Mezze Foods: An Analysis of the Factors Affecting Consumer Behavior in the Local Hummus Industry

Avetis Mazmanyan and Raphael Medina[]

Abstract:

This paper looks at factors that affect the sales of Mezze Foods' products at Whole Foods. Mezze Foods is a local small business that sells authentic Mediterranean dips and salads through a long lasting partnership with Whole Foods. Using Mezze Foods sales data for 2015, we find that weather, rainfall, reputation of Whole Foods, location and types of hummus sold are significant factors to better understand sales. But holidays and events contribute less. Importantly, reputation of Whole Foods, proved to be the most significant variable.

[]Mezze Foods was first started in 2011 as a catering company. It was created by Avetis and Haik Mazmanyan, two brothers who shared a dream of creating a business that is close to their heritage and that will provide quality food to members of the Las Vegas community. Haik Mazmanyan is a professionally trained chef who studied at the Le Cordon Bleu College of Culinary Arts in Summerlin, Nevada. Avetis Mazmanyan is a student entrepreneur who has always dreamt of owning his own company. He is passionate about relationships in business, marketing, and utilizing economic principles in expanding and strengthening Mezze Foods.

I. Introduction

Mezze Foods is a Las Vegas-based food manufacturing company that provides wholesale products to the community via partnerships with grocery stores in town. Mezze Foods has partnered with corporations such as Whole Foods and Safeway in order to provide the Las Vegas community with a wide variety of Mediterranean influenced hummus, dips, and salads.

Whole Foods has done a tremendous job at attracting millennials and a more health conscious demographic to its stores. Many of these individuals depend on the organic, preservative free, and GMO free products as their source of food. Whole foods caters to the community by having strict standards for their suppliers, including a list of over 100 ingredients, preservatives, and chemically added agents that are not allowed to be added to any product that is sold on the shelves. They are partners with the community and assist local businesses with their local business forager program, which is how Mezze Foods had the opportunity to become a supplier and vend its products to the Whole Foods locations in Las Vegas.

The food industry, and recently, the health foods industry has been a highly competitive arena for large corporations and small businesses to participate in. It is important to take a look at the underlying reasons of some of the variable that might encourage, or discourage a consumer to drive to a Whole Foods and choose Mezze Foods line of hummus for their consumption and enjoyment. Understanding these variables will help Mezze Foods make better business decisions as they move from a local small business, to a business competing for a spot in the market on a national scale.

For the rest of this paper, we will review the related literature associated with our study. Section 3 presents our model followed in section 4 with the data and summary descriptive results. Section 5 discusses the empirical results and section 6 concludes.

II. Review of Related Literature

A number of empirical studies have analyzed factors that explain shopper behaviors. Roslow, Li and Nicholls (2000), explore a number of factors that affect purchasing behavior of shoppers in Cyprus. They looked at the time of day, the amount of travel time it took to get to the market, the amount of time they spent in a store, whether they were motivated by price/value, and various demographic and lifestyle factors. Weather appeared to be one of the more important factors; they found there were significant differences between summer and winter in regards to the types of purchases made. Whereas in the winter time, people in Cyprus were much more inclined to buy clothing, they were much more inclined to buy food and beverage in the summer.

Agnew and Thornes (1995) focus on the weather sensitivity of the food and drinks sector in the United Kingdom's retail and distribution industry. In order to gain insight from the consumers they asked three questions: When to shop? Where to shop? What to buy? When to shop is related to the time of day, day of the week and the weather conditions. Where to shop is related to weighing the costs and benefits of choosing which store to shop at. What to buy is related to the actual purchasing decisions made while in a store. They found that it is essential for businesses to utilize all of information surrounding significant market forces even something as unpredictable as weather because failing to strategically use the information can lead to great inefficiencies.

