

(draft 1)

# Group 1 Visualizations Napkin Drawing

Federal Level:

% US  
under  
poverty  
level

1995

2020

Inflation  
(CPI)

% US  
under  
poverty  
line

fed. spending  
on social  
services

% US  
under  
poverty  
line

1995

2020

1995

2020

% under  
poverty  
line

Correlation matrix

t-test results

party in  
control

House

Senate

President

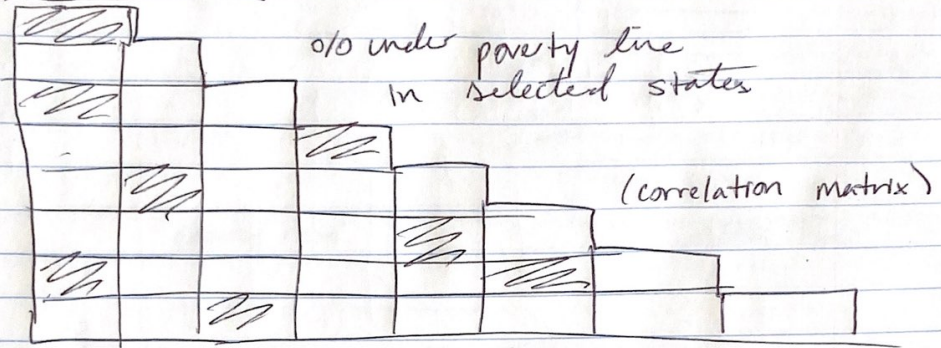
overall



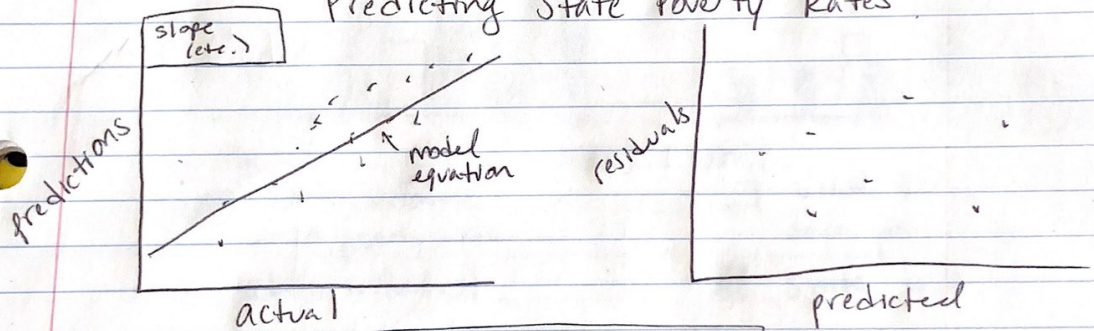
Cont. Draft 1

State-Level

factors that affect poverty levels



Predicting State Poverty Rates



In-sample accuracy: ~ %  
out of sample accuracy: ~ %

Deeper Dive into Poverty Factors:





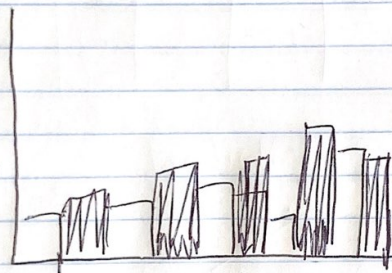
state  
edu.  
spending

poverty rate

state  
social  
services  
spending

poverty rate

state  
edu.  
spending



1995 2020  
State w/lowest  
2020 poverty rate  
state w/highest

state  
social  
services  
spending



1995 2020  
State w/highest  
2020 poverty rate  
state w/lowest

## Group 1 Visualizations' Napkin Drawings Feedback

We met with Group 2 (Adam Brewer, Nolan Thomas, Stephanie Leiva, and Emily Atkinson) to receive feedback on our first draft of the visualizations' napkin drawings.

