

Causes-of-Death Mortality: What Do We Know on Their Dependence?

Séverine Arnold (-Gaille)\* and Michael Sherris†

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\* Faculty of Business and Economics, University of Lausanne, Switzerland, Severine.Gaille@unil.ch

† Australian School of Business, University of New South Wales, Australia, M.Sherris@unsw.edu.au

# Causes-of-Death Mortality: What Do We Know on their Dependence?

S everine Arnold (-Gaille)

Faculty of Business and Economics

University of Lausanne

Switzerland

*Severine.Gaille@unil.ch*

Michael Sherris

Australian School of Business

University of New South Wales

Australia

*M.Sherris@unsw.edu.au*

## Abstract

Over the last century, the assumption usually made was that causes of death are independent, although it is well-known that dependencies exist. Recent developments in econometrics allow, through Vector Error Correction Models (VECM), to model multivariate dynamic systems including time dependency between economic variables. Common trends that exist between the variables may then be highlighted, the relation between these variables being represented by a long-run equilibrium relationship. In this work, VECM are developed for causes-of-death mortality. We analyze the five main causes of death across ten major countries representing a diversity of developed economies. The World Health Organization website provides cause-of-death information over about the last 60 years. Our analysis reveals that long-run equilibrium relationships exist between the five main causes of death, improving our understanding of the nature of dependence between these competing risks over recent years. It also highlights that countries had usually different past experience in regards to cause-of-death mortality trends and thus, applying results from one country to another may be misleading.

**Keywords:** Causes of death, mortality trends, VECM, dependence, common trends