

Executive summary

The dataset contains order- and line-level supply-chain records (fact_order_line and fact_aggregate) plus customer and product dimensions. Across ~24.5k order lines and 13.6k orders we see solid volume delivery but weak order-level service: only 28.74% of orders meet both on-time and in-full (OTIF). That gap is the most important driver of likely customer dissatisfaction.

About the data

- Tables used: fact_order_line (line grain), fact_aggregate (order grain), dim_customers, dim_products.
- Monetary values use price_INR on dim_products for INR totals; price_USD is available for USD calculations.
- Key service flags: On Time, In Full, On Time In Full at line grain; on_time, in_full, otif at order grain.

Key KPIs (single-card view)

- Total order lines: 24,530
- Total orders: 13,652
- Line Fill Rate (lines delivered in full): 65.95%
- Volume Fill Rate (delivered units ÷ ordered units): 96.60%
- On Time (orders): 59.22%
- In Full (orders): 52.62%
- OTIF (orders): 28.74%

Each KPI above is computed from the data as described (line counts and rates from fact_order_line; order-level service rates from fact_aggregate). The card-style table used for dashboards included these values and short definitions.

What the numbers mean (insights + supporting data)

- Insight: High delivered volume but low order reliability.
 - Support: Volume Fill Rate = 96.60% while OTIF (orders) = 28.74%. Customers get most units overall but rarely receive the full, on-time order experience.
- Insight: Many orders are either late or short (components don't overlap).
 - Support: On Time (orders) = 59.22% and In Full (orders) = 52.62%, but OTIF = 28.74% — meaning large non-overlap between on-time and in-full.
- Insight: Line-level experience is better than order-level OTIF, but still imperfect.
 - Support: Line Fill Rate = 65.95% (about two thirds of lines delivered in full), and line-level On Time ~71% (from line metrics used earlier), yet order-level aggregation shows lower service because multi-line orders compound failures.

Customer-level signal: top customers and service

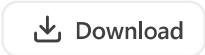
- Top 5 customers overall by total amount (INR-based calculation using price_INR):
 - Propel Mart (customer_id 789402), Ahmedabad — total_amount_inr: 18,726,559 — OTIF 38.24%, IF 47.34%, OT 86.27%
 - Foodtown (789301), New Jersey, US — total_amount_inr: 18,469,176 — OTIF 25.44%, IF 39.63%, OT 82.06%
 - Acclaimed Stores (789521), Ahmedabad — total_amount_inr: 18,464,448 — OTIF 16.15%, IF 61.61%, OT 26.49%
 - Elite Mart (789902), Ahmedabad — total_amount_inr: 18,463,957 — OTIF 35.45%, IF 45.10%, OT 86.34%
 - Whole Foods Market (789320), New Jersey, US — total_amount_inr: 18,402,207 — OTIF 36.36%, IF 48.67%, OT 82.66%
- Top 5 India customers (INR currency only):

