

Employed and Happy despite Weak Health?

Labour Market Participation and Job Quality of Older Workers with Disabilities

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Employed and Happy despite Weak Health? Labour Market Participation and Job Quality of Older Workers with Disabilities

Catherine Pollak^a

Abstract

European countries with high senior employment rates have the highest levels of job satisfaction despite an older and more physically limited workforce. In this paper, we argue that this paradox can be explained by heterogeneous levels of job quality: better working conditions may enable older workers with disabilities to remain satisfied and employed. Using panel data from the Survey of Health, Ageing and Retirement in Europe, we find that health status, job satisfaction, but also working conditions, are major individual determinants of early labour market exits. We also show that high intrinsic and extrinsic rewards can mitigate the selective effects of disability. Finally, the comparative analysis reveals that older workers with disabilities are more likely to be employed in countries where they receive higher rewards. The findings therefore indicate that improved job quality is a major factor of successful active ageing strategies.

Keywords: Job satisfaction, Working conditions, Occupational health, Ageing labour supply.

JEL Classification: J28, J22, I19.

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Résumé

En emploi et heureux malgré une santé fragile ?

Participation au marché du travail et qualité du travail des travailleurs âgés souffrant d'incapacités

Les pays européens ayant des taux d'emploi des seniors élevés ont les meilleures performances en termes de satisfaction au travail, malgré un niveau plus élevé d'incapacités chez les travailleurs âgés. Dans cet article, nous montrons que ce paradoxe peut s'expliquer par les niveaux hétérogènes de qualité de l'emploi : de meilleures conditions de travail peuvent permettre aux travailleurs âgés ayant des incapacités d'être satisfaits et de se maintenir en emploi. En utilisant des données de panel de l'enquête SHARE (Enquête sur la santé, le vieillissement et la retraite en Europe), nous établissons que l'état de santé, la satisfaction au travail, mais aussi les conditions de travail sont des déterminants individuels majeurs de sortie précoce du marché du travail. Nous montrons également que de bonnes conditions de travail peuvent atténuer l'effet sélectif de l'invalidité sur le marché du travail. Enfin, l'analyse comparative révèle que les travailleurs âgés ayant des incapacités sont plus susceptibles d'avoir un emploi dans les pays où ils bénéficient de récompenses intrinsèques et extrinsèques plus élevées. Les résultats indiquent que l'amélioration de la qualité du travail est un facteur majeur de réussite des stratégies de soutien au vieillissement actif.

Mots-clés : qualité du travail, conditions de travail, santé, offre de travail, seniors.

JEL Classification: J28, J22, I19.

Introduction

In a context of “Active ageing” policies in Europe, keeping ageing individuals at work has become a major performance indicator for European Member states. The European Union target set by the Lisbon agenda was to achieve an employment rate of 50% for the 55-64 year old by 2010. The average employment rate of older workers for the EU-15 reached 48.4% in 2010 (Eurostat, 2012¹). Yet, national performances remain much contrasted: Scandinavian countries (Sweden, Denmark), the UK and Portugal were already above the target in 2000; Northern countries (Ireland, Finland) reached the target between 2000 and 2010, as well as the Netherlands and Germany for which the increase over the period has been the steepest. Other Continental and Southern countries remained below the 50% target in 2010. However, countries with high employment rates of older workers have more contrasted performances in terms of health at work (Schmid, 2008), and in particular, a higher incidence of disabilities among older workers (Sirven, Sermet, 2010).

Interpreting these contrasted performances as the sign of a trade-off between quantitative employment performances and health at work performances does not appear satisfactory. Indeed, empirical literature does not support the idea of a negative causal effect of work on health: the stylised “healthy worker effect” indicates on the contrary a positive correlation between work and health at the aggregate level. A higher incidence of work related health problems could be explained by a higher exposure of workers to straining working conditions, but the comparison of job quality shows the opposite, as quantitative and qualitative employment performances are rather positively correlated (Davoine *et al.*, 2008). Finally, if workers suffered more from work-related health problems in countries with high employment rates, the subjective health indicators should also be worse. Again, the opposite phenomena is observed, as the countries with high employment rates have higher levels of disabilities but also higher levels of good self-reported health and lower incidence of depressive symptoms (Sirven, Sermet, 2010).

This article proposes an alternative explanation to this apparent paradox. The tested argument is that the heterogeneous performances across countries in terms of employment and health of older workers may partly be explained by differences in job quality. In other words, some countries might provide better working conditions to ageing workers with increasing health limitations enabling them to stay employed. This could explain why countries with high employment rates also perform better in terms of well-being at work despite higher levels of disabilities among the employed population.

This argument implies that job quality plays a role on labour market participation of ageing workers. Job satisfaction literature has shown indeed that monetary as well as non-monetary aspects of jobs have an impact on labour market behaviour. Since a pioneer study by Freeman (1978), numerous hedonic studies have provided empirical evidence of the impact of job satisfaction on quits (Akerlof *et al.*, 1988; Lévy-Garboua *et al.*, 2007) and on retirement decisions (Debrand and Sirven, 2009). Satisfaction with specific job domains were also found to have an impact on quits (Clark, 2001) and on intended retirement (Blanchet and Debrand, 2007; Siegrist *et al.*, 2006). These empirical findings stressed the importance of intrinsic and extrinsic aspects of jobs on labour market behaviour. Although a few recent studies have focused on the role of job quality (job satisfaction, job characteristics, and satisfaction with working conditions) on retirement intentions, the impact of identifiable working conditions on effective early labour market exits of older

¹ ec.eurostat.eu/eurostat.

workers has rarely been studied. A few national empirical studies have estimated the effect of psycho-social working conditions on retirement behaviour (Blekesaune and Solem, 2005; Derriennic *et al.*, 2003), but to our knowledge similar estimations have not yet been led on a larger pool of countries.

Our argument also implies that health can have a selective effect on labour market participation. Indeed, the healthy worker effect is a stylized fact, for which two explanations can be advanced: according to the *causality hypothesis*, lower levels of health among the non-working population would be due to the negative (resp. positive) impact of inactivity or unemployment (resp. employment) on health; whereas according to the selection hypothesis, unhealthy workers are more likely to exit the labour force (whether due to self-selection or to selection from employers). Empirical evidence indicates that the healthy worker effect is likely to be mainly explained by the *selection hypothesis* (Ross and Mirowsky, 1995, Salm, 2009). Concerning older workers, recent studies suggest that self-reported health has a significant impact on early retirement in France (Barnay, 2010) and in Europe (Hagan *et al.*, 2009).

However, the effect of health on labour market participation may not be straightforward and depend on the available work arrangements. This assumption means that two workers with equivalent health impairments may have different labour market outcomes depending on the opportunities they receive in their jobs (for example on workplace adjustments, flexible work time, team integration and support from co-workers). As noted by Bound and Burkhauser (1999, p. 3485), it can be assumed that “*workers who continue to work following the onset of health limitations that affect their ability to work often do so by adapting, through their own actions and with the help of their employers*”. Yet, little attention has been paid by economists to the way the work environment can compensate for health limitations, and eventually enable ageing workers with health limitations stay employed and satisfied.

This article contributes to the existing literature by studying the effect of health and job quality on labour market participation of older workers and by analysing differences between countries in compensating weak health by good working conditions. We use data from the Survey of Health, Ageing and Retirement in Europe (SHARE), which provides individual and comparative panel data for European countries. Besides the rich variable set on socio-demographics (including information on the household), job characteristics, job quality (job satisfaction and working conditions), and health of older individuals (50 years and above) in ten European countries, SHARE has the advantage of being longitudinal, and hence to allow to study effective behaviour of individuals over waves and deduce causal relationships.

The empirical estimation follows two steps:

First, we test the selective effect of several aspects of health and job quality on labour market participation of older workers in Europe. To do so, we study the determinants for individuals in working age (50 to 64 year old) to remain employed (i.e. between the two waves of the survey), controlling for selection effects (Heckman probit), and for dimensions of individual and cross-country heterogeneity. Our results confirm that job quality (i.e. job satisfaction, but also balance between efforts and rewards) and health (i.e. self-reported health as well as disabilities) play an important role in keeping older workers employed.

Second, we compare performances between countries in providing good working conditions to older workers, in particular to those suffering from physical limitations. To

do so, we estimate the intensity of intrinsic and extrinsic rewards that individuals receive at work (recognition, social support, freedom, advancement prospects, opportunities to develop skills, job security, and salary), by an ordered logit estimation. Controlling for efforts at work (time pressure and physical demands), job characteristics, health, and socio-demographic variables, we focus in particular on the country specific effects to compare differences in rewarding workers by good working conditions. Our results provide evidence that compensation of poor health by good working conditions is differentiated among countries: workers from Mediterranean and Continental countries are less likely to benefit from good rewards at work than workers from Northern countries. These country differences in providing rewards are also found for workers with disabilities.

The rest of the article is organized as follows: section 1 briefly reviews the related literature, section 2 presents the data and the empirical strategy. The two steps of the empirical analysis are then successively presented: the Labour Market Model in section 3, and the Compensation Model in Section 4. Section 5 discusses and concludes.

1. Job quality and labour market decisions

What is the role of job quality on labour market participation among older people? Beyond the institutional and macroeconomic factors of employment performance (i.e. relative wage costs, implicit taxes on labour, labour demand, and economic growth), it can be argued that employment performances concerning older people are also determined by education and skills, continuous education and training, work organisation and sociale security arrangements, employability, and job satisfaction (Schmid, 2008). Indeed, job quality, understood as the set of monetary and non-monetary features that foster the well-being of workers (Green, 2006), can constitute an individual determinant of labour market participation. Empirical evidence for this statement has mainly been based on the study of job satisfaction and its impact on individual labour market behaviour. A vast body of literature has shown that job satisfaction is a central determinant of labour market participation. Satisfied workers are found to be less likely to quit (Freeman, 1978; Akerlof *et al.*, 1988; Clark, 2001; Lévy-Garboua *et al.*, 2007), and recent studies have shown that satisfied workers are also less likely to retire early (Debrand and Sirven, 2009). This literature, which relates to the broader field of happiness economics (Layard, 1980), has challenged the standard perception of utility. Studies using subjective well-being measures on monetary and non-monetary dimensions of jobs showed that wages and working hours were not the only important job characteristics - or even the most important ones - in forming individual preferences: job security and the interest of the job for instance, mattered more than income to explain labour market decisions (Clark, 2001).

