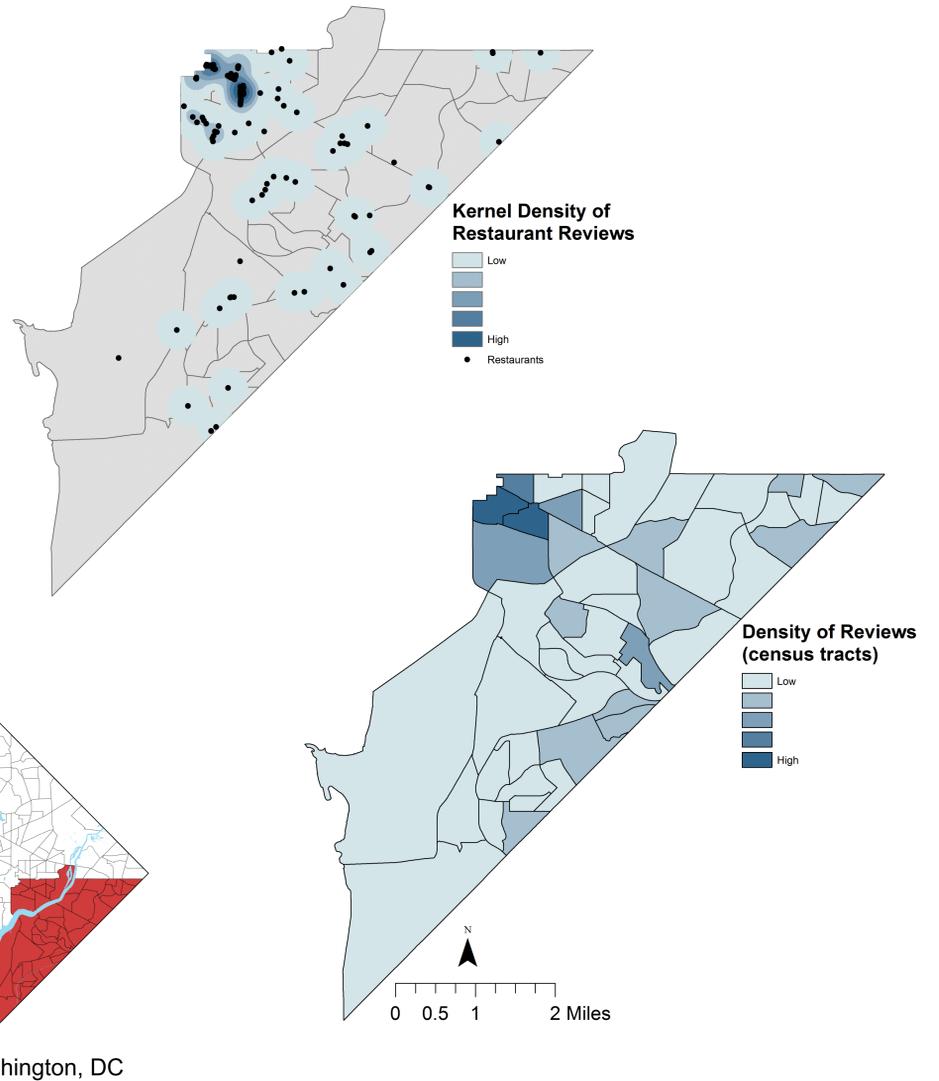
