Predicting Florida Presidential Election Vote Shares

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Research Question

- How do demographic factors, such as population by race, median income, and median housing prices, relate to the 2020 election outcomes in **Florida** counties?
- This study investigates the connection between demographic characteristics in Florida counties and their **political preferences during the 2020 elections**. Florida, known for its diversity and political significance, has historically played a pivotal role in national elections, making it an ideal focal point for this analysis.
- The research utilizes county-level election results and demographic data from the American Community Survey to provide comprehensive insights into the influence of demographics on election outcomes in Florida.

Hypothesis Testing

Linear Model:

dem_votes $\sim$ *pop_poc*

- The null hypothesis for the coefficient associated with the variable *pop_poc* is:
  $H_0 : \beta_{pop\_poc} = 0$
- Associated Model Results:

dem_votes $\sim$ pop_poc				
	Estimate	Std.Error	t-value	Pr(>|t|)
Intercept	3.271e+01	1.569e+00	20.847	< 2e-16
pop_poc	1.995e-05	4.266e-06	4.676	1.56e-05

This model was employed to investigate the relationship between the Democratic vote share in the 2020 presidential elections, and the percentage of the population that is people of color. H_0 suggests no impact of the population of people of color on Democratic vote share. However, the estimated coefficient was found to be statistically significant, providing evidence against H_0. The coefficient indicates that an increase in the population of people of color is associated with a corresponding increase in Democratic vote share.

Hypothesis Testing Cont.

Linear Model:

rep_votes $\sim$ *median_housing_price*

The null hypothesis for the coefficient associated with the variable *median_housing_price* is:

$$H_0 : \beta_{median\_housing\_price} = 0$$

Associated Model Results:

rep_votes $\sim$ *median_housing_price*(*mhp*)				
	Estimate	Std.Error	t-value	Pr(>|t|)
Intercept	-8.208e+04	2.710e+04	-3.029	0.00353
mhp	9.406e-01	1.412e-01	6.660	7.33e-09

- *This model reveals a significant positive correlation between median housing prices and Republican (0.941, $p < 0.00001$) votes. These findings suggest that housing affordability, reflected in median prices, may influence political preferences. The interplay of socioeconomic factors in shaping electoral dynamics is evident. However, caution is warranted, as correlation does not imply causation. Further research considering additional variables is crucial for a comprehensive understanding of the relationship between housing prices and political preferences in Florida counties.*

2020 Vote Shares

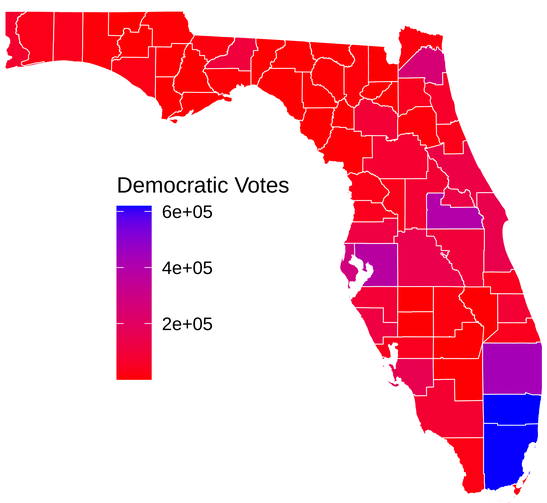

Figure 1:Florida Vote Share by County 2020

Demographic Impact

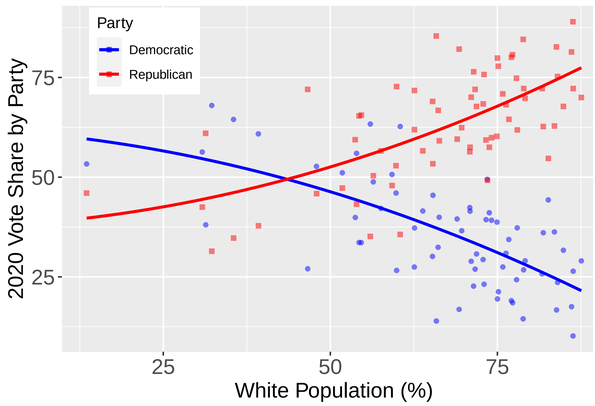

Figure 2:White population vs. 2020 Presidential vote share

Average Demographics of Bottom 5 Counties				
	Dem Vote Share	White Pop	PoC Pop	House Income
Bottom 5 counties	14.414%	78.54%	21.46%	$50,012

Bottom Five Counties: Holmes, Lafayette, Baker, Dixie, Union

Average Demographics of Top 5 Counties				
	Dem Vote Share	White Pop	PoC Pop	House Income
Bottom 5 counties	63.86%	40.01%	59.99%	$53,647

Bottom Top Counties: Gadsen, Broward, Leon, Alachua, Orange

The top five counties in Florida exhibit a strong Democratic vote share, and reflects a diverse population composition with 59.99% People of Color. These counties also feature a relatively higher median housing price of $210,560. In contrast, the bottom five counties have a lower Democratic vote share of 14.41%, a predominantly White population (78.54%), and a more affordable median housing price of $110,500. These findings suggest a correlation between political preferences, racial diversity, and housing affordability in Florida counties. However, a comprehensive understanding would require consideration of additional factors and context.

2020 Population Heatmap by Race

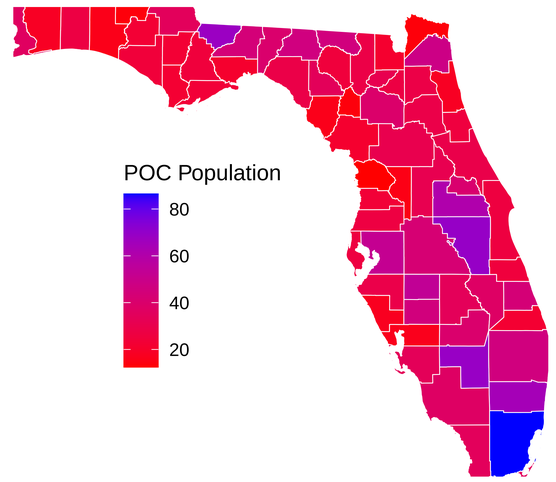

Figure 3:Florida Heatmap for Population of People of Color by County

Conclusions

The models indicate that demographic factors, especially those related to race and the economy, significantly impact Democratic electoral support. Understanding these dynamics is crucial for predicting political preferences in different US regions during large-scale elections.

For future elections in Florida, socioeconomic factors are important considerations. Policymakers and analysts should incorporate these economic dynamics into strategies and forecasts, recognizing the complex nature of political choices. However, it is essential that we consider the entire picture, including various other factors, as the model results do not imply causation.

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