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Job Insecurity, Employability, and Health: An Analysis for Germany across Generations

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ABSTRACT

Job Insecurity, Employability, and Health: An Analysis for Germany across Generations*

In this paper, we use 12 waves of the German Socio-Economic Panel to examine the relationship between job insecurity, employability and health-related well-being. Our results indicate that being unemployed has a strong negative effect on life satisfaction and health. They also, however, highlight the fact that this effect is most prominent among individuals over the age of 40. A second observation is that job insecurity is also associated with lower levels of life satisfaction and health, and this association is quite strong. This negative effect of job insecurity is, in many cases, exacerbated by poor employability.

JEL Classification: J21, J22

Keywords: job insecurity, employment, employability, well-being, health, Germany

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1 Introduction

The widespread belief in many industrialized countries that job insecurity has been rising in recent decades is also reflected in the clear upward trend in media attention to this topic in the past few years. Suggested causes for this apparent increase in instability include an increase in flexible work arrangements, a rise in the number of small and medium-sized firms, an increase in (part-time) female employment, technological progress (especially increased use of IT and Internet communication in the past decade), a severe recession in the 1990s, and globalization. In fact, although it remains unclear whether this perceived trend actually exists (e.g., Bergmann and Mertens, 2011, p. 421), a large body of literature documents the negative effects of insecurity on health and general well-being (e.g., Astell-Burt and Feng, 2013; Catalano,1991). It also provides some evidence of job insecurity's heterogeneous effects across different regions and socio-economic groups, which could be attributable to employability. Put simply, good job prospects may mediate job insecurity's negative effects on well-being.

Despite the importance of this observation, little empirical evidence exists on employability's role in such a context, with the possible exception of Green (2011), who shows that an increase in men's employability from 0 to 100% reduces the detrimental effect of job insecurity by more than half. This observation is important because, as Green (2011) emphasizes, knowing the relation between job insecurity, employability, and well-being stands at the centre of the European debate over 'flexicurity' (European Commission, 2007), which combines increases in market flexibility (and thus possibly job insecurity) with measures to enhance employability (e.g., training). This debate also applies to Germany's turn-of-the-century Hartz Reforms (i.e., the German government's Agenda 2010), which increased market flexibility (e.g., by reducing unemployment benefits and forcing the unemployed to accept any type of legal job)

while simultaneously trying to enhance employability (e.g., by increasing the number of job centres, supporting further vocational education from the German Federal Labour Agency, and introducing new types of employment).

The aim of this paper is to analyse the effect that job insecurity and employability have on health and general well-being in what we believe is the first such study for Germany and one of only a few that directly analyse the interplay of job insecurity and employability (see also Green, 2011). An additional study goal is to assess the effects of job insecurity, employability, and unemployment on health and well-being for different age groups, a little researched issue despite anecdotal evidence that these effects differ across the life course, with particularly severe unemployment and insecurity effects among the young and the old. For younger workers, the effects apparently stem from loss of human capital and corresponding effects on future earnings, while older workers tend to suffer re-employment difficulties. Finally, our analysis, being based on panel data, helps remedy the dearth of longitudinal studies on the effects of job insecurity and unemployment on well-being (Cheng and Chan, 2008).

As in many previous studies, our results indicate that being unemployed has a strong negative effect on both life satisfaction and health. They also, however, highlight the fact that this effect is, in general, most prominent among individuals over the age of 40. A second observation is that job insecurity is also associated with lower levels of life satisfaction and health, and this association is quite strong (up to half the size of being unemployed). These negative effects of job insecurity are, in many cases, exacerbated by poor employability.

The paper proceeds as follows: Section 2 reviews the relevant research, section 3 describes the data and methodology, section 4 presents the results, and section 5 outlines the conclusions.

2 Previous Research

Since research on job insecurity gained momentum in the 1970s and 1980s, when many western economies faced hitherto unknown high unemployment rates, numerous studies have examined the 'nature, causes and consequences of this increasingly important phenomenon' (Greenhalgh and Rosenblatt, 1984, p. 438). This growing research interest is also well documented in a number of literature reviews and meta-analyses on job insecurity. Cheng and Chan (2008), for example, after reviewing 133 studies on how age, tenure, and gender moderate job insecurity's consequences, provide evidence that the negative relation between job insecurity and both physical and psychological health is more pronounced among older employees and employees with longer tenure than among younger employees and those with shorter tenure. They also replicate an earlier meta-analytic study by Sverke et al. (2002), which shows that job insecurity not only has adverse consequences for employees´ health but also for their well-being at work, job involvement, organizational commitment, work performance, and turnover intentions. The psychological literature, which sees job security as a stress factor, confirms its detrimental effect on health and well-being (Green, 2011; Cheng and Chan, 2008; Sverke et al., 2002).

Many of these and more recent studies, however, especially those in occupational psychology, can be criticized on the grounds of small and cross-sectional samples that often encompass only males in specific occupational groups. Thus, both Sverke et al. (2002, p. 259) and Cheng and Chan (2008, p. 291) detect a lack of longitudinal studies on the long-term consequences of job security and emphasize the importance of identifying the potential moderating effects on such consequences. Sverke et al. (2002), for instance, point to the need for further study on whether personality traits like positive and negative affectivity or neuroticism; personal dispositions like individual-specific need for security, centrality of work, or

employability; and demographic factors like age and family situation have buffering or aggravating effects on job insecurity's consequences.

