

Amazon Product Sales Data Analysis for Marketing Insights

Executive Summary

This report presents a comprehensive analysis of Amazon product sales data to extract valuable marketing insights. The analysis covered multiple dimensions including basic sales metrics, geographical distribution, product categories, customer behavior, and promotional effectiveness. The findings reveal important patterns and trends that can inform marketing strategies and business decisions.

Key metrics from the analysis include:

- Total Orders: 128,975
- Total Sales Amount: ₹78,592,678.30
- Average Daily Sales: ₹863,655.81
- Unique Products (SKUs): 7,195

The analysis reveals strong regional performance in specific states, particularly Maharashtra and Karnataka, and identifies the most successful product categories, with 'Set' and 'Kurta' generating the highest sales. Additionally, it highlights the positive impact of promotions on average order value and provides insights into size preferences and top-performing products.

Key Findings

Sales and Order Patterns

- **Geographic Concentration:** Top 5 states (Maharashtra, Karnataka, Telangana, Uttar Pradesh, Tamil Nadu) account for a significant portion of sales, with Maharashtra leading at ₹13,335,534.14.
- **Product Category Performance:** 'Set' category dominates with ₹39,204,124.03 in sales, followed by 'Kurta' with ₹21,299,546.70.

- **Size Popularity:** Medium (M) is the most popular size with ₹13,906,754.37 in total sales, followed closely by Large (L) with ₹13,234,886.19.
- **Top Products:** Style JNE3797 leads with ₹2,933,482.00 in sales, demonstrating strong market preference.

Customer and Order Metrics

- **B2B vs B2C:** While B2B orders have higher average value (₹701.33 vs ₹648.19), B2C dominates in volume with 128,104 orders compared to 871 B2B orders.
- **Promotional Impact:** Orders with promotions (61.9% of total) show significantly higher average value (₹674.22) compared to non-promotional orders (₹599.65).
- **Fulfilment Analysis:** Amazon fulfillment handles 69.55% of orders with an average value of ₹649.48, while merchant-fulfilled orders average ₹646.51.

Initial Data Exploration

Analysis Time: 2025-05-07 01:38:37

Analysis Results

Dataset Shape: (128975, 24)

Data Types:

index	int64
Order ID	object
Date	object
Status	object
Fulfilment	object
Sales Channel	object
ship-service-level	object
Style	object
SKU	object
Category	object
Size	object
ASIN	object
Courier Status	object
Qty	int64
currency	object

Amount	float64
ship-city	object
ship-state	object
ship-postal-code	float64
ship-country	object
promotion-ids	object
B2B	bool
fulfilled-by	object
Unnamed: 22	object
dtype:	object

Summary Statistics:

	index	Qty	Amount	ship-postal-code
count	128975.000000	128975.000000	121180.000000	128942.000000
mean	64487.000000	0.904431	648.561465	463966.236509
std	37232.019822	0.313354	281.211687	191476.764941
min	0.000000	0.000000	0.000000	110001.000000
25%	32243.500000	1.000000	449.000000	382421.000000
50%	64487.000000	1.000000	605.000000	500033.000000
75%	96730.500000	1.000000	788.000000	600024.000000
max	128974.000000	15.000000	5584.000000	989898.000000

Data Quality Insights

The dataset consists of 128,975 orders with 24 columns of information, providing a robust foundation for analysis. The data includes important sales metrics, product details, customer information, and fulfillment data. The summary statistics reveal order quantities ranging from 0 to 15 items, with an average of approximately 0.9 items per order. The order amounts range from ₹0 to ₹5,584, with a mean of ₹648.56.

