

# **Forecasting Mortality in the Presence of Missing Data: An Application to Chinese Population**

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In recent years, a number of stochastic mortality models have been proposed. Given all the required data, these models can be estimated readily by standard methods such as maximum likelihood. However, for some populations, part of the required data may be missing, therefore prohibiting us from fitting a stochastic mortality model directly. This problem is encountered when we forecast mortality for Chinese population. In particular, although the government has made age-specific central death rates available to the public since 1986, for a few years over the period of 1986-2008, the death rates cannot be found in the public domain. The primary objective of this paper is to investigate how we can apply a stochastic mortality model in the presence of missing data. To accomplish this goal, a statistical tool called 'multiple imputation' is used. On the basis of the proposed method, we derive a Lee-Carter projection of Chinese mortality, which can then be applied to, for example, the valuation of social security. Finally, we validate our proposed method by using data from populations for which complete mortality data are available.