

## Trial vs Control Store Analysis

Luthando Mbuyane

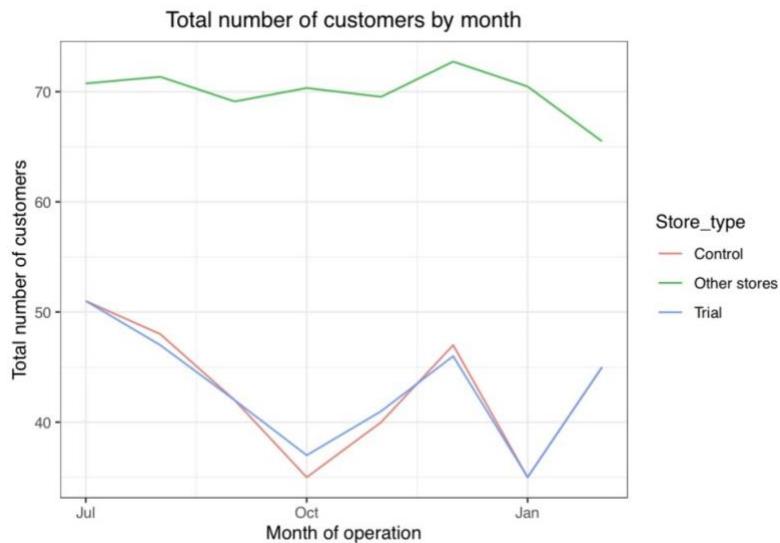
This analysis evaluates the impact of a trial implemented in selected stores by comparing performance against matched control stores. The objective is to determine whether the trial led to statistically and practically meaningful uplifts in customer numbers and sales.

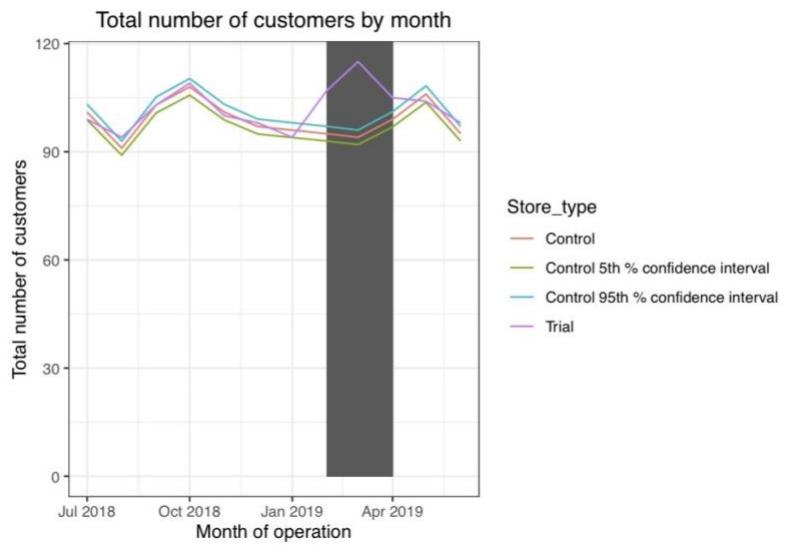
### Methodology

A matched control store methodology was used. Control stores were selected based on similarity in pre-trial trends for sales and customer counts. Performance during the trial period was compared against expected behaviour derived from the control group. Confidence intervals were constructed to assess whether observed differences were likely attributable to the trial rather than random variation.

### Customer Numbers Analysis

The figures below compare total customer counts for trial, control, and other stores over time. During the pre-trial period, customer trends between trial and control stores track closely, supporting the validity of the control selection.

