McDonald’s All-Day Breakfast Promotion Analysis

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PLAYINGPANDAS

ADSP 31016 Oct 15,2025

Agenda

- Introduction
- Data Assessment
- Exploratory Data Analysis
- Client Questions
- Preliminary plan
- Executive Summary
- Appendices

Team Introduction

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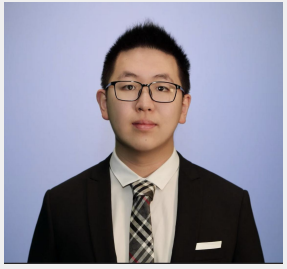


Tony Li

🧐Analyzer

Backgrounds: McDonald's midwest faces a customer attrition problem

"McDonald's restaurants in the Midwest region have faced a persistent customer attrition 5% annually. To address this trend, the company launched the 'All Day Breakfast' promotion in October 2015."

Source: PLAYINGPANDAS Analysis

Business Problem: Did the All-Day Breakfast Promotion addressed the issue?

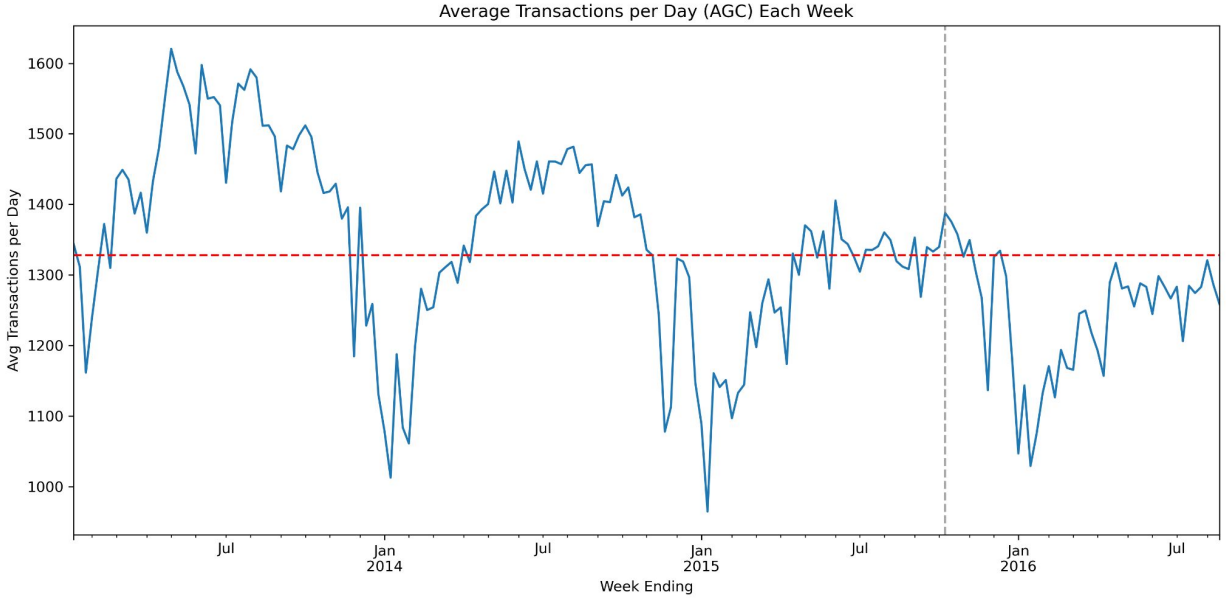
No! All Day Breakfast did not increase customer traffic. However, in the short term, the All Day Breakfast promotion did show some positive effects for unit sales and revenue.

Our data: sales, transactions, revenue, and store characteristics

01	**Dataset Scope**	• 65 restaurants across 4 counties, 29 cities, 55 ZIP codes • Weekly data from 2013 to 2016, covering pre- and post-ADB launch
02	**Sales & Product Metrics**	• Units sold per item per week(urws) • Sales rate per 1,000 transactions • Tracks adoption of breakfast vs. non-breakfast items
03	****Transactions (AGC)**	• Average transaction count/day • Primary indicator of customer traffic and visit frequency • Distinguishes demand growth from basket expansion
04	**Revenue & Cost Structure**	• Item-level average weighted cost • Enables revenue estimation, but profit analysis limited • No direct labor, waste, or equipment cost data
05	**Store & Market Characteristics**	• Income, urbanity, life stage, social traits • Used to identify segment-level responsiveness • Critical for targeting future promotions

Source: PLAYINGPANDAS Analysis

Data shows promotion did not boost traffic: attrition problem remains



- The total number of transactions **showed no increase** after the promotion.