Group 2 suggested that we:

- Reorder our visualizations for a better flow: move our machine learning model predictions to the end
- Include dropdown filters of states to get a closer look at the relationships between factors related to poverty and poverty rates in different states (rather than just the overall view)
- Change the original state factors relating to poverty and poverty rates correlation matrix so that it is less overwhelming and easier to read

We followed all three of these suggestions. We moved the model visualizations to the end and reordered our exploratory questions to match. We also inserted dropdown filters for states (we did not know this was an option in Dash!). Finally, we changed the correlation matrix for poverty factors versus poverty rates to be a bar chart of correlation coefficients.

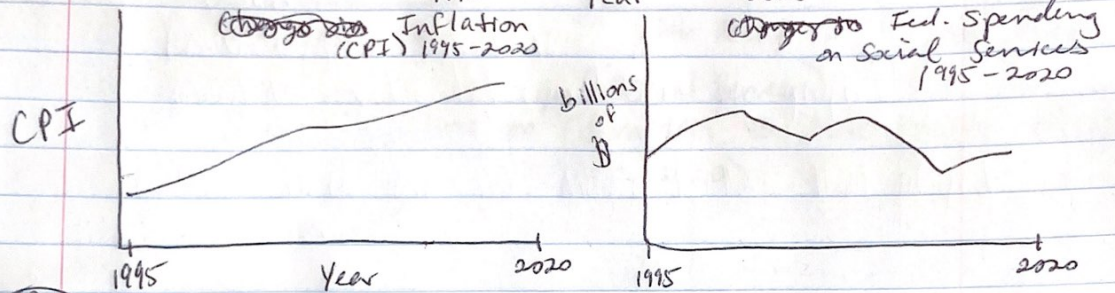
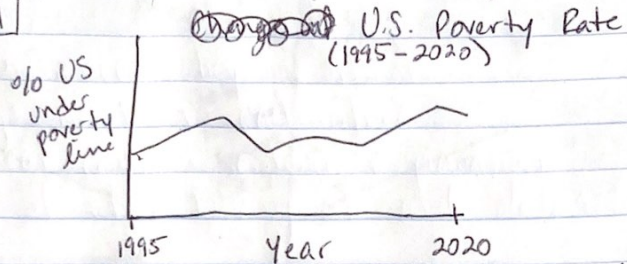


(Final draft)

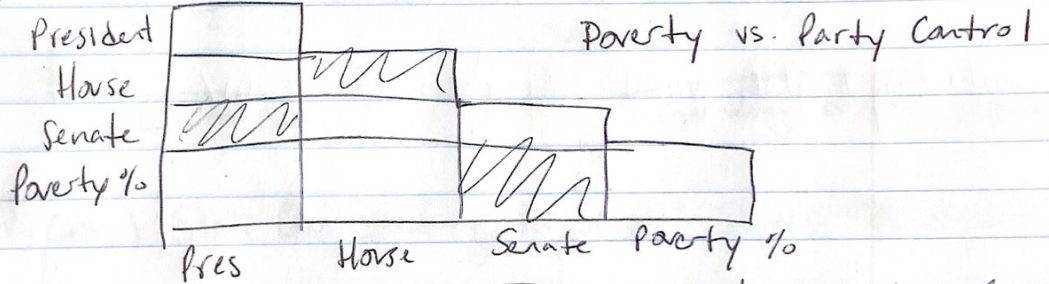
## Group 1 Visualizations Napkin Drawing

