E-Commerce A/B Test: Variant B vs Control A

1. Project Objective

Assess whether Variant B improves user-level conversion rate relative to Control A.

2. Primary Metric

Conversion Rate (CR) = # unique users with converted = 1 ÷ # unique exposed users.

3. Experimental Design

User-level randomization, first exposure decides group; fixed-horizon analysis post test window.

4. Statistical Settings

- Significance (alpha): 0.05

- Power: 0.8

- MDE (relative): 5.00%

- Alternative (test direction): smaller

5. Results

- n(A) = 145232, n(B) = 145352

- CR(A) = 12.03%, CR(B) = 11.88%

-Absolute lift = -0.145 pp

- Relative lift = -1.21%

- z-statistic = -1.2084

- p-value = 0.113450

- 95% CI (absolute) = [-0.381 pp, 0.090 pp]

6. Decision

Do NOT ship (retain A)

7. Recommendation

Retain Control A. Iterate on the variant; target a more impactful change, pre-register a realistic MDE, and ensure planned sample size is achieved

9. Resources

[GitHub Repo](#)

Kaggle Notebook

Flask App Demo