Self-employment and Life Satisfaction among the Elderly: Survey-based Evidence from Sweden

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by

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Abstract

This paper compares life satisfaction among the elderly (61 years of age or older) who are self-employed, wage-employed or out of the labour force in Sweden with the help of a unique survey. Sweden is interesting since the share of elderly, just as in other countries, has increased during the last decade. Encouraging the elderly to remain in the labour force is now high on the political agenda. We find that people who are self-employed report higher life satisfaction than people who are wage-employed or out of the labour force. General health is a strong determinant of life satisfaction but the differences among the groups remain when we control for health related variables. Further, the self-employed report higher job satisfaction than the wage-employed, and find their work less mentally straining or stressful. Even though our results are driven by different types of selection, we conclude that they underline the need for a flexible working life. Stimulating self-employment among older people may be an effective way to improve their life satisfaction, to increase Sweden's labour supply and to keep older people in the labour force.

1. Introduction

Most countries have reported an ageing population in the last decades, a trend that is expected to continue. In Europe, the share of the population who are 60 years of age or older is expected to increase by almost 25 percent from 2015 to 2030. The expected increase in this share in North America is even higher, at around 40 percent.[1]

Population ageing is often associated with different economic problems, such as labour shortages and exhaustion of the social security system. Due to these problems, policymakers and researchers tend to view elderly people as an economic burden and have invested much effort in motivating them either to remain in the labour force or to come out of retirement.

A crucial question is how to enable seniors to remain in the labour force without compromising their well-being and life satisfaction. Most research on labour market attachment among seniors focuses on changes in the retirement age and the creation of incentives and possibilities for seniors to remain in wage-employment after that age.[2] However, creating incentives for seniors to remain in the labour force is not unproblematic given the pervasiveness of age discrimination in the workplace.[3] Furthermore, health limitations and the need for flexible working hours can make it difficult for seniors to remain in the labour force. Therefore, forcing seniors to work after the age at which they had hoped to retire may reduce their life satisfaction.

One way for seniors to stay active and to remain in the labour force after voluntary retirement is for them to become self-employed. Self-employed seniors can increase Sweden's labour supply, decrease the burden on the social security system and contribute to economic growth. Furthermore, self-employment can help older people to avoid boredom. In addition, it can offer autonomy and flexibility, thereby enhancing seniors' life satisfaction.[4]

However, while previous research indicates that being self-employed increases life satisfaction, very little is known about life satisfaction among self-employed seniors.[5] Therefore, it is worthwhile to study this topic and to compare subjective life satisfaction among the elderly self-employed with that of the elderly who are wage-employed or inactive (i.e., out of the labour force). If self-employed seniors are more satisfied with their lives than are seniors who are wage-employed, or inactive, after reaching the retirement age, an effective way to enhance senior life satisfaction may be to promote self-employment.

This paper focuses on life satisfaction among self-employed seniors in Sweden. The paper compares life satisfaction among the elderly who are self-employed, wage-employed or inactive in Sweden with the help of a unique survey. Sweden is interesting because its elderly population, as those in other countries, has increased during the last decade. Finding a way to

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[1] See the United Nations (2015).
[2] See e.g., Shirle (2008), Poterba, Venti and Wise (2013) and Anxo, Ericson and Herbert (2017).
[3] Age discrimination in has been documented by e.g. Lahey (2008) Riach and Rich (2010) Ahmed, Andersson and Hammarstedt (2012), Neumark, Burn and Putton (2016), Carlsson and Eriksson (2017), and Drydakis, MacDonald, Chiotis and Sommers (2017).
[4] For a study of retirement and psychological well-being, see e.g. Charles (2004).
[5] For studies of self-employment and job and life satisfaction, see e.g., Oswald (1997), Blanchflower and Oswald (1998), Blanchflower (2000), Benz and Frey (2004), Taylor (2004), and Andersson Joona (2008).

motivate elderly individuals to remain in the labour force is now high on Sweden's political agenda in.[6]

To obtain data about seniors' life and job satisfaction, we conducted a survey between March 31 and May 24, 201. The survey was sent to a random sample of individuals aged 61 years and older and resident in Sweden in 2016. The rationale for using this age restriction is that 61 is the initial eligibility age for age pension in Sweden. Since we are interested in whether seniors who are self-employed are more satisfied with their lives than seniors who are wage-employed or inactive, the sample was stratified along these lines. The respondents were asked about their life satisfaction, health, leisure activities, if their parents were still alive, and if they had children and grandchildren. The self-employed and wage-employed were asked if they were satisfied with their job, if the job was mentally straining, and if the job was stressful. The self-employed were also asked about their reasons for becoming self-employed and the extent to which they had experienced any problems in running the firm. We combine the survey data with high-quality register data from the LISA database at Statistics Sweden. From this database we collect information about individual characteristics, such as age, educational attainment, civil status and region of residence, for the year 2014.

The remainder of the paper is organised as follows. In Section 2 we explain why we can expect self-employment to enhance life satisfaction among seniors. The survey and the data used are described in Section 3; descriptive statistics are presented in Section 4. Section 5 contains the estimations of factors affecting life satisfaction among our respondents. Section 6 offers a discussion and the conclusions.

2. Why should we expect self-employment to enhance life satisfaction among seniors?

Psychologists have for a long time paid attention to the relationship between retirement and life satisfaction. The main argument for why retirement should diminish life satisfaction is that retirement marks the end of working life and that retirees will suffer psychologically from boredom and from not being able to be part of and contribute to the economic activity of their society.[7] However, retirement may also improve life satisfaction positively since retired people are spared what they disliked about working and have time to enjoy other activities.[8]

Thus, there are incentives as well as disincentives for seniors to become involved in the labour force after retirement. However, even if many seniors would still prefer to work for financial reasons or to avoid boredom, most seniors will not, for different reasons, be able to remain wage-employed after reaching retirement age. Different factors, such as the rules in the pension system (not being eligible for wage-employment), age discrimination, an unpleasant working environment, health limitations as well as personal desire for leisure and flexibility all contribute to why seniors not are eligible or motivated to remain wage-employed after retirement.

One possibility for seniors who wants to remain in the labour force after reaching the retirement age is to become self-employed. How can we then expect self-employment to affect life satisfaction among seniors? Firstly, self-employment could offer gratification, motivation and possibilities for seniors to stay in the labour force. Previous research has

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[6] See e.g. Bengtsson and Scott (2010).
[7] See Miller (1965), Henry (1971).
[8] See Atchley (1971, 1993).

shown that self-employment increases both job satisfaction and life satisfaction.[9] In general, self-employment offers more flexibility, control and freedom than wage-employment. Over the past decades, overall health has improved and life expectancy has increased. Better health and longer life make it possible for seniors to participate in self-employment, increasing their life satisfaction and reducing their boredom after retirement.

Self-employment may also be a necessity for seniors who want to remain in the labour force since employers may be reluctant to hire seniors. One reason may be that employers are concerned about the higher labour cost and lower productivity associated with older workers. Higher labour cost for seniors may be due the expectation of high wages based on their years of experience, higher level of absenteeism and higher health insurance costs. Some employers assume that older workers have not updated their skills, so they are thought to be less efficient and to have less capacity to learn than younger workers. Self-employment thus offers an attractive opportunity for seniors who want to remain in the labour force.