Parson (2001) gathers information on the relationship between daily weather and daily shopping patterns. Weather data was gathered from the National Institute of Water and

Atmospheric Research and the shopping data was taken from a major shopping center. He found the most relevant weather variables were rainfall and temperature in deterring consumers from shopping. He also found holidays and days of the week had significant effects on sales. When deciding whether or not to shop on Friday or Saturday. This makes sense because it is the end of the week and the beginning of the weekend in which many people do not have work and have the time to run errands and do casual shopping. Holidays were the most significant factors due to the fact that many people celebrate the various holidays with parties and family gatherings with food, drinks, gifts, etc.

Starr-McCluer (2000) analyzes monthly fluctuations in consumer spending and their relationship to weather. The model considers how weather affects the productivity of time in nonmarket activities, such as shopping or recreational activities; and through time and budget constraints, may lead to a substitution effect in spending across goods and over time. The data was taken from the National Weather. Results show unusual weather plays an unassertive but significant role in explaining fluctuations in monthly sales. Moreover, monthly data showed that, for durable goods, unusually cold weather led to increased net sales and that in the first quarter of cold weather, sales would slump but in the second quarter of cold weather, sales would bounce back. This finding, however, was only significant to the cold weather quarters. Overall conclusions were consistent with the model in which weather affects the productivity of time and shifts the demand for goods. This could reflect retailers' incentives to clear inventories.

Kent (2013) provides some insight on marketing and selling techniques from one of the biggest hummus manufacturers in the United States. This article includes an interview with Sabra's CMO, who enlightens readers with the factors that are responsible for such high sales. The main strategy they use for selling hummus is sampling in which they gave more than 30

million samples of their products in a span of three years. Since hummus is very much an experience good, people would not know the quality or taste of the product prior to experiencing it for themselves. The sampling of the hummus and its other products enables customers to try the products before making the decision to purchase it or not.

Powell (2007) focuses on the availability of food store outlets in the US and associations with neighborhood characteristics on race, ethnicity and socioeconomic status. They found that low-income neighborhoods had fewer chain supermarkets with about 75% of that available in middle-income neighborhoods. For mostly African-American neighborhoods, they found there were much fewer chain supermarkets at about 52% of that of white neighborhoods. Relative to our project, we assume that Mezze Foods products are only reaching middle-higher income households due to the fact that the data we have are from Whole Foods stores which are quite scarce in the lower-income neighborhoods.

Finally, Herbig and Milwicz (1995) examine the effects of brand credibility on consumer choice. They investigate this through analyzing different mechanisms that factor in determining credibility such as quality, perceived risk and information costs saved. They found in both juice and personal computer categories, perceived quality played a significant role in defining the utility of brands. They also found credibility affects preference discrimination which is defined as, a given consumer's choice probabilities will be consistently low or high for certain brands since the consumer can discriminate among such alternatives better. An example of this can be people who are brand loyal. Apple users, for example, will probably find the quality of their products better than the quality of Android products.

III. Model

To analyze the factors that affect the sales of Mezze Foods' products at Whole Foods, we consider the following model:

$$QTY=\beta_0+\beta_1 TEMP+\beta_2 RAINFALL+\beta_3 EVENTS+\beta_4 WFSTCKPRICE+\beta_5 TRAD+\beta_6 ROAST+\beta_7 BABA+\beta_8 TZAT+\varepsilon$$

Where the quantity of sales QTY, the dependent variable, is explained by a number of factors grouped into three types of explanatory variables. The first group of variables gives the most basic model and includes TEMP, RAIN, EVENTS, and WFSTCKPRICE. The temperature variable (TEMP) analyzes how the weather in terms of daily temperature, effects customers shopping behaviors. In order to look at this, we took the daily high temperature in Las Vegas throughout 2015. The next variable is rainfall (RAIN), a dummy variable. We tracked how many times it rained throughout 2015. If it rained on a given day, that day received a value 1 and 0 otherwise. This variable did not take into account how much rain we had, just merely if it did or did not rain in town. The variable EVENT encompasses whether or not there was an event in town or a holiday that fell near a window of 7 days. The variable Whole Foods Stock Price (WFSTCKPRICE) was used to have a gauge for the reputation of Whole Foods.

