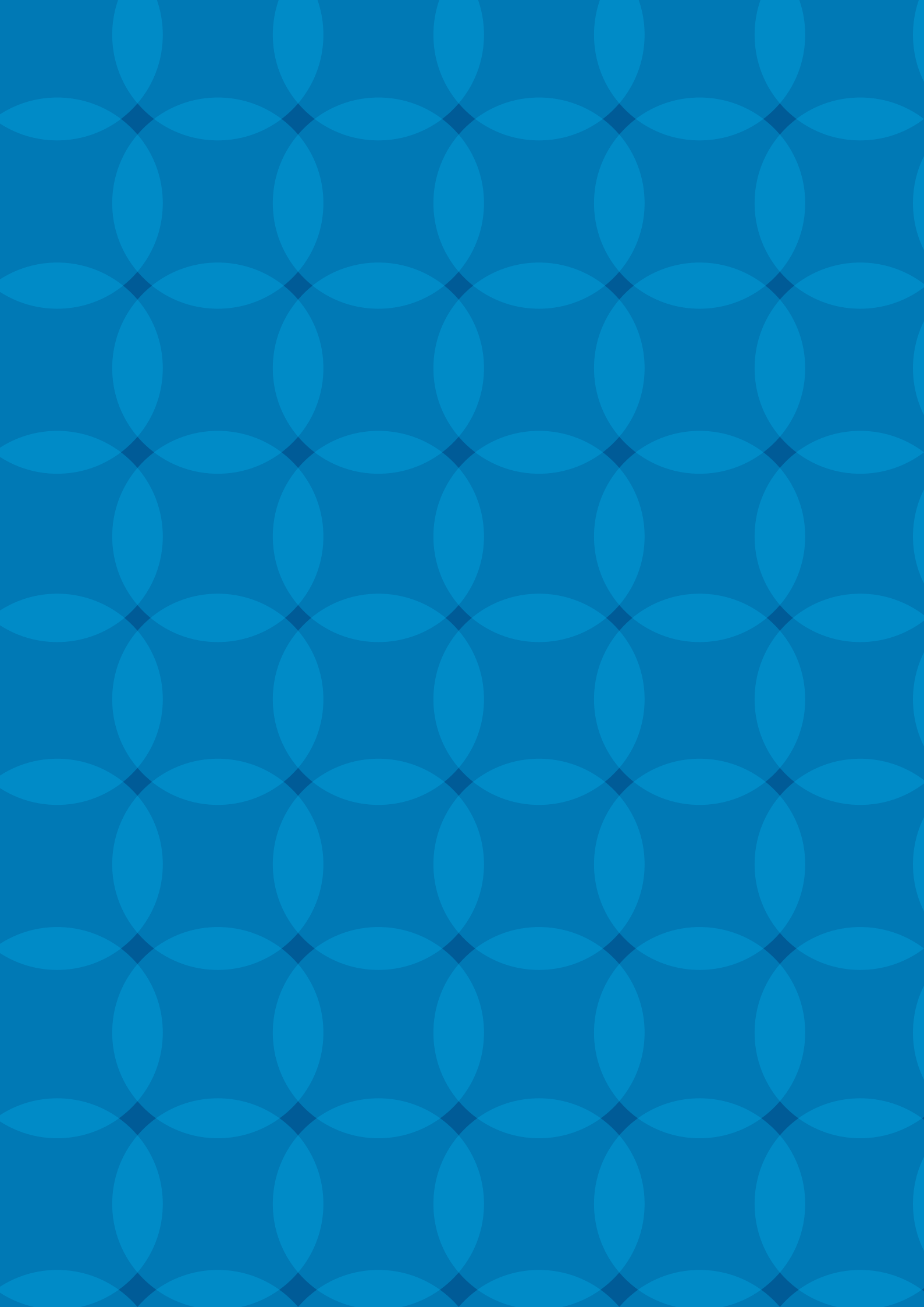# Life expectancy by labor force status and social class:

Recent period and cohort trends and projections for Finland

Mikko Myrskylä, Taina Leinonen and Pekka Martikainen

Finnish Centre for Pensions
ELÄKETURVAKESKUS

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ABSTRACT

Increasing longevity and decreasing workers-to-non-workers ratio are among the key demographic challenges of the developed world. Working longer is a potential remedy. However, little is known about how increasing longevity is distributed between work and retirement. We use Finnish register data for the years 1989–2007 to analyze period and cohort trends in life, work and retirement expectancies at age 50 by social class. The period and cohort perspectives complement each other as the period perspective describes what would happen to a cohort if it were exposed to a certain year's conditions throughout life, and the cohort perspective describes what in reality happens to a cohort as it ages over time. We use the Lee-Carter method to complete mortality and linear extrapolation to complete the labor force participation of partially observed cohorts.

Over the period 1989–2007, period life expectancy at age 50 increased 3–4 years for men and women. Old-age retirement expectancy increased about as much. Work expectancy declined in the early 1990s but has since been on an upward trajectory, being in 2007, at 9 years, approximately a year higher than in 1989 for both men and women. The fraction of years that are spent working at ages above 50 declined from 33% to 31% for men and stayed at 26% for women. These trends were similar across the social classes. However, there were large level differences as the upper classes have the highest life, work and retirement expectancies. For example in 2007, the work expectancy difference between upper non-manual and manual workers was 3.8 years (men) and 3.4 years (women); for old-age retirement the differences were 4.5 years (men) and 3.5 years (women).

For cohorts born in 1939–1950, work expectancy increases tracked more closely the life expectancy increases. Life expectancy and work expectancy at age 50 increased by 1.6 and 1.5 years respectively for men, and 1.3 and 1.6 years for women. Thus the ratio between active and passive years is not becoming more disadvantageous for the later cohorts. Old-age retirement expectancy increased by 1.4 years (men) and 1.0 years (women); these increases were counteracted by comparable decreases in unemployment and early retirement. In contrast to the period results, the fraction of years spent working over age 50 increased from 27% to 30% (men) and from 23% to 26% (women) over the 1939–1950 cohorts. The trends were similar across social classes but showed large differences in levels, similar to those observed in the period perspective.

Both the cohort and period approaches show that upper non-manual men are likely to work about four years and live about five years longer than manual men after age 50. For cohorts born in the 1940s, upper non-manual men can also expect to spend in total about 20 years in retirement, this is about 2 years more than manual men. Among women, the work and life expectancy advantage for the upper non-manual classes are about three and two years respectively and the total retirement expectancy among the 1940s cohorts is the same, 25 years, for all social classes. However, old-age retirement expectancy is about 4–5 years longer among upper non-manual men than manual men with the corresponding difference being three years among women. These are counter-balanced by opposite differentials for disability retirement.

ABSTRAKTI

Elinajanodotteen kasvaessa työllisten osuus väestöstä uhkaa laskea. Työurien pidentymistä pidetään yhtenä ratkaisuna ongelmaan. Tässä raportissa tarkastelemme, miten jäljellä olevat elinvuodet 50 vuoden iässä jakaantuvat työ-, työttömyys- ja eläkevuosiin käyttäen suomalaista rekisteriaineistoa vuosilta 1989–2007. Erityisenä kiinnostuksen kohteena ovat sosioekonomiset erot sekä trendit toisaalta periodi-, toisaalta kohorttinäkökulmasta. Nämä perspektiivit täydentävät toisiaan, sillä periodiperspektiivi kuvaa, mitä hypoteettiselle kohortille tapahtuisi, jos se kokisi tietyn ajankohdan olosuhteet yli koko elinkaarensa; kohorttiperspektiivi taas kuvaa, mitä oikeasti tapahtuu aidolle kohortille. Täydennämme osittain havaittujen kohorttien tulevan työhön osallistumisen lineaarisella ekstrapoloinnilla ja kuolleisuuden Lee-Carter-menetelmällä.

Periodiperspektiivissä elinajanodote 50 vuoden iässä kasvoi vuosina 1989–2007 3–4 vuotta sekä miehillä että naisilla. Vanhuuseläkkeellä vietettyjen vuosien määrä kasvoi likimain yhtä paljon. Työvuosien odote nousi vähemmän: odote oli noin 8 vuotta vuonna 1989 ja laski 1990-luvun alussa, mutta on sittemmin ollut nousu-uralla ollen vuonna 2007 noin vuoden korkeampi kuin vuonna 1989. Työssä vietettyjen vuosien osuus elinajanodotteesta 50 vuoden iässä laski miehillä 33 prosentista 31 prosenttiin ja pysyi 26 prosentissa naisilla. Näissä trendeissä oli vain vähän eroja eri sosiaaliryhmien välillä; tasoerot olivat kuitenkin suuria. Esimerkiksi vuonna 2007 työvuosien ja vanhuuseläkevuosien odotteet olivat ylemmillä toimihenkilöillä noin 3–5 vuotta korkeammat kuin työntekijäasemassa olevilla.

Kohorttiperspektiivissä ja vuosina 1939–1950 syntyneitä tarkasteltaessa elinajanodote ja työajanodote 50 vuoden iässä nousivat 1.6 ja 1.5 vuotta miehillä ja 1.3 ja 1.6 vuotta naisilla. Vanhuuseläkeodote nousi 1.4 vuotta miehillä ja 1.0 vuotta naisilla; työttömyys- ja varhaiseläkeodote laskivat likimain vastaavasti. Toisin kuin perioditarkastelussa, kohorttitarkastelussa työssä vietettyjen vuosien osuus elinajanodotteesta 50 vuoden iässä nousi 27 prosentista 30 prosenttiin miehillä ja 23 prosentista 26 prosenttiin naisilla. Kuten perioditarkastelussa, myös kohorttitarkastelussa sosiaaliryhmien trendit olivat samankaltaisia ja ryhmien väliset tasoerot suuria, ylempiä sosiaaliluokkia suosivia.

Sekä kohortti- että perioditarkastelut osoittavat, että ylemmät toimihenkilömiehet työskentelevät noin 4 ja elävät noin 5 vuotta pidempään 50 vuoden iässä kuin työntekijäasemassa olevat. 1940-luvun kohorttien ylemmät toimihenkilömiehet voivat myös odottaa noin 20 eläkevuotta, joka on 2 vuotta työntekijämiehiä enemmän. Naisilla vastaavat sosiaaliryhmien erot työ- ja elinajanodotteissa ovat noin 3 ja 2 vuotta ja kokonaiseläkkeelläoloaika 1940-luvun kohorteille on noin 25 vuotta kaikilla sosiaaliryhmillä. Vanhuuseläkkeessä sosioekonomiset erot ovat suuremmat, koska alemmissa sosiaaliryhmissä suurempi osa kokonaiseläkkeestä koostuu varhaiseläkkeistä. Ylemmät toimihenkilömiehet voivatkin odottaa 4–5 vuotta enemmän vanhuuseläkevuosia kuin työntekijäasemassa olevat miehet; naisilla vastaava ero on 3 vuotta.

Contents

1   Introduction

Increasing longevity and decreasing workers-to-non-workers ratio are among the key demographic challenges of the developed world. For example, within EU countries (EU-15) the old-age dependency ratio – ratio of the working-age people (20–64) to those aged 65+ - decreased from 7 in 1950 to 4 in 2005, and is projected to decline below 3 by 2024. In Finland the decline is even faster, from 8.4 in 1950 to 3.8 in 2005 and below 3 already in 2014 (OECD 2009). Increasing the number of years worked, by increasing the retirement age or labor force participation, is a potential remedy (OECD 2006; Tuominen 2007). However, little is known about how increasing longevity is distributed between work, different types of retirement, and other economic activity statuses, or how trends in these vary by social class. Even less is known about cohort trends.

Prior research using period data shows that work expectancy has increased in Finland since the mid-1990s after a sharp decline in previous years due to the economic recession of the early 1990s (Nurminen et al. 2005; Nurminen 2012). Older age groups in particular have contributed to the increasing work expectancies. Among the less educated, work expectancies are shorter and this difference is still notable at age 50. Time spent unemployed or outside the workforce is consequently longer among those with lower education (Nurminen 2012). However, these findings have been restricted to partial life expectancies that only include ages up to 64. Less is known of socio-economic differences in retirement expectancy that would include the time spent in both early and old-age retirement. As disability pensions are granted at relatively young ages, they largely contribute to socioeconomic disparities in the retirement expectancy. Those in lower socioeconomic positions run a considerably higher risk of retiring early due to disability (Leinonen et al. 2012; Krokstad et al. 2002). However, among those in lower socioeconomic groups, the time spent in retirement is shorter at the other end of retired life due to higher mortality: socioeconomic differences in mortality persist until old age (Huisman et al. 2004), resulting in large differences in life expectancy when approaching the age of statutory retirement (Majer et al. 2011; Martikainen 2011). Variations by socioeconomic position in the total time spent in retirement as well as in the time spent in different retirement statuses remain unclear.

We use Finnish register data for years 1989–2007 to estimate how life expectancy at age 50 has changed over the period 1989–2007 and over the birth cohorts 1939–1950 by social class. We use the Sullivan method for period analyses to investigate how increasing longevity is divided between work, unemployment, disability retirement, other early retirement, old-age retirement, and other activity outside the labor force. For the cohort perspective we complete the mortality and labor force participation of partially observed cohorts by using the Lee-Carter method for mortality and by fixing the most recent labor force status distributions.

Most prior work on increasing longevity and distribution of additional years to various labor force statuses has focused on the period perspective (Nurminen 2012; Hytti 1996; Hytti 1999; Vogler-Ludwig 2009). The focus on periods is often motivated by the difficulty of

obtaining longitudinal data that would be suitable for cohort analysis and by the challenges related to forecasting, or completing incomplete cohorts (Nurminen 2012; Vogler-Ludwig 2009). Analyzing both period and cohort trends, however, is important as the perspectives complement each other, as discussed below.

The period perspective describes the experience of a hypothetical or "synthetic" cohort that consists of those who were alive in a certain year, merging the experience of a large number of real birth cohorts. Thus the period perspective answers the question "what would happen to a real cohort if the cohort experienced throughout its life the mortality and labor force participation rates that prevail in period x". This approach is sensitive to short-term variation in mortality conditions and in economic activity, which may be good or bad depending on the goal of the analysis.

The cohort perspective describes the life course experience of a real cohort of people, and is arguably more natural than the period perspective that describes the experience of a "synthetic" cohort. However, the cohort perspective requires longitudinal data and forecasting of future mortality and labor force participation. Moreover, although the cohort perspective is accurate about what happens to real cohorts of people, the cohort perspective also averages the mortality and labor force participation rates over decades. Therefore the cohort perspective is not useful for analyzing current economic and mortality conditions. On the other hand, the cohort perspective gives a reasonable answer to questions such as how many years a person aged 50 can expect to work and live. The period perspective provides a reasonable answer to such a question only if the current conditions prevail in the future, which often is known to be an unrealistic assumption. For these reasons the cohort and period perspectives are not expected to provide similar results; rather, the results are expected to provide different but complementary views on how increasing life expectancy is divided between various labor force statuses. The cohort perspective is also particularly useful for assessing and understanding likely future trends.

2   Data

The study is based on population registration data, specifically on an eleven per cent random sample of the Finnish population. An additional random sample of deceased individuals was added to cover 80 per cent of all deaths during the years 1989–2007. Because of the different sampling probabilities in the two strata, we used analytic weights in all the analyses. These data, which contain detailed socio-economic information, are collected annually from different administrative records to provide labor-force statistics. The sampling and data linkage was carried out by Statistics Finland using personal identification codes. [1]

Labour force status was divided into 1) employed; 2) unemployed; 3) retired due to disability; 4) other early retirement; 5) retired due to old age; and 6) other or unknown. This classification was initially based on information on main economic activity, including employment, unemployment, retirement and other activity. Retirement was then further divided into different types using information on pension recipiency. Until 1994, this information was based on the national pension scheme covering all permanent residents and pension recipients in Finland. In 1996, the national pension became proportional to the earnings-related pension and was therefore no longer eligible to all pension recipients. Since 1995, the data were based on both national and earnings-related pension schemes. During the study period, the age limit for old-age pension was generally 65 with the exception of certain occupation-specific retirement ages and, since 2005, the possibility to retire flexibly between the ages of 63 and 68 within the earnings-related pension scheme. Disability pensions may be granted to a person under the age of 65 with a medically confirmed reduction in work ability due to illness (Finnish Centre for Pensions & the Social Insurance Institution of Finland 2011). The category "other early retirement" mainly includes unemployment pensions and special pensions for farmers. In unknown cases of retirement type (3% or less of all pensions depending on the study year), those aged 65 or more (63 or more in 2005–2007) were included in the category of old-age retirement and the rest in the category "other early retirement".

Information on social class (SES) was available in five-year intervals between 1970 and 2005. In the period analyses we used the most recent recorded information on social class. In the cohort analyses we used the social class from the census in which the person was in the age range 40–44, or if economically inactive or missing, from the one earlier or later census, in this order. The social classes were: 1) upper non-manual employees; 2) lower non-manual employees; 3) manual workers 4) entrepreneurs; and 5) others or unknown.

For labor force participation, we used the status at the beginning of each year (measured on the last day of the previous year) as an estimate for the whole year's status. These bounds define the cohorts that we could analyze. The labor force status follow-up started in the year 1989. Therefore the oldest cohort for which we could calculate labor force status

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1   The study has been approved by the ethics committee of Statistics Finland (permission TK–53–1783–96).

expectancies at age 50 was the 1939 birth cohort. The labor force status follow-up ended in 2008 when the 1939 birth cohort was aged 69; thus for this cohort information on labor force participation was complete. For cohorts up to and including the 1943 birth cohort, which was aged 65 in 2008, the labor force status data was also essentially complete. For the 1944–1950 birth cohorts, labor force participation data was partially missing; for the cohort 1950 starting from age 58 and for the cohort 1944 starting from age 64. We included these cohorts in our analysis by extrapolating the future labor force participation rates; for details, see the Methods section. As the uncertainty in the extrapolation increases with birth year, we ended the extrapolation for the 1950 birth cohort for which still more than half of the years between 50 and 65 were observed (observations up to age 58).

3   Methods

For periods, we calculated age-specific mortality rates at ages 50 and above for each sex-SES strata for each year from 1989 to 2007. We calculated period life expectancy at age 50 for the sex-SES strata, and we used the Sullivan method (Sullivan 1971) to attribute the years lived at age 50 and above to the different labor force status categories. The Sullivan method combines standard period life tables and period information on the distribution of the population to labor force categories by single years of age. It is most often used in the calculation of healthy life expectancy, but it can as easily be used to study other phenomena (e.g., Preston et al. 2001).

For the 1939–1950 cohorts, we used essentially the same procedure. However, since these cohorts were only partially observed at the end of our follow-up in 2007 in terms of both mortality and labor force participation, we had to first complete the life tables and labor force distributions for each sex-SES sub-population within these cohorts.

