Losing ground - Swedish life expectancy in comparison with other countries

Introduction

The remarkable increase in life expectancy over the last 160 years in the developed countries was first fueled by reductions in infant and child mortality, however, since the 1950s most part of the mortality reductions was observed also for older ages. The annual decline in mortality at older ages is continuing for many countries (Rau et al. 2008). Sweden had long been the country that had the lowest mortality rates in the world among young individuals and was among the top three for total life expectancy. In the past two decades, however, this pattern has changed considerably. While still among the countries with very high life expectancy (Vaupel et al. 2011), Sweden as well as the other Nordic countries is quite rapidly losing ground in relation to other leading countries in Europe, Asia, and North America. At the very oldest ages Swedish mortality even has made no progress, contrasting the findings in many other highly developed countries (Drefahl et al. 2012).

Of the Nordic countries Denmark has performed worse and smoking has been identified as the main reason for this poor performance that started in the 1980s (Crimmins et al. 2011). For Sweden, the causes are less clear, but the unique smoking pattern may have left a particular imprint in its mortality pattern. Swedish men widely substitute cigarettes by snus, a powder tobacco that is banned in the other countries of the European Union. Therefore they experience probably the lowest lung cancer rates and smoking related mortality among all developed countries (e.g. Rodu and Cole 2009, Crimmins et al. 2011). Swedish women are much less likely to use snus than Swedish men, which is why smoking related mortality is higher among them and above the average when compared with other developed countries (e.g. Preston 2010, Rodu and Cole 2009).

The aim of this study is to further investigate the Swedish mortality pattern. Using decomposition techniques we examine age group specific contributions to life expectancy differences between Sweden and some of the leading countries and their changes over time for men and women. In a second step we analyze how smoking patterns may have shaped these differences.

Data and Method

In the first part of our analysis we decompose the differences between life expectancies as proposed by Arriaga (1984) and Preston et al. (2001) in order to calculate the specific contribution of each age group to the overall difference. For this part, data from the Human Mortality Database is used.

In the second part of the analysis we examine how smoking related mortality contributes to this differences. Attributable fractions of cause specific mortality are obtained from the estimates of

Peto (2006) and Preston (2010). Cause and specific mortality rates are obtained from Swedish register data.

First Results

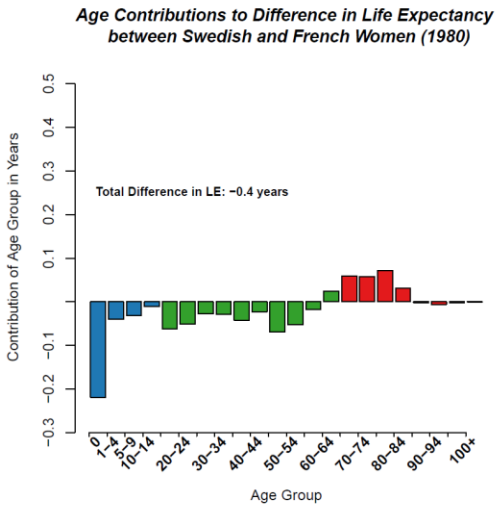
In the first step of our investigations we compare how age groups contribute to differences in life expectancy between Sweden and some of the leading countries in terms of life expectancy. The results for men are shown in Figure 1 and for women if Figure 2. The left panel of each figure refers to the year 1980 and the right panel to the year 2008 or 2009.

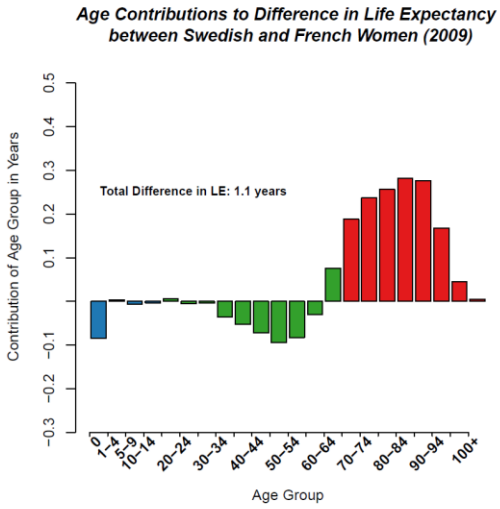
Figure 1 shows that female Swedish life expectancy has been among the very highest in 1980. In terms of infant and child mortality Sweden has even been the leading. The contributions of the other ages to the differences are varying when compared to different countries. The right panel of figure 1 shows the same calculation for women in 2009. Sweden still enjoys extremely low infant mortality, and a mortality similar to the three leading countries at adult ages. At older ages the pattern is completely different and Sweden has considerably higher mortality than France, Japan, or Italy.

