Determinants of early retirement in Denmark. An empirical investigation using SHARE data

by

Oke Gerke

and

Jørgen T. Lauridsen

Discussion Papers on Business and Economics
No. 4/2013
2nd edition

FURTHER INFORMATION
Department of Business and Economics
Faculty of Social Sciences
University of Southern Denmark
Campusvej 55
DK-5230 Odense M
Denmark

Tel.: +45 6550 3271
Fax: +45 6550 3237
E-mail: lho@sam.sdu.dk
http://www.sdu.dk/ivoe

ISBN 978-87-91657-88-7

Determinants of early retirement in Denmark. An empirical investigation using SHARE data.

Oke Gerke[1,2] *and Jørgen T. Lauridsen*[1]

[1] *Centre of Health Economics Research (COHERE), Department of Business and Economics, University of Southern Denmark*

[2] *Corresponding author: Campusvej 55, DK-5230 Odense M, Denmark, oge@sam.sdu.dk*

Abstract

This study aimed at determining the factors of early retirement in Denmark by making use of longitudinal panel data from the *Survey of Health, Ageing and Retirement in Europe* (SHARE). The outcome variable of interest was the self-assessed employment situation at the time of the interview. The binary outcome retired/not retired was regressed on covariate data from the preceding wave, thereby modeling potential factors contributing to a later decision to retire. There were 651 eligible observations, of which 160 (24.6%) participants took early retirement. The strongest factors encouraging early retirement were unemployment, inadequate support in difficult work situations, the use of drugs the week before the interview (for high cholesterol, high blood pressure and other medical conditions), and the existence of grandchildren, whereas greater reluctance to retire early was found in participants who had a chronic illness or disability, a feeling of sadness or depression during the month before the interview, at least one natural parent still alive, higher expectations of the government raising the retirement age, and better grip strength.

Keywords: Denmark, early retirement, working conditions, health, social networks, pensions

JEL Classifications: J2; J21; J22; J26; J28; C2; C23

Introduction

Population demographics in Western industrialized countries are shifting, with societies growing ever older due to constantly improving medical care and disease prevention. In combination with stagnating or even decreasing fertility rates, the proportion of people out of the workforce is rising over time, thus increasing the societal burden of financing public pensions (World Bank, 1994). This phenomenon has led to various pension reforms and the raising of the pension age in several European countries in recent decades, and extending the participation of older people (aged 55+) in the labor market has become an important target of European social policy ('Lisbon Strategy'). Although Denmark came in third in Europe in 2010 with its employment rate of 57.6% in 55- to 64-

year-olds (Sweden: 70.5%, Germany: 57.7%) (Wozowczyk & Massarelli, 2011), there is still room for improvement of its utilization of unused capacity and experience.

Previous register-based research has indicated that patterns of early retirement are far more complex than originally thought (Oksanen & Virtanen, 2012; Jensen & Andersen, 2011; Hofaecker, 2010; Ebbinghaus, 2006; Jensen, 2005), and political instruments such as Denmark's stepwise abolishment of the so-called 'efterløn' (collective agreement on early retirement) are suspected merely to lead the elderly to choose such options as 'førtidspension' (early retirement due to, for example, chronic illness) or 'dagpenge' (social benefits), but not to continue their active participation in the labor market (Kohli & Rein, 2009; Højgaard & Andersen, 1998). Moreover, a paradigm shift has been observed since the late 1990s: whereas in the past early retirement was considered involuntary and an exclusion from the workforce (and thereby from society), it is now more a voluntary choice on the part of the employee, the idea being that he or she will to be able to put the time to better use than when working to an age of over 60 (Andersen & Jensen, 2011; Bingley & Lanot, 2007; Pedersen, 2003; Gruber & Wise, 1999; Inglehart, 1997; Baltes & Carstensen, 1996; Maule, Cliff, & Taylor, 1996; Featherstone & Hepworth, 1995). There is no consensus in the literature about what promotes or discourages early retirement, for example, about the degree of voluntariness involved, factors of supply and demand, individual or structural factors, or the level that primarily influences the decision (labor force (macro) versus company (meso) versus employee (micro)) (Kohli & Rein, 2009; Jensen, 2011; Philipson, 2007).

