June 2020

Category review: Chips

Retail Analytics

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Our 17 year history assures best practice in privacy, security and the ethical use of data

Privacy

- We have built our business based on privacy by design principles for the past 17 years
- Quantium has strict protocols around the receipt and storage of personal information
- All information is de-identified using an irreversible tokenisation process with no ability to re-identify individuals.

Security

- We are ISO27001 certified - internationally recognised for our ability to uphold best practice standards across information security
- We use ‘bank grade’ security to store and process our data
- Comply with 200+ security requirements from NAB, Woolworths and other data partners
- All partner data is held in separate restricted environments
- All access to partner data is limited to essential staff only
- Security environment and processes regularly audited by our data partners.

Ethical use of data

Applies to all facets of our work, from the initiatives we take on, the information we use and how our solutions impact individuals, organisations and society.

We all have a responsibility to use data for good

Quantium believes in using data for progress, with great care and responsibility. As such please respect the commercial in confidence nature of this document.

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Executive summary

01 Category

The Category Manager may want to increase the category's performance by off-locating some Tyrrells and smaller packs of chips in discretionary space near segments where young singles and couples frequent more often to increase visibility and impulse behaviour.

02 Trial store performance

Here you will include your high-level findings and any key callouts for task 2

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01

Category

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key callout for the category

Advice: The Category Manager may want to increase the category's performance by off-locating some Tyrrells and smaller packs of chips in discretionary space near segments where young singles and couples frequent more often to increase visibility and impulse behaviour.

Arguments

- Sales have mainly been due to Budget - older families, Mainstream - young singles/couples, and Mainstream - retirees shoppers.
- We found that the high spend in chips for mainstream young singles/couples and retirees is due to there being more of them than other buyers.
- Mainstream, midage and young singles and couples are also more likely to pay more per packet of chips. This is indicative of impulse buying behaviour.
- We've also found that Mainstream young singles and couples are 23% more likely to purchase Tyrrells chips compared to the rest of the population.
- Mainstream young singles/couples are 56% less likely to purchase BurgerRings compared to the rest of the population.

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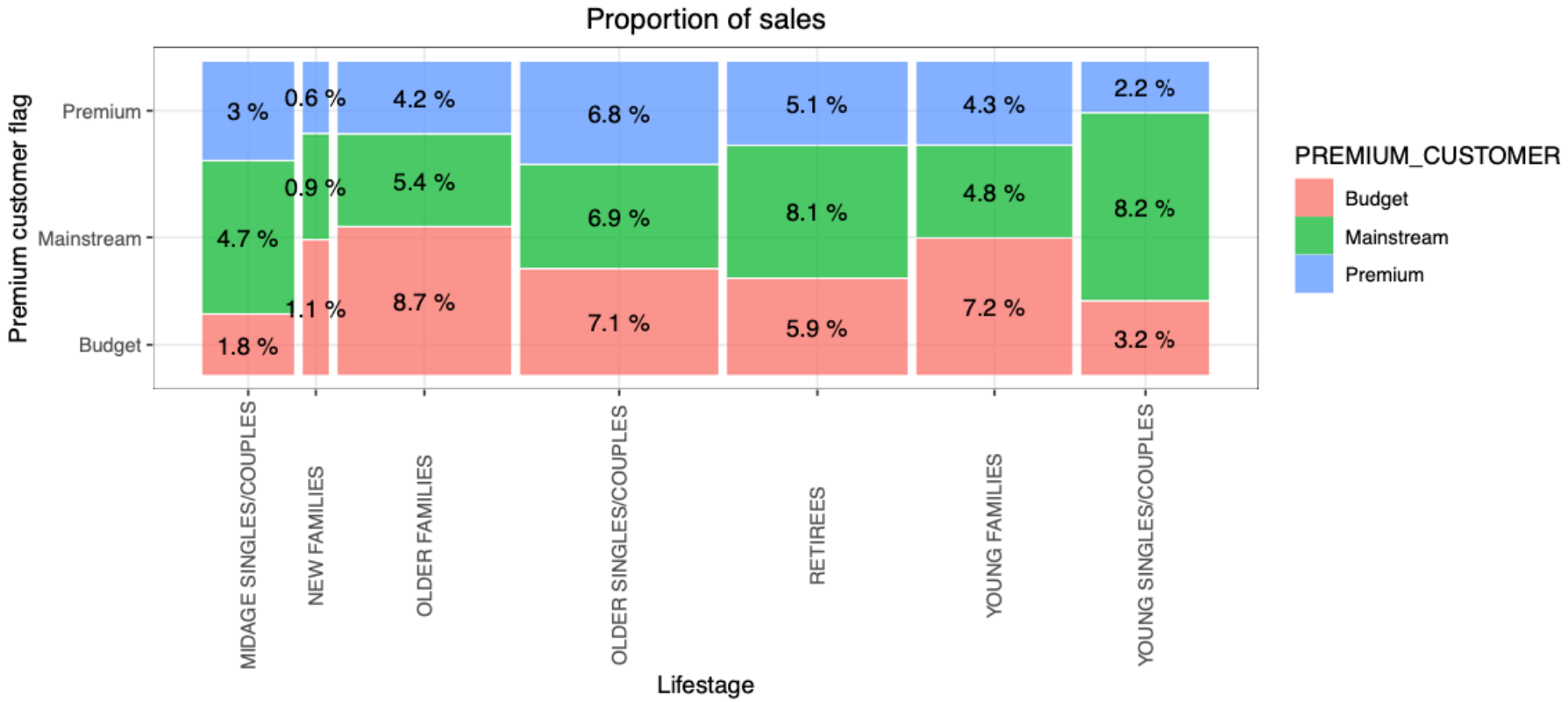
Who spends the most on chips?



