

McDonald's Case Study

Team 5 - ADSP 31016

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Agenda

- Re-evaluation of the Business Problem
- Data Assessment
- Exploratory Data Analysis
- Our Questions
- Next Steps

Business Problem

Customer traffic has been on a **5%** decrease these past few years (**20,000 potential customers**) in the Michigan Area.

In an effort to address this problem, we have had the introduction of the “**All-Day Breakfast**” promotion

Assess the effectiveness of this promotion on

- the **Financials** at the McDonald’s locations (costs & operational issues)
- the **Customer Retention**



Data

Geographical - Menu - Financial



Available Data

REST ..	Distinct count of RE..	Count of Item N	Count of Adus	Count of Agc	Count of Totunits	Count of Urws	Count of Upt	Count of Wavg Price
36277	1	4,725	2,775	2,775	2,775	2,775	2,775	2,775
16773	1	4,725	3,213	3,213	3,213	3,213	3,213	3,213
36302	1	4,725	3,950	3,950	3,950	3,950	3,950	3,950
2308	1	4,725	4,475	4,475	4,475	4,475	4,475	4,475
5238	1	4,725	4,475	4,475	4,475	4,475	4,475	4,475
4635	1	4,725	4,700	4,700	4,700	4,700	4,700	4,700
117	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
248	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
958	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
981	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
1312	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
1936	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
2311	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
2661	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
2737	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
2877	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
3003	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
3124	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
3494	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
3558	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
4077	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
4323	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
4451	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
4686	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
5048	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
5302	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
5457	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
5477	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
5501	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
6362	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
6640	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
7034	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
7479	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
7650	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
7700	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725
10055	1	4,725	4,725	4,725	4,725	4,725	4,725	4,725

That 6 stores are missing data compared to other stores, which have 4725 lines of data.

Itemdesc	Distinct count of REST KEY (M395 weekly sales .csv)	Urws	Totunits	SUM(adus*7)	SUM([Upt]/1000*[Agc]*7)
Total All Day Breakfast Items	64	65,337,828	65,337,828	65,590,060	65,590,023
Total Breakfast Sandwich	64	35,941,707	35,941,707	36,087,657	36,087,700
Total McMuffins	64	22,157,339	22,157,339	22,249,216	22,249,187
Egg McMuffin	64	4,462,221	4,462,221	4,481,372	4,481,415
Sausage McMuffin	64	8,084,946	8,084,946	8,117,936	8,117,995
Sausage Egg McMuffin	64	7,720,557	7,720,557	7,753,571	7,753,627
Total Biscuits	64	7,267,171	7,267,171	7,297,266	7,297,282
Bac Egg Ch Biscuit	64	2,266,633	2,266,633	2,276,019	2,276,017
Sausage Biscuit	64	2,962,311	2,962,311	2,975,042	2,975,012
Sausage Egg Biscuit	64	1,018,619	1,018,619	1,023,771	1,023,766
Hashbrown	64	22,145,972	22,145,972	22,235,782	22,235,837
Total McGriddles	64	3,449,247	3,449,247	3,463,758	3,463,761
Bac Egg Ch McGriddle	64	959,587	959,587	964,242	964,223
Sau Egg Ch McGriddle	64	1,525,849	1,525,849	1,532,481	1,532,499
Total Bagels	64	3,067,950	3,067,950	3,080,894	3,080,907
Beef Category	64	57,713,783	57,713,783	57,951,685	57,951,724
Large Burgers	64	13,802,742	13,802,742	13,861,808	13,861,768
Big Mac	64	6,050,723	6,050,723	6,077,731	6,077,651
Core QP and QPC	64	6,065,444	6,065,444	6,091,231	6,091,181
Hamburger	64	3,475,984	3,475,984	3,491,027	3,491,086
Cheeseburger	64	12,617,393	12,617,393	12,672,662	12,672,727
Chicken Category	64	39,908,663	39,908,663	40,068,380	40,068,343
Total Fries	64	54,339,566	54,339,566	54,561,334	54,561,356
McChicken	64	14,150,438	14,150,438	14,208,956	14,208,948
McDouble	64	15,801,260	15,801,260	15,864,794	15,864,789

