



BRAND AWARENESS AND PRICING – MARKETING MIX MODELLING THROUGH DATA ANALYTICS APPROACH

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ABSTRACT

This research project investigates the intricate dance between brand awareness and pricing strategies in the clothing industry. It emphasizes the role of Marketing Mix Modelling (MMM) in quantifying this relationship and using data analytics to optimize pricing for brand perception and customer value. The project aims to develop data driven pricing strategies that resonate with consumers, drive sales, and ensure long-term success in the ever-evolving fashion landscape.

Keywords: Marketing Mix Modelling, Brand Awareness, Pricing Strategies, Data Analytics, Linear Regression, RapidMiner, Brand Equity, Market Response Models, Data Preprocessing.

1. Introduction

Marketing Mix Modelling (MMM) is a valuable analytical approach for assessing the impact of marketing activities on sales performance. Leveraging secondary data sources, this paper presents a structured methodology for conducting MMM research, aiming to enhance decision-making processes within marketing departments. In the ever-competitive world of fashion, brands constantly strive for a coveted position: resonating deeply with their target audience. This project, titled "Marketing Mix Modelling in Data Analytics: Brand Awareness and Pricing" delves into the critical relationship between pricing strategies and brand perception within the clothing industry. By leveraging data analytics and Marketing Mix Modelling (MMM), this research aims to empower brands to strike the perfect balance, optimizing pricing for both profitability and brand value.

Review of Literature:

Chattopadhyay, T., et al. (2010): A shopping centre intercept survey was used to gather respondent data across the premium, volume, and economy automobile price categories that were used to differentiate the passenger car market. **Cooper, M., et al. (2024):** The effects of inflation, price increases, and service quality are especially examined as they relate to the complex dynamics of consumer perceptions in the context of sustainable business. To disentangle the intricate interactions between these economic issues and consumer perceptions through a comprehensive thematic analysis. **Macdonald, E. K., et al. (2000):** A study by Hoyer and Brown that investigated the function of brand awareness in the decision-making process of consumers using a controlled experiment. The original study's conclusions that respondents in the awareness group mostly use brand awareness as a choice strategy. **Chi, H. K., et al. (2009):** Perceived quality positively affects brand loyalty, which in turn mediates the effects between brand awareness and purchase intention. Brand loyalty also mediates the effects between brand awareness and purchase intention. These relationships between brand awareness, perceived quality, and brand loyalty for purchase intention are significant and positive. Brand loyalty will rise in tandem with strong brand awareness. **Calvo Porral, C., et al. (2015):** The purpose of the study is to determine whether price perception and store image affect store brand equity. A quantitative investigation yielded 362 valid responses in total. The findings indicate that store image is the more important element, with both variables having a favorable impact on store brand equity. Retailers looking to enhance their value proposition will find the study to be quite interesting. **Bowman, D., et al. (2010):** Managers can learn more about how rivals engage and how consumers react to marketing initiatives by using market response models. Market response models can serve as a foundation for better marketing decision making when they are estimated correctly. Broadly speaking, there are two types of market response models: those that directly relate marketing stimuli or inputs that are more generally relevant to market response outputs, and those that also describe a mediating process. **Abe, M. (1991):** Large single source datasets containing household purchase and shopping trip records gathered by UPC scanners and advertising exposures measured by TV meters are now accessible thanks to recent advancements in information technology. These databases allow evaluations at the home level and have created a completely new marketing avenue.

3. Objectives

- To improve pricing strategies to enhance brand perception and value.
- To develop pricing strategies that align with brand positioning and value proposition.
- To understand customer perception of pricing and value.
- To analyse the impact of pricing on brand perception and purchase decisions.

4. Methodology and Data Collection

This paper outlines a comprehensive methodology for Marketing Mix Modelling (MMM) utilizing secondary data sources. The methodology encompasses data preprocessing steps including cleaning, validation, transformation, and merging, followed by model selection techniques such as Linear Regression. Additionally, the paper highlights the use of Rapid Miner as a tool for conducting MMM research due to its user-friendly interface and machine learning capabilities for uncovering hidden patterns and trends within the data.

