

A/B Testing Analysis Summary: Landing Page Conversion Rates

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1 Introduction

This document summarizes an A/B test comparing conversion rates between two landing pages: an existing page (control, `old_page`) and a new design (treatment, `new_page`). The dataset includes user interactions, with columns for `user_id`, `timestamp`, `group`, `landing_page`, and `converted` (1 for conversion, 0 otherwise). The analysis aims to determine if the new page improves conversion rates.

2 Methodology

The dataset, containing 294,478 entries, was cleaned to ensure reliability:

- Removed 3,893 rows with mismatches between `group` and `landing_page`.
- Dropped one duplicate `user_id`.
- Confirmed balanced groups: 145,274 users in the control group and 145,311 in the treatment group.

Exploratory data analysis included visualizing conversion counts by group. A two-sample proportions z-test was conducted to compare conversion rates, with a 95% confidence interval calculated for the difference. The null hypothesis (H_0) assumes no difference in conversion rates, while the alternative (H_1) assumes a difference exists.

3 Results

The analysis revealed no statistically significant difference in conversion rates between the control and treatment groups at a 5% significance level ($\alpha = 0.05$).

Table 1: Summary of A/B Test Results

Group	Sample Size	Conversion Rate	Difference	95% CI
Control	145,274	12.04%	-0.16%	[-0.39%, 0.08%]
Treatment	145,311	11.88%		

Key findings:

- Conversion rates: Control group (12.04%), Treatment group (11.88%).
- Difference: -0.16% (new page slightly lower).
- 95% confidence interval: [-0.39%, 0.08%], including zero, indicating no significant difference.
- P-value: 0.1899, well above 0.05, failing to reject H_0 .

4 Conclusion and Recommendations

The new landing page does not demonstrate a statistically significant improvement in conversion rates over the old page. The slight decrease in conversion rate (-0.16%) is not practically significant, and the confidence interval suggests the true difference could be zero or slightly positive.

Recommendations:

- Retain the current (old_page) landing page.
- Extend the test duration to collect more data.
- Explore alternative landing page designs or features.
- Analyze user subgroups for segment-specific effects.