Another reason can be found in the financial situation after retirement. The inability to afford retirement due to insufficient income from the pension system may render participation in the labour force necessary for seniors even as public pension age limits seniors' opportunities for wage-employment. Self-employment makes it possible for seniors with inadequate pensions to participate in the labour force, and thereby to improve their living standards and life satisfaction.

In addition, older people might prefer more flexible schedules. For seniors who need to work after retirement but whose failing health, or a family member's, requires fewer work hours than the wage-employment can accommodate, self-employment is an option. Seniors who have enough income to retire but still want to work may want time for leisure. Self-employment is an attractive option for these seniors.

Thus, there are different reasons that make self-employment more appealing than wage-employment or inactivity among seniors. Our study will give insights into association between self-employment and life satisfaction among seniors in Sweden.

3. The survey

We collected data on seniors' life satisfaction from a survey administered in cooperation with Statistics Sweden between March 31 and May 24, 2016. We define seniors as people 61 years and older. We use this age restriction since 61 is the age at which individuals in Sweden are eligible for age pension. The population for the survey thus comprised all individuals, aged 61 and older, resident in Sweden in 2016. Since we are interested in the extent to which life satisfaction differs among the self-employed, wage-employed and the inactive, a stratified random sample was drawn, based on whether the respondent was self-employed, wage-employed or inactive. The information of their labour market activity is obtained from the year 2014; at the time of the survey this was the most recent data available at Statistics Sweden. Individuals were considered self-employed if they declared that they were running a private firm or limited liability any time during 2014 (stratum 1). They were defined as wage-employed if they had any income from wage-employment in 2014 but were not classified as self-employed (stratum 2). Finally, individuals were classified as inactive if they did not have an income from work in 2014 and were not classified as wage-employed or self-employed

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[9] See Blanchflower and Oswald (1998), Blanchflower (2004), Benz and Frey (2004), Taylor (2004) and Andersson-Joona (2008).

(stratum 3). The definition of self-employed implies that people who were both self-employed and wage-employed were classified as self-employed. 10,000 individuals were drawn in stratum 1 and 2,500 in strata 2 and 3.

In the survey, respondents were asked about their life satisfaction, health, leisure activities, if their parents were still alive, and if they had children and/or grandchildren.[10] The self-employed and wage-employed were asked if they were satisfied with their job, if the job was mentally straining, and if the job was stressful. The self-employed were asked additional questions about their reasons for becoming self-employed and the extent to which they had experienced certain problems in running the firm, such as difficulties in accessing financial capital or labour.

For all strata, the response rate was high: about 72 per cent for the self-employed, 75 per cent for the wage-employed, and 66 per cent for the inactive. A comparison of respondents and non-respondents of the survey by sex, age, civil status, education, earnings, region of residence, and citizenship does not reveal any large or striking differences between respondents and non-respondents.[11] After restricting the sample to individuals with no missing values or ambiguous answers to the survey questions, the sample comprises 9,965 individuals of whom 6,698 are self-employed, 1,789 wage-employed, and 1,478 inactive.

We combine the survey data with high-quality register data from the LISA database at Statistics Sweden. LISA contains information about demographic characteristics, educational attainment, employment, and labour and non-labour income for all individuals, aged 16 and older, resident in Sweden. From this database we collect information about individual characteristics such as age, educational attainment, civil status, region of residence, country of birth, disposable income (equalised)[12], and labour earnings for the year 2014.

In our analysis we use three samples. The first sample consists of individuals who are classified as self-employed, wage-employed or inactive based on the definitions used for dividing the underlying population into the three strata. This sample comprises the 9,965 individuals mentioned above. We use this sample to ascertain if there are differences in self-reported life satisfaction among the self-employed, wage-employed and the inactive. In the survey, the respondents were asked whether they feel that their life is a source of personal satisfaction. The respondents had three possible answers: 1) most of the time, 2) sometimes, and 3) never. Individuals are considered satisfied with their lives if they answered that they often perceive their daily life as a source of personal satisfaction.

The second sample consists of individuals who defined themselves in the survey as either wage-employed, self-employed or inactive. In the survey, the respondents were asked whether they were wage-employed, self-employed or inactive. When using this definition, the sample comprises 9,606 individuals of whom 3,483 are self-employed, 1,463 are wage-employed, and 4,660 are inactive. Clearly, the two samples do not completely match and, in particular, the definition presented above produces more self-employed individuals and fewer inactive individuals. One reason may be that the strata are based on data from 2014 although the survey was conducted in 2016, suggesting that individuals may have changed their status in the interim. However, it may also be the case that even though some individuals are self-

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[10] The survey is included in the working paper version of the paper; see Aldén and Hammarstedt (2017).
[11] The non-response bias analysis is available from the authors upon request.
[12] Disposable income has been equalised using the following formula: annual household disposable income / (1*(number of adults)+0,42*(number of children aged 0–3)+0,52*(number children aged 4–10)).

employed according our definition they may perceive themselves as inactive, meaning retired. In order to explore whether these results are sensitive to the definition, this second sample is used to explore if there are differences in life satisfaction among the different groups.

The respondents who reported being either self-employed or wage-employed were asked about their job. In total, 4,767 individuals, of whom 3,346 are self-employed and 1,421 are wage-employed, gave complete and non-ambiguous answers to these questions. This third sample is used to identify differences in job satisfaction between the self-employed and wage-employed, and the extent to which they perceive their job as mentally straining and stressful. In the survey, the self- and wage-employed were asked if they were satisfied with their job and to rank their level of satisfaction on a five-point scale from very satisfied to very dissatisfied. Individuals were defined as being satisfied with their job if they answered that they were very satisfied with their job. The self- and wage-employed were also asked if their job was mentally straining and stressful. They were defined as perceiving their job as mentally straining or stressful if they answered these questions in the affirmative. Finally, this sample is used to study seniors' reasons for entering self-employment and the extent to which the self-employed have had problems with access to financial capital, laws and regulations, payroll taxes, discrimination by customers, suppliers and banks or other problems in running their business.

4. Descriptive statistics

Table 1 presents descriptive statistics for the survey respondents. There are small age differences between the self-employed and the wage-employed; the inactive are older. There are also small differences between the wage-employed and the self-employed in terms of education; among the inactive, the percentage of individuals with primary education is higher and the percentage with university education is lower.

If we turn to outcomes that measure life satisfaction and health we find that among males 78 per cent of the self-employed report high life satisfaction, meaning that they often perceive their life as a source of personal satisfaction. Among wage-employed males, the corresponding figure is 74 per cent. Among inactive males, the share reporting high life satisfaction is 66 per cent. Among females, 80 per cent of the self-employed report high life satisfaction is 80 per cent compared to 78 per cent among the wage-employed and 65 per cent among inactive females. For all groups, regardless of gender, very few responded that they never perceive that their life is a source of personal satisfaction. The highest share, 6 per cent, is found among the inactive.

