# The Influential Factors of Profit: A Case Study on a Healthy Snack in Current Food Market Base on Minitab

Han Chen[1,*,†], Yushi Dai[2,*,†] and Muxuan Gao[3,*,†]
[1]*Department of Industrial and commercial management, Shanghai University, Jiangding District, Shanghai, China*
[2]*Department of Mathematics & Department of Psychology, New York University, New York, U.S.A.*
[3]*Department of Statistics and Operations Research & Department of Economics, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, U.S.A.*

Keywords: Profit, Purchase Intention, Advertisement, Price, Number of Stores, City, Case Study.

Abstract: As there are growing concerns towards food healthiness recently, especially after the outbreak of Covid-19 pandemic, packaged healthy snack is gaining a larger marketing share in the snack market. For this specific type of snack to better make a profit, the motivation of this study is to explore what factors in the current food market could affect the profit earned by launching a new packaged healthy snack. To solve the problem, this study made a case study on SMARTFOOD company. It used a multiple regression model to further investigate the independent or interactive effects of price, advertising, number of stores, and geographical location on K-Pack sales. Minitab software was used to build the multiple regression model, calculate relevant data, as well as conduct best subsets with the selected independent variables. The point of this study is that all except the geographical location is an important reason for profit growth. This research concludes that price, number of stores, and advertisement positively affect profit. Also, selling location in the store and city the store is in are not important factors for deciding the profit. Moreover, the interaction between price and the number of stores leads to a negative influence on profit. In the case of SMARTFOOD, the company should choose the combination of 50 cents per package and 3 million advertising costs to receive the highest profit. The theoretical and marketing implications of the study's conclusion are then discussed.

## 1 INTRODUCTION

Making a profit has always been one of the most crucial things a profit corporation would consider. First, it is important to first develop a marketing plan before launching any products to the broad market to make a profit. Undoubtedly, this should also be applied to the current food market, specifically the snack market. Snacking is still commonly seen in all age levels worldwide for its convenience, affordable price, and good taste. Nowadays snack market is different from the time that traditional EDNP (energy-dense, nutrient-poor) snacks (the so-called "junk food") were first introduced. People have realized that whether snacking is harmful to health is also important as obesity and possible cancers unhealthy snacking could have become a more serious issue lately. Also, with the effect of global Covid-19 pandemic has brought in recent two years, people have started to pay even more attention to health factors of their daily diet, including snacks as health concerns could result in healthier diet choice, packaged healthy snack that is often shown in the form of low-calorie, low-sugar or low-carbon hydrated. It has great potential in the current food market, and a good marketing plan can optimize the potential profit to a great extent. Thus, this research will narrow down the general food product to directly aim at this specific category, which is packaged healthy snacks.

Previous studies are suggesting the attributes people would consider when choosing what type of snack to purchase. In particular, Hartmann et al. in 2017 found that, in general, children prefer good-taste snacks (Hartmann, Monika, et al. 2017). While Rusmevichientong et al. in 2019 showed that college students prefer quick and cheap snacks; furthermore, healthiness and sugar respectively were the most important snack factors and nutritional ingredients to consider among college students (Rusmevichientong, Pimbucha, et al. 2019). In addition, in the general population of all age levels, Kershaw et al. in 2019



Chen, H., Dai, Y. and Gao, M.
The Influential Factors of Profit: A Case Study on a Healthy Snack in Current Food Market Base on Minitab.
DOI: 10.5220/0011754300003607
In *Proceedings of the 1st International Conference on Public Management, Digital Economy and Internet Technology (ICPDI 2022)*, pages 674-681
ISBN: 978-989-758-620-0

showed that healthiness and taste are weighed the most toward food choice (Kershaw, Kiarri, et al. 2019). From these previous studies, it can be concluded that packaged healthy snacks, along with the advantages that traditional EDNP snacks possess-- the convenience, good taste, and affordable price-- could make packaged healthy snacks obtain a great potential in the current food market against traditional EDNP snacks. However, fewer previous studies directly examine the factors in a real-life context that might influence people's choice or explore the marketing plan on this comparably new type of snack.