4.1 Data Preprocessing:

4.1.1 Cleaning and Validation:

To ensure data quality, missing values, outliers, and inconsistencies are identified and corrected. Moreover, data accuracy is verified against its original sources to maintain reliability throughout the analysis process.

4.1.2 Transformation:

Consistent formatting of data variables is crucial for accurate analysis. This step involves standardizing data formats to facilitate meaningful comparisons and interpretations.

4.1.3 Merging:

Relevant data sources are combined to create a comprehensive dataset for analysis. Integration of diverse sources enhances the depth and breadth of insights derived from MMM.

4.2 Model Selection:

Linear Regression is adopted as a fundamental modelling technique, assuming a linear relationship between marketing variables and sales outcomes. This approach provides a starting point for analysing the impact of marketing efforts on sales performance, enabling valuable insights for decision-making.

4.3 Tools for Marketing Mix Modelling:

4.3.1 Rapid Miner:

Rapid Miner is recommended as a versatile platform for conducting MMM research. Its intuitive user interface facilitates data exploration and understanding through interactive dashboards and charts. Furthermore, the machine learning capabilities of Rapid Miner empower researchers to identify hidden patterns and trends within the data, thereby guiding the research journey towards more informed insights.

5. Analysis and Interpretation:

5.1. Price Distribution by Colour:

This analysis examines the distribution of products across different price points for various colours. While it provides insight into price segmentation by colour, it doesn't directly address brand positioning or perception. Further investigation into how these price distributions align with brand perception would enhance the understanding of consumer behaviour.

5.2. Brand Positioning Analysis:

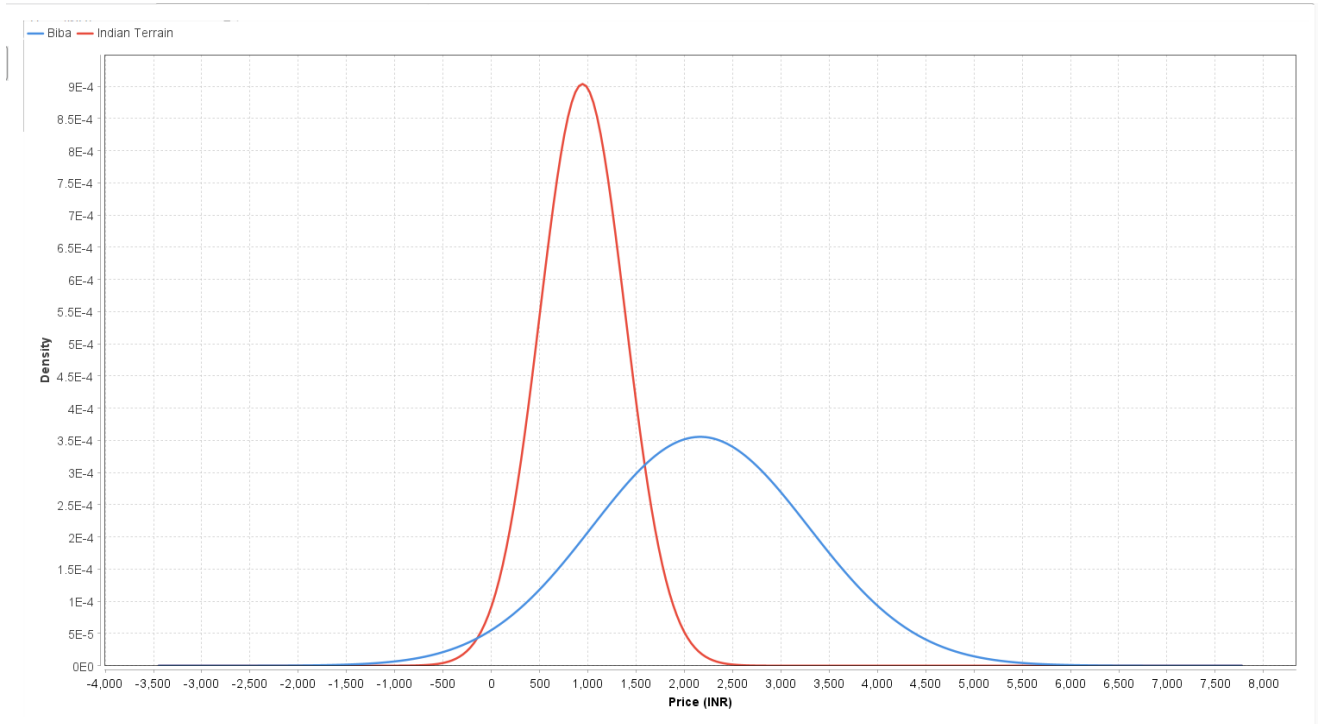
This analysis categorizes products into different price tiers such as Budget, Midrange, and Premium. It reveals the distribution of products within each price tier, offering insights into brand positioning. Comparing this distribution with the target market and brand image can evaluate the alignment of pricing strategies with desired brand positioning.

