



A/B TESTING

-- "Should We Add a Free Shipping Bar
on the Shopping Cart Page?"

Mavis Sun
December, 2020

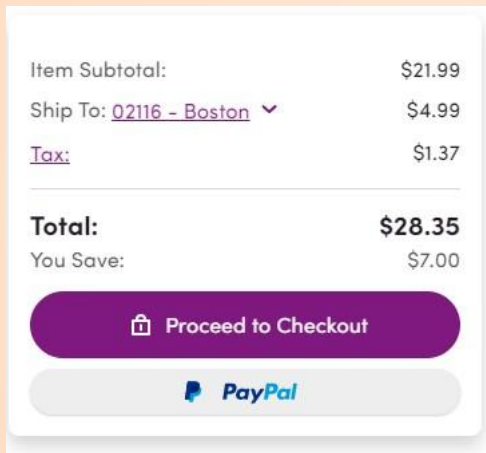
TEST BACKGROUND

Recently, help users convert becomes an important goal for the whole company.

We want to test if free shipping bar could help on metrics.



TEST VARIATION




Item Subtotal: \$21.99


Ship To: [02116 - Boston](#) ▼ \$4.99

[Tax:](#) \$1.37

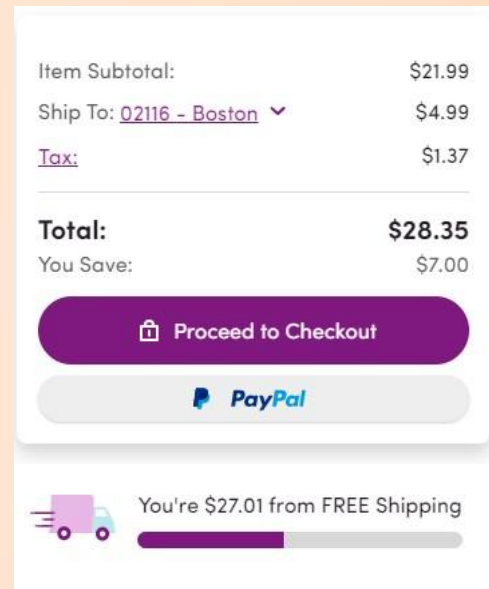
Total: **\$28.35**

You Save: \$7.00

 [Proceed to Checkout](#)

 [PayPal](#)

Control Group




Item Subtotal: \$21.99


Ship To: [02116 - Boston](#) ▼ \$4.99


[Tax:](#) \$1.37


Total: **\$28.35**

You Save: \$7.00

 [Proceed to Checkout](#)

 [PayPal](#)

