

## Take Home Message

- If a coefficient is negative  $\Leftrightarrow$  the odds ratio is less than 1, then more of that covariate makes the outcome event less likely (holding the values of the other covariates constant).
- If a coefficient is positive  $\Leftrightarrow$  the odds ratio is more than 1, then more of that covariate makes the outcome event more likely (holding the values of the other covariates constant).
- Odds ratios are used in logistic regression because they show the effect of a variable that is independent of the values of the other covariates. They make sense in the context of predicting disease or other rare events.
- However, researchers often interpret odds ratios as if they are relative risks. This is misleading unless the event is rare (probability of the event  $\approx .01$ ).
- You cannot determine the relative risk from the odds ratio. You only know that the relative risk is between the odds ratio and 1.
- Probabilities (and relative risks) are a more meaningful way to present results than beta coefficients or odds ratios.
- Plots are often more informative than tables.
- It is relatively easy to calculate and plot predicted probabilities using Excel, Stata, SAS, R and other programs

## General

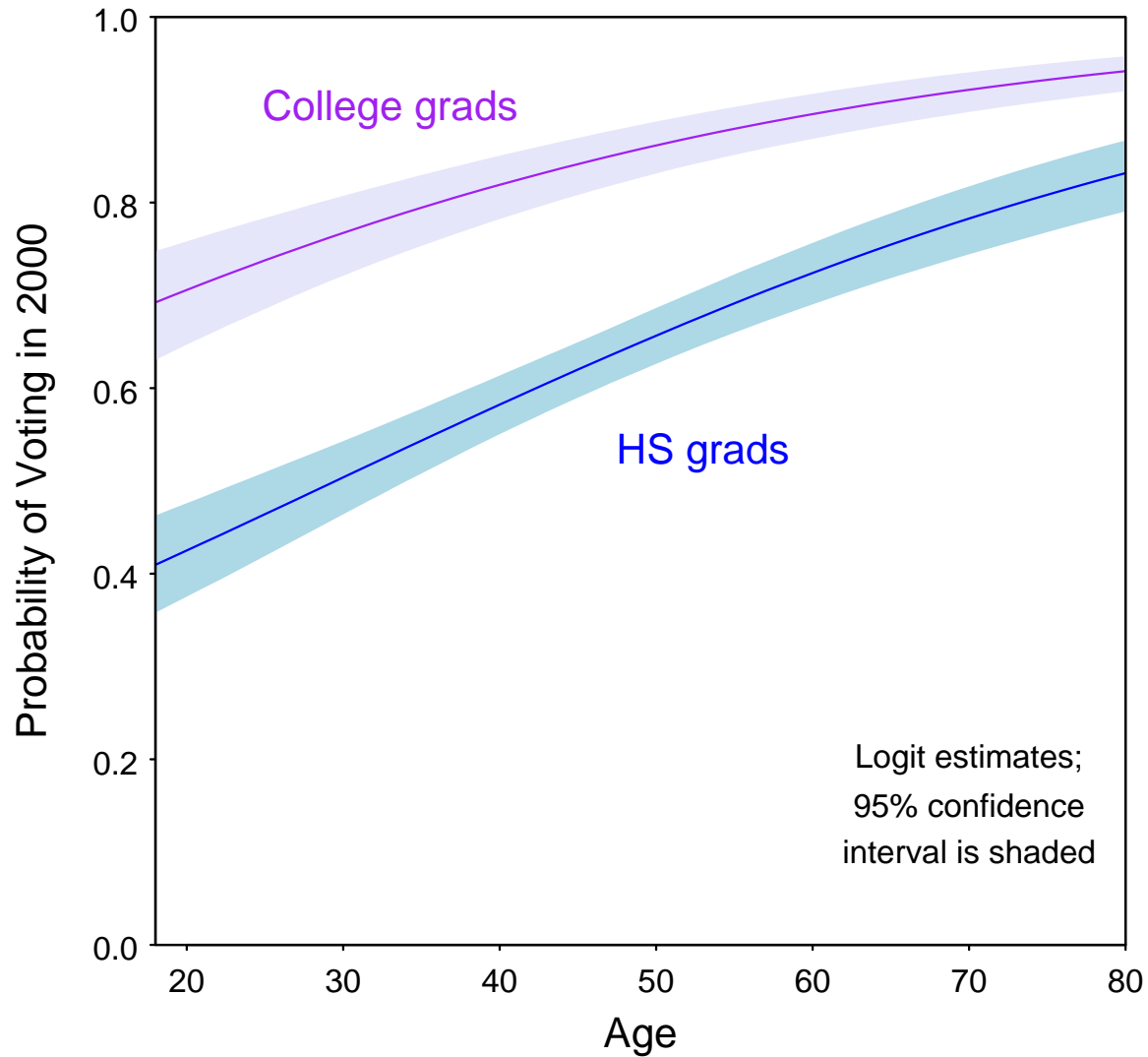
- The p-value gives the probability of getting that coefficient value in your sample ASSUMING that the coefficient in the population is 0.
- The coefficient in the population is (almost) never 0.
- Just because a coefficient is not statistically significant does not mean that it has no effect or that the best estimate of its effect is zero. It means that the confidence interval includes 0, but it also includes many other values. The best point estimate of its effect is its estimated value.
- Do NOT use p-values to decide on the importance of a covariate (i.e. the size of its effect). The p-value does not necessarily reflect the importance of a covariate. It reflects measurement error and sample size.
- The importance of a covariate (e.g., whether it has a small, medium, or large effect) is a judgment made by the researcher.
- You don't know how well your sample captures the population parameters, so don't over-intepret your results.

For more about logistic regression and other models for discrete dependent variables take

CSSS 536 Log-Linear Modeling and Logistic Regression for the Social Sciences

taught by Chris Adolph.

# Simulating the expected probability of voting



Claim: This plot is a better summary of the regression than Table 1.

If you can publish only the table or the plot, choose the plot.

# Origins of democracy?