The *Survey of Health, Ageing and Retirement in Europe* (SHARE) has been conducted since 2004. It is a longitudinal, multidisciplinary, and cross-national panel database of micro data on health, socio-economic status, and social and family networks and has data on more than 55,000 individuals aged 50 or over (SHARE homepage). Participants from twenty countries contributed data to waves 1, 2, 3, and 4 in the years 2004, 2006, 2008/09, and 2010/11, respectively. The participating countries are a balanced representation of the various regions in Europe, ranging from Scandinavia through Central Europe to the Mediterranean. Denmark has been part of this study from the very beginning. The SHARE survey is supposed to continue up to the year 2022 and include six further waves: waves 5 to 10.

SHARE has been harmonized with both the U.S. Health and Retirement Study (HRS) and the English Longitudinal Study of Ageing (ELSA), and there are studies in Japan, Korea, China and India that also follow the SHARE model. Previous results on early retirement based on SHARE data were inferred from waves 1 and 2 (Brugiavini, Croda, & Mariuzzo, 2005; Brugiavini, 2008). We make use of the longitudinal nature of the study by relating the retirement decisions made in a later wave to the information provided in the respective preceding wave. The purpose of this study

is to illuminate the potential of SHARE for investigating the determinants of early retirement in Denmark and to discuss its limitations for such investigations.

Methods

Data

SHARE data are freely accessible to researchers at scientific institutions who undertake to use the data for scientific research only. A disclaimer and an acknowledgement are mandatory in every publication making use of SHARE data. Waves 1 to 4 have been officially released and are publicly available (version 2.5.0, version 2.5.0, version 1.0, and version 1.0, respectively).

Wave 3 (SHARELIFE) focused on people's life histories and employed a method of questioning based on a so-called life history calendar. The respondent's life was represented graphically by a grid that was filled automatically in the course of the interview. This study used data from waves 1, 2, and 4 but not from wave 3, as its data structure and content is completely different from that of the other three waves.

Participants were included in our analyses if they (a) provided outcomes data to two consecutive waves, (b) thereby contributed to the covariates data from the earlier of those two waves, (c) were not retired at the time of the earlier wave, and (d) were at least 58 years of age, but younger than their retirement age at the time of the interview for the later wave.

Outcomes

The outcome variable of interest is the self-assessed employment situation in the employment and pensions panel (ep005_) at the time of the interview. The available categories were: 1. Retired, 2. Employed or self-employed (including working for family business), 3. Unemployed, 4. Permanently sick or disabled, 5. Homemaker, 97. Other. The outcome categories were dichotomized to 'retired' versus 'not retired'. Missing data were not imputed.

Covariates

SHARE data from waves 1, 2, and 4 comprised 26 panels, of which the following were used here: activities, assets, behavioral risks, children, cognitive function, consumption, demographics, employment and pensions, expectations, financial transfers, grip strength, health care, household income, housing, mental health, physical health, respondent coverscreen, social support, and walking speed. Due to the use of dummy variables, the number of variables in the panels was quite inflated (e.g. 602 variables in the employment and pensions panel of wave 2). A preselection of

variables was carried out manually. Then the information was condensed to fewer variables by accumulating information from dummy variables and reducing the number of answer categories when the options were to choose on a five-point Likert scale, for instance, in question 44 (PH044_) on eyesight reading in the physical health panel: how good is your eyesight for seeing things up close, like reading ordinary newspaper print (using glasses or contact lenses as usual)? The categories '1. Excellent', '2. Very good', '3. Good', '4. Fair', and '5. Poor' were reduced to 'at least good' versus 'fair or poor'. Ninety-three variables entered the modeling stage. Imputation of missing data was done in a conservative manner. For example, the question 'Do you smoke at the present time?' had to be answered with 'yes' or 'no', and missing values were imputed to 'no' since smoking may (or may not) induce health issues supporting early retirement. Conservative imputation of missing values increased the number of observations used in the regression modeling.