Sales have mainly been due to Budget - older families, Mainstream - young singles/couples, and Mainstream - retirees shoppers.

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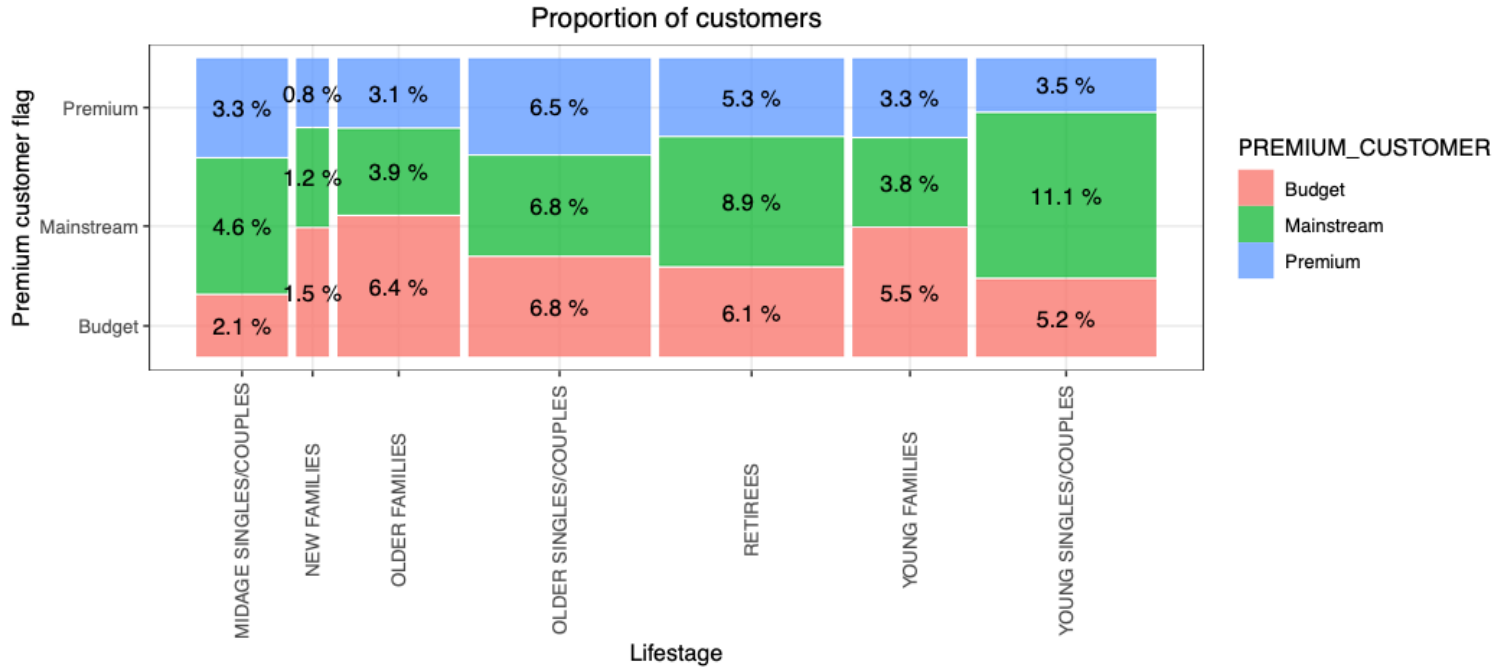
Let’s see if the higher sales are due to there being more customers who buy chips.



There are more Mainstream - young singles/couples and Mainstream - retirees who buy chips.
This contributes to there being more sales to these customer segments but this is not a major driver for the Budget - Older families segment.
Higher sales may also be driven by more units of chips being bought per customer. Let’s have a look at this next.

