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SPECIAL ISSUE ARTICLE

Introduction to *Fatal Years* 30 Years Later: New Research on Child Mortality in the Past Special Issue

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Abstract
2021 marked the 30-year anniversary of the publication *Fatal Years: Child Mortality in the late Nineteenth-Century United States*, a pioneering work in historical demography by Samuel H. Preston and Michael R. Haines. This special issue showcases the current state of historical mortality studies through a collection of articles originally presented at two commemorative sessions at the 2021 meeting of the Social Science History Association. It provides new and more nuanced evidence on several of the major themes of *Fatal Years* in terms of the mortality experience and includes studies of a wide range of contexts, from North America, to Ireland, England and Wales, and continental Europe. They all bring new evidence and leverage the dramatic development that has taken place in availability of large-scale micro-level data in the 30 years since *Fatal Years* was published. This introduction first provides some background to the collection and then summarizes the main findings from the different articles included. Preston and Haines provide a coda to this collection with a short reflection article on researching and writing *Fatal Years*.

This special issue grew out of a lunch conversation at the Finn Inn restaurant in Lund, Sweden in early 2021. While discussing our plans to submit a paper proposal on the historical relationship between wealth and child mortality for the upcoming annual meeting of the Social Science History Association, we conceded that while our data were new and exciting, our hypotheses and approach owed a significant debt to *Fatal Years: Child Mortality in the late Nineteenth-Century United States*, a pioneering work in historical demography by Samuel H. Preston and Michael R. Haines, published in 1991.

Few books in historical demography have had a larger impact. *Fatal Years* was one of the first historical studies to rely on a census public use microdata sample (PUMS), which are now routinely used by historical demographers in countries around the world. It applied innovative indirect estimation methods developed for the study of mortality in developing countries, where vital registration data were

unavailable. It was also one of the first studies combining area-, residential-, household-, and individual-level correlates of mortality during the mortality transition, which had commenced in the United States circa 1880. Among its many findings, *Fatal Years* showed that socioeconomic gradients in child mortality (as measured in the census by occupation, home ownership, and literacy) were modest in the early phases of the mortality transition. Urban-rural residence, ethnicity and race, on the other hand, were much more significant correlates of child mortality. These findings were interpreted in the context of the late nineteenth century, when public health measures to improve sanitation and water supplies were still in their infancy, medicine possessed limited knowledge about how to treat the infectious diseases that were the primary killers of children, and parents had limited ability to use their wealth and education to improve the survival of their offspring.

As we discussed the book's legacy further, we realized four things: (1) the upcoming annual meeting of the Social Science History Association marked the book's 30-year anniversary; (2) the meeting was being held in Philadelphia, where Samuel Preston was Professor Emeritus of Sociology at the University of Pennsylvania; (3) Michael Haines, Banfi Vintners Professor of Economics at Colgate University in upstate New York, was not too far away; and (4) many other researchers, spurred on by new "complete-count" census datasets in development in the United States, Ireland, England and Wales and other places, were re-examining *Fatal Year's* findings and methods anew. Perhaps, we thought, there would be interest in a panel recognizing and honoring the debt we owed to *Fatal Years* while simultaneously showcasing recent and ongoing research? And perhaps, if there was enough interest from other researchers, we could induce Preston and Haines to attend?

The support for such a panel was overwhelming. Within a few days of sending out inquiries we had more papers than we could fit into not just one, but two panel sessions for the conference, and Preston and Haines had agreed to attend. The panels were a great success. Although in-person attendance was limited because of the ongoing COVID-19 pandemic – a stark reminder that we have not fully escaped the reach of infectious diseases – the papers were of uniform high quality. We were delighted when the editors of *Social Science History* suggested that the two panels would make a terrific special issue for the journal. Most of the authors at the two sessions agreed to submit their manuscripts for consideration and anonymous peer review. Ultimately, seven manuscripts were accepted for publication in this special issue. In addition, Preston and Haines added a short reflection on researching and writing *Fatal Year*s and subsequent scholarship.

