

Campaign Planning for Starbucks' New Beverage (*Iced Cherry Chai*)

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Campaign Overview and Objective | Campaign Performance Review: Improving Digital Marketing Efficiency



Context

- Starbucks is launching a new beverage, **Iced Cherry Chai**, across various store locations
- Starbucks developed three email campaign variants (**Camp 1, 2, 3**) to boost awareness and initial sales
- However, the company faces uncertainty in selecting the most effective variant for rollout



Objective



1 Evaluate a field experiment



2 To identify the most effective email campaign

Approach



Campaign Testing

- Promotion: One of three unique email campaign variants assigned randomly to each MarketID
- Observational Period: Sales monitored weekly for 4 weeks



Unit of Observation

- Each data point reflects sales (SalesInThousands) for a specific combination of LocationID, Promotion, and Week.



Variables Considered

- Store Attributes : Age, Market Size
- Market Demographics : Mean age and mean income
- Campaign Dimension : Promotion and Sales
- Identifiers : Location ID and Market ID

Sales Drivers & Campaign Effectiveness Analysis



```
Call:
lm(formula = AvgSales ~ Campaign + MarketSize + AgeOfStore +
    MeanAge + MeanIncome, data = grouped)

Residuals:
    Min       1Q   Median       3Q      Max
-2.41341 -0.59968  0.07331  0.62184  2.04086

Coefficients:
              Estimate Std. Error t value Pr(>|t|)
(Intercept)   1.056e+01  1.431e+00   7.378 1.69e-11 ***
Campaign2     -7.443e-01  2.155e-01  -3.454 0.000745 ***
Campaign3      1.654e-02  2.073e-01   0.080 0.936535
MarketSizeSmall -2.101e+00  1.950e-01 -10.775 < 2e-16 ***
AgeOfStore      7.527e-03  1.275e-02   0.590 0.556123
MeanAge       -1.311e-01  2.883e-02  -4.547 1.23e-05 ***
MeanIncome      3.544e-05  1.853e-05   1.912 0.058020 .
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 0.973 on 130 degrees of freedom
Multiple R-squared:  0.6549,    Adjusted R-squared:  0.639
F-statistic: 41.12 on 6 and 130 DF,  p-value: < 2.2e-16
```

Key Insights from Linear Regression Analysis

Dependent Variable: Average Sales (in thousands)

Significant Metric Variables Influencing Sales

- **Market Size:** Stores in **small markets** generate ~ 2,100 **less** in average weekly sales compared to large markets ($p < 0.001$).
- **Customer Age:** Each additional year in **mean customer age** reduces weekly sales by ~ 131 ($p < 0.001$).
- **Income:** Higher **mean income** shows a **positive but marginal** impact on sales ($p = 0.058$, borderline significance).
- **Age of Store** does **not** significantly impact sales ($p = 0.556$).

Sales Differences by Campaign and Market Size

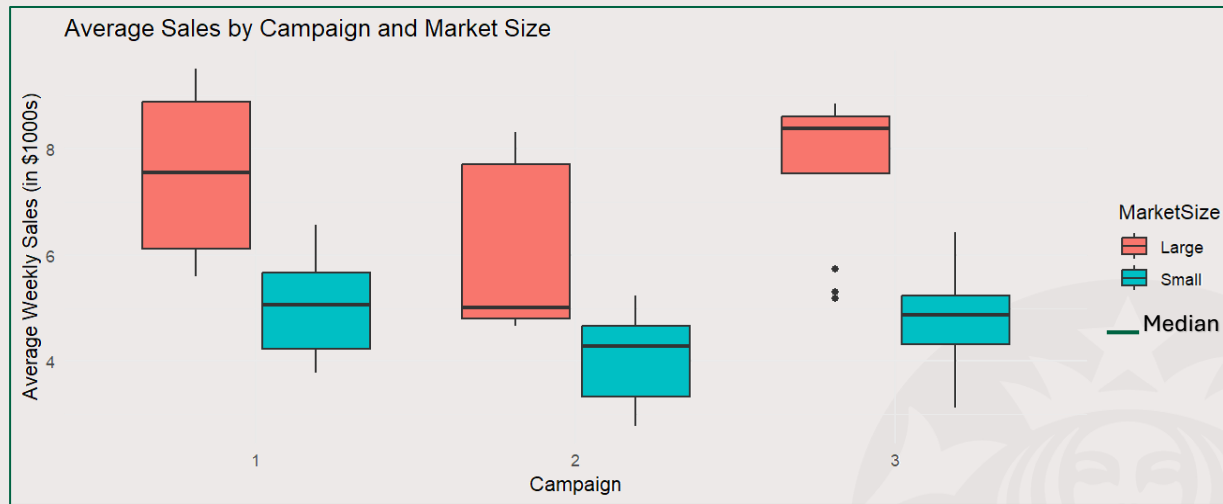
- **Campaign 2** leads to **744 lower sales** than Campaign 1 ($p = 0.0007$) → Statistically significant underperformance.
- **Campaign 3** shows **no significant difference** from Campaign 1 ($p \approx 0.94$).
- **Market Size** is a **strong and consistent driver** of sales performance.

