

PREDICTING VOTER CHOICE IN SENATE RACES

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INTRODUCTION

- While Senate races are always hotly contested, in 2020 the general public has started to grasp the importance of controlling the Senate
- Given their importance, it might be useful to examine the voting choices of individuals who do not identify with either political party

DATA

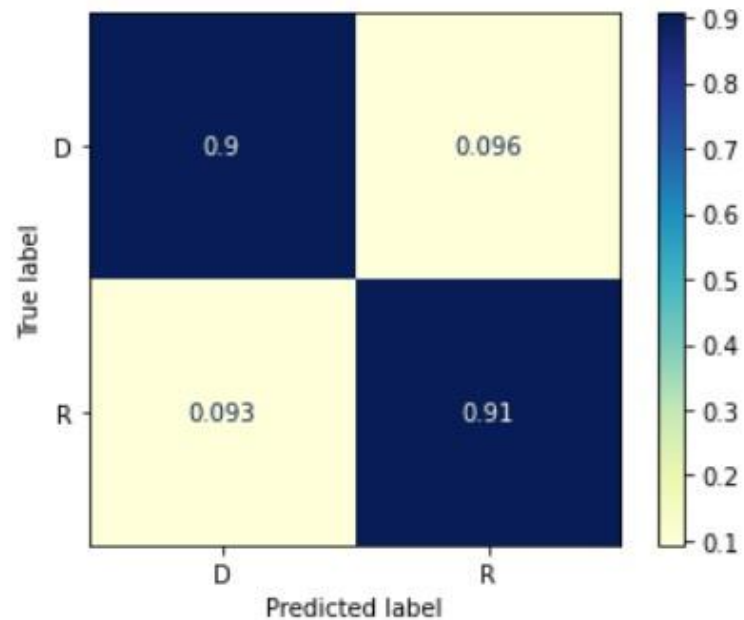
- Correlates of State Policy Project
 - Demographics – e.g. total population, & non-white
 - Economic Variables – e.g. minimum wage & unemployment
 - Election Laws – e.g. same-day registration & voter ID laws
- Census Bureau
 - Supplementary Data – e.g. population density
- Voter Turnout
- Cooperative Congressional Election Study
 - Personal Data and Voting Choices – e.g. race & union membership

SELECTED COLUMNS

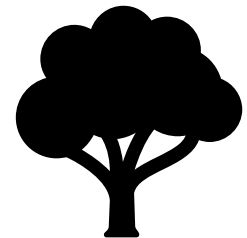
year	st	pid3	gender	birthyr	age	race	hispanic	citizen	educ	marstat	faminc	union	union_hh	employ	no_healthins	has_child
2006	NC	D	Female	1974	32	White	NaN	Citizen	High School Graduate	Divorced	10k - 20k	No, Never	Yes, Formerly	Unemployed	NaN	NaN
2006	OH	Other	Male	1957	49	White	NaN	Citizen	Post-Grad	Married	150k+	No, Never	No, Never	Full-Time	NaN	NaN
2006	NJ	D	Female	1952	54	White	NaN	Citizen	High School Graduate	Divorced	30k - 40k	No, Never	No, Never	Full-Time	NaN	NaN
2006	IL	D	Female	1972	34	Black	NaN	Citizen	4-Year	Single / Never Married	Less than 10k	No, Never	No, Never	Unemployed	NaN	NaN
2006	NY	D	Male	1986	20	White	NaN	Citizen	Some College	Single / Never Married	100k - 120k	No, Never	No, Never	Student	NaN	NaN

