

**A Geospatial Analysis of Choosing California State Counties for
Developing New Urgent Care Facilities Based on the Alcohol consumption in Adults in a
County and Urgent Care Facilities in a County**
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Introduction

Urgent care facilities care is defined as the delivery of ambulatory medical outside of hospital emergency department on a walk-in-basis without a scheduled appointment. The urgent care dataset consist of any location that is capable of providing emergency medical care and must provide emergency medical treatment beyond what can be normally provided by an EMS unit. Excessive drinking is the percentage of adults that report either binge drinking consuming more than 4(Women) and 5(Men) alcoholic beverages in a single occasion in a past 30 days or heavy drinking defined as drinking more than 1(women) and 2(Men) drinks per day on average. There are approximately 535 urgent care facilities in the California State. This study will investigate California State counties based on the number of alcohol consumption adults in a county and emergency centers in a county with a low number of drinking adults and high number of urgent care facilities. Conversely, those counties with a high number of drinking adults and low number of urgent care facilities. Both alternatives are explored in the study.

Research Questions

For better understanding the counties that urgent care facilities situated in California density and number of alcohol consumption adults were analyzed. Specific research questions for the study:

Which counties have a high number of Alcohol consumption adults (>1000) AND a low number of urgent care facilities(<10)?

Which counties have a low number of Alcohol consumption adults (<1000) AND a high number of urgent care facilities(>3)?

For this study, the pivot point for high and low number of drinking adults was 1000 and the pivot point for high and low number of urgent care facilities are 10 and 3.

Methodology

The development environment for this study was ESRI ArcGIS ArcMap. This study used data from Social Explorer's US Health Data From 2010, specially drinking adults(Persons 18 or older) Data about urgent care facilities was collected from the Homeland Infrastructure Foundation Level Data (HIFLD) website in the Public health category. Data for California state was used.

Base maps and Context Layers

To get a base map of counties, the study used United States Census Bureau TIGER/Line Shapefiles (2010).

For map context, towns, roads and rails were added, also from the National Map:

- Counties & Subdivisions, 2010
- Rails, 2010
- Roads, 2010

Figure 1 is a color-coded map showing the percentage of Drinking Adults(18 years or over) in California State.

