

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%)

Figure 1: Age Distribution of Refugees

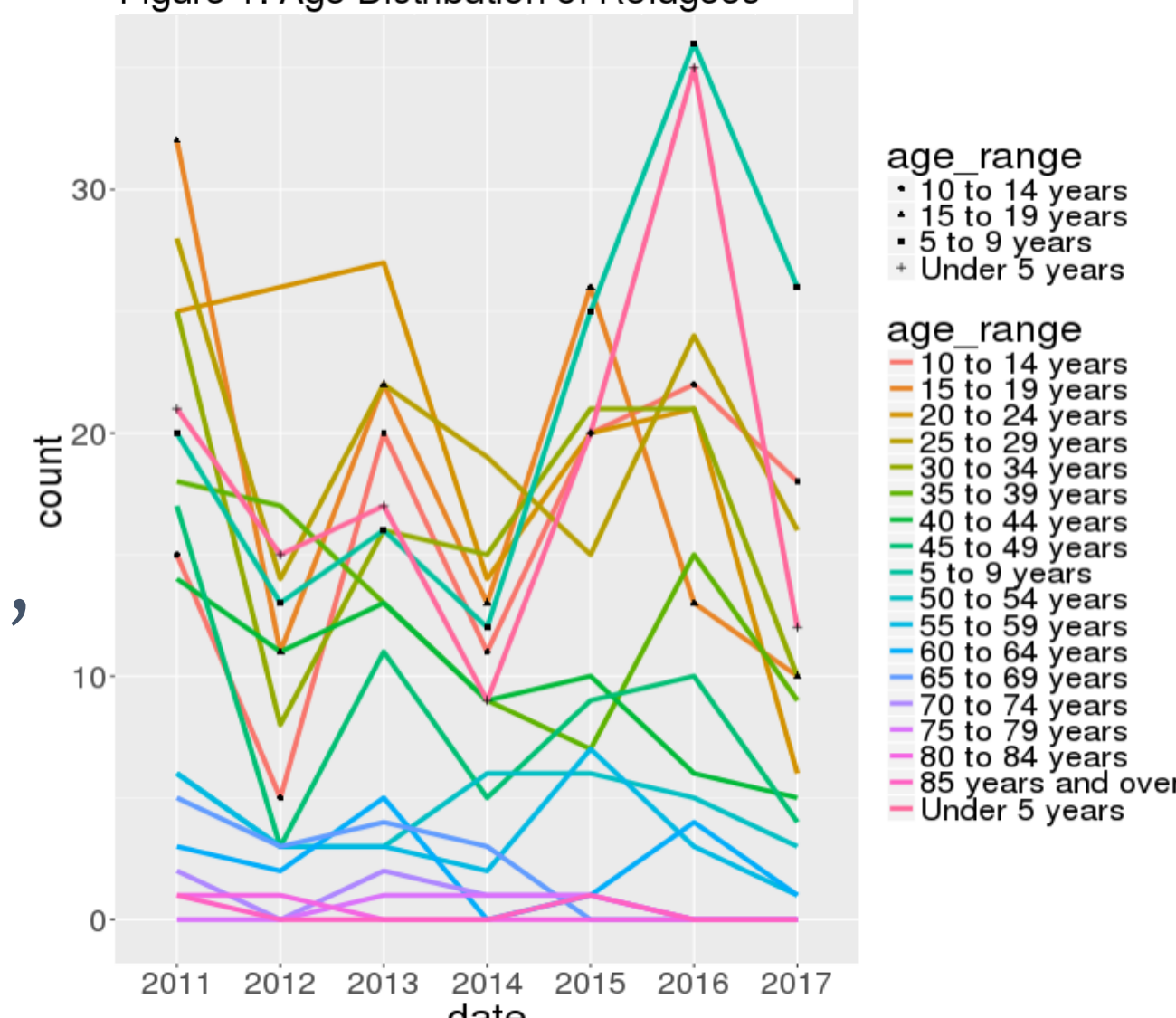
