

The role of European Union enlargement in mortality convergence across Europe

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Summary

The role of European Union enlargement in mortality convergence across Europe

A large and persistent life expectancy gap exists between established European Union (EU) member states and the 2004 accession countries: six years for men and three for women in 2019. This is surprising as there were good reasons to expect this gap to close due to closer economic cooperation, increased diffusion of technologies and best practices in health, and increased investment in regional development. While there is a rich literature on mortality convergence in Europe, there have been few attempts to date to examine the role of EU enlargement in this process and insufficient integration of a complex systems perspective. Given the EU's broader aim of economic, social, and territorial cohesion, the persistence of the mortality gap between established EU member states and the 2004 accession countries almost 20 years after accession is a cause for concern for policymakers and European citizens and is relevant for the credibility of the continued enlargement process in the Western Balkans.

The general research aim of this dissertation is to investigate the role of the 2004 EU enlargement in mortality divergence-convergence in the post-2004 EU.

This dissertation innovatively uses a unique combination of theory-building and state-of-the-art methods to expand our understanding of mortality convergence. First, it examines the impact of economic and political integration at the supranational level on mortality convergence in Europe, whereas previous studies focused primarily on national drivers of mortality convergence. Second, it explores the potential mechanisms of this impact using a theoretical framing that combines mortality divergence-convergence theory with policy transfer theory. In contrast, most previous studies adopted a descriptive approach. Third, this dissertation was informed by a

complex systems perspective recognising that population health emerges from a network of interactions between the population and its context at multiple scales. It leverages a variety of study designs and statistical models appropriate for contextual complexity (e.g., interrupted time series analysis, joinpoint regression, multilevel Bayesian relational modelling, and multistate modelling and microsimulation), and utilises data at multiple scales (i.e., national, regional, and individual). In contrast, most previous studies examined mortality convergence at the national scale.

Chapter 1 introduces the origins of the persistent east-west mortality gap in Europe and its relationship to European Union enlargement, reviews mortality divergence-convergence theory and the literature on policy transfer in the EU, describes the methodological challenges and solutions featured in this dissertation, and presents the aims of the thesis and its outline.

Chapter 2 systematically reviews earlier empirical work on mortality convergence centred on the EU. The results revealed that the regions and member states with initially higher mortality rates improved faster than those with more favourable starting conditions since the 1990s. However, this did not lead to an overall reduction in mortality differences across the EU; some studies showed they increased. Moreover, the studies differed widely in their approaches to measuring mortality convergence, leading to different outcomes. The review also highlights a need for more evidence on the determinants of health convergence in the EU. Finally, the results underscore the importance of conceptual and methodological clarity if we are to effectively monitor and enhance the process of mortality convergence in the EU.

Chapter 3 utilises an interrupted time series study design and joinpoint regression to examine whether the 2004 European Union enlargement was associated with a change in the pace of mortality convergence between EU countries and regions in the accession countries. No compelling evidence was found that EU accession influenced the process of mortality

convergence between established EU member states and the 2004 accession countries and within three 2004 accession countries (Czechia, Hungary, and Poland) over the short term. The results highlight that country and region-specific policies and characteristics, which trace back to the EU candidacy phase, had more impact on national mortality conditions than the EU accession itself.

Chapter 4 utilises a Bayesian relational model and multinomial regression to analyse long-term trends in mortality convergence across German districts during the 1997-2016 period and explores the role of the contextual determinants of the process. A trend toward mortality convergence in this period was driven by rapid life expectancy increases in the east German districts explicitly targeted by reunification policies. However, considerable heterogeneity in district life expectancy trajectories within federal states and the formation of district clusters with an increasing mortality disadvantage in north-western Germany are also highlighted. Finally, the multinomial regression analysis finds that district life expectancy trajectory groups were strongly associated with two indicators of district economic performance: the tax base and the long-term unemployment rate. The results highlight the variable effects of Germany's post-reunification policies in different settings. Furthermore, they underscore the importance of paying closer attention to the local context when developing policies aiming at convergence.

Chapter 5 features a microsimulation study leveraging a multistate model fit using SHARE survey data to explore the potential for a European Minimum Pension policy to stimulate mortality convergence across the EU. Increasing and harmonising minimum pension incomes could increase life expectancy at 65 in Czechia, Estonia, Poland, and Slovenia, resulting in mortality convergence. These results highlight social welfare policies as powerful tools with the potential to enhance the process of mortality convergence across the European Union.