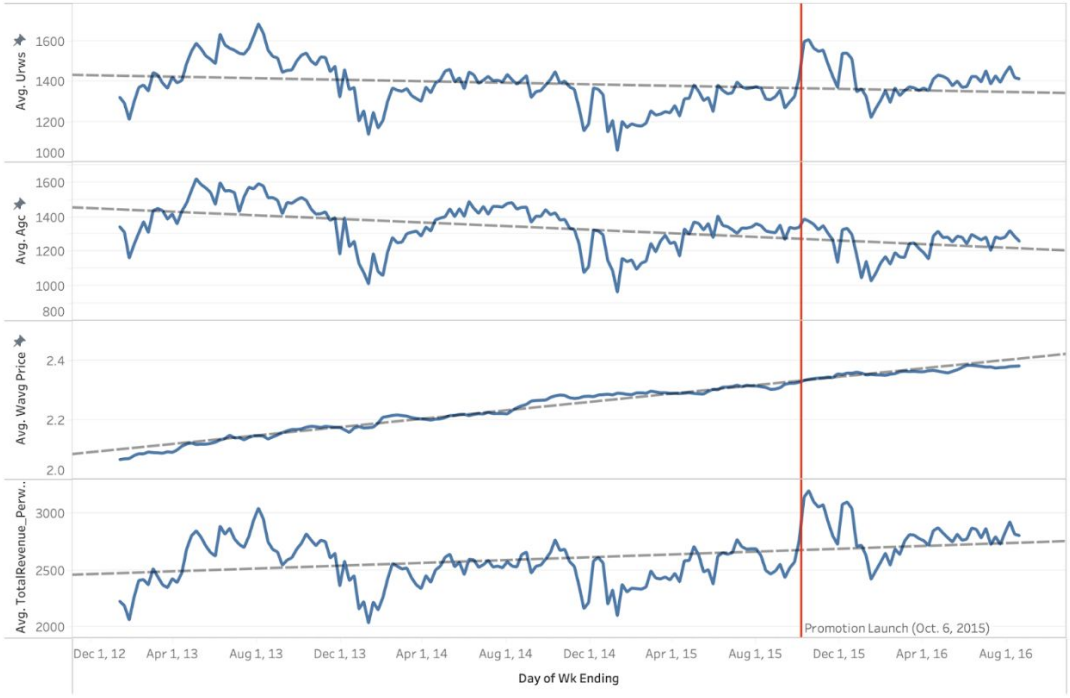
Transactions remained flat across all cities and life stage segments

- City-level transactions **remained largely unchanged** after the promotion.
- Across life stages, transactions showed little change, with only **Sustaining Families** experiencing a brief spike that later returned to baseline.

Source: PLAYINGPANDAS Analysis

But total units sold and revenue increased after the promotion!

Trends in average weekly transactions, units sold, average price, and total revenue from 2013 to 2016



- Units sold shows a clear spike after the ADB launch
- Weekly transactions decreased and revenue increased ➔ increase in units per transaction
- January lows were higher than previous years, suggesting a potential permanent increase or lingering effects of the promotion.