MODEL

Confusion Matrix for RandomForestClassifier

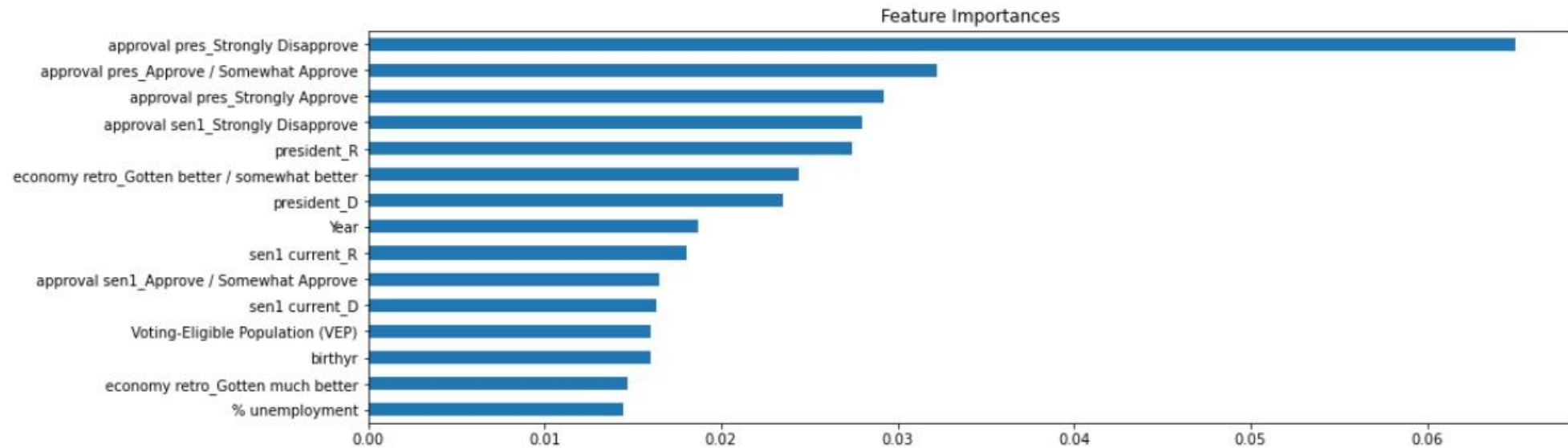


- Random Forest Model
- 91% accurate
- Gave us top 15 most important features



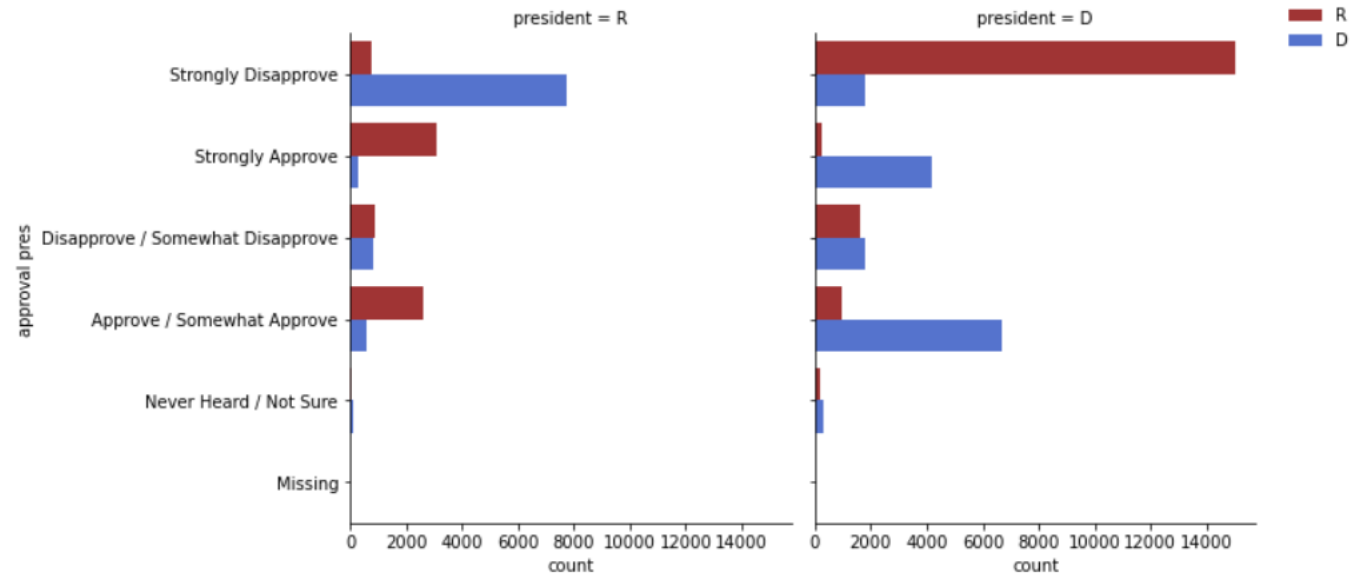
IMPORTANT FEATURES

- Presidential and senator approval were by far the most important features



