

## **Problem Statement**

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**QuickBite Express** is a Bengaluru-based food-tech startup (founded in 2020) that connects customers with nearby restaurants and cloud kitchens.

In June 2025, QuickBite faced a major crisis. A viral social media incident involving food safety violations at partner restaurants, combined with a week-long delivery outage during the monsoon season, triggered massive customer backlash. Competitors capitalized with aggressive campaigns, worsening the situation.

#### **The challenges were severe:**

- A large portion of active users disengaged within a short period.
  - Daily orders saw a sharp decline compared to earlier months.
  - Customer satisfaction scores fell sharply, signaling trust issues.
    - Many partner restaurants shifted to competing platforms.
    - Customer acquisition costs rose significantly

## Data Overview

This page summarizes the datasets and tables powering the QuickBite Express analytics model, supporting insights into customer behavior, restaurant performance, delivery efficiency, and overall experience.

### Fact Tables

Table name	Description	Key Fields
fact_delivery_performance	Delivery time, distance, and SLA compliance metrics	order_id, actual_delivery_time_mins, distance_km
fact_order_items	Line-level order details — item, quantity, and discounts	order_id, menu_item_id, quantity, unit_price, line_total
fact_ratings	Ratings and review data from customers per order.	order_id, rating, review_text, sentiment_score
fact_orders	Tracks customer orders, amounts, timestamps, and cancellations	order_id, customer_id, restaurant_id, total_amount, is_cancelled

### Dimension Tables

Table Name	Description	Key Fields
dim_customer	Customer profiles, signup details, and acquisition sources.	customer_id, signup_date, city, acquisition_channel
dim_delivery_partner	Details of delivery service providers and performance.	delivery_partner_id, partner_name, vehicle_type, avg_rating, is_active
dim_menu_item	Menu item details, pricing, and category.	menu_item_id, restaurant_id, item_name, price, is_veg
dim_restaurant	Restaurant details, cuisine types, and partner info.	restaurant_id, restaurant_name, cuisine_type, partner_type, avg_prep_time

## Executive Summary

QuickBite experienced a sudden and severe demand shock beginning in June 2025: revenue fell ~64% and orders ~61.5%. Analysis shows this was a **volume-driven collapse** (fewer orders), not a pricing or discounting change—average discounts and delivery fees per order remained stable. Operational failures (delivery delays rose from ~8 → ~20+ mins; on-time deliveries fell from 43.6% → 12.2%) are the strongest driver of falling sentiment and cancellations (Spearman  $\rho = -0.325$ ,  $p < 0.001$ ). Sentiment shifted from 4–5★ dominance to 2–3★, and even “Champion” customers reversed behavior.

Recommendations: urgent operational fixes (delivery reliability), targeted retention for high-value churn-risk cohorts, and a short-term paid acquisition push to stabilize demand.

## Impacted KPIs

Revenue (Pre-Crisis)

**37.62M**

Revenue (Crisis)

**10.94M**

-70.92%

Orders (Pre-Crisis)

**114K**

Orders (Crisis)

**35K**

-68.93%

Average Order Value (Pre-Crisis)

**319.30**

Average Order Value (Crisis)

**298.51**

-6.51%

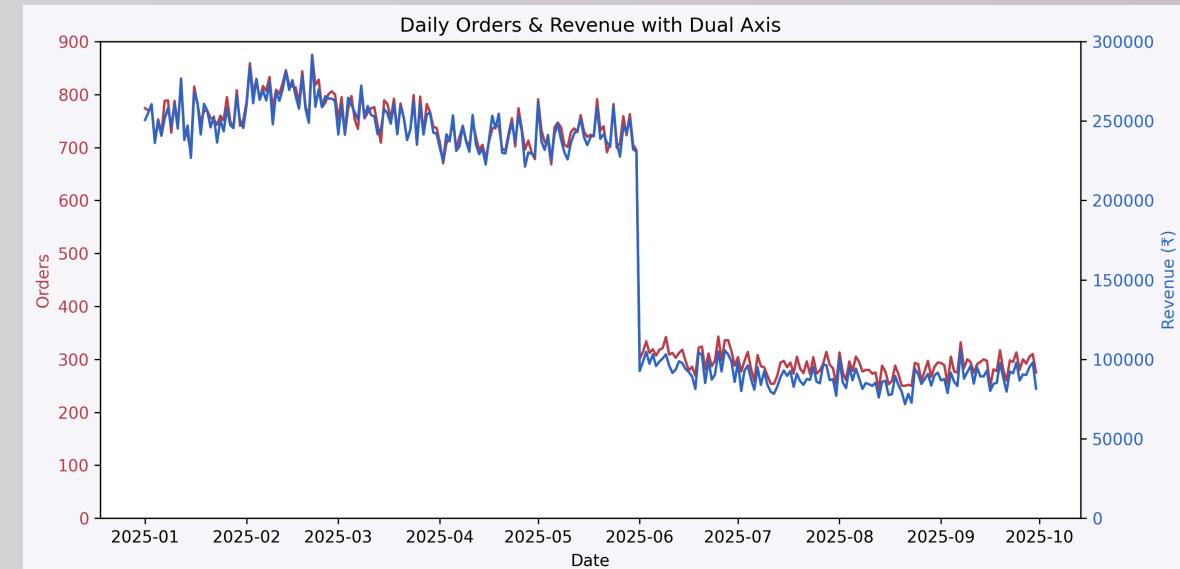
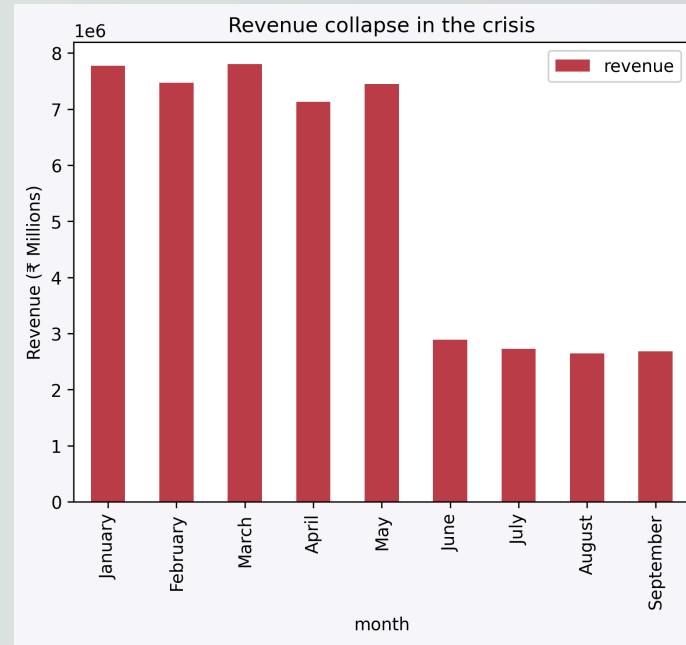
SLA on time % (Pre-Crisis)

**39.47%**

SLA on time % (Crisis)

**10.54%**

## Revenue collapse Pattern

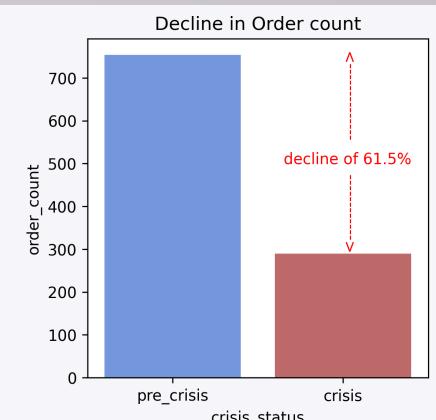
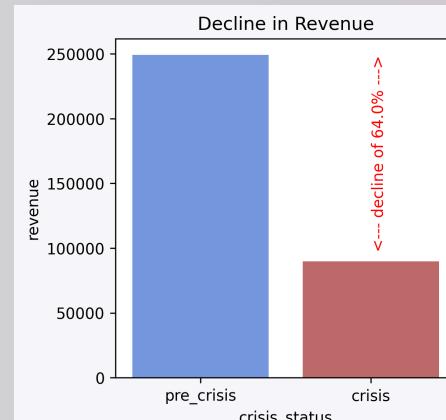


The order and revenue trends show an abrupt collapse in early June 2025, aligning with the outage and social backlash. The absence of a gradual decline confirms that the crisis impact was sudden, while the prolonged stagnation in subsequent months suggests lasting consumer distrust.

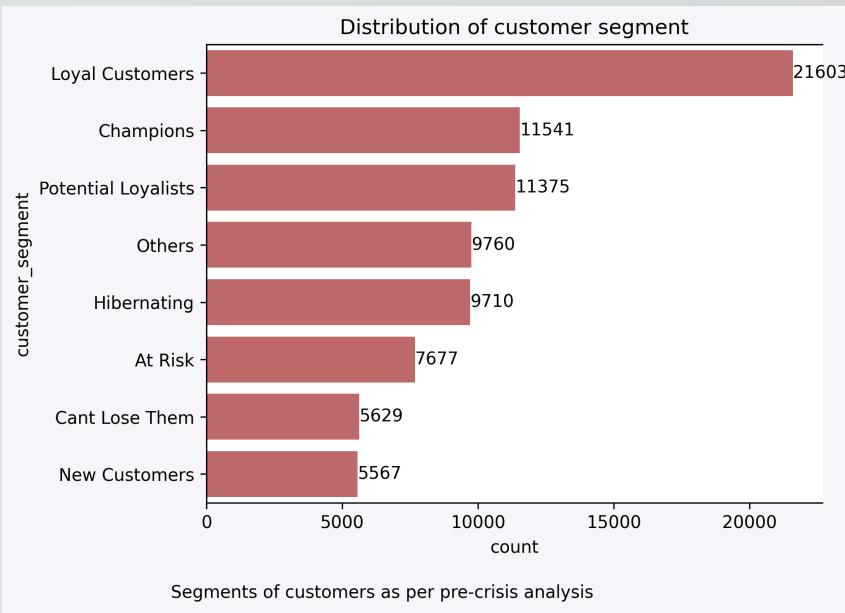
Revenue and order volumes dropped sharply during the crisis, with revenue declining by **64%** and orders by **61.5%**.