Model Summary

- **Adjusted $R^2 = 0.64$** → Model explains 64% of sales variance
- **F-statistic $p < 0.001$** → Overall model is highly significant

Sales performance is primarily driven by market size and customer demographics, with Campaign 2 showing statistically significant underperformance, warranting a tailored campaign strategy by market segment.

Sales Drivers & Campaign Effectiveness Analysis



Campaign	Market Size	Avg Sales	Count	SD
1	Large	7.52	56	1.55
1	Small	4.98	116	0.90
2	Large	6.03	64	1.57
2	Small	4.06	124	0.93
3	Large	7.72	48	1.44
3	Small	4.79	140	0.93

1 Campaign Effectiveness (Compared to Campaign 1)

- Campaign 2 consistently underperforms, with average weekly sales of 6.03k (large) and 4.06k (small).
- Campaigns 3 shows no significant difference ($p \approx 0.94$), though Campaign 3 slightly leads in large markets (7.72k vs. 7.52k).

2 Market Size Impact

- Across all campaigns, large markets outperform small markets by 50–70%.
- Example: In Campaign 1, sales in large markets average 7.52k, compared to 4.98k in small ones a gap of ~2.54k.
- Additionally, sales in small markets show lower variability (lower standard deviation), indicating more predictability but weaker performance.

To maximize ROI, shift investment toward Campaign 3 in large markets while phasing out Campaign 2; future campaign planning should prioritize market-size segmentation to align high-performing formats with high-potential geographies.

Evaluating Interaction Effects Between Campaign Type and Sales Drivers



Residuals:

Min	1Q	Median	3Q	Max
-2.97798	-0.66241	-0.01057	0.68769	2.79427

Coefficients:

	Estimate	Std. Error	t value	Pr(> t)	
(Intercept)	1.209e+01	1.367e+00	8.840	< 2e-16	***
Campaign2	-5.310e+00	1.941e+00	-2.735	0.006439	**
Campaign3	-1.651e-01	1.880e+00	-0.088	0.930049	
MarketSizeSmall	-2.312e+00	1.828e-01	-12.646	< 2e-16	***
week	2.454e-02	7.066e-02	0.347	0.728529	
AgeOfStore	8.111e-03	1.235e-02	0.657	0.511708	
MeanAge	-1.395e-01	2.865e-02	-4.869	1.48e-06	***
MeanIncome	5.918e-06	1.626e-05	0.364	0.716068	
Campaign2:MarketSizeSmall	7.524e-01	2.488e-01	3.024	0.002614	**
Campaign3:MarketSizeSmall	-2.520e-01	2.678e-01	-0.941	0.347147	
Campaign2:week	-6.656e-02	9.778e-02	-0.681	0.496304	
Campaign3:week	-5.289e-02	9.778e-02	-0.541	0.588752	
Campaign2:AgeOfStore	-1.073e-02	1.699e-02	-0.632	0.527929	
Campaign3:AgeOfStore	1.434e-02	1.705e-02	0.841	0.400671	
Campaign2:MeanAge	2.485e-02	3.993e-02	0.622	0.534058	
Campaign3:MeanAge	4.144e-03	3.761e-02	0.110	0.912310	
Campaign2:MeanIncome	9.016e-05	2.444e-05	3.689	0.000248	***
Campaign3:MeanIncome	5.428e-06	2.364e-05	0.230	0.818464	

