

ANALYZING DOMESTIC AIRFARE PATTERNS

for Smarter OTA Strategies

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Background

The aviation industry is known for its volatile ticket pricing dynamics, influenced by departure time, airline, and route. This creates two main challenges: (1) Confusion for prospective passengers in determining the best time to purchase, and (2) Difficulty for Online Travel Agents (OTAs) in developing effective promotional, bundling, and partnership strategies. This project aims to address these challenges by analyzing ticket price datasets to generate data-driven business recommendations.

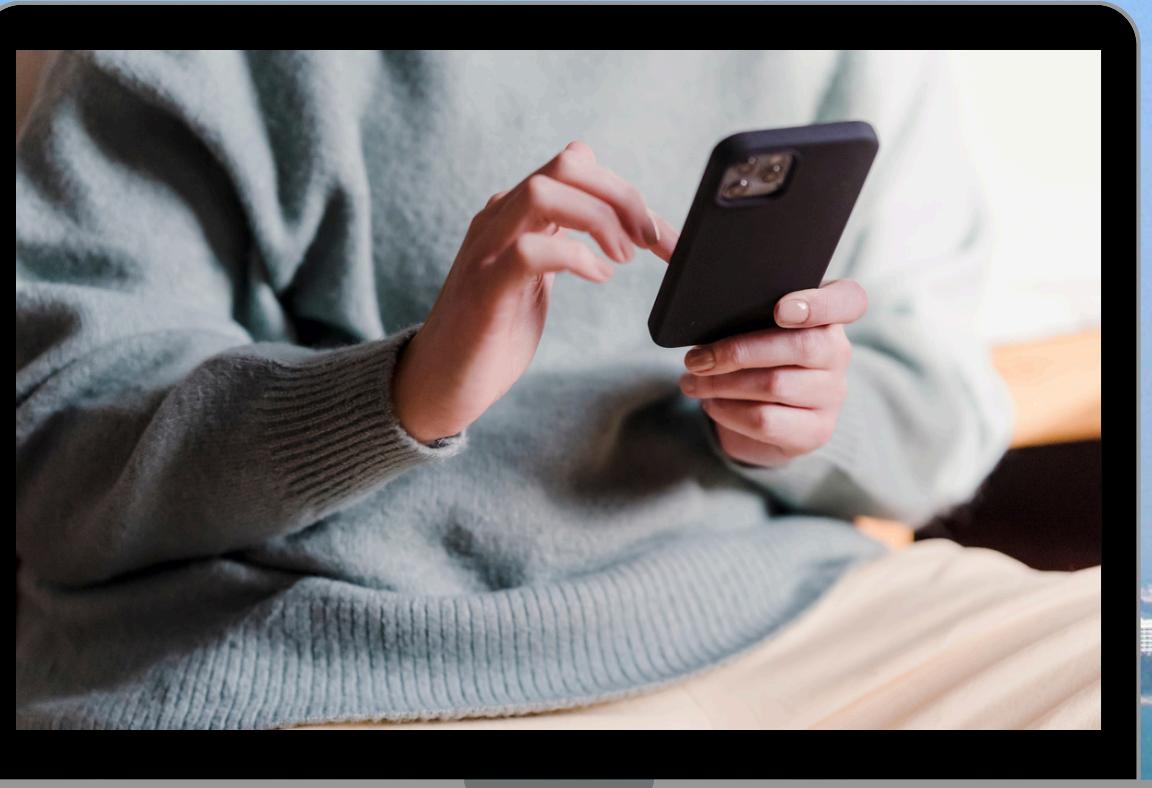
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Problem Question



What is the price pattern of airfares from Jakarta to various cities in Indonesia, and what factors influence its fluctuation, so that it can support pricing and promotion strategies on OTA platforms?

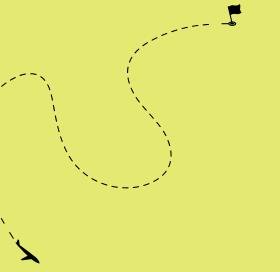
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Objective

**01**

Analyze ticket price patterns based on destination, departure time, and flight distance.

**02**

Identify price volatility for each popular route.

**03**

Develop recommendations for market segmentation strategies and effective promotional packages for each route.

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Dataset

The "Tiket.com – Best Price for Flights from Jakarta" dataset contains historical data on the best flight prices from Jakarta to various destinations. This data is useful for analyzing price trends, comparing airlines and routes, and developing ticket price prediction models. The following dataset consists of 2 .csv files.

- ***distance_between_indonesian_airports.csv***

This file (*distance_between_indonesian_airports.csv*) is a complementary dataset containing the distance (in kilometres and hours of flight) between one particular airport to another.