Completing cohort mortality

We completed the cohort mortality using the Lee-Carter (Lee and Carter 1992) method and its so-called Lee-Miller variant (Lee and Miller 2001)[2] More specifically, we estimated the Lee-Carter model $\log[m(x)] = a(x) + b(x)*k(t)$, where x refers to age, t refers to calendar year, and m(x) is mortality, for both men and women using population level mortality data at ages 30–110 for the base period 1988–2009, obtained from the Human Mortality Database.[3] The key parameters of the Lee-Carter model are the age-schedule of mortality $a(x)$, and the change in log-mortality, captured by $b(x)$, with respect to changes in the overall mortality index $k(t)$. Forecasting with the Lee-Carter model is based on extrapolating the index $k(t)$ into the future; we did this by using the standard random walk with drift specification.

The Lee-Carter method produces an overall age-period pattern for the future mortality for men and women. Taking the diagonal of the age-period pattern provides the required forecasted cohort mortality rates. However, these rates refer to the total population (by sex), whereas we need future mortality patterns for each sex-SES-group. Analyzing the future of SES-differences in mortality by birth cohort is beyond the scope of this study, so here we only assumed the most simple scenario in which the future change in log-mortality for each SES-group is represented by the same population-level change $b(x)*k(t)$. Thus when forecasting SES-specific mortality, we used the standard Lee-Carter model with population-level $b(x)*k(t)$, but with SES-specific starting age-schedule $a(x)$, and then converted the sex-SES-specific forecasted age-period mortality surface to cohort rates. This approach keeps the relative SES mortality differentials constant and results in smooth patterns in mortality from the observations to the forecasted period.

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2   The Lee-Miller variant's main difference to the original Lee-Carter model is that the jump-off rates are taken to be the actual rates in the jump-off year, not those produced by the model.

3   The mortality forecasts were informed by observed mortality up to the year 2009, even though the individual data from which we calculated labor force participation ends in the year 2007.

Completing cohort labor force participation

For the 1939–1950 birth cohorts, old-age labor force participation was only partially observed. Consider, for example, the 1939 birth cohort. This cohort was aged 50 in the year 1989 to which our earliest labor force participation data refers to, and 69 in the year 2008 to which our latest labor force participation data refers to. Thus old-age labor force participation starting from age 50 was essentially complete for this cohort. The 1943 cohort was aged 65 in our latest year of observation, 2008. Thus for this cohort labor force participation was not observed at the ages above 65 where the participation rates are generally low. For the cohort born in 1945, labor force participation data was missing starting from age 63, and for the cohort 1950 starting already from age 58.

We considered two methods for completing the labor force status distributions for the partially observed cohorts. Our baseline method was based on borrowing information from the previous cohorts. For example for the 1945 cohort, labor force status was not observed at age 64; we used the labor force status distribution of the 1944 birth cohort at age 64 to complete this information. This schema was used for all cohorts up to the age 70 and separately for men and women and for different SES groups. The method assumes that there are no trends in age-specific labor force status rates: that is, the labor force participation of a cohort at a given unobserved age is the same as the previous cohort's observed labor force participation.

Figure 1 illustrates the forecasting procedure by showing the observed and forecasted employment rates for the total population of men (Panel A) and women (Panel B) by age, year and selected birth cohorts. The observations are the years 1989–2008; forecasts for the years 2009–2020 are done by extrapolating the last observed age-specific employment rates. The red vertical line denotes the last observations. The figure illustrates that for the 1945 birth cohort, labor force participation is observed up to age 63 and forecasted for ages 64 and above. For the 1947 and 1950 birth cohorts, the forecasts start at ages 62 and 59, respectively.

As illustrated in Figure 1, the employment rate trends were mostly positive at the time (year 2008) when the forecasting started and our method forced the trends to level off. Most recent data from the Statistics Finland Labor Force Survey also suggests that while total population employment rates declined in 2008–2012, among the 55–64 year old people that we are interested in, the labor force participation rates have increased. For example, in the first quarter of 2012 the labor force participation rate for 55–64 year olds averaged 57.5%, while in the first quarter of 2008 the corresponding rate was 55.4% (Statistics Finland 2013). Therefore our baseline method may underestimate work expectancy for the partially observed cohorts. Our alternative approach was to extrapolate the future labor force participation rates by taking the past trends into account via linear extrapolation. We used the age-specific trends observed over the past 10 years to linearly extrapolate the future labor force participation rates for both sexes and for all social classes.[4] This approach assumes that the past trends continue uninterrupted. Appendix Figure A1 illustrates this alternative forecasting method by showing the observed and forecasted employment rates for the total population of men (Panel A) and women (Panel B) by age, year and selected birth cohorts.

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4   We did the extrapolation independently and separately for all the labor force statuses (work, unemployment, retirement due to disability, other early retirement, old-age retirement, and other as the residual). Since the sum of the extrapolations was not restricted to 100%, for some age-year cells the sum of the extrapolated rates was higher than 100%. This, however, was rare, and had only little influence on the cohort results which combine several age-period cells.

Figure 1.

Employment rates by age, year and selected birth cohorts. Observations: years 1989–2008; forecasts years 2009–2020. The red vertical line denotes the last observations. The forecasts are done by extrapolating the last observed age-specific employment rates. For the 1945 birth cohort forecasting starts at age 64; for the 1947 and 1950 cohorts at ages 62 and 59, respectively.

A. MEN
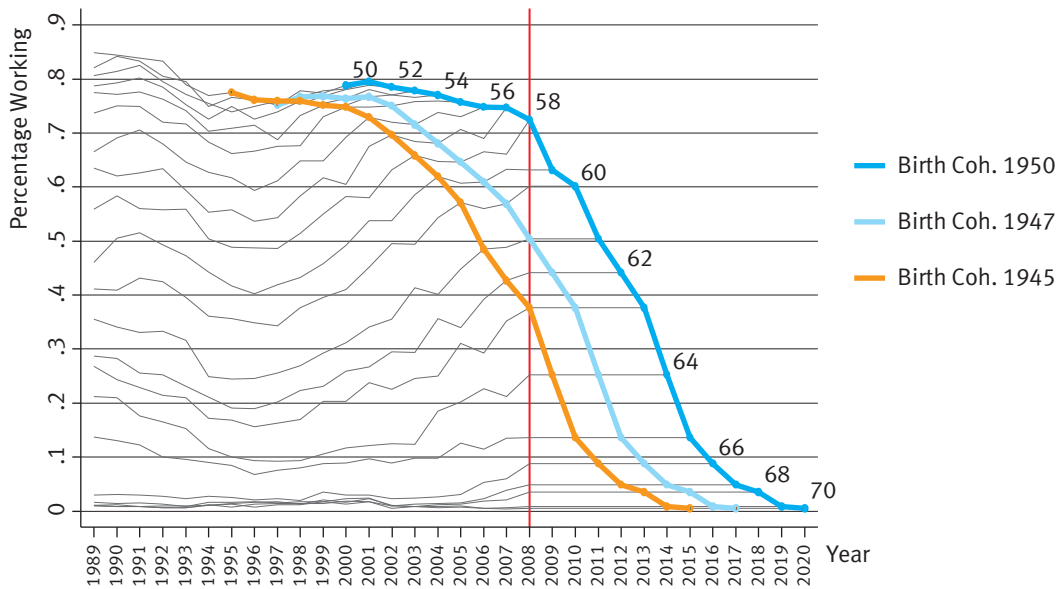
B. WOMEN
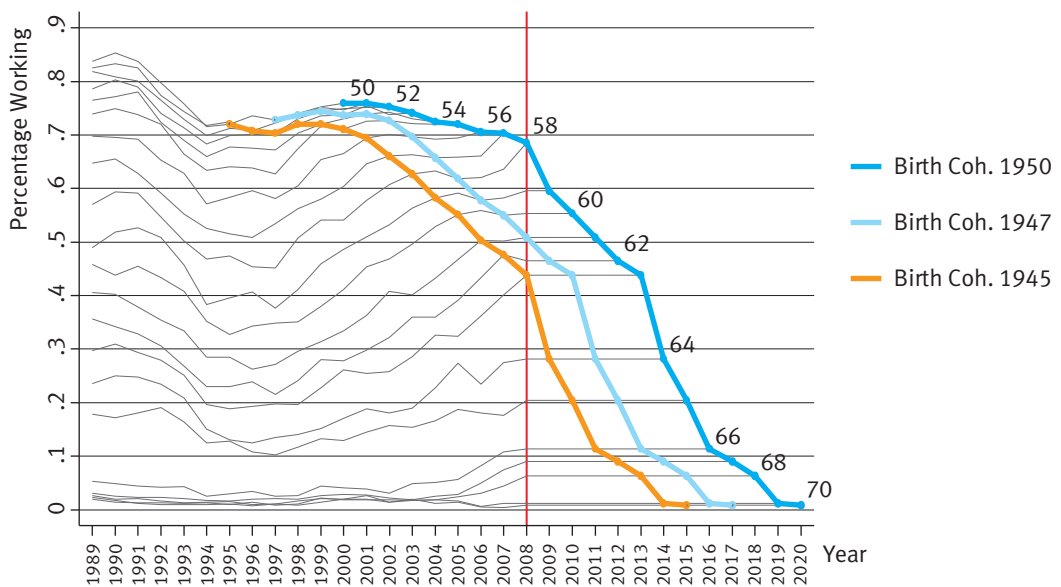
The linear extrapolation may carry a smaller risk of underestimation of work expectancy because it does not force the past positive trends to level off. However, using past information on age-specific employment rates may cause bias due to pension reforms that have led to different age limits of retirement for consecutive cohorts. For example, the introduction of flexible old-age retirement between ages 63 and 68 in 2005 increased old-age retirement rates among those aged 63 and 64 (Tuominen et al. 2011). Other reforms have nevertheless restricted early retirement among older employees and have therefore had counteracting effects that decrease retirement rates (Kannisto 2012).

After completing the life tables and labor force status distributions with two alternative methods, we calculated the remaining life expectancy at age 50 for each sex-SES strata for each birth cohort from 1939 to 1950. We used the Sullivan method to attribute the years lived at age 50 and above to different labor force statuses.

4   Results

We present the results in four sections: 1) descriptive characteristics; 2) period patterns; 3) cohort patterns; and 4) decomposition of selected sex, social class, and period/cohort differences to mortality and labor force status components. We then discuss various sensitivity analyses. The main manuscript shows only selected results; full results for both sexes for each year/cohort and social class are given in the Appendix tables.

Descriptive characteristics

Table 1.

Descriptive characteristics of the data in the period 1989–2007. Restricted to ages 50–69, calculated using weights.

	MEN				WOMEN			
	Year	Year	Year	Average 1989-	Year	Year	Year	Average 1989-
	1989	1998	2007	2007	1989	1998	2007	2007
Age distribution (%)								
50-54	29	34	25	32	26	32	24	29
55-59	27	25	32	27	25	24	31	26
60-64	25	21	24	23	26	22	24	23
65-69	18	20	19	19	23	22	21	22
Mean age (years)	59.1	58.7	59.4	58.9	59.8	59.2	59.7	59.3
Labor force status istribution (%)								
Employed	47	41	50	45	41	40	49	43
Unemployed	2	10	7	8	2	10	7	7
Disability retirement	21	18	13	18	17	15	11	15
Other early retirement	11	5	5	7	10	6	5	7
Old-age retirement	18	23	22	21	24	26	25	24
Other	2	3	3	2	5	4	4	4
SES distribution (%)								
Upper non-manual	12	16	18	16	8	11	14	11
Lower non-manual	15	17	18	17	30	39	45	38
Manual	49	47	45	47	39	33	27	33
Entrepreneurs	23	18	16	19	21	15	11	15
Other	2	2	3	2	2	2	4	2
Life expectancy trends								
e50	24.8	26.6	28.7	26.8	30.9	32.5	34.3	32.5
e65	13.8	14.9	16.9	15.2	17.7	19.1	21.0	19.2

Descriptive characteristics of the study population are presented for those aged 50–69 as there was little variation in labor force participation among those aged 70 and over (Table 1). The table presents the descriptive characteristics for the start and end years of follow-up (1989 and 2007) and for the year in the middle of the follow-up (year 1998). There were no clear trends in the age distribution and the mean age between 1989 and 2007. Variation in the age distribution was mainly driven by the sizes of the birth cohorts.

Trends in the labor force status distribution were largely influenced by the economic depression of the early 1990s during which employment rates decreased and unemployment rates increased. The influence of the depression was still visible in 1998, the midpoint of the follow-up, in which the percentage employed was lower and percentage unemployed higher than in 1989 or in 2007. In 1989 the employment rate was higher among men (47%) than women (41%), but the recession influenced men's employment more than women's, leading to a convergence in the percentage employed among the sexes. The percentage employed was highest in 2007 when 50% of men and 49% of women were employed. The percent of those retired due to both disability and other early retirement pathways decreased during the follow-up, whereas the percentage of those retired due to old age was highest in the middle of the follow-up. Other activities, i.e. being outside the labor force for other reasons than retirement, were more common among women than men.

Between 1989 and 2007 the rate of non-manual classes increased, while the rate of manual workers and entrepreneurs decreased. Manual workers, however, remained the most common class among men during the whole follow-up, whereas among women, lower non-manual employees became the largest class during the second half of the follow-up. These trends among women and men were the result of changes in the Finnish occupational structure from manual to non-manual occupations rather than changes in the classification of occupations. The decrease in entrepreneurs was explained by a decrease in self-employed farmers (results not shown). Life expectancies at both ages 50 and 65 increased significantly between 1989 and 2007 among both men and women.

Period patterns

Figure 2.

Life exp. at age 50 spent in different labor force statuses by calendar year and sex.

Men

Women

■ Work	■ Unemployment
■ Disability retirement	■ Other early retirement
■ Old-age retirement	■ Other
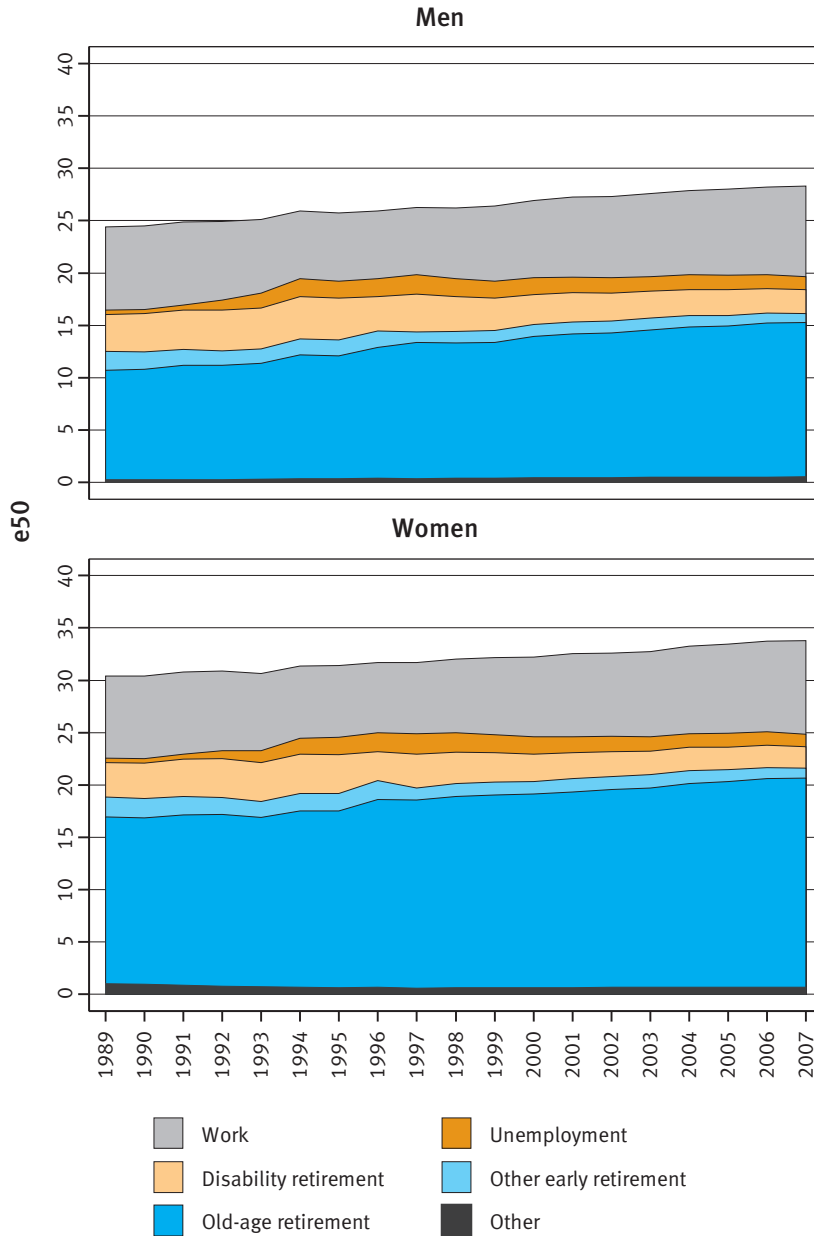
Figure 2 shows the period life expectancy at age 50 for men and women for the years 1989–2007 and the distribution of years lived at age 50 to work, unemployment, disability and other early retirement, old-age retirement, and other activities for these years. Appendix Table A1 shows the exact numbers on which Figure 2 is based on. In the period from 1989 to 2007, life expectancy at age 50 increased by 3.9 years from 24.4 to 28.3 for men and

by 3.4 years from 30.4 to 33.8 for women. Work expectancy increased less, for men by 0.7 years from 7.9 to 8.7, and for women by 1.1 years from 7.8 to 8.9. Unemployment expectancy increased 0.8 years for men and 0.7 years for women; this increase took place in the early 1990s during the recession, and in the 2000s unemployment expectancy has been decreasing.

The total number of years spent in retirement (the sum of disability retirement, other early retirement and old-age retirement) increased for men and for women. For men the total life expectancy in retirement increased from 15.8 to 17.8 years and for women from 21.1 to 23.0 years. For both men and women the major force behind the change in retirement expectancy was the increase in old-age retirement.   The increase in expected years spent in old-age retirement was slightly higher than the increase in total life expectancy, 4.3 years (from 10.5 to 14.7) for men and 4.1 (from 15.9 to 20.0) for women. Years spent in retirement due to disability decreased for both sexes by 1.2 years to 2.3 and 2.0 years in 2007 for men and women, respectively; also other early retirement expectancy decreased by about 1 year for men and women. For both men and women the decrease in disability and other early retirement expectancies happened only after around 1995–1997; in the early 1990s the trends were flat or increasing.

