Determining Neighborhood Strength Using A Community Capacity Score

Introduction

A significant body of literature has explored the increasing use of citizen participation in planning and policy making (Bratt and Reardon 2013; Bryson et al. 2013; Cooper 1979), exploring the effectiveness and varieties participatory processes (Fung 2006), providing recommendations for process designs aimed at improving participation in planning and policy making (Bryson et al. 2013; Fung 2003). Some literature has explored the concept of community capacity, suggesting that it is an important measure of how a community is able to control its own destiny and shape the policy and planning decisions that affect it (Chaskin 2001; Perkins et al. 1996). Though there is disagreement on what dimensions make up community capacity, participation is consistently mentioned, as well as neighborhood relationships, sense of community, and access to resources (Chaskin 2001; Perkins et a. 1996; Piscopo, et al. 2017). Using data from the Boston Neighborhood Survey (BNS), the 2010 Census, and the 2016 ACS, this project aims to create a Community Capacity Score that can be used to identify neighborhood capacity to exert community control, and additionally explore how race may relate.

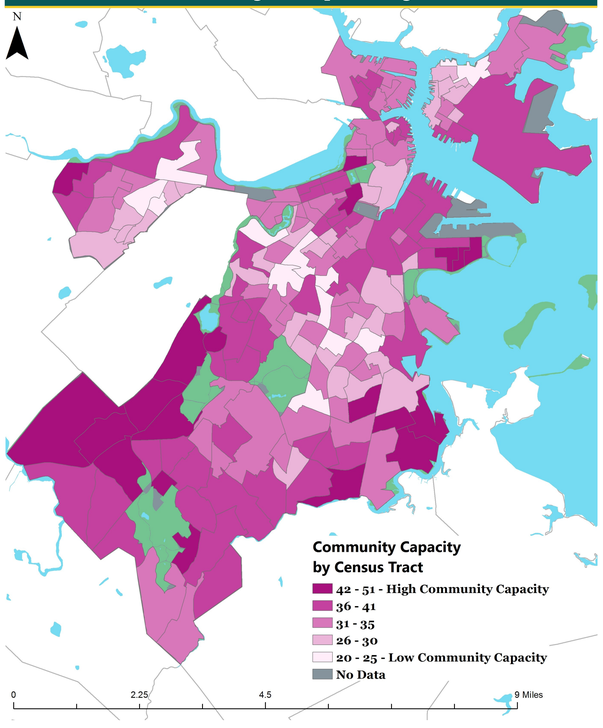
Methodology

In order to create a Community Capacity Score, I identified variables in the literature, such as feelings of neighborhood safety, level of education, relationships in the neighborhood, human and social capital, etc., and ranked them by their frequency of appearance. I then selected corresponding variables in the BNS, the US Census, and the American Community Survey. Because these variables were not scaled similarly, they were reclassified using Excel in two ways. BNS survey variables were standardized and classified on a scale of 1-6 based on their distribution. Demographic variables were reclassified on a scale of 1-5 by their percentage quintiles. I then created survey and demographic scores by summing the results of each variable's classification. In order to prevent demographic data from significantly influencing the final Capacity Score, I weighted the summed survey variables at 75% and the summed demographic data was weighted at 25%. Summing the resulting weighted variables produced the final score. To explore the relationship between the final Community Capacity Score and non-white population, I ran an Ordinary Least Squares regression in ArcMap.