Therefore, this paper analyzed and investigated the core question: what factors in the current food market could affect the profit earned by launching a new packaged healthy snack? Since packaged healthy snack is still a relatively broad category with a large number of products, the research object was therefore narrowed down by selecting a specific product K-Pack, a low-carbon hydrated snack bar that is planned to be launched to the market by SMARTFOOD Company, as the case for this research to study. One way to analyze the profit gained is to compute it by establishing a mathematical regression model. In this case, five factors in real-life context were first assumed that would affect profit, namely price, selling location in the store, advertising strategy, city the store is in and the number of stores, and the data for sales and these five variables of K-Pack were systematically generated. Meanwhile, the expected cost for production and distribution of K-Pack was also generated. Then through conducting multiple regression models according to best subsets of the factors and hypothesis testing, this research computed and compared the profit earned in different conditions by employing the regression model, deleted the variables that would lower the accuracy of the model, then eventually found out the one that can maximize the profit as the marketing plan of K-Pack. In general, this work aims to determine the best marketing scheme for a specific category, "healthy snack" of packaged snack food, with the possible affecting factors in the current food market to maximize the profit gained after the products are launched to the market. The profit-earned model of the K-pack could also be generalized to other products in this broad category, so the contributions made should be of wide interest.

# 2 LITERATURE REVIEW

## 2.1 Profit and Purchase Intention

The ultimate purpose of this paper is to find the maximum profit. The first thing that should be clear about is the calculated equation of profit, which is "profit = total revenue - total cost". This equation shows that profit is directly affected by the total revenue of selling a product and the total cost of producing that product. Total revenue is calculated by price multiply quantity, and the total cost is the sum of various kinds of cost. As shown in many essays that studied factors that will affect profit, researchers studied purchase intention instead of directly studying the profit for the revenue from sales. To better build the relation between profit and purchase intention, the definition of purchase intention should be clarified first. As Mirabi et al. cited in their paper, purchase intention is a situation where a consumer tends to buy a certain product in a certain condition. It can also be understood as the willingness of a customer to buy something (Mirabi, Akbariyeh, and Tahmasebifard 2015). This definition shows that purchase intention can somehow affect the quantity sold so that further affect the profit. In this way, studying factors that can affect purchase intention is comparable to studying factors that will affect profit.

This research will focus on studying how advertisement strategy, profit, namely price, selling location in the store, city the store is in, and the number of stores can directly affect profit or affect quantity sold then affect the profit earned by sales (Mirabi, Akbariyeh, and Tahmasebifard 2015, Jahns, Payne, Whigham, et al. 2014, Ruswanti, Hapsari, Januarko, and Kusumawati 2019, Dehghani 2015, Hyun & Kakwani. 2009, Karfakis, Velazco, Moreno and Covarrubias 2011, Jeronim, et al. 2010).

## 2.2 Advertisement

Advertisements are nearly everywhere in our daily life, including online and offline. It is a way of making others learn the name, brand, and maybe price of a product with attracting images and words. According to the research done by Mirabi et al., there is a significant and positive relationship between advertising and purchase intention (Mirabi, Akbariyeh, and Tahmasebifard 2015). Also, in the paper written by Jahns et al., they mentioned the underconsumption of fruits and vegetables. Still, overconsumption of protein foods was reflected in the relative frequency of food groups advertised in weekly sales circulars (Jahns, Payne, Whigham, et al.

2014). This research showed that the content of advertisements could affect the food that people purchase. Moreover, the essay written by Ruswanti et al. talked about the research question: if organic vegetables are offered through advertising, sales promotion, personal selling, and direct marketing, consumers can buy so that organic consumers expand and the number increases. They finally got the conclusion that advertising affects consumer purchase intentions (Ruswanti, Hapsari, Januarko, and Kusumawati 2019). Milad Dehghani and Mustafa Tumer got a similar conclusion in their research that advertising significantly affected the brand image and brand equity, both of which factors contributed to a significant change in purchasing intention (Dehghani 2015). Based on all research reviewed above, advertising is truly a factor that can affect the purchase intention of consumers, which will further influence the quantity sold. According to the above reviews, the hypothesis could be made as follow:

Ha: Advertisement has a positive effect on consumers' purchase intention and would positively influence sales.