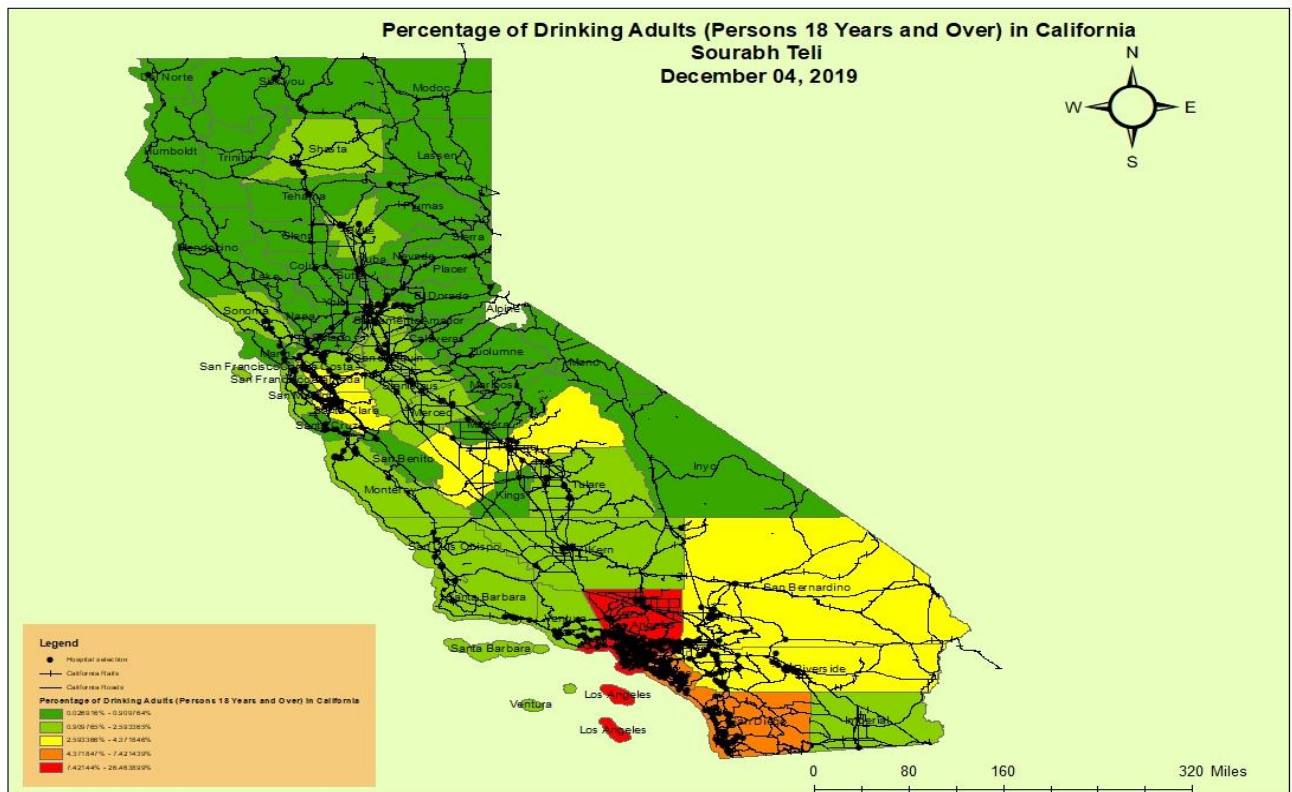


Figure 1: color-coded map showing the percentage of Drinking Adults(18 years or over) in California State.

Figure 2 is a color-coded map showing the count of urgent care facilities throughout the counties in California State.

