# Customer Shopping Behavior Analysis

2021–2023

A comprehensive data-driven exploration of shopping patterns across Istanbul's retail landscape, uncovering key trends in consumer demographics, spending behaviors, and purchase preferences.

About the Dataset

This comprehensive dataset captures shopping activity from 10 major shopping malls in Istanbul between 2021 and 2023. It encompasses diverse age groups and genders, providing rich insights into consumer behavior patterns.

The data includes critical transaction details: unique invoice and customer identifiers, demographic information, payment methods, product categories, quantities, pricing, transaction dates, and mall locations—creating a complete picture of the retail ecosystem.
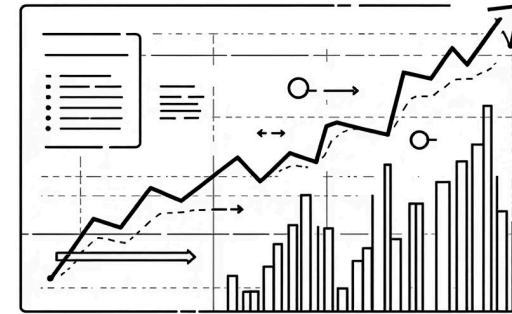
01

Transaction Identifiers

Invoice numbers (I + 6 digits) and Customer IDs (C + 6 digits) uniquely track each purchase

02

Customer Demographics

Gender classifications and age data provide segmentation capabilities for targeted analysis

03

Purchase Details

Product categories, quantities, and unit prices in Turkish Liras capture transaction specifics

04

Behavioral Context

Payment methods, transaction dates, and shopping mall locations reveal consumer preferences and patterns

Research Questions

Our analysis addresses eleven critical questions designed to uncover actionable insights about consumer behavior, revenue generation, and strategic opportunities across demographic segments.

1	**Gender Analysis**
	Shopping distribution, product sales volume, and revenue generation patterns by gender

2	**Category Insights**
	Purchase category distributions and their relationships with demographic and behavioral variables

3	**Age Segmentation**
	Shopping patterns, product preferences, and revenue contribution across age categories

4	**Payment Behavior**
	Payment method distribution and correlations with customer demographics and purchase patterns

5	**Strategic Recommendations**
	Data visualization and actionable insights to drive business growth and customer engagement

Data Visualization Dashboard

Interactive visualizations reveal hidden patterns and trends within the data, transforming raw numbers into strategic intelligence. Advanced analytics tools enable deep exploration of customer segments, purchasing behaviors, and revenue drivers across multiple dimensions.

Demographic Patterns

Visual breakdowns of customer distribution by gender and age reveal core market segments and their relative importance

Category Performance

Product category analysis shows which segments drive volume and revenue across different customer groups
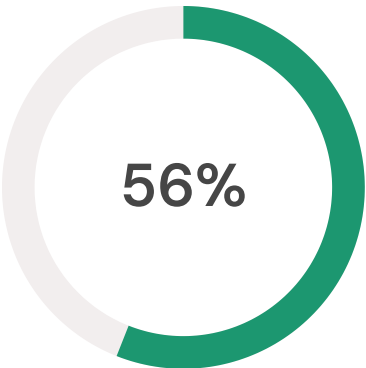
Payment Trends

Transaction method preferences highlight the shift from traditional to digital payment adoption patterns

Gender-Based Shopping Insights

Shopping Distribution

Female customers dominate with **59.81%** of total purchases, significantly outpacing male shoppers at **40.19%**.

<mark>Key Takeaway:</mark> Female customers represent the primary consumer segment and should be prioritized in marketing strategies.

Product Volume

Female shoppers purchase more items per transaction, particularly excelling in Fashion and Beauty categories.

<mark>Opportunity:</mark> Higher purchase volume creates strong potential for cross-selling and bundle promotions targeted at female customers.

