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WELL-BEING DURING THE TRANSITION FROM WORK TO RETIREMENT.

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Abstract
We investigate the consequences of retirement from work for the overall well-being of individuals aged 50 and above. The overall well-being is approximated by two indicators: the life satisfaction indicator which is a cognitive reflection of the satisfaction with life and a multidimensional indicator about Control, Autonomy and Self-realizations (CAS). The latter indicator is related to the capabilities concept (specifically agency-freedom) of Sen (1985, 1999). It evaluates overall well-being by the level of agency or the ability of people to pursue the things they want to do and be the humans they want to be. Using the longitudinal Survey of Health, Ageing and Retirement in Europe (SHARE), we find that employed and recently retired respondents have no different level of life satisfaction. Older workers do report a higher level of agency-freedom when they retire. This paper additionally investigates several forms of heterogeneities in the transition from work to retirement. We consider partial, early and joint retirement, part-time and self-employment, and job quality. We also investigate whether the extra leisure time of retired respondents affects well-being. We find that there is no difference in overall well-being between being partially and fully retired, between being retired before or after the normal retirement age or between those who retire simultaneously with their partner and those who don't. However, for some older workers, such as those employed with a low quality job, retirement can be a relief from their current employment status. Retired respondents have more care duties which affects their well-being negatively. Charity work and sport activities affect well-being positively.

Keywords retirement – life satisfaction – agency – CASP – aging – well-being

Introduction

Retirement from work is a very important event in life. The retiree has to face many changes, e.g. changes in spending time, changes in social life and financial changes. Ample research focuses on the consequences of retiring for individual well-being. The research results on this subject diverge. Some find a positive average effect of retirement on well-being (Latif, 2011; Reitzes, Mutran, & Fernandez, 1996). Others find no significant effect (Crowley, 1985; Luhmann, Hofmann, Eid, & Lucas, 2012; Warr, Butcher, Robertson, & Callinan, 2004) while still others find a negative effect of retirement on well-being (Kim & Moen, 2002; Richardson & Kilty, 1991).

In order to explain these diverging results, it is interesting to make a distinction between the role of the explanatory variables (i.e. determinants of well-being) on the one hand and the role of the variable to be explained (i.e. the measurement of well-being) on the other hand. First, a large variety in well-being measures is used. Individual well-being has many dimensions (Helliwell, Layard, & Sachs, 2012; OECD, 2011a; Stiglitz, Sen, & Fitoussi, 2010). It can be related to material conditions (e.g. household income), health status, social connections or many other outcomes that are relevant or important for a person's well-being. Moreover, these dimensions can be combined into one aggregate indicator of well-being. In this paper, we will concentrate on the effect of retirement on subjective well-being defined as life satisfaction and we will compare this with well-being defined as agency-freedom. Subjective well-being, defined in various ways, is often used as the variable that aggregates many dimensions of life and expresses the individual's personal judgement about the quality of his or her life. Reitzes et al. (1996) investigate the difference in self-esteem and depression among retirees and workers. While retirement has a positive effect on self-esteem, it has a negative effect on depression. Bossé, Aldwin, Levenson, and Ekerdt (1987) find that retirees report more psychological symptoms (Symptom Checklist-90) than workers. Gall, Evans, and Howard (1997) find a negative effect of retirement on the Symptom Checklist-90, but do not find a change in life satisfaction. Warr et al. (2004) and Gall et al. (1997) find no significant difference in life satisfaction between employees and retirees.

Second, a large variety of determinants of well-being can be used. Depending on the theoretical model, the specific research hypothesis, the data-availability, or for some other reason; many different explanatory variables can be introduced to investigate their influence on well-being. In this paper, we will focus on variables that are specifically related to the decision whether or to stay active in the labor force or to retire. As an example, the 'role theory' argues that, when retiring, people lose some of their roles (worker role, organizational member role, career role, ..), anxious and depressive feelings might pop up. This then leads to a lower level of well-being in retirement (Wang, Henkens, & van Solinge, 2011). Also Elwell and Maltbie-Crannell (1981) find that the role loss caused by retirement has a negative effect on life satisfaction, especially for men. Opposite to the role theory, the 'continuity theory' argues that the continuity in identity and self-concept will dominate such that there will be no significant changes in the level of well-being when retiring (Wang et al., 2011).

The first major contribution of this paper has to do with the variables that are used to measure individual well-being. Our dataset, the Survey of Health, Ageing and Retirement in Europe (SHARE, see data section infra), contains the CASP-12 measure. CASP represents quality of life by a combination of four conceptual domains of individual needs that are especially relevant at older age: Control, Autonomy, Self-realizations and Pleasure. Each domain consists of three questions or items. This measure of twelve items is a psychometrically validated short version of the original 19-item version (CASP-19). The SHARE

version of the original CASP-19 is frequently used as well-being indicator (Ateca-Amestoy & Ugidos, 2013; A. Börsch-Supan & Schuth, 2013; Cantarero-Prieto, Pascual-Sáez, & Blázquez-Fernández, 2017; Niedzwiedz, Katikireddi, Pell, & Mitchell, 2014; Siegrist, Wahrendorf, Von dem Knesebeck, Jürges, & Börsch-Supan, 2007). It is considered as a multidimensional measure of quality of life, in particular for older people (Hyde, Wiggins, Higgs, & Blane, 2003; Pérez-Rojo, Martín, Noriega, & López, 2018). SHARE excluded the items of CASP-19 with the lowest correlations for each domain (Von Dem Knesebeck, Wahrendorf, Hyde, & Siegrist, 2007) to end up with three times four items.

The nine items of the domains Control, Autonomy and Self-realizations (CAS) can be related to the capabilities approach to well-being (Alkire, 2005; Fleurbaey, 2006; Robeyns, 2006; Schokkaert, 2009; Sen, 1985, 1993), the other three items of the domain Pleasure are more related to the life satisfaction indicator (see infra). In the capabilities approach, well-being is evaluated by looking at what an individual is able to do or to be, which is referred to as his or her capabilities. The capabilities framework differentiates between the observed outcomes (called achieved functionings) and the opportunities or capabilities that one has in life. Crucial to the approach is that people can choose the life that they value most and want to lead. This implies that the freedom and the ability to choose are essential. Making good choices requires that the individual has sufficient agency (Sen, 1999). "The capability approach contains three central concepts: functioning, capability and agency… Agency is a person's ability to pursue and realize goals she values and has reason to value." (Alkire & Deneulin, 2009, p. 22). In the terminology of the capabilities framework, the notion of capabilities refers to "opportunity – freedom" while agency refers to "process – freedom". Agency-freedom is positive freedom that allows a person to decide about his or her options in life according to his or her own values. The importance of having agency-freedom is often applied in the context of social work and in relation to the empowerment of specific groups. For the specific purpose of this paper, having agency-freedom is relevant when we want to study the well-being of older people in relation to their employment or retirement situation.

The hypothesis is that well-being as agency-freedom, operationalized by CAS, will be related to other (personal) characteristics when we compare with the more traditionally used subjective well-being variable life satisfaction. Results for the traditional (single) life satisfaction question will be compared with an index of the three questions of the last category of the CASP-measure (Pleasure). The life satisfaction question is viewed as a cognitive exercise in which the person makes a personal evaluation of what a good life signifies and which life dimensions are important, and then ranks his or her own life in terms of this judgement (Stiglitz et al., 2010). With this cognitive evaluation, respondents determine for themselves which life dimensions contribute to a good life and how important these life domains are, which releases researchers from this difficult task. This indicator reflects the personal evaluation of quality of life in all its dimensions. It is recommended by Stiglitz et al. (2010) and by the OECD as a measure of overall subjective well-being (OECD, 2013a). The single question is frequently used in papers to evaluate individual well-being (Frank, Hou, & Schellenberg, 2016; Killen & Macaskill, 2015; Kogan, Shen, & Siegert, 2017; Tran, Nguyen, & Van Vu, 2018; Valente & Berry, 2016). However, Sen (1985) argues that a mental attitude does not sufficiently take into account the real circumstances. People tend to adapt their aspirations to their objective circumstances (i.e. the "physical condition neglect" of information concerning life satisfaction or pleasure).

We obtain two distinct measures of well-being: life satisfaction (or alternatively pleasure) for which respondents evaluate their satisfaction with (pleasure in) life and agency-freedom (CAS: Control,

Autonomy and Self-Realizations) for which respondents judge their life by their ability to do the things they want to do and be the humans they want to be. Both conceptions capture overall well-being but in a very different way. Considering well-being from a life satisfaction or from a capabilities perspective makes a significant difference: life satisfaction is a more backward looking concept while capabilities, or in this case agency-freedom, is more forward-looking (see also Van Ootegem and Verhofstadt (2012, 2015) for a description).

The second major contribution of this paper is that we explicitly take into account the heterogeneity in retirement situations and also the heterogeneity in the retirement adjustment process. The adjustment to retirement differs between individuals and over time (Van Solinge, 2013). By using a growth mixture modeling (GMM), heterogeneity in the adjustment trajectories has been examined (Heybroek, Haynes, & Baxter, 2015; Muratore, Earl, & Collins, 2014; Pinquart & Schindler, 2007; Wang, 2007). Atchley (1976) describes retirement as a multi-stage process. New retirees first experience a kind of honeymoon: they feel energetic, healthy and satisfied with their new status. Soon follows the stage in which these positive, sometimes unrealistic, expectations of retirement lead to disenchantments and in the end the person accommodates to his new status. This theory is well supported by data (e.g. Reitzes & Mutran, 2004). We will distinguish between being recently retired and being retired for more than two years to check if honeymoon effects are present.

The longitudinal and detailed SHARE dataset (see data section infra) allows us to observe how changing from a situation of being at work to a situation of being retired affects well-being. A Fixed Effects (FE) estimation approach is used so that differences in (time-invariant) individual characteristics are taken into account (see method section infra). We also control for changes in the financial and health situation of the individual and the health situation of the partner. Concerning the role of partner, we will examine if retiring jointly with a partner has an influence on well-being. We will also distinguish between different kinds of retirement: partial versus full retirement, early retirement versus retirement at the normal (legal) age.

The retirement transition depends on individual plans and choices but all actions are undertaken within an environment that is shaped by personal history and social circumstances (Wang et al., 2011). Previous job characteristics and social context play a role (Van Solinge & Henkens, 2005, 2008; Wang & Shi, 2014). The last job before retirement influences well-being during employment as well as the adjustment to retirement (Van Solinge, 2013). To consider differences in working conditions of the last job, we classify older workers into different groups based on their jobs. We first distinguish between employees, civil servants and the self-employed. Self-employment leads to higher life satisfaction than the other job classifications (Binder & Coad, 2016). The self-employed have higher flexibility and independence which can help to balance more easily between work and family (Hilbrecht & Lero, 2014). Second, we classify the older workers based on the hours worked. Third, we consider the content of the last job by using nine statements about the working conditions and job quality in the last job.

We will also investigate the influence of leisure activities on the effect that retiring from work has on well-being. Many studies have shown that subjective well-being is positively correlated with many leisure activities (Newman, Tay, & Diener, 2014). Volunteering and social activities increase well-being (Menec, 2003; Morrow-Howell, Hinterlong, Rozario, & Tang, 2003), while caregiving activities reduce the quality of life of older people (Potočnik & Sonnentag, 2013). As retiring from work increases leisure time, the adjustment to retirement can be affected by the change in activities. We investigate the participation of

employed and retired respondents in several leisure activities (caregiving activities, involvement in charity work, sport, training, political and religious activities). Şener, Terzioğlu, and Karabulut (2007) found that well-being is more affected by the amount of time people participate at a certain activity than by the participation as such. We also investigate the amount of days respondents participate in leisure activities (estimations are in the appendix). In the remainder of this paper, we focus on respectively the methodology, the data and the results and then we conclude.

