Rotman

Master of Management Analytics

# MMA SUPERMARKET PROMOTION STRATEGY

*A Quantitative Analysis of Promotions' Impact on Basket Size*

October 15, 2022 Prepared by Chao Zhang

Rotman School of Management
UNIVERSITY OF TORONTO

Rotman

# BUSINESS OVERVIEW

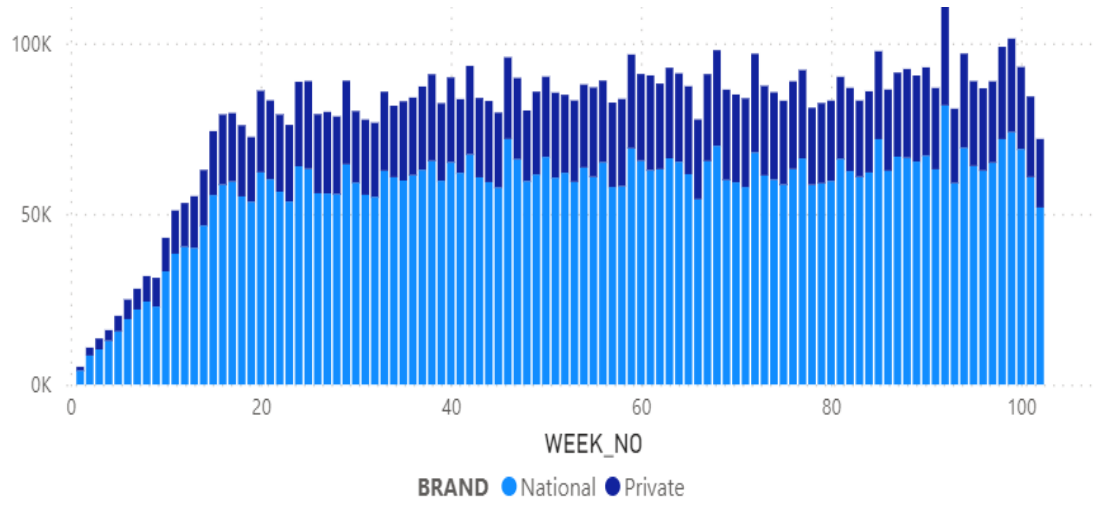
Breakdown of Revenue & Promotion

Rotman School of Management
UNIVERSITY OF TORONTO

# REVENUE BREAKDOWN

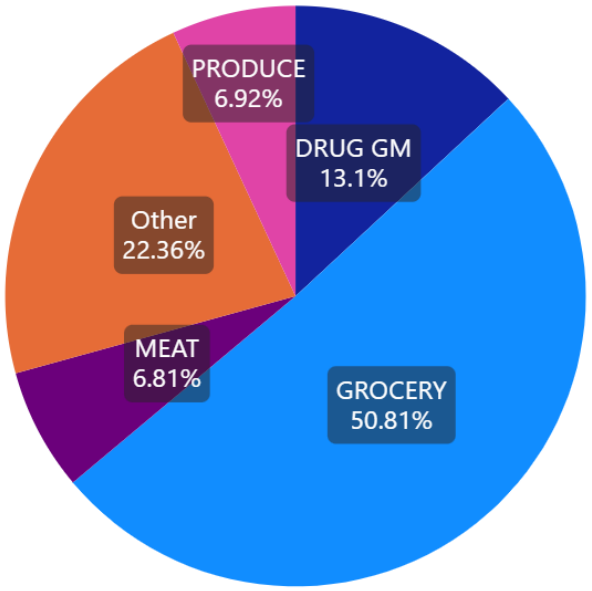
- Since week 16, MMA supermarket has entered into a relatively stable business
- Share of business: national vs. private - 70% / 20%; there is no cannibalization between national and private brands*
- Top 4 departments account for nearly 80% revenue, and grocery alone accounts for 50%

