

Borah, Melanie; Knabe, Andreas; Lücke, Christine

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Is a Sorrow Shared a Sorrow Doubled? Parental Unemployment and the Life Satisfaction of Adolescent Children

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Melanie Borah, Andreas Knabe, Christine Lücke

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Poschingerstr. 5, 81679 Munich, Germany

Telephone +49 (0)89 2180-2740, Telefax +49 (0)89 2180-17845, email office@cesifo.de

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Abstract

This paper examines possible spillover effects of parental unemployment on the subjective wellbeing of 12- to 21-year-old children. Using German panel data (SOEP), we show that unemployment of fathers and mothers is negatively associated with their children's life satisfaction. When controlling for time-invariant individual heterogeneity, our results suggest that maternal unemployment has negative effects, while no effect of fathers' unemployment can be detected. In subgroup analyses, we do not find differential impacts between sons and daughters or between younger and older children. Further results suggest that the impact of parental unemployment differs between high- and low-unemployment regions.

JEL-Codes: I310, J130, J630, J640.

Keywords: unemployment, life satisfaction, happiness, children, intergenerational transmission.

Melanie Borah

*Faculty of Economics and Management
Otto von Guericke University Magdeburg*

P.O. Box 4120

Germany – 39016 Magdeburg

Melanie.Borah@ovgu.de

Andreas Knabe

*Faculty of Economics and Management
Otto von Guericke University Magdeburg*

P.O. Box 4120

Germany – 39016 Magdeburg

Andreas.Knabe@ovgu.de

Christine Lücke

*Faculty of Economics and Management
Otto von Guericke University Magdeburg*

P.O. Box 4120

Germany – 39016 Magdeburg

Christine.Luecke@ovgu.de

1. Introduction

One person's job loss and subsequent unemployment can affect the lives of many others. Especially within families and households, there are likely to be spillover effects, as the availability and allocation of shared resources (such as money and time) change. Households might also face interdependencies in their members' compliance with social norms. The failure of one member to fulfil a work norm might have psychological consequences for each individual in that household. To gain knowledge about the total cost associated with one person's job loss and unemployment, we need to identify such spillover effects on other household members.

This paper is devoted to estimating the immediate effect of parental unemployment on the life satisfaction of adolescent children. One might conceive various channels by which a parent's unemployment may affect the economic and psychological well-being of a child living in the same household. These include potentially negative spillover effects resulting from the loss of market income and lower material standards of living, uncertainty about future incomes, lower parental subjective well-being, exposure to stress and social conflicts between family members, the loss of daily routine, social status, and self-esteem. At the same time, there may be positive spillover effects if parents spend more time on household production and on their children or if there is less stress and conflict due to fewer time constraints. Parents may also reallocate their income to prevent their children from suffering financial restrictions. Moreover, parents and children might lower their expectations and aspirations, which, *ceteris paribus*, might be beneficial for their subjective well-being.

Our study contributes to a growing strand in the literature that is concerned with the well-being costs borne by the children of unemployed people in the short run (see Kind and Haisken-

DeNew 2012, Powdthavee and Vernoit 2013, Bubonya et al. 2017, Hansen and Stutzer 2022) and the longer run (see Nikolova and Nikolaev 2021). That the intergenerational well-being externalities of job loss and unemployment have come to the fore only recently may partly be ascribed to the challenge of finding suitable data sources. Very few household surveys contain repeated and sufficiently detailed accounts of children's subjective well-being, as well as parents' employment experiences. In this study, we use the German Socio-Economic Panel (SOEP). Over its entire sampling period, it captures annual responses of all household members over the age of 16 on a wide variety of topics, including employment status, job-loss reasons, and life satisfaction. Since 2014/2016, the SOEP has also collected life-satisfaction data from younger children (twelve-/fourteen-year-olds) in the household. This allows us to assess differences in the life satisfaction of children depending on the employment status of their parents. More specifically, we estimate the effect of paternal and maternal unemployment on the life satisfaction of 12–21-year-old children. We focus on involuntary unemployment spells that had been caused by plant closure or dismissals.

A small number of extant studies (which we will discuss in the next section) has examined the relationship between parental unemployment and children's subjective well-being. Kind and Haisken-DeNew (2012) examine how the life satisfaction of 17–25-year-old children depends on their parents' employment status, using data from the German Socio-Economic Panel. Powdthavee and Vernoit (2013) estimate the effect of paternal and maternal unemployment on 11–15-year-old children's self-reported happiness with life, using British panel data. Bubonya et al. (2017) analyze the relationship between parental unemployment and the mental health of 15-20-year old children in Australia. Hansen and Stutzer (2022) conduct a cross-country study on this issue, looking at children aged 11 to 17 living in 34 different countries. All these studies estimate the impact of paternal and maternal unemployment on

their children's subjective well-being. Overall, their findings suggest that parental unemployment typically has negative effects on children's well-being. However, these studies differ in various regards, e.g. whether they can differentiate between voluntary and involuntary unemployment of parents, the gender and age of the child, or local labor market conditions. In our study, we synthesize these studies by conducting the subgroup analyses from previous studies consistently within one study, using recent, large-scale panel data from Germany.