Table 1 further reveals that self-employed individuals have a higher disposable income than the wage-employed. Unsurprisingly, inactive individuals have a considerably lower income than those who are self-employed and wage-employed. This is true for both males and females. Males, however, have a higher disposable income than females, irrespective of labour market status.

Turning to health, 80 per cent of self- and wage-employed males report good health; the corresponding figure among the inactive is 69 per cent. The same pattern emerges among females; 83 per cent of the self-employed and wage-employed females reports good health and 67 per cent of the inactive females report good health. The same tendency emerges when we look at other health-related outcomes. The share that report fatigue, sleeping problems, anxiety or depression is higher among the inactive than among the self- or wage-employed.

Table 1: Descriptive statistics

	Males			Females		
	Self-employed	Wage-employed	Inactive	Self-employed	Wage-employed	Inactive
Weighted sample share	0.161	0.280	0.559	0.072	0.288	0.640
Life satisfaction						
Often	0.78	0.74	0.66	0.80	0.78	0.65
Sometimes	0.20	0.23	0.27	0.17	0.20	0.28
Never	0.02	0.03	0.06	0.03	0.02	0.06
Demographic characteristics						
Age	69.8	67.0	75.8	69.3	66.3	76.2
Aged 67 or older	0.66	0.46	0.94	0.63	0.41	0.92
Primary education	0.25	0.23	0.32	0.17	0.14	0.33
Secondary education	0.39	0.42	0.42	0.39	0.45	0.44
University education	0.36	0.36	0.26	0.44	0.41	0.23
Married	0.70	0.65	0.66	0.62	0.58	0.49
Foreign born	0.06	0.09	0.11	0.07	0.11	0.11
Metropolitan area	0.28	0.34	0.36	0.32	0.36	0.31
Disposable income (SEK, equalised)	358,700	323,100	234,700	281,500	253,100	174,300
Health						
Good general health	0.80	0.80	0.69	0.83	0.83	0.67
Fatigue	0.53	0.54	0.58	0.58	0.63	0.65
Sleeping problems	0.45	0.45	0.47	0.60	0.64	0.65
Anxiety	0.30	0.30	0.33	0.44	0.43	0.48
Depression	0.13	0.14	0.20	0.18	0.17	0.26
Spend time on hobbies	0.75	0.76	0.64	0.78	0.77	0.62
Parent alive	0.16	0.22	0.06	0.17	0.22	0.04
Grandchild	0.74	0.68	0.79	0.80	0.78	0.84
Observations	4,478	837	653	2,220	952	825

Table 2 presents job characteristics of self- and wage-employed respondents. Most of the respondents report that they are satisfied with the job. However, the self-employed are more satisfied with their jobs than the wage-employed. Among males 49 per cent of the self-employed are very satisfied with their jobs; the corresponding figure among wage-employed males is 41 per cent. Among females, 58 per cent of the self-employed are very satisfied with their jobs. The share of wage-employed females who are very satisfied with their jobs is 44 per cent.

Table 2: Descriptive statistics of job characteristics of the self-employed and wage-employed, by gender and type of employment

	Males		Females	
	Self-employed	Wage-employed	Self-employed	Wage-employed
Job satisfaction				
Very satisfied	0.49	0.41	0.58	0.44
Satisfied	0.41	0.41	0.31	0.42
Neither satisfied nor dissatisfied	0.08	0.12	0.10	0.11
Dissatisfied	0.01	0.03	0.01	0.02
Very dissatisfied	0.01	0.02	0.00	0.01
Job mentally straining	0.23	0.35	0.27	0.44
Job stressful	0.28	0.45	0.30	0.61
Demographic characteristics				
Age	69.3	64.8	68.1	64.2
Aged 67 or older	0.63	0.23	0.54	0.18
Primary	0.21	0.19	0.11	0.11
Secondary	0.41	0.42	0.37	0.42
University	0.38	0.39	0.52	0.47
Married	0.69	0.62	0.60	0.58
Foreign born	0.06	0.12	0.08	0.10
Metropolitan area	0.36	0.37	0.41	0.40
Job characteristics				
Working hours[a]	29.5	33.8	24.7	31.4
Combiner	0.12	0.01	0.16	0.00
Labour income (SEK)[b]	130,200	374,100	120,800	293,300
Observations	2,515	688	831	733

Note: [a] Working hours is the sum of working hours in self-employment and wage-employment. [b] Self-employed individuals can have negative earnings from self-employment.

Wage-employed individuals find their job more mentally straining or stressful than the self-employed. Among males, 35 per cent of the wage-employed individuals report that their job is mentally straining while the corresponding share among self-employed males is 23 per cent. Among wage-employed females, 44 per cent find their job mentally straining while the corresponding figure among self-employed females is 27 per cent.

Among wage-employed males, 45 per cent find their job stressful but only 28 per cent of self-employed males do. Among females, the share of wage-employed that reported a stressful job was 61 per cent but the same share among self-employed females was only 30 per cent.

Table 2 also shows that the self-employed work fewer hours than the wage-employed. This might be because we are studying the elderly, and that the self-employed are freer to choose

how much time to spend on work than the wage-employed. The self-employed also have lower labour earnings, which could be due to fewer working hours but also to the fact that earnings from self-employment can take on negative values (e.g. if a firm incurs a loss).

5. Estimations – self-employment, life and job satisfaction

5.1 Estimation strategy

To explore the extent to which there are differences in life satisfaction between self-employed, wage-employed and inactive seniors we estimate a linear probability model. The outcome variable takes the value of 1 if the respondent in the survey has answered that the daily life is a source of personal satisfaction most of the time and 0 otherwise. We use the following regression model that is estimated separately by gender:

$$\Pr(Y_i = 1) = \alpha_0 + \alpha_1(Self\_employedxAge\ 61\_66)_i + \alpha_2(Wage\_employedxAge\ 61\_66)_i + \alpha_3(Self\_employedxAge \geq 67)_i + \alpha_4(Wage\_employedxAge \geq 67)_i + \alpha_5(Age \geq 67)_i + \beta X_i + \varepsilon_i \tag{1}$$

Inactive individuals aged 61–66 constitute the reference group. α_1 is the percentage point difference in life satisfaction between the self-employed and inactive aged 61–66, α_2 the difference between wage-employed and inactive individuals aged 61–66, α_3 the difference between self-employed and inactive individuals aged 67 or older, α_4 the difference between wage-employed and inactive individuals aged 67 or older, and α_5 is the difference between inactive individuals aged 67 or older and inactive individuals aged 61–66. Using this specification, we can compare differences in life satisfaction among the self-employed, wage-employed, and the inactive within and across age groups. It also allows us to compare differences in outcomes between individuals aged 61–66 and 67 or older within the group of self-employed, wage-employed and inactive. We formally test whether differences across and within groups are statistically significant.

Seven specifications of the model are estimated. All explanatory variables included in vector X_i are presented in Table A1 in Appendix A. *Specification 1* shows the unconditional differences between the different groups of seniors explained above. In *Specification 2* we add the following controls for demographic characteristics: age, educational attainment, marital status, whether the individual is foreign born or not, and whether the individual resides in a metropolitan area or not. *Specification 3* adds a control for equalised gross disposable income. Since this variable can take on negative values and be zero it is entered as a numerical variable. *Specification 4* adds an indicator if the individual has good perceived general health. *Specification 5* adds controls for whether the individual has experienced fatigue, sleeping problems, anxiety or depression. In *Specification 6* we add a control for whether the individual spends time on hobbies. Finally, *Specification 7* adds controls for whether the individual has a living parent and if the individual has grandchildren or not.