The use of subjective variables, which has been initiated in economics the 1970's by Easterlin (1974) and Freeman (1978), and has greatly developed in the 1990's, is still often subject to suspicion among economists, who have traditionally focused on revealed preferences and objective well-being indicators. Indeed, several potential biases can be pointed out when working with subjective well-being indicators: individual responses can vary according to cognitive factors, social desirability, exogenous changes, context and relative situations, norms, or individual personality traits (Kristensen and Westergaard-Nielsen, 2007; Bertrand and Mullainthan, 2001).

Nonetheless, subjective measures are a tool of interest for labour economists. The main reason is that they contribute in determining observable behaviour (or revealed preferences), even after controlling for standard determinants and unobserved individual heterogeneity. Their systematic effect on observed behaviour (for example the effect of job satisfaction on labour market decisions) indicates that self-reported responses to well-being are not dominated by idiosyncratic effects (Clark, 2001). Instead, they capture unobserved aspects of well-being, and job satisfaction can be argued to capture unobservable aspects of jobs: indeed, job satisfaction predicts quits even after controlling for wages and hours (*ibid*). In addition, job satisfaction can also be an indicator for the unobserved alternative job opportunities (Freeman, 1978). Therefore, job satisfaction can be considered as a proxy for individual utility at work, which is not only based on pecuniary aspects (Clark, 2001; Frey and Stutzer, 2002).

In the perspective of this study, as we focus on the role of job quality in retirement decisions, one main issue concerning job satisfaction is to which extent it can provide information on job quality. The issue whether job satisfaction is an indicator of job quality is still highly debated (Vecernik, 2003, Llorente and Macias, 2005). Following Clark (2001), Green (2006), and Davoine (2007), an intermediate position can be adopted. Job satisfaction can be indeed understood as a summary measure of “match quality” (Clark, 2001), that is a proxy for the balance between personal aspirations and the qualitative and monetary aspects of the job. There are reasons to believe that although personality and expectations are likely to affect responses on job satisfaction, subjective in-work well-being also partly depends on the intrinsic aspects of people’s jobs.

In order to address this issue, subjective well-being research has provided with a vast literature using overall job satisfaction as a dependent variable. Explanatory variables include both job characteristics, which reflect the qualitative and monetary aspects of jobs, and individual characteristics, which can be seen as proxies for personal aspirations (Llorente and Macias, 2005), but could also capture unobserved differences in job quality. Ideally, this strategy requests the use of objective job characteristics. Such data can exist for some job characteristics, such as salary, type of contract, sector, tenure, occupation, or size of firm. However, most aspects of job content can hardly be obtained other than with subjective measures. These include some intrinsic and extrinsic aspects which appear to be the most important for workers (Clark, 2001). Therefore, other studies use self-reported variables that provide measures of the level of satisfaction with sub-domains of jobs. In this case, the underlying assumption is that job satisfaction is a weighted sum of satisfaction with work sub-domains, the weights being provided by the importance which the worker attaches to each of them (*ibid*). This psychological assumption is referred to as a “bottom-up theory” by Sousa-Poza and Sousa-Poza (2000): in their model, having an interesting job and good work relations appear as the most important aspects of job satisfaction for individuals, and are followed by income (*ibid*). This can be related to the results of Clark (2001), who found that job security, wages, and good relations at work, mattered the most for workers to stay in their jobs. Thus, these studies enable to give indications about the parameters that influence well-being at work by depicting socially identifiable aspects of job satisfaction and individual preferences.

Studies on the determinants of job satisfaction are delicate, especially because of possible fallacious correlations: biases affecting responses towards job satisfaction could be correlated to the explanatory variables (Bertrand and Mullainthan, 2001). However, consistency studies suggest that these biases should not be overestimated

(Kristensen and Westergaard-Nielsen, 2007). One way to address this issue is to directly introduce detailed subjective variables in labour market participation models to see which aspects of job satisfaction best predict quits and separations (Clark, 2001). The use of anchoring vignettes is another recent example. By comparing declared job satisfaction to answers on fictive situations, individual satisfaction levels can be rescaled according to their perceptions on hypothetical situations. This tool is convenient in cross country comparisons in order to take cultural differences into account. Studies using this technique found that cross country differences in satisfaction levels slightly change after controlling for cultural differences (Kristensen and Johansson, 2008).

Finally, subjective measures of job quality are of particular interest when studying the relationships between job quality and health. Indeed, subjective responses to dimensions of job quality can measure “work related psychosocial conditions”, which are found to have an impact on health in epidemiologic literature. In the job strain model (Karasek and Theorell, 1990), also referred to as the job demand-control (-support) model, high psychological demands combined to low decision latitude can lead to psychological strain and physical illness. The prediction of the model on mental and physical well-being has been supported by a significant body of empirical literature (see Van der Doef and Maes, 1999, for a review). The impact of job strain on health has also been supported by a number of empirical studies, some of which used objective data on exposure to job strain (Blekesaune and Solem, 2005). As a result, it appears that exposure to chemicals or physical dangers at work are not the only factors of deteriorating health for workers: psychosocial risks, which are a consequence of the work organisation, can also negatively affect mental and physical health. Karasek and Theorell (1990) developed an instrument to measure the work related psychological conditions, on the basis of self-reported responses a list of items on job demands and job decision latitude (control). This model focuses on aspects of work that relate to the work organisation in itself, such as decision latitude, social support, and skills, which can be assimilated to “intrinsic rewards” in the economic perspective. A related measurement is proposed by Siegrist (1996) to measure effort-reward imbalance. This latter model focuses on job security, recognition, and advancement prospects, which are aspects of work that relate more generally to the labour market and the redistributive fairness, and correspond to the scope of “extrinsic rewards”. Similar questionnaires have been included in several national and international individual based surveys, whether cross sectional or longitudinal, and used to analyse the links between work related psychological factors, health outcomes and labour market participation (Derrienic *et al.*, 2003; Siegrist *et al.*, 2006; Niedhammer *et al.*, 2008). The SHARE questionnaire used below is one example.

Work related psychosocial conditions appear like a major issue in particular for ageing workers, who are more likely to suffer from deteriorating health and physical limitations. As work conditions can have adverse effects on the health of workers and eventually lead to early labour market exits, it can inversely be assumed that adapted work conditions can enhance or maintain the work ability of ageing individuals, and thus have a positive effect on their well-being and labour market participation.

Cross country comparisons reveal a strong heterogeneity across Europe in terms of job quality. Rankings on job satisfaction found workers from the Netherlands and Scandinavian countries to be the most satisfied, followed by those from Continental and Mediterranean countries, workers from transition countries being the least satisfied (Kristensen and Johansson, 2008; Sousa-Poza and Sousa-Poza, 2000). But workers from the poorest countries are not necessarily the least satisfied: Blanchflower and Oswald (1999) found for example that Ireland, the poorest country of their sample, arrived

first in their job satisfaction ranking. The stylized fact of women, self-employed, young and old people being more satisfied with life in general than middle-aged men (see for example Clark and Oswald, 2006), stands to be true as well concerning job satisfaction (Clark *et al.*, 1996; Blanchflower and Oswald, 1999). A related study on in-work well-being (Pollak, 2009) based on identifiable working conditions confirmed the presence of a North-South gradient in Europe: well-being at work was found to be higher in Switzerland, the Netherlands and Scandinavian countries (Denmark and Sweden), than in Continental countries (Belgium, Germany, Austria). The lowest satisfaction levels were found in Italy, Spain and Greece, with France being close to the Mediterranean cluster. These high satisfaction levels in Northern countries could be explained by in a better compensation of efforts at work: for instance, Lengagne (2007) found that older workers from Denmark, Sweden and Belgium, were less likely to receive low rewards (*i.e.* salary, recognition and perspectives) than workers from other Continental or Mediterranean countries. The comparisons also confirm the absence of a quality-quantity trade-off in employment: in countries where employment rates are high, workers are also more satisfied with their jobs.

To what extent can these performances be linked? Empirical evidence suggests that at the individual level, job quality can be a factor of increased labour market participation: intended early retirement is associated with low job quality indicators, such as low job satisfaction (Blanchet and Debrand, 2007) and straining work situations (such as effort-reward imbalance) (Siegrist *et al.*, 2006). At the aggregate level, the causal link between job quality and employment rates is difficult to establish. Counterfactual analyses suggest that differences in employment rates between countries are mainly to be explained by institutional differences (*i.e.* easily accessible and/or generous early retirement schemes), rather than differences in health, demographics, or working conditions (Börsch-Supan *et al.*, 2005).

However, it is striking to notice that most of the high performing countries in terms of employment of ageing people and job satisfaction also have lower performances of health at work measured by reported limitations (*i.e.* disabilities) [Sirven, Sermet, 2010, Pollak, 2011]. This paradox has not yet been addressed by the literature. Thus, the hypothesis explored in this paper is that a part of the explanation could be found in differences in work conditions that enable ageing workers with disabilities to stay satisfied and employed. The purpose will be to investigate country differences in compensating weak health and effort of older workers by good working conditions and to discuss the effects these differences can have on the participation of ageing workers in the labour market. Our contribution to the literature is threefold: first, we confirm the selective effect of health on labour market participation of older workers, second, we highlight the role of identifiable working conditions in mitigating the selective effect of health on the labour market, and third, we spot country differences in the compensation of workers' inputs by good rewards with a particular focus on ageing workers with disabilities.

2. Data and empirical strategy

2.1. Data

The analysis is based on the Survey of Health, Ageing and Retirement in Europe (SHARE), which provides comparative and longitudinal data on job quality, health, and socio-economic status of people aged 50 and over in ten European countries

(Austria, Belgium, Denmark, France, Germany, Italy, the Netherlands, Spain, Sweden, and Switzerland). We use data from the first two available waves: a representative sample of individuals over 50 years and members of their household (spouse or partner) have been interviewed for the first time in 2004 (wave 1), and followed up with an identical questionnaire in 2006 (wave 2). As we are interested in the transitions of workers, we only keep individuals who responded to the survey in both waves. In addition, due to our focus on labour market participation, our sample is restricted to the working age population, defined as individuals aged between 50 and 64 year old².

2.2. Sample

The initial sample of working age individuals present over both waves consists of 7.589 individuals; the sample size by country ranking from 319 individuals in Switzerland to 1.378 in Belgium (table 1). Out of this sample, about 55% were employed or self-employed. Employment rates (column 3) vary importantly across countries: the Northern cluster has the highest employment rates followed by Continental and Southern countries³.

Employment rates are lower among older individuals with health limitations (i.e. disabilities) in all countries (about 42% in average, last column). Country variations are also substantial: only 20% to 30% of seniors with health limitations are employed in Italy, Spain, or Belgium, when they are about 60% in Sweden, Denmark or Switzerland.