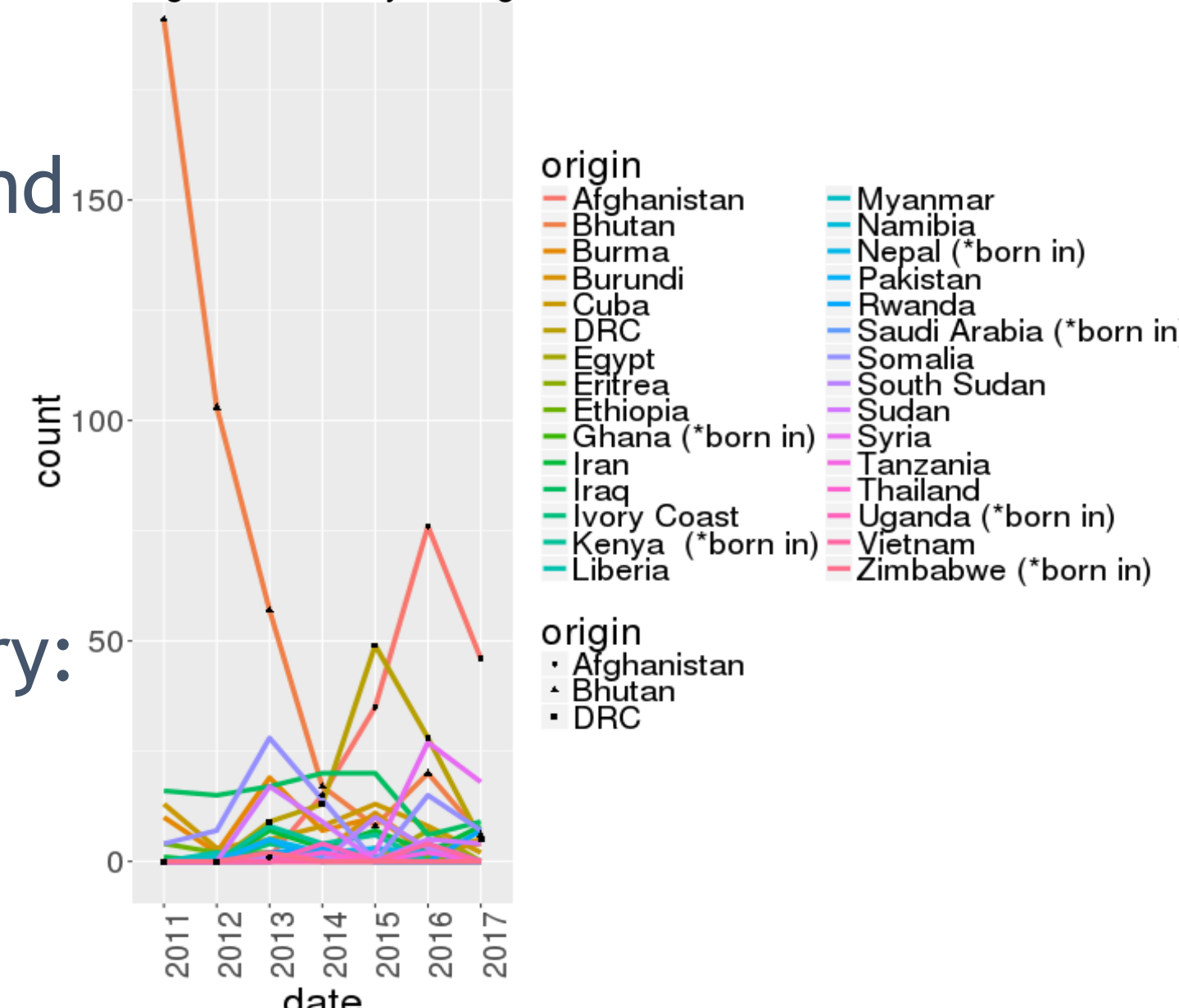
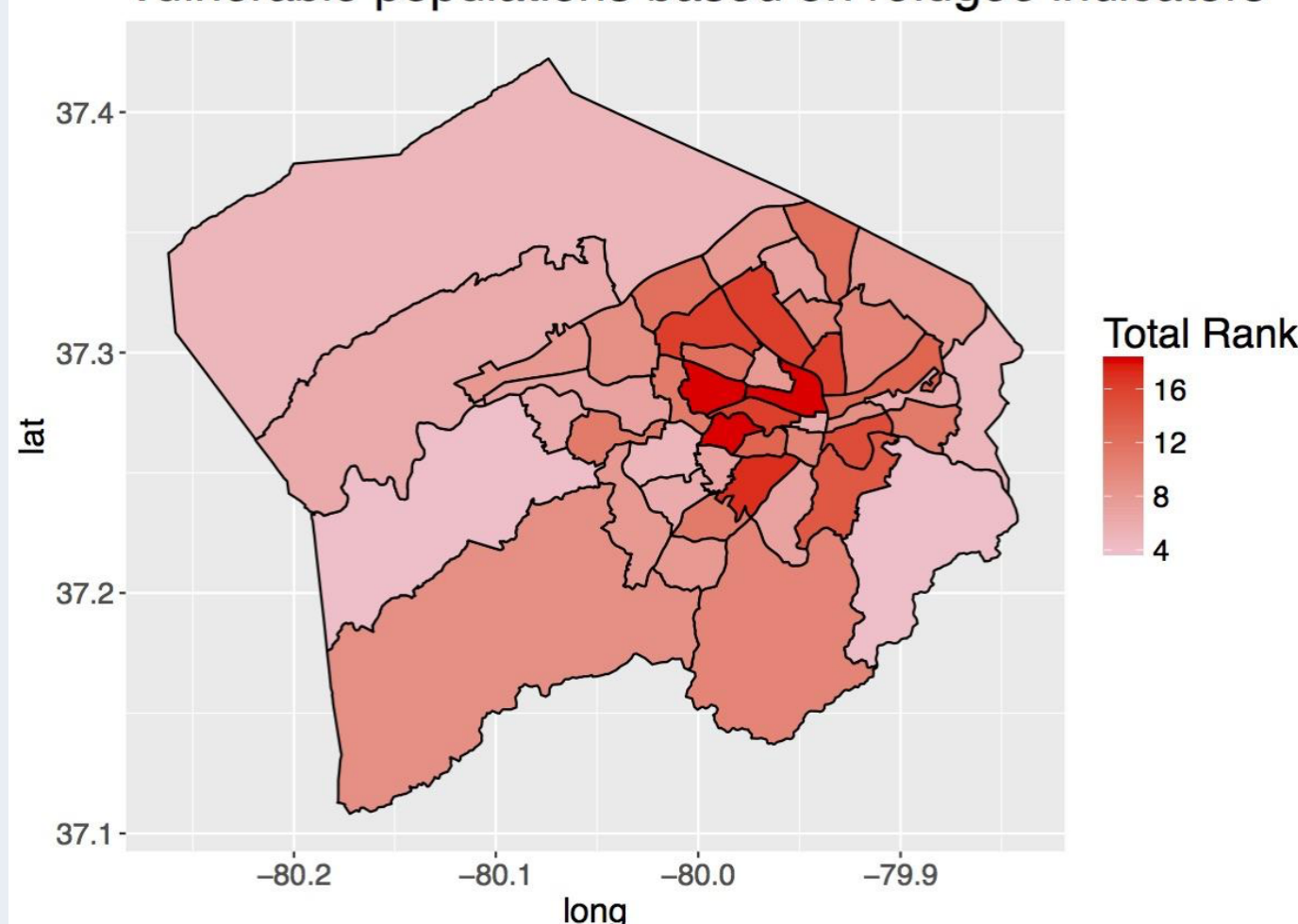


