

Working conditions and health of older workers

Michele Belloni, Raluca Elena Buia, Matija Kovacic, Elena Meschi

Ca' Foscari University of Venice

- Working conditions are significantly related to health outcomes among older workers in Europe.
- General health correlates with the following work domains: physical environment, work intensity, and skills and discretion.
- Low job security and uncertain career prospects are associated with mental and behavioural disorders.
- An increase in the legal retirement age can have adverse effects on workers' health and should be accompanied by policies aimed to benefit the most vulnerable workers and jobs.

1. Introduction

Population aging and the consequent increase in the duration of working life are key features of most European countries. Many studies have investigated the impact of staying longer in the labour force on individual health and wellbeing (Coe and Zammaro, 2011; Belloni, Meschi and Pasini, 2016; Mazzonna and Peracchi, 2017). Fewer papers have studied the effect of specific job characteristics and working conditions on older workers' physical and mental health.

This chapter looks at the relationship between job characteristics and health among workers aged 50+. We take advantage of the detailed coding of occupations in SHARE Waves 6 and 7 obtained from the new SHARE *jobcoder*. We hypothesize that some occupations are more physically or mentally demanding than others or have more risks that may affect health. To test this, we characterize each job category in terms of a set of job quality dimensions, measured using data from recent waves of the European Working Conditions Survey (EWCS, Eurofound).

In our model, we explain workers' health in SHARE Waves 6 and 7 by means of several characteristics of their current job, obtained exploiting the EWCS. The fact that we computed measures of job quality from an external source (EWCS) reduces the subjective bias that would exist if job-holders were the informants about their job's working conditions. In the latter case, the description of job features would be affected by the workers' feelings, perceptions, attitudes or values that also correlate with self-reported measures of health.

2. The data

Our analysis is based on Waves 6 (2015) and 7 (2017) of SHARE, matched to the EWCS Waves 5 (2010) and 6 (2015) by ISCO code and country. These two waves of SHARE collected detailed information (ISCO-08 at the 4 digit level, i.e. unit group) on respondents' occupation by means of a new *jobcoder*. This allowed us to link respondents' health status to the levels of exposure and risks

related to their specific job. We used EWCS job quality indices to summarize working conditions. The matched dataset covered the following European countries included in both SHARE (countries participating in at least one of the two waves) *and* EWCS: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Latvia, Lithuania, Luxembourg, Malta, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

Our sample was drawn from all respondents who participated in SHARE for the first time in Waves 6 and 7. Among them, we selected current workers aged 50 to 70 (We excluded retirees from the analysis as their health may have changed due to retirement). In addition, we focused on those working in the same job for at least 10 years, in order to maximize the job impact on health.

The dependent variables were three health measures, specifically:

- self-reported health (recoded as a dummy variable equal to 1 if respondents declared their health status to be fair or poor, and 0 if otherwise);
- a general objective health index constructed following the methodology of Poterba et al. (2011). In each wave, we ran a principal component analysis on the variables related to objective health conditions (presence of mobility limitations, having at least one limitation in the activities of daily life, having back problems, heart disease, stroke, hypertension, diabetes or cancer; having had a doctor visit, overnight stay in the hospital or in the nursing home and Body Mass Index). The general objective health index was standardized and ranged from 0 (best health) to 100 (worst health);
- an indicator of mental health, equal to 1 if an “affective or emotional disorder, including anxiety, nervous or psychiatric problems” had been diagnosed by the doctor. Note that the EURO-D indicator was not assessed in Wave 7.

European Working Conditions Survey: Job Quality Indices

To measure working conditions associated with each occupation, we focused on the six job quality indicators developed by *Eurofound* that capture both extrinsic and intrinsic features of the job. The indicators refer to the following categories: physical environment, work intensity, working time quality, social environment, skills and discretion, prospects.