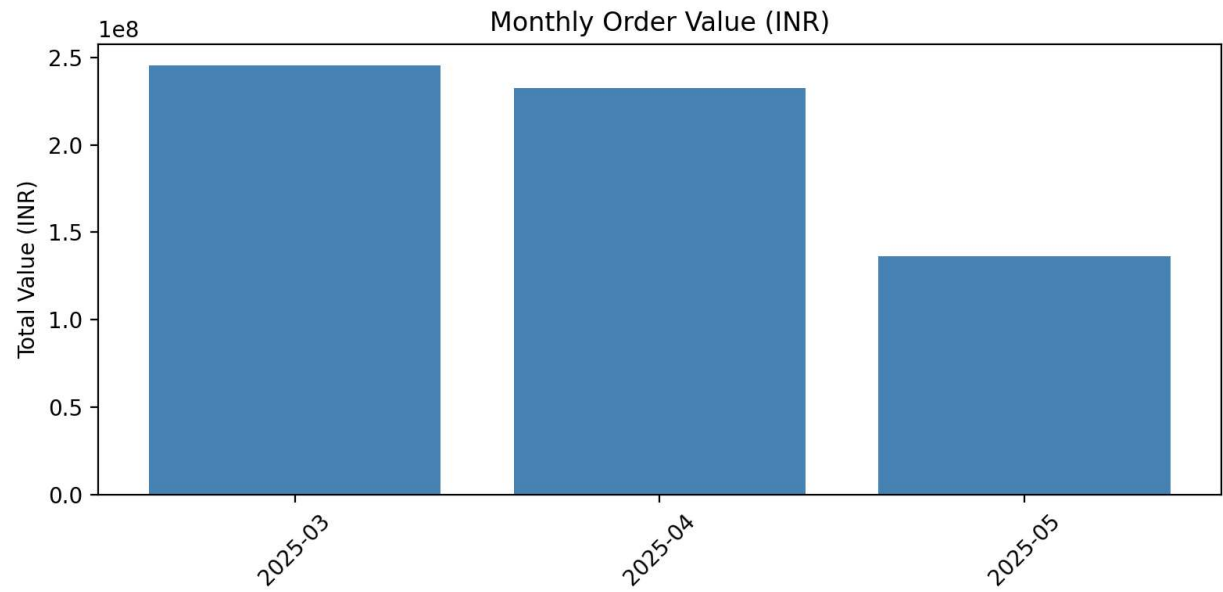
- Propel Mart (789402), Ahmedabad — total_amount_inr: 18,726,559 — OTIF 38.24%, IF 47.34%, OT 86.27%
- Acclaimed Stores (789521), Ahmedabad — total_amount_inr: 18,464,448 — OTIF 16.15%, IF 61.61%, OT 26.49%
- Elite Mart (789902), Ahmedabad — total_amount_inr: 18,463,957 — OTIF 35.45%, IF 45.10%, OT 86.34%
- Vijay Stores (789102), Ahmedabad — total_amount_inr: 18,339,388 — OTIF 31.90%, IF 44.68%, OT 82.50%
- Viveks Stores (789503), Vadodara — total_amount_inr: 18,188,178 — OTIF 37.84%, IF 50.82%, OT 81.97%

(Values shown are rounded to integer INR and service rates to two decimals as requested.
Customer name, ID, total_amount_inr and city are included for each row.)

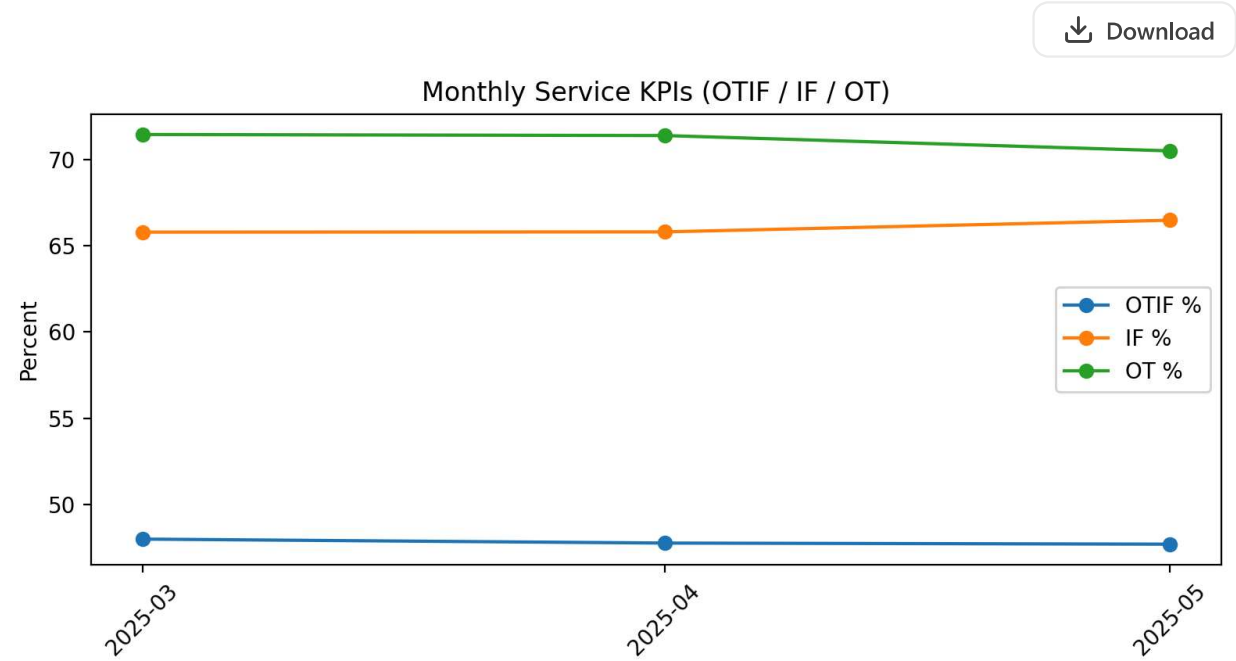
Monthly trends and visuals (high-level story)