Our results suggest statistically significant negative relationships between unemployment of fathers and mothers and their children's life satisfaction, in particular for involuntary unemployment. When controlling for time-invariant individual heterogeneity of children, our results indicate that maternal unemployment has negative effects, while we do not find evidence for an effect of fathers' unemployment. Our subgroup analyses do not indicate that sons and daughters or younger and older children are differentially affected by their parents' unemployment. We provide suggestive evidence that the impact of parental unemployment differs between high- and low-unemployment regions. Fathers' unemployment appears to be more harmful to children's well-being when regional unemployment is high, whereas mothers' unemployment seems to hurt less.

This paper is structured as follows. Section 2 reviews the relevant literature. In section 3, we present the data and our empirical strategy. Section 4 presents the results. Section 5 concludes the analysis.

2. Related literature

Unemployment is known to be negatively related to the life satisfaction of those directly affected (see e.g. Clark and Oswald 1994, Korpi 1997, Winkelmann and Winkelmann 1998,

Frey and Stutzer 2000, Blanchflower and Oswald 2004, Baetschmann et al. 2015).¹ Since the reasons for unemployment are manifold, the literature has shifted its focus on the effects of involuntary entries into unemployment, which can more easily be interpreted causally. For example, Kassenboehmer and Haisken-DeNew (2009) find that the negative shock from unemployment to life satisfaction is stronger if it was caused by a plant closure than for other reasons.

As resources, time, and norms are shared within households, some of the costs of unemployment will likely be borne by family members other than the person directly affected. Especially within couples, spillover effects in mental or subjective well-being may be sizeable. Most studies that aim at quantifying these effects find that women suffer significant losses in subjective well-being (Winkelmann and Winkelmann 1995, Van der Meer 2014, Luhmann et al. 2014) and mental health (Clark 2003, Mendolia 2014, Bubonya et al. 2017) in response to their husband's unemployment. Notable exceptions are Siegel et al. (2003) and Carroll (2007), who do not detect any significant effects of this kind. Luhmann et al. (2014) also find a significant effect of wives' unemployment on husbands' well-being. Two studies that restrict their attention to employer-initiated unemployment establish this relation, too. Marcus (2013) finds that job losses due to plant closure damage the mental health of the directly and indirectly affected partner almost equally, while Nikolova and Ayhan (2019) find the reduction in a spouse's life satisfaction to be less than that of the person becoming unemployed. Various studies also suggest that the effect of one partner's unemployment depends on the labor market status of the other. Luhmann et al. (2014) find that an individual's own unemployment is less

¹ Many other papers have also analysed the relation between own unemployment and life satisfaction. For example: Gerlach and Stephan (1996) and Van der Meer (2014), who focus on differences between genders; Clark et al. (2001); Knabe and Rätzl (2011); and Clark (2003), who analyse the role played by scarring and scaring effects, as well as social norm effects; Frijters, Haisken-DeNew and Shields (2004), who analyse differences between Eastern and Western Germany following reunification.

harmful to his or her well-being when the spouse is also unemployed. Clark (2003) and Knabe et al. (2016) confirm this result for unemployed men.

A job loss might also affect the unemployed person's children. There is an extensive literature showing that an involuntary parental job loss negatively affects children's physical health and non-cognitive skills (e.g. Lindo 2011, Liu and Zhao 2014, Peter 2016, Schaller and Zerpa 2019). Lindo (2011) shows that a parental job loss already affects babies' birth weight. Peter (2016) finds that negative mental health effects are not limited to younger children, but also adolescents' belief in self-determination is reduced following parental job loss. Several other papers show that parental job loss negatively affects children's educational achievements. It increases the risk of grade repetition (Peter 2016, Stevens and Schaller 2011, Kalil and Ziol-Guest 2008), lowers grade point averages (Rege et al. 2011), and reduces the probability of post-secondary education enrollment among young people (Coelli 2011).

Studies examining the effects of parental unemployment on their offspring's subjective well-being are scarcer. Kind and Haisken-DeNew (2012) examine the immediate effect of parents' unemployment on the life satisfaction of their 17–25-year-old cohabiting children, using data from the German Socio-Economic Panel. Their results indicate that neither paternal nor maternal unemployment has a significant effect on the life satisfaction of daughters. Sons, however, suffer significant well-being losses if their father is made redundant as a result of plant closure or if their mother becomes unemployed by resigning herself. A number of more recent studies consider the effect of parental unemployment on younger children's well-being. Using British panel data, Powdthavee and Vernoit (2013) estimate the effect of paternal and maternal unemployment on 11–15-year-old children's self-reported happiness with life. They find that younger children in their sample gain happiness from the unemployment of their fathers and mothers, whereas older children either suffer losses in well-being or show no

statistically significant response. Differentiating by the child's gender, they show that 11-year-old girls benefit from their fathers' unemployment, while young boys benefit from the unemployment of their mothers. Bubonya et al. (2017) find that Australian adolescents aged 15 to 20 experience a decline in their mental health after their mother has become involuntarily unemployed. Using cross-sectional data on children aged 11 to 17 living in 34 different countries, Hansen and Stutzer (2022) find that there is a significantly negative association between maternal and paternal unemployment and children's life satisfaction, but that there is considerable variation in this relationship across countries. They provide evidence that differences in the generosity of unemployment benefits across countries explain part of this variation, showing that higher replacement rates lessen the negative consequences of fathers' unemployment. Furthermore, they show that paternal unemployment is more detrimental to children's subjective well-being when the social work norm within a country is stricter.