Evaluating Interaction Effects Between Campaign Type and Sales Drivers

Significant Interactions:

➤ Campaign 2 × Market Size (Small) (p = 0.0026):

- The impact of market size on sales varies by campaign
- Campaign 2 shows **relatively better interaction in small markets than in large market** (though still underperforms overall vs. Campaign 1 and Campaign 3).

➤ Campaign 2 × Mean Income (p = 0.0002):

- Campaign 2 is **highly sensitive to income levels**, performing better in high-income areas, unlike other campaigns.

Non-Significant Interactions:

- No meaningful interaction effects found with **Store Age, Week, or Mean Age** (p > 0.4).
- These factors influence sales consistently across all campaigns.

Campaign 2 requires targeted deployment in small, affluent markets to maximize ROI, while other variables like store age and timing show consistent effects and don't warrant campaign-specific adjustments.

Market Size and Demographics Drive Performance – Should Marketing Adapt Accordingly?



Market Size is the Strongest Driver of Sales



- Stores in large markets outperform those in small markets by ~2.1k/week on average.
- This effect is consistent across campaigns and statistically significant ($p < 0.001$)
- Sales in small markets show lower variability (lower SD), indicating more predictable but lower performance.

Campaign Effectiveness is Not Uniform



- Campaign 2 underperforms significantly, especially in large markets.
- Campaign 3 performs on par with Campaign 1 overall but slightly leads in large markets (7.72k vs. 7.52k).
- Interactions show that Campaign 2 benefits modestly in small or high-income markets but still trails.

Demographics Matter Selectively



- Mean Age has a consistent negative effect on sales (~131 per year, $p < 0.001$), regardless of campaign.
- Mean Income interacts significantly with Campaign 2 only — sales increase with income only for Campaign 2 ($p = 0.0002$).

No Campaign-Level Effect from Store Age or Week



- These variables show no significant interaction with campaign type ($p > 0.5$) and thus do not need differentiated marketing treatment.

Strategic Takeaway

- The company should adopt a segmented marketing strategy:
- Deploy Campaign 3 in large markets where it performs best.
- Use Campaign 1 as the default in small markets due to its superior stability and baseline performance.
- Campaign 2 shows slightly better traction in small, high-income markets, but still underperforms overall, making it unsuitable for broad deployment.
- Demographic targeting should prioritize younger, high-income areas across campaigns, especially where Campaign 2 is used.



To maximize impact, the company should move from uniform campaigns to a precision-targeted marketing approach, aligning campaign types with market size and local demographics, especially income and age. This strategy ensures higher ROI by matching the right message to the right context.

Recommendations for Future Product Introductions



Segment Product Launches by Market Size
Prioritize large markets for new product rollouts, where baseline sales performance and growth potential are highest
Leverage small markets for testing differentiated campaigns or niche SKUs with lower volatility

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Align Campaign Strategy with Market & Demographic Fit

Tailor messaging based on customer income and age – target younger, affluent areas for premium or innovative products
Use Campaign 3 for large markets and Campaign 1 for small markets; avoid Campaign 2 deployment

Pilot and Iterate Using Segmented Rollouts
Test product–campaign combinations in small but demographically aligned markets before full-scale deployment

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Embed Analytics into Launch Planning

Use interaction models and market-level insights proactively to drive data-backed creative and media decisions during launch planning.

Demographic-Driven Targeting
Focus launches in younger, high-income regions, as age negatively impacts sales while income boosts performance (especially for certain campaigns)

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Deprioritize One-Size-Fits-All Launches

Campaigns and product positioning should vary across geographies – uniform rollouts dilute performance and miss local opportunities.

Adopt a modular launch approach—pilot product–campaign combinations in high-income, younger, large markets, and scale those that show early traction to maximize ROI and minimize wasted spend.

Thank you !