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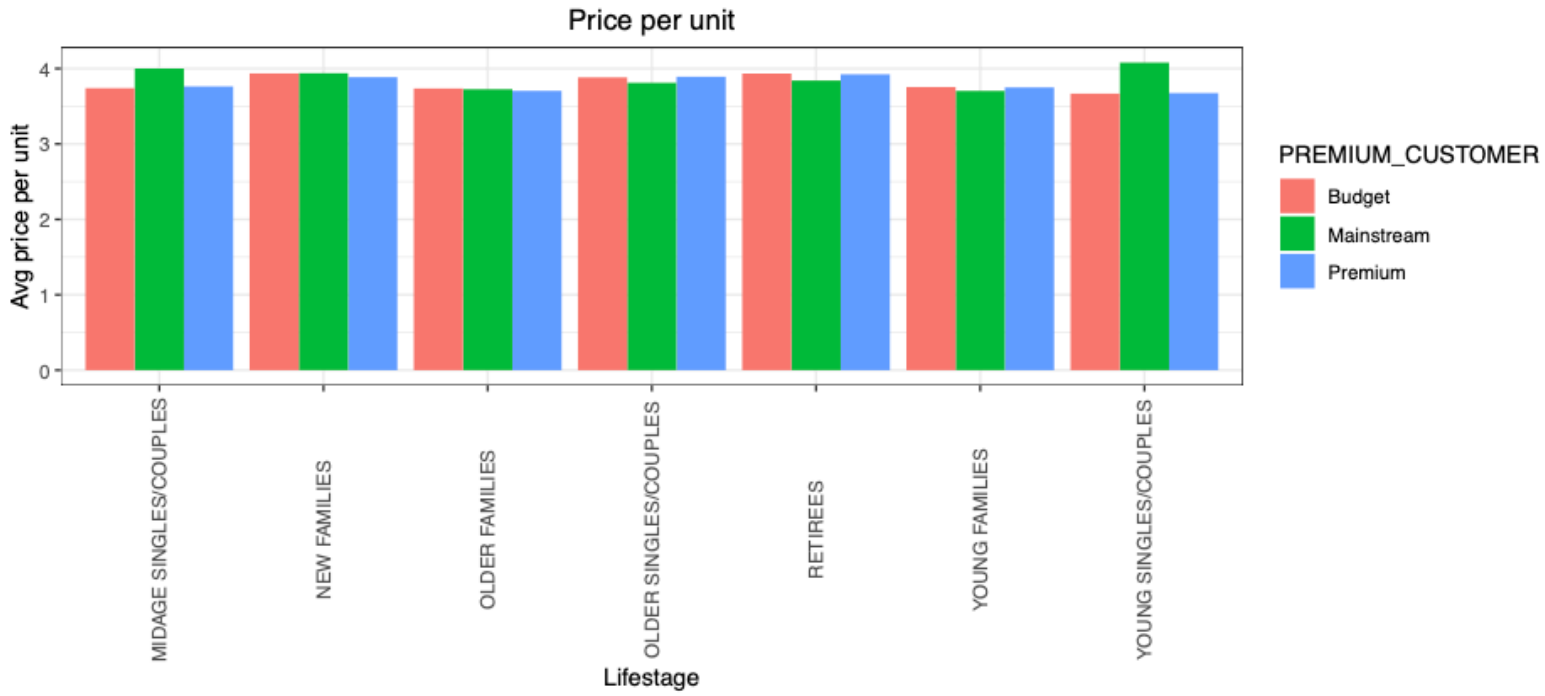
Investigate the average price per unit chips bought for each customer segment



Mainstream midage and young singles and couples are more willing to pay more per packet of chips compared to their budget and premium counterparts. This may be due to premium shoppers being more likely to buy healthy snacks and when they buy chips, this is mainly for entertainment purposes rather than their own consumption. This is also supported by there being fewer premium midage and young singles and couples buying chips compared to their mainstream counterparts.

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The difference in average price per unit isn’t large, we can check if this difference is statistically different.

```
##
## Welch Two Sample t-test
##
## data: data[LIFESTAGE %in% c("YOUNG SINGLES/COUPLES", "MIDAGE
SINGLES/COUPLES") & and data[LIFESTAGE %in% c("YOUNG SINGLES/COUPLES", "MIDAGE
SINGLES/COUPLES") & PREMIUM_CUSTOMER == "Mainstream", price] and
PREMIUM_CUSTOMER != "Mainstream", price]
## t = 40.61, df = 58792, p-value < 2.2e-16
## alternative hypothesis: true difference in means is greater than 0
## 95 percent confidence interval:
## 0.3429435 Inf
## sample estimates:
## mean of x mean of y
## 4.045586 3.688165
```

The t-test results in a p-value < 2.2e-16,

Evidence suggests that the unit price for mainstream, young and mid-age singles and couples are significantly higher than that of budget or premium, young and midage singles and couples.

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When we look at Mainstream - young singles/couples. What brand do they look for?

	BRAND	targetSegment	other	affinityToBrand
1:	TYRRELLS	0.029586871	0.023933043	1.2362352
2:	TWISTIES	0.043306068	0.035282734	1.2274011
3:	KETTLE	0.185649203	0.154216335	1.2038232
4:	TOSTITOS	0.042581280	0.035377136	1.2036384
5:	OLD	0.041597639	0.034752796	1.1969581
6:	PRINGLES	0.111979706	0.093743295	1.1945356
7:	DORITOS	0.122877407	0.105277499	1.1671764
8:	COBS	0.041856492	0.036374793	1.1507005
9:	INFUZIONS	0.060649203	0.053156887	1.1409472
10:	THINS	0.056611100	0.053083941	1.0664449

19:	SUNBITES	0.005953614	0.011718716	0.5080431
20:	WOOLWORTHS	0.028189066	0.057428576	0.4908543
21:	BURGER	0.002743839	0.006144710	0.4465369

We can see that :

- Mainstream young singles/couples are 23% more likely to purchase Tyrrells chips compared to the rest of the population
- Mainstream young singles/couples are 56% less likely to purchase BurgerRings compared to the rest of the population.

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02

Trial store performance

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Explanation of the control store vs other stores

The client has selected store numbers 77, 86 and 88 as trial stores and want control stores to be established stores that are operational for the entire observation period.
We would want to match trial stores to control stores that are similar to the trial store prior to the trial period of Feb 2019 in terms of :

- Monthly overall sales revenue
- Monthly number of customers
- Monthly number of transactions per customer.

We took a simple average of the correlation and magnitude scores for each driver to find the appropriate control store, as a result, the control store and the trial store will have similar performance.

