



PROPOSAL FOR BEZT

PREPARED BY

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I pledge on my honor that we have not given or received any unauthorized assistance on this assignment

Executive Summary

As more and more customers are wanting to pamper their pups with high quality food items, the dog food industry is going to continue to grow. The purpose of this report is to assist Bezt, a top 2 dog food brand on Amazon, in surpassing Alpha and securing the number one spot, while capitalizing on the increasing trend of pet owners being health-conscious. To do this, we will analyze Bezt's marketing strategy, brand portfolio, product offerings, and target segment to determine where Bezt's strengths lie, where they lag, and suggest measures to compete against Alpha.

Upon completion of our analysis, we identified several crucial insights that suggest areas of growth for Bezt. For example, the repeat purchase rate for Bezt products is only 12.7%, indicating that enhancing customer satisfaction and fostering brand loyalty would be beneficial. Additionally, we identified specific states where Bezt could potentially boost its sales and revenue. Moreover, we discovered that a segment of Bezt's customer base is more likely to purchase probiotics products.

Overall, our research provides valuable insights into Bezt's strengths and weaknesses, revealing opportunities for improvement that can ultimately enhance revenue and allow Bezt to claim the top spot in the dog food market.

Objective of analysis

After analyzing industry best practices and studying the success of top brands and shortcomings of bottom performers, we identified opportunities for Bezt to emerge as the leader in the growing dog food industry. Bezt has potential to enhance its branding, portfolio, and product offerings. Further research into Bezt's marketing strategy and target audience revealed that, as one of the top revenue-generating brands, the brand has the resources to optimize its performance and dominate the industry.

Our team aims to advise Bezt on the necessary actions to compete with the industry leader, Alpha. Our primary objective is to boost the brand's revenue by attracting new customers, retaining current ones, and promoting sales of higher-priced products, using carefully crafted ad campaigns to maximize sales while minimizing advertising costs.

To conduct our research, we analyzed Amazon data from 2022 to gain insights into the dog food industry and the products available on the website. Our goal was to collect consumer feedback and insights that would guide our recommendations to help Bezt enhance its brand, expand its market share, and foster customer loyalty.

Methodology

[Database] Our data from Amazon consists of 9,215 dog food sales records for 2022. This data set had 20 variables including sales ID, sales date, product brand, product name, qty, ad exposure, customer ID, age, income, education, Prime membership, gender, marital status, and location data like state, city, latitude, and longitude. Details are shown in Figure 0.

[EDA] To perform our market research on this data, we used **Python**, **Tableau** and **Excel** to gather insights. We first conducted exploratory research in Excel using **PivotTables** on the Dog Food Market to understand basic competitor analysis in areas such as revenue, ad exposure, and customer profiles.

[Persona/K-Means Clustering] To further understand the customers we performed **Kmeans clustering** on the given dataset. We used the following variables- price of the product, advertisement exposure, marital status, age, income level, number of unique products purchased, number of different brand product purchased, and prime membership. Using these variables and Silhouette Score we concluded that there are two segments. To further understand about Bezt customers, we narrowed our database to bezt customers only and using the same variable on k-means clustering function, found that bezt has 3 different types of customer.

[Customer Purchase Patterns] We further investigated customer purchase patterns for instance, buying a new brand, cross selling and upselling in the market.

Then we delved deeper into the different customer segments in Bezt's shoppers.

[ANOVA/Regression] We analyzed the effectiveness of different ad campaigns

1. Firstly, by looking at descriptive statistics(means) of the 3 KPI (revenue, new-to-brand rate, and) across different types of ad exposure, we recognize 'Some Other Types of Ads' may have a very

strong positive influence on these indicators. However, we can not tell any clear difference in other ads' effects. Bearing this confusion in mind, 3 **ANOVA tests** are conducted with Python(Google Colab) to check whether ad exposure types are correlated with KPI performance.

2. To follow up, we build up 9 **PooledOLS regression models** in order to further validate the causal relationships between the 3 KPI and some explanatory variables (mainly including ad exposure types). The dependent and exogenous variables are shown and explained in Figure 21.

After training the models, we interpret the parameter estimates to check what ad types, and other factors can help improve our performance.

3. After analyzing the models, we notice an interesting fact that the product names containing 'natural', 'sensitive', or 'organic' may significantly influence the KPIs. Later on we associate that with 'probiotic' and construct another model specially exploring the effect of 'probiotic product' at the industry level.

Results and findings

Industry Analysis

Pet food industry has seen a sharp inflation in the past two years but this isn't discouraging pet owners to feed their pet the best quality and healthy food. Dog food accounts for almost 50% of the pet food industry.

From the Pet Food Industry 2022 Mintel report, we understand that 78% of the customers buy dog food from in store or via their veterinary clinic. Only 22% of customers buy the dog food online, of which amazon accounts for 50% of the sales.

In our study we analyze Amazon's dog food sales of the year 2022. The data is made up of 25 brands with 92 distinct products between them.

Revenue Comparison

In 2022, the total yearly revenue for the dog food industry was \$388,613.10 across these 25 brands. Leading the pack, we had Alpha with a yearly revenue of \$142,810.77 and a market share of 36.75%. Next, we had Bezt with a revenue of \$64,733.63 and a market share of 16.66%. Health One, Arf, and Garland Farms round out the top five with revenues of \$23,827.29, \$23,494.43, and \$20,058.32 and market shares of 6.13%, 6.05%, and 5.16% respectively (Figures 1, 2). Looking at which months were best across each of the top 5 brands, February was a tough month for everyone with revenue being the lowest. But by the end of the year, all brands were trending back positively, making the end of the year the best time for the our top 5 brands (Figure 3)

Price Comparison

After evaluating the revenues, our team assessed the prices of the dog products. The average product price for the dog food industry was \$39.02 while the median price was \$40.05. The price that occurred the most was \$41.12. There was a range of \$102.17 between the highest and lowest price of \$106.90 and \$4.73 (Figures 4, 5). Perro had the highest average price for their products at \$105.64 while Oh My Dog! had the lowest average price at \$18.80. When it came to the top 5 revenue producing brands, Alpha was the highest at average price \$46.53, followed by Bezt at \$37.47, then Health One at \$29.72, Arf at \$23.11, and Garland Farms at \$54.43 (Figure 6).