5.3. Price and Brand Perception Correlation:

The analysis correlates brand perception, represented by a brand score derived from product descriptions, with different price points. It identifies trends such as higher brand scores for premium priced products or positive brand perception in budget friendly segments. This correlation aids in refining pricing strategies to align with brand perception and optimize market positioning.

5.4. Simple Chart:

Fig 1.1



Source: Secondary Data

The chart likely represents a distribution plot generated in RapidMiner during model training. It provides insights into price distribution and brand perception density scores derived from product descriptions. The bell curve shape indicates an even spread of data points around a central value, potentially reflecting average price points or brand perception levels.

5.5. Table Distribution Model:

Distribution Model			
S.NO	CLASS	DISTRIBUTION	VALUE
1	Biba	6	0.017
2	Indian Terrain	6	0.983

1.2 Table

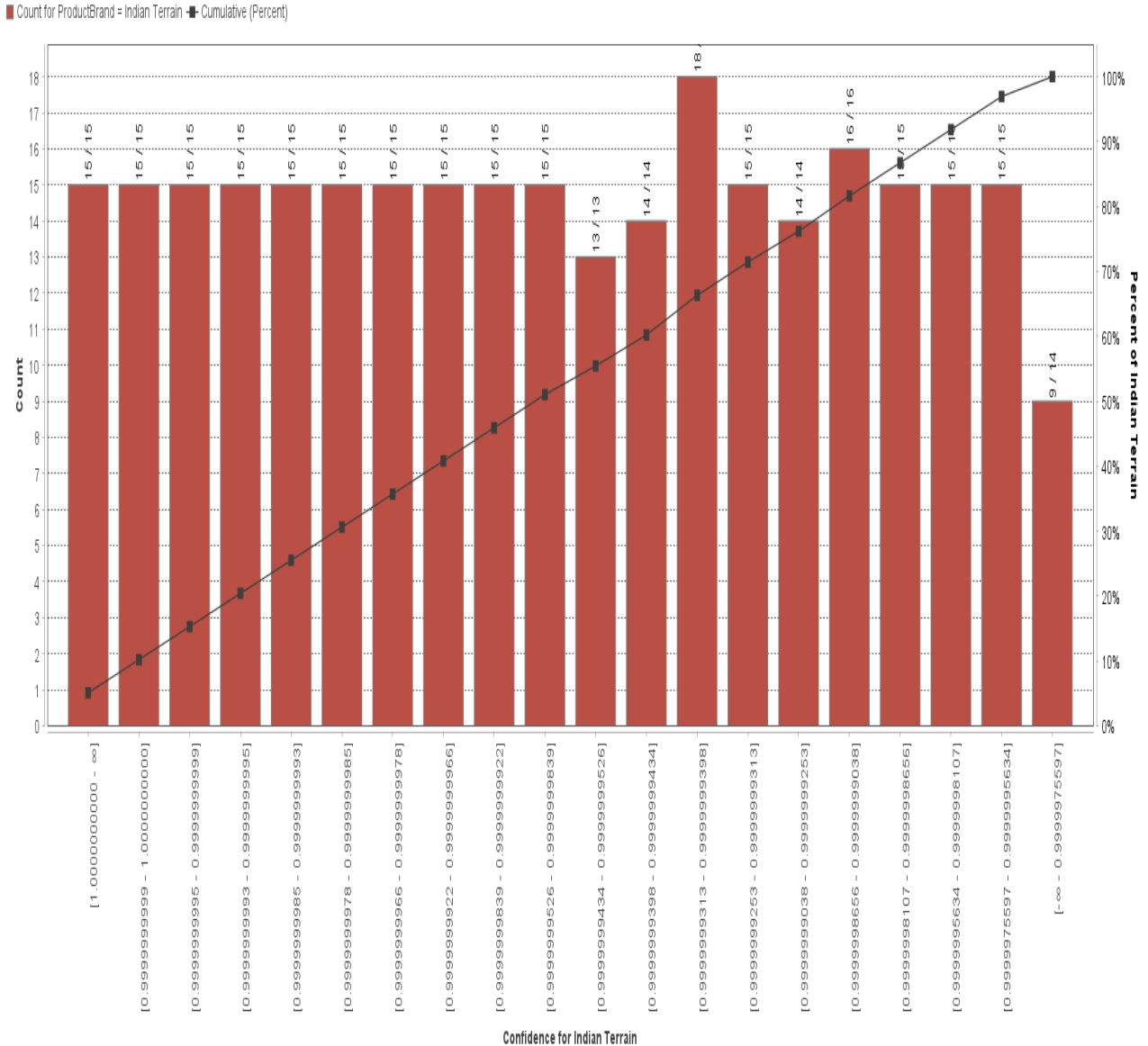
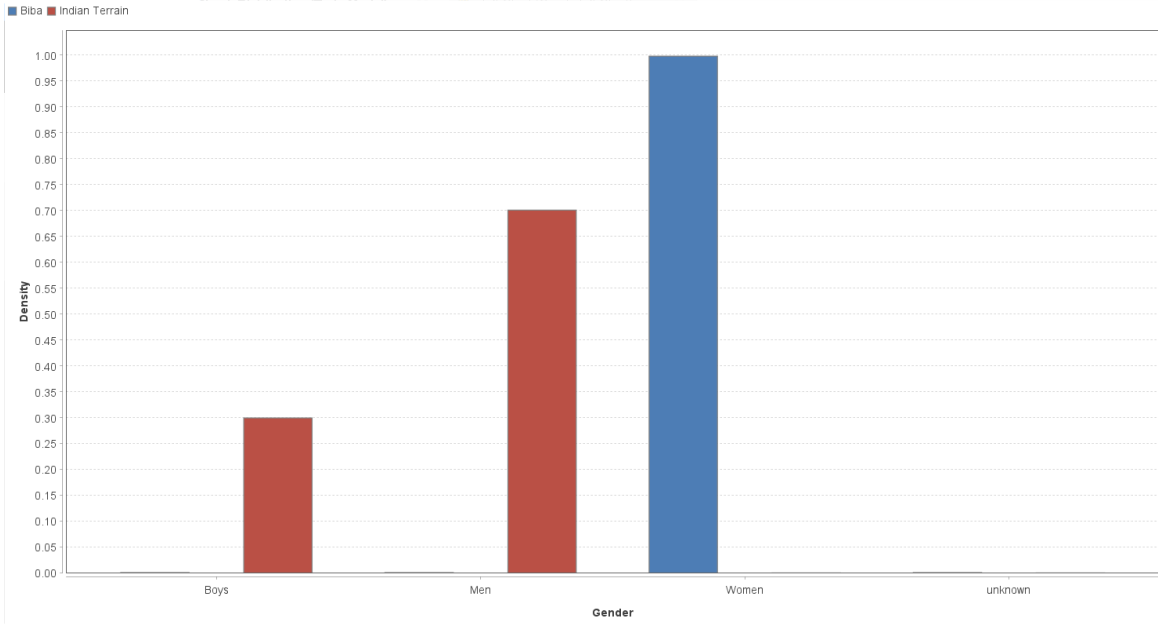
Source: Secondary Data

The table presents distribution data, likely derived from a RapidMiner model analysis. It indicates the distribution of product prices or another variable used in model training. Brand positioning insights can be derived by comparing the distribution of different brands such as Biba and Indian Terrain.