Figure 2: Country of Origin

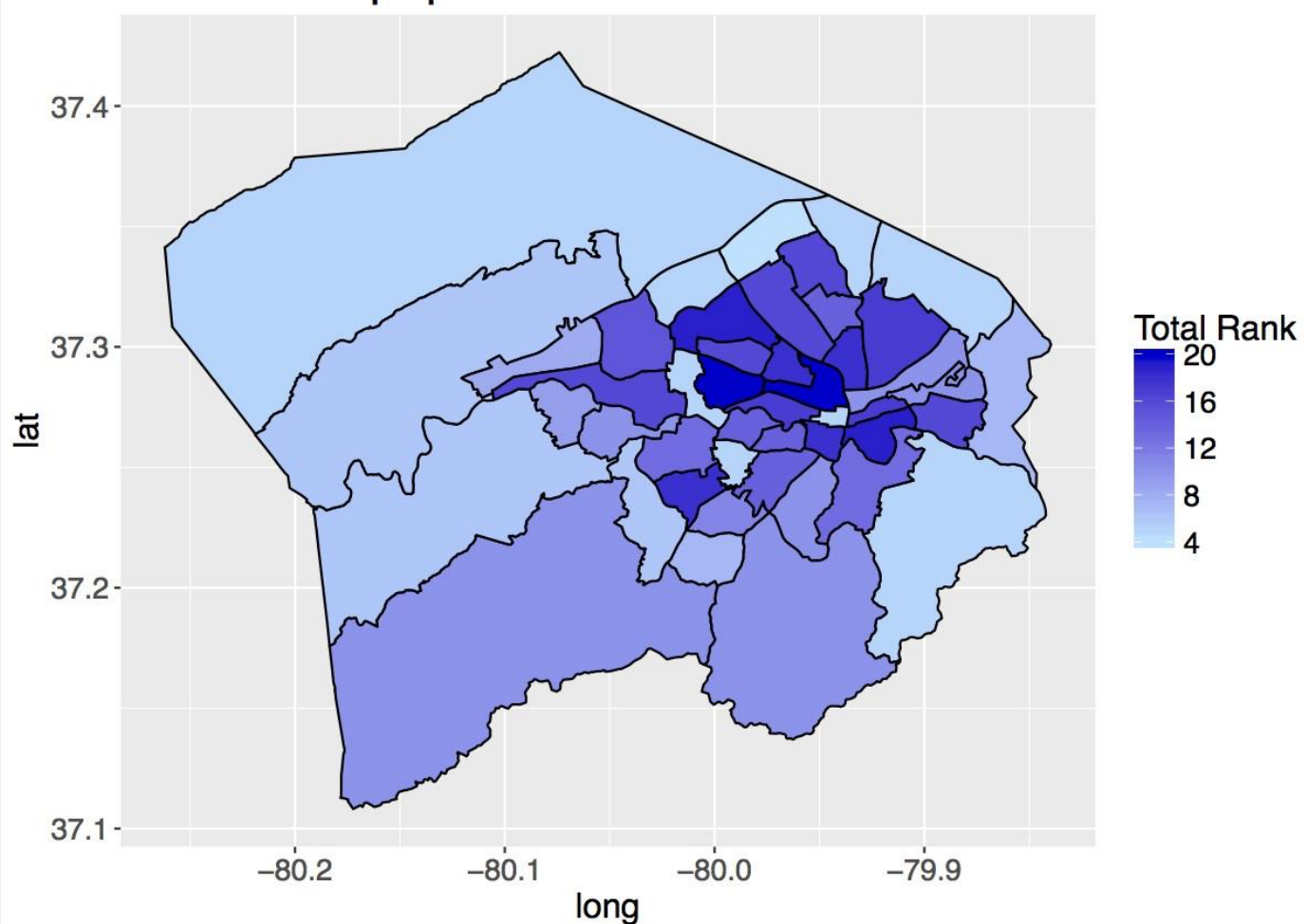


Where?

