GSB:516
Group 3: Raghav Arora, Max Sohl, Harshal Suryawanshi

Chipotle: Cluster Analysis

Introduction

In 2016, Chipotle's management set out to understand its consumers' attitudes towards the Chipotle establishment through a designed digital survey. Over 350 random people answered the survey. Post cleaning this data resulted in 313 rows of data. The goal of this report is to analyze the results of this survey using K-means clustering to segment potential customers via psychographic traits to develop a concentrated targeted marketing strategy.

Classification of Variables

Variable Classification	Variable Names
Demographic Segmentation	*female, income, age*
Psychographic Segmentation	*Importantconvenience, importanvariety, importantprice, importanthealthy, importanttaste, importantabience, plan, spending, buylocal, healthyimportanttome*
Behavioral Segmentation	*top1*
Outcome	*patronage*
Marketing Mix: Product	*chipotlevariety, chipotlehealthy, chipotletaste*
Marketing Mix: Place	*chipotleconvenient, chipotleabience*
Marketing Mix: Price	*chipotleprice*
Marketing Mix: Promotion	*Wom, sm, walk, billboard*
Not to be Used	*top1*

Number of Clusters

The initial step in determining the number of clusters was to choose the right psychographic variables. In order to do so, we first chose to cluster using all of the psychographic variables with the goal of choosing the variables with the highest spread. For this reason, the variables, 'Spending' and 'Plan' were chosen. Next, we also wanted to include a specific variable of high importance to Chipotle. For this reason, 'importantprice' was chosen. Once we had narrowed down the clustering variables, it was time to determine the number of clusters. We performed a k-means clustering analysis using 3, 4 and 5 clusters as seen below. This was done in order to

find the “perfect” segment to target for a *concentrated segmentation* strategy. Our “perfect” segment comprised individuals with ‘high spending’, ‘high planning’ and ‘low importance to price’. This segment was most evident using 5 clusters as seen below (yellow).

K-means clustering with **3** clusters of sizes **142, 120, 51**

Cluster	***spending***	***plan***	***importantprice***
1.	-0.7317539	-0.2451866	0.2964895
2.	0.9231028	-0.4240966	-0.4067772
3.	-0.1345741	1.6805509	0.1316030

K-means clustering with **4** clusters of sizes **55, 85, 73, 100**

Cluster	***spending***	***plan***	***importantprice***
1.	-0.3326837	0.1186511	-1.60981054
2.	-1.2179978	0.1064240	0.58387712
3.	0.8216535	-1.0592269	0.43804373
4.	0.6184671	0.6175171	0.06932832

K-means clustering with **5** clusters of sizes **73, 55, 101, 32, 52**

Cluster	***spending***	***plan***	***importantprice***
1.	0.8216535	-1.0592269	0.4380437
2.	-0.3326837	0.1186511	-1.6098105
3.	-0.8018485	-0.1411177	0.5838771
4.	-0.5278559	1.7988595	0.4729830
5.	1.0806729	0.5285989	-0.3373973

GSB:516
Group 3: Raghav Arora, Max Sohl, Harshal Suryawanshi

Mean Analysis

Mean Analysis Demographic Variables:

Cluster	female	income	age
1	0.2280702	37168.56	38.47368
2	0.1818182	36181.76	32.00000
3	0.2470588	48815.16	43.40000
4	0.1044776	40835.33	38.38806
5	0.2816901	37661.23	43.67606

Mean Analysis Outcome Variable:

Cluster	*patronage*
1.	0.3508772
2.	0.4848485
3.	0.4000000
4.	0.4776119
5.	0.3380282

Cluster Classifications:

Cluster 1: Reckless spending, poor planning, price important individuals. (RPI's)
Cluster 2: Frugal spending, moderate planning, price unimportant individuals. (FMU's)
Cluster 3: Frugal spending, poor planning, price important individuals. (FPI's)
Cluster 4: Frugal spending, high planning, price important individuals. (FHI's)
Cluster 5: Reckless spending, high planning, price unimportant individuals. (RHI's)

