

Live Case Presentation

Determining impact of different media channels on donation outcomes

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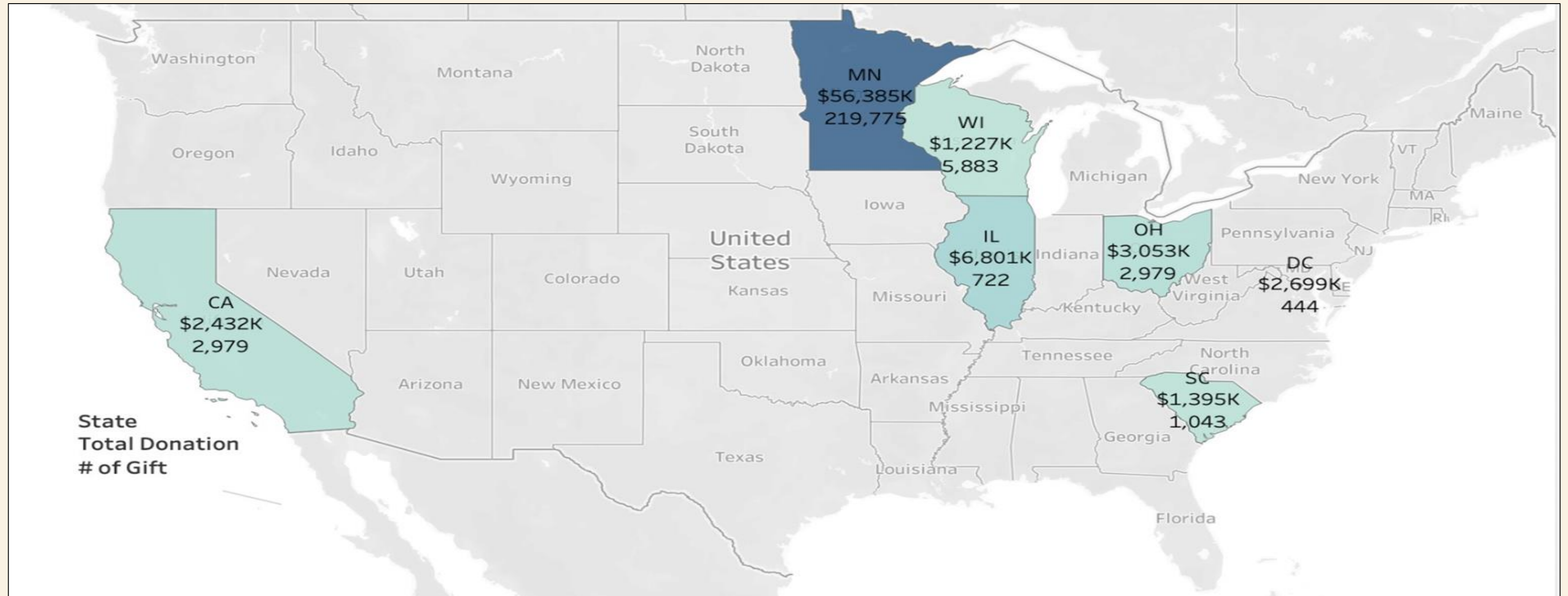


Introduction

- Hunger has always been a global issue
- SHH serves more than 100 million meals each year to neighborhoods
- It's difficult to procure donations to feed every hungry child
- Media channels help bridge this gap by passing the message
- SHH wants to understand the effect of different types of media on donations

