still lives in the original household, gender, the child's migration background, state of birth, whether the child is born in East/West Germany, mother's and father's education, mother's and father's age at which the child was born, mother's and father's migration background, SOEP sample indicator,[15] survey year dummies, the size of the locality where the child grew up, state of residence, and location in East/West Germany. We also control for birth order since previous studies suggest that first-born children tend to have greater economic success than their siblings in later life (see Black, 2017 for a review of the evidence).

Additional controls include household income quintile at the respective ages during childhood (0-5, 6-10, 11-15),[16] average household size at the respective ages during childhood, the number of siblings averaged over the respective ages during childhood, the average size of the home during the respective ages during childhood, the cumulative unemployment experience of the mother and the father during the respective ages during childhood, and each parent's cumulative unemployment experience duration (in years and months) during the respective

[14] The historical state unemployment data are from the German Employment Agency, Bundesagentur für Arbeit, Arbeitslosigkeit im Zeitverlauf 2016. The data before 1991 are for West Germany only and respondents with missing state information are assigned the national average unemployment rate during their respective childhood ages (0-5, 6-10, and 11-12). Research shows that macroeconomic conditions experienced in childhood influence political values and trust later in life (Giuliano & Spilimbergo, 2013; Hörl et al., 2016). In addition, Bertoni (2015) demonstrates that having experienced hunger as a child affects adult life satisfaction.

[15] Since its inception in 1984, the SOEP has added several different samples, such as that of East Germany in 1990, a migrant sample, and several refreshments.

[16] Post-government household income is in 2011 real terms.

ages.[17] As in Siedler (2011), other than age, education, residence in the original household, and state, we do not control for any contemporaneous life satisfaction determinants for the grown-up child such as adult income, adult marital status, adult unemployment status and others as these variables are determined after the parental unemployment and as such are potential outcomes of the parental unemployment. These "bad controls" introduce selection bias and as such should be avoided as argued in Angrist and Pischke (2009), and also in Bertoni (2015) in the context of the life satisfaction literature.[18] Following Siedler (2011), we include the adult child's educational attainment in the main specifications, but nevertheless report results without this control in Table 2, Model (2). Furthermore, while childhood income and parental unemployment are likely highly correlated, as in Siedler (2011), we include this control because, from a policy perspective, it is important to distinguish the effects of parental joblessness from those of growing up in poverty.

Finally, to avoid bias from dropping observations due to missing data, for all variables included in the analyses, we create an additional missing data indicator. Continuous variables are thus split into dummy variables before the additional missing data indicator is created. This "no information" category has no interpretation but merely helps to preserve the number of observations. Summary statistics for the analysis samples are shown in Appendix Tables A1-A3.

6. Results

6.1. Main Results

Table 1 presents the results from our baseline specification. In separate models, we regress life satisfaction at ages 18-31 on parental unemployment due to plant closure during the ages of

[17] This latter variable is provided by the SOEP in the person-generated data files and it reflects the total length of unemployment based on unemployment experiences from the calendar dataset, which contains monthly information since the respondent entered the SOEP and biographical information from the biography questionnaires (SOEP Group, 2017). As such, this variable is subject to misreporting and recall bias (Akerlof & Yellen, 1985; Jürges, 2007) and likely under-reports unemployment. Nevertheless, we include it in the analysis as it captures the overall parental unemployment "climate" when the respondent was growing up.

[18] Results using these "bad" controls, which are not systematically different from our main estimates, are also available in Table A4 in the appendix.

0-5, 6-10, 11-15.[19] Each row in the table contains the results of a separate regression, depending on the timing of parental unemployment (at the child's ages 0-5, 6-10, 11-15). Our preferred specification is the one relying on the GLS random effects estimator (Models (3)-6)). For comparison purposes, we also show specifications using pooled OLS ((1)-(3)). For both estimators, we report the findings by subsequently adding controls, with models (3) and (6) being the most conservative as they contain (lagged) parental job loss expectations controls. All specifications control for confounders such as growing up in a recession, characteristics of the child, mother and father, and Models (3)-(4) and (5)-(6) are also independent of childhood income and living conditions.

Table 1 demonstrates that parental job loss during early childhood (0-5 ages) and early adolescence (11-15) negatively affects adult life satisfaction, but that during middle childhood (6-10) does not seem to matter. In column (6), our preferred specification, the coefficient estimates for parental joblessness at ages 0-5 and 11-15 remain negative and (marginally) statistically significant even if we control for household income quintile during childhood, the child's educational attainment, and a number of other household characteristics such as home size, household size, and the number of siblings and parental job loss expectations, Specifically, the parental joblessness experienced at ages 0-5 lowers young adults' life satisfaction by about 0.59 points on average, which is about 8 percent of the sample mean. Similarly, the long-term scarring effect of parental unemployment experienced at ages 11-15 is on average about 0.34 points (on a 0-10) scale, which represents about 5 percent of the sample mean. Indeed, these effects may appear small in magnitude but are economically meaningful, considering that they are a long-term effect, and in some cases, are felt several decades after the negative experience.

[19] The explained variation in our regressions is relatively low, in the range of a few percent, which is not uncommon in life-cycle subjective well-being regressions (Clark, 2014).

However, the difference in the estimates at ages 0-5 and 11-15 is not statistically significant (p-value =0.79).[20]

The negative consequences of parental unemployment for young children could be due to the long-term psychological trauma due to stressful experiences at an early age. Specifically, the theory of cumulative disadvantage suggests that if two children experience the same negative shock, the child that experiences it at a younger age will be relatively more impacted compared to the child experiencing it at an older age (Arbeit, 2013; DiPrete & Eirich, 2006). Because disadvantages over the life course accumulate over time, experiencing setbacks early in life strongly influences outcomes in later life (Arbeit, 2013). Even though the differences between the estimates at ages 0-5 and 11-15 is statistically insignificant, our results present suggestive evidence consistent with this perspective as the negative consequences of parental unemployment for life satisfaction later in life appear to be larger for those who were 0-5 than for those who were 11-15 when the unemployment episode occurred. They are also similar to the finding in Ermisch et al. (2004) who show that parental joblessness experienced at an earlier age (0-5 years) is more likely to lead lower educational attainment, higher chance of economic inactivity, greater distress, and smoking later in life, compared to children who experienced parental unemployment at later ages. Such early disruptions in a child's life likely lead to disruptions in the cognitive, social, and family environment. In addition, a further explanation for the negative consequences associated with experiencing parental job loss at ages 11-15 is that older children may feel more pressure to take responsibility in the home after their parents are no longer working (Arbeit, 2013).[21] Furthermore, at older ages children start developing abstract

[20] This result was obtained using a χ^2 test for the equality of coefficients after a seemingly unrelated regression using the OLS estimates.

[21] The result that parental unemployment at ages 11-15 is negatively associated with life satisfaction later in life is in line with findings in Ermisch et al. (2004).

thinking (i.e. reasoning in terms of hypothetical situations), which can make them more aware of social stigma associated with parental unemployment or their disadvantaged socio-economic status (Gauvain & Cole, 2004; Piaget, 1971).

6.2. Channels and Heterogeneity Analyses

In Section 3, we discuss a number of channels and mechanisms through which parental unemployment experienced at an early age can affect adult life satisfaction. In this section, we test empirically to what extent these channels account for our findings. The first sets of tests for our mechanisms are presented in Table 1, whereby in Models (2)-(3) and (5)-(6), respectively, we introduce additional control variables to the baseline specifications (1) and (4). We will focus the discussion on the random effects specifications in Models (3)-(6). Adding additional covariates in Model (5) – household income quintile when growing up, the adult child's educational attainment, and household characteristics – reduces the magnitudes of the coefficient estimates compared to those in Model (4). For example, the coefficient estimate on parental unemployment at ages 11-15 falls from -0.53 to -0.40 in Model (5). Therefore, household characteristics appear to be one possible channel through which unemployment reduces the adult child's life satisfaction. In addition, in Model (6), we also condition on each parent's job loss expectations, which should further mitigate unobserved heterogeneity issues and enhance the causal interpretation of our results. The coefficient estimates remain relatively stable in this specification, with the coefficient estimate on parental joblessness at ages 0-5 and 11-15 being marginally statistically significant.

