Foolish Young Males and Women's Survival Superiority

Virginia Zarulli, James W. Vaupel, Rune Lindahl-Jacobsen

Introduction

There is the belief that the mortality of reckless young men generates most of the female advantage in life expectancy observed today. The underlying assumption is that the testosterone, which peaks during puberty and declines afterwards (Travison et al., 2006, Dabbs, 1990), brings young adult men to engage in dangerous behaviours and generating most of the overall female advantage in life expectancy observed almost anywhere in the world (Austad, 2006, Barford et al., 2006).

The literature, on the whole, supports the belief of the young male syndrome (Wilson and Daly, 1985), suggesting a positive relationship between circulating testosterone levels and risk-taking attitude. For instance, teenage boy skaters perform more arduously in the presence of an attractive young woman and this increase in risk taking is caused in part by elevated testosterone levels (Ronay and Hippel, 2010); more generally, testosterone levels are positively related to riskier recreational, financial and social behaviours, although some studies reported mixed results (Stenstrom et al., 2011).

The literature about health behaviours and life style factors shows an additional disadvantage for men. Men smoke more, consume more alcohol, eat less healthily and drive less safely than women (Preston and Wang, 2006, Waldron, 1985, Wardle et al., 2004).

Both sets of factors display their strongest effect at young-adult ages. It is at these ages that men and women differ the most in terms of reckless behaviors, as it is demonstrated by the mortality hump (ref). It is also at these ages that hormonal differences between men and women are the biggest: the levels of testosterone and even more of dehydroepiandrosterone, the most prominent male hormones, peak at young-adult ages and decrease afterwards (Stanworth and Jones, 2008, ORENTREICH et al., 1984). Therefore, one would expect these ages to be the most important players in determining the gender gap in mortality. However, an account of the current status in low mortality countries reveals that the largest absolute difference between male and female mortality risk reaches its maximum at very old ages, as showed in Figure 1. In this paper we analysed the age specific contributions to the male-female gap in life expectancy…

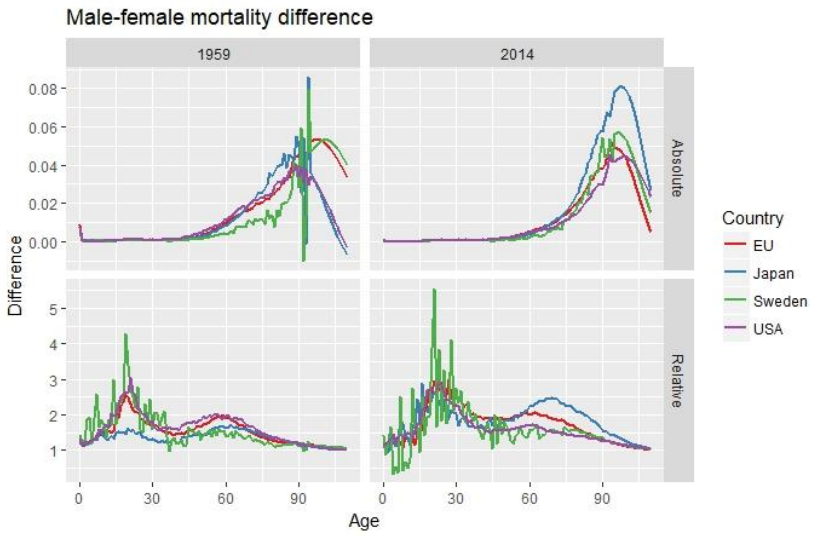

Figure 1…

Data and methods (very preliminary.)

We used data from the Human Mortality Database (ref) that contains a long time series of sex specific life tables for 38 developed countries. In order to compute age-specific contributions to the sex difference in life expectancies we performed an age decomposition of the sex difference in life expectancy (Andreev et al., 2002). We then produced mortality surfaces based on the broad-age group contributions. Mortality surfaces are very powerful tools to have a clear overview and to describe trends over time.

We selected 4 low mortality populations: Sweden (year range to insert), United States (year range to insert), Japan (year range to insert) and European Union (year range to insert). The data base contains already life tables for the first three countries but not for the European Union aggregate, for which only country specific life tables are available. However, we used the available country specific death counts and person-years exposure to construct to build the European Union life table. We first aggregated the country specific counts by age, then smoothed the erratic old age rates following the official procedure of the HMD protocol (Wilmoth et al., 2017), then computed the life tables according to standard demographic techniques (Preston et al., 2001).

