The effect of change in educational composition on population ageing

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Abstract Official Swedish demographic projections have systematically underestimated the number of older people. One explanation behind the underestimation may be found in the fact that the demographic projections are not taking into account socio-economic mortality differentials. We performed alternative demographic scenarios based on assumptions of unchanged and continuing declining mortality, with and without taking into account socio-economic gradients in mortality. According to a scenario based on assumption on declining mortality rates per age group, sex and educational level, the number of older persons (65+) in Sweden will increase by 62% during the period 2000–2035. This can be compared to an increase by 54% in a scenario that does not take into account future structural differences in educational levels and the latest trends in socio-economic inequality in life expectancy (the method used by statistical offices). The socio-economic structure of the older population is significantly changing over the years. We project that by year 2035, only 20% of women 80 years and older will have a low educational level, compared to about 75–80% today. The change in socio-economic structure is similar for the older men. Standard demographic projections that do not take into account socio-economic mortality differentials, risk underestimating the number of older people and hiding dramatic changes in population composition. Taking into account socio-economic mortality differentials results in alternative

projections giving us new information regarding the future size and socio-economic composition of the older population. We recommend use of this information in health care and long-term care human resources planning or when assessing financial sustainability of health care, long-term care and pension systems in the future.

Keywords Ageing · Demographic projections · Educational composition · Health inequalities · Life expectancy

Introduction

Mortality rates have steadily declined in Sweden and other industrialized countries over the last century (Wilmoth et al. 2000; Oeppen and Vaupel 2002; Tuljapurkar et al. 2000). At the same time, the analysis of the forecasts for the number of older people in Sweden that was done during the last 25 years shows a systematic underestimation of the number of older people (Lagergren and Batljan 2000). For example, the official Swedish population projection from 1978 concerning the number of people 80 years and older by the year 2010 was 341,000. The corresponding forecast from 1991 was 462,000 (Lagergren and Batljan 2000). These figures should be compared to the actual figure from the year 2006 that was 490,000 of people 80 years and older (Statistics Sweden 2007). It seems that this is not a specific Swedish phenomenon, but a general international observation. In Australia, the projections of population have been found to have systematically underestimated the reduction in mortality among women and those 85 years and older (Booth and Tickle 2003). Keilman (1997) found the same underestimation pattern while analyzing population projections for United Kingdom, Netherlands,

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Denmark, Canada and Norway. One reason behind the underestimation may be the fact that population projections usually focus on age and sex only.

In Sweden, like in many other countries, there are significant differences in mortality in different socio-economic groups (Swedish Council for Social Research 1998). This holds true for men and women and for different age groups. The impact of health inequalities on the size of the future older population has been sparsely discussed despite the fact that inequalities in mortality and morbidity have been documented in several demographic and epidemiological studies (Marmot et al. 1984; Thorslund and Lundberg 1994; Vågerö and Lundberg 1995; Mackenbach et al. 1997). The association between education and mortality (Kitagawa and Hauser 1973; Valkonen 1989; Pappas et al. 1993; Elo and Preston 1996; Valkonen 2001; van Oort et al. 2005; Zajacova 2006) is well established. The educational level is a composite socio-economic indicator and several hypotheses have been suggested as the explanations of association between education and mortality (Lundberg 1993; Ross and Wu 1995; Erikson 2001; Mackenbach 2005).

The ageing of the population and the fact that the number of older people is expected to rise very sharply in the decades ahead is often identified as one of the greatest challenges for economic, health and social policies for industrialized countries in the next 50 years (Cutler 2003). Achieving adequate human resources in health care and long-term care and services for the older people is viewed as one of the most important objectives for many OECD countries to be dealt with within the context of the ageing of the population (Swedish Ministry of Health and Social Affairs 1997, 2000; Finnish Ministry of Health and Social Affairs 1999; Kirby 2001; OECD 2003; Batljan and Lagergren 2004; Batljan and Lagergren 2005). Different proposals to further develop methods for assessment of the need for and supply of long-term care for the older persons and health care within human resources planning¹ have been launched. This is moving from a traditional approach, that usually only considers the effects of demographic change (Birch 2002; Birch et al. 2003). However, even the demographic projections used when assessing financial sustainability of health care, long-term care and pension systems need to be further analyzed and developed. Lee and Tuljapurkar (1997) have shown that the increase in the balanced budget tax rate for Social Security System in the USA may rise from 8 to 12–20 percentage points of the taxable payroll by the year 2070 if the conservative

projections used by Social Security Administration are substituted by projections that allow for larger mortality declines among older people.