Methodology

We use a fixed effects (FE) approach to estimate the effect of retiring from work on overall well-being. The SHARE dataset allows panel estimations. First, this estimation approach is preferred to (pooled) ordinary least squares analysis because of its interesting features of dealing with unobserved (time-invariant) heterogeneity between (groups of) individuals. This is necessary because more than 50 percent of the variation in subjective well-being is explained by personality (e.g. Pagán, 2013). Personality could for example influence the quotation of the life satisfaction variable (i.e., excellent satisfaction with life can mean for person A a score of 8/10 and for person B 9/10). These (unobserved and time-invariant) individual effects are difficult to capture and are therefore often overlooked in the analysis but can lead to inefficient estimates. Secondly, the Hausman test prefers the FE to a random effects approach ($p<0.001$).

In order to control for all time-invariant individual characteristics, the FE approach excludes the variation between individuals (between-variation) of the panel data and only relies on the variation over time (within-variation). This means that the effect of retiring from work on well-being is estimated by using the variation of the 1.662 individuals who made the transition from employment to retirement during the observation period 2006-2013. In this way, the estimated effects capture the average impact on overall well-being of the change in the employment status controlling for differences in personality traits between older workers and retirees. We distinguish between the first two years of retirement (recently retired) and the succeeding years (retired for more than two years). In this way, we consider changes in the level of well-being during retirement. We include additional variables such as age[1], the health and financial situation of the individual and the presence of a partner and his or her health situation. As mentioned in the introduction, we will categorize the employment status in various ways in order to allow heterogeneity in the retirement situation (for example partial retirement and joint retirement) and in the employment situation (for example part-time employment and self-employment). As a consequence of using FE, we do not need to specify time-invariant variables such as gender, country of residence or education level. Thus, well-being is presented by the following equation:

$$WB_{it} = \alpha_i + \beta_1 X_{it} + Z'_{it}\beta_2 + \lambda_{Ct} + \varepsilon_{it}$$

where WB_{it} denotes the well-being variable (life satisfaction or agency) varying over time and between individuals; X_{it} is the employment status and Z is a vector of control variables. We include country specific time effects λ_{ct} to control for country specific trends in the well-being score during 2006-2013. α_i captures the individual specific effects and ε_{it} is the error term.

[1] We include age squared and not age in the FE estimations. The variable age is to closely related to the time effects. The FE estimator only uses the variation over time to estimate the effects and not the variation between individuals.

By using a FE estimator, we assume an exogenous or a one-way relationship between the employment status and the well-being measures. In reality an endogenous relationship is possible and it could lead to biased estimates. For example, individuals with a high level of overall well-being are more likely to be satisfied with their job, and hence less willing to change their employment status (e.g. retire). A second source of endogeneity is the unobserved factors (both time-variant and constant) that can affect both the employment status and well-being. For example, pessimistic respondents are likely to be less ambitious and hence retire earlier and be less satisfied with their lives. In this way, the nature of the respondent plays a role in the relationship between the employment status and well-being. By using a FE estimator we control for time-invariant unobserved individual characteristics and tackle part of the endogeneity issue.

As a robustness check, we include another estimation technique that addresses endogeneity, the instrumental variable (IV) estimation approach. The difficulty is to find reliable instruments for the employment status that satisfy two conditions. First, the instruments must be related to the employment status and second, they cannot be related to the error term of the explanatory equation. We categorize the employment status in several categories, which makes finding reliable instruments for each separate category difficult. Literature frequently uses the early and normal retirement age as instruments of retirement behavior (e.g. Coe & Zamarro, 2011; Horner, 2014). The binary instruments capture whether the respondent has reached the official early or normal retirement age or whether he or she is younger (reference category).

We perform an instrumental variable (IV) estimation approach to estimate the effect of retiring (for practical reasons, the employment status is considered binary: employed or retired) on overall well-being, allowing endogenous regressors. The estimation technique is described in appendix A. We use the early and normal retirement age as instruments. As Denmark and the Netherlands do not have an official early retirement program and as Sweden has no mandatory retirement age, our sample is limited to six countries (Austria, Belgium, France, Germany, Spain and Switzerland). Table 9 of appendix A compares the FE estimates of the limited sample with the IV estimates. The IV estimates are larger than the FE estimates but the general conclusions about the association between retiring and well-being (described in the section with the results) do not change. Furthermore, the p-value ($p=0.275$) of the Hausman endogeneity test reveals that the endogeneity bias in the fixed effects estimation is not significant. The FE estimator is more efficient than the IV estimator.

We prefer the FE estimation approach to the IV estimation approach as the FE estimator is more efficient than the IV estimator in our robustness check. Furthermore, it is difficult to find reliable instruments for the employment status if we want to distinguish between various employment and retirement situations. Using the FE estimation approach, we can make causal interpretations but under strict assumptions of exogeneity. For simplicity and clarity, we describe the findings in the section with the results as the effects of the independent variables on well-being.

Data

We use the detailed and longitudinal Survey of Health, Ageing and Retirement in Europe (SHARE). SHARE contains individual data on physical and mental health, socio-economic status and social and family networks of the senior population in Europe (Alcser et al., 2005; A. Börsch-Supan et al., 2013). The target population of the survey is European residents aged 50 and over. We use the second (2006-7), fourth (2011) and fifth (2013) observation period and we include nine European countries: Austria, Belgium, Denmark, France, Germany, Netherlands, Spain, Sweden and Switzerland. The respondents are at least 50 years old at their last observation moment and at most 75 years at their first observation moment. In total the sample counts 62,082 observations and 38,344 individuals; 15.5 percent of these individuals appear in all three observations and 30.9 percent of them appear in two observations.[2] The other individuals have no variation over time and are only used in the descriptive tables (table 1 and 2). To display the data representative for a country, SHARE provides weights based on region, age group and sex, separately for each country and for each observation period (Abduladze, Malter, & Börsch-Supan, 2013). All the data and results presented here use those weights.

Individual well-being is measured using two conceptually different approaches. On the one hand we use life satisfaction and alternatively the domain Pleasure of the CASP-12 measure. On the other hand, we create a variable representing agency-freedom making use of the domains CAS (Control, Autonomy and Self-realizations) of the CASP-12. Life satisfaction is captured by the following single question '*On a scale from 0 to 10 where 0 means completely dissatisfied and 10 means completely satisfied, how satisfied are you with your life?*' The weighted sample mean for all observations is 7.75 (SD = 1.60). The variables Pleasure and CAS make use of the 12 CASP-questions displayed in table 1. Each question has four response options. For questions that are negatively formulated (i.e. the questions marked with a star in table 1), the response '*often'* is given a score of 1 and '*never'* a score of 4. For the other questions, those that are formulated positively (and have no star in table 1), the response '*often'* is given a score of 4 and '*never'* a score of 1. A higher score then always indicates a higher level of well-being. The variable Pleasure uses the three items of the domain Pleasure of the CASP-12 (so the variable is ranging from 3 to 12). To approximate agency-freedom we combine the nine items of the domains Control, Autonomy and Self-realizations (CAS-index) of the CASP-12 measure. The index ranges from 9 to 36. A higher score on the CAS-index points to having more agency-freedom (or less restrictions on agency-freedom when looking at the items marked with a star).

As an alternative to the CAS-index, we give different weights to the nine items by performing an exploratory factor analysis on the nine items. This extraction method uses the correlations between the items in order to identify the common underlying factor(s). When testing the factor structure of CASP-19, Hyde et al. (2003) found that items of one dimension are related to other dimensions (cross-loadings) and found a number of items with small loadings. They found evidence for one underlying factor (quality of life) but the data did not fit well with any theoretical factor structure (Wiggins, Netuveli, Hyde, Higgs, & Blane, 2008).[3] In the critical evaluation of the psychometric properties of the SHARE-version of CASP-19, Borrat-

[2] The sample is unbalanced as not every participant has three observations. For estimations an unbalanced panel is problematic if the missing variables are not random but selective. The SHARE project is well aware of this potential problem and keeps data attrition and non-responses to the limit (A. Börsch-Supan et al., 2013). As robustness check, we estimate the regressions also with a balanced sample (N = 33,465). The FE results are similar to the estimates in table 3. The results are available on request (supplementary material).

[3] CASP-19 as well as the SHARE-version did not fit well with all three models: first, the single-factor model where all items load on a single latent variable, second a first-order factor model where the items load on their respective dimension and the

Table 1: The CASP questions in SHARE. $N = 62.082$ ~ weighted data

Question		% who replied 'often'	% who replied 'sometimes'	% who replied 'rarely'	% who replied 'never'
1	***Control***				
1a	How often do you think your age prevents you from doing the things you would like to do? *	8.9	30.9	26.5	33.6
1b	How often do you feel that what happens to you is out of your control? *	7.3	23.0	31.9	37.9
1c	How often do you feel left out of things? *	3.5	13.2	26.6	56.6
2	***Autonomy***				
2a	How often do you think that you can do the things that you want to do?	58.6	26.5	10.4	4.5
2b	How often do you think that family responsibilities prevent you from doing what you want to do? *	5.7	21.2	25.1	47.9
2c	How often do you think that shortage of money stops you from doing the things you want to do? *	14.8	27.7	23.8	33.71
3	***Self-realizations***				
3a	How often do you feel full of energy these days?	50.3	35.5	11.8	2.3
3b	How often do you feel that life is full of opportunities?	48.5	34.4	14.3	2.8
3c	How often do you feel that the future looks good to you?	44.1	37.2	14.8	3.8
4	***Pleasure***				
4a	How often do you look forward to each day?	71.94	19.36	5.87	2.83
4b	How often do you feel that your life has meaning?	76.06	17.86	4.34	1.75
4c	How often, on balance, do you look back on your life with a sense of happiness?	58.42	31.89	7.75	1.94

Note: Each question has four response options, the response '*often'* is given a score of 1 and '*never'* a score of 4. Some questions are negatively formulated so that a higher score indicates a higher level of quality of life. These questions are marked with a star. We recoded the other questions so that a higher score always signifies a higher quality of life.

Besson et al. (2015) found that the autonomy dimension showed a very low internal consistency. Two of the items (2b and 2c of table 1) have weaker factor loadings than the other CASP items and do not correlate with any dimension, not even with the autonomy dimension. When performing exploratory factor analysis on the nine items (and not taking into account the dimensions in which the items are classified) we allow for more than one underlying factor. The number of factors is data-driven and determined by an eigenvalue greater than one. The factor loadings are presented in appendix B. We identify two factors. Items 1a, 1b, 1c, 2b and 2c (see table 1) load strongly on the first factor. These items capture the feeling of being constrained concerning age (1a), family (2b) or money (2c) and feelings of being left out (1c) or losing control (1b). We interpret this factor as representing external constraints and limitations to the agency of the respondent (CAS-external). We classify this as external because the constraints are beyond the immediate control or personality of the individual. A higher factor score refers to less (external) limitations and so to more agency-freedom. The second factor score contains the items 2a, 3a, 3b and 3c. These items are the questions about opportunities and energy and about the future looking good, largely representing internal (person-specific and more within the reach of the person) feelings about self-realization and agency (CAS-internal).

four dimensions are correlated and third a second-order factor model where the items load their respective dimension and the dimensions load on a second order latent variable, in this case quality of life (Borrat-Besson, Ryser, & Gonçalves, 2015).

Table 2: Pearson correlations between different measures of well-being.