In a recent literature review De Witte et al. (2012) investigate the role of mediators which possibly extenuate or aggravate the relationship between job insecurity and its various consequences. One possible mediator could be workers´ employability, i.e. an employee´s (self-perceived) chance of finding another job in the future. Good employability prospects could attenuate the negative consequences of job insecurity. For example, using a cross-sectional sample of 639 Belgian employees, Silla et al. (2009) show that good employment prospects can mitigate the negative effect of job insecurity on life satisfaction. Interestingly, however, employability appears to have no moderating effect on psychological distress (Silla et al., 2009, p. 747). Further evidence from a similar cross-sectional sample of 559 Belgian employees underscores employability's importance for workers´ well-being and suggests that employability can either serve as a means of securing jobs or can buffer the potential negative consequences of job insecurity (de Cuyper et al., 2008, p. 501). Berntson and Marklund (2007), using two waves of the National Working Life Cohort in Sweden, also show that self-perceived employability is positively related to overall health and mental well-being one year after the initial observation.

In fact, employability is of great importance for both employees and the unemployed, as demonstrated by Green's (2011) analysis of longitudinal and nationally representative data for Australia. Specifically, this author shows that perceiving one's own labour market prospects as good substantially reduces the detrimental effects of job insecurity and unemployment on life satisfaction and mental health. Knabe and Rätzel (2011), using panel data from the GSOEP, further demonstrate that both bad re-employability opportunities for the unemployed and job insecurity for the employed have detrimental effects on life satisfaction. Whilst Clark et

al. (2001) in their study (which is also based on GSOEP data) indicate large negative effects of having experienced past unemployment on wellbeing (so-called scarring effects), Knabe and Rätzel (2011) demonstrate that this effect is diluted and becomes negligible by taking into account the fear of future unemployment and its negative effect on wellbeing (so-called scaring effect).

Additional studies by Clark (2003) and Clark et al. (2010), based on longitudinal data from the BHPS and GSOEP, respectively, focus on the social norm effects of unemployment. That is, whereas numerous psychological and economic studies suggest that being unemployed substantially decreases individual well-being (Clark and Oswald,1994; Winkelmann and Winkelmann,1998; Blanchflower and Oswald, 2004; Kassenboehmer and Haisken-DeNew, 2009; Flint et al., 2013), there is also strong evidence that the unemployment of others has an external effect on both the employed and the unemployed. Specifically, aggregate unemployment is negatively related to the employed but positively related to the unemployed, and these effects are more distinct among men than women (Clark, 2003, p. 345f; Clark et al., 2010, p. 60). According to Luechinger et al.'s (2010) comparison of German private sector and public sector workers, this negative relation between regional unemployment rates and worker happiness is mainly driven by economic insecurity and job insecurity. A similar 'fear-of-unemployment effect' is identified by di Tella et al. (2003) using data on 12 European countries and the U.S. from the Eurobarometer and General Social Survey, respectively (p. 823). These authors thus conclude that the total loss from a typical economic downturn – including psychological costs – is far beyond the pure monetary costs such as decreased GDP, diminished income, and increased unemployment.

Recent studies on the health consequences of fixed-term employment versus permanent employment also pinpoint job insecurity as an important mediating factor. For example, Virtanen et al. (2005), in their literature review, find a link between

temporary employment and psychological morbidity. This relation, however, is influenced by contextual factors such as job insecurity, the unemployment rate, and the share of temporary employed workers within a country (p. 619). Waenerlund et al. (2011) using Swedish cohort data, also conclude that the relation between temporary employment and both self-assessed health and psychological distress is partly captured by potential mediators like job insecurity, high job strain, and low cash margin (p. 536). In later work, Virtanen et al. (2011) analyse the impact of job insecurity on such health measures as self-assessed health, sleep quality, and mental health to determine whether job insecurity's negative effects on health are stronger among temporary or permanent workers. Interestingly, they find that such detrimental effects are independent of work contract type (p. 570).

Job security, therefore, has become an important part of the implicit psychological contract between employer and employee, which is seen as a fundamental parameter of the modern employer-employee relationship (Sok et al., 2013). Traditionally, in any such contract, the employer offers salary, advancement opportunities, job security, and other working conditions in exchange for workers´ skills, productivity, job performance, and organizational commitment (Ye et al., 2012). Many modern employer-employee relationships, however, are characterized by a lack of job security, meaning that employability has become an essential part of a new type of psychological contract under which employees engage in high levels of job performance and flexibility despite low levels of job security. Yet at the same time, employees expect an employer's support in advancing their employability (de Cuyper et al., 2008, p. 491).

In this paper, we contribute to this literature by analysing the effect of job insecurity on subjective well-being and different measures of individual health. In particular, we explicitly take into account the interaction between job insecurity and

employability (as in Green, 2011) and the impacts of individual and aggregate unemployment.

