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Entropy of the Gompertz-Makeham mortality model

By Tomasz Wrycza

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Abstract

Background: Life table entropy is a quantity frequently used in demography; e.g., as a measure of heterogeneity in age at death, or as the elasticity of life expectancy with regards to proportional changes in age-specific mortality. It is therefore instructive to calculate its value for the widely used Gompertz-Makeham mortality model.

Objective: I present and prove a simple expression of life table entropy for the Gompertz-Makeham model, which ties together the parameters of the model with demographically relevant quantities.

Comments: The relationship shows that entropy is easily calculated from the parameters of the given model, life expectancy and the average age in the stationary population. The latter enters the equation only if the Makeham term c is different from zero.

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