This indicates a significant fall in both customer demand and sales activity.

The business faced a broad slowdown, highlighting the crisis's widespread impact.

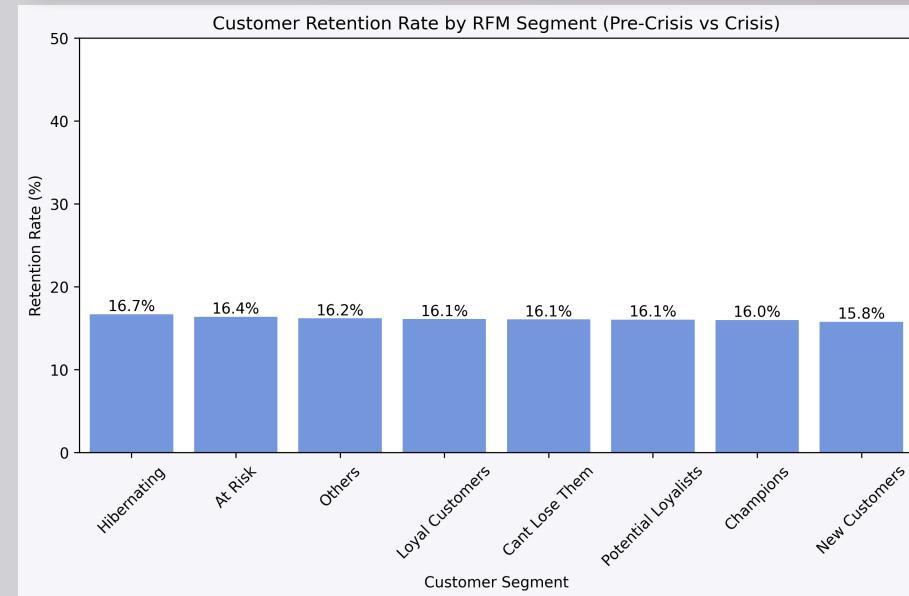


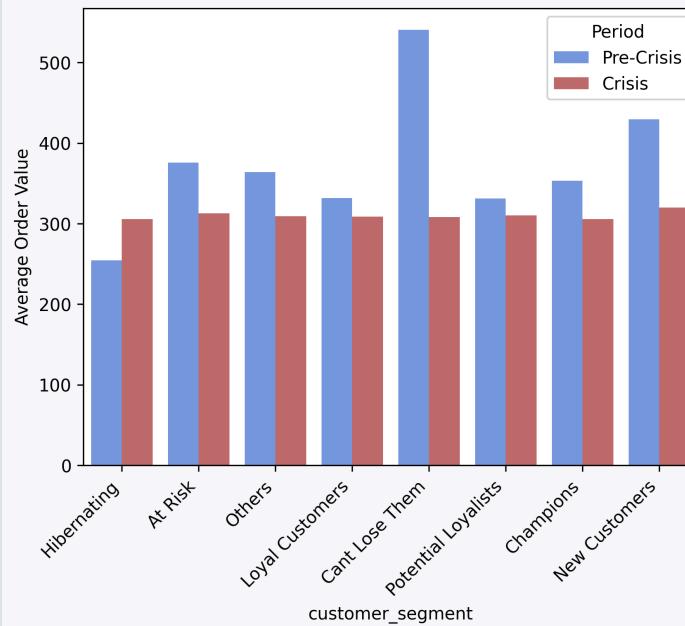
## Customer segments Retention



Before the crisis, our **top customer base**—Champions, Loyal Customers, and Potential Loyalists—showed strong trust and engagement.

After the crisis, however, this trust **deteriorated sharply**, with **Champions now among the least retained segments**, despite an overall **retention rate of around 17% across all groups**. This indicates that even our most loyal customers **lost connection and confidence**, highlighting a deeper **erosion of brand loyalty and customer trust**.



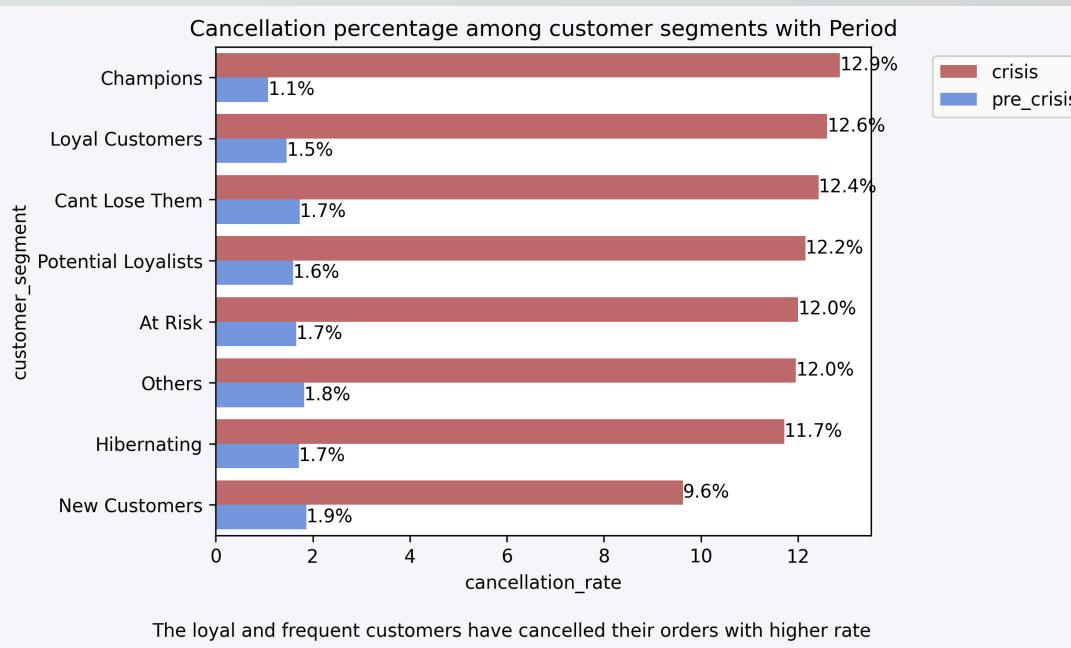
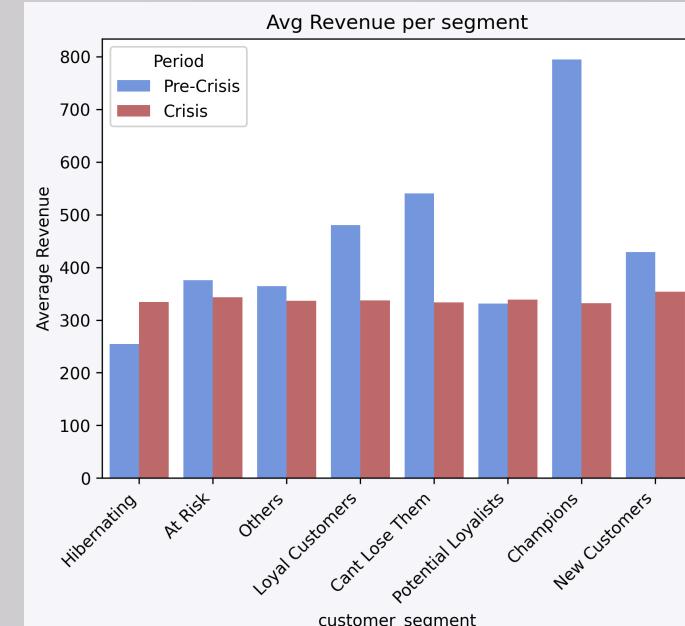


During the crisis, the business faced a **sharp overall decline**, with revenue dropping by **64%** and orders by **61.5%**.

During the crisis, **average order value and average revenue converged** across all customer segments, showing minimal variation.

This suggests that **spending patterns became uniform**, with even high-value segments reducing their order frequency and spend.

The crisis effectively **flattened customer differentiation**, signaling broad behavioral contraction.

