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ORIGINAL INVESTIGATION

The 2008–2009 Great Recession and employment outcomes among older workers

Hila Axelrad[1] · **Erika L. Sabbath**[2] · **Summer Sherburne Hawkins**[2]

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Abstract This study examined whether economic changes related to the 2008–2009 Recession were associated with employment status and job quality indicators among older workers in Europe and Israel. Data were derived from 4917 respondents (16,090 observations both before and after the recession) from 13 countries who participated in the Survey of Health, Ageing and Retirement in Europe. Annual data on gross domestic product (GDP) per capita, life expectancy, and quarterly unemployment rates were assigned to employment assessments from 2004 to 2013. Using difference-in-differences models, we assessed the recession's implications on individual employment outcomes, while isolating cyclical variation within countries and individual changes over time. Among older workers, decreases in GDP were associated with an increase in the likelihood of being unemployed and a decrease in the likelihood of being retired. An increasing country-level unemployment rate had a significant effect on aspects of job quality: lower prospects for job advancement, lower job security, and higher job satisfaction. Economic recessions are thus negatively associated with employment outcomes for older workers. However, malleable policy-related factors such as longer tenure and improved general health can limit the negative employment and job quality outcomes following a recession.

Keywords Older workers · Recessions · Job satisfaction · Job advancement · Job security · SHARE

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✉ Hila Axelrad
axelradh@bc.edu

Erika L. Sabbath
erika.sabbath@bc.edu

Summer Sherburne Hawkins
summer.hawkins@bc.edu

[1] Center on Aging & Work, Boston College, 140 Commonwealth Avenue, Chestnut Hill, MA 02467, USA

[2] School of Social Work, Boston College, Chestnut Hill, MA 02467, USA

Introduction

Life expectancy has risen during the twentieth century, and the proportions of older workers—and particularly females—in labor markets across the globe have been growing constantly since the 1990s (Kulik et al. 2014; OECD 2013b). The Great Recession, which was felt from December 2007 through June 2009 (National Bureau of Economic Research), affected all workers (Cho and Newhouse 2013), including older workers (Johnson 2012).

Economic recessions significantly affect individuals' employment status (Smith 2009; Borbely 2009)—the growth in labor force participation rates slow or sometimes even get reversed, and unemployed workers are more likely to drop out of the labor market (Eschtruth and Gemus 2002). Unemployment rates increased during 2008–2009 Recession (Katz 2010), yet its consequences were unequal across Europe. While countries like France and the Netherlands witnessed a minor impact on their level of unemployment, others, like Spain and Ireland, were dramatically affected (Gradín et al. 2015), perhaps due to country-specific characteristics such as unemployment rates, GDP per capita, and the welfare system (Lakomý and Kreidl 2015). One analysis of the labor market adjustment found that more jobs are destructed during recession than the ones created following recoveries, mainly due to

reallocation shocks or sector specific shocks, which differentially impact workers by gender, age, type of work contract, qualifications, and experience (Arpaia and Curci 2010).

A review of the literature suggested that a thorough examination of the effects of recessions on older workers and their working conditions has yet to be published. Our current study examined the changes in country-level economic (GDP per capita, quarterly unemployment rate) and health (life expectancy) indicators within and across 12 European countries and Israel in the years 2004–2013, before, during, and after the Great Recession. By combining these data with those from the Survey of Health, Ageing and Retirement in Europe (SHARE) representative dataset, a natural experiment was available for exploration. We examined employment status (employed, unemployed, or retired) and indicators of job quality (hours worked per week, prospects for promotion, job security, job satisfaction, and satisfaction with salary) among older workers, to uncover whether and how economic changes related to the 2008–2009 Recession affected the older worker population.

Background and hypotheses

Economic downturns have significant effects on employment and job quality among the general population. As for the influence on older workers, an examination of long-term trends in the USA showed that their labor force participation tends to decline during recessions (Eschtruth and Gemus 2002). Yet, during the 2001–2002 Recession, the participation of older workers actually increased, perhaps due to the steep decline in the stock market that may have convinced people to delay retirement or rejoin the workforce (Eschtruth and Gemus 2002). The impact of the Great Recession on the older population has led to a decrease in living conditions and an increase in material deprivation, especially among individuals with the lowest incomes, and particularly women (Foster and Walker 2013). Despite the economic downturn, employment rates of older men during the Great Recession were as high as at the last extension (Munnell et al. 2009), due to two opposing trends—a growth in the labor force participation of older men and a decrease in their job security relative to younger workers (Munnell et al. 2009). Our first hypothesis, therefore, is that the recession increased the likelihood of older workers to be unemployed (H_1).

The existing body of literature reveals that recessions have negative effects on job quality and job transition patterns (Johnson and Corcoran 2003). Cross-country heterogeneity in job quality trends was found to be associated with economic trends (like unemployment variation) as well as employment distribution between different sectors. Labor market institutions (like employment protection) can also explain the changes in job quality at times of crisis (Erhel et al. 2012). Younger, older, and low-educated workers were found to be more adversely affected by decreases in job quality compared to other workers (Erhel et al. 2012). Some argue that job quality can be assessed by a single variable, such as wage level or job satisfaction, (Erhel and Guergoat-Larivière 2010). Others found that different components of job quality can be influenced by economic conditions (Barling et al. 2003; Johnson and Corcoran 2003), such as hours worked per week, prospects for job advancement, employment security, job satisfaction, and satisfaction with salary.

One consequence of the Great Recession was higher rates of underemployment [those working part-time for economic reasons, such as poor business conditions, incapability to find a full-time job (Sum and Khatiwada 2010), or those working in a job that is below one's skill set or level of training (Vedder et al. 2013)]. During the Great Recession, the number of underemployed in the USA increased by 112% (Sum and Khatiwada 2010). Data from the Current Population Survey suggest that underemployment rates were higher during the Great Recession among low-educated, low-skilled, and low-wages workers (Sum and Khatiwada 2010). We may thus expect to find higher underemployment rates among older workers as well. Hence, we hypothesize that during the recession, older workers worked a smaller number of *hours per week* compared to the hours worked before the recession (H_2).

