

Homepage Promo Card A/B Test — Low-Price Alert

1) Why we ran this test

On the homepage, the promo card is often the first thing users see. We tried a small home landing change: variant B adds a “low-price alert” badge on the promo card.

Figure 1. Conceptual mockup of Control (A) and Treatment (B) promotional card designs.



What we wanted to learn:

- Does the badge make more people click? (CTR)
- After they click, do they still complete an order? (PCVR)

A common risk is: the badge drives curiosity clicks, but users later hit constraints (e.g., minimum delivery threshold) and drop off.

2) Setup (data + split)

This portfolio project uses simulated user-level data. The analysis flow matches a typical online A/B test.

Users are split 50/50 into Control (A) vs Treatment (B) using a stable hash (so the same user always lands in the same group).

We also tag users by:

- City tier: tier 1–2 vs tier 3–4

- User type: new vs returning

3) Metrics (kept simple)

- CTR = clicks / exposed users (did the card attract attention?)
- PCVR = conversions / clicks (did people who clicked actually convert?)
- CVR = conversions / exposed users (overall outcome)

Tip: $\text{CVR} = \text{CTR} \times \text{PCVR}$ — helps explain whether gains come from attraction or from post-click quality.

4) Sanity check (A/A)

Before trusting the A/B result, we ran a quick A/A test (no real change). Under A/A, p-values should look random.

One A/A run: CTR p=0.6275, CVR p=0.9902.

Monte Carlo (n=200): mean p≈0.513 (CTR), 0.507 (CVR). False positive rate at 0.05: 0.030 (CTR), 0.065 (CVR).

Takeaway: randomization + metric computation look healthy.

5) What happened overall

Group	Users	CTR	PCVR	CVR	Lift vs A
Control (A)	15053	8.48%	20.28%	1.72%	—
Treatment (B)	14947	10.31%	17.52%	1.81%	CTR 1.83pp CVR 0.09pp

Significance (two-sample proportion z-test): CTR p=<0.0001 (significant), CVR p=0.5724 (not significant), PCVR p=0.0617 (borderline).

Story in one line: the badge clearly drives more clicks, but the extra traffic doesn't turn into a reliable conversion gain overall.

6) Where it works & where it hurts

We look at two business cuts separately (to avoid slicing the data too thin).

6.1 City tier

Segment	CTR (A→B)	p	PCVR (A→B)	p	CVR (A→B)	p
Tier 1–2 (more price-insensitive)	8.52% → 10.14%	0.0002	19.43% → 19.34%	0.9662	1.65% → 1.96%	0.1209
Tier 3–4 (more price-sensitive)	8.43% → 10.56%	<0.0001	21.57% → 14.86%	0.0033	1.82% → 1.57%	0.2894

City story: CTR goes up in both groups. In tier 3–4 cities, PCVR drops a lot (and is significant). That's consistent with users clicking because of the price badge, then dropping when they see delivery thresholds or need to bundle items.

6.2 User type

Segment	CTR (A→B)	p	PCVR (A→B)	p	CVR (A→B)	p
New users	7.98% → 9.88%	0.0003	17.36% → 13.73%	0.1010	1.39% → 1.36%	0.8924
Returning users	8.82% → 10.60%	<0.0001	22.07% → 19.87%	0.2615	1.95% → 2.11%	0.4501

User story: both new and returning users click more. Conversion changes are small and not significant in this run.

7) What we'd do next

If the goal is orders (not just clicks), we should keep the good part (CTR) and fix the drop-off (PCVR).

Suggested iterations:

- Show the minimum delivery threshold earlier (before the click or at the top of PDP).
- Add a one-tap 'bundle to reach minimum' suggestion (smart add-ons).
- For tier 3–4 cities, tailor the message: price + "how to reach minimum" guidance.

Then re-run the A/B test with the same metrics and a clear guardrail on post-click drop-off.

8) If we ship it (real-world plan)

Roll out gradually (10% → 25% → 50% → 100%) and monitor at each step.

What to monitor:

- Traffic split (SRM), CTR/CVR/PCVR daily trend
- Funnel drop-offs, order failure rate, latency/performance
- Cost / subsidy per conversion (if applicable)
- Keep a small holdout to watch longer-term effects

9) Limitations

This is simulated data, so the effects are created by design. The goal here is to show a practical A/B testing workflow (metrics, sanity checks, segmentation, and decision logic).