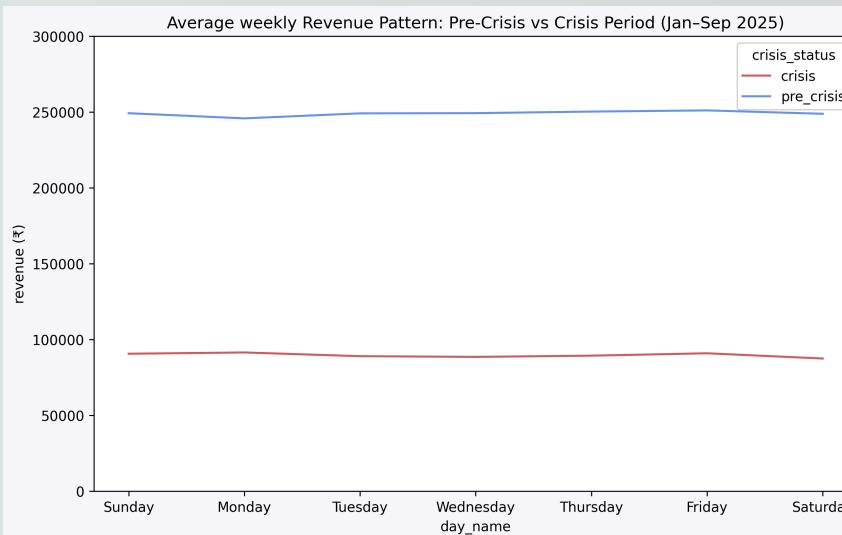
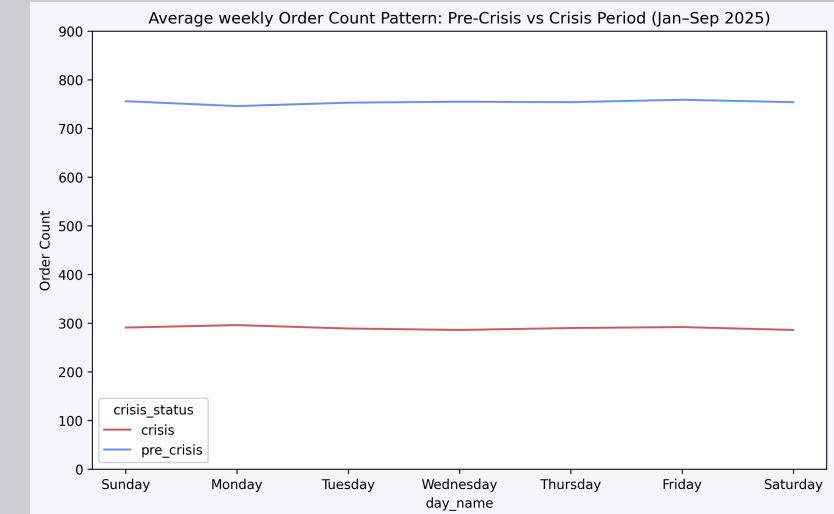
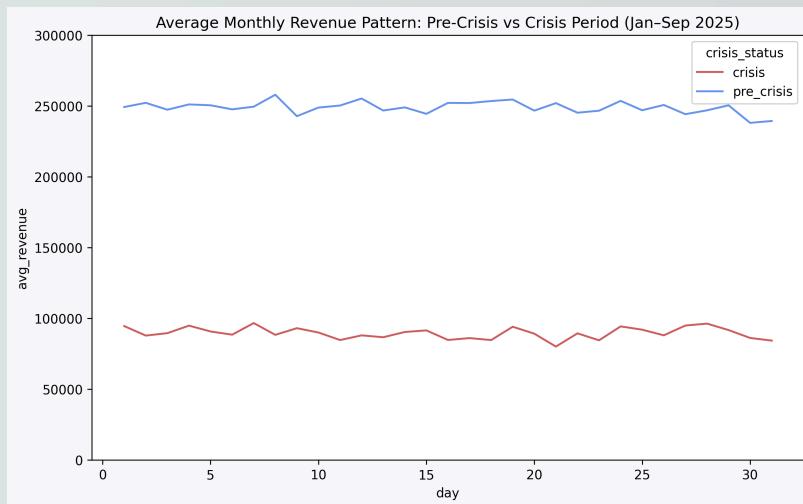


Before the crisis, **Champion customers** showed the **lowest cancellation rate (1.1%)**, reflecting their reliability and strong engagement.

However, during the crisis, they recorded the **highest cancellation rate (12.9%)**, marking a complete reversal in behavior.

This sharp flip indicates that even the most loyal customers **lost confidence or faced constraints**, signaling deep disruption in overall customer trust and purchasing stability.

## Case of Change in Magnitude, Consistency in Spending Rhythm

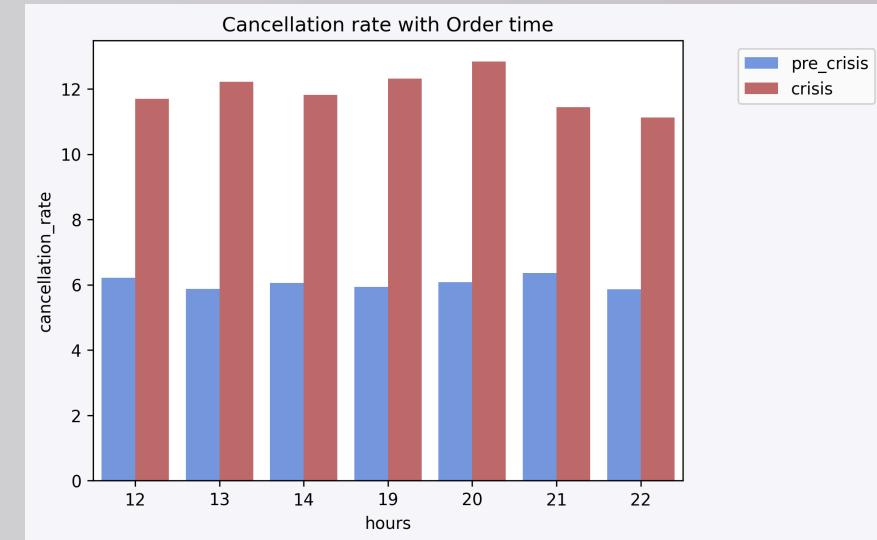
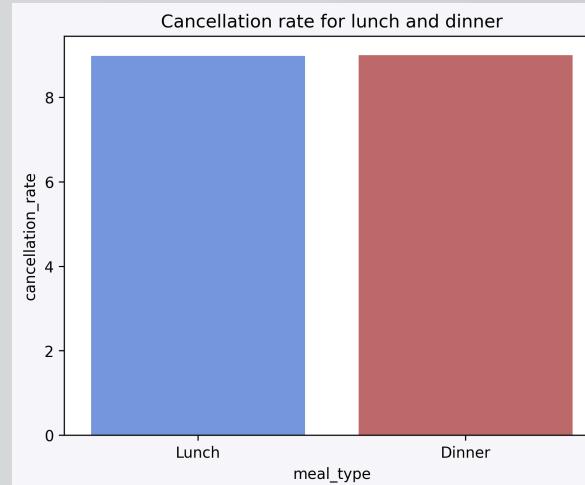
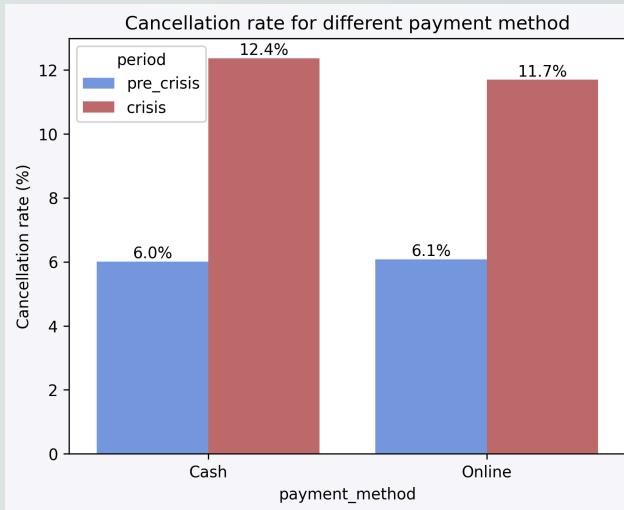


Despite a **60% drop in overall revenue**, the ordering rhythm remained consistent throughout the crisis.

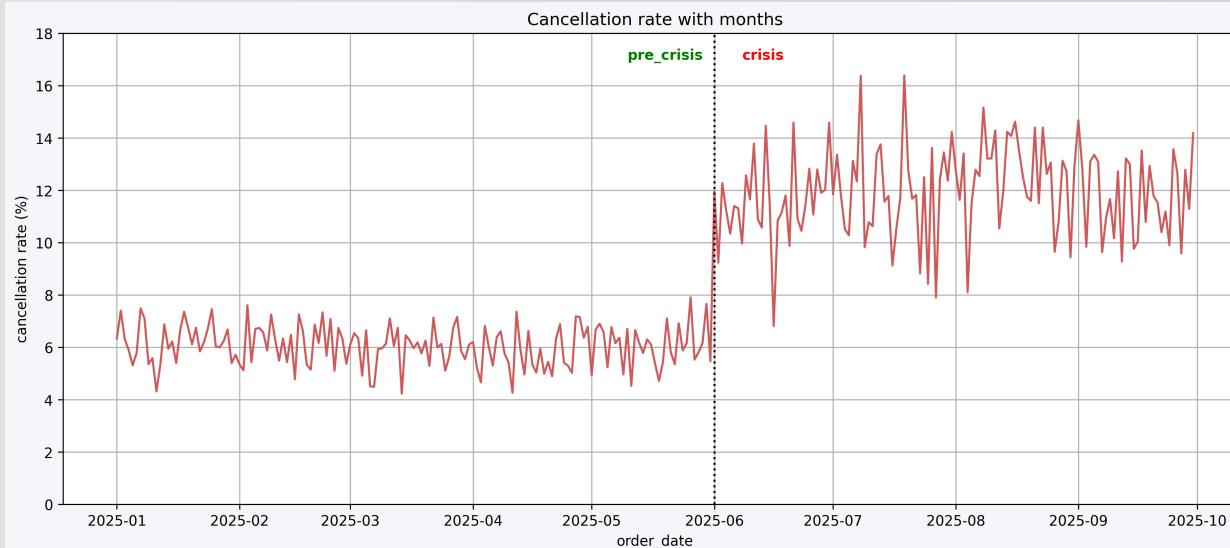
Patterns of average weekly orders and revenue followed a trajectory similar to pre-crisis levels, though at lower magnitudes.

This indicates that while customers spent less per order, their purchasing frequency and behavior stayed steady, reflecting resilience in engagement despite financial strain.