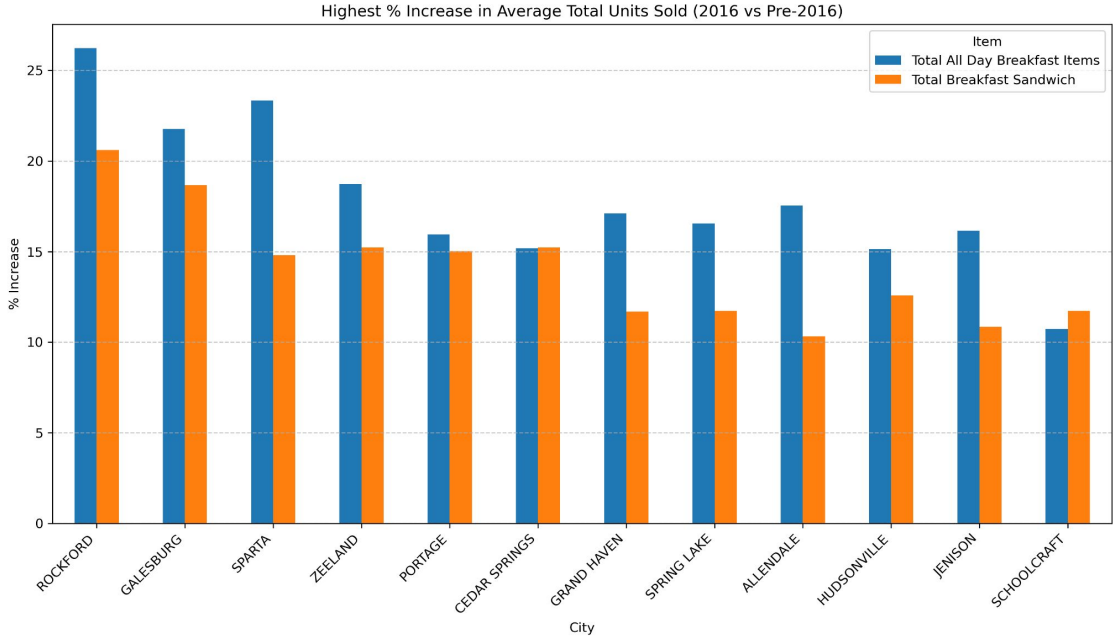
Source: PLAYINGPANDAS Analysis

Breakfast growth was not at the expense of other items:

- **No clear sign of cannibalization:** After ADB launch, other categories (e.g., Beef, Fries, Chicken) remained relatively stable.
- **Widening gap after launch:** The gap between breakfast items and other categories increased further following the promotion.

Source: PLAYINGPANDAS Analysis

Two-pronged strategy on geography and categories can maximize impact



- The promotion's effectiveness varied significantly by location
- Targeted marketing campaigns and additional operational support are required in **high-performing areas** to maximize ROI.

Source: PLAYINGPANDAS Analysis

Two-pronged strategy on geography and categories can maximize impact

Itemdesc	Before Promotion	After Promotion
Egg McMuffin		13.59%
Sausage Egg McMuffin		13.53%
Total McMuffins		9.34%
Total All Day Breakfast Items		7.70%
Sausage McMuffin		7.30%
Total Breakfast Sandwich		5.57%
Big Mac		3.21%
McChicken		2.33%
Sau Egg Ch McGriddle		2.29%
Hashbrown		2.26%
Total Bagels		2.14%
Bac Egg Ch McGriddle		2.06%
Total McGriddles		2.02%
Bac Egg Ch Biscuit		1.85%
Cheeseburger		1.59%
Core QP and QPC		1.33%
Large Burgers		-1.28%
Total Biscuits		-1.42%
McDouble		-2.39%
Total Fries		-2.56%
Beef Category		-2.96%
Sausage Biscuit		-5.10%
Sausage Egg Biscuit		-5.24%
Hamburger		-5.91%
Chicken Category		-8.23%

- A few core breakfast items, drove the most sales lift
- Focusing on proven **top-sellers** may decrease operational cost and potential cannibalization
- Profitability analysis is required to further validate strategy

Source: PLAYINGPANDAS Analysis

Insights Summary: Promotion increased revenue but not customer traffic

Abandon ADB?

Still have some benefits?

More data can help!