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Performance of trial store

We've found control stores 233, 155, 237 for trial stores 77, 86 and 88 respectively. The results for trial stores 77 and 88 during the trial period show a significant difference in at least two of the three trial months but this is not the case for trial store 86. We can check with the client if the implementation of the trial was different in trial store 86 but overall, the trial shows a significant increase in sales.

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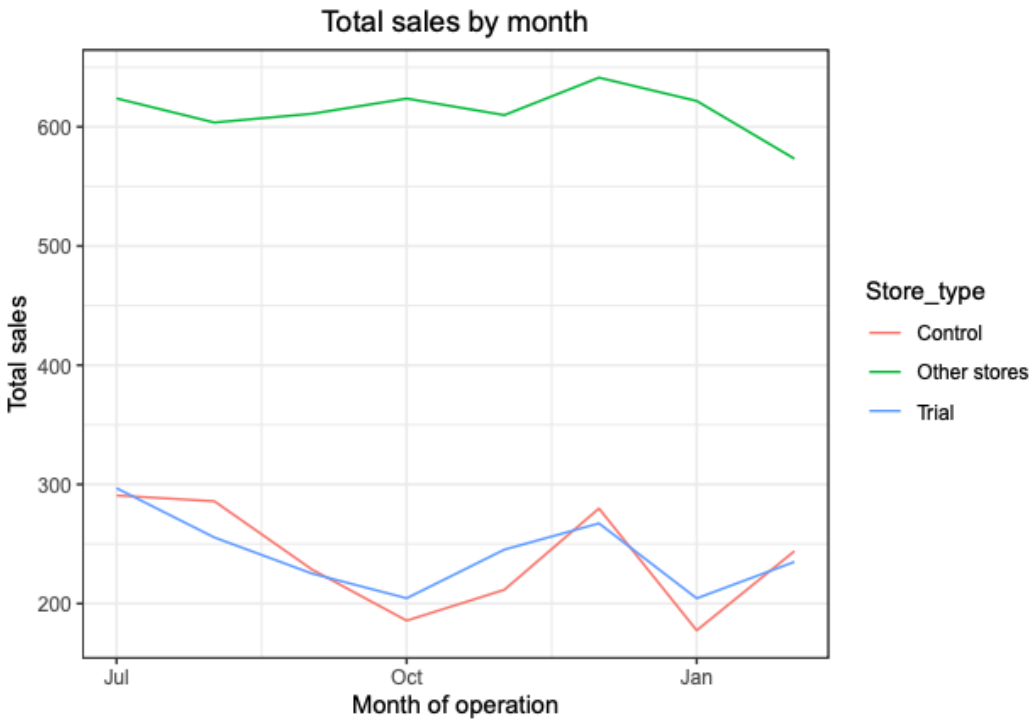
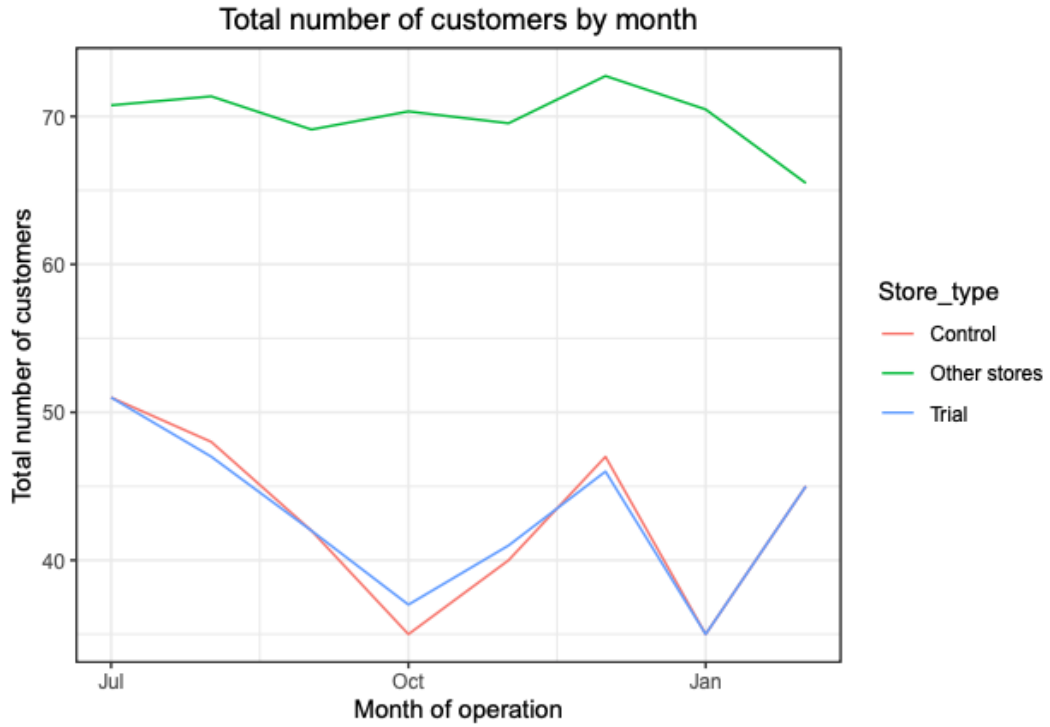
Trial Store 77 vs Control store 233





