

Odds Ratio

Verified Python analysis transcript

Test: Odds Ratio

Design: Internet-access exposure and G3 pass outcome in a 2 x 2 table.

Variables: internet, G3 >= 10

Null hypothesis: The pass odds are equal for students with and without internet access.

Primary formula: $OR = ad/(bc)$; $SE[\ln(OR)] = \sqrt{1/a+1/b+1/c+1/d}$

Valid source rows: 649

Verified results:

odds_ratio: 1.7004448838358872

ci_low: 1.06635939763583

ci_high: 2.7115743616779353

log_or: 0.5308899131996985

log_or_se: 0.2380857515535691

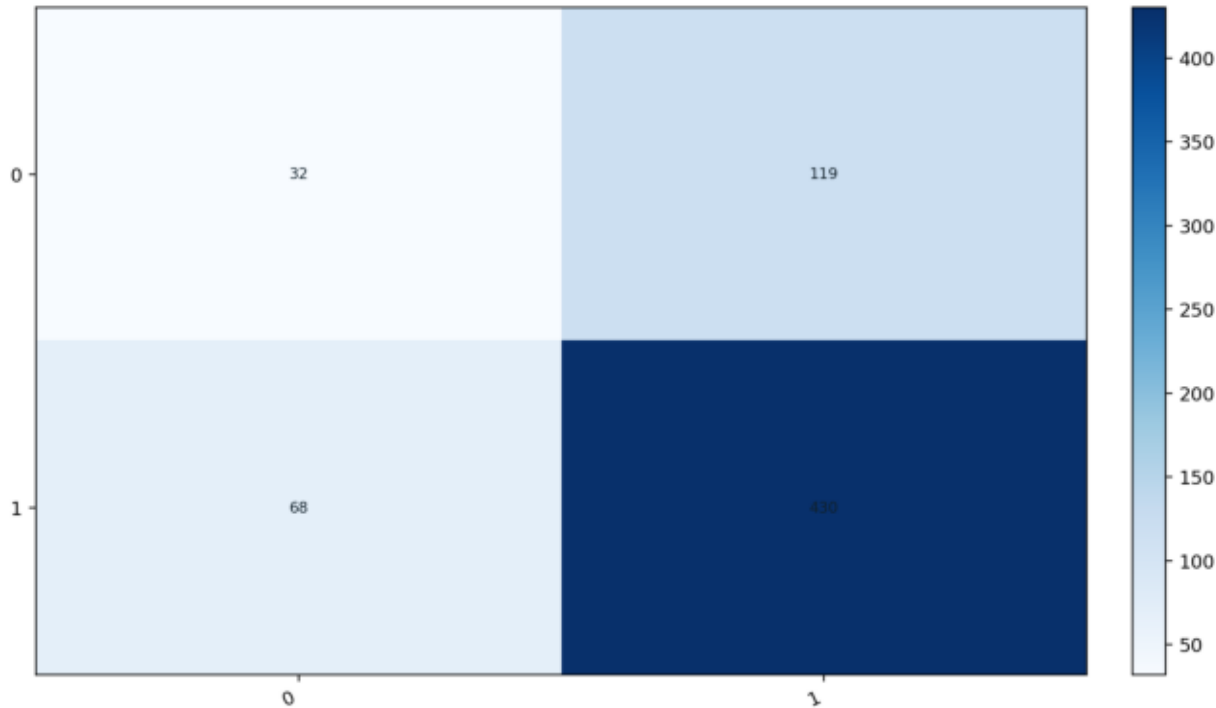
Interpretation:

Odds ratio = 1.700445, 95% CI [1.066359, 2.711574].

Interpret this as a ratio of odds, not a ratio of probabilities.