Prospects for job advancement also tend to decline during recessions. Addison et al. (2014) found that negative economic conditions reduced expected promotions. While both genders were affected by the economic downturn of 2002, in the case of the Great Recession, women's expected promotion rates remained unaffected, but men experienced an additional hindrance in promotion rates beyond the effects of aging (Addison et al. 2014). On the other hand, Cobb-Clark and Dunlop (1999) found weak evidence that industry employment growth or local labor market conditions affected promotion rates, and no evidence that advancement opportunities were limited in industries in decline. A longitudinal study in the USA found that job advancement was reduced among workers early in their career and with worse employment conditions associated with the Great Recession (Johnson et al. 2012). We hypothesize that recessions are negatively associated with *prospects for job advancement*, and that older workers were less likely to be promoted during recession than during years of positive economic growth (H_3).

Employment security, defined as the absence of fear of employment loss (Dasgupta 2001), is another aspect of job quality related to unemployment rates. Auer (2006) found that employment security was correlated with unemployment rates and the state of the economy in general, e.g.,

recession or no recession, and had a substantial impact over subjective feelings. Davy et al. (1991) found that layoff survivors feel less secure in their jobs. Another study found that workers were committed to worrying about their own job security even when management claimed that no additional dismissals were expected (Brockner et al. 1988). In Ireland, the Great Recession was associated with an increase in job pressure: staff reductions, reorganization in firms, and pay cuts, and an increase in employment insecurity (Russell and McGinnity 2014). Our fourth hypothesis, therefore, is that *employment security* among older workers decreased during the Great Recession compared to other periods (H_4).

Economic downturns create challenges for organizations, forcing them to survive in an uncertain environment with reduced cost measures, such as hiring freeze and reductions in compensations and benefits, while employees are often pressured to work longer hours. Thus, employees' well-being and job satisfaction are often jeopardized during recession (Majovski 2014). In a study conducted in Greece, a key victim of the Great Recession, participants reported lower levels of extrinsic job satisfaction after the start of the crisis compared to the period that had preceded it (Markovits et al. 2014). Similar results were found in other countries: job satisfaction was negatively affected by changes in gross domestic product (GDP) and by the unemployment rate immediately after the start of the crisis (Katsela 2014). Our fifth hypothesis, therefore, is that older workers' *job satisfaction* was lower after the Great Recession compared to their job satisfaction before the crisis (H_5), and our final hypothesis is that *satisfaction with salary* among older workers decreased during the Great Recession compared to their satisfaction with their salary before the recession (H_6).

Although older workers are not a homogenous population, and their employment chances differ greatly, depending on their education, skills, and professional experience (Bennett and Moehring 2015), when testing the hypotheses concerning employment opportunities and working conditions of older workers, we did not differentiate populations based on educational background, tenure, or other characteristics. This decision was made in order to examine overall associations before testing for differences among subgroups.

Methods

Data

We used data from SHARE, a nationally representative survey on health, employment, and social conditions of Europeans aged 50+ years (Borsch-Supan et al. 2013). The data were derived from waves 1, 2, 4, and 5 and focused on participants who had enrolled in the study at least twice: before the recession—in either wave 1 (2004/2005) or wave 2 (2006/2007)—and after the recession—in wave 4 (2011) and/or wave 5 (2013). Participants were from 13 countries: Austria, Belgium, Czech Republic, Denmark, France, Germany, Israel, Italy, Netherlands, Poland, Spain, Sweden, and Switzerland. (Note that wave 2 in Israel was conducted in 2009/2010, and these data were treated as after the recession). We limited individuals' ages to 50–70 years old (born between 1934 and 1954) at the time of the first interview and included only those who were in the labor market (employed, self-employed, or unemployed) when they first participated. Table 1 provides an overview of the number of participants and observations before and after the recession by country. Our final sample included 4917 participants and 16,090 observations—of which, 2360 were employed both before and after the recession (7121 observations).

Employment outcomes

A number of employment indicators were examined before and after the recession to assess the change in individual employment status and job quality following the recession.

Employment status (employed/unemployed/retired) was measured by a dichotomous scale (yes or no) at each contact. Additionally, we examined several aspects of job quality before and after the recession: hours worked per week (Johnson and Corcoran 2003), employment security, satisfaction with salary, prospects for job advancement, and job satisfaction (Clark 2005; Johnson and Corcoran 2003). The *hours worked per week* variable was continuous and limited to values between 1 and 100 h (326 observations were excluded because they were outside of this range). The other four job quality aspects—poor *prospects for job advancement*, poor *employment security*, *job satisfaction*, and *satisfaction with salary*—were each measured on a four-point Likert scale with responses ranging from strongly disagree (1) to strongly agree (4).

It should be noted that the components of job quality measured in our sample were all self-assessed, based on perceptions and beliefs of respondents. Studies have found that subjective measures of job quality reflect objective job quality (Brown et al. 2007); yet, it was also found that the subjective assessment of job quality can be changed due to the perceptions of the economic climate and can vary across individuals and nations (Diener and Suh 1997).

Macroeconomic conditions

A recession is defined as two consecutive quarters of negative economic growth (Leamer 2008); therefore, each

Table 1 Number of participants and observations before and after the recession by country

	Before recession (no. of observations)		After recession (no. of observations)		Total no. of observations	Freq. (%)	No. of participants
	Wave 1	Wave 2	Wave 4	Wave 5			
Austria	141	123	119	112	495	3.1	141
Belgium	482	458	460	425	1825	11.3	496
Czech Republic	0	216	195	178	589	3.7	216
Denmark	351	522	503	509	1885	11.7	557
France	400	408	419	382	1609	10.0	494
Germany	283	330	344	282	1239	7.7	366
Israel	488	460[a]	0	360	1308	8.1	488
Italy	235	253	223	248	959	6.0	277
Netherlands	365	373	405	387	1530	9.5	440
Poland	0	156	156	0	312	1.9	156
Spain	245	223	213	226	907	5.6	264
Sweden	616	611	578	622	2427	15.1	727
Switzerland	168	290	295	252	1005	6.3	295
Total	3774	4423	3910	3983	16,090	100	4917