## 2.3 Price

In food sales, price is an important factor affecting profit, and the price is defined in the clearest sense as the amount of money charged for a product or service (Hyun & Kakwani. 2009). As Hyun H. Son & Nanak Kakwani mentioned in a microeconomic theory, prices rise, buy less; Prices go down, and purchases go up (Karfakis, Velazco, Moreno and Covarrubias 2011). In addition, Panagiotis Karfakis et al. believed that price changes have different impacts on different commodity demands: price changes have less impact on the demand for daily necessities but a greater impact on the demand for high-end durable goods (Jeronim, et al. 2010). According to this definition, it can be judged that K-pack belongs to high-grade, durable goods. According to the above reviews, the hypothesis could be made as follow:

Hb: Price has a negative effect on sales, which means that if the price is raised, the sales will decrease, and so will the profit.

## 2.4 Number of Stores

The number of stores is also an important factor in profits. Chain stores are defined as the number of retail stores operated jointly by the ownership and management of multiple stores or chain stores. A multi-store or chain store consists of a number of similar stores owned by a single commercial company (Raji Srinivasan et al. 2013). According to Raji Srinivasan et al., the advantages of chain operation are a brand association, supply association, sales association, management association, and image association. The locking technology mainly refers to the control of each branch by the headquarters and a means to maintain each chain store around itself with technology as a link. As a large chain enterprise, the management of each branch is out of control, and the coordination degree between the headquarters and the branch and the branch is low. A lock ensures that each branch does not lose control of its administration. So, according to the reviews, the hypothesis could be made as follow:

Hc: The number of stores positively influences profit, which means that the more stores selling that good, the higher profits will be earned.

## 2.5 City the Store is In

The location of a business is one of the most important factors in determining potential success. Businesses need to establish locations that generate the most traffic. The impact of a business location can usually be determined immediately. A business needs to be located in an attractive area, convenient for most transportation and public transportation. If it were not in such areas, the owners would have difficulty making a profit or even paying their daily expenses. Businesses located in desirable areas will benefit from exposure and traffic to other community businesses. In addition, a company headquarters set up correctly can project a positive image and be more attractive to potential customers. According to Business Knowhow, retail companies often study the size of a market and the number of competitors before setting up a business. A market that is too small or competitive will hinder potential sales and profits. Businesses often choose where they can take advantage of certain tax benefits. Additional tax savings can create more positive cash flow for businesses. Based on reviews, the hypothesis could be made as follow:

Hd: Location of stores has a positive influence on profit.

However, in this paper's experiment, there are also some deficiencies and overlooked places. This paper team did not consider residents' income or age, which determines their purchasing power. As young people become more aware of health issues, K-Pack may become more popular in cities with a lower average age.

# 3 METHOD

## 3.1 Research Design

According to the hypothesis and literature review, this paper will be using the low-carbon hydrated snack, K-Pack produced by SMARTFOOD Company, as the case to verify whether the hypothesis is true. In this particular SMARTFOOD Company case, the company plans to develop a new product named "K-Pack" that is low-carbohydrate and looks like a common candy bar. The company would like to determine the demand and a comparably optimized marketing mix for a K-Pack with variables such as price, advertising strategy, promotion strategy, and so on, for K-Pack to enter the market better. In general, this study would be a prediction problem since it aims to acquire an estimated annual profit by computing the estimated sale of K-Pack for the first year, how different variables impact K-Pack sale independently or interactively, and obtain a potential annual profit of K-Pack. Therefore, a multiple regression model should be employed since it is a mathematical technique to predict an outcome with multiple response variables. The data for this study is secondary data originally obtained from the company. Since Sales decide total revenue, the profit can be computed by total revenue minus total cost.

## 3.2 Data Collection

Initially, there is a test market prediction done by the company suggesting that the initial predicted annual sale for K-Pack would be 750,000 cases (with 24 packages in each case), with the price of 50 cents per package, and the projected fee for annual advertising would be around 3 million dollars.

To confirm the credibility of the prediction, the company collected the K-Pack sales data at 24 different grocery stores in 4 cities in 4 months, with 6 grocery stores respectively in each city.

In this study, price per package, advertising, and location in the store is selected as marketing mix variables. In particular, there are three levels for variable price: 50 cents, 60 cents, and 70 cents, per package respectively; two levels for advertising (plans of \$3 million or \$3.5 million); two selections for location in store: in the section of the bakery or breakfast food. In addition, there is a controlled variable of 4 cities. The marketing mix variables of price and location in store vary across grocery stores within the city, while the variable of advertising varies across cities.