Table 1
Sample descriptive by country (50-64 year old)

	Full Sample	Employed		Health limitations		Limited and employed	
Austria	515	211	40.97%	206	40.00%	73	35.44%
Germany	696	414	59.48%	290	41.67%	141	48.62%
Sweden	945	738	78.10%	362	38.31%	226	62.43%
Netherlands	896	483	53.91%	386	43.08%	173	44.82%
Spain	536	231	43.10%	203	37.87%	57	28.08%
Italy	773	272	35.19%	227	29.37%	50	22.03%
France	939	524	55.80%	267	28.43%	110	41.20%
Denmark	592	412	69.59%	223	37.67%	118	59.91%
Switzerland	319	239	74.92%	86	26.96%	54	62.79%
Belgium	1.378	639	46.37%	433	31.42%	139	32.10%
Total	7.589	4.163	54.86%	2.683	35.35%	1.141	42.53%

Source: SHARE, wave 1, for respondents present over the two waves.

² Indeed, the European Employment Strategy does not target older groups.

³ These employment rates correspond quite closely to employment rates for the same age groups given by EUROS-TAT and OECD labour force statistics.

Finally, there are important country variations between countries in the prevalence of health limitations. The measure of “health limitations” used here is the self-reported presence of health limitations in usual activities over the past 6 months. This indicator matches the usual indicators of disability, used for instance by the OECD⁴. It closely corresponds to the definition of disability given by the WHO (International Classification of Functioning and Disability), that is “*any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner of within the range considered normal for a human being*”. This definition highlights the interactions between the individual’s mental of physical condition and his or her socio-economic environment: it is the “*inability to perform or a limitation in performing roles and tasks that are socially expected*” (Burkhauser *et al.*, 2002, p.542)⁵. Here, we indistinctly refer to “health limitations” or “disabilities”. Note however that herein, the term “disability” refers to individuals with health limitations (or disability prevalence) and not to individuals who are entitled to (or benefit from) disability benefits (disability benefit reciprocity or claims).

These descriptive statistics of the older working-age individuals in Europe show that countries with higher employment rates for disabled workers also have higher overall employment rates for older workers. This correlation has been highlighted by the successive OECD Reports on employment and disability and seems to indicate that global employment policies also benefit to the invalid population (OECD, 2003, 2010). In addition, high employment rates of people with limitations are not associated to lower levels of disability benefits: indeed, disability enrolment is highest in Scandinavian countries which also have the highest employment rates of disabled seniors⁶. Hence, this seems to indicate that these countries manage to keep workers with health limitations employed despite “generous” disability benefits.

2.3. Estimation strategy

The purpose of this empirical analysis is to explore the role of job quality in explaining the contrasted country performances in the prevalence of health limitations among the employed population. To do so, the analysis will follow two steps:

First, we want to know if health and job quality have a selective effect on the labour market of older workers in Europe, and which aspects of health and job quality in particular increase the ability or the willingness of workers to stay employed. Thus, in the “Labour Market Model” (section 3), we estimate the determinants for older workers to stay in employment, by focusing on the role of health and job quality, correcting for selection effects.

Second, we are interested in comparing countries in their capacity to deal with workers with health limitations: to what extent do they manage to compensate health limitations by good working arrangements? To do so, in the “Compensation Model” (section 4), we estimate the intensity of good working conditions (defined as the received intrinsic

4 Indeed, disability status is measured by the OECD via self-assessment to questions concerning “*the existence of long-lasting health problems or disability which limits daily life activities*” (the exact formulation of the question varies between countries) (OECD, 2010). The corresponding SHARE questionnaire item used here is: “*For the past six months at least, to what extent have you been limited because of health problems in activities people usually do?*”. Respondents are considered limited/disabled if they declared being “severely limited” or “limited but not severely”.

5 Comparable indicators are generally used to measure employment rates of people with disabilities (Stapelton and Burkhauser, 2003; Weathers and Wittenburg, 2009).

6 The gap between the occurrence of declared disabilities and disability benefit reciprocity has been widely addressed by the OECD Reports (2003, 2010): many persons reporting disabilities are not eligible to -or do not receive- disability benefits and vice-versa.

and extrinsic rewards) older workers, and in particular workers with health limitations, benefit from. After controlling for individual and job characteristics, we compare country differences in providing high intrinsic and extrinsic rewards to workers for equal levels of health and inputs (i.e. effort).

3. Labour Market Model

3.1. Descriptive statistics

In order to study the transitions of individuals on the labour market, the sample is restricted to working-age individuals (50-64 year old). Among the total of working-age individuals, about half were employed in 2004, and about 18% were retired. The rest were homemaker (mainly women), unemployed and in disability or permanent sickness leaves.

The labour market transitions of these individuals between the two waves of the survey (2004 and 2006) are represented in table 2: most of the people who were working in the first wave were still employed two years later (78%), and labour market exits were mainly through retirement (13%). Among those who were not in employment in the first wave (about 45%), only few came back to employment: 20% of the unemployed found a job, but over 94% of the inactive (retired, disabled or homemaker) stayed inactive between the two waves (mainly in the same status or gone to retirement). This confirms that at this stage of careers, labour market exits are rarely followed by returns to activity, and that exits are mainly pathways to retirement.

Table 2
Labour market transitions between waves (%) (50-64 year old)

W1	W2	Employed	Retired	Unemployed	Disabled	Homemaker	Unknown	Total
W1		78	13	3	2	3	1	100%
Unemployed		20	25	37	5	13	0	100%
Retired		2	89	0	4	5	1	100%
Disabled		6	31	1	54	5	2	100%
Homemaker		5	11	2	3	79	0	100%
Unknown		50	20	10	10	0	10	100%
Total		41	33	4	5	16	1	100%

Source: SHARE, for respondents over the two waves.

3.2. Estimation process

The purpose of the labour market model is to estimate the determinants for workers to remain on the labour market between waves.

The estimated outcome equation is the following:

$$\begin{aligned}
 y_{it}^* &= \alpha Q_{i,t-2} + \beta H_{i,t-2} + \gamma X'_{i,t-2} + u_i & [1] \\
 y &= 1 \text{ if } y_i^* > 0 \\
 u_i &\approx N(0, \sigma_{ui}^2)
 \end{aligned}$$

y^* is the outcome variable describing the employment transition between 2004 ($t-2$) and 2006 (t). Q is a measure of job quality, H are health variables, X' is a set of other observed independent control variables, and β, γ and α the coefficients to estimate. The error term u is assumed to be normally distributed with a mean zero and a constant variance σ^2 .

With this equation, we study the outcome in 2006 for individuals that were employed in 2004 ($y=1$ if individuals are employed in 2006 and $y = 0$ otherwise). This sample of employed individuals can have different characteristics than the general population of people the same age, and the selection might not be random. A key example is that the most risk adverse individuals might be underrepresented in the employed sample (they are more likely to have already exited the labour market), and thus it is likely that we overestimate the effect of disabilities on labour market exits.

In order to control for such selection effects, we use a selection equation for the labour market participation in 2004:

$$\begin{aligned}
 z_{i,t-2}^* &= \theta W'_{i,t-2} + \delta C_i + \varepsilon_i & [2] \\
 z &= 1 \text{ if } z_i^* > 0 \\
 \varepsilon_i &\approx N(0, \sigma_{\varepsilon i}^2)
 \end{aligned}$$

Where W is a vector of variables describing the observable characteristics of individuals, and z^* is the variable describing the labour market participation in 2004.

The outcome variable y is observed only if the criterion of being employed in 2004, defined with respect to the selection variable z , is met:

$$y = y^* \text{ if } z = 1$$

y is not observed if $z = 0$

The two errors u_i and ε_i are assumed to have a correlation ρ . If $\rho = 0$, selection bias is not a problem, since the selection effect (being employed in 2004) has no impact on the outcome (staying employed in 2006). If $\rho \neq 0$, the two functions should be estimated jointly with the likelihood function of Heckman in order to provide consistent estimates (Heckman, 1979).

3.3. Model specification

3.3.1. Selection equation

The selection equation [2] is run on the sample of the 50-64 year old in wave 1 who were present wave 2.

The dependent variable is declaring being in employment in 2004 ($z = 1$ when employed or self-employed, and $z = 0$ if retired, unemployed, permanently sick or disabled,

homemaker or other). Thus, the selected independent variables must be available for the global sample (employed and not employed). This means that no job characteristics should be included as such characteristics are only available for respondents who have declared themselves as being employed or self-employed. The independent variables are observable characteristics which can have a selective effect on the labour market. These include individual and contextual variables, as well as institutional and macroeconomic differences which are captured by country dummies (C).

The individual and contextual independent variables (W^i) are the following:

Individual characteristics

Three main individual characteristics can influence the presence on the labour market of older working age people: age, gender and level of education. Indeed, in all countries of the sample, employment rates are higher for the younger age groups, for men, and for people with a higher educational attainment. Hence, we expect age to be negatively correlated with the likelihood to be on the labour market, either because older people can claim for retirement or pre-retirement schemes, or because returns to employment are more difficult as people get older. We also expect a higher probability to be on the labour market for men than for women, mainly because there is a generational gender gap in activity rates. Finally, the level of education, for which we apply the international classification (ISCED), and that takes three categories (primary education, secondary education, and tertiary education), should be positively correlated with labour market participation. Indeed, people with a lower level of education are more likely to have entered the labour market early (and can hence claim to full pensions at an earlier age), and they can also be more vulnerable to organisational changes and unemployment.

Health

The healthy worker effect leads us to expect that the level of health will be positively correlated with labour market participation. Although the empirical literature generally uses self-reported health measures as explanatory variables in labour supply models, a recurrent issue is the potential endogeneity of this variable in case of a justification bias in self-reported health (inactive workers may report lower levels of health to justify their status) (Bound, 1991). According to Kalwij and Vermeulen (2008), this issue should be treated as an omitted variable problem by introducing supplementary objective health indicators. Following the empirical recommendations of these studies, we include a general measure of self-reported health as well as identifiable⁷ health indicators. SHARE provides many health indicators⁸, out of which we use the following:

Self-reported health: this variable corresponds to the standard subjective measure of overall health. It is collected on the RAND (or US scale), with 5 modalities. We include it as a dummy variable of very good health (“excellent” or “very good” self-reported health), and the reference category is constituted of people in “poor”, “fair”, or “good” health.

Mental health: also referred to as the level of depression risk, this variable corresponds to the “Euro-D score”, which is a synthetic mental health measure used in epidemiology and psychology (Prince *et al.*, 1999). Risk is of depression is low for people who reported

7 Although the literature widely uses the term “objective” for indicators that try to capture precise physical or mental conditions, most of these variables are nevertheless self-reported.

