

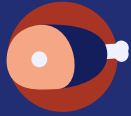


# Hunger in America

Projecting Food Insecurity Rates in the US

Flatiron Data Science Capstone  
By Khyatee Desai

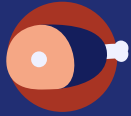
# Background



## Food insecurity

is the inability  
to **reliably**  
obtain enough  
food, due to a  
**lack of resources**

## Background



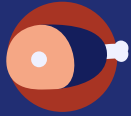
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## Business Problem



Currently, food  
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## Background



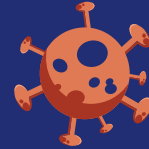
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## Business Problem



**Currently**, food  
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**retroactively**

## Goal



This project aims  
to predict  
**current** food  
insecurity rates

# The Data

10 years

55 datasets

1 million rows

Disability status

Meal cost

Education level

Median income

Household size

Race

Vehicle access

Food proximity

Food assistance

Houselessness

Gender

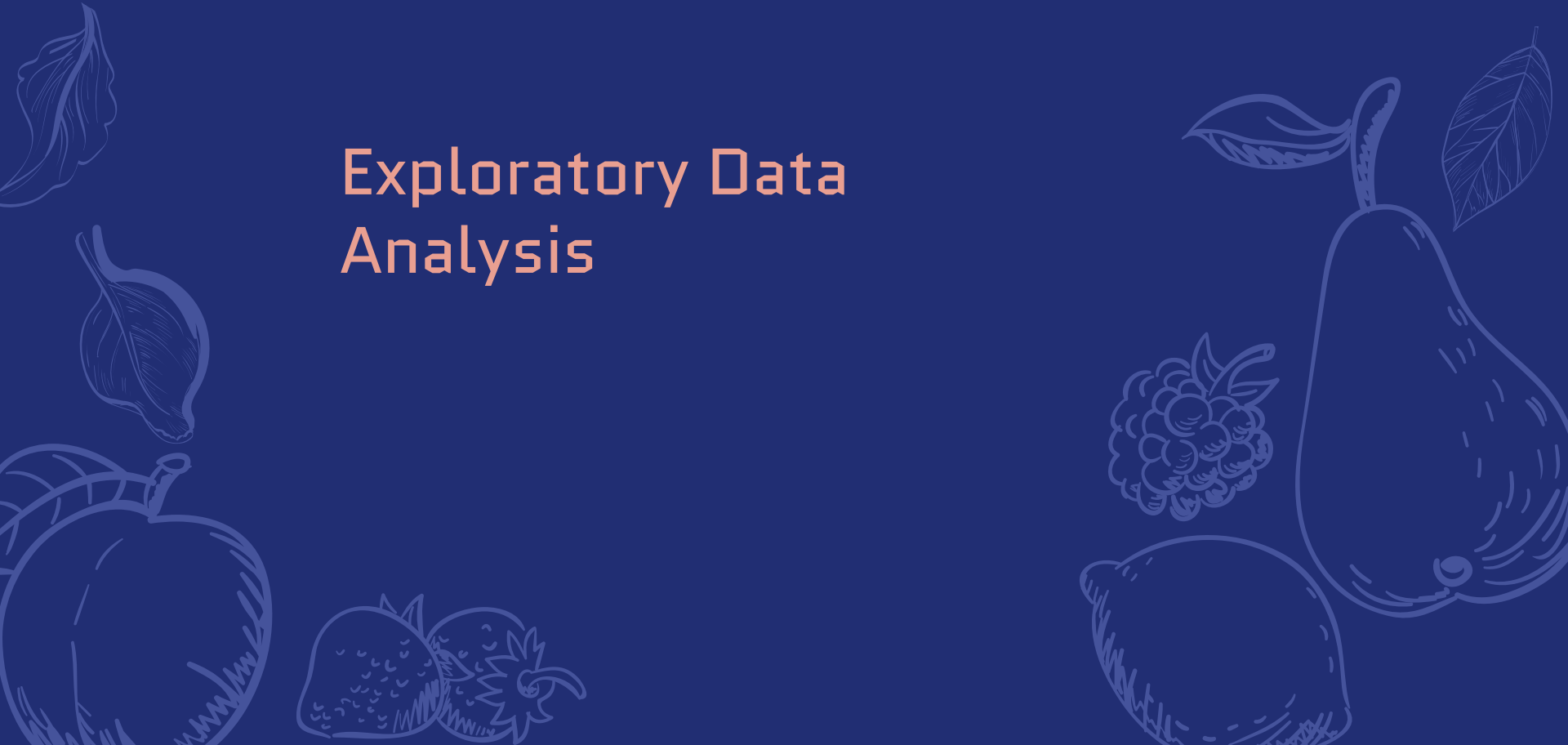
Employment Status

Rent prices

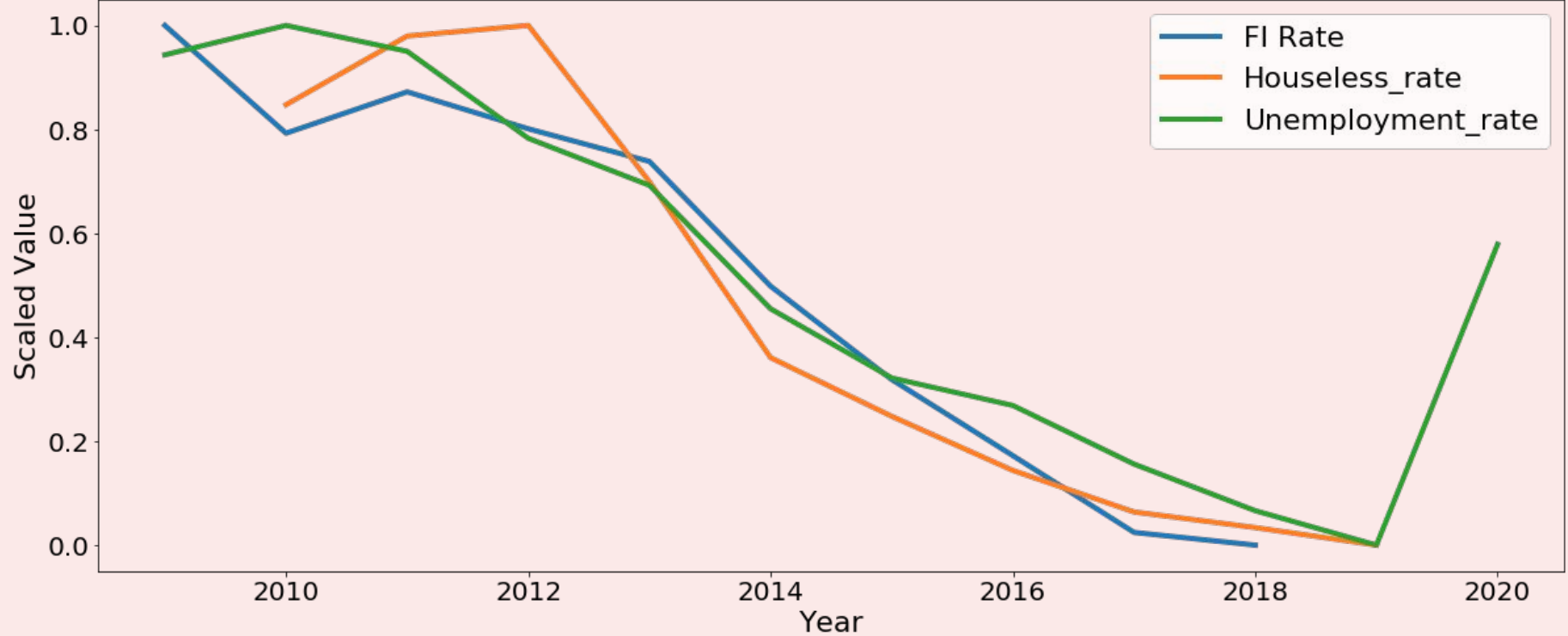
Health insurance



# Exploratory Data Analysis

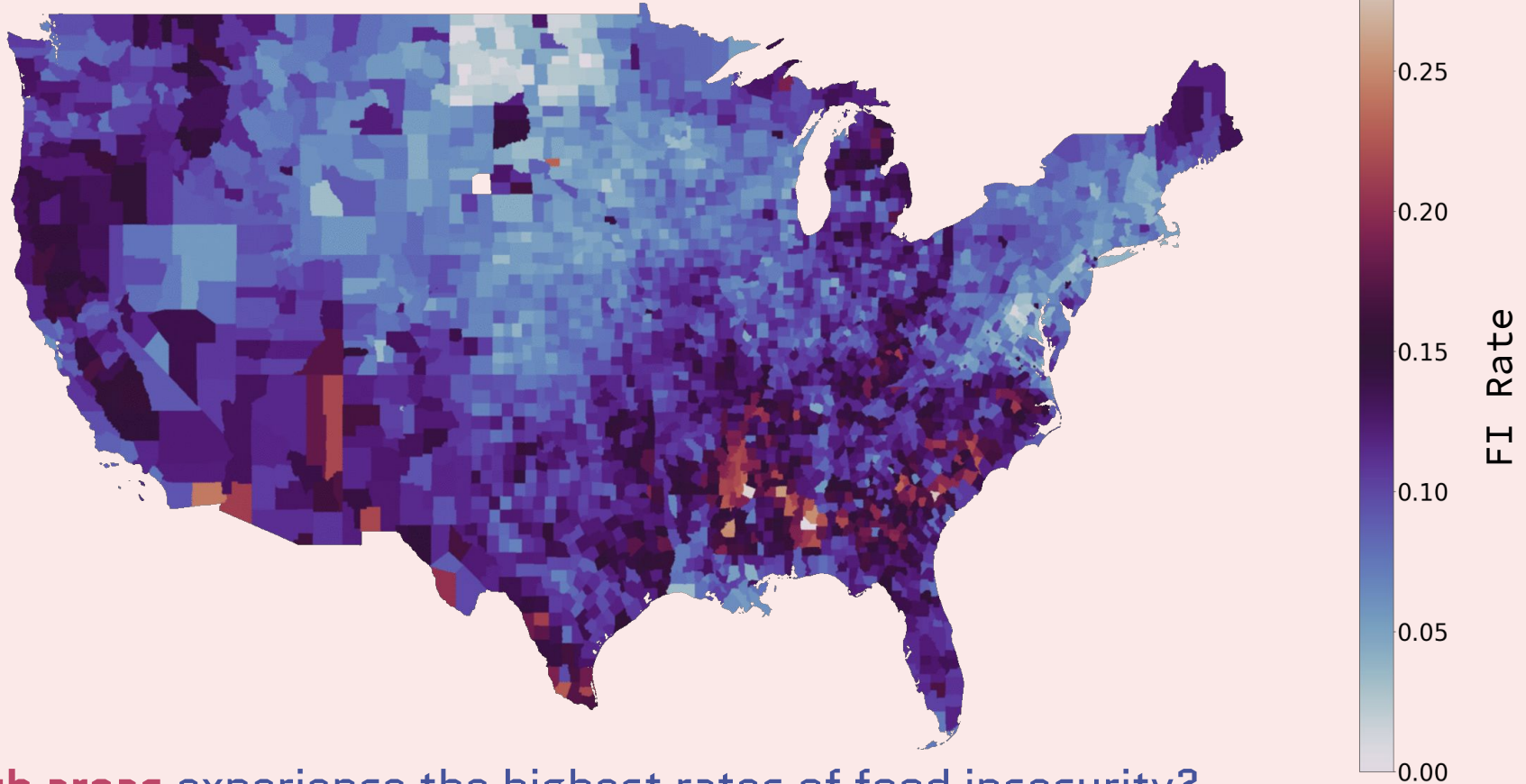


Food Insecurity, Houselessness, and Unemployment Rates, by Year



How has food insecurity rate changed **over time**?