Empirical estimation

The binary outcome 'retired' versus 'not retired' in the later of two consecutive waves was regressed on the covariates in a two-step procedure. First, logistic regression was applied with the 'stepwise' variable selection procedure to reduce the number of independent variables to those of primary interest. Variables entered the model and stayed in the model when significant at the 5% and 10% significance levels. These variations were performed in order to assess other potentially importing factors which failed significance at the 5% level. The Hosmer Lemeshow Goodness-of-Fit test was applied, and index plots of the Pearson residuals and the deviance residuals were investigated. Second, logistic regression for panel data (the SURVEYLOGISTIC procedure in SAS) was applied to the condensed models resulting from the first step in order to adjust for interdependencies in the data due to the potential contribution of participants to all three waves (1, 2, and 4). Results are presented as odds ratios (OR) and respective 95% confidence intervals (95% CI).

All analyses were performed using SAS 9.1.3 (SAS Institute Inc., Cary, NC, USA).

Results

Sample characteristics

The Danish SHARE data in waves 1, 2, and 4 comprised 1707, 2616, and 2276 observations, respectively. Limiting eligible observations as outlined above in the 'Data' section led to an analysis set comprising 651 observations. Of these, 225 (34.4%) stem from waves 1 & 2, and 426 (65.4%) from waves 2 & 4 (Table 1). Fifty-three percent of the participants were female; forty-seven percent were male. The average age was 61.2 years, with a range from 58.0 to 66.1 years.

Fifty percent of the participants were married and living together with their spouse. Twenty-six percent had attended (upper) secondary education, and one-third took the first stage of a tertiary education (not leading directly to an advanced research qualification).

Participants are generally invited to take part repeatedly in SHARE investigations. In this analysis set, seventy-one percent of the households contributed data from one household member and twenty-three percent from two household members (i.e. couples) to two consecutive waves (either waves 1 & 2 or 2 & 4). Five percent of the households provided data from two household members with one participating in two waves and the other in three waves. And, finally, less than one half percent of the households supplied data from two household members to waves 1, 2, and 4.

Table 1: Demographics

Variable	Category	Descriptive statistics
Number of observations	Total	651 (100%)
	Waves 1 & 2	225 (34.6%)
	Waves 2 & 4	426 (65.4%)
Sex	Female	345 (53.0%)
	Male	306 (47.0%)
Mean age (range)		61.2 (58.0, 66.1)
Marital status	Married, living together with spouse	329 (50.5%)
	Registered partnership	1 (0.15%)
	Married, living separated from spouse	4 (0.6%)
	Never married	27 (4.2%)
	Divorced	65 (10.0%)
	Widowed	30 (4.6%)
	Missing values	205 (31.5%)
International Standard Classification of Education (ISCED 1997)	Primary education (first stage of basic education)	25 (3.8%)
	Lower secondary education (second stage of basic education)	21 (3.2%)
	(Upper) secondary education	171 (26.3%)
	First stage of tertiary education (not leading directly to an advanced research qualification)	215 (33.0%)
	Missing values	219 (33.6%)
Household contributions	One person to two consecutive waves (1 & 2 or 2 & 4)	345 (71.3%)
	Two persons to two consecutive waves	113 (23.4%)
	One person to two consecutive waves and one person to waves 1, 2, and 4	24 (4.9%)
	Two persons to waves 1, 2, and 4	2 (0.4%)