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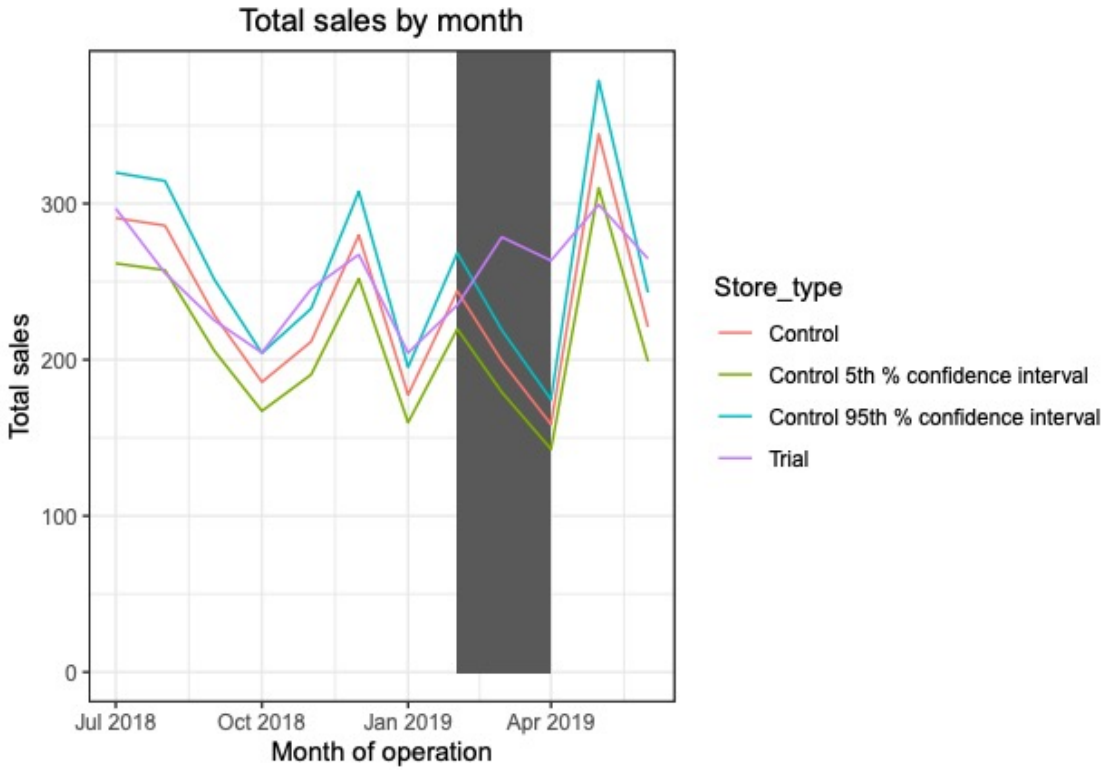
Trial Store 77 vs Control store 233



The results show that the trial in store 77 is significantly different to its control store in the trial period as the trial store performance lies outside the 5% to 95% confidence interval of the control store in two of the three trial months.