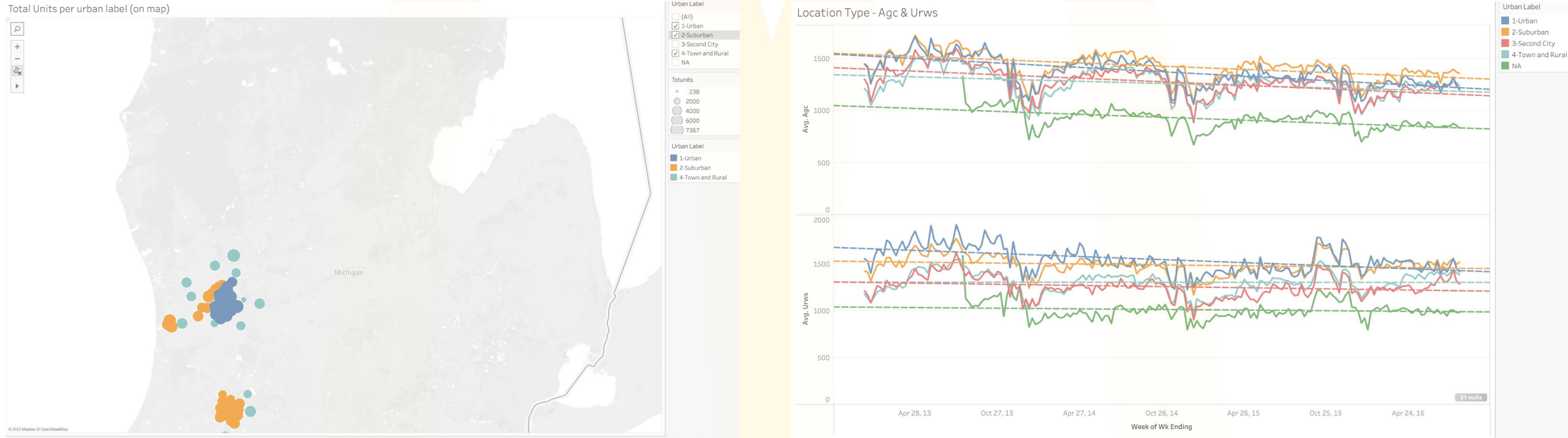
Urws (Units Sold for the Week) = Totunits (Units Sold for the Week) = Adus (Average Daily Units Sold) * 7 = Upt (Unit Sales Rate per 1000 transactions) /1000 * Agc (Average Transactions per Day for that week) * 7