There also exist medium- and long-term effects of parental unemployment on children's life satisfaction and mental well-being. Powdthavee (2014) finds that maternal unemployment experienced during childhood significantly reduces the loss in daughters' mental well-being and life satisfaction following their own unemployment later in life. Nikolova and Nikolaev (2021) report significant effects of parental unemployment resulting from plant closure experienced during childhood on the life satisfaction of young adults more generally. They find these effects to be negative for children with a parent who entered unemployment when the child was aged 0–5 or 11–15. The authors also show that maternal (paternal) unemployment entries are especially detrimental to young adults' life satisfaction if they occur during early (late) childhood.

3. Data and empirical strategy

Our empirical analysis is based on the German Socio-Economic Panel (SOEP), an annual representative survey tracking the living conditions of private households and their members over time (for a comprehensive introduction to the SOEP, see Schröder et al., 2020). We use the SOEP Version 38, which covers the years 1984 to 2021. The main datasets include individual responses to a wide range of questions from all participating household members over the age of 16, as well as information on various household characteristics (based on the household head's responses to the household questionnaire). Since the year 2000, 17-year-old household members are interviewed using a separate youth questionnaire. Moreover, since 2014 (2016) children turning twelve (fourteen) in the respective survey year respond to child-specific questionnaires. Overall, this means that we have information on children who turn 12, 14, or 17 and above in the respective survey year in our sample. The SOEP allows linking these adolescents to the life circumstances of their current household's members, also tracing them over time. This makes it a suitable data source for our analysis.

Our study aims at identifying the potential spillover effects of paternal and maternal unemployment on adolescent children's well-being. To do this, we consider the life satisfaction of 12- to 21-year-old children that has been assessed via the question 'How satisfied are you with your life, all things considered?'. Responses are given on an 11-point scale, running from 'totally dissatisfied' to 'totally satisfied'. This question has been included in exactly the same format in the two child-specific questionnaires, the youth questionnaire, as well as the individual questionnaire for adults. Adolescents with valid answers to this life-satisfaction question qualify for inclusion in our sample if they are living with their father and mother at the time of the interview. Restricting the sample accordingly ensures that the implications of one parent's unemployment are comparable across households.

3.1. Parental unemployment

To estimate the effect of parental unemployment, we make use of information regarding the mother's and father's employment status (and possible job loss experience). Mothers and fathers are not necessarily the biological parents of a child, but could also be step or adoptive parents currently living within the same household. We differentiate between four mutually exclusive employment states: employed, registered unemployed, inactive, and other, where the last category comprises individuals in training, retirement, military service, or self-employment. The unit of observation in our study is the child. We merge the mother's and father's current employment status to the observation of their respective child or children, resulting in child-year observations.

The relationship between parental unemployment and children's subjective well-being might be different for different kinds of unemployment. To be able to identify the causal effect of maternal and paternal unemployment on children's life satisfaction, their unemployment would have to be exogenous and unexpected for the affected parent as well as for the child. Previous studies have argued that involuntary job losses due to plant closure (Kind and Haisken-DeNew 2012) and dismissal by the employer (Bubonya et al. 2017) represent such exogenous treatments. Other kinds of unemployment, such as those caused by employee resignation, mutual termination, or the end of temporary contracts, are potentially endogenous and/or expected. Therefore, we will distinguish between unemployment spells that were caused by an involuntary job loss (dismissal or plant closure) and other unemployment spells in most of our analysis. Terminations by the employer have been documented as a reason for job loss in all survey waves. Since 1991 (with gaps in 1999 and 2000), respondents were able to distinguish between plant closures and other employer-initiated dismissals. Since we combine

dismissals and plant closures into one involuntary job loss category, our sample contains data from all survey years from 1984 to 2021.

Because of their very different labor market experiences, we have excluded all families that belong to the refugee samples added to the SOEP in 2015, 2016 and 2019 from our analysis.²

3.2. Estimation model

To estimate the relationship between maternal/ paternal unemployment and children's life satisfaction, we regress the life satisfaction S of child i in period t on two vectors ES_{it}^m and ES_{it}^f of binary indicators representing their mother's (m) and father's (f) employment status, i.e. unemployment, inactivity, and others (with employment as the reference category).

Our estimation model can thus be represented by the simple linear equation

$$S_{it} = \alpha + \beta_m ES_{it}^m + \beta_f ES_{it}^f + \delta X_{it} + \varepsilon_{it}, \quad (1)$$

where X_{it} contains other covariates and ε_{it} represents an idiosyncratic random error.³ In this model, we study children's cross-sectional variation in life satisfaction when their father or mother is unemployed as opposed to when he or she is employed. As mentioned above, in most of our analyses we will further distinguish a parent's unemployment by whether it started involuntarily (due to dismissal or plant closure) or not. Even though involuntary job losses may be exogenous, remaining unemployed afterwards might not be. Therefore, even when focusing on parental unemployment spells that started involuntarily, their subsequent experience may be correlated with general parental characteristics, which might in turn be correlated with their

² This sample restriction does not affect our main results. Results including the refugee samples are available upon request.