Figure 3.
Life expectancy at age 50 spent at work, in retirement and in other activities among upper non-manual employees and manual workers by calendar year (1989–2007) and sex.
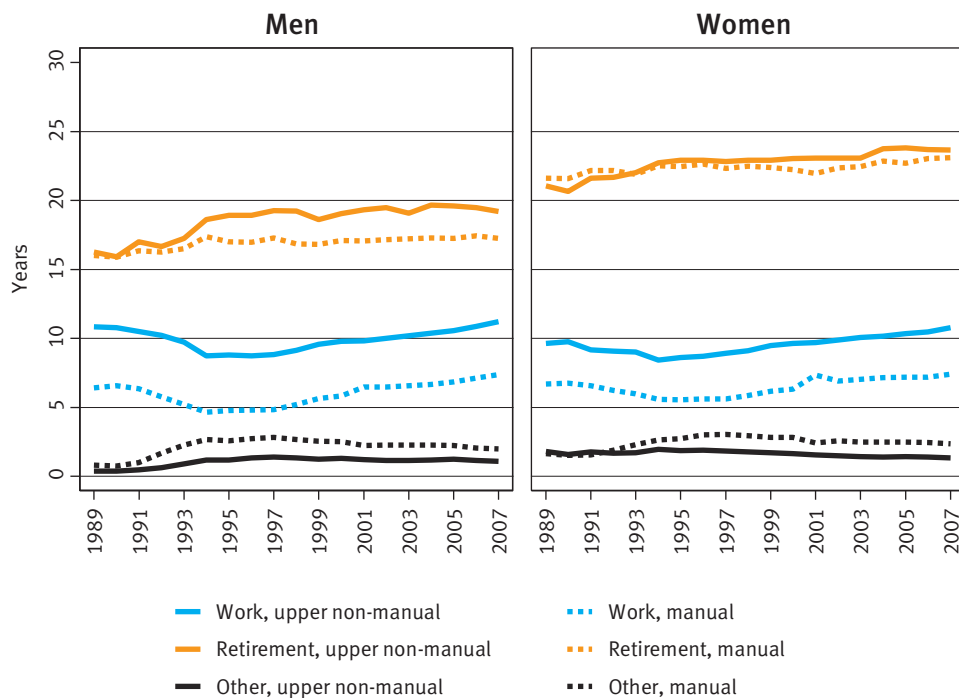
Figure 3 illustrates the period levels and trends in life expectancy at age 50 attributable to work and non-work activities for the highest and lowest social classes, upper non-manual employees and manual workers. Total life expectancy at age 50 as well as its increase between 1989 and 2007 were highest among those in higher social classes (not shown in

the Figure; for details see Appendix Table A2). For male upper non-manual employees, life expectancy increased 4.0 years (from 27.5 to 31.5) whereas for manual workers the increase was 3.4 years (from 23.2 to 26.6). For females, the life expectancy increase in the upper non-manual group was 3.4 years (from 32.5 to 35.8) and in the manual group 2.9 years (from 30.0 to 32.9).

Work expectancy decreased from the late 1980s until the mid-1990s but has since been on an upward trajectory (for exact numbers see Appendix Table A3). These trends were similar for both men and women. For manual workers, the trajectories were very similar to those of the upper non-manual employees, so that the trend was negative from 1989 to 1995 but has since been positive. The major difference between the upper non-manual employees and the manual workers was in the levels of work expectancy: the manual workers' work expectancy was, over the period 1989–2007, consistently 3–4 years lower than the upper non-manual employees' work expectancy. For men there has been slight narrowing in the gap, and for women a slight increase. Unemployment expectancy was lower for the upper non-manual class than for the manual class and the gap has grown from approximately 0.5 years to 1 year for both men and women (for exact numbers see Appendix Table A4).

Table 2 shows the period trends in total retirement expectancy by social class. Retirement expectancy trends were positive for both men and women and for upper non-manual employees and manual workers, but the increase in retirement expectancy has been faster for upper non-manual employees for both men and women (for exact numbers for disability retirement, other early retirement and old-age retirement, see Appendix Tables A5–A7). Overall, retirement expectancy increased 2 years (from 15.8 to 17.8) for men and 1.9 years (from 21.1 to 23.0) for women. The increases were fastest among upper non-manual employees (3.0 years for men and 2.7 years for women) and slowest among manual workers (1.2 years for men and 1.3 years for women). In the early 1990s, level differences in retirement expectancy by social class were small for men and favoring lower classes for women, but by the 2000s the typical pattern, in which higher social classes have the advantage, had emerged. For example, in 2007 upper non-manual class men had 19.2 years' retirement expectancy and manual class men 2 years less, 17.2 years. For women the corresponding difference was 23.7 years for upper non-manual workers versus 23.0 years for manual workers. The sex differences in retirement expectancy are larger than the socioeconomic class differences, as the manual class women have 3–5 years higher retirement expectancy than the upper non-manual class men.

Table 2.

Total retirement expectancy at age 50 by sex, year and social class.

A. MEN						
Year	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1989	15.8	16.2	16.5	16.0	15.2	0.2
1990	16.0	15.9	16.5	15.9	15.6	0.0
1991	16.2	17.0	16.7	16.3	15.6	0.7
1992	16.2	16.7	16.8	16.2	15.7	0.5
1993	16.3	17.2	17.2	16.5	15.7	0.7
1994	17.4	18.6	18.5	17.4	16.7	1.2
1995	17.2	18.9	18.5	17.0	16.5	1.9
1996	17.4	18.9	18.5	17.0	17.0	1.9
1997	17.6	19.2	18.6	17.3	17.5	1.9
1998	17.3	19.2	18.8	16.9	17.2	2.3
1999	17.2	18.6	18.0	16.7	17.0	1.9
2000	17.5	19.1	18.7	17.1	17.3	2.0
2001	17.8	19.4	18.5	17.1	18.3	2.3
2002	17.7	19.5	18.8	17.2	17.5	2.3
2003	17.8	19.1	18.6	17.2	18.1	1.9
2004	18.0	19.6	19.2	17.3	18.0	2.3
2005	17.9	19.6	18.8	17.3	18.0	2.3
2006	18.0	19.5	18.9	17.4	18.2	2.1
2007	17.8	19.2	18.9	17.2	18.2	2.0
Change	2.0	3.0	2.4	1.2	3.0	1.8

B. WOMEN						
Year	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1989	21.1	21.0	21.3	21.7	20.9	-0.7
1990	21.1	20.6	21.3	21.6	21.0	-1.0
1991	21.6	21.6	22.3	22.1	20.8	-0.5
1992	21.7	21.8	22.3	22.3	21.1	-0.5
1993	21.3	22.1	21.7	21.9	20.7	0.2
1994	22.2	22.7	22.9	22.5	21.5	0.2
1995	22.3	22.9	22.9	22.4	21.7	0.5
1996	22.5	22.9	22.9	22.6	22.7	0.3
1997	22.4	22.8	23.1	22.4	22.7	0.4
1998	22.5	22.9	23.2	22.5	22.8	0.4
1999	22.4	22.9	23.2	22.4	22.6	0.5
2000	22.3	23.0	23.1	22.2	22.5	0.8
2001	22.4	23.1	23.2	21.9	23.3	1.2
2002	22.6	23.0	23.3	22.4	22.8	0.6
2003	22.6	23.1	23.1	22.4	22.8	0.7
2004	22.9	23.8	23.5	22.8	23.0	1.0
2005	22.9	23.9	23.7	22.8	23.0	1.1
2006	23.1	23.7	23.6	23.1	23.4	0.6
2007	23.0	23.7	23.4	23.0	23.1	0.7
Change	1.9	2.7	2.1	1.3	2.2	1.4

The dominant component of the retirement expectancy, old-age retirement expectancy, increased for upper non-manual class men by 4.7 years from 13.0 to 17.7, while for manual class men the increase was only 3.5 years, from 9.6 to 13.2 years (Appendix Table A7). For upper non-manual class women, old-age retirement expectancy increased 4.1 years (from 18.2 to 22.4) and for manual class women 3.4 years (from 15.5 to 18.9). For both men and women the difference in favor of upper non-manual class compared to the manual class increased by about 1 year.

Disability retirement expectancy decreased for both men and women and in all social classes. The decrease was fastest in the lower social classes, possibly because of higher starting levels (Appendix Table A5). For upper non-manual class men, the decrease was 0.6 years (from 1.6 to 1.0), and for manual class men 1.3 years (from 4.3 to 3.0). For upper non-manual class women the decrease was 0.5 years (from 1.3 to 0.9), and for manual class women 0.9 years (from 4.0 to 3.0). In most groups the vast majority of the decline in disability retirement expectancy took place only after the mid-1990s. For other early retirement expectancy the social class differences have been less strong, and in most groups for both men and women, the early retirement expectancy has declined from about 2 years to about 1 year (Appendix Table A6).

Figure 4.

Fraction of remaining life expectancy at age 50 spent working by social class, calendar year (1989–2007) and sex.
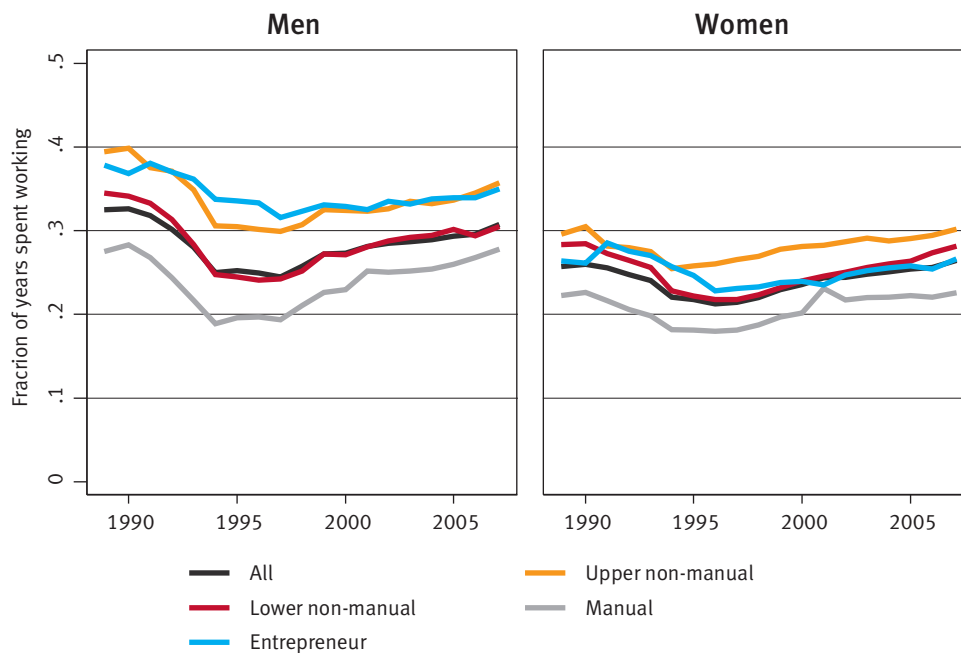
Figure 4 shows the fraction of remaining years at age 50 that are spent working by sex, calendar year and SES. This fraction was calculated by dividing the work expectancy at age 50 by the total life expectancy at age 50. We highlight three results from the Figure 4: first, there were large social class differences in the levels for both men and women. In 2007 and for men, upper non-manual employees' work expectancy was 36% of the remaining life

expectancy at age 50, and for manual workers the fraction of remaining years at age 50 that are expected to be spent working was only 28%. For women in 2007, the difference was similar, 30% for the upper non-manual class versus 23% for the manual class. Second, the trends by social class are qualitatively similar. For men there has been a slight narrowing in the upper non-manual versus manual class difference (the difference was 12 percentage points in 1989, and 8 percentage points in 2007), but for women the gap has been essentially constant (7 percentage points in 1989, and 8 in 2007). Third, the trends show that the fraction of years expected to be spent working is sensitive to contemporaneous economic conditions, as this fraction decreased for all classes in the early 1990s recession. By 2007, the fraction had for most classes climbed close to the levels of the late 1980s. For example, for men as a whole the fraction was 33% in 1989 and 31% in 2007; for women the fraction was 26% in 1989 and was again 26% in 2007.

The Appendix tables A2–A8 provide, in numerical format, further details about increasing life expectancy and how it is distributed to various labor force statuses by sex, social class and calendar year. Table A2 is for life expectancy; Table A3 for work expectancy; Table A4 for unemployment expectancy; Table A5 for disability retirement expectancy; Table A6 for other early retirement expectancy; Table A7 for old-age retirement expectancy; and Table A8 for other activities than working, unemployed, or retired.

Cohort patterns

Figure 5.

Life exp.at age 50 spent in different labor force statuses by birth cohort and sex

Men

Women

Work
Disability retirement
Old-age retirement
Unemployment
Other early retirement
Other
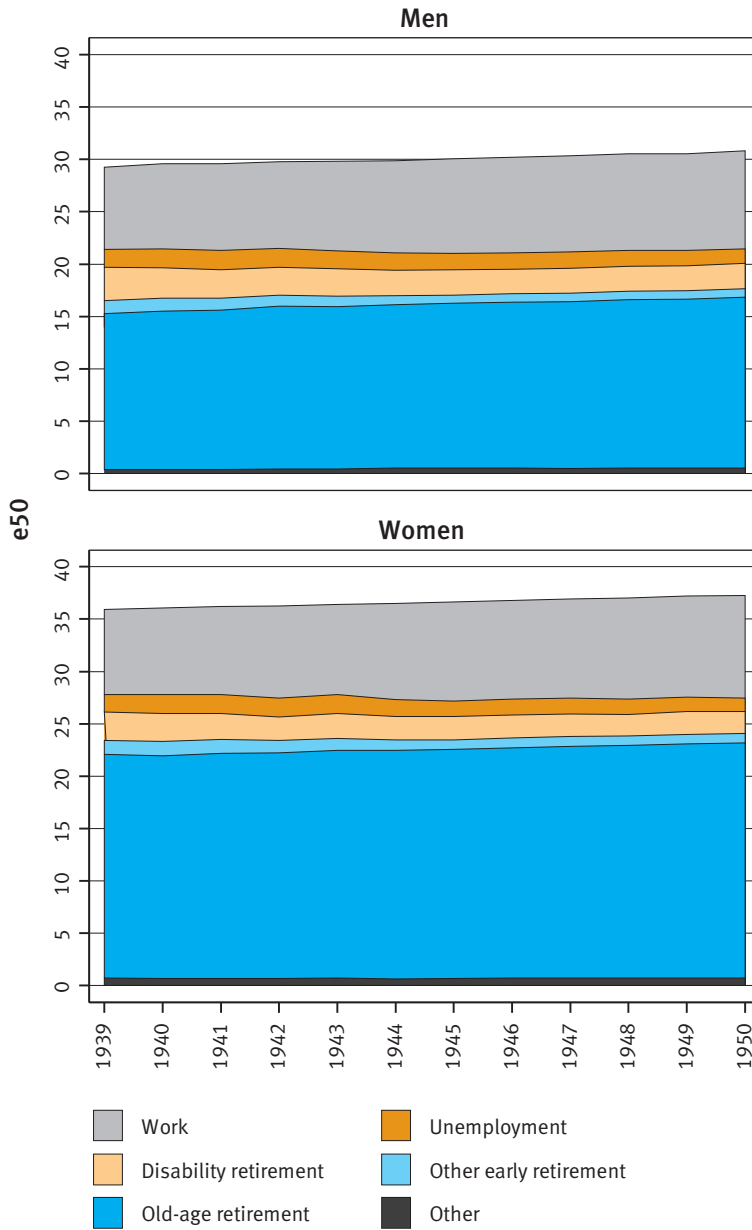
Figures 5–7 present similar results for the cohort perspective that the figures 2–4 showed for the period perspective. Figure 5 shows the cohort life expectancy at age 50 for men and women for the cohorts 1939–1950 and the expected distribution of years lived at age 50 to work, unemployment, disability and other early retirement, old-age retirement, and other activities for these cohorts. Appendix Table A9 shows the exact numbers on which Figure 5 is based.

For men over the 1939–1950 birth cohorts, life expectancy at age 50 has increased by 1.6 years, from 29.3 years for the 1939 birth cohort to 30.8 years for the 1950 birth cohort (Figure 5). Work expectancy increased about as much, 1.5 years from 7.9 to 9.4 years. Unemployment expectancy decreased from 1.7 to 1.4 years. Total retirement expectancy increased 0.2 years from 19.3 to 19.5. Disability retirement expectancy decreased from 3.2 to 2.4 years, while old-age retirement expectancy increased from 14.9 to 16.3 years. Thus for men, life expectancy increased by 0.15 years per birth cohort (1.6 years over 11 cohorts), and work expectancy increased at the same pace (1.5 years over 11 cohorts). Old-age retirement expectancy also increased, 1.4 years over 11 cohorts, but this was largely counteracted by comparable decreases in disability and other early retirement expectancies.

The patterns were qualitatively similar for women (Figure 5). Life expectancy at age 50 was at 36–37 years, i.e. 6–7 years higher than for men, and it increased 1.3 years, from 35.9 years for the 1939 birth cohort to 37.3 years for the 1950 birth cohort. Work expectancy increased more, by 1.6 years from 8.1 to 9.8 years. Unemployment expectancy decreased by 0.4 years. Total retirement expectancy stayed flat at 25.4 years. The no-change was driven by a decrease in early retirement and an increase in old-age retirement, as disability and other early retirement expectancies both decreased by approximately 0.5 years but old-age retirement expectancy increased by 1.0 years, from 21.4 to 22.4 years. Standardized to changes per birth cohort, female life expectancy increased by 0.12 years per birth cohort (1.3/11); work expectancy increased faster, 0.15 years per birth cohort, and old-age retirement expectancy increased by 0.1 years per cohort. Overall, women have more working years ahead of them at age 50 than men (for example: for the 1940 birth cohort the difference was 8.3–8.1 = 0.2 years).

Figure 6 illustrates the cohort levels and trends in life expectancy at age 50 attributable to work and non-work activities for the highest and lowest social classes, upper non-manual employees and manual workers. Total life expectancy at age 50 was highest among those in higher social classes. For example for the upper non-manual class men born in 1945, the remaining life expectancy at age 50 was 33.2 years and for the manual class men 28.4 years; the differences were qualitatively similar but narrower for women (not shown in the Figure; for details see Appendix Table A10). All social classes are gaining in life expectancy, and the differences in the trends are not large[5].

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5   If anything, the lower SES-groups appear to be experiencing faster increases in life expectancy than highest SES groups. However, strong conclusions should not be drawn from these differences as the life expectancy results by social class may be sensitive to the methodological assumptions regarding mortality forecasting, as discussed in the Methods section.

Figure 6.