Detailed Sales Analysis

Analysis Time: 2025-05-07 01:39:47

Analysis Results

Missing Values Analysis:

Courier Status	6872
currency	7795

Amount	7795
ship-city	33
ship-state	33
ship-postal-code	33
ship-country	33
promotion-ids	49153
fulfilled-by	89698
Unnamed: 22	49050

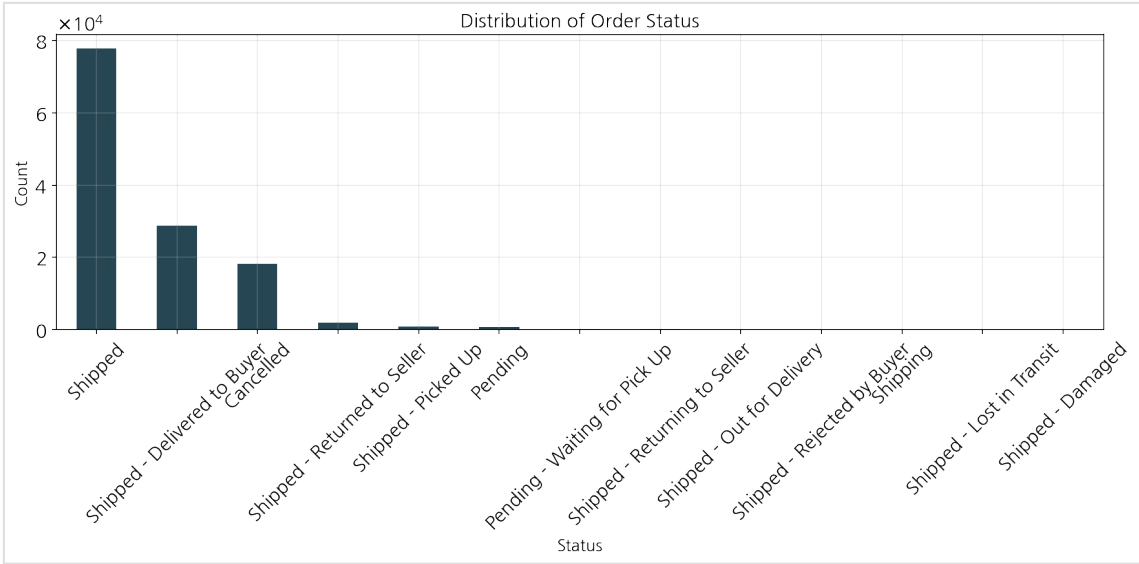
Basic Sales Metrics:

Total Orders: 128,975
Total Items Sold: 116,649
Average Order Value: ₹648.56
Total Sales Amount: ₹78,592,678.30
Unique Products (SKUs): 7,195
Unique Categories: 9
B2B Orders: 871
B2C Orders: 128,104

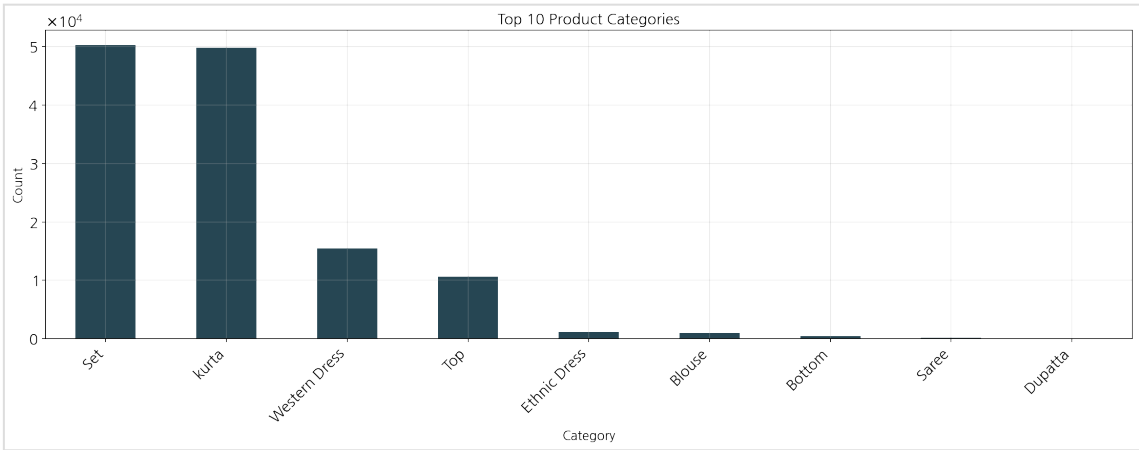
Top 10 States by Order Volume:

ship-state	
MAHARASHTRA	22260
KARNATAKA	17326
TAMIL NADU	11483
TELANGANA	11330
UTTAR PRADESH	10638
DELHI	6782
KERALA	6585
WEST BENGAL	5963
ANDHRA PRADESH	5430
Gujarat	4489