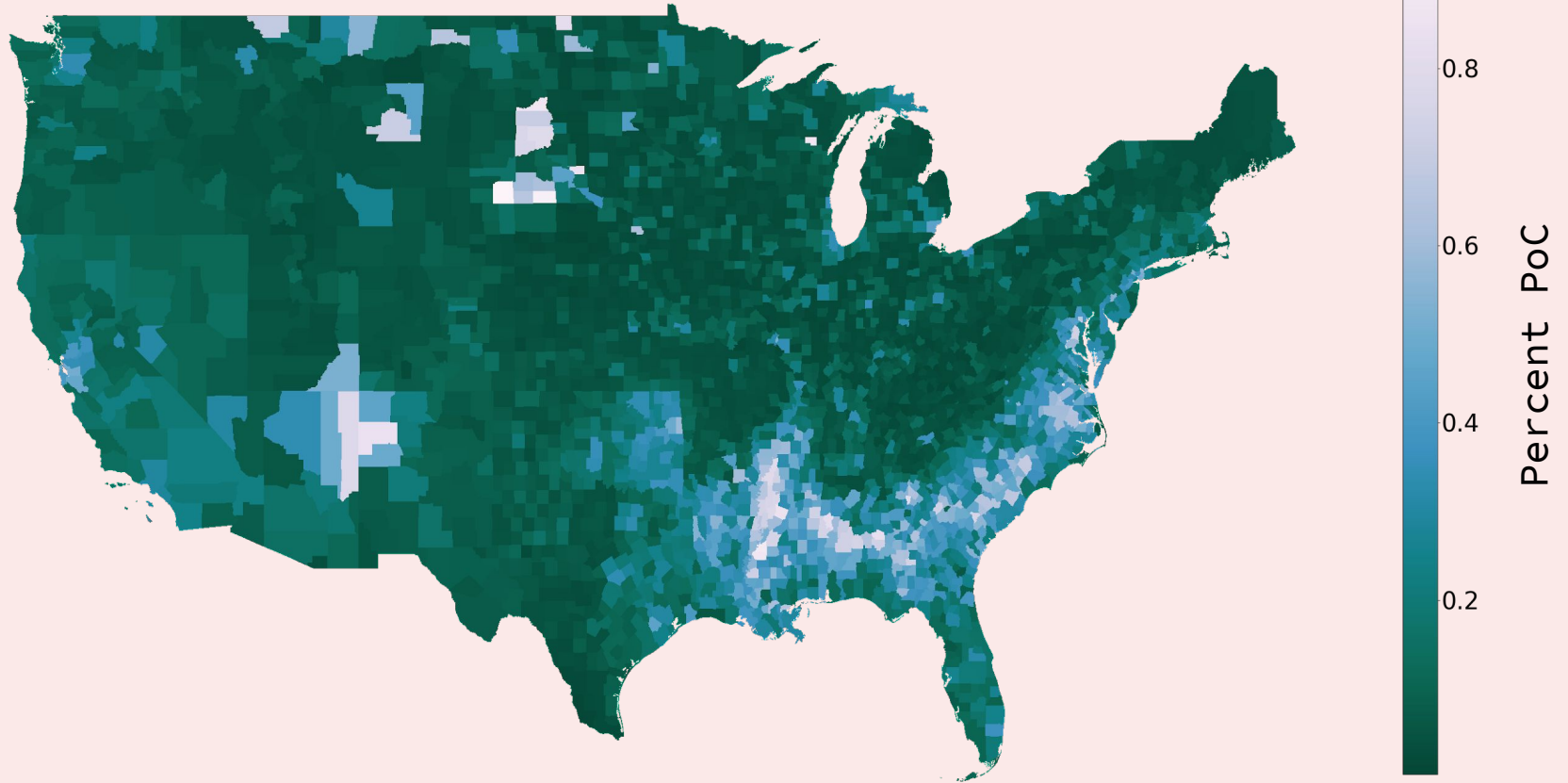
Food Insecurity Rates, 2009



**Which areas** experience the highest rates of food insecurity?

