

The effect of retirement on health: a panel analysis using data from the Swiss Household Panel

Stefania Mojon-Azzi^a, Alfonso Sousa-Poza^b, Rolf Widmer^c

^a Research Institute for Labour Economics and Labour Law, University of St. Gallen, Switzerland

^b Department of Economics and Research Institute for Labour Economics and Labour Law, University of St. Gallen, and Swiss Association for Demographic and Intergenerational Issues, Switzerland

^c Department of Economics, University of St. Gallen, Switzerland

Summary

Questions under study: Despite the importance of the relationship between retirement and health only a limited amount of empirical research has addressed this issue, particularly concerning physical health. This study examines whether retirement has a short-term influence on six health measures.

Methods: Using data from the Swiss Household Panel from 1999 to 2003, we perform an ordinal regression on changes in health for each of the six health measures.

Results: We found that retirement has no short-term effect on the health of the large majority of

individuals. Moreover, for those individuals whose health status did change, retirement had a primarily positive effect. This positive impact of retirement is mainly reflected by less frequent depression and anxiety, and by the lower degree to which health is an impediment in everyday activities.

Conclusions: The positive changes in health after retirement may be due to the cessation of work-related stress and to an increase in physical and leisure activities.

Key words: retirement; health; Switzerland; SHP

Introduction

Retirement marks a new phase in the life of most individuals. Although many view this post-employment phase as a time of leisure and relaxation, it is often also associated with an abrupt change in lifestyle that can have a negative impact on health [1]. In older literature retirement was traditionally regarded as a stressful event with a potentially negative effect on health [2]. Drentea explains that this perspective regards work as empowering and retirement as demoralising because pensioners miss employment benefits like greater social and economic power and social attachment. A second perspective sees retirement as beneficial to health because it liberates pensioners from alienating work and allows them more autonomy to pursue their own interests [3]. More recent studies consistently indicate that withdrawal from the labour force has no adverse effect on most people's health. Despite the topic's importance, only a limited amount of empirical research has addressed the relationship between retirement and physical health. Studies on the effect of retirement on health were mainly performed in North America. This is the only Swiss study and

one of the very few European studies on this subject. Recent research has concentrated on analysing the role that health plays in the retirement decision, mainly because of the large increase in the number of individuals choosing early retirement [1, 4–6].

Previous research shows a mainly positive impact of retirement on psychological health. Drentea shows retirement to be associated with a decrease in anxiety and distress and an increase in life satisfaction and optimism, but with a lower sense of control [3]. Salokangas and Joukamaa also conclude that retirement could have positive effects on mental health [7]. Mein et al. find retirement to be associated with an improvement in mental health [4]. This improvement is observed particularly among high socio-economic status groups [8]. Midanik et al. find that retired persons had lower stress levels and were engaged in more frequent regular exercise. They find no differences with regard to mental health, coping, depression, smoking, alcohol consumption and frequency of drunkenness [9]. Tuomi et al. observed very few changes in mental diseases after retire-

ment [10]. Szinovacz and Davey highlight the importance of the type of retirement showing that for women depressive symptoms increased when retirement was abrupt and perceived as too early or forced. No similar effect was found for men [11]. The results of Gall et al. support a positive impact of retirement on well-being for male retirees during the first year and a retirement adjustment process with further changes in well-being during the following 5–6 years [12]. Reitzes et al. found a positive effect of retirement on self-esteem and depression (lower depression scores) independent of social background characteristics, pre-retirement worker-identity meanings, and past self-esteem or depression [13]. Kim and Moen also suggest a positive relationship between retirement and well-being for men during the first 2 years after retirement but question the favourable long-term effects of being retired suggesting that retirement is not simply a state but a complex process. Particularly for men after retirement the general satisfaction with life seems to increase, but being retired – as opposed to moving

to retirement – may lead to an increase in depressive symptoms [14]. Butterworth et al. report lower rates of mental disorders for some but not for all older age groups, indicating that the relationship between retirement and mental health varies with age [15]. Warr et al. found better well-being in those individuals who wanted to be in their current role, mainly in early-retired and late-employed persons [16].

Literature on the effects of retirement on physical health is scarce. Salokangas and Joukamaa [7] and Mein et al. [4, 8] show no significant effects of retirement on physical health. Tuomi et al. identify different effects of retirement on health status among the occupational groups analysed, particularly between physically more and less demanding jobs [10].

The aim of this study is to assess whether or not retirement has a short-term effect on self-report measures of physical and mental health and whether this effect differs depending on the time chosen for retirement (early or regular retirement).