[a] Israel is an exception since wave 2 in Israel was conducted in 2009–2010 (after the recession), and therefore, we have associated wave 2 in Israel with the "after recession" data

country's GDP at the time of the interview was included as a measure of economic change related to the Great Recession. The Organization for Economic Cooperation and Development (OECD) data on the annual GDP per capita (OECD 2016a) were assigned to each respondent based on country of residence and year of interview. The quarterly unemployment rate—another country-level indicator reflecting the depth of the recession—was also included (OECD 2016c). Since unemployment rates are expected to have a delayed impact, affecting one's job situation or quality only after some time, we assigned respondents with the quarterly unemployment rate that prevailed in their respective countries three months before the date of interview (month/year), both pre- and post-recession. Additionally, we included life expectancy at birth, which is an indicator of a country's health status (Murray et al. 2015), assigning each respondent the respective country's annual life expectancy at birth (OECD 2016b).

Individual socio-demographic characteristics

All participants self-reported a range of personal characteristics at their first contact. At each contact, SHARE collected information on month and year of interview, current employment status (employed/unemployed/retired), age (categorized into 50–55, 55–60, 60–65, 65–70 years), household composition (someone else in the household or living with a spouse/partner), tenure, being a civil servant, household income, depressive symptoms, and self-rated health. Data concerning each of the mentioned variables were collected at interviews for each wave (1, 2, 4, and 5).

Tenure was a continuous variable, calculated by subtracting the answer to the question: "In which year did you start your job?" from the year of interview ($N = 5969$).

Household income was provided by SHARE and calculated at the household level to include all individual income components. This figure was divided by the square root of household members and adjusted for purchasing power parity. All households within each country were ranked on the basis of household income and divided into income index quintiles (Huisman and Smits 2009; Filmer and Pritchett 1999; Avendano et al. 2009). Thus, our income variable was divided into five categories: (1) lowest 20%, (2) 21–40%, (3) 41–60%, (4) 61–80%, and (5) upper 80%.

The Great Recession has also been shown to impact older workers' health (Axelrad et al. 2017). Therefore, we included the two following health indicators as explanatory variables: depressive symptoms were measured by a 13-question survey based on the validated scale EURO-D (Prince et al. 1999). Responses of "yes" were summed with the number of depressive symptoms ranging from not depressed (0) to very depressed (12). Self-reported perceived general health was measured by a five-point Likert scale with responses ranging from excellent (1) to poor (5) health.

The following information was collected only at the first interview: date of birth, gender, country of residence,

marital status (married/not married), nativity (immigrant/not immigrant), and highest level of education. We divided the participants into three levels of education (primary or less, secondary, or tertiary) based on the International Standard Classification of Education (ISCED) (OECD 2015).

Statistical analysis

We used a difference-in-differences model, which compares employment conditions within a country before and after the economic crisis, as well as across countries during the same time period (Dimick and Ryan 2014). For each respondent, we used at least one observation before the Great Recession and one observation after it and linked individual-level information with country-level indicators. It should be mentioned that in this kind of model, variables that do not change within observations before and after the economic crises (gender, nativity, marital status, level of educational) are omitted. In the difference-in-differences model, we examined the effects of country-level quarterly unemployment rates with a 3-month lag, GDP, life expectancy at birth, and socio-demographic characteristics (age, household composition, tenure, self-reported health, and depressive symptoms) on older workers' employment status: employed/unemployed/retired (each in a separate model). The difference-in-differences model also allowed us to differentiate associations of economic conditions with employment outcomes from the expected transitions to retirement at those ages, since we controlled for other variables such as age and health, which might affect retirement. The socio-demographic characteristics that changed over time allowed us to investigate whether the recession had differential effects on older workers according to individual characteristics.

In order to explore the change in job quality, we used the subpopulation of 2360 participants who were employed before and after the recession (7121 observations). First, we examined unadjusted associations between individual-level variables and each job quality measure, using OLS linear regression models. We then used the difference-in-differences model to examine the changes in the following employment characteristics: hours worked per week, prospects for job advancement, job security, job satisfaction, and satisfaction with salary or income. Models were adjusted for household composition, age, tenure, civil servant, country-specific quintiles income, and health indicators (self-rated health and depressive symptoms). Models also included year and country fixed effects. We tested for multicollinearity among focal measures and found no evidence for such a problem.

We clustered standard errors at the individual level to account for differences in error variance across individuals. We did not use calibrated weights provided in the dataset, since we were trying to estimate descriptive statistics based on sample data, and as the sample was representative of the target population, the population parameters were consistently estimated by the analogous sample statistic (Solon et al. 2015). Additionally, analyses of data obtained from a doorstep survey, administered on refusing respondents from the sample of wave 4 in Germany, have shown little evidence for non-response bias regarding health status, occupational status, or household composition (Börsch-Supan and Krieger 2013).

All analyses were conducted using Stata/SE 14. Difference-in-differences models included cluster robust standard errors and clustering by an individual identifier to account for the repeated observations.

Results

After the recession, 604 respondents from our sample became unemployed, and 2159 respondents had retired. Table 2 summarizes the results from the difference-in-differences regression models of the association between economic changes and older workers' employment status. Results revealed that decreases in GDP were associated with increases in the likelihood of being unemployed (B −1.37, SE 0.05, $P < 0.01$) and decreases in the likelihood of being retired (B 2.57, SE 0.75, $P < 0.01$). Higher life expectancy was associated with a lower likelihood of being employed (B −1.63, SE 0.22, $P < 0.01$) or being unemployed (B −0.52, SE 0.28, $P = 0.06$) and a higher likelihood of being retired (B 2.21, SE 0.39, $P < 0.01$). Yet, no evidence was found for an association between the country-level unemployment rate and individual employment status.