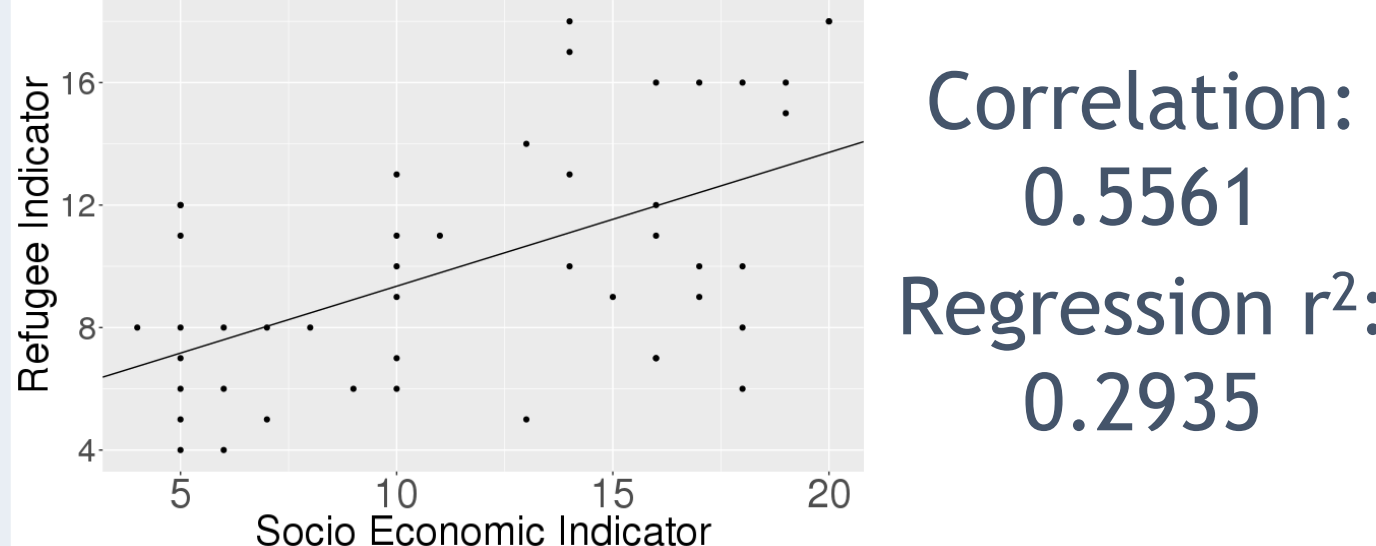
Vulnerable populations based on refugee indicators



Vulnerable populations based on socio-econ factors



Indicators Correlation



Goal: Use publically 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, WSLs 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

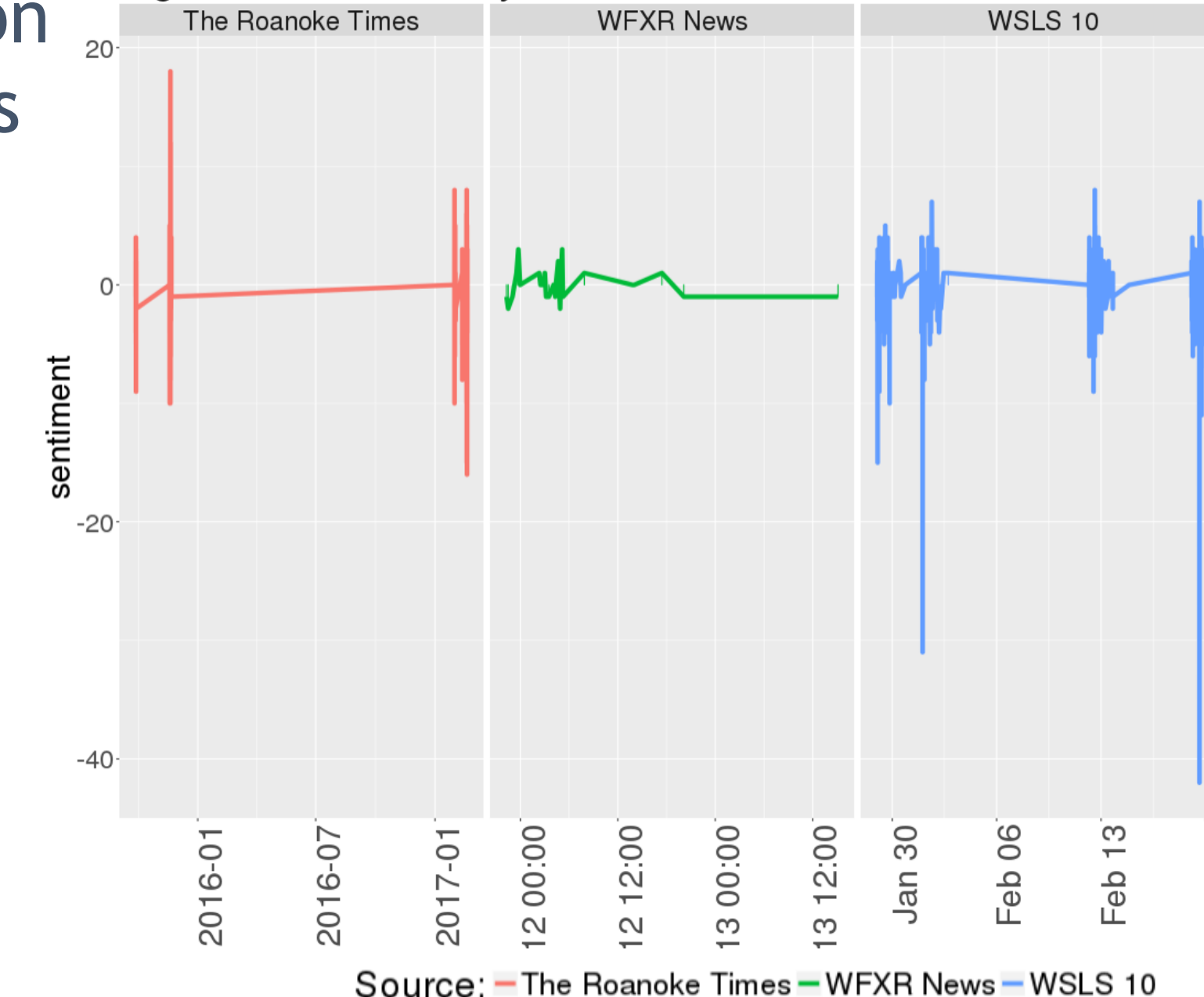
Challenges: Categorizing these comments into positive/negative was not effective due to the wide variety of sentiments present (**Figure 3**)

