May 7, 2004 at 12.00 Noon
Zimmer Lounge, Maxcy Hall

Spatial Structure in the Social Sciences Colloquium Series

Separate But Unequal? Examining the Relationship Between Residential Segregation and Air Quality in U.S. Metropolitan Areas

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Abstract: Disparities in health status are an important public policy concern that has been identified as a priority in Healthy People 2010. It is probable that disparities in environmental exposures play an important role in the persistent, disparate health status of the poor and people of color in the United States. Spatial separation of population groups by race/ethnicity, income and class mirrors many of the health and social inequalities which persist in the social organization of American cities. Using Census Information and data from EPA's National Air Toxics Assessment for 1996, this study analyzes how residential segregation is related to spatial inequalities in ambient pollution exposures and estimated lifetime cancer risks. The study then models the relationship between estimated cancer risk and community segregation by income and race/ethnicity (African Americans, Asians, Latinos and Whites). Results indicate that residents of color have higher exposures and risk burdens than Whites in those metropolitan areas with higher levels of segregation. Further, stratifying by segregation level shows estimated cancer risks from cumulative outdoor air toxics exposures are higher for all demographic groups in highly segregated metropolitan areas compared with low segregation areas. Generalized linear models reveal that segregation modifies the relationship between estimated cancer risks from air toxics and the racial composition of tracts even after controlling for population density, low income, income inequality (Gini coefficient), and median housing value. High levels of residential segregation appear to exacerbate demographic disparities in cancer risks associated with ambient air toxics and increase exposures to these pollutants overall. Future analyses should examine how zoning, land use patterns, sprawl and transportation development can affect residential segregation patterns and the distribution of air pollution among diverse metropolitan communities.