Teaching spatial thinking in nonprofit studies: A case study

## Declarations:

Funding: No funding was received to assist with the preparation of this manuscript.

Conflicts of interest: The author has no relevant financial or non-financial interests to disclose.

## Keywords:

Spatial, Programming, Open data, Nonprofit education

## Possible Outlets:

Nonprofit policy forum

Word count: 2000-4000

# Abstract

Learning from data is a valuable skill for nonprofit professionals and researchers. Most data have a spatial component, and data relevant to the nonprofit sector is no exception. Understanding spatial aspects of the nonprofit sector may provide valuable to social entrepreneurs guiding location choices, as well as information for funders to facilitate resource allocation. As a result, spatial thinking is quickly becoming an essential component of critical thinking and decision making among nonprofit professionals. This case study presents a local nonprofit data set, along with code and examples, to assist the instructors teaching spatial aspects of the nonprofit sector, including spatial data analysis.

# 1 Introduction

Data are an increasingly important component of nonprofit operations, as managers and other organizational members regularly employ a range of data in an effort to evaluate or improve programs, communicate with stakeholders and donors, and satisfy accountability concerns (Mayer & Fischer, 2022). Several programs focused on nonprofit management have taken note of this emphasis, a search of existing course offerings in the Seton Hall University database (Mirabella, 2022) revealed 10 courses at 10 different universities focused on working with data. These included titles such as “data analytics for public and nonprofit managers,” “data analysis for social impact,” “data analytics/Metric in the nonprofit sector,” and “nonprofit data-based decision making.” Importantly, data increasingly have a spatial component which can provide crucial context and assist in decision making (Huang & Wang, 2020). Yet, using the same database, a search for “spatial,” “space,” and “geography” returned no results. Nonprofit scholars have called for increased attention to spatial aspects of the nonprofit sector (MacIndoe & Oakley, 2022; Never, 2011) as well as in organizational studies more broadly (van Wissen, 2004). To assist with teaching of spatial aspects of the nonprofit sector, this brief article presents a case study of Cuyahoga County Ohio, including data and code, intended to assist with teaching about nonprofit geography.

# 2 The Importance of Spatial Thinking

Nonprofit organizations often provide benefits to those nearby. These benefits may include services associated with the mission of the organization, or auxiliary benefits, such as employment, improved communication and goal alignment, or good will (Haslam et al., 2019; Marwell, 2004; McQuarrie & Marwell, 2009). The local benefits provided by nonprofit organizations has resulted a pragmatic emphasis on the spatial arrangement of nonprofit organizations (Joassart-Marcelli & Wolch, 2003; Yan et al., 2014) and expenses (Never, 2016). However, the spatial distribution of nonprofits is of theoretical interest as well, providing opportunities to test a range of theories (Carroll & Hannan, 2000). MacIndoe & Oakley (2022) suggest spatial dynamics of the nonprofit sector remain understudied and provide a range of questions that require spatial thinking and spatial data analysis.

Outside of policy makers and researchers, incorporating data into decision making and planning processes are increasingly incorporated into management activities in nonprofit organizations (Mayer & Fischer, 2022). Never (2011) argued that maps are an essential tool for understanding the nonprofit sector and can help with identifying service gaps. Nonprofit professionals, including foundations, have taken note of these needs and over the past decade several initiatives have responded to the need for spatial integrating spatial information (see Roudebush et al., 2013). For example, in 2010 the Urban Institute’s National Center for Charitable Statistics procured a grant to create a “Community Data Platform,” a data tool with the expressed purpose of facilitating the use of local information, with a spatial dimension (e.g., through geographic information systems, GIS), by nonprofit organizations. Brudney et al. (2016) interviewed key nonprofit stakeholders using this GIS platform and found the organizations used it to understand their community, seek collaboration, support programming, and obtain funding. Although highly valued by nonprofits, these initiatives often fail to persist as the implementation may lack community engagement or the nonprofits may lack the technical ability or financing to fully embrace the technology (Brudney et al., 2016; Mayer & Fischer, 2022).

Spatial information has the potential to provide massive value to nonprofit professionals, including managers, they may also alter the conclusions for policy makers, philanthropists, and managers (MacIndoe & Oakley, 2022; Mayer, 2022; Never, 2016). Yet our search revealed few case studies and materials available for instructors in nonprofit studies to illustrate the importance of spatial thinking. In the next section, this paper presents a brief case study, with open data and code, intended to be used to illustrate the advantages of entering a spatial dimension into nonprofit education.