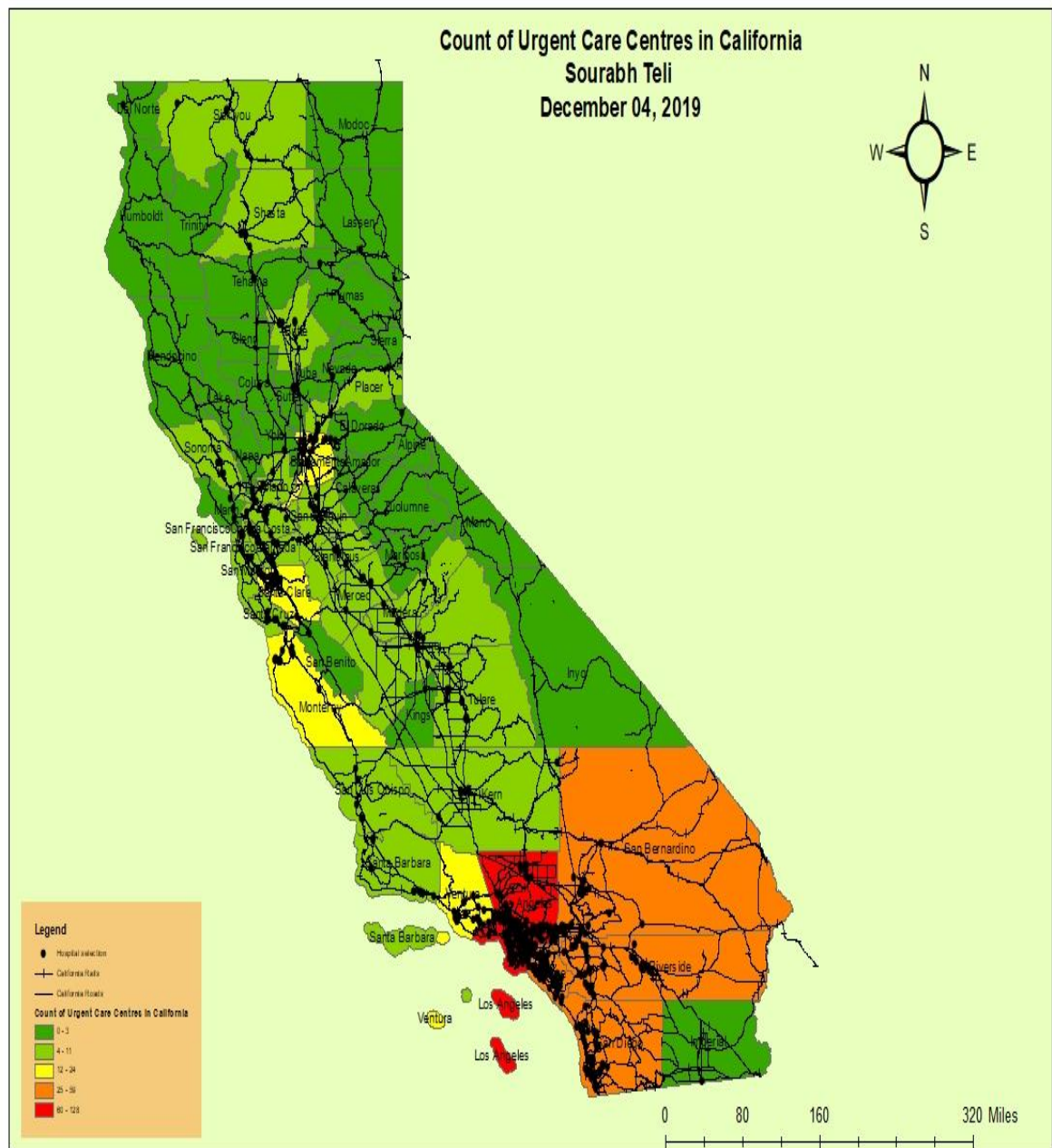


Figure 2: Count of Urgent care Centers in California

Data Analysis :

In order to identify counties with a high or low number of alcohol drinking adults and high or low number of urgent care facilities , a compound selection by attribute was done.

Figures 3 and 4 shows the analysis for Research Question 1:

Figure 3:- RQ1:- Drinking Alcohol Adults < 1000 (low) and Count of urgent care centers > 3(High)

