

ANALYZING THE ECONOMIC IMPACT AND SOCIAL INTEGRATION OF REFUGEES IN ROANOKE, VIRGINIA

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Project Overview

Partners: School for Public and International Affairs (SPIA), Global Forum on Urban and Regional Resilience, and other international groups at Virginia Tech
Purpose: Expand capacity at Virginia Tech for understanding refugees and answer the following two questions:

- 1) How can we measure the **integration** of refugees into host communities?
- 2) How can we measure the **economic impact** of refugees on host communities?

Characterizing Roanoke's Refugee Population

Who?

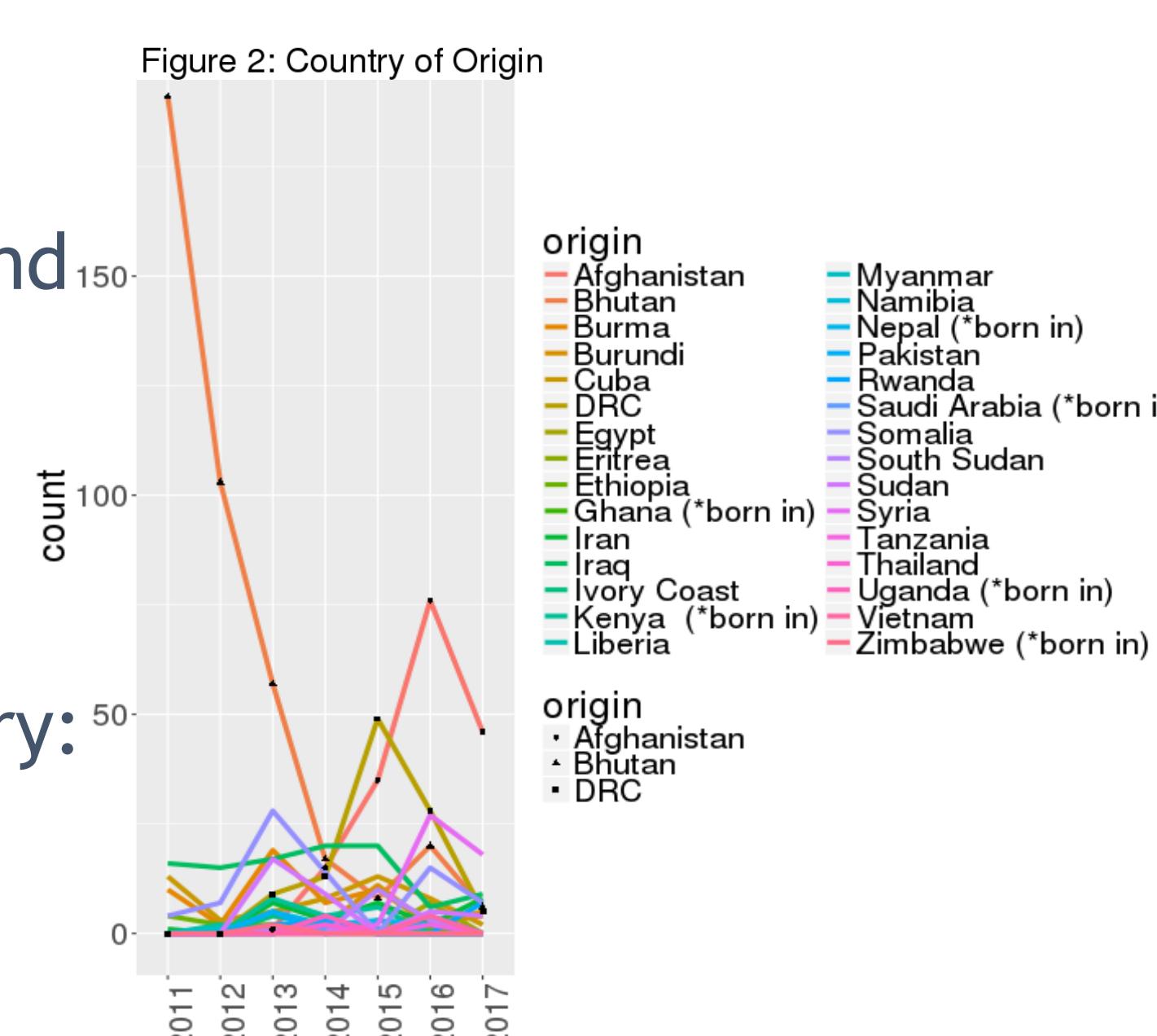
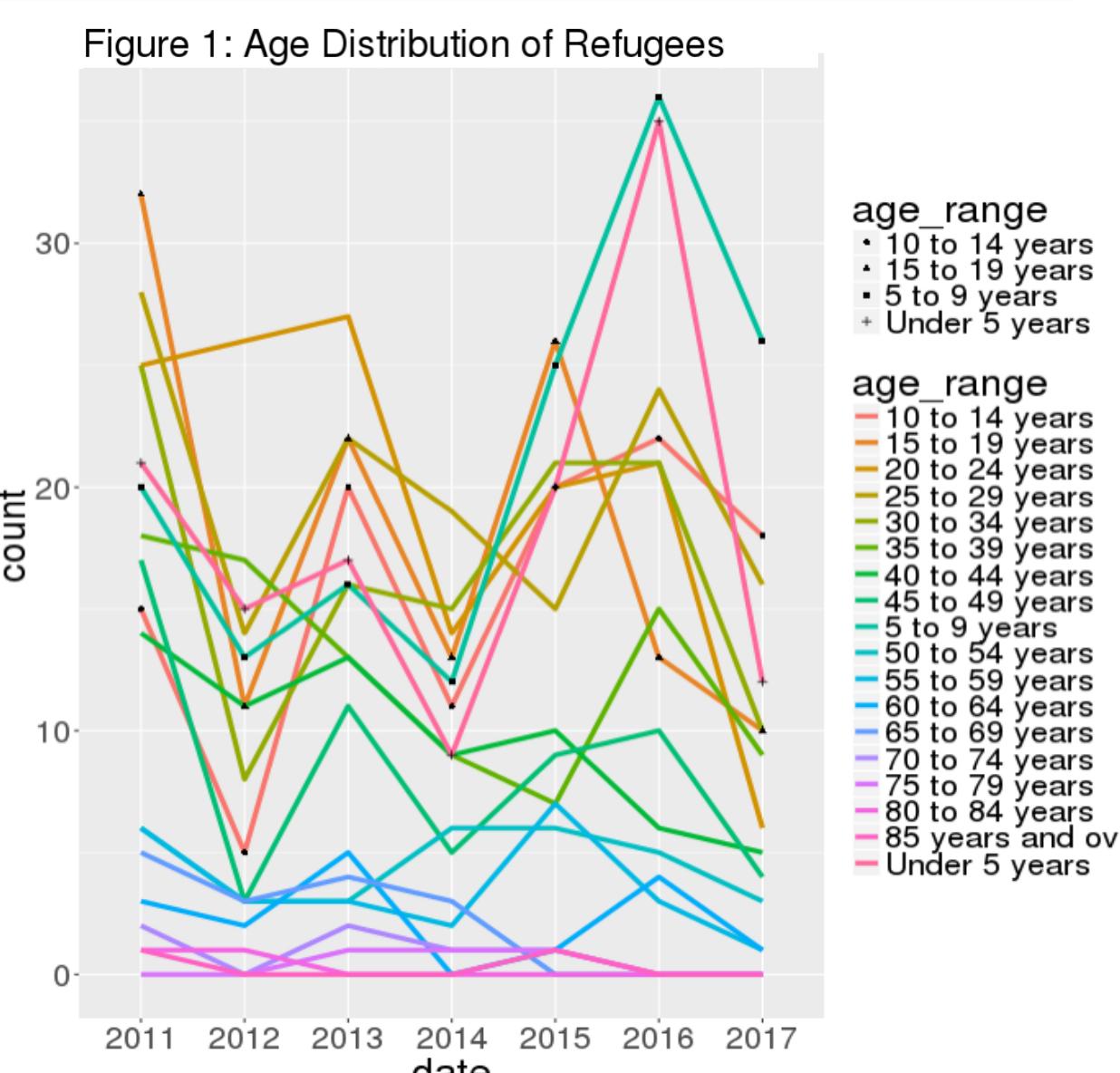
Goal: Understand social and economic demographics of refugees moving to Roanoke over time

