



Mortality and Longevity



Aging and Retirement

Empirical Results on the Rotation of the Age Pattern of Mortality Decline





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Abstract

Rotation of the age pattern of mortality decline refers to two phenomena supposedly occurring simultaneously: decelerating mortality decreases at younger ages and accelerating improvements in elderly populations. Several researchers have documented these processes in the literature, especially in highly developed countries. After a concise summary of the most relevant sources, a simple, largely data-driven methodology with few assumptions is used to empirically examine the rotation phenomenon in historical mortality datasets of the G7 countries¹, using United Nations data from the period between 1950 and 2015 for both genders.

In line with earlier findings about European Union member states, my results indicate that the presence of rotation is far from universal, even in highly developed countries. There is strong evidence of rotation in both male and female populations only in the case of Japan, and no evidence of rotation whatsoever in US data. Therefore, it is necessary to exercise appropriate caution before applying forecasting procedures such as the variant of the popular Lee–Carter model including rotation.

¹ The Group of Seven consists of Canada, France, Germany, Italy, Japan, the United Kingdom and the United States of America.

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