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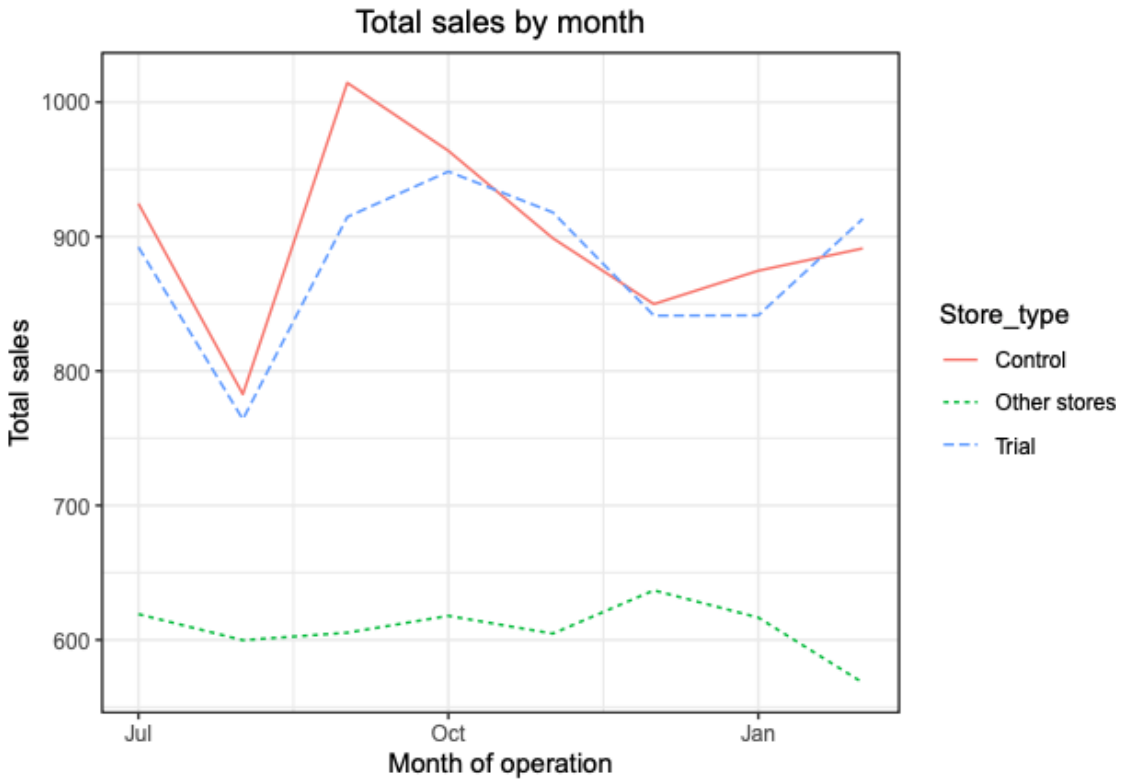
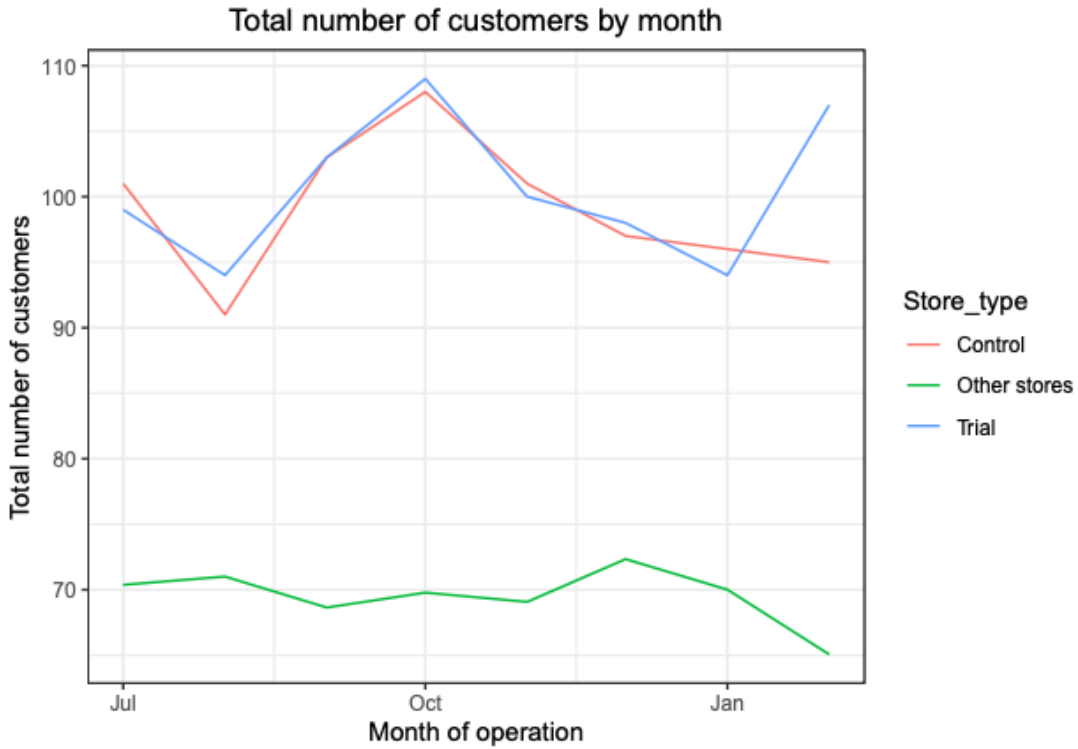
Trial Store 86 vs Control store 155





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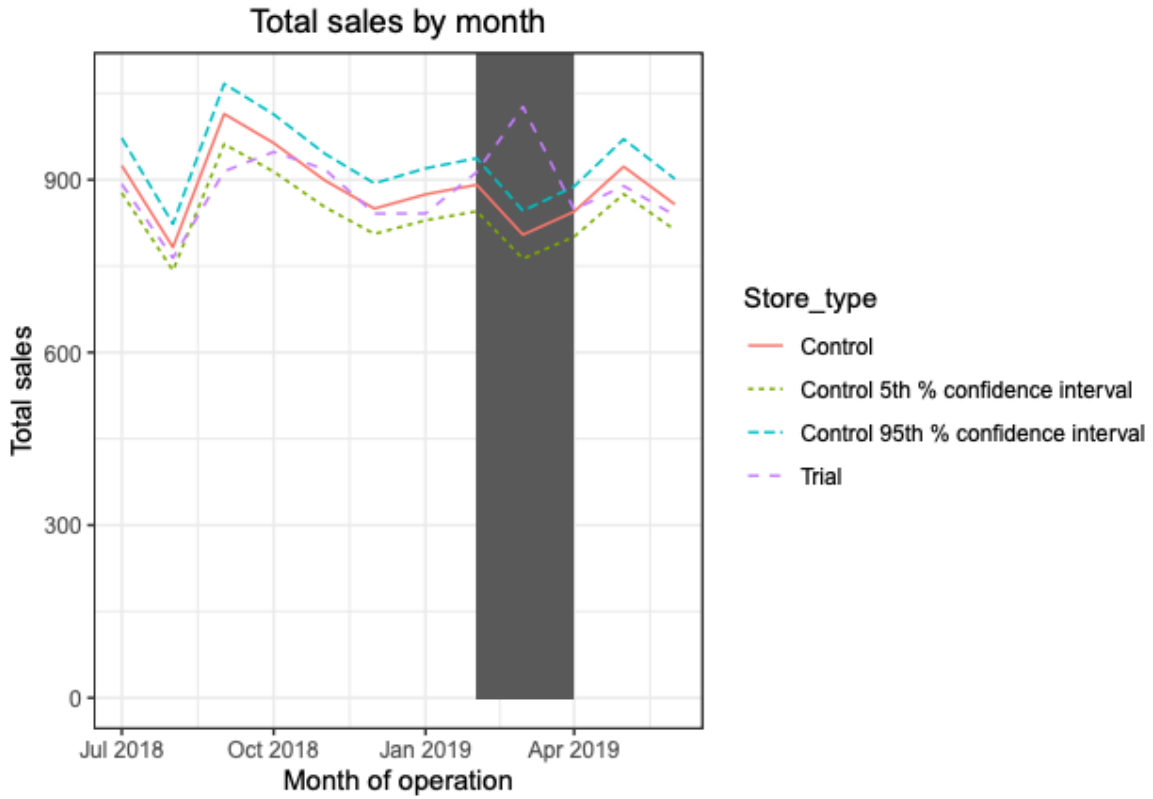
Trial Store 86 vs Control store 155