The calculations of population projections by level of education were pointed out as an important step to make population projections more accurate (Lutz and Goujon 2001). Therefore, including education in population projections may significantly affect the projected size of older population (Lutz et al. 1999).

The educational composition of the population is an important factor when assessing future needs for care for the older people and health care (Chernichovsky and Markowitz 2004). A Canadian study that assesses the probability of change in health status from one year to another for the population aged 50 years and older (Buckley et al. 2004) shows that for older men and women who are initially in good health, the probability of remaining in good health is lower for low educated than for high educated. Furthermore, the expected changes in relative composition of the older population by educational level have been emphasized as an important factor when assessing future prospects for health (Freedman and Martin 1999) and health care utilization (Joung et al. 2000).

The more developed demographic projections, in particular regarding the socio-economic structure of the population, are relevant for health policy decisions related to health care and long-term care financing, and human resources planning. The relevance lies in the fact that the current change in population composition will impact the future trends in mortality and that the socio-economic structure of the population is linked to the need for care. The aim of this study is to estimate how the educational impacts in mortality risk differentials may affect the projected size of the older population and the older population's educational composition in Sweden.

Materials and methods

Using Swedish population registers containing demographic and educational data for the whole population born 1911 and later and aged 16 and over in Sweden, we estimated mortality rates per age, sex and educational level during the period 1992–1999. This period was chosen because of data availability. The estimates were then used for making assumptions on future changes in mortality. In the next step, those assumptions were used when performing alternative demographic projections of the future size and educational composition of the older population in Sweden for the period 2000–2035. We chose the year 2035 as the final year for our projections in order to get results covering the exit of small cohorts born during the 1930s and the full impact of the ageing of the baby boom cohorts.

¹ In this article we use the term human resources planning for both health care and social care for the older people. Other terms, related to the issue of human resources for health care and social care for the older people, used in the literature are workforce planning and manpower planning.

Sources of data

Data for our study are available in the Swedish population registers. The registers contain accurate demographic data (stock and flows) for the whole population based on the use of personal identity numbers for all citizens in Sweden. The registers are continuously updated with such events as births, deaths, immigration and emigration. The registers were linked to a national educational register containing educational data for the population aged 16–74 from 1985 and onwards (Statistics Sweden 2004).

The educational register is based on the population register and

- self-reported educational level in the censuses of 1970 and 1990;
- reports of degrees derived from the main Swedish educational system from 1970;
- self-reported educational level collected intermittently by surveys from immigrated people.

In this study we have enlarged the educational register by adding one age group for each calendar year from 1986. That means, in the year 1986 we have educational data for the population aged 16–75, in 1987 the data for the population is 16–76 years, and so on. For 1999, the age interval has been extended to 16–88 in the enlarged educational register. All persons older than 88 years in 1999 (missing data on education) were coded as having low education level.

The education level used in this study covers three categories, indicating the extent of school attendance: low, ≤ 9 years (i.e. comprehensive school); medium, 10 and 11 years; and high, ≥ 12 years. A similar categorization of educational level has been used in epidemiological studies (Iglesias et al. 2003; Sundquist et al. 2004) using Swedish data.

As can be seen from Fig. 1, there are big differences in educational level between different cohorts. Missing data on education is low, only 0.5–2.0% in the ages 35–73 and 2.5–4.5 in the ages of 74–85. In the population census 1990 all persons born during 1926–1974 received an extract from the educational register. If the information in the register was wrong or missing each person had the opportunity to correct the information in the register. Information about persons aged 65 years and older (born 1925 and before) could not be updated in the register. That is the reason for the higher level of missing data in ages over 73 in 1999. The persons with missing data on education were coded as having a low education level (results not presented show they had similar mortality pattern as those having low education level).

Fig. 1 Swedish population 35–85 years by age and educational level 1999

Estimating mortality

We estimate mortality rates per age, sex and educational level during the period 1992–1999. The changes in mortality rates were estimated from the reduction in mortality observed between the periods 1992–1995 and 1996–1999. Standard procedures were used for the estimation of mortality rates (Shryock et al. 1973).

