

Graphic Detail

Geographic Information Systems (GIS) organize and clarify the patterns of human activities on the Earth's surface and their interaction with each other. GIS data, in the form of maps, can quickly and powerfully convey relationships to policymakers and the public. This department of Cityscape includes maps that convey important housing or community development policy issues or solutions. If you have made such a map and are willing to share it in a future issue of Cityscape, please contact rwilson@umbc.edu.

Mapping White-Black and Temporal Differences in State Homeownership Rates With Two-Way Comparative Micromaps

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Micromaps display multiple maps on the same exhibit, with different geographic units highlighted in each map. A *comparative micromap* is a type of micromap with a series of indexed maps designed to convey change in a statistic. Mast (2014) previously introduced *Cityscape* readers to comparative micromaps. A two-way comparative micromap (hereafter, referred to as a TWCM; for examples, see Carr and Pickle, 2010) conveys change in a statistic in two dimensions; one dimension is typically time.

In this article, I demonstrate how to use TWCMs to visualize White-Black and temporal differences in homeownership rates in the 50 states and Washington, D.C. The homeownership rate equals owner-occupied housing units as a percentage of total occupied housing units. I analyze American Community Survey homeownership data for 3 years (2006, 2009, and 2012), and two racial/ethnic groups: White non-Hispanic householders (hereafter, referred to as White), and Black or African-American householders of any ethnicity (hereafter, referred to as Black). My dataset consists of 306 observations, where an observation is the homeownership rate in a state in a given year for a given racial/ethnic group (hereafter, referred to as a state-year).

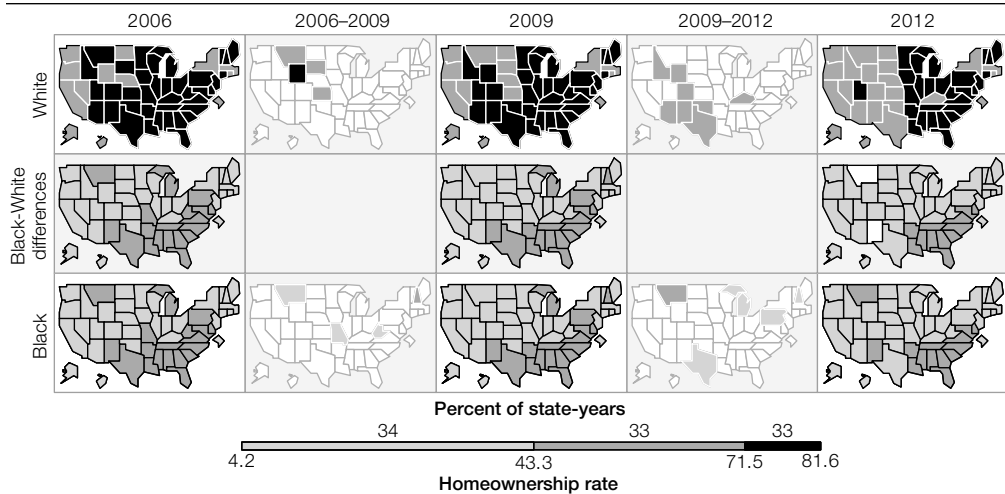
Exhibit 1 displays a TWCM¹ mapping White and Black homeownership rates for 2006, 2009, and 2012. States in exhibit 1 are shaded according to the three homeownership rate categories indicated by the bottom horizontal slider. Cut points for the homeownership rate categories in exhibit 1 are roughly the 33rd and 66th percentiles. Cut points are reported below the slider, and the percentages of state-years in the categories are reported above the slider. I refer to the lowest homeownership rate category as “low,” the middle category as “medium,” and the highest category as “high.” In exhibit 1, the 103 state-years in the low category with homeownership rates less than or equal to 43.3 percent are shaded light gray; the 101 state-years with medium rates greater than 43.3 percent and less than or equal to 71.5 percent are shaded medium gray; and the 102 state-years with high rates greater than 71.5 percent are shaded black.

Exhibit 1 displays 13 micromaps in a panel layout with three rows and five columns. The top row reports White homeownership rate categories, and the bottom row reports Black homeownership rate categories. The odd-numbered columns of the top and bottom rows, from left to right, report homeownership rates for 2006, 2009, and 2012, respectively. Homeownership rates for both racial/ethnic groups tended to fall between 2006 and 2009 and between 2009 and 2012, with 2009-to-2012 changes being more dramatic.

The second and fourth columns in the top and bottom rows of exhibit 1 highlight states that experienced changes in White and Black homeownership categories between 2006 and 2009 and between 2009 and 2012, respectively; states that experienced changes in categories over time are shaded according to the category for the latest period.

Exhibit 1

White and Black State Homeownership Rates: 2006, 2009, and 2012



Source: 2006, 2009, and 2012 American Community Survey 1-year data

¹ The TWCMs in the article were produced with R programs (available upon request) based on Carr’s (2014) programs.

