

Predictive Analytics for Butter Category.

Overview:

Project Title: Create data-driven strategies to help the Brand unlock future growth potential in the Table-spreads category.

We will be focusing on the Table-spreads category. The brand seeks to accelerate growth and improve the performance of its diverse portfolio of brands in the table-spreads market.

The assignment focuses on the Table-spreads category. Cooking & Salad Oils and Cooking Spray are regarded as nearby categories that can provide interchangeable products. The brand will offer three separate data sets for the categories of tablecloths, cooking spray, and cooking oil.

The US Tablespreads market is divided into two main categories: butter/blends and margarine/spreads. Butter/blends dominate the market with a 75% share, while margarine/spreads account for the remaining 25%. Butter/blends are sold mostly in stick form, whereas margarine/spreads are primarily packaged in tubs. The Northeast and the Southeast are the highest-consuming regions for Tablespreads, while the Plains and California have the lowest consumption levels. From 2018 to 2022, the US Tablespreads market witnessed a steady growth of 20%, reaching \$5 billion in sales. However, during the same period, Brand Tablespreads brands experienced a decline in market share, dropping from 9.94% to 8.27%. In comparison, their competitors have increased their sales by more than 20% on average.

Apart from Tablespreads, Cooking Spray and Cooking & Salad Oil are alternative substitutions for Tablespreads. According to the National Eating Trend data by the NDP Group, around 21% of butter, 17% of margarine, and 17% of cooking oils are used as ingredients in food. 50% butter, 53% margarine, and 9% cooking oils are added as a spread. Additionally, 32% butter, 31% margarine, 100% of cooking spray, and 76% of cooking oils are used as cooking aids. This suggests that consumers have various preferences for their cooking and dietary needs, and Tablespreads may not be the only option for them.

Data Preprocessing:

Our team has developed a code that allows us to analyze the percentage change in market share for the top companies in a particular category, based on their sales data. The code takes in a dataset containing information about sales of different products and performs some data manipulation to group and filter the data based on category and geography.

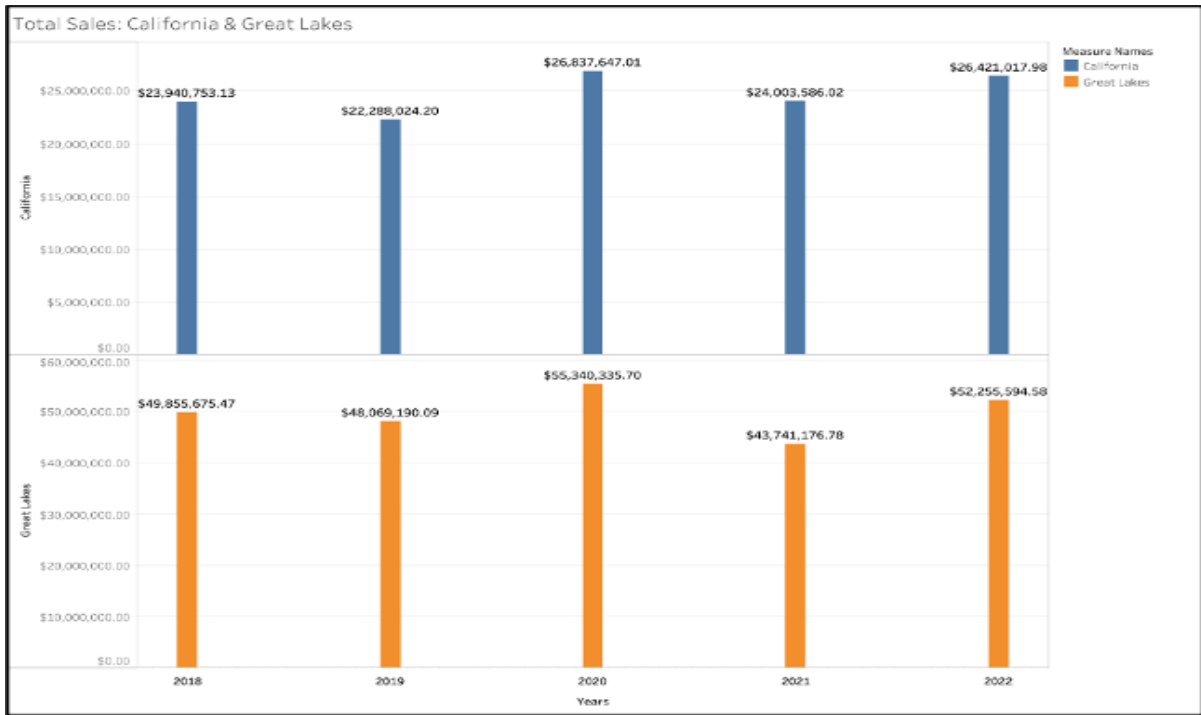
It then calculates the total dollar sales and market share for each company in the filtered dataset and selects the top companies based on market share. It also creates a new data frame containing information about price per volume and total dollar sales.