Multivariate analyses

Of the 651 observations in the analysis set, 160 (24.6%) were retired at the time of the later of two consecutive waves. Those who were unemployed were 4.1 times more likely to retire early than those who were employed or self-employed (95% CI: 2.1 to 8.3, p=0.006) (see Table 2, first four columns from left to right). The odds for early retirement of the group of permanently sick or disabled were only one fifth of those for the group of employed or self-employed (95% CI: 0.08 to 0.7, p=0.005). People who did not receive adequate support in difficult work situations were 1.9

times more likely to retire early than those who did (95% CI: 1.2 to 3.2, p=0.01). Participants who had taken at least one of fourteen listed drugs the week preceding the interview (i.e. drugs for high blood cholesterol, high blood pressure, heart disease, asthma, diabetes, joint pain or inflammation, sleep problems, anxiety or depression, osteoporosis, stomach burns, or chronic bronchitis) were 1.7 times more likely to retire early than those who had not used any of the listed drugs the week before (95% CI: 1.1 to 2.5, p=0.009). Every additional grandchild increased the odds of early retirement, on average, by 19% (95% CI: 1.10 to 1.29, p<0.0001). A higher expectation of the government raising the retirement age was associated with a greater reluctance to retire early, as was better grip strength (OR: 0.985, p<0.0001 and OR: 0.973, p=0.0007, respectively). Responders who were sad or depressed during the month prior to the interview were three fifths as likely to retire early as those who were not (95% CI: 0.4 to 0.9, p=0.01). Finally, responders who still had at least one parent alive were half as likely to retire early as those whose parents had both already died by the time of the interview (95% CI: 0.3 to 0.7, p=0.0005).

Table 2: Factors of early retirement

Factor	Factor level	Significance level at which variables entered and stayed in the model			
		5%		10%	
		Odds ratio (95% CI)	P-value	Odds ratio (95% CI)	P-value
Current job situation	Employed or self-employed (reference)				
	Unemployed	4.1 (2.1, 8.3)	0.006	4.2 (2.1, 8.4)	0.007
	Permanently sick or disabled	0.2 (0.08, 0.7)	0.005	0.2 (0.06, 0.7)	0.006
	Homemaker	1.2 (0.3, 5.6)	0.88	1.2 (0.3, 5.4)	0.90
	Other	1.4 (0.07, 27.4)	0.85	1.5 (0.07, 32.2)	0.81
Receiving support in difficult work situations	Strongly agree or agree (reference)				
	Disagree or strongly disagree	1.9 (1.2, 3.2)	0.01	2.1 (1.2, 3.5)	0.007
Number of grandchildren		1.19 (1.10, 1.29)	<0.0001	1.18 (1.09, 1.28)	<0.0001
Government raising retirement age		0.985 (0.978, 0.992)	<0.0001	0.985 (0.978, 0.992)	<0.0001
Grip strength		0.973 (0.958, 0.989)	0.0007	0.971 (0.955, 0.987)	0.0003
Sad or de-pressed a month before	No (reference)				
	Yes	0.6 (0.4, 0.9)	0.01	0.6 (0.4, 0.9)	0.02
Appetite	No diminution in desire for food (reference)				
	Diminution in desire for food			0.2 (0.05, 1.04)	0.06
Use of drugs a week before	No (reference)				
	Yes, at least one	1.7 (1.1, 2.5)	0.009	1.7 (1.1, 2.5)	0.01
Hearing (using a hearing aid as usual)	At least good (reference)				
	Fair or poor			1.9 (1.09, 3.3)	0.02
Reading	At least good (reference)				
	Fair or poor			3.0 (0.96, 9.7)	0.06
Natural parents alive	No (reference)				
	Yes, at least one	0.5 (0.3, 0.7)	0.0005	0.5 (0.3, 0.7)	0.0004

In order to explore further variables which may have been missed, the significance level at which the variables entered and stayed in the model during the stepwise variable selection procedure was set additionally to 10%. The influence of the previously mentioned variables was virtually the same as before, and three new variables entered the condensed model (Table 2, last two columns from left to right). Participants with a diminution in the desire for food were one fifth as likely to retire early as people with no diminution in the desire for food (95% CI: 0.05 to 1.04, p=0.06). Responders who could hear only fairly or poorly (with a hearing aid if they normally used one) were 1.9 times more likely to retire early than those who assessed their hearing to be at least good (95% CI: 1.09, 3.3, p=0.02). And, lastly, participants who judged their reading skills to be fair or poor were 3 times more likely to retire early than those who thought their reading skills to be at least good (95% CI: 0.96 to 9.7, p=0.06).