**Weekly Sales Trend by Brand Type**




* correlation between national and private brand weekly sales: 70%

**Total Sales By Department**



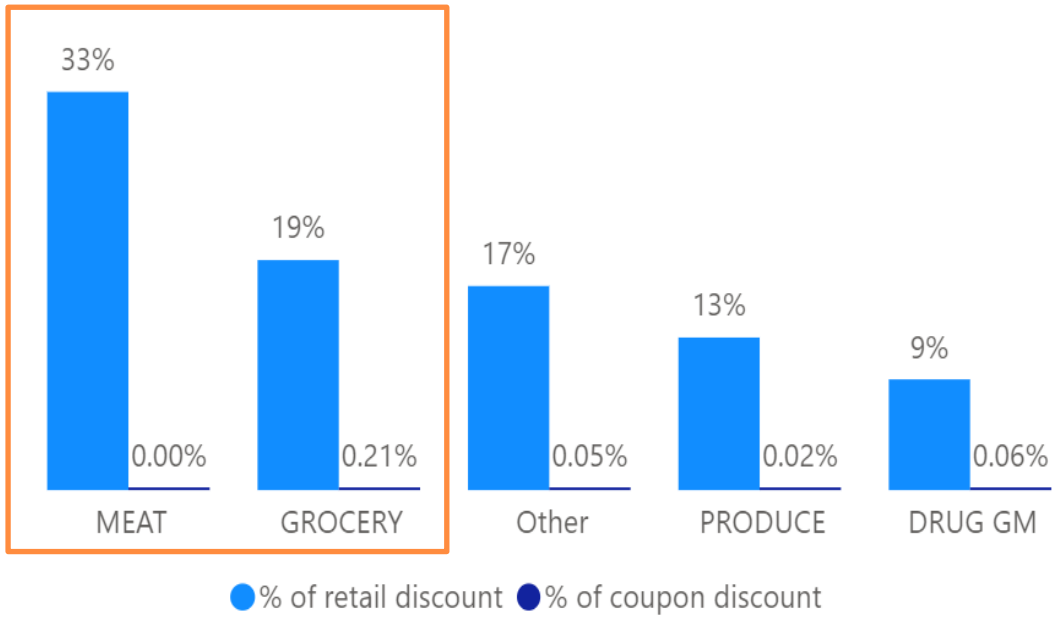



Rotman

# PROMOTION BREAKDOWN OF NATIONAL MANUFACTURERS

- Retail discount's volume is much more significant than coupon discount, with a size of 18% of achieved sales
- Meat and grocery are the two departments with most frequent discounts applied
- Among the 10 largest manufacturers, manufacturer 1208 and 103 are subsidized most frequently by MMA supermarket, while manufacturer 673 received least subsidy

**Discount / Sales by Promotion Type**




**Retail Discount / Sales by Manufacturers (Showing the Top 10)**

| MANUFACTURER | Sum of SALES_VALUE | % of retail discount |
|---|---|---|
| 2 | 346,803.53 | 11% |
| 764 | 165,212.31 | 11% |
| 103 | 119,344.13 | 36% |
| 1208 | 114,565.07 | 40% |
| 317 | 102,557.55 | 22% |
| 544 | 101,303.98 | 13% |
| 1251 | 86,470.86 | 14% |
| 673 | 84,947.18 | 8% |
| 194 | 73,987.33 | 23% |
| 1046 | 70,715.25 | 19% |
| **Total** | **5,820,167.22** | **18%** |



Rotman

Rotman

# PROMO EFFECTIVENESS ANALYSIS

## Sales Lift & Basket Size Lift

*(based on national brand sales data of week 16 and onward)*

Rotman School of Management
UNIVERSITY OF TORONTO

# SALES LIFT ANALYSIS

- Methodology: comparing weekly sales of products with retail discount vs. without retail discount
- MMA Supermarket retail discount strategy needs to be optimized as less than 50% of products saw sales lift
- Potential ROI per manufacturer is roughly the same, therefore major manufacturers show highest potential sales lift
- It is necessary to analyze promotion on a particular manufacturer's impact overall revenue top line

## Sales Lift Overview

**25k**
Products Analyzed

**10K**
Product with Positive Lift

**7%**
Average ROI

**$470**
Avg. potential sales lift per manufacturer

**92%**
Avg. potential ROI per manufacturer

## 5 Manufacturers with Highest Sales Lift Potential

**#2**
$1213/week
ROI: 84%

**#673**
$935/week
ROI: 94%

**#764**
$806/week
ROI: 129%

**#103**
$722/week
ROI: 90%

**#1208**
$663/week
ROI: 92%

Potential are calculated from sales lift of products with positive sales lift only