8 Such as grip strength, walking speed, ADLs and IADLs (difficulties in quotidian activities), etc.

less than 4 out of a list of 12 depressive symptoms (reference category), and high for those who reported 4 or more symptoms.

Disabilities: also called health limitations, this variable corresponds to the WHO/OECD definition and measure of disability. People with disabilities are those who reported severe or moderate health related limitations in daily activities, and the reference group are people who do not report any limitations.

Chronic diseases: the amount of chronic diseases is “objective” by its explicit reference to diseases which have been diagnosed by a doctor. Respondents identify their medical conditions from a list of 14 chronic conditions. We use a dummy variable for people with at least 2 conditions, and people with less than two conditions are the reference group.

Social context

The social environment of workers can participate in explaining their labour market status. Therefore, we include the following contextual variables in the estimation:

Status of partner: labour market participation can result from a joint decision within the household. Therefore, we include the labour market status of the partner. The variable reflects whether the person has an inactive or unemployed partner (reference group), an employed partner, or no spouse or partner.

Income of the household: the decision to be active can also directly be influenced by the financial situation of the household. Therefore, the estimations include the gross household income, which is calculated on the basis of the disposable income of the household per capita, excluding the individual income from work (to avoid endogeneity with the individual labour market status).

Care activities: finally, similarly to parents, labour market participation of older people may also depend on their family responsibilities. Hence we control for the fact that people are care-givers to a household member or to another person.

3.3.2. Outcome equation

Once corrected for the selection effects on the labour market [2], the outcome equation [1] focuses on the labour market transitions between waves for those who were employed in the first wave. The dependent variable of the outcome equation is being in employment in 2006 ($y = 1$ if employed, $y = 0$ otherwise). Therefore, we focus solely on the transitions between employment and non-employment. Indeed, this transition appears to be the best proxy for labour supply behaviour of older workers: first, because at this age transitions from unemployment or inactivity back to employment are very low, which indicates that labour market exits are mainly pathways to retirement (table 2 above); second, because labour exit schemes are not comparable across countries as they can serve as functional equivalents for early retirement (Gruber and Wise, 1998)⁹, or even across individuals since self-reported statuses may differ from the administrative categories as the borders of exit schemes are often blurry. In addition, our main concern at this stage is to understand the factors that keep older workers in employment.

⁹ This implies excluding unemployed individuals, even though they can be assumed to be active.

In order to explain the labour market participation outcome (in the second wave), the explanatory variables (X) reflect the effect of characteristics in the earlier stage (in the first wave). Technically, since the effect of the variables is not instrumented, the estimated effects are not proofs of causality but correlations between past conditions and future outcomes. In order to correctly identify the Heckman model, the explanatory variables in the outcome estimation should differ from the variables in the selection estimation. A general recommendation is to have at least one variable in the model that affects the selection but not the outcome (Sartori, 2003). In our case, several explanatory variables from the selection equation meet this criterion and will not be included in the outcome estimation (gender, depression risk, diagnosed diseases, and informal care provision). The explanatory variables that are included capture factors of early labour market exits: we are mainly interested in the role of health and job quality, and control for standard individual determinants (distance to retirement), objective job characteristics, and institutional differences (country dummies):

Distance to retirement

The perspective of retirement can be a decisive factor of individual behaviour on the labour market: a higher distance to the legal minimum retirement age should increase the incentive of the labour supply to postpone the labour market exit, and the incentive of firms to keep the employees that have not reached the age of eligibility to retirement (Hairault *et al.*, 2010). Thus, we include in the analysis a variable that measures the distance in years to the normal pensionable age (or standard retirement age), with respect to country, gender and time of interview (from Duval, 2003). This variable is understood as a proxy for the financial incentive to postpone retirement. It does not correspond to the effective full pension age of each individual, which depends on the complete individual careers and eventual eligibility to early pension schemes: such information would request very detailed administrative data.

Job characteristics

We also control for the following objective job characteristics of individuals: employment status, type of occupation¹⁰, type of contract, working time (log of lagged value), and individual income from work (log of lagged value).

Health

As a complete set of health variables is already used in the selection estimation, we introduce in the outcome estimation only the health variables that still have a significant effect on the outcome, which are self-reported health and health limitations (*i.e.* self-assessed disabilities).

Job quality

For our interest variable, job quality, we alternatively estimate the effect of different measures from a set of job quality variables¹¹. We start by testing the effect of overall subjective well-being with the job (job satisfaction). As it is difficult to draw policy conclusions on the aspects of jobs that potentially play a role on labour market decisions on the basis of this measure alone, we also test for identifiable aspects of jobs, by referring to two models of job strain (effort-reward and demand-control balance).

¹⁰ International Standard Classification of Occupations (ISCO-88) coding.

¹¹ See figure 3 in appendix for details on these variables.

Interaction variables are used to test whether job quality has a direct effect on labour market participation, or whether job quality mitigates the selective effect of health on labour market participation.

Model 1 and 2: Job satisfaction

In a first model [M1], we introduce the standard variable of general job satisfaction, for which answers to the statement “*All things considered I am satisfied with my job*” are collected on a four point Likert scale (strongly agree / agree / disagree / strongly disagree). We assume that the tendency of choosing extreme modalities could differ between countries due to cultural or linguistic differences, and to avoid such a bias we adopt a binary coding (satisfied / not satisfied). In a second model [M2] job satisfaction is interacted with the disability dummy (being severely or moderately disabled).

Model 3 - 6: Effort-Reward and Demand-Control imbalance

The next models estimate the effect of epidemiologic measures of job quality: first, the effort-reward imbalance model [M3] (Siegrist, 1996), and second, the demand-control (-support) imbalance model [M5] (Karasek and Theorell, 1990). As a measure of imbalance, we calculate the ratio between efforts (respectively demands) and rewards (respectively control). Efforts and demands are identical scores: they are based on items on physical demands and time pressure. For the effort-reward imbalance ratio [M3], rewards are a score of recognition, salary, advancement and security (Siegrist *et al.*, 2006). For the demand-control (-support) imbalance ratio [M5], the control score is a sum of items on decision latitude (or freedom), opportunities to develop skills, and received support. A similar method is implemented with the same data-set by Siegrist *et al.* (2006). In their study, categories of job quality also constructed based on a ratio, except that individuals scoring in the upper tertile (by country) of the ratio are considered being in poor quality jobs. Contrary to these authors, we directly introduce the ratio in the regression since using a continuous variable avoids forming arbitrary groups of “good” *versus* “low” job quality. To ease interpretation the ratio is reversed: the lower the ratio, the higher the imbalance, and the higher the ratio, the better the job quality. Models [4] and [6] present the results when interacting the ratios with the disability dummy.

3.4. Results

The results from the selection estimation (table 3) confirm usual stylised facts concerning individual characteristics and the social context, (for example Berkovec and Stern, 1991, Debrand and Sirven, 2009). The likelihood of being employed decreases significantly with age. This can be on one hand due to the labour supply, either because some individuals have reached statutory or full retirement age (which is below 65 in some countries) or because they have become entitled to early exit schemes (disability, early retirement). On the other hand, demand can play a role, as returns to employment are more difficult as people get older (due to age discrimination, or obsolescence, particularly after long unemployment or inactivity spells), and older employees are often more likely to be made redundant. All other things being equal, men are more likely to be employed than women: indeed, activity and employment rate gaps by gender are substantial throughout the life course of this generation. Higher levels of education and income also increase the likelihood of being employed (Berkovec and Stern, 1991): these variables can be proxies of late entry in the labour market (and hence later eligibility to full pensions), to a lower vulnerability to organisational and technical changes in

firms (and hence a lower risk of unemployment), and to better career opportunities of individuals (and hence a higher incentive and ability to postpone the labour market exit). The family situation also matters: individuals whose partner is employed are also more often employed, which indicates joint retirement decisions within the household (Blau and Riphon, 1999). However, low household incomes and the absence of an additional worker also increase labour market participation. Finally, in accordance with the literature, we find that care-givers are less likely to be employed (Bolin *et al.*, 2008).

Health has a clear selective effect on the labour market. Good self-reported health increases the probability of being employed. This result is a stylised finding (Berkovec and Stern, 1991). Adding identifiable aspects of health to the estimation, we find that, in addition to self-reported health, the presence of disabilities decreases the probability of being employed, especially when health limitations are severe, but also when they are moderate. People with mental health problems (*i.e.* a high depression risk) are also - albeit to a lower extent - less likely to be employed. A high prevalence of chronic conditions on the contrary is not related to the labour market status.

Institutional differences (for example generosity of early exit schemes or unemployment rates) are controlled for by country dummies. All other things being equal, individuals from Northern countries (Sweden, Denmark, Switzerland, Netherlands) have a higher or similar probability of being employed as Germans, whereas this probability is lower for individuals in other Continental (Austria, Belgium, France) and Southern countries (Spain, Italy).

The outcome equation [table 4] estimates the role of health and job quality on the probability to remain employed between 2006 and 2004, for workers from the first wave, controlling for institutional differences (country dummies) and selection effects. Note that the errors terms of the selection and the outcome equation (ρ) are correlated, which indicates that the sample of employed individuals is not randomly selected, and therefore it is justified to estimate the outcome conditionally upon the selection equation.

A low level of health (being severely limited in daily activities, and feeling generally in weak health), which partly determines being selected on the labour market, also reduces the probability of staying employed. Being moderately limited in activities is not significant. This can be explained by the fact that people with severe limitations are more likely to have access to early exit schemes, or end up exiting their jobs without having access to specific schemes (transiting for example through unemployment: see Barnay, 2008, 2010). They can also be more vulnerable to lay-offs. On the other hand, employed individuals with moderate levels of disabilities may have jobs that are compatible with their physical limitations, but this may not be the case on a longer period, if the disabilities worsen.

Unsurprisingly, job characteristics matter in determining labour market participation. Overall, workers in “typical” or “standard” jobs retire later: indeed, permanently employed are more likely to keep their jobs. Self-employed also exit the labour market later, which can be both a sign of lack of pension entitlements, or of better and more fulfilling work opportunities. In addition, high level of education and usages are associated with lower labour markets exits. These results are in line with several studies which have pointed out that white collars have a lower risk of early retirement (Lackzo *et al.*, 1988; Hayward *et al.*, 1989). However, the type of occupation, which is closely related to the level of skill, and the size of firm, are not or only slightly significant.