Furthermore, in Table 2, Model (1), we build on specification (6) from Table 1 and remove the childhood income controls. The motivation behind this check is that controlling for childhood income as in Models (5) and (6) could be already reflecting the channel related to financial

resources and the ability to invest in the children described in Section 3. Thus, we would expect that removing the income control would increase the absolute value of the magnitude of the coefficient estimates. Nevertheless, the findings in Table 2, Model (1) remain very similar to those in Model (6) in Table 1. In addition, in Model (2) in Table 2, we also remove the adult educational attainment to explore whether this is the channel linking parental unemployment in childhood and adult life dissatisfaction. The intuition is that kids from homes where parents were unemployed may receive less education, which would lower their opportunities in life and thus lead to life dissatisfaction later in life. The results in Model (2) remain comparable to those in Model (1) and to the baseline specification presented in Model (6), Table 1. Finally, in Model (3) in Table 3, we *include* an additional control variable – the average number of working hours for each parent during the respective childhood ages. If the effect of parental unemployment is driven by changes in working time or time spent at home with the children, then we would expect that the results in Model (3) to decrease in absolute value or become insignificant.[22] What we find instead is that the results do not change. Of course, working hours is a crude proxy for the quality of the parenting time and future studies should further investigate this channel.

Finally, additional findings (available upon request) demonstrate that parental job loss during childhood is unassociated with the adult child's job loss insecurity, suggesting that the channel may indeed be the psychological trauma (*scarring* effect) rather than job insecurity (*scaring* effect). All in all, these checks imply that psychological burden of experiencing social stigma and taking responsibility at a young age appear to last well into young adulthood and are independent of childhood income, the parents' working hours when growing up, and the adult child's educational attainment. These conclusions corroborate the findings regarding the contemporaneous effects of parental unemployment on children's life satisfaction in the UK

[22] We are very grateful to one of the referees for pointing out this channel.

(Powdthavee & Vernoit, 2013) and suggest that the effects we document represent the long-term psychological costs of past parental unemployment.

In Table 3, we expand our baseline analyses to explore if the effects we report depend on whether the mother or the father became jobless and whether boys or girls are disproportionately affected by childhood adversity caused by unemployment. All specifications rely on random effects estimators with the most conservative list of covariates, including parental job loss expectations. These results should be interpreted as suggestive evidence as our already small treatment samples are further decreased by splitting them along parental and child gender.

First, in Columns (1)-(2), we find that while paternal and maternal unemployment at ages 6-10 are unassociated with life satisfaction later in life, maternal unemployment at ages 0-5 and paternal unemployment at ages 11-15 are particularly harmful to young adults' life satisfaction. Specifically, maternal unemployment at ages 0-5 lowers adult life satisfaction by about 1.4 points, which represents about 19 percent of the sample mean of 7.5. Paternal unemployment at ages 11-15 decreases adult life satisfaction by 0.6 points, on average about 8 percent of the sample mean. Thus, both the timing and which the parent becomes unemployed matter for life satisfaction of young adults.

Second, further splitting the results by gender (Models (3)-(4)) demonstrates that maternal unemployment at ages 0-5 is harmful to the life satisfaction of both adult men and women, but the effect is stronger among boys, with -2.7 points on a scale of 0-10, which is substantial. One possible explanation for this finding can be that girls generally show higher levels of inhibitory control, emotional understanding and expression, more prosocial and internalizing behavior and less externalizing behaviors than boys at an early age (Matthews et al., 2009; Chang et al., 2011). In turn, better emotional self-regulation enable girls to more effectively cope with adversity

associated with parental unemployment in early life. This is also supported by our finding that the psychological costs related to paternal unemployment at ages 11-15 are concentrated among boys, with the average effect being -1 points. One additional notable result that emerges from Table 3 is that parental unemployment could also have positive consequences for the life satisfaction of adult children. For example, maternal unemployment during the ages of 6-10 is positively associated with young women's life satisfaction, likely because of the positive impact of the additional parenting time that unemployed mothers invest in their female offspring. In addition, paternal joblessness at the ages of 0-5 is beneficial for the well-being of sons. This could be due to the systematic biases parents show when forced to choose between spending on sons and daughters, with mothers favoring daughters and fathers consistently favoring sons (Nikiforidis et al., 2017).

Next, we further examine at what point of the adult age distribution parental unemployment joblessness during childhood is most likely to manifest itself (Table 4). Because of the prolonged transition to adulthood, especially in the developed world, which scholars have started describing as a separate developmental stage (e.g., see Arnett, 2007), we focus on the effect of involuntary parental unemployment on both young adults (ages 18-20 and 21-23) and emerging adults (ages 24-31). In Panel A, we show the findings for the analysis sample overall whereby the sample composition is not the same throughout the specifications. The findings in Panel A suggest that parental unemployment hurts more when children grow older rather than when they are young adults. It appears that the results are mainly driven by young adults ages 24 to 31, and, to some extent, young adults ages 18 to 20. This may be because societal or own expectations for success may increase with age, which may awaken the memory about childhood experiences and increase the pressure to avoid another economic misfortune. In Panel B, we repeat the same

analysis but only for individuals who we observe at all three adult ages – 18-20, 21-23 and 24-31. These results are substantively similar to the findings presented in Panel B and show that the psychological costs of childhood parental unemployment are concentrated among grown up children at ages 24 to 31. The findings from both Panels A and B imply that parental unemployment experienced at ages 11-15 lowers the young adult's life satisfaction at ages 24-31 by about 0.73-0.77 points, which constitutes about 10 percent of the sample mean.

7. Robustness Checks and Limitations

We test the robustness of our results both directly and indirectly. First, our indirect checks include regressions using voluntary parental unemployment due to own resignation or a mutual agreement with the employer.[23] As expected, the regressions using voluntary parental unemployment are statistically insignificant throughout the specifications (Column (1) in Table 5). By contrast, those relying on another involuntary unemployment measure – dismissals – show the same pattern as the main results using plant closures (Column (2) in Table 5). The main difference between dismissals and plant closures is that the latter provide a more exogenous source of variation in parental unemployment. Parental unemployment due to dismissals at ages 11-15 is associated with a 0.33 decline in life satisfaction at ages 18-31, which is also about 5 percent of the sample mean. The findings in Table 5 highlight the importance of distinguishing between voluntary and involuntary parental unemployment and support our main finding that involuntary and unexpected unemployment at ages 11-15 results in long-term declines in life satisfaction for children who had to live through it.

Second, we directly test the sensitivity of our findings by controlling for the parents' Big 5 parental personality traits—openness, conscientiousness, extraversion, agreeableness, and

[23] The control group is defined in the same way as in the main analyses.

neuroticism. These personality traits are in a way acting as mother and father fixed-effects.[24] Thus, if our empirical strategy effectively deals with endogeneity issues, then the results with the Big 5 controls should not strongly differ from the main results in Table 1. Indeed, the estimates presented in Column (3) in Table 5 are very similar to those in Column (6) in Table 1, with the only difference being that parental unemployment ages 6-10 is now positively and marginally statistically associated with life satisfaction at ages 18-31.

As a final check, in Model (4) in Table (5), we also control for the child's own personality in addition to the personality of the mother and the father.[25] The results should be viewed with great caution as it is unclear whether the adult child's personality traits were themselves affected by parental unemployment. For example, Angelini et al. (2017) use the same German panel data to demonstrate that contemporaneous parental joblessness alters certain personality traits such as conscientiousness and neuroticism of young adults (aged 17-25). If this is the case, then the results we present may exacerbate selection bias. The sample sizes are different from those reported in the main specifications due to missing information for the personality traits of some parents and children. Nevertheless, the results in Model (4) suggest that controlling for these personality traits renders the coefficient estimates on parental unemployment at ages 0-5 and 11-15 statistically insignificant, and that on unemployment at ages 6-10 positive and significant. These results may suggest that personality traits, and specifically, the work orientations or young

[24] The Big 5 personality traits are based on 15 statements (3 per each item), measured in 2003, 2005 and 2009. We sum the original items for each concept and standardize the sums to have a mean of 0 and standard deviation of 1. For each parent and each personality trait, we compute an average based on all available responses thus implicitly assuming that personality traits do not change over the life course. Admittedly, the debate on whether personality traits are malleable or fixed is far from settled. Specifically for Germany, Specht et al. (2011) show that personality traits are associated with changes throughout the lifespan, while Boyce et al. (2015) reveal that they change due to unemployment. Using German panel data, moreover, Anger et al. (2017) find that job loss is causally linked to changes in openness but no other personality traits.

[25] We thank one of the anonymous referee for suggesting this check.

adults, may change as a result of parental unemployment and may be behind the negative findings we report. This result deserves further investigation in future work.