Life expectancy at age 50 spent at work, in retirement and in other activities among upper non-manual employees and manual workers by birth cohort (1939–1950) and sex.
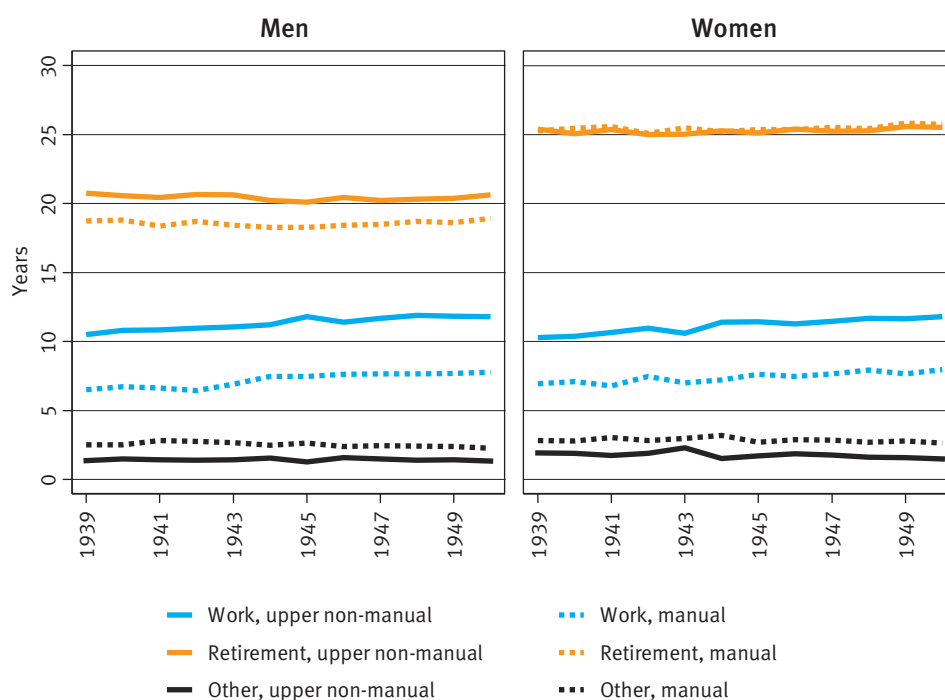
Work expectancy for men at age 50 was approximately 8–9 years, and for women a few months more (Figure 6; Appendix Table A11). Non-manual classes had a higher work expectancy than manual classes. For men the difference between the upper non-manual class and manual class was approximately 4 years, and for women approximately 3.5 years. Both the upper non-manual and the manual class are experiencing increases in work expectancy, and the trend differences between the classes are small. For example, for upper non-manual men, work expectancy increased 1.3 years from 10.5 to 11.8 over the 1939–1950 birth cohorts; for manual class men the increase was the same, 1.3 years from 6.5 to 7.8. These increases correspond to 0.12 years per birth cohort. For women, there appears to be a gradient in the pace of increase in work expectancy, as the increase in the upper non-manual class was 1.5 years from 10.3 to 11.8 but for the manual class only 1 year from 6.9 to 8.0 years. The category "other" in Figure 6 consists largely of unemployment expectancy; this was approximately 1 year lower for the upper non-manual class than for the manual class for both men and women and the gap has decreased slightly over the birth cohorts (Figure 6; Appendix Table A12).

Total retirement expectancy trends over birth cohorts were mostly flat for both men and women and for upper non-manual employees and manual workers (Figure 6; Appendix Tables A13–A15). Women had on average approximately 5–6 years more retirement years than men. For men, the upper non-manual class had approximately 2 years' higher total retirement expectancy than the manual class; for women there was no difference in retirement expectancy between the upper non-manual and the manual class.

Table 3.

Total retirement exp. at age 50 by sex, birth year and social class.

A. MEN						
Cohort	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1939	19.3	20.7	20.0	18.8	19.5	2.0
1940	19.2	20.6	19.9	18.8	19.5	1.8
1941	19.1	20.5	19.8	18.4	19.4	2.1
1942	19.2	20.7	19.7	18.7	19.5	2.0
1943	19.1	20.7	19.9	18.4	19.4	2.2
1944	18.9	20.2	19.8	18.3	19.2	1.9
1945	18.9	20.1	19.9	18.3	19.0	1.8
1946	19.0	20.4	19.8	18.4	18.8	2.0
1947	19.1	20.2	20.1	18.5	19.1	1.8
1948	19.3	20.3	20.1	18.6	19.3	1.5
1949	19.3	20.5	20.1	18.6	19.7	1.7
1950	19.5	20.6	20.4	18.9	19.6	1.8
Change 1939-50	0.2	-0.1	0.4	0.1	0.1	-0.2
Change 1939-45	-0.4	-0.6	-0.1	-0.5	-0.5	-0.2
Change 1945-50	0.6	0.5	0.5	0.6	0.6	0.0

B. WOMEN						
Cohort	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1939	25.4	25.4	26.0	25.3	25.6	0.1
1940	25.3	25.1	25.7	25.5	25.7	-0.4
1941	25.3	25.4	25.6	25.5	25.2	-0.2
1942	25.0	24.9	25.4	25.0	25.0	-0.1
1943	25.2	25.0	25.7	25.4	25.6	-0.5
1944	25.0	25.3	25.4	25.2	25.3	0.1
1945	25.0	25.1	25.5	25.4	24.5	-0.2
1946	25.2	25.4	25.5	25.3	24.6	0.0
1947	25.2	25.2	25.6	25.5	25.2	-0.2
1948	25.2	25.3	25.6	25.3	25.0	-0.2
1949	25.4	25.6	25.8	25.8	25.2	-0.3
1950	25.4	25.5	25.8	25.7	25.2	-0.2
Change 1939-50	0.0	0.1	-0.2	0.4	-0.4	-0.3
Change 1939-45	-0.4	-0.3	-0.5	0.1	-1.1	-0.3
Change 1945-50	0.4	0.4	0.3	0.3	0.7	0.0

Table 3 shows the projected cohort trends in total retirement expectancy by social class. The results show that upper non-manual class men have approximately 2 years' higher retirement expectancy than manual class men (for the 1945 birth cohort 20.1 years versus 18.3 years); for women the level differences are small. In contrast to the period trends in retirement expectancy, which were increasing, the retirement expectancy changes over the 1939-1950 cohorts, that are small. The overall change over the 1939–1950 birth cohorts was less than half a year for all social classes and both sexes, for some groups slightly negative (for example, upper non-manual men -0.1 years), for others slightly positive (manual women +0.4 years). However, looking at the change over the 1939–1950 cohorts masks the positive trend that is observed for the post-war 1945–1950 birth cohorts. For them, total retirement expectancy is increasing across all social classes and for both men and women. The increase, which is approximately 0.1 years per birth cohort, corresponds to that observed in the period perspective.

The Appendix Tables A13–A15 show the components of the total retirement expectancy (disability retirement, other early retirement and old-age retirement). These tables show that the approximate 2– year retirement expectancy difference for upper non-manual class and manual class men consisted of roughly 4 years' more old-age retirement for the upper class men and 2 years' less disability retirement; differences in other early retirement expectancies were small. These tables also show that the flatness of the retirement expectancy trends over birth cohorts was due to increasing old-age retirement and decreasing disability retirement trends canceling each other out.

Over the 1939–1950 birth cohorts, the expected time spent in disability retirement declined from 3.2 to 2.4 years for men, and from 2.7 to 2.1 years for women (Appendix Table A13). Declines have occurred in all social classes and for both men and women. The decrease was fastest in the lower social classes. For upper non-manual class men, the decrease was 0.4 years (from 1.4 to 1.0), and for manual class men 0.7 years (from 4.0 to 3.3). For upper non-manual class women, the decrease was 0.3 years (from 1.2 to 0.9), and for manual class women 0.4 years (from 3.6 to 3.2). For other early retirement expectancy (Table A15), the social class differences have been less strong, and in most groups for both men and women the early retirement expectancy has declined from slightly above 1 year to slightly below 1 year.

Old-age retirement expectancy for men was highest (18–19 years) for the upper non-manual class, and lowest (14–15 years) for the manual class (Appendix Table A14). The average change was 1.4 years over the 1939–1950 birth cohorts. There was no clear pattern in the change across social classes, as the increase has been slowest in the upper non-manual class and fastest in the lower non-manual group, with manual classes in between. For women, old-age retirement expectancy averaged 21–22 years, and was highest (23–24 years) for the non-manual classes and lowest (20–21 years) for the manual class. The average change was 1.0 years over the 1939–1950 birth cohorts. There appears to be an inverse gradient in the pace of increase, as the increase has been slowest in the upper non-manual class (0.5 years) and fastest in the manual group (1.2 years). This inverse gradient may reflect lower starting levels for the lower SES groups.

Figure 7.

Fraction of remaining life expectancy at age 50 spent working by social class, birth cohort (1939–1950) and sex.
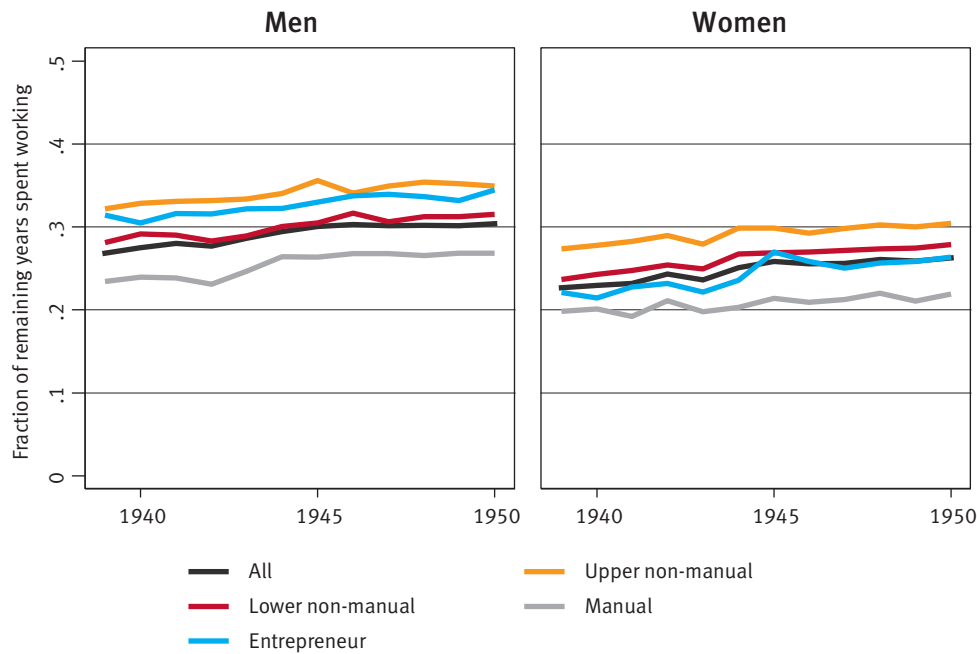
Figure 7 shows the fraction of remaining years at age 50 that are spent working by sex, birth cohort and SES. The figure illustrates the positive trends that, in contrast to the period trends, are not interrupted by the 1990s depression: All social classes combined, the fraction of years spent working at age 50 is increasing for both men and women. For the 1939 birth cohort, the fraction was 0.27 for men and 0.23 for women; for the 1945 cohort these fractions had increased to 0.29 (men) and 0.26 (women). For the 1946–1950 birth cohorts we observed little increase – the fraction of years spent working for the 1950 birth cohorts were 0.30 and 0.26 for men and women, respectively – but this could be driven by our conservative methodology which does not allow trends in future age-specific labor force participation rates.

There were large social class differences in the fraction of years spent working at ages above 50. For upper non-manual employees, this fraction was 0.35 for the male 1950 birth cohort and 0.30 for the female 1950 birth cohort. For manual workers from the 1950 birth cohort, these fractions were 0.27 for men and 0.22 for women. The trends, however, were highly similar for all social classes.

The results of Figure 7 and Figure 6 illustrate that while women can expect to have about as much working years ahead of them at age 50 as men (Figure 6) – in fact women have slightly more working years (for details see Table A11) due to their higher life expectancy – the fraction of remaining years at age 50 that women spend working is much lower than that of men.

The Appendix tables A10–A16 provide, in numerical format, further details about increasing life expectancy in the cohort perspective and how it is distributed to various labor force statuses by sex, social class and birth cohort. Table A10 is for life expectancy; Table A11 for work expectancy; Table A12 for unemployment expectancy; Table A13 for disability retirement expectancy; Table A14 for other early retirement expectancy; Table A15 for old-age retirement expectancy; and Table A16 for other activities than working, or being unemployed or retired.

5   Are the differences driven by difference in mortality or differences in participation rates?

The difference in work expectancy, retirement expectancy, or any other life table expectancy between two populations in this study (for example, high versus low social classes, men versus women, or current versus recent) is driven by two components: the age-specific differences in mortality rates between the two populations, and the age-specific differences in participation rates between the two populations. In order to understand whether the sex, social class, cohort versus period, and time trend differences are driven by differences in mortality or by differences in labor force participation patterns, we decomposed the key results into the contributions arising from mortality and labor force participation differences. We considered four key results: (i) higher work expectancy for women than for men (Figure 8); (ii) higher work expectancy for upper non-manual than for manual workers (Figure 9); (iii) higher work expectancy for real 1940s cohorts than for the synthetic cohorts constructed from 2000s period data (Figure 10); and (iv) higher retirement expectancy for upper non-manual versus manual workers (Figure 11).

Figure 8.
Decomposition of differences in work expectancy between women and men in calendar year 2005.
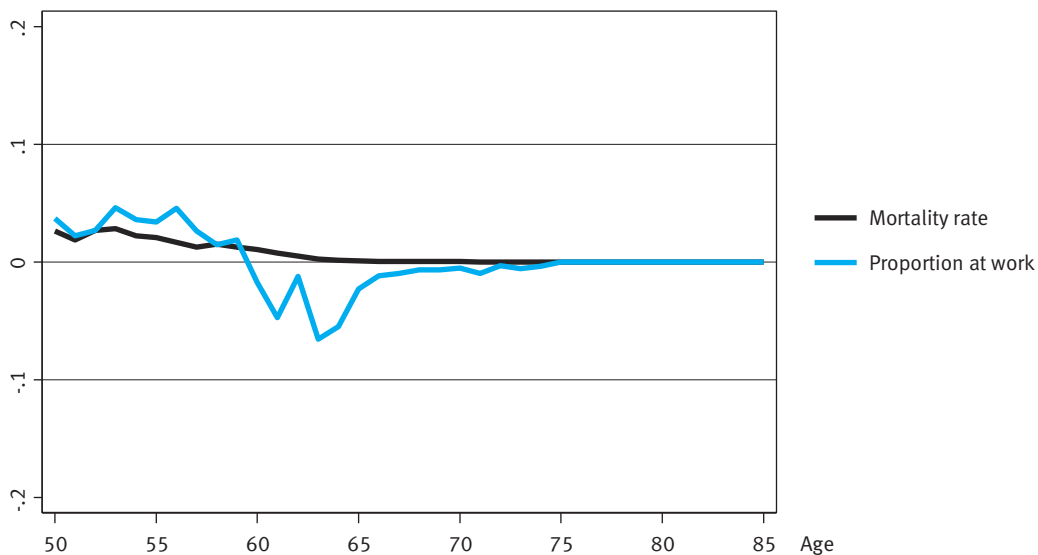
Total difference 0.26 years of which 0.23 is due to mortality and 0.03 due to employment rate differences.

One of our key findings is that women have higher work expectancy than men at age 50. Figure 8 decomposes the sex difference in work expectancy to mortality and employment rate contributions for the period 2005 (Panel A) and for the cohort 1945 (Panel B). The figures show that mortality rate favors women at all ages: mortality is lower for women, therefore the contribution of the mortality difference to the work expectancy difference is positive for all ages. Employment rates, on the other hand, favor women only up to approximately age 60: at ages below 60, women have higher employment rates, at ages above 60, men have higher employment rates. These differences in employment rates, however, roughly balance each other, so that the mortality difference determines whether men or women have higher work expectancy. Given the lower female mortality, women at age 50 have more working years ahead of them than men. This result is very similar for both cohort and period perspectives (cohort perspective not shown).

Figure 9.

Decomposition of work expectancy differences between upper non-manual and manual workers; calendar year 2005.

A. MEN
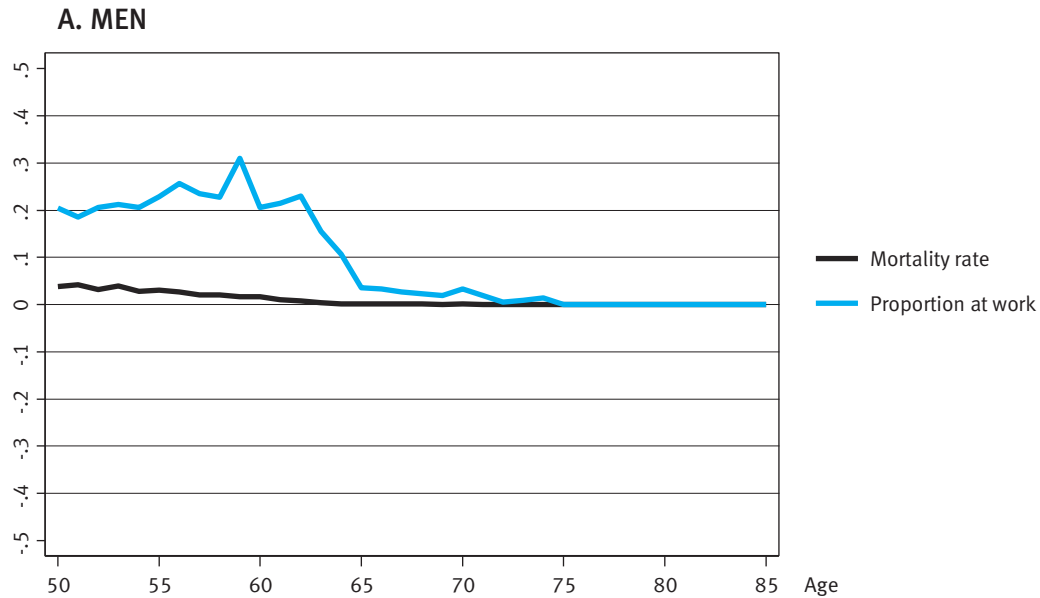
Total difference 3.74 years of which 0.34 is due to mortality and 3.40 due to employment rate differences.