3 Data and Methodology

In our extension of the previous literature, we employ data from the German Socio-Economic Panel (GSOEP)[1], one of the most widely used long-running panel studies in Europe. The GSOEP, repeated annually since 1984, currently encompasses about 12,000 households with approximately 21,000 individuals and is representative of the German population. In addition to self-reported variables that describe respondents´ overall life satisfaction and overall health (including health satisfaction and self-assessed health status), the GSOEP also contains physical and mental health scale scores based on a specific version of the SF-12v2™ questionnaire. These SF-12v2™ indicators, basically a subset of the SF-36v2™ Health Survey, have been collected at two-year intervals since 2002 and are considered a generally reliable and internationally applicable tool for measuring health-related quality of life.[2]

In this study, we analyse individuals aged 20 to 65 years who are either employed (full or part-time) or registered as unemployed, thereby excluding the economically inactive population. Both unemployed and employed respondents provide information about their individual employability. More specifically, they are asked whether it would be easy (1), difficult (2), or impossible (3) to find a new job if they were looking for one (unemployed) or to find a job that is at least as good as their current one if they lost their job today (employed)[3]. In a first step, we assign category (1) responses to the respective questions to a dummy variable ‘good prospects’ and

[1] For further information on the GSOEP, see Wagner et al. (2007).
[2] For further information on the GSOEP-specific version of the SF-12v2 questionnaire and the computation of the physical and mental health scale scores, see Andersen et al. (2007).
[3] See Appendix Table A.1 for an overview of these and the outcome variables with respect to question format and coding.

categories (2) and (3) to a dummy variable 'bad prospects' for the unemployed and employed. In addition, we dichotomize the responses to a question asking employed respondents whether they are very concerned (1), somewhat concerned (2), or not concerned at all (3) about their job security into 'low job security', for (1) and (2), versus 'high job security', for (3). We are especially interested in whether employability – that is, having good or bad prospects – interacts with employment status and job security. In particular, we explore whether good prospects attenuate the potentially adverse effects of unemployment on well-being and whether interaction between job security and bad prospects affects life satisfaction and the health measures under analysis.

Because the GSOEP data also enable the linking of respondents' residences to regional and spatial indicators, we use unemployment rates and GDP per capita – both on the 400+ counties level (*Kreise* and *kreisfreie Städte*) – as control variables.[4] By adding in a large variation of these macro-variables over both space and time, we can probe for spill-over effects on individual well-being arising from such (local) environmental variables (along the same lines as Di Tella et al., 2001).

Due to data availability our analysis of the dependent variables life satisfaction, health satisfaction and self-assessed health is carried out using an unbalanced panel for the years 1997, and 1999 to 2009. Physical and mental health scale scores are available and analysed for the years 2002, 2004, 2006, and 2008. Individuals are observed for an average period of 5.1 years (life satisfaction, health satisfaction and self-assessed health) and 2.5 years (physical and mental-health scale scores). Accepting Ferrer-i-Carbonell and Frijters's (2004) claim that it makes little difference whether variables of general satisfaction are treated as ordinal or cardinal, we estimate

[4] In principle, the German counties resemble the statistical nomenclature of the European Union on the NUTS 3 level but are not necessarily congruent. For further information on GSOEP regional data, see Knies and Spiess (2007).

fixed-effects models that treat all dependent variables as cardinal[5]. We also, however, pay serious attention to these authors' emphasis on controlling for time-invariant unobserved factors, especially in studies in which the outcomes and exposures are based on self-reports.

In this present study, both the life satisfaction and self-reported health variables, as well as the individual perceptions of employability and job security, are based on subjective self-reported data and could thus be influenced by unobserved personal traits like positive or negative affectivity, extrovertism, neuroticism, or hardiness (Brief et al.,1988; Watson et al,1988). Hence, to hold the influences of these unobserved third factors constant, we control for unobserved heterogeneity and estimate fixed-effects models of the following form:

$$Y_{it} = \alpha + \beta_1 UE_{it} + \beta_2 (UE_{it} \times GP_{it}) + \beta_3 LowJS_{it} + \beta_4 (LowJS_{it} \times BP_{it}) + \beta_5 (HighJS_{it} \times BP_{it}) + \gamma' X_{it} + \eta' Z_{kt} + \mu_i + \varepsilon_{it}$$

where Y_{it} denotes individual *i´*s overall life satisfaction or health related well-being at time *t*, UE_{it} is a dummy variable for being unemployed, and (UE_{it} x GP_{it}) is an interaction term of being unemployed and having good prospects for finding an appropriate position. $LowJS_{it}$ is a dummy variable indicating low job security/job insecurity in terms of being very or somewhat concerned about job security. ($LowJS_{it}$ x BP_{it}) is an interaction term between respondents' being exposed to job insecurity and having bad prospects for finding an appropriate position were they to lose their current job. Likewise, ($HighJS_{it}$ x BP_{it}) is an interaction term between having a secure job and bad

[5] Additionally, we estimate fixed effects ordered logit models for the dependent variables life satisfaction, health satisfaction, and self-assessed health using the blow-up and cluster (BUC) estimator by Baetschman, Staub, and Winkelmann (2011). The results (direction and significance of the coefficients) remain unchanged and are available upon request from the authors.

prospects for finding as good a job in case of job loss. X_{it} is a set of standard control variables used in the well-being literature: net household income per capita, being married, the number of children, a dummy variable indicating whether a person in need of care is living in the household, a dummy variable for whether respondents own the accommodation they live in, and the grade of disability. This variable vector also includes dummy variables for age categories and years. Z_{kt} is a set of macro-variables – local unemployment rates and GDP per capita on the county level – while μ_{it}, captures unobserved individual-specific effects and ε_{it} is a disturbance term. All models are estimated for men and women separately and standard errors are clustered at the county and year level. To assess whether the impact of unemployment, low job security, or employability on life satisfaction and health varies across age, we also run the regression models separately for different age groups.