³ Even though life satisfaction is measured on an ordinal scale, we treat it as a cardinal measure of well-being. This is in line with the well-being literature as there are typically only minor differences between the regression results when treating the dependent variable ordinally or cardinally (see e.g. Ferrer-i-Carbonell and Frijters 2004). To check the robustness of our findings, we conduct ordered logit estimations, using the blow-up-and-cluster estimator by Baetschmann et al. (2015) when including individual fixed effects.

children's subjective well-being. In an attempt to avoid biased results due to time-constant traits of either children or their parents, we include child fixed effects in parts of our analysis. However, it should be noted that even with child fixed effects, it may not be possible to interpret our results causally. If, for instance, the parents of those children who are hurt the most by their parents' unemployment were more actively engaged in finding a new job, the negative effect of parental unemployment would be underestimated.

3.3. Covariates and Interactions

In most of our regressions, we will include a number of other covariates that may affect a child's life satisfaction. In order to verify their importance, we will always compare results across models with and without these covariates.⁴ More specifically, we control for the child's gender and age, the number of household members, the month of the interview, the regional unemployment rate at the federal state level, and year-fixed effects. To capture possible non-linearities, we use dummy variables to control for a child's age and the month of the interview. Most of our covariates will also be used in the construction of interaction terms to check if the effects of maternal and paternal unemployment differ across groups of children. Here, we will look at the interactions of the mother's and father's employment status with the child's gender and age group, as well as with the concurrent unemployment rate in their state of residence.

⁴ To make sure that differences in our estimation results are not due to changes in the underlying sample, we also exclude observations with missing information on either of the control variables in the regressions without covariates.

Table 1: Descriptive statistics – Sample Characteristics

	Min	Max	Mother's Employment Status				
			Employed	Involuntary UE	Other UE	Inactive	Other
Life Satisfaction	0	10	7.666 (1.630)	7.095 (1.763)	7.262 (1.840)	7.639 (1.737)	7.551 (1.724)
Female	0	1	0.475 (0.499)	0.508 (0.500)	0.477 (0.500)	0.468 (0.499)	0.471 (0.499)
Age	12	21	18.077 (2.356)	18.613 (1.794)	18.120 (2.290)	18.386 (2.089)	18.204 (2.312)
Household Size	3	17	4.269 (1.028)	4.204 (1.164)	4.879 (1.570)	4.984 (1.637)	4.314 (1.092)
Reg. Unemployment	3.2	22.1	8.920 (4.344)	12.125 (5.014)	11.141 (5.008)	8.310 (2.910)	9.314 (4.461)
Observations	Total=	45,331	28,894	675	1,928	10,152	3,682
	Min	Max	Father's Employment Status				
			Employed	Involuntary UE	Other UE	Inactive	Other
Life Satisfaction	0	10	7.648 (1.659)	7.263 (1.803)	7.413 (1.905)	7.608 (1.766)	7.619 (1.662)
Female	0	1	0.474 (0.499)	0.465 (0.499)	0.455 (0.498)	0.513 (0.500)	0.474 (0.499)
Age	12	21	18.097 (2.323)	18.510 (1.952)	18.330 (2.171)	18.342 (2.285)	18.403 (2.168)
Household Size	3	17	4.445 (1.226)	4.415 (1.172)	4.999 (1.767)	4.962 (1.682)	4.335 (1.192)
Reg. Unemployment	3.2	22.1	8.823 (4.115)	11.360 (4.908)	10.049 (4.344)	8.885 (3.850)	8.995 (4.194)
Observations	Total=	45,331	34,867	1,021	1,867	637	6,939

Note: SOEP v38, waves 1984-2021. Standard deviations in parentheses.

4. Results

4.1. Descriptive statistics

In Table 1, we report sample means and standard deviations of life satisfaction and covariates for the sample of adolescents on which we base our analysis. The statistics are separated by the employment status of the mother (top panel) or the father (bottom panel). Of our total of 45,331 child-year observations, 2,603 (i.e., about 5.7%) experience maternal and

2,888 (i.e., about 6.4%) paternal unemployment. Differences in their mean life satisfaction as compared to that of adolescents with an employed mother/father point towards a negative association with maternal and paternal unemployment, especially so if unemployment had been entered involuntarily because of dismissal or plant closure (which we refer to as “involuntary unemployment” throughout this paper). This gap in adolescents’ mean life satisfaction appears even larger for maternal compared to paternal unemployment. Considering the variation in other covariates across parental employment states, we find mostly minor differences regarding gender and age. Children of involuntarily unemployed mothers in our sample are slightly more often daughters. Children of involuntarily unemployed fathers and mothers are a bit older than children of parents in other employment states, which is probably due to the fact that young children were interviewed in the SOEP only in recent years when involuntary unemployment has become less frequent in Germany. Household size is somewhat higher when the mother or father is inactive or unemployed due to reasons other than plant closure or dismissal. Not surprisingly, children of unemployed mothers and fathers live, on average, in regions with higher unemployment rates.

Table 2 focusses on mother’s and father’s employment transitions and their children’s concurrent mean change in life satisfaction. Since we can only observe the change in life satisfaction when we have information on the child’s satisfaction in the preceding survey wave, the number of observations is considerably smaller than in Table 1. Along the diagonal of both transition matrices (corresponding to unchanged parental employment states), all life satisfaction changes are negative. Thus, there seems to be a general tendency of life satisfaction to decrease over time/with age among children even if their parents’ employment status does not change. Children of parents who move from employment into involuntary unemployment seem to suffer more than this general reduction in life satisfaction, whereas those whose parents

move into other forms of unemployment suffer considerably less. Thus, one may conclude from the descriptive statistics that mothers' and fathers' involuntary unemployment is associated with both lower levels of, and stronger immediate reductions in, children's life satisfaction. Yet, these findings are purely descriptive and ignore the interplay of various potentially confounding factors and the role of individual heterogeneity, which we will control for in our regression analyses.