	Life satisfaction	Pleasure	CAS-index
Pleasure	0.424		
CAS-index	0.534	0.498	
CAS-internal	0.433	0.524	0.649
CAS-external	0.336	0.218	0.753

Note: All correlations are significant ($p<0.001$).

The well-being measures are distributed differently, so simply comparing the means is difficult. Therefore, we standardize the variables Life satisfaction, CAS-index and Pleasure so that the weighted sample average for each measure is zero (for CAS-internal and CAS-external this is the case by definition because of the use of factor analysis). Table 2 shows that the correlation between Life satisfaction and CAS and Pleasure is rather low. Stated otherwise, these variables represent a different view on well-being. At first sight, this might seem surprising for the variables Life satisfaction and Pleasure as both are a cognitive evaluation of the satisfaction with or the pleasure in life. However, Pleasure is an index of three reflective questions ('*looking forward to each day'*, '*feeling that life has meaning*' and '*looking back on life with a sense of happiness*') while Life satisfaction is one question ('*satisfaction with life'*). Furthermore, it is remarkable that a positively formulated interpretation of agency as CAS-internal (opportunities, energy, future looking good) has such a low correlation with life satisfaction. The correlation of life satisfaction and Pleasure with the CAS-index becomes weaker when we look at the more specific measures of CAS, especially when looking at CAS-external.

Remember that the CAS-index uses equal weights for the nine underlying items (it is a cumulative index). For the construction of CAS-external and CAS-internal we use factor analysis (see appendix B) resulting in unequal weights for the underlying items. The lower correlations with life satisfaction of these specific CAS measures (compared to the equal weights case) can thus also be interpreted as a lower importance for life satisfaction of the items with a higher weight in the specific measures. In CAS-internal the self-realizations items referring to the future (3b and 3c) have higher weights than the two items referring to the current situation (2a and 3a). For CAS-external it seems that family constraints (2b) are more important than money constraints (2c). This implies that constraints due to family responsibilities have more effect on agency-freedom and that a shortage of money has more impact on life satisfaction.

SHARE respondents can describe their current employment situation as being employed, retired, unemployed, permanently sick or disabled or as being homemaker. In this study, respondents are either employed or retired as we focus on well-being during the transition from work to retirement. Employment is broadly defined and includes self-employment and working for a family business. Because of the age restrictions (between 50 and 75) in our sample, on average 44 percent of the observations is employed.

In the estimations, we allow for heterogeneity in the employment situation. We classify the employed persons into different job classifications. First, we distinguish between employees, civil servants and self-employed persons.[4] In the sample, 64 percent of the workers are employees, 20 percent are civil servants and 16 percent are self-employed. Second, we classify the older workers based on the hours worked. We define a part-time worker as an employed person who reports to work less than 30 hours a

[4] We use the following question to classify the employed persons into employees, civil servants and self-employed persons: '*In this job are you an employee, a civil servant, or a self-employed?*'

week. This is the OECD definition of part-time employment (OECD, 2016, p. 41). In the sample, 19 percent of the older workers are part-time employed. Third, we use nine statements about the working conditions to score the job quality of the current job. '*My job is physically demanding, would you say you strongly agree, agree, disagree, strongly disagree?*' is one of the statements. Proceeding this way, the job of the employed respondents is described in terms of physical demands, time pressure in performing tasks, freedom in performing tasks, opportunities for skill development, support in difficult situations, recognition for work, job security, job promotion prospects and salary commensurate with effort. The nine statements are cumulated in one index (job score), ranging from 9 to 36. A higher score indicates a higher level of job quality. We classify the employed respondents into three groups according to their job score: employed with a low job score (score between [9,23]), a middle job score [24,26] or a high job score [27,36]. Each category contains 33% of the employed respondents.

Retirement is broadly defined in SHARE and includes partial and early retirement. Partial retirement is "a situation when an individual is allowed to retire and receive retirement benefits while continuing to work (usually part-time) and contributing towards the retirement scheme" (OECD, 2005, p. 49). In our data, a respondent who is partially retired has a labor income and receives pension benefits (11.94% of the retired respondents).[5] A fully retired person has no labor income and only receives pension benefits. Early retirement is defined by the OECD (2005, p. 43) as "a situation when an individual decides to retire earlier and draw the pension benefits earlier than their normal retirement age." In our data someone who receives pension benefits and has an age below the normal retirement age is considered to be early retired (23.39% of the retired respondents).[6] Of those who are partially retired, 33.68% retire early (66.32% are retired at the normal retirement age or later) while only 18.31% of those who are fully retired chose to retire early. Because of this link between both concepts (partial and early retirement) we combined them for the estimations (see infra table 5). The last form of heterogeneity in the retirement situation we consider is between being jointly retired (18,65%), not jointly retired (49,70%) and retired but having no partner (31,65%). A person is considered jointly retired when the individual and his partner are retired within two years from each other.[7]

The other variables that are included in the estimations are health, income and partner's health. First, health is approximated by the self-perceived health question that rates health from 1 ('*excellent'*) to 5 ('*poor'*) and by a more objective measure that counts the number of daily activities that the respondent struggles to perform. The variable ranges from zero (the respondent struggles with none of the suggested activities) to 23 (the individual struggles with all activities). Examples of these activities are '*walking 100 meters*' and '*preparing a hot meal*'. Second, we capture the financial situation by a subjective measure that asks the respondent whether his or her household has the ability to make ends meet. This variable ranges from 1 ('*with great difficulty'*) to 4 ('*easily'*). The second measure of income is the net household income, calculated in income percentiles. Finally, the partner's health variable uses information from the self-perceived health question responded by the partner of the interviewee. The variable distinguishes between

[5] A respondent in SHARE receives pension benefits if this person receives an income from (at least) one of the following sources: (1) public old age pension, (2) public old age supplementary pension or public old age second pension and/or (3) public early retirement or pre-retirement pension.

[6] This means that retired persons who were categorized as early retired in the previous observation, can be categorized as retired at the normal retirement age or later if their age has surpassed the normal retirement age in the current observation.

[7] The overlap with partial retirement is limited (compared to the overlap between partial and early): 15.69% of the partial retirees is jointly retired with their partner, while this is 19.04% of the full retirees.

having no partner, having a partner who has passed away or having a partner in excellent, very good, good, fair, or poor health.

In appendix C, we compare the participation in several leisure activities between retired and employed respondents (table 11). These activities are not related to employment and both retired and employed respondents can participate. We consider care duties (grandchildren, invalid persons within the household and personal or household care outside the household) and activities with involvement (such as charity work, educational training, religious activities, political participation and sport or social club membership).[8] We consider the participation (binary: participating or not) and the monthly frequency of it (expressed as days per month). Retired respondents have more care duties, they take more care of their grandchildren and of invalid persons in the household. 28 percent of them look after their grandchildren and they do this on average 5.8 days a month. Employed respondents participate more in care of others outside the household but spend less days on it. Employees are more involved in training and community-related activities, retirees spend more days of the month to activities with involvement, especially charity work. Retirees as well as employees do sports weekly.

Results

Do retirees and older workers differ in their levels of well-being? Does the answer to this question depend on whether a satisfaction measure or an agency-freedom measure is used? Table 3 displays the FE results for all five standardized well-being measures and shows that the effect of retiring on individual well-being is different when life satisfaction is used than when pleasure or CAS is used as an indicator for well-being.[9] The estimated effect is controlled for age, health, income and partner's health. Personal characteristics and country specific time effects are taken into account. Expressing well-being as the satisfaction with life or as pleasure, we find that when older workers retire, they report no immediately different level of life satisfaction or pleasure. After two years in retirement, the retirees report a smaller level of life satisfaction than at the beginning of the retirement. This indicates the presence of the honeymoon effect of Atchley (1976). The honeymoon effect is not present for pleasure over life. Using CAS, we find that the effect of retiring on well-being is immediately positive. Senior workers report a higher level of agency-freedom after retiring especially when looking at the general CAS-index. After two years in retirement this effect does not change.

Looking at the control variables we see little differences between life satisfaction or agency-freedom. A better health and/or income situation unsurprisingly generates higher levels of well-being irrespectively whether life satisfaction, pleasure or CAS is used. A poorer health particularly reduces the internal agency (CAS-internal is most negatively affected). A deterioration in the partner's health affects all well-being measures negatively. In terms of life satisfaction and pleasure, it is better to have a partner in poor health than having no partner or being widowed. In terms of agency-freedom, internal and external

[8] Activities such as *'reading books, magazines or newspapers', 'doing word or number games* (such as cross word puzzles or sudoku)' or '*playing cards or games* (such as chess)' are excluded from our investigation as these activities are not asked in the second observation period (2011). Retirees spend more days per month to these activities but participation rates are equal if not lower than for employed persons. Figures are available upon request.

[9] We discuss the findings without mentioning the size nor the statistical significance of the estimates. The findings are significantly different from zero at (at least) a five percent significance level. If the estimated effect is not significantly different from zero at a five percent significance level, we say that there is no change in well-being.

agency are oppositely affected. In terms of external agency (which includes family constraints) it is better to have no partner or being widowed. In the estimations, we also control for country-specific time trends.

The well-being variables are standardized so we can compare the size of the effects of a similar change in the explanatory variable between the different concepts of well-being.[10] The variables employment status and income have a larger effect on agency-freedom than on life satisfaction or pleasure. The size of the health effects are similar. The explanatory variables are mostly dummy variables (except the number of daily limitations and the net household income in percentiles). The size of the effects is thus comparable between the dummies. A change in the physical health situation has usually a higher impact on the well-being variables than the employment status.[11] The decrease in life satisfaction after two years (honeymoon effect) is comparable to the change in life satisfaction resulting from the difference between the ability to make ends meet '*easily'* and '*fairly easily'*. The effect of a change in health from '*fair'* to '*good'* is about twice as large. The positive effect of retiring on CAS is situated in between the health effect from '*good'* to '*very good'* and the effect from '*fair'* to '*good'*.

Table 3 displays the estimated average effect of retiring on well-being across all countries. We ignore the country dimension of our sample. We assume that the effect of retiring on well-being is similar for a Danish and French respondent. We estimate interaction terms between the employment status and the countries (i.e. Austria, Belgium, Denmark, France, Germany, Netherlands, Spain, Sweden and Switzerland).[12] The effect of retiring on well-being is quite similar for each of the nine European countries. Only two interaction terms are significant. They suggest that the effect of retiring on life satisfaction is positive for Danish respondents and that after two years in retirement the agency-freedom of Swedish respondents decreases (though the interaction effect is only significant at a ten percent significance level and only for the agency-index).

In table 3 we estimate the effect of the employment status on overall well-being, controlling for the context in which people made the work status decision. However, the income situation can change when the individual retires (pension benefits are usually lower than labor income) and this could lead to a simultaneous change in well-being. Also, there can be a change in health during the transition from work to retirement. Therefore we separately excluded health and income from the FE estimations.[13] The effect of retiring on agency-freedom is slightly larger when excluding health and is slightly smaller when income is excluded from the regressions. The general conclusion does not change. The results suggest that respondents have a better health and a poorer financial situation in retirement. In addition we estimate interaction terms between the employment status and income/health.[14] Changes in physical health affect the effect of retiring on well-being, while changes in the ability to make ends meet (income situation) do not. Changes in physical health influence well-being of workers less strongly (compared to both categories of retired respondents).

[10] The well-being variables have a standard deviation of one and range between -4.87 and 2.33.

[11] Using a variance decomposition, we calculate the relative contribution of each of the variables to the explained variance in the regression. Table 13 (appendix D) gives an overview of the variances of and covariances between the principal explanatory variables. The covariance between the variables employment status and health is quite large which shows that a share of the explained variance cannot be assigned to one particular variable as the variables co-exist with the other. Consequently, it is difficult to determine the relative contribution of the employment status and health to the explained variance of overall well-being. However, we do not have multicollinearity in our regression. The estimated effects are quite stable to changes in the regression model (see the robustness checks for table 3, supplementary material of).