4 Results

Our initial descriptive analysis illustrates the distribution of the sample by labour force status; that is, the categories resulting from the (interacted) dummy variable specification of our regression models (see table 1). Table 2 reports the group-specific means of the dependent variables according to these categories.

Table 1: Absolute and relative frequency distributions of labour force status

	TOTAL		MEN		WOMEN	
Labour force status	Freq.	Percent	Freq.	Percent	Freq.	Percent
Unemployed						
Unemployed x good prospects	346	0,27	198	0,29	148	0,25
Unemployed x bad prospects	9.098	7,17	4.626	6,82	4.472	7,58
Employed						
Low job security x good prospects	7.517	5,93	4.214	6,21	3.303	5,6
Low job security x bad prospects	57.996	45,73	32.017	47,18	25.979	44,06
High job security x good prospects	15.551	12,26	8.021	11,82	7.530	12,77
High job security x bad prospects	36.317	28,64	18.780	27,68	17.537	29,74
Total	126.825	100	67.856	100	58.969	100

Table 2: Means and grouped means of dependent variables by labour force status

	TOTAL		MEN		WOMEN	
	Mean	SE	Mean	SE	Mean	SE
Life satisfaction	**6,99**	**0,00**	**6,98**	**0,01**	**6,99**	**0,01**
Unemployed x good prospects	6,77	0,10	6,61	0,15	6,99	0,14
Unemployed x bad prospects	5,60	0,02	5,42	0,03	5,78	0,03
High job security x good prospects	7,63	0,01	7,66	0,02	7,60	0,02
High job security x bad prospects	7,45	0,01	7,47	0,01	7,42	0,01
Low job security x good prospects	7,06	0,02	7,05	0,02	7,07	0,03
Low job security x bad prospects	6,74	0,01	6,75	0,01	6,73	0,01
Number of observations	126.825		67.856		58.969	
Health satisfaction	**6,94**	**0,01**	**6,97**	**0,01**	**6,92**	**0,01**
Unemployed x good prospects	7,29	0,12	7,16	0,16	7,47	0,17
Unemployed x bad prospects	6,20	0,02	6,19	0,04	6,22	0,03
High job security x good prospects	7,50	0,02	7,60	0,02	7,40	0,02
High job security x bad prospects	7,14	0,01	7,15	0,01	7,12	0,01
Low job security x good prospects	7,17	0,02	7,20	0,03	7,14	0,03
Low job security x bad prospects	6,76	0,01	6,78	0,01	6,73	0,01
Number of observations	126.778		67.830		58.948	
Self-assessed health	**3,55**	**0,00**	**3,57**	**0,00**	**3,53**	**0,00**
Unemployed x good prospects	3,69	0,05	3,65	0,07	3,75	0,08
Unemployed x bad prospects	3,22	0,01	3,23	0,02	3,22	0,01
High job security x good prospects	3,80	0,01	3,87	0,01	3,74	0,01
High job security x bad prospects	3,61	0,00	3,63	0,01	3,58	0,01
Low job security x good prospects	3,70	0,01	3,73	0,01	3,66	0,01
Low job security x bad prospects	3,49	0,00	3,50	0,00	3,47	0,01
Number of observations	126.813		67.847		58.966	
Physical health scale	**50,93**	**0,05**	**51,31**	**0,07**	**50,51**	**0,08**
Unemployed x good prospects	52,55	0,82	52,19	1,17	53,07	1,07
Unemployed x bad prospects	47,46	0,20	47,40	0,29	47,53	0,28
High job security x good prospects	53,25	0,14	54,03	0,19	52,43	0,22
High job security x bad prospects	51,32	0,09	51,73	0,13	50,89	0,14
Low job security x good prospects	52,86	0,20	53,31	0,26	52,31	0,31
Low job security x bad prospects	50,59	0,08	50,93	0,10	50,19	0,12
Number of observations	45.431		24.063		21.368	
Mental health scale	**48,81**	**0,06**	**49,79**	**0,07**	**47,70**	**0,08**
Unemployed x good prospects	47,53	0,89	47,01	1,24	48,30	1,23
Unemployed x bad prospects	46,36	0,21	47,32	0,29	45,37	0,29
High job security x good prospects	50,60	0,16	51,60	0,20	49,54	0,23
High job security x bad prospects	50,79	0,10	51,85	0,13	49,70	0,15
Low job security x good prospects	47,96	0,23	49,15	0,30	46,46	0,34
Low job security x bad prospects	47,74	0,08	48,75	0,11	46,52	0,13
Number of observations	45.431		24.063		21.368	

Table 3: Life satisfaction, health satisfaction, and self-assessed health: fixed-effects regression models