The results show that the trial in store 86 is not significantly different to its control store in the trial period as the trial store performance lies inside the 5% to 95% confidence interval of the control store in two of the three trial months.

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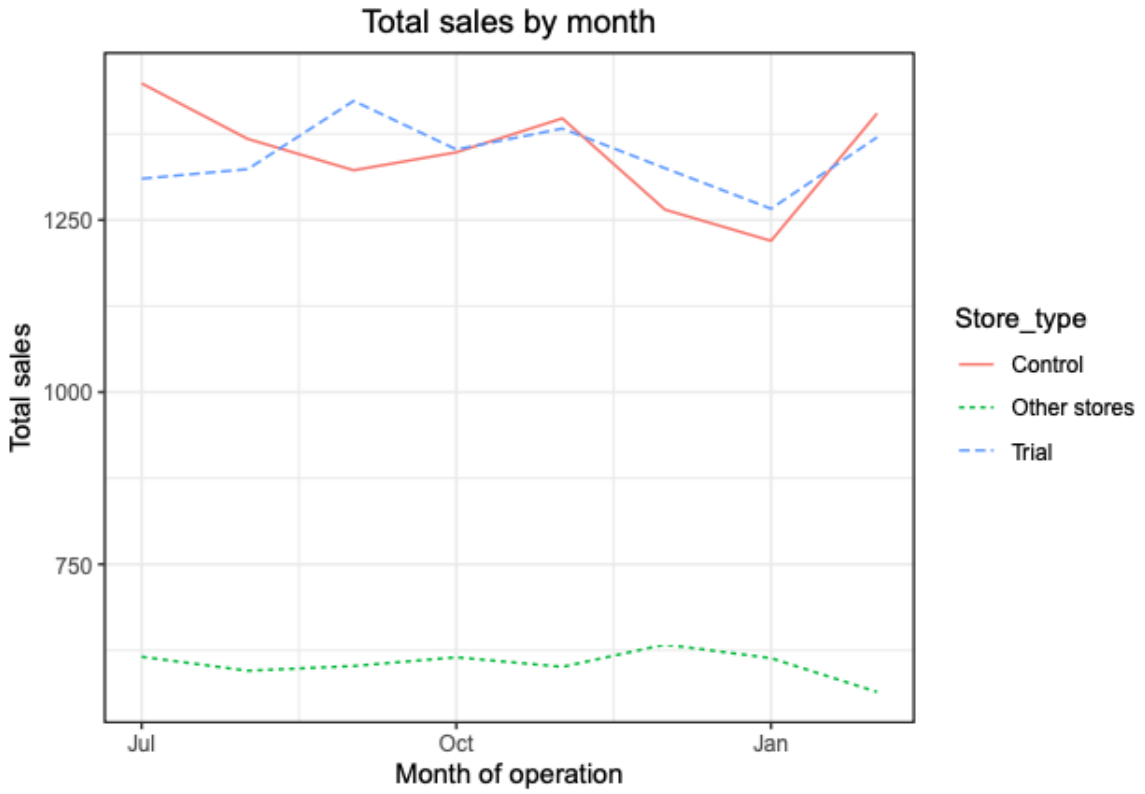
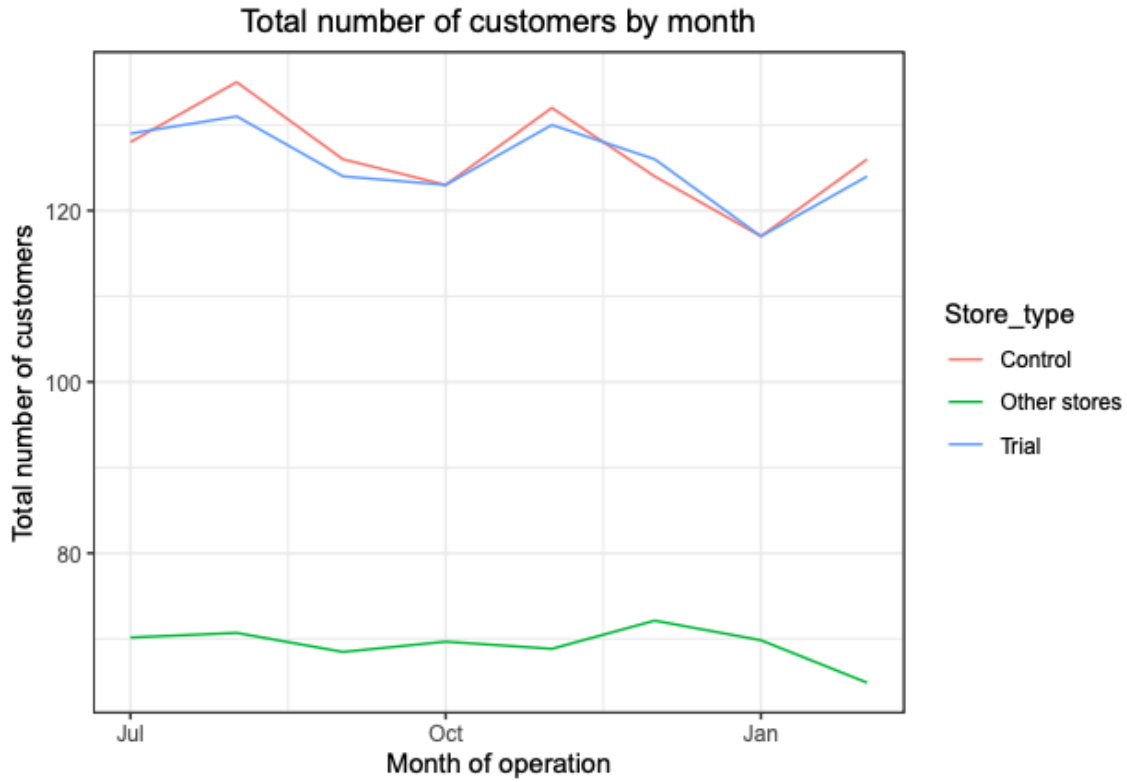
Trial Store 88 vs Control store 237