[12] FE results are available on request (supplementary material).

[13] FE results are available on request (supplementary material).

[14] FE results are available on request (supplementary material).

Table 3: FE results of the effect of employment status (and control variables) on life satisfaction, pleasure and agency variables.

	(1) Life satisfaction	(2) Pleasure	(3) CAS-index	(4) CAS-internal	(5) CAS-external
Employment status: recently retired (ref)					
employed	-0.020 (0.02)	-0.017 (0.02)	-0.124*** (0.02)	-0.074*** (0.02)	-0.092*** (0.02)
>2 years retired	-0.052*** (0.02)	-0.008 (0.02)	-0.003 (0.02)	-0.017 (0.02)	0.002 (0.02)
Age²	0.0001 (0.00)	-0.0002** (0.00)	-0.0003*** (0.00)	-0.0004*** (0.00)	-0.00007 (0.00)
Health					
Self-Perceived Health: good (ref)					
excellent	0.153*** (0.02)	0.055*** (0.02)	0.147*** (0.02)	0.120*** (0.02)	0.094*** (0.02)
very good	0.093*** (0.01)	0.030** (0.01)	0.084*** (0.01)	0.082*** (0.01)	0.045*** (0.01)
fair	-0.113*** (0.02)	-0.112*** (0.02)	-0.173*** (0.01)	-0.192*** (0.02)	-0.078*** (0.02)
poor	-0.400*** (0.04)	-0.320*** (0.04)	-0.422*** (0.03)	-0.498*** (0.04)	-0.163*** (0.04)
Number of daily limitations [0,23]	-0.034*** (0.00)	-0.027*** (0.00)	-0.058*** (0.00)	-0.053*** (0.00)	-0.034*** (0.00)
Income					
Ability to make ends meet: fairly easily (ref)					
with great difficulty	-0.266*** (0.04)	-0.172*** (0.04)	-0.316*** (0.03)	-0.109*** (0.03)	-0.275*** (0.04)
with some difficulty	-0.126*** (0.02)	-0.064*** (0.02)	-0.205*** (0.02)	-0.071*** (0.02)	-0.179*** (0.02)
easily	0.059*** (0.01)	0.032** (0.01)	0.101*** (0.01)	0.044*** (0.01)	0.076*** (0.01)
Net household income in percentiles	0.004* (0.00)	0.006** (0.00)	0.006*** (0.00)	0.004* (0.00)	0.004 (0.00)
Partner's health					
Self-perceived health: fair health (ref)					
no partner	-0.200*** (0.05)	-0.121** (0.05)	0.044 (0.04)	-0.161*** (0.04)	0.169*** (0.05)
widow	-0.171*** (0.06)	-0.142** (0.06)	0.120** (0.05)	-0.206*** (0.05)	0.282*** (0.05)
excellent	0.073*** (0.03)	0.060** (0.03)	0.093*** (0.02)	0.003 (0.03)	0.112*** (0.03)
very good	0.056*** (0.02)	0.019 (0.02)	0.062*** (0.02)	-0.005 (0.02)	0.080*** (0.02)
good	0.006 (0.02)	0.018 (0.02)	0.033* (0.02)	-0.002 (0.02)	0.040** (0.02)
poor	-0.158*** (0.04)	-0.107*** (0.04)	-0.079** (0.03)	-0.059* (0.03)	-0.045 (0.04)

Continuation table 3

	(1) Life satisfaction	(2) Pleasure	(3) CAS-index	(4) CAS-internal	(5) CAS-external
Country specific time effects					
Time: 2011 (ref)					
2006-2007	-0.073 (0.06)	-0.092 (0.07)	-0.205*** (0.06)	-0.223*** (0.06)	-0.079 (0.07)
2013	-0.086*** (0.03)	0.251*** (0.04)	0.193*** (0.03)	0.112*** (0.03)	0.162*** (0.03)
Country: Belgium (ref)[(1)]					
Country x time					
2006-7 x Austria	-0.049 (0.06)	-0.153*** (0.06)	-0.163*** (0.05)	-0.133** (0.05)	-0.117** (0.06)
2006-7 x Germany	0.085** (0.04)	-0.061 (0.05)	0.043 (0.04)	-0.027 (0.04)	0.075 (0.05)
2006-7 x Sweden	0.045 (0.03)	-0.015 (0.05)	0.007 (0.03)	0.061* (0.04)	-0.038 (0.04)
2006-7 x Netherlands	0.072** (0.03)	-0.131*** (0.05)	0.013 (0.04)	0.026 (0.04)	0.0005 (0.04)
2006-7 x Spain	-0.056 (0.05)	-0.044 (0.07)	0.079 (0.05)	0.162*** (0.05)	-0.037 (0.06)
2006-7 x France	0.173*** (0.04)	-0.684*** (0.05)	-0.009 (0.04)	-0.039 (0.04)	0.026 (0.04)
2006-7 x Denmark	0.078** (0.03)	-0.034 (0.04)	0.047 (0.03)	0.093*** (0.04)	-0.025 (0.04)
2006-7 x Switzerland	0.079** (0.04)	-0.092* (0.05)	0.013 (0.04)	0.096** (0.04)	-0.059 (0.05)
2013 x Austria	-0.066** (0.03)	-0.211*** (0.03)	-0.058** (0.02)	-0.066** (0.03)	-0.002 (0.03)
2013 x Germany	-0.062 (0.04)	-0.172*** (0.04)	-0.079** (0.04)	0.034 (0.04)	-0.136*** (0.04)
2013 x Sweden	-0.023 (0.03)	-0.138*** (0.04)	-0.033 (0.03)	-0.051* (0.03)	-0.012 (0.03)
2013 x Netherlands	0.041* (0.02)	-0.346*** (0.04)	-0.018 (0.03)	-0.091*** (0.03)	0.053* (0.03)
2013 x Spain	-0.019 (0.04)	-0.248*** (0.05)	-0.134*** (0.03)	-0.081** (0.04)	-0.121*** (0.04)
2013 x France	0.018 (0.02)	-0.149*** (0.03)	-0.051** (0.03)	-0.034 (0.03)	-0.032 (0.03)
2013 x Denmark	0.022 (0.03)	-0.152*** (0.03)	0.022 (0.03)	-0.007 (0.03)	0.036 (0.03)
2013 x Switzerland	0.033 (0.02)	-0.192*** (0.03)	-0.093*** (0.03)	-0.066** (0.03)	-0.067** (0.03)
Fixed effect (average)	-0.084 (0.40)	1.131** (0.45)	1.668*** (0.38)	2.153*** (0.041)	0.386 (0.44)
Observations	59,983	59,983	59,983	59,983	59,983
Respondents	37,117	37,117	37,117	37,117	37,117
R^2 adjusted	0.5411	0.4995	0.6225	0.5583	0.4608

Note: The employment status is categorized in being employed, recently retired (reference category) and retired for more than two years. We include age squared and not age in the FE estimations. The variable age is to closely related to the time variable and the FE estimator only uses the variation over time and not between individuals. Robust clustered standard errors in parentheses; *** p <0.01, ** p<0.05, * p<0.1

Clarifications:

- A person is recently retired if he or she is retired for two years or less.

[(1)] The FE estimator cannot provide the estimates of time-invariant variables such as country dummies.

Table 4: Heterogeneity in the employment situation. FE results with three different categorizations for the employed respondents.

	(1) Life satisfaction	(2) Pleasure	(3) CAS-index	(4) CAS-internal	(5) CAS-external
First regression model					
Employment status: recently retired (ref)					
employee	-0.021 (0.02)	-0.033 (0.02)	-0.129*** (0.02)	-0.094*** (0.02)	-0.080*** (0.02)
civil servant	-0.011 (0.02)	0.010 (0.03)	-0.102*** (0.02)	-0.045* (0.03)	-0.094*** (0.03)
self-employed	-0.030 (0.03)	0.011 (0.04)	-0.124*** (0.03)	-0.031 (0.03)	-0.134*** (0.04)
>2 years retired	-0.051*** (0.02)	-0.005 (0.02)	-0.003 (0.02)	-0.014 (0.02)	-0.0003 (0.02)
Second regression model					
Employment status: recently retired (ref)					
part-time employed	0.009 (0.03)	0.005 (0.03)	-0.127*** (0.03)	-0.071*** (0.03)	-0.094*** (0.03)
full-time employed	-0.034* (0.02)	-0.023 (0.02)	-0.125*** (0.02)	-0.077*** (0.02)	-0.094*** (0.02)
>2 years retired	-0.050*** (0.02)	-0.006 (0.02)	-0.002 (0.02)	-0.017 (0.02)	0.003 (0.02)
Third regression model					
Employment status: recently retired (ref)					
employed with low job score	-0.051** (0.03)	-0.053* (0.03)	-0.205*** (0.02)	-0.130*** (0.03)	-0.151*** (0.03)
employed with middle job score	-0.025 (0.02)	-0.006 (0.02)	-0.138*** (0.02)	-0.080*** (0.02)	-0.108*** (0.03)
employed with high job score	-0.001 (0.02)	0.010 (0.03)	-0.053** (0.02)	-0.036 (0.02)	-0.031 (0.03)
> 2 years retired	-0.051*** (0.02)	-0.012 (0.02)	-0.001 (0.02)	-0.017 (0.02)	0.004 (0.02)

Note: The employed respondents are categorized in three different job classifications. The retired respondents are categorized in being recently retired (reference category) and being retired for more than two years. The variables age², health, income, partner's health, country specific time effects and fixed effects are included in all estimations (but not mentioned in the table).
Robust clustered standard errors in parentheses;*** p <0.01, ** p<0.05, * p<0.1

Clarifications:

- A person is part-time employed if he or she reports to work less than 30 hours a week.
- The job score is an index of nine statements about the working conditions of current job (between 9 and 36). The employed respondents are classified in having a job with a low job score (jobscore between 9 and 23), with a middle job score (job score between 24 and 26) and with a high job score (between 27 and 36).
- A person is recently retired if he or she is retired for two years or less.

In table 4, we allow for heterogeneity in the employment situation. We categorize the employed respondents in several job classifications. First, we distinguish between being employed as an employee, as a civil servant or as a self-employed. The conclusions of table 3 (i.e. no significant effect of retiring on the satisfaction with or pleasure in life and a positive effect of retiring on agency-freedom) remain. The only exception is when the self-employed retire, they do not report more internal agency, but they do have a higher increase in external agency than the others. Second, we distinguish between being part-time and full-time employed. When full-time workers retire, they experience an increase in life satisfaction (the effect is only significant on a ten-percent significance level, the effect is insignificant when we do not control for the income situation), part-time workers do not experience any change. The distinction does not moderate the positive effect of retiring on agency. Third, we categorize the employed respondents according to the quality of their job (low, middle or high job score). Older workers with a low job quality report a higher life satisfaction and pleasure level when retiring. The increase in agency is also higher for this group of workers than for the other categories (middle or high job score). When older workers with a high quality job score retire, they do not experience more internal or external agency.