Material and methods

Study population

The Living in Switzerland Survey of the Swiss Household Panel (SHP) is an annual panel of households and individuals from all regions and population groups of Switzerland. The sample was drawn at random from the Swisscom's electronic telephone directory that covers 98% of all private households. At the first interview in 1999 the net household response rate was 64%, meaning, that 36% of the contacted households did not participate in the study [17]. The SHP includes 5 waves (1999–2003) to which a total of 1,368 persons aged 55 years or older (56% of 2,461 persons answering the questionnaire in 1999) responded on each occasion (figure 1), and provides a detailed account of employment status, as well as information about respondents' health and socioeconomic status [17]. For our study, we analysed data for all individuals aged 55 to 75 years who were working at the time of the first interview in 1999 and had either continued working or retired between 1999 and 2003. The

retired respondents could choose between the groups “retired due to old age” and “retired for other reasons, such as disability or severe illness”. We only retained individuals who retired due to old age. Persons who died during the analysed time period or were lost to follow-up over time were excluded from the analysis. After this selection our sample included 696 eligible individuals. 80% of them (557) answered the health section of the questionnaire for the selected years, 72% of eligible men (47 retired and 259 working men) and 93% of eligible women (36 retired and 215 working women). All their responses are retained in our analysis (figure 1).

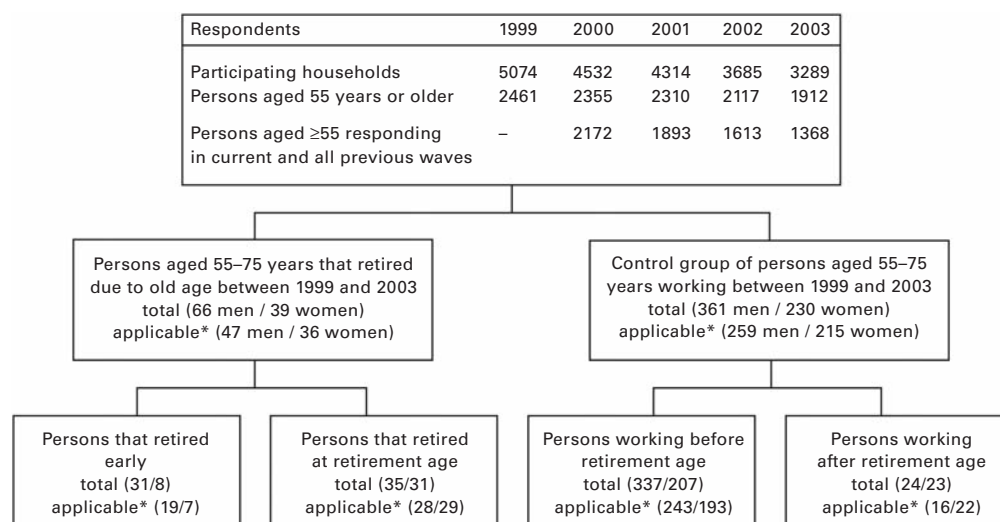
Measures

We analysed the effects of retirement on six health measures. One of them, (1) self-stated changes in general health during the last 12 months (from 0 = greatly improved to 10 = greatly worsened), could be directly drawn from the questionnaire of the year following retirement.

Figure 1

Study population and subgroups.

* applicable persons are persons who answered the health section of the questionnaire



The other five health measures had to be calculated with the help of the panel as the difference between health at baseline and at follow-up. For retired persons explanatory variables and health measures were drawn from the questionnaires administered the year before and the year following retirement respectively. For working persons they were drawn from questionnaires administered during a randomly selected year (baseline) and the year following (follow-up). For the random selection, a uniform distribution between 1 and 4 was applied to the years 1999–2002. The self-report health measures at baseline and follow-up include (2) general health status (1 = very well, 2 = well, 3 = average, 4 = not very well, 5 = not well at all), (3) satisfaction with general health status (from 0 = completely satisfied to 10 = not at all satisfied), (4) the frequency of negative feelings such as depression or anxiety (from 0 = never to 10 = always), (5) the extent to which health impedes everyday activities like housework or leisure activities (from 0 = not at all to 10 = a great deal), and (6) the degree to which medication is needed to function in everyday life (from 0 = not at all to 10 = a great deal). The change in health status is calculated as the difference between health at baseline and health at follow up.

For descriptive purposes only (table 1) the change in health status for the six health measures was reduced into three categories: change from baseline to a better status at follow up (improved health), no change between health at baseline and health at follow up (unchanged health), and change to a worse health status at follow up (worsened health).

