Predictors of COVID-19 Vaccinations

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01: Background

POLITICS

There's A Stark Red-Blue Divide When It Comes To States' Vaccination Rates

JUNE 9, 2021 · 7:00 AM ET

Domenico Montanaro

States Biden Won Have The Highest Adult Vaccination Rates

02: Research Question

What factors best predict the rate of vaccination on a county-by-county level?

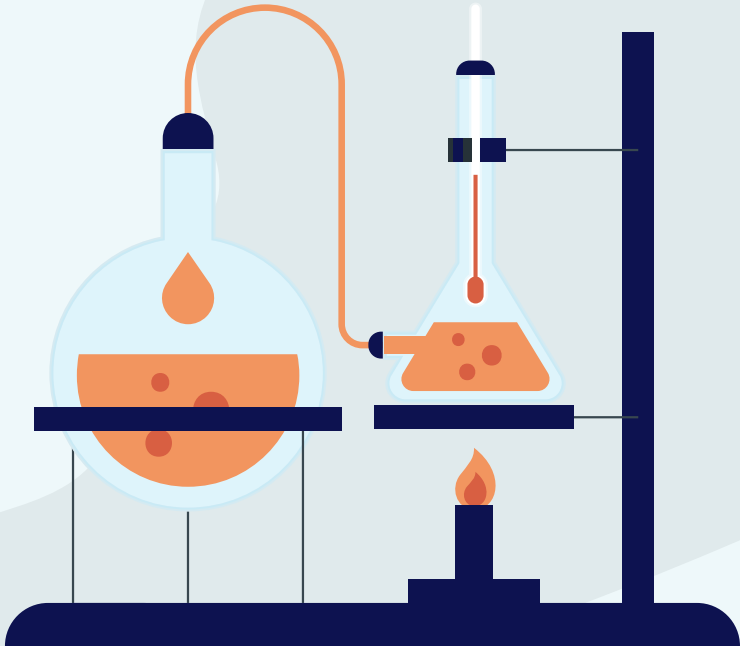
03: Data Understanding:

1. 2020 Presidential Election
2. Census: Race
3. Census: Age
4. Poverty Rate
5. Educational Attainment

