



Community and Economic Development in North Carolina and Beyond Blog: Statistics on Your Corner: Using Data Better in CED

By CED Program Interns & Students

Article: <https://ced.sog.unc.edu/statistics-on-your-corner-regression-analysis-in-ced/>

This entry was posted on August 11, 2016 and is filed under Community Development



In previous posts the CED blog explored the many publicly available sources for local data that can inform municipal staff, real estate professionals, and policy makers. But how can local governments make use this data, and how can they know that the conclusions reached are valid? Often municipal governments accumulate a trove of demographic, socio-economic, and parcel data that together are daunting for local governments to use. Statistical analysis is one option that local governments may pursue to effectively use this data to drive policy decisions and monitor the success of programs and the state of the community.

If your eyes glazed over in the last sentence and you feel your blood pressure rise with the sight of the word *statistics*, read on! Better use of data in community and economic development may be simpler than you think.

The popular fear of statistics is understandable. Few visible real world applications, at times confounding software, a distrust of aloof academia, and memories of classroom frustrations can all contribute to their absence in municipal policy analysis. Today's ubiquity of data and the wide availability of statistical tools however mean that professionals often leave powerful options of analysis on the table.

How are statistics used in CED?

Two common statistical tools, correlation and regression analysis, describe the relationship between two (bivariate) or more (multivariate) factors. Once a relationship is identified as highly unlikely to be found due to random chance, it is called statistically significant. These statistically significant factors can then be used in a variety of ways to inform and guide public policy or decision making. While there are many types of analysis, here are examples of both correlation and regression used in local community and economic development:

- *Targeting Revitalization in High Point, NC*: Looking to combine census, city government, and parcel data in a succinct fashion the Center for Housing and Community Studies used bivariate correlation to test how neighborhoods' median home value varied with each of seventeen individual variables. Results confirmed their thinking that factors such as education and tax delinquency were statistically significantly correlated—meaning evidence that a mutual relationship exists—with median home values, while challenging thinking that residents' age or mobility have a strong relationship with home values. With statistically significant factors included in this analysis, neighborhoods at risk of residential market instability could be confidently identified and policy



intervention recommended to where the data suggested it was needed most.

- *Predicting values for development.* Real estate professionals often use comparative market analysis to determine property valuation, choosing a few properties that are similar to the property in question and adjusting using standards and professional know-how. Hedonic regression, which models market value as a product of each tangible (square feet, a pool) and intangible (next to train tracts, in a great school district) factor measured, provides another method. Hedonic regression can be used to validate comparative market findings or develop an accurate model that simultaneously accounts for many factors. This method can also be used by municipalities to predict values of forthcoming development and anticipate the impact of public investments on property values.

Resources for getting started with statistics

Whether you are new to statistical analysis or want to brush up your skills for use in CED there are many publically available resources to get started in manipulating data, using open source statistical software, and using statistics to amplify impact and better communities. Just a few include:

- UCLA's Institute for Digital Research and Education: A resource for getting started using a variety of statistical software platforms.
- GIS Analysis: the basics of including and visualizing statistics in GIS data
- UNC's Odum Institute: view video courses on statistical software

A Word of Caution

Statistical analysis is only one tool available to local community and economic development professionals to better understand and leverage their work. Over reliance on or careless use of statistics to explain complex phenomenon is all too easy, and so this technique should be used in conjunction with conventional methods. Moreover, public guidance and popular perception can be a stronger influence in crafting policy than statistical significance. In any situation however, statistics can be used to point the public process in the direction of its policy goals with sound data and valid conclusions.

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