

Market Segmentation Analysis

Case Study on McDonald

Aanshu Maurya

28 – April - 2023

1 Chapter Market Segmentation:

1.1 Strategic and Tactical Marketing

The purpose of marketing is to match the needs and desires of consumers with the offers of suppliers, and marketing planning is a sequence of activities leading to the setting of marketing objectives and the formulation of plans to achieve them.

A marketing plan consists of two components: a strategic plan and a tactical plan. The strategic plan outlines the long-term direction of an organization, while the tactical plan provides detailed instructions for short-term marketing action.

importance of careful planning in marketing, both in terms of aligning with consumer needs and desires and in translating long-term goals into actionable short-term plans.

the importance of strategic marketing as the foundation of organizational success. Tactical marketing is important, but it cannot compensate for bad strategic marketing. The two components work together, but strategic marketing must come first in order to set the right direction for the organization.

1.2 Definitions of Market Segmentation

The choice of segmentation criteria depends on the nature of the product or service being offered, the marketing objectives, and the characteristics of the target market.

This involves identifying groups of consumers who share similar needs, preferences, and behaviours, and who are likely to respond in a similar way to the marketing mix. The goal is to identify segments that are large enough, profitable enough, and accessible enough to justify the investment in a separate marketing mix.

This involves selecting the most appropriate combination of product features, price, promotion, and distribution channels for each segment. The goal is to create a unique value proposition for each target market that meets their specific needs and preferences, and that differentiates the product or service from those of competitors.

Market segmentation is an ongoing process that requires continuous monitoring and adjustment.

An undifferentiated market strategy involves marketing the same product using the same marketing mix to the entire market, which may be viable for resourcerich organisations or in cases where a new product is introduced.

1.3 The Benefits of Market Segmentation

Benefit of market segmentation is that it allows organisations to identify and capitalise on emerging trends and changes in consumer behaviour.

Market segmentation can also help to reduce the risk of product failure by allowing organisations to test their products or marketing campaigns on a smaller scale before investing in a full-scale launch.

Market segmentation is a powerful tool for organisations to better understand their customers and tailor their marketing efforts to meet their needs. By using market segmentation effectively, organisations can improve their competitive position, increase customer satisfaction, and drive long-term growth and profitability.

1.4 The Costs of Market Segmentation

Implementing market segmentation requires significant investment, both in terms of time and resources. It is essential to conduct a thorough analysis of the market to identify relevant segments and develop a customized marketing mix to target those segments effectively.

if market segmentation is not implemented well, it can lead to substantial expenses with no additional return, and it can disenfranchise staff involved in the segmentation exercise. Therefore, it is crucial for an organization to make an informed decision about whether or not to pursue market segmentation, weighing the potential benefits against the costs and risks involved.

2 Market Segmentation Analysis:

2.1 The Layers of Market Segmentation Analysis

Implementing a market segmentation strategy requires a significant investment of time, resources, and expertise. It involves a technical process of data collection, analysis, and segmentation, as well as non-technical tasks such as assessing market opportunities, gathering user input, and developing a marketing plan. The success of a market segmentation strategy ultimately depends on the quality of the data, the expertise of the data analyst, and the ability of the users to translate the segmentation results into actionable marketing decisions. Therefore, careful consideration and planning are necessary before embarking on a market segmentation analysis, and a collaborative effort between the data analyst and the user is crucial throughout the process.

2.2 Approaches to Market Segmentation Analysis

2.2.1 Based on Organisational Constraints

Dibb and Simkin (2008) distinguish three approaches to market segmentation: the quantitative survey-based approach (segment revolution), the creation of segments from existing consumer classifications (segment evolution), and the emergence of segments from qualitative research (random discovery). The

segment revolution approach is the most radical and involves starting from scratch, whereas the segment evolution approach refines and sharpens existing segments. The random discovery approach involves stumbling upon segments during exploratory research, and in the age of big data, this may involve data mining to identify new segments. It is important for organizations to continuously track the nature of market segments and adapt their segmentation strategy accordingly to ensure survival and prosperity.