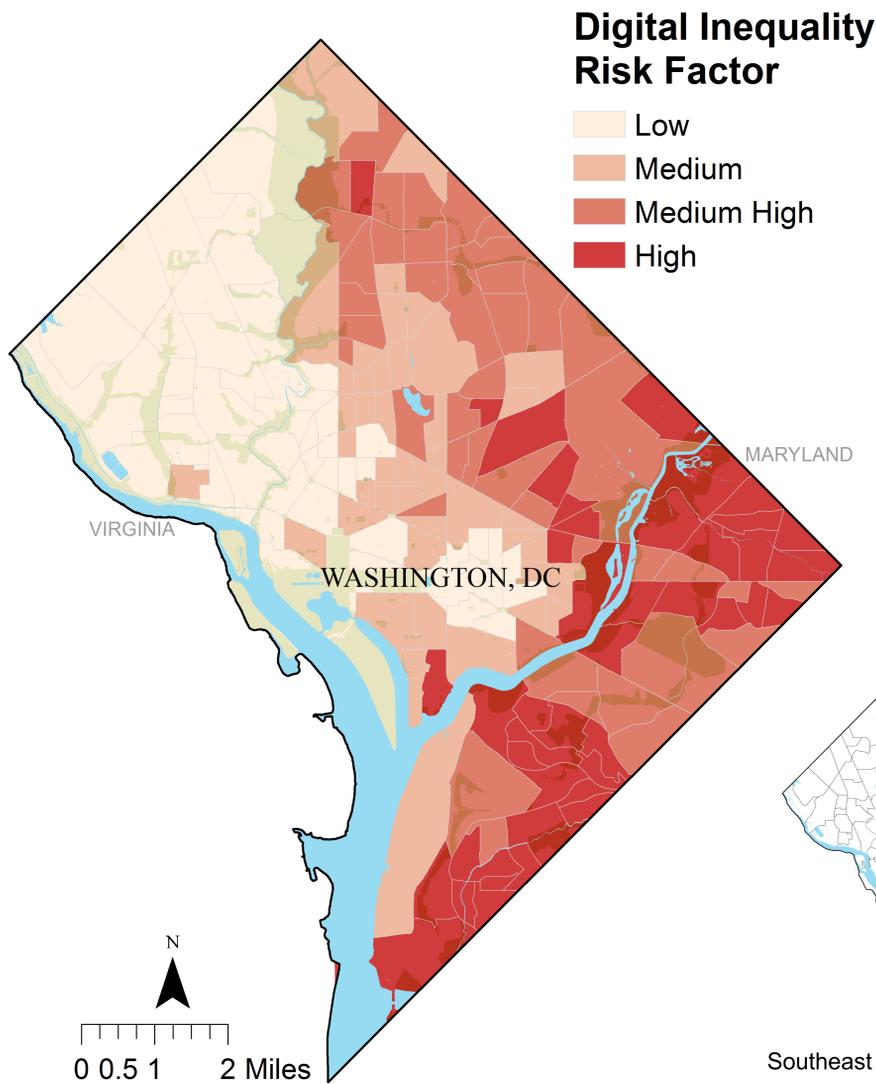