In table 5, we allow for heterogeneity in the retirement situation. We distinguish between being partially or fully retired and between being early retired and retired at the normal retirement age or later. SHARE does not allow to determine how many years the respondent was partially retired before full retirement. Consequently, we can no longer distinguish between recently retired and retired for more than two years. The reference category in table 5 is being employed (instead of being recently retired as in tables 3 and 4). Table 5 shows that the conclusions of table 3 (i.e. no significant effect of retiring on the satisfaction with or pleasure in life and a positive effect of retiring on agency-freedom) do not change. We find no difference in terms of well-being between older workers retiring partially or fully, or between older workers retiring before (early retirement) or after the normal retirement age. As a robustness check, we categorize the employed respondents in table 5 as being part-time or full-time employed.[15] This distinction does not alter the conclusions except that when a full-time worker retires to a partial and early retirement, his or her life satisfaction increases (only significant at a significance level of ten percent, the effect holds when we no longer control for the income situation).

Table 3 has shown that the presence of a partner (and his or her health situation) influences the well-being level of the individual. Concerning the role of the partner, we examine (table 6) if retiring simultaneously has an influence on well-being. We find no difference in terms of well-being between older workers who retire jointly with their partner and those who do not. In order to interpret whether having no partner moderates the effect of retiring on well-being, we display the estimates of the partner's health variable. By including both variables in the estimation, we create an interaction term between being retired (employed as reference) and having no partner (or being widowed; partner in fair health as reference). For internal agency, we observe that the negative effect of having no partner is less strong for retirees than for older workers.

The last heterogeneity in the transition from work to retirement that we examine is the influence of leisure activities. As shown in the data section, the retired respondents participate more in activities (care duties and activities with involvement) in general. Table 7 presents the interaction terms between the employment status and the participation in the activities. For many activities, the well-being of retired and employed respondents is affected differently. The employed respondents who occasionally take care of their

[15] FE results are available on request (supplementary material).

grandchildren experience an increase in life satisfaction, while retirees experience a small decrease in life satisfaction for the same activity. Daily care duties for a member of the respondent's household are detrimental in terms of life satisfaction for retired respondents. Care duties outside of the household reduce the life satisfaction and agency-freedom (specifically external agency) especially for the employed respondents. The participation in care duties does not affect the level of pleasure of retired and employed respondents. Charity work affects well-being positively. The effect of participating in charity work is smaller on life satisfaction and larger on pleasure for retired respondents. The participation in training activities increases pleasure and internal agency but decreases external agency. The participation in religious and political activities only affects agency-freedom (specifically internal agency). Political activities decrease and religious activities increase the agency of retired respondents (while the opposite is true for employed respondents). Participating in sport activities increases agency-freedom and life satisfaction for retired respondents. Table 12 of appendix C displays the interaction terms between the employment status and the monthly frequency of the participation in the activities. Participating more frequently in care duties outside the household affects well-being negatively (the effect is not different between employed and retired respondents). Participating more frequently in charity and sport activities is beneficial in terms of life satisfaction and agency-freedom for retired respondents.

Table 5: Heterogeneity in the retirement situation. FE results of the effect of partial and early retirement on life satisfaction, pleasure and agency variables.

	(1) Life satisfaction	(2) Pleasure	(3) CAS-index	(4) CAS-internal	(5) CAS-external
Employment status: employed (ref)					
partially and early retired	0.047 (0.03)	0.012 (0.03)	0.102*** (0.03)	0.090*** (0.03)	0.067* (0.03)
partially retired and age >= normal retirement age	0.016 (0.03)	0.011 (0.03)	0.130*** (0.03)	0.090*** (0.03)	0.083** (0.03)
fully and early retired	-0.004 (0.03)	0.018 (0.03)	0.142*** (0.02)	0.095*** (0.03)	0.101*** (0.03)
fully retired and age >= normal retirement age	0.015 (0.03)	0.025 (0.03)	0.133*** (0.03)	0.089*** (0.03)	0.091*** (0.03)
Observations	56,430	56,430	56,430	56,430	56,430
Respondents	35,924	35,924	35,924	35,924	35,924

Note: The employment status is categorized in being employed (reference category), partially retired, fully retired, early retired and retired at the normal retirement age or later. The employed respondents are here restricted to those who are employed and receive a labor income but no pension benefits. The variables age², health, income, partner's health, country specific time effects and fixed effects are included in the estimations (but not mentioned in the table).Robust clustered standard errors in parentheses; *** p <0.01, ** p<0.05, * p<0.1

Clarifications:

- A person is partially and early retired if he or she combines a labor income with pension benefits. The person is younger than the normal retirement age (based on gender and country).
- A person is partially retired and retired at the normal retirement age or later if he or she combines a labor income with pension benefits. The person is older than or at the same age as the normal retirement age (based on gender and country).
- A person is fully and early retired if he or she is retired and receives pension benefits but no labor income. The person is younger than the normal retirement age (based on gender and country).
- A person is fully retired and retired at the normal retirement age or later if he or she is retired and receives pension benefits but no labor income. The person is older than or at the same age as the normal retirement age (based on gender and country).

Table 6: Heterogeneity in the retirement situations. FE results of the effect of joint retirement on life satisfaction, pleasure and agency variables.

	(1) Life satisfaction	(2) Pleasure	(3) CAS-index	(4) CAS-internal	(5) CAS-external
Employment status: employed (ref)					
jointly retired	-0.0002 (0.03)	0.020 (0.03)	0.126*** (0.03)	0.081*** (0.03)	0.092*** (0.03)
not jointly retired	-0.024 (0.02)	0.014 (0.02)	0.128*** (0.02)	0.065*** (0.02)	0.105*** (0.03)
no partner and retired	0.057 (0.04)	0.023 (0.04)	0.090*** (0.04)	0.089** (0.04)	0.017 (0.04)
Partner's health					
Self-perceived health: fair health (ref)					
no partner	-0.295*** (0.05)	-0.160*** (0.05)	0.028 (0.05)	-0.216*** (0.05)	0.204*** (0.05)
widow	-0.276*** (0.08)	-0.178** (0.07)	0.163*** (0.06)	-0.169*** (0.06)	0.319*** (0.07)
excellent	0.068** (0.03)	0.070** (0.03)	0.102*** (0.03)	-0.003 (0.03)	0.130*** (0.03)
very good	0.055** (0.02)	0.024 (0.02)	0.071*** (0.02)	-0.006 (0.02)	0.094*** (0.02)
good	0.003 (0.02)	0.015 (0.02)	0.038** (0.02)	-0.004 (0.02)	0.048** (0.02)
poor	-0.163*** (0.04)	-0.098** (0.04)	-0.066* (0.03)	-0.052 (0.03)	-0.036 (0.04)
Observations	56,201	56,201	56,201	56,201	56,201
Respondents	35,447	35,447	35,447	35,447	35,447

Note: All well-being variables are standardized. The employment status is categorized in being employed (reference category), jointly retired, not jointly retired and retired with no partner. The variables age², health, income, partner's health, country specific time effects and fixed effects are included in the estimations (but not mentioned in the table). Robust clustered standard errors in parentheses; *** p <0.01, ** p<0.05, * p<0.1

Clarifications:

- A person is jointly retired if the person and his or her partner are retired in the same year or within two years (before or after the individual).

Table 7: FE results of the interaction between the employment status and participation in leisure activities on life satisfaction, pleasure and agency variables.

	(1) Life satisfaction	(2) Pleasure	(3) CAS-index	(4) CAS-internal	(5) CAS-external
Employment status: employed (ref)					
retired	-0.0003 (0.02)	-0.005 (0.03)	0.096*** (0.02)	0.049* (0.03)	0.071** (0.03)
Care duties					
Grandchildren	0.050*** (0.02)	0.017 (0.02)	-0.004 (0.02)	0.028 (0.02)	-0.032 (0.02)
Retired × Grandchildren	-0.066*** (0.02)	-0.015 (0.03)	-0.001 (0.02)	-0.030 (0.02)	0.026 (0.03)
Care household	-0.049 (0.04)	-0.029 (0.04)	-0.061 (0.04)	0.011 (0.04)	-0.070 (0.05)
Retired × Care household	-0.110** (0.05)	-0.032 (0.06)	-0.064 (0.05)	-0.049 (0.05)	-0.049 (0.06)
Care others	-0.032** (0.02)	0.007 (0.02)	-0.092*** (0.01)	-0.006 (0.02)	-0.116*** (0.02)
Retired × Care others	0.039** (0.02)	0.008 (0.02)	0.056*** (0.02)	0.052** (0.02)	0.034 (0.02)
Activities with involvement					
Charity work	0.060*** (0.02)	0.003 (0.02)	0.0009 (0.02)	0.046** (0.02)	-0.035 (0.02)
Retired × Charity work	-0.044* (0.02)	0.047* (0.03)	0.012 (0.02)	0.021 (0.02)	-0.0006 (0.03)
Training	-0.007 (0.02)	0.038** (0.02)	-0.003 (0.02)	0.054*** (0.02)	-0.051*** (0.02)
Retired × Training	0.038 (0.02)	-0.008 (0.03)	0.002 (0.02)	0.003 (0.02)	0.002 (0.03)
Religious activities	0.028 (0.02)	0.035 (0.02)	0.014 (0.02)	-0.042* (0.03)	0.043 (0.03)
Retired × Religious activities	-0.015 (0.03)	-0.009 (0.03)	-0.006 (0.03)	0.074** (0.03)	-0.055 (0.04)
Political activities	-0.005 (0.03)	-0.012 (0.03)	0.039 (0.03)	0.061** (0.03)	0.0009 (0.03)
Retired × Political activities	0.020 (0.03)	-0.012 (0.04)	-0.054* (0.03)	-0.078** (0.03)	-0.008 (0.04)
Sport	0.007 (0.02)	0.015 (0.02)	0.039** (0.02)	0.062*** (0.02)	-0.0002 (0.02)
Retired × Sport	0.042** (0.02)	0.026 (0.02)	0.018 (0.02)	0.012 (0.02)	0.011 (0.02)
Observations	61,485	61,485	61,485	61,485	61,485
Respondents	38,090	38,090	38,090	38,090	38,090

Note: Interactions between the employment status (employed or retired) and the participation in several leisure activities are included in the estimations. The participation of the activity is measured by a binary variable (yes or no). The variables age², health, income, partner's health, country specific time effects and fixed effects are included in the estimations (but not mentioned in the table). Robust clustered standard errors in parentheses; *** p <0.01, ** p<0.05, * p<0.1

Conclusion

This paper investigates the consequences of retirement from work for the overall well-being of individuals aged 50 and above. Overall well-being is captured by two different concepts. On the one hand well-being is expressed by the life satisfaction indicator (or alternatively pleasure) being a personal evaluation of the satisfaction with (or pleasure in) life. On the other hand overall well-being is captured by agency-freedom as a personal evaluation of the ability of people to do the things they want to do and be the humans they want to be. Agency-freedom is operationalized by CAS (Control, Autonomy and Self-realizations). The correlation between the two different measures is modest. Both constructs are measuring different interpretations of well-being. Consequently, the estimations generate conflicting results. People report no immediately different level of life satisfaction (or pleasure) when retiring, but after two years they report a lower level of life satisfaction than at the beginning of the retirement (identified as Atchley's honeymoon effect (1976)). If well-being is expressed in terms of agency-freedom, well-being is immediately positively affected and this effect does not change after two years in retirement. A plausible explanation for these conflicting results is that life satisfaction is a more backward looking concept while agency-freedom is more forward-looking. People who retire have more time to pursue the things they want to do which creates more freedom to lead the life they want to. At the same time, retirement can create certain expectations (sometimes too positive and unrealistic) which can lead to disenchantments after some years (i.e. the honeymoon effect of Atchley (1976)).

