**Comparative modeling approaches for understanding urban violence: a review**

The main purpose of the paper is to provide a greater understanding of the factors that influence heterogeneous distributions of crime. The authors focus on the comparative analysis of three quantitative approaches: Ordinary Least Squares (OLS), Geographically Weighted Regression (GWR) and Data Envelopment Analysis (DEA). The above methods are then applied to explore the structural theories of violence in Cincinnati, Ohio by block group. To predict assault rates between January and June of 2008 the authors use 2006 population density from Caliper Corporation, density of alcohol outlets from the Ohio Division of Liquor Control, and social disorganization calculated from socio-economic disadvantage, female headed-households, and residential instability, as independent variables.

The authors investigate the comparative strengths, usefulness, and congruity between the analysis methods in discovering differences in crime generation and underlying demographic and socioeconomic stimuli. This type of research allows for better decision-making for efficient allocation of police resources to neighbourhoods in need, and more careful evaluation of the spatial, demographic, socioeconomic and institutional factors behind the distinct crime rates in others.

Results of the quantitative analyses, along with a cartographic visualization analysis, are clearly communicated and accompanied by informative maps and graphs: the analysis methods are complimentary approaches for exploring factors behind urban violence. Combining these methods should provide analysts a more complete view of the variables and their dynamics in a linear framework. Though the GWR analysis had the lower, more superior Akaike Information Criterion (AIC) score, both OLS and GWR results had similarly high *R-*squared values (.5996 and .696, respectively). The above regression analyses had difficulty predicting some of the same neighbourhoods (e.g. Over-the-Rhine), and found the social disorganization index to be the primary crime-contributing factor. The DEA efficiently produced assault statistics in both low (e.g. California) and high (e.g. Over-the-Rhine) crime areas, but a majority of the block groups were found to be inefficient: there were other significant factors at play.

The authors state the scope of the paper, recognize the limitations and advantages of each analysis method, and emphasize that factors operate differently across neighbourhoods. They provide ample information of the analysis methods, theories behind the spatial dynamics of urban violence (social disorganization, collective efficacy, social cohesion), and thoroughly describe the selected determinants of violence. A multitude of previous studies are cited to reinforce the validity of recognizing the spatial perspective of crime. Readers from a diverse set of backgrounds will greatly benefit from this paper, not only GIS-inclined audiences. Authors bring up the problem of regression-based statistical techniques’ inability to factor in unique features of neighbourhoods, which they state is essential to understanding spatial heterogeneity of crime. However, to counteract that they do offer brief theories on why some areas had lower co-efficient scores.

Overall we thought that this was a very well written paper that took into account multiple techniques and provided ample explanation of results and analyses. We gave this paper a 10/10 score.

**Sources**

Grubesic, T. H., Mack, E. A., Kaylen, M. T. (2012). Comparative modeling approaches for understanding urban violence. *Social Science Research,* *41*(1), 92-109.doi:10.1016

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