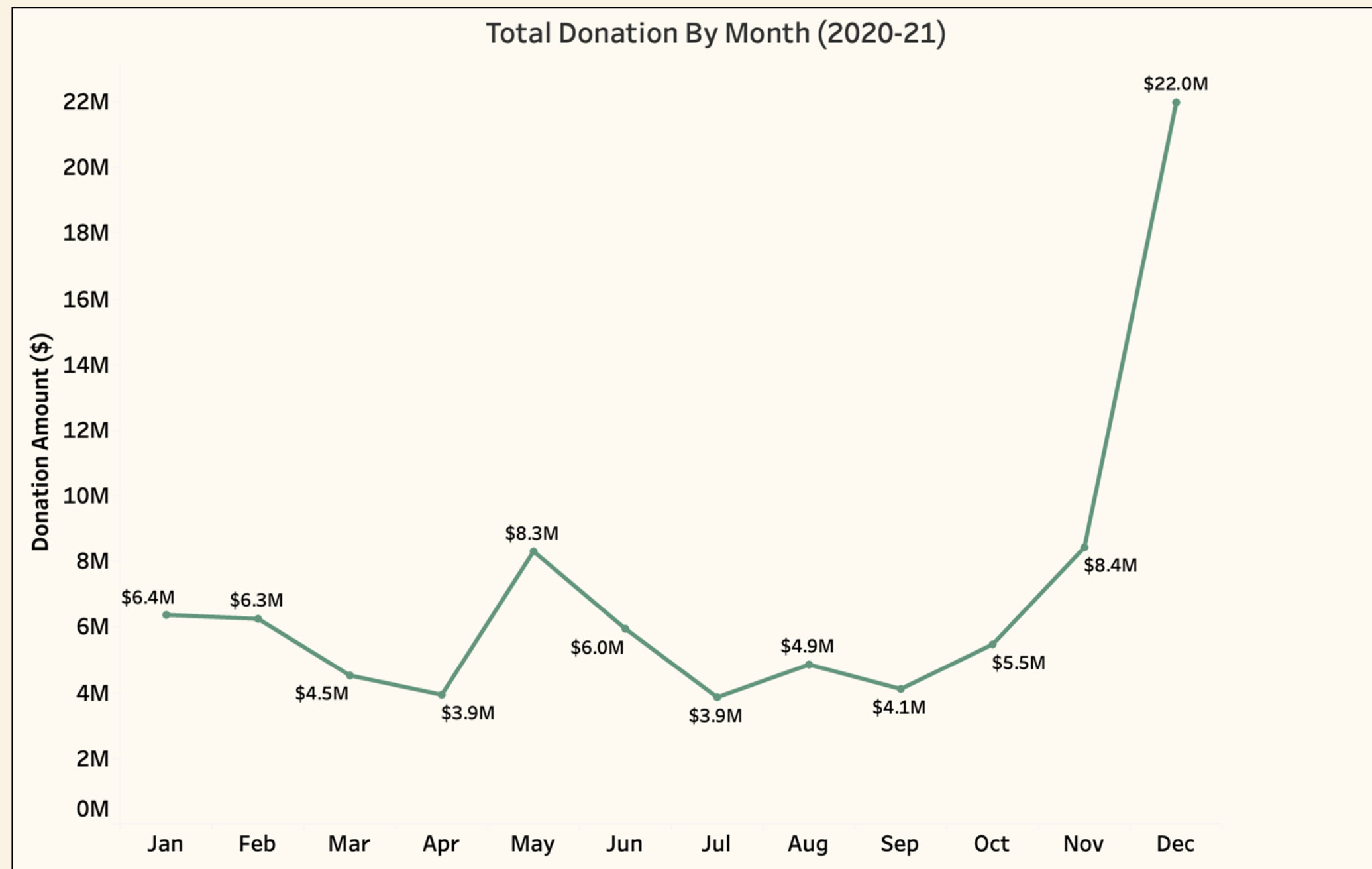


Exploring the data

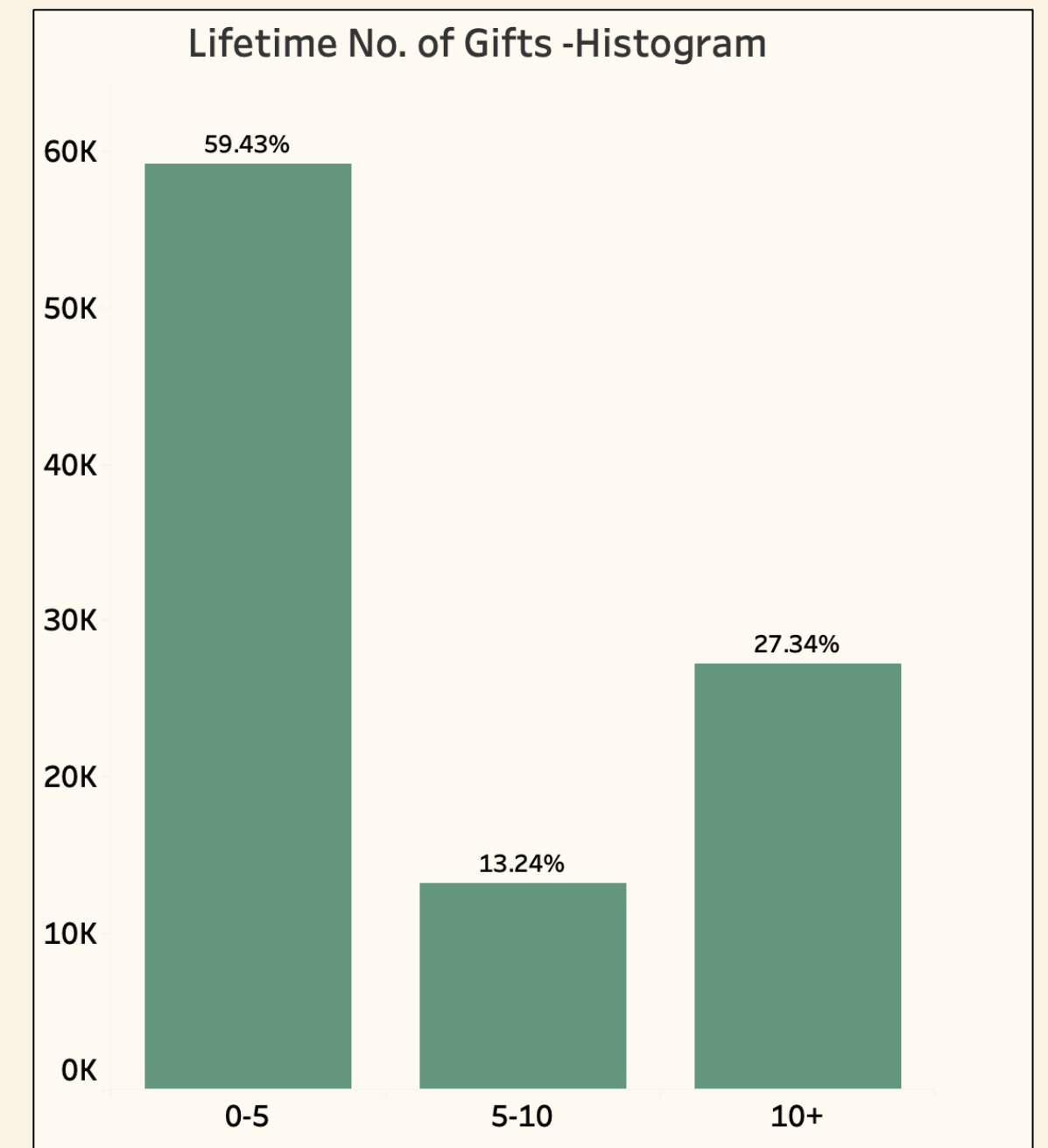


MN, IL, OH, DC, CA, SC & WI