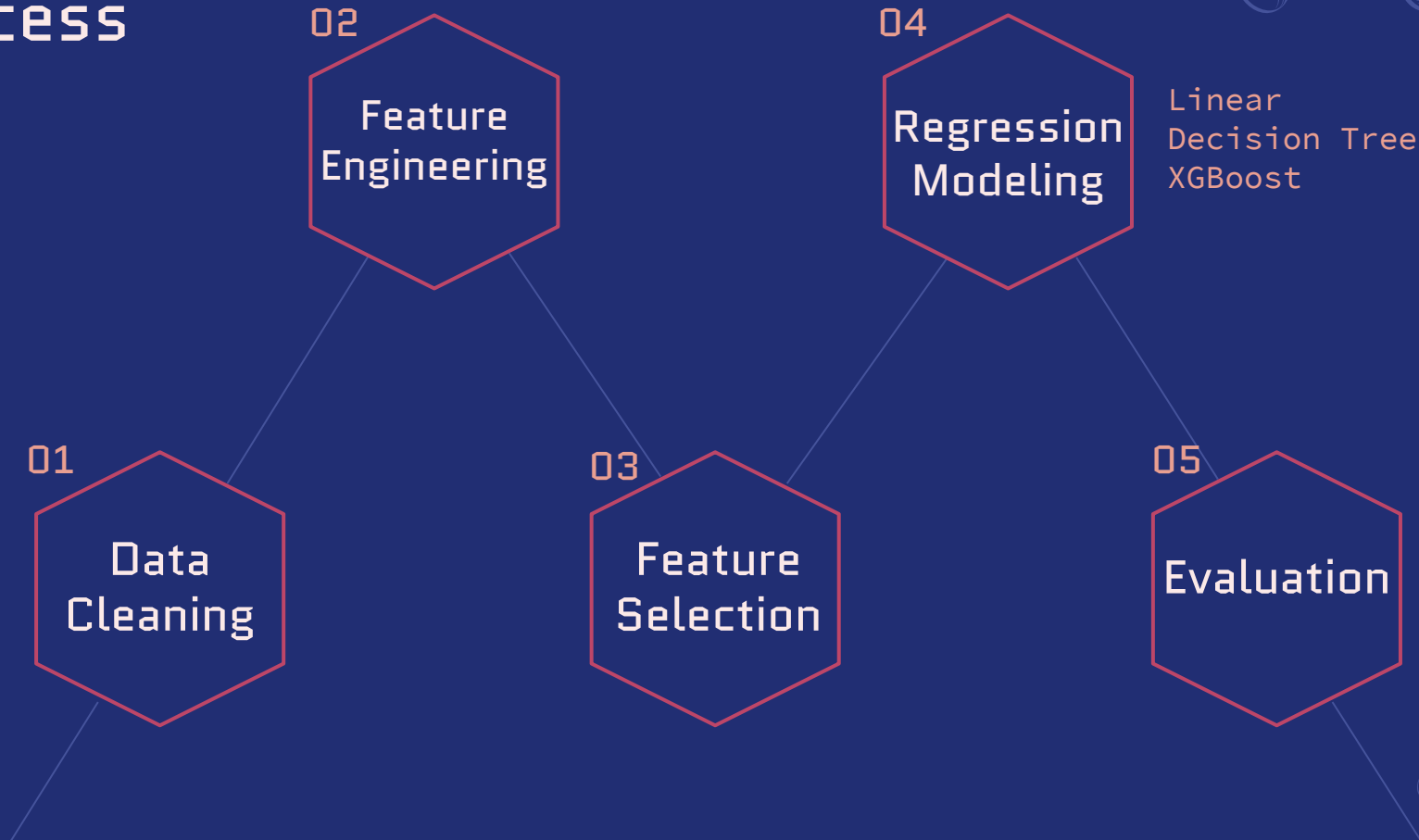


Percent People of Color by County, 2020




How does food insecurity **relate** to other variables?