Like most other studies, ours also has a number of shortcomings. For example, although we rely on plant closings and control for a number of confounding factors including parental job loss expectations, as is always the case with observational data, some selection on unobservables may still be plaguing our results. The important question is the *nature* of the correlation between parental unemployment and unmeasured (or unmeasurable) household characteristic, which unfortunately, we cannot test directly. Nevertheless, as in Lang and Zagorsky (2001), we argue that we can provide indirect evidence by comparing the findings we get using parental unemployment due to plant closings (more exogenous) and dismissals (more endogenous). Given that the estimates are similar, any bias is likely to be small.

Furthermore, an important challenge with subjective well-being research in general, and this study in particular, is how to interpret the relative nature of subjective well-being responses (Bertoni, 2015; Deaton, 2008). Specifically, when people answer subjective well-being questions, they may benchmark their answers against past experiences. Simply put, if respondents whose parents experienced unemployment during their childhood know how bad life can be, their adult life satisfaction responses will be benchmarked against the severity of this negative economic shock. Individuals who have lived through adverse shocks may thus lower their expectations or aspirations and learn to be satisfied with what they consider possible (Sen, 1987, 2003).[26] However, if this is the case, our results should be biased downwards, suggesting that the intergenerational psychological costs of unemployment that we document may be even higher. Despite these limitations, our intention is to pave the way for future research on this topic

[26] Using anchoring vignettes, Bertoni (2015) finds that people who have experienced childhood starvation give higher ratings to the same latent subjective well-being level compared to those who experienced no starvation.

by providing some initial empirical evidence and considering different theoretical perspectives that link early childhood experiences to psychological outcomes later in life.

8. Conclusion

For many families, job loss can be an economic setback that can compromise children's future opportunities, educational attainment, and income. Moreover, as we show in this paper, parental unemployment during early and late childhood can also have long-term consequences for life satisfaction later in life. More specifically, we examine systematically whether young adults have different life satisfaction levels depending on whether they experienced exogenous parental unemployment when they were young. Using German panel data linking children with their parents, we find that parental unemployment experienced as a child is negatively correlated with adult life satisfaction, especially for those who lived through parental job loss in early childhood (0-5 years) and adolescence (11-15 years old).

Our results that both younger and older children are more adversely affected by parental unemployment are consistent with theories of cumulative disadvantage, suggesting that the same event may have different consequences for children's outcomes depending on the point in the child's life at which the event happened. In this respect, our findings are in line with other studies looking at parental unemployment and psychological well-being outcomes in other countries (Ermisch et al., 2004) and findings that adverse life events in early childhood tend to have more pronounced effects compared to those happening in adolescence (Arbeit, 2013). In part, this could be because unemployment changes the cognitive and socio-economic environment, which is relatively more important for the development of younger children. In addition, the effect on older children may be explained by the fact that they may feel pressured to

take more responsibility in the family (Arbeit, 2013) or because they are able to more fully comprehend the social stigma associated with having unemployed parents.

We also show novel findings demonstrating that under some circumstances, parental unemployment during childhood can be positive for young adults' life satisfaction, depending on the age at which occurred and the child's gender. As we argue in the paper, parental unemployment may result in an investment of parenting time, which may improve children's outcomes later in life. Children who experience parental joblessness may also become resilient and thus well-equipped to succeed later in life. Our results are independent of circumstances when growing up such as the local unemployment conditions, individual, parental, and household characteristics, and financial resources. They also do not seem to be driven by changes in parenting time and the education that the grown-up child ends up acquiring. Even though the main effects we estimate are small in magnitude, they are economically meaningful as they persist even after a decade the unemployment episode has occurred. Our findings highlight that upward intergenerational (well-being) mobility can be highly dependent on the avoidance of or mitigating the consequences of negative economic shocks such as parental unemployment. In this respect, unemployment relief policies should seek to alleviate the psychological burden of children, and especially for adolescents, whose parents become jobless.

References

Aboud, F. E., & Yousafzai, A. K. (2015). Global health and fevelopment in early childhood. *Annual Review of Psychology, 66*(1), 433-457.

Akerlof, G. A., & Kranton, R. E. (2000). Economics and identity. *The Quarterly Journal of Economics, 115*(3), 715-753.

Akerlof, G. A., & Yellen, J. L. (1985). Unemployment through the filter of memory. *The Quarterly Journal of Economics, 100*(3), 747-773.

Angelini, V., Bertoni, M., & Corazzini, L. (2017). Does paternal unemployment affect young adult offspring's personality? *Working Paper*

Anger, S., Camehl, G., & Peter, F. (2017). Involuntary job loss and changes in personality traits. *Journal of Economic Psychology, 60*, 71-91.

Angrist, J. D., & Pischke, J.-S. (2009). *Mostly harmless econometrics: An empiricist's companion*. Princeton, NJ: Princeton University Press.

Arbeit, C. A. (2013). Is timing everything? Parental unemployment and children's educational attainment. *MInnesota Population Center Working Paper No. 2013-12*.

Arnett, J. J. (2007). Emerging adulthood: What is it, and what is it good for?. *Child Development Perspectives, 1*(2), 68-73.

Asendorpf, J., & Denissen, J. J. A. (2006). Predictive validity of personality types versus personality dimensions from early childhood to adulthood: Implications for the distinction between core and surface traits. *Merrill-Palmer Quarterly, 52*(3), 486-513.

Avdic, D., & Chevalier, A. (2016). Own Unemployment, Local Unemployment and Suicide. *Working Paper*.

Barling, J., Dupre, K. E., & Gail, C. (1998). Effects of parents' job insecurity on children's work beliefs and attitudes. *Journal of Applied Psychology, 83*(1), 112-118.

Baum, A., Fleming, R., & Reddy, D. M. (1986). Unemployment stress: Loss of control, reactance and learned helplessness. *Social Science & Medicine, 22*(5), 509-516.

Becker, G. S., & Tomes, N. (1986). Human capital and the rise and fall of families. *Journal of Labor Economics, 4*(3, Part 2), S1-S39.

Bernal, R. (2008). The effect of maternal employment and child care on children's cognitive development. *International Economic Review, 49*(4), 1173-1209.

Bertoni, M. (2015). Hungry today, unhappy tomorrow? Childhood hunger and subjective wellbeing later in life. *Journal of Health Economics, 40*, 40-53.

Black, Sandra. (2017). New Evidence on Impacts of Birth Order. *NBER Reporter*(4), 15-18.

Boyce, C. J., Wood, A. M., Daly, M., & Sedikides, C. (2015). Personality change following unemployment. *Journal of Applied Psychology, 100*(4), 991.

Booth, A. L., & Van Ours, J. C. (2008). Job satisfaction and family happiness: The part-time work puzzle. *The Economic Journal, 118*(526), F77-F99.

Brand, J. E. (2015). The far-reaching impact of job loss and unemployment. *Annual Review of Sociology, 41*, 359-375.

Brooks-Gunn, J., & Duncan, G. J. (1997). The effects of poverty on children. *The Future of Children, 7*(2), 55-71.

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

Bubonya, M., Cobb-Clark, D. A., & Wooden, M. (2017). Job loss and the mental health of spouses and adolescent children. *IZA Journal of Labor Economics, 6*(1), 6. doi:10.1186/s40172-017-0056-1

Chadi, A. (2010). How to distinguish voluntary from involuntary unemployment: On the relationship between the willingness to work and unemployment-induced unhappiness. *Kyklos, 63*(3), 317-329.

Chadi, A., & Hetschko, C. (2017). The magic of the new: How job changes affect job satisfaction. *Journal of Economics & Management Strategy*(00), 1-17. doi:10.1111/jems.12217

Chang, H., Olson, S. L., Sameroff, A. J., & Sexton, H. R. (2011). Child effortful control as a mediator of parenting practices on externalizing behavior: Evidence for a sex-differentiated pathway across the transition from preschool to school. *Journal of Abnormal Child Psychology, 39*(1), 71-81.

Charles, K. K., & Stephens, J. M. (2004). Job displacement, disability, and divorce. *Journal of Labor Economics, 22*(2), 489-522.

Couch, K. A., & Placzek, D. W. (2010). Earnings losses of displaced workers revisited. *The American Economic Review, 100*(1), 572-589.

Clark, A. E., & Lee, T. (2017). Early-life correlates of later-life well-being: Evidence from the Wisconsin Longitudinal Study. *Journal of Economic Behavior & Organization*. doi:https://doi.org/10.1016/j.jebo.2017.11.013

Clark, A. E. (2014). Son of my father? The life-cycle analysis of well-being: introduction. *The Economic Journal,* 124(580), F684-F687.

Clark, A. E., & Oswald, A. J. (1994). Unhappiness and unemployment. *The Economic Journal*, 104(424), 648-659.