This study includes two measures for general health. The first is based on the change between the reported general health status at baseline and at follow-up. The second is the self stated change in the last 12 months reported at follow-up. Choi explains that differences between these two measures result because individuals do not accurately remember how they felt a year earlier, and because the assessment of temporal changes in health status is primarily influenced by functional disabilities, especially when the symptoms of chronic illnesses are contained [18].

The explanatory variables include sex, general health at baseline, highest level of education achieved, occupation class, years from official retirement, and employment status. The variable “years from official retirement” was obtained by subtracting the age at follow up from the official retirement age of 65 for men and 62 (for the years before 2001) or 63 (for the years following 2001) for women. It gives the number of years above or below the age at which the individual could officially retire. General health at baseline includes the levels very well, well, average, not very well, and not well at all. Education level is coded in three categories: high (university, higher specialised school, technical or vocational high school), medium (Swiss maturity diploma, full-time vocational school, apprenticeship and general training school) and low (compulsory school, elementary vocational training, domestic science coursework and general school training). Similarly, occupation class is represented by three categories: high (top and senior management, liberal professions, self-employed and academic professions), medium (intermediate and qualified professions) and low (unqualified workers). The variable employment status shows if a respondent moved into retirement between baseline and follow-up (retired = 1) or if he was working during the analysed time period (retired = 0). It is obtained based on the working status at baseline and follow up.

Statistical analysis

The influence of retirement and other socio-economic factors on health measures is assessed using ordinal regressions. We used the proportional odds model that estimates the effects of independent variables on the log-odds of lower to higher scores of the dependent variable [19, 20 pp. 322–324]. Model parameters have been expressed as odds ratios so that a ratio above one indicates an increased likelihood of improved health outcomes. For each of the six outcome measures our regression model includes four covariates (sex, general health at baseline, highest level of education achieved, and occupation class) and three predictors of interest: employment status, years from official retirement age and the interac-

Table 1

Changes in the six health measures for retired and working persons as % of men / women whose health improved (+), remained unchanged (0), or worsened (-) between baseline and follow-up.

	Retired persons							Working persons						
	n (men and women)	men			women			n (men and women)	men			women		
		+	0	-	+	0	-		+	0	-	+	0	-
Self-reported change in health over 12 months	47m, 36w	15	75	10	25	64	11	259m, 215w	11	78	11	9	76	15
Measured change in health over 12 months	43m, 34w	23	61	16	26	56	18	248m, 211w	18	59	23	14	59	27
Change in satisfaction with health over 12 months	43m, 34w	35	37	28	47	29	24	248m, 211w	25	39	36	36	35	29
Change in depression over 12 months	43m, 34w	40	35	25	35	41	24	250m, 211w	24	46	30	33	32	35
Change in impediment over 12 months	43m, 34w	40	42	18	41	33	26	250m, 211w	19	59	22	22	49	29
Change in medication need over 12 months	43m, 34w	28	33	39	29	41	30	250m, 211w	18	58	24	23	53	24

Table 2

Results of ordinal regressions for changes in health measures.

Ordinal outcome variable	Employment status (ES)*		Years from official retirement (YR)*		Interaction ES and YR*	
	Odds ratio	95%-CI	Odds ratio	95%-CI	Odds ratio	95%-CI
Self-reported change in health (n = 523)	1.9	0.5 to 3.8	1.2	1.0 to 1.4	1.2	0.9 to 1.4
Calculated change in health (n = 523)	1.2	0.6 to 2.2	1.0	0.8 to 1.2	1.0	0.8 to 1.2
Change in satisfaction with health (n = 523)	1.1	0.7 to 2.0	1.0	0.9 to 1.2	1.1	0.9 to 1.2
Change in depression (n = 523)	1.9	1.1 to 3.2	1.1	0.9 to 1.3	1.1	0.9 to 1.2
Change in daily impediments (n = 520)	1.9	1.1 to 3.3	1.1	0.9 to 1.3	1.1	0.9 to 1.3
Change in medication need (n = 522)	0.9	0.5 to 1.5	0.9	0.8 to 1.1	0.9	0.7 to 1.1

* results of proportional odds models including four covariates (sex, general health at baseline, highest level of education achieved, and occupation class), model parameters have been expressed odds ratios so that a ratio above one indicates an increased likelihood of improved health outcomes

tion between working status and years from official retirement age. The variable representing the interaction only takes non-zero values when an individual has re-

tired. Therefore the estimated coefficient for this variable shows the effect on health if an individual retires before the official retirement age.