Data Sources: Virginia Department of Health (VDH), Virginia Newcomer Information System (VNIS)

Findings:

Virginia Department of Health

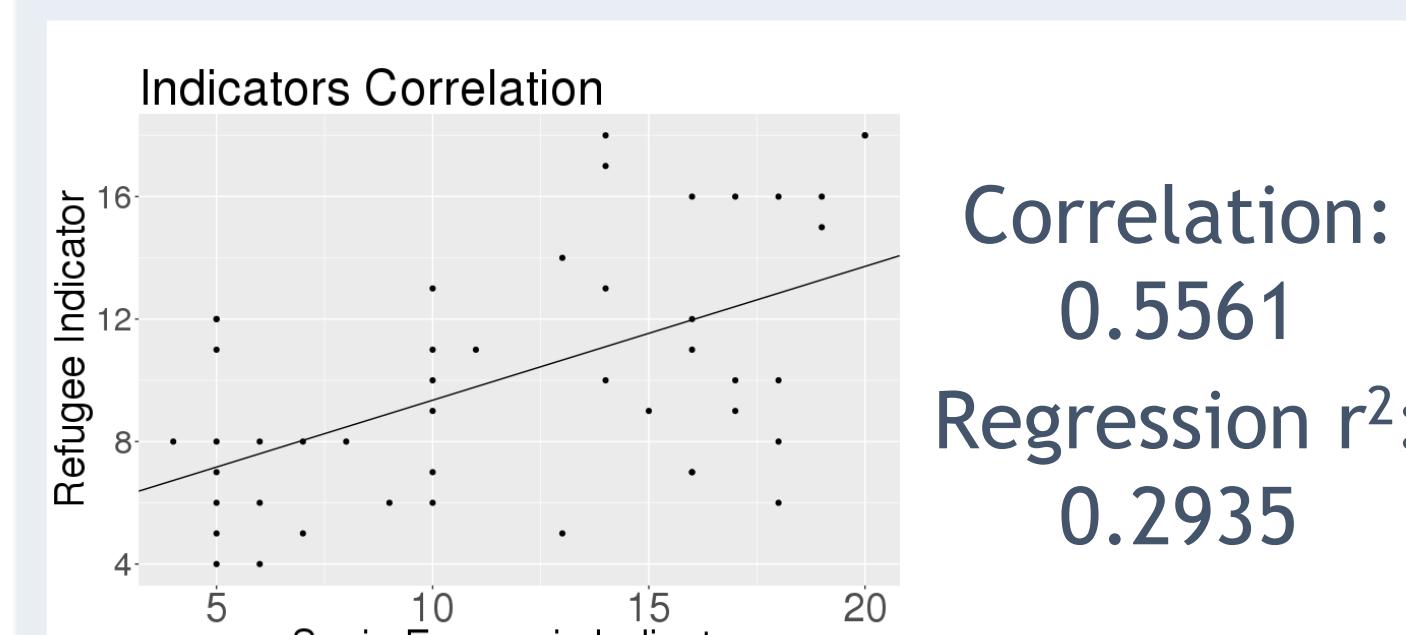
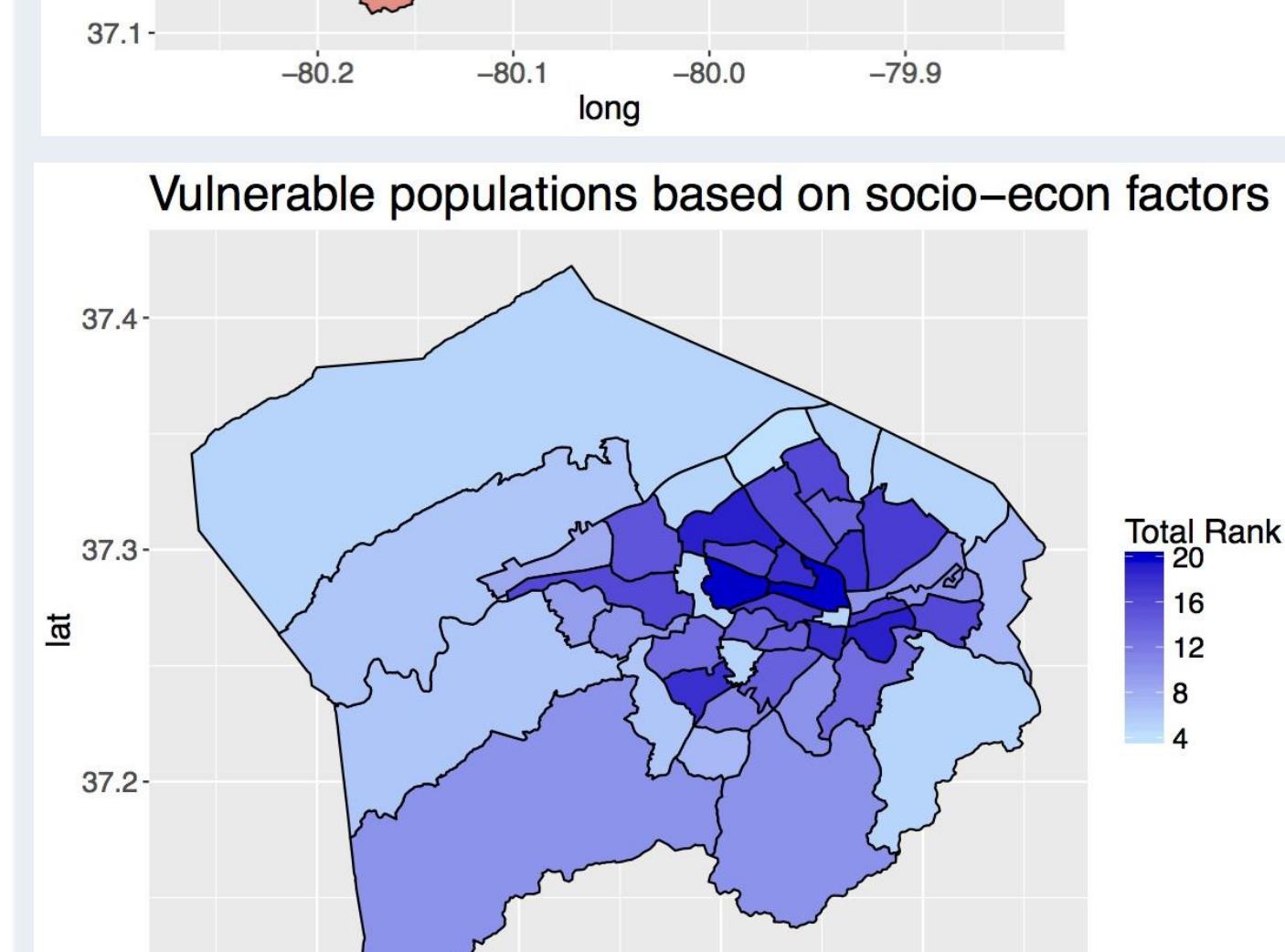
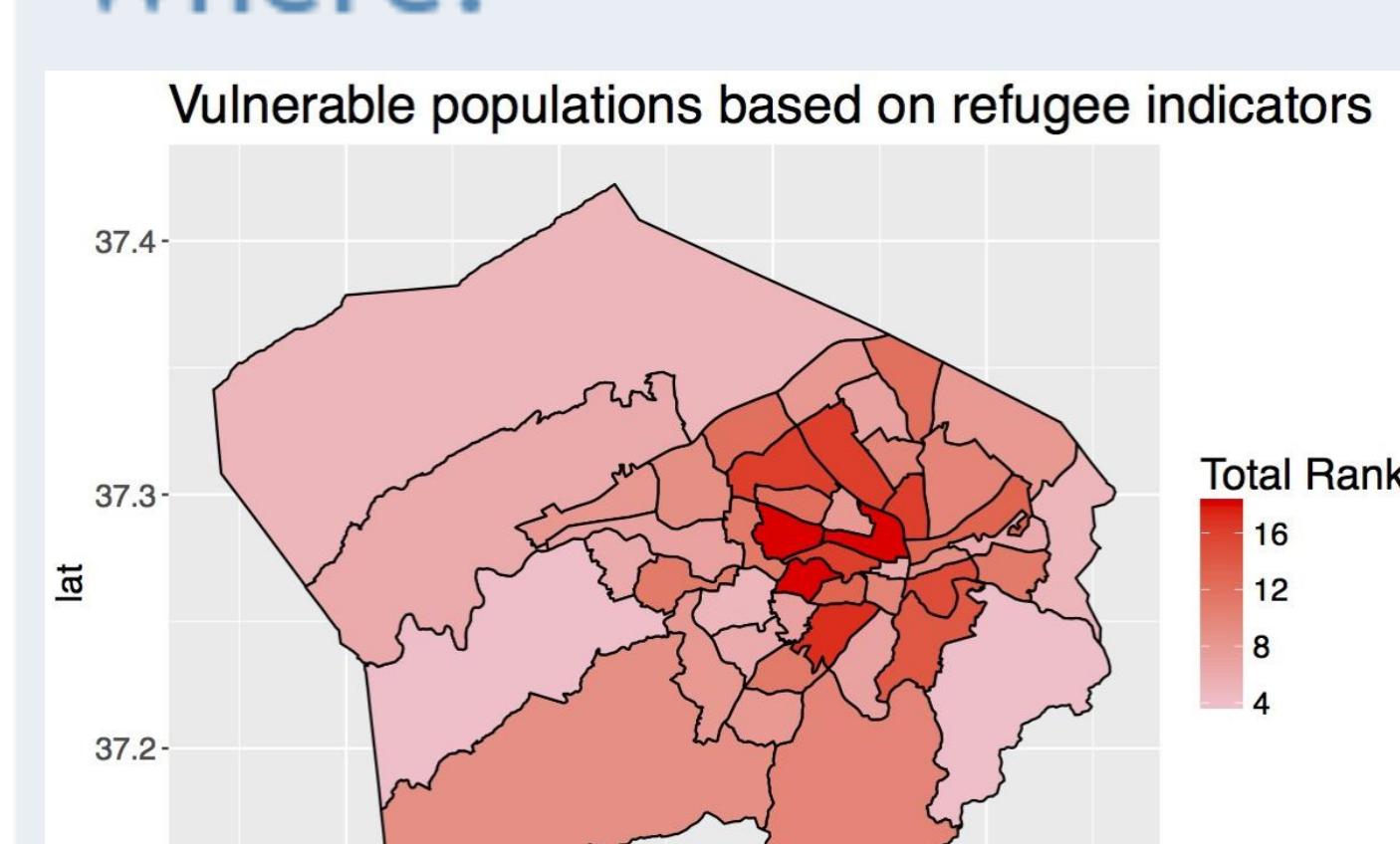
- Most refugees are young (**Figure 1**)
- Most refugees are from Afghanistan, Democratic Republic of the Congo (DRC), and Bhutan, with recent increases from Syria (**Figure 2**)