# Mapping the Digital Divide in Washington, DC

## Digital Inequality Risk

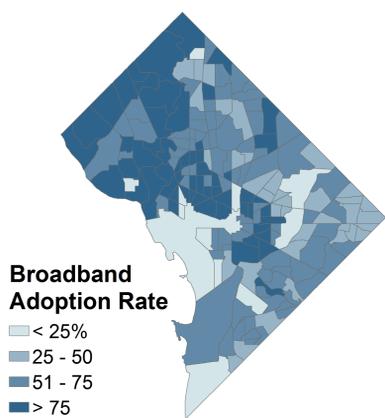
## User-Generated Content in Southeast DC



## Project Background:

The digital divide refers to two linked issues of physical access to technology and computer literacy. The primary goal of this project is to explore methodology for mapping the digital divide in DC and to observe spatial relationships. For comparison, a recent map of broadband adoption rates is presented below.

The project is divided into two sections. The first develops a ranking for digital inequality risk by mapping four factors that typically correlate with digital inequality: income, education, age, and race. The second explores user-generated content or the idea of Web 2.0 as another indicator of digital access.



## Calculating Inequality Risk:

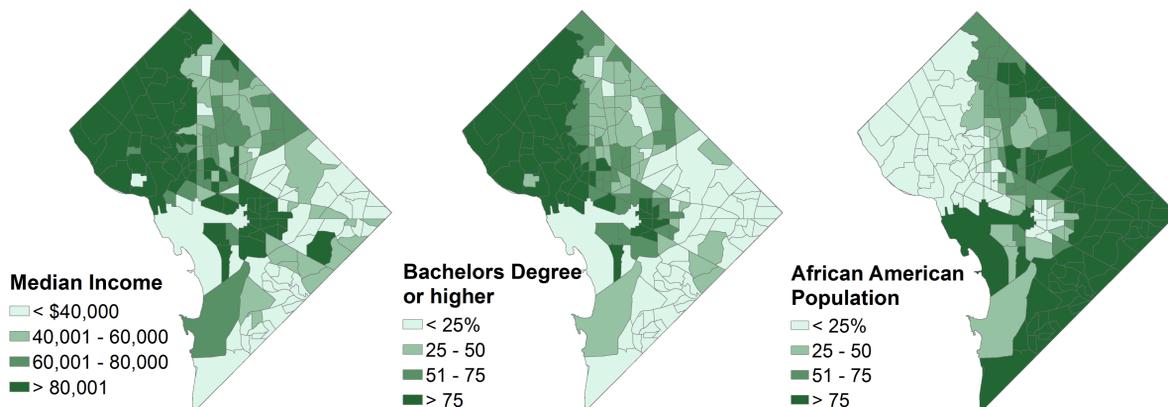
The following variables were chosen to represent the factors: median annual household income, % of population with a bachelor's degree or higher, % of population over 60 years old, % of population that identifies as African American, and % of population that identifies as Hispanic. Maps of each variable per census tracts were created using 2010 Decennial Census and 2012 American Community Survey data.

Based on their spatial and statistical distribution, each variable was assigned a risk factor of 1 to 4, with 4 being the highest risk to digital inequality; or 0 to 1, with 1 indicating the presence of a risk factor. See tables below.

	1: Low Risk	2: Medium	3: Medium-High	4: High
Median Income	> \$100,000	\$60,001-80,000	\$40,001-60,000	Less than \$40,000
% Pop. with Bachelor's or higher	>75%	51-75%	25-50%	< 25%
% Pop. African	< 25%	25-50%	50-75%	>75%

	0: No Risk	1: Risk
% Population	< 30%	> 30%
% Population	< 30%	> 30%

These risk factors were summed to create a total digital risk factor with 3 being the lowest possible score and 14 being the highest score. These scores were then mapped for the final "Digital Inequality Risk Map" shown above.

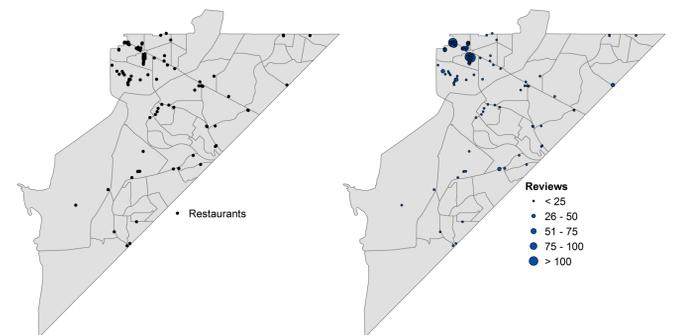


## Online Restaurant Reviews:

Southeast Washington, DC was isolated for study as the area containing the highest concentration of census tracts with high digital inequality risk.

First, a search on Google Maps was conducted with the following terms: "restaurants in Southeast Washington DC." This search produced 77 results. Each restaurant location was then mapped and the number of user-generated reviews was recorded. The points were mapped using graduated symbols.

The kernel density tool was utilized to show the "density" of reviews within a 400 meter radius. Using the raster data created by the kernel density tool, the mean number of restaurant reviews per census tract was determined. This data was then mapped to show the distribution of user-generated content across census tracts with various degrees of digital inequality risk.



## Findings:

The Digital Inequality Risk Map, by considering four factors in composite, highlights certain census tracts that may be at higher risk for digital inequality. These areas are concentrated in the Northeast and Southeast quadrants. Washington, DC is a city that has historically been segregated by race and income; and these results reflect that divide.

Focusing on Southeast DC, the second analysis shows there are more restaurants with more online reviews concentrated in those census tracts that were previously identified as low risk for digital inequality. Results indicate that individuals who live in or visit neighborhoods with popular restaurants are more likely to generate content like online reviews. Mapping user-generated content may be a more sophisticated analysis of intra-urban digital divide by measuring online engagement rather than simply access.

Map Projection: NAD\_1983\_StatePlane\_Maryland\_FIPS\_1900

Cartography by Alex Kostura

Sources: DC GIS Clearinghouse, Decennial Census 2010, American Community Survey 2012, GoogleMaps

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