

# E-commerce Return Rate Analysis: Business Insights Report

## 1. Customer Characteristics Impact Return Behavior

- Gender: Female and male customers show comparable return rates, with minor category-specific variation.
- Age: Younger customers (18-25) return more often; middle-aged groups (36-50) show lower return rates.
- Location: Urban customers and specific cities/states have higher return behavior, impacting logistics costs.

## 2. Discounts and Payment Methods Correlate with Returns

- High discounts (above 50%) correlate with increased return rates.
- Payment methods like Cash-on-Delivery and BNPL show higher return behavior versus prepaid methods.

## 3. Most Common Return Reasons by Product Category

- Clothing: Size mismatch, color difference, and expectation gaps.
- Electronics: Wrong or defective items.
- Action: Improve product descriptions, visuals, and customer guidance tools.

## 4. Predictive Modeling with Logistic Regression

- A logistic regression model was built using Age, Gender, Discount, Payment Method, Product Category, and Purchase Amount.
- Results show effective prediction of return likelihood.
- High-risk orders can be flagged for preemptive action.

## 5. Average Order Value (AOV) Comparison

- Returned orders often have higher AOVs.
- Indicates that costly or bulk orders may be placed with less certainty.

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## 6. Strategic Recommendations

- Marketing: Reduce high-discount returns with better targeting.
- Product: Focus on improving high-return categories.
- Operations: Optimize based on regional return patterns.
- Risk: Use model scores to control return-related losses.
- Customer Experience: Provide better product details and reviews to reduce return triggers.