4.1. Regression results

In this section, we present the results of our regression analyses. In Table 3, we show the results of regressing children's life satisfaction on the contemporaneous employment statuses of their parents. Based on the literature, we expect to find a negative effect for adolescents whose parents are unemployed due to lower earnings and hence lower family income (Stevens, 1997; Arulampalam et al., 2000), reductions in parents' well-being (e.g. Winkelmann and Winkelmann, 1998; Baetschmann et al., 2015) and deviations from the social norm (Clark, 2003). Column 1 contains the results without adding further controls to the regression. Compared to children whose mother is employed, children of unemployed mothers have a lower life satisfaction. The coefficient is statistically highly significant ($p < .01$) and quantitatively large (it corresponds to 0.24 standard deviations of the life satisfaction variable). We also find a statistically significant negative difference between the life satisfaction of children with employed and unemployed fathers. Quantitatively, the difference is smaller than in case of maternal unemployment. We do not find evidence for differences in life satisfaction between children of mothers or fathers who are not active in the labor market and children of employed mothers or fathers. Children with mothers in other labor market states, such as those in training, retirement or self-employment, have a significantly lower life satisfaction than children with employed mothers.

Table 2: Descriptive statistics – Employment Transitions and Life Satisfaction Changes

Mother's Employment Transitions						
	Status in t	Employed	Involuntary UE	Other UE	Inactive	Other
Status in t-1						
Employed		-0.126 (0.014) <i>15364</i>	-0.160 (0.121) <i>200</i>	-0.018 (0.112) <i>222</i>	-0.130 (0.091) <i>445</i>	-0.322 (0.107) <i>267</i>
Involuntary UE		-0.119 (0.157) <i>134</i>	-0.087 (0.109) <i>218</i>	. . .	0.093 (0.297) <i>43</i>	-0.839 (0.341) <i>31</i>
Other UE		-0.041 (0.130) <i>222</i>	0.000 (0.365) <i>15</i>	-0.244 (0.077) <i>595</i>	0.128 (0.135) <i>188</i>	0.690 (0.290) <i>58</i>
Inactive		-0.219 (0.069) <i>635</i>	-0.556 (0.242) <i>9</i>	-0.372 (0.143) <i>199</i>	-0.092 (0.025) <i>5311</i>	-0.280 (0.156) <i>182</i>
Other		-0.120 (0.102) <i>258</i>	-0.571 (0.841) <i>7</i>	-0.169 (0.212) <i>59</i>	-0.297 (0.161) <i>138</i>	-0.063 (0.045) <i>1609</i>
Father's Employment Transitions						
	Status in t	Employed	Involuntary UE	Other UE	Inactive	Other
Status in t-1						
Employed		-0.125 (0.012) <i>19405</i>	-0.141 (0.114) <i>305</i>	-0.098 (0.119) <i>255</i>	0.157 (0.178) <i>102</i>	-0.258 (0.090) <i>333</i>
Involuntary UE		-0.050 (0.128) <i>222</i>	-0.182 (0.095) <i>336</i>	. . .	-0.909 (0.415) <i>11</i>	-0.304 (0.314) <i>56</i>
Other UE		0.064 (0.124) <i>236</i>	-0.188 (0.337) <i>32</i>	-0.184 (0.082) <i>645</i>	-0.213 (0.210) <i>75</i>	-0.041 (0.222) <i>97</i>
Inactive		-0.377 (0.254) <i>53</i>	3.333 (0.667) <i>3</i>	-0.075 (0.162) <i>93</i>	-0.104 (0.163) <i>134</i>	0.326 (0.278) <i>46</i>
Other		0.077 (0.126) <i>196</i>	-1.500 (1.190) <i>4</i>	0.052 (0.218) <i>58</i>	-0.618 (0.235) <i>34</i>	-0.107 (0.028) <i>3678</i>

Note: SOEP v38, waves 1984-2021. Standard errors in parentheses. Number of observations in italic.

In column 2, we add further control variables (household size, gender, regional unemployment rates, as well as dummies for year, age, and interview month). This does not change the main results shown in column 1. Both maternal and paternal unemployment remain negatively associated with children's life satisfaction.

Table 3: Relationship between parents' employment status and children's life satisfaction, linear model

	(1)	(2)	(3)
	Life Satisfaction	Life Satisfaction	Life Satisfaction
<u>Mother</u>	Ref.: Employed		
- Unemployed	-0.397*** (0.045)	-0.310*** (0.044)	-0.131*** (0.050)
- Inactive	-0.023 (0.026)	0.005 (0.027)	0.006 (0.041)
- Other	-0.110*** (0.038)	-0.091** (0.037)	-0.060 (0.052)
<u>Father</u>	Ref.: Employed		
- Unemployed	-0.197*** (0.043)	-0.143*** (0.042)	-0.002 (0.052)
- Inactive	-0.020 (0.076)	-0.007 (0.074)	-0.014 (0.088)
- Other	-0.017 (0.029)	0.014 (0.029)	-0.023 (0.058)
Controls	No	Yes	Yes
Individual Fixed Effects	No	No	Yes
Observations	45,331	45,331	45,331
R^2	0.005	0.043	0.028

Notes: SOEP v38, waves 1984-2021; standard errors are adjusted for clustering at the personal level. Estimations in columns 2 and 3 also control for gender, household size and regional unemployment and include dummies for year, age, and month of the interview.