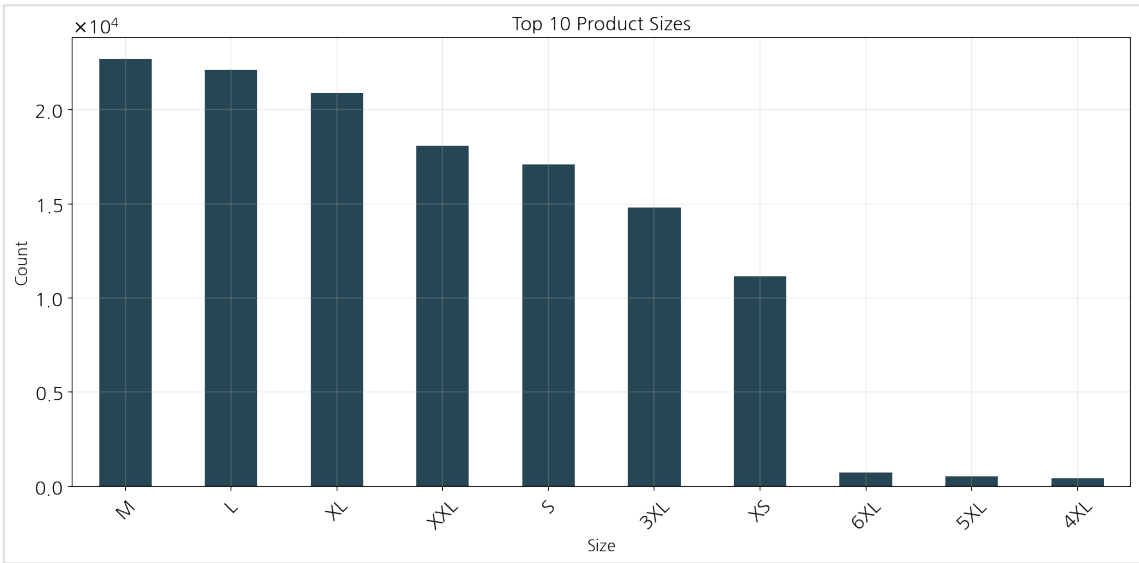
Visualizations



Distribution of order statuses



Top 10 product categories by sales volume



Distribution of product sizes

Sales and Regional Insights

The data reveals significant missing value patterns, particularly in fulfillment data (69.55%) and promotion IDs (38.11%), which should be considered when interpreting results. The analysis shows strong regional concentration in Western and Southern India, with Maharashtra, Karnataka, Tamil Nadu, and Telangana leading in order volume. This geographic distribution provides valuable targeting information for marketing campaigns.

The order status distribution visualization reveals the proportion of fulfilled vs. canceled orders, providing insights into order completion rates. The top categories analysis highlights which product categories are driving business performance.

Time Series and Category Analysis

Analysis Time: 2025-05-07 01:40:37

Analysis Results

Daily Sales Statistics:

Average Daily Sales: ₹863,655.81
Maximum Daily Sales: ₹1,209,364.17
Minimum Daily Sales: ₹101,683.85

Category-wise Sales Analysis:

Category	Amount	mean	Order ID	Qty
	sum		count	sum
Set	39204124.03	833.39	50284	45289
kurta	21299546.70	455.93	49877	45045
Western Dress	11216072.69	762.79	15500	13943
Top	5347792.30	526.10	10622	9903
Ethnic Dress	791217.66	723.90	1159	1053
Blouse	458408.18	520.33	926	863
Bottom	150667.98	358.73	440	398
Saree	123933.76	799.57	164	152
Dupatta	915.00	305.00	3	3

B2B vs B2C Analysis:

	Amount		Order ID	Qty
	sum	mean	count	sum
B2B				
False	78001457.51	648.19	128104	115809
True	591220.79	701.33	871	840