Clark, A. E., & Oswald, A. J. (1996). Satisfaction and comparison income. *Journal of Public Economics*, 61(3), 359–381.

Clark, A. E., Frijters, P., & Shields, M. A. (2008). Relative income, happiness, and utility: An explanation for the Easterlin paradox and other puzzles. *Journal of Economic Literature*, 46(1), 95–144.

Clark, A. E., Georgellis, Y., & Sanfey, P. (2001). Scarring: The psychological impact of past unemployment. *Economica*, 68(270), 221-241.

Cummings, E. M., & Davies, P. T. (2011). *Marital conflict and children: An emotional security perspective*: Guilford Press.

Cunha, F., & Heckman, J. J. (2008). Formulating, identifying and estimating the technology of cognitive and noncognitive skill formation. *Journal of Human Resources, 43*(4), 738-782.

Cunha, F., Heckman, J. J., & Schennach, S. M. (2010). Estimating the technology of cognitive and noncognitive skill formation. *Econometrica, 78*(3), 883-931.

Danese, A., & Baldwin, J. R. (2017). Hidden wounds? Inflammatory links between childhood trauma and psychopathology. *Annual review of psychology, 68*(1), 517-544.

Davis, S. J., & Wachter, T. M. v. (2011). Recessions and the cost of job loss. *Brookings Papers on Economic Activity, 2*, 1-72.

de Botton, A. (2008). *Status anxiety*. Knopf Doubleday Publishing Group.

De Neve, J.-E., Diener, E., Tay, L., & Xuereb, C. (2013). The objective benefits of subjective well-being. In J. F. Helliwell, R. Layard, & J. Sachs (Eds.), *World Happiness Report* (pp. 54-79).

Deaton, A. (2008). Income, health, and well-being around the world: Evidence from the Gallup World Poll. *The Journal of Economic Perspectives, 22*(2), 53-72.

Di Tella, R., MacCulloch, R. J., & Oswald, A. J. (2003). The macroeconomics of happiness. *Review of Economics*, 809–825.

Doiron, D., & Mendolia, S. (2012). The impact of job loss on family dissolution. *Journal of Population Economics, 25*(1), 367-398.

Duncan, G. J., Yeung, W. J., Brooks-Gunn, J., & Smith, J. R. (1998). How much does childhood poverty affect the life chances of children? *American Sociological Review, 63*(3), 406-423.

Easterlin, R. A. (1995). Will raising the incomes of all increase the happiness of all*? Journal of Economic Behavior & Organization*, 27(1), 35–47.

Elder, G. H., & Conger, R. D. (1995). *Families in troubled times: Adapting to change in rural America* (1 edition ed.). New York: Routledge.

Eliason, M., & Storrie, D. (2009). Does job loss shorten life? *The Journal of Human Resources, 44*(2), 277-302.

Ermisch, J., & Francesconi, M. (2013). The effect of parental employment on child schooling. *Journal of Applied Econometrics, 28*(5), 796-822.

Ermisch, J., Francesconi, M., & Pevalin, D. J. (2004). Parental partnership and joblessness in childhood and their influence on young people's outcomes. *Journal of the Royal Statistical Society: Series A (Statistics in Society), 167*(1), 69-101.

Farber, H. S. (2005). What do we know about job loss in the United States? evidence from the displaced workers survey, 1984-2004. *Economic Perspectives*(Q II), 13-28.

Ferrer-i-Carbonell, A. (2005). Income and well-being: an empirical analysis of the comparison income effect. *Journal of Public Economics*, 89(5), 997–1019.

Ferrer-i-Carbonell, A., & Frijters, P. (2004). How Important is Methodology for the estimates of the determinants of Happiness? *The Economic Journal, 114*(497), 641-659.

Francesconi, M., Jenkins, S. P., & Siedler, T. (2010). Childhood family structure and schooling outcomes: evidence for Germany. *Journal of Population Economics, 23*(3), 1073-1103.

Frank, R. H. (2005). Positional externalities cause large and preventable welfare losses. *The American Economic Review, 95*(2), 137-141.

Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*(2), 117–140.

Frey, B. S., & Stutzer, A. (2002). What can economists learn from happiness research? *Journal of Economic Literature, 40*(2), 402-435.

Frijters, P., & Beatton, T. (2012). The mystery of the U-shaped relationship between happiness and age. *Journal of Economic Behavior & Organization, 82*(2), 525-542.

Frijters, P., Johnston, D. W., & Shields, M. A. (2014). Does childhood predict adult life satisfaction? Evidence from British cohort surveys. *The Economic Journal, 124*(580) F688-F719

Forret, M. L., Sullivan, S. E., & Mainiero, L. A. (2010). Gender role differences in reactions to unemployment: Exploring psychological mobility and boundaryless careers. *Journal of Organizational Behavior, 31*(5), 647-666.

Gauvain, M., & Cole, M. (2004). *Readings on the development of dhildren*: Macmillan.

Gerdtham, U.-G., & Johannesson, M. (2003). A note on the effect of unemployment on mortality. *Journal of Health Economics, 22*(3), 505-518.

Gerlach, K., & Stephan, G. (1996). A paper on unhappiness and unemployment in Germany. *Economics Letters, 52*(3), 325-330.

Giuliano, P., & Spilimbergo, A. (2013). Growing up in a recession. *Review of Economic Studies, 81*(2), 787-817.

Goodman, A., Joyce, R., & Smith, J. P. (2011). The long shadow cast by childhood physical and mental problems on adult life. *Proceedings of the National Academy of Sciences, 108*(15), 6032-6037.

Greenhaus, J. H., & Foley, S. (2007). The intersection of work and family lives. *Handbook of Career Studies*, 131-152.

Grogan, L., & Koka, K. (2013). Economic crises and wellbeing: Social norms and home production. *Journal of Economic Behavior & Organization, 92*(0), 241-258.

Gruber, J. (2004). Is making divorce easier bad for children? The long-run implications of unilateral divorce. *Journal of Labor Economics, 22*(4), 799-833.

Hansen, H.-T. (2005). Unemployment and marital dissolution a panel data study of norway. *European Sociological Review, 21*(2), 135-148.

Heckman, J., & Carneiro, P. (2003). Human capital policy. *NBER Working Paper No. 9495*.

Henkel, D. (2011). Unemployment and substance use: a review of the literature (1990-2010). *Current Drug Abuse Reviews, 4*(1), 4-27.

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), 247-283.

Hofstede, G. (2001). Culture's consequences: Comparing values, behaviors, institutions, and organizations across cultures. Thousand Oaks, CA: Sage

Hochschild, A., & Machung, A. (2003). *The Second Shift*: Penguin Books.

Hörl, M., Kesternich, I., Smith, J. P., & Winter, J. K. (2016). Early-life circumstances predict measures of trust among adults: Evidence from hunger episodes in post-war Germany. *CESifo Working Paper No. 6093*.

Howard, S., Dryden, J., & Johnson, B. (1999). Childhood resilience: Review and critique of literature. *Oxford Review of Education, 25*(3), 307-323.

Johnson, R. C., Kalil, A., & Dunifon, R. E. (2012). employment patterns of less-skilled workers: links to children's behavior and academic progress. *Demography, 49*(2), 747–772.

Jürges, H. (2007). Unemployment, life satisfaction and retrospective error. *Journal of the Royal Statistical Society. Series A (Statistics in Society), 170*(1), 43-61.

Kalil, A., & Ziol-Guest, K. M. (2008). Parental employment circumstances and children's academic progress. *Social Science Research, 37*(2), 500-515.

Kassenboehmer, S. C., & Haisken-DeNew, J. P. (2009). You're fired! The causal negative effect of entry unemployment on life satisfaction. *The Economic Journal, 119*(536), 448-462.

Kessler, R. C., Turner, J. B., & House, J. S. (1989). Unemployment, reemployment, and emotional Functioning in a community sample. *American Sociological Review, 54*(4), 648-657.

Khandaker, G. M., Pearson, R. M., Zammit, S., Lewis, G., & Jones, P. B. (2014). Association of serum interleukin 6 and c-reactive protein in childhood with depression and psychosis in young adult life: A population-based longitudinal study. *JAMA Psychiatry, 71*(10), 1121–1128.

Kind, Michael, & Haisken-DeNew, John P. (2012). Unexpected Victims: How Parents' Unemployment Affects Their Children's Life Satisfaction. *Melbourne Institute Working Paper No. 21/12*, 1-16.

Knabe, A., Rätzel, S., Schöb, R., & Weimann, J. (2010). Dissatisfied with life but having a good day: Time-use and well-being of the unemployed. *The Economic Journal, 120*(547), 867-889.