Compared to adults ages 50–55, respondents aged 55–60 were more likely to be employed (B 0.97, SE 0.20, $P < 0.01$) and unemployed (B 1.07, SE 0.23, $P < 0.01$). However, respondents aged 65–70 were less likely to be employed (B −2.09, SE 0.42, $P < 0.01$) and unemployed (B −1.07, SE 0.57, $P = 0.06$) and more likely to be retired (B 4.13, SE 1.15, $P < 0.01$).

Household composition of more than one person was found to be associated with a lower likelihood of being retired (B −0.63, SE 0.31, $P = 0.04$). Longer tenure was found to be associated with a higher likelihood of being employed (B 0.08, SE 0.01, $P < 0.01$) and a lower likelihood of being unemployed (B −0.09, SE 0.01, $P < 0.01$) or retired (B -0.05, SE 0.01, $P < 0.01$). Being a civil servant was found to be associated with a higher likelihood of being employed (B 1.69, SE 0.2, $P < 0.01$) and a lower likelihood of being unemployed (B −2.06, SE 0.6, $P < 0.01$) or retired (B −1.29, SE 0.33, $P < 0.01$). Good

Table 2 Difference-in-differences model of the impact of economic recession on older workers employment status (betas and robust standard error)

No. of observations—16,090	Employed		Unemployed		Retired	
GDP/10K	0.16 (0.37)		−1.37 (0.50)	***	2.57 (0.75)	***
Life expectancy	−1.64 (0.22)	***	−0.52 (0.28)	*	2.21 (0.39)	***
Quarterly unemployment rate (3 months lag)	0.02 (0.04)		0.05 (0.04)		0.02 (0.06)	
Age (baseline 50–55 years old)						
Age 55–<60	0.97 (0.20)	***	1.07 (0.23)	***	1.18 (1.04)	
Age 60–<65	0.13 (0.28)		1.09 (0.34)	***	2.26 (1.08)	**
Age 65–<70	−2.09 (0.42)	***	−1.07 (0.57)	*	4.13 (1.15)	***
Not alone (yes/no)	−0.17 (0.14)		0.16 (0.16)		−0.63 (0.31)	**
Tenure (in years, range between 0 and 56)	0.08 (0.01)	***	−0.09 (0.01)	***	−0.05 (0.01)	***
Civil servant	1.69 (0.22)	***	−2.06 (0.63)	***	−1.29 (0.33)	***
Health [scale ranging from excellent (1) to poor (5)]	−0.18 (0.07)	***	0.02 (0.08)		−0.11 (0.11)	
Depressive symptoms [no. of depressive symptoms ranging from not depressed (0) to very depressed (12)]	−0.05 (0.04)		0.11 (0.04)	***	−0.10 (0.05)	*
Country-specific quintiles	0.04 (0.04)		−0.08 (0.05)		0.08 (0.06)	

Significance levels: * $P < 0.1$, ** $P < 0.05$, *** $P < 0.01$

health was also found to be associated with a higher likelihood of being employed (B −0.18, SE 0.07, $P < 0.01$), while no association was found between income level and employment status.

The volume and quality of jobs among those who were employed before and after the recession are presented in Tables 3 and 4. The mean age of the employed sample was 54.7 years (SD = 3.5); 55.0% were males, and 42.0% had high education. The average tenure was 17.9 years (SD = 12.2) (Table 3).

Results of the linear OLS models are presented in Table 3 and indicate that as adults grow older, their job quality improves: older respondents reported a higher sense of job security (B −0.01, SE 0.01, $P < 0.04$), higher job satisfaction (B 0.01, SE 0.004, $P < 0.01$), and a higher level of satisfaction with salary (B 0.01, SE 0.01, $P = 0.04$). Those with lower education reported poorer employment outcomes: poorer prospects for job advancement (B 0.11, SE 0.05, $P = 0.01$), less job security (B 0.09, SE 0.04, $P = 0.03$), less job satisfaction (B −0.19, SE

Table 3 Unadjusted associations between individual socio-demographic characteristics at the first interview and work-related outcomes ($N = 2360$)—beta coefficients (among those who were employed both before and after the recession)

		Hours worked per week		Poor prospects for job advancement[1]		Poor job security[1]		Job satisfaction[1]		Adequate earning[1]	
Age (mean)	54.7	0.07		0.00		−0.01	**	0.01	***	0.01	**
Male	55.0	8.65	***	−0.05		0.12	***	0.03		0.21	***
Low education (%)	23.7	0.07		0.11	**	0.09	**	−0.19	***	−0.14	***
Secondary education (%)	33.9	−0.53		0.11	***	0.08	**	0.003		−0.01	
High education (%)	42.0	0.53		−0.18	***	−0.14	***	0.13	***	0.11	***
Tenure (mean)	17.9	0.15	***	−0.00		−0.01	***	0.002	**	0.004	**
Civil servant (%)	16.0	−1.41	***	0.02		−0.31	***	0.00		0.06	*
Married (%)	74.8	1.58	**	−0.13	***	0.03		0.01		0.03	
Immigrant	12.2	−2.59	***	0.02		0.05		−0.16	***	−0.19	***
Someone else in the household	43.5	0.36		−0.18		0.01		−0.09	***	−0.08	**
Self-rated health	−0.44	*	0.1	***	0.09	***	−0.14	***	−0.15	***	
Depressive symptoms	−0.68	***	0.04	***	0.03	***	−0.07	***	−0.06	***	
Country-specific quintiles	0.63	***	−0.04	***	−0.03	***	0.03	***	0.06	***	

Models adjusted for not being alone, age, tenure civil servant, country-specific quintiles income, and health indicators; self-rated health and depressive symptoms. Models included year and country fixed effects

[1] Scale ranging from 1 = strongly disagree to 4 = strongly agree

Significance levels: * $P < 0.1$, ** $P < 0.05$, *** $P < 0.01$

Table 4 Difference-in-differences model of the impact of economic recession on employment outcomes of employed older workers (2360 respondents, 7121 observations) among those who were employed both before and after the recession