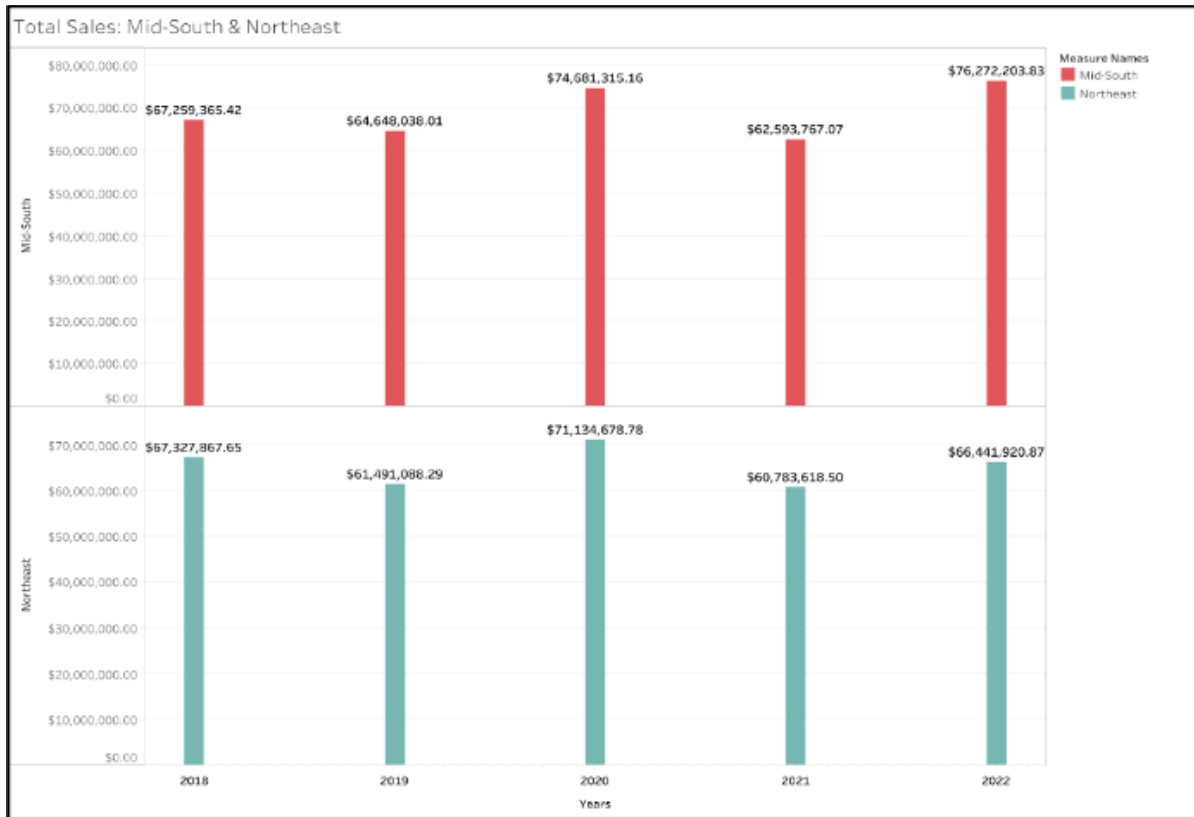
Using this information, the code calculates the percentage change in market share for each week, based on the selected companies and the total sales and price per volume data. The final output is a dataset containing this percentage change data, broken down by week, company, and category.

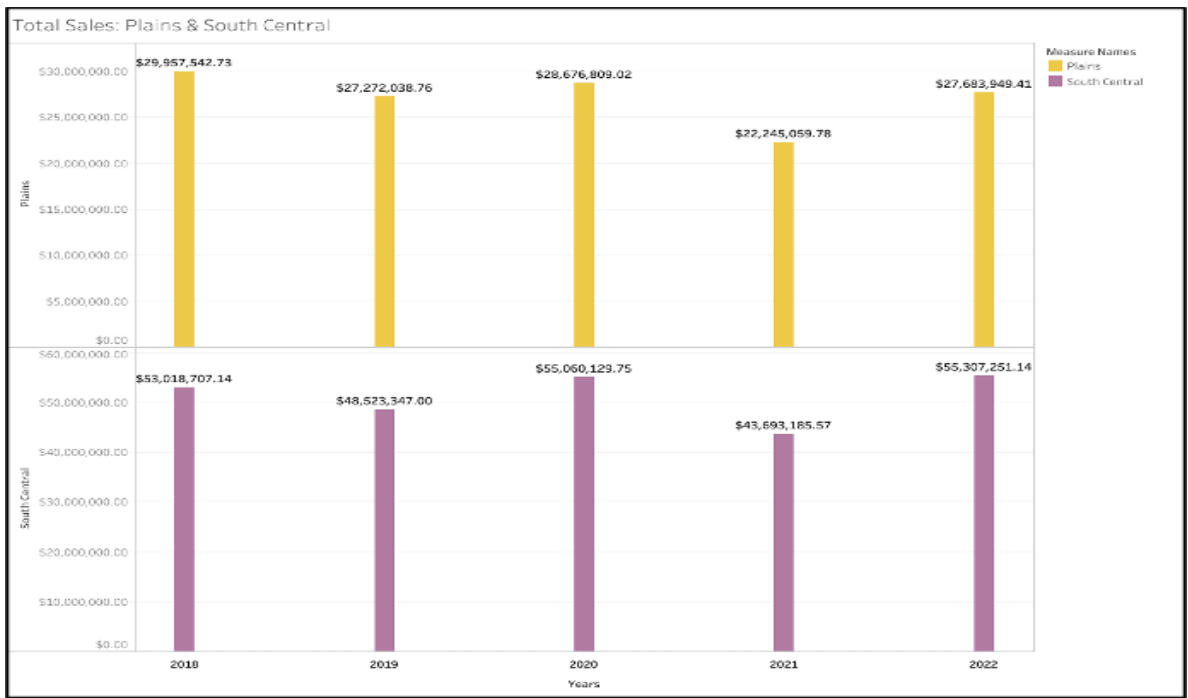
Overall, the code provides us with valuable insights into the changing market dynamics of a particular category in a given geography and year range. By including this analysis in our report, we can better understand the competitive landscape of this market and make informed business decisions.

Result and Analysis:

1. Regional Variation in Tablespreads Consumption Across the US







Analysis:

According to IRI POS data on US regions, the Northeast and Southeast are the top Tablespreads consumers, representing 20% and 15% of total US sales, respectively. In contrast, Plains and California are among the regions with the lowest Tablespreads consumption, accounting for only 7% and 9% of total US sales, respectively.

