Explaining the Female Longevity Puzzle

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Extended Abstract

According to recent studies of old-age mortality in developed countries a specific pattern for female mortality has emerged between the mid-1980s and the end of the 20th century. In France, Japan and Norway women have experience improved longevity whereas in Denmark, the Netherlands and in the United States women have experienced decreased improvements in longevity. This adds further pressure on pension fund's and government's ability to manage their longevity risk, due to diverse gender specific longevity patterns in different population. The idea of this paper is to understand the complexity of female longevity improvements in Scandinavia by using detailed register data for Denmark and Norway and explain why this puzzle has emerged. We exploit the fact that we have access to annual register data for entire populations in both countries above the age of 50 for the time period 1981-2005. Besides age and gender we account for socioeconomic status based on financial indicators as we are able to partition every individual in the population at each age and year into a financial subgroup. By developing more sophisticated data we achieve a better in sample fit as well as more precise predictions of future mortality rates. This is consistent across standard Lee-Carter typed models as well as those accounting for cohort effects. We see that even when individuals share the same age and gender, differences in life expectancy across financial indicators remain. In particular, heterogeneity in socioeconomic mortality rates behave differently for the two Scandinavian countries and thus gives useful insight in explaining which subgroups of the Danish female population are driving the slowdown in longevity improvements. Moreover these results have strong implications for pension funds' long-term survival in an increasingly competitive global economy which is under pressure both from uncertainty about future longevity of their particular client base and planned tightening of the international solvency rules (Solvency II). While pension funds have access to some financial characteristics for their particular client base, this is typically only at one point in time and not representative sample of the total population. Thus, in providing more detailed information about factors driving improvements in life expectancy we offer more transparency for the pension funds as well as reducing the basic risk currently faced by participants on both sides of the capital market for longevity-linked products.

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