Important Features

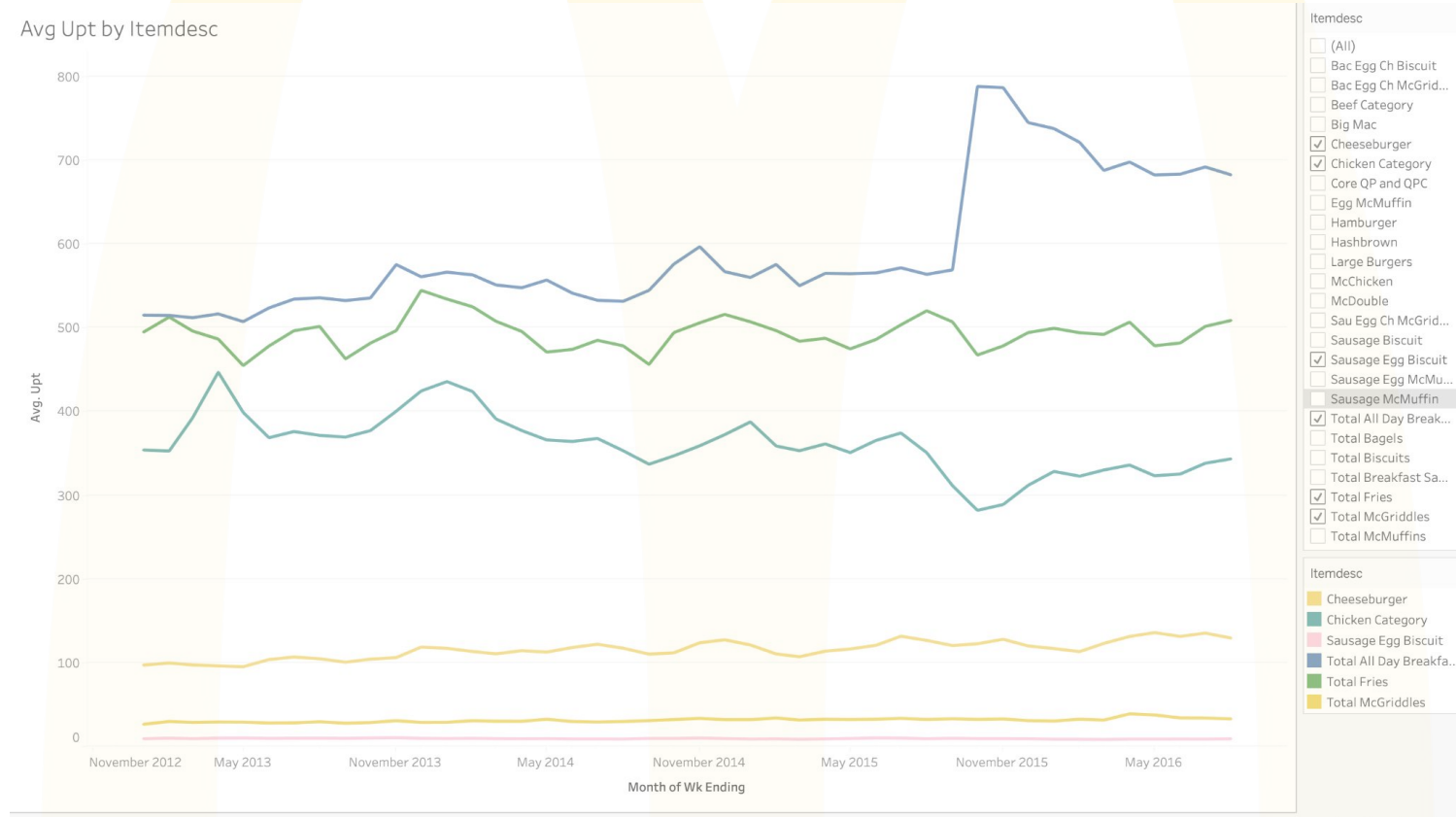
Category	Variable Name	Description	Why it is useful
Geographical	REST_KEY or rest_label	Unique label associated to each restaurant	identifying specific restaurant locations
	City	-	good for clustering regions / area based on various criteria
	County	-	
	incomeq_label	Trade Area Income Rank	
	urban_label	Trade Area Location Type	
	social_label	Trade Area Social Group	
Promotion Specific	lstage_label	Trade Area Lifestage Group	
	itemdesc	menu item name	identify items related to the promotion
	wk_ending	7 day week sales end date	time information to analyze trends of the sales
	urws	units sold for the week	get specific information on the promotional items popularity
Financial	wavg_price	weighted average price across menu item	see if promotion is financially beneficial
	upt	unit sales per 1000 transactions	see if promo items are avored
	agc	average transactions per day	
	adus	average daily units sold	
	totunits	units sold for the week	

Geographical Data



Understanding how the different restaurants in different regions reacted to the promotion to understand which stores to promote more

Promotion Specific (Menu Items)

