

SPECIAL ISSUE ARTICLE

Fatal Years: Background and Aftermath

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Abstract

This is a history of the creation of the book Fatal Years: Child Mortality in late-Nineteenth-Century America (1991) by the authors. The data were a sample of households from the 1900 United States Census manuscripts. The primary method used was indirect estimation of child mortality (approximately ages 0–4) using information on the age and marriage duration of women. Among the findings were overall lower overall mortality than in the 1900/1902 Glover life tables for the Death Registration Area, and very large variations in mortality by race and size of place of residence.

Keywords: child mortality; United States; urban rural; racial; occupational differentials

We are deeply honored by this volume and the sessions at the Social Science History Association meeting in 2021 that gave rise to it. The papers are addressed to one of the greatest issues in social history, how families and societies addressed the assault of infectious diseases on their children. The papers are creative in their concept and careful in their execution. If *Fatal Years* (Preston and Haines 1991) contributed 1% to the strength of these papers, it has paid a rich dividend.

We will use this opportunity to supply a brief history of the volume. *Fatal Years* (ibid.) began, like so many things, with a discovery by a graduate student – in this case, James Weed in the Department of Sociology at the University of Washington. Around 1974, Jim was hunting for a dissertation topic and visited the regional branch of the National Archives in Bellevue, Washington. There he found microfilm copies of the recently released manuscripts from the U.S. Census of 1900.

He reported with great excitement to Sam Preston, then a professor at the University, that the Census had asked questions of married women regarding the number of children that they had borne and the number who were still alive. These two questions had become the cornerstone of estimates of child mortality in developing countries, most of which lacked useable vital registration systems. Strategies for their analysis had been developed mainly by William Brass, a Scottish demographer working in Africa. The analysis converted the proportions dead among children ever born into estimates of conventional life table values such as the

probability of dying before age 5. And through the use of model life tables, child mortality estimates could be converted with relatively narrow bands of uncertainty into estimates of mortality at other ages and life expectancy at birth.

The need for the data was great; the United States established a Death Registration Area in 1900 but it covered only an unrepresentative 26% of the population. But for reasons never satisfactorily explained, the Census Bureau never released data from the questions asked on children ever born and surviving in the 1900 Census. The questions had also been asked in the 1890 Census but the manuscripts were mostly destroyed in a fire.

So, the excitement level in identifying this untapped resource was nearly boundless. What needed to be done was to draw a sample from these manuscripts that would provide national and subgroup estimates of mortality. Preston applied for a grant from NICHD in the amount of \$84,000 to create such a sample. It became the first national sample drawn from Census records, although Daniel Scott Smith had drawn a sample of people over age 65 from the 1900 Census.

We developed a sampling plan that received an endorsement from Leslie Kish, a sampling expert at the University of Michigan. We stationed an employee in the Bellevue, Washington archives with instructions about how to sample manuscript pages and lines on a page. We used direct entry into a laptop. We aimed at a sample of 100,000, which seemed pretty big at the time but has proven tiny in the wake of Steven Ruggles. Mothers in our sample reported 82,000 births of whom 62,000 had survived, so about a quarter had died. This sample converted the United States from being the developed country with the worst data on child mortality at the turn of the century to the most advantaged, at least with respect to opportunities for multivariate analysis.

After the sample was completed but before much analysis had begun, Preston joined the faculty at the University of Pennsylvania. Very fortuitously, Mike Haines, a leading economic and demographic historian, came to Penn on leave. Preston and Haines knew each other from their days together at Amherst College and they decided to collaborate on an analysis of child mortality in this data set.

The result was *Fatal Years*. (Gretchen Condran deserves credit for the nice title.) The book received something like 18 reviews since it touched on many fields. The reviews were generally positive. But it sold poorly. An editor for Princeton University Press told Preston that sales were so disappointing that they weren't going to publish any more volumes in demographic history. The book is still available in hardback if you want to pay over \$100 or in a flimsy form of paperback. According to Google Scholar, it has been cited 941 times. We are hoping to burst through the 1000 barrier after the present volume is published.