- Monthly total order value (INR) shows demand over time and can be used to weigh service performance.
- Visual: Monthly order value bar chart (INR) for March–May 2025.
- Chart reference:






- Monthly service KPI trends show stable but low OTIF.
- Visual: OTIF / IF / OT monthly lines (Mar–May 2025).
- Chart reference:

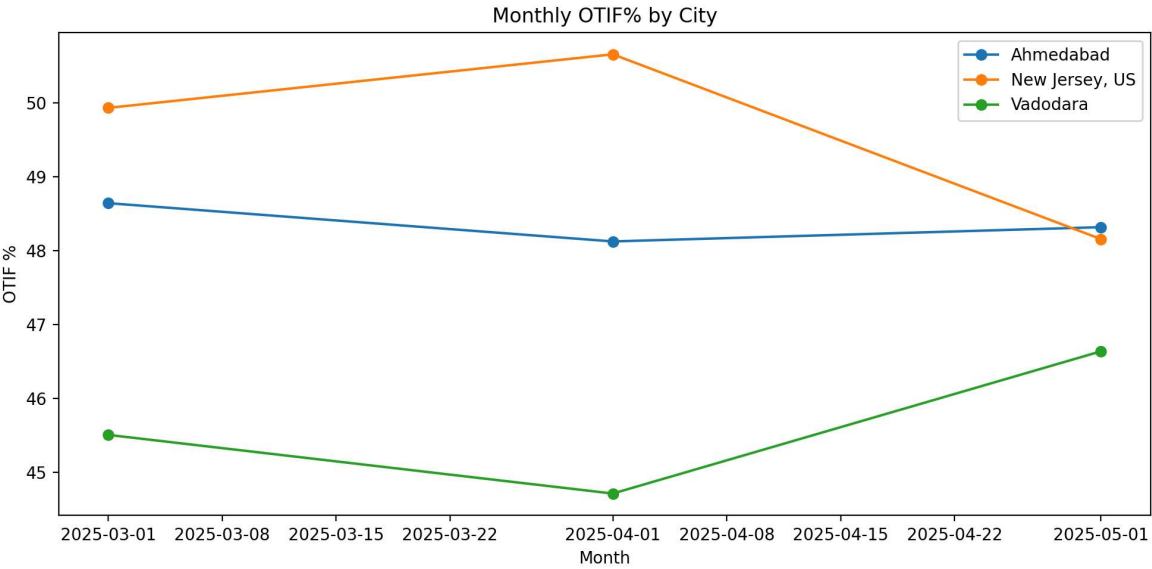


- City-level monthly service trends reveal geographic differences.
- Visuals (three charts): monthly OTIF%, OT%, IF% by city (Ahmedabad, Vadodara, New Jersey, US).

• Chart references:

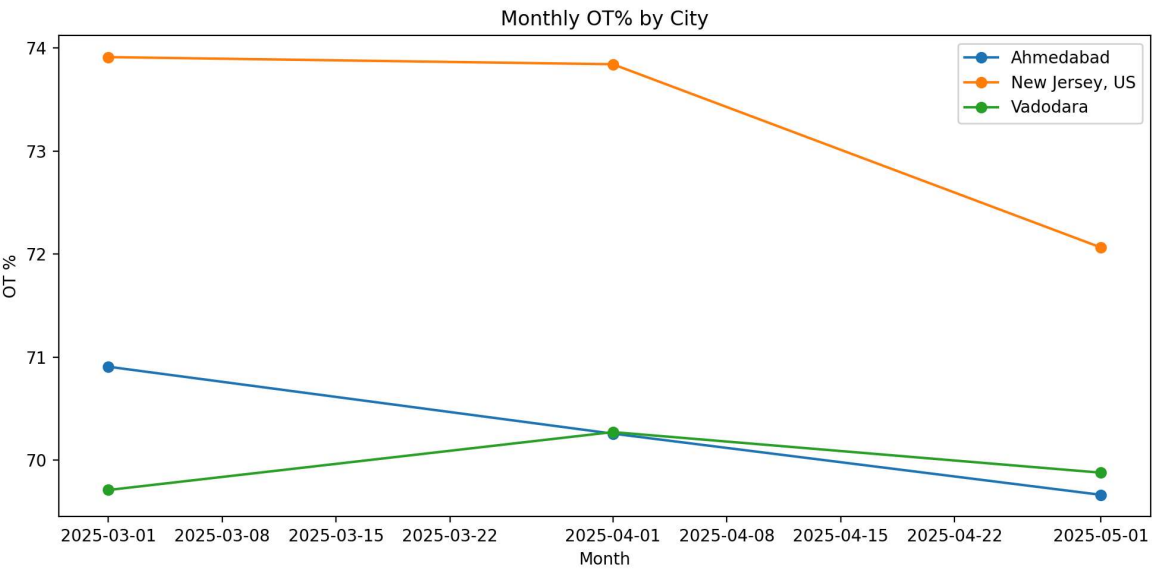
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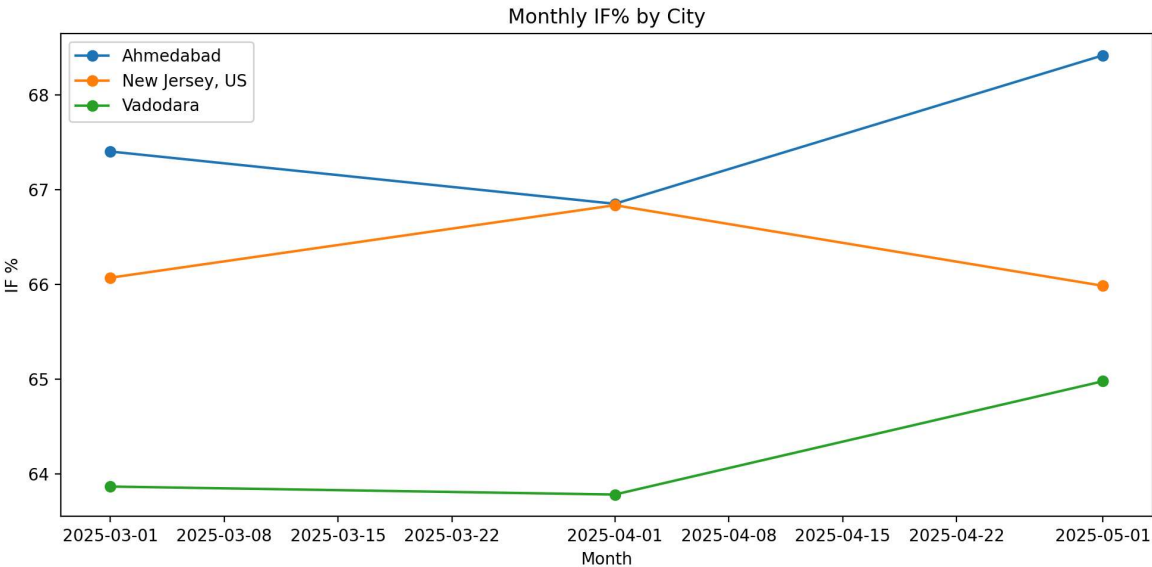
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- Insight: Cities show similar on-time levels (around 70–74%) but OTIF varies (mid-40s to low-50s at line level / mid-20s–40s at order level in some customer aggregates), indicating different balance of timing vs quantity issues per city.