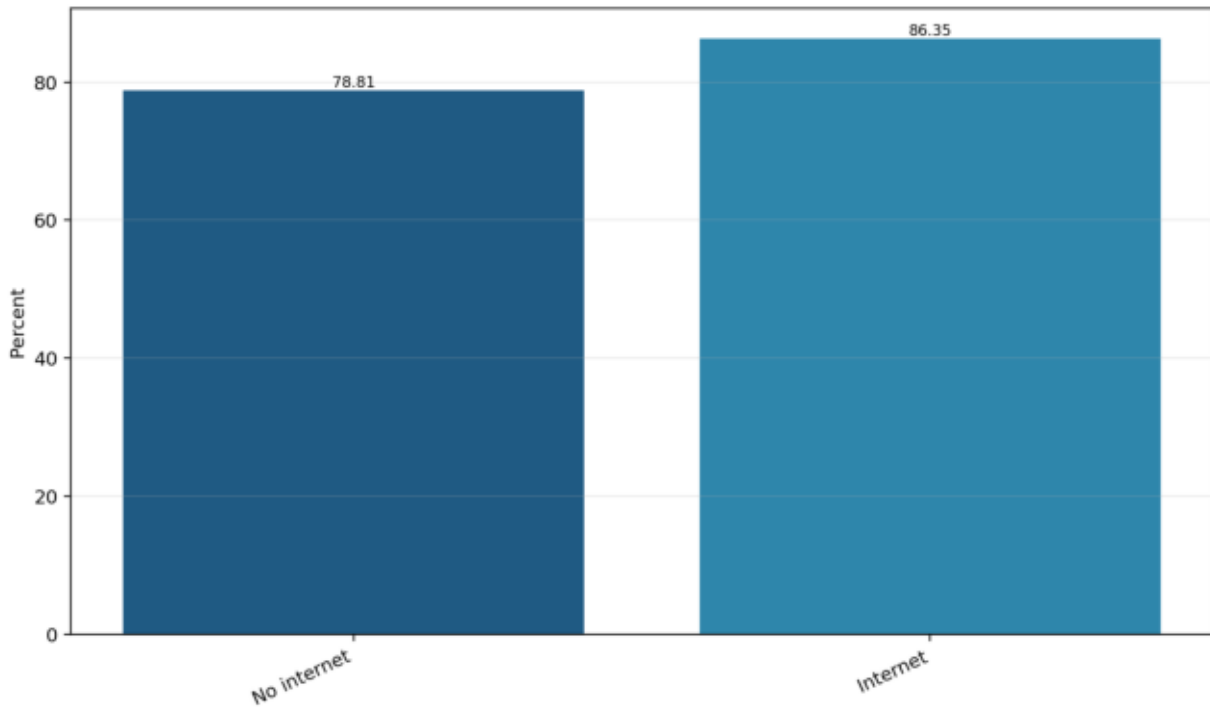
Internet access and pass outcome

Observed 2 x 2 table



Pass percentages by internet access

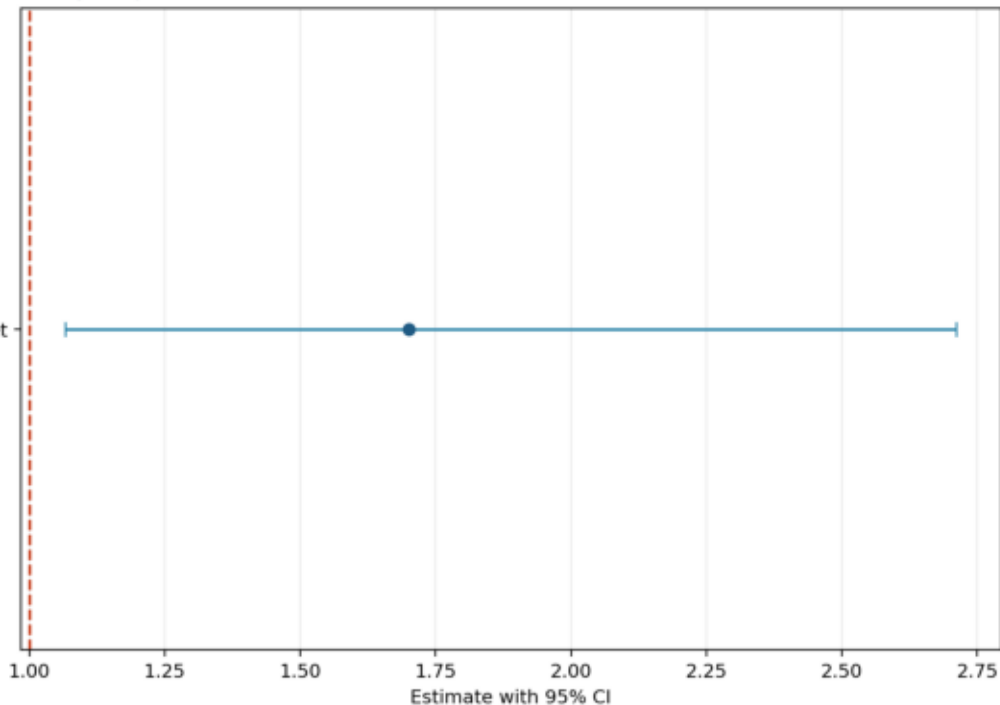
Risk scale shown for context



Odds ratio with 95% confidence interval

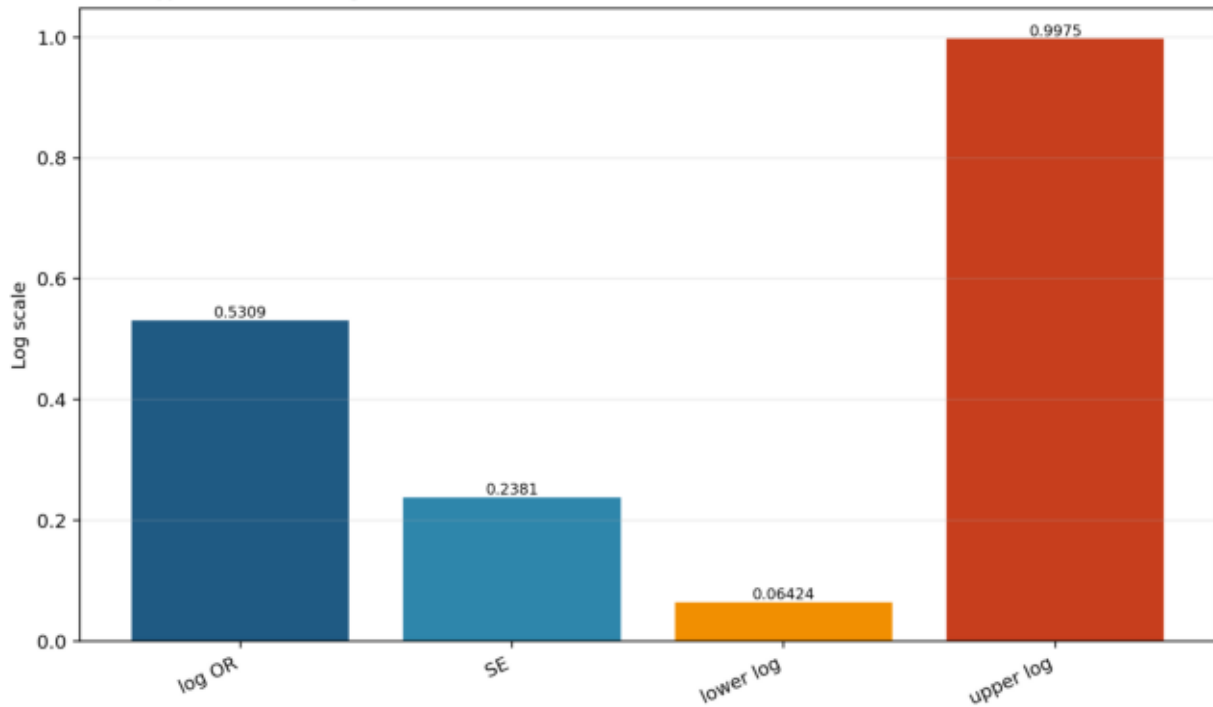
Primary multiplicative odds effect