are the 7 highest donating states

Exploring the data

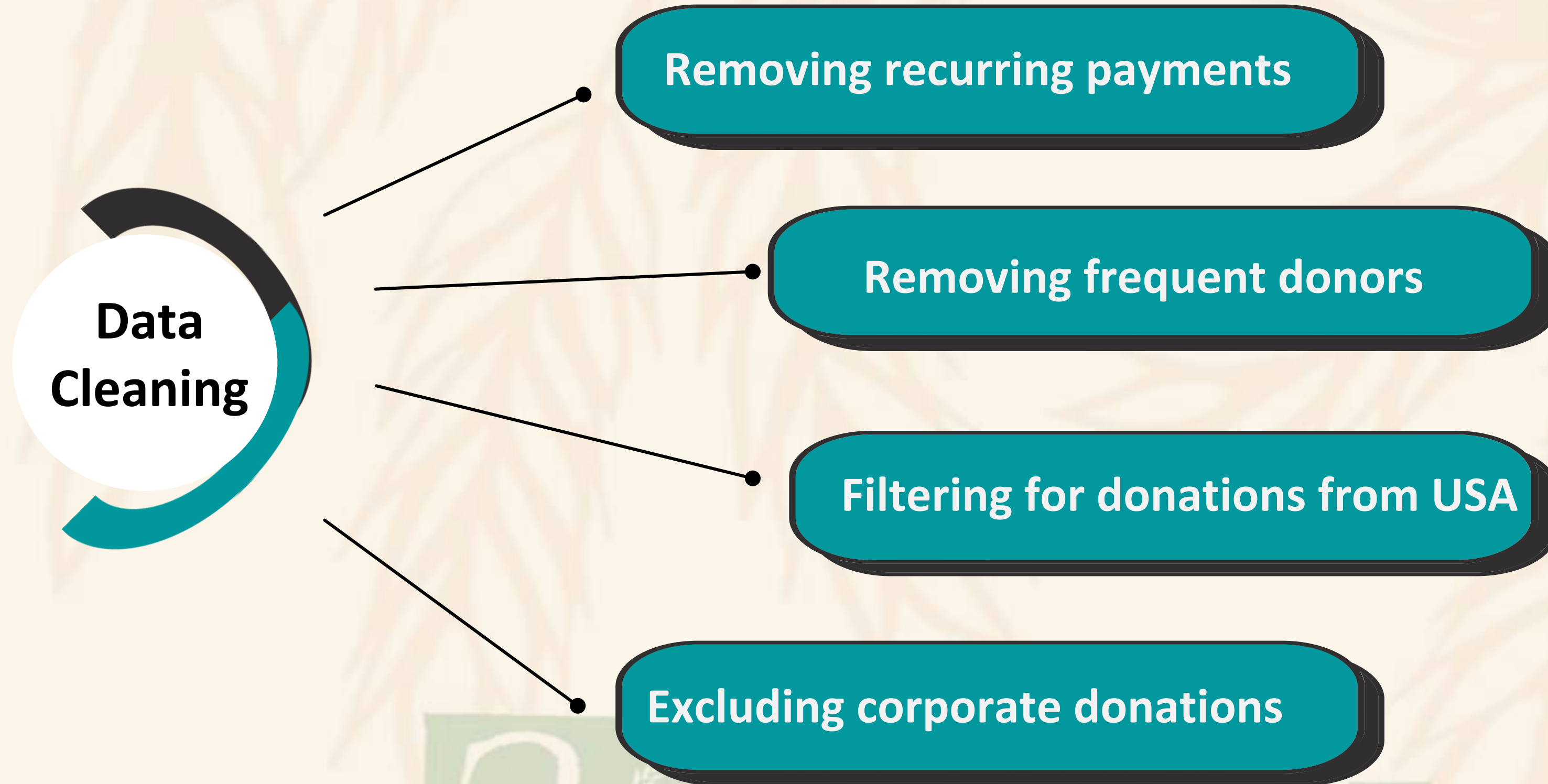


Month of May witnessed **2 times** as