Discussion

The factors leading to a decision to retire early are complex and multidimensional. The dimensions involved are health, financial means (income, assets, public transfers), social networks, and work situation. Poor health supports the decision to take early retirement (Christensen & Kallestrup-Lamb, 2012; Dyreborg, Hannerz, Tüchsen, & Spangenberg, 2010; Sell, 2009), but health and retirement are also linked bidirectionally (Oksanen & Virtanen, 2012). Financial incentives need to be assessed in relation to marital status as the decision to retire early is supposedly a household decision (Bingley & Lanot, 2007; Friis, 2011; Bingley & Lanot, 2004). Physical and psychosocial exposures in the work environment were found earlier to be driving factors for older employees to opt for an early labor market exit (Lund & Villadsen, 2005). There are numerous pathways to early retirement (Larsen & Pedersen, 2008), which includes partial retirement as well (Delsen, 1996).

Our investigation of the determinants of early retirement, based on the Danish SHARE data from waves 1, 2, and 4, indicated that being unemployed, not receiving adequate support in difficult work situations, having grandchildren, and taking drugs the week before the interview were the main drivers for early retirement, whereas greater reluctance to retire early was observed in those who had a chronic illness or disability, a feeling of sadness or depression during the month prior to the interview, at least one natural parent still alive, higher expectations of the government raising the retirement age, and better grip strength. Exploring additional factors by loosening entry and stay significance criteria to 10% instead of 5% indicated a decision for early retirement to a larger extent amongst those with limited hearing skills in spite of their using a hearing aid and those with limited reading skills, whereas a diminution in the desire for food was associated with a lower early retirement rate. All of these factors are part of the dimensions of health, social networks, and work situation, and they confirmed earlier findings that the decision to retire early is complex and multi-

dimensional. However, our study did not corroborate earlier findings of a gender difference (i.e. the case of women often being married to older men and therefore more open to early retirement so as to be able to enjoy more time together with the retired partner), nor did it reveal interrelationships between economic factors such as income, assets, and public transfers on the one hand and early retirement on the other. A likely reason for this is the comparably large proportion of missing data on asset variables such as 'amount of money owed' (e.g. for a mortgage), for which two thirds of the data were missing. In other studies it was discovered that the availability and/or generosity of retirement programs, e.g. employment and unemployment insurance benefits, was important for an early retirement decision motivated by financial considerations, while personal reasons seemed to be at least as important for early retirement decisions through other pathways (Larsen & Pedersen, 2008).

The strengths of the SHARE data lie in their multidimensional reach to various areas of the lives of Europeans aged 50 and above from 20 European countries, thereby allowing cross-national comparisons within Europe and, due to harmonization, comparisons with studies in the U.S.A. (HRS), Great Britain (ELSA), and across other areas of the world. Moreover, the longitudinal nature of SHARE makes it possible, in principle, to investigate trends over time. Regarding the Danish part of the study, the number of available observations limits the statistical power for such investigations, but pooling data from several waves (while accounting for the inherent correlation structure within the data (same respondents in several waves, some respondents living together in the same households)) enables analyses as performed here. Challenges still remain concerning the derivation of interesting variables and the imputation of missing data because conventional multiple imputation procedures make use of the assumption of multivariate normal distributions. While this assumption is inappropriate for discrete choice questions on five-point Likert scales or questions with yes/no answers, as mostly found in SHARE, its application is also controversial for right-skewed distributions of continuous amount data such as income or debts. The imputation of missing categorical data is, on the other hand, still controversially discussed in the literature. However, using data from Danish registries to validate SHARE data will enhance the data quality of SHARE in the future, thereby extending its possibilities for exploring the determinants of early retirement. In the same way, determinants of the decision to stay in the workforce beyond retirement age will be a subject for further research based on SHARE data.