Our estimates on yearly changes in mortality for men and women aged 35–79 by educational level (based on the change during the period 1992–1995 to 1996–1999) are done for aggregated age groups (5-year intervals) in order to arrive at more robust estimates. In order to reduce existing random effects when estimating changes in mortality, we use the mean value of mortality reduction rate for all of the age groups 35–39, 40–44, 45–49 and 50–54, and calculate a new mortality reduction rate for a collective age group 35–54. We also use the mean value of the mortality reduction rate for age groups 55–59, 60–64, 65–69 and 70–74, and estimate a new mortality reduction rate for a collective age group 55–74. We do not have mortality reduction data on educational level during the period 1992–1999 for people older than 80 years, which means we need to make assumptions for mortality changes from the age group 80–84 years and forward. For these age groups we assume a linear decline in mortality rate reduction. The assumption of mortality trends over age of 80 is similar to assumptions used by Statistic Sweden (Statistics Sweden 2000). From the age of 100 years mortality reduction is 0, which means no further reduction in mortality is assumed.²

For ages 0–34 years we are not using mortality differentials on educational level. The consequence for projected

² Data on annual decline in mortality rates (%) by age, sex and education level based on the change during the period 1992–1995 to 1996–1999 are presented in the Appendix.

size and structure of the older population are minor because of the very low mortality rates for persons younger than 35 years, the fact that mortality in the population under 35 years is already included in the start population and the fact that our projections focus on persons 65 and older over 35-year period. As soon as a cohort of men and women reach 35 years of age, the cohort is assigned the same educational level distribution as the age group 35–39 years had achieved in 1999. In our projections, we are not taking into account the fact that some individuals raise their educational level after the age of 35.

Alternative demographic scenarios

The number of persons older than 65 years in the future is caused by the current age structure of the population (a structure that in turn is the result of past mortality, migration and fertility) and assumed changes in the future (fertility, mortality and migration).

The scenarios are performed by projecting the population at the end of 1999 into the year 2035. The projection method is the standard cohort-component method (Statistics Sweden 2000). The cohort-component method has been emphasized as most appropriate for making population projection by level of education (Lutz et al. 1999).

We are projecting the number of persons in Sweden in four alternative scenarios (using the population data by sex, age, and educational level from the year 1999 as our start data set), combining assumptions on constant and declining average annual mortality rates by age and sex both with, and without including educational level mortality differentials (Fig. 2). About 10% of the Swedish population aged

65 years and older are immigrants. Their average education level is similar to the total population. The projections are done without considering external migration in order to make it easier to analyze the effect of changes in educational composition. Concerning external migration, the majority of migrants in Sweden are relatively young (Lagergren and Batljan 2000). Exclusion of external migration influences the results very marginally, because future migration can be assumed to have a relatively small impact on the size of the older population for the selected projection period (Statistics Sweden 2000).

We do not make assumptions regarding fertility, since fertility will not affect *the absolute size* of the population aged 65 years and older within the 35-year span of the projections.

First, using the difference between the results of the first two scenarios 1 and 2, we illustrate how changes in the educational composition of the population affect the future number of older people. Then we present two main scenarios: “the official one” here scenario 3 and “the improved one” here scenario 4. The method used in scenario 3 is comparable to the method used by Statistics Sweden for official population projections for Sweden. In scenario 4 we introduce educational level mortality differentials. Scenario 4 is based on the same assumptions regarding mortality decline as scenario 3. The only difference is that scenario 4 is weighted by education. Technically, yearly reductions of mortality rates per age group and sex used in scenario 3 are estimated as a weighted average (as weights we use the educational level distribution from the year 1999) on the basis of yearly reduction of mortality ratios for men and women by age and education

Fig. 2 Four alternative scenarios, mortality assumptions

		Mortality	
		Constant	Declining
Educational level mortality differentials	Not taken into account	Scenario 1: constant age and gender mortality rates (at 1999 level).	Scenario 3: declining mortality rates per age group and sex.
	Taken into account	Scenario 2: constant age, sex and educational level mortality rates (at 1999 level) + changes in the educational composition of the population.	Scenario 4: declining age, sex and educational level mortality rates + changes in the educational composition of the population.

Fig. 3 Projected increase in number of older people in Sweden (65+) 2000–2035 according to alternative projections (index 2000 = 100). Source: From authors, calculations of Statistics Sweden population registers data and Statistics Sweden (2000)

level observed in the 1990s and used in scenario 4. Comparing results from scenarios 4 and 3 gives us the opportunity to analyze how educational level mortality differentials affect the projected number of older people given continuing trends of declining mortality rates.

