

Marketing Segmentation Analysis

Case Study - Fast Food

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Executive Summary

This report synthesizes McDonald's segmentation strategy in step 1-3 with methodological frameworks from Chapter 7 of *Market Segmentation Analysis*. Key findings emphasize the critical role of algorithm selection in Step 5 (Segment Extraction), highlighting how McDonald's strategic 9-step process integrates with technical approaches for optimal segment identification. Stability analysis emerges as essential for validating segments against knock-out criteria before targeting.

1 McDonald's Strategic Framework

1.1 9-Step Segmentation Process

Phase	Key Activities
Steps 1-3	<ul style="list-style-type: none">• Evaluate segmentation feasibility (resource allocation, ROI)• Define target segment specifications using knock-out criteria• Collect multi-source data (surveys, transactions, social media)
Step 5: Extraction	<ul style="list-style-type: none">• Core focus: Apply clustering algorithms to identify segments• Input: Perception metrics across demographic groups
Steps 8-9	<ul style="list-style-type: none">• Select priority segments using attractiveness criteria.• Develop customized marketing mix (4Ps)

Key Challenges

- Resource allocation for research and analysis
- Operational complexity of managing multiple segments
- ROI justification for implementation costs
- Overcoming implementation barriers.

Knock-Out Criteria

Criterion	Threshold
Homogeneity	$\geq 75\%$ similarity score
Distinctiveness	$\geq 30\%$ separation index
Size	$\geq 15\%$ of total market
Alignment	Compatible with organizational capabilities
Accessibility	Reachable through existing channels

2 Segment Extraction Methods

2.1 Distance-Based Approaches

- **Hierarchical Clustering:**
 - Single linkage (identifies non-linear structures)
 - Complete linkage (creates compact clusters)
 - Algorithm bias demonstrated in code
- **Partitioning Methods:**
 - k-means.
 - Neural gas and topology networks
- **Hybrid Approaches:**
 - Bagged clustering.

2.2 Model-Based Methods

- **Finite Mixtures:**
 - Gaussian distributions for metric data
 - Latent class analysis for binary data
- **Regression Mixtures:**
 - Segment-specific relationships.

2.3 Critical Considerations

- **Distance Measures:**
 - Euclidean (compact clusters)
 - Manhattan (grid-like patterns)
 - Asymmetric binary (shared 1s)
- **Variable Selection:**
 - Biclustering for high-dimensional data.
 - VSBD algorithm for binary data
- **Stability Validation:**
 - Bootstrapping with adjusted Rand index.
 - Segment-level stability analysis (SLSW/SLSA)
- **Avoid** factor-cluster analysis due to information loss (Sect. 7.4.3)

3 Integration for McDonald's Context

3.1 Data Requirements

Mixed variables: Geographic, demographic, psychographic, behavioral

3.2 Algorithm Recommendations

Data Structure	Optimal Method
Well-separated segments	k-means
Noisy/unstructured data	Bagged clustering
High-dimensional activities	Biclustering
Mixed-scale variables	Model-based mixtures

3.3 Validation Process

1. Global stability analysis
2. Segment-level stability (SLSW/SLSA)
3. Application of knock-out criteria

4 Practical Implications

- **Resource Efficiency:** Bootstrapping reduces costly missegmentation
- **Actionability:** Distinct segments enable tailored 4Ps strategies:
 - Product: Menu customization.
 - Price: Value-based pricing.

- Place: Channel optimization.
- Promotion: Targeted messaging.
- **ROI Focus:** Stability validation ensures implementation cost justification

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Group C code link: https://colab.research.google.com/drive/1RWbH00DsacsxHwmp_BSzxC2l2QtDec_s?usp=sharing