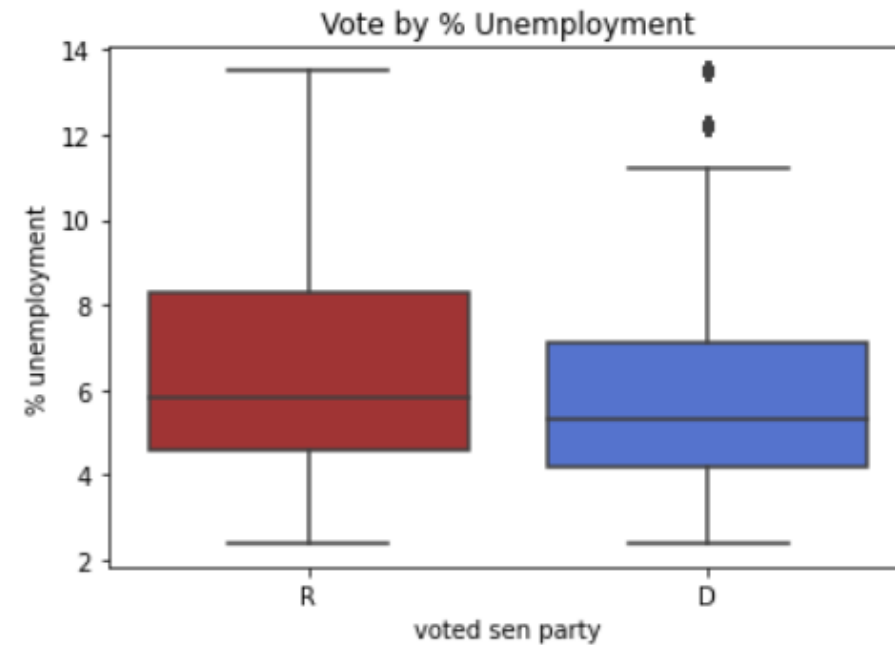
PRESIDENTIAL APPROVAL

- As one would expect, presidential approval impacts senate voting.



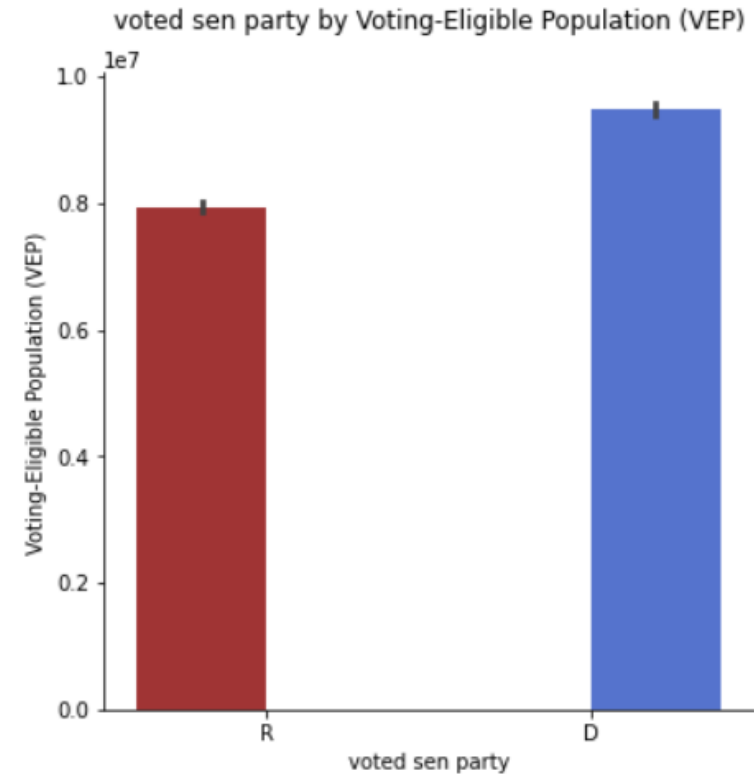
UNEMPLOYMENT

- It appears that more swing voters choose a Republican senate candidate when unemployment is higher.