Each index is an aggregate measure of the proportion of workers exposed to specific hazards in the work place and is measured on a scale from 0 to 100, where 0 means the worst working conditions and 100, the best conditions. The *Physical Environment Index* comprises 13 different indicators related to specific physical hazards, such as posture related and ambient risks (exposure to vibrations, noise, high and low temperature, tiring positions, lifting people, carrying heavy loads and repetitive movements), and biological and chemical risks (exposure to inhaling smoke and toxic vapours and handling chemical products and infectious materials). The *Work Intensity Index* measures the level of job workload, such as quantitative demands (working fast), time pressure (having tight deadlines, not having enough time to do the job), frequent disruptive interruptions, pace determinants and

interdependency, and emotional demands. The *Working Time Quality Index* comprises four dimensions: duration and incidence of atypical working time, the extent to which workers can determine their working time arrangements, and how flexible they are to organize their time in order to balance professional and family life. The *Social Environmental Index* comprises 15 indicators and measures the extent to which workers experience supportive social relationships and (on the negative side) adverse social behaviour such as bullying, harassment and violence. The *Skills and Discretion Index* builds on 14 indicators and comprises the following dimensions: the skills required in the job (cognitive dimension), autonomy in deciding the way work tasks are performed (decision latitude), worker participation in the organisation, and the possibilities to develop job-related skills through training. Finally, the *Prospects Index* considers the continuity of employment as measured by current employment status and type of contract, job security, and career prospects.

Although the contents of indicators are survey elicited (based on the individuals' responses), they can be considered as objective since they refer to specific observable job quality features and exclude items related to the personal circumstances and quality of the workers. In our current analysis, for each of the six indicators we took the average by country and ISCO 2-digit over the two waves (2010 and 2015).

3. The study results

Table 1 reports descriptive statistics of the variables included in our estimation sample. About 20 percent of respondents reported that they were in poor or fair health. The health index showed high variability in our sample. Moreover, some 3.2 percent had been diagnosed with an affective or emotional disorder. Among the EWCS work quality indicators, physical environment and working time quality displayed the highest average value (about 83). All the indicators were characterized by high individual variation.

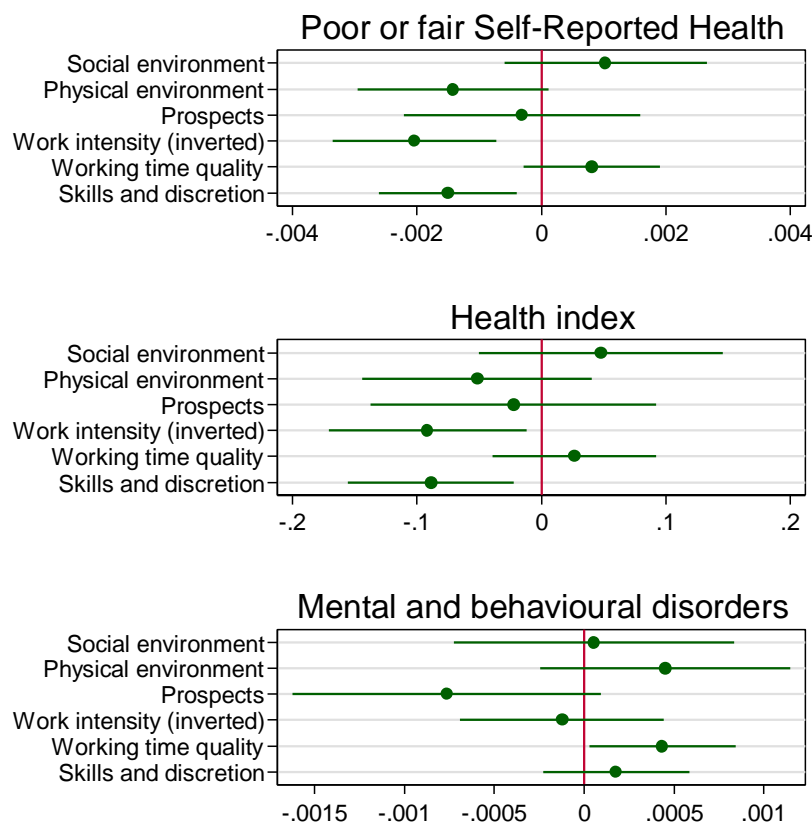
Table 1: estimation sample: descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
<i>Health outcomes:</i>					
Poor or fair Self-Reported Health	6,740	0.20	0.396	0	1
Health Index	6,654	32.8	23.548	1	99
Mental and behavioural disorders	6,740	0.03	0.176	0	1
<i>EWCS work quality indicators:</i>					
Social environment	6,740	77.4	7.3	28.5	100
Physical environment	6,740	82.9	9.0	52.4	97.0
Prospects	6,740	62.2	8.3	29.0	93.8
Work intensity (inverted)	6,740	60.9	10.3	7.3	74.5
Working time quality	6,740	83.0	10.1	39.8	100
Skills and discretion	6,740	64.7	13.5	21.4	91.8

In the statistical analysis, we used a linear probability model for self-rated health and emotional disorder, and an ordinary least square estimator for the continuous health index. Our key variables were the six job quality indicators. In the models, we included all the work quality indicators jointly because the correlation among them is low (see also Eurofund, 2017 p. 41). In order to facilitate comparability among the indexes, we reversed the work intensity index so that the higher its value, the lower the work intensity, and the better the working conditions. We thus expected a negative sign for the estimated coefficients. That is, higher values on the indices reflecting better working conditions should be negatively correlated with worse health.