Beyond these job characteristics, we observe the effect of proxies of monetary and non-monetary incentives to exit the labour market. Concerning the first aspect, the distance to statutory retirement age and the level of individual income significantly increase the probability of staying employed. But aspects of job quality also play a significant role, even after controlling for individual characteristics, institutional differences, job characteristics and distance to retirement. The results confirm that job satisfaction, which is a summary measure of the match between job quality and personal aspirations, appears as an important individual determinant to stay employed [M1] (Clark, 2001). In addition, the results show that identifiable aspects of job quality also have an impact on workers' outcomes. The reward-effort ratio has a significantly positive effect on staying employed, indicating that a lack of extrinsic rewards partly explains retirement behaviour. The control-demand ratio on the other hand is not significant, indicating that contrary to extrinsic rewards, intrinsic rewards may not have a direct effect on workers preferences. However, this does not mean the absence of an effect: the interaction of job quality variables with the disability dummy show that job quality can mitigate the selective effect of disability. Indeed, disabled workers are more likely to remain employed when their efforts are compensated by both intrinsic and extrinsic rewards, whereas job satisfaction does not affect their behaviour. Therefore, it seems that working conditions play a clear role in keeping older workers with disabilities employed.

At this point of the estimation, country coefficients control for institutional differences, but are complex to interpret in terms of policy. Opposite effects in signs with the selection equation are to be explained by the fact that in countries where selection of older workers is important, those who are still in employment also have higher chances to stay (for example Mediterranean countries). In other words, it may be hard to find a job when you get older, but if you have one, it is easier to keep it. The effects being relatively important, it seems here again that even after controlling for individual characteristics and health, institutional differences are important determinants of early retirement (Debrand and Sirven, 2009, Börsch-Supan et al., 2005). As the distance to retirement variable captures differences in statutory retirement age, the country effects could reflect differences in labour market performance (ex: unemployment risk), legislation (ex: employment protection), or social protection (ex: pension replacement rates, early exit schemes).

4. Compensation Model

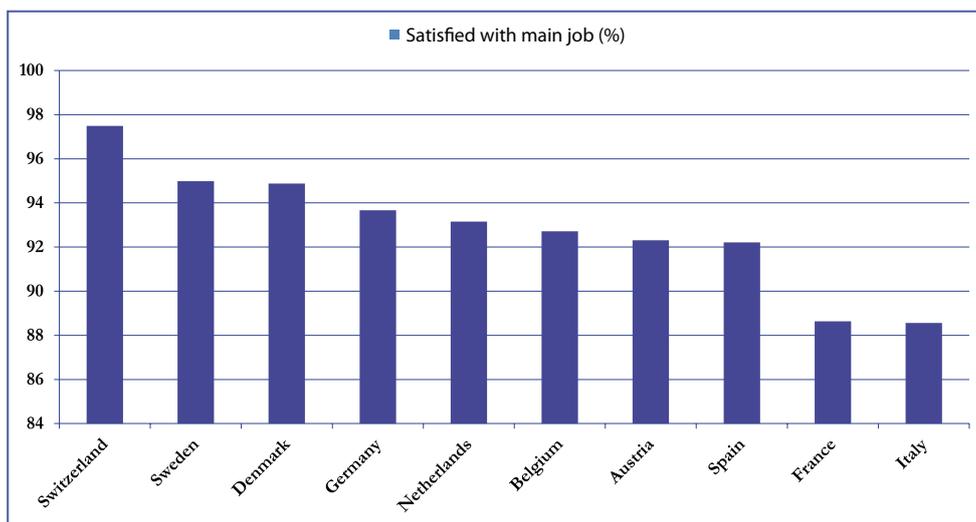
4.1. Descriptive statistics

The results from the Labour Market Model have confirmed that health and job quality have a selective effect on the labour market for older people: even after controlling for selection effects, job characteristics, financial incentives, high levels of health and job quality increase the likelihood of staying employed. They also show that institutional differences matter: the country dummies that capture these differences have a significant effect on the probability of being selected and staying on the labour market. These average effects of job quality and health may hide country differences: a senior with health impairments may be more likely to remain longer on the labour market in a country where he or she has higher chances to benefit from work arrangements. The results indicate indeed that the likelihood of staying employed for individuals will depend on how the working conditions compensate their health impairments.

The purpose of this second part of the study is to investigate the country differences in terms of job quality.

Different dimensions of job quality can be distinguished at the individual level, such as job satisfaction, efforts, rewards, or imbalanced work situations. The levels of job quality vary substantially between countries. The vast majority of older workers (over 91%) declare themselves satisfied or very satisfied with their jobs. The countries with the highest levels of job satisfaction are the Northern countries and Switzerland, Continental countries are intermediate, and Mediterranean countries, including France, are the least satisfied, although levels remain high in these countries (over 88%) [figure 1].

Figure 1
Job satisfaction among older workers in Europe



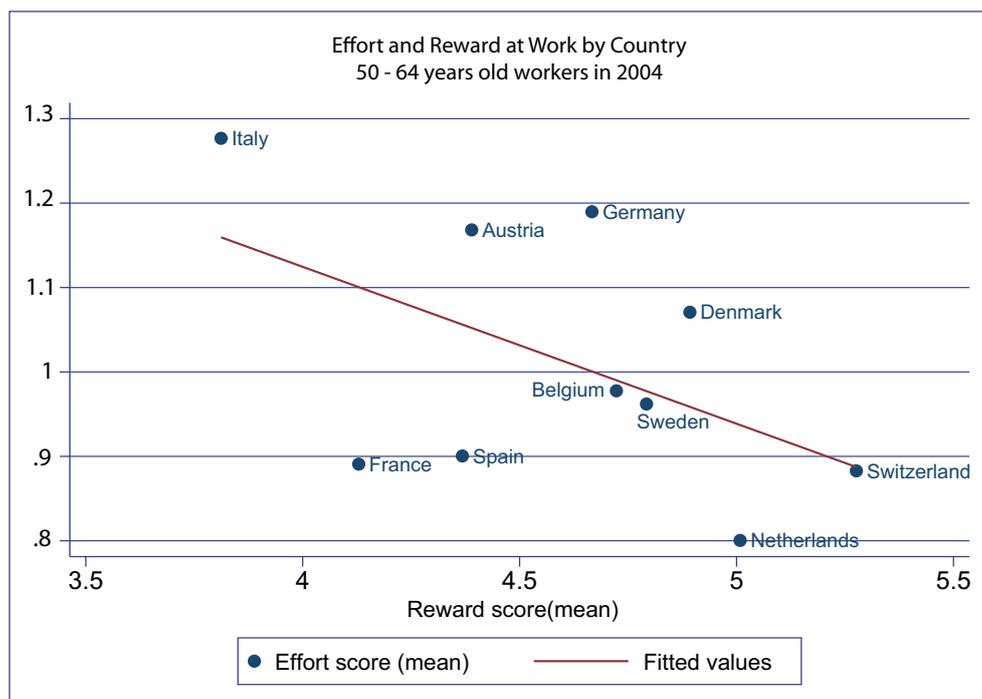
Source: SHARE wave 1, 50-64 year old workers.

Considering identifiable aspects of working conditions gives a more precise appreciation of the level of job quality across countries. A summary measure can be given by the effort-reward and the demand-control ratios that indicate the level of imbalance of work situations. Figure 2 pictures the levels of efforts and rewards of older workers by country: at the upper left of the graph (Italy, Austria) efforts are high and rewards are low, which corresponds to “high strain” job situations according to the job-strain typology (Karasek and Theorell, 1990). At the upper right hand side, where rewards are high and compensate the efforts, countries seem to have more “active” work situations (Germany, Denmark). Countries with low efforts, which are situated at the bottom of the graph, can also reflect very different situations: France and Spain, where rewards are also low, seem to have more “passive” work situations, whereas Belgium, Sweden, Switzerland and the Netherlands could be generally referred to as “low strain” countries for older workers.

The ranking in job satisfaction is very close to the ranking in the levels of rewards. This could indicate that differences in job satisfaction may be better explained by the level of rewards than by differences in efforts. Indeed, the results from the empirical job satisfaction literature suggest that the most determining factors of job satisfaction are rather work “outputs” such as good working relations, job content, and income (for example Sousa-Poza and Sousa-Poza, 2000).

These average levels are however not corrected for composition effects. Therefore, an econometrical analysis is necessary to compare country performances in providing such rewards, controlling for individual characteristics. Indeed, we would like to know to what extent countries manage to compensate ageing workers for their health impairments by providing them good working conditions. This is the purpose of the “Compensation Model”.

Figure 2
Effort and rewards in Europe



4.2. Estimation process

The estimation aims to compare country differences in providing good rewards to older workers, especially those who suffer from physical limitations. The underlying assumption is that the work ability of ageing workers depends on their health but also on the work organisation. Thus, their behaviour on the labour market does not only depend on how much their monetary rewards (wages) will compensate their efforts (physical demands or time pressure): aspects of the work environment can play a major role in enabling them to stay employed.

In the following model, we consider that rewards are extrinsic and intrinsic aspects of work that can compensate for weak health and effort. This is consistent with the demand-control (-support) model and the effort-reward model, where decision latitude and social support (or reward) can compensate for psychological and physical demands (or effort), and the imbalance between these two dimensions increases the risk of job strain and physical and mental illness.

The variable to be explained is a score of “good rewards” that can be ordered from 0 (no rewards) to 7 (rewards received in each dimension), and serves as a proxy of the quality of the work environment. In order to avoid the assumption that the distances between the categories are equal, we proceed to an ordered logit regression, such that we can also interpret the size of coefficients.

The equation to be estimated is:

$$y_i^* = \alpha C_i + \beta X_i + u_i \quad [3]$$

In order to see whether there are significant differences between countries in rewarding workers, we are particularly interested in the effect of country dummies (C). We control by a set of observed independent variables (X). β and α the coefficients to estimate, and u the error term.

y^* is a latent continuous variable that can be thought of as the intensity of received rewards. We observe the variable y that takes values from 0 to 7 and increases with received rewards. y_i is tied to the latent variable by:

$$y_i = j \text{ if } \tau_{j-1} \leq y_i^* < \tau_j \text{ for } j = 0, \dots, 7$$

Thus, the observed category changes when the latent y^* crosses a cut point τ_j . τ_0 to τ_6 are estimated and we assume that $\tau_{-1} = -\infty$ and $\tau_7 = +\infty$.

4.3. Model specification

Job characteristics and working conditions are available for the current job of individuals in the survey: for this reason, the sample is limited to the working age individuals (50 to 64 year old) that declare themselves employed or self-employed. Since we are interested in the determinants of receiving rewards, but not in changes over time, we run the estimation on data from the first wave of the survey.

The dependent variable is a score of received rewards as defined above: it is a synthetic indicator of good working conditions regarding extrinsic rewards (salary, advancement prospects, recognition, and job security) and intrinsic rewards (decision latitude, opportunity to develop skills, support in difficult situations).