2.2.2 Based on the Choice of (the) Segmentation Variable(s)

A process of dividing a larger market into smaller groups of consumers with similar needs or characteristics. This explains that market segmentation can be based on a single characteristic (unidimensional) such as age or multiple characteristics (multidimensional) such as consumer expenditure patterns. The former approach is referred to as a priori, commonsense, or convenience-group segmentation, and is often used when no primary market research is available. The latter approach is more complex and requires data analysis to identify key defining characteristics of the segments. This also discusses the benefits and limitations of each approach and provides examples of commonly used segmentation variables. market segmentation is the process of dividing a heterogeneous market into smaller, more homogeneous groups of consumers based on certain characteristics. Segmentation variables can be unidimensional or multidimensional, depending on whether one or multiple pieces of information about consumers are used. A priori segmentation is based on a single segmentation variable and relies on managerial intuition or analysis of secondary data sources, while a posteriori segmentation is based on multiple segmentation variables and relies on primary research into consumer preferences and behaviour. In reality, market segmentation studies often use combinations of these approaches in a two-stage or multi-stage segmentation process.

2.3 Data Structure and Data-Driven Market Segmentation Approaches

Data structure and data-driven approaches play a significant role in market segmentation.

The data used for market segmentation can come from various sources, such as customer surveys, sales data, website analytics, social media insights, and other primary and secondary sources. This data is then transformed into a suitable format for analysis, which can include removing duplicates, filling in missing data, and converting data types.

To analyze the data, various statistical techniques are used in data-driven segmentation approaches, such as factor analysis, cluster analysis, discriminant

analysis, and regression analysis. These techniques are used to identify the underlying patterns in the data, group similar observations together, and establish relationships between variables.

One of the challenges of data-driven segmentation is determining which variables to use in the analysis. Variables that are relevant to the research objectives must be selected and their relationships with each other must be understood. This can be done through exploratory data analysis, where the relationships between variables are visually inspected, or through confirmatory data analysis, where hypotheses about the relationships between variables are tested. Data-driven market segmentation approaches rely on accurate, reliable, and relevant data, which is structured in a way that allows for meaningful analysis. Reproducible segmentation is based on the premise that market segments may not exist in the data, but the data have some structure that enables the generation of consistent segmentation solutions. In this approach, the segmentation solution may not reflect the natural groupings of customers, but it can be reproduced reliably, making it a useful basis for strategic segmentation decisions. Reproducible segmentation is particularly useful in cases where market segments are not clearly defined or where the segmentation variables are not well-established. By using data-driven techniques to identify segments, reproducible segmentation can provide a more reliable basis for making strategic decisions than relying on intuition or guesswork.

2.4 Market Segmentation Analysis Step-by-Step

The ten-step approach provides a comprehensive framework for conducting market segmentation analysis and developing effective segmentation strategies. Step 1 involves assessing the advantages and disadvantages of pursuing a segmentation strategy. This requires careful consideration of the potential benefits of market segmentation, such as improved customer satisfaction and increased profitability, as well as the potential drawbacks, such as increased costs and complexity.

Step 2 involves specifying the characteristics of the ideal market segment. This requires the organisation to identify the key criteria that define the target market and to develop a clear understanding of the needs, preferences, and behaviours of the target customers.

Step 3 involves collecting or compiling data from various sources, including internal data sources such as sales records and customer surveys, as well as external data sources such as market research reports and demographic data.

Step 4 involves exploring the data to gain a better understanding of the patterns and relationships in the data. This involves conducting descriptive and exploratory analyses, such as frequency distributions, cross-tabulations, and factor analyses.

Step 5 involves extracting market segments from the data. This can be done using a variety of statistical techniques, such as cluster analysis, factor analysis, and discriminant analysis, depending on the nature of the data and the segmentation criteria.