* denotes significance at the 10% level, ** at the 5% level and *** at the 1% level.

The results of the cross-sectional regressions support previous findings in the literature. Bubonya et al. (2017, Table 5) find that children with unemployed mothers or fathers have

worse mental health than children with employed parents (although they find a statistically significant difference only for maternal unemployment). Powdthavee and Vernoit (2013, Table 2(1)) also report negative, though not statistically significant associations. Hansen and Stutzer (2022, Table 2) find significantly negative associations for paternal and maternal unemployment.

To take time-invariant individual heterogeneity into account, we add fixed effects at the child level. Thus, we identify the impact of unemployment only via variation of parental employment for the same child (within-variation). The results are presented in column 3. Our findings suggest that unemployment of a mother reduces the life satisfaction of her children substantially. This effect is also statistically significant. All other estimated effects are smaller and not statistically significant. In particular, we do not find evidence that paternal unemployment reduces the life satisfaction of children. These fixed-effects findings are in line with Bubonya et al. (2017, Table 5) who find statistically significant negative effects only for mothers, while the negative effect for fathers is not statistically significant. The results partly correspond to Powdthavee and Vernoit (2013, Table 2) who do not find significant effects for mothers or fathers in their FE regression.

Previous studies have shown that the psychological impact of unemployment might differ substantially depending on whether a person has chosen to quit the old job, and thus became unemployed voluntarily, or whether unemployment occurred involuntarily, e.g. following a redundancy or plant closure (Kassenboehmer and Haisken-DeNew 2009). This might extend to a differential impact on the well-being of children. For data availability reasons, the studies by Powdthavee and Vernoit (2013) and Hansen and Stutzer (2022) do not distinguish between voluntary and involuntary unemployment. Bubonya et al. (2017) focus exclusively on

involuntary job losses. Kind and Haisken-DeNew (2012) explicitly differentiate between both types of unemployment.

Table 4: Relationship between parents' employment status and children's life satisfaction, linear model

	(1) Life Satisfaction	(2) Life Satisfaction	(3) Life Satisfaction
<u>Mother</u>	Ref.: Employed		
- Involuntarily unemployed	-0.541*** (0.082)	-0.342*** (0.080)	-0.144* (0.081)
- Other unemployment	-0.354*** (0.053)	-0.302*** (0.051)	-0.124** (0.060)
- Inactive	-0.023 (0.026)	0.005 (0.027)	0.007 (0.042)
- Other	-0.110*** (0.038)	-0.091** (0.037)	-0.060 (0.052)
<u>Father</u>	Ref.: Employed		
- Involuntarily unemployed	-0.324*** (0.066)	-0.201*** (0.064)	0.006 (0.078)
- Other unemployment	-0.135** (0.055)	-0.113** (0.053)	-0.008 (0.064)
- Inactive	-0.022 (0.076)	-0.007 (0.074)	-0.016 (0.089)
- Other	-0.017 (0.029)	0.014 (0.029)	-0.024 (0.058)
Controls	No	Yes	Yes
Individual Fixed Effects	No	No	Yes
Observations	45,331	45,331	45,331
R ²	0.005	0.043	0.028

Notes: Same as in Table 3.

The SOEP contains information on the reasons why respondents lost their previous job. We classify employer-initiated job losses (dismissals, plant closures) as “involuntary

unemployment". All other explicitly stated reasons for leaving a job (own resignation, mutual agreement, end of temporary contract) as well as other entries into unemployment for which no reasons were reported are treated as "other unemployment". In Table 4, we split the regressions presented in Table 3 according to the type of unemployment. In the pooled regressions (columns 1 and 2), we find that involuntary parental unemployment is strongly associated with a lower life satisfaction of children. Other types of unemployment have a weaker association with children's life satisfaction. In the fixed-effects regressions (column 3), we do not find evidence for an impact of paternal unemployment, be it voluntary or involuntary, on children's life satisfaction. Maternal unemployment appears to reduce the life satisfaction of children, independently of the type of unemployment. The effects of both types of unemployment are of similar magnitude as the effect found in Table 3. However, the levels of statistical significance are lower because there are fewer observations in each category.⁵

Some previous studies have distinguished the impact of parental unemployment on sons and daughters, but obtained mixed results. Bubonya et al. (2017) find negative effects of parental unemployment only for daughters and not for sons. The negative effect on daughters is particularly strong in case of maternal unemployment. Contrary to that, Kind and Haisken-DeNew (2012) find strong negative effects of involuntary unemployment of fathers on sons, while they find no negative effect of mothers' unemployment on sons and of both parents' unemployment on daughters. Powdthavee and Vernoit (2013) obtain mixed findings. In their study, mothers' unemployment has a significantly positive effect on young boys and a significantly negative effect on older girls, while fathers' unemployment affects young girls positively.

⁵ In Table A1 in the appendix, we present results of the same analysis when using ordered logit instead of linear regressions. These confirm the robustness of our findings with respect to the estimation technique.

When we differentiate our analyses by gender of the child, our pooled regression results suggest a significantly negative association of both mothers' and fathers' involuntary unemployment with sons' and daughters' life satisfaction (Table 5).

