

# Iowa Liquor Sales

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# Overview

Objective 1: Determine the best county in Iowa in which to open a new liquor store

Objective 2: Determine which factors most strongly affect sales in that county

# Steps to Accomplishing Objectives

## The Dataset

- Source
- Size
- Basic Statistics
- Key Features

## The Models

- Structure

## The Conclusions

- Best County
- Ways to Maximize Sales

# The Data

## **Source - State of Iowa**

- 2015-2016 sale transactions from the state to class E liquor stores

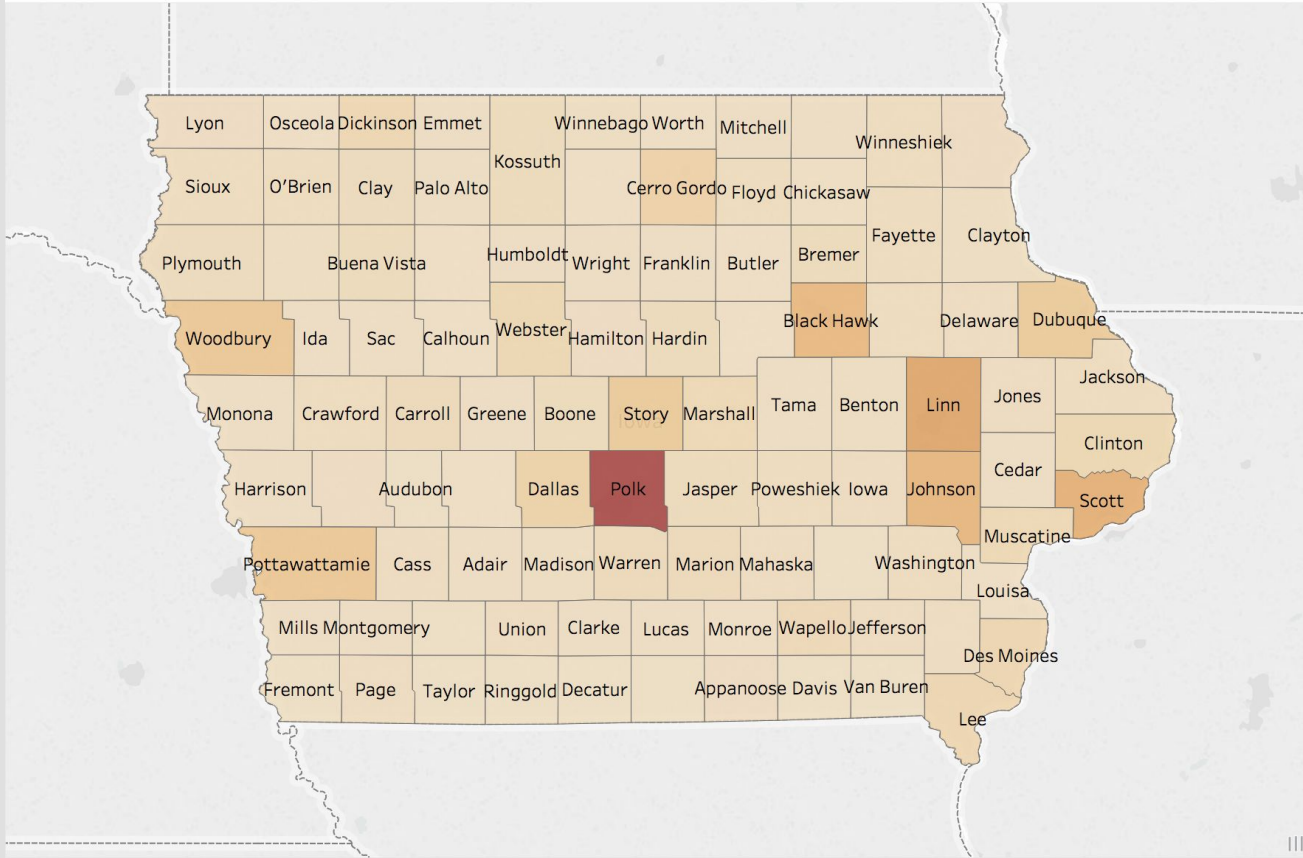
## **Large dataset**

- 2.7 million transactions

## **Information**

- Location Information - county, city, and zip code
- Alcohol Information - type, category, volume
- Store and Vendor Information
- Sales Information - dollar amount and volume

## Iowa Liquor Sales



Map based on Longitude (generated) and Latitude (generated). Color shows sum of Sale (Dollars). The marks are labeled by County. Details are shown for County.

Sale (Dollars)



# The Models

## Location Model

- Multiple Linear Regression Model
  - How does price per bottle, number of bottles sold, and the county determine sales?
- L1 Regularized Model (Lasso Model)
  - Removed counties with low significance in determining sales

## Determining Sales Model

- Multiple Linear Regression Model
  - How does price per bottle, number of bottles sold, and volume of liquor affect sales in the best county?