We use a similar model to identify differences between the self-employed and wage-employed seniors in job satisfaction and the extent to which seniors view their job as mentally straining or stressful. We estimate the following linear probability model, again estimated separately by gender:

$$\Pr(Y_i = 1) = \alpha_0 + \alpha_1(Self\_employedxAge\ 61\_66)_i + \alpha_2(Self\_employedxAge \geq 67)_i + \alpha_3(Age \geq 67)_i + \beta X_i + \varepsilon_i \tag{2}$$

When we explore if there are differences in job satisfaction between the self-employed and wage-employed, the dependent variable is 1 if the individual answered that he/she is very satisfied with the job and 0 otherwise.[13] As regards whether the job is mentally straining or stressful the outcome variable takes the value 1 if the respondent has answered that his/her job is mentally straining and stressful, respectively, and 0 otherwise. Here, wage-employed individuals aged 61–66 are the reference group. α_1 is then the percentage point difference in the outcome variable between the self-employed and wage-employed aged 61–66, α_2 the difference between the self-employed and wage-employed aged 67 or older, and α_3 is the difference between wage-employed individuals aged 67 or older and wage-employed individuals aged 61-66. As above, this specification allows us to compare differences in outcomes between the wage-employed and self-employed within and across age groups. We can also compare differences in outcomes between individuals aged 61-66 and 67 or older within the groups of the self-employed and wage-employed individuals.

We estimate five specifications. *Specification 1* shows the unconditional differences between the different groups of self-employed and wage-employed seniors. *Specification 2* adds controls for age, educational attainment, marital status, whether the individual is foreign born, and whether the individual resides in a metropolitan area. Specifications 3 to 5 add controls for different job characteristics. In *Specification 3* controls for individual working hours and an indicator for if the individual is a combiner, meaning that both wage-employed and self-employed, are added. In *Specification 4* we add a control for the individual's labour income and in *Specification 5* we also add industry fixed effects.

5.2 Differences in life satisfaction – individuals grouped according to the three strata

In this section we present results from estimations of differences in life satisfaction when the individuals are grouped according to the three strata. We have also conducted the corresponding estimations when the individuals are grouped by their survey answer. Due to limited space these estimations are not presented in the paper but the results are presented in the working paper version of the paper and points, in all essential, in the same direction.[14] The estimation results for males are presented in Table 3. Column 1 reports the unconditional estimates (*Specification 1*) and shows that self-employed individuals aged 61–66 have almost a 30 percentage point higher probability of reporting high life satisfaction than do inactive individuals in the same age cohort. If we compare self-employed individuals in the aged 61–66 with wage-employed individuals in the same ages, the difference amounts to about 7 percentage points (0.296–0.225). The F-test reveals that this differential is statistically significant at the 1 per cent level.

A comparison between self-employed individuals aged 61–66 and self-employed individuals aged 67 or older shows that older individuals have a somewhat higher propensity of reporting high life satisfaction. This difference amounts to 2.5 percentage points (0.296–(0.106+0.215)) and is statistically significant at the 10 per cent level. Furthermore, self-employed individuals who are 67 years of age or older have almost 11 percentage points

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[13] An alternative would be estimate an OLS and treat the dependent variable as cardinal, see e.g. Luttmer (2005) and Zwan, Hessels and Rietveld (2015) for previous applications of this model in the happiness literature. However, due to the skewed distribution of this variable – with the majority answering that they were either very satisfied or satisfied with the job – we decided treat the dependent variable as categorical. However, using a cardinal variable yields similar results (that are available upon request).

[14] See Aldén and Hammarstedt (2017).

higher probability of reporting high life satisfaction than inactive individuals in the same age group. Self-employed individuals aged 67 years or older have 1.9 percentage points (0.106–0.125) lower probability of reporting high life satisfaction than wage-employed individuals in the same age group. This difference is not statistically significant.

Table 3: LPM estimates of the probability of being satisfied with life among males (standard errors within parentheses)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Self-employed x Age 61–66	0.296***	0.275***	0.269***	0.120*	0.083	0.092	0.092
	(0.079)	(0.077)	(0.076)	(0.068)	(0.063)	(0.063)	(0.063)
Wage-employed x Age 61–66	0.225***	0.211***	0.208***	0.070	0.041	0.052	0.052
	(0.081)	(0.079)	(0.078)	(0.070)	(0.065)	(0.065)	(0.065)
Self-employed x Age $\geq$ 67	0.106***	0.097***	0.087***	0.053***	0.050***	0.044**	0.045**
	(0.020)	(0.021)	(0.021)	(0.018)	(0.018)	(0.018)	(0.018)
Wage-employed x Age $\geq$ 67	0.125***	0.115***	0.110***	0.058**	0.043*	0.032	0.033
	(0.028)	(0.028)	(0.028)	(0.026)	(0.025)	(0.025)	(0.025)
Age $\geq$ 67	0.215***	0.203***	0.208***	0.104	0.062	0.077	0.073
	(0.080)	(0.078)	(0.078)	(0.069)	(0.064)	(0.064)	(0.066)
Constant	0.463***	0.400***	0.380***	0.204***	0.437***	0.374***	0.384***
	(0.078)	(0.080)	(0.080)	(0.072)	(0.071)	(0.072)	(0.073)
Prob > F: (Self-employed x Age 61–66) = (Wage-employed x Age 61–66)	0.004	0.008	0.011	0.026	0.050	0.058	0.059
Prob > F: (Self-employed x Age $\geq$ 67) = (Wage-employed x Age $\geq$ 67)	0.384	0.411	0.293	0.800	0.703	0.539	0.546
Prob > F: (Self-employed x Age 61–66) = (Age $\geq$ 67 + Self-employed x Age $\geq$ 67)	0.063	0.057	0.052	0.003	0.013	0.012	0.071
Prob > F: (Wage-employed x Age 61–66) = (Age $\geq$ 67 + Wage-employed x Age $\geq$ 67)	0.000	0.000	0.000	0.001	0.019	0.033	0.057
Observations	5,968	5,968	5,968	5,968	5,968	5,968	5,968
R^2	0.022	0.036	0.038	0.219	0.275	0.288	0.289

Note: The results are weighted and adjusted for the sampling design using Stata svy commands. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The estimates remain stable when we add controls for demographic characteristics, such as educational attainment, marital status and for whether the individual is foreign born or not. This is also the case when we control for disposable income. Thus, such variables have little impact on the observed differentials in life satisfaction between self-employed, wage-employed and inactive individuals.[15]

The results change, however, when health-related variables are included in *Specifications 4* and *5*. Turning to *Specification 7*, in which the full set of controls are included, we find that general health have a strong positive impact on life satisfaction. Furthermore, other health related variables, such as fatigue, sleeping problems, anxiety and depression, all have a negative impact on life satisfaction. In particular, adding health-related controls reduces the observed differentials between males who are active – wage-employed or self-employed – and inactive on the labour market.