	MEN			WOMEN		
Dependent variable	**Life satisfaction coef/se**	**Health satisfaction coef/se**	**Self-assessed health coef/se**	**Life satisfaction coef/se**	**Health satisfaction coef/se**	**Self-assessed health coef/se**
Unemployed	-1,069***	-0,280***	-0,140***	-0,777***	-0,189***	-0,105***
	(0,036)	(0,040)	(0,017)	(0,038)	(0,043)	(0,018)
Unemployed x good prospects	0,602***	0,305**	0,105*	0,673***	0,398***	0,189***
	(0,130)	(0,133)	(0,061)	(0,122)	(0,150)	(0,066)
Low job security	-0,196***	-0,138***	-0,059***	-0,222***	-0,078**	-0,021
	(0,026)	(0,031)	(0,013)	(0,029)	(0,036)	(0,015)
Low job security x bad prospects	-0,109***	-0,010	-0,023**	-0,041	-0,058*	-0,044***
	(0,024)	(0,028)	(0,011)	(0,028)	(0,032)	(0,014)
High job security x bad prospects	-0,030	-0,002	-0,009	-0,040**	0,001	-0,011
	(0,019)	(0,024)	(0,011)	(0,020)	(0,026)	(0,011)
GDP per capita	0,001	0,001	0,001*	-0,000	-0,001	0,001
	(0,002)	(0,002)	(0,001)	(0,002)	(0,002)	(0,001)
U-rate	-0,010**	-0,007*	-0,003	-0,014***	0,003	-0,001
	(0,004)	(0,005)	(0,002)	(0,004)	(0,005)	(0,002)
Number of observations	67.856	67.830	67.847	58.969	58.948	58.966
F	82,152	68,290	71,724	54,391	41,250	43,866
R^2	0,119	0,049	0,073	0,094	0,030	0,029

Note: ***p<0.01, **p<0.05, *p<0.1

Standard errors are clustered around counties and years.
The control variables are household income per capita, being married, number of children, a dummy variable indicating whether someone is a care giver for other persons in the household, a dummy variable indicating whether respondent lives in own house, disability status, age categories, and wave dummies.

One notable insight from the fixed effects models (summarized in table 3) is that unemployment has a highly significant negative impact on life satisfaction, health satisfaction, and self-assessed health for both men and women. We also find significant positive coefficients for the interaction term between being unemployed and having good prospects; that is, the negative effect of unemployment is significantly attenuated if the unemployed have good prospects for future employability. Low job security, in terms of employees being very or somewhat concerned about their job security, also has a significant negative effect on these outcome variables. The negative coefficient for the dummy variable low job security, however, is only insignificant with respect to self-assessed health in the female sample. This negative effect of job insecurity is aggravated by the interaction term between low job security and bad employability prospects in case of job loss. This aggravating effect is significant for the outcome variables life satisfaction and health satisfaction in the male sample and with respect to health satisfaction and self-assessed health in the female sample. Interestingly, the regional unemployment rate is significant and negative for life satisfaction in both the male and female samples but for health satisfaction only in the male sample. Regional GDP per capita as a welfare indicator is insignificant for all outcomes except for self-assessed health in the male sample.

The results of our multivariate analysis with respect to the outcome variables physical and mental health scale scores are listed in table 4. The negative impact of unemployment on both the physical and mental health scale scores is highly significant for the male sample but is only significant with respect to mental health in the female sample. Nevertheless, in terms of males´ physical health and females´ mental health, we find a significant positive effect of being unemployed and having good employability prospects, which attenuates the negative effect of being unemployed. Low job security is only significant and negative for male and female mental health, and there is an

Table 4: Physical health and mental health scale scores: fixed-effects regression models

	MEN		WOMEN	
Dependent variable	**Physical health coef/se**	**Mental health coef/se**	**Physical health coef/se**	**Mental health coef/se**
Unemployed	-1,018***	-1,357***	0,093	-2,109***
	(0,267)	(0,332)	(0,285)	(0,369)
Unemployed x good prospects	1,915***	-0,476	-0,114	2,607**
	(0,720)	(1,016)	(0,895)	(1,049)
Low job security	-0,066	-1,031***	-0,255	-0,928***
	(0,198)	(0,271)	(0,262)	(0,336)
Low job security x bad prospects	-0,107	0,090	-0,101	-0,591*
	(0,182)	(0,228)	(0,238)	(0,310)
High job security x bad prospects	0,116	0,021	-0,144	-0,290
	(0,171)	(0,203)	(0,195)	(0,227)
GDP per capita	0,007	0,003	-0,003	0,017
	(0,011)	(0,016)	(0,016)	(0,020)
U-rate	0,035	0,001	0,005	-0,008
	(0,031)	(0,042)	(0,033)	(0,046)
Number of observations	24.063	24.063	21.368	21.368
F	27,885	4,583	16,922	6,865
R^2	0,105	0,029	0,037	0,027

Note: ***p<0.01, **p<0.05, *p<0.1

Standard errors are clustered around counties and years.
The control variables are household income per capita, being married, number of children, a dummy variable indicating whether someone is a care giver for other persons in the household, a dummy variable indicating whether respondent lives in own house, disability status, age categories, and wave dummies.

additional significant negative effect for the interaction term between low job security and bad employability prospects in the female sample.