 You're \$27.01 from FREE Shipping



Variation Group

TEST SETUP

Test Time

Actual Test Time:
2019/06/14 - 2019/07/12

Selected Test Time:
2019/06/16 - 2019/07/11



Test Platform

Desktop

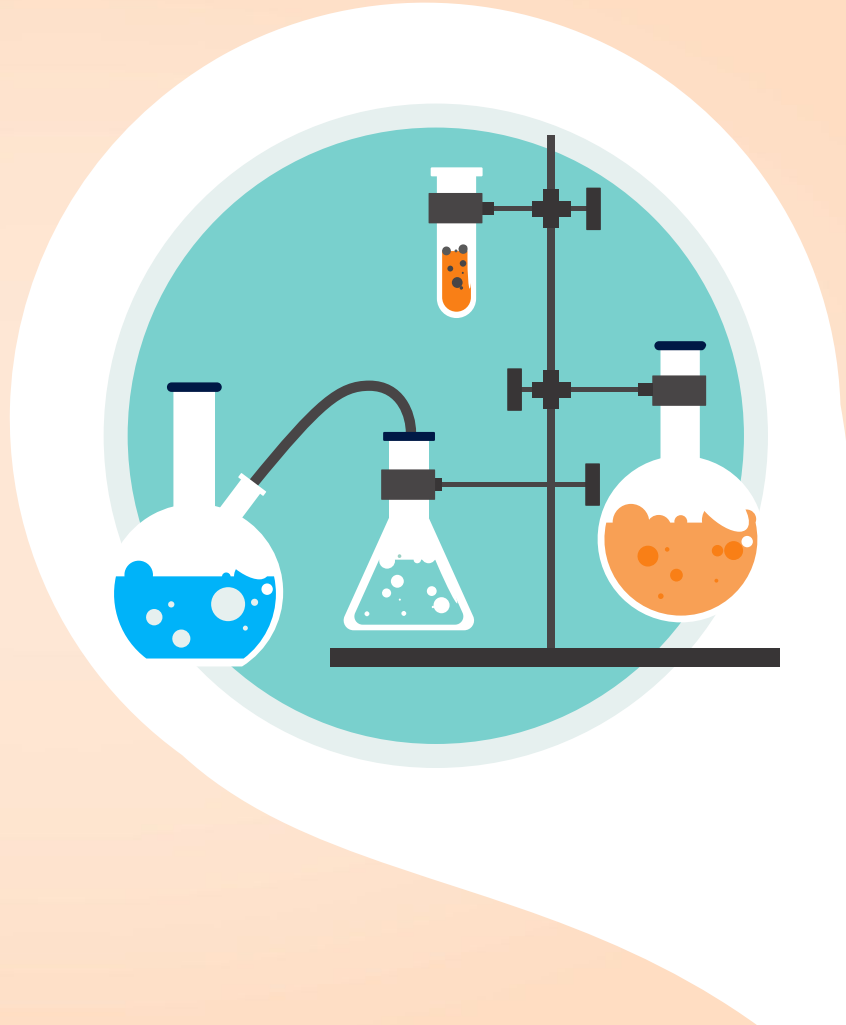
Test Metric

Primary:
Average Revenue per Order / per
Converted Customer

Secondary:
Cart-To-Checkout Rate
Checkout-To-Conversion Rate

TEST HYPOTHESIS

If we **add a free shipping bar** on the shopping cart page, we expected to see **a 3% lift** on Average Revenue per Order / per Converted Customer, due to previous tests on shopping cart page and competitor analysis.