The second aim of the paper was to investigate several forms of heterogeneities in the transition from work to retirement. Are there groups of employed or retired persons that experience the transition differently? First, the employed respondents are categorized into three different job classifications. We find that self-employed persons experience no different level in internal agency when retiring. This means that they do not experience that retirement gives more energy, opportunities or a brighter future. Another finding is that older workers with a low job quality score see retirement as a relief from their employment situation. They have a higher life satisfaction, pleasure in life and agency-freedom in retirement. Second, the retired respondents are categorized into three different types of retirement. There is no difference in terms of well-being between older workers retiring partially or fully or between retiring before (early retirement) or after the normal retirement age, except one transition. Life satisfaction increases during the transition from full-time employment to partial and early retirement (only significant at a ten percent significance level). Third, we look at several leisure activities (care duties and activities with involvement) of older workers and retired persons. We investigate whether the extra leisure time of retired respondents affects well-being. For three important activities (important in terms of participation or frequency) the effect on life satisfaction is less positive or more negative for retired respondents. While care for grandchildren is positive for employed respondents, this turns out to be negative for retired persons (who participate more in this activity). The negative effect of care for someone in the household is more pronounced for retired respondents while the positive effect of charity work is smaller for retired respondents. This points to the conclusion that the extra leisure time that retired respondents have, can also have a downside in terms of well-being.

Encouraging longer working careers has become one of the most important means to address population aging and the financial challenges of the pension systems (European Commission, 2012; OECD, 2006). This paper investigates the individual's well-being during the transition from work to retirement. The findings suggest that policies to encourage longer working careers are on average not detrimental for well-being. A higher level of agency-freedom when retiring is expected. Retired people have more time to

do the things they want to do than when they were employed. However participating more in activities is not always beneficial for life satisfaction. For some older workers such as those employed with a low quality job, retirement can be a relief from their employment situation. The findings show that there is no difference in terms of well-being between older workers retiring partially or fully. However, for other reasons than well-being (such as the financial sustainability of the pension system), partial retirement could be an option to prolong the working career and thus delay full retirement. More extensive analyses are still needed as literature has not yet found conclusive evidence that partial retirement schemes increase the labor supply of the older working (A. H. Börsch-Supan, Bucher-Koenen, Kutlu-Koc, & Goll, 2017; OECD, 2017).

The paper has some limitations. First, our preferred estimation technique is the fixed effects approach. We estimate how a change in the employment status (from employed to retired) influences well-being. We can make causal interpretations of the findings only under the assumption of exogeneity of the regressors. As a robustness check, we performed an instrumental variable (IV) estimation approach that allows the employment status (employed or retired) to be endogenous. The Hausman test of endogeneity indicates that the endogeneity bias in the fixed effects estimation is not significant. Second, we discuss the estimated average effects over all countries. We did not include institutional variables that could capture differences in the pension systems. This limits the possibility to make specific policy implications based on this paper. A final limitation is that we only discuss the well-being consequences of a transition from work to retirement. SHARE respondents can also describe their work status as being unemployed, as being permanently sick or disabled or as being a homemaker. We acknowledge that there are other exit paths from employment and other transitions to retirement. Additionally we use a self-reported measure to distinguish between being employed or retired and exclude those respondents who report themselves differently (for example as being homemaker). We acknowledge that the self-reported measure of the work status can differ from administrative data. It is possible that we exclude respondents from the estimation sample that consider themselves not retired but do receive pension benefits.

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Appendix A: Instrumental Variable (IV) approach

The IV approach is a two-stage estimation procedure in which in the first stage, the probability of being retired (the employment status is considered binary: employed or retired) is estimated by two instruments. In the second stage, the predicted values of the employment status from the first stage estimate the effect of the employment status on well-being. As the employment status is binary, we use Mundlak's correction of a Random Effects Logit approach in the first stage of the IV. The second stage is a FE estimation. We prefer a Random Effects Logit estimator (to a pooled logit estimator) as it takes into account unobserved heterogeneity between (groups of) individuals. The Random Effects Logit estimator assumes that the (unobserved) individual effects are not correlated with the independent variables in the regression. This assumption is, however, difficult to hold as all variables are self-reported. For example, pessimistic respondents likely underrate their financial or health situation. It could lead to inconsistent estimates. We do not consider a (conditional) Fixed Effects Logit estimation approach as this approach would reduce the sample severely. The estimator drops all respondents who have not made a transition from work to retirement (i.e. solution to the incidental parameter problem, see Chamberlain (1980); Greene (2012) for more information). Mundlak can satisfy the assumption of no correlation between the individual effects and the explanatory variables by adding the individual means of all time-varying variables in the regression (Mundlak, 1978). In this way the individual effects are a linear function of the individual means and the error term is normally distributed and uncorrelated with the explanatory variables.

The two instruments are both binary variables (labelled as 'early' and 'normal') and capture whether the person has reached or is older than the (early) retirement age or whether the person is younger (reference category). Table 8 displays the official early and normal retirement age for each country in the sample. The statistics are retrieved from the OECD (2009, 2011b, 2013b). Denmark and the Netherlands do not have early retirement programs. Sweden has no mandatory retirement age. Consequently, for these countries we have no information for one of the two instruments. We limit our sample to six of the nine countries (Austria, Belgium, France, Germany, Spain and Switzerland).

Table 9 displays the FE results with the limited sample (as in table 3) and the IV results. The employment status is a binary variable (employed or retired). The IV estimates are larger than the FE estimates. In the first stage regression, the instruments are individually (p=0.000) and jointly ($\chi^2(2) = 69.24$, $p = 0.00$) significant predictors of retirement behavior. The p-value (p=0.275) of the Hausman endogeneity test indicates that the employment status is exogenous. This means that the assumption of exogeneity for the fixed effects estimator cannot be rejected. The endogeneity bias in the estimated effects is not significant.

Table 8: Official early and normal retirement age

	early retirement age			normal retirement age		
	2007	2011	2013	2007	2011	2013
Austria	62 (57)	62 (57)	62 (57)	65 (60)	65 (60)	65 (60)
Belgium	60	60	62	65	65	65
Denmark	NA	NA	NA	65	65	65
France	60	60	61	65	65	65
Germany	63	63	63	65	65	65
Netherlands	NA	NA	NA	65	65	65
Spain	61	61	65	65	65	67
Sweden	61	61	61	NA	NA	NA
Switzerland	63 (62)	63 (62)	63 (62)	65 (64)	65 (64)	65 (64)

Source: OECD (2009, 2011, 2013). *OECD Pensions at a Glance*. Retrieved from: <http://www.oecd-ilibrary.org/finance-and-investment/oecd-pensions-at-a-glance_19991363> (02/2016). The report of 2009 describes the situation in 2006, the report of 2011 that of 2008 and the report of 2013 describes the pension system and regulations of 2012.

Note: The official retirement age for women is between brackets if the age requirements are different than those for men.

Table 9: FE results and IV results of the effect of employment status on life satisfaction, pleasure and agency variables.

	(1) Probability of being retired	(2) Life satisfaction	(3) Pleasure	(4) CAS-index	(5) CAS-internal	(6) CAS-external
FE results (as in table 3)						
Employment status: employed (ref)						
retired		-0.016 (0.02)	0.019 (0.03)	0.129*** (0.02)	0.076*** (0.03)	0.092*** (0.03)
The first stage IV results						
Instrument early	3.962*** (0.85) [(1)]					
Instrument normal	4.610*** (1.12) [(1)]					
The second stage IV results						
Employment status: employed (ref)		0.054 (0.07)	0.133 (0.07)	0.340*** (0.09)	0.225*** (0.07)	0.233*** (0.08)
retired						
Observations	42,093	42,093	42,093	42,093	42,093	42,093
Individuals	26,098	26,098	26,098	26,098	26,098	26,098

Note: The sample is limited to the respondents of Austria, Belgium, France, Germany, Spain and Switzerland. The employment status is categorized in being employed (reference category) and retired. The variables age², health, income, partner's health, country specific time effects and fixed effects are included in the estimations (but not mentioned in the table).
Robust clustered standard errors in parentheses; *** p <0.01, ** p<0.05, * p<0.1
Clarifications:
- The instruments 'early' and 'normal' are binary and capture whether the respondent has reached the official (resp.) early or normal retirement age (specified for their country and sex) or not.

[(1)] The estimates are expressed in odds ratios. In this way we express the probability (or odds) of being retired as multiplying factor of the probability of being employed. An odds ratio greater than 1 reflects an increased probability of being retired, an odds ratio less than 1 signifies decreased odds.

Appendix B: The rotated factor loadings

Table 10: The rotated factor loadings

		factor loadings for CAS-internal	factor loadings for CAS-external
1	*Control*		
1a	How often do you think your age prevents you from doing the things you would like to do? *	0.2772	0.5575
1b	How often do you feel that what happens to you is out of your control? *	0.1901	0.7202
1c	How often do you feel left out of things? *	0.2183	0.6785
2	*Autonomy*		
2a	How often do you think that you can do the things that you want to do?	0.5858	-0.0062
2b	How often do you think that family responsibilities prevent you from doing what you want to do? *	-0.2024	0.6305
2c	How often do you think that shortage of money stops you from doing the things you want to do? *	0.1651	0.4785
3	*Self-realizations*		
3a	How often do you feel full of energy these days?	0.7150	0.2379
3b	How often do you feel that life is full of opportunities?	0.7864	0.1383
3c	How often do you feel that the future looks good to you?	0.7512	0.2547

Note: The number of underlying factors is determined by the principal components or factors that have an eigenvalue greater than 1. A varimax rotation is used on the loadings (correlation between items and factors). The item is loaded to the factor if the loading is at least 0,3.

Appendix C: Leisure activities

Table 11: The participation and monthly frequency of several leisure activities. *N* = 62.082 ~ weighted data

	Participation (in %)			Monthly frequency (in days per month)		
	total sample	retired	employed	total sample	retired	employed
Care duties						
Looking after your grandchildren without the presence of the partner	23.55	28.03	17.99	5.16[(1)]	5.78	4.13
Giving daily personal care to someone living in your household[(2)]	5.03	5.84	4.03	20	20	20
Giving personal care or practical household help to a family member living outside your household, a friend or neighbor	26.16	22.56	30.64	6.05[(3)]	6.35	5.78
Activities with involvement[(4)]						
Doing voluntary or charity work	21.19	22.07	20.09	6.42	6.58	4.55
Attending an educational or training course	14.34	7.38	22.99	2.08	3.05	1.69
Taking part in activities of a religious organization	8.08	8.79	7.19	4.14	3.90	4.48
Taking part in a political or community-related organization	6.72	5.83	7.82	3.38	3.29	3.47
Going to a sport, social or other kind of club	33.03	32.41	33.81	4.89	5.08	5.53

Clarifications:

- The participation of the activity is measured by a binary variable (yes or no)
- The frequency of the activities is expressed as days per month. This is asked by the following response options: almost daily, almost every week, almost every month, less often. We recode these options into days per months as follow: 20 days (almost daily), 4 days (almost every week), 1 day (almost every month) and 0.5 day (less often).

[(1)] The frequency of the babysitting is asked per grandchild. We assume that the grandchildren are looked after separately.

[(2)] Daily or almost daily care for at least three months in order not to capture help during short-term sickness of family members.

[(3)] The frequency of helping is asked per person helped and for maximum three persons. Again, we assume that the persons are helped separately.

[(4)] In the second observation period (2006-7), the time range is the last month instead of the last twelve months.

Table 12: FE results of the interaction between the employment status and the monthly frequency of leisure activities on life satisfaction, pleasure and agency variables.