The difference across age groups observed among the self-employed, with older males reporting a higher life satisfaction than the younger males, also remains unchanged at 2.6

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[15] The estimates for the control variables are presented in the working paper version of the paper; see Aldén and Hammarstedt (2017).

percentage points (0.092–(0.045+0.073)) as controls are added. This differential is statistically significant at the 10 per cent level. Finally, self-employed individuals aged 67 years or older now have 4.5 percentage point higher probability of reporting high life satisfaction than do inactive individuals of the same age. Finally, it is worth noting that spending time on hobbies improves life satisfaction for males, but having a grandchild or a living parent has no impact on life satisfaction.

Table 4 reports the corresponding estimates for females. The unconditional estimates in the first column show that self-employed females aged 61–66 have a slightly more than 20 percentage point higher probability of reporting high life satisfaction than do inactive females in the same age group. Among females aged 67 or older, the corresponding difference amounts to almost 16 percentage points. A comparison between self-employed females aged 61–66 and 67 or older shows that females in the older group have a 4.6 percentage point (0.204–(0.158+0.092)) higher probability of reporting high life satisfaction than do females in the younger group. This differential is statistically significant at the 1 per cent level.

As for males, the magnitude of the coefficients remains fairly stable when we add demographic controls and disposable income, indicating that differences in these characteristics across groups have little impact on differential in life satisfaction among self-employed, wage-employed and inactive individuals.

However, with the full set of health-related controls in column 7, the difference in the propensity of reporting high life satisfaction between self-employed and inactive females aged 61–66 decreases and ceases to be statistically significant. However, self-employed females who are 67 years or older still have a higher probability of reporting high life satisfaction than do inactive females in the same age group, although the difference – roughly 5 percentage points – is somewhat smaller. Further, self-employed females who are 67 years of age or older have 3.4 percentage points (7.1–(4.9+5.6)) higher probability of reporting high life satisfaction than do their self-employed counterparts aged 61–66. This differential is statistically significant at the 10 per cent level.

Table 4: LPM estimates of the probability of being satisfied with life among females (standard errors within parentheses)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Self-employed x Age 61–66	0.204***	0.166***	0.158**	0.072	0.059	0.061	0.071
	(0.062)	(0.062)	(0.062)	(0.058)	(0.055)	(0.055)	(0.054)
Wage-employed x Age 61–66	0.198***	0.166***	0.162**	0.075	0.059	0.065	0.072
	(0.063)	(0.063)	(0.063)	(0.059)	(0.056)	(0.056)	(0.055)
Self-employed x Age $\geq$ 67	0.158***	0.118***	0.106***	0.062***	0.054***	0.047***	0.049***
	(0.020)	(0.020)	(0.020)	(0.017)	(0.016)	(0.016)	(0.016)
Wage-employed x Age $\geq$ 67	0.149***	0.123***	0.115***	0.057**	0.049**	0.038*	0.040*
	(0.026)	(0.026)	(0.026)	(0.023)	(0.022)	(0.022)	(0.022)
Age $\geq$ 67	0.092	0.103*	0.110*	0.073	0.050	0.063	0.056
	(0.063)	(0.063)	(0.063)	(0.059)	(0.056)	(0.055)	(0.055)
Constant	0.567***	0.458***	0.433***	0.189***	0.466***	0.408***	0.365***
	(0.061)	(0.065)	(0.066)	(0.063)	(0.065)	(0.066)	(0.068)
Prob > F: (Self-employed x Age 61–66) = (Wage-employed x Age 61–66)	0.792	0.978	0.854	0.870	0.978	0.818	0.940
Prob > F: (Self-employed x Age $\geq$ 67) = (Wage-employed x Age $\geq$ 67)	0.682	0.819	0.669	0.813	0.772	0.619	0.649
Prob > F: (Self-employed x Age 61–66) = (Age $\geq$ 67 + Self-employed x Age $\geq$ 67)	0.009	0.002	0.001	0.000	0.004	0.002	0.052
Prob > F: (Wage-employed x Age 61–66) = (Age $\geq$ 67 + Wage-employed x Age $\geq$ 67)	0.105	0.023	0.018	0.025	0.084	0.124	0.316
Observations	3,997	3,997	3,997	3,997	3,997	3,997	3997
R^2	0.023	0.053	0.057	0.260	0.326	0.339	0.341

Note: The results are weighted and adjusted for the sampling design using Stata svy commands. * p < 0.10, ** p < 0.05, *** p < 0.01

Good general health has a large positive impact on the propensity of reporting high life satisfaction for females. Furthermore, other health-related variables such as fatigue, sleeping problems, anxiety and depression all have a negative impact on life satisfaction. It is also worth noting that for females, a grandchild has a positive effect on life satisfaction.

5.4 Differences in job satisfaction, whether job is perceived as mentally straining or stressful

We start by presenting results from the estimations of determinants behind job satisfaction. Tables 5 and 6 show the results for males and females, respectively. *Specification 1* in Table 5 shows that self-employed males aged 61–66 have about a 12 percentage point higher probability of being satisfied with their job than wage-employed males of that age. Although the estimate for the self-employed aged 67 or older suggests that they are less satisfied with the job than are the wage-employed of the same age, the difference is not statistically significant. Among wage-employed males aged 67 or older, the probability of being satisfied with their job is almost 23 percentage points higher than it is for the wage-employed aged 61 to 66. Not surprisingly, this suggests that individuals who remain in wage employment after the retirement age 67 is a select group consisting of those who are most satisfied with their jobs. However, among the self-employed the difference across age groups is not statistically significant.

Table 5: LPM estimates of the probability of being satisfied with the job among self-employed and wage-employed males (standard errors within parentheses)

	(1)	(2)	(3)	(4)	(5)
Self-employed x Age 61–66	0.122***	0.115***	0.118***	0.147***	0.134***
	(0.034)	(0.034)	(0.035)	(0.035)	(0.036)
Self-employed x Age 67 or older	-0.089	-0.087	-0.085	-0.054	-0.050
	(0.057)	(0.057)	(0.057)	(0.057)	(0.060)
Age 67 or older	0.229***	0.218***	0.214***	0.234***	0.227***
	(0.058)	(0.058)	(0.060)	(0.059)	(0.059)
Constant	0.361***	0.359***	0.370***	0.343***	0.289***
	(0.025)	(0.045)	(0.056)	(0.056)	(0.062)
Prob > F: (Self-employed x Age 61–66) = (Age ≥ 67 + Self-employed x Age ≥ 67)	0.619	0.630	0.771	0.353	0.225
Observations	3,203	3,203	3,203	3,203	3,203
R^2	0.027	0.039	0.039	0.049	0.067

Note: The results are weighted and adjusted for the sampling design using Stata svy commands. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The coefficients remain stable as we add demographic controls in column 2 but also when controlling for differences in job characteristics in columns 3–5. The results in columns 4 and 5 indicate that labour earnings is positively related to job satisfaction, although the magnitude is very small. However, controlling for income does not have a large impact on how being wage- or self-employed affects job satisfaction for males. *Specification 5* indicates that among males aged 61–66 self-employed individuals now have about 13 percentage point higher probability of being satisfied with their job than wage-employed individuals. Among males aged 67 years or older there is no difference in job satisfaction between the wage- and the self-employed. Although the estimates suggests that self-employed males aged 67 or older have a higher probability of being satisfied with their job than their younger counterparts, this difference is not statistically significant.