Kuhn, A., Lalive, R., & Zweimüller, J. (2009). The public health costs of job loss. *Journal of Health Economics, 28*(6), 1099-1115.

Lamb, M. E., & Ahnert, L. (2007). Nonparental child care: context, concepts, correlates, and consequences *Handbook of Child Psychology*: John Wiley & Sons, Inc.

Lang, K., & Zagorsky, J. L. (2001). Does growing up with a parent absent really hurt? *Journal of Human Resources*, 253-273.

Layard, R., Clark, A. E., Cornaglia, F., Powdthavee, N., & Vernoit, J. (2014). What Predicts a Successful Life? A Life-course Model of Well-being. *The Economic Journal, 124*(580), F720-F738. doi:10.1111/ecoj.12170

Mäder, M. Riphahn, R. T., Schwientek, C., & Müller, S. (2015). Intergenerational transmission of unemployment–evidence for German sons. *Jahrbücher für Nationalökonomie und Statistik, 235*(4-5), 355-375.

Marcus, J. (2013). The effect of unemployment on the mental health of spouses – Evidence from plant closures in Germany. *Journal of Health Economics, 32*(3), 546-558.

Masten, A. S., & Narayan, A. J. (2012). Child development in the context of disaster, war, and terrorism: pathways of risk and resilience. *Annual Review of Psychology, 63*(1), 227-257.

Matthews, J. S., Ponitz, C. C., & Morrison, F. J. (2009). Early gender differences in self-regulation and academic achievement. *Journal of Educational Psychology, 101*(3), 689.

Matthews, K. A., & Gallo, L. C. (2011). Psychological perspectives on pathways linking socioeconomic status and physical health. *Annual Review of Psychology, 62*(1), 501–530.

Millner, A., Page, A., & LaMontagne, A. D. (2013). Cause and effect in studies on unemployment, mental health and suicide: A meta-analytic and conceptual review. *Psychological Medicine, 44*(5), 909-917.

Moore, K. A., & Driscoll, A. K. (1997). Low-wage maternal employment and outcomes for children: A study. *The Future of Children, 7*(1), 122-127.

Nikiforidis, L., Durante, K. M., Redden, J. P., & Griskevicius, V. (2018). Do mothers spend more on daughters while fathers spend more on sons?. *Journal of Consumer Psychology, 28*(1), 149-156.

Nikolova, M., & Ayhan, S. H. (2018). Your spouse is fired! How much do you care? *Journal of Population Economics (forthcoming)*, https://doi.org/10.1007/s00148-018-0693-0

Oh, W., Rubin, K. H., Bowker, J. C., Booth-LaForce, C., Rose-Krasnor, L., & Laursen, B. (2008). Trajectories of social withdrawal from middle childhood to early adolescence. *Journal of Abnormal Child Psychology, 36*(4), 553-566.

Oreopoulos, P., Page, M., & Stevens, Ann H. (2008). The intergenerational effects of worker displacement. *Journal of Labor Economics, 26*(3), 455-483.

Pan, W., & Ost, B. (2014). The impact of parental layoff on higher education investment. *Economics of Education Review, 42*, 53-63.

Paul, K. I., & Moser, K. (2009). Unemployment impairs mental health: meta-analyses. *Journal of Vocational Behavior, 74*(3), 264-282.

Phillips, D. A., & Lowenstein, A. E. (2011). Early care, education, and child development. *Annual Review of Psychology, 62*(1), 483-500.

Piaget, J. (1971). The theory of stages in cognitive development in Green, D. R. (Ed.) *Measurement and Piaget* (pp. ix,-283). New York, NY, US: McGraw-Hill.

Pinger, Pia R. (2016). Understanding the mechanisms behind intergenerational effects of economic distress. *University of Bonn Working Paper*.

Powdthavee, N. (2014). What childhood characteristics predict psychological resilience to economic shocks in adulthood? *Journal of Economic Psychology, 45*, 84-101.

Powdthavee, N., Graham, C., & Ferrer-i-Carbonell, A. (2017). *Special Issue: Life-Course Wellbeing*: *Journal of Economic Behavior and Organization.*

Powdthavee, N., & Vernoit, J. (2012). The transferable scars: a longitudinal evidence of psychological impact of past parental unemployment on adolescents in the United Kingdom. CEP Discussion Paper No 1165

Powdthavee, N., & Vernoit, J. (2013). Parental unemployment and children's happiness: A longitudinal study of young people's well-being in unemployed households. *Labour Economics, 24*, 253-263.

Rege, M., Telle, K., & Votruba, M. (2007). Plant closure and marital dissolution. *Statistics Norway, Research Department Discussion Papers No. 514*.

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

Rubin, K. H., Burgess, K. B., & Coplan, R. J. (2002). Social withdrawal and shyness. *Blackwell Handbook of Childhood Social Development*, 330-352.

Rubin, K. H., Coplan, R. J., & Bowker, J. C. (2009). Social withdrawal in childhood. *Annual Review of Psychology, 60*(1), 141-171.

Rubin, K. H., LeMare, L. J., & Lollis, S. (1990). Social withdrawal in childhood: Developmental pathways to peer rejection. *Peer Rejection in Childhood*, 217-249.

Schmitz, H. (2011). Why are the unemployed in worse health? The causal effect of unemployment on health. *Labour Economics, 18*(1), 71-78.

Schneider, B. H., Richard, J. F., Younger, A. J., & Freeman, P. (2000). A longitudinal exploration of the continuity of children's social participation and social withdrawal across socioeconomic status levels and social settings. *European Journal of Social Psychology, 30*(4), 497-519.

Siedler, T. (2011). Parental unemployment and young people's extreme right-wing party affinity: evidence from panel data. *Journal of the Royal Statistical Society: Series A (Statistics in Society)*, 174(*3*), 737-758.

Sen, A. (1987). On Ethics and economics: Blackwell Publishing.

Sen, A. (2003). Development as capability expansion. *Readings in Human Development*, 3-16.

Specht, J., Egloff, B., & Schmukle, S. C. (2011). Stability and change of personality across the life course: the impact of age and major life events on mean-level and rank-order stability of the Big Five. *Journal of Personality and Social Psychology, 101*(4), 862.

Stevens, A. H., & Schaller, J. (2011). Short-run effects of parental job loss on children's academic achievement. *Economics of Education Review, 30*(2), 289–299.

Sullivan, D., & Von Wachter, T. (2007). Mortality, mass-layoffs, and career outcomes: an analysis using administrative data. NBER Working Paper No. 13626.

Todd, P. E., & Wolpin, K. I. (2003). On the specification and estimation of the production function for cognitive achievement. *The Economic Journal, 113*(485), F3–F33

Valcour, M., Bailyn, L., & Quijada, M. A. (2007). Customized careers. *Handbook of Career Studies*, 188-210.

Vandell, D. L., & Ramanan, J. (1992). Effects of early and recent maternal employment on children from low-income families. *Child Development, 63*(4), 938-949.

Vygotsky, L. (1978). Interaction between learning and development. *Readings on the Development of Children, 23*(3), 34-41.

Wagner, G., Frick, J. R., & Schupp, J. (2007). The German Socio-Economic Panel Study (SOEP)-Scope, Evolution and Enhancements. *Schmollers Jahrbuch, 127*(1), 139-169.

Wanberg, C. R. (2012). The individual experience of unemployment. *Annual Review of Psychology, 63*(1), 369-396.

Winkelmann, L., & Winkelmann, R. (1995). Happiness and unemployment: a panel data analysis for Germany. *Applied Economics Quarterly, 41*, 293-307.

Winkelmann, L., & Winkelmann, R. (1998). Why are the unemployed so unhappy? Evidence from panel data. *Economica, 65*(257), 1-15.

Winkelmann, R. (2014). Unemployment and happiness. *IZA World Of Labor*(94). doi: 10.15185/izawol.94

Yeung, W. J., Linver, M. R., & Brooks-Gunn, J. (2002). How money matters for young children's development: parental investment and family processes. *Child Development, 73*(6), 1861-1879.