Furthermore, the company has decided to employ an outsource to take charge of the production and distribution of this "K-Pack" product, which would have a relatively fixed predicted cost of \$1 million per year.

For the data collected, price in cents is set as P, advertising as A, location in store as L, store volume in \$00,000 as V, and city index as C. A and L are originally treated as dummy variables since they are not continuous; however, P is also treated as a dummy variable as three levels were set for it previously.

Since there are sale data for four months respectively, this study computed the average sale of S1, S2, S3, and S4 and set it as a new variable in the dataset. This study is going to apply the software Minitab and R Language to analyze the data.

## 3.3 Measurements

Before starting establishing the multiple regression model, the perfectly correlated variables should be ruled out from the model to have a more precise model. Therefore, a correlation matrix of all the variables is created by applying the software Minitab. According to the correlation matrix (Table 1), it shows that the correlation between C (city index) and A(advertising) is high, which makes sense since the design of the study assigned City 1 and City 2 with an advertising level of 0 (\$3 million), City 3 and City 4

Table 1: Correlations.

| | Sales | P | A | L | V |
|---|---|---|---|---|---|
| P | -0.330272 (0.1150) | | | | |
| A | 0.589698 (0.0024) | 0.00000 (1.0000) | | | |
| L | 0.169984 (0.4271) | 0.00000 (1.0000) | 0.00000 (1.0000) | | |
| V | 0.221090 (0.2992) | 0.343783 (0.1000) | -0.174488 (0.4148) | 0.022759 (0.9159) | |
| C | 0.650386 (0.0006) | 0.00000 (1.0000) | 0.894427 (<0.0001) | 0.00000 (1.0000) | 0.057677 (0.7889） |

Note: Cell Content: Pearson Correlation (P-value); P = Price, A = Advertising, L= Location in Store, V = Store Volume, C = City with advertising level of 1 ($3.5 million). In this case, the city index should be deleted from the regression model as a predictor.

## 3.4 Hypothesis Testing

Besides, hypothesis tests regarding two aspects of the regression are to be conducted: whether the relationships between the dependent variable Sales and each predictor variables (A, L, P, V) are significant, as well as whether the entire regression model is significant. These two aspects will be shown by P-value (and t-value) and F-value in the result of the regression model. Therefore, the hypothesis test would be:

a. For P-value (and t-value):

H0 (null hypothesis): the coefficients of the predictor variables are 0, respectively

H1(alternative hypothesis): respectively, the coefficients of each predictor variable is not 0

b. For F-value:

H0 (null hypothesis): all the regression coefficients of the regression are 0

H1(alternative hypothesis): at least one of the coefficients is not 0

In this part, the significant level is set to be 0.1.

## 3.5 The First Model

### 3.5.1 Data Analysis

This study would employ Minitab to establish the multiple regression model, using the average sale of S1~S4 as the dependent variable, and price in cents (P), advertising (A), location in store (L), store volume in $00,000 (V) as independent variables.

### 3.5.2 Results

Regression Equation 1:

$$S = -168.8 + 271.3Pa + 234.2Pb + 8.718V - 6.460Pa*V + 47.39A + 3.29L \quad (1)$$

According to the above results of the regression model in Minitab using the average sale of S1~S4 as dependent variable and price in cents (P), advertising (A), location in store (L), store volume in $00,000 (V) as independent variables, the F-value is 7.84 with a P-value of 0.0003. In addition, the P-values of all the predictor variables except L is less than 0.1; for variable L, the P-value is 0.76.

Since the F-value for the whole model is 7.84 with a P-value of 0.0003, which is less than the significance level 0.1, therefore rejecting H0, which means that at least one of the coefficients is not 0, and there is a significant relationship between Sales and the selected predictor variables. Furthermore, as the P-values of all the predictor variables except L is less than 0.1, the null hypothesis for these variables can be rejected, and the coefficients of all predictor variables except L are not 0. While the P-value is 0.76 for variable L, which is larger than 0.1; thus, the null hypothesis for L cannot be rejected, so the relationship between sales and L is insignificant. In this case, L should be dropped as a predictor from the multiple regression model to better predict sales.