CDC Vaccinations

3,113

Counties that make up the focus of our dataset

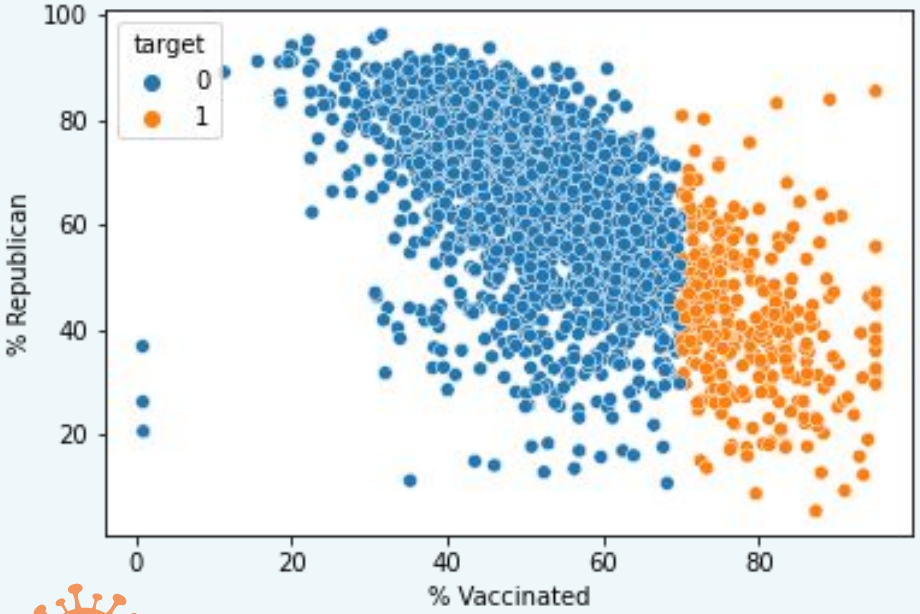


70%

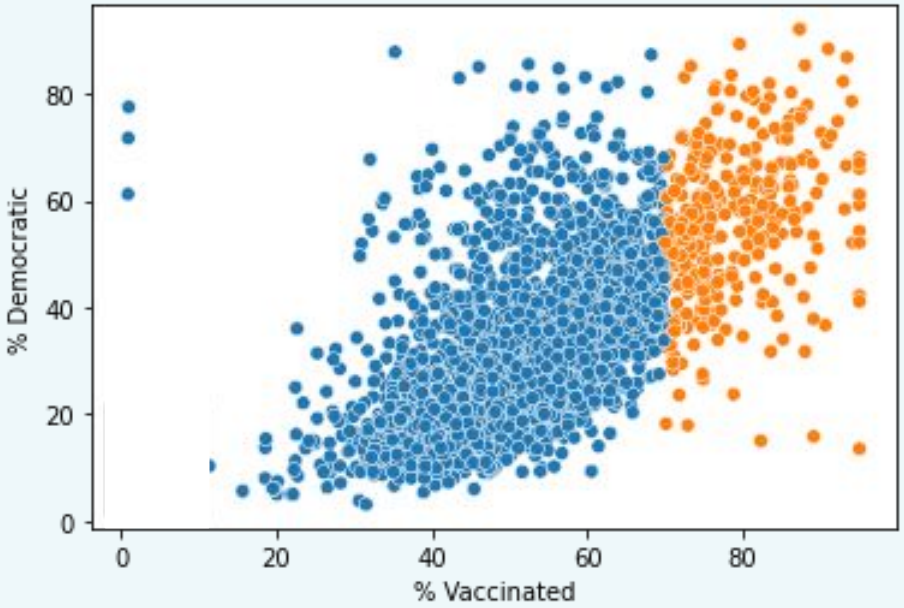
Target vaccination % for a given county

Political Trends

Vaccination vs. % Republican

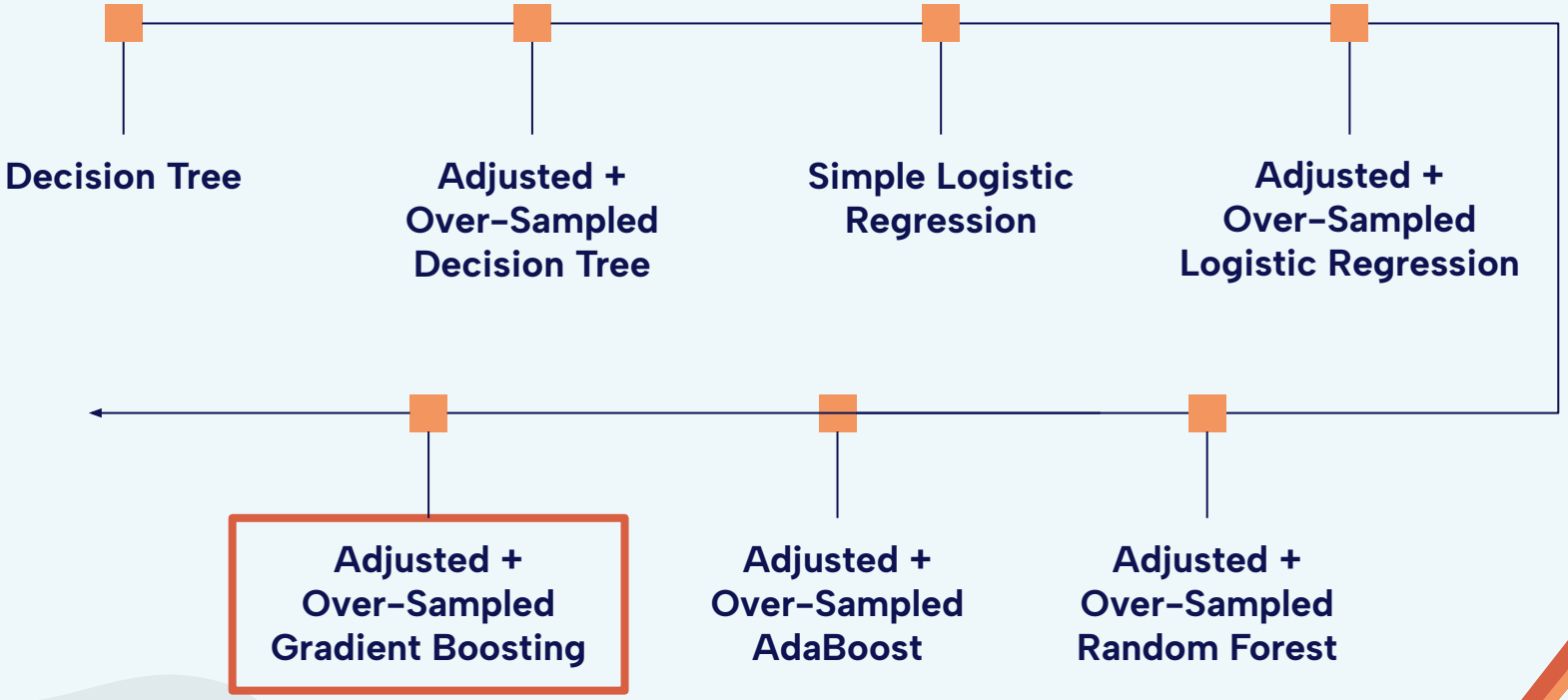


Vaccination vs. % Democratic



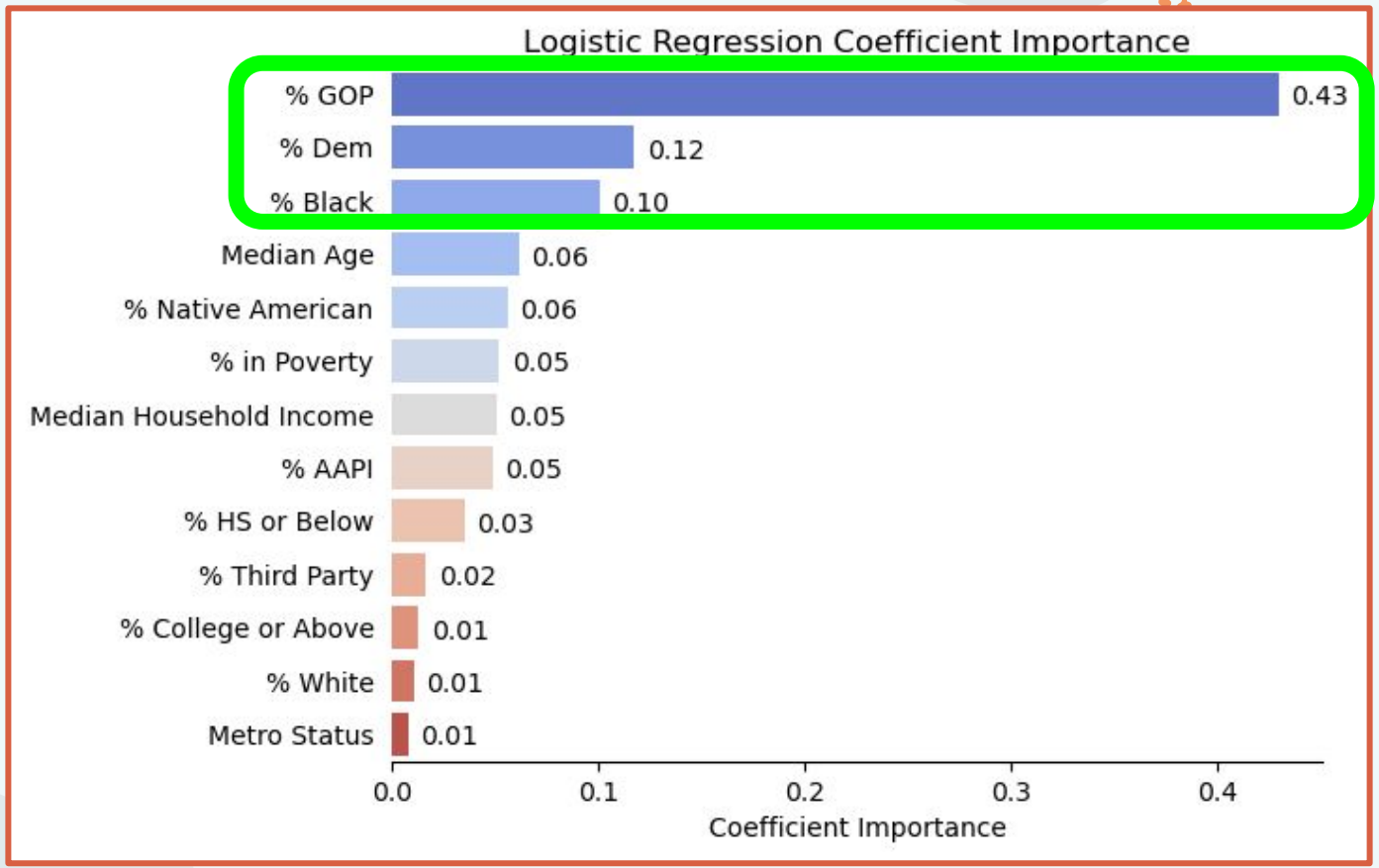