***Note*:** *The spread in our clusters for demographics is negligible. In today's world demographics do not define a person, and it is rather their psychographic characteristics that matter more. Thus, for our concentrated segmentation strategy, the clusters have been classified as such.*

GSB:516
Group 3: Raghav Arora, Max Sohl, Harshal Suryawanshi

Recommendations

The cluster we would recommend as our primary target based on the psychographic variables chosen and means analysis conducted is cluster 5 (yellow). This is because these customers are reckless spenders, with high planning and low-price importance. Moreover, with regards to demographics, cluster 5 individuals are older, working-class males with presumably less time and energy to cook food, something that Chipotle's management could exploit. Finally, as shown by the mean analysis conducted on the outcome variable (patronage), our RHI's have the lowest patronage of all 5 clusters, meaning there is a huge opportunity available to turn these individuals into customers for Chipotle. In knowing so, Chipotle can target these customers using a concentrated targeting strategy.

Marketing Mix Analysis

PRODUCT VARIABLES:

Cluster	***chipotlevariety***	***chipotlehealthy***	***chipotletaste***
1.	3.894737	4.403509	4.175439
2.	4.151515	4.666667	4.575758
3.	3.658824	4.235294	4.282353
4.	4.000000	4.626866	4.492537
5.	3.633803	4.521127	4.408451

PLACE VARIABLES:

Cluster	***chipotleconvenient***	***chipotleambience***
1.	3.824561	3.789474
2.	3.787879	4.212121
3.	3.541176	3.552941
4.	4.104478	3.940299
5.	3.788732	3.633803

GSB:516
Group 3: Raghav Arora, Max Sohl, Harshal Suryawanshi

PRICE VARIABLES:

Cluster	***chipotleprice***
1.	3.491228
2.	4.212121
3.	3.423529
4.	3.671642
5.	3.450704

PROMOTION:

Cluster	***wom***	***sm***	***walk***	***billboard***
1.	0.7058824	0.00000000	0.1764706	0.05882353
2.	0.5357143	0.08333333	0.3452381	0.00000000
3.	0.4925373	0.11940299	0.3731343	0.00000000
4.	0.6190476	0.06666667	0.3047619	0.01904762
5.	0.4782609	0.08695652	0.5217391	0.00000000

From our marketing mix analysis, it is evident that our targeted individuals in cluster 5, prefer the health aspect and taste of Chipotle's food. Moreover, it is seen that these individuals enjoy Chipotle's convenience and are generally price insensitive. Finally, with regards to promotion, our targeted individuals generally choose Chipotle due to word of mouth or walk in's. For this reason, a concentrated targeting strategy could be applied to our RHI's in the form of meal plans. Chipotle could offer these customers a monthly meal plan subscription that is both healthy and tasty. Moreover, since price is not a huge issue, Chipotle could offer these meal plans as combos with a side and a drink included to increase profits. Additionally, Chipotle could offer its customers a free week of meals for subscribing to their monthly plan, that can be promoted both in stores and on its app for convenience's sake. Lastly, Chipotle could increase its word-of-mouth sales using a referral program for free meals when subscribing to its meal plan option.