The collection showcases the state of historical mortality studies thirty years after the publication of *Fatal Years*. It provides new and more nuanced evidence on several of the major themes of *Fatal Years* in terms of the mortality experience in the United States. It also broadens the perspective to include research on different European settings.

Since the publication of *Fatal Years* there has been an ongoing effort to create public use microdata for other U.S. censuses at the IPUMS project at the University of Minnesota and in other projects in other parts of the world. Initially, the IPUMS project constructed samples of the same kind as used in *Fatal Years* but with higher sample densities and uniform coding across census years (thus, an *Integrated* Public Use Microdata Series, or IPUMS). The 1-in-750 sample of the 1900 census used by Preston and Haines, for example, was replaced with a higher-density 1-in-100

IPUMS sample, which allowed analysis of smaller population subgroups. More recently, collaborations with private genealogical companies have enabled large-scale digitization and publication of "full-count" census microdata containing information for every individual enumerated by the census. Together with the development of sophisticated linking methods, IPUMS has produced high-quality individual-level panel data with an enormous research potential.

In this issue, Hacker et al. make use of such linked full-count data from the 1850, 1860, 1870 and 1880 U.S. censuses. They describe a new indirect method of estimating child mortality using linked census data and the observed survival of married couples' children over the intercensal intervals. This is an important contribution because there are very few sources of information on age at death and the characteristics of decedents in the United States prior to the twentieth century. Vital registration was left to the states. Only a few states and a few municipalities collected death records in the nineteenth century. When the nation's death registration system was first established in 1901, the Death Registration Area (DRA) included just 13 states, of which only Maryland was in the South (Ewbank 1987; Preston and Haines 1991). Although the DRA expanded in the early twentieth century and became more representative of the nation in the years leading up to its completion in 1933, the period prior to Preston and Haines' examination of the 1900 census is poorly documented. Importantly, the method described by the authors is a couple-level measure, can be applied in all parts of the United States and in all decades with linked census data, and can be applied in other nations with linked census data, promising future long-term and comparative analyses.

Hacker et al. use these new estimates of child mortality to follow up on one important thread from *Fatal Years* and investigate the association between parental wealth (directly measured in the 1850, 1860, and 1870 censuses) and child mortality. Preston and Haines studied the role of occupation and homeownership but failed to find a consistent association with socioeconomic status and child mortality in the 1900 sample they studied. In this new study Hacker et al. use information on personal and real-estate wealth for over two million couples and find a negative wealth-mortality gradient. The gradient remained quite constant over time and was similar in different census regions as well as between rural and urban populations. These findings are important as they show the presence of a gradient already before the start of the major decline in infant and child mortality in the United States. Previous research, both for the United States and for other contexts, has given inconsistent results, and much evidence has indicated that mortality differentials before the mortality transition were small or non-existent. The period under study was characterized by high mortality and limited knowledge about the causes and transmission of disease. Hacker et al. cannot investigate the mechanisms behind the wealth gradient but speculate that nutrition, environmental factors, and parental behavior, including breastfeeding and cleanliness, were likely part of the reason why wealthy parents could promote their children's health to a higher extent than less wealthy parents.

Harton et al. follow up on another main theme of Preston and Haines' *Fatal Years* and subsequent work by Preston and other coauthors (Preston et al. 1994; Condran and Preston 1994), namely ethnic differences in child mortality, and more specifically the well-known higher child mortality of French Canadians in both

Canada and the United States. The authors investigate child mortality near the turn of the twentieth century in the textile mill town of Manchester, New Hampshire, whose diverse population included 23,815 French-Canadian immigrants, representing 34 percent of the population in 1910, and – thanks to the high fertility of French-Canadian women – 50 percent of the children documented by the census.