	Hours worked per week		Poor prospects for job advanc.		Poor job security		Job satisfaction		Adequate earning	
GDP/10K	0.84 (0.98)		0.09 (0.08)		−0.07 (0.09)		−0.01 (0.06)		0.03 (0.07)	
Life expectancy	−2.14 (0.10)	***	0.04 (0.06)		0.02 (0.05)		−0.05 (0.04)		0.02 (0.05)	
Unemployment rate	0.15 (0.10)	*	0.02 (0.01)	**	0.03 (0.01)	***	0.01 (0.01)	*	−0.01 (0.01)	
Age 55–<60	1.02 (0.49)	**	−0.03 (0.05)		−0.07 (0.05)	*	0.07 (0.03)	**	0.05 (0.04)	
Age 60–<65	1.06 (0.76)		−0.07 (0.09)		−0.16 (0.08)	**	0.08 (0.05)	*	0.05 (0.07)	
Age 65–<70	−2.27 (1.25)	*	−0.02 (0.16)		−0.22 (0.13)	*	0.14 (0.09)	*	−0.01 (0.12)	
Not alone (yes/no)	−0.64 (0.33)	*	−0.02 (0.04)		4.42E−03 (0.03)		0.02 (0.02)		0.05 (0.03)	
Tenure	0.01 (0.01)		2.34E−04 (0.001)		2.56E−04 (0.001)		−9.78E−04 (0.001)		3.10E−04 (0.001)	
Civil servant	1.23 (0.46)	***	0.05 (0.07)		−0.17 (0.08)	**	0.05 (0.05)		−0.05 (0.06)	
Self-rated health	−0.11 (0.19)		0.003 (0.02)		0.02 (0.02)		−0.02 (0.01)		−0.03 (0.02)	
Depressive symptoms	0.08 (0.10)		0.03 (0.01)	***	0.03 (0.01)	***	−0.03 (0.01)	***	−0.03 (0.01)	***
Country-specific quintiles	0.38 (0.11)	***	−0.004 (0.01)		−0.01 (0.01)		0.02 (0.01)	***	0.01 (0.01)	

Models adjusted for not being alone, age, tenure, civil servant, country-specific quintiles income, and health indicators; self-rated health and depressive symptoms. Models included year and country fixed effects

Reference group for age is 50–55 years old

Significance levels: * $P < 0.1$, ** $P < 0.05$, *** $P < 0.01$

0.03, $P < 0.01$), and less satisfaction with salary (B −0.14, SE 0.04, $P < 0.01$) compared to respondents with higher level of education. Longer tenure at work was found to be associated with an increased number of hours worked per week (B 0.15, SE 0.02, $P < 0.01$), higher job security (B −0.01, SE 0.001, $P < 0.01$), and more satisfaction with salary (B 0.004, SE 0.001, $P = 0.01$). Being a civil servant was found to be associated with a lower number of hours worked per week (B −1.41, SE 0.41, $P < 0.01$), higher job security (B −0.31, SE 0.03, $P < 0.01$), and more satisfaction with salary (B 0.06, SE 0.03, $P = 0.06$).

Poor health conditions, as measured by self-rated health and depressive symptoms, were found to be associated with negative employment outcomes: fewer hours worked per week, poorer prospects for job advancement, less job security, less job satisfaction, and less satisfaction with salary. Higher income quintile was associated with a higher number of hours worked per week (B 0.63, SE 0.19, $P < 0.01$), better prospects for job advancement (B −0.04, SE 0.01, $P < 0.01$), better job security (B −0.03, SE 0.01, $P < 0.01$), higher job satisfaction (B 0.03, SE 0.01, $P < 0.01$), and more satisfaction with salary (B 0.05, SE 0.01, $P < 0.01$).

The results from difference-in-differences models of the association between economic change and employment outcomes of employed older workers are presented in Table 4, and reveal that decreases in GDP were not associated with measures of job quality. We found no significant differences in hours worked per week, prospects for job advancement, job security, satisfaction with work, or satisfaction with salary or earnings. Country-level unemployment rates were associated with the volume and quality of jobs, both positively and negatively. Higher unemployment rates were associated with poorer prospects for job advancement (B 0.02, SE 0.01, $P = 0.03$) and poorer job security (B 0.03, SE 0.01, $P < 0.01$); yet, they were also associated with higher job satisfaction (B 0.01, SE 0.01, $P = 0.09$). For those older workers who remained employed through the recession, older age was associated with a lower number of hours worked per week, improved job security, and improved job satisfaction. We found that civil servants worked a higher number of hours per week and had better job security compared to those who were employees or self-employed but not civil servants. Depressive symptoms were found to be negatively associated with aspects of job quality. Having a higher number of depressive symptoms was associated with lower prospects for job advancement (B 0.03, SE 0.01, $P = 0.01$), lower job security (B 0.03, SE 0.01, $P < 0.01$), less job satisfaction (B −0.03, SE 0.01, $P < 0.01$), and less adequate salary (B −0.03, SE 0.01, $P < 0.01$). An increase in income quintile was found to be associated with an increase in the number of hours worked per week (B 0.38, SE 0.1, $P < 0.01$) as well as a higher job satisfaction (B 0.02, SE 0.01, $P < 0.01$).

Discussion

This study suggests that economic changes related to the Great Recession are associated with employment outcomes among older European workers, as well as with measures of their job quality. We found lower GDP to be associated with a higher likelihood of being unemployed and with a lower likelihood of being retired. These findings support our first hypothesis, arguing that the likelihood of older workers to be unemployed during the Great Recession was higher, similar to findings in Australia reported by Kendig et al. (2013). On the other hand, and contradictory to previous studies (Davis et al. 2012; Arpaia and Curci 2010), we did not find evidence for an association between increased national unemployment rates and individuals' employment status. One possible explanation is the fact that the current study focused on older workers, who are often protected by collective agreements, which make it more difficult to dismiss them (Palier and Thelen 2010).

