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Eva U.B. Kibele

# Regional Mortality Differences in Germany

 Springer

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# Foreword

This volume, *Regional Mortality Differences in Germany*, by Dr. Eva Kibele, is the 10th book of the series of *Demographic Research Monographs* published by Springer-Verlag. Dr. Kibele is currently working as a postdoctoral researcher at the Population Research Centre at the University of Groningen. The book is based on her doctoral dissertation, which was completed at the Max Planck Institute for Demographic Research in Rostock and was defended at the University of Rostock.

Dr. Kibele's study is an innovative, systematic, and comprehensive work that represents an important contribution to knowledge on the geography of death. It establishes a higher standard for studies in this research field. This thorough and systematic analysis addresses almost all aspects of regional mortality patterns and their temporal changes in Germany and uses all available data sources related to the topic. The study is the first to introduce analysis of the combined effects of individual- and contextual-level determinants of old-age mortality across the entire national population. All of the analyses returned a range of intriguing, substantive results. The book has the potential to become a conventional reference for future studies on differential and regional mortality in Germany and other developed countries.

The book begins with a literature review that provides a critical appraisal of existing knowledge on mortality in Germany, the East-West mortality differential, and regional patterns. The next chapters present original research that is grouped into three analytical blocks devoted to regional mortality patterns and trends at the level of the German federal states (*Bundesländer*); detailed spatial and temporal mortality variation across small-area units, the districts (*Landkreise* and *kreisfreie Städte*); and, finally, individual and area-level variation in the hazard of death for German pensioners aged 65 and older.

These analytical blocks address a sequence of important demographic and health issues. First, the principal patterns and peculiar nuances of spatial mortality variation are identified. The study shows how differential mortality decline modifies these patterns in such a way that some of them tend to persist, while others become less pronounced. Second, the major age and cause-of-death components of changes in the length of life across space and time are assessed. Third, the factors that underlie geographical and longitudinal mortality variation and similarities and differences

between mortality patterns are highlighted. Fourth, the factors that determine mortality variation among individuals are assessed. Finally, Dr. Kibele analyzes how contextual influences modify the risks associated with individual characteristics.

The study is very successful in obtaining meaningful results from huge amounts of multidimensional data by means of both established and novel instruments. Specifically, the lifetime losses measure is used for expressing the amount of diversity in age-at-death distributions, the dispersion measure of mortality is used for assessing the amount of regional diversity in length of life, the k-means clustering approach is used for forming clusters of areas with similar longevity trends and patterns, panel regression variants are used for explaining time trends and cross-sectional variation of mortality, and multilevel modeling is used for assessing individual- and contextual-level effects and cross-level interactions between individual and contextual levels.

The study includes meaningful and somewhat unexpected results that cast new light on mortality patterns in Germany. The findings indicate that, apart from general East-West and North-South mortality gradients, some new problem areas are emerging in the West, and some new healthier areas are emerging in the East. While disparity in lifetimes in the GDR was lower than in the FRG, this difference between East and West is diminishing as the life expectancy gap between the two parts of Germany becomes smaller. Some big cities in the North-West experience particularly high lifetime disparities, combined with average or even higher-than-average mean lifespans. Two analyses of the space-time mortality variation across districts and of the mortality risk by type of medical insurance at the individual level suggest that health care plays an important role. The significance of this factor in the results is in contrast to the findings of many prior studies, which failed to show any relationship between mortality and medical care. Multilevel modeling shows that area contexts matter for people's health even after accounting for important individual-level characteristics. In addition, it appears that the strength of the effects of individual-level factors depends on context factors.

Readers will find in the book information about many aspects of German mortality, as well as novel findings and excellent illustrations of the application of the methods to real data. The book will be useful for scholars and students of demography, population geography, public health, epidemiology, and other humanitarian disciplines.