Results

Number of older people in the future

The number of older people will continue to increase over the next 35 years even under our assumption of unchanged mortality by age and sex in scenario 1 (Fig. 3). The increase of 32% between the year 2000 and 2035 is a result of changes in the size of cohorts and reduced mortality at all ages in the past (which results in a growing number in a cohort surviving to an advanced age).

The inclusion of the educational level in our analyses in scenario 2 has significance for both gender and different age groups, as well as for the total number of older people in the future increasing by 38% by year 2035 (Fig. 3, results for gender and age groups are not shown).

The majority of today's demographic projections are however, based on the assumption that mortality will continue to decrease also in the future (van Hoorn and de Beer 1998; Hollmann et al. 2000; United Nations 2003; Statistics Sweden 2003). Decreasing mortality has a strong impact on the number of the older people in the future. Given our assumptions that the declining mortality trend will continue, the number of older persons will increase substantially over the next 35 years. However, a comparison of scenario 3 (declining mortality) and scenario 1 (constant mortality) show that almost two-thirds of the increase in the projected number of older persons in scenario 3 results from the changes in the size of cohorts and reduced mortality at all ages in the past that have been taken into account in scenario 1.

Changes in population composition

Results from scenario 4 indicate that there will be a dramatic shift in the socio-economic structure of the older population during the next 35 years (Table 1).

Today 4 of 5 women older than 80 years have a low level of education. According to scenario 4, by year 2035 it will be only 1 of 5 with a low level of education. The change in socio-economic structure is similar for older men.

Given assumed mortality reductions per age, sex and educational level, socio-economic differentials in life expectancy will increase both for men and women. For instance, an average highly-educated female person by 2035 is projected to have life expectancy at birth of 88.6 years, compared to 83.7 years for an average low-educated female (Table 2).

Life expectancy varies widely by gender and educational level. The inclusion of educational level mortality differentials in our projections results in a strong increase in life expectancy at 65. An increase in life expectancy at 65 years for men during the next 35 years is projected to 5.1 years in scenario 4 compared to 4.1 in scenario 3. The

Table 1 Relative composition of the Swedish older population (%) by sex and educational level 2000–2035

Age	Year	Women Educational level			Men Educational level		
		Lower (≤ 9)	Medium (10, 11)	Higher (≥ 12)	Lower (≤ 9)	Medium (10, 11)	Higher (≥ 12)
65–79	2000	60	26	14	55	18	27
	2035	16	38	46	19	39	42
80+ ^a	2000	79	15	6	69	14	17
	2035	20	35	45	24	26	50

Source: From authors, calculations of Statistics Sweden population registers data

^a All persons older than 88 years in 1999 (missing data on education) were coded as having low education level

Table 2 Projected life expectancy by age, sex and educational level in 2035, given reduced mortality by age, sex and educational level according to the scenario 4

Sex	Year and age	Level of education			
		Lower (≤ 9)	Medium (10, 11)	Higher (≥ 12)	Difference between low and high
Female	2000				
	0 years	81.0	82.9	84.1	3.1
	65 years	19.7	21.0	21.7	2.0
	2035				
	0 years	83.7	86.1	88.6	4.9
	65 years	21.5	23.3	24.9	3.4
Male	2000				
	0 years	75.8	77.0	79.3	3.5
	65 years	16.0	16.8	17.9	2.0
	2035				
	0 years	81.9	83.1	86.3	4.4
	65 years	20.0	20.7	23.1	3.1

Source: From authors, calculations of Statistics Sweden population registers data

corresponding increase for women is 3.6 and 2 years (Table 3). Furthermore, life expectancy will increase at a different speed for women and men with different educational levels.

Changes in population composition regarding education and mortality differentials by educational level have a significant impact on the projected number of older people in the future. The number of older persons (65+) in Sweden, according to scenario 4, will increase by 62% compared to an increase of 54% in scenario 3 during the period 2000–2035 (Fig. 3).

Discussion

In this paper we are introducing the implications of taking into account socio-economic differentials in mortality when doing demographic projections and particularly when analyzing the impact on issues related to the future older population. Our analysis results in alternative projections giving us a new information regarding the future size

(probably a higher number of older people than projected by the official population projections) and educational composition of the older population (probably a very fast decrease in the share of the population with a low educational level). The projected increase in educational level illustrated by changes in educational composition is not an event that still has to happen. This rather dramatic change in access to education by different cohorts has already occurred.

