

Report on IUSSP Seminar on Space and Time in Historical Demographic Studies - New Methods and Models

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Recent works on historical populations have made use of ever-larger bodies of data that describe the spatial distribution of populations at a moment in time and give comparable information over repeated moments of time. Some of these data represent aggregated information from censuses, while others are microdata, representing the experiences of a sample or a complete population at some historical moment. Researchers combine these rich individual and aggregated data with detailed spatial information by incorporating them into a geographical information system (GIS). These combinations have produced a body of research results that describe the spatial and temporal transformations of populations. Subjects studied include all the classic elements of demographic study as well as more complex studies such as the relationship between population and environment, or between population and agriculture.

Most of this increasingly well-developed and successful research has made use of visually descriptive methods to illustrate how population change has taken place, and the factors that have driven that change. Less work has attempted to find statistical spatial relationships that are dependent on distance or other spatial characteristics, and there has been relatively little work that has made use of statistical techniques that combine spatial and temporal variation.

The goal of this conference was to encourage researchers who have been experimenting with spatial and temporal analyses to combine them using statistical approaches, and to define an emerging body of methods and results.

In total 20 participants attended the meeting (2 women and 18 men) coming from the U.S. and Canada (12), Europe (5), Asia (2), and Africa (1).

The seminar was divided into five sessions with a total of fourteen papers presented. The sessions were structured with adequate time for discussion of each paper allowing the participants to benefit from an excellent exchange of ideas. The papers presented reflected a full range of demographic issues including migration, fertility, mortality, and nuptiality, and methods that ranged from elementary cartographic presentation to sophisticated multi-variate spatial statistics.

Session 1: Migration

The workshop included papers about various aspects of migration, involving different approaches and different kinds of data. In one, individual census data were used to estimate the attractiveness of intra- and inter-regional migration in the U.S. in the twentieth-century U.S. South. In the second, the authors used surname distributions from linked individual-level data and cluster-diagnosis techniques to estimate changes in the nature and extent of mobility in Savoy. The third paper used aggregate-level data about counties in the U.S., using event-history models to evaluate competing hypotheses about the process of settlement in the Great Plains, and show that there is a role for social and economic factors in determining which counties settle first, but that the process is mostly dominated by environmental and long-term settlement forces in the U.S. Taken together, the three papers show the diversity of ways that spatial information is important and that it can be used in the key part of demographic analysis -- migration -- where spatial factors have always been relevant and understood.

Papers presented:

“Reconsidering the roles of distance and selectivity in mass migrations: The case of the twentieth-century U.S. South.” Trent Alexander, University of Minnesota

“Spatial and temporal analyses of surname distributions to estimate mobility and changes in historical demography: the example of Savoy (France) from the XVIII to XX century” Pierre Darlu, INSERM, Guy Burnet, Université de Lyon, and Dominique Barbero, France

“Finding Frontiers in the U. S. Great Plains from the end of the Civil War to the eve of the Great Depression” Myron Gutmann, University of Michigan, Glenn Deane, SUNY Albany, Kristine Witkowski, University of Michigan

Session 2: Fertility

The fertility section of the workshop discussed four papers that had a group of common themes, and were built on a common view of data. All made use of aggregate-level data about administrative units, and all used simple spatial statistics to demonstrate the importance of spatial clustering in fertility change. The breadth of data in the papers, including India, more than twenty countries in the Muslim world, the U.S. in the nineteenth century, and the last half-century in Brazil, allowed a broad-based discussion of the role of spatial analysis in a topic that does that has always considered the spatial diffusion of change important, but hasn't always had tools to evaluate it.

Papers presented:

“Mapping Demographic Change across Place and Time” Ravindran Gopinath, Jamia Millia Islamia, New Delhi, India.

“Spatial and temporal patterns of fertility decline in Muslim populations.” Hani Guend, Institut National de la Recherche Scientifique-Urbanisation Culture et Société, Montreal

“Spatial Aspects of the American Fertility Transition in the Nineteenth Century.” Michael Haines, Colgate University, and J. David Hacker, Binghamton University.

“Spatial and Temporal Relationships in Brazilian Fertility, 1960-2000.” Joseph Potter, University of Texas, and Carl Schmertmann, Florida State University.

Session 3: Social Mobility

Social mobility is a topic that has many forms of expression, and the workshop saw this in three papers on social mobility. Two of the papers dealt with the schooling/literacy nexus, one about Norway that showed differing patterns of schooling in differing economic regions, and one about Puerto Rico that considered the same sort of question related to literacy, but added an interesting layer of spatial analysis to the analytic mix. The third paper considered the distances that brides and grooms in the Netherlands were able to go to seek out their partners, and showed both that there were social and geographic constraints and opportunities, and that those constraints and opportunities changed over time as the means of transportation developed. The papers used a mix of individual and aggregate-level data and analysis of spatial clusters to arrive at these results.

Papers presented:

“Population and Schooling in Norway, 1860s – World War II,” John E. Craig, University of Chicago.

“Widening horizons? Social class and the extension of the geographic horizon in nineteenth-century Netherlands. ” Frans van Poppel, Peter Ekamper, and Kees Mandemakers, NIDI, The Netherlands

“Economic Transition and Social Inequality in Early 20th Century Puerto Rico.” Katherine White, Brown University

Session 4: Mortality

From the time of the earliest nineteenth-century analyses of epidemiological patterns, researchers have known that there could be a meaningful spatial distribution of mortality. These papers confirmed that knowledge, but extended the understanding of spatial mortality patterns much further, both by integrating analysis of social patterns and by demonstrating the value of a large integrated Geographical Information System for understanding these issues. What the analyses show about both Sweden and England and Wales is the capability of spatial analysis to provide new interpretations of long-standing questions and new ways of looking at established hypotheses.

Papers presented:

“Social and spatial dimensions of mortality: Southern Sweden 1766-1895.” Tommy Bengtsson and Martin Dribe, Lund University

“Using historical GIS to explore infant mortality decline in England and Wales from 1851 to the present day.” Ian Gregory, University of Lancaster

Session 5: Urban Analysis

The last session of the workshop dealt in diverse ways with the development and experiences of cities. One paper evaluated competing hypotheses about urban development in the U.S. by making use of a new set of spatial and data resources available from the U.S. National Historical Geographical Information System. The second paper studied the occurrence of Hindu-Muslim riots over time and space in India. These papers showed the capacity of well-executed spatial analysis to help understand important social processes in the past.

Papers presented:

“Commonalities and Contrasts in the Development of Major United States Urban Areas: A Spatial and Temporal Analysis from 1910 to 2000.” Andrew Beveridge, Queens College (New York)

“Spatial Dimension of Hindu-Muslim Riots and Composition and Growth of India's Religious Population: A Historical Study.” Ram B. Bhagat, International Institute for Population Sciences (Mumbai, India)