Table 2: Analysis of Variance.

| Source | DF | Adj SS | Adj MS | F-Value | P-Value |
|---|---|---|---|---|---|
| Regression | 7 | 29304.1 | 4186.30 | 7.84 | 0.0003 |
| Error | 16 | 8540.4 | 533.77 | | |
| Total | 23 | 37844.5 | | | |

Table 3: Model Summary.

| S | R-sq | R-sq(adj) |
|---|---|---|
| 23.1035 | 77.43% | 67.56% |

Table 4: Coefficient.

| Term | Coefficient | SE Coefficient | 90%CI | T-Value | P-Value |
|---|---|---|---|---|---|
| Constant | -168.8 | 121.4 | (-380.8, 43.3) | -1.39 | 0.1836 |
| Pa | 271.3 | 161.2 | (-10.2, 552.8) | 1.68 | 0.1118 |
| Pb | 234.2 | 142.8 | (-15.2, 483.6) | 1.64 | 0.1206 |
| V | 8.718 | 2.657 | (4.079,13.357) | 3.28 | 0.0047 |
| Pa*V | -6.46 | 3.421 | (-12.434, -0.487) | -1.89 | 0.0773 |
| Pb*V | -5.969 | 2.986 | (-11.183, -0.756) | -2.00 | 0.0629 |
| A | 47.39 | 10.16 | (29.65, 65.12) | 4.66 | 0.0003 |
| L | 3.29 | 10.57 | (-15.17, 21.74) | 0.31 | 0.7600 |

Table 5: Analysis of Variance.

| Source | DF | Adj SS | Adj MS | F-Value | P-Value |
|---|---|---|---|---|---|
| Regression | 6 | 29252.6 | 4875.43 | 9.65 | 0.0001 |
| Error | 17 | 8591.9 | 505.41 | | |
| Total | 23 | 37844.5 | | | |

Table 6: Model Summary.

| S | R-sq | R-sq(adj) |
|---|---|---|
| 22.4813 | 77.30% | 69.28% |

Table 7: Coefficient.

| Term | Coef | SE Coel | 90% CI | T-Value | P-Value |
|---|---|---|---|---|---|
| Constant | -182.6 | 110.0 | (-373.9, 8.7) | -1.66 | 0.1151 |
| Pa | 293.8 | 140.3 | (49.8, 537.8) | 2.09 | 0.0515 |
| Pb | 250.6 | 129.2 | (25.9, 475.4) | 1.94 | 0.0692 |
| V | 9.054 | 2.362 | (4.944, 13.163) | 3.83 | 0.0013 |
| Pa*V | -6.938 | 2.974 | (-12.112, -1.765) | -2.33 | 0.0322 |
| Pb*V | -6.319 | 2.692 | (-11.002, -1.635) | -2.35 | 0.0313 |
| A | 46.934 | 9.785 | (29.912, 63.955) | 4.80 | 0.0002 |

Table 8: VIF of The Full Model.

| case study $ Pa | case study $ Pb | case study $ V | case study $ Pa*V | case study $ Pb*V | case study $ A |
|---|---|---|---|---|---|
| 207.581815 | 176.127611 | 7.993862 | 213.881729 | 206.824452 | 1.136584 |

Table 9: VIF of group1.

| case study $ Pa | case study $ Pb | case study $ V | case study $ A |
|---|---|---|---|
| 1.338306 | 1.522422 | 1.199931 | 1.036533 |

## 3.6 The Second Model

### 3.6.1 Data Analysis

In this study, Minitab was used to establish a new multiple regression model. All S1-S4 were taken as sales variables to establish A regression model. Store Location (L) was excluded according to the prediction, and the current independent variables were Cent Price (P), Advertising (A), and Store Number (V).

### 3.6.2 Results

From the results of this model (Table 5), this time, all the predictors have a p-value less than 0.1. In addition, the R-sq(adjusted) value obtained this time is 69.28%.