Some basic findings in the monograph:

Child mortality in the Death Registration Area was higher than in the rest of the country for the White population, by about 13%, and for the Black population, by about 40%. But the bias was mostly corrected for the population as a whole because less than 2% of the population of the DRA was Black.

The two strongest correlates of child mortality, using three different measurements, were race and the size of the place of residence. Larger cities had higher mortality although we had evidence that the excess was diminishing. Child mortality was 30% higher among the Black population and also among residents of large cities.

On the other hand, occupational differences in child mortality were relatively narrow. Children of professionals, teachers, and even doctors had mortality levels that were not much better than average, while farmer's children did well. Mother's literacy bought relatively little reduction in child mortality. Of course, these results reflected in part the different distributions of the groups with respect to size of place.

We used these results to argue that child mortality was so high at the turn of the century because we knew so little about how to prevent it. That comes close to being tautological but we helped make that point in several ways. We showed that child mortality differentials were very different in contemporary developing countries after health technologies had improved. Urban areas have much lower mortality than rural areas – the urban penalty has been overcome largely through sanitary engineering – and mother's literacy has become the leading predictor of child mortality in most studies. We also included a fairly extensive review of public and private health care knowledge and practices at the turn of the century, which presented a dismal landscape. The germ theory and its many applications to personal and public health were just beginning to have an impact.

The U.S. Census of 1910 asked the same questions on number of children ever borne and surviving. When the census manuscripts were released, Preston organized an effort, supported by the National Institute of Child Health and Human Development and the National Science Foundation, to draw a sample from them. The sample was roughly four times larger than that in 1900.

Haines and Preston (1997) compared the child mortality estimates based on the 1900 and 1910 national samples. Comparisons were also made to the Glover life tables for the Death Registration Areas of 1900 and 1910. The basic results of *Fatal Years* were confirmed by the later and larger sample. Black mortality remained badly overestimated in the Death Registration Area because of its heavily urban character. Mortality remained higher in urban than rural areas. It appeared that the 1900 census gave more accurate results because of greater age-misstatement in 1910.

The larger 1910 sample size enabled a more careful examination of racial and ethnic differences in child mortality (Preston et al. 1994). Jews stood out for their exceptionally low child mortality and French-Canadians for their very high levels. We traced these positions to the standing of children and child care practices, including breast feeding. We are delighted to see that two of the papers in this volume address child mortality levels at these ethnic extremes (Harton et al. 2023; Scalone et al. 2023).

Two papers addressed the factors responsible for the massive improvements in child mortality between 1900 and 1930 (Condran and Preston 1994; Ewbank and Preston 1990). This is a somewhat neglected period in demographic history and it is heartening to see several papers in this volume that are focused on this general period. The probability of dying before age 5 in the US declined from 18% in 1900 to under 8% in 1930. These three decades account for at least half of the decline in

child mortality from colonial times to the present. Municipal water and sanitation improvements were doubtless important contributors here, but we suggested that improvements in childcare practices in the home, following on the germ theory, also played an important role in this decline. Our evidence was mostly indirect, based on changes in advice in childcare manuals and public documents, widening social class differentials favoring professionals, doctors and teachers, and contemporary commentary about behavioral change. Mokyr and Stein (1996) have added thoughtfully to the evidence of changing health behaviors in the home.

This seems to us an important open question: was the hugely consequential decline in child mortality, something that parents had sought for millennia, primarily a result of changes that were “brought to” households by external forces or were households themselves very active participants? The role of personal behaviors in infectious disease mortality has of course reared its head again in the Covid-19 epidemic. Historians have much to contribute to framing the questions about behavioral change and identifying important landmarks. And they are wise to base their studies on solid demographic data, as illustrated so effectively by papers in this volume.

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Samuel Preston is Professor of Sociology at the University of Pennsylvania. His major research interest is in the health of populations. His recent work includes “The unequal burden of the Covid-19 pandemic: Capturing racial/ethnic disparities in US cause-specific mortality,” *SSM – Population Health* 17 (2022), (with Anneliese N. Luck, Irma T. Elo, and Andrew C. Stokes). He is a member of the National Academy of Science and the National Academy of Medicine.

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