## Cancellation rate Pattern



## Cancellation rate growth

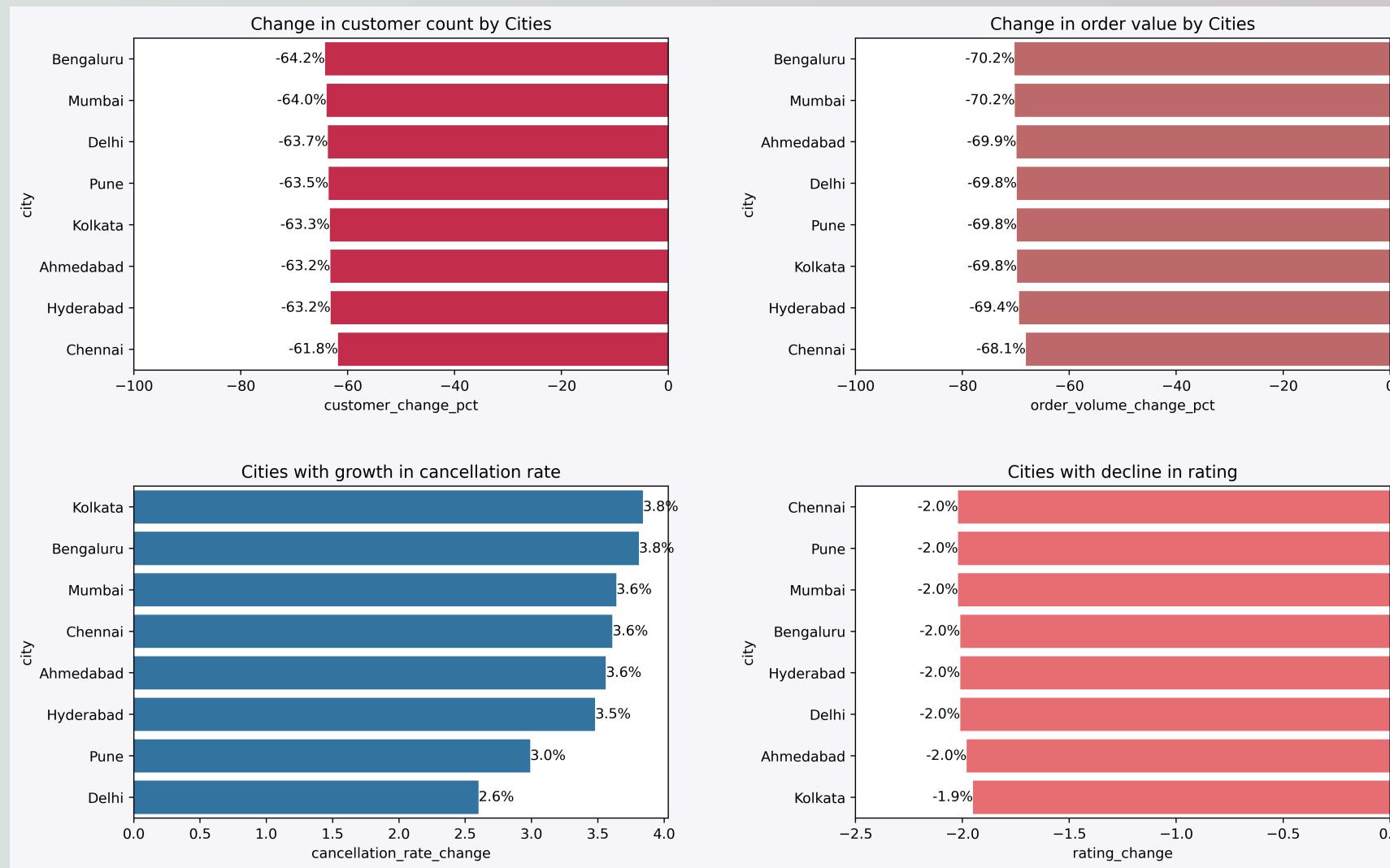


Cancellation behavior spiked consistently across all time slots during the crisis, nearly **doubling from pre-crisis levels**, showing no particular hour or meal-time sensitivity.

Both **lunch and dinner orders** saw **similar cancellation rates**, suggesting that timing had little to no influence on customer reliability.

Combined with similar cancellation rates across **payment methods**, this indicates that the **rise in cancellations was a systemic issue**, driven more by **external disruptions or customer uncertainty** than by operational or behavioral factors.

## Performance with cities

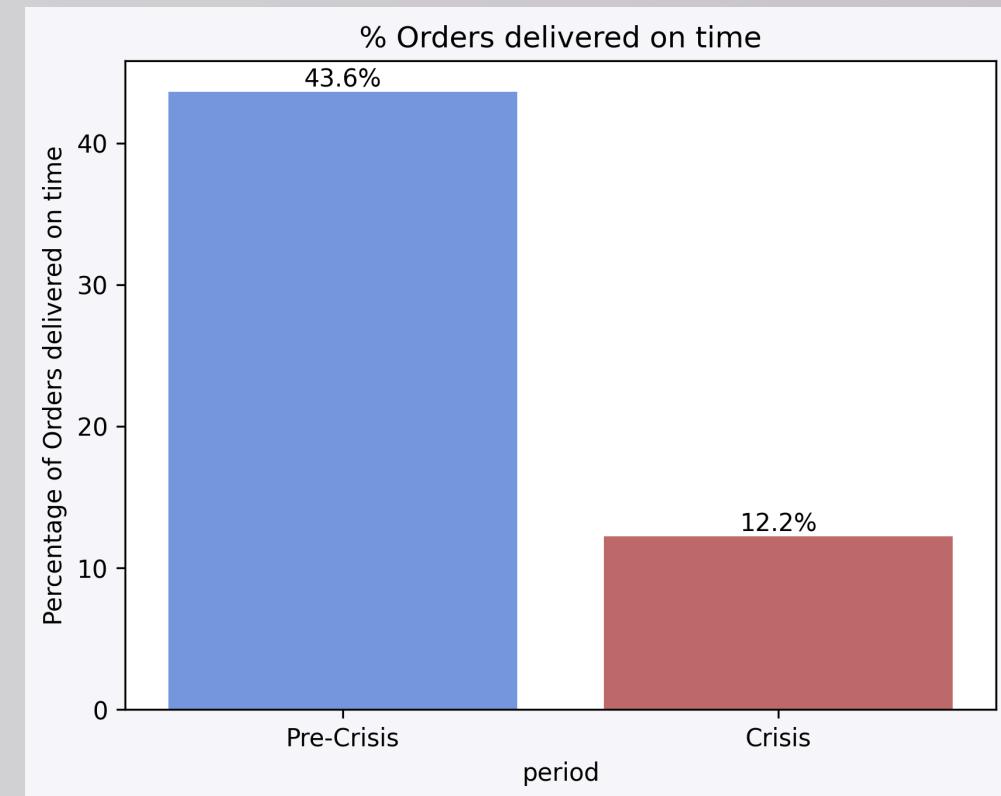
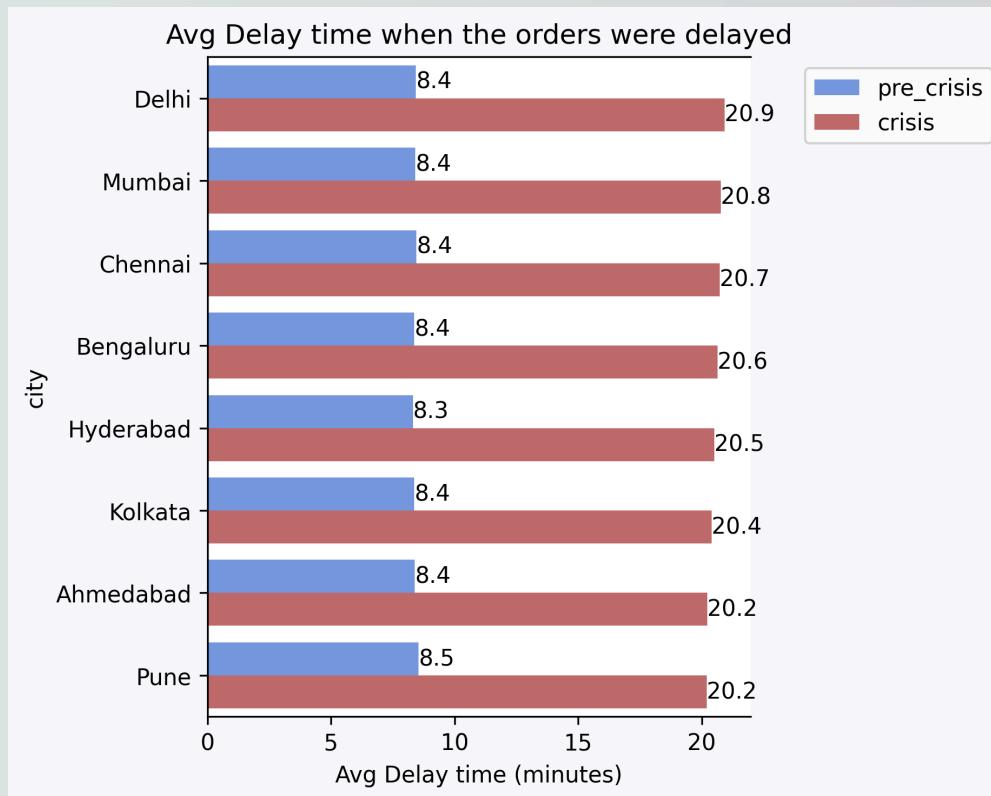


All major cities experienced a **severe contraction**, with customer counts and order values dropping by around **63–70%** during the crisis.

Despite this widespread decline, **Kolkata, Bengaluru, and Mumbai** showed the **highest rise in cancellation rates** ( $\approx 3.6\text{--}3.8\%$ ), while **customer ratings declined uniformly by about 2%** across all cities.

This points to a **nationwide downturn** in engagement and satisfaction, where operational or external disruptions affected **customer trust, consistency, and service perception** across regions.

## Operational Breakdown



During the crisis, **operational efficiency dropped sharply**, with the **average delivery delay increasing from about 8 minutes to over 20 minutes** across all cities.

At the same time, the **percentage of on-time deliveries plunged from 43.6% to just 12.2%**, reflecting widespread fulfillment challenges.

This surge in delays likely **eroded customer trust and satisfaction**, contributing to the higher cancellation rates and declining ratings observed during the same period—signaling a clear chain reaction from **operational strain to customer disengagement**.

## Dependance of delivery delay and Order Cancellation

### Null Hypothesis ( $H_0$ ):

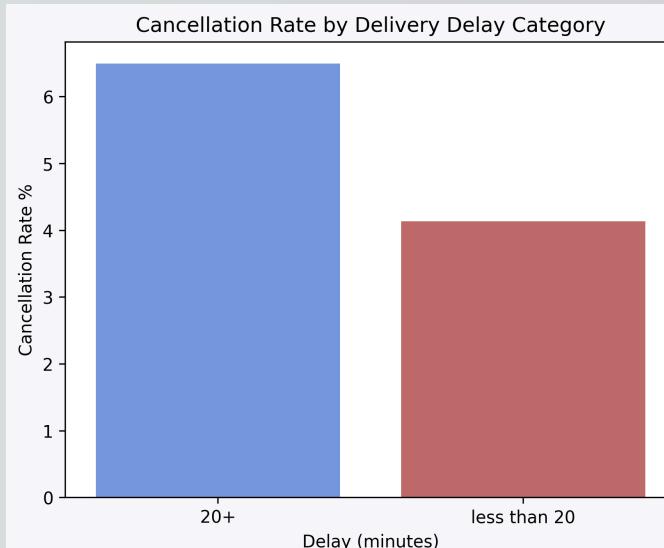
The cancellation of orders is independent of delivery delay. In other words, the proportion of cancelled orders is the same for orders delayed less than 20 minutes and orders delayed 20 minutes or more.