Step 6 involves profiling the resulting market segments. This requires the organisation to identify the key characteristics of each segment, such as demographics, psychographics, and behavioural patterns, and to develop a clear understanding of the needs, preferences, and behaviours of each segment.

Step 7 involves describing the segments in detail. This requires the organisation to develop a comprehensive profile of each segment, including its size, growth potential, profitability, and competitive landscape.

Step 8 involves selecting one or a small number of market segments to target. This requires the organisation to carefully evaluate the potential of each segment and to select the segment(s) that offer the greatest potential for success. Step 9 involves developing a customised marketing mix for the selected segment(s). This requires the organisation to develop tailored marketing strategies and tactics that are designed to meet the unique needs and preferences of each segment.

Step 10 involves evaluating the success of the market segmentation strategy and monitoring the segments for changes in size or characteristics. This requires the organisation to track key performance metrics, such as sales, market share, and customer satisfaction, and to make adjustments to the segmentation strategy as needed.

3 Step 1: Deciding (not) to Segment

3.1 Implications of Committing to Market Segmentation

Organisations to carefully weigh the advantages and disadvantages of pursuing a market segmentation strategy before committing to it in the long term. The commitment to market segmentation involves making substantial changes and investments, such as developing new products, modifying existing ones, changing pricing and distribution channels, and adapting all communications with the market. These changes are likely to influence the internal structure of the organisation, which may need to be adjusted in view of targeting different market segments.

The decision to pursue a market segmentation strategy must be made at the highest executive level and communicated and reinforced at all organisational levels and units to ensure ongoing focus on the changing needs of market segments. The expected increase in sales should justify the implementation of a segmentation strategy, net of the expenses of developing and using the scheme itself.

3.2 Implementation Barriers

The first group of barriers relates to senior management, including a lack of leadership, pro-active championing, commitment, and involvement in the market segmentation process.

The second group of barriers relates to organizational culture, including a lack of market or consumer orientation, resistance to change and new ideas, lack of

creative thinking, bad communication, and lack of sharing of information and insights across organizational units, short-term thinking, unwillingness to make changes, and office politics. Lack of training, the lack of a formal marketing function or a qualified marketing expert in the organization, and the lack of a qualified data manager and analyst in the organization can also represent major stumbling blocks.

Other potential obstacles include objective restrictions faced by the organization, including lack of financial resources or the inability to make the structural changes required, and process-related barriers such as not having clarified the objectives of the market segmentation exercise, lack of planning or bad planning, a lack of structured processes to guide the team through all steps of the market segmentation process, a lack of allocation of responsibilities, and time pressure that stands in the way of trying to find the best possible segmentation outcome. the successful implementation of market segmentation requires a resolute sense of purpose and dedication, tempered by patience and a willingness to appreciate the inevitable problems that will be encountered in implementing the conclusions.

3.3 Step 1 Checklist

This checklist includes various tasks and questions to consider before proceeding with the strategy.

Some of the questions include: Is the organization market-oriented?

Is the organization willing to change?

Does the organization take a long-term perspective?

Is the organization open to new ideas?

Is communication across organizational units good?

Is the organization in a position to make significant (structural) changes? Does the organization have sufficient financial resources to support a market segmentation strategy?

Other tasks on the checklist include securing visible commitment from senior management, ensuring that the market segmentation concept is fully understood, ensuring that a marketing expert and data analysis expert are on the team, and setting up an advisory committee representing all affected organizational units.

this checklist provides a helpful guide for organizations looking to implement a market segmentation strategy. By considering these questions and completing these tasks, organizations can ensure that they are ready to undertake such a strategy and maximize its potential benefits.