Virginia Newcomer Information System

- Entering employment within 90 days of entry: 51% (state average: 48%)
- Employed full time: 73% (state average: 68%)

Where?



Goal: Use publicly available U.S. Census and Google API data to create demographic and socio-economic indices to estimate neighborhoods in Roanoke most likely to contain larger proportions of refugees

Refugee Index: (top-left)

Variables: number of bus stops, individuals who are non-citizen and foreign born, are from countries that the US accepts refugees from, have little to no English proficiency

Socio-economic Index: (middle-left)

Variables: households that received food stamps, have no vehicle, have income below poverty line, spend more than 50% of income on rent/mortgage

Challenges: (bottom-left)

While both visually show areas of potential interest, the two indices are not well correlated.

Finding: There are some specific Census Tracts that we can suggest that with some probability have higher refugee counts than others.

Social Integration

Goal: Assess the level of social integration and community acceptance of refugees in Roanoke from local news Facebook Pages

Sources: The Roanoke Times, WSL 10, WFXR News
12 articles, 3,329 comments

Key Events:

- November, 2015: Mayor David Bowers requested that the City of Roanoke suspend assistance to Syrian refugees
- First half of 2017: Coverage of recent presidential policies on immigration

Challenges: Categorizing these comments into positive/negative was not effective due to the wide variety of sentiments present (**Figure 3**)

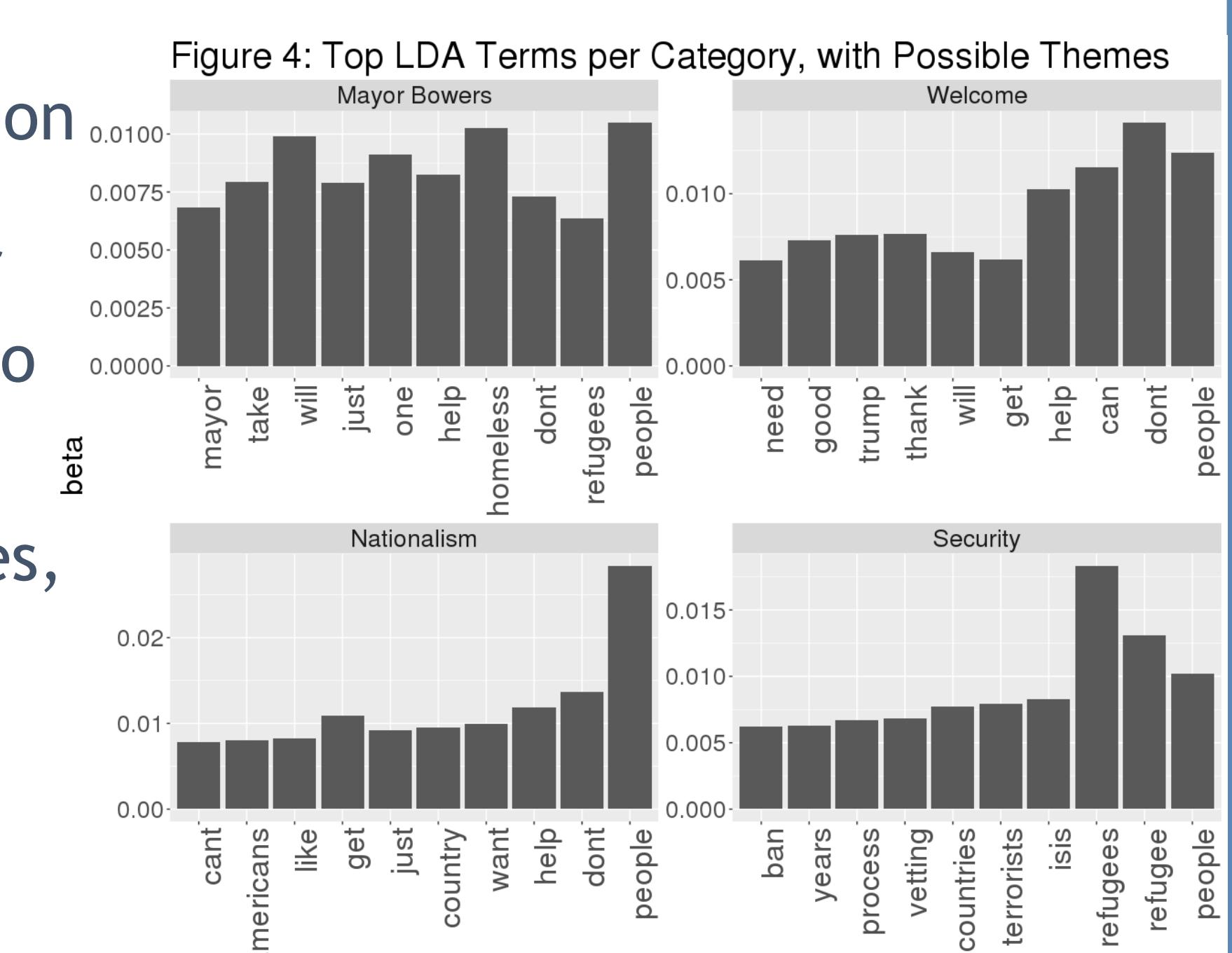


"Mayor Bowers was thinking of the welfare and security of all Roanoker's...he is also concerned with what would happen if the group of refugees were possibly infiltrated by a terrorist that, like the Paris attacks, would only be hours away from the Nation's Capitol and seemingly in a nice quiet place where havoc and widespread destruction could be planned."

