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Short-Term and Long-Term Dynamics of Cause-Specific Mortality Rates Using the Cointegration Analysis

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Abstract

This paper applies cointegration analysis and vector error correction models to model the short- and long-run relationships between cause-specific mortality rates. We work with the data from five developed countries (USA, Japan, France, England and Wales, and Australia) and split the mortality rates into five main causes of death (Infectious&Parasitic, Cancer, Circulatory diseases, Respiratory diseases, and External causes). We successively adopt the short- and long-term perspective, and analyze how each cause-specific mortality rate impacts and reacts to the shocks received from the rest of the causes. We observe that the cause-specific mortality rates are closely linked to each other, apart from the External causes that show an entirely independent behavior, and hence, could be considered as truly exogenous. We summarize our findings with the aim to help practitioners set more informed assumptions concerning the future development of mortality.

Keywords**:** Causes of death, dependence, cointegration, VECM, impulse-response analysis

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