Table 5: Relationship between parents' employment status and children's life satisfaction by gender of the child, linear model

	(1)	(2)	(3)
	Life Satisfaction	Life Satisfaction	Life Satisfaction
<u>Mother</u>	Ref.: Employed		
- Involuntarily unemployed	-0.630*** (0.115)	-0.465*** (0.110)	-0.169 (0.118)
- Involuntarily unemployed # Female	0.181 (0.164)	0.243 (0.159)	0.055 (0.162)
<u>Father</u>	Ref.: Employed		
- Involuntarily unemployed	-0.373*** (0.095)	-0.244*** (0.092)	0.013 (0.111)
- Involuntarily unemployed # Female	0.103 (0.132)	0.091 (0.127)	-0.015 (0.155)
Controls	No	Yes	Yes
Individual Fixed Effects	No	No	Yes
Observations	45,331	45,331	45,331
R^2	0.006	0.043	0.028

Notes: Same as in Table 3.

The interaction effect for daughters itself is statistically insignificant (although the overall effect of parental unemployment on daughters is significantly negative in columns 1 and 2). Thus, there is no evidence that the relationship between parental unemployment and children's well-being differs between sons and daughters. When including fixed effects, none of the effects is statistically significant. The estimated effect of mothers' unemployment on sons is quantitatively of a similar magnitude as in Table 4. This suggests that the loss of statistical significance is mainly due to a reduced number of observations when splitting the sample by

gender. The statistically insignificant interaction effect for mothers' unemployment on daughters, on the other hand, is quantitatively small. Hence, our results provide no evidence that paternal or maternal unemployment has a different impact on sons and daughters.

Table 6: Relationship between parents' employment status and children's life satisfaction by age of the child, linear model

	(1) Life Satisfaction	(2) Life Satisfaction	(3) Life Satisfaction
<u>Mother</u>	Ref.: Employed		
- Involuntarily unemployed	-0.507*** (0.134)	-0.282** (0.132)	-0.199 (0.136)
- Involuntarily unemployed # 18-21 y.o.	-0.007 (0.152)	-0.081 (0.150)	0.073 (0.139)
<u>Father</u>	Ref.: Employed		
- Involuntarily unemployed	-0.382*** (0.113)	-0.237** (0.110)	0.021 (0.146)
- Involuntarily unemployed # 18-21 y.o.	0.110 (0.130)	0.048 (0.127)	-0.018 (0.146)
Controls	No	Yes	Yes
Individual Fixed Effects	No	No	Yes
Observations	45,331	45,331	45,331
R ²	0.019	0.043	0.028

Notes: Same as in Table 3.

The impact of parental unemployment on children might not be homogeneous across different age groups. Powdthavee and Vernoit (2013) explicitly analyze such age differences. They find that paternal job loss has a positive impact on young children, but only a small and statistically insignificant effect on older children. While they cannot detect an effect of maternal unemployment on young children's life satisfaction, the impact on older children is significantly negative. We also examine age differences in our data (Table 6) and compare

minor children (ages 12, 14 and 17) with adult children (ages 18-21). Our results cannot confirm the findings of Powdthavee and Vernoit (2013). The estimated relationship between mothers' unemployment and the life satisfaction of minor children is negative and relatively large in magnitude, though not statistically significant in the fixed-effects framework. The interaction effect for adult children is relatively small and never statistically significant, thus suggesting that older children do not suffer systematically more or less from maternal unemployment than younger children. The estimated coefficient of paternal unemployment is also negative for younger children in the pooled analyses. In the fixed-effects model it becomes positive, but small and statistically insignificant. Again, older children do not appear to react differently to their father's unemployment, as the interaction effect turns out to be insignificant across all models. Hence, we do not find evidence for differences in the relationship between parental unemployment and children's life satisfaction across children of different ages.⁶

One of the moderators of the well-being impact of unemployment might be the prevalence and strength of a social work norm (Clark 2003, Stutzer and Lalive 2004). There is strong evidence that one of the main reasons why the unemployed suffer is that they deviate from the societal expectation that they should be working, which causes a loss in their perceived social status and identity (Hetschko et al. 2014). The strength of the social work norm can be approximated by regional unemployment rates (Clark 2003, Clark et al. 2010). Following this approach, Hansen and Stutzer (2022) do not find evidence for the hypothesis that the strength of the negative association between parental unemployment and children's life satisfaction differs systematically between high- and low-unemployment regions.⁷ We run the same kind

⁶ We also find insignificant interaction effects when we use different age thresholds, e.g. comparing children aged 12 or 14 to children aged 17 to 21. In that case, the number of observations in the young group is so small that not only the interaction, but also the main effects turn out to be statistically insignificant.

⁷ When approximating social norms by the national average agreement with statements regarding work as a moral duty as captured by the World Value Survey, Hansen and Stutzer (2022) find that the negative relationship

of analysis, extending our model by the interaction of parental unemployment with regional unemployment rates (Table 7).