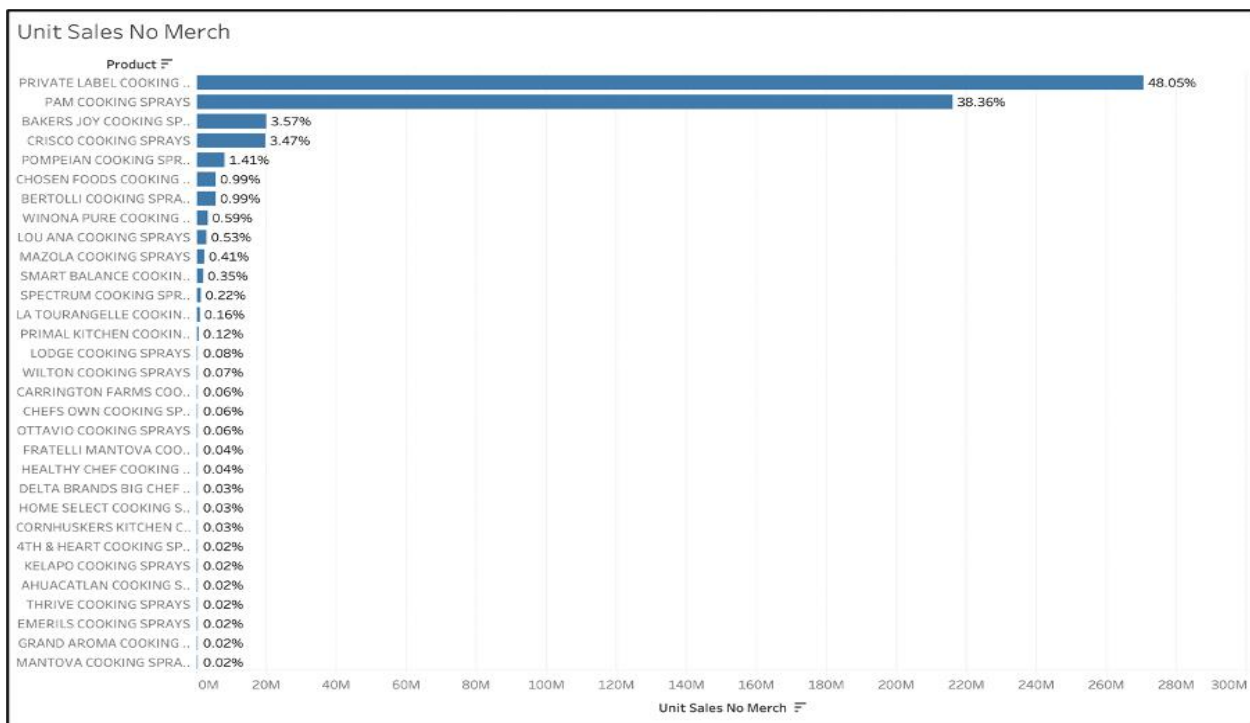
The US Tablespreads market has demonstrated a steady growth trajectory, with sales increasing from 4 billion to 5 billion dollars between 2018 and 2022. However, it is notable that Brand Tablespreads brands only experienced a single-digit sales increase of 4.85%, while their competitors' sales increased by an average of over 20%.

Insight:

For Brand, this information suggests that there may be an opportunity to increase their market share in the Northeast and Southeast regions where demand for Tablespreads products is highest. They could consider developing targeted marketing campaigns or distribution strategies in these regions to further increase their sales. Additionally, they may want to consider analyzing the reasons behind the low consumption in the Plains and California regions and determining whether there are factors that can be addressed to increase their sales in those regions. Overall, this information can inform brands' decision-making when it comes to their marketing and distribution strategies, helping them to optimize their sales and market share.

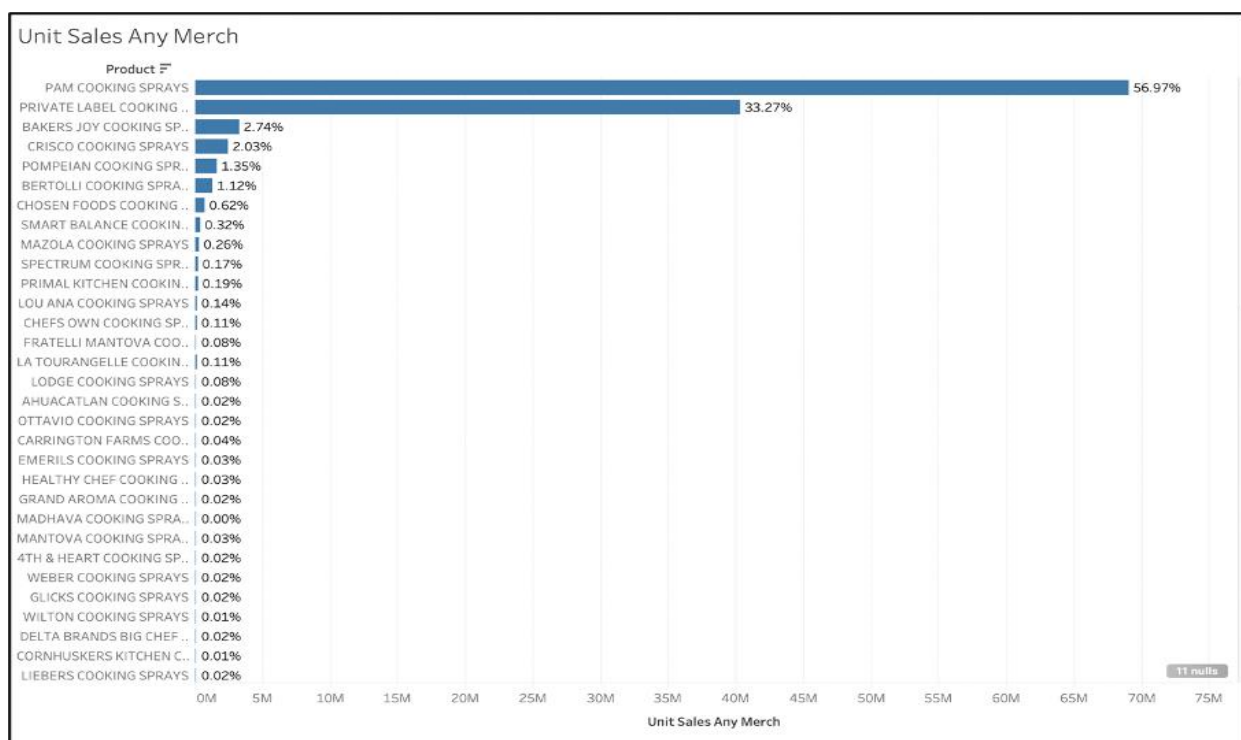
Brand's Tablespreads brands are underperforming compared to their competitors and may need to re-evaluate their marketing and sales strategies. Brands should analyse the reasons behind the slow sales growth and identify potential areas of improvement. They may also need to consider investing more in product development or expanding their distribution channels to reach more customers.