Dog Food Customer Profile

After breaking down revenue by the customer characteristics, we found the customer that produced the most revenue in the industry. They are between the ages of 35-44, married, making \$100,000 or more a year, a college graduate, and are Prime members (Figures 7-12). We also found that gender was pretty evenly dispersed amongst the customer base. Our team also noticed that this customer would most likely come from Texas, California, Florida, New York, or Ohio since these were the most revenue-producing states (Figure 13).

Customer Segments

There are two types of customers:

- Brand Loyal Customers: They account for 54% of the market. They are either product loyal and buy the same product over and over or are brand loyal. They are more influenced by sponsored ads.
- Experimental Customers: They account for 46% of the total market. They purchase 2-3 different types of brands or products. They are less influenced by sponsored ads.

Alpha customers are more likely to be experimental than brand loyal customers as opposed to Bezt which is equally distributed among both segments.

Ad Exposure

It seemed that customers had a hard time recalling if they saw an ad before purchase as “Don’t recall seeing an ad” was the most common response at 33.60%. The actual ad most commonly remembered by customers was Sponsored Brands at 27.35%. Video ads and “some other ads” were the least common ad seen at below 4% (Figure 14). As for the brands most represented in ads (not counting “Don’t recall seeing an ad” from the data), Alpha was the most recalled at 31.00%, followed by Bezt at 17.00%, Arf at 9.92%, Health One at 7.99%, and Spot’s Choice at 5.28% (Figure 15).

Brand Analysis

Overview

Bezt accounts for 17% of the market share and invests heavily in amazon ads. They are most sold from September to January. Most Bezt customers buy on the 28th of the month (Figure 26) as opposed 18th (Figure 27) which is the industry trend. We also notice that Bezt customers have a purchase cycle of 74 days. So we would suggest Bezt to launch ad campaigns between 18th and 28th, close to when their next purchase is upcoming (74th day) for maximum output.

On analysis we 78% of Alpha customers are new to the brand Vs 87% of the Bezt customers are new to the brand. Bezt is better at acquisition of new customers and hence it is a brand with growth potential.(Figure 28)

But we see that customers are likely to repurchase Alpha products (17%) Vs Bezt products (12%) (Figure 32). Also 30% of the total customers are likely to buy Alpha or switch over and remain with the brand Vs only 18% of the total customers are like to buy bezt or switch over and remain with the brand (Figure 33). Moreover, Alpha has an higher upsell (compared to Bezt) as most of 60% of its customers are buying product worth 30-55\$ Vs only 30% of bezt customer is purchasing that range. (figure 30)

Customer Segments

We found that Bezt’s target market has three segments. Segment One consists of non-prime members (15%). This group doesn’t have a preference for high or low cost products. The second segment (43%) comprises prime members with high brand loyalty. They mostly prefer higher priced products. The third segment (42%), consists of Prime members who prefer low cost products. (Figure 20)

Customer Purchase patterns

On analyzing the data, we identified several important performance indicators for the business. Firstly, we see that there are 2,602 repeat customers, which indicates 52.04% of the total customers are repeatedly buying dog food on Amazon. Out of these repeat customers, only 177 or 12.75% of them have made repeat purchases for the Bezt brand. On average, each customer makes 1.15 purchases, indicating an opportunity for increasing customer loyalty and retention. The frequency of purchases for Bezt products is 0.17, which translates to 17 out of every 100 Bezt products. However, the repeat purchase rate for Bezt products is only 22%, indicating a need for improvement in customer satisfaction and brand loyalty.

Location

After assessing the customer purchase patterns, we observed that there are certain states where Bezt can potentially increase its sales and revenue. These four states, Florida, Virginia, Alabama, Illinois, have been identified as having the potential for Bezt to deliver more sales based on the total dog food consumption. However, it has been observed that Bezt is significantly losing out to other brands in Florida

in terms of market share. Additionally, five states - Vermont, Delaware, North Hampshire, South Carolina, and New Mexico - have been identified where Bezt should improve against Alpha since there is a greater than 30% difference in revenue market share between the brands in these states.

Ad Exposure

The first and most important finding is that 'Some other types of ads' could be very important for Bezt. That category of ads, according to OLS regression parameter estimates, has significantly positive effects on both generating revenues and driving new-to-brand customers to Bezt. On the other hand, 'video ads' affects Bezt's new-to-brand rate negatively. For Bezt's main competitor Alpha, at the significance of 0.1, 'sponsored product' might deteriorate its revenue, while 'video ads' could help in driving new-to-brand customers to this brand.

Another important fact is that customers of Bezt seem very willing to see terms such as 'Probiotic', 'Natural', 'Sensitive', and 'Organic' appear in advertisements. At least the fact that customers find these words in the product names can significantly raise Bezt's revenues and new-to-brand rate according to our models.

Pricing

Based on the provided information, we can see that for brand Alpha, the majority of their customers (1713) fall into price level 1 (\$30-\$55), followed by 703 customers in price level 2 (> \$55) and the smallest group of 416 customers in price level 0 (< \$30) (Figure 29). On the other hand, for brand Bezt, the majority of their customers (581) are in price level 0, followed by 516 customers in price level 1 and 504 customers in price level 2. Industry level average price for the dog food products is \$39 (Figure 30). While Alpha prices its products slightly higher than the industry average at \$ 46, Bezt has products with an average price of \$37.4, which is less than the industry average(Figure 17,18, 31). Bezt seems to be doing better with customers in the lower price range (Figure 19), which indicates that the company should focus on acquiring customers in the higher price level brackets. This could be done by offering niche products at a higher price, capturing more revenue generating consumers.