Process: Used Latent Dirichlet Allocation (LDA), a generative, unsupervised statistical model that allows a set of text observations to be clustered into groups

Findings: Chose four themed categories, with the top words per categories shown (**Figure 4**)

- Possible themes: Mayor Bowers, welcome, nationalism, security



Economic Impact

Goal: Calculate the economic benefit/cost of refugee populations

Preliminary Step: Examine the economic conditions of the Census Tracts that refugees are most likely to reside in

Figure 5: Economic Characteristics of Refugee Communities Compared to Roanoke as a whole

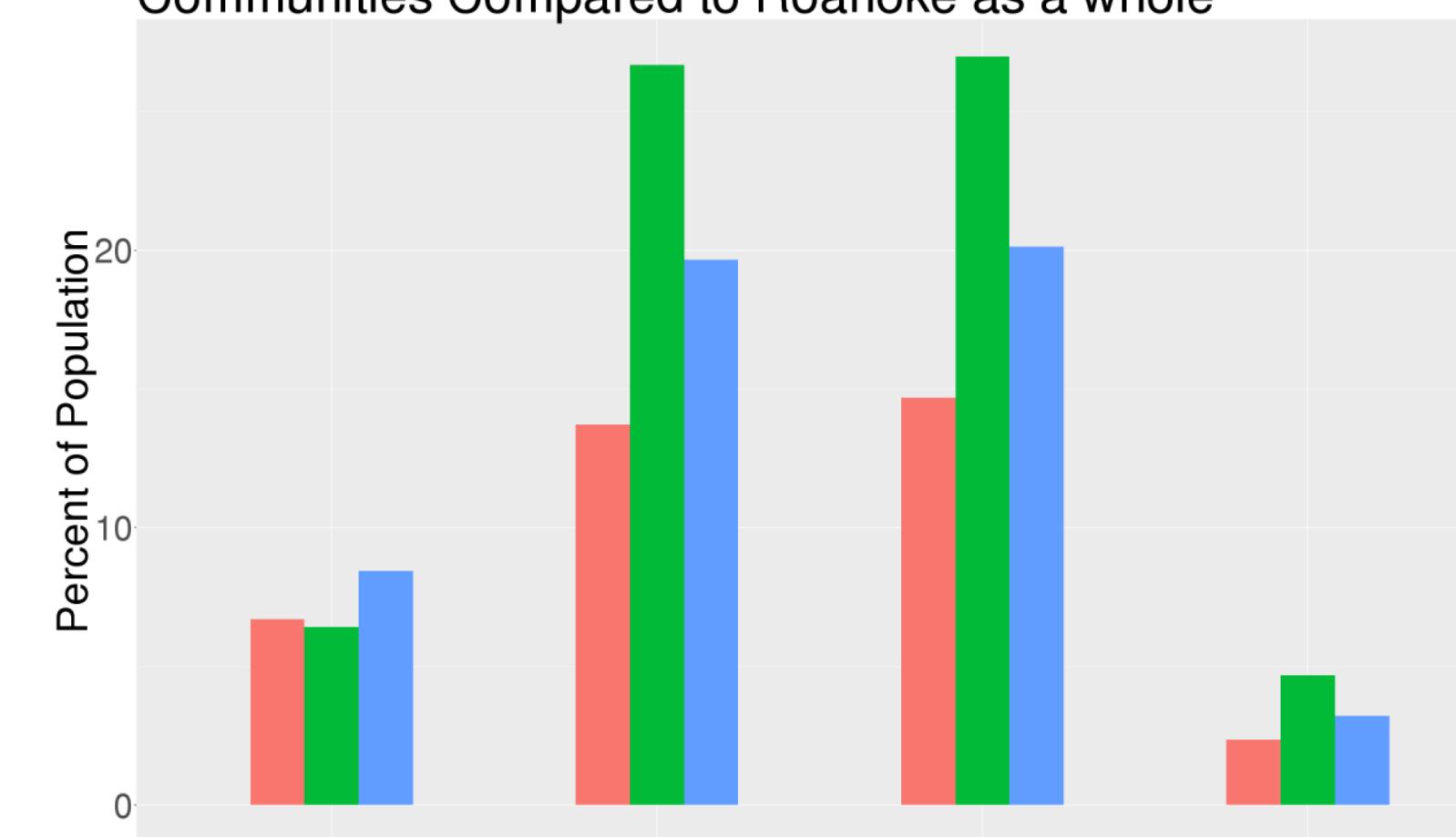
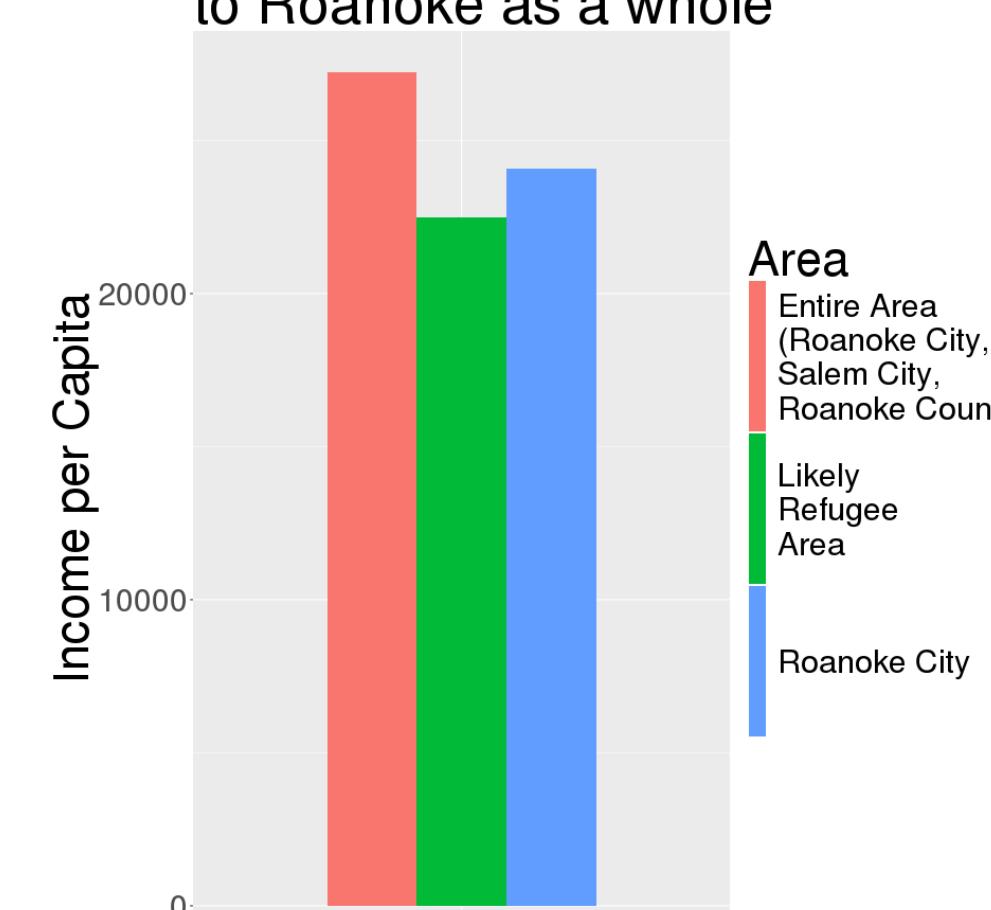


Figure 6: Income per Capita of Refugee Communities Compared to Roanoke as a whole



Next Steps

- Add or remove variables from Refugee and Socioeconomic Indices
- Create an Index of Economic Status and compare it to Roanoke averages
- Analyze the text of the articles and comments
- Use Amazon Mechanical Turk to validate sentiment analysis findings
- Continue to develop and refine economic findings using additional data sources and methods