2. US Cooking Spray market with strong sales growth and merchandising efforts



Analysis:

PAM Cooking Sprays, which is a brand owned by Brand, stands out among the 83 Cooking

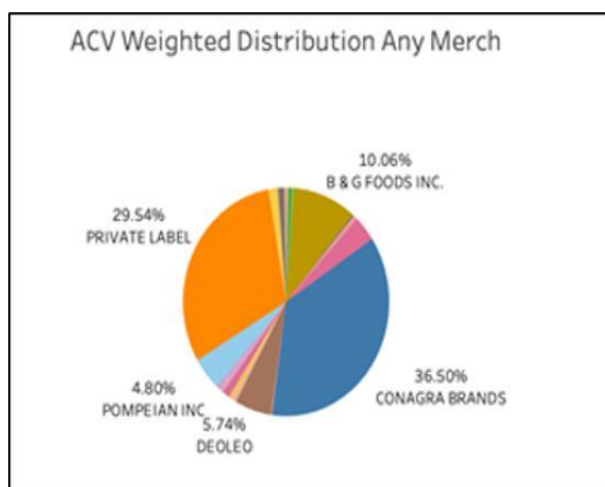
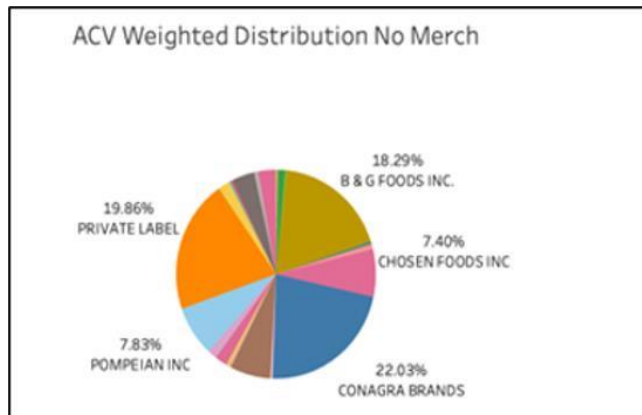


Spray products available in the US market, surpassing other competitors such as Private Label Cooking Sprays, Bakers Joy Cooking Sprays, Pompeian Cooking Sprays, and Crisco Cooking Sprays. It holds the dominant position, and its total US dollar sales account for 56.97% of US total unit sales when combined with retail merchandising efforts. Moreover, PAM Cooking Sprays has experienced a growth rate of 13.35% in US total dollar sales, thanks to its merchandising efforts.

Insight:

Brand has a strong performing product in PAM Cooking Sprays. By leveraging its merchandising efforts, Brand has been able to achieve a dominant position in the US market, demonstrating its marketing and distribution capabilities. A brand can further build on this success by investing in and optimising its marketing and distribution strategies, as well as expanding its product line to maintain and grow its market share. Additionally, the company could use the success of PAM Cooking Sprays as a model to inform its approach to other products in its portfolio.

Brand's ACV Distribution and Marketing Strategies Lead to Significant Market Share Growth



Analysis:

Brand's ACV distribution emerges as the market leader when retail merchandising efforts are factored in. The combined sales volume of Brand products constitutes a significant 36.5% of the total US market share, underscoring the efficacy of the company's distribution and marketing strategies. In the absence of such efforts, Brand still commands a noteworthy 22.03% share of the market, indicating the inherent appeal of their products. With the aid of retail merchandising efforts, Brand's ACV distribution experienced a 14.47% growth.

Insight:

For Brands, their distribution and marketing strategies are effective in increasing sales volume and market share. However, the company should also focus on improving its products' appeal to customers without relying solely on retail merchandising efforts. A comprehensive strategy that combines effective distribution and marketing with product innovation and improvement can help the Brand maintain and expand its market leadership position in the long term.

4. Total Sales by Region for Brand Tablespreads Brands

| | Total U.S.Sales | California | Great Lakes | Mid-South | Northeast | Plains | South Central | Southeast | West |
|---------------|-----------------|--------------|--------------|--------------|--------------|--------------|---------------|--------------|--------------|
| Conagra | \$417,837,199 | \$26,421,018 | \$52,255,595 | \$76,272,204 | \$66,441,921 | \$27,683,949 | \$55,307,251 | \$82,505,671 | \$30,937,523 |
| Fleischmanns | \$5,791,646 | \$87,331 | \$1,292,876 | \$532,341 | \$1,849,147 | \$525,512 | \$811,004 | \$389,778 | \$303,656 |
| Earth Balance | \$80,450,696 | \$11,788,087 | \$9,525,591 | \$8,942,322 | \$19,159,667 | \$3,140,442 | \$5,014,002 | \$10,975,048 | \$11,905,537 |
| Smart Balance | \$109,079,434 | \$10,538,863 | \$12,760,427 | \$12,785,283 | \$27,880,664 | \$5,310,831 | \$10,540,677 | \$18,735,054 | \$10,527,635 |
| Blue Bonnet | \$166,208,724 | \$2,988,102 | \$21,528,010 | \$42,193,247 | \$11,960,802 | \$14,718,436 | \$26,220,369 | \$39,853,936 | \$6,745,822 |
| Move Over Bu | \$3,713,025 | \$0 | \$557,033 | \$699,779 | \$312,876 | \$673,065 | \$703,336 | \$724,698 | \$30,170 |
| Parkay | \$52,527,266 | \$981,155 | \$6,591,658 | \$11,119,232 | \$5,278,764 | \$3,315,663 | \$12,017,863 | \$11,827,157 | \$1,395,775 |
| Nucoa | \$66,409 | \$37,481 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$28,928 |
| Smart Beat | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 | \$0 |

5. 2018 Total Sales of Competitor Brands within Tablesreads Category

| | Total U.S.Sales | California | Great Lakes | Mid-South | Northeast | Plains | South Central | Southeast | West |
|---------------|-----------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Private Label | \$1,015,777,158 | \$81,019,470 | \$161,802,552 | \$118,455,465 | \$264,616,325 | \$100,024,874 | \$48,640,784 | \$114,505,890 | \$126,711,797 |
| Land O Lakes | \$990,642,800 | \$53,226,811 | \$165,949,504 | \$141,972,534 | \$217,385,802 | \$64,501,798 | \$105,520,601 | \$160,214,583 | \$81,871,167 |
| Country Crock | \$378,804,104 | \$24,577,062 | \$56,997,350 | \$56,456,211 | \$47,944,946 | \$26,325,086 | \$62,943,526 | \$71,722,448 | \$31,837,475 |
| Kerrygold | \$185,320,608 | \$20,048,428 | \$18,317,091 | \$23,663,316 | \$34,740,784 | \$7,894,146 | \$22,794,590 | \$38,647,366 | \$19,214,886 |
| I cant belive | \$263,500,595 | \$26,063,484 | \$45,829,983 | \$28,617,708 | \$59,666,180 | \$18,829,410 | \$23,083,258 | \$38,474,359 | \$22,936,213 |
| Challenge | \$156,457,756 | \$69,329,261 | \$14,514,517 | \$8,050,794 | \$3,574,383 | \$3,548,893 | \$15,303,225 | \$8,579,733 | \$33,556,949 |
| Imperial | \$101,245,920 | \$11,547,163 | \$20,622,304 | \$9,369,750 | \$11,635,974 | \$5,829,660 | \$21,110,922 | \$11,922,242 | \$9,207,904 |
| All other | \$512,964,112 | \$61,058,001 | \$61,027,699 | \$32,385,189 | \$152,141,961 | \$37,421,032 | \$29,753,473 | \$50,329,855 | \$88,846,901 |

