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Spatial Scale of Clustering of Residential Burglary and Its Dependence on Temporal Scale

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Abstract : Research has long focused on two main spatial aspects of crime: spatial patterns and spatial processes. When analyzing these patterns and processes, a key issue has been to determine the proper spatial scale. In addition, it is important to consider the possibility that these patterns and processes might differ appreciably for different temporal scales and might vary across geographic units of analysis. We examine the spatial-temporal dependence of residential burglary. This dependence is tested at varying geographical scales and temporal aggregations. The analyses are based on recorded incidents of crime in Columbus, Ohio during the 1994-2002 period. We implement point pattern analysis on the crime points using Ripley's K function. The results indicate that spatial point patterns of residential burglary reveal spatial scales of clustering relatively larger than the average size of census tracts of the study area. Also, spatial scale is independent of temporal scale. The results of our analyses concerning the geographic scale of spatial patterns and processes can inform the development of effective policies for crime control.

Keywords : inhomogeneous K function, residential burglary, spatial point pattern, spatial scale, temporal scale
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