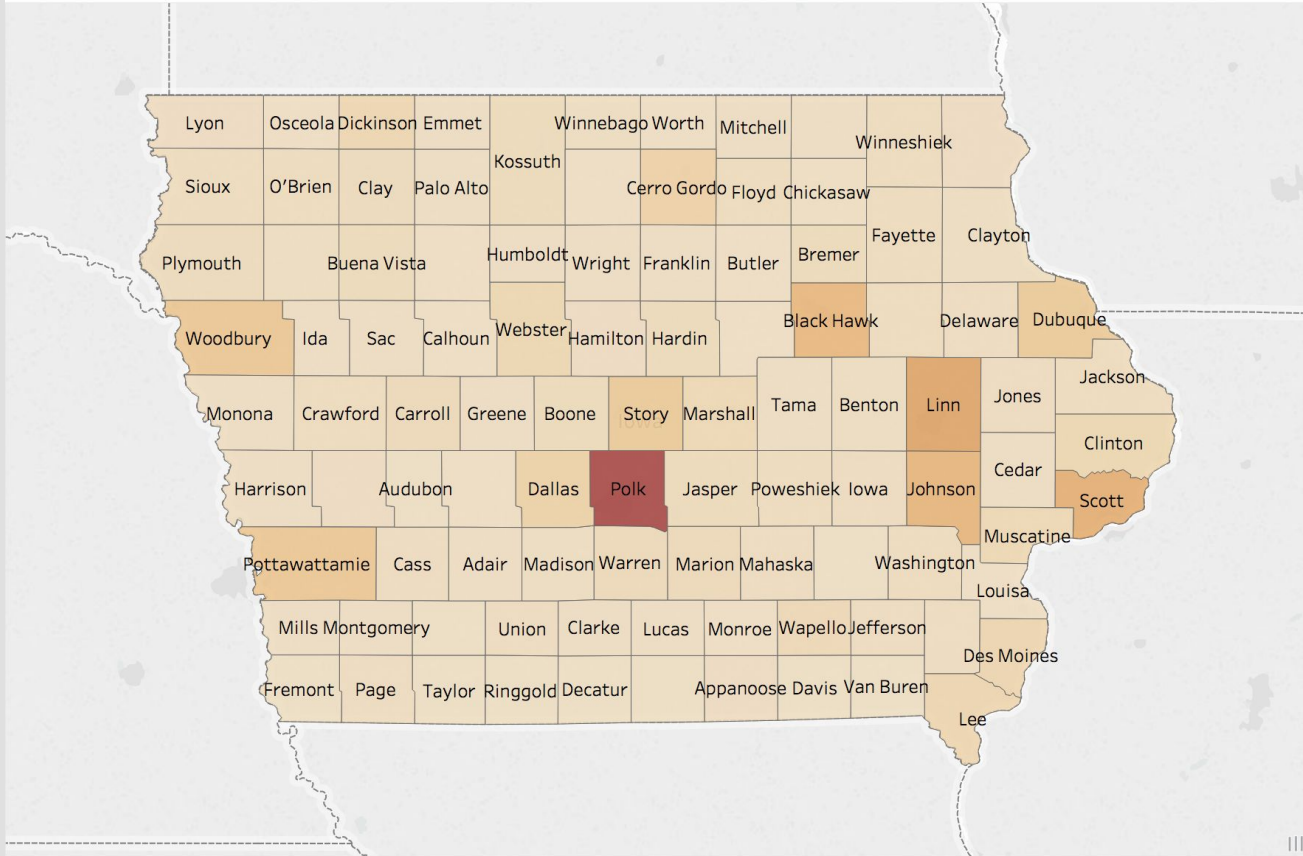
# The Conclusions

## **The Best County: Dallas County:**

**\$56.25 increase in sales per transaction, on average  
above that of Polk County**

**Largest increase in sales across Iowa based on county,  
holding all other factors equal**

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Sale (Dollars)



# Dallas County, Iowa

- West of Des Moines, Iowa
- Population 66,135
- Interstate 80
- Highly populated eastern cities like West Des Moines and Urbandale
- County Seat - Adel, Iowa



## **Improving Sales in Dallas County**

**Maximize number of bottles sold**

**Maximize volume of alcohol sold**

**Relative to other factors, number of bottles sold had a larger effect on sales in Dallas County**

## Top Stores in Dallas County

Further analysis necessary at the store level  
in order to develop a business strategy

Store	Number
3814	135035
2665	112761
4678	22177
2612	22039
5123	16967

# Recap

## The Data

- Liquor sales from the state of Iowa to liquor stores

## The Models

- Two models determining optimal location and optimal metric for profitable stores

## The Conclusions

- **Dallas County** is the best county to open a new liquor store
- Maximizing the **number of bottles sold** is the most effective way to maximize sales



Questions