6. 2022 Total Sales of Competitor Brands within Tablesreads Category

| | Total U.S.Sales | California | Great Lakes | Mid-South | Northeast | Plains | South Central | Southeast | West |
|---------------|--------------------|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Private Label | \$1,240,773,580.40 | \$96,490,552.42 | \$204,706,811.66 | \$162,075,047.03 | \$310,525,684.28 | \$105,424,862.30 | \$62,576,956.56 | \$139,514,142.74 | \$159,459,523.41 |
| Land O Lakes | \$1,184,130,528.92 | \$62,327,292.74 | \$194,977,490.08 | \$169,978,198.18 | \$245,576,210.10 | \$80,540,803.96 | \$130,430,420.47 | \$199,851,312.36 | \$100,448,801.03 |
| Country Crock | \$586,409,933.92 | \$36,256,077.73 | \$86,033,394.93 | \$84,782,099.78 | \$74,929,148.09 | \$41,807,097.61 | \$98,504,661.11 | \$111,481,647.28 | \$52,615,807.39 |
| Kerrygold | \$392,155,189.71 | \$43,489,646.92 | \$43,012,103.04 | \$50,327,333.87 | \$67,918,340.37 | \$17,249,120.64 | \$48,795,185.46 | \$77,388,934.26 | \$43,974,525.14 |
| I cant belive | \$313,558,827.03 | \$29,492,647.90 | \$50,060,831.87 | \$35,003,329.78 | \$69,498,307.31 | \$21,106,932.91 | \$30,565,466.96 | \$49,550,254.61 | \$28,281,055.68 |
| Challenge | \$225,878,099.67 | \$81,627,091.96 | \$23,361,419.98 | \$15,473,852.62 | \$6,379,460.22 | \$5,577,705.54 | \$21,541,332.10 | \$26,487,799.80 | \$45,429,437.44 |
| Imperial | \$154,549,380.21 | \$15,714,851.13 | \$29,565,529.86 | \$15,190,236.87 | \$16,468,335.01 | \$9,328,307.54 | \$32,310,295.34 | \$21,984,112.88 | \$13,987,711.57 |
| All other | \$531,118,123.43 | \$60,917,201.69 | \$55,963,266.29 | \$41,928,603.99 | \$150,118,673.29 | \$35,039,253.72 | \$34,466,859.62 | \$63,177,155.65 | \$89,519,176.62 |

Below is the analysis of Product attributes on the Tablesread Data for each year from 2018-2022:



We see here the Product Attribute – Form Value against the Total Volume sales each year from 2018-2022, the chart is fractured with the attribute Tier Value.

The two main forms that CAG sells are Sticks and Tubs with the Mainstream tier consistently selling the most in volume all the years followed by the Super Premium in the Sticks Form. But interestingly we see Value Tier selling the most in the Tubs form followed by the premium and then mains coming in at 3rd.

Interestingly we see the Premiums Tier performing equally well in both Forms turning in approximately the same no of the volume of sales in these years.



Sticks dominate the Dollar sales each year followed by Tubs and the distribution is quite consistent throughout the five years. Although we saw the Value Tubs selling the most in volume, the Sticks form still brings about an average of 44% more money than Tubs.



The above analysis shows the distribution of Brand Count Values with the corresponding CAG Ounce Values against the Total Dollar sales. The products with the count values 1 CT and 4 CT have brought in equal and consistent dollar sales.

COOKING AND SALAD OILS ANALYSIS

Top 10 Brands by Dollar Sales in the Cooking and Salad Oil Segment Total Sales from the Last 5 Years



Insight: From the bar chart, we can see that Private label brands are clear winners Mazola Cooking and Salad Oil tops the chart with sales of 1.89 billion Dollars sales in the last 5 years.

Smart Balance Cooking and Salad Oil Brand Dollar Sales No Merch



Insight: Smart Balance Cooking and Salad Oil Brand is one of the Brand Brands with sales of 77 million dollars in 5 years, which is very little in comparison to top brands. They need lots of improvement in their sales to compete with top brands.

Top 10 Brands by Unit Sales

| Row Labels | Sum of Unit Sales No Merch | Sum of Unit Sales Any Merch |
|------------------------------------|----------------------------|-----------------------------|
| PRIVATE LABEL COOKING & SALAD OILS | 1826623191 | 459483717 |
| CRISCO COOKING & SALAD OILS | 380889797 | 168209797.6 |
| MAZOLA COOKING & SALAD OILS | 262615649.2 | 100607241.2 |
| WESSON COOKING & SALAD OILS | 237879263.8 | 170077127.3 |
| LOU ANA COOKING & SALAD OILS | 68498355.15 | 19123079.13 |
| 1 2 3 COOKING & SALAD OILS | 68461922.67 | 23232870.18 |
| SPECTRUM COOKING & SALAD OILS | 25877946.24 | 4237360.576 |
| POMPEIAN COOKING & SALAD OILS | 25807104.15 | 7028376.331 |
| CHOSEN FOODS COOKING & SALAD OILS | 20626902.28 | 2733747.37 |
| OLIVARI COOKING & SALAD OILS | 19523819.01 | 416968.3881 |
| Grand Total | 2936803951 | 955150285.1 |

Insight: While in terms of unit sales, Crisco ranks second and Mazola ranks third, by dollar sales, it's the opposite.