Upsell

When we found that, on average, each customer makes 1.15 purchases, we can say that there is a potential opportunity for Bezt to increase revenue through upselling. The frequency of purchases for Bezt products is only 0.17, which suggests that customers are not purchasing Bezt products as frequently as they should be. Bezt could consider implementing upselling strategies such as offering bundle deals or promoting higher-priced products to customers who have already purchased Bezt products to capitalize on this opportunity. While we talk about other revenue streams in the later part of this report, Bezt can look at incentivizing customers to purchase more Bezt products per transaction and increasing the frequency of their purchases

New Product Launch- Probiotics

Through extensive research, our team found several interesting insights about probiotics in the data. Currently, Alpha and Ruby are the only two players in the Probiotics industry. Alpha has 81% of the probiotics market share whereas Ruby has 19% (Figure 24). When we defined the three segments of Bezt, our team discovered that Segment 2 comprises 43% of people liking products which are comparatively higher priced and who will be more likely to buy the Probiotics product. As of now, the average price of Probiotics products is \$56 and the price range is between \$40-\$80 (Figure 25). We ran PooledOLS regression models to understand there is a positive correlation between Probiotics and revenue. Interestingly, we also found out through GlobalPETS website that the demand for Probiotics has nearly tripled in the last three years (Figure 22). This shows that the Probiotics market is definitely growing and consumers are definitely concerned with the gut health of their dogs.

Recommendations

Recommendation 1: 'We are probiotic!'

Bezt can leverage the advantages of incorporating **probiotics** in their product by **highlighting their presence on the packaging**. Despite the fact that some pet food products may contain probiotics, they are typically not emphasized as the main ingredient in marketing materials. Instead, marketing messages tend to focus on attributes such as natural, healthy, or suitable for sensitive stomachs. By explicitly indicating the presence of probiotics on the packaging, Bezt can appeal to Segment 2 customers who are actively seeking premium pet food products with added health benefits.

Recommendation 2: R&D in New Probiotic Products

[Link to the Survey](#)

Based on our insights, it could be beneficial to **launch a probiotic dog food product**. We recommend validating this by launching a survey for existing Bezt customers to better understand whether it makes sense to launch a probiotic product or market an existing product as probiotic.

Our Marketing Research Question is: Will customers be interested in buying dog Probiotics products? We intend to validate the following Hypothesis:

1. Consumers are 30% more likely to buy dog food with probiotics words on its packaging.
2. Consumers are likely to spend 40-55\$ on such a product
3. Healthcare professional is more likely to influence consumer to buy probiotics based dog food

Recommendation 3: Where are our places of profitability?

We also recommend that to maximize revenue, Bezt should focus on these three locations- Texas, California, and Florida. Interestingly, it has been observed that in some states, such as Massachusetts, Arizona, Iowa, Alaska, and Arkansas, there is less than a 10% revenue difference between Alpha and Bezt (Figure 16). This suggests that it is considerably easy for Bezt to become the market leader in these states (Figure 16). Overall, the analysis highlights the potential for Bezt to increase its market share and revenue by focusing on specific states and improving against its competitor, Alpha.

Recommendation 4: How to design our ads matrix?

- 1) It is important to insist on investing in '**Other Types of Ads**' in order to generate more revenues. Our experiments including ANOVA testing, regression analysis all point out that the ad channel(s) impose a very significant influence on increasing revenues and upsell on both industry and brand level. However, to think that in a critical way, what are these ads exactly? Why does this type of ads only account for a minor percentage of revenue in the whole industry? There might be factors missing in the process of regression analysis like the cost/time/scale of the ads, which are actually of great concern for the brands.
- 2) Be **cautious** about involving '**Video Ads**' in our ads matrix. The video ads would hinder new customers from purchasing from Bezt.
- 3) As mentioned above in the Recommendation 1, '**Probiotic**' is definitely to be one of the **keywords** in our advertising actions. In addition, being '**Natural**', '**Sensitive**', and '**Organic**' also fall in as terms that are very attractive to Bezt's customers.

Appendices

Figure 0 - Summary of the Database Variables

| <i>Summary of the Database Variables</i> | | | |
|--|---------------|--|-------------|
| Index | Column | Description | Type |
| 1 | sale_id | ID of the sale | Discrete |
| 2 | sale_date | Date of the sale | N/A |
| 3 | ad_exp | Ad experience of the sale (the type of ad that influenced the sale) | Categorical |
| 4 | product_id | ID of the product | Discrete |
| 5 | product_brand | Brand of the product | String |
| 6 | product_name | Name of the product | String |
| 7 | price | Unit price of the product | Constant |
| 8 | qty | Quantity of the product purchased | Discrete |
| 9 | customer_id | ID of customer who purchased the product | Discrete |
| 10 | gender | Gender of customer who purchased the product (F or M) | Categorical |
| 11 | city | City where customer resides | String |
| 12 | st | State where customer resides | String |
| 13 | zip | Zipcode where customer resides | N/A |
| 14 | lat | Latitude of customer's residence | N/A |
| 15 | lng | Longitude of customer's residence | N/A |
| 16 | marital | Marital status of customer's residence | Categorical |
| 17 | education | Highest education level of customer | Categorical |
| 18 | income | Income bracket of customer | Categorical |
| 19 | age | Age range of customer | Categorical |
| 20 | prime | Amazon Prime status of customer (1 or 0) | Binary |
| 21 | new_to_brand | Whether the corresponding customer purchase the brand for the first time | Binary |
| 22 | price_diff_wb | The difference between the price of the sale and the previous one | Constant |
| 23 | natural2 | Whether the product name contains 'Natural', 'Sensitive', or 'Organic' | Binary |
| 24 | probiotic | Whether the product name contains 'Probiotic' | Binary |