VOTING ELIGIBLE POPULATION

- The more voting-eligible people in someone's state, the more likely they are to vote for a Democrat.



RECOMMENDATIONS

- Focus on unemployment is a strong position for Republicans. Democrats need to present a stronger case to swing voters when unemployment is going up.
- Both parties must find ways to mitigate the impact of disapproval of the president and their other senator when their party is in power.
- Democrats should prioritize voters in states with greater numbers of voting-eligible people because they are more likely to be potential voters while Republicans should focus on the opposite.

FUTURE WORK

- Investigate what distinguishes people who vote from people who do not
- We did not have access to see how the same people voted over time, which might provide further insights.
- In the future it might be useful to only examine states where Senate seats are likely to flip or have in the past flipped.

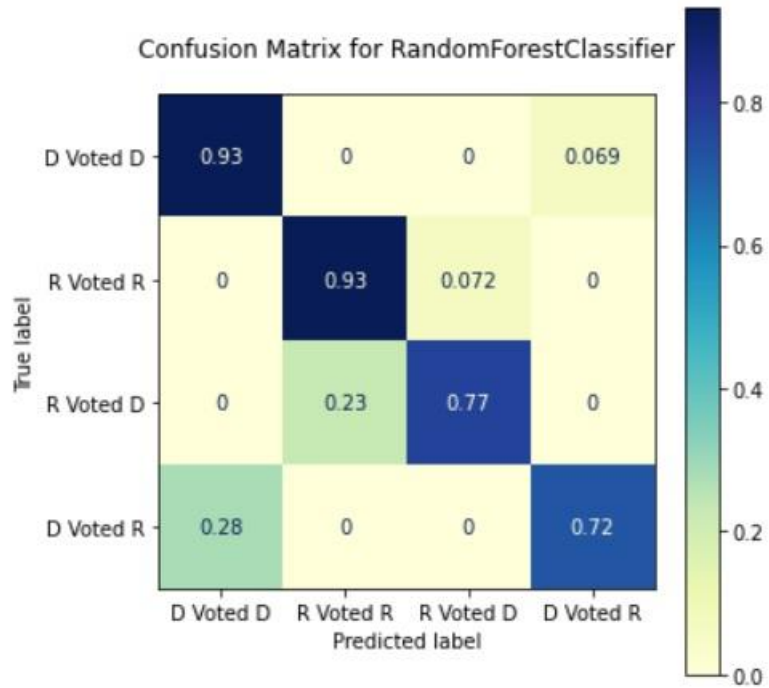
CONCLUSION

- We can predict swing voter choice with 91% accuracy using the presented model
- Disapproval of presidents and senators, population-related variables, age, and economic variables were most influential for both models
- These findings can be used to help campaigns more effectively target voters