Conclusion

Due to their richness, SHARE data offer various research opportunities, but need to be used with care with respect to the derivation of explanatory variables and the handling of missing data. This

study showed work-related as well as health- and family-related factors of early retirement, whereas a connection to income, assets, or public transfers could not be established.

Disclaimer and Acknowledgments

This paper uses data from SHARE wave 4 release 1, as of November 30th 2012 or SHARE wave 1 and 2 release 2.5.0, as of May 24th 2011 or SHARELIFE release 1, as of November 24th 2010. SHARE data collection is funded primarily by the European Commission through the 5th Framework Programme (project QLK6-CT-2001-00360 in the thematic Quality of Life programme), the 6th Framework Programme (projects SHARE-I3, RII-CT-2006-062193, COMPARE, CIT5-CT-2005-028857, and SHARELIFE, CIT4-CT-2006-028812), and the 7th Framework Programme (SHARE-PREP, N° 211909, SHARE-LEAP, N° 227822 and SHARE M4, N° 261982). Additional funding from the U.S. National Institute on Aging (U01 AG09740-13S2, P01 AG005842, P01 AG08291, P30 AG12815, R21 AG025169, Y1-AG-4553-01, IAG BSR06-11 and OGHA 04-064), the German Ministry of Education and Research and various national sources is gratefully acknowledged (see www.share-project.org for a full list of funding institutions). Moreover, the authors would like to thank their colleague Karen Andersen-Ranberg (Country Team Leader for SHARE-Denmark) for maintaining Denmark's contribution to SHARE and for her support.

References

Andersen, J.G., & Jensen, P.H. (2011). Tidlig tilbagetrækning fra arbejdsmarkedet – udfordringer og perspektiver. In: Andersen, J.G., & Jensen, P.H. (eds.). *Tilbagetrækning fra arbejdsmarkedet – årsager og effekter* (pp. 11-33). Frederiksberg: Frydenlund Academic.

Baltes, M.M., & Carstensen, L.L. (1996). The process of successful aging. *Ageing and Society, 16,* 397-422.

Bingley, P., & Lanot, G. (2004). Employer pay policies, public transfers and the retirement decisions of men and women in Denmark. *European Economic Review, 48*, 181-200.

Bingley, P., & Lanot, G. (2007). Public pension programmes and the retirement of married couples in Denmark. *Journal of Public Economics, 91,* 1878-1901.

Brugiavini, A., Croda, E., & Mariuzzo, F. (2005). Labour force participation of the elderly: unused capacity? In: Börsch-Supan, A., Brugiavini, A., Juerges, H., Mackenbach, J., Siegrist, J., & Weber, G. (eds.). *Health, ageing and retirement in Europe: first results from the Survey of Health, Ageing and Retirement in Europe* (pp. 236-240). Mannheim: MEA.

Brugiavini, A. (2008). Work and retirement. In: Börsch-Supan, A.. Brugiavini, A., Juerges, H., Kapteyn, A., Mackenbach, J., Siegrist, J., & Weber G (eds.). *First results from the Survey of Health, Ageing and Retirement in Europe (2004-2007) – starting the longitudinal dimension* (pp. 205-270). Mannheim: MEA.

Christensen, B.J., & Kallestrup-Lamb, M. (2012). The impact of health changes on labor supply: Evidence from merged data on individual objective medical diagnosis codes and early retirement behaviour. *Health Economics, 21 (supplement 1),* 56-100.

Delsen, L. (1996). Gradual retirement: Lessons from the Nordic countries and the Netherlands. *European Journal of Industrial Relations, 2,* 55-67.

Dyreborg, J., Hannerz, H., Tüchsen, F., & Spangenberg, S. (2010). Disability retirement among workers involved in large construction projects. *American Journal of Industrial Medicine, 53,* 596-600.

Ebbinghaus, B. (2006). *Reforming early retirement in Europe, Japan and the USA*. Oxford: Oxford University Press.

Featherstone, M., & Hepworth, M. (1995). Images of positive aging. In: Featherstone, M., & Wernick, A. (eds.). *Images of aging* (pp.27-46). London: Routledge.