Regression Equation2:

$$S\_Aver= -182.6 + 293.8\ Pa + 9.054\ V - 6.938\ Pa*V - 6.319\ Pb*V + 46.934\ A \quad (2)$$

To further study the regression model, this study always calculates VIF to ensure that there is no multi-collinearity problem, so this study also calculates the VIF of the optimal model obtained. As shown in Table 8, the VIF of Pa, PB, Pa*V, and PB *V are all around 200, with very large data. But this makes sense because Pa star V is calculated in terms of Pa, and Pa has a bigger effect on the result than V, and Pb star V can be interpreted in the same way. This study calculates two VIFs, Group1 including Pa, Pb, V and, and Group2 including Pa * V, Pb * V, V, A. The results (Table 9 and Table 10) show that there is no multi-collinearity problem in these two groups. So Pa and Pa * V, Pb, and Pb * V caused by the multi-collinearity problem can be ignored, and it is better to accept the regression results of this model.

# 4 DISCUSSION

After ruling out L from predictors, P-value for all predictor variables this time is less than 0.1, which means that they are all significant predictors for Sales. Furthermore, the new R-sq(adjusted) value is larger than before (67.56%), so dropping L provides a better fit to the Sales data. The result of examining the best

Table 10: VIF of group2.

| case study \$ Pa*V | case study \$ Pb*V | case study \$ V | case study \$ A |
|---|---|---|---|
| 1.375217 | 1.753186 | 1.379099 | 1.036364 |

Table 11: Best Subsets Regression.

| Number of prediction | R-sq | R-sq (adj) | R-sq (pred) | Mallows' Cp | S | Pa | Pb | Pa*V | Pb*V | A | L | V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 34.8 | 31.8 | 22.4 | 26.2 | 33.50 | | | | | X | | |
| 2 | 45.6 | 40.4 | 28.7 | 20.6 | 31.31 | | | | | X | | X |
| 3 | 58.8 | 52.7 | 38.8 | 13.2 | 27.90 | | | | X | X | | X |
| 4 | 70.9 | 64.8 | 52.3 | 6.6 | 24.06 | | | X | X | X | | X |
| 5 | 73.0 | 65.5 | 50.6 | 7.1 | 23.82 | | | X | X | X | X | X |
| 6 | 77.3 | 69.3 | 55.0 | 6.1 | 22.48 | X | X | X | X | X | | X |
| 7 | 77.4 | 67.6 | 48.6 | 8.0 | 23.10 | X | X | X | X | X | X | X |

sets among all predictor variables (Table 11) shows the same conclusion that the second model is the best model to predict Sales.

$$Sales = -182.6 + 293Pa + 250.6Pb + 9.054V - 6.938\,Pa*V - 6.319Pb*V + 46.934A \quad (3)$$

Profit = total revenue - variable cost - fixed cost (\$1million) - advertising cost (4)

Total revenue = predicted monthly sales * 12 (12 months in a year) * 24 (24 packages per case) * price/100 (convert price per package by cent to dollar) * 70% (assume that 70% of retail price is revenue to the manufacturer) (5)

Variable cost = predicted monthly sales * 12 (12 months in a year) * 1(\$1 variable cost per case) (6)

Equation (3), the equation of the model, shows that price, number of stores, and advertisement positively influence the quantity sold. Also, the former study shows that selling location in the store and city the store is in are not important factors for deciding the number of sales and then further decide the profit. Moreover, the interaction between price and the number of stores leads to a negative influence on profit. Bringing (5) and (6) into (4), the result shows that the predicted monthly quantity of sales has an overall positive influence on profit and is combined with the second model. The conclusion is that price, the number of stores and advertisements have a positive influence on profit as well. This conclusion shows that Ha and Hc are supported, but Hb and Hd are rejected.

In this research, the conclusion on factors of advertisement and number of stores are the same as the conclusion mentioned in the literature review part. Still, the result of price and location of stores are different from what was said in the literature review. However, the conclusions on how price can affect profit are not fully different. The result also shows that interaction between price and the number of stores leads to a negative influence on profit.

In the case of SMARTFOOD, there are two main limitations. Firstly, the sample size is quite small, so that the result may not be that precise. Data offered by the company only includes 24 observations got from the test market. For future study, more case studies suitable for the research topic and has a larger sample size can be done. Secondly, there may be some factors that can also affect the profit but are not considered in this research. For future studies, more other possible factors can be tested.