Results

The study population consists of 61% (427) men and 39% (269) women, of whom 15% (105 individuals) retired between 1999 and 2003. 37% of them (39) retired early. This rate corresponds well to the rate of 33% early retired persons in Switzerland between 1991 and 2000 calculated with data from the Swiss Labor Force Survey (SLFS) [21]. A total of 306 men (55%) and 251 women (45%) who answered the health part of the questionnaire are included in the analysis. Their mean age is of 58.5 (95%-CI: 58.2–58.8) years. 15% (83) retired between 1999 and 2003 and 85% (474) belong to the control group of employed persons aged 55–75. 19 men and 7 women retired early, 28 men and 29 women retired at or after retirement age, 243 men and 193 women had not reached official retirement age and were still working, and 16 men and 22 women were working after official retirement age (figure 1).

Over half of the respondents who retired during the analysed time period (75% of men and 64% of women for the self-reported change; 61% of men and 56% of women for the calculated change) experienced no effect of retirement on general health. Satisfaction with health however improved particularly for retired women (47%).

40% of retired men and 35% of retired women suffered less depression and anxiety after retirement than before, but about 1/4 of retired men and women felt more depressed and anxious (table 1). For about 40% of retired individuals the extent to which health impedes housework or leisure activities decreased compared to about 20% for working persons. Retirement apparently had no influence on the extent to which medication was needed to cope in everyday life.

The results of the ordinal regressions on changes of the six health measures are shown in table 2 for the three predictors only. They show a positive effect of retirement on self-reported changes in health (odd ratio 1.9, CI 0.5–3.8, $p = 0.07$), on changes in depression (odd ratio 1.9, CI 1.1–3.2, $p = 0.02$), and in the extent to which health impedes daily activities (odd ratio 1.9, CI 1.1–3.3, $p = 0.02$). Retirement does not have an impact on the measured changes in health, on changes in satisfaction with health and on changes concerning the extent to which medication is needed to function in everyday life. Neither the number of years from official retirement age nor the interaction between working status and years from official retirement age show significant results.

Discussion

The primary results of this study indicate that retirement in general has no strong short-term influence on health but that if an effect occurs, it is primarily positive. These results are consistent with previous studies [3, 8–10, 13, 14]. A negative effect of retirement on short-term health seems improbable. As in previous studies, our results show that the effect of retirement on health varies depending on the measure of health used in the analysis [3, 7]. Retirement leads to an improvement in the self stated changes in health, to a reduced frequency of anxiety and depression, and to a reduction of the extent to which health is an impediment in everyday housework or leisure activities. This reduction may be due to a change in the activities performed after retirement, and to the greater amount of time available to perform them. The positive impact can be additionally explained by the relief from work stress [4, 7, 9], by the feeling of having fulfilled society's expectations [7], and by the fact that pensioners exercise more regularly than employed persons [9]. Moen suggests that health and well-being also depend

on the opportunity of an individual to participate in society – an opportunity that is often given by paid work. He found that American culture devalues men and women in post-retirement, as the skills and experiences of those not in the paid work force and not raising children are often not valued by the public at large [22]. Our results show no similar effect in Switzerland. This is consistent with the high rate of early retired persons.

Kim and Moen found the relationship between retirement and psychological well-being to be partially mediated by changes in the financial, personal, and social-relational resources. Specifically, they found income, the subjective assessments of physical health, and the sense of personal control to have a strong influence on depressive symptoms after retirement [14]. The positive impact of retirement on anxiety and depression that resulted from our study could therefore be the consequence of the positive influence of retirement on self-stated changes in health and on the extent to which health is an impediment in everyday life.

The effect of retirement on the health of an individual does not depend on the time chosen for retirement. This is consistent with other studies that have found that early retirement is not associated with better but in some cases with lower survival rates [23].

There are several limitations to our study, which need to be addressed. First the SHP had a high non-response level for the first wave of the questionnaire in 1999 making initial non-response bias possible. Further bias may result from drop-outs during the following years and from a possible association between health status (physical and mental) and willingness to participate. Persons who have been negatively affected by retirement may more frequently refuse to participate at follow up or to answer the health section of the questionnaire. In our study, we had a large difference between the genders with regards to who answered the health-related questions. A third limitation of this study is due to the size of the sample, particularly to the small number of persons who retired early or worked after official retirement age. A fourth limitation lies in the fact that, for our analysis, persons were divided into working and retired. No account could be taken of the amount of hours a person worked or if the job previous to retirement was a part-time or a full-time job. The fifth limitation regards the fact

that only the short terms effects of retirement could be assessed. As other studies have shown [12, 14], findings for longer periods following retirement may differ from our results, particularly concerning mental health. Finally some of the health measures used in this study are global health measures. More detailed health indicators could possibly show other results for different aspects of health status.