	(1) Life satisfaction	(2) Pleasure	(3) CAS-index	(4) CAS-internal	(5) CAS- external
Employment status: employed (ref)					
retired	-0.013 (0.020)	0.009 (0.023)	0.101*** (0.02)	0.045** (0.02)	0.085*** (0.02)
Care duties [(1)]					
Frequency Grandchildren	0.002 (0.003)	0.005 (0.004)	-0.001 (0.003)	0.003 (0.003)	-0.003 (0.003)
Retired × Frequency Grandchildren	-0.003 (0.003)	-0.006 (0.005)	-0.0005 (0.003)	-0.0009 (0.004)	-0.001 (0.003)
Frequency Care others	-0.004** (0.002)	0.001 (0.002)	-0.006*** (0.001)	0.0004 (0.001)	-0.007*** (0.002)
Retired × Frequency Care others	0.003 (0.002)	-0.001 (0.002)	0.002 (0.002)	0.003 (0.002)	0.001 (0.002)
Activities with involvement					
Frequency Charity work	0.006** (0.002)	0.003 (0.003)	-0.002 (0.002)	0.001 (0.002)	-0.003 (0.003)
Retired × Frequency Charity work	-0.003 (0.003)	0.0004 (0.003)	0.004* (0.003)	0.006** (0.003)	0.0001 (0.003)
Frequency Training	0.001 (0.004)	0.003 (0.004)	-0.001 (0.004)	0.003 (0.004)	-0.004 (0.005)
Retired × Frequency Training	0.004 (0.005)	-0.0007 (0.007)	0.005 (0.006)	0.005 (0.006)	0.0009 (0.007)
Frequency Religious activities	0.0006 (0.004)	0.002 (0.004)	-0.005 (0.004)	-0.009** (0.005)	-0.0007 (0.005)
Retired × Frequency Religious activities	-0.004 (0.005)	0.001 (0.006)	0.008 (0.005)	0.014** (0.006)	0.0004 (0.007)
Frequency Political activities	-0.004 (0.004)	0.0002 (0.005)	0.005 (0.004)	0.010** (0.004)	-0.001 (0.004)
Retired × Frequency Political activities	0.005 (0.005)	-0.003 (0.006)	-0.004 (0.005)	-0.011** (0.005)	0.005 (0.006)
Frequency Sport	0.001 (0.002)	0.002 (0.002)	0.003* (0.002)	0.005*** (0.002)	-0.0008 (0.002)
Retired × Frequency Sport	0.004*(0.002)	0.003 (0.002)	0.002 (0.002)	0.001 (0.002)	0.002 (0.003)
Observations	61,485	61,485	61,485	61,485	61,485
Respondents	38,090	38,090	38,090	38,090	38,090

Note: Interactions between the employment status (employed or retired) and the monthly frequency of the participation in several leisure activities. The variables age², health, income, partner's health, country specific time effects and fixed effects are included in the estimations (but not mentioned in the table). Robust clustered standard errors in parentheses; *** p <0.01, ** p<0.05, * p<0.1

Clarifications;

- The monthly frequency of the activities is expressed as a continuous variable (days a month). This is asked by the following response options: almost daily, almost every week, almost every month, less often. We recode these options into days per months as follow: 20 days (almost daily), 4 days (almost every week), 1 day (almost every month) and 0.5 day (less often).

[(1)] The care for invalid persons within the household is daily or almost daily. The frequency does not change between individuals or over time.

Appendix D: Variance decomposition

Table 13: Variance decomposition of the regression in table 3 for life satisfaction and agency-freedom

	Life satisfaction	CAS-index
var(Estimated well-being)	*0.0066*	0.0111
var(Employment status)	0.00003	0.0004
var(Health)	0.0040	0.0060
var(Income)	0.0017	0.0037
cov(Employment status, health)	-0.1481	-0.2599
cov(Employment status, income)	0.000003	0.000001
cov(Health, income)	0.00003	0.00002

Note: We use formula for the variance of a linear combination of variables: $var(aX + bZ) = a^2 var(X) + b^2 var(Z) + 2ab\ cov(X, Z)$. The calculations in the table are the variances or covariances multiplied by the estimated coefficients. The fixed effects estimator only uses the within-variation of the variables in the regression. All variables of table 3 are included except the country specific time effects as the fixed effects estimator cannot estimate the time-constant country effects. We include time effects. Not all the variances and covariances are mentioned in the table.

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Supplementary material

A. Robustness checks for table 3

Following tables are included, the findings are described in the results section:

- Table A1: FE results of the interaction terms between the employment status and the country variable
- Table A2: FE results of a balanced sample
- Table A3: FE results of the model in table 3 excluding the health variables
- Table A4: FE results of the model in table 3 excluding the income variables
- Table A5: FE results of the interaction terms between the employment status and health/income

B. Robustness checks for table 5

Following tables are included, the findings are described in the results section:

- Table B1: FE results of the model in table 5, the employed respondents are additionally categorized in being part-time and full-time employed.
- Table B2: FE results of the model in table 5, the employed respondents are additionally categorized in being part-time and full-time employed and the income variables are excluded from the estimation.

Table A1: FE results of an interaction between the employment status and the country dummies on life satisfaction, pleasure and agency variables.

	(1) Life satisfaction	(2) Pleasure	(3) CAS-index	(4) CAS-internal	(5) CAS-external
Employment status: recently retired (ref)					
employed	0.048 (0.04)	0.003 (0.08)	-0.130** (0.05)	-0.031 (0.06)	-0.126** (0.06)
>2 years retired	-0.054 (0.04)	-0.016 (0.07)	0.008 (0.04)	-0.015 (0.05)	-0.007 (0.06)
Country: Belgium (ref) [(1)]					
Interaction term employment status x country					
employed x Austria	-0.048 (0.08)	0.005 (0.09)	0.043 (0.08)	-0.068 (0.08)	0.132 (0.09)
employed x Germany	-0.113 (0.08)	-0.008 (0.10)	-0.010 (0.08)	0.012 (0.09)	-0.028 (0.10)
employed x Sweden	-0.050 (0.06)	-0.060 (0.09)	0.0009 (0.07)	-0.054 (0.07)	0.035 (0.08)
employed x Netherlands	-0.058 (0.06)	0.100 (0.10)	0.030 (0.07)	0.042 (0.08)	-0.005 (0.09)
employed x Spain	-0.112 (0.09)	-0.125 (0.14)	-0.030 (0.10)	-0.014 (0.11)	-0.038 (0.11)
employed x France	0.008 (0.07)	0.045 (0.10)	0.024 (0.07)	-0.030 (0.08)	0.025 (0.09)
employed x Denmark	-0.174*** (0.07)	-0.055 (0.08)	-0.006 (0.07)	-0.095 (0.07)	0.055 (0.08)
employed x Switzerland	-0.086 (0.06)	-0.105 (0.10)	-0.030 (0.07)	-0.128 (0.08)	0.055 (0.09)
>2 years retired x Austria	-0.043 (0.07)	0.111 (0.08)	0.016 (0.07)	0.069 (0.07)	-0.011 (0.08)
>2 years retired x Germany	0.028 (0.08)	-0.017 (0.10)	0.091 (0.07)	-0.001 (0.09)	0.137 (0.09)
>2 years retired x Sweden	0.051 (0.06)	-0.049 (0.08)	-0.100* (0.06)	-0.014 (0.06)	-0.080 (0.07)
>2 years retired x Netherlands	0.030 (0.05)	0.012 (0.09)	0.023 (0.06)	-0.021 (0.08)	0.060 (0.08)
>2 years retired x Spain	-0.141 (0.09)	0.022 (0.12)	-0.006 (0.08)	0.032 (0.10)	0.007 (0.10)
>2 years retired x France	0.033 (0.06)	-0.004 (0.09)	0.003 (0.06)	-0.089 (0.07)	0.098 (0.07
>2 years retired x Denmark	0.005 (0.06)	-0.0002 (0.08)	-0.023 (0.06)	-0.015 (0.06)	0.003 (0.07)
>2 years retired x Switzerland	-0.007 (0.06)	0.0007 (0.09)	-0.054 (0.07)	0.061 (0.07)	-0.094 (0.08)
Observations	59,983	59,983	59,983	59,983	59,983
Respondents	37,117	37,117	37,117	37,117	37,117

Note: The employment status is categorized in being employed, recently retired (reference category) and retired for more than two years. The variables age², health, income, partner's health, country specific time effects and fixed effects are included in the estimations (but not mentioned in the table). Robust clustered standard errors in parentheses; *** p <0.01, ** p<0.05, * p<0.1

Table A2: FE results of a balanced sample.

	(1) Life satisfaction	(2) Pleasure	(3) CAS-index	(4) CAS-internal	(5) CAS-external
Employment status: recently retired (ref)					
employed	-0.028 (0.02)	-0.012 (0.02)	-0.128*** (0.02)	-0.079*** (0.02)	-0.093*** (0.03)
>2 years retired	-0.050** (0.02)	-0.035 (0.02)	-0.007 (0.02)	-0.035* (0.02)	0.008 (0.02)
Age²	0.0001 (0.00)	-0.0002 (0.00)	-0.0004*** (0.00)	-0.0006*** (0.00)	0.0001 (0.00)
Health					
Self-Perceived Health: good (ref)					
excellent	0.163*** (0.02)	0.072*** (0.02)	0.146*** (0.02)	0.122*** (0.03)	0.094*** (0.00)
very good	0.096*** (0.02)	0.023 (0.02)	0.080*** (0.02)	0.0877*** (0.02)	0.037** (0.02)
fair	-0.120*** (0.02)	-0.109*** (0.02)	-0.183*** (0.02)	-0.178*** (0.02)	-0.100*** (0.02)
poor	-0.412*** (0.05)	-0.339*** (0.05)	-0.460*** (0.04)	-0.462*** (0.05)	-0.239*** (0.05)
Number of daily limitations [0,23]	-0.032*** (0.01)	-0.027*** (0.01)	-0.059*** (0.01)	-0.0544*** (0.01)	-0.033*** (0.01)
Income					
Ability to make ends meet: fairly easily (ref)					
with great difficulty	-0.179*** (0.05)	-0.187*** (0.05)	-0.340*** (0.04)	-0.122*** (0.05)	-0.290*** (0.05)
with some difficulty	-0.097*** (0.02)	-0.053** (0.03)	-0.196*** (0.02)	-0.056** (0.02)	-0.174*** (0.02)
easily	0.049*** (0.01)	0.017 (0.02)	0.100*** (0.01)	0.024* (0.01)	0.094*** (0.02)
Net household income in percentiles	0.006*(0.003)	0.001 (0.003)	0.003 (0.003)	0.001 (0.003)	0.002 (0.003)
Observations	33,465	33,465	33,465	33,465	33,465
Respondents	11,155	11,155	11,155	11,155	11,155

Note: The employment status is categorized in being employed, recently retired (reference category) and retired for more than two years. The variables partner's health, country specific time effects and fixed effects are included in the estimations (but not mentioned in the table). Robust clustered standard errors in parentheses; *** p <0.01, ** p<0.05, * p<0.1

Table A3: FE results of excluding the health variables from the regression model.