The article relies on the same data and indirect estimation methods outlined in *Fatal Years* thirty years earlier – data on the number of children ever born and the number of those children still surviving and reported by the census – and find similar results for variables measured in the census. French-Canadian married women, for example, were more likely to be employed in the paid labor force than native-born women or other immigrant women, and that participation was strongly and positively correlated with the mortality of their children. But where Preston and Haines used anonymous sample data for their study (first and last names were available in the census, but not collected to limit the project's cost), Harton and her coauthors rely on restricted-use complete-count census data, which allow them to link French-Canadian individuals living in Manchester to Quebec marriage records using a semi-automatic linking procedure developed at the BALSAC Project at the University of Quebec at Chicoutimi.

With the linked dataset the researchers were able to determine the number and types of kin members each French-Canadian couple had nearby. And using Sanborn Fire Maps, they were also able to geocode the locations of childbearing couples and the location of maternal and paternal grandmothers. These data allowed Harton et al. to test recent evolutionary theories about the role of kin – particularly the hypothesized positive role of grandmothers – in the survival of children and the overall reproductive success of childbearing couples. The results indicated that while coresidence of maternal and paternal grandmothers was associated with higher child mortality (perhaps because of negative selection biases associated with multigenerational families), maternal and paternal grandmothers living in Manchester were associated with lower child mortality. For an immigrant population, the French Canadians had surprisingly extensive kin networks in Manchester. Chain migration across the nearby U.S.-Canada border, therefore, helped mitigate what might have been even higher child mortality.

Although most articles in this collection rely on indirect measurement of mortality using census microdata – which often include important individual-level correlates of child mortality, such as parents' literacy, occupation, income, homeownership, and wealth – vital registration data still have much to teach us. Feigenbaum et al. use the available and expanding death registration data for U.S. cities in the early twentieth century to examine race differentials in mortality and causes of death. With the help of the new IPUMS complete-count datasets of the 1900–40 censuses, which they use to measure the size of the at-risk populations, they demonstrate countervailing changes in the mortality of Black and White urban populations between 1906 and 1933. They observe that while public health changes in water supplies and sewage benefited Black and White children alike, leading to dramatic declines in water-borne diseases and child mortality rates, Blacks experienced a slower rate of decline in the risk of death from airborne infectious diseases, most notably tuberculosis, which contributed to larger race differentials in the prime of life. The results suggest that while the "urban penalty" was disappearing

in the early twentieth century, the lack of Black access to quality housing with low crowding and good ventilation was playing a major role in widening the gap between Black and White mortality.

Fatal Years included a comparative chapter. Among its more interesting findings was that while social-class differentials in mortality were modest in the United States, they were significantly larger in England. This conclusion, however, was based on aggregated census returns of the 1911 Census of England and Wales – which also collected data on the number of women's children ever born and surviving – not multivariate analysis. Subsequent scholarship has stressed that the spatial segregation of social classes in early twentieth-century England and Wales makes it difficult to separate the effects of class from local environmental factors. In a new analysis, Reid et al. leverage the complete-count 1911 census of England and Wales and multilevel models to take the most convincing look yet at the "class-versus-place" question. They construct models of child mortality at several different and combined geographic levels, which likely capture different aspects of children's mortality: the individual or household level, the Registration Sub-District (RSD) level (a small to moderate size geographic unit with an average of about 18,000 individuals), and the Enumeration District (ED) level (the smallest consistently available geographic unit in the census with an average of about 650 individuals). Children's risks of death, for example, likely depended in part on their parents' and households' characteristics (income, education, social class, and housing quality), but also in part on the environmental characteristics of their communities (water quality, sanitation, level of pollution, and access to health services). The analysis indicates that while individual-level correlates explain more of the observed variability in child mortality, variables constructed for the two spatial levels also captured significant differences in the risk of death. Considered together, the models suggest that much of the observed differences in child mortality is explained better by local contextual factors (where children lived) than the social class of their parents.