- **Total data:** 45,438 rows, 5 columns
- **Dataset columns:**
 - **extract_timestamp** → data collection time
 - **origin** → city of origin (Jakarta)
 - **destination** → flight destination city
 - **depart_date** → departure date
 - **best_price** → cheapest ticket price (in Rupiah)
- **Data type:** 4 object columns (string), 1 numeric column (float)
- **Data quality:** No missing values (all columns complete)
- **Dataset size:** ±1.7 MB

- ***tiketcom_bestprice.csv***

This file contains the main dataset of best price flights from Jakarta to selected Indonesian airports

- **Number of data:** 30 rows, 4 columns
- **Dataset columns:**
 - **airport_from** → flight origin airport
 - **airport_to** → flight destination airport
 - **distance_km** → distance between airports (km)
 - **flight_time_hour** → estimated flight duration (hours)
- **Data type:** 2 object columns (string), 2 numeric columns (float)
- **Data quality:** No missing values (complete)
- **Dataset size:** ±1.1 KB (very small)

DATASCIENCE RIKIAKBAR · UPDATED 3 YEARS AGO

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Code

Download

Tiket.com - Best Price for Flights from Jakarta

This dataset contains historical best price for flights from Jakarta

kaggle.com/datasets/datasciencerikiakbar/tiketcom-best-price-for-flights-from-jakarta

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Insight Analysis

Price and Distribution Characteristics



Wide Price Range

Ticket prices vary widely, from Rp 367,200 to Rp 5,226,620.



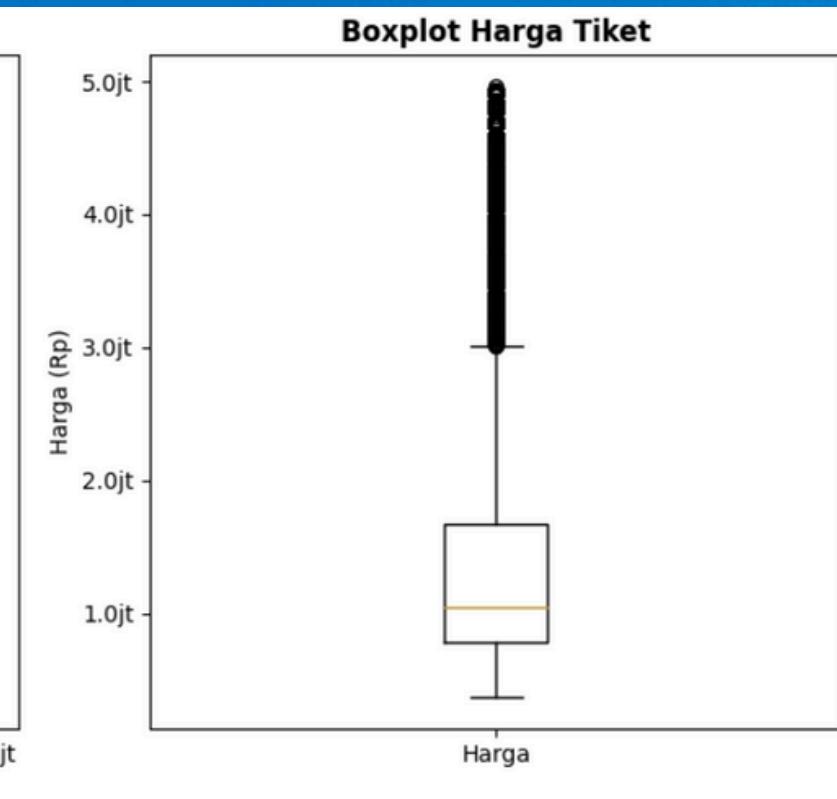
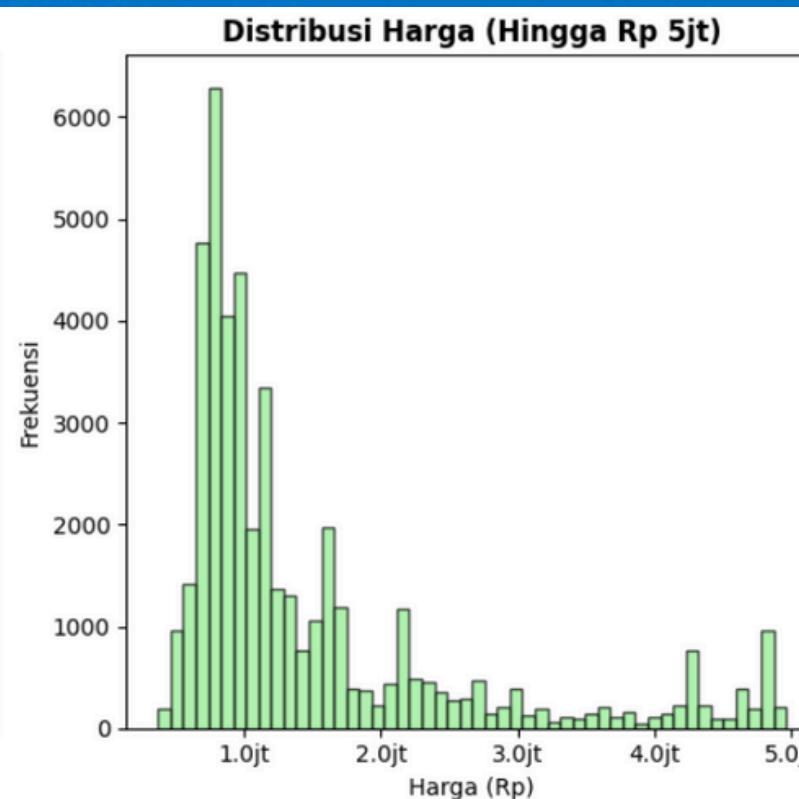
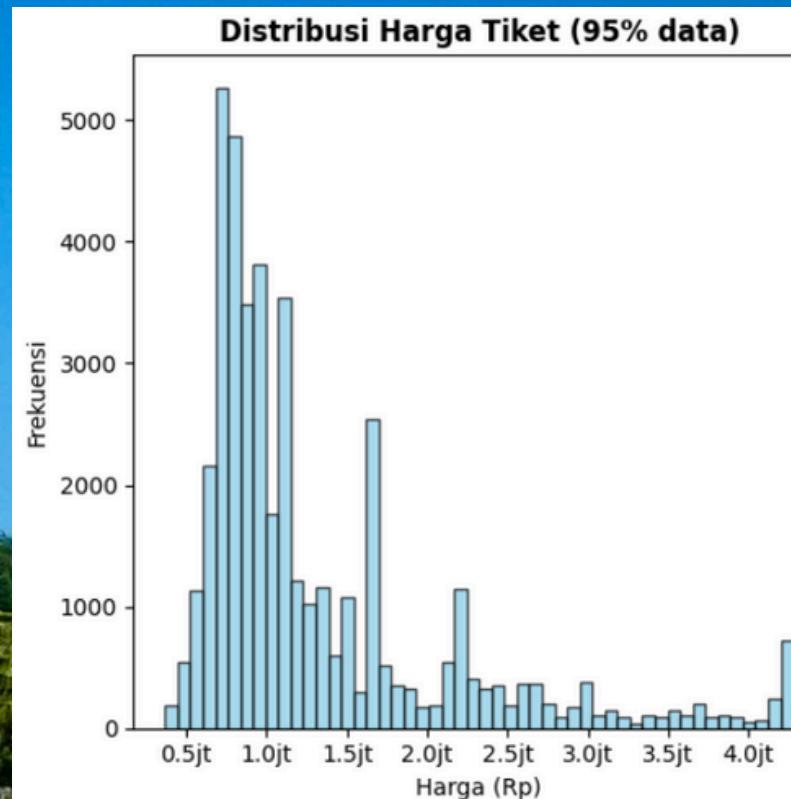
Majority Price Range