Figure 1 reports the parameter estimates of the six job quality indices on self-reported health (upper panel), on the health index (central panel) and on mental and behavioral disorders (bottom panel).

Figure 1: Working conditions and health: estimation results



Notes: The figure plots estimated coefficients (dots) and 95% confidence intervals (horizontal lines) of the six job quality indexes regressed on self-reported health (upper panel), general health index (central panel) and mental and behavioral disorders (bottom panel). In all regressions we controlled for: gender, age, education, family status, number of children, country of residence, and wave. Standard errors are clustered at ISCO and country level.

The results for the two general health measures (self-reported and objectively measured) were quite similar. Three indices of working quality - *Physical environment*, *Work intensity* and *Skills and discretion* – showed a significant negative correlation with health. Thus, working in a bad physical environment (i.e. noisy, with high temperatures, or breathing in smoke or fumes or carrying or moving heavy loads, among the many items captured by this index) worsen both perceived health (coefficient different from zero at 10% level) and objective general health.

Work intensity and *Skills and discretion* negatively correlated with general health. This means that, for instance, working at high speed and under tight deadlines, or not having enough time to do the job increases the probability of reporting poor or fair health or being associated with worse objective health. The same occurred in the *Skills and discretion* index, which comprised among its items, carrying out complex tasks, having the possibility to choose or change methods of work, being involved in improving the work organization, and participation in training. To give a concrete example, we compared the ISCO group “Teaching Professionals” (ISCO=23) with the group “Stationary Plant and Machine Operators” (ISCO=81) and consider the average value of the three above mentioned work quality indexes. Our results showed that the probability of reporting poor or fair health was higher for the latter by about 13 percent. We did not find evidence that the other four work quality indicators correlated with general health, however.

Another interesting result was found for *mental and behavioural disorders (including anxiety, nervous or psychiatric problems)*. The probability of being affected by these types of mental health problems was significantly correlated with the index *Prospects*. One may indeed expect that job features like job security, career prospects and the type of contract affect mental health more than physical health. This is even more relevant in the case of older workers, for whom losing the job can have severe consequences in terms of future employability and scarcer finances in later life.

4. Conclusions

In this chapter we studied the relationship between working conditions and three health outcomes in a large sample of older workers in Europe. Our results suggest that job quality is an important predictor of individual health and show that some job features are more important than others. For example, physical environment and working intensity are particularly relevant predictors of general health, while low job security and uncertain career prospects are significantly associated with affective or emotional disorders.

Our findings have some potentially important policy implications. First, older workers appear to be sensitive to some specific job features. Therefore, effort needs to be made to monitor and improve these features; tasks and duties of the individual worker can be redesigned to reduce physical health risks. Second, policymakers should consider that staying longer in the workforce might have adverse effects on workers’ health, especially in occupations characterised by poor job quality. Therefore, any increase in the legal retirement age should be accompanied by policies that benefit the most vulnerable workers and jobs.

We should acknowledge that our empirical strategy does not allow us to determine a causal effect among the variables at this stage. It might be the case that a selection process occurs, in which people’s health status channel them into certain types of jobs. Future work should be undertaken, therefore, in order to uncover the mechanisms that lie behind the work/health nexus.

5. References:

Belloni, M. Meschi, E. and Pasini, G. (2016). "The Effect on Mental Health of Retiring During the Economic Crisis," *Health Economics*, 25, pp 126-140.

Coe and Zamarro (2011). "Retirement effects on health in Europe", *Journal of Health Economics* 30, pp 77–86

Eurofound (2017), Sixth European Working Conditions Survey: 2015. <https://www.eurofound.europa.eu/surveys/european-working-conditions-surveys/sixth-european-working-conditions-survey-2015>

Mazzonna F., Peracchi F. (2017) "Unhealthy retirement?", *Journal of Human Resources*, 52(1): 128–151.

Poterba J., S. Venti & D. Wise, (2011). "The Composition and Drawdown of Wealth in Retirement," *Journal of Economic Perspectives*, 25(4), pp 95-118.