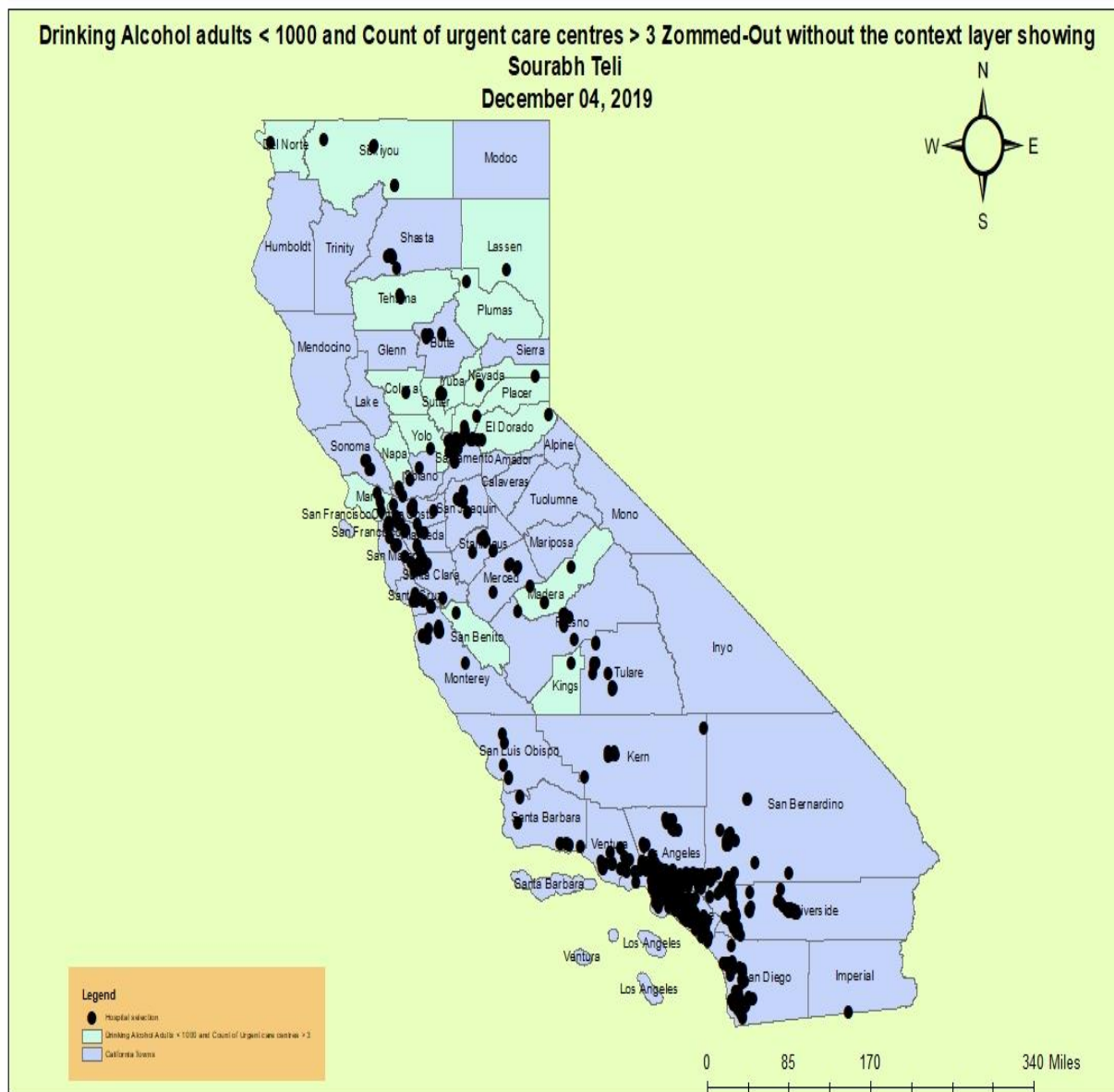


Figure 3: :- Drinking Alcohol Adults < 1000 (low) and Count of urgent care centers > 3(High)

Figure 4:- RQ1:- Drinking Alcohol Adults < 1000 and Count of urgent care centers > 3 Zoomed in with context layers showing

