Some literature on "social capital" in changing neighborhoods suggests that lower income residents in neighborhoods attracting wealthier new residents will benefit in various ways with their arrival. Such research argues that new residents who tend to receive higher levels of education may encourage long-term residents to be more politically engaged. The findings of another body of research, centering political displacement posits that neighborhoods with significant vulnerability score difference areas include Dorchester and a portion of South Boston where it abuts Dorchester, Mattapan, the northeast corner of Mission Hill, Roxbury, and Brighton. A Global Moran’s I of 0.137 and 0.131 for 2005 and 2015 respectively indicated that both years of municipal elections were highly clustered with a P-value of 0.0005.

VOTER TURNOUT 2005

Squares tool was used to execute a linear regression, designating the mean gentrification vulnerability score by precinct to maintain a uniform spatial unit. The Ordinary Least Squares tool was used to determine whether there was clustering and if it was statistically significant. Zonal Statistics generated a precinct polygon layer with a mean gentrification vulnerability score by precinct to maintain a uniform spatial unit. The Ordinary Least Squares tool was used to execute a linear regression, designating the mean gentrification vulnerability score as the independent variable and voter turnout as the dependent variable.

Gentrification Vulnerability Boston, 2005

In both the 2005 and 2015 gentrification vulnerability layers there is clustering of areas of high vulnerability in parts of Dorchester, Chinatown, Roxbury, and where Jamaica Plain meets Roxbury. Large portions of these and surrounding neighborhoods are marked in transitional shades of dark blue and purple. The Raster Calculator generated a difference layer, displayed below. Areas in pink show were more vulnerable in 2015, areas in dark blue were more vulnerable in 2005. This layer demonstrates the dynamic nature of gentrification as a process as well as the movement of people and resources over time. Neighborhoods with significant gentrification vulnerability score difference areas include Dorchester and a portion of South Boston where it abuts Dorchester, Mattapan, the northeast corner of Mission Hill, Roxbury, and Brighton. A Global Moran’s I of 0.137 and 0.131 for 2005 and 2015 respectively indicated that both years of voter turnout data were highly clustered with a P-value of 0.0005.

Gentrification Vulnerability Boston, 2015

The OLS tool rendered a Gentrification Coefficient of -0.1257 for the 2005 data and -0.16 for 2015 data. The P-values were 0.0085* and 0.014* respectively. These numbers indicate that there is a slight negative correlation between gentrification vulnerability and voter turnout as defined here. This project included several hurdles that impacted the shape and accuracy of my analysis. First, I wanted to include an eighth variable in the gentrification index that I feel would have made it more comprehensive: density of old housing stock. But was unable to acquire parcel data that included year built for the 2005 set. Many of the difficulties this analysis presented revolve around a dearth of useful data that was not aggregated by state. Protecting voter privacy is necessary, but there is a need for more voter data at local spatial units. The data I found was provided by the city of Boston, but there was no description of how the voting counts were collected. It is difficult to discern the accuracy of these numbers. In addition, my regression analysis was fairly limited. I only incorporated one explanatory variable: the gentrification vulnerability score, but there are other variables worth considering when thinking about influencers of voter turnout. Availability of information and resources on voting and registration, voter ID laws and other exclusionary policies, age break-down of voting population, and the number of accessible voting locations to name a few. A fuller analysis would consider these other factors.

I ran a Geographically Weighted Regression on both the 2005 and 2015 data with limited significant results. In addition to the above limitations, GWR best performs when there are several hundred data points, my sample falling short.

RESUL TS/DISCUSSION

By centering voter turnout, I chose to measure political participation in a narrow way. My choice to do so was for lack of access to other kinds of survey data that spoke to communities’ feelings of political efficacy, non-electoral political participation, and empowerment over time. More research and access to the collection of data in this area is needed.

I used a fuzzy vulnerability model to avoid introducing uncertainty from weighting and creating “classes” in output raster layers. It is hard to account for values that close to the end of one class and the beginning of the other. Classifying these values as one or the other seems in some sense arbitrary and I believe using fuzzy overlay allowed for more confidence in the vulnerability analysis. That said, since gentrification has no established definition, the variables I chose do not account for the varying research on measuring gentrification. Their selection reflects some level of personal bias.