much donations among first 10 months



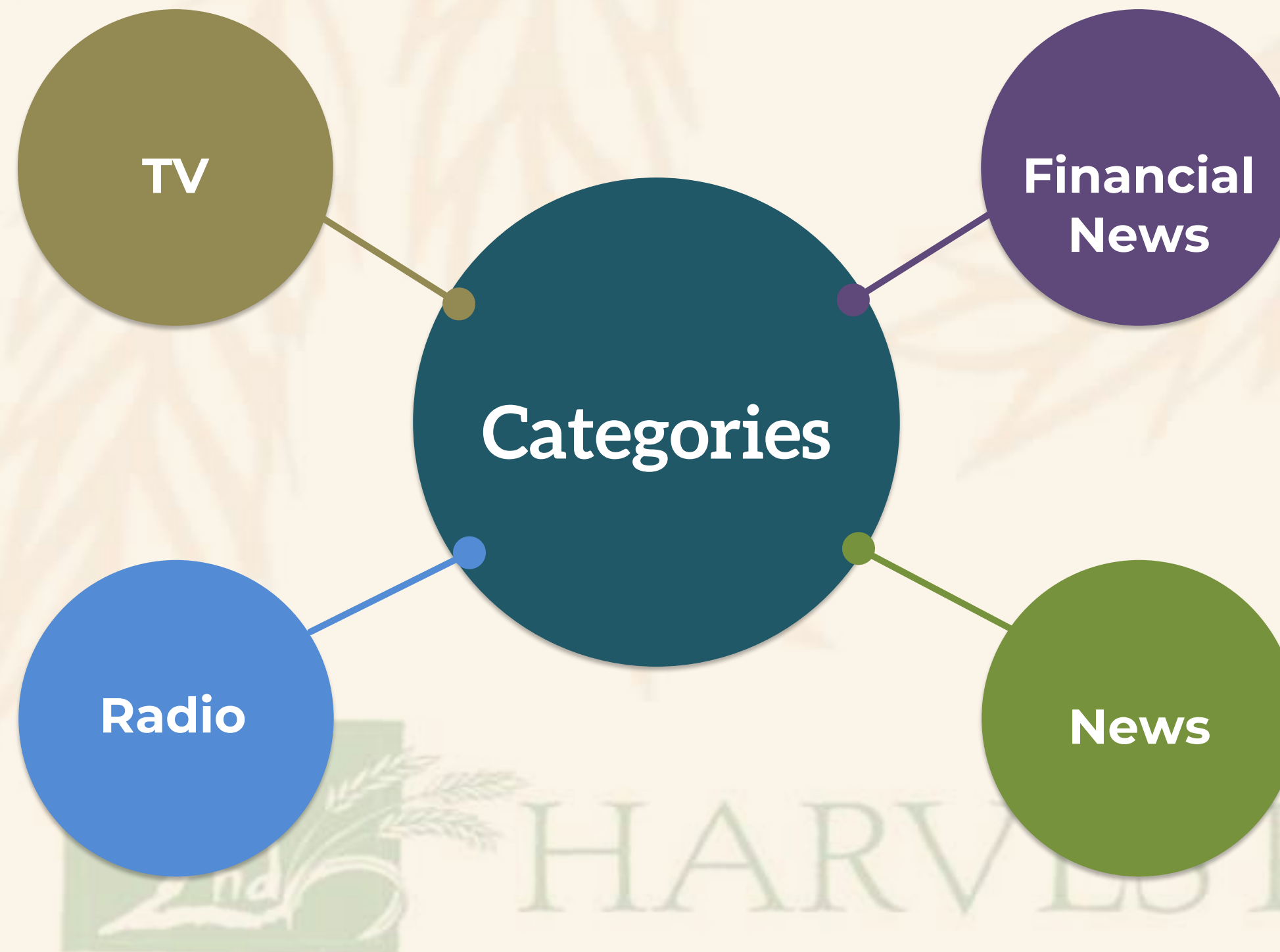
60% have donated **< 5** times in their lifetime