Education has been pointed out as the most frequently used socio-economic indicator in health research (Miech and Hauser 2001). Winkleby et al. (1992) argues that education, rather than income or occupation, is the best socio-economic indicator for older people's health. This is also consistent with findings from a study of incidence of dementia among the older people (Karp et al. 2004). Educational attainment has also been found to be significant predictor of limitations in physical function in old age (Parker et al. 1996). Furthermore, education is acquired relatively early in life and is not likely to change in older ages, which has the clear advantages to income, social

Table 3 Life expectancy, given reduced mortality by age and sex (scenario 3) and by age, sex and educational level (scenario 4)

	2000	Scenarios given reduced mortality			
		By age and sex (scenario 3)		+ educational level (scenario 4)	
		2035	Diff. 2000–2035	2035	Diff. 2000–2035
Female					
0 years	82.1	85.3	3.2	86.8	4.7
65 years	20.1	22.2	2.0	23.7	3.6
Male					
0 years	77.1	83.3	6.2	84.3	7.1
65 years	16.5	20.6	4.1	21.6	5.1

Source: From authors, calculations based on Statistics Sweden population registers data

class, housing tenure, marital status, region and other socio-economic indicators for prediction and planning purposes. At the same time, it should be pointed out that there are also strong association with other socio-economic indicators like housing tenure (Matthews et al. 2006) and marital status with mortality (Manzoli et al. 2007).

The generations that are arriving to old age during the next 35 years have already experienced better survival, better health and better living conditions and better access to medical services also as middle aged, than any generation ever before. According to Janssen et al. (2005), there is a positive association between mortality trends in late middle age and those among the older people. As we show, the new cohorts arriving at old age have also a much higher educational level than their predecessors.

On the other hand, mortality may be affected in a negative way by the obesity epidemic among young adults, the re-emergence of infectious diseases, wars, and health effects of ecological changes (Olshansky et al. 2005). At the same time, increased investments in the appropriate preventive measures and the new health technologies may alleviate at least some of those risks. Finally, better educated people act faster as regards to adapting to new technologies, are better prepared to comply with treatments (Goldman and Smith 2002), and are able to manage chronic conditions better (Goldman and Lakdawalla 2001). Furthermore, there is an abundance of evidence indicating socio-economic gradients in mortality and morbidity (using different indicators of socio-economic position) among men and women, among children, adults and older persons, for different causes of death, from different periods of time, countries and populations (Swedish Council for Social Research 1998; Valkonen 2001; United States National Research Council 2001).

The effect of education on mortality in the next decades will depend on the nature of the association between education and mortality. There is evidence for a causal effect of education on mortality in accordance with results from several studies (Cutler and Lleras-Muney 2006). Possible explanations behind this causality could be found using both the life-course perspective (Ben-Shlomo and Kuh 2002) and different material, psychosocial and behavioral factors (van Oort et al. 2005). The life-course perspective reflecting the long-term impact on health and mortality of various events and exposures earlier in life has attracted growing attention in public health research during the last years (Marmot 2004; Osler 2006).

Insights from life-course perspective may shed light on the observation that despite that the share of people in age group 70–74 having high education almost tripled between 1985 and 2002 in Sweden for both men and women, mortality differentials shows no signs of decline (Statistics Sweden 2005).

Therefore, all other things equal, the dramatic changes in educational composition of the older population will probably have a strong effect on mortality, resulting in further reductions in old age mortality during the next decades (Elo and Preston 1996). That means, changes in educational composition of different cohorts may be a useful input into projections of future old-age mortality trends.

The general assumption of continuing decreasing mortality is in line with the fact that during the last 160 years the record national life expectancy in the world has steadily increased at an almost constant pace (Oeppen and Vaupel 2002). At the same time reductions in mortality rates among the older people have resulted in steadily raising the maximum age at death in industrialized countries. In Sweden the rise in the maximum age at death from 1969 to 1999 has been even more rapid than the 100 years preceding 1969 (Wilmoth et al. 2000). The number of older persons in the future may increase even more than projected by statistical offices. From scenario 4 we can also see probable changes in the socio-economic structure of the older population. Thus, it is important to analyze the impacts of socio-economic mortality differentials and changes in socio-economic structure on projections of number and socio-economic composition of the older population. The gender gap in life expectancy is projected to narrow. However, if the share of higher educated women would not increase, the gender gap will narrow even faster. Those gender trends needs to be further investigated.