GSB:516
Group 3: Raghav Arora, Max Sohl, Harshal Suryawanshi

Appendix

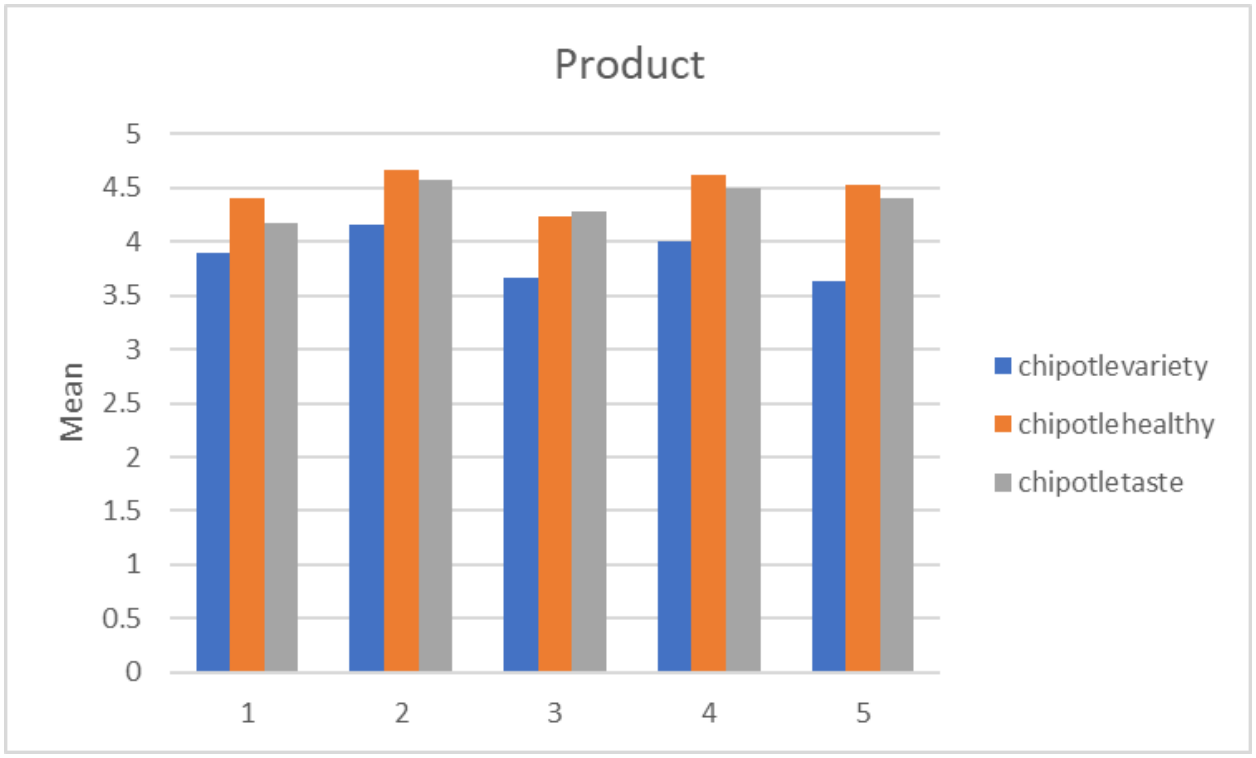