Preparing the data



Preparing the data

Categorized channels into sub-groups as shown

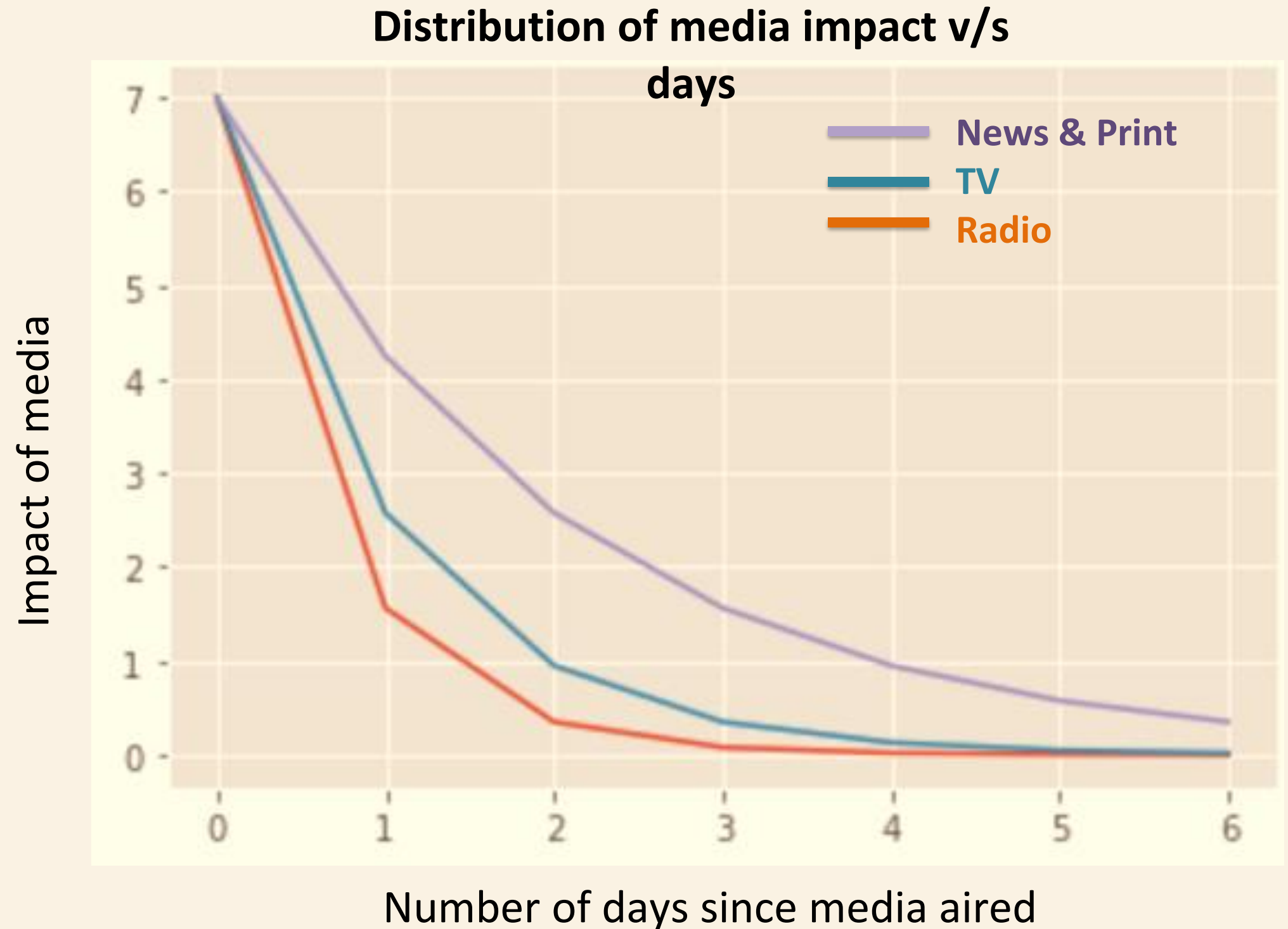


Assumptions

Effect of media decays exponentially as days pass by

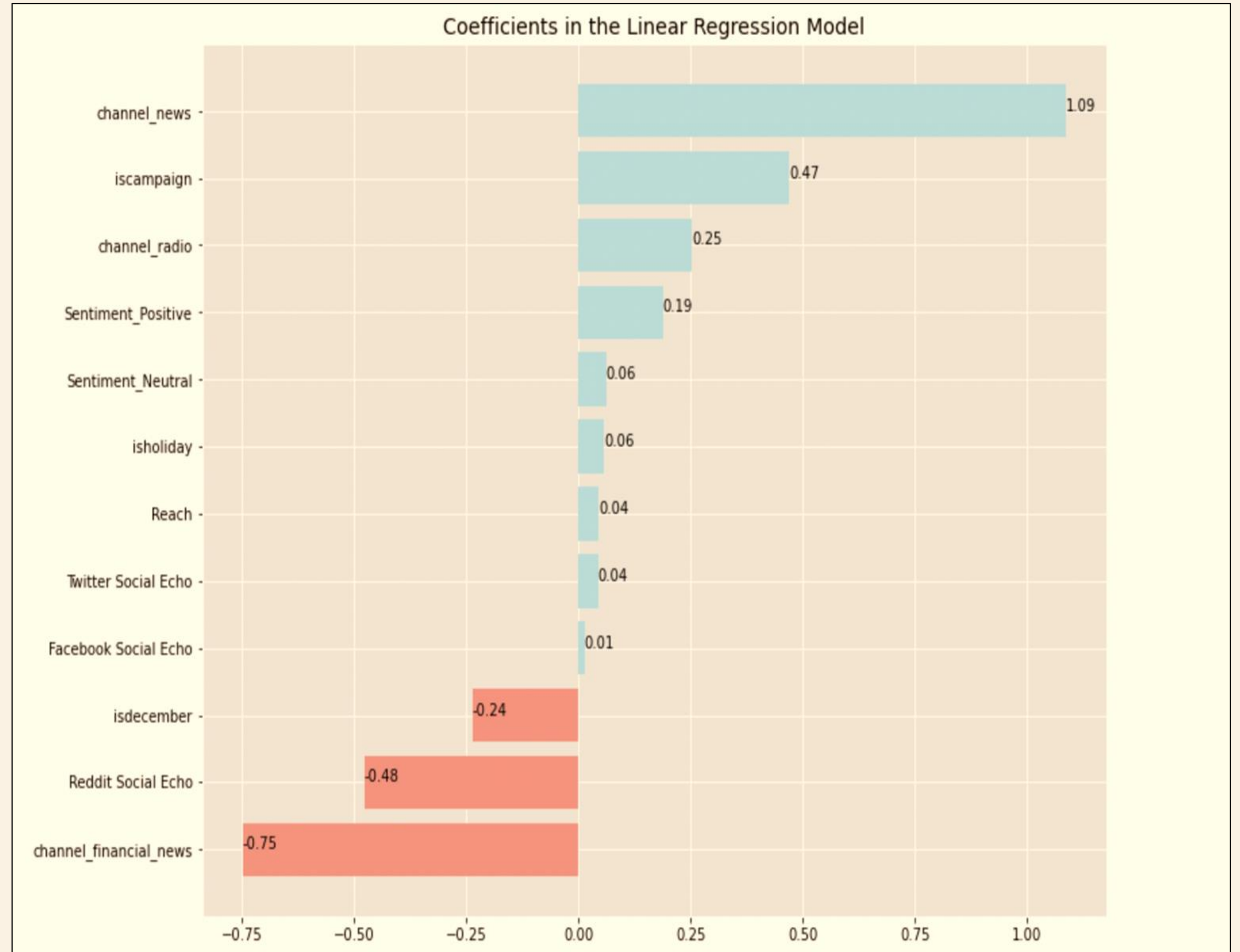
➤ Impact design

- Website news – least decay
- TV – moderate decay
- Radio – most decay



Understanding impact of media on donation

- Linear regression model to understand the impact of different media channels
- Results of the model provide overall effect of each feature



Understanding impact of media on donation

Compared to TV exposure, website news bring in 110% more donations on average

110% ↑

Website news

25% ↑

Radio

75% ↓

Financial News

Closer look at

- Impact of website news