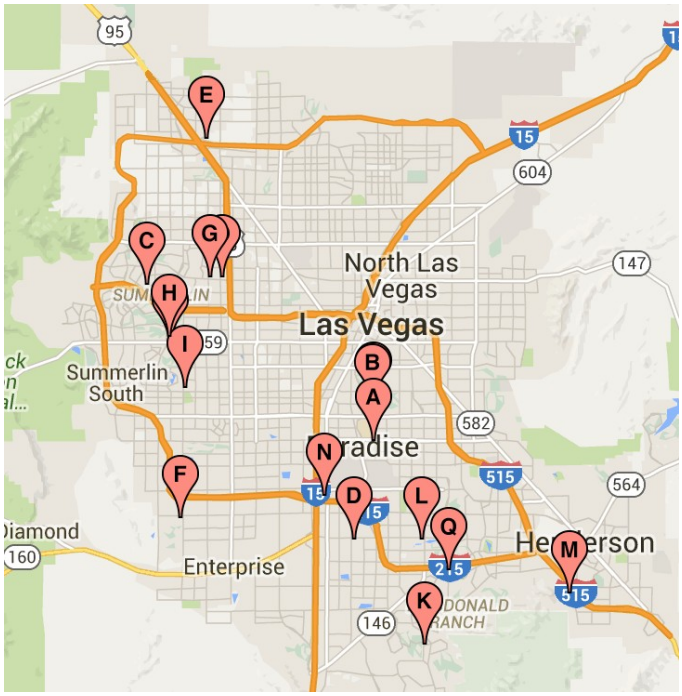
Over the past year, Whole Foods has been in the news with a variety of issues that affects its reputation. There was an incident involving the misspecification or weights and measures in a New York City Whole Foods location, which led to a high settlement cost for Whole Foods and an even greater ding on their reputation. There was also some media backlash over the year with

the anticipated introduction of their proposed small market store called 365, which aims to serve the millennial target market and provide cheaper priced items on the shelves. This was not taken well by the media. There were many other media related events that seemed to paint a negative light on Whole Foods otherwise pristine image. We wanted to capture this image of Whole Foods as best we could and we thought that the reflection of their reputation would be captured in their current stock price for the company. Whole Foods is a publicly traded company that is very active on the NYSE. Their reputation affects their future expected profits and this should be reflected in the price of their stock.

The next group of variables control for store location to see whether location affects the outcome of sales. Four store location dummy variables are FTA, LVB, HEN and TYA. FTA is the Fort-Apache Whole Foods located in Summerlin. LVB is the Las Vegas Boulevard location of Whole Foods located in the middle of Las Vegas on the Strip. HEN is the most eastern location of Whole Foods in town. We used TYA as the base location, which is the Tenaya store located on Lake Mead near the 95 freeway, because it is the slowest moving store in this district for our product. Figure 1 uses a map of the Las Vegas metropolitan area to show the location of these stores. Based on the figure, point G is the location of TYA, point N is the location of LVB, point Q is the location of HEN, and point is the location of FTA.

Figure 1: Map of product availability

Based on the figure, point G is the location of TYA, point N is the location of LVB, point Q is the location of HEN, and point is the location of FTA.



Finally, we include five different flavors that we produce for the Whole Foods stores: TRAD which is our traditional hummus, ROAST which is our Roasted Red Pepper Hummus, SUN which is our Sun Dried Tomato Hummus, TZAT which is our Tzatziki flavor, and BABA which is our Baba Ganoush flavor. The SUN variable represents the Sun Dried Tomato Flavor of hummus, which is our slowest moving product on the shelves across all stores and will be the base flavor. Table 1 provides the list of the variable and their definition.