Internet vs no internet



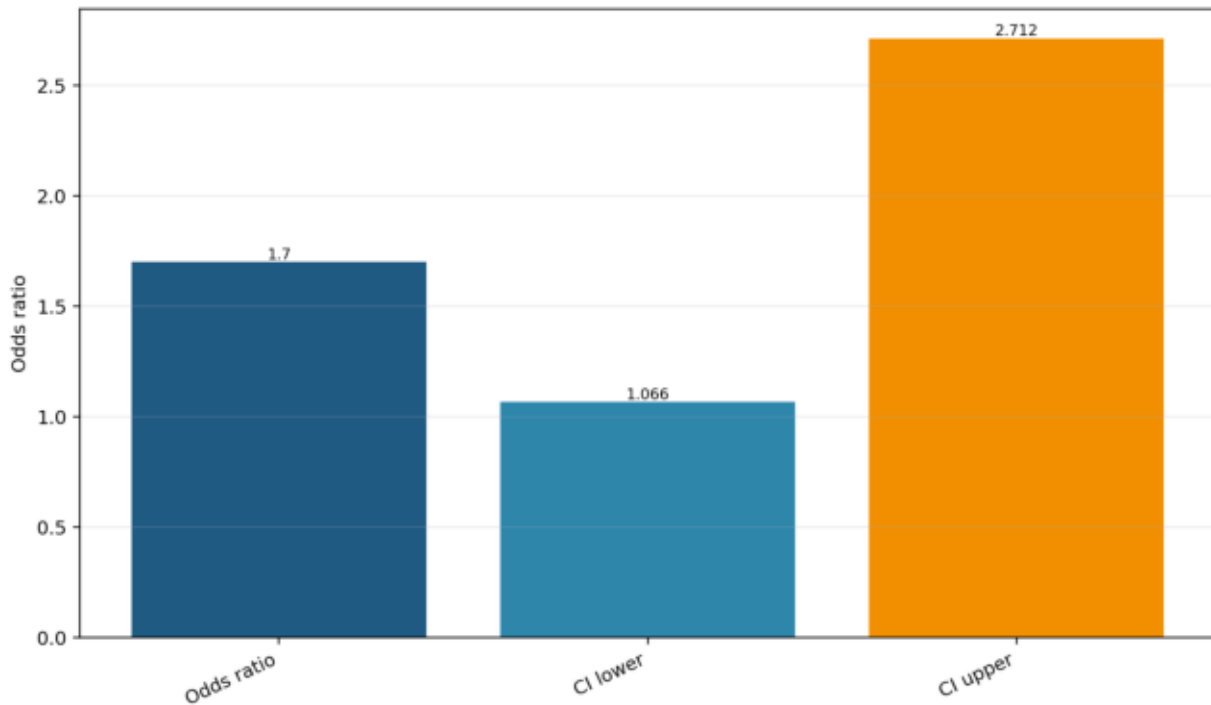
Log-odds confidence components

Normal approximation on the log scale



Odds-ratio result summary

Null value is one



Observed 2X2

0	1
32	119
68	430

Group Risks

Pass risk
0.788079
0.863454

Log Scale Components

value
0.53089
0.238086
0.0642418
0.997538