Figure 1 - Avg. Revenue for Each Brand

| product_brand | Sum of revenue |
|--------------------|---------------------|
| Alpha | \$142,810.77 |
| Bezt | \$64,733.63 |
| Health One | \$23,827.29 |
| Arf | \$23,494.43 |
| Garland Farms | \$20,058.32 |
| Seattle Gourmet | \$12,905.74 |
| King | \$11,392.36 |
| Spot's Choice | \$10,520.57 |
| Top | \$9,021.83 |
| Beam | \$8,819.85 |
| Perro | \$8,562.78 |
| Ruby | \$8,557.18 |
| Beethoven | \$6,377.40 |
| Pawsome | \$5,988.37 |
| K99 | \$5,138.60 |
| Hanover | \$4,862.18 |
| Doggo | \$4,314.45 |
| Playtime | \$3,985.94 |
| Astro | \$3,098.09 |
| Rivera | \$2,985.08 |
| Romero | \$2,713.48 |
| Hearth | \$1,313.47 |
| Kastle | \$1,183.14 |
| Bones | \$1,120.19 |
| Oh My Dog! | \$827.96 |
| Grand Total | \$388,613.10 |

Figure 2 - Market Share of Each Brand (Top 5)

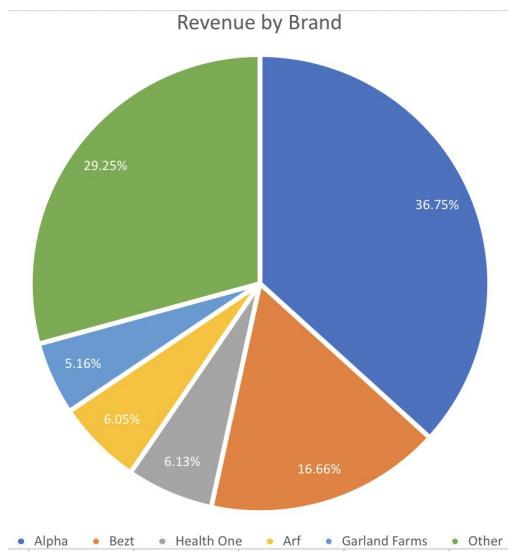


Figure 3 - Revenue of Top 5 Brands Across Month

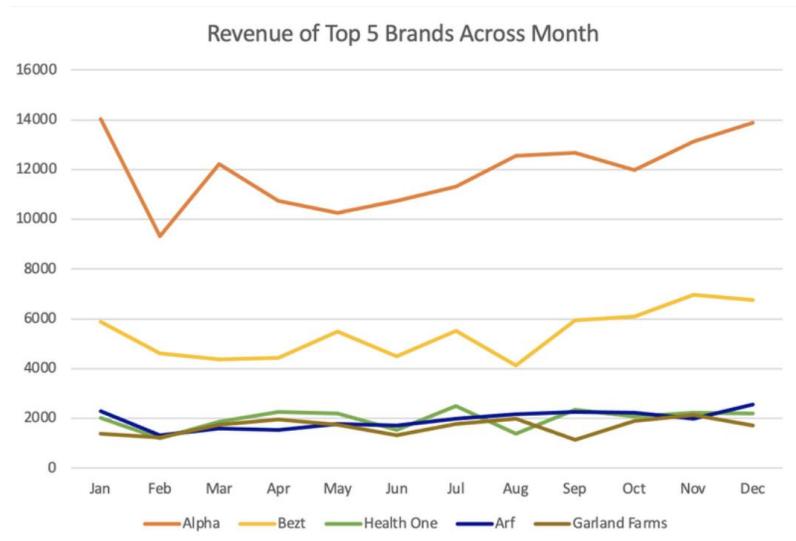


Figure 4 - Descriptive Statistics of Industry Price

| Price | |
|---------|-------------|
| Mean | 39.02143353 |
| Median | 40.05 |
| Mode | 41.12 |
| Minimum | 4.73 |
| Maximum | 106.9 |
| Range | 102.17 |
| Q1 | 19.99 |
| Q3 | 56.04 |
| IQR | 36.05 |

Figure 5 - Box and Whisker of Industry Price



Figure 6 - Average Prices for All Brands (Top 5 by Revenue highlighted)

| product_brand | Average of price |
|--------------------|------------------|
| Perro | \$105.64 |
| Playtime | \$86.62 |
| K99 | \$73.33 |
| Hanover | \$59.22 |
| Doggo | \$57.49 |
| Beethoven | \$55.42 |
| Garland Farms | \$54.43 |
| Ruby | \$53.85 |
| King | \$48.01 |
| Alpha | \$46.53 |
| Rivera | \$44.52 |
| Bezt | \$37.47 |
| Seattle Gourmet | \$35.02 |
| Beam | \$32.80 |
| Top | \$32.31 |
| Kastle | \$31.98 |
| Astro | \$31.65 |
| Health One | \$29.72 |
| Hearth | \$27.92 |
| Pawsome | \$27.78 |
| Romero | \$27.67 |
| Bones | \$26.02 |
| Arf | \$23.11 |
| Spot's Choice | \$19.49 |
| Oh My Dog! | \$18.80 |
| Grand Total | \$39.02 |