1. Cost
2. Transaction
3. Walk in restaurants
4. Other cites

Additional operational and customer data are needed

Transaction

- Time-of-day purchase data (breakfast vs. lunch vs. dinner behavior)
- Payment method and order channel (app, kiosk, drive-thru, delivery)
- Identify items frequently bought together (combo opportunities)

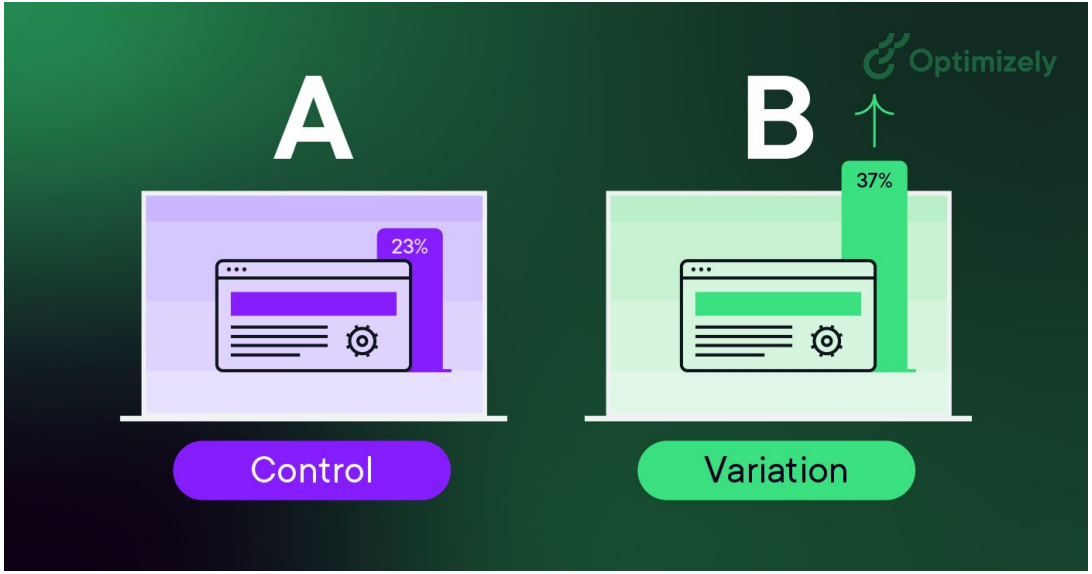
Walking in restaurants

- Dine-in vs. drive-thru vs. delivery volume split
- Average wait time and service speed during peak hours
- In-store foot traffic data (people entering but not purchasing)

Other cities

- Regional/city-level sales and demographic data
- Identify cities without All-Day Breakfast as control group
- Compare transaction and unit trends between ADB and non-ADB cities

Future analyses and tests?



Cost Optimization

- Determine optimal distribution of resources between breakfast vs. lunch/dinner

Causal Analysis:

- Promotion vs. No Promotion

Compliments/Substitutes:

- McMuffin + Hot Coffee
- Hashbrowns vs. Fries

Source: PLAYINGPANDAS Analysis

Key Takeaways and Next Steps

1. **Limited Long-Term Impact**
   a. All-Day Breakfast boosted short-term sales but failed to reverse declining customer traffic.
2. **Growth Came from Existing Customers**
   a. Higher basket size, not new visitors, drove the temporary revenue/sales increase.
3. **Strategic Shift Recommended**
   - Refocus on targeted marketing, fewer item promotions
   - Collect richer cost, customer, and transaction data to guide future campaigns.

Appendices

Appendix 1: Average AGC per Income Level Over Time

Source: PLAYINGPANDAS Analysis

Appendix 2: Average Revenue Growth by Category

	promotion	
Itemdesc	Before Promotion	After Promotion
Egg McMuffin		13.59%
Sausage Egg McMuffin		13.53%
Total McMuffins		9.34%
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Source: PLAYINGPANDAS Analysis