Most tickets (the middle 50%) were sold in the range of Rp 789,400 to Rp 1,677,930 (Interquartile Range/IQR).



Uneven Price Trends

The mean price of Rp 1,491,694 is significantly higher than the median price of Rp 1,046,760. This indicates a right-skewed price distribution, with a small number of outliers pushing the mean upward.



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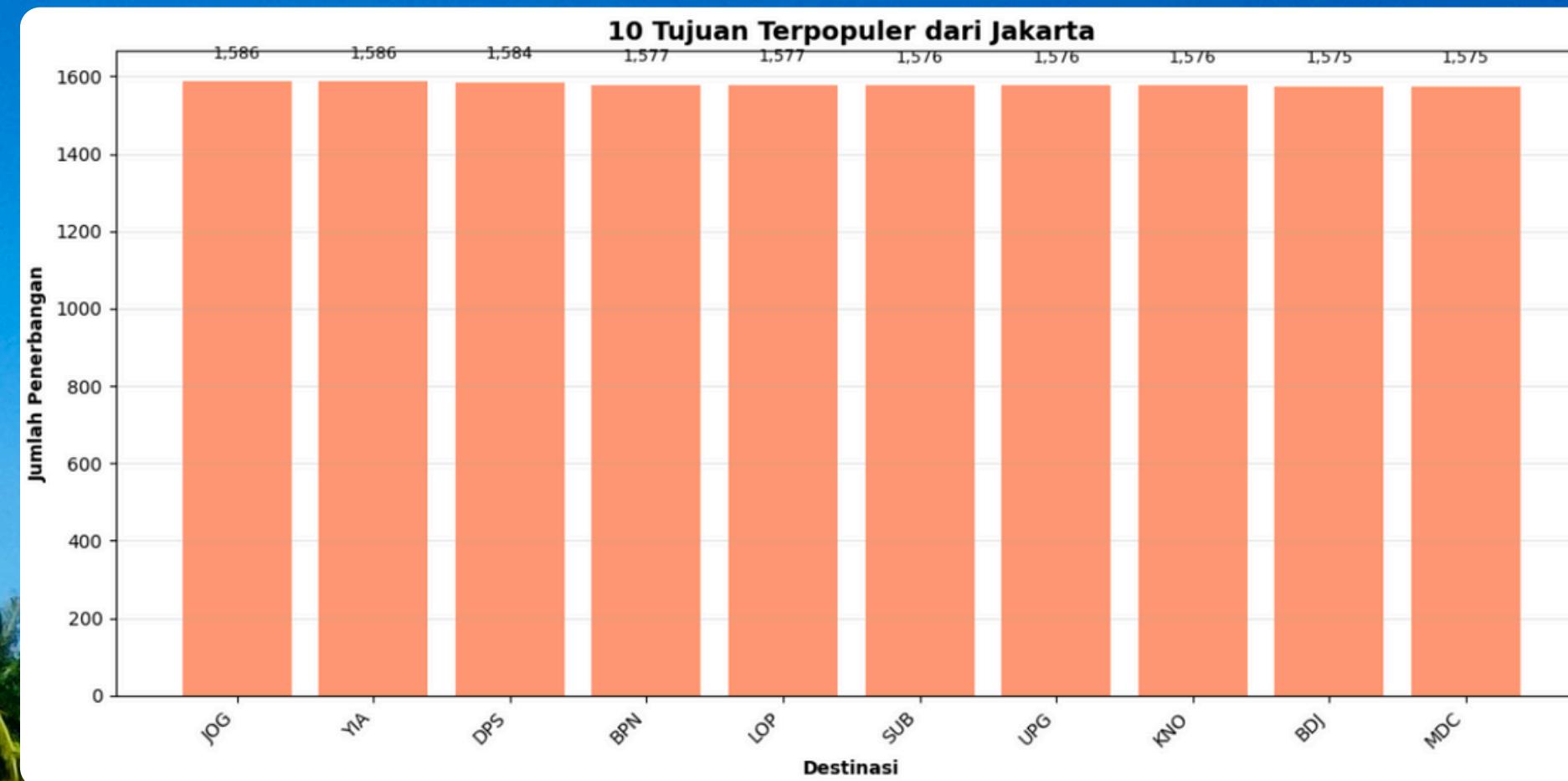
Insight Analysis