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Chi-square statistic: 166.67567741552185
Degrees of freedom: 1
p-value: 3.9379736793975513e-38
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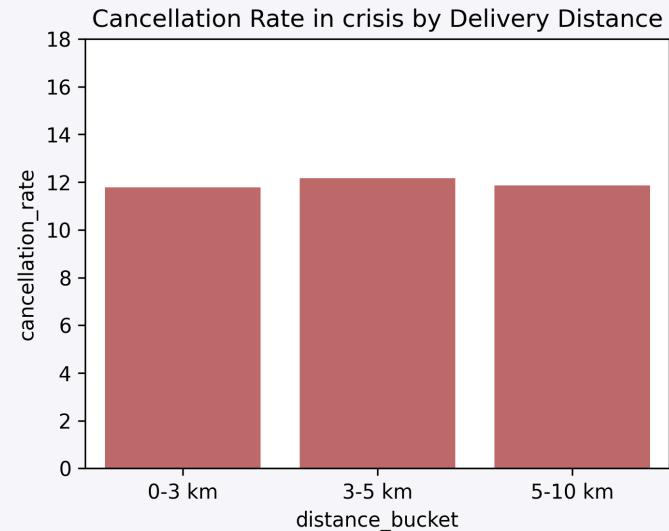
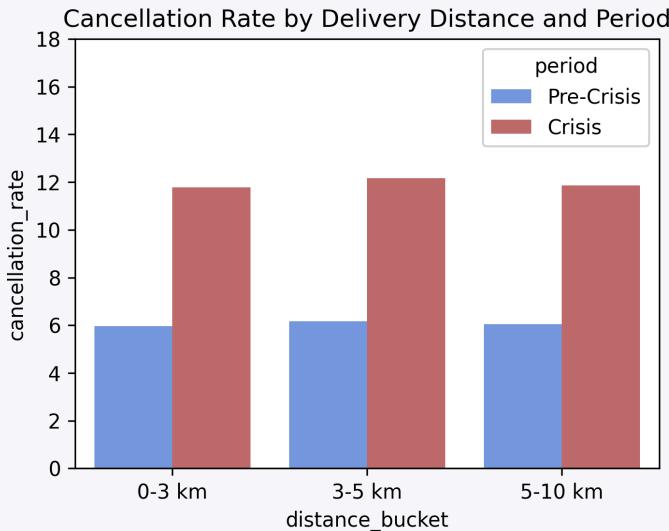
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The Chi-square test shows a statistically significant association between delivery delay and order cancellation ( $p < 0.001$ ).

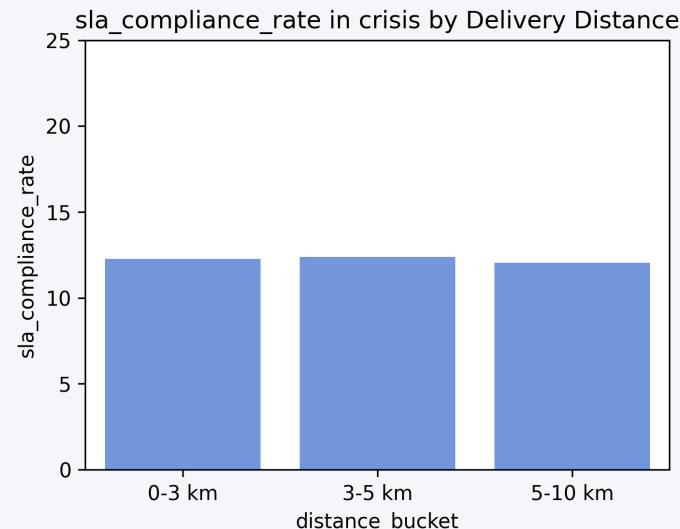
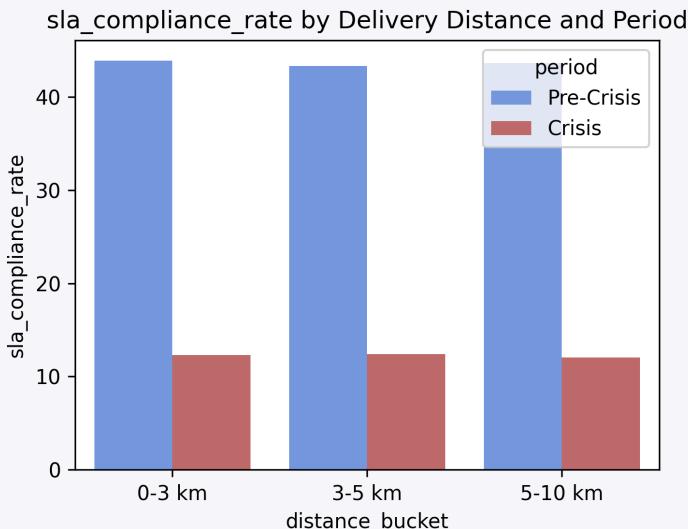
Orders delayed 20+ minutes are more likely to be cancelled (~6.5%) compared to orders delayed less than 20 minutes (~4.1%).



## Performance Delivery Distance

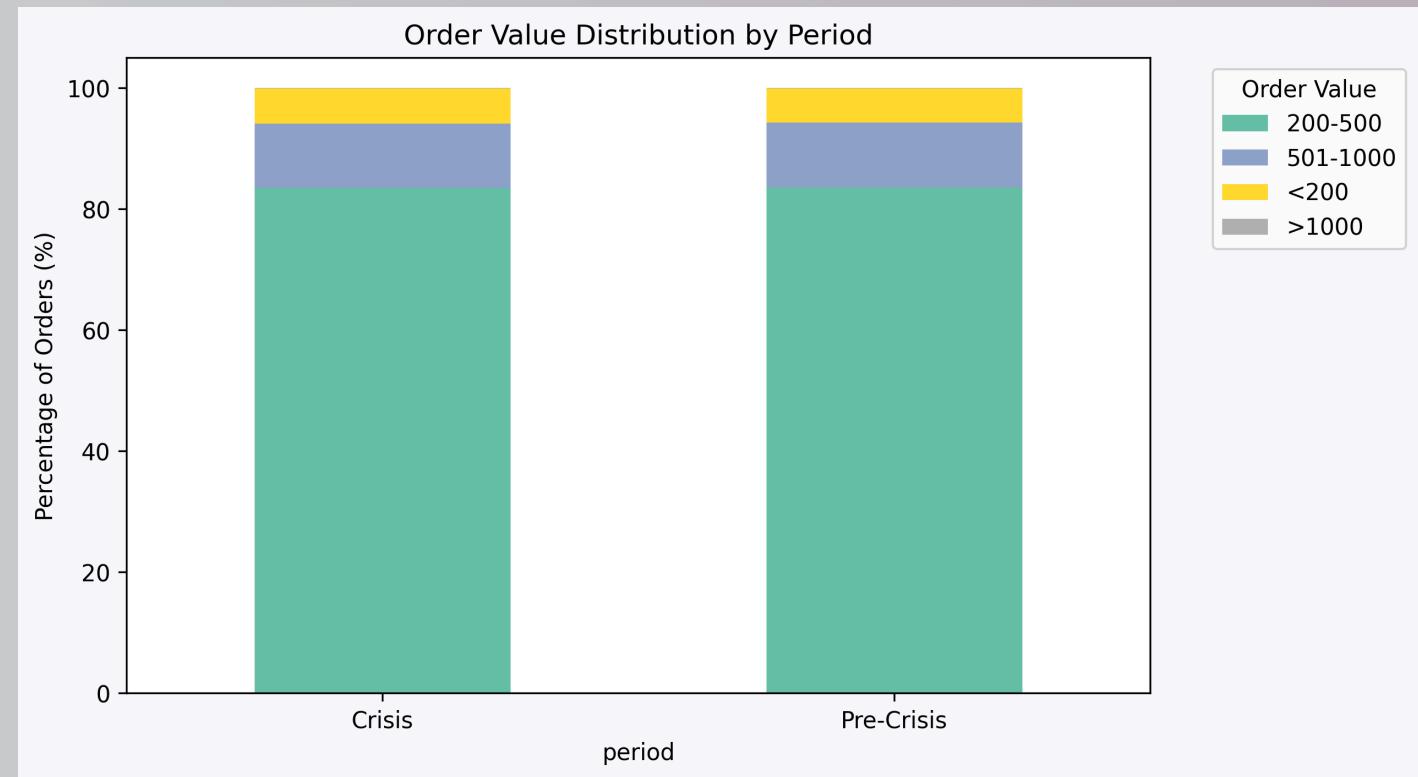
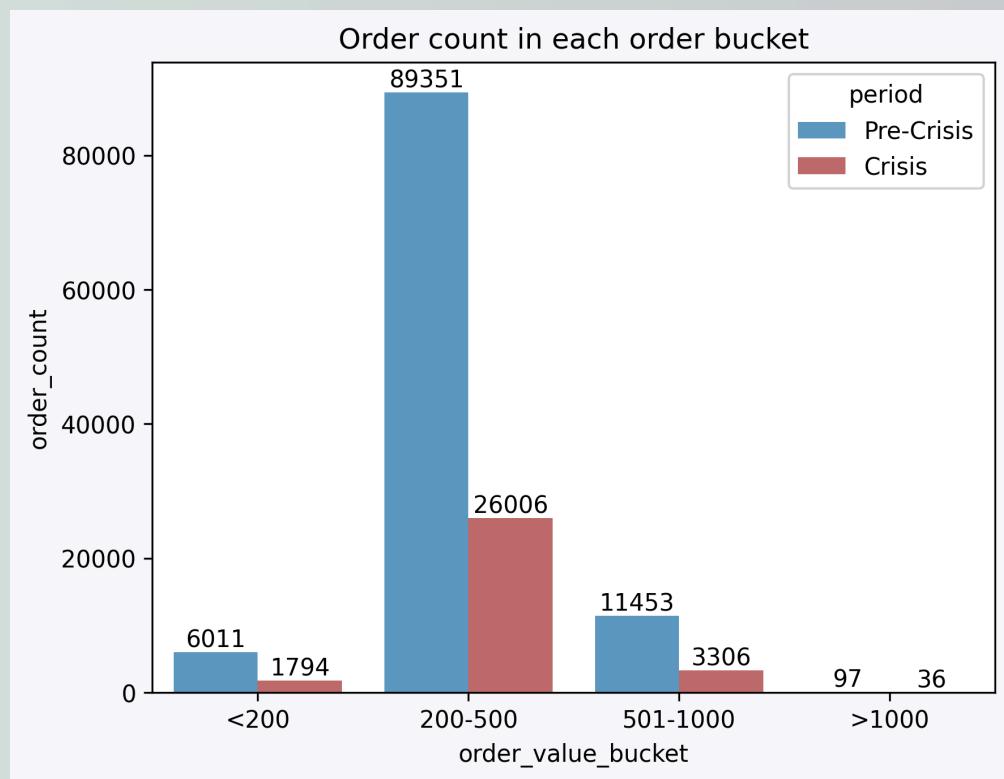