The corresponding results for females are presented in Table 6. *Specification 1* shows that self-employed females aged 61–66 are more satisfied with their jobs than wage-employed females in the same age cohort, a difference of about 14 percentage points. Just as for males, there is no difference between self-employed and wage-employed females aged 67 or older. Finally, wage-employed females aged 67 or older are more satisfied with their jobs than wage-employed females aged 61–66, again reflecting that older women who are still wage-employed on the labour market is a selected group. Adding controls for demographic and job characteristics do not change the results.

Table 6: LPM estimates of the probability of being satisfied with the job among self-employed and wage-employed females (standard errors within parentheses)

	(1)	(2)	(3)	(4)	(5)
Self-employed x Age 61–66	0.138***	0.131***	0.152***	0.177***	0.195***
	(0.048)	(0.048)	(0.058)	(0.058)	(0.056)
Self-employed x Age 67 or older	-0.057	-0.060	-0.054	-0.021	-0.008
	(0.075)	(0.075)	(0.071)	(0.073)	(0.073)
Age 67 or older	0.277***	0.273***	0.292***	0.308***	0.309***
	(0.059)	(0.058)	(0.061)	(0.061)	(0.060)
Constant	0.395***	0.377***	0.340***	0.280**	0.280**
	(0.024)	(0.066)	(0.083)	(0.115)	(0.127)
Prob > F: (Self-employed x Age 61–66) = (Age ≥ 67 + Self-employed x Age ≥ 67)	0.218	0.222	0.248	0.136	0.113
Observations	1,564	1,564	1,564	1,564	1,564
R^2	0.049	0.063	0.064	0.070	0.099

Note: The results are weighted and adjusted for the sampling design using Stata svy commands. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Tables 7 and 8 report the results from the estimations of the probability of perceiving the job as mentally straining for males and females, respectively. The unconditional estimates in column 1 in Table 7 show that self-employed males aged 61–66 have an 8 percentage point lower probability of describing their job as mentally straining than do wage-employed males in that age group. Furthermore, self-employed men who are 67 years of age or older have an almost 14 percentage point (–0.08–(–0.013–0.203)) lower probability of reporting that their job is mentally straining than do self-employed males aged 61–66. Wage-employed males aged 67 or older have a lower probability of reporting that their job is mentally straining than do wage-employed males in the age span 61–66, probably reflecting that individuals who perceive their job as mentally straining are leaving the labour market after the retirement age.

Table 7: LPM estimates of the probability of perceiving the job as mentally straining among self-employed and wage-employed males (standard errors within parentheses)

	(1)	(2)	(3)	(4)	(5)
Self-employed x Age 61–66	-0.080**	-0.075**	-0.075**	-0.061*	-0.012
	(0.033)	(0.033)	(0.031)	(0.032)	(0.032)
Self-employed x Age 67 or older	-0.013	-0.013	-0.017	-0.002	0.042
	(0.045)	(0.044)	(0.043)	(0.043)	(0.044)
Age 67 or older	-0.203***	-0.192***	-0.099**	-0.089*	-0.088*
	(0.047)	(0.045)	(0.047)	(0.047)	(0.046)
Prob > F: (Self-employed x Age 61–66) = (Age ≥ 67 + Self-employed x Age ≥ 67)	0.000	0.000	0.202	0.348	0.262
Observations	3,203	3,203	3,203	3,203	3,203
R^2	0.045	0.067	0.120	0.123	0.160

Note: The results are weighted and adjusted for the sampling design using Stata svy commands. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

The estimated difference in the probability of perceiving the job as mentally straining between self-employed and wage-employed individuals aged 61–66 remain fairly stable as we add controls for working hours and labour income, but decreases and becomes statistically insignificant when we control for business line. Controlling for working hours decreases the estimated difference across age groups among the wage-employed. In *Specification 5*, when the full set of controls are added, wage-employed males aged 67 or older have an about 9 percentage point higher probability of perceiving their job as mentally straining compared to wage-employed males aged 61–66. In contrast, when the full set of controls are added there are no statistically significant differences between age groups among the self-employed.

The results for females in Table 8 are consistent with the results for males. *Specification 1* reveals that self-employed females aged 61–66 have an about 11 percentage points lower probability of perceiving their job as mentally straining than do wage-employed females in the same age group. Self-employed females aged 67 years or older have about 17 percentage point (–0.111–(–0.063–0.216)) lower probability of reporting that their job is mentally straining than self-employed females aged 61–66.

Adding for demographic controls does not alter the results. However, just as for males, controlling for job characteristics reduces the estimates in magnitude and they become statistically insignificant. When the full set of controls is added in *Specification 5* there are no differences in the propensity of reporting that the job is mentally straining between self-employed and wage-employed females, or between females in different ages.

Table 8: LPM estimates of the probability of perceiving the job as mentally straining among self-employed and wage-employed females (standard errors within parentheses)

	(1)	(2)	(3)	(4)	(5)
Self-employed x Age 61–66	-0.111**	-0.101**	-0.098**	-0.071*	-0.002
	(0.045)	(0.042)	(0.042)	(0.043)	(0.043)
Self-employed x Age 67 or older	-0.063	-0.080	-0.100	-0.063	0.006
	(0.066)	(0.061)	(0.061)	(0.061)	(0.065)
Age 67 or older	-0.216***	-0.216***	-0.105*	-0.087	-0.076
	(0.055)	(0.053)	(0.057)	(0.056)	(0.055)
Prob > F: (Self-employed x Age 61–66) = (Age ≥ 67 + Self-employed x Age ≥ 67)	0.003	0.000	0.046	0.126	0.192
Observations	1,564	1,564	1,564	1,564	1,564
R^2	0.044	0.099	0.131	0.138	0.184

Note: The results are weighted and adjusted for the sampling design using Stata svy commands. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Our final estimations focus on the probability of perceiving the job as stressful. The unconditional results in column 1 in Table 9 show that self-employed males aged 61–66 have almost an 8 percentage point lower probability of reporting that their job is stressful than wage-employed males in the same age group. Older self-employed individuals have a lower probability of reporting that their job is stressful than do self-employed individuals aged 61–66. The difference amounts to about 24 percentage points (–0.078–(–0.044–0.277)). Wage-employed individuals aged 67 or older have a lower probability of reporting that their job is stressful than wage-employed aged 61–66.

