Client: University of Chicago - Internet Equity Initiative
Consultants: Kaya Borlase, Maia Boyd, Victoria Kielb, Brendon Krall
Mentor: James Turk, Assistant Clinical Professor, M.S. in Computational Analysis & Public Policy

The University of Chicago Internet Equity Initiative's Winter 2023 project focus was twofold:
(1) to provide a descriptive analysis of broadband internet connectivity for the 50 most populous cities in the United States; and (2) to explore the relationship between socio-demographic factors (such as race, wealth, and educational attainment) and broadband connectivity. These areas of focus help achieve the overarching project goal of exploring the U.S. urban digital divide.

The culmination of this quarter's work are the following three deliverables: (1) merged and cleaned 2013-2017 and 2017-2021 American Community Survey (ACS) datasets; (2) broadband connectivity visualizations and inequality measures for our cities of interest; and (3) a list of the 50 cities broadband office stakeholders with an accompanying policy memo template.

The 5-year ACS datasets are the primary inputs for the broadband connectivity visualizations and the socio-demographic causal analysis. The team chose these two time periods for pre- and post-COVID analysis. These datasets contain information at the census tract level such as internet access, age, gender, race, household income, educational attainment, and neighborhood the tract falls within the city.

The visualizations of interest were created using the standard dataset and include choropleths for household internet access for each city (as shown in Figure 1), scatterplots showing the correlation between internet access and sociodemographic variables of interest, and a chart showing tract-level internet inequity across cities (as shown in Figure 2). The team additionally calculated mathematical measures for internet inequality. These measures, combined with the visualizations, highlight how sociodemographic factors might be directly connected to internet inequity within cities.

Finally, the team compiled a contact list outlining government offices that handle broadband connectivity issues for each city as well as a policy memo template that includes information of the IEI along with city-specific broadband connectivity and socio-demographic visualizations. The list of offices and policy memos can be used to engage with local stakeholders in the future.
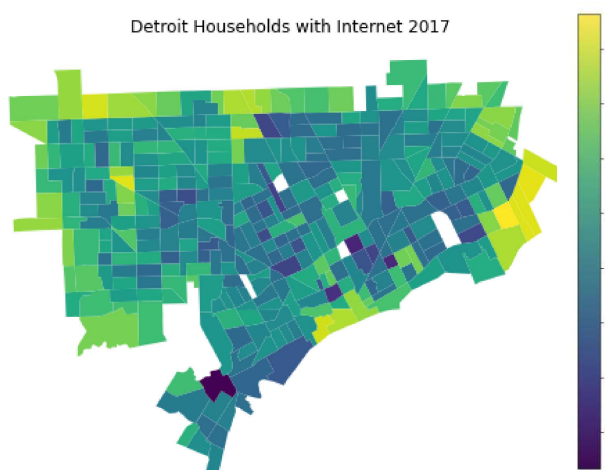

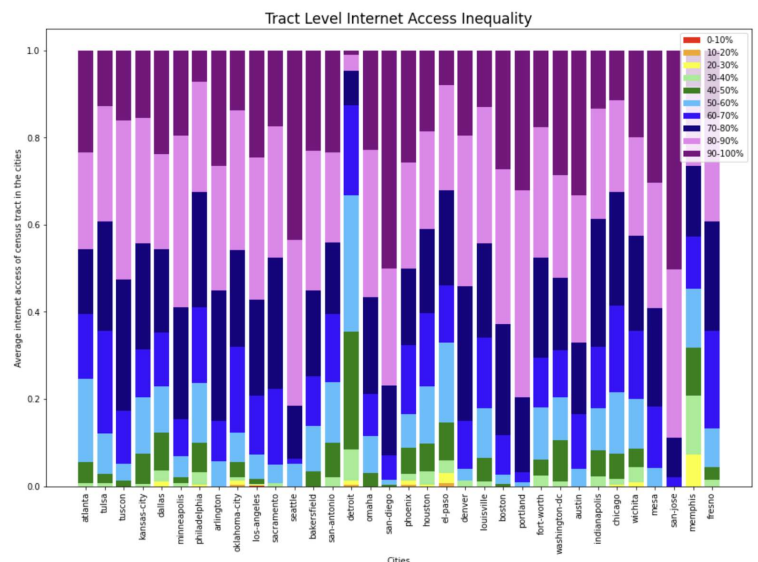
Figure 1. Choropleth of Detroit Broadband Connectivity

Figure 2. Ranges for Tract Level Internet Inequality across the U.S. cities