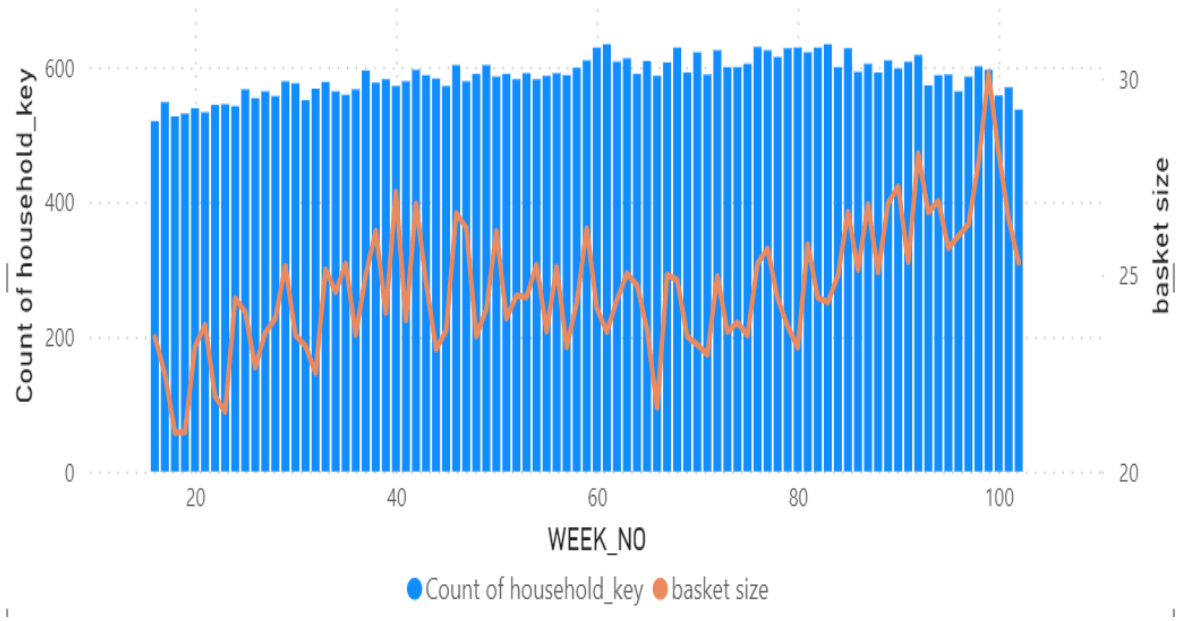


Rotman

# BASKET ANALYSIS: BACKGROUND

- Weekly purchase households number is relatively stable whereas basket size constantly fluctuates
- Assuming for a particular household, times of purchase per week (i.e. number of basket) won't be affected by promotion, then it is essential to **maximize basket size** in order to maximize sales