# 3 Case Study

The case study presented here covers the nonprofit sector of Cuyahoga County Ohio (USA) in 2016. Cuyahoga County is a relatively large county in Northeast Ohio, covering 1,246 square miles with a population of just over 1.2 million. The nonprofit sector of Cuyahoga County is interesting as well, as it contains the city of Cleveland. Cleveland has a uniquely rich philanthropic history, as it is home to some of the oldest community foundations federated agencies, which has previously made it of interest to scholars (Roudebush & Brudney, 2012). This case study uses the census tract as the unit of analysis, a widely used measure of a neighborhood, which maps onto theories related to the local benefits of nonprofits and is part of a broader research agenda investigating the ecology of Cuyahoga County’s nonprofit sector. Spatial dynamics may be at play in a range of situations, however accounting for them becomes more important as sampling units get smaller or more clustered (Dale, 2014). For this reason, the use of census tract level information, with its theoretical and pragmatic implications, provides an impetus for exploring spatial dynamics.

# 6 References

Brudney, J. L., Russell, A., & Fischer, R. L. (2016). Using data to build community: Exploring one model of geographically specific data use in the non-profit sector. *Community Development Journal*, cdj;bsw008v1. https://doi.org/10.1093/cdj/bsw008

Carroll, G., & Hannan, M. T. (2000). *The demography of corporations and industries*. Princeton University Press.

Dale, M. R. T. (2014). *Spatial Analysis: A Guide For Ecologists* (2nd edition). Cambridge University Press.

Haslam, A., Nesbit, R., & Christensen, R. K. (2019). The Dynamic Impact of Nonprofit Organizations: Are Health-Related Nonprofit Organizations Associated with Improvements in Obesity at the Community Level? *Nonprofit Policy Forum*, *10*(3). https://doi.org/10.1515/npf-2018-0040

Huang, B., & Wang, J. (2020). Big spatial data for urban and environmental sustainability. *Geo-Spatial Information Science*, *23*(2), 125–140. https://doi.org/10.1080/10095020.2020.1754138

Joassart-Marcelli, P., & Wolch, J. R. (2003). The Intrametropolitan Geography of Poverty and the Nonprofit Sector in Southern California. *Nonprofit and Voluntary Sector Quarterly*, *32*(1), 70–96. https://doi.org/10.1177/0899764002250007

MacIndoe, H., & Oakley, D. (2022). Encouraging a Spatial Perspective in Third Sector Studies: Exploratory Spatial Data Analysis and Spatial Regression Analysis. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*. https://doi.org/10.1007/s11266-022-00459-6

Marwell, N. P. (2004). Privatizing the Welfare State: Nonprofit Community-Based Organizations as Political Actors. *American Sociological Review*, *69*(2), 265–291.

Mayer, D. J. (2022). Understanding Location and Density; A Spatial Analysis of Cuyahoga County Ohio’s Nonprofit Sector. *Submitted for Publication*.

Mayer, D. J., & Fischer, R. L. (2022). Exploring data use in nonprofit organizations. *Submitted for Publication*.

McQuarrie, M., & Marwell, N. P. (2009). The Missing Organizational Dimension in Urban Sociology. *City & Community*, *8*(3), 247–268. https://doi.org/10.1111/j.1540-6040.2009.01288.x

Mirabella, R. (2022). *Nonprofit Management Education; Current Offerings in University-Based Programs*. Seton Hall University. https://academic.shu.edu/npo/

Never, B. (2011). The Case for Better Maps of Social Service Provision: Using the Holy Cross Dispute to Illustrate More Effective Mapping. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, *22*(1), 174–188. https://doi.org/10.1007/s11266-010-9123-y

Never, B. (2016). Place matters: The spatial effects of human service expenditures. *Nonprofit Policy Forum*, *7*(3), 20. https://doi.org/DOI 10.1515/npf-2015-0025

Roudebush, M. M., & Brudney, J. L. (2012). Making Policy Without Parameters: Obtaining Data on the Nonprofit Sector in a Local Community. *Nonprofit Policy Forum*, *3*(1). https://doi.org/10.1515/2154-3348.1044

Roudebush, M. M., Fischer, R. L., & Brudney, J. L. (2013). Adding assets to need; Creating a community data landscape. *Journal for Nonprofit Management*, *1*(16), 14.

van Wissen, L. (2004). A Spatial Interpretation of the Density Dependence Model in Industrial Demography. *Small Business Economics*, *22*(3/4), 253–264. https://doi.org/10.1023/B:SBEJ.0000022232.12761.a9

Yan, J., Guo, C., & Paarlberg, L. E. (2014). Are Nonprofit Antipoverty Organizations Located Where They Are Needed? A Spatial Analysis of the Greater Hartford Region. *The American Statistician*, *68*(4), 243–252. https://doi.org/10.1080/00031305.2014.955211

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |
| --- |
| Figure 1.  Spatial distribution of nonprofits |
| A picture containing map  Description automatically generated |
| Fig 1. |

|  |
| --- |
|  |
| A picture containing map  Description automatically generated |
|  |