FAIRFAX COUNTY COMMUNITYSCAPE: ECONOMIC VULNERABILITY

Introduction

Fairfax County and the Inova Health System seek to better understand the context in which their citizens and patients live, learn, work, and play. Both stakeholders would benefit from a Fairfax CommunityScape, a quantitative characterization of the county’s social determinants of health and wealth.

Objective: Create an economic vulnerability index to identify populations at risk, promote informed policy in Fairfax County, and establish a baseline for measuring change.

Data sources

Demographics
Financial conditions
Employment status
Transportation

Address

Domicile locations
Housing conditions

Measures

According to the literature, e.g., educational attainment, English proficiency, and access to medical care, are proxies for economic vulnerability. This information informed our variable selection.

We combined American Community Survey (ACS) data with Fairfax housing stock data using a population synthesis technique to obtain ACS data at three geographic levels (census tract, supervisor district, high school attendance zone).

We created variables (e.g., proportions, medians as appropriate) at each geography of interest.

Composite Index Construction

Our final model uses a varimax rotation with the principal factor solution method.

Using the loadings from the model, we computed the economic vulnerability index using the following formula:

\[ F = X^s \cdot F^T \cdot w. \]

Chronbach’s alpha = 0.91

Regions with high levels of economic vulnerability:

Census tracts: Dulles and Arlington adjacent
High school districts: Annandale, Justice, Mt. Vernon
Supervisor districts: Mason, Lee

Results

Economic Vulnerability Index by Census Tract

Economic Vulnerability Index by High School Attendance Area

Economic Vulnerability Index by Supervisor District

Future Directions

• Further collaboration with Inova and Fairfax County: Place citizens and patients in context.
• Index refinement: Develop stakeholder weights and compare results.
• Index validation: How can we ensure our CommunityScape reflects reality? Does the index predict citizen and patient outcomes?

Footnotes