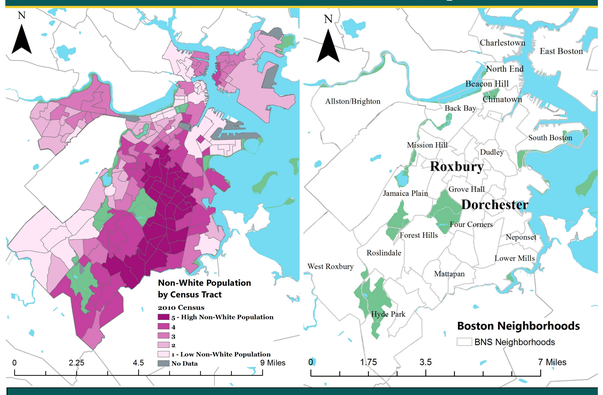
Results

The resulting community capacity scores indicate that there are significant differences among neighborhoods. The neighborhoods of Roxbury and Dorchester, as well as a portion or Mattapan, East Boston, and Allston/Brighton all have census tracts with low Community Capacity Scores. West Roxbury, the Dorchester neighborhood of Pope Hill/Neponset, South Boston, Beacon Hill, and Jamaica Plain all have high Community Capacity Scores. These results are unsurprising when compared to the variable maps below, where those neighborhoods are in the highest classification for all but the number of children in public school. The OLS regression indicates that as Community Capacity Scores are negatively correlated with non-white population. Though the R-squared value is relatively low, the results are statistically significant: as non-white population increases, a neighborhood's community capacity decreases. Therefore, it is possible to conclude that capacity differences in Boston negatively impact communities of color more than other demographics. This is unsurprising, considering that Boston has long had significant wealth, income, and social disparities between its white residents and non-white residents.

Community Capacity Score



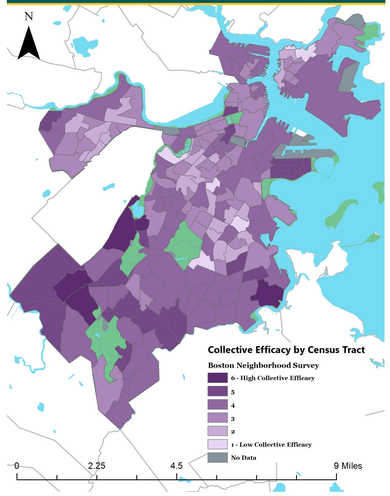
Relation to Non-White Population



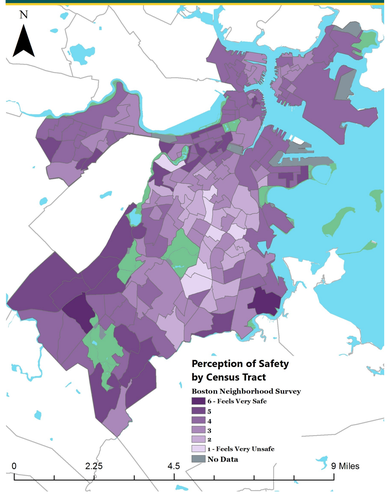
Ordinary Least Squares

Independent Variable	Dependent Variable	Coefficient
Percent Non-White	Community Capacity	-7.819085
Std Error	**Probability**	**R-Squared**
1.507798	0.000001*	0.139415