- Impact of radio
- Impact of financial news

Metrics summarize the % change in donation brought in by each media channel compared to TV

Understanding impact of media on donation

Compared to neutral sentiment, positive sentiment reports 20% more donations on average

20%



Positive

6%



Neutral

Closer look at

- Impact of positive sentiment
- Impact of neutral sentiment

Sentiment matters!

Metrics summarize the % change in donation by different sentiments compared to negative sentiment

Understanding impact of media on donation

SSH's campaigns increase donation by 47% on average

47%

Campaign

24%

December

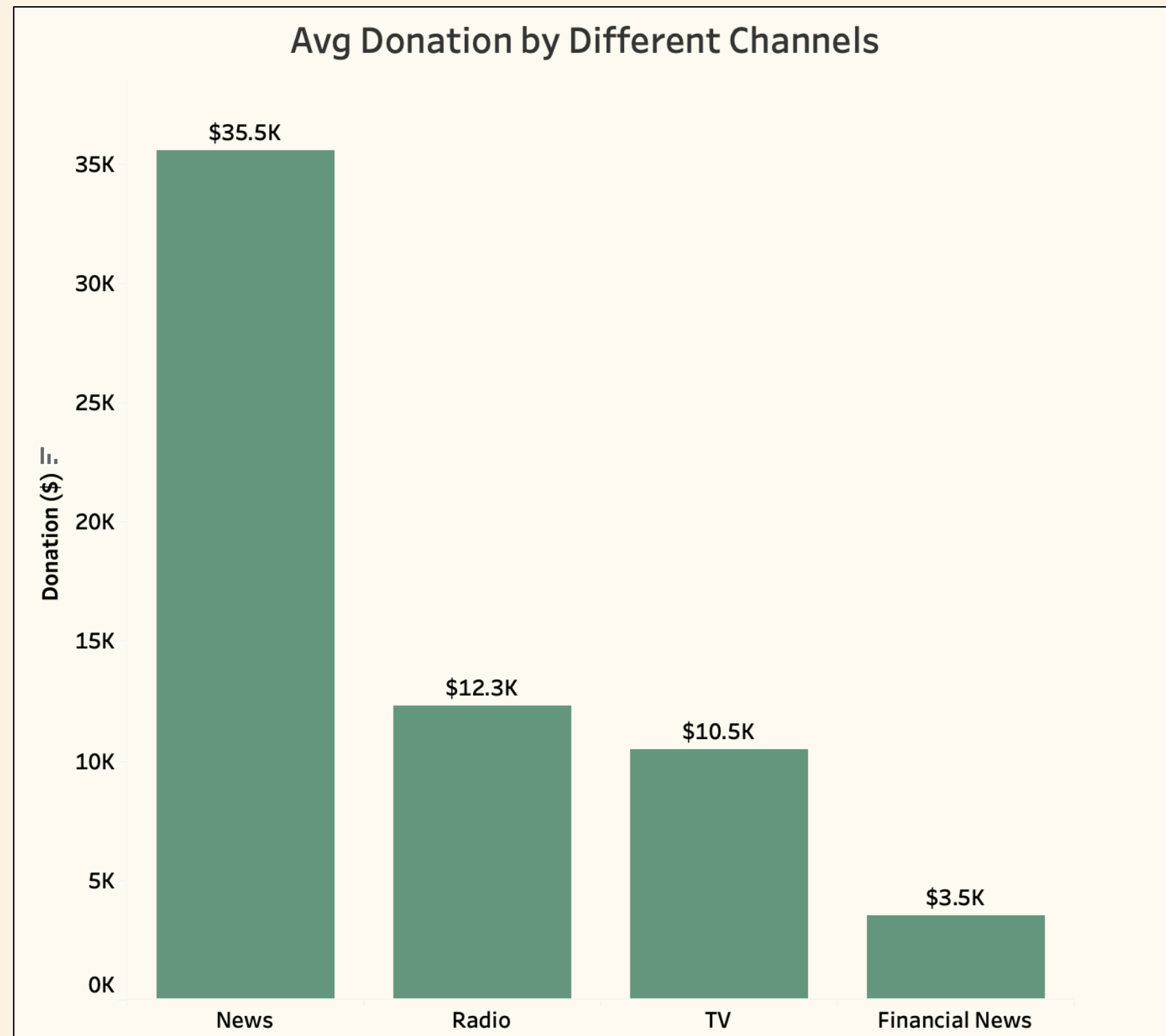
24% bump in donations during December can be attributed to tax saving donations