Table 1: Expected Signs and Variables

Variables	Definition
Dependent Variable	
QTY	Daily sales (by unit, by sore)
Independent Variable	
TEMP	Daily high temperature
RAIN	Binary variable for daily rainfall
EVENTS	Binary variable, if purchase was made within 7 days of a holiday event
WFSTCKPRICE	Daily stock price
TYA	Binary variable, Tenaya Wholefoods
FTA	Binary variable, Fort Apache Wholefoods
LVB	Binary variable, Las Vegas Boulevard Wholefoods
HEN	Binary variable, Henderson Wholefoods
TRAD	Binary variable, Traditional Hummus
ROAST	Binary variable, Roasted Red Pepper Hummus
SUN	Binary variable, Sundried Tomato Hummus
BABA	Binary variable, Baba Ganoush
TZAT	Binary variable, Tzatziki

IV. Data and Descriptive Results

The data set for the analysis is collected from the ledger sales of each transaction that was made at all four of the Whole Foods locations. The data on quantity sold was broken down by date, then by store location, by product identification, and finally by actual quantity sold. We used 7300 observations only accessible to the owner of Mezze Foods, LLC and to the corporate teams at Whole Foods Market. The descriptive statistics are reported in Table 2.

Table 2: Descriptive Statistics

Variables	Observations	Mean	Std. Dev.	Min	Max
QTY	7,300	1.790685	2.240144	-2	19
TEMP	7,300	82.19962	17.63351	46	113
RAIN	7,300	0.1013699	0.3018385	0	1
EVENTS	7,300	0.3643836	0.4812898	0	1
WFSTCKPRICE	7,260	41.24802	9.047193	29.15	57.2
TYA	7,300	0.25	0.4330424	0	1
FTA	7,300	0.25	0.4330424	0	1
LVB	7,300	0.25	0.4330424	0	1
HEN	7,300	0.25	0.4330424	0	1
TRAD	7,300	0.20	0.4000274	0	1
ROAST	7,300	0.20	0.4000274	0	1
SUN	7,300	0.20	0.4000274	0	1
BABA	7,300	0.20	0.4000274	0	1
TZAT	7,300	0.20	0.4000274	0	1

The average quantity sold is 1.79 containers of each item per store per day. This does not tell us the overall sales for the day, but broken down by product specific sales, and store specific sales on that particular date. The minimum and the maximum ranges from -2 all the way up to 19. Roughly, .08% of the product did not sell and were returned at that store (which shows a negative value for quantity). The maximum value is 19, which is for the traditional and most popular flavor of hummus at the LVB store. The average daily temperature is 82.19 degrees Fahrenheit. The minimum temperature for the year was 46 degrees and the high is 113 degrees, which is a large range for the daily temperature and consistent with Las Vegas weather pattern. Moreover, it rained 10% of the days of the year and events or holiday took about 41% of the days of the years. Each store accounts for 25% of the store and each type of food accounts for 20% of the type of food. The average price of Whole Foods stock was 41 dollars, with a standard deviation of 9 dollars.

V. Empirical Results

Table 3 contains the empirical results organized around three models. Model 1 is the basic model; it omits variables that account for flavor and location effects. Model 2 augments model 1 with location effects and Model 3 augments model 1 with flavor effects. Overall, except for the coefficient on the variable EVENT and the variable RAIN that show unexpected negative and positive signs, respectively, signs on the rest of the coefficient are positive and consistent with expectations. Moreover, coefficient estimates of the basic model that include temperature, rain, events, whole food stock price are similar in signs and magnitudes throughout the three models. The coefficient estimates are mostly significant at the 5% level; the F tests indicate overall significance of each of the model in explaining sales of Mezze Foods' products.