In addition to employment status, five aspects of job quality (hours worked per week, prospects for job advancement, job security, job satisfaction, and satisfaction with salary) were also examined against recession indicators (GDP and unemployment rates), in testing hypotheses H_2–H_6. While we found no evidence for an association between GDP and any of these measures, unemployment rates were associated with some measures of job quality. Higher unemployment rates were associated with lower prospects for job advancement, which supports H_3, and lower job security, which supports H_4.

Increasing country-level unemployment rates were also found to be associated with an increase in job satisfaction, a finding that is inconsistent with H_5 as well as previous studies, which found that higher workloads experienced by dismissal survivors contribute to lower job and life satisfaction (Malik et al. 2010; Virick et al. 2007). This might be true for survivors in a specific organization in which layoffs were implemented, but not necessarily when looking at the associations between country-level unemployment rates and employers' satisfaction with their job from which they were not fired. We did not find associations between country-level unemployment rates and satisfaction with salary or income. This finding is contradictory to H_6, as well as previous studies, which argued that some employers would minimize or even prevent layoffs by cutting employees' pay (wages, salary, bonuses, profit sharing) (Allan 1997). However, in our study we focused on older workers, who might be less affected by such steps.

Life expectancy at birth, which is a health status indicator at the country level and may reflect on the living standards, lifestyle, and education, as well as access to quality health services, was found to be correlated with being employed and retired and with one job quality measure—reduced number of hours worked per week. The country effect that is linked to life expectancy might be a result of active labor market policies (Rovelli and Bruno 2008), which characterize countries with longer life expectancy (OECD 2013a).

Existing studies argue that economic recessions negatively impact the employment conditions of adult workers in general. Only a few studies have examined the influence of economic shocks on the age group of 50–70 (Eschtruth and Gemus 2002; Munnell et al. 2009). Our findings demonstrate that the same effects extend specifically to the population of older workers, with some exceptions, pertaining mainly to job security, job satisfaction, and salary satisfaction. In these aspects, it seems that older workers are more protected against economic declines compared to their younger counterparts.

One advantage of our study is the fact that we followed the same group of people over several years with data linked between individual-level employment and health measurements with macroeconomic indicators across 12 European countries and Israel. Some of the studies that examined the influence of the Great Recession did not include its components, like GDP and unemployment rates (Majovski 2014). Other studies referred only to one aspect, such as unemployment rates (Ruhm 2000). In this study we used three indicators at the country level: GDP, unemployment rate, and life expectancy at birth, to measure the conditions in each country. Since the impact of the global recession was different for each country, this approach allows a better understanding of the influence of country-level factors on the employment outcomes of older workers.

While focusing on older workers, we found no association between GDP and prospects for job advancement, but there was evidence for a positive association between the unemployment rate and poor prospects for job advancement. A previous research found that prospects for job advancement decline during a recession (Cobb-Clark and Dunlop 1999). However, prospects of job advancement decline with age, since individuals move up in their career as they age (Addison et al. 2014), and therefore, no incontrovertible conclusions can be drawn.

The inclusion of socio-demographic and health-related characteristics in our models expands our understanding of the wide range of factors that influence older workers' employment conditions following a recession. Socio-demographic characteristics were found to be associated with employment outcomes. For example, good health conditions were associated with better chances of being employed. This is consistent with previous papers (Kivimäki et al. 2003; Martikainen et al. 2008; Modrek and Cullen 2013), which showed that survivors of layoffs were healthier than those who were fired. In our study, being a civil servant was found to be associated with a higher likelihood of being employed and a lower likelihood of being unemployed or retired. At the same time, we found that civil servants worked, on average, more hours per week, had higher prospects for job advancement and better job security, which is consistent with previous findings concerning the relative isolation of workers in the public sector from fluctuations of the market (De Bustillo and De Pedraza 2010).

These findings are important and contribute to existing literature, since country-level indicators cannot always be affected, but socio-demographic factors related to employment or health can be changed by policy measures (Dragano et al. 2011). Thus, for example, policy makers may highlight the association between the physical and social environment at work and implement work-based policies, leading to improved well-being among older workers (Stokols et al. 1996).

While we used population-level data from 13 countries, we did not have data on all participants across all waves, and we took into account the fact that our sample was not necessarily representative of all older European workers. Thus, the results may not be generalizable to all older European workers, as countries differ in their social safety net, welfare policy, and austerity policies introduced following the crisis. We did not include references to the countries' policies or institutional support or incentives due to the lack of available data, and the difficulty of including these variables across countries. Future research should examine the healthcare system, unemployment benefits (sum and eligibility), incentives to extend working life or early retirement, and other characteristics related to welfare states that provide security and support at times of crises, and specifically to the older population.

Furthermore, we did not include job characteristics, such as occupation and industry, since the majority of the participants did not change their occupation during this unstable period, and the difference-in-differences model only includes variable that changed over time. Including occupation and industry (and also civil servant) as non-changing covariates might be added in an interaction term with changes in GDP or unemployment rate, to see whether certain occupations or industries have been affected more or less by changes in economic conditions. Future research could expand on our findings to examine the differences between industries, sectors, and occupations to better understand the effect of economic crises on employment status and job quality.

Our findings add to the existing body of literature (Eschtruth and Gemus 2002; Foster and Walker 2013; Munnell et al. 2009) by enhancing our understanding of economic recessions and their effects on employment outcomes and job quality among older workers. Moreover, we identified factors that might moderate the negative effects of economic downturns. Our results reveal that better health conditions at older ages, being a civil servant, higher income quintile, and longer tenure can limit the negative employment consequences, like unemployment, inadequate salary or income, low job satisfaction, low job security, and poor prospects for job advancement. Due to the growing rates of employment among older workers (OECD 2013b), policy measures need to take into account the unique needs of older workers and allocate resources during recessions to help moderate or mitigate potential negative employment consequences.