B. WOMEN
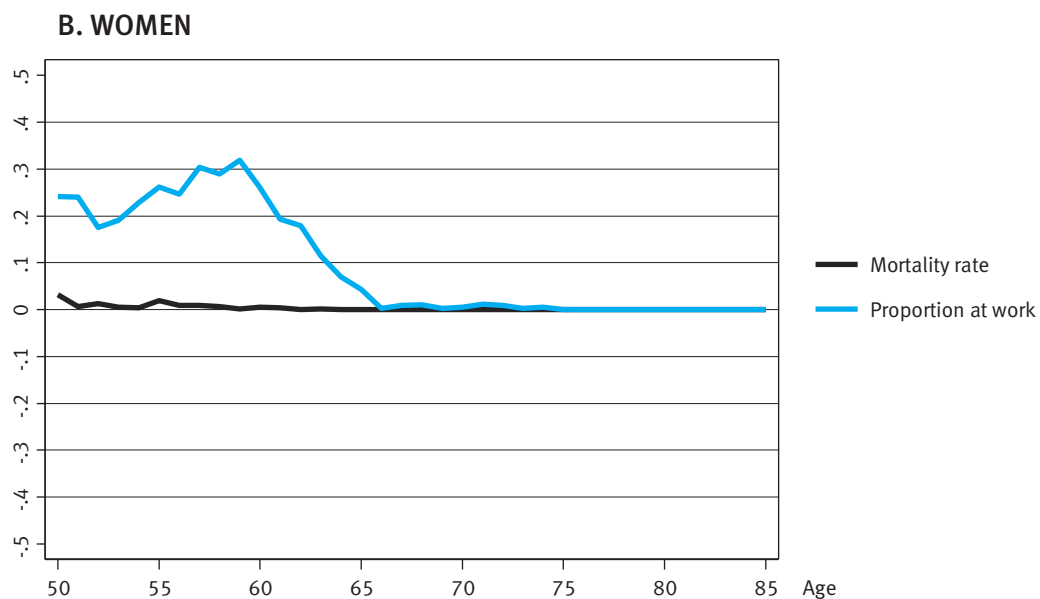
Total difference 3.54 years of which 0.12 is due to mortality and 3.42 due to employment rate differences.

Figure 9 analyses whether the higher work expectancy for upper non-manual than for manual workers is driven by differences in mortality – upper non-manual employees have a lower risk of dying at working ages – or by difference in employment rates. The decompositions are carried out for the 2005 period; for other periods and from the cohort

perspective, the results would be similar. The figures show that for both men (Panel A) and women (Panel B), the vast majority of higher work expectancy is driven by higher employment rates. While lower mortality for the upper non-manual classes also contributes to them having higher work expectancy than manual workers, more than 90% of the difference is driven by differences in employment rates.

Figure 10.
Decomposition of differences in work expectancy between period 2005 and cohort 1945.

A. MEN
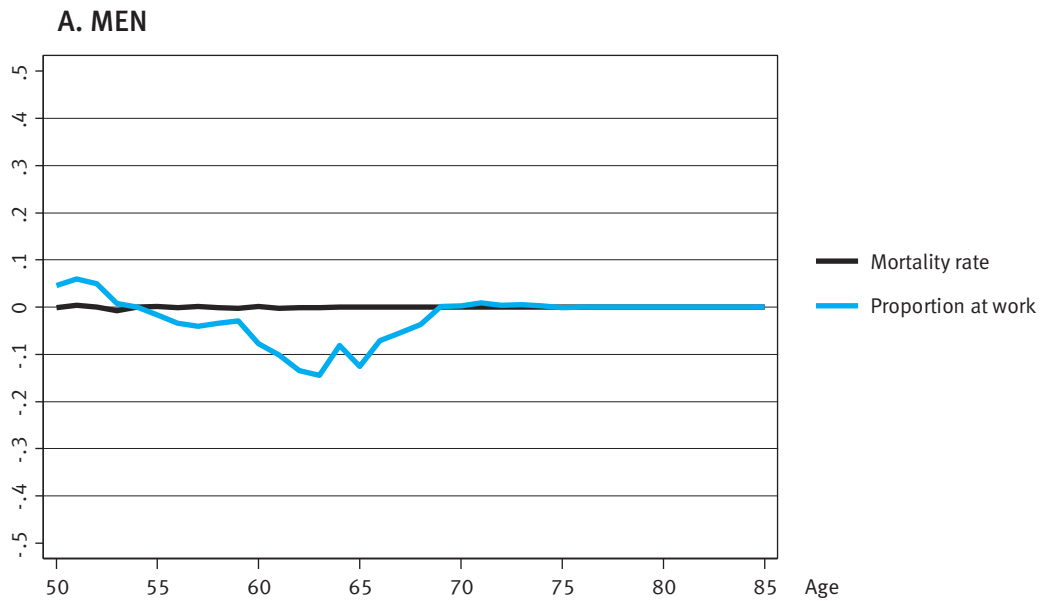
Total difference -0.80 years of which -0.01 is due to mortality and -0.79 due to employment rate differences.

B. WOMEN
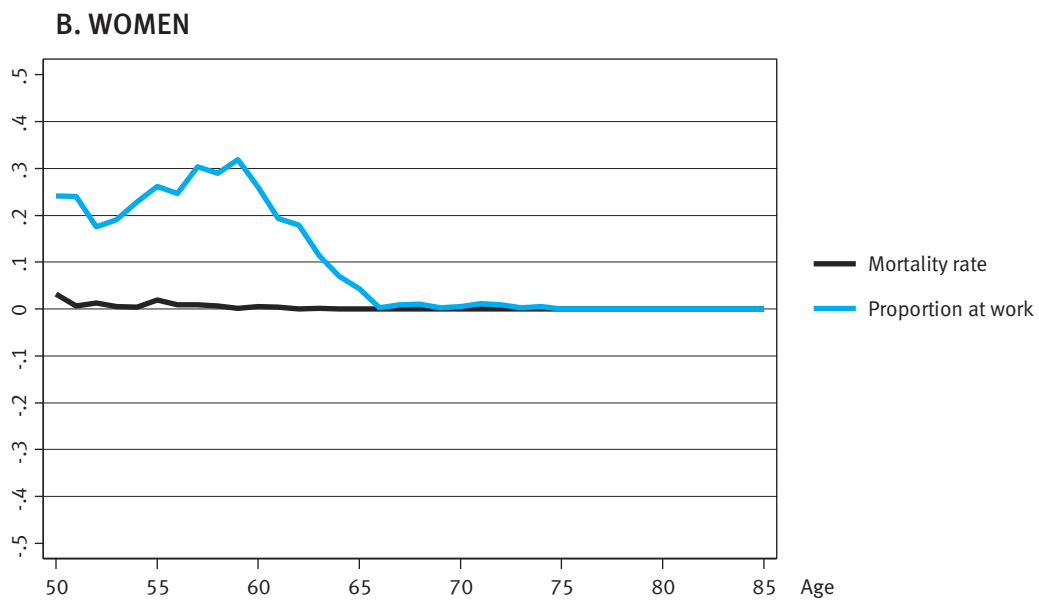
Total difference -0.96 years of which -0.01 is due to mortality and -0.95 due to employment rate differences.

Figure 10 analyses why work expectancy is higher for the cohorts born in 1940s compared to the synthetic cohorts constructed from period data of the 2000s. The figure decomposes the work expectancy difference between the 2005 period data and the 1945 cohort data to the age-specific mortality and employment rate differences. For both men and women, the contribution of mortality to the differences is minimal, and the majority of the difference comes from the differences in employment rates at ages above 60: for the cohorts, we observe and predict higher employment rates for these old ages than we have observed for periods. This difference in old-age employment rates explains the lower work expectancy in the period than in the cohort perspective.

Figure 11 analyses why upper non-manual employees have a higher retirement expectancy than manual workers. The figure analyses the total retirement expectancy (sum of disability retirement, other early retirement and old-age retirement) and decomposes the total retirement expectancy difference between the upper non-manual and manual classes to the age-specific mortality and employment rate differences using the 2005 period data. For other periods and from the cohort perspective, results would be similar. The figure shows that for men (Panel A), the 2–year difference is a combination of upper non-manual men having a lower mortality at all ages, which contributes more than 4 years to the difference, and a countervailing force of manual class men retiring more often at ages 50–65, which decreases more than 2 years from the difference. For women (Panel B), the difference is much less (only about half a year); this difference is a combination of lower mortality for upper non-manual class women (+2.9 years) and manual class women retiring more often at ages 50–65 (-2.4 years). If manual class workers, men and women, retired as late as upper non-manual class workers, the difference in retirement expectancy would grow to 4.4 years for men and 2.9 years for women.

Figure 11.

Decomposition of differences in total retirement expectancy (sum of disability retirement, other early retirement, and old-age retirement) between upper non-manual and manual workers, Calendar year 2005.

A. MEN
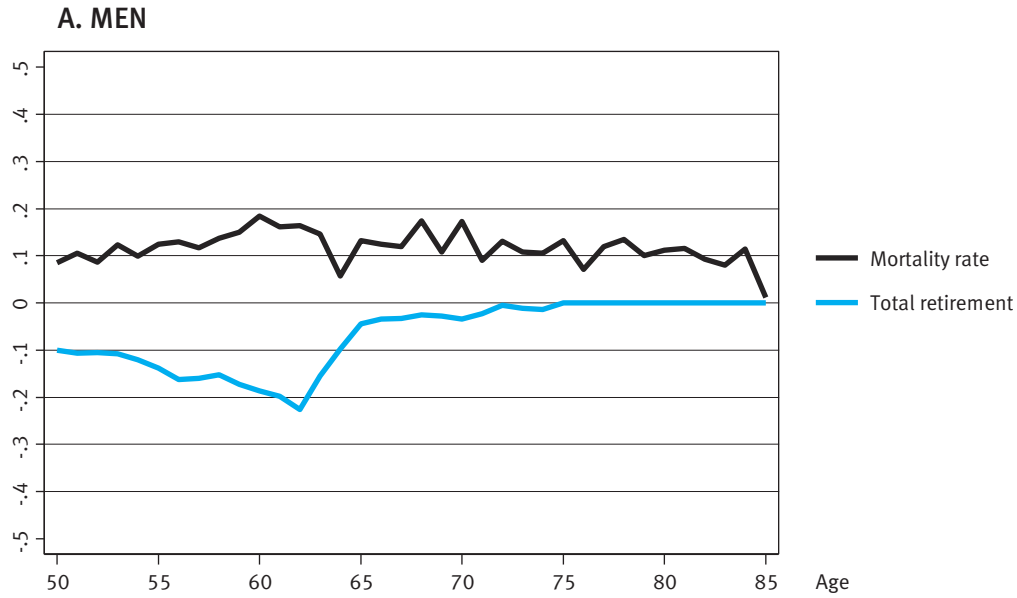
Total difference 1.99 years of which 4.43 is due to mortality and -2.44 due to retirement rate differences.

B. WOMEN
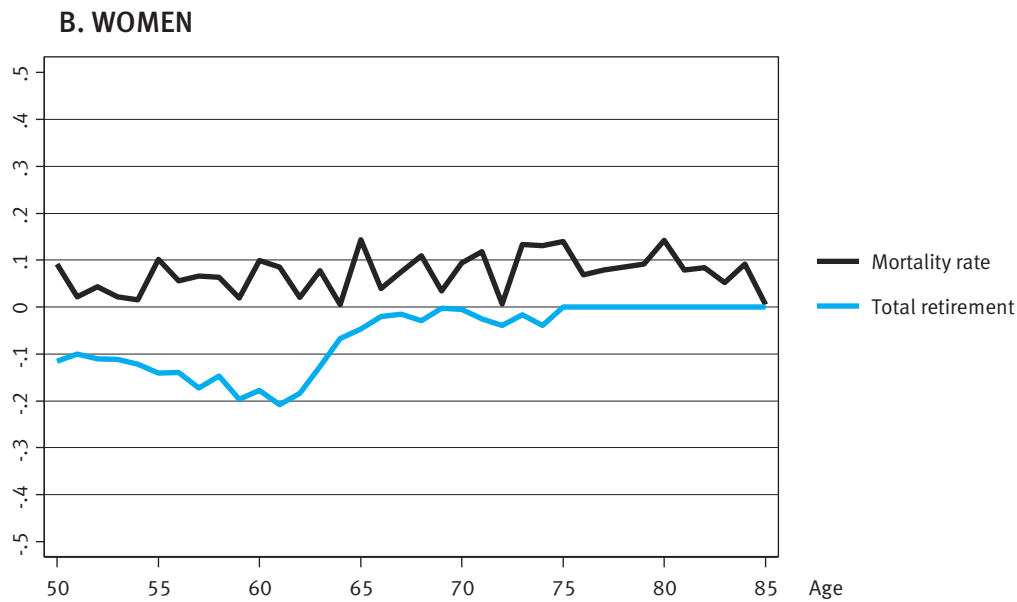
Total difference 0.54 years of which 2.90 is due to mortality and -2.36 due to retirement rate differences.

6 Sensitivity analyses

We considered several sources of uncertainty in our results. First, we calculated the statistical uncertainty in the period calculations. The source of this uncertainty is the sample-based variation in both the mortality rates and in the labor force status distributions. Because of the large data set that we used the statistical uncertainty was small – for example, for work expectancy estimates less than +/- 1%, and for old-age disability retirement estimates less than +/- 5% – so that the 95% upper and lower bounds would have resulted in similar conclusions as the point estimates presented in this paper.

Second, we considered the accuracy of the method we used for completing labor force status distributions for the partially observed cohorts. We used information from earlier cohorts to complete the labor force status for later-born partially observed cohorts. We constructed a simulation in which we use the fully observed (up to age 68) 1940 birth cohort, artificially truncate the observations for the labor force status distribution at ages 65, 64 and 63, and calculate the work expectancy, unemployment expectancy, and other components based on the truncated and extrapolated labor force status data. The results (not shown) suggest that in a short term extrapolation such as ours, the error is small. For example, when the full data (up to age 68) was used, work expectancy for men was 8.1 years. When the data was truncated at age 63 and the rest of the labor force status distribution was extrapolated based on the earlier cohorts, the estimated work expectancy was 8.0 years. For women, the differences were of similar magnitude. While our method may thus underestimate the increase in work expectancy, based on historical data we expect this underestimation to be small.

Third, given the likely but small underestimation of the work expectancy in our method, we considered an alternative way of completing cohort labor force participation patterns that is less likely to result in underestimation of work expectancy. In this alternative extrapolation, we forecasted the future labor force participation rates based on past trends. We used the age-specific trends observed over the past 10 years to linearly extrapolate the future labor force participation rates for both sexes and for all social classes. This approach assumes that the past trends, which for employment rates have been positive, continue uninterrupted. The Appendix Figure A1 illustrates the forecasting method. The Appendix Figure A2 presents the fraction of remaining life expectancy that was estimated using the past trends in age-specific employment rates. Comparisons to the corresponding Figure 7, which was based on freezing the employment rates and allowing no trends, shows that these results are almost indistinguishable from each other. Our results are thus not sensitive to the trend assumption in employment rates.

Fourth, we considered the influence of the choice of the base period in our mortality forecasts. Our results were based on using the period 1988–2009 as the base period in the Lee-Carter mortality forecasts. It is well-known that the choice of the base period may be influential to the Lee-Carter mortality forecasts, in particular if there are deviations from log-linearity in the mortality decline. We replicated the results using a longer base period,

the years 1960–2009. This resulted in a somewhat less steep increase in life expectancy, but qualitatively the results did not change. We present here the results that were based on the 1988–2009 trend because these results almost perfectly match the mortality projections published by Statistics Finland. For example, for the 1945 birth cohort we estimated the remaining life expectancy at age 50 to be 30.71 for men and 36.48 for women; the corresponding estimates based on the projections of Statistics Finland are 30.71 and 36.41[6].

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6 Statistics Finland does not produce estimates about cohort life expectancy, but does produce age-period life expectancy projections which we have used to calculate the implied cohort life expectancy.

7   Discussion

Increasing longevity and decreasing the workers-to-non-workers ratio are among the key demographic challenges facing high-income countries, with major consequences for the sustainability of the social protection system and labor markets. Working longer is a potential cure, but little is known about how the increasing longevity is distributed between work and other labor force statuses, or how trends in these components vary by social class. We used Finnish register data for the years 1989–2007 to analyze both period and cohort trends in adult life expectancy by social class. We focused on how increasing longevity is distributed between work and retirement.

Over the period 1989–2007, period life expectancy at age 50 increased by 3.9 years for men and by 3.4 years for women. Work expectancy increased much less, by 0.7 years among men and 1.1 years among women. Work expectancy increased across all social classes and for both men and women, but there were large differences in levels as upper-class employees have approximately 3–4 years higher work expectancy than manual workers. Our results about work expectancy trends, socioeconomic differences, and male-female differences are largely consistent with those of Nurminen (2012).

Years spent in retirement increased for both men and women by approximately 2 years; this increase was a combination of a 4–year increase in old-age retirement and 2-year decrease in disability and other early retirement. Retirement expectancy increased more among upper non-manual employees, approximately 3 years, than among manual workers, for whom the increase was only about 1 year. Level differences in retirement expectancy by social class were smaller than those in work expectancy. Among men, upper-class employees have about 2 years' higher retirement expectancy than manual workers; among women the difference is about 1 year.

Overall, the period results suggest that the majority of the gains in life expectancy are spent in retirement, while only approximately a quarter of the gains are spent working. However, although these period results are informative about contemporary mortality and labor force participation rates, they do not necessarily reflect the experience of real cohorts of men and women.

The analysis of birth cohorts from 1939 to 1950 shows that for real cohorts, the changes in work expectancy follow increases in longevity more closely than what the period results suggest. Over the 1939–1950 cohorts, male life expectancy at age 50 is projected to increase by 1.6 years, and work expectancy about as much, by 1.5 years. For women, life expectancy is projected to increase by 1.3 years and work expectancy even more, by 1.6 years. Work expectancy increased across all social classes, but the highest class had approximately 4 more working years than the lowest class. Women had more working years at age 50 than men, mostly because of lower mortality at working age.

Total retirement expectancy is projected to increase over the 1939–1950 birth cohorts only by 0.2 years for men and not change at all for women. This result is obtained despite old-age retirement expectancy increasing by 1.4 years for men and 1.0 years for women; these increases were counteracted by comparable decreases in the expected number of years

spent in disability retirement or in other early retirement. However, focusing only on post-war (1945–1950) cohorts, the projections in retirement expectancy suggest a rapid 0.1 year per birth cohort increase for both men and women.

The fraction of remaining years at age 50 that are spent working shows a positive trend for both men and women. For the 1939 birth cohort, the fraction was 0.27 for men and 0.22 for women, but for the 1950 cohort these fractions had increased to 0.30 (men) and 0.26 (women). The trends were positive also for all social classes. However, at age 50, upper non-manual employees spend a substantively higher fraction of their remaining years at work than manual workers. Comparison of sex differences showed that despite their lower number of remaining working years at age 50, men spend a larger fraction of their remaining lifetime at age 50 working than women; this difference is attributable to higher male mortality.

These results shed new light on how remaining life expectancy at age 50 is distributed between work, unemployment and retirement, and how these patterns change over time for periods and cohorts and for different social classes. Life expectancy calculations in the period perspective are most suitable for assessing the current mortality and labour market conditions. These calculations indicate that the majority of the life expectancy gains are attributed to retirement if comparisons are made between 1989 and 2007. However, after the recession of the early 1990s, work expectancies have also been increasing rapidly and this growth has outpaced the growth in retirement expectancy. Old-age retirement expectancy has grown most rapidly by about 4 years for men and women, with social class differences growing at the same time.