Quantifying

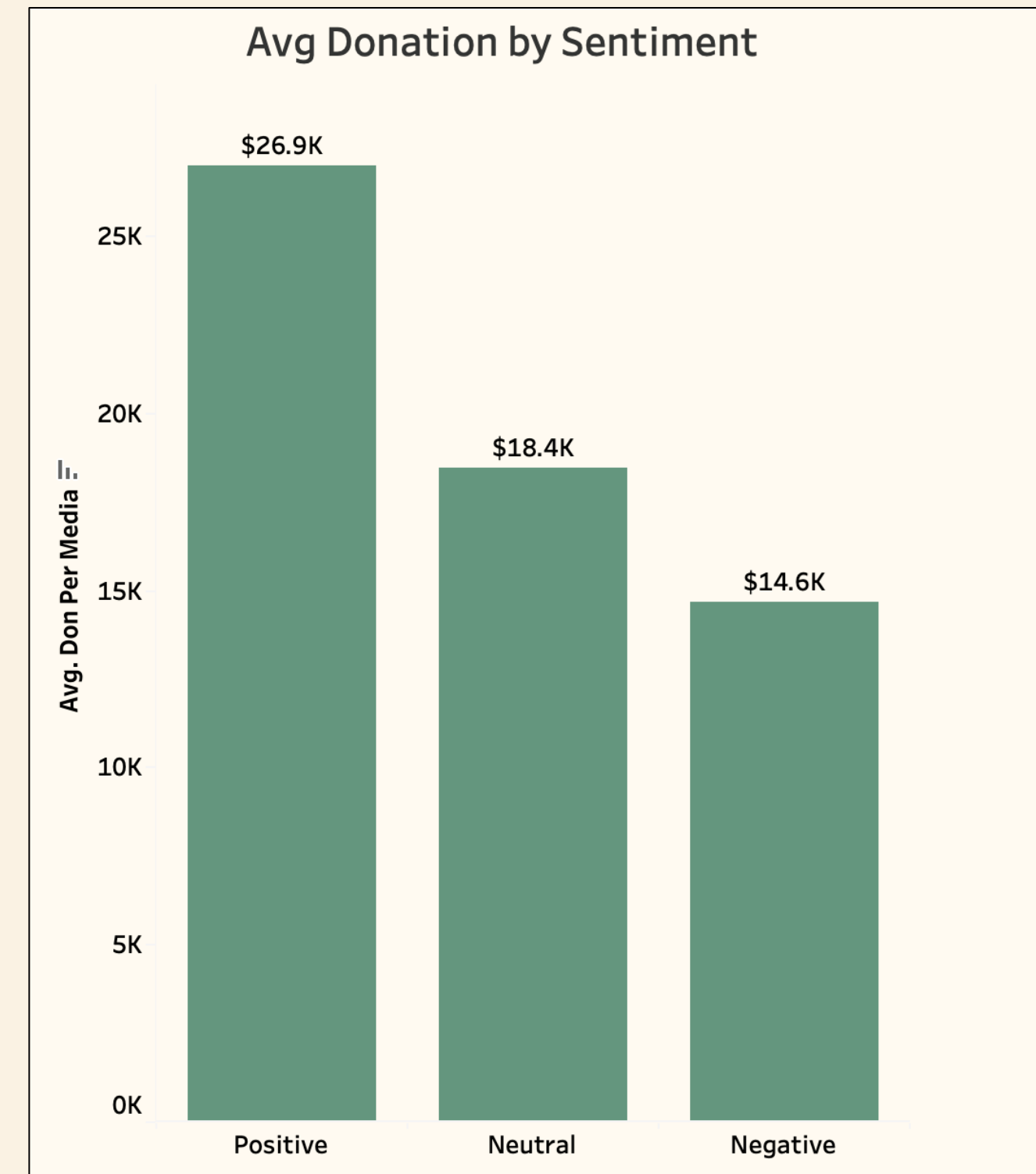
- Impact of campaign
- Impact of December month

