

Mortality, Health and Marriage:  
A Study Based on Taiwan's Population Data

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# **Mortality, Health and Marriage: A Study Based on Taiwan's Population Data**

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## Summary

Life expectancy has been increasing significantly since the start of the 20<sup>th</sup> century and mortality improvement trends are likely to continue in the 21<sup>st</sup> century. Stochastic mortality models are used frequently to predict the expansion in life expectancy. In addition to gender, age, period and cohort are three main risk factors considered in constructing mortality models. Other than these factors, it is believed marriage status is related to health and longevity and many studies have found the married have lower mortality rates than the unmarried. In this study, we use Taiwan's marital data for the whole population (married, unmarried, divorced/widowed) to evaluate if marriage status can be a preferred criteria.

In addition to checking if mortality rates vary for different marital statuses, we want to know if this preferred criteria will be valid in the future. We chose two popular mortality models, Lee-Carter and age-period-cohort, to model the mortality improvements of various marital statuses. Because of linear dependence in the parameters of the age-period-cohort model, we used computer simulation to chose the appropriate estimation method. Based on Taiwan marital data, we found the married have significantly lower mortality rates than the single and, if converting the difference into a life insurance policy, the discount amount is even larger than that for smokers/nonsmokers.

**Keywords:** Longevity Risk, Mortality Improvement, Age-Period-Cohort Model, Marriage Status, Simulation

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