However, the period results do not reflect the experience of real cohorts and are extremely sensitive to fluctuations in economic cycles and choice of study years. If the focus of attention is to try to anticipate future trends, the true cohort approach is superior. In particular, as the current study forecasts the future mortality – and also the last years of labour market participation for the youngest cohorts – it will provide a more realistic vision of the years in retirement for men and women now approaching retirement age. For real birth cohorts from 1939 to 1950, the increases in work expectancy were as fast as, and in some cases even faster, than the increase in projected life expectancy. With increasing years in retirement offset by increasing working years and declining years in unemployment, the 'dependant' years grow less than years at work over the 1939–1950 cohorts. The dependency ratio between active and passive years may thus become more advantageous for the cohorts now entering retirement. The differences between period and cohort approaches may imply that pension dependency forecasts that fully rely on period approaches may give too pessimistic an assessment of long-term future trends overall.

However, regardless of the approach chosen, upper non-manual men are likely to work about four years and live about five years longer than manual men after age 50. For cohorts born in the 1940s, upper non-manual men can expect to spend in total about 20 years in retirement; this is only about 2 years more than manual men. Among women the work and life expectancy advantage for the upper non-manual classes are about three and two years, respectively, and the total retirement expectancy among the 1940s cohorts is the same, 25 years, for all social classes. However, old-age retirement expectancy is about 4–5 years longer among upper non-manual men than manual men, with the corresponding difference being three years among women. These are counter-balanced by opposite differentials for disability and other early retirement.

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Appendix figures and tables

Appendix figure A1.

Employment rates by age, year and selected birth cohorts. Observations: years 1989–2008; forecasts years 2009–2020. The red vertical line denotes the last observations. The forecasts are done by extrapolating the age-specific participation rates observed over the last 10 years.

A. MEN
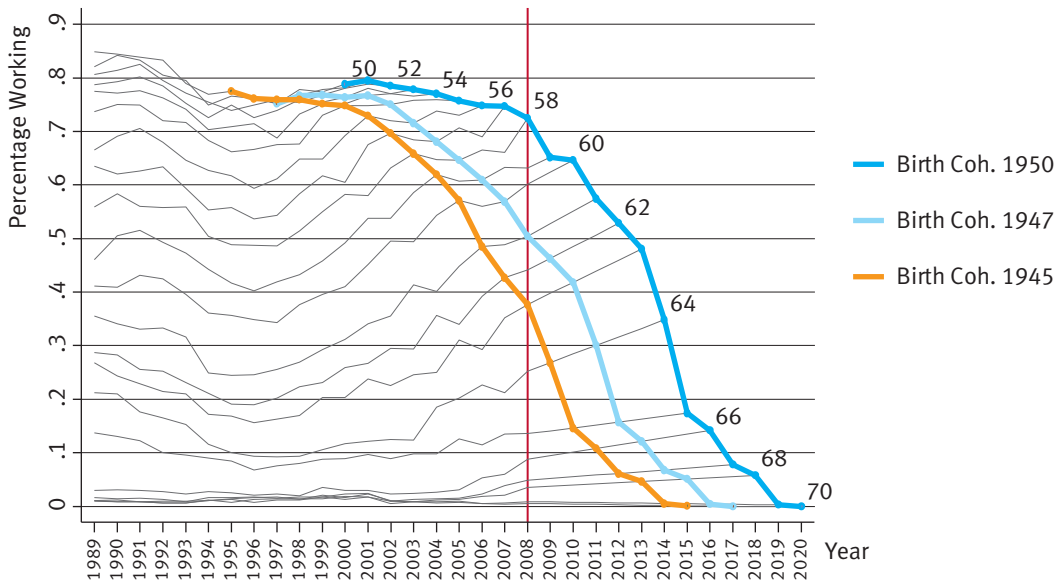
B. WOMEN
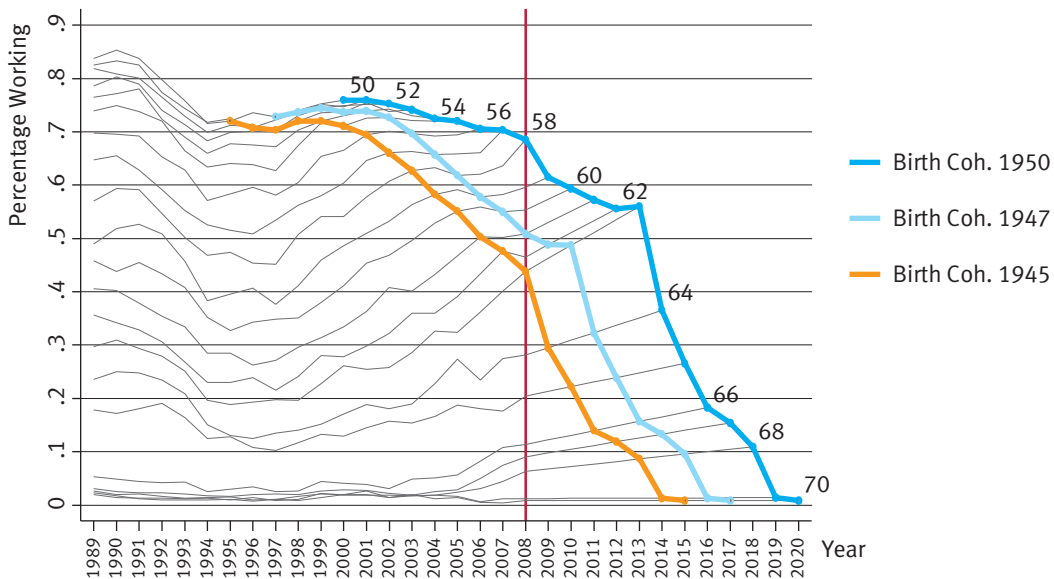
Appendix figure A2.

Fraction of life expectancy at age 50 spent working by social class, birth cohort (1939–1950) and sex. The unobserved employment rates are extrapolated using age-specific trends in employment rates observed over the last 10 years. For details, see the Methods section.
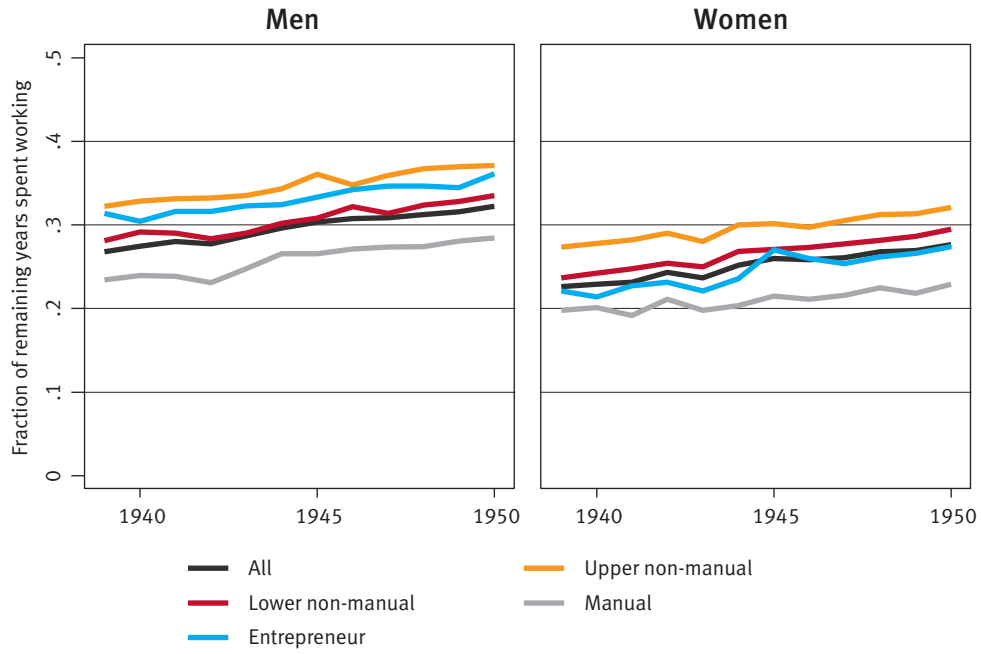
Period appendix tables

Table A1.

Life expectancy at age 50 by sex and calendar year, and the distribution of years lived at age 50 to work, unemployment, retirement due to different causes, and other activities.

A. MEN

Year	Life expectancy	Labor force expectancy, total	Work expectancy	Unemployment expectancy	Retirement expectancy, total	Disability retirement expectancy	Other early retirement expectancy	Old-age retirement expectancy	Other
1989	24.4	8.3	7.9	0.4	15.8	3.5	1.8	10.5	0.2
1990	24.5	8.4	8.0	0.4	16.0	3.7	1.7	10.6	0.2
1991	24.9	8.4	7.9	0.5	16.2	3.8	1.5	10.9	0.3
1992	24.9	8.5	7.5	1.0	16.2	3.9	1.4	10.9	0.3
1993	25.1	8.4	7.0	1.4	16.3	3.9	1.3	11.1	0.3
1994	25.9	8.2	6.5	1.7	17.4	4.0	1.5	11.9	0.3
1995	25.7	8.1	6.5	1.6	17.2	4.0	1.5	11.7	0.3
1996	25.9	8.2	6.5	1.7	17.4	3.3	1.6	12.5	0.4
1997	26.3	8.3	6.4	1.9	17.6	3.6	1.0	13.0	0.3
1998	26.2	8.5	6.8	1.7	17.3	3.3	1.1	12.9	0.4
1999	26.4	8.8	7.2	1.6	17.2	3.1	1.1	13.0	0.4
2000	26.9	9.0	7.4	1.6	17.5	2.9	1.1	13.5	0.4
2001	27.3	9.2	7.7	1.5	17.8	2.8	1.2	13.8	0.4
2002	27.3	9.2	7.8	1.4	17.7	2.7	1.2	13.8	0.4
2003	27.6	9.3	7.9	1.4	17.8	2.6	1.1	14.1	0.5
2004	27.9	9.5	8.1	1.4	18.0	2.5	1.1	14.4	0.5
2005	28	9.6	8.2	1.4	17.9	2.4	1.0	14.5	0.5
2006	28.2	9.6	8.3	1.3	18.0	2.4	0.9	14.7	0.5
2007	28.3	9.9	8.7	1.2	17.8	2.3	0.8	14.7	0.5
Change	3.9	1.6	0.7	0.8	2.0	-1.2	-0.9	4.3	0.3

Table A1.

Continued. Life expectancy at age 50 by sex and calendar year, and the distribution of years lived at age 50 to work, unemployment, retirement due to different causes, and other activities.

A. WOMEN								
Year	Life expectancy	Labor force expectancy, total	Work expectancy	Unemployment expectancy	Retirement expectancy, total	Disability retirement expectancy	Other early retirement expectancy	Old-age retirement expectancy	Other
1989	30.4	8.2	7.8	0.4	21.1	3.3	1.9	15.9	1.0
1990	30.4	8.3	7.9	0.4	21.1	3.4	1.8	15.9	0.9
1991	30.8	8.3	7.9	0.4	21.6	3.6	1.7	16.3	0.9
1992	30.9	8.4	7.6	0.8	21.7	3.7	1.6	16.4	0.8
1993	30.6	8.5	7.4	1.1	21.3	3.7	1.5	16.1	0.7
1994	31.4	8.4	6.9	1.5	22.2	3.7	1.7	16.8	0.7
1995	31.4	8.4	6.8	1.6	22.3	3.7	1.7	16.9	0.6
1996	31.7	8.5	6.7	1.8	22.5	2.8	1.8	17.9	0.7
1997	31.7	8.7	6.8	1.9	22.4	3.2	1.2	18.0	0.6
1998	32.0	8.9	7.1	1.8	22.5	3.0	1.2	18.3	0.6
1999	32.2	9.1	7.4	1.7	22.4	2.8	1.2	18.4	0.6
2000	32.2	9.3	7.6	1.7	22.3	2.6	1.2	18.5	0.6
2001	32.5	9.4	7.9	1.5	22.4	2.5	1.2	18.7	0.6
2002	32.6	9.5	8.0	1.5	22.6	2.4	1.3	18.9	0.7
2003	32.7	9.5	8.1	1.4	22.6	2.3	1.3	19.0	0.7
2004	33.2	9.6	8.3	1.3	22.9	2.2	1.2	19.5	0.7
2005	33.4	9.8	8.5	1.3	22.9	2.2	1.1	19.6	0.7
2006	33.7	9.9	8.6	1.3	23.1	2.1	1.0	20.0	0.7
2007	33.8	10.1	8.9	1.2	23.0	2.0	1.0	20.0	0.7
Change	3.4	1.9	1.1	0.7	1.9	-1.2	-1	4.1	-0.3

Table A2.
Life expectancy at age 50 by sex, calendar year and social class.

A. MEN					
Year	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1989	24.4	27.5	25.9	23.2	24.9	4.3
1990	24.5	27.1	25.8	23.2	25.5	3.9
1991	24.9	28.0	25.9	23.7	25.7	4.3
1992	24.9	27.5	26.0	23.7	25.8	3.8
1993	25.1	27.9	26.3	24.0	25.8	3.9
1994	25.9	28.6	27.2	24.7	26.7	3.9
1995	25.7	28.9	27.2	24.4	26.4	4.5
1996	25.9	29.0	27.4	24.5	26.8	4.5
1997	26.3	29.5	27.5	25.0	26.9	4.5
1998	26.2	29.7	27.8	24.7	26.9	5.0
1999	26.4	29.5	27.5	25.0	27.1	4.5
2000	26.9	30.2	28.3	25.5	27.4	4.7
2001	27.3	30.3	28.4	25.8	28.3	4.5
2002	27.3	30.7	28.8	25.9	27.8	4.8
2003	27.6	30.4	28.8	26.1	28.7	4.3
2004	27.9	31.2	29.4	26.2	28.7	5.0
2005	28.0	31.4	29.3	26.4	28.9	5.0
2006	28.2	31.5	29.2	26.6	29.0	4.9
2007	28.3	31.5	29.4	26.6	29.3	4.9
Change	2.0	4.0	3.5	3.4	4.4	0.6

B. WOMEN					
Year	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1989	30.4	32.5	31.3	30.0	30.3	2.5
1990	30.4	32.0	31.2	29.9	30.4	2.1
1991	30.8	32.6	31.9	30.3	30.6	2.3
1992	30.9	32.5	31.9	30.3	31.0	2.2
1993	30.6	32.8	31.3	30.2	30.5	2.6
1994	31.4	33.1	32.2	30.8	31.2	2.3
1995	31.4	33.4	32.2	30.7	31.3	2.7
1996	31.7	33.5	32.3	31.2	31.7	2.3
1997	31.7	33.6	32.5	31.0	31.6	2.6
1998	32.0	33.8	32.9	31.3	31.9	2.5
1999	32.2	34.1	33.1	31.4	32.0	2.7
2000	32.2	34.3	33.1	31.4	32.1	2.9
2001	32.5	34.3	33.3	31.7	32.6	2.6
2002	32.6	34.5	33.4	31.9	32.5	2.6
2003	32.7	34.6	33.4	32.0	32.5	2.6
2004	33.2	35.3	33.9	32.5	33.0	2.8
2005	33.4	35.6	34.4	32.4	33.3	3.2
2006	33.7	35.6	34.5	32.7	33.6	2.9
2007	33.8	35.8	34.4	32.9	33.6	2.9
Change	3.4	3.4	3.1	2.9	3.3	0.4

Table A3.

Work expectancy at age 50 by sex, calendar year and social class.

A. MEN						
Year	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1989	7.9	10.9	8.9	6.4	9.4	4.5
1990	8.0	10.8	8.8	6.6	9.4	4.2
1991	7.9	10.5	8.6	6.4	9.8	4.1
1992	7.5	10.2	8.2	5.8	9.6	4.4
1993	7.0	9.7	7.5	5.2	9.3	4.5
1994	6.5	8.7	6.7	4.7	9.0	4.0
1995	6.5	8.8	6.7	4.8	8.9	4.0
1996	6.5	8.7	6.6	4.8	8.9	3.9
1997	6.4	8.8	6.7	4.8	8.5	4.0
1998	6.8	9.1	7.0	5.2	8.7	3.9
1999	7.2	9.6	7.5	5.7	9.0	3.9
2000	7.4	9.8	7.7	5.8	9.0	4.0
2001	7.7	9.8	8.0	6.5	9.2	3.3
2002	7.8	10.0	8.3	6.5	9.3	3.5
2003	7.9	10.2	8.4	6.6	9.5	3.6
2004	8.1	10.4	8.7	6.7	9.7	3.7
2005	8.2	10.6	8.8	6.8	9.8	3.8
2006	8.3	10.9	8.6	7.1	9.9	3.8
2007	8.7	11.2	8.9	7.4	10.2	3.8
Change	0.7	0.4	0.0	1.0	0.8	-0.7

B. WOMEN						
Year	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1989	7.8	9.6	8.9	6.7	8.0	2.9
1990	7.9	9.8	8.9	6.8	7.9	3.0
1991	7.9	9.2	8.7	6.6	8.7	2.6
1992	7.6	9.1	8.4	6.2	8.5	2.9
1993	7.4	9.0	8.0	6.0	8.2	3.0
1994	6.9	8.4	7.3	5.6	8.0	2.8
1995	6.8	8.6	7.2	5.6	7.7	3.0
1996	6.7	8.7	7.0	5.6	7.2	3.1
1997	6.8	8.9	7.1	5.6	7.3	3.3
1998	7.1	9.1	7.3	5.9	7.4	3.2
1999	7.4	9.5	7.7	6.2	7.6	3.3
2000	7.6	9.6	8.0	6.3	7.7	3.3
2001	7.9	9.7	8.2	7.3	7.7	2.4
2002	8.0	9.9	8.4	6.9	8.0	3.0
2003	8.1	10.1	8.6	7.0	8.2	3.1
2004	8.3	10.2	8.8	7.2	8.4	3.0
2005	8.5	10.4	9.1	7.2	8.6	3.2
2006	8.6	10.5	9.4	7.2	8.5	3.3
2007	8.9	10.8	9.6	7.4	8.9	3.4
Change	1.1	1.1	0.8	0.7	0.9	0.5

Table A4.

Unemployment exp. at age 50 by sex, calendar year and social class.