Cancellation rates rose sharply during the crisis compared to pre-crisis, reflecting operational stress. However, within the crisis period itself, cancellation levels remained consistent across all distance buckets —indicating that the surge was system-wide, not distance-driven.



SLA compliance dropped dramatically from pre-crisis to crisis across all distance categories. Yet, during the crisis, SLA performance remained uniformly low, confirming that delivery inefficiencies were universal and not related to route distance.

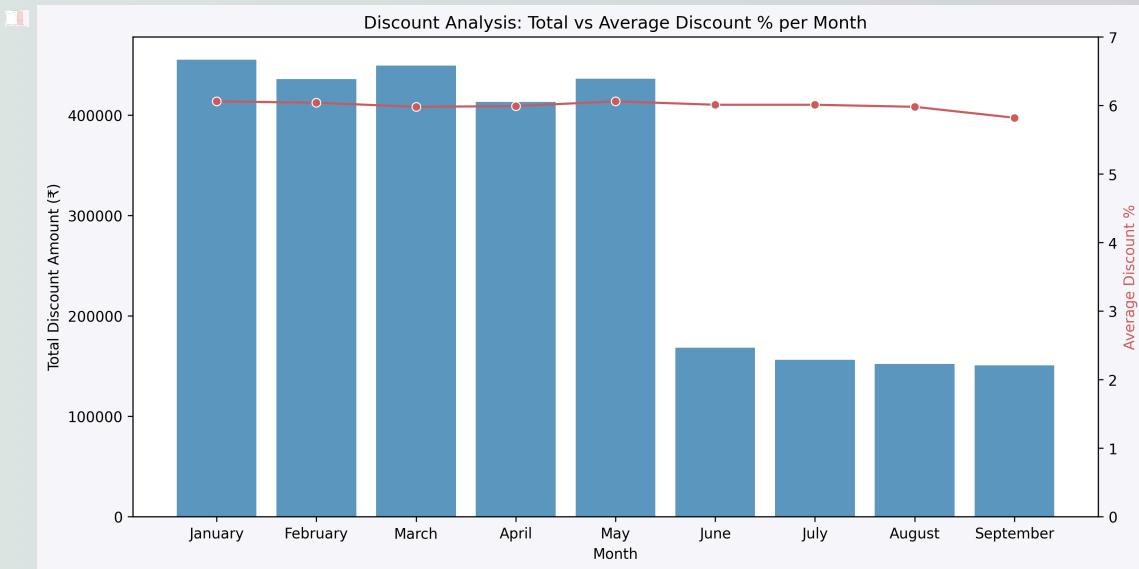
## Customer Behavior



Most customers continued ordering within the ₹200–₹500 range both before and during the crisis, indicating **no significant behavioral or price sensitivity shifts**.

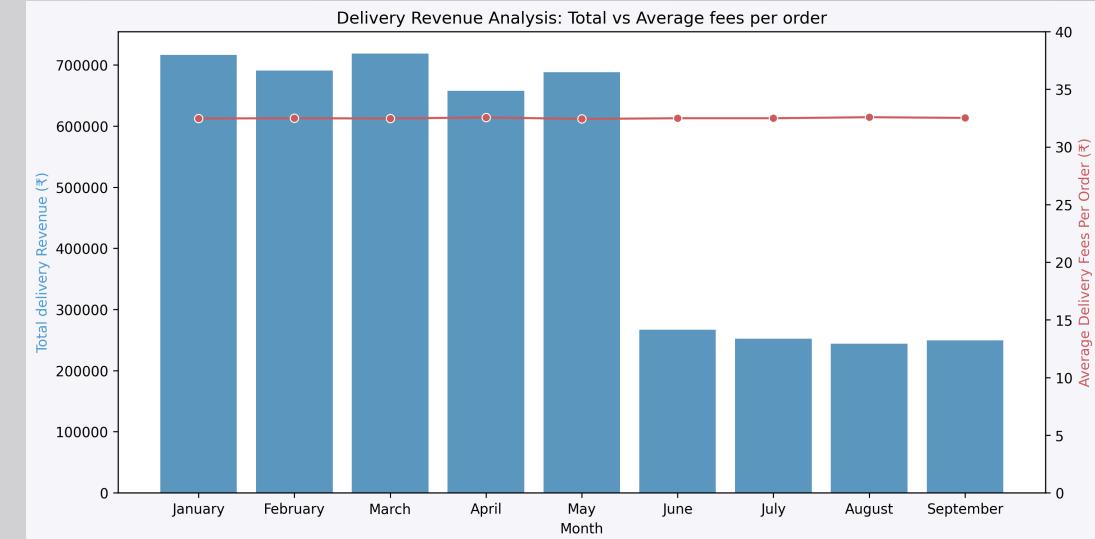
The crisis primarily affected **how frequently** customers ordered, not **what they ordered** — suggesting habitual purchasing and steady price tolerance.

## Business Response



The decline in total discounts is a *consequence* of reduced order volumes — not a change in marketing or promotional policy.

→ Indicates that the restaurant **did not use aggressive discounting** to stimulate demand during the downturn.



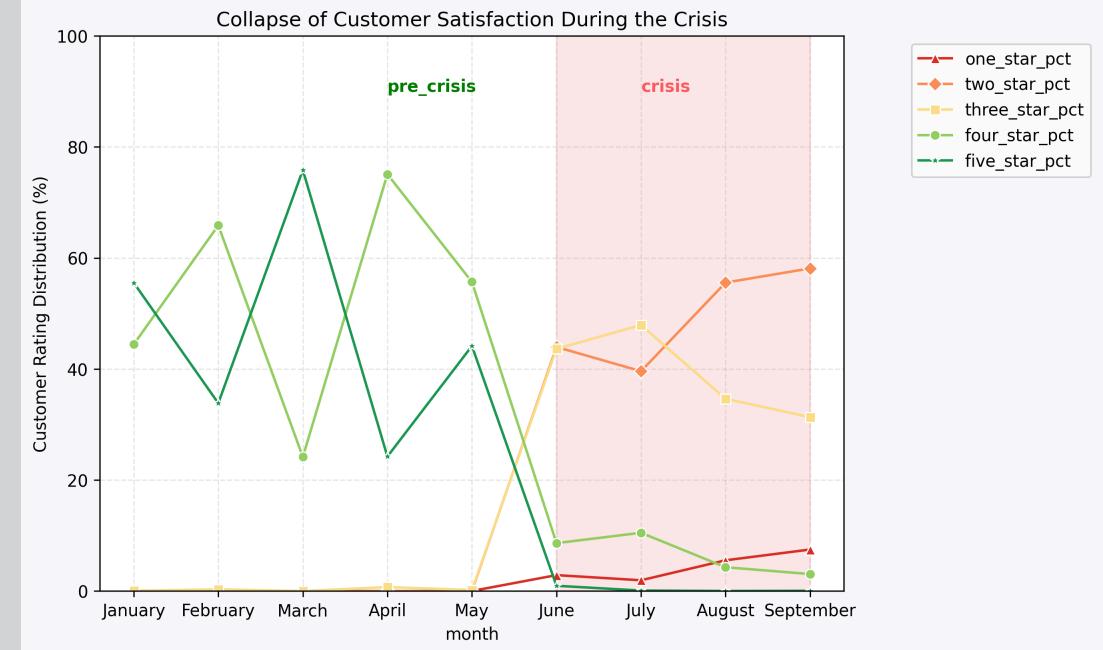
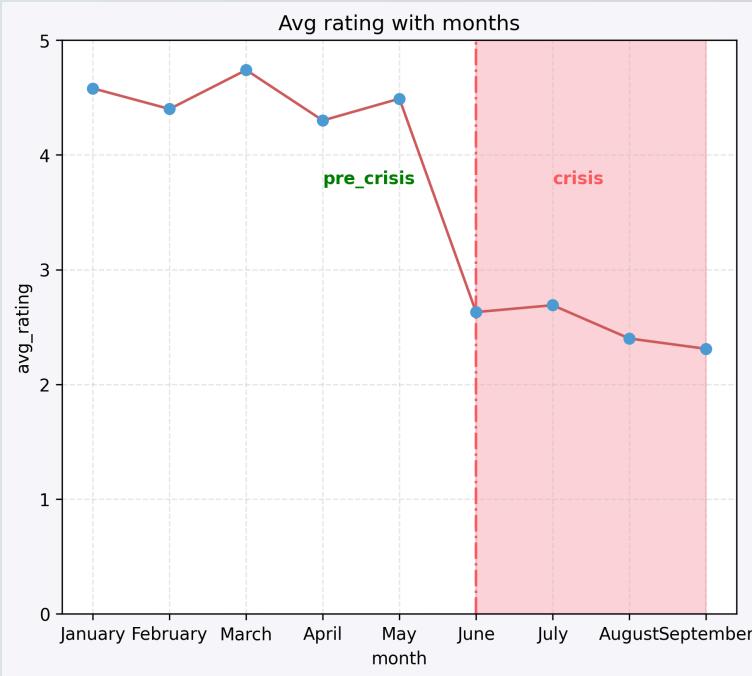
Delivery fee revenue dropped sharply from ~₹658k–719k/month pre-crisis (Jan–May) to ~₹243k–267k/month during crisis (Jun–Sep).