04: Modelling

Models Attempted

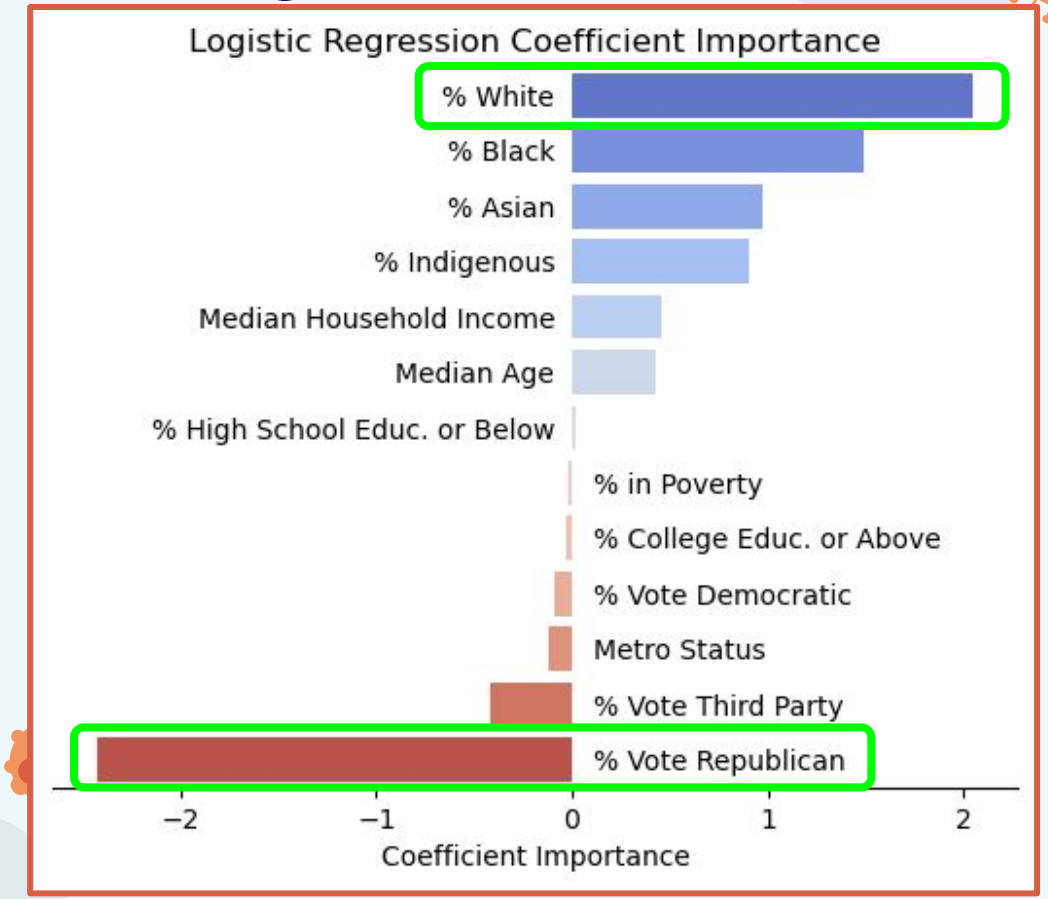


Dummy Model		Final Model
Accuracy: 90%	→	Accuracy: 93%
Precision: 0%	→	Precision: 75%

Gradient Boosting Results



Logistic Regression Results



05: Impact

Being able to predict vaccination level can inform how we respond to widespread disease

- Media focus/medical PR
- Most vulnerable populations
- Where to send medical supplies

06: Next Steps

Other Potential Predictors:

- Provider density
- Death rates
- CDC Social Vulnerability Index
- Surveys & polling

Demographic-Specific Splits:

- Age-level vaccination status

Thanks!

Questions?

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https://github.com/natehiatt/covid_vax_project


slidesgo