Results

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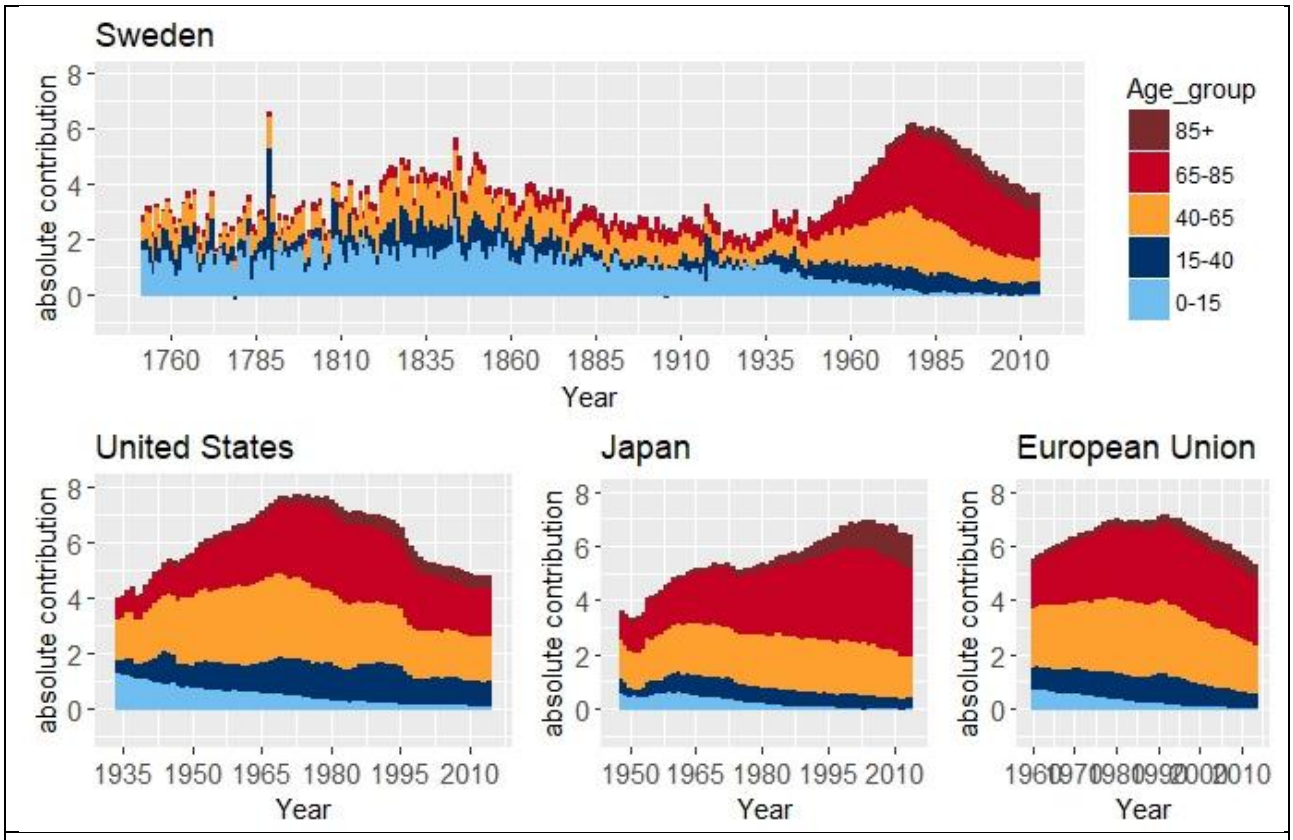