A. MEN						
Year	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1989	0.4	0.2	0.3	0.6	0.2	-0.4
1990	0.4	0.2	0.3	0.5	0.2	-0.3
1991	0.5	0.3	0.4	0.8	0.1	-0.5
1992	1.0	0.4	0.8	1.4	0.3	-1.0
1993	1.4	0.7	1.4	2.0	0.5	-1.3
1994	1.7	0.9	1.7	2.4	0.7	-1.5
1995	1.6	0.8	1.7	2.3	0.7	-1.5
1996	1.7	1.1	1.8	2.5	0.5	-1.4
1997	1.9	1.1	1.9	2.6	0.6	-1.5
1998	1.7	1.0	1.7	2.4	0.7	-1.4
1999	1.6	0.9	1.6	2.2	0.7	-1.3
2000	1.6	0.9	1.5	2.2	0.7	-1.3
2001	1.5	0.9	1.4	2.0	0.6	-1.1
2002	1.4	0.8	1.3	2.0	0.6	-1.2
2003	1.4	0.7	1.3	1.9	0.6	-1.2
2004	1.4	0.8	1.2	1.9	0.6	-1.1
2005	1.4	0.8	1.3	1.9	0.6	-1.1
2006	1.3	0.8	1.3	1.7	0.6	-0.9
2007	1.2	0.7	1.2	1.6	0.5	-0.9
Change	0.8	0.5	0.9	1.0	0.3	-0.5

B. WOMEN						
Year	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1989	0.4	0.2	0.4	0.7	0.3	-0.5
1990	0.4	0.2	0.3	0.6	0.2	-0.4
1991	0.4	0.2	0.4	0.7	0.1	-0.5
1992	0.8	0.3	0.7	1.1	0.4	-0.8
1993	1.1	0.5	1.1	1.6	0.7	-1.1
1994	1.5	0.7	1.6	2.0	0.8	-1.3
1995	1.6	0.7	1.7	2.1	1.0	-1.4
1996	1.8	0.8	1.9	2.5	0.8	-1.7
1997	1.9	0.9	2.0	2.5	0.9	-1.6
1998	1.8	0.8	1.9	2.4	1.0	-1.6
1999	1.7	0.7	1.8	2.3	0.9	-1.6
2000	1.7	0.7	1.7	2.3	1.0	-1.6
2001	1.5	0.7	1.6	1.9	1.1	-1.2
2002	1.5	0.6	1.4	2.0	0.9	-1.4
2003	1.4	0.6	1.3	1.9	0.8	-1.3
2004	1.3	0.6	1.2	1.8	0.8	-1.2
2005	1.3	0.6	1.2	1.8	0.9	-1.2
2006	1.3	0.6	1.1	1.8	0.9	-1.2
2007	1.2	0.6	1.0	1.7	0.8	-1.1
Change	0.7	0.4	0.7	1.1	0.5	-0.6

Table A5.

Disability retirement exp. at age 50 by sex, year and social class.

A. MEN					
Year	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1989	3.5	1.6	2.7	4.3	3.2	-2.7
1990	3.7	1.7	2.8	4.4	3.3	-2.7
1991	3.8	1.9	3.0	4.6	3.2	-2.7
1992	3.9	2.1	3.2	4.7	3.2	-2.6
1993	3.9	2.1	3.3	4.8	3.2	-2.7
1994	4.0	2.3	3.5	5.0	3.3	-2.7
1995	4.0	2.3	3.5	4.9	3.2	-2.6
1996	3.3	1.8	2.7	4.0	2.7	-2.2
1997	3.6	1.9	2.9	4.4	3.3	-2.5
1998	3.3	1.7	2.7	4.1	3.1	-2.4
1999	3.1	1.5	2.4	3.8	2.9	-2.3
2000	2.9	1.4	2.3	3.6	2.7	-2.2
2001	2.8	1.4	2.0	3.5	2.8	-2.1
2002	2.7	1.3	1.9	3.4	2.6	-2.1
2003	2.6	1.2	1.8	3.3	2.5	-2.1
2004	2.5	1.1	1.8	3.2	2.4	-2.1
2005	2.4	1.1	1.7	3.2	2.3	-2.1
2006	2.4	1.0	1.7	3.1	2.2	-2.1
2007	2.3	1.0	1.7	3.0	2.1	-2.0
Change	-1.2	-0.6	-1.0	-1.3	-1.1	0.7

B. WOMEN					
Year	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1989	3.3	1.3	2.4	4.0	3.7	-2.7
1990	3.4	1.4	2.6	4.1	3.7	-2.7
1991	3.6	1.7	3.0	4.5	3.4	-2.8
1992	3.7	1.9	3.1	4.7	3.4	-2.8
1993	3.7	2.0	3.2	4.7	3.4	-2.7
1994	3.7	2.0	3.3	4.7	3.3	-2.7
1995	3.7	2.1	3.3	4.7	3.3	-2.6
1996	2.8	1.3	2.3	3.6	2.7	-2.3
1997	3.2	1.5	2.7	4.2	3.5	-2.7
1998	3.0	1.4	2.5	3.9	3.4	-2.5
1999	2.8	1.3	2.2	3.7	3.2	-2.4
2000	2.6	1.2	2.1	3.5	3.0	-2.3
2001	2.5	1.2	2.0	3.1	3.1	-1.9
2002	2.4	1.1	1.9	3.1	2.9	-2.0
2003	2.3	1.0	1.8	3.0	2.9	-2.0
2004	2.2	1.0	1.8	3.0	2.8	-2.0
2005	2.2	1.0	1.7	3.1	2.7	-2.1
2006	2.1	0.9	1.6	3.1	2.6	-2.2
2007	2.0	0.9	1.6	3.0	2.5	-2.1
Change	-1.2	-0.5	-0.8	-0.9	-1.3	0.6

Table A6.

Other early retirement exp. at age 50 by sex, year and social class.

A. MEN						
Year	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1989	1.8	1.6	2.1	2.1	1.1	-0.5
1990	1.7	1.6	2.0	1.9	1.0	-0.3
1991	1.5	1.6	1.9	1.7	0.9	-0.1
1992	1.4	1.6	1.7	1.5	0.9	0.1
1993	1.3	1.6	1.7	1.4	0.9	0.2
1994	1.5	2.1	2.0	1.5	1.0	0.6
1995	1.5	2.0	2.0	1.5	1.0	0.5
1996	1.6	1.8	1.9	1.6	1.2	0.2
1997	1.0	0.6	1.1	1.1	1.1	-0.5
1998	1.1	0.6	1.2	1.2	1.2	-0.6
1999	1.1	0.6	1.2	1.2	1.1	-0.6
2000	1.1	0.7	1.3	1.3	1.1	-0.6
2001	1.2	0.8	1.2	1.3	1.2	-0.5
2002	1.2	0.8	1.3	1.3	1.1	-0.5
2003	1.1	0.7	1.2	1.3	1.0	-0.6
2004	1.1	0.7	1.2	1.3	0.9	-0.6
2005	1.0	0.7	1.1	1.2	0.8	-0.5
2006	0.9	0.6	1.0	1.1	0.8	-0.5
2007	0.8	0.5	0.9	1.0	0.7	-0.5
Change	-0.9	-1.1	-1.3	-1.0	-0.4	0.0

B. WOMEN						
Year	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1989	1.9	1.5	2.1	2.2	1.5	-0.7
1990	1.8	1.5	2.0	2.0	1.5	-0.5
1991	1.7	1.7	1.9	1.8	1.4	-0.1
1992	1.6	1.7	1.8	1.7	1.4	0.0
1993	1.5	1.7	1.7	1.5	1.4	0.2
1994	1.7	2.0	1.9	1.5	1.6	0.5
1995	1.7	1.9	1.9	1.4	1.7	0.5
1996	1.8	1.7	1.9	1.6	2.1	0.1
1997	1.2	0.4	1.1	1.2	1.9	-0.8
1998	1.2	0.4	1.1	1.3	2.0	-0.9
1999	1.2	0.4	1.2	1.3	2.0	-0.9
2000	1.2	0.4	1.2	1.3	1.8	-0.9
2001	1.2	0.5	1.3	1.3	1.8	-0.8
2002	1.3	0.5	1.3	1.4	1.7	-0.9
2003	1.3	0.6	1.3	1.3	1.6	-0.7
2004	1.2	0.6	1.3	1.3	1.5	-0.7
2005	1.1	0.5	1.2	1.3	1.4	-0.8
2006	1.0	0.4	1.1	1.2	1.3	-0.8
2007	1.0	0.4	1.0	1.1	1.2	-0.7
Change	-1.0	-1.1	-1.1	-1.0	-0.2	0.0

Table A7.

Old-age retirement exp. at age 50 by sex, year and social class.

A. MEN					
Year	All	Upper non-ma-nual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1989	10.5	13.0	11.7	9.6	10.9	3.4
1990	10.6	12.6	11.7	9.6	11.3	3.0
1991	10.9	13.5	11.8	10.0	11.5	3.5
1992	10.9	13.0	11.9	10.0	11.6	3.0
1993	11.1	13.5	12.2	10.3	11.6	3.2
1994	11.9	14.2	13.0	10.9	12.4	3.3
1995	11.7	14.6	13.0	10.6	12.3	4.0
1996	12.5	15.3	13.9	11.4	13.1	3.9
1997	13.0	16.7	14.6	11.8	13.1	4.9
1998	12.9	16.9	14.9	11.6	12.9	5.3
1999	13.0	16.5	14.4	11.7	13.0	4.8
2000	13.5	17.0	15.1	12.2	13.5	4.8
2001	13.8	17.2	15.3	12.3	14.3	4.9
2002	13.8	17.4	15.6	12.5	13.8	4.9
2003	14.1	17.2	15.6	12.6	14.6	4.6
2004	14.4	17.8	16.2	12.8	14.7	5.0
2005	14.5	17.8	16.0	12.9	14.9	4.9
2006	14.7	17.9	16.2	13.2	15.2	4.7
2007	14.7	17.7	16.3	13.2	15.4	4.5
Change	4.3	4.7	4.5	3.5	4.5	1.1

B. WOMEN					
Year	All	Upper non-ma-nual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1989	15.9	18.2	16.8	15.5	15.7	2.7
1990	15.9	17.7	16.7	15.5	15.8	2.2
1991	16.3	18.2	17.4	15.8	16.0	2.4
1992	16.4	18.2	17.4	15.9	16.3	2.3
1993	16.1	18.4	16.8	15.7	15.9	2.7
1994	16.8	18.7	17.7	16.3	16.6	2.4
1995	16.9	18.9	17.7	16.3	16.7	2.6
1996	17.9	19.9	18.7	17.4	17.9	2.5
1997	18.0	20.9	19.3	17.0	17.3	3.9
1998	18.3	21.1	19.6	17.3	17.4	3.8
1999	18.4	21.2	19.8	17.4	17.4	3.8
2000	18.5	21.4	19.8	17.4	17.7	4.0
2001	18.7	21.4	19.9	17.5	18.4	3.9
2002	18.9	21.4	20.1	17.9	18.2	3.5
2003	19.0	21.5	20.0	18.1	18.3	3.4
2004	19.5	22.2	20.4	18.5	18.7	3.7
2005	19.6	22.4	20.8	18.4	18.9	4.0
2006	20.0	22.4	20.9	18.8	19.5	3.6
2007	20.0	22.4	20.8	18.9	19.4	3.5
Change	4.1	4.1	4.0	3.4	3.8	0.8

Table A8.

Life expectancy at age 50 spent in other activities than work, unemployment or retirement by sex, calendar year and social class.

A. MEN						
Year	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1989	0.2	0.2	0.2	0.2	0.2	0.0
1990	0.2	0.2	0.2	0.3	0.2	-0.1
1991	0.3	0.2	0.3	0.2	0.2	0.0
1992	0.3	0.2	0.2	0.2	0.2	0.0
1993	0.3	0.2	0.3	0.2	0.2	0.0
1994	0.3	0.3	0.3	0.3	0.4	0.0
1995	0.3	0.3	0.3	0.3	0.4	0.0
1996	0.4	0.3	0.4	0.2	0.3	0.1
1997	0.3	0.3	0.3	0.3	0.3	0.0
1998	0.4	0.4	0.4	0.3	0.4	0.1
1999	0.4	0.4	0.4	0.3	0.4	0.1
2000	0.4	0.4	0.4	0.3	0.4	0.1
2001	0.4	0.4	0.4	0.3	0.3	0.1
2002	0.4	0.4	0.4	0.3	0.4	0.1
2003	0.5	0.4	0.4	0.4	0.4	0.0
2004	0.5	0.4	0.5	0.4	0.4	0.0
2005	0.5	0.4	0.4	0.4	0.4	0.0
2006	0.5	0.4	0.5	0.3	0.3	0.1
2007	0.5	0.4	0.5	0.4	0.4	0.0
Change	0.3	0.2	0.3	0.2	0.2	0.0

B. WOMEN						
Year	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1989	1.0	1.6	0.7	1.0	1.2	0.6
1990	0.9	1.4	0.7	0.9	1.1	0.5
1991	0.9	1.6	0.5	0.9	1.0	0.7
1992	0.8	1.4	0.5	0.8	0.9	0.6
1993	0.7	1.3	0.5	0.7	0.9	0.6
1994	0.7	1.2	0.5	0.6	0.8	0.6
1995	0.6	1.1	0.4	0.6	0.9	0.5
1996	0.7	1.1	0.3	0.5	1.0	0.6
1997	0.6	1.0	0.4	0.5	0.7	0.5
1998	0.6	1.0	0.4	0.5	0.8	0.5
1999	0.6	1.0	0.4	0.5	0.8	0.5
2000	0.6	0.9	0.4	0.5	0.8	0.4
2001	0.6	0.9	0.3	0.5	0.7	0.4
2002	0.7	0.9	0.4	0.6	0.7	0.3
2003	0.7	0.8	0.4	0.6	0.8	0.2
2004	0.7	0.8	0.4	0.7	0.8	0.1
2005	0.7	0.8	0.4	0.7	0.8	0.1
2006	0.7	0.8	0.3	0.6	0.7	0.2
2007	0.7	0.8	0.4	0.7	0.8	0.1
Change	-0.3	-0.9	-0.3	-0.3	-0.4	-0.5

Cohort appendix tables

Table A9.
Life expectancy at age 50 by sex and birth cohort, and the distribution of years lived at age 50 to work, unemployment, retirement, and other activities.

Cohort	A. MEN								
	Life expectancy	Labor force expectancy, total	Work expectancy	Unemployment expectancy	Retirement expectancy, total	Disability retirement expectancy	Other early retirement expectancy	Old-age retirement expectancy	Other
1939	29.3	9.6	7.9	1.7	19.3	3.2	1.2	14.9	0.4
1940	29.6	9.9	8.1	1.8	19.3	2.9	1.2	15.1	0.4
1941	29.6	10.2	8.3	1.9	19.0	2.7	1.2	15.2	0.4
1942	29.8	10.1	8.2	1.8	19.2	2.7	1.0	15.5	0.5
1943	29.8	10.3	8.5	1.7	19.1	2.6	1.0	15.5	0.4
1944	29.9	10.5	8.8	1.7	18.9	2.4	0.9	15.6	0.5
1945	30.1	10.6	9.0	1.6	18.9	2.4	0.8	15.7	0.5
1946	30.2	10.7	9.2	1.5	19.0	2.3	0.8	15.9	0.5
1947	30.3	10.7	9.1	1.6	19.1	2.4	0.8	15.9	0.5
1948	30.6	10.8	9.2	1.5	19.3	2.4	0.8	16.1	0.5
1949	30.5	10.7	9.2	1.5	19.3	2.4	0.8	16.1	0.5
1950	30.8	10.7	9.4	1.4	19.5	2.4	0.8	16.3	0.5
Change 1939-1950	1.6	1.2	1.5	-0.4	0.2	-0.8	-0.4	1.4	0.2
Change 1939-1945	0.8	1.1	1.2	-0.1	-0.4	-0.8	-0.4	0.8	0.2
Change 1945-1950	0.7	0.1	0.3	-0.2	0.6	0.0	0.0	0.6	0.0

Table A9.
Continued. Life expectancy at age 50 by sex and birth cohort, and the distribution of years lived at age 50 to work, unemployment, retirement, and other activities.

B. WOMEN

Cohort	Life expectancy	Labor force expectancy, total	Work expectancy	Unemployment expectancy	Retirement expectancy, total	Disability retirement expectancy	Other early retirement expectancy	Old-age retirement expectancy	Other
1939	35.9	9.8	8.1	1.7	25.4	2.7	1.3	21.4	0.7
1940	36.1	10.1	8.3	1.8	25.3	2.7	1.4	21.2	0.7
1941	36.2	10.2	8.4	1.8	25.3	2.5	1.3	21.5	0.7
1942	36.3	10.6	8.8	1.8	25.0	2.2	1.2	21.6	0.7
1943	36.4	10.4	8.6	1.8	25.2	2.4	1.1	21.7	0.8
1944	36.5	10.8	9.2	1.6	25.0	2.2	1.0	21.8	0.7
1945	36.7	11.0	9.5	1.5	25.0	2.2	0.9	21.9	0.7
1946	36.8	10.9	9.4	1.5	25.1	2.2	1.0	22.0	0.7
1947	36.9	11.0	9.5	1.5	25.2	2.1	1.0	22.1	0.7
1948	37.0	11.1	9.7	1.5	25.2	2.1	0.9	22.2	0.7
1949	37.2	11.0	9.6	1.4	25.4	2.2	0.9	22.3	0.7
1950	37.3	11.1	9.8	1.3	25.4	2.1	0.9	22.4	0.7
Change 1939-1950	1.3	1.3	1.6	-0.4	0.0	-0.6	-0.4	1.0	0.0
Change 1939-1945	0.7	1.1	1.3	-0.2	-0.4	-0.5	-0.4	0.5	0.0
Change 1945-1950	0.6	0.1	0.3	-0.2	0.4	-0.1	0.0	0.5	0.1

Table A10.

Life expectancy at age 50 by sex, birth cohort and social class.

A. MEN						
Cohort	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1939	29.3	32.6	30.4	27.8	30.2	4.8
1940	29.6	32.9	30.8	28.0	30.2	4.8
1941	29.6	32.7	31.0	27.9	30.3	4.9
1942	29.8	33.0	30.8	27.9	30.5	5.1
1943	29.8	33.1	30.9	28.0	30.5	5.1
1944	29.9	33.0	31.0	28.3	30.4	4.7
1945	30.1	33.2	31.2	28.4	30.6	4.8
1946	30.2	33.4	31.5	28.4	30.9	5.0
1947	30.3	33.4	31.6	28.6	31.1	4.8
1948	30.6	33.6	31.9	28.8	31.3	4.8
1949	30.5	33.7	31.9	28.7	31.5	5.0
1950	30.8	33.8	32.2	29.0	31.8	4.8
Change 1939-50	1.6	1.2	1.8	1.2	1.7	0.0
Change 1939-45	0.8	0.6	0.8	0.6	0.5	0.0
Change 1945-50	0.7	0.6	1.0	0.6	1.2	0.0

B. WOMEN						
Cohort	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1939	35.9	37.6	36.8	35.0	35.3	2.5
1940	36.1	37.3	36.9	35.3	35.3	2.0
1941	36.2	37.8	37.0	35.4	35.4	2.4
1942	36.3	37.8	37.1	35.4	35.7	2.5
1943	36.4	37.9	37.2	35.5	35.7	2.5
1944	36.5	38.2	37.2	35.6	35.9	2.5
1945	36.7	38.2	37.4	35.7	36.1	2.5
1946	36.8	38.5	37.6	35.7	36.0	2.8
1947	36.9	38.5	37.6	36.0	36.5	2.4
1948	37.0	38.6	37.8	36.0	36.5	2.5
1949	37.2	38.8	37.9	36.3	36.8	2.5
1950	37.3	38.8	38.0	36.3	36.7	2.5
Change 1939-50	1.3	1.2	1.2	1.3	1.4	-0.1
Change 1939-45	0.7	0.7	0.6	0.7	0.8	0.0
Change 1945-50	0.6	0.5	0.6	0.6	0.6	-0.1

Table A11.