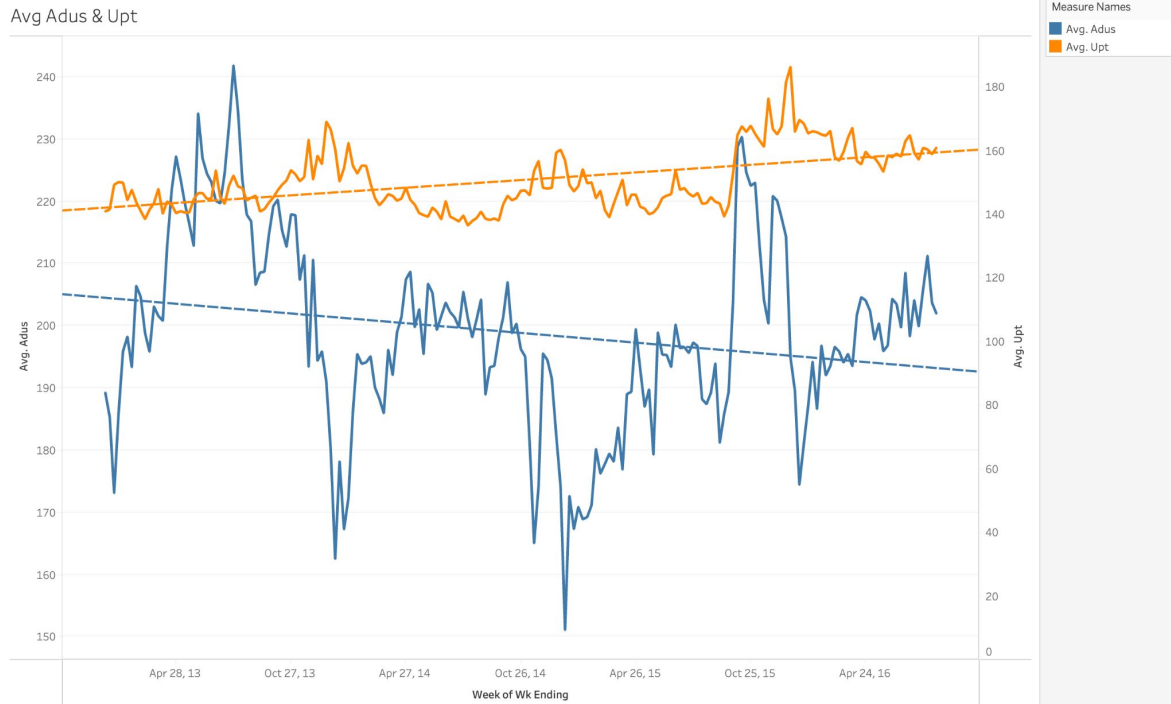


Seeing the impact of the breakfast items promotion on other items

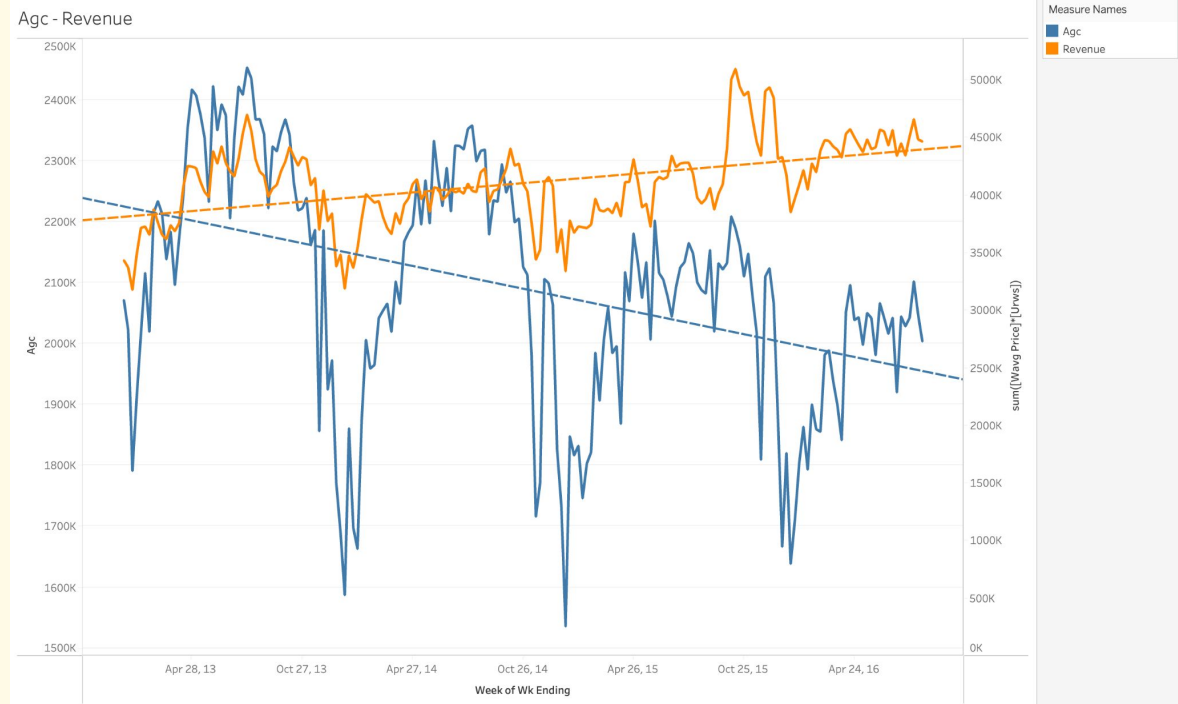
Financial

ADUS: average daily units sold
UPT: units per 1000
AGC: transactions per day
Revenue: price * units

Avg Adus & Upt



Agc - Revenue



See the impact of the promotion on the revenue and transactions
Big problem regarding the cost (which is unknown)





Next Steps



Interrogations

- ❑ What were the cost implications during the promotion period? Food cost? Labor cost? Equipment cost?
- ❑ What was the impact on the employees? Staffing challenges? Scheduling issues?
- ❑ More demographic information? Gender? Age? Ethnicity?
- ❑ How was the promotion marketed? What platforms were used? Cost of marketing? What age group and class of people were the marketing target? (Ex. Instagram ads would attract a younger group of individuals)



Necessary Data

Category	Variable	Description	Why
Geographical	Population Density	Density in the vicinity of the restaurant	assess customer presence in the area
	Competition Presence	Number of competitors in a certain radius	Competitive factors impacting customer traffic
Promotion Specific	Advertising Spent	amount spent on advertising	to see if promotion is engaging
	Hourly Sales	quantity of items sold at specific times in the day	measure if all day promotion is actually worth it or reduce time
	Social Media Engagement	Number of social media interactions related to promotion	measure client interaction
Financial	Profit Margin	gross profit margin per item	financial impact
	Customer Satisfaction	surveys	impact of promotion of clients
	Employee Turnover	employee turnover	employee satisfaction

- Can we get the data for the time of the day customers are purchasing an item from the all-day-breakfast menu?

- We can get the pop density and competition presence by ourselves (if company wants to look into competition)

Timeline & Plan

October 10, 2023– January 1, 2024

- Oct. 10** – Form Teams, Finalize Business Problem, Dataset Firstlook
- Oct. 14** – Client Meeting
- Oct. 31** – Investigate Outlier and Anomalies in Data
- Nov. 14** – Update Data and Data Clean Up
- Nov. 21** – Data Analysis and Visualization
- Nov. 28** – Client Meeting
- Dec. 5** – Analyze Profit Margin and Revenue
- Dec. 12** – Investigate whether promotion was truly successful or not
- Dec. 19** – Client Meeting
- Dec. 26** – Report and Documentation
- Jan. 1** – Final Client Meeting



Q & A

