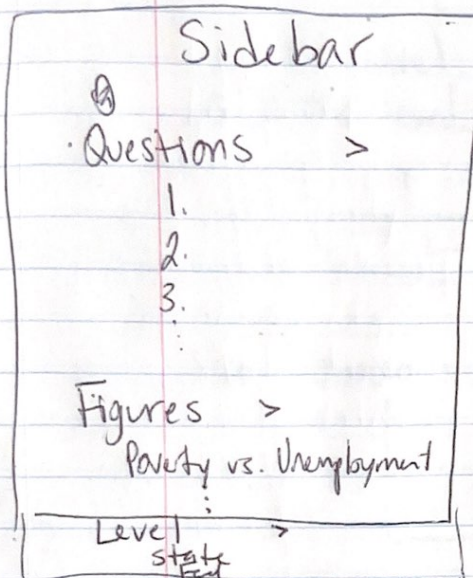


# Dashboard Napkin Drawing



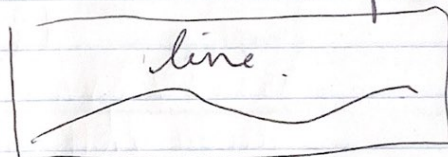
## Financial Services Group 1 Capstone

By: Shannon, Beth, Jerad, Joel

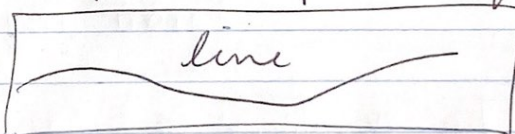
image of  
money / finance

Investigating Poverty Rates in U.S.

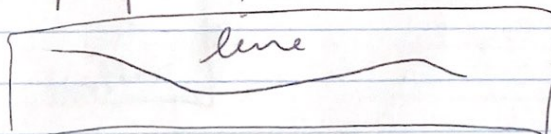
Question 1. How has U.S. poverty level changed ... ?



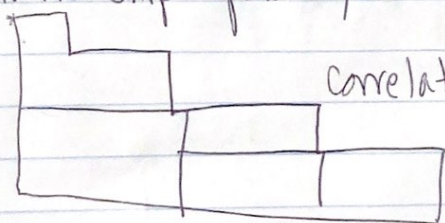
2a. Relationship between poverty + fed spending ?



2b. Relationship poverty and inflation ?



2c. Relationship poverty and party ?



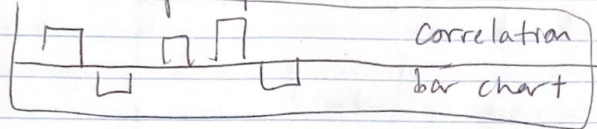
correlation matrix

(for questions 3-6)

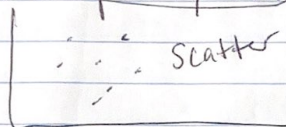
State dropdown filter ✓

State level

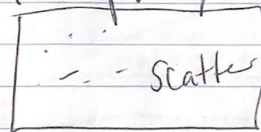
3. State-level poverty factors?



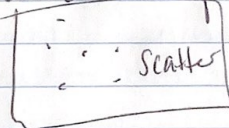
4a. Tobacco + poverty related?



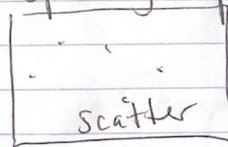
4b. Alcohol + poverty?



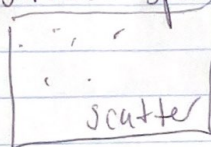
4c. Drug overdose + poverty?