4 Step 2: Specifying the Ideal Target Segment

4.1 Segment Evaluation Criteria

The user needs to be involved in most stages of the analysis, from the beginning to the end, to ensure that the results are useful to the organization. In step two, the organization must determine two sets of segment evaluation criteria: knock-out criteria and attractiveness criteria. The former are essential, nonnegotiable features of segments that the organization would consider targeting, while the latter are used to evaluate the relative attractiveness of the remaining market segments. The passage also includes a table that lists various proposed segment evaluation criteria from different sources, including Day (1984), Croft (1994), Myers (1996), Wedel and Kamakura (2000), Perreault Jr and McCarthy (2002), Lilien and Rangaswamy (2003), McDonald and Dunbar (2004), Dibb and Simkin (2008), Sternthal and Tybout (2001), West et al. (2010), Solomon et al. (2011), Winer and Dhar (2011), Jain (2012), Kotler and Keller (2012), Pride et al. (2012), and Sharp (2013).

4.2 Knock-Out Criteria

Knock-out criteria are used to determine if a market segment is viable and should be considered for further analysis and targeting. They are called "knock-out" because if a market segment fails to meet any of these criteria, it is immediately eliminated from consideration.

Kotler (1994) suggested the first set of knock-out criteria, which includes substantiality, measurability, and accessibility. These criteria mean that a market segment must be large enough to be profitable, measurable in terms of its characteristics and behaviors, and reachable through marketing efforts.

Homogeneity means that members of the segment must be similar to one another, while distinctiveness means that they must be distinctly different from members of other segments. Compatibility with the organization's strengths means that the organization must have the capability to satisfy segment members' needs.

4.3 Attractiveness Criteria

Once the segmentation team has identified potential market segments that meet the knock-out criteria, they then need to assess the attractiveness of each segment based on a set of criteria.

These criteria help to determine which segments are most likely to be profitable and sustainable over the long term. The criteria can include factors such as market size, growth potential, competition, profitability, and compatibility with the company's resources and capabilities.

Once all of the attractiveness criteria have been assessed, the segmentation team can then select the most attractive segments as target markets. However, it's important to note that attractiveness is not the only factor to consider when selecting target segments. The company's objectives, resources, and competitive environment also play a role in the final decision.

4.4 Implementing a Structured Process

The criteria used for this evaluation must be negotiated and agreed upon by the segmentation team, and it is recommended to use no more than six factors for calculating these criteria. It is also important to involve representatives from a wide range of organisational units in this process to ensure that all perspectives are considered. Once the attractiveness criteria are selected, each criterion should be weighted to indicate its importance to the organisation. A typical approach to weighting is to ask team members to distribute 100 points across the criteria, with the allocations negotiated until agreement is reached. Ultimately, approval by the advisory committee should be sought as they contain representatives from multiple organisational units and bring a range of different perspectives to the challenge of specifying segment attractiveness criteria.

4.5 Step 2 Checklist

The team should discuss and agree on the knock-out criteria, as well as review and agree on the subset of attractiveness criteria to be used.

Once the team has agreed on the criteria, they should present them to the advisory committee for further discussion and possible adjustment. It is important to ensure that all relevant perspectives are considered when making decisions about the criteria to be used.

Next, each team member should individually study the available criteria for assessing market segment attractiveness. They should then discuss their findings with the rest of the team and agree on a subset of no more than six criteria to be used.

The selected segment attractiveness criteria and the proposed weights assigned to each of them should be presented to the advisory committee for further discussion and possible adjustment.

5 Step 3: Collecting Data

5.1 Segmentation Variables

The key difference between commonsense and data-driven market segmentation is the number of segmentation variables used. In commonsense segmentation, a single characteristic of consumers is used as the segmentation variable to split the

sample into market segments. This characteristic could be gender, age, income, etc.

These segmentation variables serve as the starting point for the segmentation process. In this approach, the organization may use data analysis techniques, such as cluster analysis or factor analysis, to identify patterns or relationships among the segmentation variables that can be used to group consumers into distinct market segments.

Descriptor variables are also important in data-driven segmentation, as they are used to describe the segments in detail and develop an effective marketing mix targeting the segment.

To selecting the appropriate data source, it is important to ensure that the data collected is of high quality. This includes ensuring that the sample size is adequate, that the sample is representative of the population of interest, and that the measurement instruments used are reliable and valid.

