

Of leaders and losers – oldest age mortality paradoxes

Sven Drefahl, Karin Modig, Anders Ahlbom

Abstract

Statistics on Swedish mortality is considered to be of the highest quality and can be followed for more than 250 years back in time. For most of this time Sweden has been among the leading countries in terms of life expectancy; in the beginning of the 1970s Sweden was the country where both women and men enjoyed the world's longest life expectancy. While life expectancy continues to be high and increasing, Sweden has been losing ground in relation to other leading countries, especially at older ages. This study investigates Sweden's world rank in remaining life expectancy using data from the Human Mortality Database. The analyses show that in 2009, Sweden had the 10-highest life expectancy at birth for women and the 6-highest for men, however old-age mortality is among the worst of all countries in the Human Mortality Database. For men, Sweden ranks 24th out of 34 countries for remaining life expectancy at age 90 and 30th out of 34 countries at age 95. For women, Sweden ranks 20th out of 34 countries for remaining life expectancy at age 90 and 25th of 34 at age 95. We compare the Swedish pattern with other countries and found similar decreases for other countries with high quality data. The results are discussed in the light of different hypotheses.

Background

Statistics on Swedish mortality can be followed for more than 250 years back in time. Over that period, life expectancy has increased from 40 to 80 years, by an average of 2 months per year. Sweden had during a long period the lowest mortality rates in the world among young individuals and was among the top three for total life expectancy. In the beginning of the 1970s, Sweden was the country where both women and men enjoyed the world's longest expectation of life. In the past two decades, however, this pattern has changed. While still among the countries with very high life expectancy (Vaupel et al., 2011), Sweden as well as other Nordic countries is quite rapidly losing ground in relation to other leading countries. Those countries such as Japan and France have made exceptionally fast progress in life expectancy, especially for women. Life expectancy at birth continues to increase in Sweden at a steady pace but mortality improvements at the very oldest ages have stagnated (Drefahl et al., 2012, Drefahl et al., 2014, Modig et al., 2013), while they continue in many other countries. This paper investigates how Swedish mortality at older ages compares to other countries with good quality data.

Data and Methods

This paper uses standard demographic life table methodology to construct life expectancy at birth and remaining life expectancy at ages 1 to 108 for each country in the Human Mortality Database for each year between 1970 and 2009. Later years will be included depending on the availability of data for a large number of countries. For each year we rank the remaining life expectancies at each age and obtain the position of Sweden. Similar calculations are done for the other countries included in the Human Mortality Database (Human Mortality Database, 2002). All analyses are carried out in R.

First results

First results of our analyses are shown in Figure 1 and 2. The figures show the rank of Sweden for remaining life expectancy at each age for the year 2009, the last year with almost complete country coverage in the Human Mortality Database. Regarding life expectancy at birth for men, Sweden has been one of the leaders and was ranked 6th out of 34 countries. The rank for remaining life expectancy decreases with age, indicating worse mortality conditions in Sweden at higher ages than in the other countries of the Human Mortality Database. For the highest ages, remaining life expectancy in Sweden is among the worst of all countries included. At age 90 Sweden ranks 24th out of 34 countries, at age 95 Sweden ranks 30th out of 34 countries. A similar but slightly less pronounced pattern can be found in women. In 2009 Sweden has been the 10th highest country in terms of life expectancy at birth. However, again Sweden ranks 20th out of 34 countries for remaining life expectancy at age 90 and only 25th of 34 at age 95.

Further analyses have shown that similar patterns can be observed for other countries with high-quality data, e.g. Iceland and Switzerland. Further results will be available in time for the EPC meeting.

Figure 1: Worldwide rank in life expectancy at birth (Men)