Tables

Table 1: Baseline results, parental unemployment during childhood and life satisfaction later in life

DV: Life satisfaction of young adults				(1) OLS		(2) OLS additional covariates		(3) OLS add. cov. & parental job loss expectations		(4) RE		(5) RE additional covariates		(6) RE add. cov. & parental job loss expectations	
Parental unemployment	Mean life sat. 18-31	N. unemp. parents	N	β	R^2	β	R^2	β	R^2	β	R^2	β	R^2	β	R^2
Child's age 0-5	7.479	66	3,168	-0.709*	0.075	-0.560	0.096	-0.548	0.109	-0.687*	0.066	-0.571	0.084	-0.590*	0.098
				(0.367)		(0.373)		(0.367)		(0.366)		(0.362)		(0.345)	
Child's age 6-10	7.386	149	5,168	0.116	0.062	0.267	0.093	0.321	0.098	0.101	0.056	0.251	0.085	0.279	0.087
				(0.221)		(0.232)		(0.236)		(0.239)		(0.242)		(0.241)	
Child's age 11-15	7.365	122	6,927	-0.323*	0.058	-0.261	0.084	-0.183	0.093	-0.530***	0.050	-0.399**	0.074	-0.344*	0.082
				(0.174)		(0.177)		(0.183)		(0.196)		(0.189)		(0.187)	

Source: Authors' calculations based on SOEP, V 32.1.

Notes: RE=Random effects. Robust standard errors in parentheses, clustered at the adult child's level. The table shows the coefficient estimates of three different regressions whereby the focal independent variable is parental unemployment due to plant closure at the respective ages. The focal independent variable is coded as 1 if either parent became unemployed due to plant closure and 0 if both parents remained continuously employed or if the mother remained outside the workforce during the respective ages. The dependent variable is the life satisfaction of the child measured using all non-missing observations between the ages of 18 and 31. Models (1)-(3) are estimated using OLS and Models (4)-(6) are estimated using GLS random effects. Models (1) and (4) include controls for the annual cumulative state unemployment rate at the respective ages, age dummies, year of birth, gender, child's migration background, whether the child is first born or not, the state of birth, whether the child is born in the East/West of Germany, mother's and father's education, mother's and father's age at which the child was born, mother's and father's migration background, SOEP sample, survey year, state of residence and location in the East/West of Germany. Models (2)-(3) and (5)-(6) include additional controls for household income quintile at the respective ages during childhood, the adult child's educational attainment, whether the adult child still lives in the original household, the size of the locality where the child grew up, household size at the respective ages during childhood, the number of siblings during the respective ages during childhood, the size of the home during the respective ages during childhood, the unemployment experience of the mother and the father during the respective ages during childhood, and each parent's current unemployment experience duration. Finally, models (3) and (6) add controls for each parent's (lagged) job loss expectations.

*** p<0.01, ** p<0.05, * p<0.1

Table 2: Channels

	(1)	(2)	(3)
	No childhood income controls	No adult education outcomes	With controls for mother's & father's working hours
Child's age 0-5	-0.588*	-0.584*	-0.598*
	(0.347)	(0.343)	(0.347)
N	3,168	3,168	3,168
R^2	0.097	0.098	0.0978
Child's age 6-10	0.285	0.274	0.276
	(0.236)	(0.242)	(0.240)
N	5,168	5,168	5,168
R^2	0.089	0.088	0.0887
Child's age 11-15	-0.337*	-0.347*	-0.359*
	(0.185)	(0.186)	(0.186)
N	6,927	6,927	6,927
R^2	0.081	0.079	0.0836

Source: Authors' calculations based on SOEP, V 32.1.

Notes: RE=Random effects. Robust standard errors in parentheses, clustered at the adult child's level. Each column shows the coefficient estimates of three different regressions whereby the focal independent variables are maternal and paternal unemployment due to plant closure at the respective ages. The focal independent variables are coded as 1 if the mother (father) became unemployed due to plant closure and 0 if both parents remained continuously employed or if the mother remained outside the workforce during the respective childhood ages. The dependent variable is the life satisfaction of the child measured using all non-missing observations between the ages of 18 and 31. All models are estimated using GLS random effects. All models include the full set of covariates listed in Table 1, including controls for parental job loss expectations. Model (1) excludes childhood income controls during the respective ages. Model (2) excludes controls for the adult child's educational attainment. Model (3) includes controls for mother's and father's working hours during the respective ages.
*** p<0.01, ** p<0.05, * p<0.1

Table 3: Maternal and paternal unemployment during childhood and life satisfaction later in life

	All		Females	Males
	(1)	(2)	(3)	(4)
DV: Life satisfaction of young adults	OLS add. cov. & parental job loss exp.	RE add. cov. & parental job loss exp.	RE add. cov. & parental job loss exp.	RE add. cov. & parental job loss exp.
Mom unemployed: child's age 0-5	-1.338***	-1.416***	-0.983***	-2.714***
	(0.322)	(0.332)	(0.380)	(0.483)
Dad unemployed: child's age 0-5	0.478	0.321	-0.176	1.259**
	(0.383)	(0.376)	(0.484)	(0.632)
F-test for equality of coeff. (p-value)	0.000	0.000	0.130	0.000
N	3,168	3,168	1,498	1,670
R^2	0.114	0.103	0.203	0.165
Mom unemployed: child's age 6-10	0.380	0.335	0.775***	-0.451
	(0.263)	(0.262)	(0.286)	(0.525)
Dad unemployed: child's age 6-10	0.031	0.124	0.115	0.256
	(0.500)	(0.537)	(0.735)	(0.691)
F-test for equality of coeff. (p-value)	0.534	0.723	0.405	0.410
N	5,168	5,168	2,528	2,640
R^2	0.098	0.089	0.144	0.136
Mom unemployed: child's age 11-15	0.077	0.013	0.246	-0.601
	(0.290)	(0.282)	(0.290)	(0.532)
Dad unemployed: child's age 11-15	-0.464**	-0.622***	-0.213	-1.026***
	(0.211)	(0.224)	(0.313)	(0.391)
F-test for equality of coeff. (p-value)	0.149	0.096	0.320	0.517
N	6,927	6,927	3,336	3,591
R^2	0.094	0.086	0.145	0.122

Source: Authors' calculations based on SOEP, V 32.1.

Notes: RE=Random effects. Robust standard errors in parentheses, clustered at the adult child's level. Each column shows the coefficient estimates of three different regressions whereby the focal independent variables are maternal and paternal unemployment due to plant closure at the respective ages. The focal independent variables are coded as 1 if the mother (father) became unemployed due to plant closure and 0 if both parents remained continuously employed or if the mother remained outside the workforce during the respective childhood ages. The dependent variable is the life satisfaction of the child measured using all non-missing observations between the ages of 18 and 31. Model (1) is using OLS and Models (2)-(4) are estimated using GLS random effects. All models include the covariates listed in Table 1. N unemp. dads = 34 at ages 0-5, 22 at ages 6-10, 59 at ages 11-15. N unemp. moms = 32 at ages 0-5, 127 at ages 6-11, and 65 at ages 11-15. The table also shows the p-value of an F-test of equality of coefficients for mom unemployed and dad unemployed at the respective ages.

*** p<0.01, ** p<0.05, * p<0.1

Table 4: Parental unemployment during childhood and life satisfaction later in life, by adult child's age

Panel A: All Observations in Analysis Sample, Unbalanced Panel			
	Ages 18-20	Ages 21-23	Ages 24 and older
	(1)	(2)	(3)
DV: Life satisfaction of young adults	RE add. cov. & parental job loss expectations	RE add. cov. & parental job loss expectations	RE add. cov. & parental job loss expectations
Child's age 0-5	-0.527	-0.476	-1.203*
	(0.362)	(0.530)	(0.675)
Overall N	1,712	930	526
R^2	0.117	0.199	0.295
Child's age 6-10	0.181	0.515	0.514
	(0.253)	(0.334)	(0.362)
Overall N	2,701	1,477	990
R^2	0.131	0.107	0.205
Child's age 11-15	-0.385*	0.065	-0.728*
	(0.204)	(0.270)	(0.409)
Overall N	3,622	1,973	1,332
R^2	0.107	0.111	0.198
Panel B: Only the Same Individuals			
	Ages 18-20	Ages 21-23	Ages 24 and older
	(1)	(2)	(3)
DV: Life satisfaction of young adults	RE add. cov. & parental job loss expectations	RE add. cov. & parental job loss expectations	RE add. cov. & parental job loss expectations
Child's age 0-5	-0.602	-0.707	-1.077
	(0.575)	(0.757)	(0.681)
Overall N	681	673	618
Number of individuals	206	206	206
R^2	0.237	0.266	0.293
Child's age 6-10	0.369	0.549	0.603*
	(0.410)	(0.411)	(0.357)
Overall N	1,171	1,169	1,094
Number of individuals	310	310	310
R^2	0.219	0.188	0.215
Child's age 11-15	0.539	0.121	-0.768**
	(0.354)	(0.306)	(0.390)
Overall N	1,579	1,562	1,449
Number of individuals	425	425	425
R^2	0.175	0.197	0.203

Source: Authors' calculations based on SOEP, V 32.1.