The quality of the empirical data used in market segmentation studies is critical for developing valid segmentation solutions and effective marketing strategies

5.2 Segmentation Criteria

The most common segmentation criteria are geographic, sociodemographic, psychographic, and behavioral. When deciding which criterion to use, the recommendation is to use the simplest possible approach that works for the product or service at the least possible cost. While psychographic segmentation may seem more sophisticated than demographic or geographic segmentation, it may not necessarily be better if it does not work for the product or service. Ultimately, the goal of market segmentation is to identify segments that can be targeted with customized marketing strategies that lead to increased profitability for the organization.

5.2.1 Geographic Segmentation

Geographic segmentation is the original segmentation criterion used for market segmentation, and it is still widely used today. This approach involves using the consumer's location of residence as the only criterion to form market segments. One of the key advantages of geographic segmentation is that it is easy to target communication messages and select communication channels to reach the selected geographic segments. However, the key disadvantage is that living in the same country or area does not necessarily mean that people share other characteristics relevant to marketers, such as the benefits they seek when purchasing a product. Despite these potential shortcomings, the location aspect has experienced a revival in international market segmentation studies aiming to extract market segments across geographic boundaries. Such an approach is challenging because the segmentation variables must be meaningful across all the

included geographic regions, and because of the known biases that can occur if surveys are completed by respondents from different cultural backgrounds.

5.2.2 Socio-Demographic Segmentation

Combination of several segmentation criteria can provide a more accurate and complete picture of consumers and their behaviour.

socio-demographic segmentation criteria can be useful in some industries and can offer an explanation for specific product preferences. However, it should not be the sole criterion for market segmentation, and other segmentation criteria should also be considered to form more effective market segments.

5.2.3 Psychographic Segmentation

The psychographic approach may be more challenging to implement in marketing campaigns, as it requires a deeper understanding of the underlying motivations and values of each segment. Nonetheless, psychographic segmentation has become increasingly popular in recent years as it provides a more in-depth understanding of consumers and can lead to more effective marketing strategies that target the needs and desires of each segment.

5.2.4 Behavioural Segmentation

Behavioural approach may not provide a complete understanding of the underlying reasons for differences in behaviour, as it does not capture the motivations or beliefs that drive behaviour. It also assumes that past behaviour is a reliable indicator of future behaviour, which may not always be the case. Furthermore, the collection of behavioural data can be expensive and time-consuming, especially if it involves tracking consumer behaviour over time.

A combination of behavioural and other approaches, such as psychographic and demographic, may provide a more comprehensive understanding of consumer segments.

5.3 Data from Survey Studies

Survey data can suffer from various biases that can influence the quality of the segmentation analysis.

Biases may include sampling bias, where the sample of respondents is not representative of the target population, or non-response bias, where those who choose not to participate in the survey differ systematically from those who do participate. It is important for researchers to take these biases into account and

to apply appropriate statistical techniques to mitigate their effects on the segmentation analysis.

5.3.1 Choice of Variables

In this approach, variables must be selected based on their relevance to the segmentation criterion and the ability of the organisation to act upon the resulting segments. Additionally, the variables must be easy to measure and not too intrusive or sensitive in nature. In commonsense segmentation, qualitative research can be particularly useful in identifying relevant variables, as it provides insights into consumers' attitudes and behaviours that may not be captured by quantitative data alone. Overall, in both data-driven and commonsense segmentation, careful selection of variables is essential for achieving a high-quality segmentation solution.

5.3.2 Response Options

Binary or dichotomous responses generate binary data, which are suitable for segmentation analysis because the distance between 0 and 1 is clearly defined. Nominal variables correspond to unordered categories and can be transformed into binary data. Metric data, generated by options allowing respondents to indicate a number, are well-suited for segmentation analysis because they allow for any statistical procedure to be performed, including the measurement of distance. However, the most commonly used response option in surveys is a limited number of ordered answer options, generating ordinal data, which are not suitable for standard distance measures unless strong assumptions are made. Preferably, binary or metric response options should be used, but if fine nuances of responses need to be captured, the visual analogue scale can be used. Binary response options have been shown to outperform ordinal answer options, especially when formulated in a level-free way.