The assumption is that good working conditions can compensate for efforts and health. As a consequence, we control for health (self-reported health, disabilities, mental health, and chronic diseases) and efforts (time pressure, physical demands). We add country dummies since our focus is to analyse country differences in rewarding ageing workers. Finally, individual characteristics (age, gender, level of education, household income¹²) and employment characteristics (status, occupation, firm size, contract, tenure, working time) that can also influence the level of reward are progressively included in the model.

4.4. Robustness checks

Some further analyses are led because of two main concerns. First, since the dependent variable is a synthetic score, the estimated coefficients can hide different or contradictory effects of the explanatory variables on each dimension of rewards. In order to reveal potential differences in the sign and significance of coefficients, the same regression is run separately for each item of rewards. Each dependent variable (item of reward) takes values from 1 (lowest level of reward, when individuals strongly disagree with a positive statement or strongly agree with a negative statement) to 4 (highest level, when individuals strongly agree with a positive statement, or strongly disagree with a negative statement). The estimations are based on the same method (ordered logit) and specification (same independent variables). For each regression, our main concern is the country effect, as it reveals in which dimension of job quality countries perform better or worse.

Second, besides controlling for the level of health in the intensity of received rewards, we are also interested in the level of rewards workers with disabilities receive in each country. To compare the job quality of disabled workers between countries, the same regressions are run on the subsample of workers with disabilities: this group is defined accordingly to the OECD/WHO measure of disability by selecting individuals who declare severe or moderate health limitations in activities.

4.5. Results

The results from this second step of the study provide a detailed focus on the individual and contextual determinants of receiving extrinsic and intrinsic rewards. Results for the ordered logit regression are displayed in table 5 (appendix).

The results from the pooled estimation [M1] show that having a physically demanding job or being under constant time pressure significantly reduces the probability of benefiting from good rewards. This indicates that employers do not offer good working conditions, such as decision latitude, salary, or perspectives to compensate for worker's inputs. The separate regressions on each item of reward show that efforts do not increase the probability to benefit from any of the items of the reward score, including pay. They generally tend to reduce them, except for skill development where none of the effort variables is significant. The level of physical demands decreases the probability to receive any type of reward, except recognition and support in difficult situation (for which the effect is not significant). Being on constant time pressure also decreases the intensity of rewards, except for advancement prospects. These results are not in line with theoretical assumptions of compensatory differences: all other things being equal,

12 Individual income from work, which is not an exogenous variable (the reward score includes the item "perceiving an adequate salary"), is excluded from the household income.

high inputs (measured as efforts) are neither compensated by adequate salary nor by non-monetary rewards for older workers.

On the other hand, a high level of education and of occupation increases the intensity of rewards received at work. This is also the case for permanently employed workers compared to fixed-term employed. Self-employed also declare higher levels of rewards in their jobs. Firm-size does not seem to play an important role, except for large and very small firms that provide better rewards to their workers. Being in good health also significantly increases the chances to have good rewards: being disabled (severely or not), declaring low levels of general health, and having a high risk of depression all decrease the intensity of rewards. Only the presence of chronic diseases does not have a significant effect on the dependent variable.

Other individual and job characteristics, such as age, gender, working time and tenure, do not significantly influence the level of rewards.

Even after controlling for efforts and individual characteristics, country differences appear substantial. Except for Belgium and Denmark, country coefficients are significant: compared to Germany (reference category), the compensation of effort and health was significantly lower in Italy, France, Austria, Spain, and to a lower extent Sweden. Compensation was found to be best in the Netherlands and in Switzerland. Results are very similar concerning the country differences for disabled workers. It is however striking that among the countries that offered the least rewards, Italy and France performed even worse (compared to Germany) when it came to workers with disabilities. Only the Netherlands and Switzerland perform significantly better than Germany in rewarding disabled workers.

Separate regressions on each item of reward provide a more detailed analysis of these heterogeneous performances (table 6). Mediterranean countries, including France, indeed perform worse on all items of rewards for the disabled sample, except that Spain and France tend to provide better job security to disabled workers, and that Spain performs relatively good on social support for disabled workers. The other countries have more contrasted performances. Most countries have lower performances in compensating disabled workers by good pay. But disabled workers also tend to have a lack of recognition support and freedom in most countries (except for Switzerland). However, countries from the Northern cluster (Sweden, the Netherlands, Denmark and Switzerland) perform well in providing disabled workers with recognition, skill development opportunities, advancement possibilities (except for Denmark), and support (except for Sweden).

5. Discussion

The purpose of the study was to analyse differences between countries in compensating older workers in weak health by rewards at work, and to discuss their effects on labour market participation of ageing workers in Europe.

First, our results confirmed that individual characteristics, the social environment, health and job quality are important individual determinants for older workers to stay employed. Yet, we cannot conclude that working conditions explain contrasted employment rate performances between countries, since institutional differences (which can be retirement legislation, early exit schemes, and overall labour market performances such as low unemployment rates) may be more important (Börsch-Supan et al., 2005, Debrand and Sirven, 2009). Concerning these country differences, our results clearly showed that the selection effect for older workers to stay on the labour market varied across countries.

At the individual level, we found that health and job satisfaction mattered for workers to stay employed, even on a short period of time and after controlling for selection effects. Subjective and identifiable aspects of health have a strong selective effect, both in the selection and the outcome estimations. In addition, it is striking to see that job quality has a significant effect on staying employed, even on a limited period of time (two years in the case of this study), and after controlling for standard and objective job characteristics (including pay and working time): the results indicate that the effect of job quality is not only comparable to the effect of health, but also to financial incentives.

Interestingly, imbalanced work situations not only job satisfaction but also were found to have a clear impact on the labour market outcomes: this result indicates that when efforts are compensated by rewards, it not only has a positive on mental and physical health, but also on the ability and willingness of workers to postpone retirement. We also investigated the mitigating effect of job quality on health related labour market selection: the results clearly showed that job situations where efforts are compensated for by extrinsic and intrinsic rewards can improve the work capacity of disabled workers and enable them to stay employed.

Since countries with high employment rates also have higher levels of job satisfaction, we focused on this important element of labour market participation. In particular, we tried to understand the different levels of job satisfaction and health related selection on the labour market by exploring country differences in rewarding older workers by good working conditions.

Our analysis of job quality is principally based on self-reported measures which are subject to declarative biases. Since the aim of our study was to explore cross country differences, our interpretation was based on country effects. These effects can capture unobserved institutional factors and/or cultural differences. As a consequence, interpreting the ranking of countries as a ranking of job quality would not be accurate if the propensity to declare good working conditions was highly driven by cultural differences. According to Layard (2003) and Veenhoven (2000), there is no evidence of a significant cultural bias even in reporting overall satisfaction, and satisfaction levels can be compared across countries. On the other hand, according to Kahneman *et al.* (2004) and Kristensen and Johansson (2008) this bias could plausibly be important enough to reconsider the interpretation of such rankings.

For this reason, beyond the standard measure of job satisfaction, we focused on identifiable aspects of working conditions: physical demands, constant time pressure, skill development opportunities, recognition, support, adequate salary, freedom, advancement prospects, and job security. Even though these variables are also based on self-assessed responses, they are less likely to be affected by contextual biases and individual preferences than general satisfaction measures (such as job satisfaction) as responses are directed towards precise aspects of the job. Hence, answers to these variables leave less scope for rationalisation, and are less subject to cultural biases than general job satisfaction. Consequently our ranking should be less affected by a potential cultural bias than rankings on job satisfaction.

However, we still reduced one potential cultural bias that would be a cultural tendency to choose extreme modalities by applying a binary coding: extreme answers were neutralized, which reduces the variance of the reward and effort scores. As a consequence, differences between countries should rather be underestimated.

Finally, the sample of the employed population is affected by selection effects that are not controlled for in the second step of the study. Thus, employees suffering from health adverse work stress may be underrepresented in this sample due to the healthy worker effect. This could affect results on country differences if workers from Northern or Continental countries declared better working conditions because they were in better health. The results of the selection equation in the Labour Market Model and descriptive statistics indicate that this hypothesis is not likely: the likelihood to be employed and the share of disabled workers are higher in these countries. Therefore, despite more generous disability schemes in Northern countries, an important share of seniors with disabilities remain on the labour market. In addition, following a general recommendation of consistency studies, we based our interpretation on the sign and significance of the parameters. Finally, our regressions were run on a pooled sample, in order to base our estimations on significant samples and have comparable coefficients. As a consequence, the coefficients of individual characteristics are assumed to be equivalent for the sub-groups that compose the pool. Yet, a legitimate concern is that preferences towards aspects of job quality and the effect of health on receiving rewards may vary between countries. This issue could be investigated by doing multilevel or country specific regressions, which would request a higher amount of countries in the first case, or a wider sample size in the second case. As we are restricted by the size of our data base, the coefficients on country specific regressions would not be comparable.

The results of this second part of the study showed that workers from Mediterranean countries (Italy, Spain) as well as some Continental countries (Austria, France), were less likely to receive rewards, even after controlling for effort, health and individual characteristics, whereas countries from Northern and other Continental performed better, especially the Netherlands, Switzerland and Germany. These results are in accordance with international rankings and typologies of job quality (Ilmarinen, 2005; Kristensen and Johansson, 2008), including those based on objective indicators (Davoine *et al.*, 2008).

The originality of the study was to analyse country differences by a combined approach on job quality and health. Based on an analysis of the sub-group of ageing workers reporting disabilities, we found that these workers were less compensated, particularly in countries where compensation for workers in general is already low. Our results showed that most countries perform worse in compensating disabled by adequate salary. However, disabled workers are more likely to be compensated by non-monetary rewards (such as training and advancement opportunities, and support in difficult situations) in Continental and Northern countries, compared to Mediterranean countries.

As a conclusion, it appears that overall employment performances, including for older people with disabilities, can to a large extent be explained by institutional differences: high employment rates for older workers in general are correlated with higher employment rates for the disabled population, and our results show that country differences are indeed substantial in explaining labour market selection and behaviour of individuals. However, at the individual level, job quality and health play an important role: besides individual and contextual characteristics, monetary but also non-monetary aspects of jobs affect labour market outcomes. This indicates that non-monetary aspects of jobs can increase the willingness and capacity to postpone early labour market exits of older workers. In addition, such non-monetary aspects of jobs are, all other things being equal, more likely to be provided to older workers, including workers with disabilities, in countries where employment rates of older workers are high. As a consequence, the apparent paradox of high levels of job satisfaction in countries with high employment rates, despite the fact that individuals at work are older and more likely to have disabilities, could be explained by better performances in compensating physical limitations by intrinsic and extrinsic rewards.

