Urban Growth and Segregation in the Roanoke, Virginia, Metropolis: The Effects of Low-Density Development on Low-Income Populations and Racial Minorities

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Abstract
This dissertation examines urban growth patterns in the Roanoke, Virginia, metropolitan area. It draws on the literature of contemporary human ecology and social area analysis to examine the effects of low-density development on low-income populations and racial minorities. The continuous spread of residential development beyond the boundaries of the central city and older suburbs into more distant, once rural areas is segregating the metropolitan area by race and income. Since the prominence of the so-called "Chicago School" of urban sociology (1913-1940), contemporary urban sociologists have outlined theories and methods to examine how American urban areas have changed and why. This dissertation is not about urban problems and solutions. It is about familiarizing readers with the theories of human ecology and social area analysis and their utility for explaining contemporary urban spatial patterns. If we are to get better and more equitable metropolitan areas, we must find out what really creates our urban areas, physically, economically, and socially. We must reach a deeper understanding of the forces and processes that have shaped them. Finally, we must understand the social consequences to urban life, relative to concentration of poverty and racial minorities in central cities. Toward that end, this study uses the statistical techniques called Social Area Analysis and Factorial Ecology to examine and describe the social-spatial patterns of the Roanoke, Virginia, metropolitan area, focusing on poverty and race. Specifically, the study uses 1980, 1990 and 2000 census data and the U.S. Geologic Survey of Land Use Cover to compute the factor analysis, construct the Socio-Economic Status (SES) index, rank the metropolitan's census tracts based on the SES factors and develop the ecological growth model for the Roanoke metropolitan area. The analyses of the SES areas reveal that the metropolitan's growth model is a combination of Ernest Burgess' concentric zone theory and Harris and Ullman's multiple nuclei model. Ultimately, the significance of this study lies not in the creation of an alternative theory of urban spatial patterns, but as an opportunity to amend more traditional approaches of human ecology so as to include racial segregation and income polarization as influences on metropolitan spatial patterns, and to produce a more integrated and accurate theoretical framework. This dissertation is organized as follows: Chapter 1 provides a brief introduction to the study. In Chapter 2, relevant literature regarding urban spatial patterns and contemporary human ecology is reviewed. Chapter 3 provides a thorough explanation of the research methodology. In Chapter 4, the results of the social area analysis and factor analysis are presented. GIS maps are also used to show the SES areas or multiple spatial patterns in the metropolitan area, especially the areas of concentrated poverty and race. In Chapter 5, the evolution of the metropolitan's growth pattern is reviewed, and a contemporary ecological growth model is developed for the Roanoke metropolitan area. This model is then compared against the traditional human ecology growth models, including concentric zone theory, sector model
As urban populations swelled, cities were forced to grow both horizontally and vertically; horizontal growth being facilitated by increased agricultural output which decreased the amount of farmland that was needed around the city to feed its inhabitants, and vertical growth being facilitated by advances in building construction, such as steel and elevators, which...