5.3.3 Response Styles

Response biases can significantly affect the accuracy of market segmentation analyses. Therefore, it is important to minimize the risk of capturing response styles when collecting data for market segmentation. One common response bias is acquiescence bias, where respondents tend to agree with all questions. This could lead to an attractive market segment appearing to have high spending potential, when in reality, it could just be reflecting a response style. To avoid such biases, additional analyses may be required to exclude the possibility of response styles or removing the affected respondents before targeting a particular market segment.

5.3.4 Sample Size

Determining the appropriate sample size for market segmentation analysis is important to ensure the accuracy of the segmentation results. While there are no widely accepted sample size recommendations, previous studies suggest that the sample size should be at least $2p$ or five times $2p$, where p is the number of segmentation variables, for goodness-of-fit testing in the context of latent class analysis using binary variables. Qiu and Joe (2015) suggest that the sample size should be at least 10 times the number of segmentation variables times the number of segments in the data, with a minimum sample size of $10p$ for the smallest segment.

Dolnicar et al. (2014) conducted simulation studies and found that an increase in sample size led to better identification of the correct market segmentation solution, as measured by the adjusted Rand index. The appropriate sample size may depend on the algorithm, inference method, and scale used, and additional research is needed to develop more specific recommendations for different scenarios.

It is important to consider the characteristics of the market being studied, such as the number and size of segments, and whether they overlap. These characteristics can affect the difficulty of identifying the correct segmentation solution, and should be taken into account when determining the sample size and data quality requirements for a segmentation analysis.

5.4 Data from Internal Sources

Internal data may also suffer from selection bias, as only a certain group of people may be represented in the data. This could result in inaccurate segmentation results and may not be representative of the overall market. Therefore, it is important to supplement internal data with external data to ensure that the resulting segmentation is accurate and representative of the target market. External data may include demographic data, market research data, and other publicly available data sources. The combination of internal and external data can provide a comprehensive and accurate understanding of the market, which can be used to inform marketing strategies and improve business performance.

5.5 Data from Experimental Studies

Experimental data can be a valuable source for market segmentation analysis as it provides insights into consumer behavior and preferences. Choice experiments and conjoint analyses, for example, can provide information on how consumers value different product attributes and attribute levels, which can be used as segmentation criteria. Similarly, experimental data from field or laboratory experiments can provide information on how consumers respond to different

stimuli, such as advertisements or promotions, which can also be used as segmentation criteria.

5.6 Step 3 Checklist

The purpose of the meeting is to identify promising segmentation variables and descriptor variables for market segmentation analysis.

Brainstorming session to identify promising segmentation variables based on the organization's goals, objectives, and available data.

Identify other consumer characteristics required to develop a good understanding of market segments.

Determine the best methods to collect data to capture both the segmentation variables and descriptor variables validly.

Design the data collection process carefully to minimize contamination from biases and other sources of systematic error.

Collect the data based on the identified segmentation and descriptor variables, and carefully record and store the data to ensure its accuracy and privacy. Recap the meeting and assign tasks to team members for further analysis of the collected data.

6 Step 4: Exploring Data

6.1 A First Glimpse at the Data

Data exploration is an important step in market segmentation as it helps to identify the measurement levels of variables, investigate the univariate distributions of each variable, and assess the dependency structures between variables. The results of this stage can guide the selection of appropriate segmentation algorithms for extracting market segments.

The summary also indicates that the Australian travel motives data set contains two income variables: Income and Income2. Income2 is a transformed variable that has fewer categories than Income, with high-income categories merged. Both variables contain missing data, with 66 respondents not providing income information, which is coded as NAs in R.

data exploration is an important step in market segmentation as it helps to identify the characteristics of the data set and guide the selection of appropriate segmentation algorithms. In the case of the travel motives data set, the exploration reveals information about the age, gender, and income of the respondents, which can be used to extract meaningful market segments.