Chapter 6 summarises the dissertation's main results, discusses their implications for EU enlargement, mortality divergence-convergence theory, and methods in comparative mortality research, and identifies recommendations for future research and EU policy.

Overall, this dissertation finds no evidence for a decisive role of EU enlargement in mortality convergence in the context of the 2004 EU enlargement. Instead, the results suggest that EU enlargement currently plays a less important role in mortality convergence compared with national and regional contexts for two related reasons: (1) persistent differences in the capacity and willingness to implement mortality-relevant innovations between established and new EU member states, and (2) the lack of harmonisation in social welfare policy during and after the 2004 EU enlargement.

The current EU accession process does not significantly reduce the differences between established EU member states and the accession candidate countries in their capacity and willingness to implement mortality-relevant innovations, including health technologies, behavioural changes, and public policies. Consequently, EU enlargement did not enhance mortality convergence. Future research should provide more insight into how EU policymakers can create the conditions for the effective and rapid implementation of emerging mortality-relevant innovations in recent accession and candidate countries. Policymakers should consider evaluating whether existing instruments (e.g., the cohesion fund) target the capacity and willingness to implement mortality-relevant innovations and create new instruments supporting best practices in health policy implementation.

This dissertation also highlights that mortality convergence can be enhanced through greater harmonisation in social welfare policy. The EU's influence on social welfare policy in member states is limited, which resulted in a divergence in social welfare policy between the new EU member states and between the established and new EU member states during the 1990s and

2000s. Future research should deepen our understanding of how the interactions between social welfare policy, individual social position, and mortality-relevant innovations at different geographic scales and in different cultural, political, and socioeconomic contexts produce the observed patterns of mortality divergence-convergence. Nevertheless, a compelling case exists for harmonising social welfare policy to enhance mortality convergence across the EU.

This dissertation provides theoretical and methodological advances on mortality convergence and divergence dynamics in Europe. From a theoretical perspective, this dissertation constructed an elaborated theoretical framework that combines mortality divergence-convergence theory with policy transfer theory that supports conceptualising or predicting the mortality divergence-convergence impacts of supranational factors and events. It also suggests how regional and national characteristics influence the mortality divergence-convergence process by influencing the implementation and uptake of mortality-relevant innovations. Finally, the dissertation presents that future research could build on this theoretical framework by generalising it to more innovations, including health promotion and protection interventions and medical technologies, and strengthening its link with social epidemiology. From a methodological perspective, this dissertation estimates various mortality convergence measures using data at different scales (i.e., individual, regional, and national) and advanced approaches such as interrupted time-series analysis, joinpoint regression, Bayesian relational models, and multi-state modelling and simulation. Future research should explore the normative assumption that regional differences should not be controlled for in mortality divergence-convergence measures. Researchers should also improve the uncertainty estimation of these measures. This dissertation demonstrates an approach highlighting the role of individual countries or regions in the mortality divergence-convergence process, which can be further developed into an indicator to monitor the effect of EU interventions on mortality divergence-convergence in Europe and support targeted advocacy and decision-making.

The dissertation also highlights the need for more high-quality mortality data at different geographic levels and high-quality data on the potential drivers of mortality convergence. As our theoretical frameworks become more sophisticated, as we grow to understand the importance of interactions between individuals and the place in which they are embedded, and as we learn to appreciate the relevance of feedback loops and emergence in these relationships, the quantitative models also become more complex and dependent on more high-quality data. It is thus imperative for policymakers to continue lending their support to initiatives such as the European Health Data Space and research projects aiming to make these data available.

This dissertation contributes to our knowledge of mortality divergence-convergence in Europe, highlighting its dependence on the socioeconomic context at various scales and the ability of social welfare policy to influence mortality divergence and convergence. It also contributes to the practice of introducing a complex systems perspective into comparative health research. In addition, this dissertation contributes to society by highlighting that the EU could enhance mortality convergence by more effectively tackling the barriers to the implementation of mortality-relevant innovations during accession, through harmonisation in social welfare policy, and by developing the monitoring of mortality divergence-convergence in the EU to support more effective policy action.