One limitation with our data is that the data are based on the short period 1992–1999. However, when we expanded the estimation period for the younger age groups to the period 1985–1999, we got similar results. In addition, the estimated trends in mortality reductions are part of an ongoing trend that has been underway for decades. A comparison with projections from Statistics Sweden (2000) (shown in Fig. 3 above) based on long-term trends underline the validity of assumptions on mortality decline used in scenario 3 and 4. Furthermore, the main driver behind our results showing the number of older persons in the future may increase even more than projected by statistical offices is the changing education composition. This is illustrated by the comparison between the scenarios 1 and 2 that provides an estimate of the size of the expected effect on the number of older persons that is due purely to the changing education composition of the adult population. A smaller part of the difference between our scenarios 3 and 4 is a result of our assumptions concerning the continuing trends in mortality reductions where the educational differentials will continue to widen at the same pace as was observed during the 1990s.

Our study is based on three educational levels; categorization is always to some extent arbitrary. Given the fact

that education has an effect on health over the whole spectrum, we should rather have more categories. However, the limited space and low marginal value of introducing new categories resulted in our choice to use similar categorization of educational level that has been used in other epidemiological (Iglesias et al. 2003; Sundquist et al. 2004) and demographic studies done on the Swedish data. Still nowadays almost 50% of men 70–74 have low education. Changes in category compositions may affect our results because of the rise in educational levels in Sweden. For example, the decrease in mortality in the low education level category could progressively slow down or stop due to: deterioration of the relative social situation of this group; a structural effect for a group being more and more limited to people with health and social problems. However, the argument concerning the effect of changes in category composition should be considered in relation to the fact that even though the share of people having low education in age group 70–74 decreased by 24 percentage points (from 74 to 53%) between 1986 and 2003, mortality rates in this population group fell during the same period by 24% (or by 1.5% per year) according to Statistics Sweden (2005).

There are also other assumptions or scenarios that are possible alternatives of scenario 4. For example, in a companion study to this (Batljan et al. 2009) we have also been able “to illustrate the possible shift to decreasing educational morbidity differentials either by convergence to the level of the highly educated or to the level of the low educated”. Applying the same methodology on mortality should give us two alternative developments for the number of older people. The third alternative (also this discussed in Batljan et al. 2009) could be to “extend our analyses to diverging scenarios (increased health inequalities as a result from worsening health among low educated and improving health among high educated)”.

In our population projections in scenario 2 and 4, we have not taken into account the fact that some individuals may have raised their educational level after the age of 35. That means, all other things equal, our scenarios have a small underestimation of number of people with higher education. As we see it, this limitation cannot influence our projections in any significant way.

Conclusion

Standard demographic forecasts that do not take into account socio-economic mortality differentials, risk underestimating the number of older people and hiding dramatic changes in population composition. Taking into account socio-economic mortality differentials will result in alternative projections regarding the future size and

socio-economic composition of the older population. This may have profound consequences for large areas of society, particularly in the field of economics, health care and social policies. Thus, our study provides important information for policy makers, researchers, and businesses both in Sweden and other developed countries that share similar trends in decreasing mortality, educational mortality differentials and structural changes in the educational composition of their populations. We recommend the use of this information in planning. Information on both the future size (the ageing of the population) and socio-economic composition of the older population should be used in health care and long-term care human resources planning or when assessing financial sustainability of health care, long-term care and pension systems in the future.

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Appendix

Assumptions on annual decline in mortality rates (%) by age, sex and education level based on the change during the period 1992–1995 to 1996–1999.

	Scenario 4			Scenario 3
	Low	Medium	High	Weighted
<i>Women</i>				
0–34	1.5	1.5	1.5	1.5
35–54	0.7	0.9	3.0	1.6
55–74	1.0	1.4	2.2	1.4
75–79	0.8	1.2	1.8	1.0
80–84	0.7	0.9	1.4	0.8
85–89	0.5	0.7	1.1	0.6
90–94	0.3	0.5	0.7	0.4
95–99	0.2	0.2	0.4	0.2
100	0.0	0.0	0.0	0.0
<i>Men</i>				
0–34	1.5	1.5	1.5	1.5
35–54	1.9	2.9	3.0	2.7
55–74	2.1	2.1	3.1	2.3
75–79	1.7	1.7	2.5	1.8
80–84	1.4	1.4	2.0	1.5
85–89	1.0	1.0	1.5	1.0
90–94	0.7	0.7	1.0	0.7
95–99	0.4	0.4	0.5	0.4
100	0.0	0.0	0.0	0.0

Source: From authors, calculations based on Statistics Sweden population registers data

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