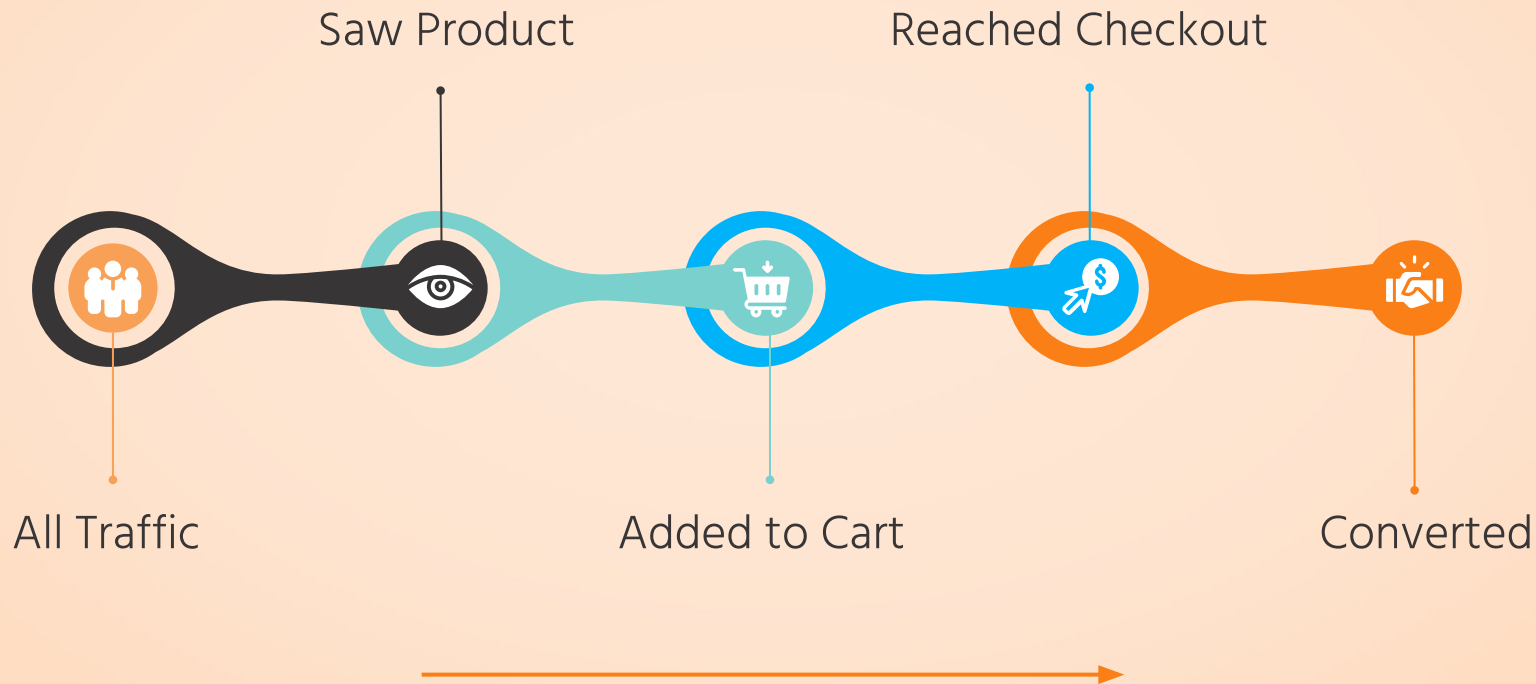


BRIEF SUMMARY

I suggest not to roll out the variation with a free shipping bar, because:

- We don't have a solid evidence that adding a free shipping bar increases our primary metric (Revenue per Order & Revenue per Converted Customer).
- Although it increases Checkout-to-Conversion Rate at session level, as a secondary metric, the lift is slight, which is a bit underwhelming.

CUSTOMER BEHAVIOR FLOW



An abstract graphic on the left side of the slide. It features a central orange teardrop shape containing a blue circle with the white number '01'. To the left, a dark blue shape contains a blue circle. A blue line connects this circle to the '01' circle. Other elements include a white teardrop shape, a teal circle, a white circle with a teal center, and a small orange circle.

01

PRIMARY METRIC

Average Revenue per Order
Average Revenue per Converted Customer

AVERAGE REVENUE

Session Level: Average Revenue per Order

Customer Level: Average Revenue per Converted Customer

	P Value	Perc Lift	Abs Lift
Session Level ↓	0.48 (Not Significant)	-0.01%	- \$0.02
Customer Level ↑	0.29 (Not Significant)	+0.11%	+\$0.26

SECONDARY METRIC

Cart-To-Checkout Rate
Checkout-To-Conversion Rate

02

An abstract graphic design on a light orange background. It features several organic, flowing shapes in bright blue, teal, and dark navy blue. Scattered around these shapes are solid circles in the same color palette. A prominent white circle with a thick blue border contains the number '02' in white. The overall style is modern and minimalist.



CART-TO-CHECKOUT RATE



	P Value	Perc Lift	Abs Lift
Session Level ↓	0.49 (Not Significant)	-0.004%	-0.002%
Customer Level ↑	0.26 (Not Significant)	+0.094%	+0.054%

CHECKOUT-TO-CONVERSION RATE

	P Value	Perc Lift	Abs Lift
Session Level ↑	0.04 (Significant)	+0.21%	+0.15%
Customer Level ↑	0.24 (Not Significant)	+0.08%	+0.06%

According to the above data, at session level, adding a free shipping bar increases the checkout-to-conversion rate, we can speculate: 1. For customers who have already reached the free shipping price, **this free shipping bar will remind them of this 'reward' so they'd be more decisive to be converted**, # of converted session (numerator) increases; 2. For customers who are still far from the threshold so **they'd feel stressful and directly abandon the cart without proceeding to checkout**, # of checkout session (denominator) decreases -- so checkout-to-conversion rate increases.