Friis, K. (2011). Det er så yndigt at følge ad: Tilbagtrækningen fra arbejdsmarked set i et husstandsperspektiv. In: Andersen, J.G., Jensen, P.H. (eds.). *Tilbagetrækning fra arbejdsmarkedet – årsager og effekter* (pp. 137-158). Frederiksberg: Frydenlund Academic.

Gruber, J., & Wise, D.A. (1999). *Social security and retirement around the world*. Chicago: Chicago University Press.

Hofaecker, D. (2010). *Older workers in a globalizing world: an international comparison of retirement and late-career patterns in Western industrialized countries*. Cheltenham: Edward Elgar.

Husemoen, L.L.N., Osler, M., Godtfredsen, N.S., & Prescott, E. (2004). Smoking and subsequent risk of early retirement due to permanent disability. *European Journal of Public Health, 14,* 86-92.

Højgaard, J., & Andersen, D.B. (1998). *Ældre og velfærdssamfundet.* Copenhagen: Ældre Sagen.

Inglehart, R. (1997). *Modernization and postmodernization: cultural, economic, and political change in 43 societies*. Princeton: Princeton University Press.

Jensen, P.H. (2005). Reversing the trend from 'early' to 'late' exit: Push, pull and jump revisited in a Danish context. *Geneva Papers on Risk and Insurance: Issues and Practice, 30,* 656-673.

Jensen, P.H. (2011). Aldring og arbejde – en begrebsramme. In: Andersen, J.G., & Jensen, P.H. (eds.). *Tilbagetrækning fra arbejdsmarkedet – årsager og effekter* (pp. 35-56). Frederiksberg: Frydenlund Academic.

Jensen, P.H., & Andersen, J.G. (2011). Årsager til og effekter af tilbagetrækningen fra arbejdsmarkedet. In: Andersen, J.G., & Jensen, P.H. (eds.). *Tilbagetrækning fra arbejdsmarkedet – årsager og effekter* (pp. 281-289). Frederiksberg: Frydenlund Academic.

Kohli, M., & Rein, M. (2009). The changing balance of work and retirement. In Kohli, M., Rein, M., Guillemard, A.M., & van Gunsteren, H. (eds.). *Time for retirement – comparative studies of early exit from the labour force* (pp. 1-35). Cambridge: Cambridge University Press.

Larsen, M., & Pedersen, P. (2008). Pathways to early retirement in Denmark, 1984-2000. *International Journal of Manpower, 29,* 384-409.

Lund, T., & Villadsen, E. (2005). Who retires early and why? Determinants of early retirement pension among Danish employees 57-62 years. *European Journal of Ageing, 2,* 275-280.

Maule, A.J., Cliff, D.R., & Taylor, R. (1996). Early retirement decisions and how they affect later quality of life. *Ageing and Society, 16,* 177-204.

Oksanen, T., & Virtanen, M. (2012). Health and retirement: A complex relationship. *European Journal of Ageing, 9,* 221-225.

Pedersen, P.J. (2003). Golf eller arbejde? In: Smith, N., Pedersen, P.J., Pedersen, S., & Schultz-Nielsen, M.L.. *Fra mangel på arbejde til mangel på arbejdskraft* (pp. 147-176). Copenhagen: Spektrum.

Philipson, C. (2007). Is extending work life possible? In: Loretto, W., Vickerstaff, S., White, P. (eds.). *The future for older workers – new perspectives* (pp. 185-201). Bristol: Policy Press.

SHARE homepage. The Survey of Health, Ageing and Retirement in Europe. http://www.share-project.org/. Last accessed February 08, 2013.

Sell, L. (2009). Predicting long-term sickness absence and early retirement pension from self-reported work ability. *International Archives of Occupational and Environmental Health, 82,* 1133-1138.

World Bank (1994). *Averting the old age crisis.* Oxford: Oxford University Press.

Wozowczyk, M., & Massarelli, N. (2011). Population and social conditions. http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-SF-11-030/EN/KS-SF-11-030-EN.PDF. Last accessed November 07, 2012.