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References

Addison JT, Ozturk OD, Wang S (2014) Job promotion in midcareer: gender, recession and crowding. Mon Labor Rev 137:1

Allan P (1997) Minimizing employee layoffs while downsizing: employer practices that work. Int J Manpow 18(7):576–596

Arpaia A, Curci N (2010) EU labour market behaviour during the great recession. European Commission, Directorate-General for Economic and Financial Affairs, Brussels

Auer P (2006) Protected mobility for employment and decent work: labour market security in a globalized world. J Ind Relat 48(1):21–40

Avendano M, Glymour MM, Banks J, Mackenbach JP (2009) Health disadvantage in US adults aged 50 to 74 years: a comparison of the health of rich and poor Americans with that of Europeans. Am J Public Health 99(3):540–548. doi:10.2105/AJPH.2008.139469

Axelrad H, Sabbath EL, Hawkins SS (2017) The impact of the 2008 recession on the health of older workers: data from 13 European countries. Eur J Public Health. doi:10.1093/eurpub/ckx011

Barling J, Kelloway EK, Iverson RD (2003) High-quality work, job satisfaction, and occupational injuries. J Appl Psychol 88(2):276–283. doi:10.1037/0021-9010.88.2.276

Bennett J, Moehring K (2015) Cumulative (dis) advantage? The impact of labor market policies on late career employment from a life course perspective. J Soc Policy 44(02):213–233. doi:10.1017/S0047279414000816

Borbely JM (2009) US labor market in 2008: economy in recession. Mon Labor Rev 132:3

Börsch-Supan A, Krieger U (2013) 6 investigating response behavior. In: Malter F, Börsch-Supan A (eds) SHARE wave 4: innovations & methodology. MEA, Max Planck Institute for Social Law and Social Policy, Munich, pp 53–62

Borsch-Supan A, Brandt M, Hunkler C, Kneip T, Korbmacher J, Malter F, Central Coordination Team SHARE (2013) Data resource profile: the survey of health, ageing and retirement in europe (SHARE). Int J Epidemiol 42(4):992–1001. doi:10.1093/ije/dyt088

Brockner J, Grover SL, Blonder MD (1988) Predictors of survivors' job involvement following layoffs: a field study. J Appl Psychol 73(3):436

Brown A, Charlwood A, Forde C, Spencer D (2007) Job quality and the economics of New Labour: a critical appraisal using subjective survey data. Camb J Econ 31(6):941–971. doi:10.1093/cje/bem028

Cho Y, Newhouse D (2013) How did the great recession affect different types of workers? Evidence from 17 middle-income countries. World Dev 41:31–50

Clark AE (2005) Your money or your life: changing job quality in OECD countries. Br J Ind Relat 43(3):377–400

Cobb-Clark DA, Dunlop Y (1999) Role of gender in job promotions. Mon Labor Rev 122:32–38

Dasgupta S (2001) Employment security: conceptual and statistical issues. International Labour Office, Geneva

Davis SJ, Faberman RJ, Haltiwanger JC (2012) Recruiting intensity during and after the Great Recession: national and industry evidence. Am Econ Rev 102(3):584–588. doi:10.1257/aer.102.3.584

Davy JA, Kinicki AJ, Scheck CL (1991) Developing and testing a model of survivor responses to layoffs. J Vocat Behav 38(3):302–317. doi:10.1016/0001-8791(91)90032-H

De Bustillo RM, De Pedraza P (2010) Determinants of job insecurity in five European countries. Eur J Ind Relat 16(1):5–20. doi:10.1177/0959680109355306

Diener E, Suh E (1997) Measuring quality of life: economic, social, and subjective indicators. Soc Indic Res 40(1–2):189–216. doi:10.1023/A:1006859511756

Dimick JB, Ryan AM (2014) Methods for evaluating changes in health care policy: the difference-in-differences approach. J Am Med Assoc 312(22):2401–2402. doi:10.1001/jama.2014.16153

Dragano N, Siegrist J, Wahrendorf M (2011) Welfare regimes, labour policies and unhealthy psychosocial working conditions: a comparative study with 9917 older employees from 12 European countries. J Epidemiol Community Health 65(9):793–799. doi:10.1136/jech.2009.098541

Erhel C, Guergoat-Larivière M (2010) Job quality and labour market performance. Centre for European Policy Studies Working Document, (3). doi:10.2139/ssrn.1622244

Erhel C, Guergoat-Larivière M, Leschke J, Watt A (2012) Trends in job quality during the great recession: a comparative approach for the EU. Document De Travail, (161-1). http://bryder.nu/quinne1/sites/default/files/Erhel%20et%20al%20ETUI.pdf

Eschtruth A, Gemus J (2002) Are older workers responding to the bear market? Boston College CRR-JTF Working Paper, (5). doi:10.2139/ssrn.557131. Accessed 01 Jan 2016

Filmer D, Pritchett L (1999) The effect of household wealth on educational attainment: evidence from 35 countries. Popul Dev Rev 25(1):85–120. doi:10.1111/j.1728-4457.1999.00085.x

Foster L, Walker A (2013) Gender and active ageing in Europe. Eur J Ageing 10(1):3–10. doi:10.1007/s10433-013-0261-0

Gradín C, Cantó O, Del Río C (2015) Unemployment and spell duration during the great recession in the EU. Int J Manpow 36(2):216–235. doi:10.1108/IJM-10-2012-0152

Huisman J, Smits J (2009) Effects of household-and district-level factors on primary school enrollment in 30 developing countries. World Dev 37(1):179–193. doi:10.1016/j.worlddev.2008.01.007

Johnson RW (2012) Older workers, retirement, and the great recession. Russell Sage Foundation, New York

Johnson RC, Corcoran ME (2003) The road to economic self-sufficiency: job quality and job transition patterns after welfare reform. J Policy Anal Manage 22(4):615–639. doi:10.1002/pam.10158

Johnson MK, Sage RA, Mortimer JT (2012) Work values, early career difficulties, and the U.S. economic recession. Soc Psychol Q 75(3):242–267. doi:10.1177/0190272512451754

Katsela K (2014) The impact of economic crisis on human behavior and labour market: a minor field study. Dissertation, Umea University

Katz L (2010) Long-term unemployment in the great recession. Members-Only Library, Testimony for the Joint Economic Committee U.S. Congress. http://50.87.169.168/OJS/ojs-2.4.4-1/index.php/EPRN/article/viewFile/1910/1907