Appendix 3: Average Revenue Growth by Income & Location

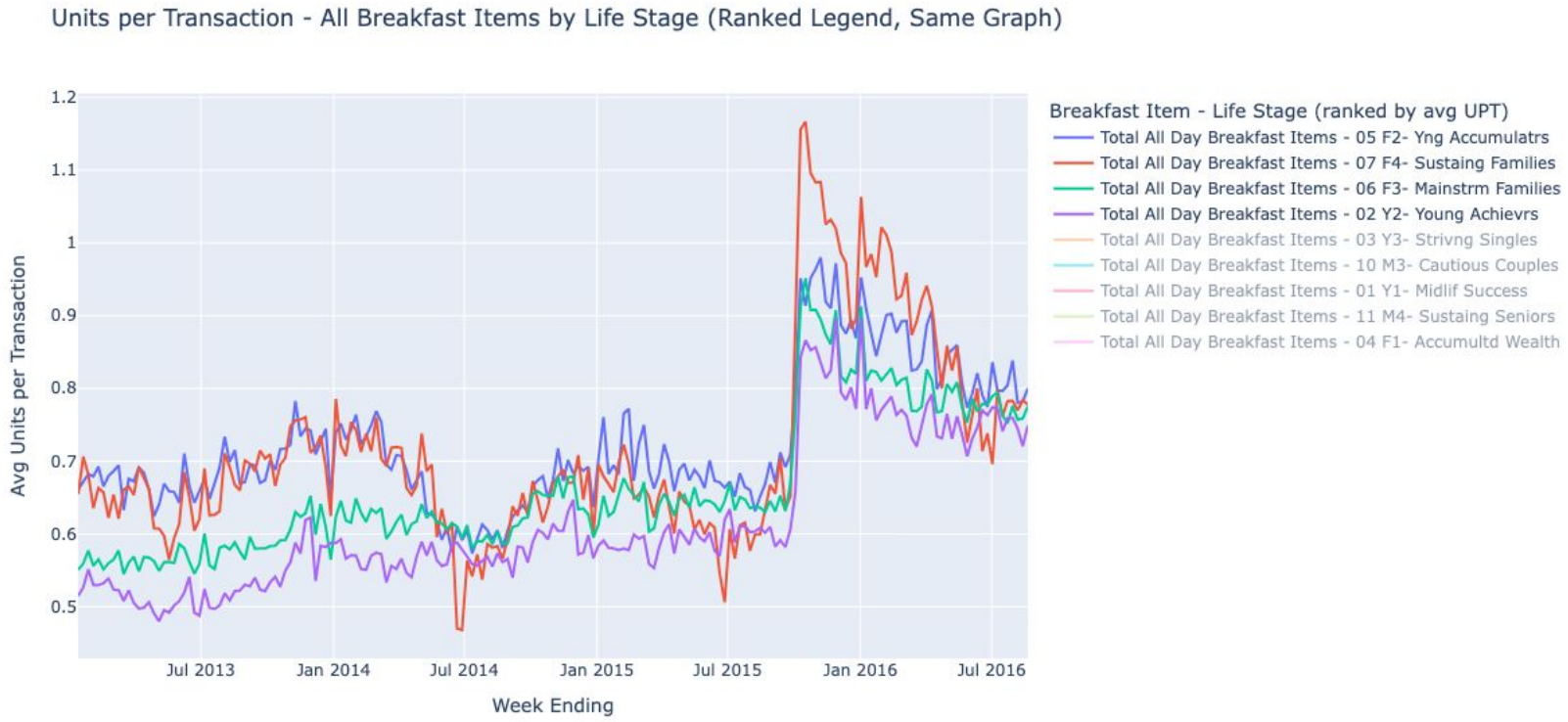
<Average Revenue Growth by Income>

	promotion	
Incomeq Label	Before Promotion	After Promotion
1-Highest Income		1.382%
2-2ndHighest Income		3.046%
3-Mid Income		2.330%
4-2ndLowest Income		0.448%
5-Lowest Income		-1.947%

<Average Revenue Growth by Location>

	promotion	
Urban Label	Before Promotion	After Promotion
1-Urban		-2.637%
2-Suburban		1.954%
3-Second City		0.379%
4-Town and Rural		2.507%

