

Income, race are associated with disparities in access to green spaces

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Access to green spaces in metro areas—parks, trails, even the tree cover in a neighborhood—is largely associated with income and race, new research indicates.

Researchers combined census-block-group demographic and socioeconomic data with [satellite imagery](#) to analyze access to green spaces and vegetation in two metropolitan areas: Columbus, Ohio, and Atlanta, Georgia. Their study appears in the August issue of the journal *Landscape and Urban Planning*.

"Having close and convenient access to green spaces and vegetation within one's neighborhood can bring many ecological and health benefits," said Yujin Park, lead author of the study. Park recently completed her Ph.D. in city and regional planning at The Ohio State University's Knowlton School of Architecture.

"These green resources should be available to anyone, and to any community, and we wanted to see whether this availability was affected by socioeconomic status, income, ethnicity or race."

Income and race may not have the same influence in all cities and counties, results show. Neighborhood location matters to what [green space](#) is available, the researchers found.

In the Columbus [metropolitan area](#), a region of around 2 million people and 10 counties, access to green spaces is primarily influenced by income: Wealthier neighborhoods have greater access to parks, trees, greenways and sports fields. In the Atlanta metro area, a region of around 6 million people that covers 29 counties, access is significantly related to race.

Park said the researchers chose Atlanta and Columbus because they are similar in key measures including median incomes, urban core population densities, urban sprawl and car-dependency rates.

The researchers gathered data from both metropolitan areas by census block group from the 2010 U.S. Census and the 2014 Smart Location

Database of the U.S. Environmental Protection Agency. They compared that data with four different geospatial datasets that show green spaces: National Land Cover Database (NLCD), Landsat Satellite imagery, OpenStreetMap and U.S. Parks from ESRI. Then, they analyzed accessibility to six different types of green spaces: vegetation biomass, tree canopies, parks, greenway trails, golf courses and sports fields, and a broad category of green open spaces that includes gardens, lawns, farms and fallow fields.

In Columbus, parks and greenways spanned the city, even reaching some poor neighborhoods. In Atlanta, mature trees covered more than half of the region.

The analysis showed that, in both cities, open green spaces inside the cities are concentrated in affluent, white suburbs near the center of the city.

Affluent suburban communities are also more likely to have access to a broad range of types of green [space](#). In the Columbus area, for example, long-established, relatively affluent suburbs inside the city's beltway have access to both urban green trails and sports fields, as well as green lawns, trees and parks.

"There are very strong associations between community income levels and the density and diversity of green spaces available," Park said.

"Affluent areas closer to the cities have a greater variety of choices in the green spaces available to them."

But in both regions, the data shows that less wealthy, racial-minority suburban and exurban communities outside the cities have little access to greenways and public parks. Therefore, disparities in access to green amenities may grow in these outskirt areas.

"Poorer urban communities are less likely to have access to trees and lawns. However, generally, communities in more-dense urban and downtown areas tend to have greater access to parks and green trails, thanks to historical [park](#) and trail investments in those areas," Park said. "Therefore, the efforts to increase and protect urban parks are very important, as they are the sources of green access for middle- to lower-income urban communities."

Jean-Michel Guldmann, professor emeritus of [city](#) and regional planning at Ohio State and the other author of this study, said future research could examine the quality of those green spaces.

"In the case of Atlanta, for example, there are many trees, but a lot of them are really old, and might not be well-cared-for," he said. "And some parks are not managed well and could feel unsafe to be in. The quality of urban parks can be another avenue for providing improved access."

More information: Yujin Park et al. Understanding disparities in community green accessibility under alternative green measures: A metropolitan-wide analysis of Columbus, Ohio, and Atlanta, Georgia, *Landscape and Urban Planning* (2020). [DOI: 10.1016/j.landurbplan.2020.103806](#)

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