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Private Benefits and Spillovers from Residential Trees

Joe Maher
University of Maryland, Department of Agricultural and Resource Economics, College Park, MD 20742, jmaher@arec.umd.edu

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http://www.terpconnect.umd.edu/~jmaher5/MaherTreeHedonicAAEA2013.pdf

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jmaher@arec.umd.edu

QUESTION

- How do homeowners value tree cover on their own property and on neighboring properties?
- What tree characteristics influence how homeowners value private trees?

DATA

Tree Canopy
- Land use classification data (1m x 1m resolution).
- Permits analysis of small, individual private trees.
- *Source: University of Vermont*

Tree Height
- Lidar remote sensing data (2m x 2m resolution).
- Proxy for tree size, maturity and canopy composition.
- *Source: University of Maryland*

Housing Sales
- Howard County housing transactions (2004-2007).
- Property boundaries and housing characteristics.
- *Source: Maryland PropertyView*

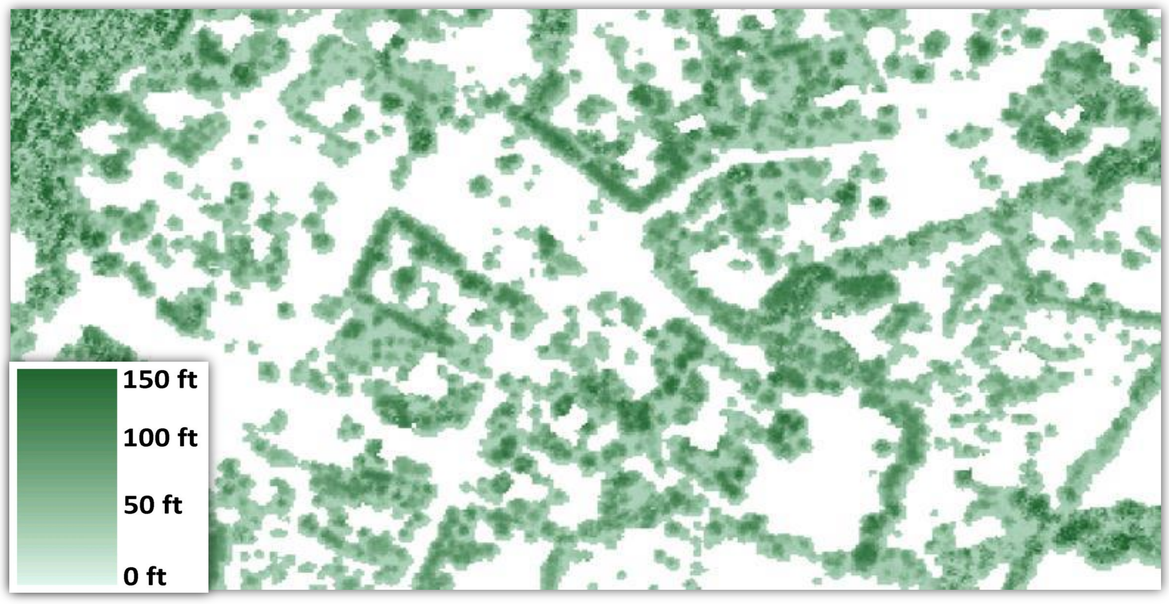
METHODS

Percent tree cover and average tree height are calculated within each property boundary. Next, multiple ring buffers are created to define surrounding tree cover metrics within 50 feet, 200 feet, and ¼ mile of each property. Finally, tree variables are included in a hedonic price model to determine how homeowners value tree cover on their own property and within their immediate surroundings.

RESULTS

Tree Height
- Taller trees are more valuable..

Existing Tree Cover
- Additional tree cover is more valuable on properties with low levels of baseline tree cover.

Surrounding Tree Cover
- Trees on your own property are more valuable when surrounding neighborhood tree cover is low.

Ownership
- Trees on neighboring properties increase your home's value by more than trees on your own property.