Appendix 4: Units per Transaction - All Breakfast Items by Life Stage



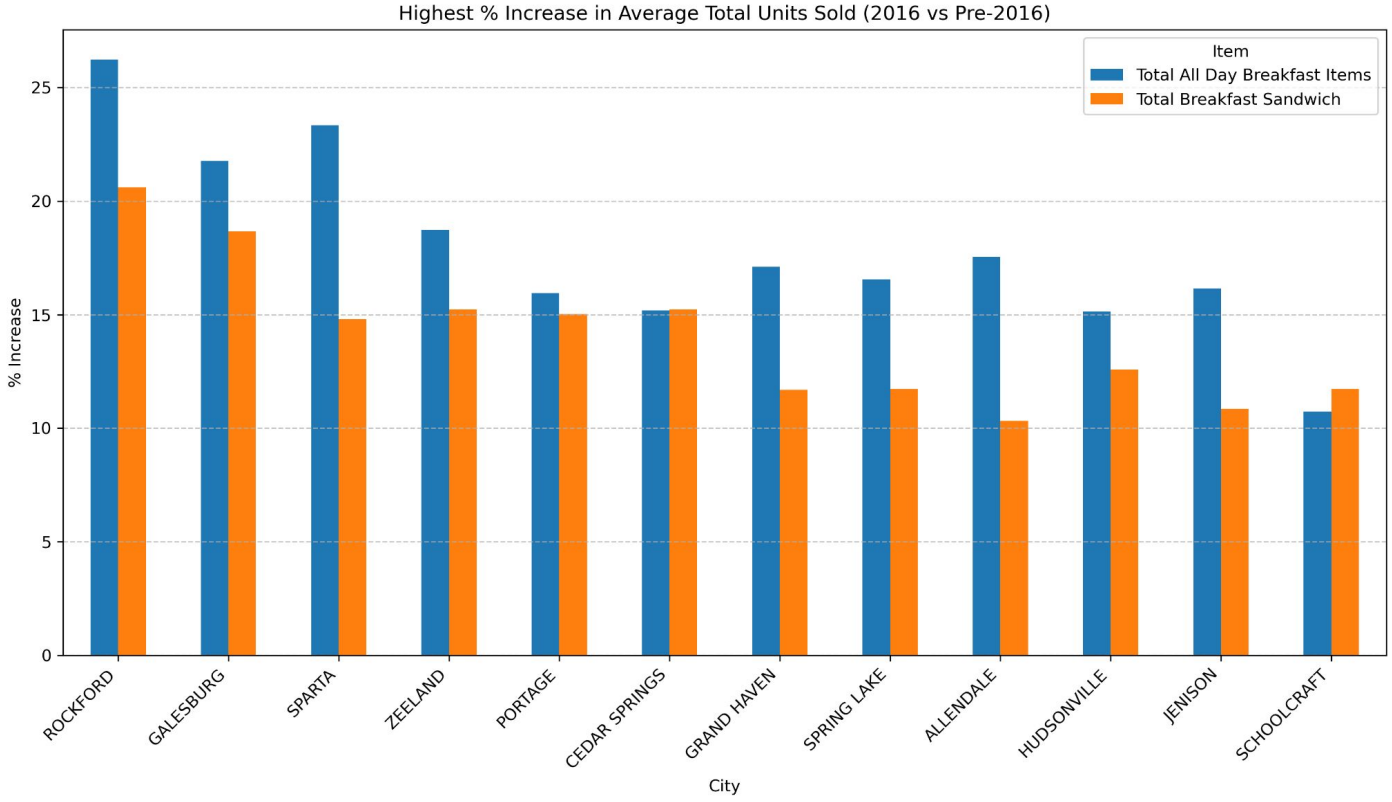
Source: PLAYINGPANDAS Analysis

Appendix 5: Average totunits per Week for Each Items (CEDAR SPRINGS)

Appendix 6: Average AGC per City Over Time

Source: PLAYINGPANDAS Analysis

Appendix 7: Highest % Increase in Average Total Units Sold



Source: PLAYINGPANDAS Analysis

Appendix 8: Average totunits per Week for Each Item (HOLLAND)

Appendix 9: Average AGC per Life Stage Segment Over Time

Source: PLAYINGPANDAS Analysis

Appendix 10: Mode of Categorical Labels for Top 10 Cities

Mode of Categorical Labels for Top 10 Cities (Breakfast Units)