Figure 7 - Industry Revenue by Age Group

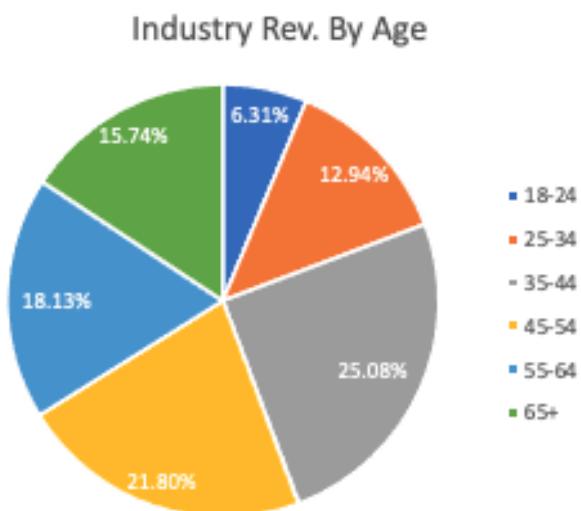


Figure 8 - Industry Revenue by Relationship Status

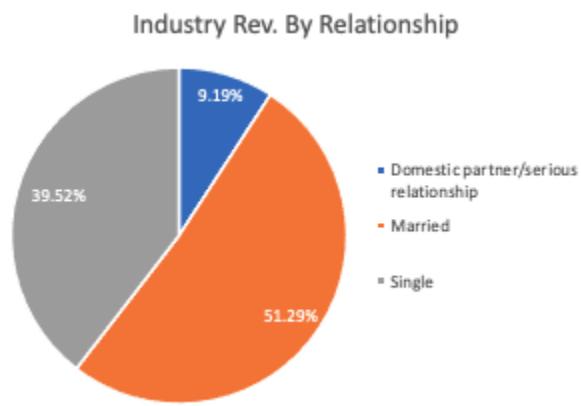


Figure 9 - Industry Revenue by Prime Membership Status

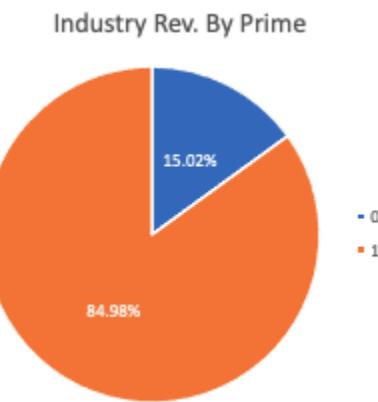


Figure 10 - Industry Revenue by Education Level

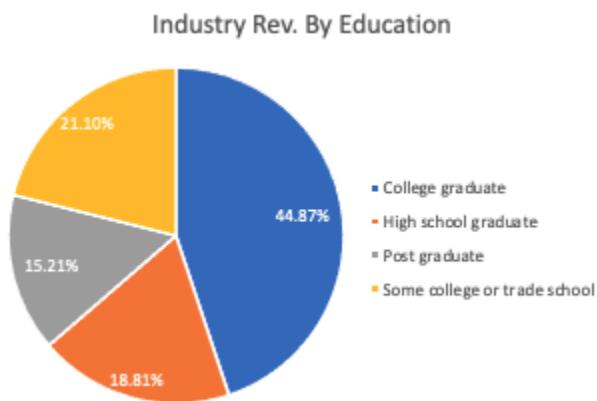


Figure 11 - Industry Revenue by Income Level

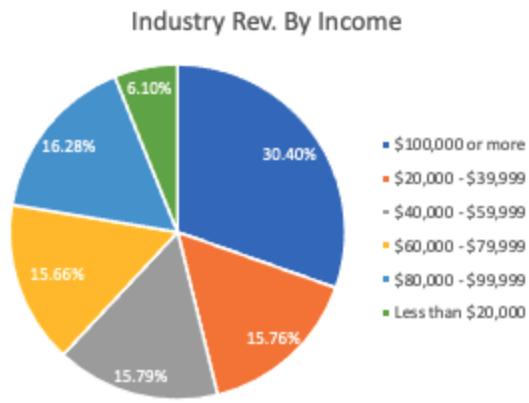


Figure 12 - Industry Revenue by Gender

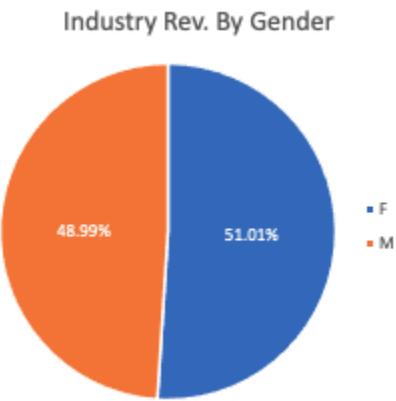


Figure 13 - Industry Revenue by State (Top 5)

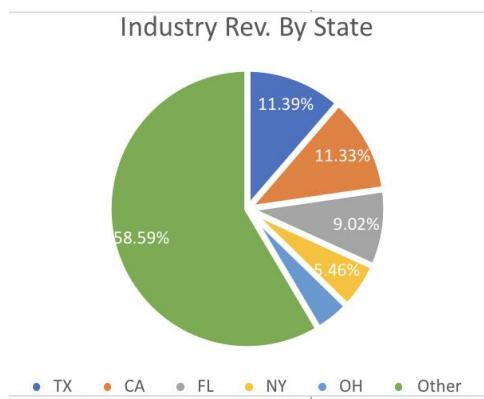


Figure 14 - Total Ads by Ad Type

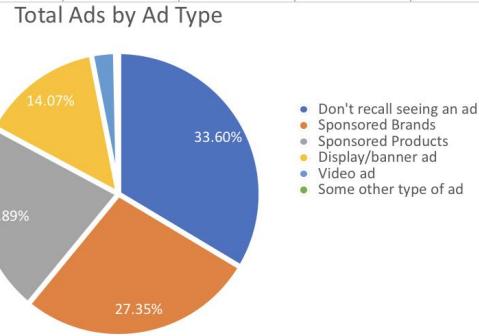


Figure 15 - Total Industry Ads by Brand (“Don’t recall seeing an ad” removed)