# 5 CONCLUSION

In summary, under the circumstances that people started to pay more attention to health issues of diets, this paper conducted a study that aims at packaged healthy snacks. To explore what are the factors in the current food market that could affect the profit earned by launching a new packaged healthy snack, this paper went through the effect of purchase intention, advertising strategy, price, number of stores, and the city the store is in on the profit by reviewing previous relevant studies and established a multiple regression model of a specific packaged healthy snack, K-Pack, of SMARTFOOD Company. Through the case study, this paper has discovered that price, the volume of stores, and advertising positively affect the profit gained. In addition, the variables of price and volume of stores have interaction, and the new variables created by their interaction have a negative effect on profit.

After this experiment, it can be concluded that companies should pay more attention to price, advertising and the number of stores. Reasonable prices can attract more customers' attention, and advertising and the number of stores are equally important. The combination of these three factors can maximize a company's profits. Macroeconomic theories are used to study prices, advertising, and the number of stores. Advertising has a positive impact on consumers' purchase intention and will have a positive impact on sales. This article covers another theory in macroeconomics: that the price of good moves in the opposite direction of the quantity demanded. That is, the higher the price, the less demand.

In this research, this paper also studied how the interaction between price and volume of stores can affect the profit earned, which somehow influences how price itself can affect profit so that the paper gets a different conclusion compared with the literature review. This offers a new perspective for companies that when deciding the price, they should consider price and volume of stores in which products will be sold both separately and together so that they can make a better marketing decision and earn more profit. In the future, further research is needed when the Covid-19 pandemic comes to its end to find out that whether the conclusion mentioned in this research is suitable for any social background. Moreover, it is better to do some further research testing whether the conclusion is suited for products with a relatively higher price and products of other areas beyond the food market.

## REFERENCES

Capaldo, Jeronim, et al. "A model of vulnerability to food insecurity." (2010).

Dehghani, Tumer. “A research on effectiveness of Facebook advertising on enhancing purchase intention of consumers.” Computers in Human Behavior. (2015) Volume 49: 597-600. DOI: https://doi.org/10.1016/j.chb.2015.03.051

Hartmann, Monika, et al. “Children's Purchase Behavior in the Snack Market: Can Branding or Lower Prices Motivate Healthier Choices?” Appetite, Academic Press, 15 June 2017, DOI: www.sciencedirect.com/science/article/pii/S0195666317305573?via%3Dihub.

Hyun H. Son & Nanak Kakwani. “Measuring the impact of price changes on poverty.” The Journal of Economic Inequality 7, Article number: 395 (2009)

Jahns, L., Payne, C.R., Whigham, L.D. et al. Foods advertised in US weekly supermarket sales circulars over one year: a content analysis. Nutr J 13, 95 (2014). DOI: https://doi.org/10.1186/1475-2891-13-95

Kershaw, Kiarri N., et al. “Assessment of the Influence of Food Attributes on Meal Choice Selection by Socioeconomic Status and Race/Ethnicity among Women Living in Chicago, USA: A Discrete Choice Experiment.” Science Direct, Academic Press, 9 Apr. 2019, DOI: www.sciencedirect.com/science/article/pii/S0195666318313424.

Mirabi, Vahidreza, Hamid Akbariyeh, and Hamid Tahmasebifard. "A study of factors affecting on customers purchase intention." Journal of Multidisciplinary Engineering Science and Technology (JMEST) 2.1 (2015).

Panagiotis Karfakis, Jackeline Velazco, Esteban Moreno and Katia Covarrubias. “Impact of increasing prices of agricultural commodities on poverty.” ESA Working Paper No. 11-14 March 2011, DOI: www.fao.org/economic/esa

Rusmevichientong, Pimbucha, et al. “Which Snack Factors and Nutritional Ingredients Influence College Students' Snack Choices? Evidence from Discrete Choice Experiments.” Taylor & Francis Online, 7 Jan. 2019. DOI: https://www.tandfonline.com/doi/full/10.1080/07448481.2018.1538149

Ruswanti, Hapsari, Januarko, and Kusumawati. “Analysis Advertising, Sales Promotion, Personal Selling and Direct Selling on Purchase Intention Vegetables in Retail West Jakarta.” 2019 International Conference on Organizational Innovation (ICOI 2019). DOI: https://doi.org/10.2991/icoi-19.2019.115

Raji Srinivasan et al. “Effects of opening and closing stores on chain retailer performance.” Journal of Retailing Volume 89, Issue 2, June 2013, Pages 126-139, DOI: https://www.sciencedirect.com/science/article/abs/pii/S0022435912000929