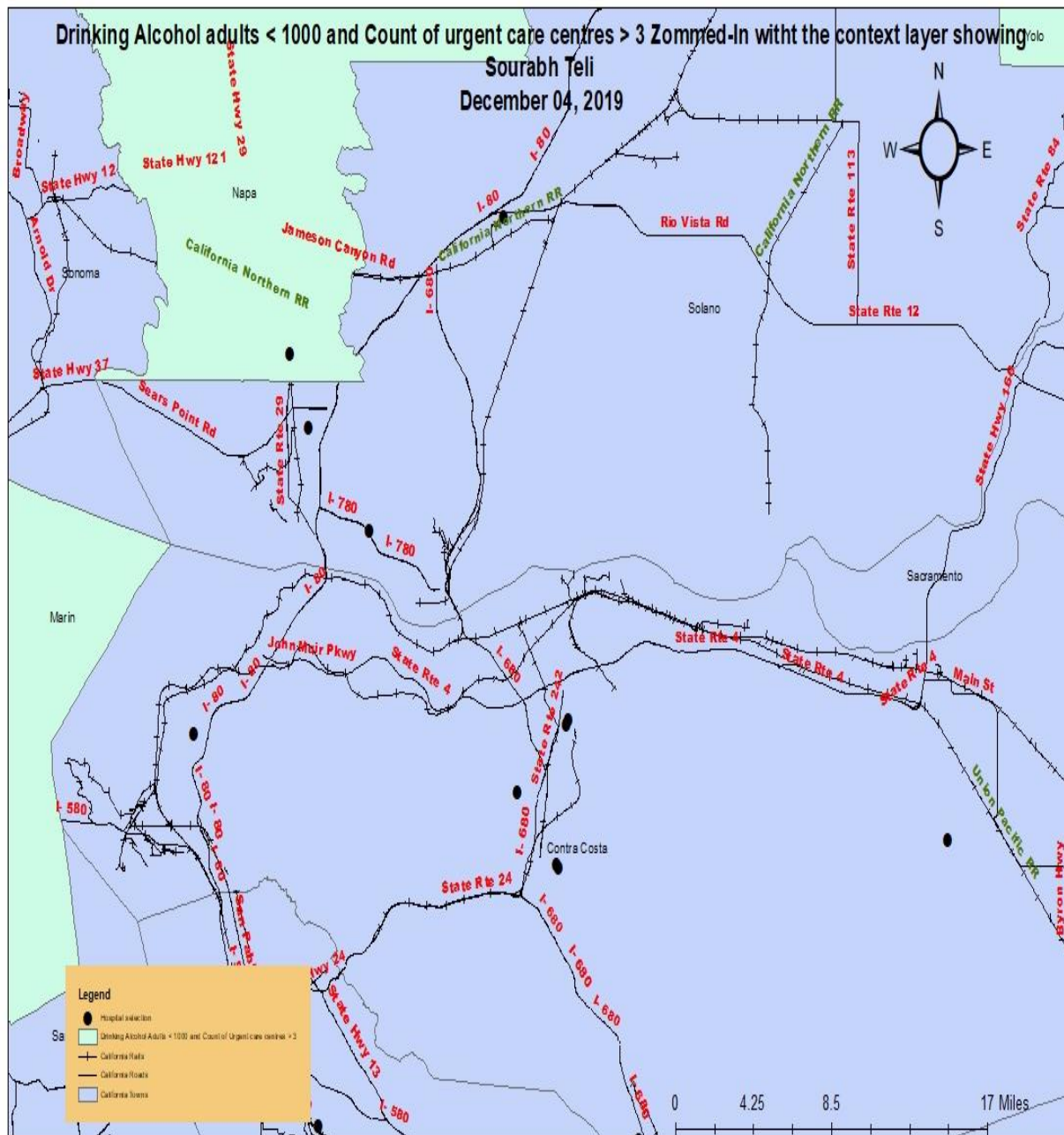


Figure 4: Drinking Alcohol Adults < 1000 and Count of urgent care centers > 3 Zoomed in with context layers showing

Figures 5 and 6 shows the analysis for Research Question 2:

Figure 5:- RQ2: Drinking Alcohol Adults > 1000 and count of urgent care centers < 10