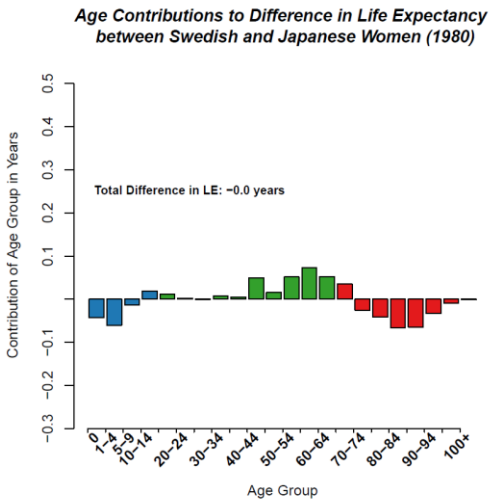
Figure 2 provides the results for men. The comparisons for the 1980 presented on the left side of the figure show that Swedish men had much higher life expectancy than their French and Italian counterparts but lacked behind Japanese men by 0.8 years. Again Swedish infant and child mortality has been lower than in the other countries studied here. On the right side of the figure the recent pattern is shown. Still, Swedish men experience similar or lower mortality at infant, child and adult ages. The opposite is the case for the old ages, where Swedish men are considerably disadvantaged. This is especially remarkable when compared with countries like France. French male life expectancy is more than 1.6 years lower than that of Sweden, at old age, however, French men do better than their Swedish counterparts.

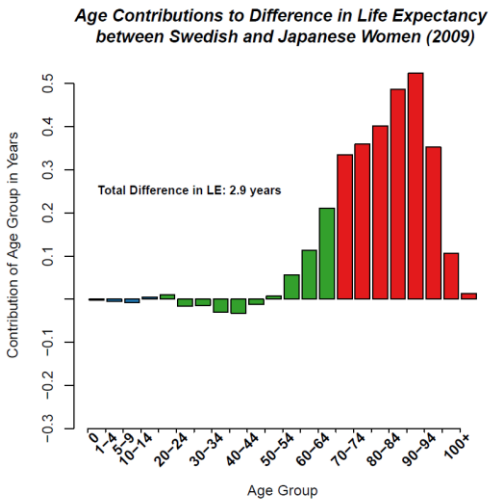
In the second step of the analysis we investigate the role of smoking on the observed mortality differences between the countries. Results from the models will be ready in time for the PAA meeting.

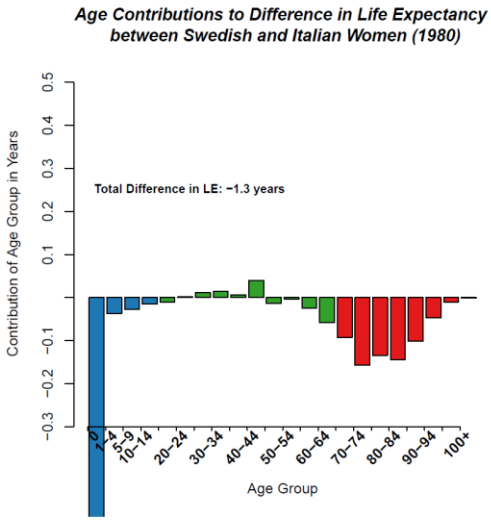
Figure 1: Age contributions to difference in Female life expectancy between Sweden and France, Italy, Japan.