Work expectancy at age 50 by sex, birth cohort and social class.

A. MEN						
Cohort	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1939	7.9	10.5	8.6	6.5	9.5	4.0
1940	8.1	10.8	9.0	6.7	9.2	4.1
1941	8.3	10.8	9.0	6.6	9.6	4.2
1942	8.2	11.0	8.7	6.4	9.6	4.5
1943	8.5	11.0	8.9	6.9	9.8	4.1
1944	8.8	11.2	9.3	7.5	9.8	3.8
1945	9.0	11.8	9.5	7.5	10.1	4.3
1946	9.2	11.4	10.0	7.6	10.4	3.8
1947	9.1	11.7	9.7	7.7	10.6	4.0
1948	9.2	11.9	10.0	7.6	10.6	4.3
1949	9.2	11.9	10.0	7.7	10.4	4.2
1950	9.4	11.8	10.2	7.8	11.0	4.0
Change 1939-50	1.5	1.3	1.6	1.3	1.5	0.0
Change 1939-45	1.2	1.3	1.0	1.0	0.6	0.3
Change 1945-50	0.3	0.0	0.6	0.3	0.9	-0.3

B. WOMEN						
Cohort	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1939	8.1	10.3	8.7	6.9	7.8	3.3
1940	8.3	10.4	9.0	7.1	7.6	3.3
1941	8.4	10.7	9.2	6.8	8.1	3.9
1942	8.8	11.0	9.4	7.5	8.3	3.5
1943	8.6	10.6	9.3	7.0	7.9	3.6
1944	9.2	11.4	10.0	7.2	8.5	4.2
1945	9.5	11.4	10.1	7.6	9.7	3.8
1946	9.4	11.3	10.1	7.5	9.3	3.8
1947	9.5	11.5	10.2	7.7	9.1	3.8
1948	9.7	11.7	10.3	7.9	9.4	3.7
1949	9.6	11.6	10.4	7.6	9.5	4.0
1950	9.8	11.8	10.6	8.0	9.7	3.8
Change 1939-50	1.6	1.5	1.9	1.0	1.9	0.5
Change 1939-45	1.3	1.1	1.4	0.7	1.9	0.4
Change 1945-50	0.3	0.4	0.5	0.3	-0.1	0.1

Table A12.

Unemployment expectancy at age 50 by sex, birth cohort and social class.

A. MEN						
Cohort	**All**	**Upper non-manual (1)**	**Lower non-manual**	**Manual (2)**	**Entrepreneurs**	**Difference (1) - (2)**
1939	1.7	0.9	1.6	2.2	0.9	-1.3
1940	1.8	1.1	1.7	2.3	1.0	-1.2
1941	1.9	1.0	1.9	2.5	1.0	-1.5
1942	1.8	0.9	1.8	2.5	1.0	-1.6
1943	1.7	1.0	1.7	2.4	0.8	-1.4
1944	1.7	0.9	1.6	2.2	1.0	-1.2
1945	1.6	0.7	1.3	2.3	0.9	-1.5
1946	1.5	1.0	1.3	2.0	1.0	-1.0
1947	1.6	1.0	1.4	2.1	0.9	-1.1
1948	1.5	0.9	1.4	2.0	0.9	-1.2
1949	1.5	0.9	1.3	2.0	0.8	-1.0
1950	1.4	0.8	1.2	1.8	0.7	-1.0
Change 1939-50	-0.4	-0.1	-0.4	-0.4	-0.2	0.3
Change 1939-45	-0.1	-0.2	-0.3	0.0	0.1	-0.2
Change 1945-50	-0.2	0.1	-0.1	-0.4	-0.2	0.5

B. WOMEN						
Cohort	**All**	**Upper non-manual (1)**	**Lower non-manual**	**Manual (2)**	**Entrepreneurs**	**Difference (1) - (2)**
1939	1.7	0.8	1.6	2.2	1.1	-1.5
1940	1.8	0.8	1.8	2.2	1.1	-1.4
1941	1.8	0.6	1.7	2.5	1.3	-1.9
1942	1.8	0.8	1.8	2.4	1.5	-1.6
1943	1.8	0.9	1.7	2.4	1.4	-1.6
1944	1.6	0.7	1.4	2.6	1.3	-1.9
1945	1.5	0.9	1.4	2.1	1.1	-1.2
1946	1.5	0.8	1.4	2.2	1.4	-1.5
1947	1.5	0.7	1.4	2.2	1.4	-1.5
1948	1.5	0.6	1.3	2.1	1.2	-1.4
1949	1.4	0.7	1.2	2.1	1.3	-1.4
1950	1.3	0.7	1.1	1.9	1.0	-1.2
Change 1939-50	-0.4	-0.1	-0.5	-0.3	-0.1	0.2
Change 1939-45	-0.2	0.1	-0.2	-0.2	0.0	0.3
Change 1945-50	-0.2	-0.2	-0.3	-0.2	0.0	-0.1

Table A13.

Disability retirement exp. at age 50 by sex, birth cohort and social class.

A. MEN						
Cohort	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1939	3.2	1.4	2.3	4.0	2.9	-2.5
1940	2.9	1.3	2.1	3.7	2.9	-2.4
1941	2.7	1.3	1.9	3.4	2.8	-2.1
1942	2.7	1.0	1.8	3.7	2.6	-2.7
1943	2.6	1.3	2.0	3.4	2.5	-2.2
1944	2.4	1.0	1.9	3.2	2.5	-2.2
1945	2.4	1.1	1.7	3.1	2.6	-2.0
1946	2.3	1.2	1.5	3.2	2.1	-2.0
1947	2.4	1.0	1.7	3.1	2.2	-2.1
1948	2.4	0.9	1.6	3.2	2.3	-2.3
1949	2.4	1.0	1.6	3.1	2.4	-2.2
1950	2.4	1.0	1.6	3.3	2.2	-2.2
Change 1939-50	-0.8	-0.4	-0.8	-0.7	-0.7	0.3
Change 1939-45	-0.8	-0.3	-0.6	-0.9	-0.4	0.6
Change 1945-50	0.0	-0.1	-0.1	0.2	-0.3	-0.3

B. WOMEN						
Cohort	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1939	2.7	1.2	2.1	3.6	3.6	-2.3
1940	2.7	1.4	1.9	3.6	3.7	-2.2
1941	2.5	1.2	1.8	3.6	2.8	-2.5
1942	2.2	1.0	1.7	3.2	2.9	-2.2
1943	2.4	1.0	1.8	3.5	3.2	-2.5
1944	2.2	1.1	1.7	3.2	3.1	-2.2
1945	2.2	1.0	1.7	3.5	2.5	-2.4
1946	2.2	1.0	1.7	3.4	2.3	-2.4
1947	2.1	0.9	1.7	3.2	2.7	-2.3
1948	2.1	0.9	1.6	3.1	2.5	-2.3
1949	2.2	1.0	1.7	3.4	2.5	-2.4
1950	2.1	0.9	1.6	3.2	2.5	-2.3
Change 1939-50	-0.6	-0.3	-0.6	-0.4	-1.1	0.0
Change 1939-45	-0.5	-0.2	-0.5	-0.1	-1.0	-0.1
Change 1945-50	-0.1	-0.1	-0.1	-0.3	0.0	0.1

Table A14.

Old-age retirement exp. at age 50 by sex, birth cohort and social class.

A. MEN						
Cohort	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1939	14.9	18.4	16.3	13.5	15.2	4.9
1940	15.1	18.4	16.5	13.8	15.2	4.6
1941	15.2	18.4	16.7	13.7	15.3	4.7
1942	15.5	19.0	16.8	13.8	15.7	5.2
1943	15.5	18.7	16.9	13.9	15.6	4.8
1944	15.6	18.6	17.0	14.2	15.6	4.5
1945	15.7	18.5	17.4	14.2	15.7	4.3
1946	15.9	18.7	17.5	14.3	15.9	4.4
1947	15.9	18.6	17.6	14.4	16.1	4.3
1948	16.1	18.8	17.7	14.5	16.3	4.2
1949	16.1	18.9	17.7	14.6	16.5	4.3
1950	16.3	19.0	18.0	14.7	16.7	4.3
Change 1939-50	1.4	0.6	1.7	1.2	1.5	-0.7
Change 1939-45	0.8	0.0	1.1	0.7	0.5	-0.7
Change 1945-50	0.6	0.5	0.6	0.5	0.9	0.0

B. WOMEN						
Cohort	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1939	21.4	23.7	22.6	20.2	20.1	3.4
1940	21.2	23.0	22.4	20.3	20.1	2.7
1941	21.5	23.6	22.6	20.4	20.2	3.2
1942	21.6	23.4	22.6	20.4	20.5	3.0
1943	21.7	23.5	22.8	20.6	20.5	2.9
1944	21.8	23.8	22.8	20.8	20.7	3.1
1945	21.9	23.7	22.9	20.8	20.8	2.9
1946	22.0	23.9	22.9	20.8	20.8	3.1
1947	22.1	23.9	23.0	21.1	21.2	2.8
1948	22.2	24.0	23.1	21.1	21.3	2.8
1949	22.3	24.2	23.2	21.3	21.5	2.8
1950	22.4	24.2	23.3	21.4	21.5	2.8
Change 1939-50	1.0	0.5	0.7	1.2	1.4	-0.6
Change 1939-45	0.5	0.0	0.3	0.6	0.8	-0.6
Change 1945-50	0.5	0.5	0.5	0.6	0.6	-0.1

Table A15.

Other early retirement exp. at age 50 by sex, birth cohort and social class.

A. MEN						
Cohort	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1939	1.2	0.9	1.4	1.3	1.4	-0.4
1940	1.2	0.9	1.3	1.3	1.4	-0.4
1941	1.2	0.8	1.2	1.3	1.3	-0.5
1942	1.0	0.7	1.1	1.2	1.2	-0.5
1943	1.0	0.7	1.0	1.1	1.3	-0.4
1944	0.9	0.6	0.9	0.9	1.1	-0.4
1945	0.8	0.5	0.8	1.0	0.7	-0.5
1946	0.8	0.5	0.8	0.9	0.8	-0.4
1947	0.8	0.6	0.8	1.0	0.8	-0.4
1948	0.8	0.6	0.8	0.9	0.7	-0.4
1949	0.8	0.6	0.8	0.9	0.8	-0.4
1950	0.8	0.6	0.8	0.9	0.7	-0.3
Change 1939-50	-0.4	-0.3	-0.5	-0.4	-0.6	0.1
Change 1939-45	-0.4	-0.4	-0.5	-0.3	-0.7	-0.1
Change 1945-50	0.0	0.1	0.0	0.0	0.0	0.1

B. WOMEN						
Cohort	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1939	1.3	0.5	1.3	1.5	1.9	-1.0
1940	1.4	0.7	1.4	1.6	1.9	-0.9
1941	1.3	0.6	1.2	1.5	2.2	-0.9
1942	1.2	0.5	1.1	1.4	1.6	-0.9
1943	1.1	0.5	1.1	1.3	1.9	-0.9
1944	1.0	0.4	0.9	1.2	1.5	-0.8
1945	0.9	0.4	0.9	1.1	1.2	-0.7
1946	1.0	0.5	0.9	1.1	1.5	-0.7
1947	1.0	0.4	0.9	1.2	1.3	-0.7
1948	0.9	0.4	0.9	1.1	1.2	-0.7
1949	0.9	0.4	0.9	1.1	1.2	-0.7
1950	0.9	0.4	0.9	1.1	1.2	-0.7
Change 1939-50	-0.4	-0.1	-0.4	-0.3	-0.7	0.3
Change 1939-45	-0.4	-0.1	-0.4	-0.4	-0.8	0.3
Change 1945-50	0.0	0.0	0.0	0.0	0.1	0.0

Table A16.

Life expectancy at age 50 spent in other activities than working, unemployed, or retired by sex, birth cohort and social class.

A. MEN						
Cohort	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1939	0.4	0.4	0.3	0.3	0.2	0.1
1940	0.4	0.4	0.2	0.3	0.4	0.1
1941	0.4	0.4	0.3	0.3	0.4	0.1
1942	0.5	0.5	0.5	0.3	0.5	0.2
1943	0.4	0.4	0.4	0.3	0.5	0.1
1944	0.5	0.7	0.4	0.3	0.4	0.3
1945	0.5	0.5	0.5	0.4	0.6	0.2
1946	0.5	0.6	0.4	0.4	0.6	0.2
1947	0.5	0.5	0.4	0.3	0.5	0.2
1948	0.5	0.6	0.4	0.4	0.6	0.2
1949	0.5	0.5	0.4	0.4	0.5	0.1
1950	0.5	0.5	0.4	0.4	0.5	0.1
Change 1939-50	0.2	0.1	0.2	0.1	0.3	0.0
Change 1939-45	0.2	0.1	0.2	0.1	0.3	0.0
Change 1945-50	0.0	0.0	0.0	0.1	-0.1	-0.1

B. WOMEN						
Cohort	All	Upper non-manual (1)	Lower non-manual	Manual (2)	Entrepreneurs	Difference (1) - (2)
1939	0.7	1.2	0.5	0.6	0.6	0.6
1940	0.7	1.1	0.4	0.6	0.6	0.5
1941	0.7	1.1	0.5	0.5	0.5	0.6
1942	0.7	1.1	0.4	0.5	0.5	0.7
1943	0.8	1.5	0.5	0.6	0.6	0.9
1944	0.7	0.8	0.4	0.6	0.6	0.2
1945	0.7	0.8	0.5	0.7	0.7	0.2
1946	0.7	1.1	0.5	0.7	0.7	0.5
1947	0.7	1.1	0.5	0.7	0.7	0.4
1948	0.7	1.0	0.5	0.6	0.6	0.4
1949	0.7	0.9	0.5	0.7	0.7	0.2
1950	0.7	0.8	0.5	0.7	0.7	0.1
Change 1939-50	0.0	-0.3	0.0	0.1	0.0	-0.5
Change 1939-45	0.0	-0.3	0.0	0.0	-0.1	-0.4
Change 1945-50	0.1	0.0	0.0	0.1	0.1	-0.1
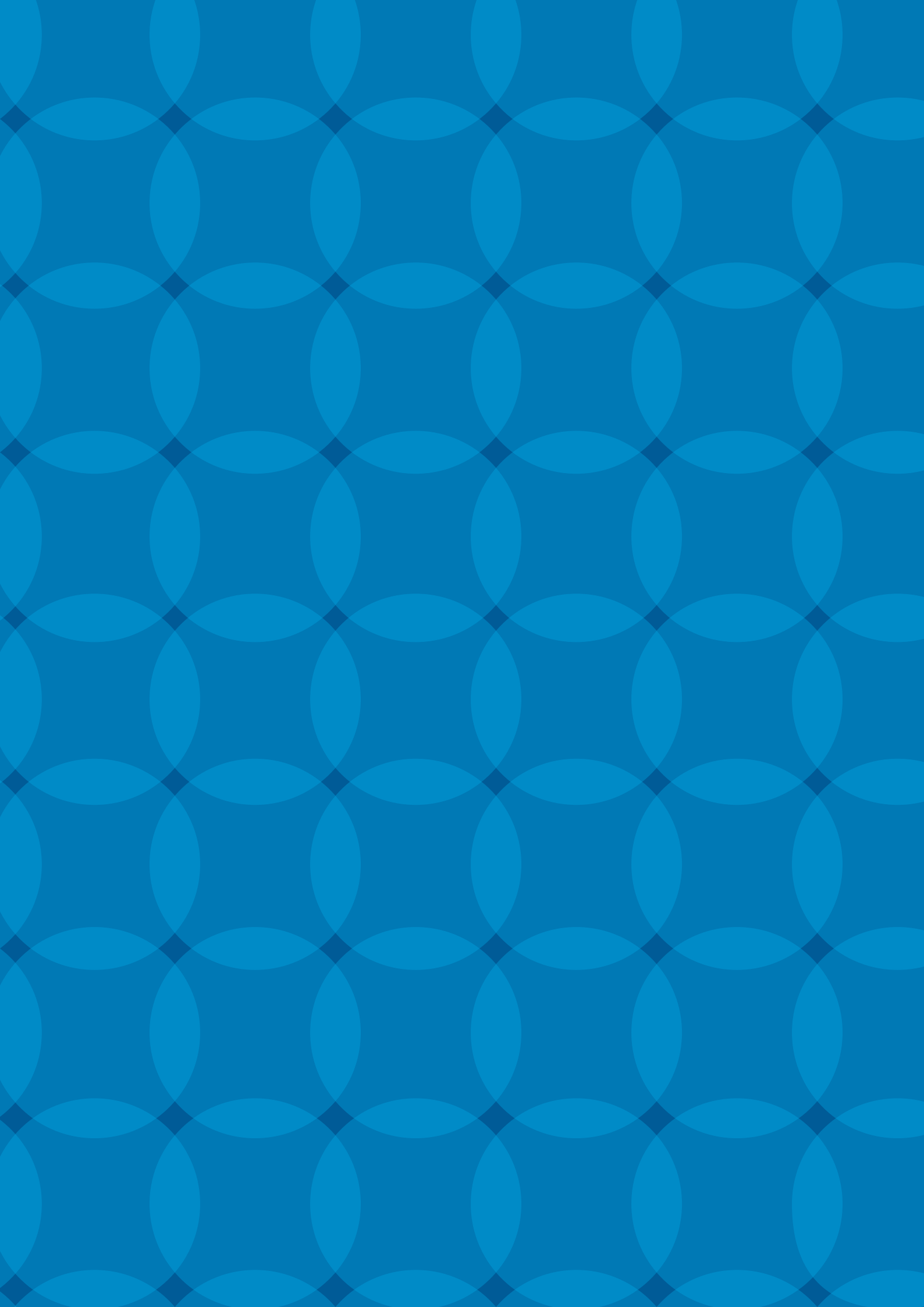
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