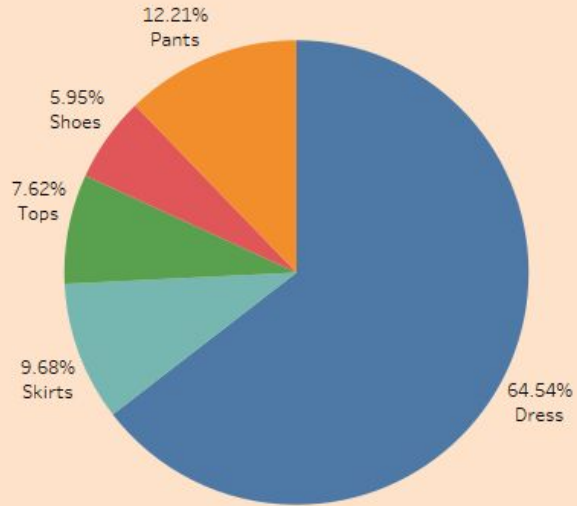
OTHER INSIGHTS

From different cuts:

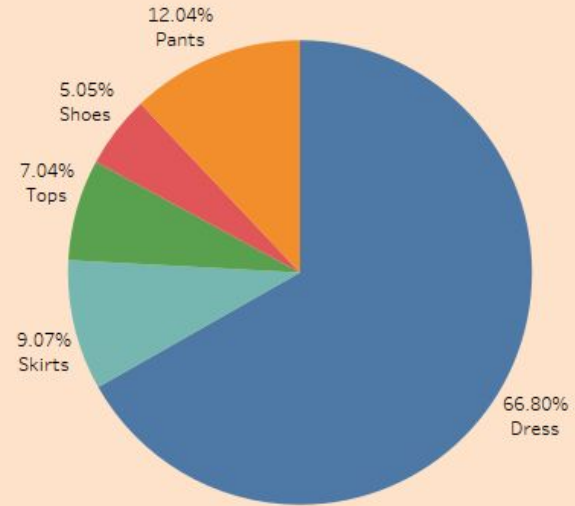
- Category
- User Types
- Channel



TRAFFIC DISTRIBUTION BY CATEGORY



Session Level



Customer Level

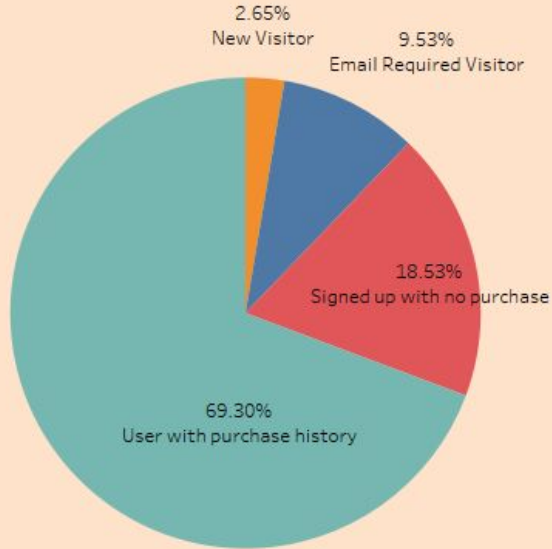
CHECKOUT-TO-CONVERSION RATE · SESSION LEVEL



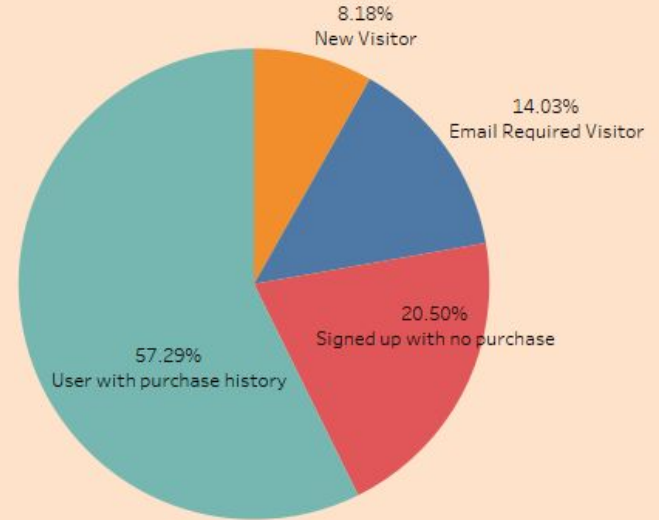
Category	P Value	Perc Lift	Abs Lift
Dress (64.5%) ↑	0.04 (Significant)	+0.26%	+0.19%
Skirts (9.7%) ↑	0.03 (Significant)	+0.73%	+0.55%
Tops (7.6%) ↓	0.18 (Not Significant)	-0.49%	-0.34%
Shoes (6.0%) ↓	0.08 (Not Significant)	-0.87%	-0.61%
Pants (12.2%) ↑	0.22 (Not Significant)	+0.28%	+0.21%