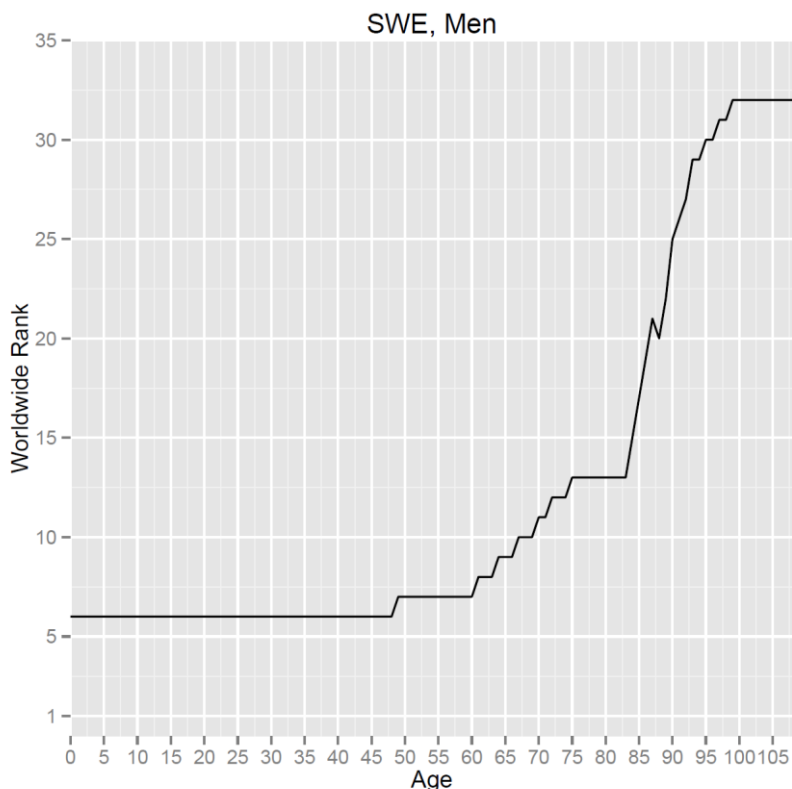
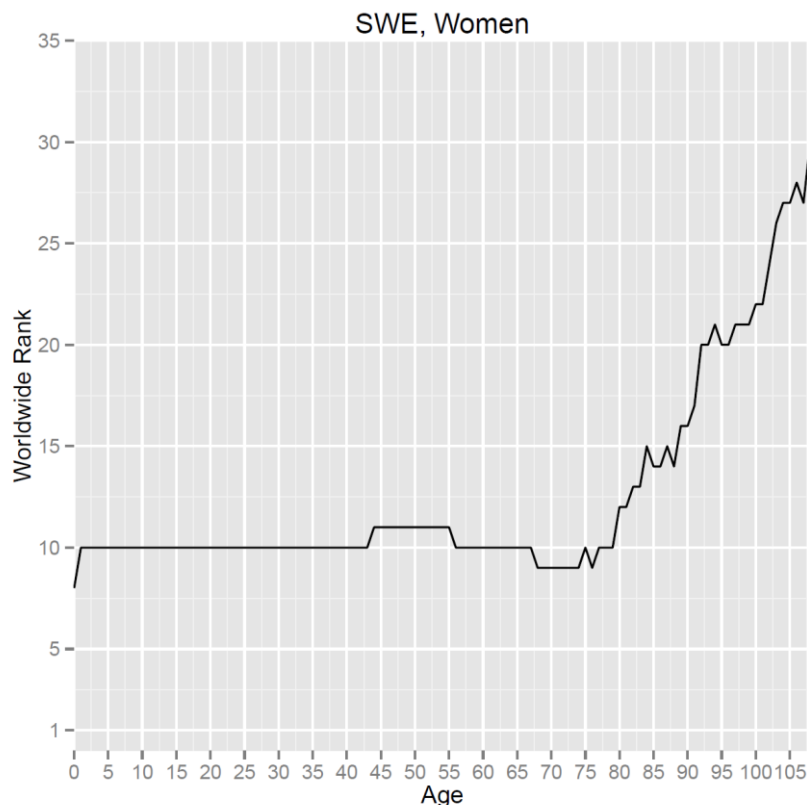


Figure 2: Worldwide rank in life expectancy at birth (Women)



Discussion

Several explanations can be offered to explain these striking results. First, it could reflect very disadvantageous living conditions for the old above retirement age in Sweden. This would be supported by previous findings (Drefahl et al., 2012, Drefahl et al., 2014). A second explanation could reflect data quality issues for some countries in the Human Mortality Databases at the highest ages or reflect possible artifacts from the data management procedures. Similar analyses for cohort data, which are not treated by the same data management procedures might shed light on likelihood of this explanation. The third explanation refers to the impact of heterogeneity and selection. In countries with exceptionally low infant, child and early adult mortality, the remaining population at higher ages might be less selected in terms of health status than in countries with higher infant, child and early adult mortality. Country comparisons will shed light on the likelihood of this possible explanation.

References

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