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**)

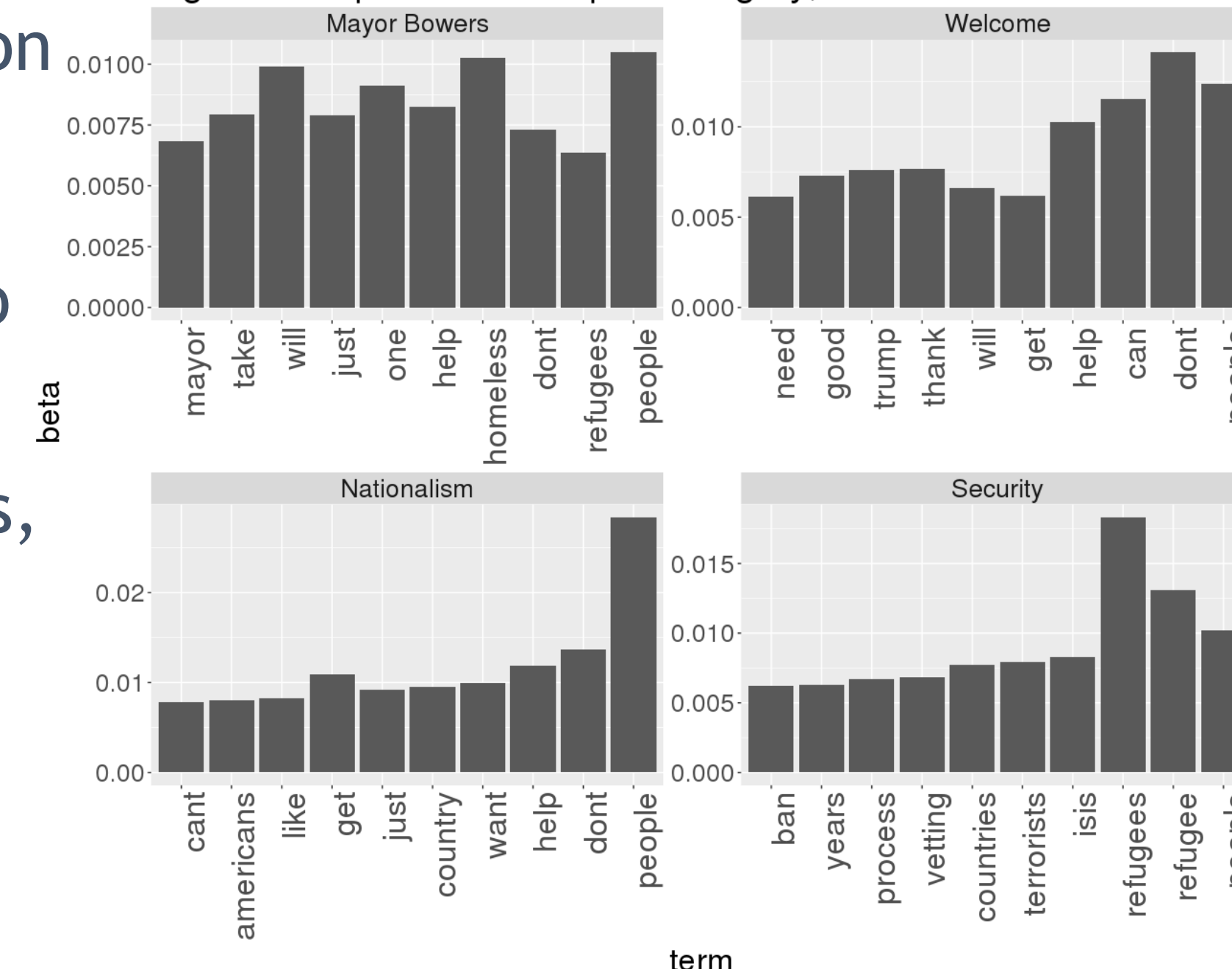
- Possible themes: Mayor Bowers, welcome, nationalism, security