Analysis by Destination



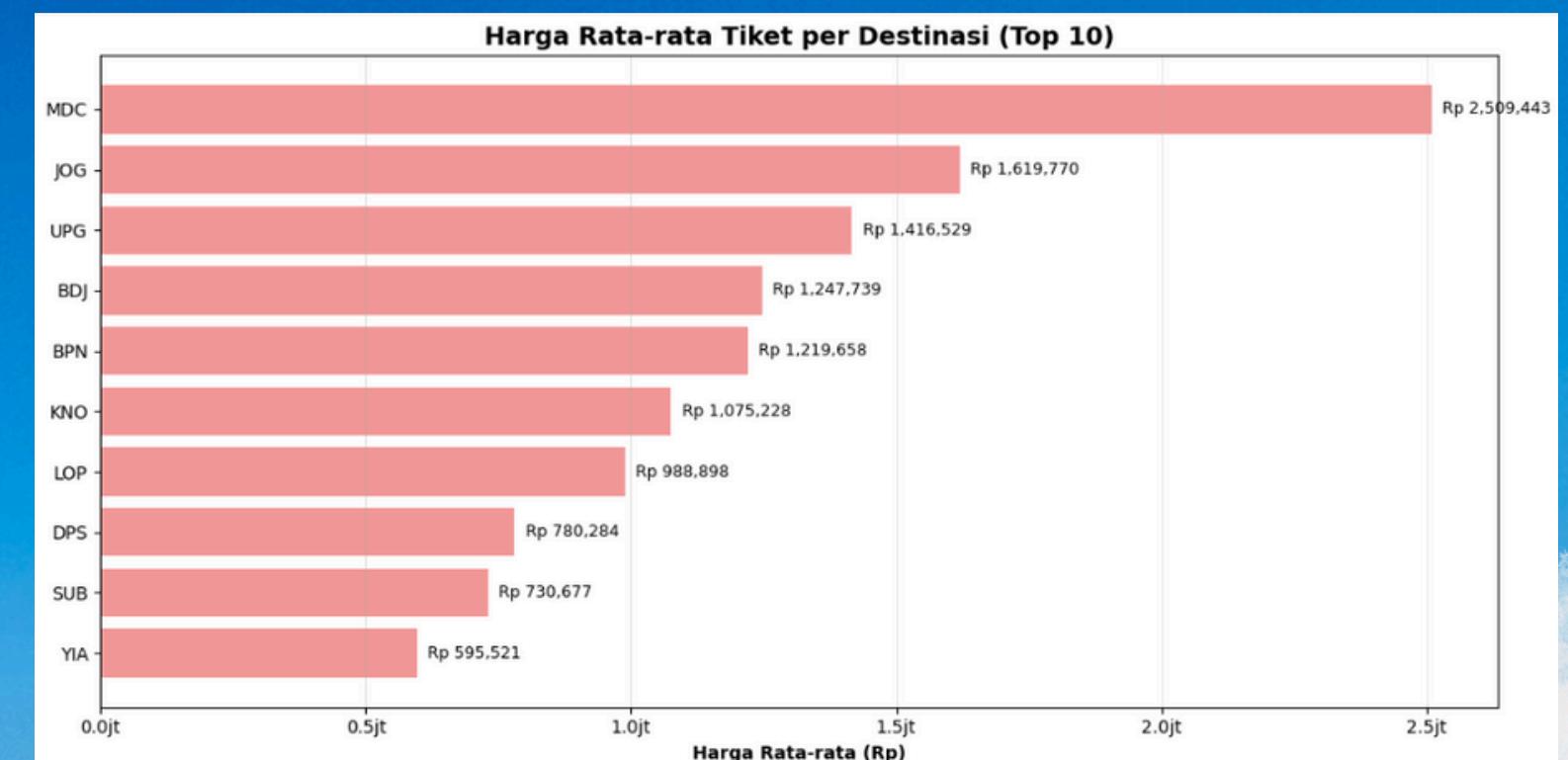
Three Most Popular Destinations

The most sought-after routes from Jakarta are Yogyakarta (JOG & YIA) and Denpasar/Bali (DPS).