Table 5 reports the results for whether the effects of unemployment, job insecurity, and employability on life satisfaction and health vary across generations; more specifically, for the regression models run for four age categories (20-29, 30-39, 40-49, and 50-65) and for males and females separately. One important finding from this analysis is that unemployment has a significantly negative effect on life satisfaction throughout all age groups. For both men and women, the attenuating effect of being unemployed and having good prospects for finding a new job is positive, although only

significant for respondents aged 20 to 49. The significance of this attenuating effect disappears, however, for respondents aged between 50 and 65. Likewise, with respect to life satisfaction, low job security has a significantly negative effect throughout all age categories and in both the male and female samples. The aggravating effect of the interaction between job insecurity and bad employability prospects in case of job loss, however, is only significant and negative for certain age groups; namely, male employees aged 30 to 65 and female employees aged 40 to 49.

We also find notable age differences with respect to health. For instance, unemployment has a significantly negative effect on the outcome variable health satisfaction in age groups 20-29, 40-49, and 50-65 in the male sample and in age groups 40-49 and 50-65 in the female sample. This health effect, however, is insignificant for 20- to 29-year-old unemployed men and also for unemployed women aged 20-29 and 30-39. Interestingly, the significantly positive interaction effect of being unemployed and having good employability prospects dilutes the negative effect of unemployment only for men aged 40-49. Moreover, low job security is only significant and negative for young (20-29) and middle-aged (40-49) male employees and for females aged 30-39. Being exposed to low job security and having bad prospects, however, has a significantly negative effect for women aged 40-49. The interaction between high job security and bad employability prospects, on the other hand, is significantly negative only for the age group 40-49 in both men and women, and significantly positive only for 30- to 39-year-old men.

In terms of self-assessed health, unemployment has a significantly negative impact only from age 40 and above in men and from 30 and above in women. The results also identify a significantly positive and attenuating effect for the unemployed of having good prospects, which manifests in the age categories 20-29 and 40-49 in

Table 5: Life satisfaction, health satisfaction, and self-assessed health: fixed-effects regression models by age category

Life satisfaction

	MEN				WOMEN			
Age category	**20-29**	**30-39**	**40-49**	**50-65**	**20-29**	**30-39**	**40-49**	**50-65**
	coef/se	**coef/se**	**coef/se**	**coef/se**	**coef/se**	**coef/se**	**coef/se**	**coef/se**
Unemployed	-1,133***	-1,158***	-0,990***	-0,967***	-0,795***	-0,769***	-1,071***	-0,486***
	(0,082)	(0,077)	(0,078)	(0,069)	(0,089)	(0,078)	(0,076)	(0,076)
Unemployed x good prospects	1,026***	0,648***	0,577*	-0,129	0,605***	0,512**	1,149***	0,476
	(0,198)	(0,229)	(0,323)	(0,335)	(0,212)	(0,224)	(0,278)	(0,469)
Low job security	-0,185***	-0,133***	-0,215***	-0,234***	-0,291***	-0,190***	-0,160***	-0,222**
	(0,052)	(0,040)	(0,051)	(0,088)	(0,057)	(0,050)	(0,059)	(0,108)
Low job security x bad prospects	-0,071	-0,112***	-0,099**	-0,142*	0,045	-0,021	-0,123**	-0,032
	(0,053)	(0,037)	(0,046)	(0,084)	(0,054)	(0,045)	(0,054)	(0,102)
High job security x bad prospects	0,037	-0,003	-0,050	-0,118***	-0,027	-0,010	-0,065*	-0,077
	(0,049)	(0,033)	(0,039)	(0,041)	(0,048)	(0,039)	(0,037)	(0,049)
Number of observations	9.417	18.747	20.356	19.336	9.281	15.220	18.907	15.561

Health satisfaction

	MEN				WOMEN			
Age category	**20-29**	**30-39**	**40-49**	**50-65**	**20-29**	**30-39**	**40-49**	**50-65**
	coef/se	**coef/se**	**coef/se**	**coef/se**	**coef/se**	**coef/se**	**coef/se**	**coef/se**
Unemployed	-0,157*	-0,030	-0,352***	-0,324***	0,041	-0,101	-0,232***	-0,186**
	(0,084)	(0,082)	(0,086)	(0,085)	(0,106)	(0,086)	(0,085)	(0,091)
Unemployed x good prospects	0,250	0,140	0,465*	-0,038	0,244	0,435	0,485	0,039
	(0,197)	(0,275)	(0,265)	(0,312)	(0,256)	(0,278)	(0,339)	(0,527)
Low job security	-0,178***	-0,054	-0,199***	-0,167	-0,078	-0,111*	-0,057	-0,005
	(0,062)	(0,047)	(0,062)	(0,111)	(0,072)	(0,062)	(0,067)	(0,123)
Low job security x bad prospects	0,079	-0,030	-0,006	0,017	0,030	0,026	-0,143**	-0,186
	(0,057)	(0,044)	(0,053)	(0,104)	(0,064)	(0,055)	(0,062)	(0,113)
High job security x bad prospects	0,039	0,074*	-0,085*	-0,054	0,067	0,011	-0,081*	-0,047
	(0,058)	(0,039)	(0,047)	(0,060)	(0,066)	(0,049)	(0,045)	(0,065)
Number of observations	9.417	18.734	20.345	19.334	9.273	15.218	18.901	15.556

Table 5 (continued)

