

Flow decompositions in multistate Markov models

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Abstract

We demonstrate the application of standard decomposition techniques to decompose differences between synthetic indices derived from age-stage Markov matrix models into differences due to each stage transition. An example is given on the basis of transition matrices from an analysis of working life expectancy in the United States.

1 Introduction

I describe the application of a generic pseudo-continuous time decomposition method (Horiuchi et al. 2008) differences between synthetic indices derived from two sets of transition probabilities into differences from each each age-stage transition (in our case aggregated over age). Intuitively this means we can assign how much of a difference is due to differences in each arrow in the state-space diagram of the model in question. We demonstrate this decomposition technique using published transition matrices from a recent study of working life expectancy in the United States (Dudel and Myrskylä 2017).

References

- Christian Dudel and Mikko Myrskylä. Working life expectancy at age 50 in the united states and the impact of the great recession. *Demography*, Oct 2017. ISSN 1533-7790. doi: 10.1007/s13524-017-0619-6. URL <https://doi.org/10.1007/s13524-017-0619-6>.
- Shiro Horiuchi, John R Wilmoth, and Scott D Pletcher. A decomposition method based on a model of continuous change. *Demography*, 45(4):785–801, 2008.

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