

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 ronald.e.wilson@hud.gov.

Race and Refinancing During the Bubble in the Baltimore and Washington Metropolitan Region

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The map in exhibit 1 depicts geographic differences in the ratio of house-purchase loans to home-refinance loans in 2006,¹ during the height of the housing bubble. Purchases and refinances serve different purposes. New house purchases suggest mobility and home refinances suggest stability. The map contrasts these patterns with the geographic distribution of the African-American and White populations at the census tract level² in the Baltimore and Washington, DC region.

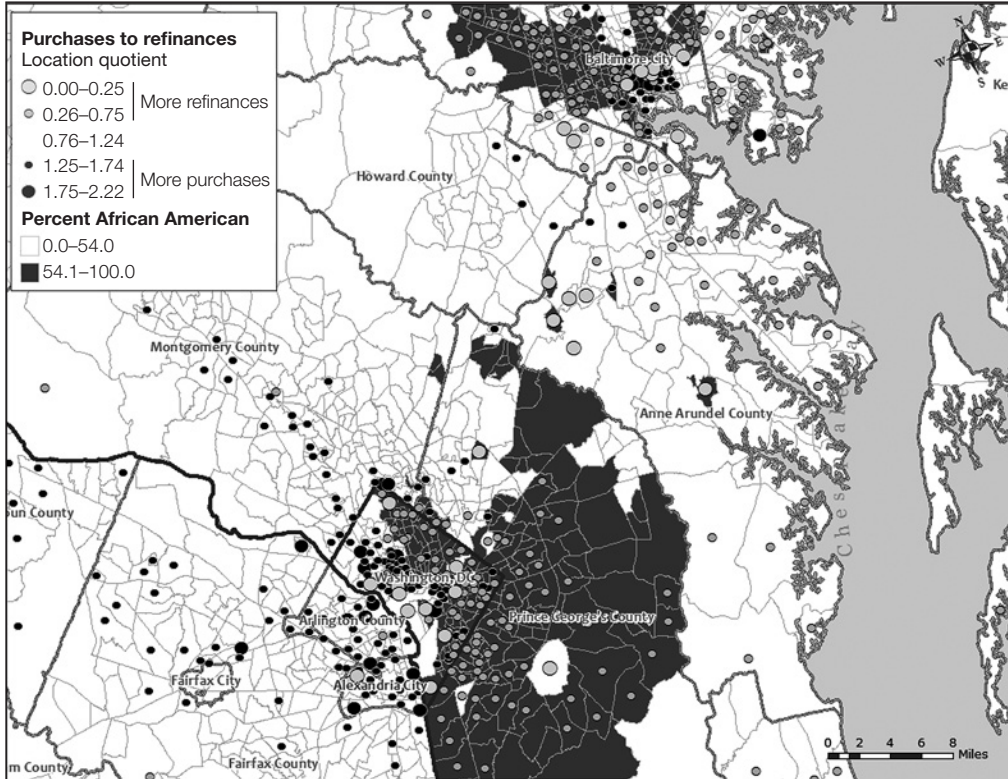
I used location quotients (LQs) in this analysis to measure the relative differences between purchase and refinance loans of a tract in relation to the two subregions overall. If a tract's LQ is 1, it has the same purchase-to-refinance ratio as the two subregions. If the LQ is greater than 1, the tract has more purchases relative to refinances. If the LQ is less than 1, the tract has more refinances relative to purchases—or fewer purchases relative to refinances.

¹ Mortgage loan originations peaked in 2005 and have since declined significantly in all markets across the United States (Harvey, 2009). Loans obtained by minorities in the top 100 metropolitan areas, however, expanded through 2006 (Pettit and Rueben, 2009).

² Based on 2005 to 2009 American Community Survey 5-year estimate data, which estimate the population for 2007.

Exhibit 1

Tract Shares of House-Purchase to Home-Refinance Loans Against Concentrations of the African-American Population



Note: Manual classification of location quotient breaks and percent African American.

Source: 2006 Home Mortgage Disclosure Act

The background shading of the map in exhibit 1 shows the geographic patterns of the relative concentration of the African-American population, in which shading indicates that African Americans make up at least 54 percent of the residents in a tract.³ Two different subregional patterns of African-American concentration are apparent. In Baltimore, the concentration is primarily in the city with a small extension radiating northwest into Baltimore County. Around Washington, D.C., the concentration is primarily east of the city and covers most of the suburbs in Prince George's County, Maryland.⁴

³ This class break is based on the upper quartile of 0.75 (54 percent) African-American population within a tract.

⁴ The tract in the center of Prince George's County that does not contain a concentration of African Americans contains Andrews Air Force Base and is populated mostly by military personnel.

The LQ patterns show a strong geographic relationship of the purchases to refinances with the distribution of the African-American and White populations.⁵ Light gray circles indicate relatively more (one-fourth to three-fourths as many) refinances and dark gray circles indicate relatively more (one-fourth to one and one-fourth as many) purchases than the region. The absence of a circle indicates that a tract has a fairly typical ratio of purchases to refinances across the two subregions.

More refinances occurred in areas where the African-American population was concentrated, and more purchases were made in non-African-American areas. Maps similar to this one can be the starting point for further investigating the causes of these differential uses of credit.

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- Pettit, Kathryn L.S., and Kim Rueben. 2010. "Investor-Owners in the Boom and Bust." *Mortgage Lending: Trends in the U.S. Metropolitan Areas*. Washington, DC: Urban Institute. Also available at <http://metrotrends.org/mortgagelending.html> (accessed September 24, 2012).

⁵ A bivariate spatial autocorrelation analysis with the Moran's I statistic supports the geographic pattern in exhibit 1. The Moran's I statistic for LQs and the African-American population in the two subregions is -0.25 ($p \geq 0.001$) and indicates that tracts with home-refinance loans have a moderate spatial correlation with high percentages of African-American population in adjacent tracts.