Self-assessed health

	MEN				WOMEN			
Age category	**20-29**	**30-39**	**40-49**	**50-65**	**20-29**	**30-39**	**40-49**	**50-65**
	coef/se	**coef/se**	**coef/se**	**coef/se**	**coef/se**	**coef/se**	**coef/se**	**coef/se**
Unemployed	-0,044	-0,017	-0,197***	-0,182***	-0,015	-0,107***	-0,172***	-0,089**
	(0,036)	(0,036)	(0,036)	(0,035)	(0,042)	(0,037)	(0,034)	(0,037)
Unemployed x good prospects	0,199**	-0,102	0,282**	-0,131	-0,025	0,424***	0,254	-0,116
	(0,098)	(0,116)	(0,130)	(0,144)	(0,098)	(0,121)	(0,207)	(0,150)
Low job security	-0,065**	-0,030	-0,077***	-0,045	-0,033	-0,041	-0,035	0,073
	(0,027)	(0,020)	(0,025)	(0,048)	(0,030)	(0,028)	(0,030)	(0,052)
Low job security x bad prospects	0,004	-0,021	-0,021	-0,043	-0,010	-0,036	-0,075***	-0,144***
	(0,025)	(0,018)	(0,023)	(0,044)	(0,027)	(0,024)	(0,027)	(0,049)
High job security x bad prospects	0,003	0,014	-0,024	-0,033	0,002	-0,023	-0,063***	-0,028
	(0,026)	(0,019)	(0,020)	(0,025)	(0,028)	(0,021)	(0,020)	(0,027)
Number of observations	9.417	18.741	20.361	19.328	9.275	15.220	18.909	15.562

Note: ***p<0.01, **p<0.05, *p<0.1

Standard errors are clustered around counties and years

The control variables are household income per capita, being married, number of children, a dummy variable indicating whether someone is a care giver for other persons in the household, a dummy variable indicating whether respondent lives in own house, disability status, and wave dummies.

men and 30-39 in women. These same age groups in the male sample (20-29 and 40-49) experience a significantly negative impact of job insecurity on self-assessed health, but this effect is insignificant for women. The interaction between job insecurity and bad prospects, on the other hand, is significantly negative for employed women aged 40 and above. Women´s self-assessed health at age 40-49 is also significantly negatively influenced by having bad employability prospects even when the current job is secure (interaction term). Overall, it is important to note that there is no significant attenuating effect for the unemployed having good employability prospects at age 50+. This finding holds for all three outcome variables – life satisfaction, health satisfaction, and self-assessed health – and for both the male and female samples.

We next analyse the physical and mental health scale scores (see table 6). In contrast to the above analysed outcome variables, we do not include an interaction term of being unemployed and having bad employability prospects due to small cells with less than 20 observations in this category and in some of the age groups.

In terms of physical health, we find a significantly negative relation between unemployment and the physical health scale score for men aged 50+ but identify no significant effect on this score of either job security or employability. In terms of mental health, unemployment has a significantly negative impact on the mental health scale score for men aged 40-49 and 50-65 and for women age 30 and over. With respect to low job insecurity, we find significantly negative effects on mental health in men aged 20-29 and 30-39 and women aged 20-29. Bad employability prospects interacted with high job security also seem to have a significantly detrimental effect on mental health for women aged between 40 and 49.

Table 6: Physical and mental health scale scores: fixed-effects regression models by age category

Physical health

	M E N				W O M E N			
Age category	**20-29 coef/se**	**30-39 coef/se**	**40-49 coef/se**	**50-65 coef/se**	**20-29 coef/se**	**30-39 coef/se**	**40-49 coef/se**	**50-65 coef/se**
Unemployed	-0,495	0,305	-0,017	-2,548***	-0,120	0,842	1,077*	-0,371
	(0,578)	(0,497)	(0,578)	(0,561)	(0,624)	(0,578)	(0,574)	(0,638)
Low job security	-0,137	0,084	-0,570	0,420	-0,411	0,071	0,052	-0,806
	(0,506)	(0,336)	(0,416)	(0,750)	(0,584)	(0,497)	(0,520)	(0,873)
Low job security x bad prospects	-0,459	0,000	0,171	-0,758	-0,057	-0,306	-0,574	0,505
	(0,452)	(0,305)	(0,355)	(0,672)	(0,507)	(0,467)	(0,495)	(0,824)
High job security x bad prospects	0,156	0,171	-0,405	0,203	-0,110	-0,454	-0,300	0,079
	(0,433)	(0,326)	(0,344)	(0,362)	(0,442)	(0,396)	(0,330)	(0,485)
Number of observations	3.161	6.169	7.482	7.251	3.170	5.221	7.006	5.971