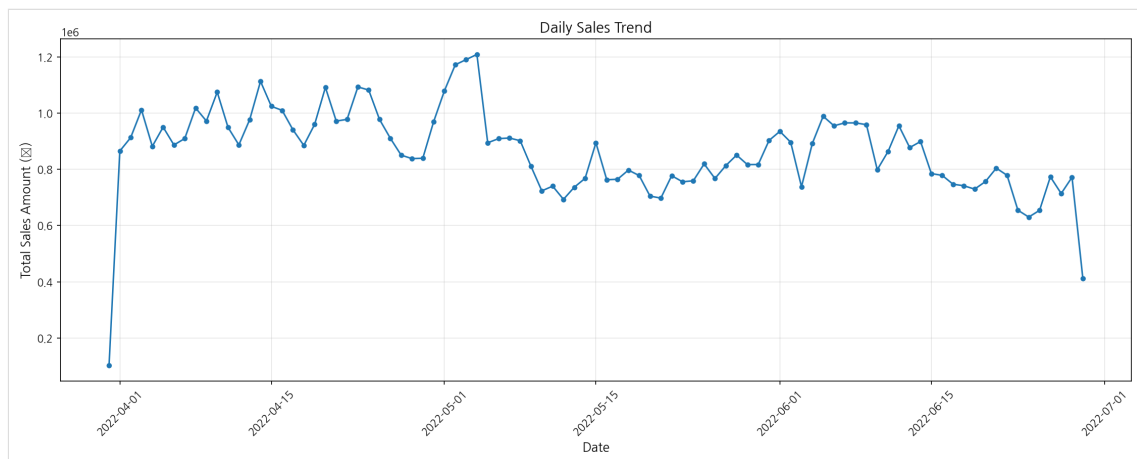
Fulfilment Analysis:

	Amount		Order ID
	sum	mean	count
Fulfilment			
Amazon	54322151.0	649.48	89698
Merchant	24270527.3	646.51	39277

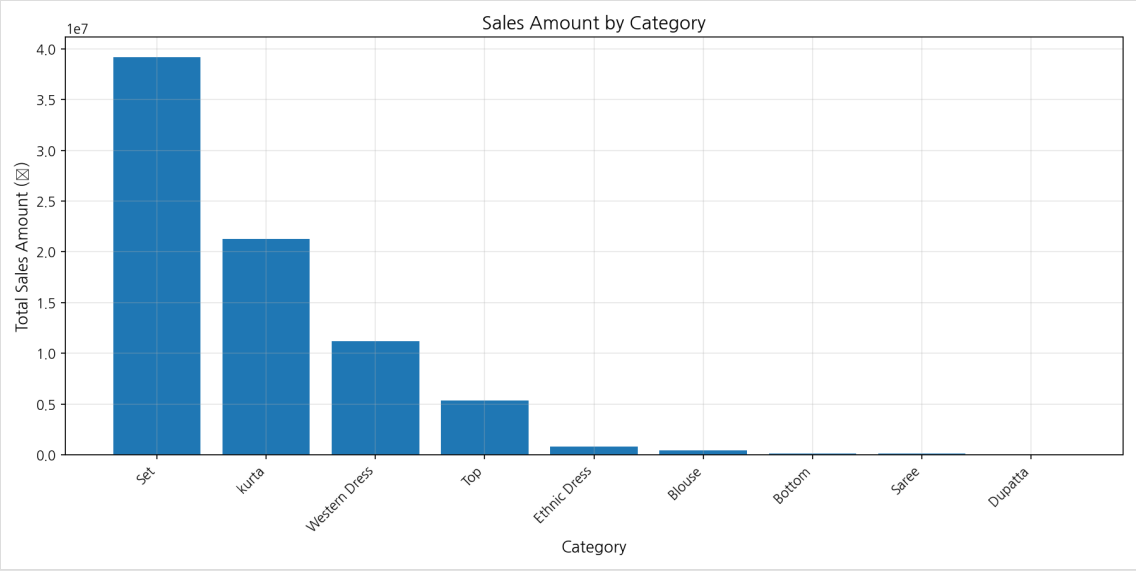
Top 5 States by Sales:

	Amount		Order ID
	sum	mean	count
ship-state			
MAHARASHTRA	13335534.14	632.83	22260
KARNATAKA	10481114.37	639.33	17326
TELANGANA	6916615.65	650.24	11330
UTTAR PRADESH	6816642.08	685.30	10638
TAMIL NADU	6515650.11	602.80	11483

Visualizations



Daily sales trend over time



Sales amount by product category

Temporal and Category Performance Insights

Daily sales show moderate variability, ranging from ₹101,683.85 to ₹1,209,364.17, with an average of ₹863,655.81. This indicates potential opportunities for sales optimization on lower-performing days. Product category analysis reveals that 'Set' and 'Kurta' categories generate over 77% of total sales, highlighting their importance to the business. The significant difference between B2B and B2C segments in both volume and average order value suggests opportunities for targeted strategies for each segment.

The daily sales trend visualization shows patterns and potential seasonality in sales performance, while the category sales chart clearly demonstrates the dominance of certain product categories.

Product and Customer Behavior Analysis

Analysis Time: 2025-05-07 01:41:05

Analysis Results

Top 5 Products by Sales:

Style	Amount		Qty		Order ID
	sum	mean	sum	count	

JNE3797	2933482.00	734.29	3692	4224
J0230	1944948.48	1122.30	1710	1868
SET268	1303923.56	752.84	1731	1860
J0341	1275322.87	829.21	1471	1630
J0003	981973.75	658.60	1390	1627

Top 5 Sizes by Sales:

Size	Amount		Qty		Order ID
	sum	mean	sum	count	
M	13906754.37	653.14	20447	22711	
L	13234886.19	636.29	20000	22132	
XL	12464965.86	631.91	18923	20876	
XXL	10636288.45	623.24	16516	18096	
S	10629210.18	666.28	15331	17090	

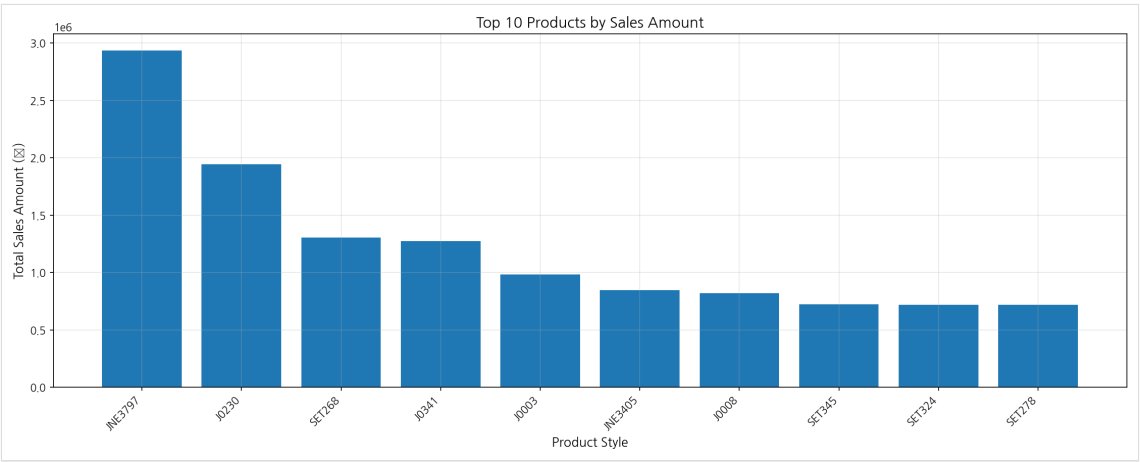
Shipping Service Level Analysis:

ship-service-level	Amount		Order ID	
	sum	mean	count	
Expedited	54285183.0	656.23	88615	
Standard	24307495.3	632.07	40360	