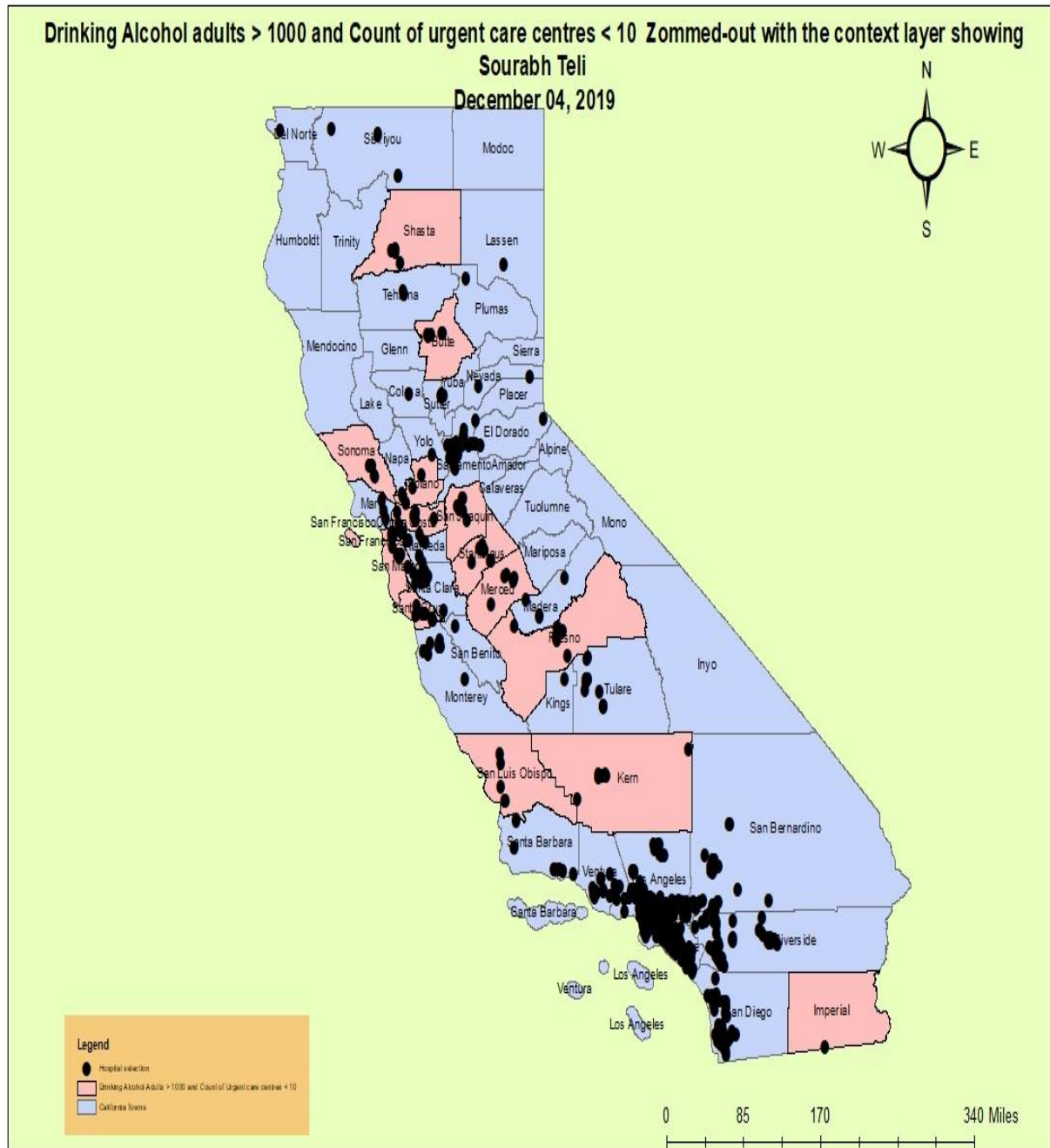


Figure 5: - Drinking Alcohol Adults > 1000 and count of urgent care centers < 10

Figure 6:- RQ2: Drinking Alcohol Adults > 1000 and count of urgent care centers < 10 Zoomed in with context layer showing