**Weekly #Households & Avg. Basket Size of National Manufacturers' Sales**




**Methodology**

1. Calculate average basket size per household when no retail discount is applied

2. Calculate average basket size per household when retail discount is applied only to a particular manufacturer

3. Calculate average percentage lift of basket size

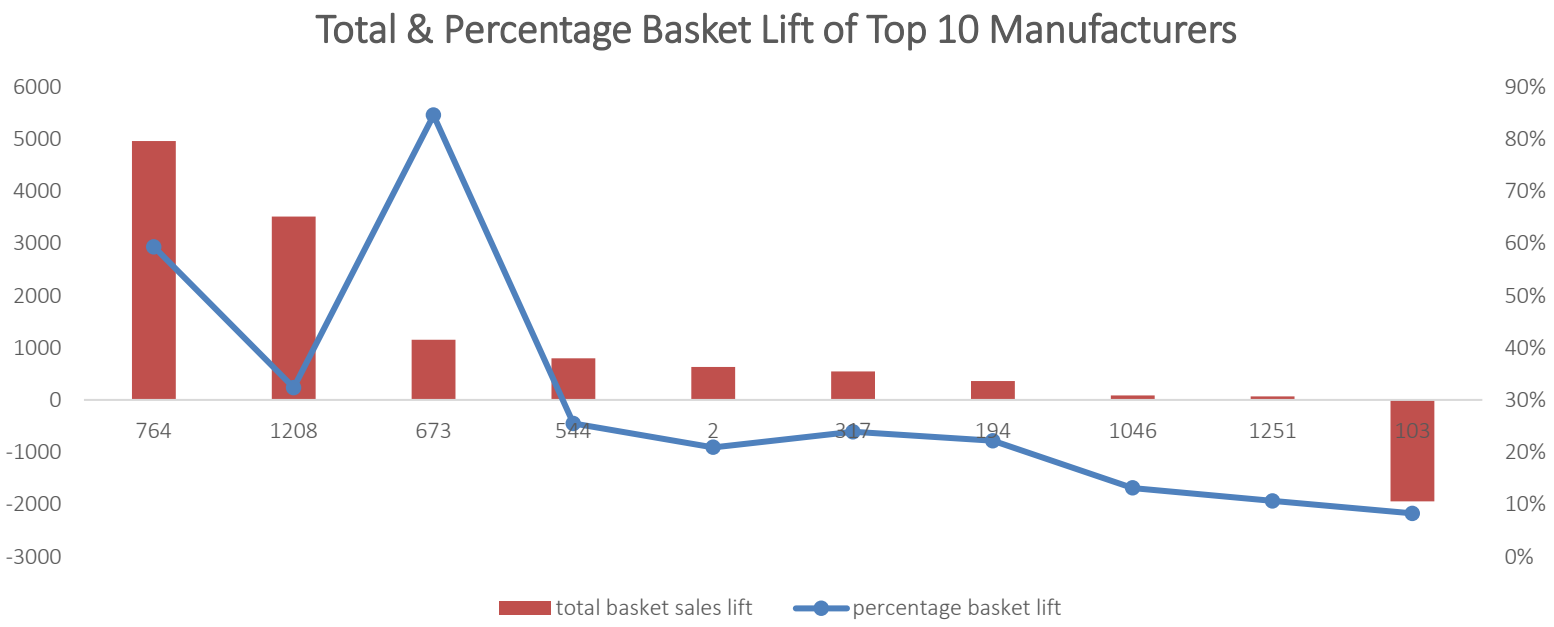
4. Calculate total basket sales lift (absolute lift of basket size * number of baskets with retail discount of a particular manufacturer only)



Rotman

# TOP 10 MANUFACTURERS BASKET LIFT

- Among the five manufacturers with highest weekly sales lift of their own, manufacture 103 is not a good target because it's sales cannibalize other manufacturers' sales, indicated by negative total basket sales lift
- Manufacturer 764 and 1208 have significantly higher total basket sales lift due to both frequent promotion and high basket size percentage lift; manufacturer 673 has significantly higher percentage basket lift, but due to infrequent promotion, total basket sales lift is relatively small, indicating opportunity
- **Therefore, MMA supermarket should pick 764, 1208, 673 as candidates for digital promotion pilot**