Price Disparity and Popularity

The destination with the highest average price among the top 10 routes is Manado (MDC) at Rp 2,509,443. Meanwhile, popular destinations like YIA (Rp 595,521) and Surabaya (SUB - Rp 730,677) actually have the lowest average prices, demonstrating that popularity does not always equate to high prices.



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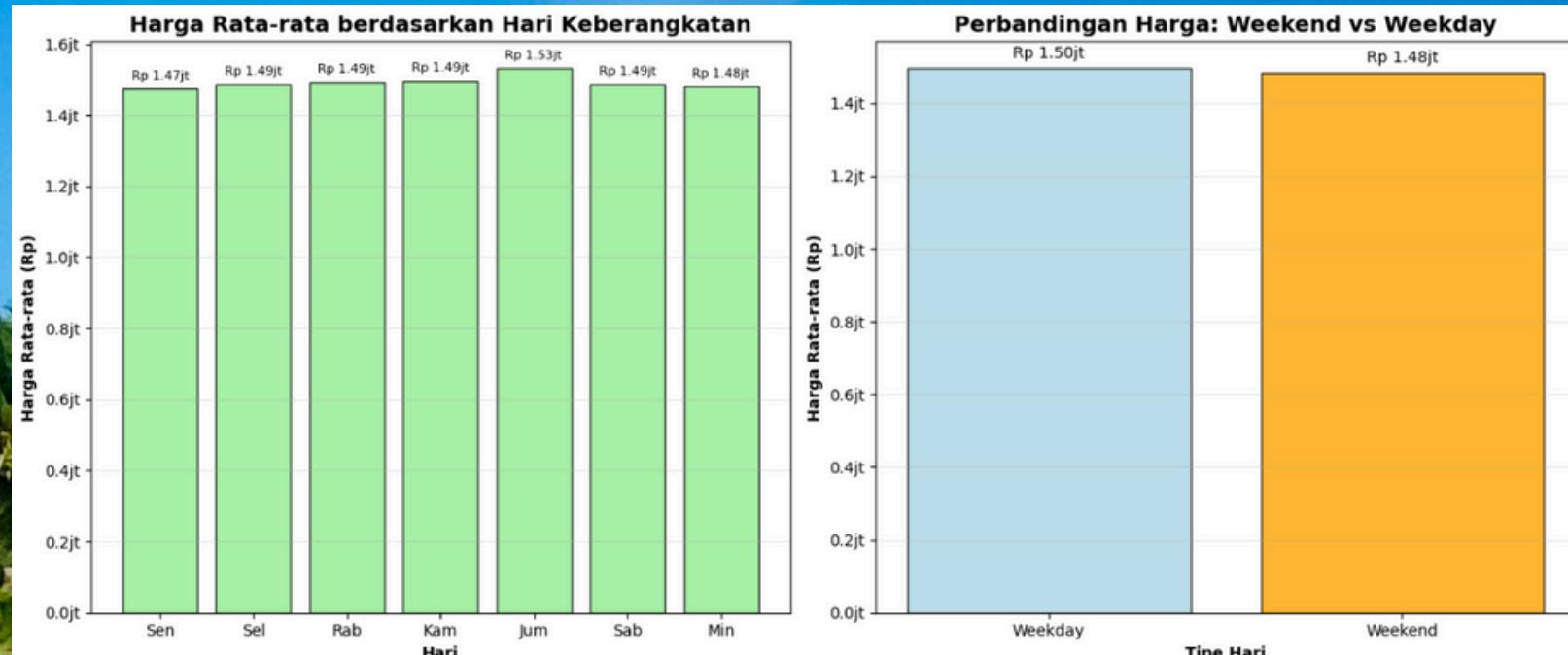
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Time Patterns and Price Volatility