Average delivery fee per order remained stable at ~₹32–33 throughout, indicating that the revenue decline was due to fewer orders, not reduced delivery pricing.

Both total discount value and delivery fee revenue **fell sharply after the crisis**, mirroring the drop in order volume.

However, **average discount percentages and delivery fees remained stable**, confirming that **the business did not alter its pricing or promotional approach** — the fall in revenue stemmed solely from reduced demand.

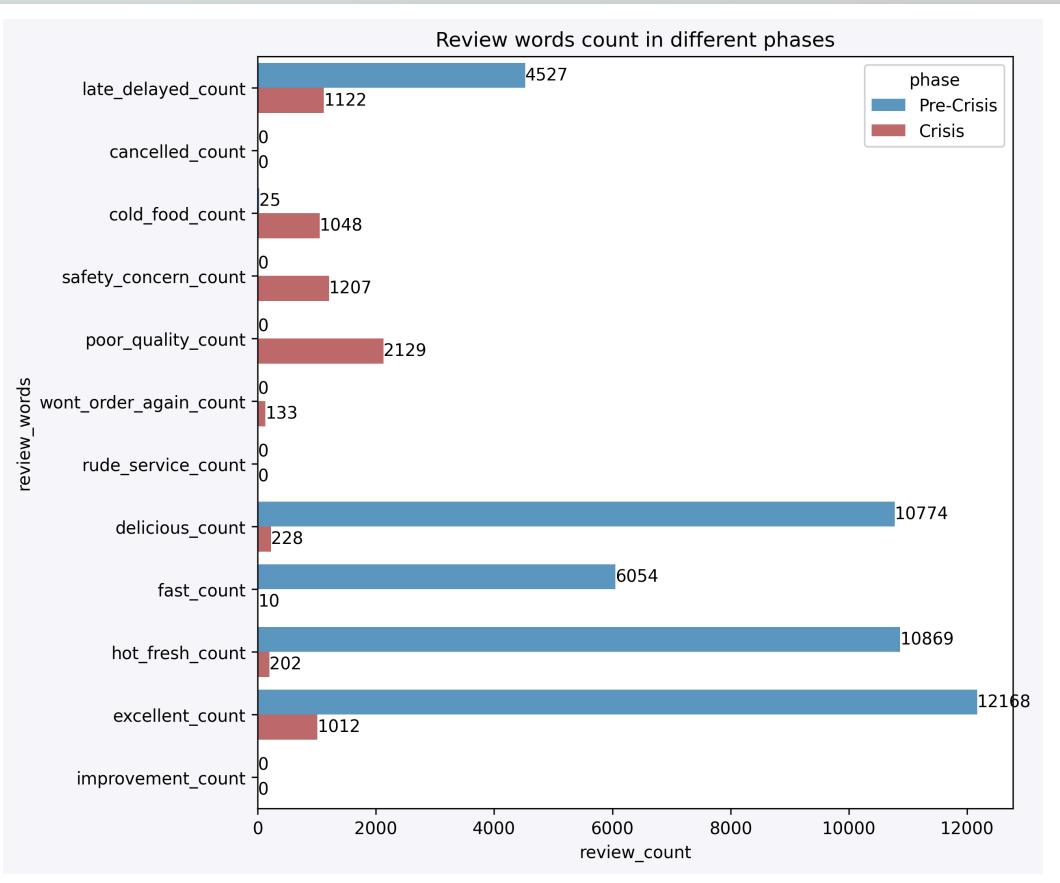
## Collapse of Ratings



### INSIGHT :

Before the crisis, customer sentiment was overwhelmingly positive, with most reviews falling in the **four- and five-star range** and the **average rating consistently above 4.5**. This reflected strong satisfaction and reliable service performance. However, once the crisis began, there was a **drastic shift in rating patterns** — high ratings nearly disappeared, replaced by a surge in **two- and three-star reviews**. The overall **average rating plunged to around 2.5**, signaling widespread dissatisfaction. This sharp and sustained decline shows how **operational disruptions, longer delivery delays, and higher cancellations** directly eroded customer trust, turning once-loyal promoters into discontented users.

## **Shift from Praise to Complaints — The Changing Tone of Customer Reviews**



## Most Mentioned words

Customer feedback underwent a **complete sentiment reversal** during the crisis.

Positive mentions like “*excellent*,” “*hot & fresh*,” and “*delicious*”— once dominating reviews — saw steep declines, while **negative terms** such as “*poor quality*,” “*cold food*,” and “*safety concern*” emerged strongly.

Mentions of **delivery delays** also dropped, not because service improved, but because **customers focused more on food quality and safety issues**.

Before the crisis, reviews were overwhelmingly positive, centered around **taste, freshness, and quick delivery**, reflecting a strong customer experience.

However, during the crisis, the tone shifted drastically — **complaints about poor quality, safety concerns, and cold food replaced words of appreciation.**

This language shift reveals how **service disruptions and loss of reliability translated directly into emotional dissatisfaction**, marking a clear transformation from **trust and delight to frustration and concern**.

## Statistical Validation of Sentiment Drivers

Factor	Correlation	Significance	Insight Summary
Delivery Delay	-0.325	Significant	Longer delays strongly reduce sentiment.
Order Value (Crisis)	0.000	Not Significant	No effect on sentiment during crisis.
Order Value (Pre-Crisis)	+0.006	Not Significant	No meaningful relationship pre-crisis.
Cuisine Type	N/A ( $F = 0.821$ )	Not Significant	No variation in sentiment across cuisines.
Customer Tenure	-0.175	Significant	Older customers slightly less satisfied.
Partner Type (Cloud Kitchen vs Restaurant)	N/A ( $t = -1.069$ )	Not Significant	Sentiment similar across partner types.

Statistical testing confirms that **operational efficiency**, not order characteristics, was the key driver of customer sentiment during the crisis.

Delivery delay had a **moderate, negative, and statistically significant impact** on satisfaction — as delays increased, sentiment scores dropped notably.

In contrast, **order value, restaurant type, and cuisine** showed no meaningful effect, suggesting that customers' dissatisfaction stemmed more from **service reliability** than from product or pricing factors.

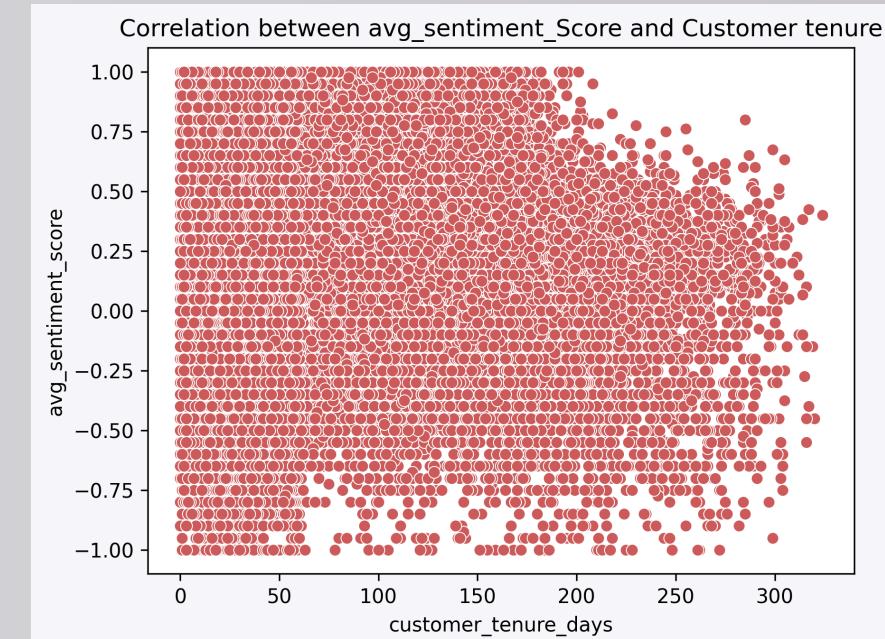
Interestingly, **long-term customers** reported slightly lower sentiment, indicating a **loss of patience and trust even among loyal users**, who may have felt the service failed to meet their expectations during the disruption.

Overall, the findings reinforce that **timeliness and operational consistency** were the most critical elements influencing customer experience amid the crisis.

## Statistical Validation of Sentiment Drivers



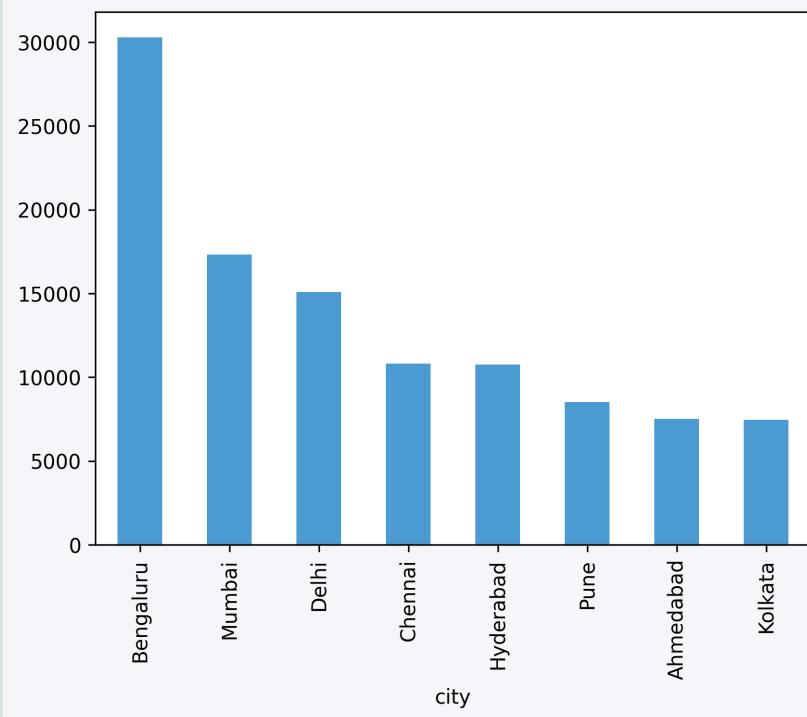
The box plot clearly shows how **operational performance affects customer mood** — delays beyond 20 minutes cause a steep sentiment drop, confirming that punctuality remains the strongest predictor of satisfaction.