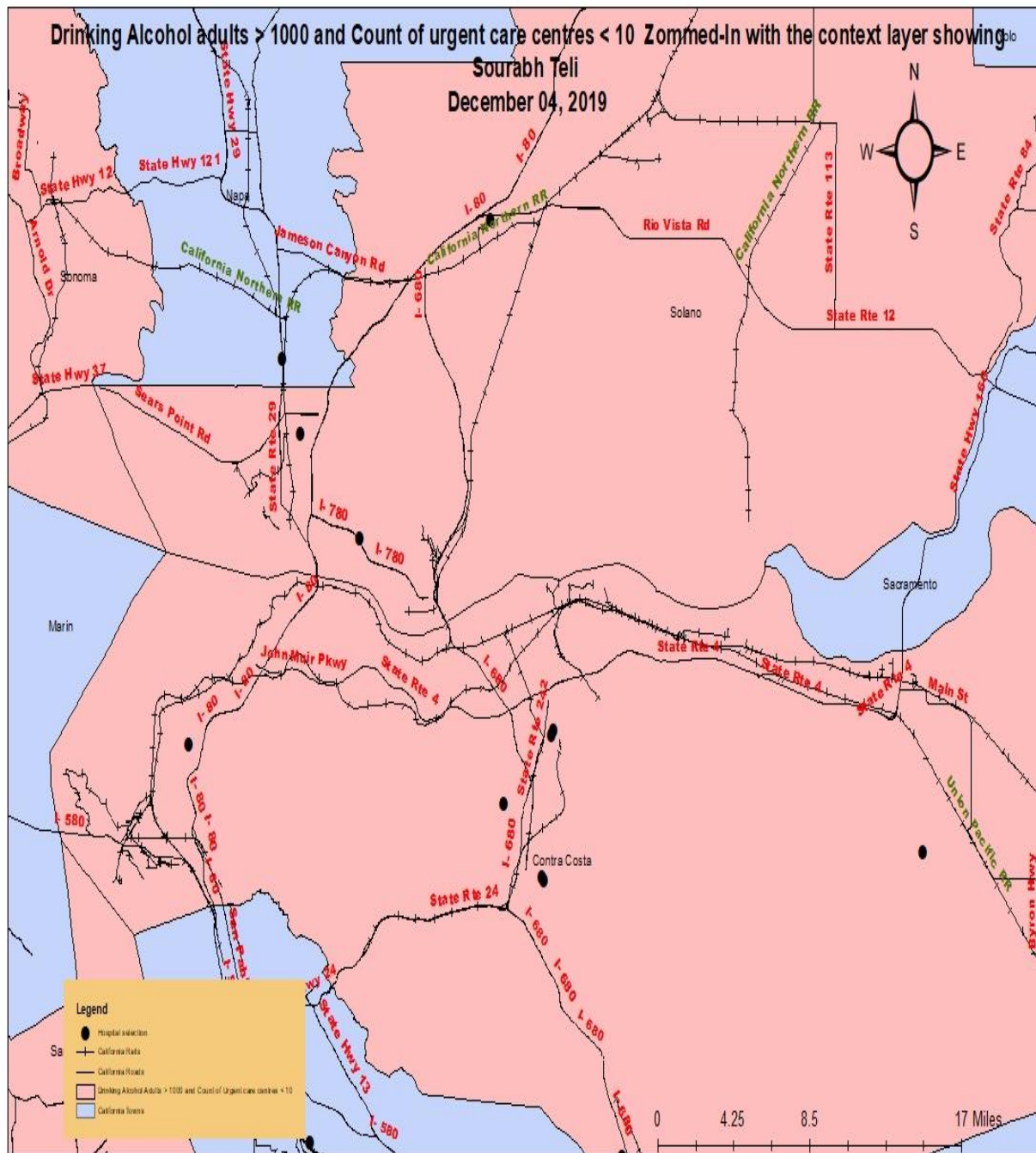
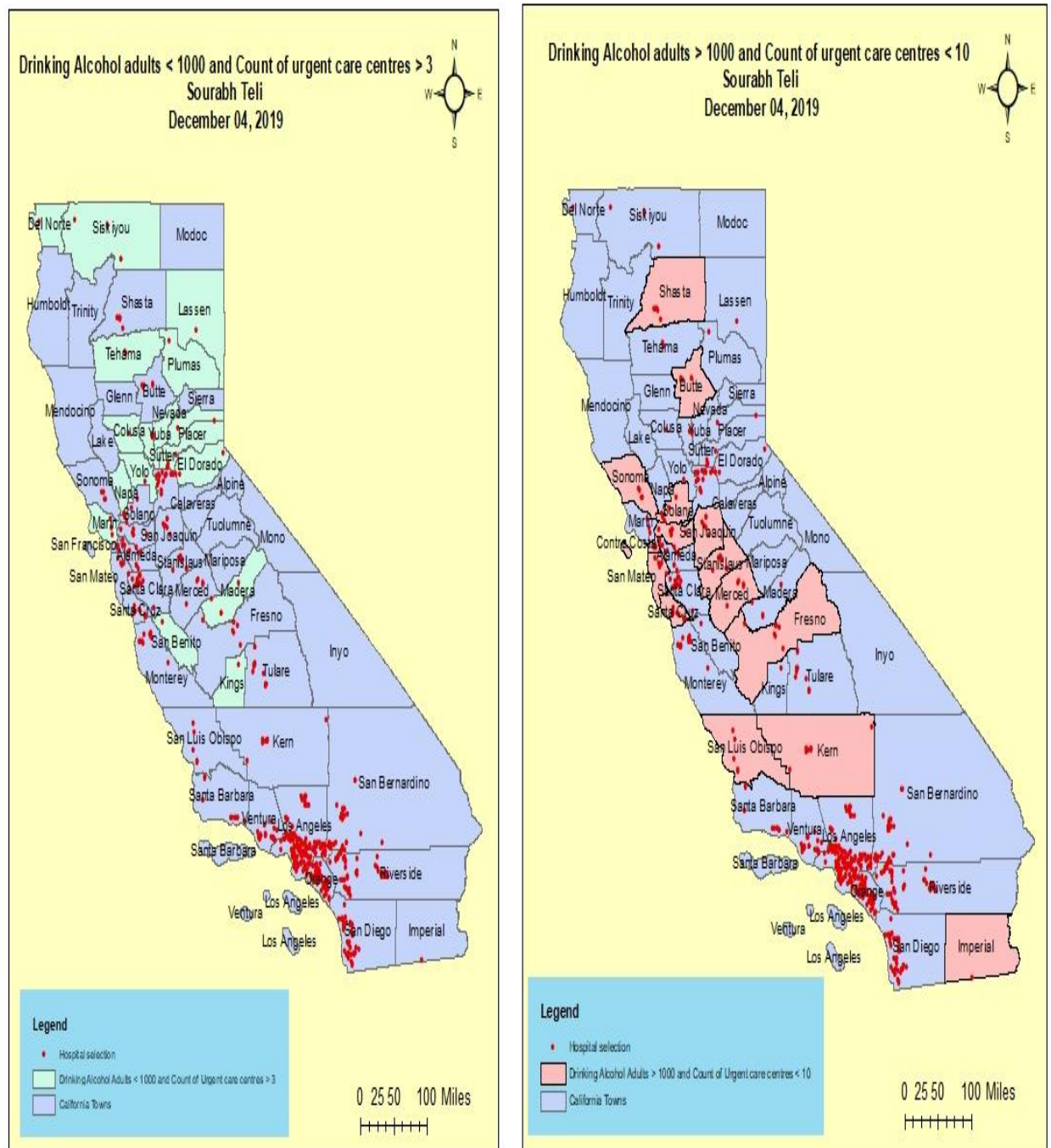