Notes: RE=Random effects. Robust standard errors in parentheses, clustered at the adult child's level. The table shows the coefficient estimates of three different regressions whereby the focal independent variables are maternal and paternal unemployment due to plant closure at the respective ages. Panel A comprises all individuals in the analysis sample broken down according to their adult ages. Panel B holds the sample composition constant and only shows the regressions for the same individuals who provided information at ages 18-20, 21-23, and 24 and older. Note that the number of individuals in Panel B is the same across the three models. The focal independent variables are coded as 1 if the mother (father) became unemployed due to plant closure and 0 if both parents remained continuously employed or if the mother remained outside the workforce during the respective ages. The dependent variable is the life satisfaction of the child measured using all non-missing observations between the ages of 18 and 31. All models are estimated using GLS random effects. All models include the covariates listed in Table 1.
*** p<0.01, ** p<0.05, * p<0.1

Table 5: Robustness checks

	(1)	(2)	(3)	(4)
	Voluntary parental unemployment	Parental dismissal	Parental personality controls	Parental + child personality controls
Child's age 0-5	0.083	-0.160	-0.442	-0.555
	(0.254)	(0.173)	(0.347)	(0.340)
Mean life sat. ages 18-31	7.432	7.428	7.474	7.460
N. unemp. parents	135	260	66	58
N	3,931	3,948	3,139	2,853
R^2	0.098	0.103	0.121	0.192
Child's age 6-10	0.107	0.184	0.405*	0.437**
	(0.217)	(0.137)	(0.236)	(0.197)
Mean life sat. ages 18-31	7.392	7.389	7.383	7.357
N. unemp. parents	162	394	148	138
N	5,329	5,318	5,072	4,688
R^2	0.084	0.0849	0.114	0.164
Child's age 11-15	-0.206	-0.329**	-0.365*	-0.193
	(0.189)	(0.163)	(0.188)	(0.199)
Mean life sat. ages 18-31	7.367	7.374	7.358	7.337
N unemp. parents	258	429	122	114
N	7,122	7,120	6,733	6,304
R^2	0.0823	0.0788	0.097	0.148

Source: Authors' calculations based on SOEP, V 32.1.

Notes: RE=Random effects. Robust standard errors in parentheses, clustered at the adult child's level. All models are estimated using GLS random effects. Each column shows the coefficient estimates of three different regressions. The focal independent variables in (1) are coded as 1 if the mother or father became unemployed due to own resignation or a mutual agreement with the employer and 0 if both parents remained continuously employed or if the mother remained outside the workforce. The focal independent variables in (2) are coded as 1 if the mother or father became dismissed (fired) and 0 if both parents remained continuously employed or if the mother remained outside the workforce. The focal independent variables in (3-(4) are the same as in the main analysis - parental unemployment due to plant closings (see Table 1). The dependent variable is the life satisfaction of the child measured using all non-missing observations between the ages of 18 and 31. All models include the full set of covariates listed in Table 1, including controls for parental job loss expectations. The Models in (3) include the Big 5 parental personality trait controls for the parents and in Models (4) for both the parents and the children. The number of observations in (3)-(4) is different from that in Table 1 due to missing observations for the personality traits for some parents and children.

*** p<0.01, ** p<0.05, * p<0.1

Appendix

Table A1: Summary statistics, selected variables, parental unemployment at ages 0-5 sample

	Overall, N=3,168		No parental unemployment, N=3,102		Parental unemployment, N=66	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Age	20.798	2.534	20.784	2.522	21.439	2.967
Female	0.473	0.499	0.470	0.499	0.591	0.495
First-born						
Missing	0.101	0.301	0.101	0.301	0.106	0.310
No	0.519	0.500	0.519	0.500	0.545	0.502
Yes	0.380	0.485	0.381	0.486	0.348	0.480
Year of birth						
1986	0.127	0.333	0.126	0.332	0.182	0.389
1987	0.122	0.328	0.122	0.327	0.167	0.376
1988	0.154	0.361	0.154	0.361	0.136	0.346
1989	0.123	0.328	0.125	0.331	0.015	0.123
1990	0.127	0.333	0.124	0.330	0.242	0.432
1991	0.094	0.292	0.093	0.290	0.152	0.361
1992	0.080	0.271	0.080	0.271	0.076	0.267
1993	0.044	0.206	0.045	0.208		
1994	0.044	0.204	0.044	0.206		
1995	0.029	0.169	0.030	0.171		
1996	0.039	0.192	0.039	0.194		
1997	0.018	0.132	0.017	0.131	0.030	0.173
Education						
Missing	0.099	0.299	0.099	0.299	0.106	0.310
Less than high school	0.261	0.439	0.258	0.437	0.439	0.500
High school	0.410	0.492	0.413	0.492	0.303	0.463
More than high school	0.035	0.184	0.035	0.183	0.045	0.210
Currently in education	0.194	0.396	0.196	0.397	0.106	0.310
Migration background						
No	0.762	0.426	0.758	0.428	0.939	0.240
Yes	0.238	0.426	0.242	0.428	0.061	0.240
Father: migration background						
No	0.727	0.446	0.722	0.448	0.939	0.240
Yes	0.273	0.446	0.278	0.448	0.061	0.240
Father: age when child born						
20 and younger	0.019	0.135	0.016	0.126	0.136	0.346
21-25	0.192	0.394	0.190	0.392	0.318	0.469

26-30	0.388	0.487	0.389	0.488	0.333	0.475
31-35	0.250	0.433	0.254	0.435	0.091	0.290
36-40	0.101	0.302	0.101	0.301	0.121	0.329
41 and older	0.050	0.217	0.051	0.219		
Father: education						
Less than high school	0.079	0.269	0.080	0.272		
High school	0.719	0.450	0.713	0.452	0.985	0.123
More than high school	0.202	0.402	0.206	0.405	0.015	0.123
Mother: migration background						
No	0.745	0.436	0.741	0.438	0.939	0.240
Yes	0.255	0.436	0.259	0.438	0.061	0.240
Mother: age when child born						
20 and younger	0.070	0.256	0.065	0.247	0.303	0.463
21-25	0.304	0.460	0.306	0.461	0.182	0.389
26-30	0.369	0.483	0.368	0.482	0.394	0.492
31-35	0.192	0.394	0.196	0.397		
36-40	0.057	0.232	0.055	0.229	0.121	0.329
41 and older	0.008	0.090	0.008	0.091		
Mother: education						
Less than high school	0.139	0.346	0.142	0.349	0.030	0.173
High school	0.585	0.493	0.584	0.493	0.636	0.485
More than high school	0.276	0.447	0.274	0.446	0.333	0.475
State unemp. rate at ages 0-5	9.175	3.034	9.127	3.024	11.435	2.607
Living in West Germany						
No	0.265	0.441	0.251	0.434	0.939	0.240
Yes	0.735	0.441	0.749	0.434	0.061	0.240

Source: Authors' calculations based on SOEP, V 32.1.

Table A2: Summary statistics, selected variables, parental unemployment at ages 6-10 sample

	Overall, N=5,168		No parental unemployment, N= 5,019		Parental unemployment, N=149	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Age	21.058	2.852	21.058	2.858	21.067	2.655
Female	0.489	0.500	0.482	0.500	0.732	0.445
First-born						
Missing	0.084	0.278	0.085	0.279	0.067	0.251
No	0.545	0.498	0.542	0.498	0.664	0.474
Yes	0.371	0.483	0.374	0.484	0.268	0.445
Year of birth						
1984	0.091	0.288	0.087	0.282	0.228	0.421
1985	0.138	0.344	0.139	0.346	0.074	0.262
1986	0.101	0.301	0.095	0.294	0.289	0.455
1987	0.093	0.291	0.093	0.291	0.094	0.293
1988	0.097	0.296	0.097	0.295	0.114	0.319
1989	0.070	0.256	0.069	0.253	0.128	0.335
1990	0.074	0.263	0.076	0.266	0.013	0.115
1991	0.086	0.281	0.089	0.284		
1992	0.080	0.271	0.082	0.274	0.007	0.082
1993	0.051	0.220	0.052	0.222	0.020	0.141
1994	0.050	0.219	0.052	0.221	0.007	0.082
1995	0.032	0.177	0.033	0.178	0.020	0.141
1996	0.025	0.157	0.026	0.159		
1997	0.011	0.103	0.011	0.103	0.007	0.082
Education						
Missing	0.115	0.319	0.118	0.322	0.034	0.181
Less than high school	0.232	0.422	0.230	0.421	0.309	0.464
High school	0.413	0.492	0.412	0.492	0.450	0.499
More than high school	0.041	0.199	0.041	0.199	0.034	0.181
Currently in education	0.198	0.399	0.199	0.399	0.174	0.381
Migration background						
No	0.765	0.424	0.764	0.425	0.792	0.407
Yes	0.235	0.424	0.236	0.425	0.208	0.407
Father: migration background						
No	0.733	0.442	0.734	0.442	0.705	0.458
Yes	0.267	0.442	0.266	0.442	0.295	0.458
Father: age when child born						