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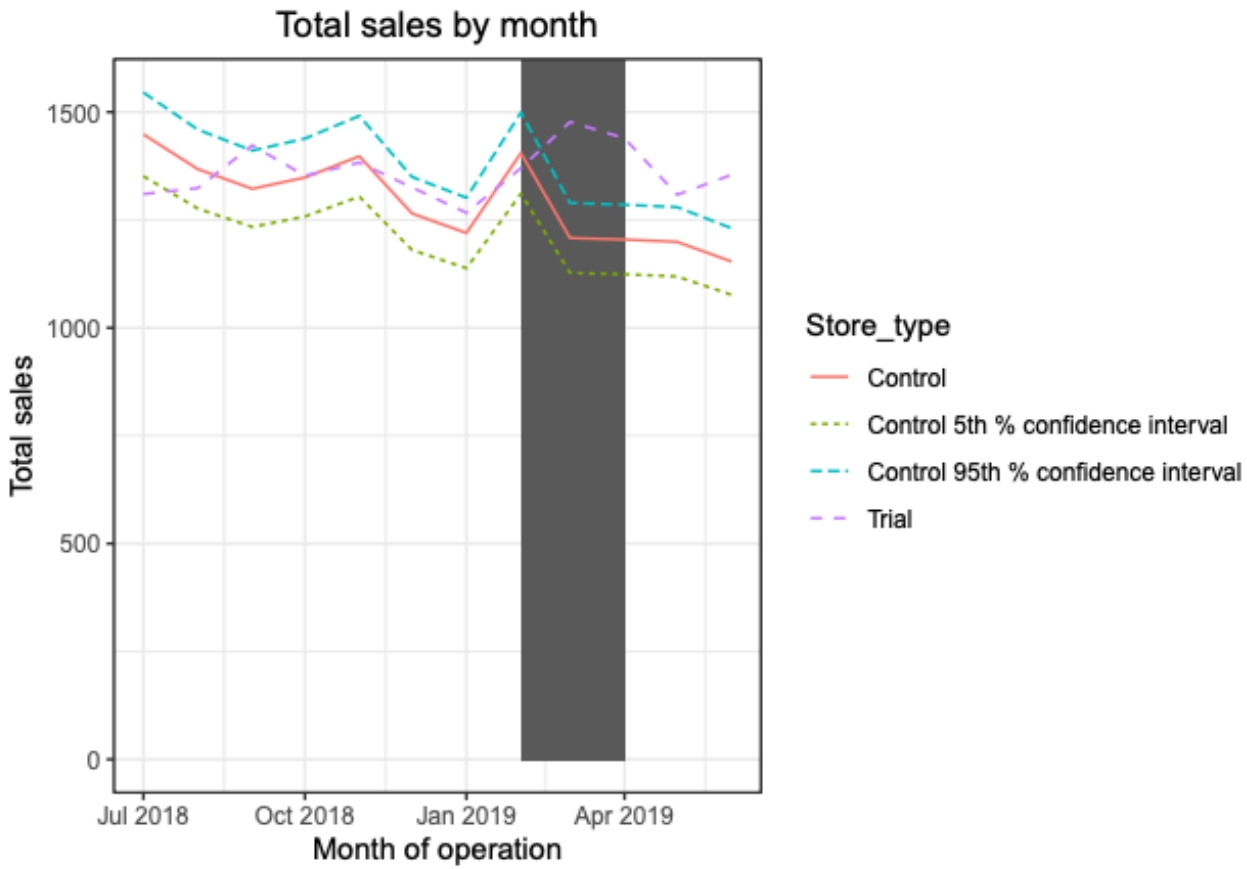
Trial Store 88 vs Control store 237



The results show that the trial in store 88 is significantly different to its control store in the trial period as the trial store performance lies outside of the 5% to 95% confidence interval of the control store in two of the three trial months.

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