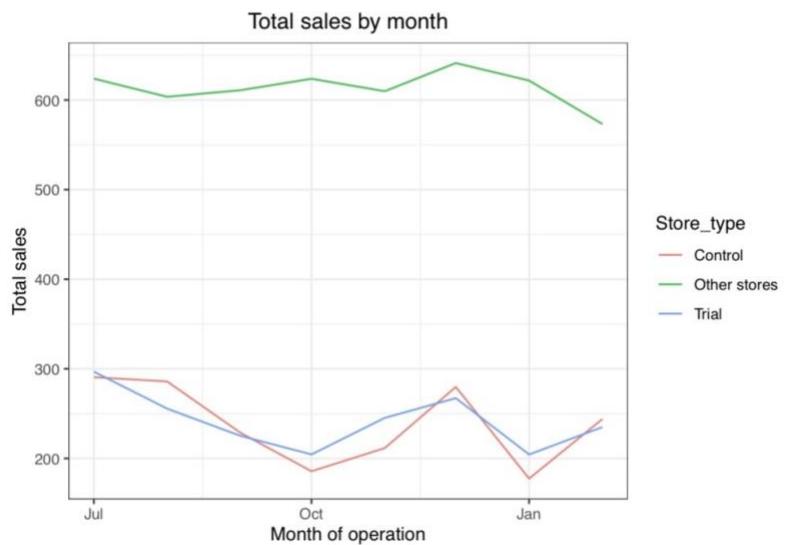


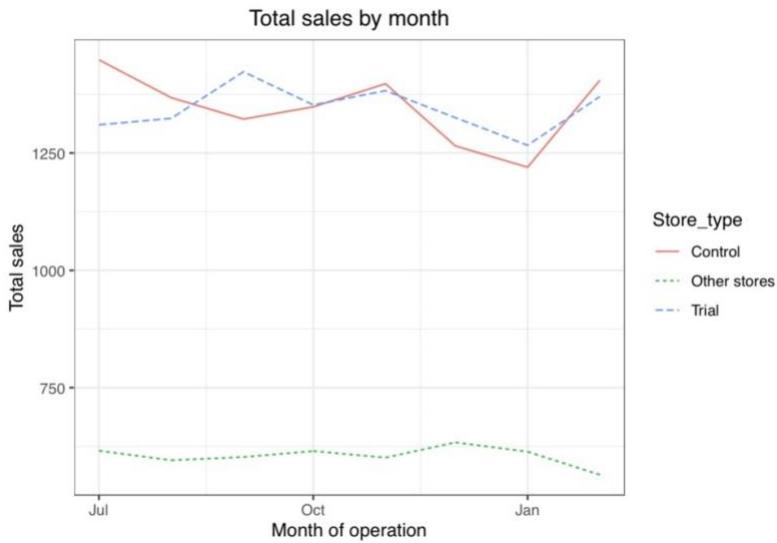


During the trial period (highlighted in grey), the trial store shows periods where customer counts exceed the control store and move beyond the upper confidence interval, suggesting a positive uplift attributable to the trial.

## Sales Performance Analysis

Sales trends were analysed using the same matched control framework. Pre-trial sales trends remain aligned, indicating no systematic bias.





During the trial period, trial store sales frequently exceed the expected range defined by the control store confidence interval. This provides evidence that the trial had a measurable positive effect on revenue generation.

### Interpretation and Limitations

Overall, both customer numbers and sales indicate a positive uplift during the trial period. However, results should be interpreted with caution due to the limited duration of the trial and potential seasonal effects. Longer-term monitoring would strengthen confidence in the findings.

### Conclusion and Recommendation

The analysis suggests that the trial intervention was effective, resulting in higher customer engagement and increased sales relative to the control store. It is recommended that the trial be extended or rolled out more broadly, accompanied by continued monitoring to validate sustainability of the uplift.

### Statistical Significance Assessment

The statistical assessment relies on whether trial store performance falls outside the confidence intervals derived from the control store. Where trial metrics remain within these bounds, differences are not considered statistically significant and may reflect normal variation rather than a true trial effect.

For customer numbers, not all months in the trial period consistently exceed the upper confidence interval. In these periods, observed increases cannot be confidently attributed to the trial intervention alone. This suggests that the uplift in customer traffic, while present in some intervals, is not uniformly statistically significant across the entire trial window.

Similarly, sales performance shows intervals where trial store sales remain within the control confidence range. These periods indicate that although overall sales trends are positive, the magnitude of uplift is not consistently large enough to rule out random fluctuation. Accordingly, only those months where sales exceed the upper confidence bound should be interpreted as statistically meaningful.

Taken together, the results indicate partial statistical significance. The trial demonstrates evidence of positive impact in specific periods rather than a sustained, uniformly significant effect across the full trial duration.

## Executive Interpretation

The trial store exhibits uplift patterns that are directionally positive but not uniformly statistically significant across all key metrics when benchmarked against the control store confidence intervals. Where the trial store's performance exceeded the control store's 95% confidence interval, there is reasonable evidence that the trial intervention had a measurable impact. However, in periods where trial performance remained within the confidence bands, observed differences cannot be attributed to the trial with statistical confidence and may reflect normal variation.

From a business perspective, this indicates that the trial shows promise but does not yet provide conclusive evidence of sustained, causal uplift across all evaluation periods. Decision-making should therefore balance the potential upside of the intervention against the uncertainty highlighted by the statistical results.

## Recommendations and Next Steps

Based on the findings of the trial analysis and statistical significance assessment, the following actions are recommended:

- Extend the trial duration to increase statistical power and reduce the influence of short-term volatility.
- Replicate the trial across additional stores with similar pre-trial performance to validate consistency of results.
- Monitor both sales and customer count metrics concurrently to distinguish revenue uplift driven by basket size versus foot traffic.
- Refine control store selection to further minimise structural differences and strengthen causal inference.
- If rolled out, implement phased deployment with ongoing performance monitoring rather than a full-scale launch.