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Correspondence:

Stefania Mojon-Azzi

*Research Institute for Labour Economics
and Labour Law*

University of St. Gallen

Guisanstrasse 92

CH-9010 St. Gallen

Switzerland

E-Mail: stefania.mojon@unisg.ch

References

- McGarry K. Health and Retirement. Do Changes in Health Affect Retirement Expectations? *J Human Res.* 2004;39:624-49.
- Ekerdt DJ, Baden L, Bosse R, Dibbs E. The effect of retirement on physical health. *Am J Public Health.* 1983;73:779-83.
- Drentea P. Retirement and mental health. *J Aging Health.* 2002;14:167-94.
- Mein G, Martikainen P, Stansfeld SA, Brunner EJ, Fuhrer R, Marmot MG. Predictors of early retirement in British civil servants. *Age Ageing.* 2000;29:529-36.
- Deschryvere M. Health and Retirement Decisions: An Update of the Literature. ENEPRI Research Report. No 6; 2005.
- Dorn D, Sousa-Poza A. The Determinants of Early Retirement in Switzerland. *SJES.* 2005;127(II).
- Salokangas RK, Joukamaa M. Physical and mental health changes in retirement age. *Psychother Psychosom.* 1991;55:100-7.
- Mein G, Martikainen P, Hemingway H, Stansfeld S, Marmot M. Is retirement good or bad for mental and physical health functioning? Whitehall II longitudinal study of civil servants. *J Epidemiol Community Health.* 2003;57:46-9.
- Midanik LT, Soghikian K, Ransom LJ, Tekawa IS. The effect of retirement on mental health and health behaviors: the Kaiser Permanente Retirement Study. *J Gerontol B Psychol Sci Soc Sci.* 1995;50:S59-S61.
- Tuomi K, Jarvinen E, Eskelinen L, Ilmarinen J, Klockars M. Effect of retirement on health and work ability among municipal employees. *Scand J Work Environ Health.* 1991;17(Suppl 1):75-81.
- Szinovacz ME, Davey A. Retirement transitions and spouse disability: effects on depressive symptoms. *J Gerontol B Psychol Sci Soc Sci.* 2004;59:S333-S342.
- Gall TL, Evans DR, Howard J. The retirement adjustment process: changes in the well-being of male retirees across time. *J Gerontol B Psychol Sci Soc Sci.* 1997;52:110-7.
- Reitzes DC, Mutran EJ, Fernandez ME. Does retirement hurt well-being? Factors influencing self-esteem and depression among retirees and workers. *Gerontologist.* 1996;36:649-56.
- Kim JE, Moen P. Retirement transitions, gender, and psychological well-being: a life-course, ecological model. *J Gerontol B Psychol Sci Soc Sci.* 2002;57:212-22.
- Butterworth P, Gill SC, Rodgers B, Anstey KJ, Villamil E, Melzer D. Retirement and mental health: analysis of the Australian national survey of mental health and well-being. *Soc Sci Med.* 2006;62:1179-91.
- Warr P, Butcher V, Robertson I, Callinan M. Older people's well-being as a function of employment, retirement, environmental characteristics and role preference. *Br J Psychol.* 2004;95:297-324.
- Zimmermann E, Tillmann R. *Leben in der Schweiz 1999-2000.* Peter Lang AG; 2004.
- Choi NG. Determinants of self-perceived changes in health status among pre- and early-retirement populations. *Int J Aging Hum Dev.* 2003;56:197-222.
- McCullagh P. *Regression Models for Ordinal Data.* J Royal Stat Soc. 1980;Series B (Methodological) 42:109-42.
- Agresti A. *Categorical Data Analysis.* John Wiley & Sons; 1990.
- Bundesamt für Statistik. Schweizerische Arbeitskräfteerhebung. Das gesetzliche Rentenalter – eine willkürliche Grenze? *Sake-News* 2003; 15.
- Moen P. A life course perspective on retirement, gender, and well-being. *J Occup Health Psychol.* 1996;1:131-44.
- Tsai SP, Wendt JK, Donnelly RP, de Jong G, Ahmed FS. Age at retirement and long term survival of an industrial population: prospective cohort study. *BMJ.* 2005;331:995-8.

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