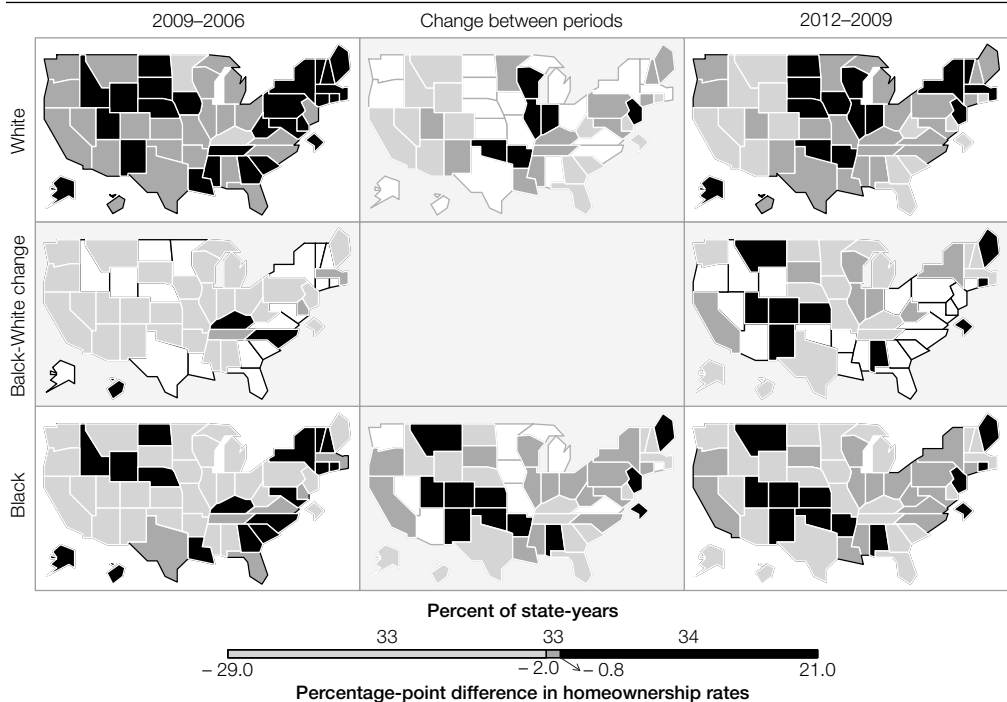
In the middle row of exhibit 1, states that experienced differences between White and Black homeownership categories are highlighted; highlighted states are shaded according to the Black homeownership category. The three maps in the middle row of exhibit 1, from left to right, highlight White-Black differences for 2006, 2009, and 2012, respectively.

Exhibit 2 displays a TWCM mapping White and Black percentage-point differences in homeownership rates between 2009 and 2006 and between 2012 and 2009. States in exhibit 2 are shaded according to the three categories of percentage-point differences in homeownership rates indicated by the bottom horizontal slider. Cut points for the percentage-point difference categories in exhibit 2 are roughly the 33rd and 66th percentiles. I refer to the lowest percentage-point difference category as “low,” the middle category as “medium,” and the highest category as “high.” In exhibit 2, the 67 state-years in the low category with differences less than or equal to -2.0 percentage points are shaded light gray; the 68 state-years in the medium category with differences greater than -2.0 percentage points and less than or equal to -0.8 percentage points are shaded medium gray; and the 69 state-years in the high category with differences greater than -0.8 percentage points are shaded black.

Exhibit 2 displays eight micromaps in a panel layout with three rows and three columns. The top row reports differences in White homeownership rates, and the bottom row reports differences in Black homeownership rates. The first column of the top and bottom rows report differences in homeownership rates between 2009 and 2006, and the third column of the top and bottom rows

Exhibit 2

White and Black Differences in State Homeownership Rates: 2009–2006 and 2012–2009



Source: 2006, 2009, and 2012 American Community Survey 1-year data

reports differences between 2012 and 2009. The middle column in the top row highlights states that experienced changes in White difference categories between 2009–2006 and 2012–2009, and corresponding changes in Black difference categories are highlighted in the middle column in the bottom row; states that experienced changes in categories over time are shaded according to their 2012–2009 categories.

In the middle row of exhibit 2, states that experienced changes between White and Black difference categories are highlighted; highlighted states are shaded according to the difference category for Black householders. White difference categories tended to be greater than Black difference categories for both 2009–2006 and 2012–2009, indicating larger decreases in absolute value for Black householders.

The TWCM is a useful tool for visualizing two-dimensional changes in geographic data. In this article, TWCMs clearly demonstrate three key points. First, a downward trend in state homeownership rates since 2006 was for both White and Black householders. Second, homeownership rates tended to be much higher for White householders than for Black householders in all time periods. Finally, decreases in homeownership rates over time tended to be greater in absolute value for Black householders.

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