Figure 6:- Drinking Alcohol Adults > 1000 and count of urgent care centers < 10 Zoomed in with context layer showing.

Figure 7 shows the results of both research questions side by side.

DataFrame



Conclusion and Discussion

Looking at the distribution of urgent care facilities we can say that it is highest in Los Angeles county. Looking at the Distribution of drinking alcohol adults we can see that it is higher in Los Angeles, Orange and San Diego county in the south western part of the state.

The analysis which identifies counties with low number of drinking adults and high number of urgent care facilities are concentrated in the north eastern part of the state. This might be due to population is low as well as people consume less alcohol.

Conversely, counties with high number of drinking adults and low number of urgent care facilities are concentrated in the central part of the state. This might be due to people are more addicted to alcohol and we have less number of urgent care facilities.

References

- ESRI, ArcMap 10.7.1, ESRI, Inc., URL: <http://www.esri.com>
- California Counties, US Census Bureau Tiger line,
URL: <https://www.census.gov/geo/maps-data/data/tiger-line.html>
- Health Data: URL: <https://www.socialexplorer.com/>
- US Roads: https://nationalmap.gov/small_scale/atlasftp.html?openChapters=chpref#chpref
- US Rails : <https://www.census.gov/cgi-bin/geo/shapefiles/index.php?year=2010&layergroup=Rails>
- Urgent Care Facilities: <https://hifld-geoplatform.opendata.arcgis.com/datasets/urgent-care-facilities?geometry=118.810%2C-9.367%2C17.208%2C74.330>