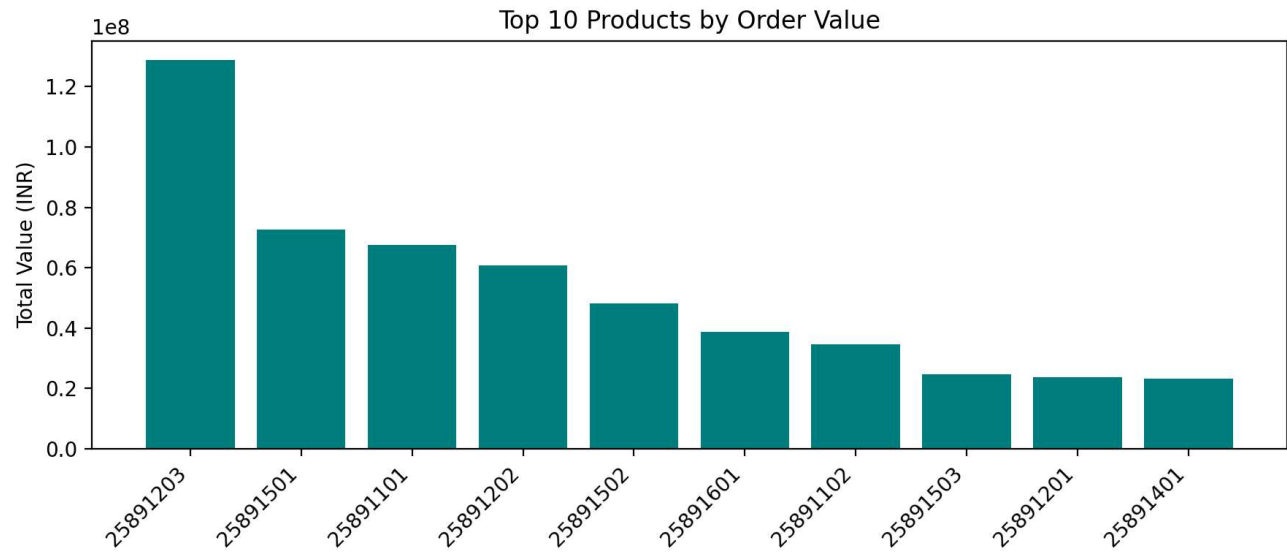
Product and city breakdowns (where to focus)

- Top revenue-driving products (by product_id) concentrate a large share of INR value.
Example top product IDs and their service metrics (top 10):
 - Product 25891203 (highest value): total_value_inr ~128,769,300; fill rate ~96.44%; OTIF ~47.04%; IF ~65.57%; OT ~70.94%
 - Other top SKUs show similar high volume fill but varying OTIF.
- Cities by total value:
 - Ahmedabad, Vadodara, and New Jersey lead in INR totals with broadly similar fill rates (~96–96.8%) but differing OTIF/IF/OT patterns.
 - Table of city KPIs (top cities) was produced to identify market performance differences.

Supporting visuals for product and city KPIs:

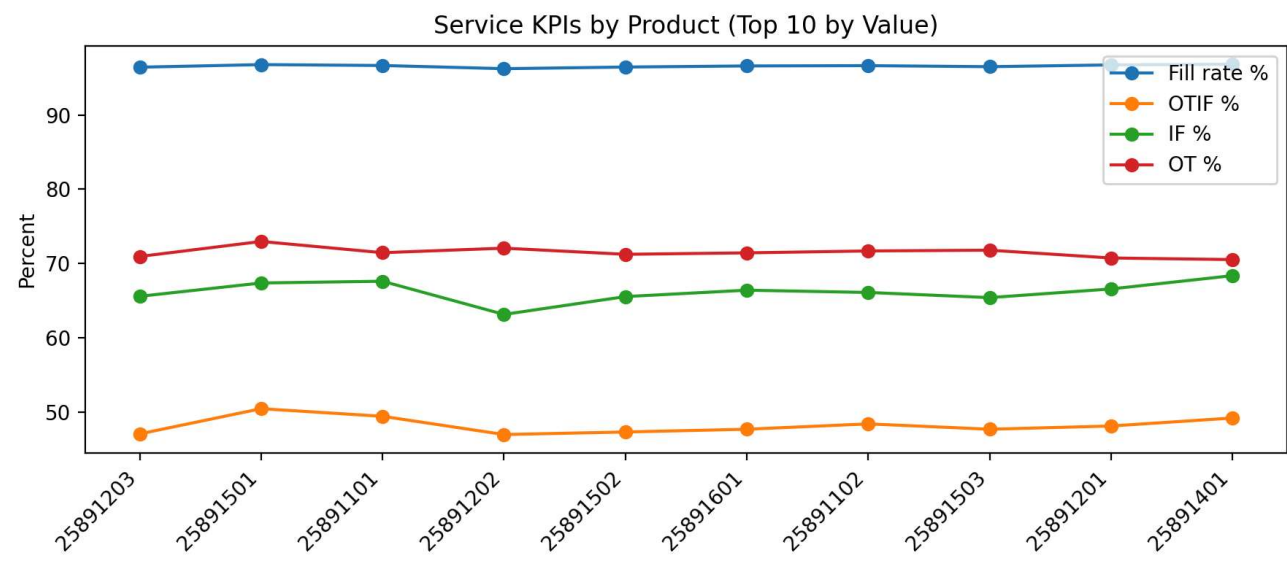
- Top 10 products by order value:

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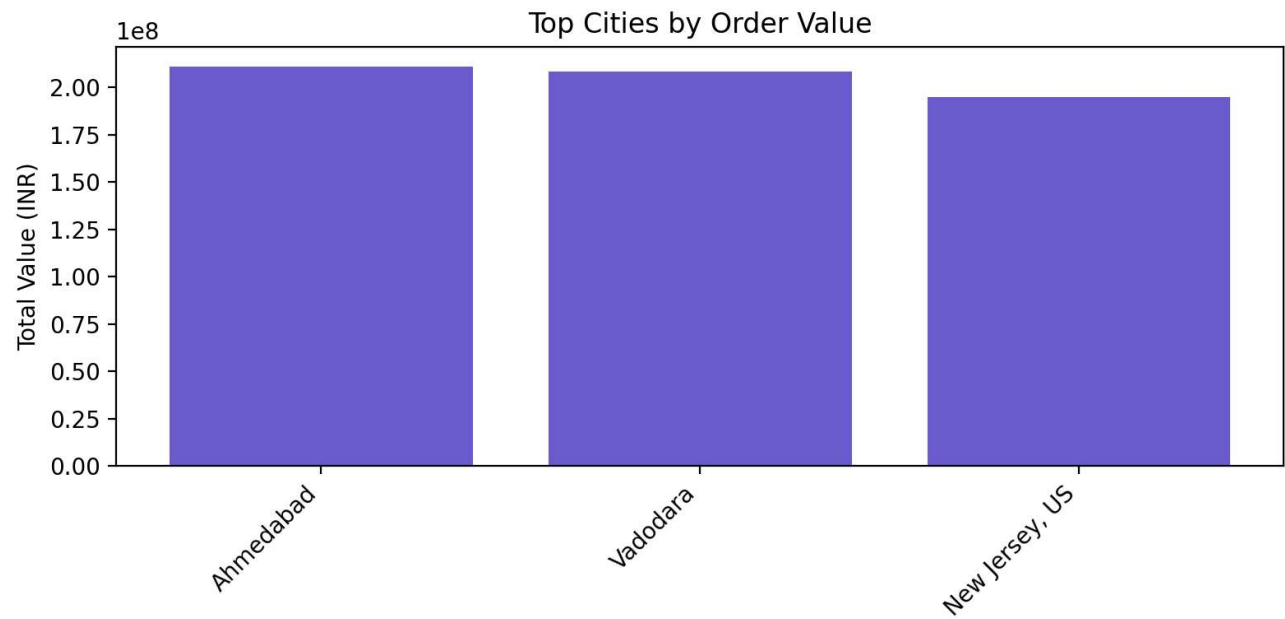
- Service KPIs for top products:

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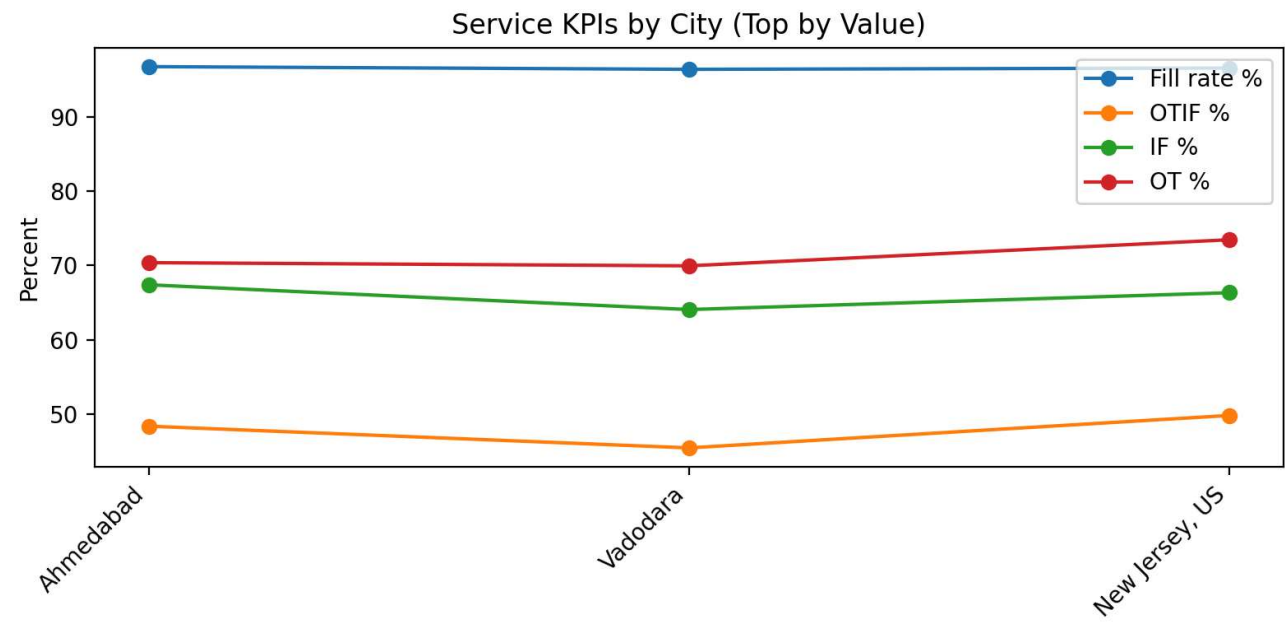
- Top cities by value:

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- Service KPIs by city:

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Data quality & cleaning steps applied

- Trimmed whitespace on ID fields in fact_order_line and fact_aggregate.
- Removed rows with NULL or empty order_id, customer_id, or product_id in fact_order_line.

- Post-clean profile: fact_order_line shows 0 rows with bad or blank IDs (table now clean for joins and aggregations).

Practical implications & recommendations

- Priority 1 — raise OTIF: OTIF of 28.74% is well below typical commercial targets (often 90%+). Focus effort on fixes that improve both timing and completeness together (not just volume).
- Diagnostics to run next:
 - OTIF by customer segment and SKU to prioritize key accounts/SKUs.
 - Root cause split: how much of OTIF shortfall is due to late delivery vs short delivery vs both.
 - Examine supply vs planning: are shortages driven by stockouts, allocation, or transportation?
- Quick wins to consider:
 - Protect high-value customers/SKUs with allocation and expedited replenishment.
 - Improve promise accuracy (reduce late shipments) and pick/pack processes (reduce shortages).
 - Use city/regional performance to focus operational improvements at warehouses serving the worst-performing markets.

Closing summary

- The business delivers most ordered volume overall (volume fill ~96.6%), but the customer experience is weak because only ~29% of orders are both on time and in full. That is the primary risk to customer satisfaction, retention, and cost (expediting and service recovery). The dashboard tables and visuals provided (cards, monthly trends, product and city breakdowns, and top customer tables) point to where improvements will have the biggest

commercial impact: top customers, top SKUs, and the cities with the largest gap between on-time and in-full performance.