# Modeling Process





R <sup>2</sup>	0.884
RMSE	0.0139




Model explains 88% of data variance  
Predictions off by 1.4% on average

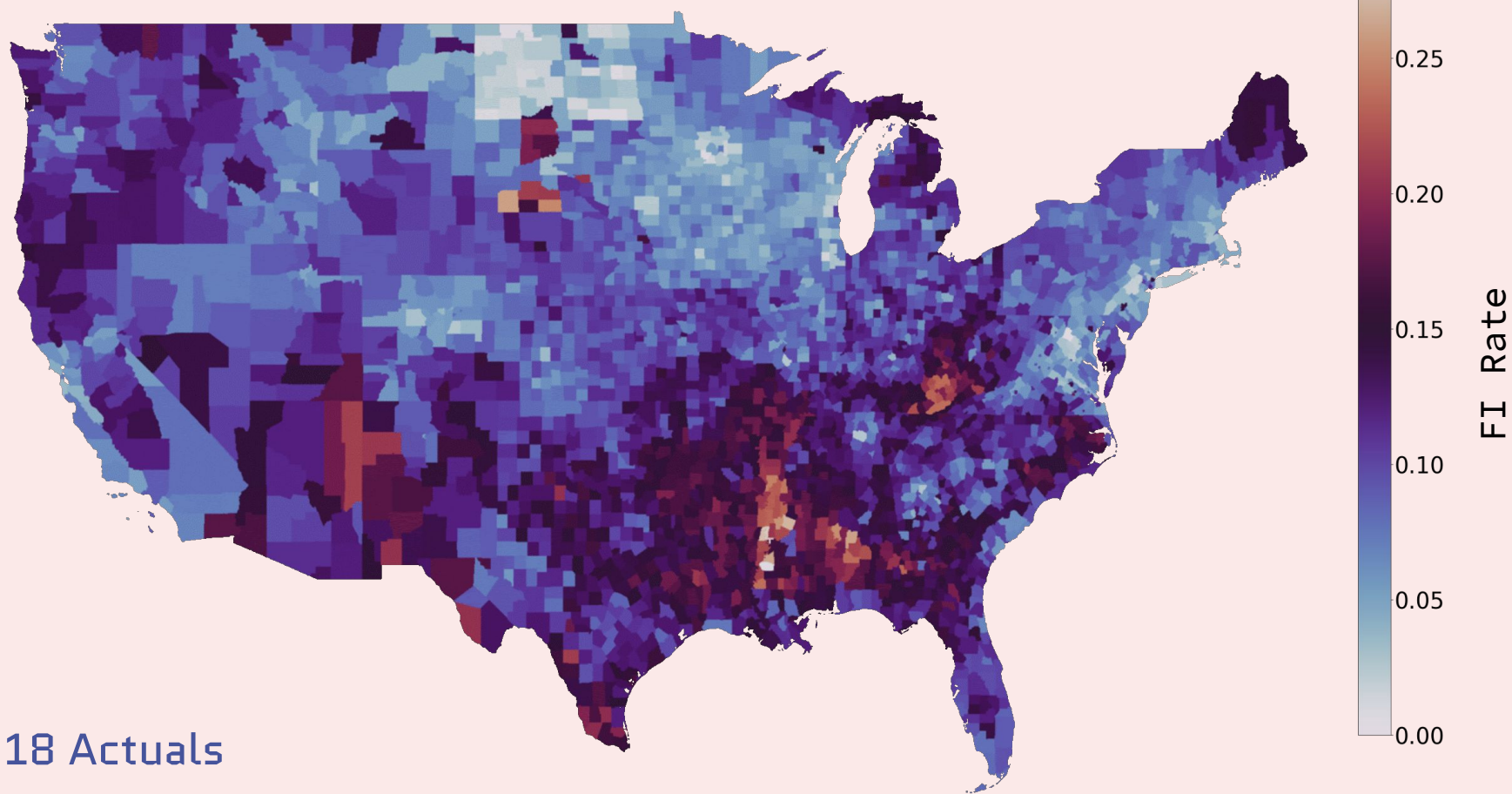
## Decision Tree Model Evaluation

### Feature Importance

Unemployment\_rate\_X\_Percent\_Black  
percent\_hh\_poverty  
Percent\_disabled  
Cost Per Meal\_X\_Percent\_white  
hh\_med\_income  
Percent\_white\_X\_Percent\_priv\_health  
Unsheltered\_rate