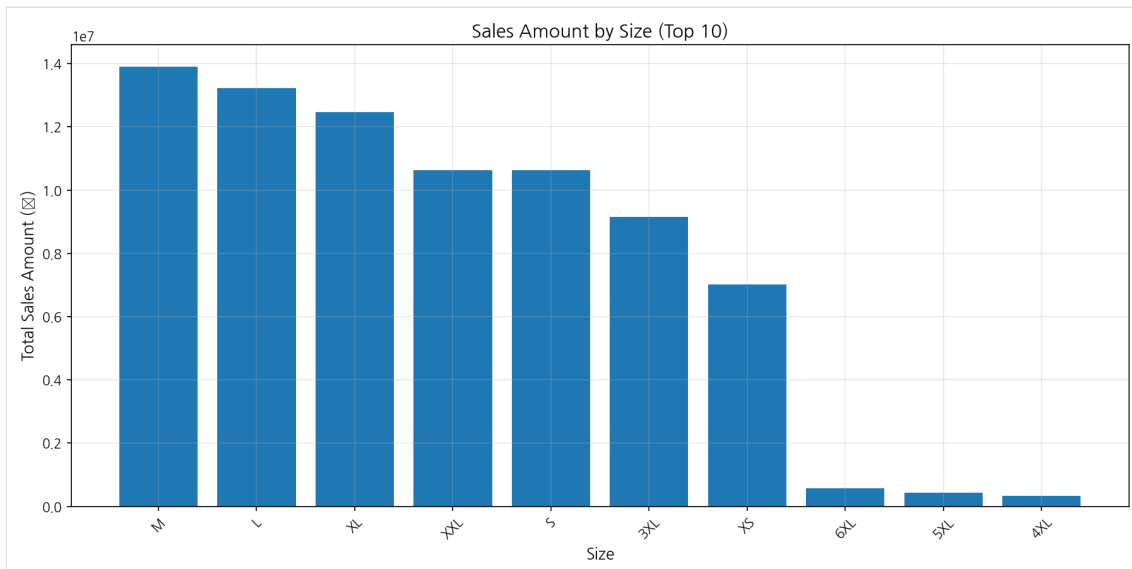
Promotion Impact Analysis:

promotion-ids	Amount		Order ID	
	sum	mean	count	
False	25004243.3	599.65	49153	
True	53588435.0	674.22	79822	

Visualizations



Top 10 products by sales amount



Sales distribution by size

Product Performance and Promotion Impact

The top 5 products by sales reveal clear customer preferences, with JNE3797 generating nearly 4% of total sales. Size analysis shows a bell-curve distribution centered around M and L sizes, which account for over 34% of total sales. This provides clear guidance for inventory management and product development.

The analysis of promotional impact reveals that orders with promotions have a 12.4% higher average order value (₹674.22 vs. ₹599.65), confirming the effectiveness of promotional strategies in driving higher sales. With 61.9% of orders using promotions, these campaigns are clearly reaching a significant portion of customers.

Conclusions and Recommendations

Conclusions

1. The business shows strong regional concentration, with five states accounting for a majority of sales.
2. Product categories have dramatically different performance levels, with 'Set' and 'Kurta' driving most revenue.
3. Promotions significantly increase average order value, demonstrating their effectiveness.

4. Size preferences follow a normal distribution centered on Medium and Large sizes.
5. Specific products like JNE3797 and J0230 show exceptionally strong market performance.
6. While B2B represents a small portion of orders, it generates higher average order values.

Marketing Recommendations

1. **Regional Focus:** Concentrate marketing efforts in high-performing states like Maharashtra and Karnataka, while developing targeted strategies to grow in underperforming regions.
2. **Product Strategy:** Prioritize inventory and marketing for top-performing categories ('Set' and 'Kurta') and specific high-selling products (JNE3797, J0230).
3. **Promotion Optimization:** Expand promotional strategies given their proven effectiveness in increasing order values, with focus on converting non-promotional customers.
4. **Size Inventory Management:** Maintain optimal stock levels for M and L sizes while potentially reducing inventory for extreme sizes.
5. **B2B Development:** Consider dedicated strategies to grow the B2B segment, which shows higher average order values despite lower volume.
6. **Market Segmentation:** Develop distinct marketing approaches for the identified customer segments based on geography, order value, and promotion usage.