In terms of policy implications, the results from this study suggest that better working conditions should not only be expected to be a positive outcome of a longer and less intense work life. Instead, they should be integrated to Active Ageing policies if one aims to keep workers happy and employed despite deteriorating health. It seems indeed that there are unused labour capacities, even within the population with disabilities. As the high employment rates of people with disabilities in Northern Countries (Sweden, Denmark) and Continental countries (Netherlands, Germany, Switzerland) show, their integration in the labour market is possible. Also, as the higher levels of rewards in the same countries suggest, there may not be a trade-off between employment performances and health at work. But to improve the integration of ageing workers with increasing health limitations, it seems necessary to focus on their work environment. Providing better work arrangements to disabled workers, and enabling them to be recognised, supported, and be offered perspectives, appears as an essential element to increase their participation on the labour market. Job security or monetary incentives alone may not be sufficient instruments. In other words, retirement reforms and employment protection legislation are not sufficient instruments to increase labour market participation of ageing workers. Achieving this goal would require policy makers to create incentives for firms to arrange workplaces for older and disabled workers, and opportunities for workers to have access to job accommodations and career perspectives.

Active labour market policies seem efficient: indeed, countries where an important share of active labour market spending is devoted to disabled persons, such as Denmark, Germany, and the Netherlands (OECD, 2010), do perform better in keeping ageing workers with disabilities employed, than countries with low active labour market spending, including for disabled people, such as France, Spain, or Austria.

These levels of higher spending in active labour market policies and the better integration of disabled people on the labour market are indicators of a better investment in employability of workers (Hartlapp and Schmid, 2008): policies aiming at fostering further education for instance, as were implemented in Denmark, the Netherlands, or Germany, and which increase employability over the life-course, are part of the success of increased labour participation at the later stages of careers.

The promotion of access to flexible work arrangements is another important aspect of better health in the workplace: countries that perform better in keeping ageing workers with disabilities employed and satisfied, are also those where older workers, including men, have more opportunities for part-time jobs (such as Germany, and the Netherlands), or the possibility to combine disability pensions with earned income (as in Sweden or Germany). Indeed, opportunities for part-time jobs can increase the incentive of workers with disabilities to remain employed or to find a job, and encourage firms to adapt to workers' needs.

Finally, promoting better health at the work place can be encouraged by firm-oriented incentive policies. An example of good practice can be experience rating for disability claims to prevent firms of dismissing older workers (as implemented in the Netherlands: see *ibid*). However, in order to avoid discriminatory practices, such policies would need to be combined with incentives to hire them (Bound and Burkhauser, 1999).

6. Appendix

Figure 3
Job quality variables

4 items:	Questions	Score (score = 1 if SA or A with positive statement, SD or D with negative statement)	Index
	4 strongly agree 3 agree 2 disagree 1 strongly disagree		
	<i>"All things considered, I am satisfied with my job"</i>	Job satisfaction	Job satisfaction
	<i>"My job is physically demanding"</i>	Job physically demanding	EFFORT = DEMAND = (physical dem.+time pressure)/2
	<i>"I am under constant time pressure due to a heavy workload"</i>	Constant time pressure	
	<i>"I have <u>very little</u> freedom to decide how I do my work"</i>	Freedom /!\ reverse coding	CONTROL= (freedom+ skills + support)/3
	<i>"I have an opportunity to develop new skills"</i>	New skills	
	<i>"I receive adequate support in difficult situations"</i>	Support	
	<i>"I receive the recognition I deserve for my work"</i>	Recognition	REWARD= (recognition + salary + advancement+ security)/4
	<i>"Considering all my efforts and achievements, my [salary is/earnings are] adequate"</i>	Salary is adequate	
	<i>"My [job promotion prospects/prospects for job advancement] are <u>poor</u>"</i>	Advancement prospects /!\ reverse coding	
	<i>"My job security is <u>poor</u>"</i>	Job security /!\ reverse coding	

Source: SHARE 2004 questionnaire (wave 1).

Table 3
Selection equation (Labour Market Model)

Selection equation (Heckman probit, step 1)		Employed 2004	
		Coef.	Std.err.
Age		-0,133***	(0,015)
Gender	Ref: Female		
	Male	0,355***	(0,098)
Education	Ref: Primary		
	Secondary	0,281***	(0,081)
	Tertiary	0,622***	(0,086)
Log (household income)		-0,156***	(0,017)
Reported Health	Ref: Less than good		
	Excellent/ very good	0,219***	(0,063)
Phys. Limitations	Ref: No lim.		
	Not severely	-0,209***	(0,048)
	Severely lim.	-0,734***	(0,097)
Depression	Ref: Low risk		
	High Risk	-0,0821**	(0,028)
Diseases	Ref: <2		
	>= 2	-0,057	(0,056)
Country	Ref: Germany		
	Austria	-0,462***	(0,010)
	Sweden	0,731***	(0,039)
	Netherlands	-0,009	(0,036)
	Spain	-0,391***	(0,068)
	Italy	-0,558***	(0,058)
	France	-0,105***	(0,030)
	Denmark	0,208***	(0,015)
	Switzerland	0,564***	(0,043)
	Belgium	-0,330***	(0,025)
Spouse status	Ref : Inactive spouse		
	Employed	0,348***	(0,057)
	No spouse	-0,214**	(0,080)
Care activities	Ref : No care		
	Provides care	-0,123**	(0,037)
Cons_		8,714***	(0,873)
Number of obs.		7421,000	

Note: * p<0.05, ** p<0.01, *** p<0.001

Table 4
Outcome equation (Labour Market Model)

Outcome equation		Employed 2006					
		M1	M2	M3	M4	M5	M6
Job quality variables							
Job satisfaction		0,303*** (0,063)					
Limited*JS			0,330 (0,168)				
Not limited*JS			0,282* (0,136)				
Ratio Reward/Effort				0,168* (0,083)			
Limited*R/E					0,358* (0,157)		
Not limited * R/E					0,095 (0,061)		
Ratio Control/Demand						0,122 (0,064)	
Limited*C/D							0,272* (0,111)
Not limited*C/D							0,063 (0,059)
Health variables							
Reported Health	<i>Ref: Less than good</i>						
	<i>Excl./ Very good</i>	0,0972*** (0,022)	0,0974*** (0,023)	0,103*** (0,023)	0,103*** (0,023)	0,101*** (0,021)	0,102*** (0,021)
Phys. Limitations	<i>Ref: No lim.</i>						
	<i>Not severely</i>	0,015 (0,061)	-0,028 (0,287)	0,009 (0,062)	-0,224 (0,139)	0,007 (0,061)	-0,228 (0,146)
	<i>Severely lim.</i>	-0,307* (0,149)	-0,350 (0,235)	-0,327* (0,146)	-0,559** (0,202)	-0,331* (0,146)	-0,564* (0,219)
Control variables							
Dist. to retirement		0,134*** (0,017)	0,134*** (0,017)	0,134*** (0,017)	0,133*** (0,017)	0,134*** (0,017)	0,133*** (0,017)
Log(wage)		0,0393* (0,016)	0,0393* (0,016)	0,0395* (0,017)	0,0394* (0,017)	0,0395* (0,017)	0,0397* (0,017)
Log (household income)		0,020 (0,017)	0,020 (0,017)	0,020 (0,017)	0,019 (0,017)	0,019 (0,017)	0,019 (0,017)
Log(working time)		0,047 (0,053)	0,046 (0,051)	0,055 (0,058)	0,055 (0,058)	0,052 (0,056)	0,052 (0,055)
Education	<i>Ref: Primary</i>						
	<i>Secondary</i>	0,020 (0,069)	0,020 (0,068)	0,008 (0,069)	0,006 (0,070)	0,009 (0,069)	0,008 (0,070)
	<i>Tertiary</i>	0,134* (0,054)	0,134* (0,055)	0,115* (0,054)	0,112* (0,055)	0,117* (0,054)	0,115* (0,055)
Empl. Status	<i>Ref: Employee</i>						
	<i>Civil servant</i>	0,067 (0,079)	0,067 (0,079)	0,054 (0,077)	0,058 (0,077)	0,060 (0,077)	0,063 (0,076)
	<i>Self-employed</i>	0,189 (0,104)	0,190 (0,103)	0,189* (0,096)	0,188 (0,097)	0,195* (0,098)	0,191 (0,100)

