How long do Swedish-speaking Finns live?
A comment on the paper by Hyyppä and Mäki*

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In a recent paper, Hyyppä and Mäki demonstrate and discuss interesting differences in health expectancy and mortality between the two language groups in Finland (Hyyppä and Mäki, 2001). According to their results, the Swedish-speaking males lived 8.7 years longer than the Finnish-speaking men in the same region on the west coast of the country (Ostrobothnia). Their conclusion is that these differences are to a great extent due to differences in the extent of social capital. They state that the ‘differences are astonishingly large to appear in a highly monocultural and egalitarian society’. They also argue that the lifetime of the Swedish-speaking population is one of the longest in the world.

Apparently the latter conclusion is based on a comparison of their measure of average age at death in 1991–1996 for the Swedish speakers with the traditional life expectancy calculated for most populations. In 1996, the average age at death was 77.9 years in Swedish-speaking males in Finland, while the overall male life expectancy in the country was 73.0 years. In Sweden the corresponding figure was 76.5 years (Statistics Sweden, 2002). However, a comparison of average age at death and life expectancy is inaccurate and may produce misleading results; some clarification is therefore required.

It is certainly tempting to perform the kind of calculations Hyyppä and Mäki do, i.e. to study the characteristics, such as age at death or age at retirement, of persons experiencing the event of interest only. In order to make relevant comparisons, however, one must consider all persons at risk. This means that we have to compare the age-specific risks or transformations of them, such as the life expectancy. For stationary or stable populations the calculations are correct, but in real-world populations the biases may be substantial, as will be shown below.

I will focus on the issue of age at death and life expectancy, since I have immediate access to the data required for such an analysis. The problem is, however, exactly the same with respect to retirement.

Average age at death in 1 year depends to a large extent on the age composition of the population at that time. Generally speaking, the higher the proportion of old people, the higher the average age at death. The age distribution is of course dependent on the mortality level in the population. It is, however, generally even more a result of the previous development of other demographic factors, especially migration. To illustrate this, I have compared the average age at death and life expectancy in the 11 counties in Finland in 1991–1995, using ordinary published data from Statistics Finland. The age distributions differ considerably between the counties due to variations in fertility some decades ago. Furthermore, there have also been great migration flows of young people from the northern and eastern parts to the southern part of the country.

In Figure 1, the average age at death is plotted against the life expectancy in each county, and separately for males and females. Two clear results can be observed. First, since the age structure of the population in Finland is still rather young (younger than the stationary population corresponding to the death risks), the average age at death is clearly lower than the life expectancy. For Finland as a whole the difference is 4.1 years for males and 2.3 years for females. The second result, which in this case is an even

*All calculations in the paper are based on data published by Statistics Finland in the series Population.
more important issue, is that the correlation between average age at death and life expectancy is very low (0.41 for males and –0.04 for females). This clearly illustrates that it makes no sense to use average age at death in order to compare counties in Finland with respect to the level of mortality.

To comment on the magnitude of the mortality differences between the language groups, I will start at the national level. This is because detailed information on deaths by gender, age and language group are not published for different regions. First, some background information about the age composition of the two language groups needs to be mentioned. The Swedish-speaking population in Finland has a clearly older age composition than the Finnish-speaking one (Liebkind et al., 1995). In 2000, 7.4% of the Swedish-speaking males were >75 years of age as compared with only 4.1% of the Finnish-speaking ones. For females, the corresponding proportions were 13.5 and 8.7%, respectively. There are several reasons for these differences. Some decades ago the reproduction of the Swedish-speaking population was clearly lower than that of the Finnish-speaking one. The migration loss to Sweden in the 1960s and 1970s was bigger among the Swedish speakers and this also had a great impact on the age distributions. Finally, as Hyyppä and Mäki point out, mortality is lower among the Swedish speakers.

Age-specific death risks for the Swedish-speaking males are on average almost 20% lower than the corresponding Finnish ones; for females the difference is ~10%. In terms of life expectancy this corresponds to a difference of ~2.5 years for males and almost 1 year for females. Thus, according to my calculations, the life expectancy in the year 2000 for Swedish-speaking males and females was ~76 and ~82 years, respectively. For females this is almost the same level as in Sweden, while the males lay almost 1 year behind.

The age structure of the Swedish-speaking population in Finland is rather close to the stationary one, and therefore the average ages at death and life expectancies almost coincide. The average ages at death for males and females were close to 76 and 82 years, respectively, by the end of the millennium. Thus, the average age at death was ~6 years higher for Swedish-speaking males than for Finnish-speaking males. For females, the difference was 3.1 years. Consequently, in both cases the exaggeration of the real difference in mortality is considerable.

I do not have the explicit data necessary to calculate age-specific death risks and life expectancies for the regions in the Hyyppä and Mäki study. I do, however, have access to detailed data about the age composition of both language groups. To illustrate how large the effect of the different age distributions actually is on the average age at death, I have used these data assuming that the death risks are exactly the same in both language groups. To illustrate how large the effect of the different age distributions actually is on the average age at death, I have used these data assuming that the death risks are exactly the same in both language groups. I have thus calculated the expected number of deaths in each age group and finally their average age (Table 1). I have used a set of death risks estimated for present western Finland.

The difference in the age structure between the language groups is even bigger in this region than in the country as a whole, and consequently the effect on the estimated average age at death is considerable. For males, the difference is almost 8 years and for females it is almost 3 years. Also note that the estimated average age at death would be exactly the same even if we multiply all the death risks with a constant. Thus, even if the
age-specific death risks for the Swedish-speakers were, hypothetically, 10% higher in every age group, the average age at death for those who die would be the same. This is also an illustration of the fact that it is impossible to draw conclusions about mortality levels from information about the average age at death only.

My conclusion is that the measures used by Hyyppä and Mäki are not advocated from a methodological point of view. Any statement about mortality or life expectancy is unjustified. In fact, a more correct conclusion would be that the higher average age at death indicates that the proportion of elderly people is higher among Swedish speakers. However, this can be shown directly for the age distributions. Furthermore, the main reason for this difference is not differential mortality but migration. The results with respect to early retirement can be questioned for the same reasons.

In spite of this methodological critique I am still convinced that Swedish speakers live longer than Finnish speakers, both in Finland as a whole and in the specific regions. The differences are, however, considerably smaller than those presented by Hyyppä and Mäki. [It is also true that Swedish speakers have a lower risk of early retirement than the Finnish speakers. In a yet unpublished paper (J. Saarela and F. Finnäs, manuscript submitted), we show that the age-specific risks for retirement are ~20% lower for Swedish speakers.] The merit of their paper is the discussion about the plausible reasons behind the differences; I agree with most of their arguments. Consequently, I believe that studies on the Swedish-speaking minority can contribute to the understanding of the impact and importance of social capital. Any study should, however, be based on methodologically correct calculations.

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