Kendig H, Wells Y, O'Loughlin K, Heese K (2013) Australian baby boomers face retirement during the global financial crisis. J Aging Soc Policy 25(3):264–280. doi:10.1080/08959420.2013.795382

Kivimäki M, Vahtera J, Elovainio M, Pentti J, Virtanen M (2003) Human costs of organizational downsizing: comparing health trends between leavers and stayers. Am J Community Psychol 32(1–2):57–67. doi:10.1023/A:1025642806557

Kulik CT, Ryan S, Harper S, George G (2014) Aging populations and management. Acad Manage J 57(4):929–935. doi:10.5465/amj.2014.4004

Lakomý M, Kreidl M (2015) Full-time versus part-time employment: Does it influence frequency of grandparental childcare? Eur J Ageing 12(4):321–331. doi:10.1007/s10433-015-0349-9

Leamer EE (2008) What's a recession, anyway? NBER Working Paper no. 14221. doi:10.3386/w14221

Majovski IP (2014) Factors of job dissatisfaction among employees during recession. In: Angelova B, Jurlina D, Redžepagić AS (eds) Contemporary trends and prospects of economic recovery. CEMAFI International, Nice, pp 550–565

Malik MI, Ahmad A, Hussain S (2010) How downsizing affects the job satisfaction and life satisfaction of layoff survivors. Afr J Bus Manag 4(16):3564–3570. http://search.proquest.com/docview/1663919392?accountid=14484

Markovits Y, Boer D, Van Dick R (2014) Economic crisis and the employee: the effects of economic crisis on employee job satisfaction, commitment, and self-regulation. Eur Manag J 32(3):413–422. doi:10.1016/j.emj.2013.09.005

Martikainen P, Maki N, Jantti M (2008) The effects of workplace downsizing on cause-specific mortality: a register-based follow-up study of Finnish men and women remaining in employment. J Epidemiol Community Health 62(11):1008–1013. doi:10.1136/jech.2007.068429

Modrek S, Cullen MR (2013) Health consequences of the 'Great Recession' on the employed: evidence from an industrial cohort in aluminum manufacturing. Soc Sci Med 92:105–113. doi:10.1016/j.socscimed.2013.04.027

Munnell AH, Muldoon D, Sass SA (2009) Recessions and older workers. Issue in Brief, 9–2. Chestnut Hill, MA: Center for Retirement Research at Boston College

Murray CJ, Barber RM, Foreman KJ, Ozgoren AA, Abd-Allah F, Abera SF, Abu-Raddad LJ (2015) Global, regional, and national disability-adjusted life years (DALYs) for 306 diseases and injuries and healthy life expectancy (HALE) for 188 countries, 1990–2013: quantifying the epidemiological transition. Lancet 386(10009):2145–2191. doi:10.1016/S0140-6736(15)61340-X

OECD (2013a) Economic outlook, 2013(1):217–219. https://books.google.com/books?isbn=9264200924. Accessed 08 Jan 2016

OECD (2013b) Employment rate of older workers, employment and labour markets: key tables from OECD, no 6. doi:10.1787/emp-ol-table-2013-1-en

OECD (2015) ISCED 2011 operational manual: guidelines for classifying national education programs and related qualifications. Eurostat and UNESCO Institute for Statistics, OECD Publishing, Paris. doi:10.1787/9789264228368-en

OECD (2016a) Gross domestic product (GDP) (indicator). https://data.oecd.org: OECD. doi:10.1787/dc2f7aec-en. Accessed 08 Jan 2016

OECD (2016b) Life expectancy at birth (indicator). https://data.oecd.org: OECD. doi:10.1787/27e0fc9d-en. Accessed 08 Jan 2016

OECD (2016c) Unemployment rate (indicator). https://data.oecd.org: OECD. doi: 10.1787/997c8750-en. Accessed 08 Jan 2016

Palier B, Thelen K (2010) Institutionalizing dualism: complementarities and change in France and Germany. Polit Soc 38(1):119–148

Prince MJ, Reischies F, Beekman AT, Fuhrer R, Jonker C, Kivela SL, Copeland JR (1999) Development of the EURO-D scale: a European Union initiative to compare symptoms of depression in 14 European centres. Br J Psychiatry 174(4):330–338. doi:10.1192/bjp.174.4.330

Rovelli R, Bruno R L (2008) Labor market policies, institutions and employment rates in the EU-27. doi:10.1111/j.0042-7092.2007.00700.x. Accessed 04 April 2017

Ruhm CJ (2000) Are recessions good for your health? Q J Econ 115(2):617–650. doi:10.1162/003355300554872

Russell H, McGinnity F (2014) Under pressure: the impact of recession on employees in Ireland. Br J Ind Relat 52(2):286–307. doi:10.1111/bjir.12018

Smith M (2009) Analysis note: gender equality and recession. Report for the European Commission – DG Employment, Social Affairs and Equal Opportunities, Rome

Solon G, Haider SJ, Wooldridge JM (2015) What are we weighting for? J Hum Resour 50(2):301–316. doi:10.3368/jhr.50.2.301

Stokols D, Pelletier KR, Fielding JE (1996) The ecology of work and health: research and policy directions for the promotion of employee health. Health Educ Behav 23(2):137–158. doi:10.1177/109019819602300202

Sum A, Khatiwada I (2010) The nation's underemployed in the 'Great Recession' of 2007–09. Mon Labor Rev 133(11):3–15. http://www.jstor.org/stable/monthlylaborrev.2010.11.003

Vedder R, Denhart C, Robe J (2013) Why are recent college graduates underemployed? University enrollments and labor-market realities. Center for College Affordability and Productivity, Washington DC. http://centerforcollegeaffordability.org/uploads/Underemployed%20Report%202.pdf

Virick M, Lilly JD, Casper WJ (2007) Doing more with less: an analysis of work life balance among layoff survivors. Career Dev Int 12(5):463–480. doi:10.1108/13620430710773772