ST_PLYPL_TYP	REST_DRV_THRU_TYP	REST_TYPE	owner_label	trad_label	subtype_label	incomeq_label	urban_label	social_label	lstage_label	ppop_09q_label
INDOOR	SIDE BY SIDE 2 BOOTH	FREESTANDING	MCOPCO	Y	Traditional	3-Mid Income	4-Town and Rural	13 T3- Midl America	06 F3- Mainstrm Families	1-Highest PPop_0_9
	SIDE BY SIDE 2 BOOTH	FREESTANDING	LICENSEE	Y	Traditional	4-2ndLowest Income	4-Town and Rural	14 T4- Rustic Living	03 Y3- Strivng Singles	2-2ndHighest PPop_0_9
NONE	SIDE BY SIDE 2 BOOTH	FREESTANDING	MCOPCO	Y	Traditional	2-2ndHighest Income	4-Town and Rural	13 T3- Midl America	06 F3- Mainstrm Families	3-Mid PPop_0_9
NONE	SIDE BY SIDE 2 BOOTH	FREESTANDING	LICENSEE	Y	Traditional	3-Mid Income	3-Second City	09 C2- City Centers	10 M3- Cautious Couples	5-Lowest PPop_0_9
NONE	SIDE BY SIDE 2 BOOTH	FREESTANDING	LICENSEE	Y	Traditional	3-Mid Income	1-Urban	02 U2- Midtown Mix	06 F3- Mainstrm Families	1-Highest PPop_0_9
NONE	SIDE BY SIDE 2 BOOTH	FREESTANDING	LICENSEE	Y	Traditional	3-Mid Income	2-Suburban	07 S4- Inner Subs	06 F3- Mainstrm Families	1-Highest PPop_0_9
	2 BOOTH COD	FREESTANDING	LICENSEE	Y	Traditional	3-Mid Income	2-Suburban	07 S4- Inner Subs	06 F3- Mainstrm Families	2-2ndHighest PPop_0_9
INDOOR	SIDE BY SIDE 2 BOOTH	FREESTANDING	LICENSEE	Y	Traditional	3-Mid Income	4-Town and Rural	14 T4- Rustic Living	03 Y3- Strivng Singles	2-2ndHighest PPop_0_9
INDOOR	SIDE BY SIDE 2 BOOTH	FREESTANDING	MCOPCO	Y	Traditional	3-Mid Income	4-Town and Rural	12 T2- Country Cmfrt	06 F3- Mainstrm Families	4-2ndLowest PPop_0_9
INDOOR	SIDE BY SIDE 2 BOOTH	FREESTANDING	LICENSEE	Y	Traditional	2-2ndHighest Income	4-Town and Rural	12 T2- Country Cmfrt	06 F3- Mainstrm Families	1-Highest PPop_0_9

Appendix 11: Revenue & Transaction Change

	promotion	
	Before Promotion	After Promotion
Average Revenue	2,580	2,612
Average Revenue Growth		1.23%
Average Transaction	1,358	1,315
Average Transaction Gro..		-3.19%