Table 9: LPM estimates of the probability of perceiving the job as stressful among self-employed and wage-employed males (standard errors within parentheses)

	(1)	(2)	(3)	(4)	(5)
Self-employed x Age 61–66	-0.078**	-0.078**	-0.073**	-0.059*	-0.049
	(0.035)	(0.034)	(0.032)	(0.032)	(0.034)
Self-employed x Age 67 or older	-0.044	-0.039	-0.043	-0.028	-0.004
	(0.050)	(0.050)	(0.048)	(0.049)	(0.051)
Age 67 or older	-0.277***	-0.277***	-0.152***	-0.142***	-0.137***
	(0.052)	(0.052)	(0.053)	(0.053)	(0.051)
Prob > F: (Self-employed x Age 61–66) = (Age ≥ 67 + Self-employed x Age ≥ 67)	0.000	0.000	0.000	0.000	0.003
Observations	3,203	3,203	3,203	3,203	3,203
R^2	0.088	0.097	0.181	0.183	0.199

Note: The results are weighted and adjusted for the sampling design using Stata svy commands. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Again controlling for demographics has a minor impact on the results. However, just as for the other job-related outcomes, working hours positively affects the probability of reporting that the job is stressful. Further, being a combiner reduces the probability of reporting that the job is stressful. Thus, combining self-employment and wage-employment seems to reduce stress for older men who remain in the labour market. It is also worth noting that income does not appear to be an important determinant of the probability of perceiving a job as stressful. When the full set of controls is added in *Specification 5* we find that self-employed males aged 67 or older have about 9 percentage point (–0.049–(–0.004–0.137)) lower probability of reporting that their job is stressful than do self-employed males aged 61–66.

The results for females are found in Table 10. *Specification 1* shows that self-employed females aged 61–66 have roughly a 23 percentage point lower probability of reporting that their job is stressful than do wage-employed females in the same age group. Self-employed

females who are 67 years of age or older have an even lower probability of reporting that their job is stressful than do wage-employed females of the same age. This difference amounts to almost 17 percentage points. Among the self-employed, females aged 67 or older have a 25 percentage points (–0.232–(–0.172–0.308)) lower probability than those aged 61–66 to perceive their job as stressful.

Table 10: LPM estimates of the probability of perceiving the job as stressful among self-employed and wage-employed females (standard errors within parentheses)

	(1)	(2)	(3)	(4)	(5)
Self-employed x Age 61–66	-0.232***	-0.224***	-0.191***	-0.159***	-0.148***
	(0.046)	(0.044)	(0.041)	(0.042)	(0.044)
Self-employed x Age 67 or older	-0.172***	-0.180***	-0.199***	-0.159***	-0.129**
	(0.060)	(0.058)	(0.056)	(0.057)	(0.057)
Age 67 or older	-0.308***	-0.307***	-0.127**	-0.107*	-0.101*
	(0.059)	(0.057)	(0.061)	(0.060)	(0.059)
Prob > F: (Self-employed x Age 61–66) = (Age ≥ 67 + Self-employed x Age ≥ 67)	0.000	0.000	0.005	0.025	0.072
Observations	1,564	1,564	1,564	1,564	1,564
R^2	0.114	0.124	0.201	0.209	0.234

Note: The results are weighted and adjusted for the sampling design using Stata svy commands. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

In contrast to males, being a combiner has no effect on a female reporting that her job is stressful. However, working hours, just as for males, have a positive impact. Although the estimates reduce somewhat in magnitude as these job-related controls, including business line, are added in *Specification 5*, we still observe that the self-employed, regardless of age, are less likely than the wage-employed to perceive their job as mentally straining. In the age group 61–66 the difference amounts to 14 percentage point and to about 13 in the older age group. Finally, the age-group differential observed among the self-employed amounts to about 8 percentage point and is statistically significant at the 10-per cent level.

6. Discussion and conclusions

We present results from a unique survey in which we approached self-employed, wage-employed and inactive individuals aged 61 years or older with questions about their life and job satisfaction. The survey data is combined with high-quality register data from Statistics Sweden. A common problem when using survey data is the low response rate. In contrast, with an average response rate of more than 70 per cent this study is highly representative of the sampled population of seniors.

The unconditional results reveal that self-employed males and females aged 61 years or older are more satisfied with their lives than are wage-employed and inactive individuals. Controlling for health-related variables reduces the magnitude of these differences. In fact, differences in health appear to explain most of the observed differences in life satisfaction between the active – self- or wage-employed – and inactive individuals aged 61–66. However, at older ages self-employment appears to be positively associated with life satisfaction, especially in comparison to being inactive.

As regards job satisfaction, we find that self-employed individuals aged 61 to 66 are more satisfied with their jobs than wage-employed individuals in that age group, but there is no difference in job satisfaction between self-employed and wage-employed individuals who are 67 years or older. However, among the wage-employed, those who are 67 years of age or

older are more satisfied with their jobs than are those aged between 61 and 66. This result is almost certainly driven by different types of selections. Individuals aged 67 years or older are often staying on the labour market voluntarily because they are satisfied with their job.

We also explored differences between the self-employed and wage-employed in other measures of job satisfaction, namely whether the job is perceived as mentally straining or stressful. Unconditional differences show that self-employed aged 61–66 are less likely to perceive their job as less mentally straining than do the wage-employed in the same age group. In addition, older self-employed respondents were less likely to report that their job was mentally straining than were younger self-employed respondents. Interestingly, these differences appear to be largely driven by job-related factors. We observe a similar pattern as regards perceiving the job as stressful. However, even when taking differences in job characteristics into account, we observe that older males are less likely than younger males to perceive their job as stressful, whereas female self-employed, regardless of age are less likely than younger women to perceive their job as stressful. Again, we can assume that different types of selections drive the results. A large share of the wage-employed may still be active on the labour market for economic reasons during the years prior to retirement while self-employed individuals more often are active on the labour market because they enjoy working. Further, people who are self-employed during the years prior to retirement may also be more capable than wage-employed individuals of enjoying a flexible working life and are therefore more satisfied with their jobs. Selection effects most certainly also explain why people who are 67 years or older are less likely to find their job mentally straining or stressful. Older individuals who find their job stressful or mentally straining are, to a large extent, leaving the labour market prior to age 67.

Previous research has shown that self-employment generally increases life satisfaction. Our results are in line with previous research findings. However, as always in this kind of research, certain types of selection are in play. Still, we conclude that the results underline the need for a flexible working life in general. In addition, they point at the importance of introducing policies that open up possibilities for elderly people to stay on the labour market as self-employed during the later stages of their working lives. Such policies increase labour supply and life satisfaction among the elderly. Not at least during the years before reaching the mandatory retirement age, self-employment seem to be an attractive opportunity for those who wants to remain active on the labour market.

References

Ahmed A., Andersson, L. and Hammarstedt, M. (2012), 'Does age matter for employability? A field experiment of ageism in the Swedish labour market', *Applied Economics Letters*, **19** (4), 403–406.

Andersson-Joona, P. (2008), 'Happiness and health: Well-being among the self-employed', *Journal of Socio-Economics*, **37** (1), 213–236.

Anxo, D., Ericson, T. and Herbert, A. (2017), 'Därför vill 40-talisterna jobba efter 65', *Ekonoimsk Debatt*, **45** (5), 45–58.

Atchley, R.C. (1971), 'Retirement and leisure participation: Continuity or crisis?', *The Gerontologist*, **11** (1), 13–17.

Atchley, R.C. (1993), 'Continuity theory and the evolution of activity in later life', in J.R. Kelly (ed.), *Activity and Aging: Staying Involved in Later Life*, Thousand Oaks, CA, US: Sage Publications, pp. 5–19.