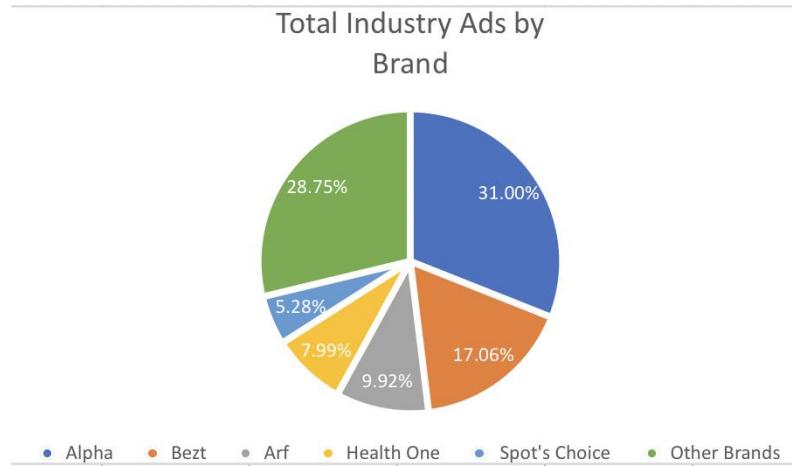


Figure 16 - Top States by revenue - for Bezt, Total state revenue (all the brands) and Alpha

| State | Bezt Revenue | Total Revenue % | Alpha Revenue |
|----------------------|--------------|-----------------|---------------|
| Texas | 11% | 11% | 11% |
| California | 11% | 11% | 11% |
| Florida | 8% | 9% | 10% |
| New York | 6% | 5% | 6% |
| Ohio | 4% | 4% | 4% |
| Virginia | 3% | 4% | 4% |
| Pennsylvania | 3% | 3% | 3% |
| Alabama | 2% | 3% | 3% |
| Georgia | 3% | 3% | 3% |
| North Carolina | 3% | 3% | 3% |
| District of Columbia | 3% | 3% | 2% |
| Illinois | 2% | 3% | 2% |

Figure 17 - Consumer purchase pattern

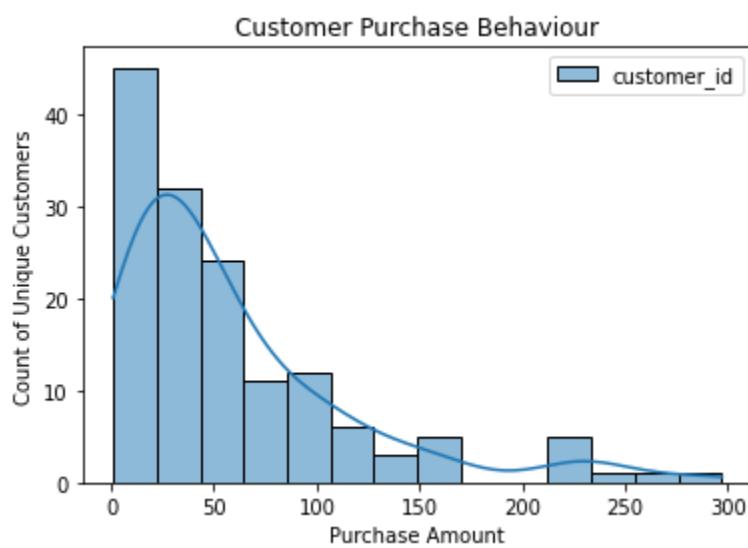


Figure 18 - Customer Spending Pattern on Alpha branded products

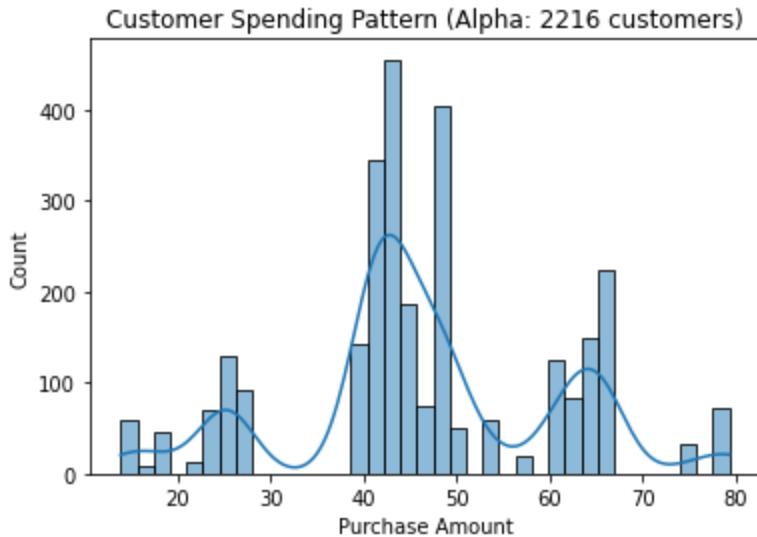


Figure 19 - Customer Spending Pattern on Bezt branded products

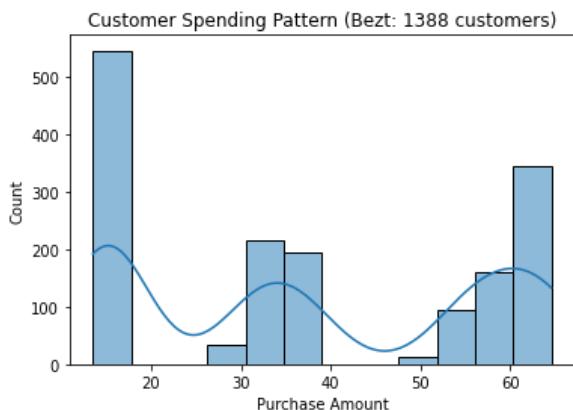


Figure 20

Ma_ind: 0 represents single, 1 represents married or in a relationship

Edu_ind: 0 represents lowest education, 1 represents highest education degree

Income_ind: 0 represents lowest income level, 1 represents highest income level

Price ind: 0 represents between \$0-36, 1 represent \$ 37- 72, 2 represents \$72-109

| | customer_id | prime | | | | | | ma_ind | edu_ind | income_le | product_c | price_ind |
|---------------------|-------------|-------|-----|-----|-----|-----|-----|----------|----------|-----------|-----------|-----------|
| | | count | min | 25% | 50% | 75% | max | | | | | |
| luster_label | | | | | | | | | | | | |
| 0 | 208 | 0 | 0 | 0 | 0 | 0 | 0 | 0.600962 | 0.552885 | 3.259615 | 1.096154 | 0.495994 |
| 1 | 593 | 1 | 1 | 1 | 1 | 1 | 1 | 0.853288 | 0.370995 | 3.038786 | 1.124789 | 0.734542 |
| 2 | 587 | 1 | 1 | 1 | 1 | 1 | 1 | 0.349233 | 0.844974 | 3.197615 | 1.040886 | 0.235094 |