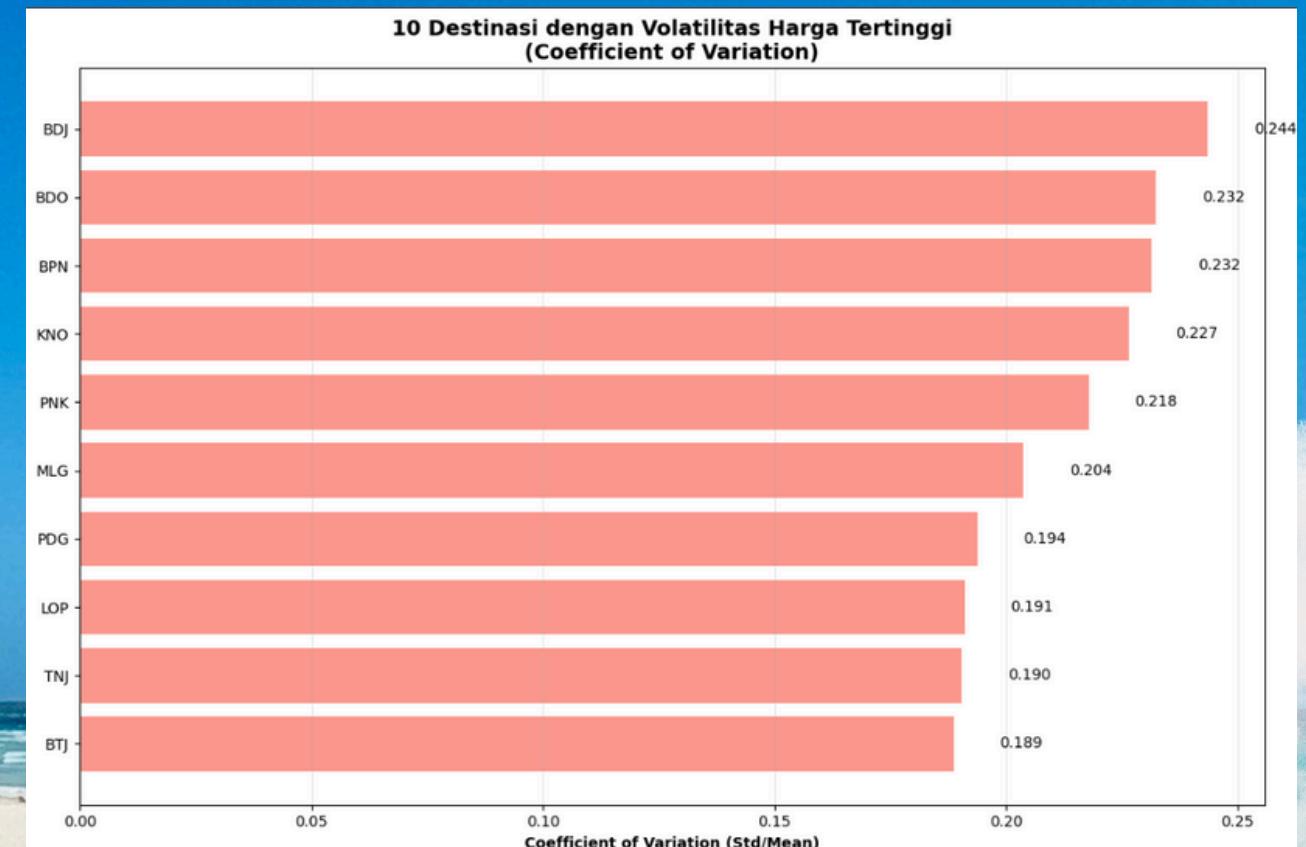
The "Weekend Prices Are More Expensive" Myth

Surprisingly, the analysis showed no significant price premium on weekends. The average weekend price (Rp 1,482,858) was actually 0.8% lower than the weekday price (Rp 1,495,233).



Routes with the Highest Fluctuations

Destinations such as BDJ (Banjarmasin), BDO (Bandung), and BPN (Balikpapan) exhibit the highest price volatility (calculated using the Coefficient of Variation). This indicates that prices on these routes are highly dynamic and frequently change, creating both opportunities and risks.



