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

Stefania Mojon-Azzi\textsuperscript{a}, Alfonso Sousa-Poza\textsuperscript{b}, Rolf Widmer\textsuperscript{c}

\textsuperscript{a} Research Institute for Labour Economics and Labour Law, University of St. Gallen, Switzerland
\textsuperscript{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
\textsuperscript{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-
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 socio-economic status [17]. For our study, we analyses 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 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 239 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-reported 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.
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 form 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 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 interaction between these two measures.

### Table 1

<table>
<thead>
<tr>
<th>Retired persons</th>
<th>Working persons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n (men and women)</td>
</tr>
<tr>
<td>Self-reported change in health over 12 months</td>
<td>47m, 36w</td>
</tr>
<tr>
<td>Measured change in health over 12 months</td>
<td>43m, 34w</td>
</tr>
<tr>
<td>Change in satisfaction with health over 12 months</td>
<td>43m, 34w</td>
</tr>
<tr>
<td>Change in depression over 12 months</td>
<td>43m, 34w</td>
</tr>
<tr>
<td>Change in impediment over 12 months</td>
<td>43m, 34w</td>
</tr>
<tr>
<td>Change in medication need over 12 months</td>
<td>43m, 34w</td>
</tr>
</tbody>
</table>

### Table 2

<table>
<thead>
<tr>
<th>Ordinal outcome variable</th>
<th>Employment status (ES)*</th>
<th>Years from official retirement (YR)*</th>
<th>Interaction ES and YR*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Odds ratio</td>
<td>95%–CI</td>
<td>Odds ratio</td>
</tr>
<tr>
<td>Self-reported change in health (n = 523)</td>
<td>1.9</td>
<td>0.5 to 3.8</td>
<td>1.2</td>
</tr>
<tr>
<td>Calculated change in health (n = 523)</td>
<td>1.2</td>
<td>0.6 to 2.2</td>
<td>1.0</td>
</tr>
<tr>
<td>Change in satisfaction with health (n = 523)</td>
<td>1.1</td>
<td>0.7 to 2.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Change in depression (n = 523)</td>
<td>1.9</td>
<td>1.1 to 3.2</td>
<td>1.1</td>
</tr>
<tr>
<td>Change in impediment (n = 520)</td>
<td>1.9</td>
<td>1.1 to 3.3</td>
<td>1.1</td>
</tr>
<tr>
<td>Change in medication need (n = 522)</td>
<td>0.9</td>
<td>0.5 to 1.5</td>
<td>0.9</td>
</tr>
</tbody>
</table>

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

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 man and 7 women retired early, 28 man and 29 women retired at or after retirement age, 243 man 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 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 retirement age. 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.

This study was carried out using the data collected for the “Living in Switzerland Survey” compiled by the Swiss Household Panel (SHP) at the Université de Neuchâtel, a project financed by the Swiss National Science Foundation (grant numbers 5004-53205/5004-57894/5004-67304/10F11-103293). The authors would also like to thank the Swiss National Science Foundation for financial assistance (grant number 5004-69465).

References

The many reasons why you should choose SMW to publish your research

What Swiss Medical Weekly has to offer:

• SMW’s impact factor has been steadily rising. The 2005 impact factor is 1.226.
• Open access to the publication via the Internet, therefore wide audience and impact
• Rapid listing in Medline
• LinkOut-button from PubMed with link to the full text website http://www.smw.ch (direct link from each SMW record in PubMed)
• No-nonsense submission – you submit a single copy of your manuscript by e-mail attachment
• Peer review based on a broad spectrum of international academic referees
• Assistance of our professional statistician for every article with statistical analyses
• Fast peer review, by e-mail exchange with the referees
• Prompt decisions based on weekly conferences of the Editorial Board
• Prompt notification on the status of your manuscript by e-mail
• Professional English copy editing
• No page charges and attractive colour offprints at no extra cost

International Advisory Committee
Prof. K. E. Juhani Airaksinen, Turku, Finland
Prof. Anthony Bayes de Luna, Barcelona, Spain
Prof. Hubert E. Blum, Freiburg, Germany
Prof. Walter E. Haefeli, Heidelberg, Germany
Prof. Nino Kuenzli, Los Angeles, USA
Prof. René Lutter, Amsterdam, The Netherlands
Prof. Claude Martin, Marseille, France
Prof. Josef Patsch, Innsbruck, Austria
Prof. Luigi Tavazzi, Pavia, Italy

We evaluate manuscripts of broad clinical interest from all specialities, including experimental medicine and clinical investigation.

We look forward to receiving your paper!

Guidelines for authors:
http://www.smw.ch/set_authors.html

All manuscripts should be sent in electronic form, to:

EMH Swiss Medical Publishers Ltd.
SMW Editorial Secretariat
Farnburgerstrasse 8
CH-4132 Muttenz

Manuscripts: submission@smw.ch
Letters to the editor: letters@smw.ch
Editorial Board: red@smw.ch
Internet: http://www.smw.ch