

A Tale of Two Cities

Using Tax Records to Develop GIS Files for Mapping and Understanding Nineteenth-Century U.S. Cities

DONALD A. DEBATS

*Flinders University
Adelaide, Australia*

Abstract. Advances in geographic information systems (GIS) programs for both mapping and analysis make possible a new era of small-city studies. The author uses often-neglected tax records as a central part of the mapping process for two mid-nineteenth-century U.S. cities with populations of about 14,000—Alexandria, Virginia, and Newport, Kentucky—that were respectively commercial and industrial in character. Approximately 80 percent of the inhabitants of these two cities in the nineteenth century have been relocated to their places of residence and associated—as individuals, families, and economic units—with all available social and political information. The result is an opportunity for a holistic analysis of two divergent cities representing key alternatives as the United States shifted from a rural to an urban nation.

Keywords: mapping small cities, spatial analysis, U.S. political history, U.S. urban history

In this article, we explore the implications of the dearth of historical databases available for modern spatial analysis and suggest, as a useful response to that gap, the use of tax records as well as those generated from tax data in the mapping of medium-sized cities in nineteenth-century America. We aim to encourage the application of geographic information systems (GIS) to historical studies by demonstrating the *relative* ease with which mapping whole populations of medium-sized North American cities can be accomplished and by offering as examples the experience of using the resident populations of Alexandria, Virginia, and Newport, Kentucky, in the 1860s and 1870s.¹ We then explore the extent to which city tax records (an underused historical resource) provide a profile of its population different from that based on the more familiar U.S. manuscript census schedules.² In recognition of the need for GIS to move beyond visualization to analysis, we develop a study of the spatial distribution of wealth in these two cities.

A GIS Bonanza—but Not for Historical Studies

After a decade of experimentation, it is clear that our understanding of modern and historical societies will be

shaped in fundamental ways by methodologies associated with GIS. Advances in computer-aided mapping techniques began in the 1970s with increases in computing power that allowed vector plotters, rather than cartographers, to produce maps from large-scale databases (Rhind 1977; Coppock and Rhind 1991). These gains have been consolidated in the last 10 years, during which the emergence of GIS and attendant highly sophisticated geostatistics packages has created a near revolution in spatial analysis. But the GIS “dividend” has not been spread equally among scholars with contemporary and historical interests. Mapping makes the most sense when whole communities, rather than samples of populations, are the focus of study; in the contemporary world, this kind of holistic data set is increasingly available. In the historical world, however, the scarcity of places fully mapped at the individual level remains a limiting feature for the spatial analysis of past communities. For this reason, historians have so far gained less from the GIS revolution than have researchers with contemporary interests.

The potential significance of the GIS “turn” for historical studies is not to be underestimated, as Anne Knowles (2002) has frequently emphasized (see also *Historical Geography* 2005; *Social Science History* 2000; Gregory 2005). GIS can map hundreds of variables at virtually no cost, enhancing visualization of spatial distributions on a scale unimaginable only a few years ago. Paralleling the revolution in visualization has been the explosion of statistical packages built into GIS programs; these allow the measurement of relationships revealed in visual patterns, providing precise statements of the concentration or dispersion of populations. In enhancing both presentation and measurement, GIS is doing for maps “what spreadsheets did long ago for numbers” (Gomes 2003). The result is “the emergence of a compelling new methodology” and “a revolution in ‘spatial awareness’” that is highly relevant to historical inquiry (Knowles 2002).

However, GIS allows all of this only *if*—the crucial caveat—there are databases available for analysis, which raises