Insight Analysis

Ordering Behavior and Patterns



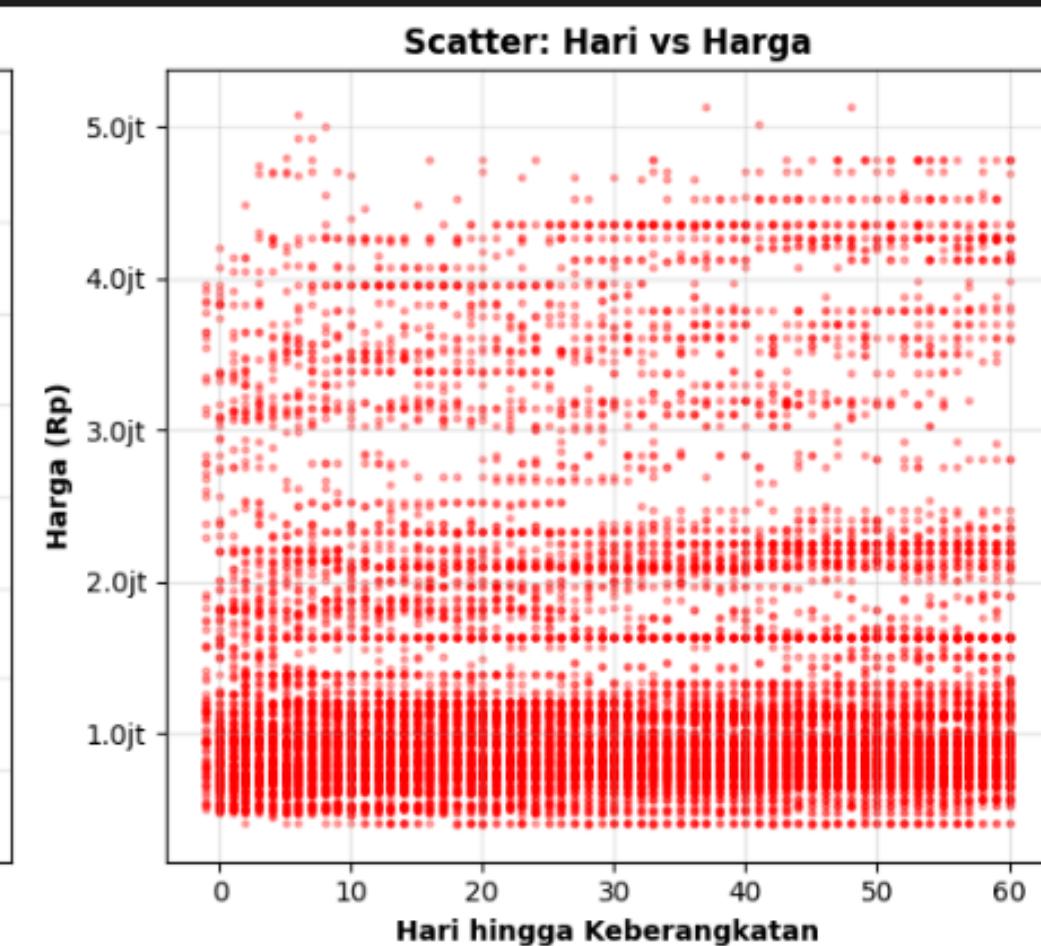
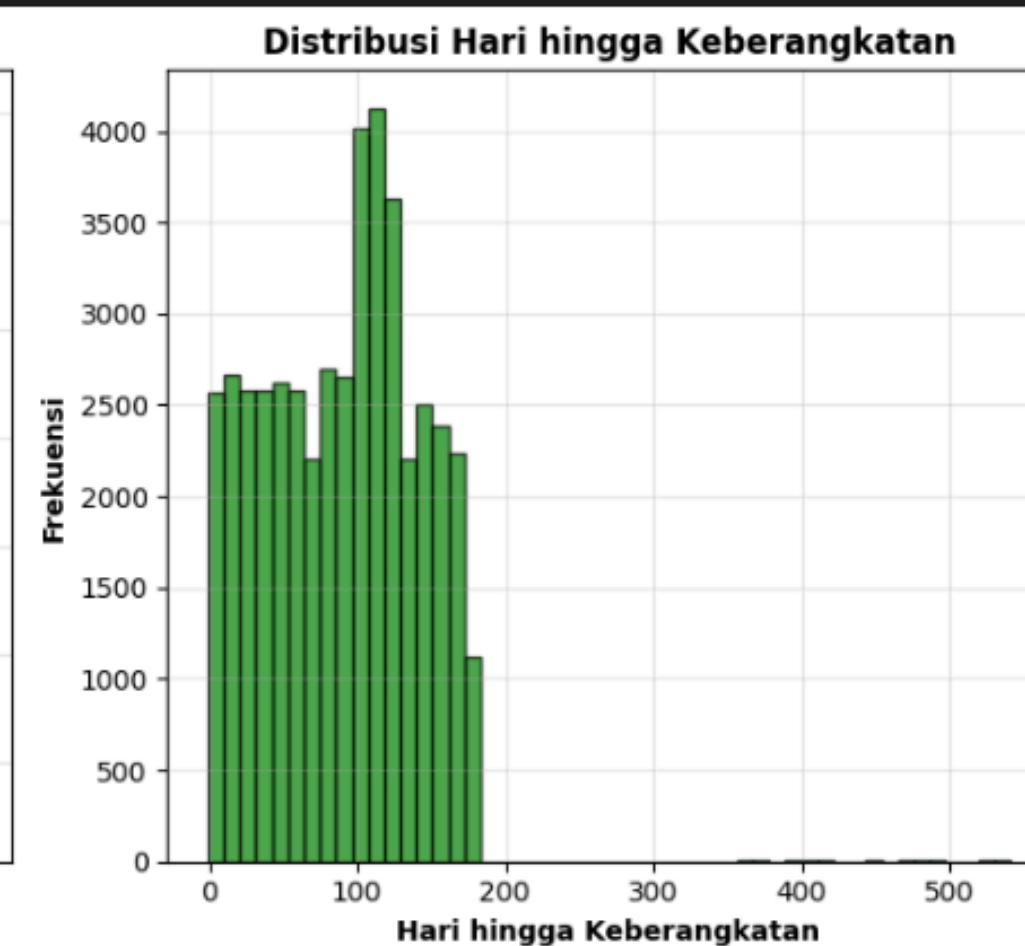
Long-Term Booking Tendency

Customers tend to book well in advance. The average booking time is 89 days, with a median of 95 days.



Critical Booking Window

Price trend analysis focuses on the last 60 days leading up to departure, which is the period during which the most aggressive price changes occur.





Strategic Recommendations

Dynamic Strategy Based on Route Volatility



Implement Aggressive Dynamic Pricing on Volatile Routes

01

Focus resources on developing responsive pricing algorithms on BDJ, BDO, and BPN routes. This model will enable real-time price adjustments to maximize revenue from high market fluctuations.

Increase Competitor Monitoring

02

Intensively track competitor prices on highly volatile routes, as their price changes are often the main driver of fluctuations.

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Strategic Recommendations

Destination-Based Pricing Strategy



Optimizing High-Yield Routes

01

For premium destinations like MDC, maintain a high base price and focus on selling additional services (seat selection, baggage allowance) instead of offering significant discounts. The goal is to maximize revenue per passenger (yield).