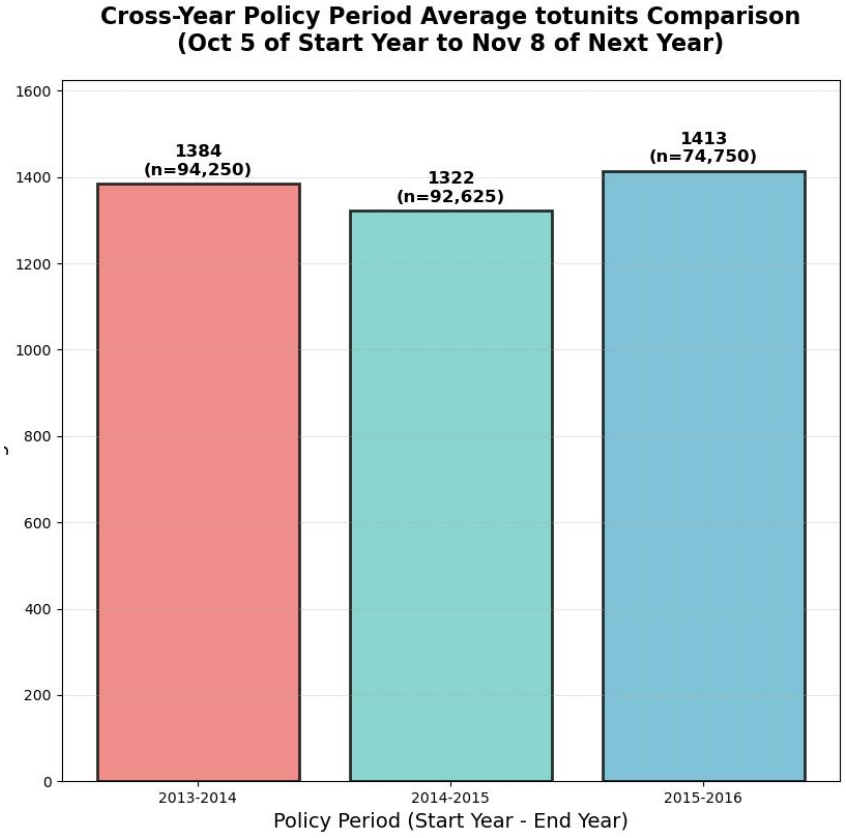
Appendix 12: Item Revenue per Week Over Time

Source: PLAYINGPANDAS Analysis

Appendix 13: Average AGC per Urban Segment Over Time

Source: PLAYINGPANDAS Analysis

Appendix 14: Cross-Year Policy Period Average Totunits Comparison



Source: PLAYINGPANDAS Analysis

Appendix 15: Linear Regression Modeling

$$\boldsymbol{totunits}_{it} = \beta_0 + \beta_1 week\_end_t + \beta_2 Policy\_period_t + \beta_3 interaction_{it} + \beta_4 wavg\_price_{it} + \beta_5 \sin\left(\frac{\pi}{36} week\_of\_year_t\right) + \beta_6 \cos\left(\frac{\pi}{36} week\_of\_year_t\right) + \beta_7 is\_holiday\_season_t + \beta_8 is\_summer_t + \beta_9 is\_breakfast_{it} + \varepsilon_{it}$$

- `totunits`: Total units sold per week
- `wk_end`: Time trend variable, coefficient β_1 represents the daily rate of change in sales
- `Policy_period`: Policy implementation dummy, coefficient β_2 represents the "jump" effect at policy implementation
- `interaction`: Policy-time interaction term, coefficient β_3 represents the change in time trend slope post-policy
- `wavg_price`: Weekly average price, coefficient β_4 represents price sensitivity
- `sin_week,cos_week`: Sine and cosine transformation of week number. Captures annual cyclical patterns
- `is_holiday_season`: Holiday season dummy
- `is_summer`: Summer season dummy
- `is_breakfast`: Breakfast product dummy

Appendix 16: Linear Regression Estimation

OLS Regression Results

Dep. Variable:	totunits	R-squared:	0.001
Model:	OLS	Adj. R-squared:	0.001
Method:	Least Squares	F-statistic:	106.0
Date:	Sun, 19 Oct 2025	Prob (F-statistic):	1.43e-68
Time:	17:14:06	Log-Likelihood:	-2.6755e+06
No. Observations:	302363	AIC:	5.351e+06
Df Residuals:	302359	BIC:	5.351e+06
Df Model:	3		
Covariance Type:	nonrobust		

	coef	std err	t	P>|t|	[0.025	0.975]
Intercept	1478.1381	7.068	209.146	0.000	1464.286	1491.990
wk_end	-0.2033	0.012	-16.611	0.000	-0.227	-0.179
Policy_period	240.0245	77.595	3.093	0.002	87.941	392.108
interaction	-0.0602	0.068	-0.890	0.373	-0.193	0.072

Omnibus:	100633.239	Durbin-Watson:	0.250
Prob(Omnibus):	0.000	Jarque-Bera (JB):	276764.520
Skew:	1.815	Prob(JB):	0.00
Kurtosis:	5.965	Cond. No.	2.28e+04

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
[2] The condition number is large, 2.28e+04. This might indicate that there are
strong multicollinearity or other numerical problems.