According to the above data, for dress and skirts categories, which accounts for 74.2% of the total traffic, adding a free shipping bar increases the checkout-to-conversion rate, which means **customers are more decisive to make the purchase of dress and skirts with the free shipping bar**. we can speculate most pricing of these 2 categories might be above the free shipping threshold, a free shipping bar exactly reminds them that they're already eligible for waiving shipping fee.

TRAFFIC DISTRIBUTION BY VISITOR TYPE



Session Level



Customer Level



NEGATIVE EFFECT ON NEW VISITOR · SESSION/CUSTOMER LEVEL

*New Visitor is customer who spent only one session on our site, customers who spent more than 1 session on our site and hasn't signed up would be considered as Email Required Visitor. Thus, for New Visitor, session level data and customer level data would be the same.

Metric	P Value	Perc Lift	Abs Lift
Checkout Rate ↓	0.003 (Significant)	-2.13%	-0.57%
Conversion Rate ↓	0.017 (Significant)	-2.25%	-0.37%
SawProduct-to -Cart ↓	0.003 (Significant)	-0.28%	-0.27%
Cart-to-Checkout ↓	0.005 (Significant)	-1.99%	-0.59%

As the above data shows, for new visitors, adding a free shipping bar will decrease checkout rate, conversion rate, saw product-to-cart rate and cart-to-checkout rate at both session & customer level.

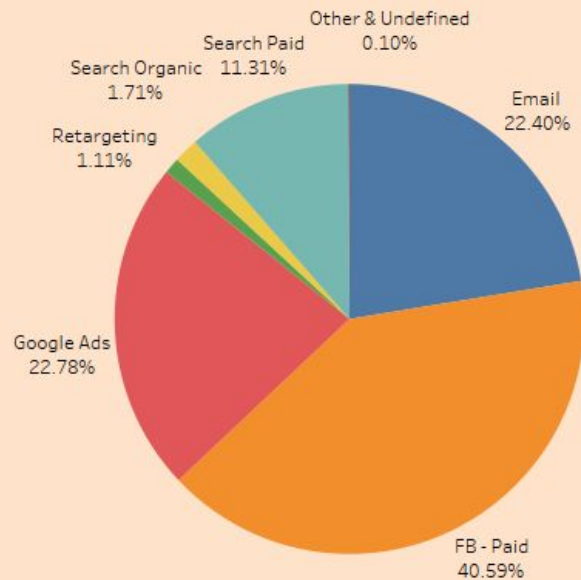
NEGATIVE EFFECT ON EMAIL REQUIRED VISITOR

		Metric	P Value	Perc Lift	Abs Lift
	Session Level	SawProduct-to-Cart ↓	0.015 (Significant)	-0.55%	-0.30%
	Customer Level	SawProduct-to-Cart ↓	0.034 (Significant)	-0.32%	-0.26%

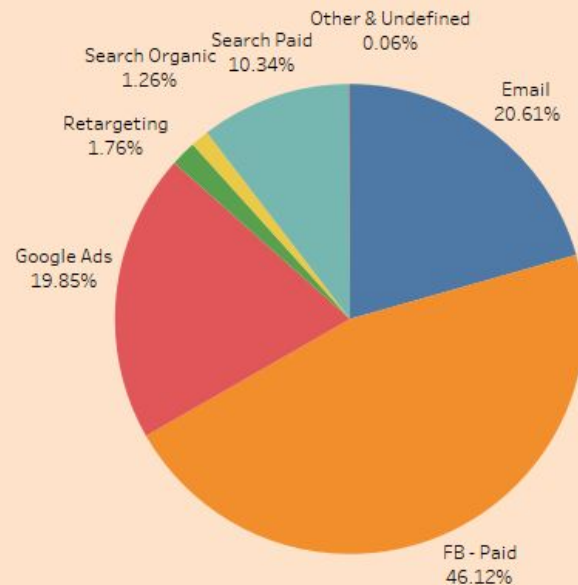
From here we can tell adding a free shipping bar also has negative effects on email required visitor at both session & customer level.

