Analyzing Environmental Equity in the Public Drinking Water System

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"Is there not a moral duty to help society and the world unlock and understand the key patterns and relationships that may exist encrypted in [geographical] data bases for individual countries, for planet earth, and later on for other planets and other universes?"

Stan Openshaw

Abstract

The bulk of recent Environmental Justice research has focused on showing that ethnic minorities or people with lower economic status bear an unequal environmental condition burden. Several papers have challenged this relationship based on issues of scale, data and analytical method. In this paper, I investigate a method for using continuous surfaces of environmental condition and human condition variables at different scales in environmental equity analyses. I use environmental condition variables from the public drinking water system as the independent variable. I use human condition variables from the 2000 US Census at the Block and Block Group level as the dependent variables. Results indicate minorities, people below the poverty level, and young people potentially share a disproportionate burden of poor environmental quality. Moreover, results indicate opposite findings at larger scale analysis with continuous data, than at smaller scale analysis with point data. This approach permits researchers to identify and account for some of the potential spurious associations linking pollution and social status that can arise in environmental equity studies without specific spatial models.