	(1) Life satisfaction	(2) Pleasure	(3) CAS-index	(4) CAS-internal	(5) CAS-external
Employment status: recently retired (ref)					
employed	-0.026 (0.02)	-0.020 (0.02)	-0.132*** (0.02)	-0.083*** (0.02)	-0.097*** (0.02)
>2 years retired	-0.047*** (0.02)	-0.004 (0.02)	0.005 (0.02)	-0.008 (0.02)	0.006 (0.02)
Age²	0.00007 (0.00)	-0.0004*** (0.00)	-0.0006*** (0.00)	-0.0007*** (0.00)	-0.0002* (0.00)
Income					
Ability to make ends meet: fairly easily (ref)					
with great difficulty	-0.276*** (0.04)	-0.180*** (0.04)	-0.332*** (0.03)	-0.125*** (0.03)	-0.284*** (0.04)
with some difficulty	-0.133*** (0.02)	-0.070*** (0.02)	-0.216*** (0.02)	-0.081*** (0.02)	-0.184*** (0.02)
easily	0.060*** (0.01)	0.033** (0.01)	0.103*** (0.01)	0.045*** (0.01)	0.077*** (0.01)
Net household income in percentiles	0.004* (0.002)	0.006** (0.003)	0.006*** (0.002)	0.004* (0.002)	0.004* (0.003)
Partner's health					
Self-perceived health: fair health (ref)					
no partner	-0.277*** (0.05)	-0.182*** (0.05)	-0.051 (0.04)	-0.166*** (0.05)	0.055 (0.05)
widow	-0.268*** (0.07)	-0.219*** (0.06)	-0.005 (0.05)	-0.241*** (0.06)	0.153*** (0.06)
excellent	-0.016 (0.02)	-0.038* (0.02)	-0.030 (0.02)	-0.005 (0.02)	-0.032 (0.02)
very good	-0.069*** (0.02)	-0.040* (0.02)	-0.061*** (0.02)	-0.005 (0.02)	-0.074*** (0.03)
good	-0.084*** (0.03)	-0.066** (0.03)	-0.108*** (0.03)	-0.017 (0.03)	-0.121*** (0.03)
poor	-0.248*** (0.04)	-0.177*** (0.04)	-0.186*** (0.04)	-0.080** (0.04)	-0.163*** (0.04)
Fixed effect (average)	0.627 (0.41)	1.647*** (0.45)	2.606*** (0.39)	3.084*** (0.42)	0.879**(0.44)
Observations	60,002	60,002	60,002	60,002	60,002
Respondents	37,127	37,127	37,127	37,127	37,127

Note: The employment status is categorized in being employed, recently retired (reference category) and retired for more than two years. The country specific time effects are included in the estimations (but not mentioned in the table). Robust clustered standard errors in parentheses; *** p <0.01, ** p<0.05, * p<0.1

Table A4: FE results of excluding the income variables from the regression model.

	(1) Life satisfaction	(2) Pleasure	(3) CAS-index	(4) CAS-internal	(5) CAS-external
Employment status: recently retired (ref)					
employed	-0.009 (0.02)	-0.010 (0.02)	-0.104*** (0.02)	-0.068*** (0.02)	-0.075*** (0.02)
>2 years retired	-0.056*** (0.02)	-0.007 (0.02)	-0.013 (0.02)	-0.018 (0.02)	-0.009 (0.02)
Age²	0.0001 (0.00)	-0.0002** (0.00)	-0.0004*** (0.00)	-0.0004*** (0.00)	-0.0001 (0.00)
Health					
Self-Perceived Health: good (ref)					
excellent	0.155*** (0.02)	0.057*** (0.02)	0.151*** (0.02)	0.126*** (0.02)	0.094*** (0.02)
very good	0.098*** (0.01)	0.033** (0.01)	0.087*** (0.01)	0.086*** (0.01)	0.046*** (0.01)
fair	-0.116*** (0.02)	-0.114*** (0.02)	-0.178*** (0.02)	-0.193*** (0.02)	-0.083*** (0.02)
poor	-0.405*** (0.04)	-0.334*** (0.04)	-0.426*** (0.03)	-0.503*** (0.04)	-0.161*** (0.04)
Number of daily limitations [0,23]	-0.035*** (0.004)	-0.026*** (0.004)	-0.059*** (0.004)	-0.052*** (0.004)	-0.035*** (0.004)
Partner's health					
Self-perceived health: fair health (ref)					
no partner	-0.292*** (0.05)	-0.209*** (0.05)	-0.080* (0.04)	-0.188*** (0.04)	0.039 (0.05)
widow	-0.295*** (0.06)	-0.219*** (0.06)	-0.014 (0.05)	-0.246*** (0.05)	0.154*** (0.06)
excellent	-0.016 (0.02)	-0.042** (0.02)	-0.029 (0.02)	-0.009 (0.02)	-0.029 (0.02)
very good	-0.066*** (0.02)	-0.041* (0.02)	-0.062*** (0.)02	-0.007 (0.02)	-0.073*** (0.03)
good	-0.077*** (0.03)	-0.065** (0.03)	-0.100*** (0.02)	-0.009 (0.03)	-0.116*** (0.03)
poor	-0.236*** (0.04)	-0.175*** (0.04)	-0.185*** (0.04)	-0.077** (0.04)	-0.164*** (0.04)
Fixed effect (average)	-0.040 (0.40)	1.199***(0.45)	1.823*** (0.38)	2.168*** (0.41)	0.569 (0.43)
Observations	60,542	60,542	60,542	60,542	60,542
Respondents	37,354	37,354	37,354	37,354	37,354

Note: The employment status is categorized in being employed, recently retired (reference category) and retired for more than two years. The country specific time effects are included in the estimations (but not mentioned in the table). Robust clustered standard errors in parentheses; *** p <0.01, ** p<0.05, * p<0.1

Table A5: FE results of the interaction between the employment status and health/income on life satisfaction, pleasure and agency variables.

	(1) Life satisfaction	(2) Pleasure	(3) CAS-index	(4) CAS-internal	(5) CAS-external
Employment status: recently retired (ref)					
employed	-0.014 (0.02)	-0.013 (0.02)	-0.120*** (0.02)	-0.071*** (0.02)	-0.091*** (0.02)
>2 years retired	-0.049*** (0.02)	-0.008 (0.02)	-0.004 (0.02)	-0.023 (0.02)	0.008 (0.02)
Interaction health					
Self-Perceived health	0.124*** (0.02)	0.095*** (0.02)	0.138*** (0.01)	0.141*** (0.02)	0.063*** (0.02)
Employed x Self-perceived health	-0.041** (0.02)	-0.050*** (0.02)	-0.036** (0.02)	-0.045*** (0.02)	-0.005 (0.02)
> 2 years retired x Self-perceived health	-0.0008 (0.02)	-0.023 (0.02)	-0.002 (0.01)	-0.002 (0.02)	0.006 (0.02)
Interaction income					
Ability to make ends meet	0.075*** (0.02)	0.026 (0.02)	0.099*** (0.01)	0.021 (0.02)	0.092*** (0.02)
Employed x Ability to make ends meet	0.009 (0.02)	0.032 (0.02)	0.022 (0.02)	0.039** (0.02)	-0.003 (0.02)
> 2 years retired x Ability to make ends meet	0.013 (0.021)	0.022 (0.02)	0.020 (0.02)	0.018 (0.02)	0.012 (0.02)
Observations	52,320	52,320	52,320	52,320	52,320
Respondents	32,271	32,271	32,271	32,271	32,271

Note: The employment status is categorized in being employed, recently retired (reference category) and retired for more than two years. The variables age², number of daily limitations, net household income in percentiles, partner's health, country specific time effects and fixed effects are included in the estimations (but not mentioned in the table). Robust clustered standard errors in parentheses; *** p <0.01, ** p<0.05, * p<0.1

Clarifications:

- The variable self-perceived health is standardized in the way that an increase in the variable means an improvement in health and that the average health situation in the sample is zero.
- The variable ability to make ends meet is standardized in the way that an increase in the variable means an improvement in the income situation.
- The estimates of the employment status variable can be interpreted easily, it signifies a change in the employment situation conditioning on the average health and income situation.

Table B1: Heterogeneity in the employment and retirement situation. FE results of part-time employment, early and partial retirement on life satisfaction, pleasure and agency variables.

	(1) Life satisfaction	(2) Pleasure	(3) CAS-index	(4) CAS-internal	(5) CAS-external
Employment status: full-time employed (ref)					
part-time employed	0.036 (0.03)	0.030 (0.03)	-0.023 (0.03)	-0.009 (0.03)	-0.020 (0.03)
partially and early retired	0.057* (0.03)	0.017 (0.03)	0.099*** (0.03)	0.087*** (0.03)	0.068* (0.04)
partially retired and age >= normal retirement age	0.026 (0.03)	0.015 (0.03)	0.129*** (0.03)	0.088*** (0.03)	0.085** (0.03)
fully and early retired	0.007 (0.03)	0.023 (0.03)	0.142*** (0.03)	0.097*** (0.03)	0.101*** (0.03)
fully retired and age >= normal retirement age	0.025 (0.03)	0.031 (0.03)	0.132*** (0.03)	0.089*** (0.03)	0.092*** (0.03)
Observations	56,215	56,215	56,215	56,215	56,215
Respondents	35,830	35,830	35,830	35,830	35,830

Note: The employment status is categorized in being part-time employed, full-time employed (reference category), partially retired, fully retired, early retired and retired at the normal retirement age or later. The variables age², health, income, partner's health, country specific time effects and fixed effects are included in the estimations (but not mentioned in the table). Robust clustered standard errors in parentheses; *** p <0.01, ** p<0.05, * p<0.1

Clarifications:

- A person is part-time employed if he or she works less than 30 hours a week.
- A person is partially and early retired if he or she combines a labor income with pension benefits. The person is younger than the normal retirement age (based on gender and country).
- A person is partially retired and retired at the normal retirement age or later if he or she combines a labor income with pension benefits. The person is older than or at the same age as the normal retirement age (based on gender and country).
- A person is fully and early retired if he or she is retired and receives pension benefits but no labor income. The person is younger than the normal retirement age (based on gender and country).
- A person is fully retired and retired at the normal retirement age or later if he or she is retired and receives pension benefits but no labor income. The person is older than or at the same age as the normal retirement age (based on gender and country).

Table B2: Heterogeneity in the employment and retirement situation. FE results of part-time employment, early and partial retirement on life satisfaction, pleasure and agency variables. The income variables are excluded.

	(1) Life satisfaction	(2) Pleasure	(3) CAS-index	(4) CAS-internal	(5) CAS-external
Employment status: full-time employed (ref)					
part-time employed	0.028 (0.03)	0.027 (0.03)	-0.032 (0.03)	-0.013 (0.03)	-0.028 (0.03)
partially and early retired	0.055* (0.03)	0.020 (0.03)	0.098*** (0.03)	0.085*** (0.03)	0.068* (0.04)
partially retired and age >= normal retirement age	0.017 (0.03)	0.018 (0.03)	0.119*** (0.03)	0.092*** (0.03)	0.071** (0.03)
fully and early retired	-0.005 (0.03)	0.021 (0.03)	0.120*** (0.03)	0.093*** (0.03)	0.078*** (0.03)
fully retired and age >= normal retirement age	0.011 (0.03)	0.025 (0.03)	0.108*** (0.03)	0.085*** (0.03)	0.068** (0.03)
Observations	56,718	56,718	56,718	56,718	56,718
Respondents	36,060	36,060	36,060	36,060	36,060

Note: The employment status is categorized in being part-time employed, full-time employed (reference category), partially retired, fully retired, early retired and retired at the normal retirement age or later. The variables age², health, income, partner's health, country specific time effects and fixed effects are included in the estimations (but not mentioned in the table). Robust clustered standard errors in parentheses; *** p <0.01, ** p<0.05, * p<0.1

Clarifications:

- A person is part-time employed if he or she works less than 30 hours a week.
- A person is partially and early retired if he or she combines a labor income with pension benefits. The person is younger than the normal retirement age (based on gender and country).
- A person is partially retired and retired at the normal retirement age or later if he or she combines a labor income with pension benefits. The person is older than or at the same age as the normal retirement age (based on gender and country).
- A person is fully and early retired if he or she is retired and receives pension benefits but no labor income. The person is younger than the normal retirement age (based on gender and country).
- A person is fully retired and retired at the normal retirement age or later if he or she is retired and receives pension benefits but no labor income. The person is older than or at the same age as the normal retirement age (based on gender and country).