Figure 3: Sentiment by Source



"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."

Figure 4: Top LDA Terms per Category, with Possible Themes



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

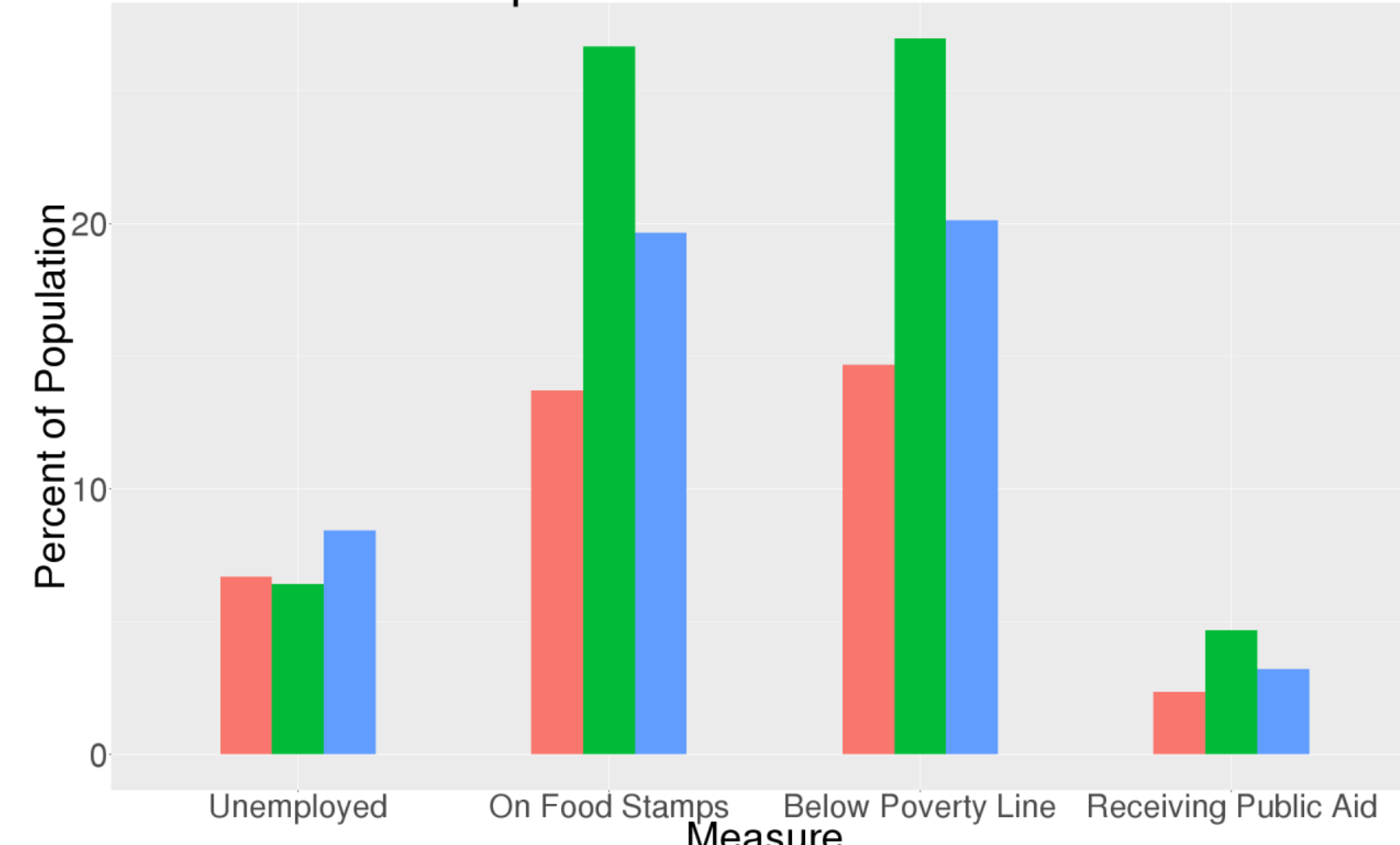
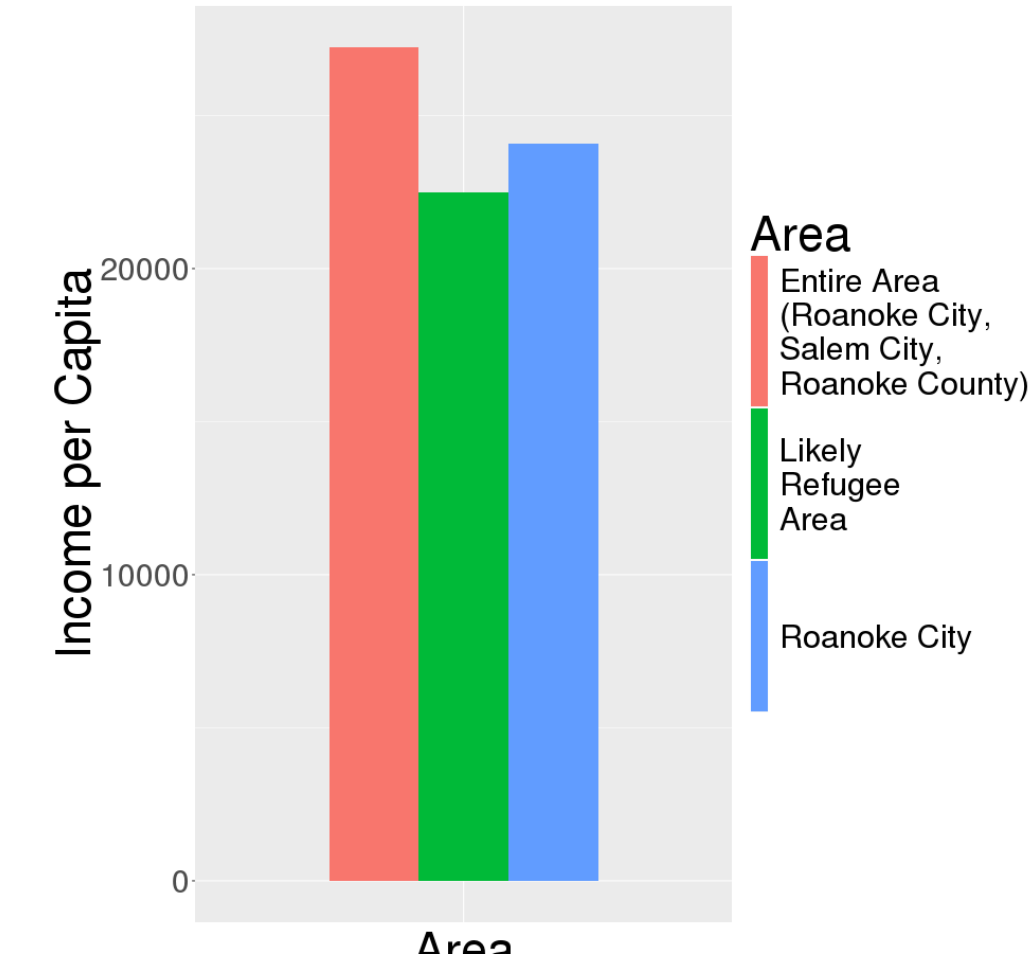


Figure 6: Income per Capita of Refugee Communities Compared to Roanoke as a whole



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