The series of Demographic Research Monographs is under the editorial supervision of the Max Planck Institute for Demographic Research. Prof. James W. Vaupel is Editor-in-Chief. He is advised by an Editorial Board that currently consists of Prof. Elisabetta Barbi (Sapienza University of Rome, Italy), Prof. Gabriele Doblhammer (Rostock University, Germany), Dr. Jutta Gampe (Max Planck Institute), Prof. Joshua Goldstein (Max Planck Institute), and Prof. Bernard Jeune (University of Southern Denmark). Additional members are temporarily appointed to the Editorial Board as needed to review manuscripts submitted for possible publication. The current manuscript was reviewed and accepted by Prof. Gabriele Doblhammer, Dr. Vladimir M. Shkolnikov, and myself. The Editors thank Miriam Hills for helping prepare the manuscript for publication.

The Demographic Research Monographs series can be considered the successor to the series called Odense Monographs on Population Aging, edited by Jeune and me. The volumes in this now-terminated series were first published as hardcover books by an academic publisher, Odense University Press, and subsequently made available online at [www.demogr.mpg.de/books/odense](http://www.demogr.mpg.de/books/odense). The nine Odense Monographs on Population Aging include two collections of research articles that focus on specific subjects on the frontier of demographic research, three volumes by senior researchers that present path-breaking findings, a review of research on a topic of emerging interest, a presentation of a new method for analysis of demographic data, and outstanding doctoral dissertations, and a unique collection of important demographic data on nonhuman species.

The series of Demographic Research Monographs continues this mix, with books that are often under 200 pages in length but can, like the current volume, be much longer, that have a clear focus, and that significantly advance demographic knowledge. Research related to population aging continues to be a focus on the series, but it is not the only one. We hope that eventually the series will embrace all of demography, broadly defined.

Each volume in the Demographic Research Monographs series will have a substantial link to the Max Planck Institute for Demographic Research. As well as being published as hardcover books by Springer-Verlag, the volumes of the Max Planck series of Demographic Research Monographs will subsequently be available at [www.demogr.mpg.de/books/drm](http://www.demogr.mpg.de/books/drm). The online version may include color graphs, supplemental analyses, databases, and other ancillary or enhanced material. Parallel publication online and in print is a significant innovation that will make the monograph series particularly useful to scholars and students around the world.

Editor-in-Chief

James W. Vaupel  
and  
Vladimir M. Shkolnikov





# Preface/Acknowledgments

This dissertation was written at the Max Planck Institute for Demographic Research (MPIDR). The institute provided an excellent and inspiring work environment and allowed me to engage in daily exchanges with excellent researchers. While at MPIDR, I especially benefited from participating in the European Doctoral School in Demography, in courses provided by the International Max Planck Research School for Demography, participating in conferences, and interacting with teachers, students, and other researchers.

I would like to thank my supervisors James W. Vaupel and Gabriele Doblhammer for their supervision and guidance throughout this thesis. Vladimir Shkolnikov has guided me as a mentor on all issues related to this dissertation. He provided advice on specific details, in addition to always making sure I remained focused and on track. I highly appreciate his support and encouragement over the last few years. His contribution is hard to put into words but deserves a big thank you!

My colleagues from the Laboratory of Demographic Data helped to create an enjoyable working atmosphere. Special thanks go to Evgueni Andreev for sharing his expertise on demographic decomposition methods and to Sigrid Gellers for being such a pleasant office mate. Rembrandt Scholz passed his long-standing interest in regional mortality differences on to me and, in many discussions, shared his expertise on a number of issues, many of them related to data.

I am especially grateful to Domantas Jasilionis and Sebastian Klüsener for their willingness to provide me with critical and encouraging feedback on various parts of my thesis. Alyson van Raalte, Marleen Dettmann, and Hilko Cords read and commented on parts of the thesis. In addition to giving me scientific feedback, they all shared their excitement with me and kept my spirits up, even when my enthusiasm flagged. Giancarlo Camarda and Sabine Schnabel were among those who encouraged me to use R and LATEX, and they kept their promises to help me when trouble arose.

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Apart from those I have already mentioned, I wish to thank my dear partner, the many friends, family members, and colleagues who shared my life over the last few years, and who found time to talk with me about my work. Their individual contributions to this thesis—sometimes simply by providing a welcome distraction from work—are hard to quantify. Yet, their generous support has been invaluable and is appreciated as much as the assistance I received from those mentioned above.

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