Volume Marketing Campaigns for Popular Routes

02

Capitalize on the popularity of destinations like YIA and DPS by offering tour packages or "buy 1 get 1" promotions to drive high booking volume and strengthen market share.

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Strategic Recommendations

Temporal Strategy and Booking Management



01 Review Daily Price Strategy

Since weekend prices are not higher, re-evaluate the pricing structure to create a slight premium on peak travel days (Friday-Sunday) to maximize revenue.

02 Increase Long-Term "Early Bird" Promotions

Harnessing the customer habit of booking three months in advance, launch early bird promotions with reduced incentives as the departure date approaches. This strategy encourages early commitment and facilitates better inventory planning.

03 Focus on the Critical 60-Day Analysis Window

Allocate analytical resources to monitor and predict price movements in the last 60 days before departure, as this is the period when quick and accurate pricing decisions are crucial.

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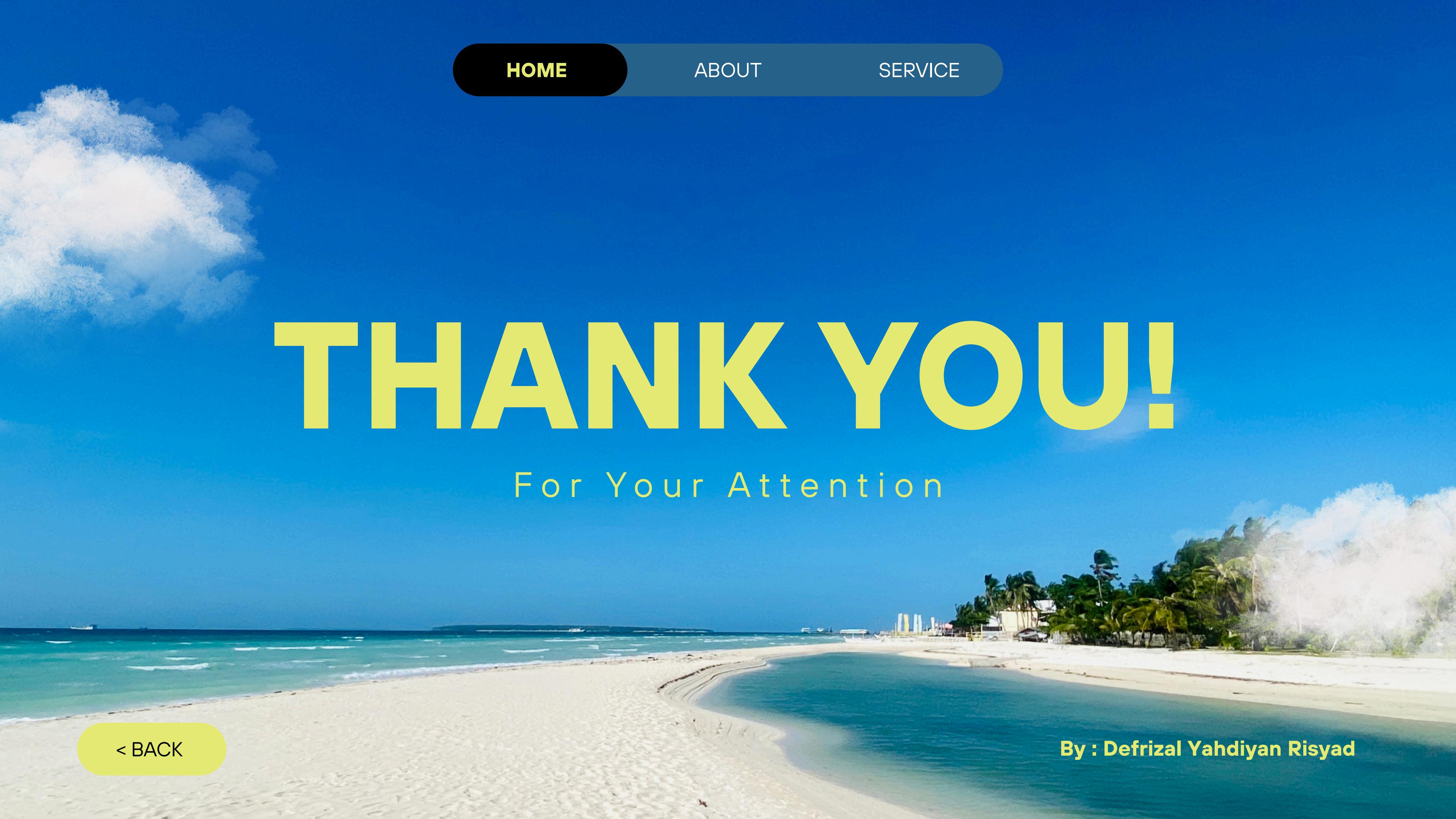
Conclusion

- The market is characterized by long lead times (median 95 days) and extreme price variations.
- There is no direct correlation between destination popularity and price; the most popular routes can have the cheapest prices, and vice versa.
- The common assumption of higher weekend prices was not borne out in this dataset, indicating an opportunity for strategy revision.
- The varying price volatility across routes demands a more specific and aggressive dynamic pricing approach.

By understanding these patterns, OTAs can shift from a reactive and generic strategy to a more proactive, streamlined, and profitable one.

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