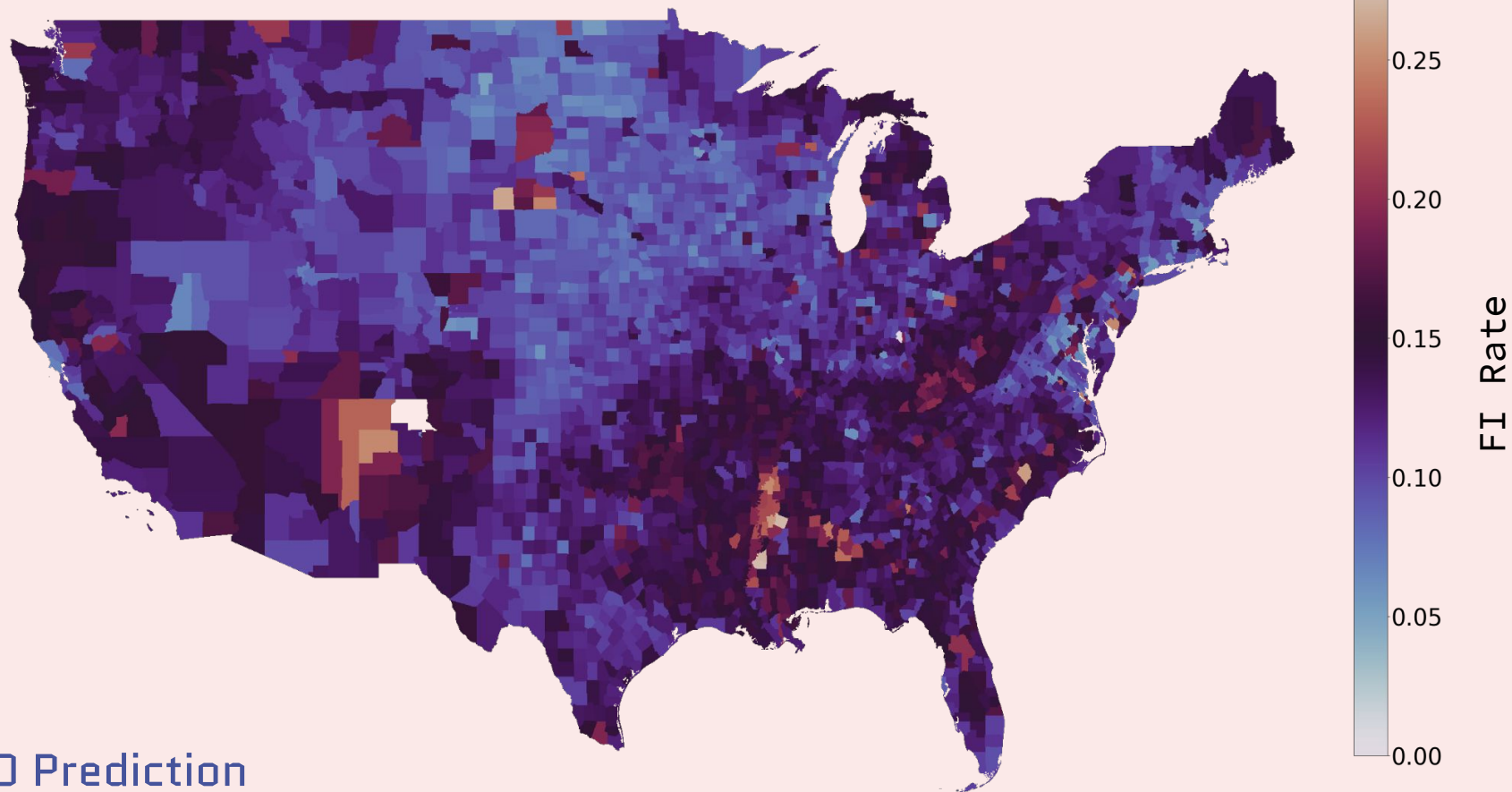


# Food Insecurity Rates, 2018



2018 Actuals

# Model Predicted Food Insecurity Rates, 2020



2020 Prediction

# Conclusion & Next Steps



Forecast future food  
insecurity rates

Expand the scope to  
other countries

# Contact



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**Full project viewable at**

[www.github.com/khyateed](https://www.github.com/khyateed)

**Thank you to my instructors, coaches, and cohort at the Flatiron School!**