THANK YOU

APPENDIX

MODEL

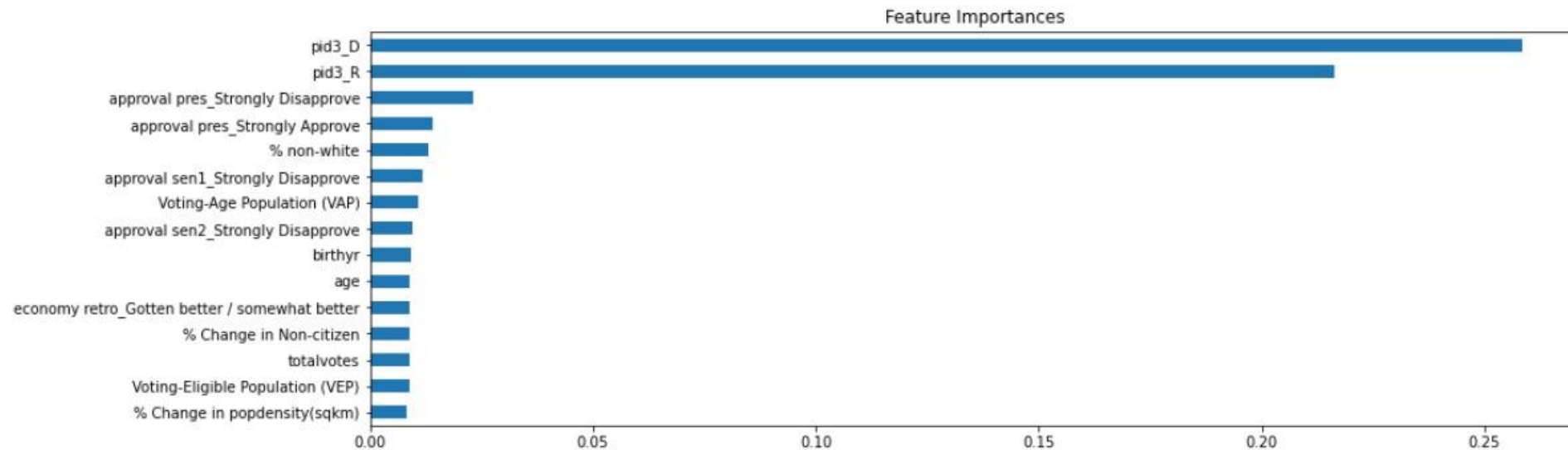


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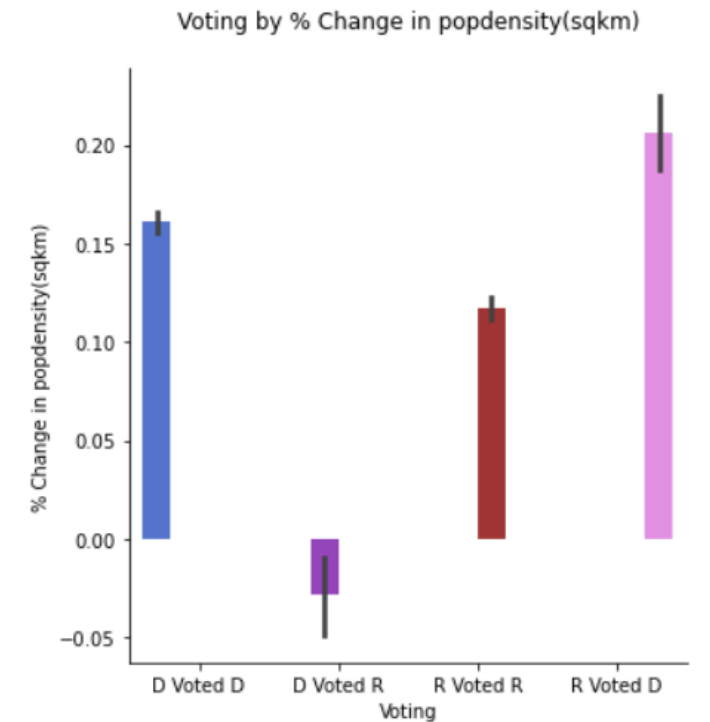
MOST IMPORTANT FEATURE

- Political party is most important, where people tend to vote with their registered party
- This is followed by presidential approval



CHANGE IN POPULATION DENSITY

- For both self-identified Democrats and Republicans, living in a place that is increasingly dense is associated with voting for Democrats.
- While Republicans who vote for Republicans also live in places that are on average growing denser - although to a lesser degree - Democrats who vote for Republicans are the only group that are more likely to live in places becoming less dense.



PERCENTAGE NON-WHITE

- Republicans who vote for Democrats tend to live in places with a higher percentage of non-white individuals
- Democrats who vote for Republicans tend to live in places with the smallest percentage of non-white individuals