Firm size	<i>Ref: 25 to 199</i>						
	1 to 5	-0,057 (0,087)	-0,057 (0,087)	-0,059 (0,086)	-0,060 (0,087)	-0,051 (0,086)	-0,053 (0,087)
	6 to 15	-0,075 (0,075)	-0,075 (0,075)	-0,075 (0,079)	-0,075 (0,079)	-0,072 (0,078)	-0,072 (0,078)
	16 to 24	-0,039 (0,049)	-0,039 (0,050)	-0,031 (0,051)	-0,031 (0,051)	-0,028 (0,050)	-0,030 (0,050)
	200 to 499	0,021 (0,113)	0,022 (0,115)	0,021 (0,116)	0,019 (0,116)	0,024 (0,116)	0,025 (0,115)
	over 500	-0,140 (0,074)	-0,139 (0,074)	-0,161* (0,077)	-0,158* (0,078)	-0,156* (0,075)	-0,154* (0,076)
Occupation	<i>Ref: Manager</i>						
	Skilled clerk/service	0,020 (0,072)	0,020 (0,072)	0,011 (0,073)	0,011 (0,073)	0,012 (0,072)	0,012 (0,071)
	Skilled agri/wkr	-0,137* (0,070)	-0,136 (0,071)	-0,118 (0,072)	-0,120 (0,072)	-0,122 (0,070)	-0,122 (0,071)
	Low skilled	0,133 (0,116)	0,133 (0,117)	0,124 (0,111)	0,121 (0,112)	0,131 (0,110)	0,131 (0,110)
Term of contract	<i>Ref: permanent</i>						
	Fixed term	-0,306*** (0,090)	-0,306*** (0,090)	-0,300*** (0,089)	-0,298*** (0,088)	-0,305*** (0,090)	-0,305*** (0,090)
Spouse status	<i>Ref : Inactive spouse</i>						
	Employed	0,213* (0,105)	0,213* (0,104)	0,220* (0,106)	0,220* (0,106)	0,221* (0,107)	0,221* (0,107)
	No spouse	0,305*** (0,091)	0,305*** (0,091)	0,305*** (0,089)	0,302*** (0,089)	0,303*** (0,090)	0,299*** (0,090)
Country	<i>Ref: Germany</i>						
	Austria	0,026 (0,021)	0,026 (0,021)	0,019 (0,022)	0,017 (0,022)	0,023 (0,021)	0,022 (0,022)
	Sweden	0,411*** (0,033)	0,411*** (0,033)	0,399*** (0,039)	0,395*** (0,039)	0,397*** (0,036)	0,394*** (0,036)
	Netherlands	-0,005 (0,021)	-0,006 (0,019)	-0,020 (0,019)	-0,028 (0,019)	-0,021 (0,018)	-0,029 (0,018)
	Spain	0,227*** (0,054)	0,226*** (0,052)	0,204*** (0,050)	0,202*** (0,050)	0,206*** (0,050)	0,205*** (0,050)
	Italy	0,236*** (0,051)	0,235*** (0,050)	0,224*** (0,052)	0,217*** (0,052)	0,224*** (0,052)	0,217*** (0,052)
	France	0,655*** (0,087)	0,655*** (0,087)	0,631*** (0,088)	0,629*** (0,088)	0,633*** (0,088)	0,634*** (0,087)
	Denmark	-0,112* (0,044)	-0,112* (0,044)	-0,118* (0,049)	-0,120* (0,049)	-0,120* (0,047)	-0,123** (0,047)
	Switzerland	0,546*** (0,039)	0,546*** (0,039)	0,539*** (0,040)	0,532*** (0,039)	0,540*** (0,040)	0,535*** (0,038)
	Belgium	0,256*** (0,019)	0,256*** (0,016)	0,245*** (0,017)	0,240*** (0,017)	0,248*** (0,018)	0,244*** (0,018)
Cons_		-1,566*** (0,365)	-1,545*** (0,379)	-1,448*** (0,380)	-1,365*** (0,371)	-1,425*** (0,372)	-1,346*** (0,372)
Number of obs.		4053,000	4053,000	4047,000	4047,000	4053,000	4053,000
Log pseudo likelihood / arrho		-5451,514	-5451,478	-5450,483	-5449,582	-5455,757	-5454,769
rho		-0,268	-0,268	-0,263	-0,266	-0,258	-0,251
Wald test (rho=0) (pr>chi2)		0,008	0,008	0,010	0,009	0,014	0,013

Note: * p<0.05, ** p<0.01, *** p<0.001.

Table 5
Compensation model

Compensation model (Ordered logit)		Intensity of rewards 2004			
		M1 (pooled)		M2 (disabled)	
		Coef	Std.err	Coef	Std.err
Job physically demanding		-0,372***	(0,089)	-0,556***	(0,137)
Constant time pressure		-0,447***	(0,102)	-0,609***	(0,158)
Reported Health	Ref: Less than good				
	Excellent/ very good	0,331***	(0,056)	0,406*	(0,186)
Phys. Limitations	Ref: No lim.				
	Not severely	-0,128**	(0,044)		
	Severely lim.	-0,243*	(0,096)		
Depression	Ref: Low risk				
	High Risk	-0,467***	(0,060)	-0,510***	(0,115)
Diseases	Ref: <2				
	>= 2	0,033	(0,046)	-0,090	(0,093)
Age		0,002	(0,011)	0,001	(0,021)
Gender	Ref: Female				
	Male	-0,018	(0,056)	-0,084	(0,100)
Log (household income)		0,0263***	(0,008)	0,030	(0,025)
Education	Ref: Primary				
	Secondary	0,062	(0,077)	-0,244*	(0,113)
	Tertiary	0,300***	(0,088)	0,148	(0,153)
Empl. Status	Ref: Employee				
	Civil servant	0,123	(0,064)	0,047	(0,115)
	Self-employed	0,279**	(0,106)	0,406*	(0,205)
Occupation	Ref: Manager				
	Skilled clerk/service	-0,182**	(0,065)	-0,001	(0,135)
	Skilled agri/wkr	-0,576***	(0,158)	-0,561***	(0,156)
	Low skilled	-0,401***	(0,070)	-0,046	(0,189)
Term of contract	Ref: permanent				
	Fixed term	-0,573***	(0,150)	-0,464*	(0,197)
Tenure (years)		0,001	(0,003)	0,004	(0,003)
Log (working time)		0,088	(0,045)	0,210*	(0,093)
Firm size (employees)	Ref: 25 to 199				
	1 to 5	0,209*	(0,096)	0,007	(0,160)
	6 to 15	-0,025	(0,064)	-0,242	(0,149)
	16 to 24	0,215	(0,116)	0,376*	(0,154)
	200 to 499	0,059	(0,124)	0,161	(0,237)
	over 500	0,212*	(0,096)	0,205	(0,209)
Country	Ref: Germany				
	Austria	-0,323***	(0,026)	-0,310***	(0,059)
	Sweden	-0,118***	(0,032)	-0,351***	(0,055)
	Netherlands	0,261***	(0,056)	0,157**	(0,058)
	Spain	-0,228***	(0,056)	-0,252***	(0,066)
	Italy	-0,798***	(0,035)	-1,168***	(0,080)
	France	-0,620***	(0,037)	-0,856***	(0,076)
	Denmark	0,046	(0,026)	-0,076	(0,053)
	Switzerland	0,500***	(0,079)	0,456***	(0,096)
	Belgium	-0,044	(0,054)	-0,025	(0,062)
/cut1		-4,564***	(0,676)	-4,408***	(1,143)
/cut2		-3,197***	(0,643)	-3,126**	(1,168)
/cut3		-2,051***	(0,616)	-1,987	(1,115)
/cut4		-1,108	(0,626)	-1,024	(1,119)
/cut5		-0,126	(0,629)	-0,063	(1,154)
/cut6		0,952	(0,628)	1,143	(1,117)
/cut7		2,337***	(0,621)	2,680*	(1,135)
Number of obs.		4046		1117	
Log pseudolikelihood		-7137,9081		-1969,6802	
Pseudo R2		0,0439		0,0562	

Note: * p<0.05, ** p<0.01, *** p<0.001.

Table 6
Compensation model (separate items of rewards)

Compensation Model: Intensity of rewards (each item of rewards separately, pooled sample)							
Ordered logit regressions							
Dep. var	Freedom	Skills	Recognition	Salary	Advancement	Support	Security
Ref:							
Germany							
Austria	-0,680***	-0,216***	-0,423***	-0,016	0,0658*	-0,174***	-0,0982***
Sweden	0,178**	0,221***	-0,170***	-0,470***	-0,199***	0,042	-0,035
Netherlands	-0,070	0,167***	-0,231***	0,140**	0,564***	-0,032	-0,812***
Spain	-0,527***	-0,322***	-0,479***	-0,725***	0,084	-0,031	0,255**
Italy	-0,208***	-0,548***	-0,787***	-0,427***	-0,238***	-0,611***	0,002
France	0,045	-0,602***	-1,109***	-0,346***	0,073	-0,335***	0,325***
Denmark	-0,127***	0,510***	-0,025	-0,023	0,011	0,342***	-0,180***
Switzerland	0,016	0,299***	-0,008	0,752***	0,178*	0,107*	-0,228***
Belgium	-0,393***	-0,206***	-0,242***	0,102*	0,608***	-0,108**	-0,339***

Sample: 50-64 year old, employed in wave 1

Compensation Model: Intensity of rewards (each item of rewards separately, disabled sample)							
Ordered logit regressions							
Dep. var	Freedom	Skills	Recognition	Salary	Advancement	Support	Security
Ref:							
Germany							
Austria	-0,614***	-0,011	-0,487***	0,023	0,168*	0,036	0,113
Sweden	-0,052	0,056	0,036	-0,701***	0,013	-0,031	0,089
Netherlands	-0,447***	0,162*	0,121	0,129	0,608***	0,158	-0,858***
Spain	-0,727***	-0,336*	-0,088	-0,585***	0,177	0,209*	0,371**
Italy	-0,787***	-0,764***	-0,846***	-0,703***	-0,099	-0,707***	0,159
France	-0,405***	-1,027***	-0,776***	-0,408***	-0,028	-0,140	0,702***
Denmark	-0,110	0,402***	0,094	-0,366***	-0,007	0,677***	0,216**
Switzerland	0,505***	0,203	0,335*	0,389*	-0,020	0,091	0,019
Belgium	-0,622***	0,035	-0,019	0,109	0,592***	0,156	0,020

Sample: 50-64 year old, employed in wave 1 and severely or moderately disabled

Note: * p<0. 05, **p<0.01, ***p<0.001

Dependent variables are coded from 1 (lowest) to 4 (highest)

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Employed and Happy despite Weak Health? Labour Market Participation and Job Quality of Older Workers with Disabilities

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European countries with high senior employment rates have the highest levels of job satisfaction despite an older and more physically limited workforce. In this paper, we argue that this paradox can be explained by heterogeneous levels of job quality: better working conditions may enable older workers with disabilities to remain satisfied and employed. Using panel data from the Survey of Health, Ageing and Retirement in Europe, we find that health status, job satisfaction, but also working conditions, are major individual determinants of early labour market exits. We also show that high intrinsic and extrinsic rewards can mitigate the selective effects of disability. Finally, the comparative analysis reveals that older workers with disabilities are more likely to be employed in countries where they receive higher rewards. The findings therefore indicate that improved job quality is a major factor of successful active ageing strategies.

En emploi et heureux malgré une santé fragile ? Participation au marché du travail et qualité du travail des travailleurs âgés souffrant d'incapacités

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Les pays européens ayant des taux d'emploi des seniors élevés ont les meilleures performances en termes de satisfaction au travail, malgré un niveau plus élevé d'incapacités chez les travailleurs âgés. Dans cet article, nous montrons que ce paradoxe peut s'expliquer par les niveaux hétérogènes de qualité de l'emploi : de meilleures conditions de travail peuvent permettre aux travailleurs âgés ayant des incapacités d'être satisfaits et de se maintenir en emploi. En utilisant des données de panel de l'enquête SHARE (Enquête sur la santé, le vieillissement et la retraite en Europe), nous établissons que l'état de santé, la satisfaction au travail, mais aussi les conditions de travail sont des déterminants individuels majeurs de sortie précoce du marché du travail. Nous montrons également que de bonnes conditions de travail peuvent atténuer l'effet sélectif de l'invalidité sur le marché du travail. Enfin, l'analyse comparative révèle que les travailleurs âgés ayant des incapacités sont plus susceptibles d'avoir un emploi dans les pays où ils bénéficient de récompenses intrinsèques et extrinsèques plus élevées. Les résultats indiquent que l'amélioration de la qualité du travail est un facteur majeur de réussite des stratégies de soutien au vieillissement actif.

