May 15, 2021

Mark D. Hayward

Editor,

*Demography*

Dear Editor,

We are pleased to submit our paper entitled **“Divergent Trends of Lifespan Variation During Mortality Crises”** for consideration as a research article in *Demography*.

Lifespan variation has become an important topic in the field of demography as a complement to life expectancy and other average indicators, with major articles published in *Demography*. However, little is known about the behaviour of lifespan variation in periods of strong mortality increase. In this article, we analyse lifespan variation trends before, during and after five distinct mortality crises in Scandinavia and the Ukraine, namely two famines and three epidemics, when life expectancy at birth decreased by 10 years or more. By considering such episodes, our aim is twofold: 1) To shed light on the patterns of mortality change during mortality crises in the past and their implications for age specific patterns of mortality; and 2) To better understand how absolute and relative indicators of lifespan variation react to mortality shocks.

Our results highlight three main findings. Firstly, absolute indicators of lifespan variation dropped during our five mortality crises, while their relative counterparts increased. This striking finding runs counter the narrative in multiple studies stating that the choice of lifespan variation indicator is unimportant and that measures are interchangeable. Secondly, we observed important sex differences in lifespan variation, with males experiencing stronger changes during the crises compared to females. Finally, we disentangled which ages contributed to the observed changes using a powerful decomposition methodology. We found that mortality change at older ages determines the divergence between absolute and relative indicators, while the changing sex gap is due to differences in the pattern of child mortality.

We hope you will find our paper of interest for *Demography*’s readers andconsider it as a good fit in your journal’s rich publishing history concerning studies of lifespan variation and historical patterns of mortality.

Sincerely,

Serena Vigezzi

José Manuel Aburto

Iñaki Permanyer

Virginia Zarulli