Comparing the average price per unit of the top 10 brands

| Row Labels | Sum of Unit Sales No Merch | Average of Price per Unit | Sum of Unit Sales Any Merch |
|------------------------------------|----------------------------|---------------------------|-----------------------------|
| PRIVATE LABEL COOKING & SALAD OILS | 1826623191 | \$4.47 | 459483717 |
| CRISCO COOKING & SALAD OILS | 380889797 | \$4.14 | 168209797.6 |
| MAZOLA COOKING & SALAD OILS | 262615649.2 | \$6.84 | 100607241.2 |
| WESSON COOKING & SALAD OILS | 237879263.8 | \$5.00 | 170077127.3 |
| LOU ANA COOKING & SALAD OILS | 68498355.15 | \$9.46 | 19123079.13 |
| 1 2 3 COOKING & SALAD OILS | 68461922.67 | \$2.76 | 23232870.18 |
| SPECTRUM COOKING & SALAD OILS | 25877946.24 | \$8.44 | 4237360.576 |
| POMPEIAN COOKING & SALAD OILS | 25807104.15 | \$6.76 | 7028376.331 |
| CHOSEN FOODS COOKING & SALAD OILS | 20626902.28 | \$11.45 | 2733747.37 |
| OLIVARI COOKING & SALAD OILS | 19523819.01 | \$8.21 | 416968.3881 |
| Grand Total | 2936803951 | \$6.75 | 955150285.1 |

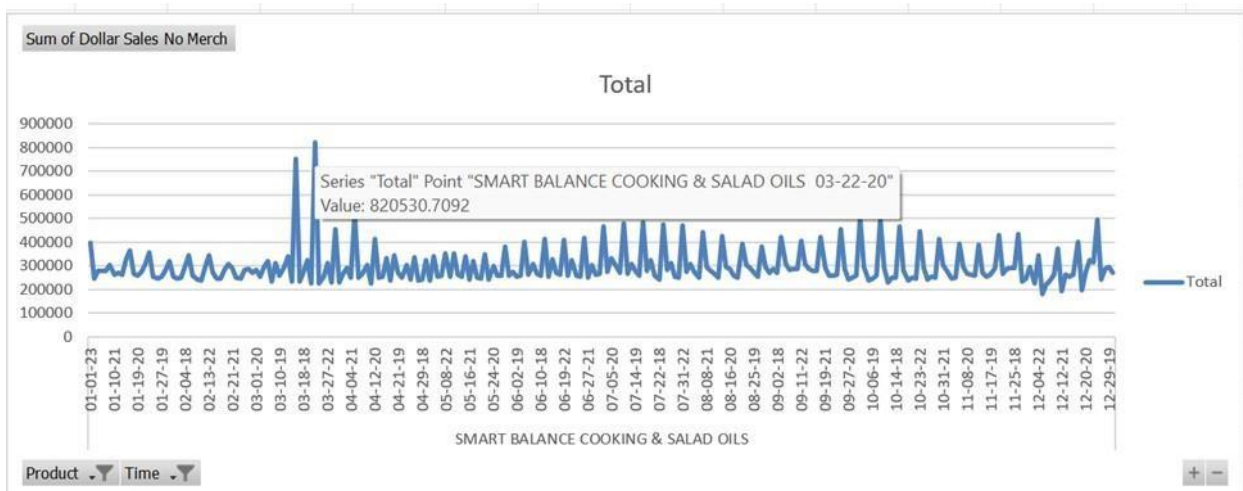
Insight: Range varies from \$2.5-\$12. Chosen Foods sells products at \$11.45 while 1 2 3 cooking & salad oils sell at an average price of \$2.76.

Brand Avg Price

| Row Labels | Sum of Unit Sales No Merch | Average of Price per Unit | Sum of Unit Sales Any Merch |
|------------------------------------|----------------------------|---------------------------|-----------------------------|
| SMART BALANCE COOKING & SALAD OILS | 17,156,308.35 | \$4.50 | 2,060,525.48 |
| Grand Total | 17,156,308.35 | \$4.50 | 2,060,525.48 |

Insight: Smart Balance sells oil for \$4.5. Which is less than the Total average price of the top 10 brands. So, they should continue selling at this price and try to improve other factors where they are lacking

Smart Balance Trend line of its Sales



Insight: The sales trend line for a product is relatively stationary except for a one-time spike due to external factors such as the announcement of a nationwide lockdown, then it may be difficult to sustainably improve the sales trend line without similar external factors.

However, there are a few strategies that the company could consider trying to improve sales:

Expand the product line, enhance product packaging, and improve distribution.

Private Labeling Top 10 Regions by Sales

| Row Labels | Sum of Unit Sales Any Merch | Sum of Unit Sales No Merch | Sum of Dollar Sales No Merch | Sum of Dollar Sales Any Merch |
|--|-----------------------------|----------------------------|------------------------------|-------------------------------|
| PRIVATE LABEL COOKING & SALAD OILS | 459483717 | 1,826,623,191.48 | \$8,552,457,328.21 | 1,769,444,675.92 |
| Total US - Multi Outlet + Conv | 229741858.5 | 913,311,595.74 | \$4,276,228,664.11 | 884,722,337.96 |
| Southeast - IRI Standard - Multi Outlet + Conv | 51394251.24 | 181,503,558.48 | \$871,643,068.14 | 204,200,778.95 |
| Mid-South - IRI Standard - Multi Outlet + Conv | 33540013.8 | 157,851,634.80 | \$698,242,527.22 | 126,542,411.79 |
| South Central - IRI Standard - Multi Outlet + Conv | 40644736.08 | 131,363,437.55 | \$665,268,668.00 | 166,518,532.63 |
| Northeast - IRI Standard - Multi Outlet + Conv | 23570468.68 | 118,130,983.66 | \$575,235,505.66 | 103,081,719.63 |
| Great Lakes - IRI Standard - Multi Outlet + Conv | 27453777.67 | 118,204,921.78 | \$527,146,878.67 | 96,569,151.25 |
| West - IRI Standard - Multi Outlet + Conv | 21933307.27 | 87,888,759.80 | \$403,657,322.20 | 78,339,044.82 |
| Plains - IRI Standard - Multi Outlet + Conv | 14343161.83 | 61,148,121.61 | \$278,924,336.05 | 49,169,914.66 |
| California - IRI Standard - Multi Outlet + Conv | 16862141.92 | 57,220,178.06 | \$256,110,358.17 | 60,300,784.22 |

Insight: We can see that the Southeast region population uses more private label Brand oil.