Scalone et al. study religious differences in childhood mortality using full-count census data from Belfast, Ireland in 1911, also relying on similar indirect mortality estimates as in *Fatal Years* and the studies by Harton et al. and Reid et al. It is well known that religion may have important implications for childhood mortality. The lower childhood mortality of Jews historically is, for example, often connected to religious cultural hygienic behavior (handwashing before meals). Hence, religious differences in mortality are not necessarily related to religious beliefs as such, but to differences between religious groups regarding lifestyle and behavior, socioeconomic and demographic circumstances, or social isolation of religious communities (Van Poppel et al. 2002). In Belfast, the Catholics had higher childhood mortality than the Anglican Protestants, who in turn had higher mortality than the Presbyterians. Also in Belfast, the Jews had the lowest childhood mortality of all religious groups. To a large extent the religious differences were explained by differences in socioeconomic status and female labor-force participation, but not completely. Scalone et al. also demonstrate that marital exogamy, especially among the Catholics, was related to higher childhood mortality, which may have been related to less access to kin networks or the negative effect of female hypogamy in terms of SES.

Oris et al. analyze differential childhood mortality in the city of Madrid, the capital of Spain, between 1916 and 1926. The period falls within a longer period of substantial population growth, due largely to high in-migration from the surrounding rural areas. It is an impressive study based on individual-level records, which have been linked and geocoded. Their findings indicate large differences in infant and child mortality between different parts of the city. The constant influx of new migrants put strain on the poor infrastructure in Madrid in terms of water, sewerage and housing, which were important reasons for the spatial differences in mortality. The pronounced seasonality in childhood mortality, with a clear summer peak in deaths from food- and water-borne diseases such as enteritis and diarrhea, shows the consequences of the underdeveloped water and sewerage system. Moreover, the ongoing improvements of the infrastructure benefited mainly the well-to-do areas, which reinforced the spatial mortality differentials within Madrid. Despite this spatial heterogeneity, the mortality differentials between in-migrants and native Madrilenians were surprisingly small. Part of this unexpected finding is most likely connected to the socioeconomic status of immigrants, which cannot be directly assessed due to lack of occupational information. In addition, Oris et al. argue that feeding practices of infants, with much earlier weaning in Madrid than in the surrounding countryside, quickly converged between immigrants and natives, which accounts for part of the similarity between in-migrants and natives in infant mortality.

Van Poppel and Ekamper continue a different line of research also present in *Fatal Years*, concerning the mortality experience of the children of medical professionals compared to other groups. The simple argument is that if the medical profession had a good understanding of what caused disease and how it could be avoided, they should have practiced their knowledge to reduce the risks of their own children. On the other hand, if they had no survival advantage to other comparable groups it suggests that their knowledge was in fact rudimentary, or that it was difficult to protect children from heavy disease exposure. For the United States, Preston and Haines concluded that children of medical professionals did not enjoy a significant survival advantage. Children of medical and other professionals did enjoy a survival advantage in the United Kingdom, however, where admission into these occupations was much more selective. Van Poppel and Ekamper use data for the Netherlands to shed further light on this issue. Using reconstructed birth histories they compare infant and child mortality for medical practitioners to a random sample of children from population-register data from the Historical Sample of the Netherlands (HSN). They analyze how patterns differ between different regions and also by the level of knowledge of the fathers, based on both when they graduated and with what level of qualification.

Their findings show that children of medical practitioners, in general, faced better survival prospects than other children, but also the children of fathers with more "effective knowledge," by having graduated later and with a higher level of qualification, had even lower mortality than the others. These findings show that when knowledge of disease transmission improved, children of medical professionals were among the first to benefit. But also before the emergence of the germ theory of disease, children to medical professionals in the Netherlands benefited compared to other children. This could partly be explained by an early

adoption by the medical professionals of new parental behavior related to infant feeding, hygiene, and vaccination. Partly it may also have been related to lower fertility among the medical professionals.

In the final capstone to the issue, Preston and Haines provide a brief history of *Fatal Years* and comment on the future of the field. They are generous in crediting others, including graduate student James Weed at the University of Washington for calling Preston's attention to the 1900 census data, demographer William Brass, who developed indirect methods of converting children ever born and children surviving data to conventional life-table estimates, and Gretchen Condran, who came up with the terrific title. They close by noting 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?" "Historians," they conclude, "have much to contribute to framing the questions about behavioral change and identifying important landmarks." In a small way, we hope this special issue contributes toward that goal.

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