Neighborhood Typology Methods

Using ArcGIS and publicly available data through the U.S. Census 5-Year American Community Survey data, we categorized neighborhoods into six types—representing different stages of gentrification-related neighborhood change—using indicators related to vulnerability, demographic change, and housing market designations. The typology enables the assessment of neighborhood change in Louisville by utilizing a small number of widely available indicators to represent changes relevant to involuntary displacement. We follow the methodology Bates (2013) used in Portland, OR, which is adapted from Freeman (2005) and has been applied in Oakland, CA (Causa Justa: Just Cause 2014). The typology results in six categories capturing different dimensions of neighborhood change: Susceptible, Early Type 1, Early Type 2, Dynamic, Continued Loss, and Late.

Detailed methodologies for creating the vulnerability, demographic change, and housing market designations and the overall neighborhood typology map are presented below. "High"" or "low" on the measure is based on the relative level of the countywide variable for Jefferson County. The typology dimensions include: 1) **Vulnerability** to housing displacement; 2) **Demographic Change** indicative of potential displacement; and 3) **Housing Market Changes**.

We used the Longitudinal Tract Data Base (LTDB) to analyze Census data from 2000 and 2010 using a consistent spatial unit of analysis. The LTDB creates estimates in 2010 boundaries for tract level data not aligning with these current boundaries (https://s4.ad.brown.edu/projects/diversity/researcher/LTDB.htm).

Data for 2009 and 2016 are from the ACS 2005-2009 5-year estimates and the ACS 2012-2016 5-year estimates, respectively.

1. 2016 Vulnerability

Census tracts were assigned a "vulnerability score" between 0 and 4, with a weight of 1 when each of the following is true:
- Greater than 38.8 percent of households are renters
- Greater than 30.9 percent of the population are communities of color
- Greater than 68.2 percent of the population 25 years and older do not have a bachelor's degree
- Greater than 16.0 percent of households have incomes at or below at or below the poverty line

We defined vulnerable tracts as those with a vulnerability score of at least 3 out of 4 on these measures (n= 71). We defined communities of color as all residents except for non- Hispanic whites.

2. 2009-2016 Demographic Change

We defined census tracts with gentrification-related demographic change from 2009 to 2016 as those that experienced *either* 3 of the following 4:
- The share of homeowners either increased or it decreased by less than 4.2 percentage points

- The white population share either increased or it decreased by less than -4.4 percentage points
- The share of the population 25 years and older with a bachelor's degree increased by more than 3.7 percentage points
- The median household income increased or declined less than -1.59 percent

OR experienced only 2 out of 4, which were:
- The white population share either increased or it decreased less than -4.4 percentage points
- The share of the population 25 years and older with a bachelor's degree increased by more than 3.7 percentage points

3. Housing Market Conditions

All census tracts were assigned a home value for 2009 and 2016 equal to the ratio of the tract median home value to the countywide median home value. We defined tracts with low or moderate values as those with ratios in the bottom three quintiles; tracts with high values were defined as those with ratios in the top two quintiles.

Home value appreciation rates (i.e., the percent change in median home value) from 2009 to 2016 were also calculated for each tract. We defined tracts that experienced low or moderate appreciation as those with appreciation values in the bottom three quintiles; tracts with high appreciation were defined as those with appreciation values in the top two quintiles.

Using this data, we identified three gentrification related housing market conditions:
Adjacent tracts:
- Had a low or moderate 2016 value
- Experienced low or moderate 2009 - 2016 appreciation
- Touch the boundary of at least one tract with a high 2016 value and/or high 2009-2016

Accelerating tracts:
- Had a low or moderate 2016 value
- Experienced high 2009-2016 appreciation

Appreciated tracts:
- Had a low or moderate 2009 value
- Had a high 2016 value
- Experienced high 2009-2016 appreciation

The adjacent conditions attempts to capture the spillover effects of gentrification, whereby neighborhoods next to gentrifying areas are at-risk of gentrifying as housing pressures and commercial investment expand outward. The accelerating and accelerated typologies capture housing market changes associated with gentrifying and gentrified neighborhoods, respectively.

Limitations of the Typology:

The way in which any phenomena is defined and measured affects how the results are interpreted. We stress that this approach is only one way to measure changes that might result in involuntary displacement, and that different methods would most certainly produce different

results. There are dimensions not measured here (e.g. vacancy rates, age, rate of in-movers) that are also be relevant to understanding displacement and change in Louisville's neighborhoods. Moreover, within the typology, there is some subjective decision-making (i.e. how many elements combine to make a *"vulnerable"* tract). This model only considers change over a limited period and does not include the most recent changes we see happening on the ground today. Neighborhoods are constantly evolving, and displacement may occur long before substantial demographic or socioeconomic changes are measured. This type of analysis also does not help us understand exactly who is being displaced, or the neighborhoods in which they move to after displacement, both of which are important policy questions. Answering these questions requires more specialized data than we have access to or conducting surveys among movers. Finally, a purely quantitative method cannot capture the lived experiences of residents in these neighborhoods. Thus, even if the typology does or does not classify a neighborhood as *"susceptible"* to involuntary displacement, this may not align with what individual people are experiencing on a daily basis. We are confident that this approach is a valid starting point for understanding some processes of change and displacement in Louisville, and we present it as an exploratory first step within a larger policy conversation.