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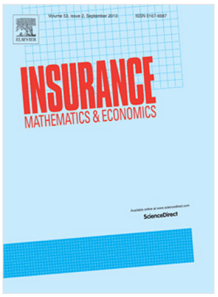

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Identifiability, Cointegration and the Gravity Model

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Abstract

The gravity model of Dowd et al. (2011) was introduced in order to achieve coherent projections of mortality between two related populations. However, this model as originally formulated is not well-identified since it gives projections which depend on the arbitrary identifiability constraints imposed on the underlying mortality model when fitting it to data. In this paper, we discuss how the gravity model can be modified to give well-identified projections of mortality rates and how this result can be generalised to more complicated mortality models.

JEL Classification: C32

Keywords: Mortality modelling, age/period/cohort models, multi-population modelling, coherent mortality projection

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