Metrics summarize the % change in donation for campaign and December month

Predicting donations with historical data

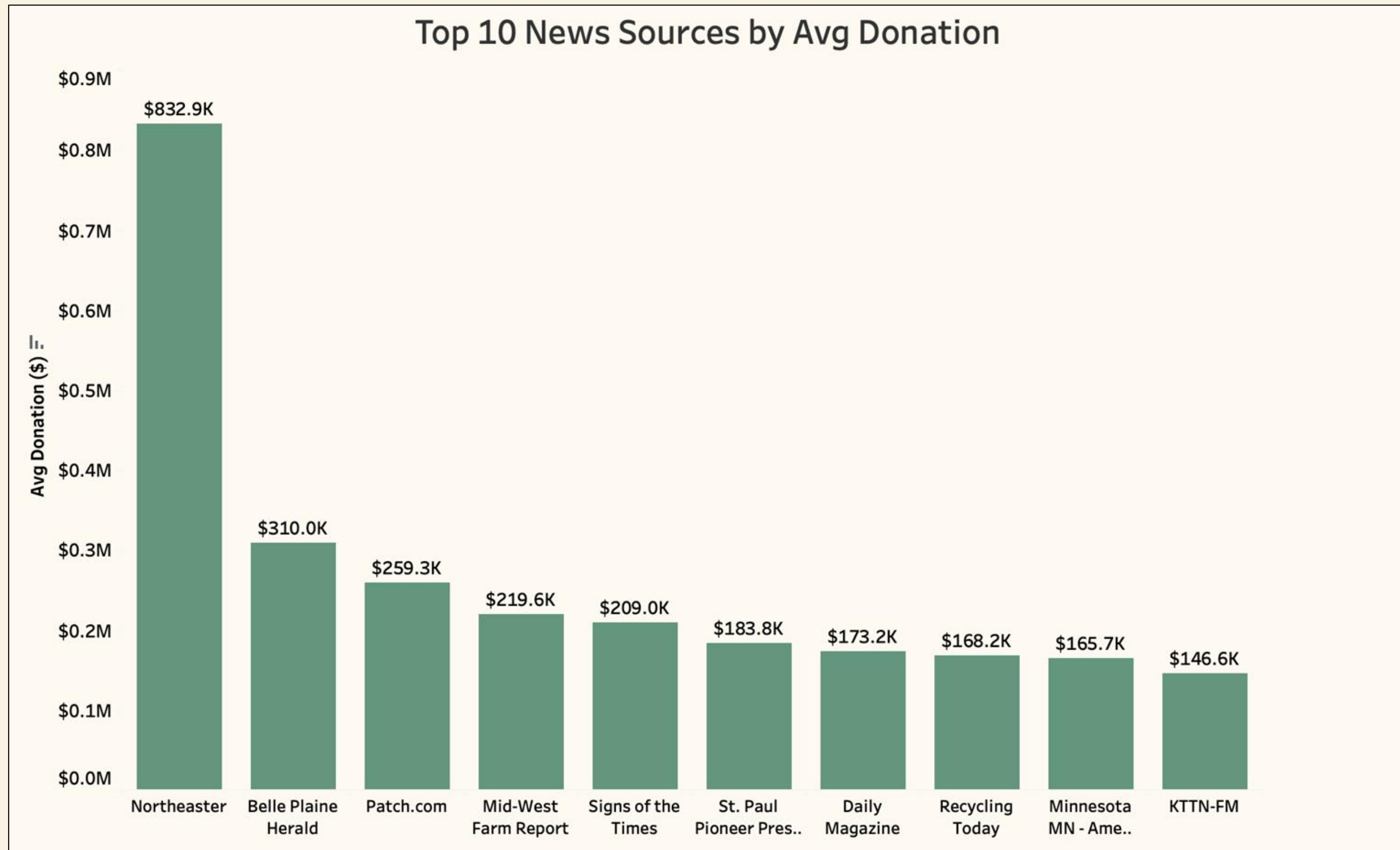


Website news brings in highest average donation (\$35.5k)



More **positive** the sentiment of media, more donation it brings

Predicting donations with historical data



Top 10 news websites contribute to **13%** of incoming donations among all news websites

Predicting donations with historical data

RMSE

How close our predicted donations are to the actual donation amount

R^2

How robust our predictive model is in estimating future donations

Predicting donations with historical data

RMSE: 1.15

R²: 40%

Lasso

RMSE: 1.30

R²: 37%

Random Forest

RMSE: 0.98

R²: 53%

XG Boost



Summary

News channel mentions bring in more donations than TV on average

More positive the sentiment of media is, more is the donation

Within broadcast, radio channel brings more donation than TV on average



Recommendations for SHH

**Allocate more resources
towards promotions and
mentions on local news
and radio channels**

**Mentions on media should
convey a more positive
sentiment overall to
improve donations**

Thank
You!



HARVEST