5. Edu. spending + poverty?

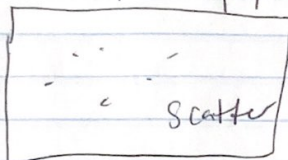


6. Social Services spending + poverty?



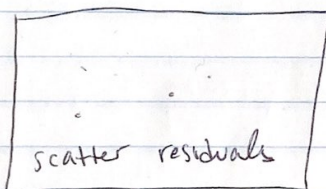
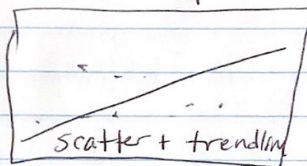


From our questions, we didn't see a lot of correlation. However, unemployment rates had moderate correlation.



7. Can we predict?

Using Lasso, we predicted state poverty levels:



Model performance: insample =  
out of sample =

Poverty is a complex issue; no one related factor correlates strongly with poverty rates.

Please see our technical report for a thorough discussion of these results.

## 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 dashboard napkin drawing.

Group 2 suggested that we:

- Reformat our figures so that related figures were side by side rather than below
- Add a brief explanation blurb at the beginning of our Dashboard to explain our purpose, data sources, year range, and target audience
- List the most weighted factors that Lasso machine learning model used
- Add a list of next step recommendations at the end of our dashboard
- Change the state factors relating to poverty vs. poverty bar chart so that correlation coefficients were all positive (absolute value)

We followed most of these suggestions. We changed the Dash format to place related figures next to each other (we did not realize we could do this initially) rather than on top of each other. We added a brief introduction and conclusion to our dashboard to include some explanations on data sources, target audience, goal, year range, and next step recommendations for government officials (our target audience). Next, we included a space under the Lasso model visuals to list out the most weighted factors Lasso used in its predictions. Finally, we did not change the correlation coefficients using absolute value because we believe there is great value in seeing the coefficients as either positive or negative to realize how they are related to poverty rates (do they improve or heighten poverty).



(Final draft)

## Group 1 Dashboard Napkin Drawing

Sidebar

Questions ▸

- 1.
- 2.
3. ...

Figures ▸

Poverty vs. Spending  
⋮

Level ▸

State  
Federal

# Investigating U.S. Poverty Rates

1995 - 2020

Capstone Project

By: Financial Services Group 1

Shannon Bayless, Joel Garcia, Jerad Ipsen, Beth Vander

image of money/finance

(1-2 sentences)

Blurb from executive summary: purpose, <sup>target</sup> audience, datasets, goal to achieve, years selected

Federal Level #2

1. How has U.S. Poverty changed ... ?

line graph

#  
exploratory  
questions

2. Relationship: inflation/gov. spending/party control and poverty rates?

line graph  
inflation

line graph  
gov. spending

party control + poverty  
correlation  
matrix



State Level

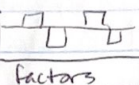
Use this filter for all charts below

state dropdown filter ▼

# exploratory questions

3. State-level factors vs. poverty rates?

bar chart: correlation coefficients



4. Are tobacco/alcohol/overdose rates and poverty related?

tobacco  
vs.  
poverty  
scatter

alcohol  
vs.  
poverty  
scatter

overdose rates  
vs. poverty  
scatter

5. <sup>Gov.</sup> Education spending and poverty related?

edu. assistance  
vs. poverty  
scatter

total ~~higher~~ edu. spending  
vs. poverty  
scatter

6. Gov. social services spending + poverty related?

gov. welfare spending  
vs.  
poverty  
scatter

gov. unemployment spending  
vs. poverty  
scatter

unemployment rate  
vs. poverty  
scatter  
(by state)



7. Can we predict state poverty rates?

Using Lasso (a type of machine learning model),  
we predicted state poverty levels:

predicted vs. actual  
w/ trendline  
scatter

predicted vs.  
residuals

Model Accuracy: ~ %

~~Most~~ Highest weighted factors: ~

Poverty is a complex issue: no one related factor  
correlates strongly as all factors have at least  
some effect on poverty rates.

From our findings, we recommend state governments  
focus on these issues to improve poverty rates:

- ~
- ~
- ~

Please see our technical report for a thorough  
discussion of our results.