5.6. Bar Chart:

Fig 1.3

Source: Rapid Miner and Excel



The chart depicts the distribution of product prices for brands Biba and Indian Terrain. Biba's smaller share of the data and potentially higher prices suggest a premium positioning strategy. Indian Terrain's larger share and potentially lower prices indicate a focus on affordability and catering to a broader demographic, possibly men.

5.7 Linear Regression Bar Chart:

Output:

Source: Secondary Data

Interpretation:

The graph likely shows the distribution of Indian Terrain Men clothing brand density according to the average price of the items in a specific location or category.

Right-skewed distribution:

The data appears right-skewed, meaning there are more stores (or categories) with lower average prices and fewer stores (or categories) with higher average prices.

Price and Brand Density:

This suggests that Indian Terrain stores might have a higher concentration in areas with lower average clothing prices. This could be due to several reasons:

Target Market:

Indian Terrain might target a budget-conscious customer segment.

Product Mix:

The stores with lower average prices might carry a higher proportion of discounted items or focus on a more affordable product line.

Confidence Interval (Legend):

The legend mentions "Confidence for Indian Terrain." This likely refers to a confidence interval for the distribution, indicating the range within which the true distribution is likely to fall with a certain level of certainty.

5.8. Overall Analysis:

The analyses reveal distinct brand positioning strategies, with Biba targeting a niche market with premium pricing and Indian Terrain focusing on affordability for a broader audience. These insights underscore the importance of aligning brand perception with pricing strategies to effectively target and resonate with consumers.

6. Findings:

1. Price distribution analysis reveals insights into how pricing is segmented within product categories.
2. Brand positioning analysis categorizes products into price tiers, highlighting how brands position themselves within the market.
3. Correlating brand perception with price points refines pricing strategies to better align with brand perception and market positioning.
4. The distribution plot visually represents average price points or brand perception levels, showing an even spread of data points around central values.
5. The table presents distribution data, offering insights into how different brands are distributed across price ranges and aiding in understanding brand positioning.
6. The bar chart visually compares the distribution of product prices for different brands, highlighting differences in market positioning strategies.

7. Suggestion:

1. The analysis of price distribution by colour provides insights into how pricing is segmented across different product categories, shedding light on consumer preferences and pricing strategies within the cosmetics industry.
2. Brand positioning analysis categorizes products into distinct price tiers, such as budget, midrange, and premium, revealing how brands position themselves relative to competitors and target markets.
3. Correlating brand perception with price points uncovers trends such as higher brand scores for premium-priced products or positive brand perception in budget-friendly segments, allowing brands to refine pricing strategies and optimize market positioning.
4. The distribution plot illustrates an even spread of data points around central values, indicating the average price points or brand perception levels across the dataset, providing a visual representation of market trends and patterns.
5. The table presents distribution data for different brands, offering valuable insights into how brands are distributed across various price ranges and providing a deeper understanding of brand positioning within the competitive landscape.
6. The bar chart visually compares the distribution of product prices for different brands, highlighting differences in market positioning strategies and helping brands identify opportunities for differentiation and competitive advantage.

8. Conclusion:

The comprehensive analysis conducted in this project provides valuable insights into pricing strategies and brand positioning across different industries. By examining price distribution by colour, conducting brand positioning analysis, and correlating brand perception with price points, we have gained a deeper understanding of consumer preferences, market trends, and competitive positioning within various sectors. The findings highlight the importance of aligning pricing strategies with brand perception and target market expectations. Companies can leverage these insights to refine their pricing strategies, optimize market positioning, and enhance their competitive edge.

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