Table 3: Regression Results (Quantity sold is the dependent variable)

Independent Variables	Model 1		Model 2		Model 3	
TEMP	0.005		0.005		0.005	
		(3.23)**		(3.44)**		(3.46)**
RAIN	0.241		0.241		0.241	
		(2.75)**		(2.92)**		(2.95)**
EVENTS	-0.007		-0.007		-0.007	
		(0.13)		(0.14)		(0.14)
WFSTCKPRICE	0.026		0.026		0.026	
		(8.83)**		(9.39)**		(9.47)**
FTA			1.489			
				(21.47)**		
LVB			1.958			
				(28.23)**		
HEN			1.698			
				(24.49)**		
TRAD					2.205	
	(28.66)**					
ROAST					0.457	
						(5.94)**
BABA					0.084	
						(1.09)
TZAT					0.433	
						(5.62)**
_CONS	0.285		-1.001		-0.351	
		(1.44)		(5.25)**		(1.84)
R^2	0.01		0.13		0.14	
N	7,260		7,260		7,260	

*=p<0.05 **=p<0.01

Interpretation of coefficient estimates is straightforward. Quantities sold are measured by date, product specific variety, and store specific quantities. For example, in Model 1, the coefficient estimate on the variable TEMP indicates that a degree change in temperature contributes to an extra .005 container sold. Likewise, a rainy day leads to an additional 0.241 container sold. Finally, for every dollar increase in Whole Foods' stock price there would be a . 024 increase in quantity sold.

Results in Model 2 follow the same pattern as those in Model 1. Coefficient estimates are significant at 5% level. For the FTA Whole Foods, there is an average of 1.489 more containers sold per item relative to the base TYA. At the LVB Whole Foods, there is an average of 1.958 more containers sold per item and at the HEN store there is an average of about 1.698 more containers sold per item. The R^2 improves significantly and the Wald test F(3, 612) = 42.30*** is significant at the 1% significance level and clearly shows the significance of TRAD, ROAST, SUN, TZAT, and Baba Ganoush flavors on sales. Interpretation of results in Model 3 are similar to those of Model 2. In particular, coefficients have the expected sign; the R^2 improve relative to that of Model 1 and the Wald test F(3, 612) = 42.30** shows that location of stores FTA, LVB, HEN and TYA. F(4, 7251) = 274.13*** does matter in sales of Mezze Foods' products at Whole Foods.

VI. Conclusion

The purpose of the study was to explain the relationship between quantity of Mezze food (QTY) and the independent variables in TEMP, RAIN, EVENTS, and WFSTCKPRICE. A second model was estimated to test whether types of flavors matter in sales. We also tested for

the unobservable characteristics that surround the stores by creating binary variables for each store and using the Whole Foods on Tenaya as the base case. Though the magnitudes of the coefficients were relatively low, we gained insight on the direction in which sales would move given the weather effects. As far as the holidays/events variable, it is difficult to make any sound analysis about it because there was no statistical significance. The reputation of Whole Foods, proved to be our most significant variable which proved the importance of a reputable brand. As a whole, flavors and location matter significantly in our model specifications.

Acknowledgements

The authors would like to acknowledge help from Professors Djeto Assane and Ian K. Mcdonough. We also thank Jessica Szczepenowski and Jennifer Cain for helping us with the collection of the data from Whole Foods.

References

Agnew, Maureen D., and John E. Thornes. "The weather sensitivity of the UK food retail and distribution industry." *Meteorological Applications* 2.2 (1995): 137-147.

Herbig, Paul, and John Milewicz. "The relationship of reputation and credibility to brand success." *Journal of Consumer Marketing* 12.4 (1995): 5-10.

Kent, Chuck. "Post-Cultural Branding: How Sabra Sells So Much Hummus in the US." (2013).

Parsons, Andrew G. "The association between daily weather and daily shopping patterns." *Australasian Marketing Journal (AMJ)* 9.2 (2001): 78-84.

Powell, Lisa M., et al. "Food store availability and neighborhood characteristics in the United States." *Preventive medicine* 44.3 (2007): 189-195.

Roslow, Sydney, Tiger Li, and J. A. F. Nicholls. "Impact of situational variables and demographic attributes in two seasons on purchase behaviour." *European Journal of Marketing* 34.9/10 (2000): 1167-1180.

Starr-McCluer, Martha. *The effects of weather on retail sales*. Divisions of Research & Statistics and Monetary Affairs, Federal Reserve Board, 2000.