Figure 2: absolute age specific contributions

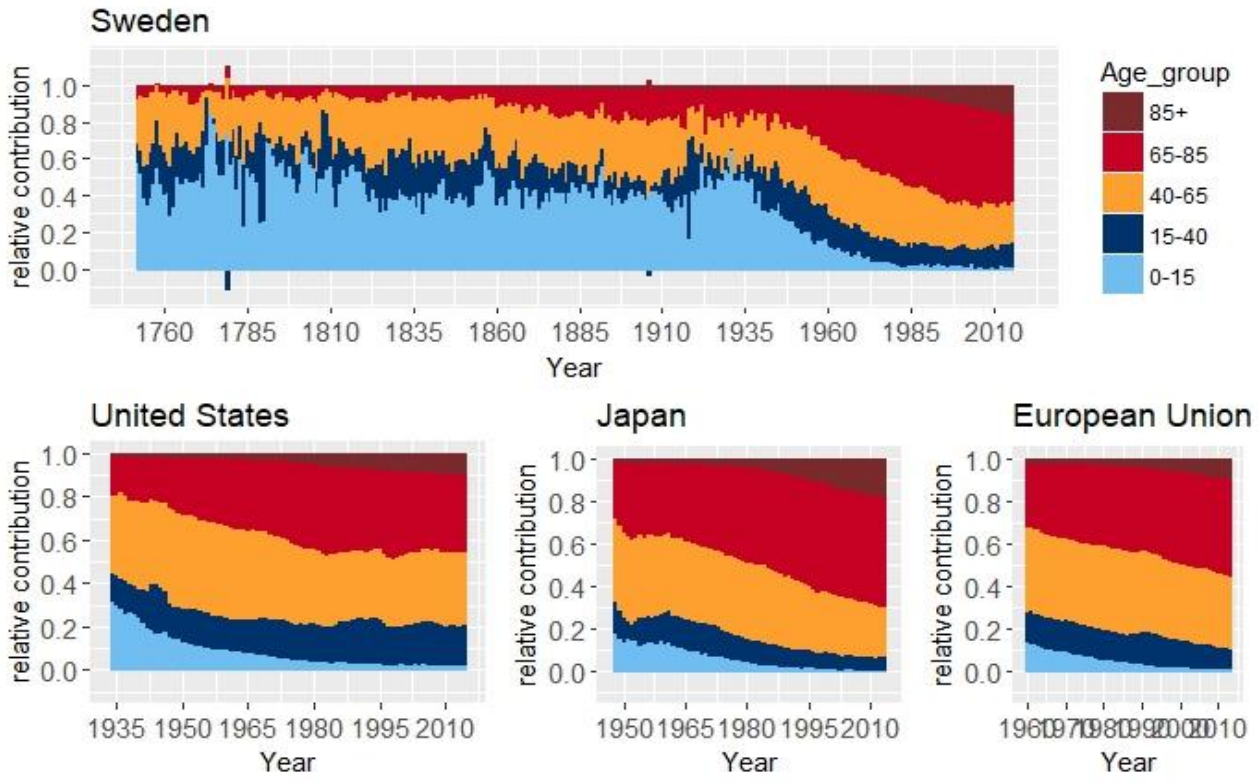

Figure 3: relative age specific contributions

The results show the age specific contribution over time. Figure 2 reports the absolute contributions of the age groups to the total gender gap in life expectancy year by year. Figure 3, instead, reports the contributions in relative terms. It is striking that in both absolute and relative terms, the young adult ages are not the major contributors to the total gender in gap in life expectancy. This was true in the past and is even more clear nowadays. As life expectancy increases, old ages are becoming more and more the key player in the female survival advantage, while the contribution of young adult ages seems to remain on a constant level.

Discussion

Contrary to the common belief that foolish and reckless young adult males' higher mortality is the major player in the determination of the gender gap in life expectancy, older ages are, indeed, the key actors. We showed that in past as well as today, even though they played a sizeable role, young adult ages were never the biggest contributor to the male female difference in life expectancy. The female survival advantage was taking place much more significantly at older ages. More recently, with the astonishing rise in human longevity, the oldest old ages have entered the stage. As of today, the magnitude of their contribution to the gender gap in life expectancy, both in relative and absolute terms, is comparable to that of the young adult ages.

Our results are of course only describing the trend over time of a complex phenomenon that is likely to be shaped by a multitude of intertwining factors. Most of all, our analysis is based on period data that only represent a snapshot of the population at a specific time, which ignores fundamental issue such as cohort dynamics and selection processes within heterogenous populations (Manton et al., 1981).

Many questions remain open. We have seen that old ages are the ones where the male disadvantage in survival display its strongest effect on the overall gap in survival, but we do not know, for example, if this is due to the aftermath of foolish young ages, to old ages only, or, most likely, to an interaction of the two.

We feel confident enough to speculate the importance of genosomes, factors that are very likely to explain, at least partly, the dynamics analysed in this paper.

Useful insights could come from the study of risk taking behaviours among women, but, as of today, the existing literature reports contrasting results.

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