Federal Level

#1



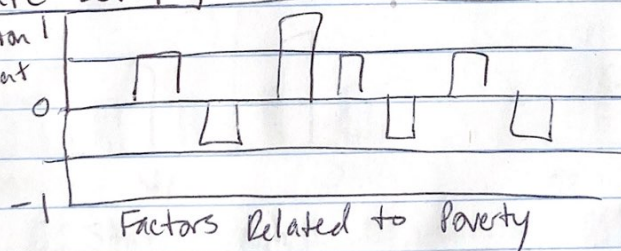
#2



State Level

Correlation Coefficient

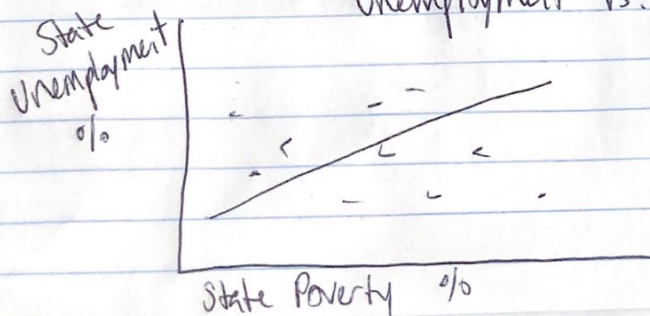
Q3



State Filter

for 2 graphs below  
Factors Related to Poverty vs. Poverty Rates

Unemployment vs. Poverty 1995-2020





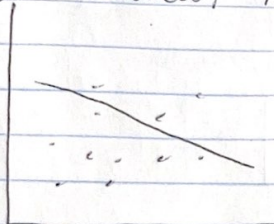
(for all 4 charts below)

State Filter ✓

Q4

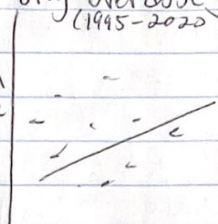
Tobacco, Alcohol, Drug Overdose vs. State Poverty Rates  
(1995-2020)

(a) State Tobacco Revenue



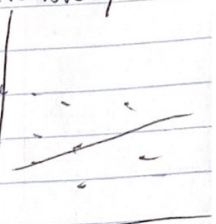
State Poverty %

State Alcohol Revenue (\$)



State Poverty %

Drug Overdose Rate (%)



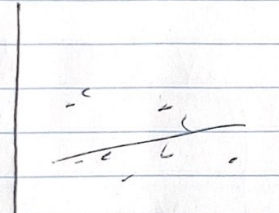
State Poverty %

Q5

State Spending on Education vs. State Poverty Rates  
(1995-2020)  
(+ Social Services)

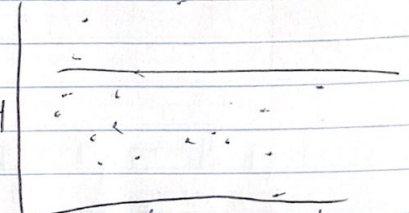
Q6

State poverty %



spending on Edu.

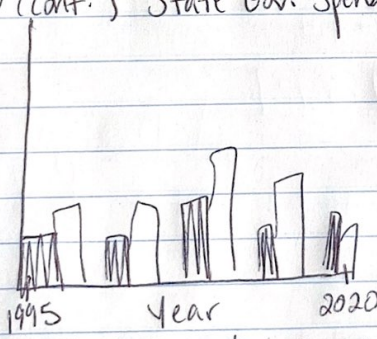
State poverty %



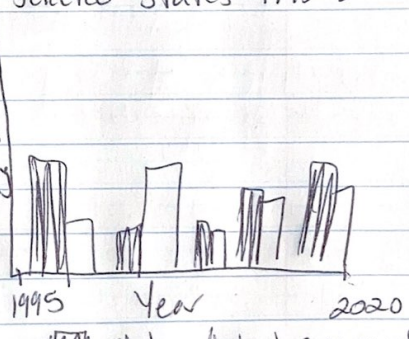
spending on social services

(cont.) State Gov. Spending for Selected States 1995-2020

State edu. spending



State social services spending



State w/highest 2020 poverty %  
State w/lowest 2020 poverty %

State w/highest 2020 poverty %  
State w/lowest 2020 poverty %



## Lasso Model: Predicting State Poverty Rates

Q7