6.2 Data Cleaning

An important step in any data analysis project. It ensures that the data is reliable and accurate and that the subsequent analysis is based on valid information.

It is good practice to document all steps of data cleaning, exploration, and analysis, and to keep all related code in one place. This not only makes the analysis fully reproducible but also enables other data analysts to replicate the analysis and build on the findings. It is also important to save the cleaned data frame using a function such as a `save()`, so that it can be easily re-loaded in future R work sessions using function `load()`.

6.3 Descriptive Analysis

Descriptive analysis is an essential step in market segment analysis as it provides insights into the characteristics of different segments. It involves summarizing and visualizing data to describe the distribution of key variables within each segment.

Descriptive analysis in market segment analysis is to create visualizations such as bar charts, histograms, and scatter plots. These can help us visualize the distribution of key variables within each segment and identify any patterns or trends.

Descriptive analysis in market segment analysis is to calculate summary statistics such as mean, median, standard deviation, and range for each segment.

This can provide an overview of the central tendency and variability of key variables such as age, income, and spending behavior within each segment. Descriptive analysis is a powerful tool for gaining insights into the characteristics of different market segments.

6.4 Pre-Processing

6.4.1 Categorical Variables

In market segment analysis, categorical variables need to be pre-processed before they can be used in segmentation algorithms. Categorical variables are variables that take on a limited number of values, such as gender, ethnicity, or product category. In many cases, categorical variables need to be transformed into numerical values so that they can be used in the segmentation algorithm. One common way to transform categorical variables is to use one-hot encoding. In this approach, each category of the categorical variable is represented by a binary variable (0 or 1) indicating whether that category applies to the observation or not.

Another common way to transform categorical variables is to use dummy coding. In this approach, each category of the categorical variable is represented by a numerical value (e.g., 1, 2, 3), and these values are then used in the segmentation algorithm.

Categorical variables can affect the results of the segmentation algorithm.

6.4.2 Numeric Variables

Missing values can occur for a variety of reasons, such as respondents choosing not to answer a question or data entry errors. One common approach to handling missing values is to impute them with a reasonable value based on the available data.

Outliers are extreme values that deviate significantly from the rest of the data. They can be caused by measurement errors or genuine differences in the data. Outliers can have a significant impact on statistical analyses, so it is important to identify and deal with them appropriately.

Normalization or standardization of numeric variables is also important in market segment analysis. This ensures that variables with different units or scales are treated equally in the analysis. Normalization involves scaling the values of a variable to a fixed range, such as between 0 and 1. Standardization involves transforming the values of a variable to have a mean of 0 and a standard deviation of 1. The choice of normalization or standardization method depends on the specific needs of the analysis.

6.5 Principal Components Analysis

PCA (Principal Component Analysis) is a technique used to reduce the dimensionality of a dataset while retaining most of the variation present in the original dataset. It is particularly useful when dealing with datasets with many variables, as it can help to identify underlying patterns and relationships between variables.

In the context of market segment analysis, PCA can be used to identify underlying factors that explain variations in the data. For example, if we have a dataset containing information on customer demographics, attitudes, and behaviors, we can use PCA to identify underlying factors that explain variation in these variables. These factors may correspond to customer segments or groups with similar characteristics.

PCA is a useful tool for market segment analysis because it can help to identify underlying factors that explain variations in customer data, which can lead to more effective targeting and communication strategies.

6.6 Step 4 Checklist

Explore the data to determine if there are any inconsistencies and if there are any systematic contaminations.

If necessary, clean the data.

If necessary, pre-process the data.

<https://github.com/Ansh420/mcDonald Case-study>

This is my Github Respository in which i used a Market Segmentation Process on the case study of McDonald.

The Dataset is provided earlier and here is the link for the dataset as:

https://github.com/Ansh420/mcDonald_Case-study/blob/main/mcdonalds.csv