We can speculate, both new visitor and email required visitor are relatively new to our brand and site, for a new platform that they almost never used and are unfamiliar with, **they're more sensitive, reaching the minimum free shipping threshold might be more like a task than an incentive** -- a free shipping bar exactly reminds them the existences of the free shipping and the threshold, they neither want to miss the free shipping nor make such a big commitment to reach the threshold, which might make them **too hesitant and even stressful to have their first try.**

TRAFFIC DISTRIBUTION BY CHANNEL



Session Level



Customer Level

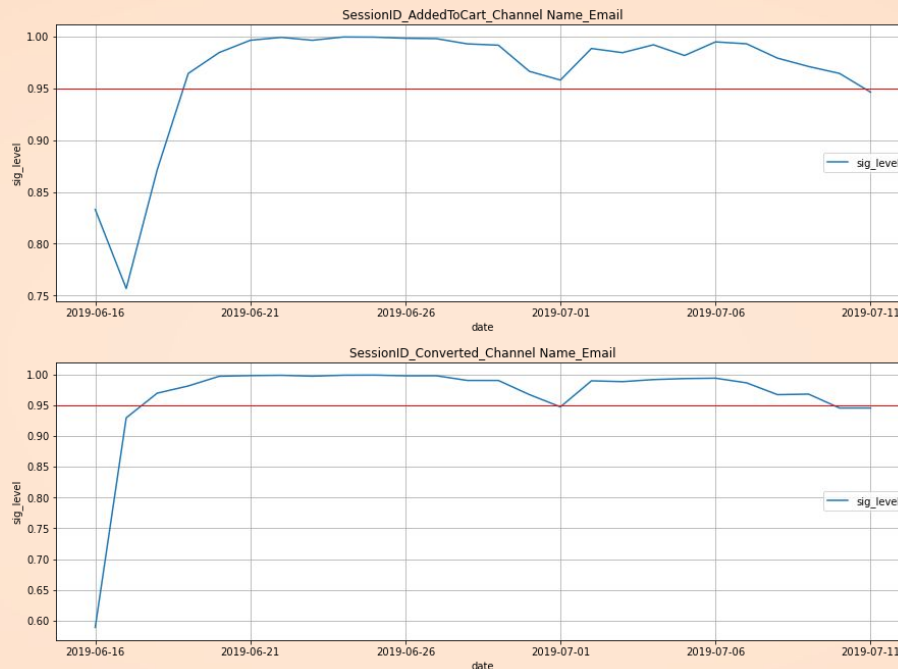
POSITIVE EFFECT ON EMAIL CHANNEL · SESSION LEVEL



Metric	P Value	Perc Lift	Abs Lift
Revenue per Added-to-Cart ↑	0.054 (Not Significant)	+1.045%	+\$0.754
Revenue per Checkout ↑	0.033 (Significant)	+1.030%	+\$1.577
Revenue per Converted ↑	0.054 (Not Significant)	+0.798%	+\$1.629

At session level, for email channel which accounts for 22.40% of the total traffic, adding a free shipping bar increases Revenue per Checkout. Customers visiting the site via email normally have already signed up for our newsletter, which indicates they're interested in and familiar with our platform or the returning customers with purchase history. We can speculate, **adding a free shipping bar will motivate customers who have already signed up for our newsletter to spend more to reach free shipping threshold based on their trust and familiarity to our brand.**

POSITIVE EFFECT ON EMAIL CHANNEL · SESSION LEVEL



Although revenue per added-to-cart and revenue per converted are not significant at session level, they're pretty close to being significant. From these 2 line charts, we can tell that both **revenue per added-to-cart and revenue per converted actually kept steadily significant for a period of time till 2019-07-11** (the second last day of the test), we can speculate that it's caused by the reduced traffic at the end of the test. In this way, we can approximately consider **revenue per added-to-cart and revenue per converted are significant**.