Figure 1: Marketing Mix- Product

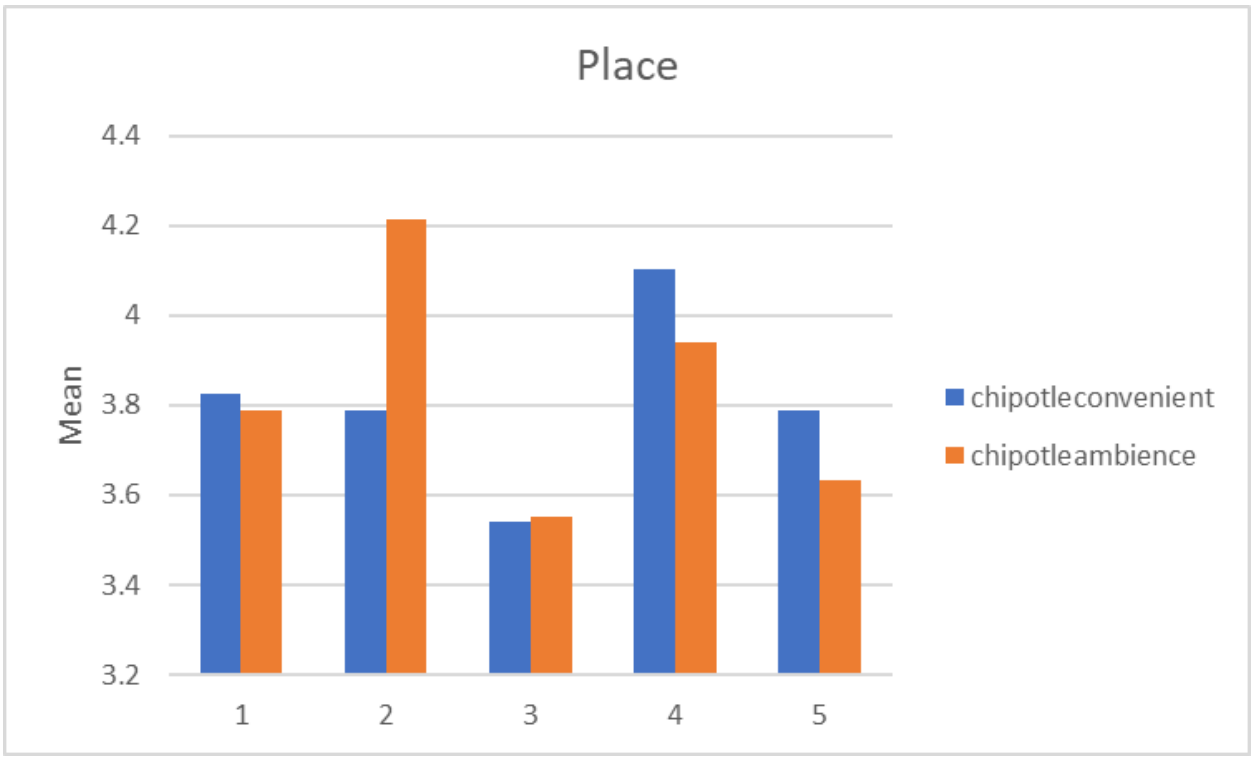

Figure 2: Marketing Mix- Place

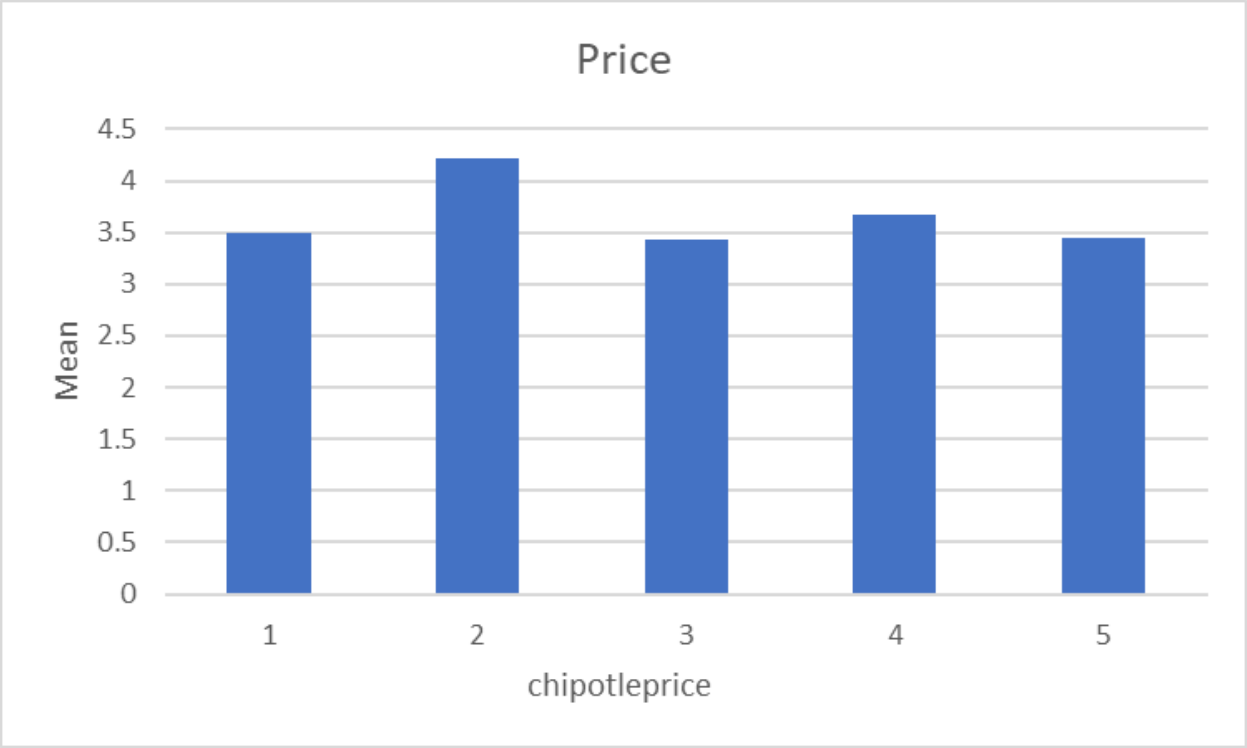