Figure 21

| Summary of OLS Regression Models | | | | |
|----------------------------------|---------------------------|-------------------------|---|---|
| Model | Dataset Level | Dependent Variables (Y) | Variable Explanation | Exogenous Variables (X) |
| 1 | Original Industry Dataset | | | |
| 2 | Sub-dataset for Alpha | REVENUE | Daily revenue of the industry or target brand | 'ma_ind' 'edu_ind' 'income_level' 'natural2' |
| 3 | Sub-dataset for Bezt | | | |
| 4 | Original Industry Dataset | | | |

Figure 22

<https://globalpetindustry.com/article/trend-alert-probiotics-dogs-and-cats>

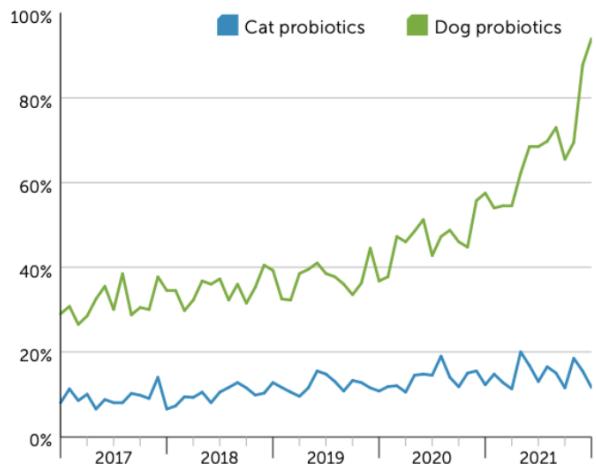


Figure 23

<https://www.marketsandmarkets.com/Market-Reports/probiotics-animal-feed-market-85832335.html>



Figure 24

Probiotics Market

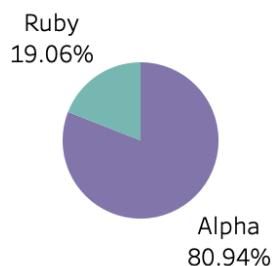


Figure 25

| price | product_name |
|-------|---|
| 39.7 | Ruby Dry Senior Dog Food Formula High Quality With Protein, Probiotics, Superfoods, And Antioxidants Ruby Skin & Coat Real Fish Recipe Dry Dog Food with Protein, and Probiotics |
| 41.23 | Alpha High Protein Dog Food with Probiotics for Dogs, Shredded Blend Turkey & Rice Formula - 17 lb. Bag |
| 41.79 | Ruby Dry Senior Dog Food Formula High Quality With Protein, Probiotics, Superfoods, And Antioxidants Ruby Skin & Coat Real Fish Recipe Dry Dog Food with Protein, and Probiotics |
| 43.4 | Alpha High Protein Dog Food with Probiotics for Dogs, Shredded Blend Turkey & Rice Formula - 17 lb. Bag |
| 64.59 | Ruby Premium Formulas Dry Dog Food for Adult Dogs Made with Real Meat Protein, Superfoods, Probiotics and Antioxidants |
| 67.99 | Ruby Premium Formulas Dry Dog Food for Adult Dogs Made with Real Meat Protein, Superfoods, Probiotics and Antioxidants |
| 75.34 | Alpha Probiotics Shredded Blend High Protein, Adult Dry Dog Food Chicken & Rice |
| 79.31 | Alpha Probiotics Shredded Blend High Protein, Adult Dry Dog Food Chicken & Rice |