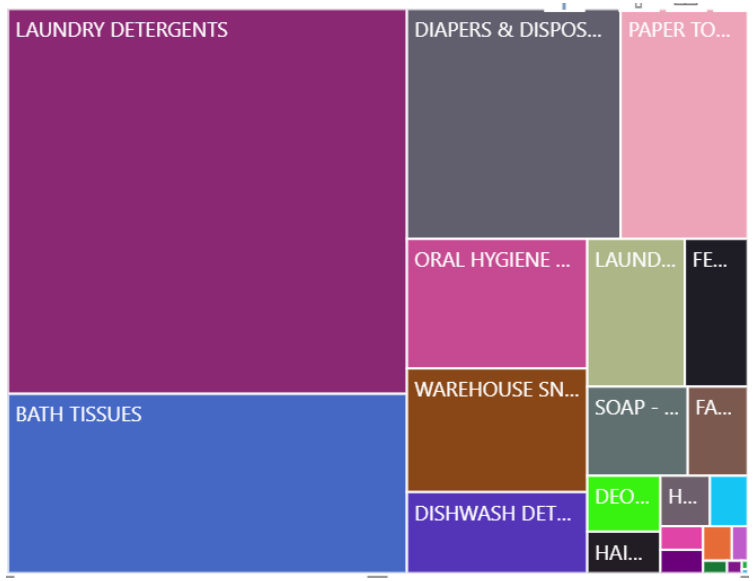

Rotman

# CANDIADATES' MAJOR PROMO COMMODITIES

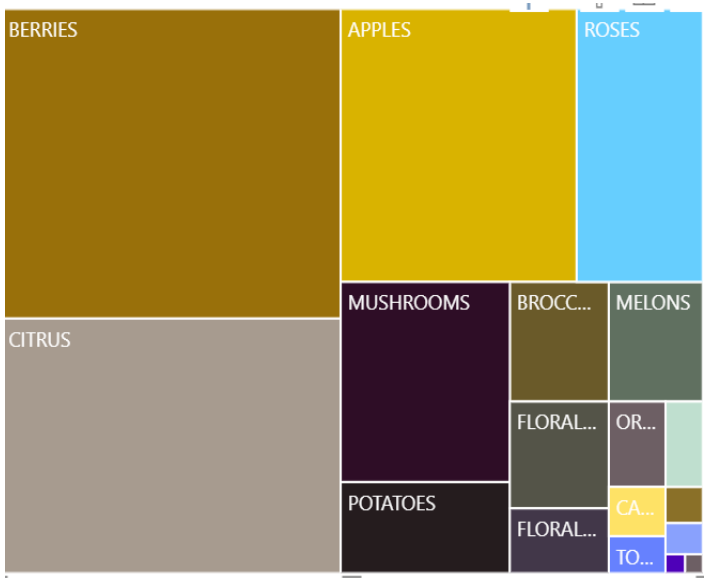
- Manufacture 1208's promotion mostly came from soft drinks, and therefore could target wide range of people
- Manufacture 764's promotion came from cleaning products, and therefore could target housewives / single parent
- Manufacture 673's promotion came from fruits, and therefore could target wide range of people

**Manufacturer 1208**

**Manufacturer 764**




**Manufacturer 673**






Rotman

Rotman

# ADDITIONAL ANALYSIS

Customer Demographics & Basket Analysis

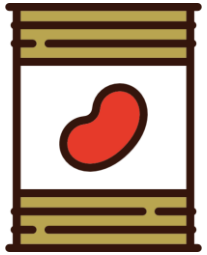
Rotman School of Management
UNIVERSITY OF TORONTO

# Basket Analysis - Commodity Level

By using Apriori Algorithm, we can find out which are the products that are bought frequently together by the customers and based on business sense and limited marketing resource, we filter out these baskets to take place together or/and give proper discount/bundle sales.

## Cat Food, Cat Litter

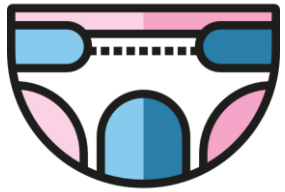
(Support 0.0046, Confidence 0.1971, **Lift 18.41**)



## Beans - Canned Glass & MW, Vegetables - Shelf Stable, Dry Sauces/Gravy

Additional Products sell along with:

Beef, Cheese



## Baby HBC, Diapers & Disposables

(Support 0.0040, Confidence 0.2766, **Lift 16.68**)

## Brooms and mops, Household cleaning needs (support 0.00384, Confidence 0.3477, **Lift 12.97**)

## Laundry additives, Laundry detergent

(Support 0.0069, Confidence 0.4243, **Lift 13.82**)

Additional Products sell along with:

Baked Bread/Buns/Rolls

Fluid Milk Products

## Dry noodles/Pasta, Pasta Sauce, Vegetables - Shelf Stable

Rotman

# Customer Personality

## Group 0:

1. The oldest age group (mostly 35~64 years old)
2. Higher income level
3. Frequently visit the store and spend on goods that are relatively expensive
4. Used large numbers of coupon/discount (mean = 23.04)

## Group 1:

1. Second oldest age group (mainly from 35~44)
2. Lower income level
3. Visit the stores very often, but are less willing to spend on expensive goods
4. Benefit from coupon/discount (mean = 14.08)

## Group 2:

1. The youngest age group (mostly 25~44 years old)
2. Higher income level
3. Frequently visit the store and spend most amount of money among all groups
4. Used most coupon/discounts among all groups (mean = 25.70)

## Group 3:

1. Second youngest age group (mostly from 25~44)
2. Lower income level
3. Do not have a strong desire for going shopping
4. Do not pay attention or be benefited from coupon/discount (mean = 0.01)

## Customer Personality

# — Conclusion

- When doing promotions or campaigns
  - Target customers: group 0 and 2
- Promotions or campaigns on expensive goods
  - Target customers: group 0
- Promotions or campaigns on cheaper goods
  - Target customers: group 0, 1, and 2
- People in group 3 might not be a good target

Rotman