Figure 3: Marketing Mix- Price

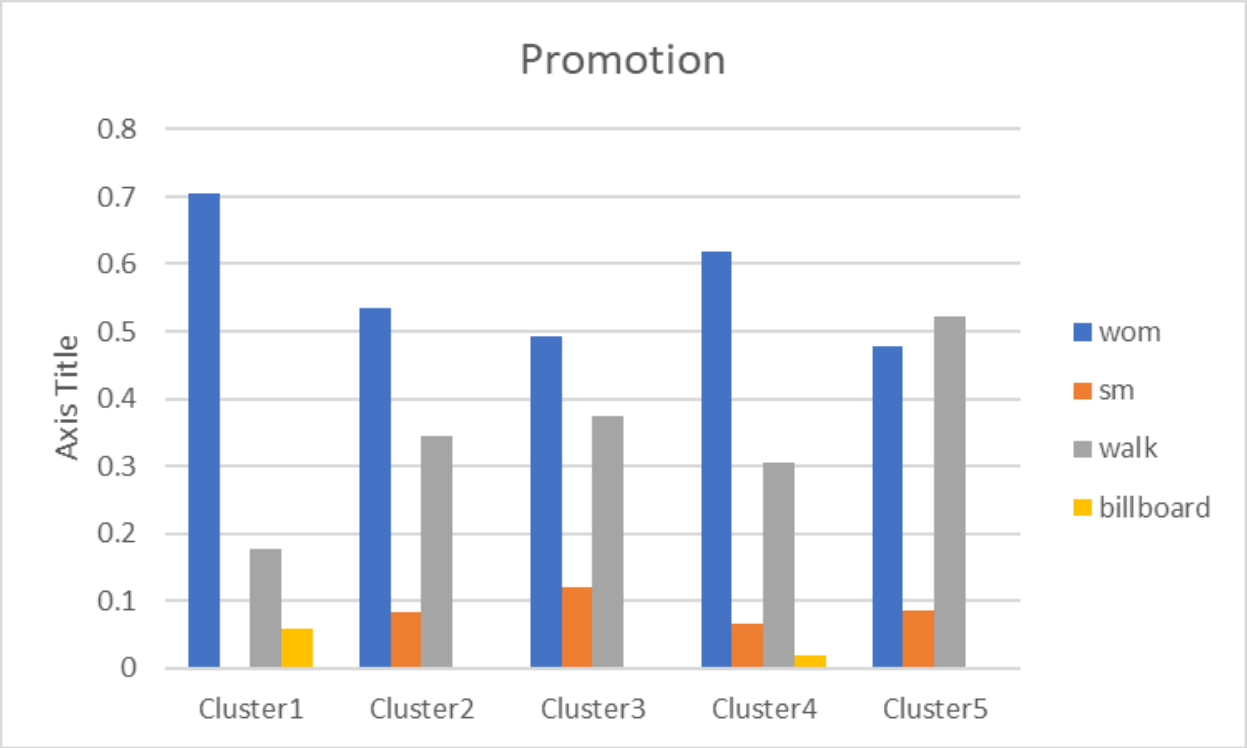

Figure 4: Marketing Mix- Promotion