Table 7: Relationship between parents' employment status and children's life satisfaction by regional unemployment, linear model

	(1) Life Satisfaction	(2) Life Satisfaction	(3) Life Satisfaction
<u>Mother</u>	Ref.: Employed		
- Involuntarily unemployed	-0.415* (0.216)	-0.288 (0.214)	-0.566*** (0.205)
- Involuntarily unemployed # Regional unemployment rate	0.002 (0.016)	-0.004 (0.016)	0.036** (0.016)
<u>Father</u>	Ref.: Employed		
- Involuntarily unemployed	0.347** (0.150)	0.423*** (0.151)	0.446** (0.191)
- Involuntarily unemployed # Regional unemployment rate	-0.050*** (0.012)	-0.056*** (0.013)	-0.039*** (0.014)
Controls	No	Yes	Yes
Individual Fixed Effects	No	No	Yes
Observations	45,331	45,331	45,331
R^2	0.020	0.044	0.028

Notes: Same as in Table 3.

In the pooled regressions (columns 1 and 2), we do not find a moderating influence of regional unemployment on the relationship between maternal unemployment and children's life satisfaction. For paternal unemployment, however, we find a negative interaction effect, such that there is a significantly positive relationship between fathers' unemployment and children's life satisfaction for low unemployment rates, while this relationship is significantly

between fathers' unemployment and children's life satisfaction is significantly larger in countries with a strong work norm.

negative when regional unemployment rates are high (≥ 10 percent). The same moderating effect is found for fathers in the fixed-effects regressions (column 3). This finding runs counter to the idea that social comparisons cause unemployment to hurt less when there is more of it around. It is, however, compatible with the hypothesis that the unemployed are more frustrated and more discouraged when unemployment rates are higher. For maternal unemployment, on the other hand, the fixed-effects regression does suggest that unemployment reduces children's life satisfaction significantly when unemployment is low, but that this effect becomes weaker when unemployment rises (becoming positive for unemployment rates above 15 percent, but staying statistically insignificant even at the highest unemployment rates observed in the sample). Overall, our findings suggest that there might be a moderating role of social norms, as approximated by the unemployment rate, for the relationship between parental unemployment and children's life satisfaction, but that this moderation could work in opposite directions for paternal and maternal unemployment.

5. Conclusion

In this paper, we provide new evidence on the intergenerational burden of unemployment, using German panel data. We examine the consequences of maternal and paternal unemployment on the subjective well-being of children. To address endogeneity concerns, we differentiate between involuntary job losses that were caused by plant closures and dismissals and other types of unemployment. Our analysis focuses on adolescent children who are between 12 and 21 years old and live with their parents. Our regressions account for children's time-invariant unobserved heterogeneity by including individual fixed effects. In further analyses, we examine how the intergenerational impact of unemployment differs between sons and daughters, between younger and older children, and depending on the regional unemployment rate.

Our analysis builds on previous studies that each examine some of the issues addressed in this paper. These studies generally find that parental unemployment is negatively associated with children's subjective well-being (Bubonya et al. 2017, Hansen and Stutzer 2022, Kind and Haisken-DeNew 2012, Powdthavee and Vernoit 2013). Our results support these findings. In our pooled regressions, we find statistically significant negative relationships between both paternal and maternal unemployment and children's life satisfaction. When taking individual heterogeneity at the child-level into account, our results provide evidence for a negative effect of maternal unemployment, while we do not find reliable evidence for an effect of fathers' unemployment.

Previous studies did not produce clear evidence on whether sons or daughters suffer more from their father's or mother's unemployment. In our analysis, we do not find evidence for a differential impact of parental unemployment on sons and daughters. We thus cannot reject the hypothesis that both suffer equally when their parents become unemployed. In further analyses, we do not find robust age-patterns of the intergenerational impact of unemployment. We do find some evidence for a moderating role of the regional unemployment rate on the negative effect of parental unemployment, where higher regional unemployment reduces (increases) the well-being loss from maternal (paternal) unemployment.

Overall, our study presents further evidence that the detrimental effects of unemployment are not restricted to the directly affected person, but has spillover effects on others as well. In line with the literature, we show that the unemployment of parents can have negative effects on the subjective well-being of their children. Existing studies as well as our results also suggest, however, that the effects might not be homogeneous across subgroups of children and families. A caveat of the literature as well as this study is that sample sizes in available surveys are typically too small to conduct analyses for specific subgroups. Since the respective surveys

are being expanded continuously, future studies might be better able to address effect heterogeneities.

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Appendix

Table A1: Relationship between parents' employment status and children's life satisfaction, ordered logit model

	(1)	(2)	(3)
	Life Satisfaction	Life Satisfaction	Life Satisfaction
<u>Mother</u>	Ref.: Employed		
- Involuntarily unemployed	-0.612*** (0.085)	-0.376*** (0.084)	-0.216* (0.117)
- Other unemployment	-0.394*** (0.056)	-0.340*** (0.055)	-0.197** (0.089)
- Inactive	0.006 (0.028)	0.020 (0.030)	0.011 (0.064)
- Other	-0.090** (0.040)	-0.066 (0.040)	-0.090 (0.081)
<u>Father</u>	Ref.: Employed		
- Involuntarily unemployed	-0.349*** (0.068)	-0.201*** (0.067)	0.007 (0.112)
- Other unemployment	-0.117* (0.061)	-0.085 (0.060)	-0.037 (0.092)
- Inactive	0.004 (0.085)	0.018 (0.085)	-0.018 (0.132)
- Other	-0.016 (0.031)	0.023 (0.032)	-0.039 (0.093)
Controls	No	Yes	Yes
Individual Fixed Effects	No	No	Yes
Observations	45,331	45,331	45,331
Pseudo R^2	0.001	0.015	0.032

Notes: Same as in Table 3.