56.66875 Average price

Figure 26: Revenue across all days for bezt customers

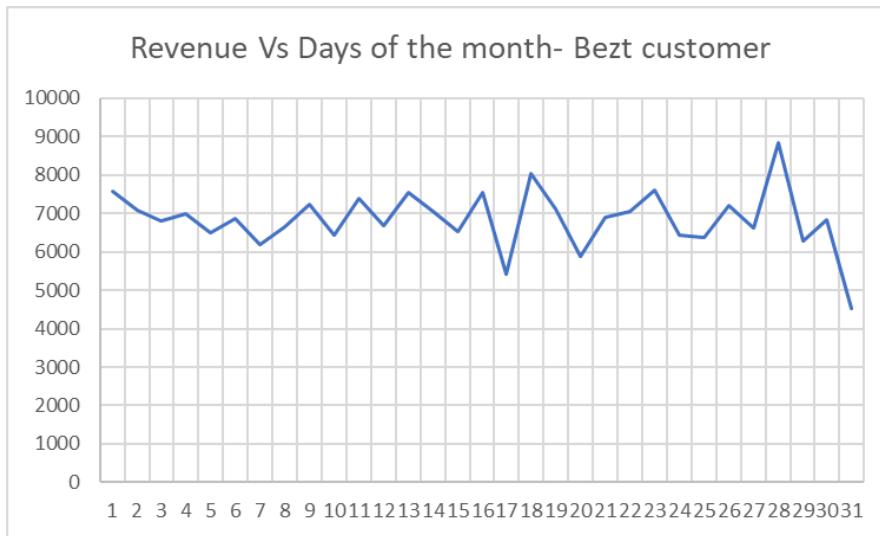


Figure 27: General industry trend of revenue across all brands

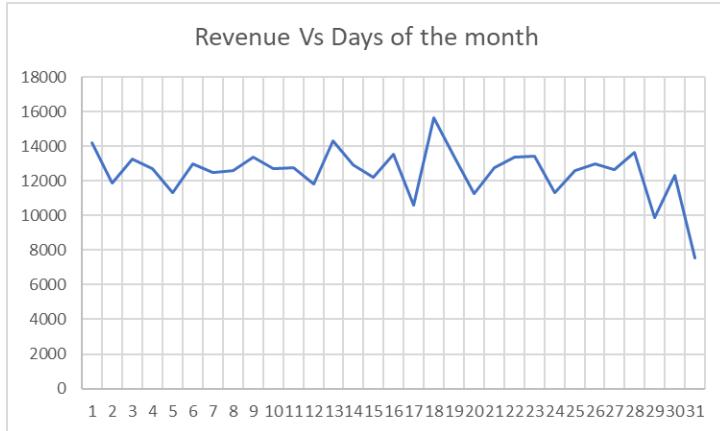


Figure 28: New to brand

```
1 dffc['ntb'] = np.where(dffc['order_seq']==1, 1, 0)
```

```
1 dffc['ntb'].value_counts()
```

```
1    8012
0    1203
Name: ntb, dtype: int64
```

```
1 dffc[dffc['product_brand']=='Alpha']['ntb'].value_counts()
```

```
1    2216
0    616
Name: ntb, dtype: int64
```

```
1 dffc[dffc['product_brand']=='Bezt']['ntb'].value_counts()
```

```
1    1388
0    213
```

Figure 29: Price distribution

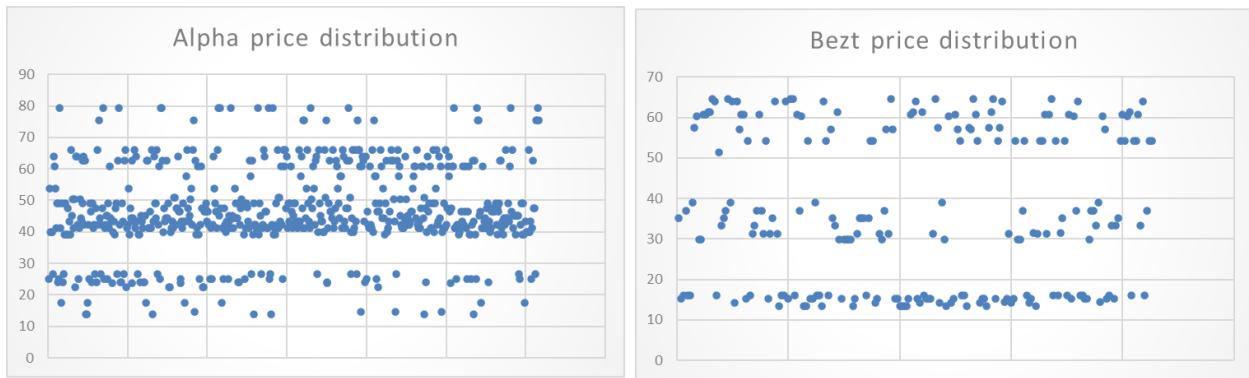


Figure 30: Distribution of Number of customers across different price levels

```

[120] 1 df_brand_Alpha['price_level'].value_counts()

1    1713
2     703
0     416
Name: price_level, dtype: int64

[121] 1 df_brand_Bezt['price_level'].value_counts()

0    581
1    516
2    504
Name: price_level, dtype: int64

```

Figure 31: Average price distribution across number of times customer purchased from a brand

| | Industry | Bezt | Alpha |
|----------------|------------------|------------------|------------------|
| Order Sequence | Average of price | Average of price | Average of price |
| 1 | 38.89726785 | 37.58871037 | 46.52448105 |
| 2 | 39.40530964 | 37.24214689 | 46.13006173 |
| 3 | 41.695 | 35.63428571 | 47.15727273 |
| 4 | 44.51321429 | 34.8125 | 53.11 |
| 5 | 36.19 | 19.80666667 | 59.22333333 |

| | | | |
|---------|-------------|-------------|-------------|
| 6 | 35.18 | 35.18 | |
| Average | 39.02143353 | 37.47445347 | 46.53435734 |

Figure 32: percentage of customer distributed across number of times customer purchased from a brand

| No of times purchased | % of customer that purchase n no of times | | |
|-----------------------|---|-------|------|
| | Industry Level | Alpha | Bezt |
| 1 | 87% | 78% | 87% |
| 2 | 11% | 17% | 11% |
| 3 | 2% | 4% | 2% |
| 4 | 0% | 1% | 0% |
| 5 | 0% | 0% | 0% |
| 6 | 0% | 0% | 0% |
| | | | |
| Total no of customers | 9215 | 2832 | 1601 |

Figure 33: No of customers across different brand sequence (to show switch between brands) - Showing part of the table only

For Alpha

| Product_brand sequence | No of customers |
|------------------------|-----------------|
| Alpha | 719 |
| Alpha-Alpha | 332 |
| Bezt-Alpha | 142 |
| Alpha-Alpha-Alpha | 111 |
| Arf-Alpha | 92 |
| Health One-Alpha | 78 |

| | |
|-------------------------|----|
| Spot's Choice -Alpha | 38 |
| King-Alpha | 34 |
| Garland Farms-Alpha | 34 |
| Bezt-Alpha-Alpha | 33 |
| Alpha-Bezt-Alpha | 33 |
| Alpha-Alpha-Alpha-Alpha | 28 |
| Alpha-Arf-Alpha | 27 |
| Seattle Gourmet-Alpha | 26 |
| Alpha-Bezt-Alpha-Alpha | 24 |
| Top-Alpha | 24 |
| Alpha-Health One-Alpha | 21 |

For Bezt

| Product_brand sequence | No of customers |
|------------------------|-----------------|
| Bezt | 429 |
| Alpha-Bezt | 160 |
| Bezt-Bezt | 88 |
| Arf-Bezt | 58 |
| Health One-Bezt | 54 |
| Spot's Choice -Bezt | 40 |
| Bezt-Alpha-Bezt | 27 |
| Alpha-Alpha-Bezt | 24 |
| Bezt-Bezt-Bezt | 21 |
| Garland Farms-Bezt | 18 |
| Top-Bezt | 18 |

| | |
|-----------------|----|
| Arf-Bezt-Bezt | 18 |
| Alpha-Bezt-Bezt | 18 |
| Rivera-Bezt | 14 |