56%

Female Revenue Share

Generated by female customers, with concentration in Fashion and Electronics

59.81%
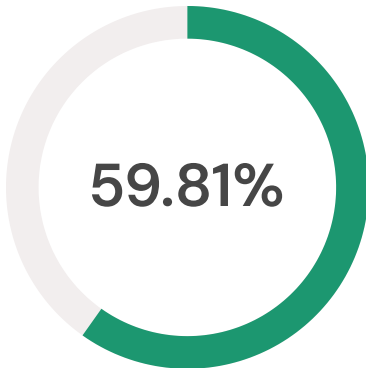
Female Purchase Share

Of all transactions completed by female shoppers across all malls

Strategic Implication: The female segment is the most profitable customer group. High-value purchases concentrate in Fashion and Electronics, suggesting these categories should receive premium positioning and inventory investment.
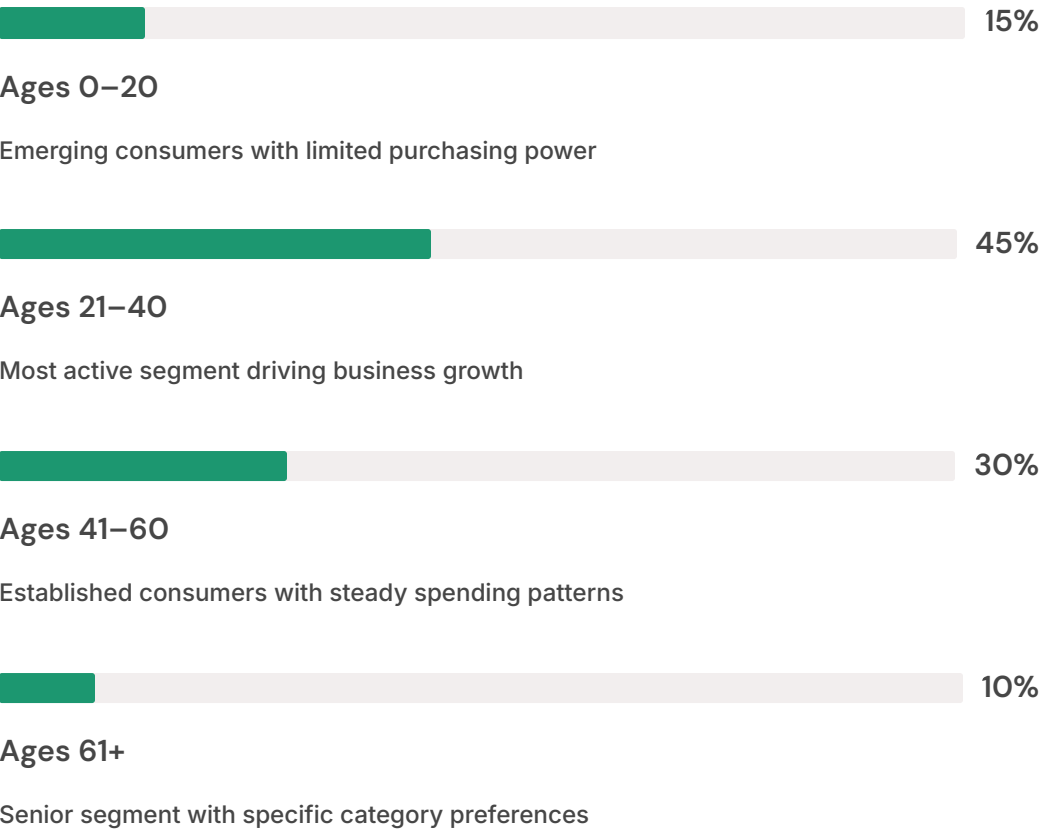
Category Preferences by Gender

Clear gender-based patterns emerge in product preferences. Female shoppers dominate Fashion and Beauty purchases, while male customers show stronger preference for Electronics and Sports equipment. Credit card usage peaks for high-value items across both segments.

Recommendation: Marketing campaigns should be customized by gender and tailored to specific mall locations to maximize relevance and conversion rates.

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Age-Based Behavioral Patterns

Shopping Distribution by Age

15%

Ages 0–20

Emerging consumers with limited purchasing power

45%

Ages 21–40

Most active segment driving business growth

30%

Ages 41–60

Established consumers with steady spending patterns

10%

Ages 61+

Senior segment with specific category preferences

Revenue and Volume Leaders: Ages 21–40

The 21–40 age group demonstrates exceptional business value, purchasing approximately **50% of all products** and generating roughly **55% of total revenue**. This demographic exhibits both higher transaction frequency and larger average basket sizes compared to other age segments.

Business Impact: This group represents the highest lifetime value customers, warranting priority investment in loyalty programs, personalized marketing, and premium product offerings.

Young Shoppers (0–40)

Strong preference for Fashion and Electronics with trend-driven purchases

Mature Shoppers (41+)

Focus on Home Decor and Groceries with practical, quality-oriented buying

Payment Method Insights

Cash Transactions

44.65%

Still dominant but declining, particularly among older demographics

Credit Card

35.17%

Preferred by working professionals (21–50) for convenience and rewards

Debit Card

20.19%

Growing steadily as digital adoption increases

> **Digital Transformation Insight:** While cash remains prevalent, digital payments—especially credit cards—show strong momentum among working professionals. This presents significant opportunities for digital loyalty programs and credit-based promotional offers.

Strategic Recommendations

Our comprehensive analysis reveals clear opportunities for revenue optimization and customer engagement enhancement. The following strategic initiatives emerge as high-priority actions based on data-driven insights.

Priority Segment Focus

Concentrate marketing resources on the 21–40 age group, which drives 50% of product sales and 55% of revenue. This demographic offers the highest ROI for acquisition and retention investments.

Age–Based Personalization

Tailor product promotions by age category: Fashion and Electronics for younger customers (0–40), Home Decor and Groceries for mature shoppers (41+). Customized campaigns will improve conversion rates.

Digital Payment Acceleration

Capitalize on the credit card adoption trend (35.17%) among working professionals by launching digital loyalty programs and credit-based rewards to drive transaction value and frequency.

Key Performance Drivers

Female Customer Dominance

With 59.81% of purchases and 56% of revenue, female shoppers are the cornerstone of mall profitability. Enhanced Fashion and Beauty offerings, combined with targeted experiential marketing, will strengthen this critical relationship.

Action Items:

- Expand Fashion and Electronics inventory for female customers
- Create gender-specific promotional campaigns by mall location
- Develop premium loyalty tiers for high-value female segments

Future Growth Path: The convergence of demographic insights with payment behavior trends creates a clear roadmap. Prioritizing the 21–40 age segment with digital-first engagement strategies, while maintaining strong appeal to female customers through category excellence, positions the business for sustained revenue growth and market leadership.