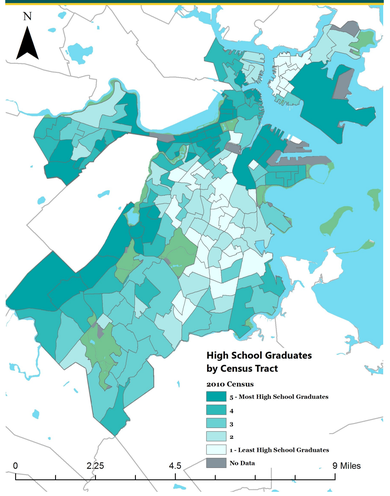
Collective Efficacy



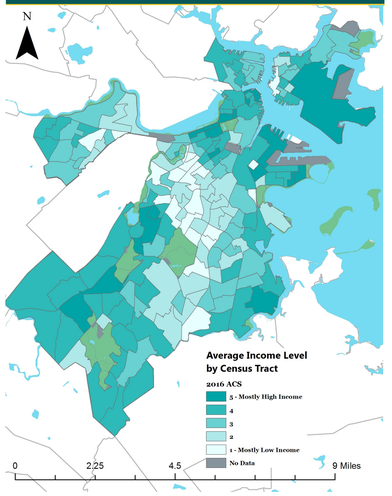
Perceptions of Safety



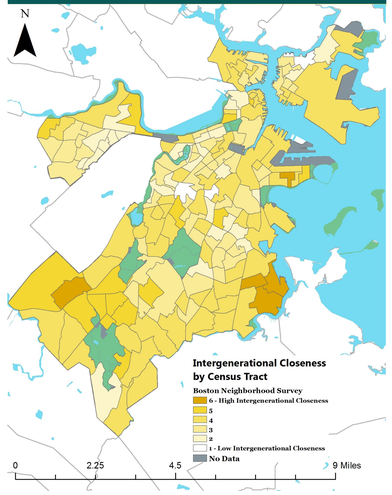
High School Graduates



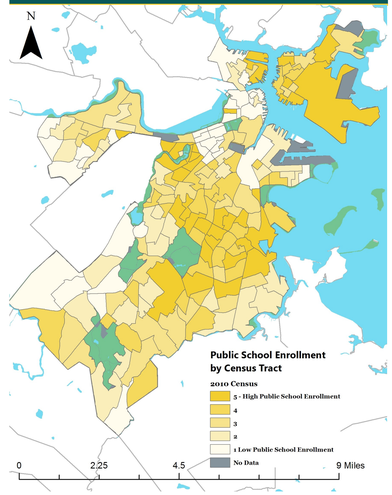
Average Income



Intergenerational Closeness



Children in Public School



Conclusion

Because Community Capacity has largely been written about theoretically, the existing empirical analyses are based on survey data and intensive community asset mapping. Of the few studies that have attempted to identify statistical correlations between participation, community capacity, or sense of community, predictive variables have been largely different across results and geographies. As a result, selection of variables for this project was largely unscientific. This is likely to have affected the results of this project. Further empirical analysis of Boston Neighborhoods, including intensive asset mapping, would help address this limitation. In addition, the standardization of BNS variables and the classification of both BNS and demographic variables may have skewed the data away from significant outliers. Because the Community Capacity Score is cumulative, this is likely to have affected the final score. Regardless, it is unclear whether other studies have attempted to analyze community capacity spatially, so it is understandable that this project experienced such limitation.

Cartographer: Christian Brandt

Projection: NAD 1983, MA. State Plane
Course: UEP 232: Introduction to GIS
Date: 12/20/2017

Tufts UNIVERSITY

Data Sources: Boston Area Research Initiative: Boston Neighborhood Survey, 2010 Census, 2016 American Community Survey

References

Bratt, Rachel G., and Kenneth M. Reardon. 2013. "Beyond the Ladder:: New Ideas About Resident Roles in Contemporary Community Development in the United States." In *Policy, Planning, and People*, edited by Naomi Carmon and Susan S. Fainstein, 356–82. Promoting Justice in Urban Development. University of Pennsylvania Press. http://www.jstor.org/stable/j.ctt3fj517.20.

Bryson, John M., Kathryn S. Quick, Carissa Schively Slotterback, and Barbara C. Crosby. 2013. "Designing Public Participation Processes." *Public Administration Review*, Theory to Practice, 73 (1):23–34.

Chaskin, Robert J. 2001. "Building Community Capacity: A Definitional Framework and Case Studies from a Comprehensive Community Initiative." *Urban Affairs Review* 36 (3):291–323. https://doi.org/10.1177/10780870122184876.

Cooper, Terry L. 1979. "The Hidden Price Tag: Participation Costs and Health Planning." *American Journal of Public Health* 69 (4):368–74. https://doi.org/10.2105/AJPH.69.4.368.

Fung, Archon. 2003. "Survey Article: Recipes for Public Spheres: Eight Institutional Design Choices and Their Consequences." *Journal of Political Philosophy* 11 (3):338–67. https://doi.org/10.1111/1467-9760.00181.

———. 2006. "Varieties of Participation in Complex Governance." *Public Administration Review* 66 (December):66–75. https://doi.org/10.1111/j.1540-6210.2006.00667.x.

Perkins, Douglas D., Barbara B. Brown, and Ralph B. Taylor. 1996. "The Ecology of Empowerment: Predicting Participation in Community Organizations." *Journal of Social Issues* 52 (1):85–110. https://doi.org/10.1111/j.1540-4560.1996.tb01363.x.

Piscopo, Alessandro, Ronald Siebes, and Lynda Hardman. 2017. "Predicting Sense of Community and Participation by Applying Machine Learning to Open Government Data." *Policy & Internet* 9 (1):55–75. https://doi.org/10.1002/poi3.145.