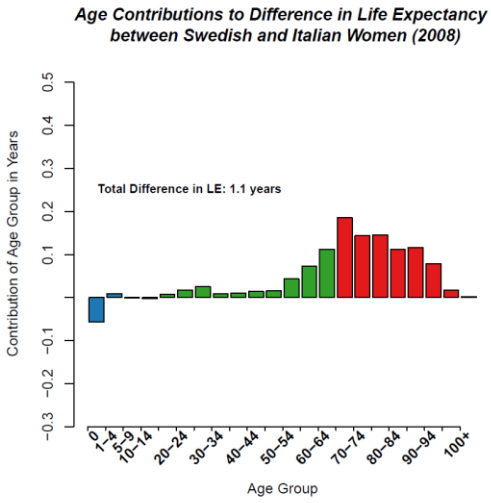
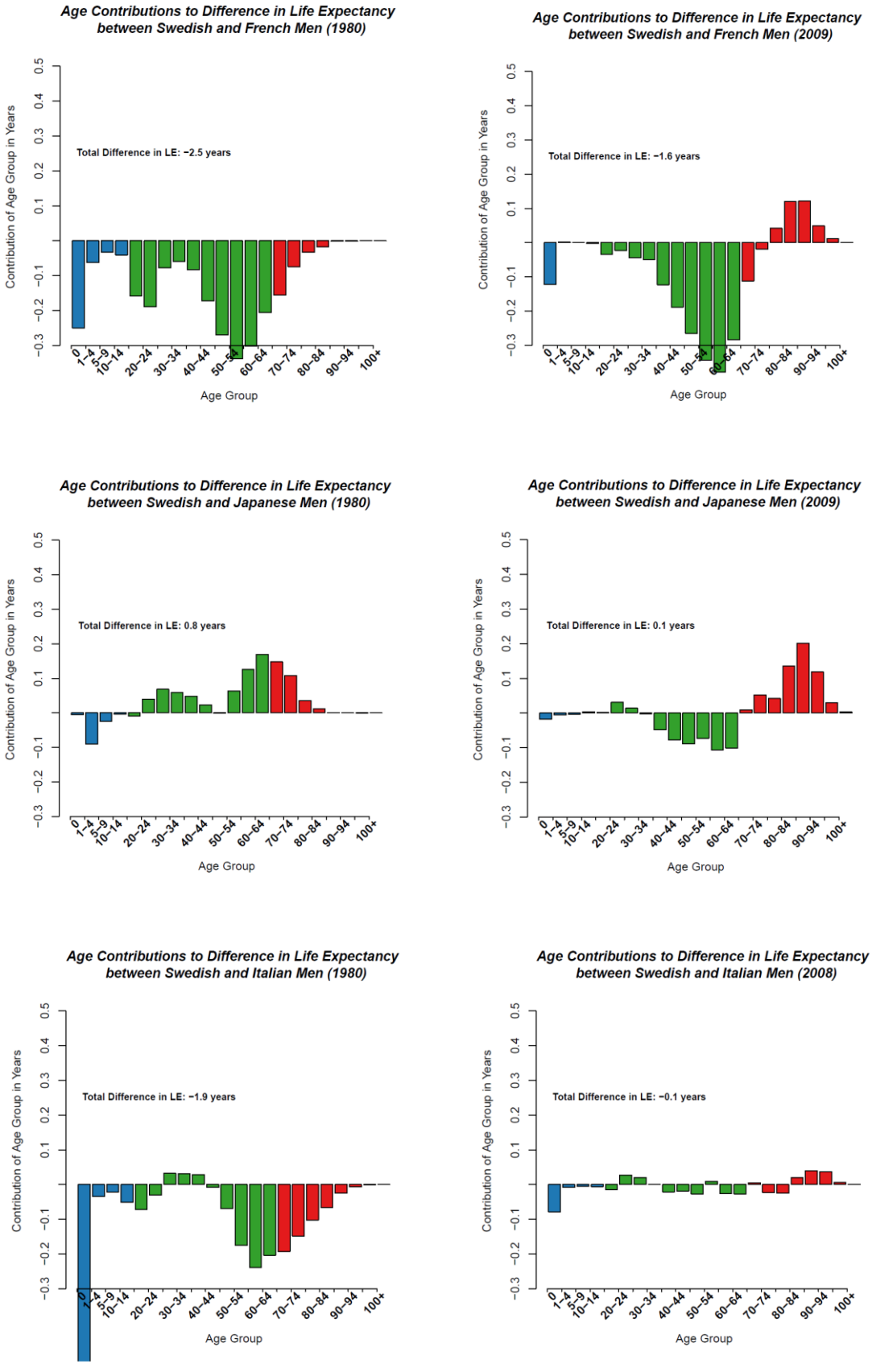


Figure 2: Age contributions to difference in Male life expectancy between Sweden and France, Italy, Japan.



Discussion

In this study we have observed how Sweden, together with the other Nordic countries, loses ground on behalf of other countries in Europe with respect to life expectancy. In the beginning of the century until the 1980s Sweden had a higher life expectancy than Italy, Spain, France, and Japan and all ages contributed to this better life expectancy. Since 1980, however, it has slowly changed and Sweden has lost its relative advantage to other countries. Today it is only among infants, children and young adults that Sweden is among the very leading countries. At all other ages, and especially among the oldest Swedish mortality is lacking behind at an increasing distance. The reasons behind this unusual development are not clear and are most likely related to several factors.

One reason might be the smoking behavior in Sweden. Smoking is one the most important risk factors to many important diseases such as cardiovascular diseases and cancer. Smoking prevalence was higher among Swedish women than women in other countries in the 1970s and could be a potential explanation behind Sweden's fall in LE in relation to the other studied countries. It would also be logic argument in relation to the lack of difference among men where the smoking prevalence among Swedish men was similar to that of men in other countries. However, a counter argument to that logic is that Finland and Norway has catched up with Sweden in terms of life expectancy and in these countries the smoking prevalence have been similar to that of women in Sweden.

A third, and highly speculative, hypothesis behind the lower speed in improvement in LE in Sweden compared with Italy France and Spain may be related to the focus of the health care sector. Perhaps Sweden is not providing the same level of care to elderly individuals as it does to the young.

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