

The Sensitivity of Repeat and Near Repeat Analysis to Geocoding Algorithms

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Abstract

Purpose: To determine if repeat and near repeat analysis is sensitive to the geocoding algorithm used for the underlying crime incident data.

Methods: The Indianapolis Metropolitan Police Department provided 2016 crime incident data for five crime types: (1) shootings, (2) robberies, (3) residential burglaries, (4) theft of automobiles, and (5) theft from automobiles. The incident data were geocoded using a dual ranges algorithm and a composite algorithm. First, descriptive analysis of the distances between the two point patterns were conducted. Second, repeat and near repeat analysis was performed. Third, the resulting repeat and near repeat patterns were compared across geocoding algorithms.

Results: The underlying point patterns and repeat and near repeat analyses were similar across geocoding algorithms.

Conclusions: While detailing geocoding processes increases transparency and future researchers can conduct sensitivity results to ensure their findings are robust, dual ranges geocoding algorithms are likely adequate for repeat and near repeat analysis.

Key Words

Repeat Victimization, Near Repeat Victimization, Geocoding, Spatiotemporal Analysis

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