Top 10 Regions of Smart Balance Cooking Oil by Unit Sales and Dollar Sales

| Row Labels | Sum of Unit Sales Any Merch | Sum of Unit Sales No Merch | Sum of Dollar Sales No Merch | Sum of Dollar Sales Any Merch |
|--|-----------------------------|----------------------------|------------------------------|-------------------------------|
| SMART BALANCE COOKING & SALAD OILS | 2060525.479 | 17,156,308.35 | \$77,533,748.72 | 7,232,654.95 |
| Total US - Multi Outlet + Conv | 1030262.739 | 8,578,154.18 | \$38,766,874.36 | 3,616,327.48 |
| Southeast - IRI Standard - Multi Outlet + Conv | 399703.1904 | 1,753,001.04 | \$7,354,704.65 | 1,312,864.72 |
| Northeast - IRI Standard - Multi Outlet + Conv | 268311.7404 | 1,433,846.82 | \$6,332,990.44 | 910,470.45 |
| Mid-South - IRI Standard - Multi Outlet + Conv | 99182.47292 | 1,177,288.12 | \$5,416,822.07 | 367,665.24 |
| South Central - IRI Standard - Multi Outlet + Conv | 31914.86256 | 1,180,692.98 | \$5,040,694.95 | 120,788.11 |
| Great Lakes - IRI Standard - Multi Outlet + Conv | 120269.1107 | 909,932.65 | \$4,276,804.65 | 441,336.47 |
| West - IRI Standard - Multi Outlet + Conv | 42133.39587 | 823,770.93 | \$4,038,208.13 | 166,642.90 |
| California - IRI Standard - Multi Outlet + Conv | 51554.60337 | 780,163.69 | \$3,923,736.20 | 231,834.56 |
| Plains - IRI Standard - Multi Outlet + Conv | 17193.36304 | 519,457.95 | \$2,382,913.27 | 64,725.02 |
| Grand Total | 2060525.479 | 17,156,308.35 | \$77,533,748.72 | 7,232,654.95 |

Insight: Here, we can see that Smart Balance's highest sales are in the Southeast Region. So, they should target another region to increase their Sales Growth. As we can see people in the southeast region choose private-label cooking oil.

Top 10 Brands ACV Weighted Distribution

| Row Labels | Sum of Dollar Sales No Merch | Average of ACV Weighted Distribution No Merch | Average of ACV Weighted Distribution Any Merch |
|------------------------------------|------------------------------|---|--|
| PRIVATE LABEL COOKING & SALAD OILS | 8552457328 | 85.09457523 | 48.26850976 |
| MAZOLA COOKING & SALAD OILS | 1891059203 | 73.03737396 | 16.31255636 |
| CRISCO COOKING & SALAD OILS | 1644541120 | 75.52659293 | 29.55128047 |
| WESSON COOKING & SALAD OILS | 1330964297 | 67.26768528 | 21.65452147 |
| LOU ANA COOKING & SALAD OILS | 637871771.4 | 49.96189697 | 11.86601128 |
| CHOSEN FOODS COOKING & SALAD OILS | 240329730.4 | 41.64552705 | 5.160351456 |
| SPECTRUM COOKING & SALAD OILS | 222990118 | 51.03966894 | 8.675396162 |
| 1 2 3 COOKING & SALAD OILS | 189903918.5 | 27.26181801 | 3.221260187 |
| POMPEIAN COOKING & SALAD OILS | 180627619.1 | 45.19196436 | 9.104423621 |
| OLIVARI COOKING & SALAD OILS | 162205910.3 | 19.2499647 | 0.250730939 |
| Grand Total | 15052951017 | 53.52770674 | 15.60218256 |

Insight: As we can see Top Brands have higher ACV values. That means the product is available in more stores with higher annual sales volumes.

Average ACV Weighted distribution of smart balance

| Row Labels | Sum of Dollar Sales No Merch | Average of ACV Weighted Distribution No Merch | Average of ACV Weighted Distribution Any Merch |
|------------------------------------|------------------------------|---|--|
| SMART BALANCE COOKING & SALAD OILS | 77533748.72 | 41.746246 | 3.223318507 |
| Grand Total | 77533748.72 | 41.746246 | 3.223318507 |

Insight: Smart Balance has less ACV in comparison to top brands so Smart Balance should increase ACV. To Increase ACV, they should Expand Distribution, improve product visibility, and increase marketing and promotion. By employing these strategies, companies can work to increase the ACV of their products, which can lead to increased sales volume and revenue over time.

Base and incremental dollar sales of Smart Balance cooking and salad oils



Insight: From the bar chart, we can see that it has very low incremental sales compared to base sales. In this case, the brand may need to re-evaluate its marketing and promotional strategies and consider making changes to improve their effectiveness. This could involve reviewing the timing and duration of promotions, the type of promotions being offered, or the target audience for the promotions. The company may also want to consider conducting market research to better understand their customers' needs and preferences, which can help them design more effective promotions that drive incremental sales.

Analysis

From the data provided over the last 5 years, private-label brands are the top sellers in the cooking and salad oil segment, followed by Mazola cooking and salad oil. The price per unit of top brands varies from \$2.5-\$12, with Chosen Foods being the most expensive at \$11.45 and 1 2 3 cooking and salad oils being the least expensive at an average price of \$2.76.

Smart Balance, one of the Brand brands, has low sales compared to top brands, with sales of only \$77 million in the last five years. However, it has a relatively low average price of \$4.5 per unit. Smart Balance's highest sales are in the Southeast region, indicating that it should target other regions to increase sales growth.

