

The Official Population Projections in Japan and Their Mortality Projection Models

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Abstract

In Japan, the increase in life expectancy in the 20th century was remarkable as with other developed countries. Moreover, the pace of the extension of life expectancy was noticeable. Japanese life expectancy was at the lowest level among developed countries in 1950. However, Japan caught up rapidly, overtook other countries, and has since continued to increase.

However, these unique characteristics of Japanese mortality pose huge challenges for modeling and projecting mortality. Existing mortality models often cannot capture the peculiarities of Japanese mortality and neither can the Lee-Carter (LC) model, which is now regarded internationally as a standard model.

With paying attention that the recent mortality improvement in Japan could be regarded as "delay" of death, or "shift" of mortality curve, we introduced a shift-type mortality model named Linear Difference (LD) model. However, LD model works only for adult mortality. Therefore, we used tangent vector filed approach to build a model that has a characteristic of the LC model in youth and that of the LD model in old ages. The resulting model is TVF model. In the most recent official population projection in Japan, future life tables are projected by the TVF model. In the medium-mortality assumption of the projection, the life expectancy is estimated to grow to 84.95 years for men and 91.35 years for women by 2065 .

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