Bengtsson, T. and Scott, K. (2010), 'The ageing population', in Bengtsson, T. (ed.), *Population ageing – A Threat to the Welfare State?*, Berlin Heidelberg: Springer-Verlag, pp. 7–22.

Benz, M and Frey, B.S. (2004), 'Being independent raises happiness at work', *Swedish Economic Policy Review*, **11** (2), 97–138.

Blanchflower, D.G. (2004), 'Self-employment: more may not be better', *Swedish Economic Policy Review*, **11** (2), 15–73.

Blanchflower, D.G and Oswald, A. (1998), 'What makes an entrepreneur?', *Journal of Labor Economics*, **16** (1), 26–60.

Carlsson, M. and Eriksson, S. (2017), 'The effect of age and gender on labor demand: Evidence from a field experiment", IFAU Working Paper, 2017:8, Uppsala.

Charles, K. (2004), 'Is retirement depressing? Labour force inactivity of psychological well-being in later life', *Research in Labor Economics*, **23**, 269–299.

Drydakis, N., MacDonald, P., Chiotis, V. and Sommers, L. (2017), 'Age discrimination in the UK labour market: Does race moderate ageism? An experimental investigation', *Applied Economics Letters*, **25** (1), 1–4.

Evans, D. and Jovanovic, B. (1989), 'An estimated model of entrepreneurial liquidity constraints', *Journal of Political Economy*, **97** (4), 808–827.

Evans, D. and Leighton, L. (1989), 'Some empirical aspects of entrepreneurship', *American Economic Review*, **79** (3), 519–535.

Henry, W.E. (1971), 'The role of work in structuring the life cycle', *Human Development*, **14** (2), 125–131.

Lahey, J.N. (2008), 'Age, women, and hiring: An experimental study', *Journal of Human Resources*, **43** (1), 30–56.

Luttmer, E. (2005), 'Neighbors as negatives: Relative earnings and well-being', *Quarterly Journal of Economics*, **120** (3), 963–1002.

Miller, S.J. (1965), 'The social dilemma of the aging leisure participant', in A. Rose and W. Peterson (eds), *Older People and Their Social World*, Philadelphia: FA Davis, pp. 77–92.

Neumark, D., Burn, I., and Button, P. (2016), 'Experimental age discrimination evidence and the Heckman critique', *American Economic Review: Papers and Proceedings*, **106** (5), 303–308.

Oswald, A. (1997), 'Happiness and economic performance', *Economic Journal*, **107** (445), 1815–1831.

Poterba, J., Vanti, S. and Wise, D.A. (2013), 'Health, education and the postretirement of household assets', *Journal of Human Capital*, **7** (4), 297–339.

Riach, P.A. and Rich, J. (2010), 'An experimental investigation of age discrimination in the English labour market', *Annals of Economics and Statistics*, **99/1000**, 169–185.

Schuetze, H. and Bruce, D. (2003), 'Tax policy and entrepreneurship', *Swedish Economic Policy Review*, **11**, 233–265.

Shirle, T. (2008), 'Why have the labour-force participation rates of older males increased since the mid-1990s?', *Journal of Labor Economics*, **26** (4), 549–594.

Taylor, M. (2004), 'Self-employment in Britain: When, Who and Why?', *Swedish Economic Policy Review*, **11**, 139–173.

United Nations (2015), *World Population Ageing*, Department of Economic and Social Affairs Population Division, New York.

Zhang, T. (2008), *Elderly entrepreneurship in an aging US economy: It's never too late*, Series on Economic Development and Growth: Volume 2, George Mason University.

Zwan, P., Hessels, J. and Rietveld, C. A. (2015), 'The pleasures and pains of self-employment: A panel data analysis of satisfaction with life, work, and leisure', Tinbergen Institute Discussion Paper 15–099/VII, Tinbergen Institute.

Appendix A

Table A1: Definition of variables used in the regression analysis

Outcome variables		Data source
Life satisfaction	Equals 1 if the individual in the survey answered that he/she often perceive the daily life as a source of personal satisfaction, 0 otherwise.	Survey
Job satisfaction	Equals 1 if the individual in the survey answered that he/she is very satisfied with the job, 0 otherwise.	Survey
Job mentally straining	Equals 1 if the individual in the survey answered that his/her job is mentally straining, 0 otherwise.	Survey
Job stressful	Equals 1 if the individual in the survey answered that his/her job is stressful, 0 otherwise.	Survey
Control variables		
Age	Continuous	LISA
Primary	Equals 1 if the highest completed level of education is primary schooling, 0 otherwise (reference)	LISA
Secondary	Equals 1 if the highest completed level of education is secondary schooling, 0 otherwise	LISA
University	Equals 1 if the highest completed level of education is having any university degree, 0 otherwise	LISA
Married	Equals 1 if the individual is married, 0 otherwise	LISA
Foreign born	Equals 1 if the individual is foreign born, 0 otherwise	LISA
Metropolitan area	Equals 1 if the individual is resident in the metropolitan areas of Stockholm, Gothenburg or Malmö, 0 otherwise	LISA
Disposable income	Equalised using the following formula: annual household disposable income / (1*(number of adults)+0,42*(number of children aged 0–3)+0,52*(number children aged 4–10)).	LISA
Good general health	Equals 1 if the individual assessed their general health as very good or quite good, 0 otherwise	Survey
Fatigue	Equals 1 if the individual answered that he/she had felt fatigue during the last 12 months, 0 otherwise	Survey
Sleeping problems	Equals 1 if the individual answered that he/she had sleeping problems during the last 12 months, 0 otherwise	Survey
Anxiety	Equals 1 if the individual answered that he/she had felt anxious during the last 12 months, 0 otherwise	Survey
Depression	Equals 1 if the individual answered that he/she had been depressed during the last 12 months, 0 otherwise	Survey
Spend time on hobbies	Equals 1 if the individual answered that he/she spend time on hobbies, 0 otherwise	Survey
Parent alive	Equals 1 if the individual answered that any of the parents is alive, 0 otherwise	Survey
Grandchild	Equals 1 if the individual answered that he/she has grandchildren, 0 otherwise	Survey
Working hours	Total number weekly working hours in self-employment and/or wage-employment, continuous.	Survey
Combiner	Equals 1 if the individual has reported non-zero working hours as both self-employed and wage-employed, 0 otherwise	Survey
Income group 1–4	Based on labour earnings the self-employed and wage-employed are divided into four quantiles. Income group 1 comprises individuals with negative or very labour low earnings. Income group 4 comprises the (25 per cent) individuals with the highest labour earnings. Income group i equals to 1 if the individual belong to that group, and 0 otherwise, where $i = 1, \ldots, 4$. Income group 1 is the reference.	LISA
Business line	We use the following business lines: 1) agriculture, foresting and fishing, 2) Manufacturing, 3) Construction, 4) Trade, 5) Information and communication, 6) Transport and warehousing, 7) Finance, insurance and business services, 8) Education, 9) Health care and social services, 10) Art, entertainment, and recreation, 11) Services or 12) other business lines. Other business lines also comprise individuals with no categorized business line. Business line 1 is the reference.	LISA