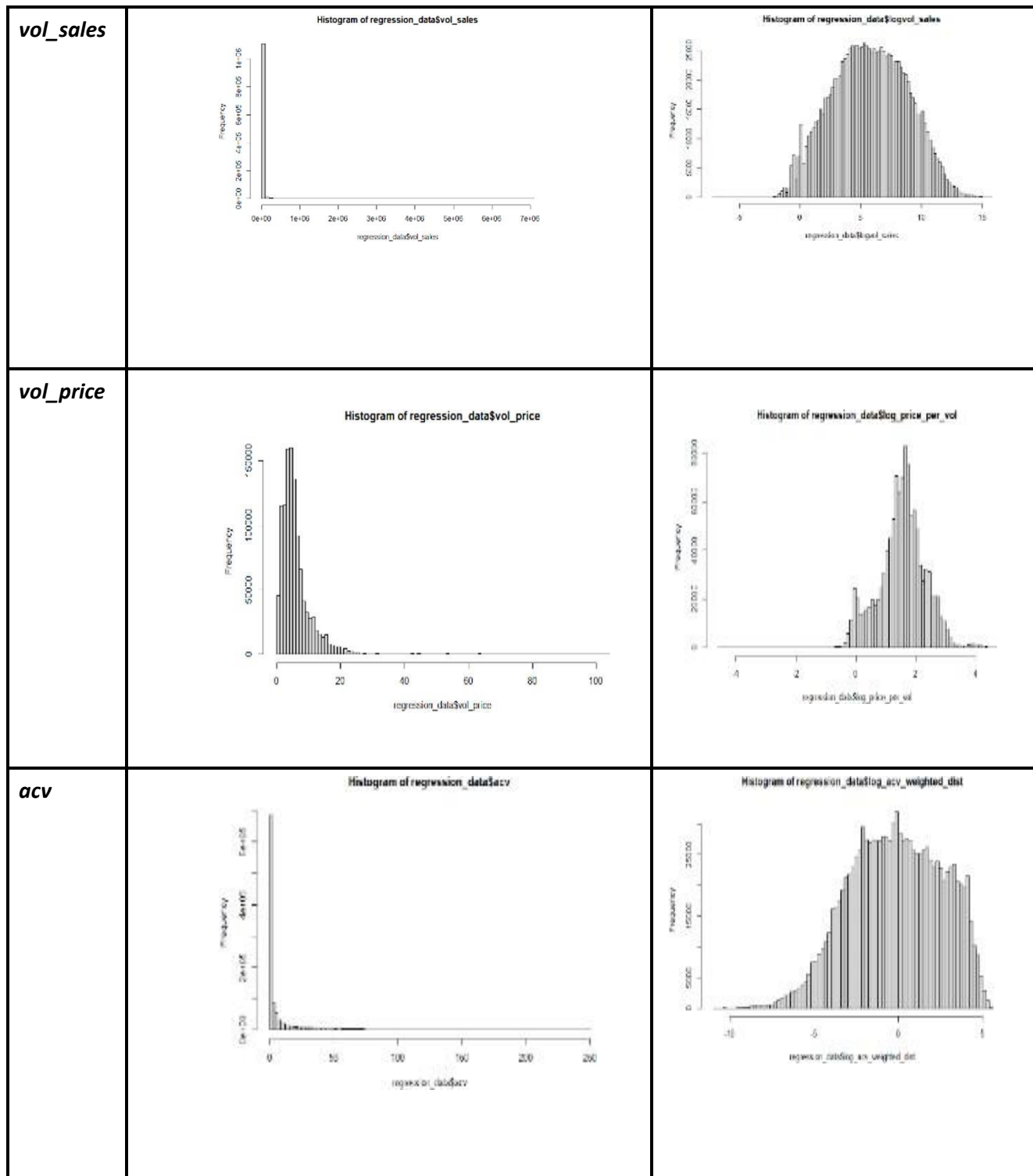
To improve sales, Smart Balance could consider expanding its product line, enhancing its product packaging, and improving its distribution channels. It could also work on increasing its ACV in stores by increasing marketing and promotion efforts and improving product visibility.

Furthermore, the data shows that Smart Balance has low incremental sales and high base sales, indicating a need to re-evaluate its marketing and promotional strategies to improve its effectiveness. Conducting market research to better understand customer needs and preferences could also help the company design more effective promotions that drive incremental sales.

Overall, the data highlights the importance of pricing, product availability, distribution, and effective marketing and promotion strategies in driving sales in the cooking and salad oil segments. Companies need to continuously evaluate and refine their strategies to remain competitive in the market.

Regression Analysis:

1. Transforming Skewed Numerical Variables



2. Basic Model

We conducted a regression analysis using the forward selection method to identify significant variables that influence volume sales. Volume sales, which are the number of units sold in 16oz

volume at the point of sale, are the target variable for this analysis. Our goal is to provide valuable recommendations to Brands by examining factors that impact volume sales. Initially, we will include all numerical variables individually in the regression model and evaluate the goodness of fit, specifically the Adjusted R-square index. We will then assess if any higher-order terms, such as squared prices, should be considered. Following this, we will introduce categorical variables and interaction terms, combining both categorical and numerical variables in the model.

Firstly, we split the data into 70% train set to 30% test set. By training the training set, we observe the effect of other numerical variables on volume sales by conducting a linear regression of various variables.

*Model 1 formula: $\logvol_sales = b_0 + b_1 * \log_acv_weighted_dist$*

*Model 2 formula: $\logvol_sales = b_0 + b_1 * \log_price_per_vol + b_2 * \log_price_per_vol^2$*

*Model 3 formula: $\logvol_sales = b_0 + b_1 * \log_price_per_vol + b_2 * \log_acv_weighted_dist$*

*Model 4 formula: $\logvol_sales = b_0 + b_1 * \log_price_per_vol + b_2 * \log_acv_weighted_dist + b_3 * \log_price_per_vol^2 + b_4 * \log_price_per_vol * \log_acv_weighted_dist$*

| Model | Model1 | Model2 | Model3 | Model4 |
|---|--------------|------------|-----------|----------|
| Intercept | 4.393*** | 7.0739*** | 6.215*** | 8.434 |
| log_acv_weighted_dist | 1.018 *** | | 0.974*** | 2.0172 |
| log(acv_weighted_dist^2) | | | | |
| log_price_per_vol | | -2.979*** | -1.334*** | -1.345 |
| log_(price_per_vol^2) | | -0.0008*** | | -0.00007 |
| log_acv_weighted_dist* log_price_per_vol | | | | -0.040 |
| Adjusted R-squared | 0.6234 | 0.2442 | 0.8147 | 0.8471 |

After conducting four regression models, we have determined that Model 4 provides the highest Adjusted R-square value. We hypothesize that the ACV variable may have a strong correlation with the dependent variable, `vol_sales`, resulting in an unusually high Adjusted R-square value when included in the model (as seen in Model 3). As a result, we will utilize Model 4 for our analysis and introduce categorical variables. Our findings suggest that price hurts volume sales, and this impact diminishes at a decreasing rate (as evidenced in Model

2.

Conclusion:

In conclusion, the proposed project aims to help Brand unlock future growth potential in the Table-spreads category by creating data-driven strategies. The analysis reveals that Brand's Tablespreads brands are underperforming compared to competitors and may need to reevaluate their marketing and sales strategies. By leveraging the success of PAM Cooking Sprays, Brand can optimize its marketing and distribution strategies to maintain and grow its market share.

The regression analysis using the forward selection method identifies significant variables that influence volume sales, with price hurting volume sales that decrease at a diminishing rate. The company can use these findings to inform their decision-making when it comes to their marketing and distribution strategies, product innovation, and improvement to optimize their sales and market share. Overall, the proposed project provides valuable insights and recommendations to help Brand achieve future growth potential in the Table-Spreads category.