POSITIVE EFFECT ON EMAIL CHANNEL · CUSTOMER LEVEL



Metric	P Value	Perc Lift	Abs Lift
Revenue per Added-to-Cart ↑	0.035 (Significant)	+1.148%	+\$0.976
Revenue per Checkout ↑	0.018 (Significant)	+1.148%	+\$1.894
Revenue per Converted ↑	0.028 (Significant)	+0.916%	+\$1.978

At customer level, for email channel which accounts for 20.61% of the total traffic, adding a free shipping bar increases Revenue per Added-to-Cart, Revenue per Checkout and Revenue per Converted at customer level. Similar with session level, we can speculate, **adding a free shipping bar will motivate customers who signed up for our newsletter to spend more to reach free shipping threshold based on their trust and familiarity to our brand.**

POSITIVE EFFECT ON RETARGETING CHANNEL · SESSION LEVEL



Metric	P Value	Perc Lift	Abs Lift
SawProduct Rate ↑	0.034 (Significant)	+1.22%	+0.67%
Bounce Rate ↓	0.003 (Significant)	-4.13%	-0.80%
AddedToCart Rate ↑	0.004 (Significant)	+3.68%	+0.81%
SawProduct-to-Cart ↑	0.022 (Significant)	+2.42%	+0.98%

POSITIVE EFFECT ON RETARGETING CHANNEL · CUSTOMER LEVEL

Metric	P Value	Perc Lift	Abs Lift
Bounce Rate ↓	0.021 (Significant)	-3.25%	-0.628%
Added-to-Cart Rate ↑	0.006 (Significant)	+3.50%	+0.86%
SawProduct-to-Cart ↑	0.020 (Significant)	+2.47%	+1.04%

As the data shows, overall, at both session level and customer level, adding a free shipping bar brings some positive effects such as increasing Saw-Product Rate, Added-to-Cart Rate, Saw-Product-to-Cart Rate and decreasing bounce rate.

We can speculate, adding **a free shipping bar makes customers who have been exposed to our ads before more decisive to and interested in moving toward the lower funnel at different stages of the behavior flow**, similar with customers who have signed up for our email, they're already in the lower position in the marketing funnel than new customers, thus, a free shipping bar is more like an incentive than a task.

POSITIVE EFFECT ON PAID SEARCH CHANNEL · CUSTOMER LEVEL

Metric	P Value	Perc Lift	Abs Lift
AddedToCart Rate ↑	0.03 (Significant)	+0.78%	+0.27%
SawProduct-to-Cart ↑	0.04 (Significant)	+0.60%	+0.31%

For paid search channel, adding a free shipping bar increases Added-to-Cart Rate and Saw-Product-to-Cart Rate at customer level.

Normally, customers from paid search channel is already with purchase intention to a specific product -- they actively searched for this specific product / keyword first, and selectively click through our site, they're relatively easier to be pulled toward the lower funnel even directly converted than other customers.

We can speculate, **adding a free shipping bar makes customers with purchase intention more active to move forward in the checkout flow.**

RECOMMENDATIONS

- This test was only running on desktop, for a more comprehensive and accurate test result, I suggest to **run this test on all devices** including desktop, mobile and tablet in the future.
- Since New Visitor and Email Required Visitor are relatively sensitive, I suggest to **lower the free shipping threshold for these 2 visitor types** or **exclude them** in the future tests to get a more convincing result.
- Since adding a free shipping bar indeed brings some considerable positive effects in email, retargeting and paid search channels, we may consider to **roll out the variation only in selected channels such as email.**
- Since different visitor types have different consumption habits, I suggest to **offer different free shipping thresholds respectively** for them in the future tests.

Appendix

- Please find the complete result data set [here](#)
- Please find the complete Python script for this project [here](#)

THANKS

Do you have any questions?

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