Mental health

	M E N				W O M E N			
Age category	**20-29 coef/se**	**30-39 coef/se**	**40-49 coef/se**	**50-65 coef/se**	**20-29 coef/se**	**30-39 coef/se**	**40-49 coef/se**	**50-65 coef/se**
Unemployed	0,405	-0,930	-2,201***	-1,922***	0,047	-1,732**	-3,365***	-2,012***
	(0,759)	(0,668)	(0,720)	(0,658)	(1,033)	(0,728)	(0,678)	(0,745)
Low job security	-1,253**	-1,085**	-0,560	-0,949	-1,590**	-1,018	0,007	-0,494
	(0,630)	(0,488)	(0,557)	(0,821)	(0,768)	(0,634)	(0,622)	(1,077)
Low job security x bad prospects	0,651	0,463	-0,575	0,006	0,510	-0,528	-1,687***	-0,359
	(0,590)	(0,412)	(0,503)	(0,783)	(0,706)	(0,589)	(0,598)	(1,034)
High job security x bad prospects	-0,717	0,313	0,089	0,066	0,277	0,074	-0,704*	0,081
	(0,586)	(0,426)	(0,433)	(0,409)	(0,627)	(0,495)	(0,368)	(0,561)
Number of observations	3.161	6.169	7.482	7.251	3.170	5.221	7.006	5.971

Note: ***p<0.01, **p<0.05, *p<0.1

Standard errors are clustered around counties and years
The control variables are household income per capita, being married, number of children, a dummy variable indicating whether someone is a care giver for other persons in the household, a dummy variable indicating whether respondent lives in own house, disability status, and wave dummies.

5 Conclusions

How then does job insecurity affect well-being? This question has received much public attention, especially in light of the turbulent economic crisis of the last decade and the continuing liberalization of markets. Yet the large body of literature on job insecurity's effects on health includes very few longitudinal studies. Moreover, recent evidence seems to indicate that the negative effects of job insecurity are particularly susceptible to a worker's employability, motivating this present analysis of the nexus between job insecurity, employability, and well-being. To our knowledge, ours is the first study to address this issue with a focus on health across generations, a particularly important aspect given that insecurity, employability, and health all have a strong age dimension.

Specifically, using data from 12 waves of the German Socio-Economic Panel (GSOEP), we analyse the relation between job insecurity, employability and well-being (life satisfaction and health) to reveal three important findings: First, as in past studies, we observe a strong effect of unemployment on both life satisfaction and health. Not only does unemployment affect life satisfaction in all age groups, there is also a clear age effect with regards to health; that is, unemployment among individuals older than 40 has a particularly strong effect on nearly all health measures, and in particular, those for mental health. We therefore conjecture that the health effects of unemployment observed in much of the extant research can be attributed to older individuals.

In addition, we document a predominantly negative association between job insecurity and (health-related) well-being, an effect that is enhanced by the presence of poor employability prospects. And as shown above, this effect is quite substantial. This finding is similar to that of Green (2011).

Finally, by using local unemployment rates in over 400 counties to assess whether local labour-market conditions exert some form of externalityon workers' subjective well-being and health, we show that once job insecurity is controlled for,

unemployment rates do indeed have a negative effect on life satisfaction. This effect, however, is small and does not translate into negative effects on health.

Overall, therefore, our study supports the (predominantly cross-sectional) literature showing that job insecurity affects not only life satisfaction but also health. In particular, our finding that employability has an attenuating effect on the negative consequences of job insecurity implies that promoting employability could have beneficial health implications. Hence, in the face of an ageing population and corresponding increases in retirement age, public and corporate policies aimed at enhancing workers' employability throughout the life course seem especially important. One example of such a focus is the EU's European Employment Strategy (first adopted by the Member States in 1997 and promoted by the Lisbon Strategy), which supports employability by fostering of skill development (implementation of life-long learning) and the reduction of age discrimination (i.e., increasing the employment prospects of older workers).

The limitations of our study also highlight the prospects for future research. First, whereas our use of longitudinal data helps fill a methodological void, determining clear causal links is challenging and an aspect that extant studies on the association between insecurity and health fail to address. In our opinion, a quasi-experimental design (such as that used in Schmitz, 2011) is probably the only feasible approach to identifying exact causality mechanisms. A further interesting avenue for future research would be to assess the long-term health effects of job insecurity and employability. As shown in other research areas (e.g., Kim and Moen, 2002, on the health effects of retirement), short-term health effects need not always translate into long-term impacts. Finally, evidence based on more objective and differentiated health measures (e.g., diagnosed hypertension or depression) could provide a better understanding of how insecurity and employability affect health.

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Appendix

Table A.1: Overview of dependent and selected independent variables

Variable	Question format	Coding scheme
Life satisfaction	How satisfied are you with your life, all things considered?	**11-point scale** [completely dissatisfied (0) to completely satisfied (10)]
Health satisfaction	How satisfied are you with… your health?	**11-point scale** [totally unhappy (0) to totally happy (10)]
Self-assessed health[1]	How would you describe your current health?	**5-point scale** [bad (1) to very good (5)]
Physical health score scale	12-item summary scale	[0 (bad) to 100 (good)]
Mental health score scale	12-item summary scale	[0 (bad) to 100 (good)]
Job security	What is your attitude towards the following areas – are you concerned about them? … *If you are employed:* Your job security	**3-point scale** [very concerned (1), somewhat concerned (2), not concerned at all (3)]
Employment prospects (unemployed)	If you were currently looking for a new job: Would it be easy, difficult or almost impossible to find an appropriate position?	**3-point scale** [easy (1), difficult (2), almost impossible (3)]
Employment prospects (employed)	If you lost your job today, would it be easy, difficult or almost impossible for you to find a new position which is at least as good as your current one?	**3-point scale** easy (1), difficult (2), almost impossible (3)]

[1] Variables are recoded