20 and younger	0.013	0.111	0.013	0.112	0.007	0.082
21-25	0.183	0.387	0.174	0.379	0.497	0.502
26-30	0.401	0.490	0.403	0.491	0.329	0.471
31-35	0.247	0.432	0.252	0.434	0.101	0.302
36-40	0.102	0.302	0.103	0.303	0.067	0.251
41 and older	0.054	0.227	0.056	0.230		
Father: education						
Less than high school	0.061	0.239	0.059	0.236	0.114	0.319
High school	0.703	0.457	0.697	0.460	0.886	0.319
More than high school	0.236	0.425	0.243	0.429		
Mother: migration background						
No	0.751	0.433	0.751	0.432	0.732	0.445
Yes	0.249	0.433	0.249	0.432	0.268	0.445
Mother: age when child born						
20 and younger	0.061	0.240	0.061	0.240	0.067	0.251
21-25	0.305	0.460	0.298	0.458	0.523	0.501
26-30	0.392	0.488	0.396	0.489	0.268	0.445
31-35	0.187	0.390	0.191	0.393	0.054	0.226
36-40	0.048	0.214	0.047	0.212	0.087	0.283
41 and older	0.006	0.080	0.007	0.081		
Mother: education						
Less than high school	0.128	0.334	0.130	0.336	0.040	0.197
High school	0.615	0.487	0.610	0.488	0.785	0.412
More than high school	0.258	0.437	0.260	0.439	0.174	0.381
State unemp. rate at ages 6-10	11.055	3.783	11.805	4.776	15.680	4.511
Living in West Germany						
No	0.2655	0.4416	0.2540	0.4354	0.6510	0.4783
Yes	0.7345	0.4416	0.7460	0.4354	0.3490	0.4783

Source: Authors' calculations based on SOEP, V 32.1.

Table A3: Summary statistics, selected variables, parental unemployment at ages 11-15 sample

	Overall, N=6,927		No parental unemployment, N= 6,805		Parental unemployment, N=122	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Age	21.033	2.821	21.044	2.827	20.410	2.342
Female	0.482	0.500	0.479	0.500	0.631	0.484
First-born						
Missing	0.096	0.294	0.096	0.294	0.115	0.320
No	0.539	0.499	0.540	0.498	0.459	0.500
Yes	0.365	0.482	0.364	0.481	0.426	0.497
Year of birth						
1984	0.071	0.257	0.070	0.255	0.148	0.356
1985	0.095	0.293	0.094	0.292	0.131	0.339
1986	0.113	0.317	0.114	0.318	0.074	0.262
1987	0.118	0.322	0.118	0.322	0.115	0.320
1988	0.124	0.330	0.125	0.331	0.082	0.275
1989	0.094	0.291	0.093	0.290	0.123	0.330
1990	0.105	0.307	0.107	0.309	0.041	0.199
1991	0.062	0.242	0.061	0.239	0.139	0.348
1992	0.065	0.247	0.066	0.249	0.016	0.128
1993	0.044	0.205	0.045	0.207	0.016	0.128
1994	0.037	0.188	0.037	0.188	0.041	0.199
1995	0.025	0.156	0.025	0.155	0.049	0.217
1996	0.028	0.165	0.028	0.166	0.016	0.128
1997	0.018	0.133	0.018	0.134	0.008	0.091
Education						
Missing	0.120	0.325	0.120	0.326	0.107	0.310
Less than high school	0.239	0.426	0.236	0.425	0.393	0.491
High school	0.395	0.489	0.396	0.489	0.344	0.477
More than high school	0.043	0.203	0.044	0.205		
Currently in education	0.203	0.402	0.204	0.403	0.156	0.364
Migration background						
No	0.746	0.435	0.748	0.434	0.639	0.482
Yes	0.254	0.435	0.252	0.434	0.361	0.482
Father: migration background						
No	0.733	0.442	0.736	0.441	0.582	0.495
Yes	0.267	0.442	0.264	0.441	0.418	0.495
Father: age when child born						
20 and younger	0.010	0.098	0.010	0.099		

21-25	0.180	0.384	0.175	0.380	0.484	0.502
26-30	0.387	0.487	0.389	0.488	0.254	0.437
31-35	0.273	0.445	0.275	0.447	0.131	0.339
36-40	0.100	0.301	0.101	0.302	0.049	0.217
41 and older	0.050	0.218	0.050	0.217	0.082	0.275
Father: education						
Less than high school	0.059	0.236	0.058	0.234	0.131	0.339
High school	0.711	0.453	0.708	0.455	0.852	0.356
More than high school	0.230	0.421	0.233	0.423	0.016	0.128
Mother: migration background						
No	0.746	0.435	0.748	0.434	0.656	0.477
Yes	0.254	0.435	0.252	0.434	0.344	0.477
Mother: age when child born						
20 and younger	0.050	0.219	0.050	0.217	0.090	0.288
21-25	0.314	0.464	0.311	0.463	0.467	0.501
26-30	0.393	0.488	0.394	0.489	0.287	0.454
31-35	0.187	0.390	0.187	0.390	0.156	0.364
36-40	0.049	0.216	0.050	0.218		
41 and older	0.008	0.086	0.008	0.087		
Mother: education						
Less than high school	0.126	0.332	0.124	0.329	0.254	0.437
High school	0.654	0.476	0.653	0.476	0.697	0.462
More than high school	0.220	0.414	0.223	0.416	0.049	0.217
State unemp. rate at ages 11-15	11.457	4.380	11.428	2.241	13.081	1.715
Living in West Germany						
No	0.219	0.414	0.216	0.412	0.402	0.492
Yes	0.781	0.414	0.784	0.412	0.598	0.492

Source: Authors' calculations based on SOEP, V 32.1.

Table A4: Parental unemployment during childhood and life satisfaction later in life, with contemporaneous controls

DV: Life satisfaction of young adults					(1) OLS add. cov. & parental job loss expectations		(2) RE add. cov. & parental job loss expectations	
Parental unemployment at	Mean life sat. 18-31	N unemp. dads	N unemp. moms	N	β	R^2	β	R^2
Child's age 0-5	7.479	34	32	3,168	-0.376 (0.364)	0.148	-0.526 (0.353)	0.128
Child's age 6-10	7.386	22	127	5,168	0.364* (0.202)	0.136	0.294 (0.233)	0.119
Child's age 11-15	7.365	59	65	6,927	-0.166 (0.167)	0.118	-0.338* (0.176)	0.103

Source: Authors' calculations based on SOEP, V 32.1.
Notes: RE=Random effects. Robust standard errors in parentheses, clustered at the adult child's level. The table shows the coefficient estimates of three different regressions whereby the focal independent variable is parental unemployment due to plant closure at the respective ages. The focal independent variable is coded as 1 if either parent became unemployed due to plant closure and 0 if both parents remained continuously employed or if the mother remained outside the workforce during the respective ages. The dependent variable is the life satisfaction of the child measured using all non-missing observations between the ages of 18 and 31. Model (1) is using OLS and Model (2) is using GLS random effects. Both models control for the annual cumulative state unemployment rate at the respective ages, age, year of birth, gender, child's migration background, whether the child is firstborn or not, the state of birth, whether the child is born in the East/West of Germany, mother's and father's education, mother's and father's age at which the child was born, mother's and father's migration background, SOEP sample, survey year, state of residence and location in the East/West of Germany, household income quintile at the respective ages during childhood, the adult child's educational attainment, whether the adult child still lives in the original household, the size of the locality where the child grew up, household size at the respective ages during childhood, the number of siblings during the respective ages during childhood, the size of the home during the respective ages during childhood, the unemployment experience of the mother and the father during the respective ages during childhood, and each parent's duration of the plant closure experience during the respective ages. The additional contemporaneous (i.e. at ages 18 and older) controls are: current income quintile, unemployment dummy, unemployment experience, marital status, household size, number of annual doctor visits, home ownership, and home size.

Statement of competing interests. The authors have no competing interests to declare.