There's a weak but clear downward trend — as customer tenure increases, sentiment tends to decline slightly.

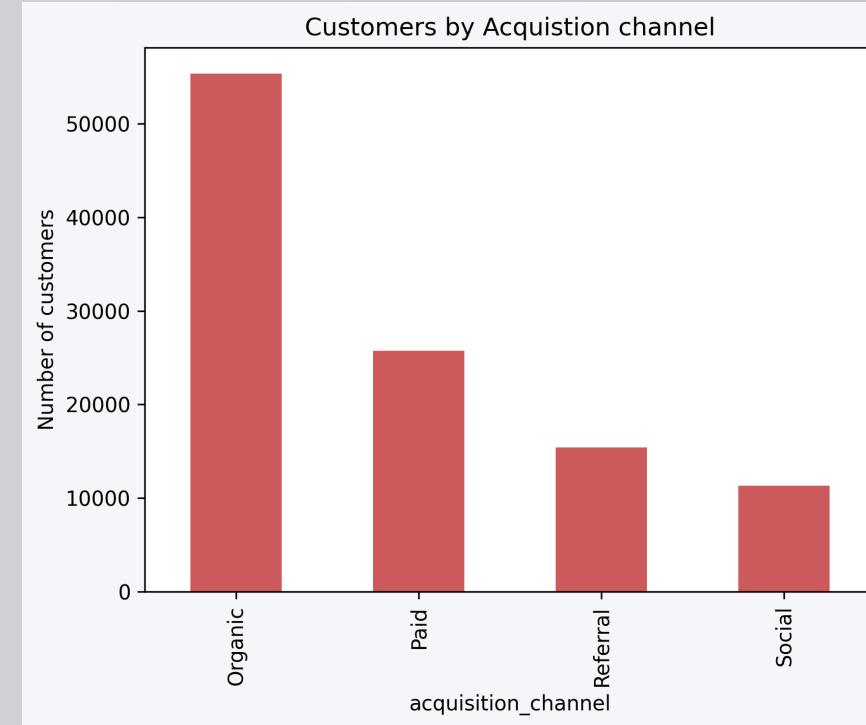
This suggests **long-term customers became less satisfied over time**, possibly due to repeated exposure to service inconsistencies.

## Customers



Demand was concentrated in Tier-1 metros (Bengaluru, Mumbai, Delhi). When urban demand collapsed, company-level metrics fell sharply

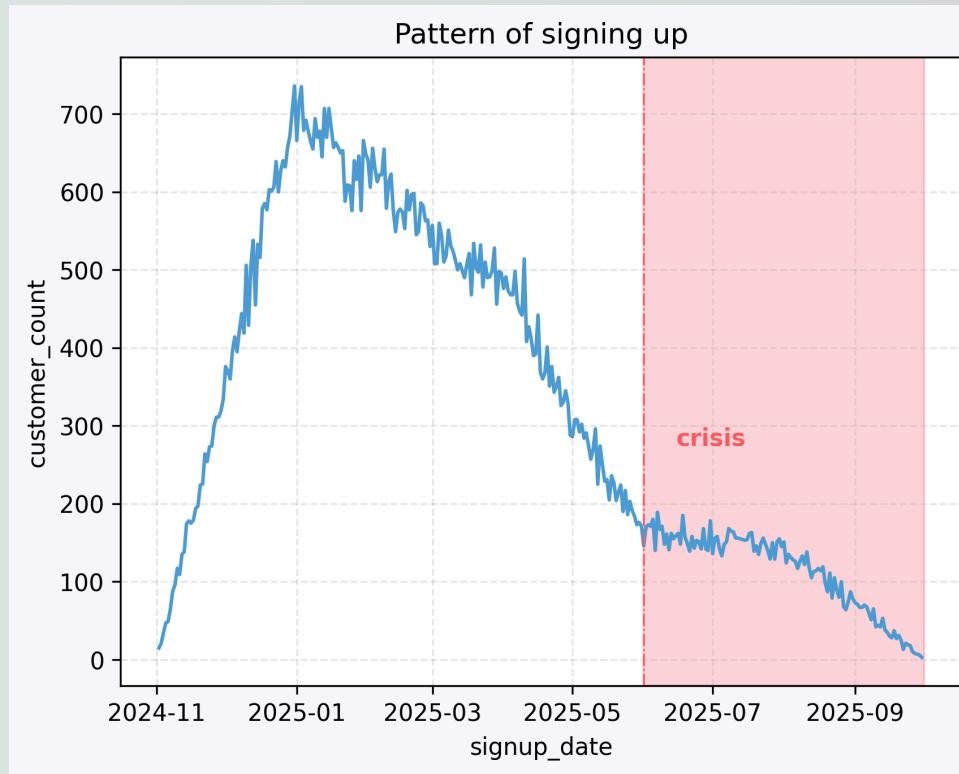
This indicates a **metro-heavy customer base**, making the business more exposed to urban disruptions during the crisis.



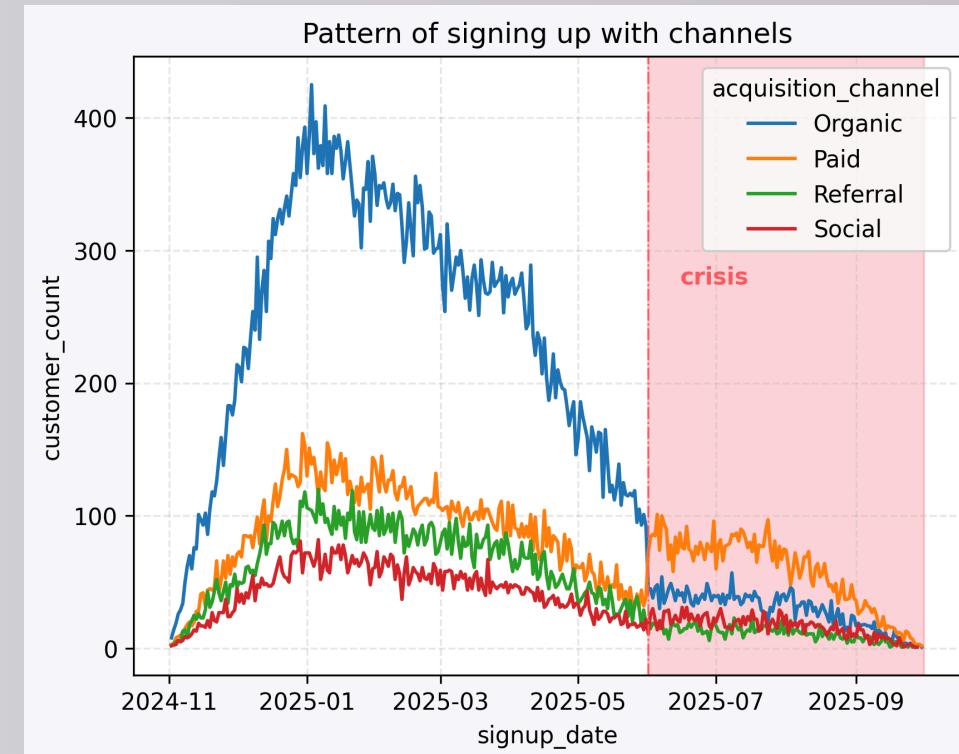
Strong organic growth indicates **brand trust and awareness** before the crisis.

However, a high reliance on organic channels also suggests **limited scalability** during external slowdowns (since paid and referral channels were underutilized).

## Customers



This pattern signals a **sudden halt in new customer inflow**, likely due to service disruptions, reduced marketing activity, or declining consumer confidence.



The synchronized decline across all channels shows that **the crisis affected the entire acquisition ecosystem**, not just one marketing stream.

Organic traffic (brand-driven) suffered most, underscoring the link between **active customer engagement and stable market conditions**.

Before the crisis, customer growth was driven largely by **organic acquisition and urban demand**, with Bengaluru, Mumbai, and Delhi contributing the bulk of signups.

However, the onset of the crisis led to a **sharp and synchronized collapse in new customer acquisition across all channels**.

Despite prior brand strength and strong organic pull, customer inflow dropped to near zero by late crisis months, revealing high dependency on **market stability and organic engagement** rather than diversified acquisition strategies.

## Problems and Solutions

Problem Identified	Root Cause	Recommended Action	Expected Impact
Falling Sentiment & Ratings (avg 4.5 → 2.5)	Poor service reliability, cold food issues	"Service Recovery" plan — refund credit, follow-up apology email	+1 point avg rating recovery
High Cancellation & Delivery Delays	Inefficient logistics, surge-time breakdowns	Rework delivery routing; Set SLA < 15 min pilot in top 3 cities	Reduce cancellations by 25%
Loss of Loyal Segments	Trust erosion among Champions	Personalized loyalty revival: free delivery + points match	Retain 30% of high-value customers
Operational Blind Spots	Lack of proactive monitoring	Daily Power BI SLA dashboard with alerts	Early issue detection, prevent revenue loss
Organic Channel Dependence	Lack of diversified acquisition	Restart referral & influencer campaigns	+20% new signups quarter-on-quarter
Revenue & Order Collapse (-64%)	Sudden demand shock, customer distrust	Launch targeted reactivation offers for lapsed "Champion" users; Paid marketing in low-performing cities	+10–15% order recovery within 1 month