

Jelly Bean Airlines



A Comprehensive Analysis of Aircraft Fatality Risk in the U.S.

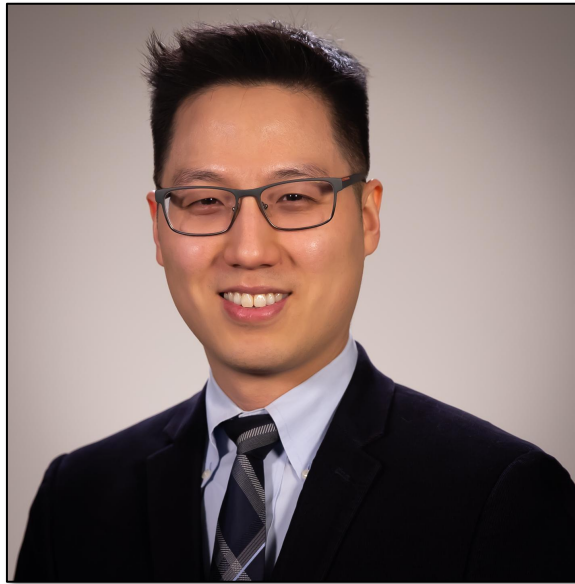
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Jelly Bean Airlines

Corporate Strategy - Data Science Team



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Agenda

Business Problem



Data Overview



Analysis



Recommendations



Future Steps

Main Finding

Operating BEECH or AERO private aircraft in the U.S. Mainland reduces fatality rate by up to ~86%

BEECH



AERO



Fatality
Rate Is
Reduced By
~86%



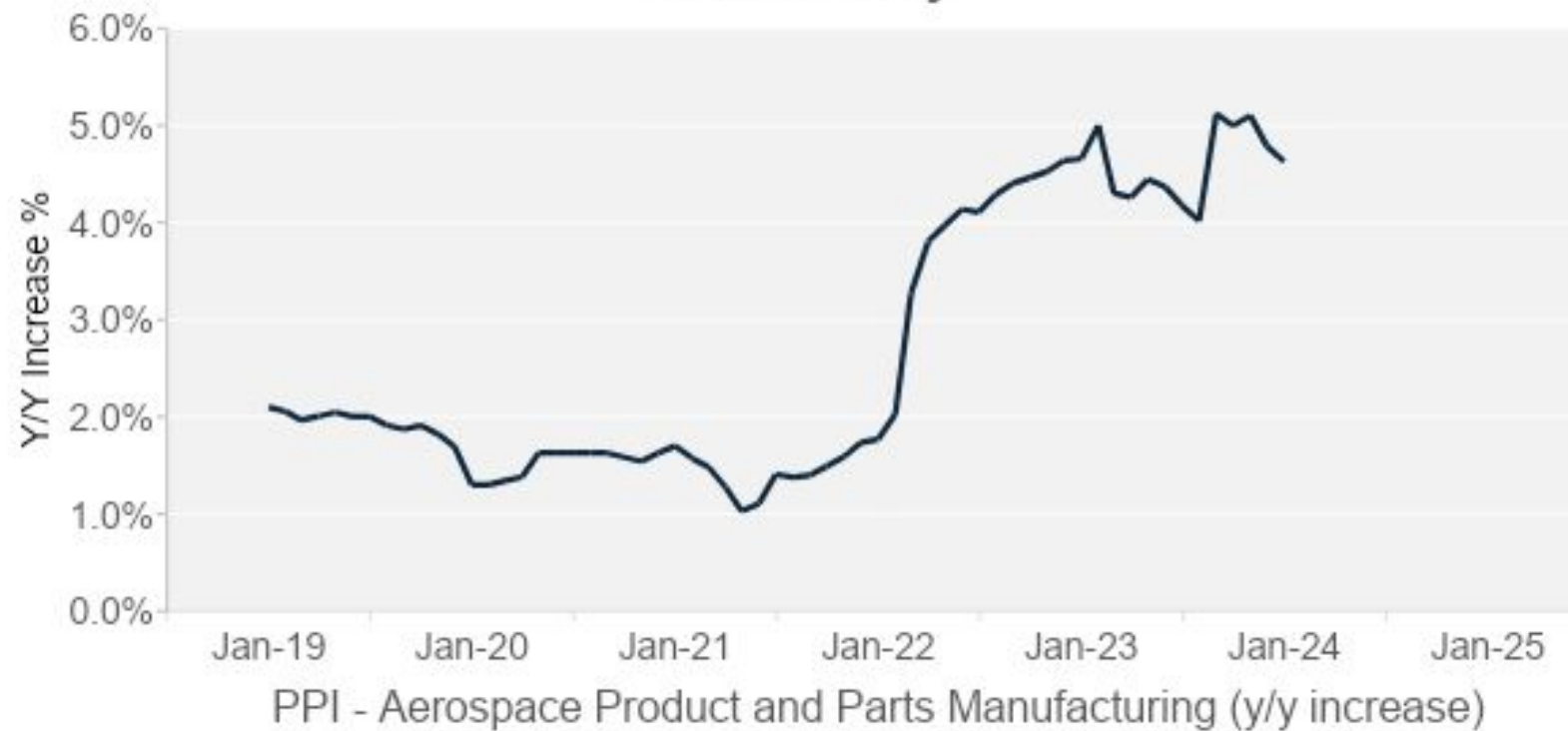


Business Problem

Purchasing Aircrafts Have Become More Expensive...

- More recently, inflation and supply chain issues have driven up costs.

Cost of Aerospace Products and Parts Have Risen Considerably



Source: Federal Reserve Economic Data (Producer Price Index by Industry: Aerospace Product and Parts Manufacturing, Index Jun 1985=100, Monthly, Not Seasonally Adjusted)

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... We Don't Want Our Investment to Come Crashing Down



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Data Overview

Our Data Filtering Process Was Intensive

Data Source: Our Accidents Data Came From the NTSB Database

Filtered Data	
Date Range	1993 to 2023
Data Points	~18,000 Accident/Incidents
Location	U.S. and Territories

Data Limitations: No successful flight data and the international dataset was insufficient.



We Defined a Unifying Risk Metric

Fatality
Rate



Total Fatal Count

(Total Accidents & Incidents)

- This helped us have a standardized risk metric to compare risk across the 3-Level Analysis we completed.

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Analysis



We Asked the Following Questions In Our Analysis

Level 1

- Focus More on Commercial or Private to Lower Risk?

Level 2

- What Private Aircraft Make Lowers Risk?

Level 3

- What parts of the U.S. should be serviced?

Business Problem

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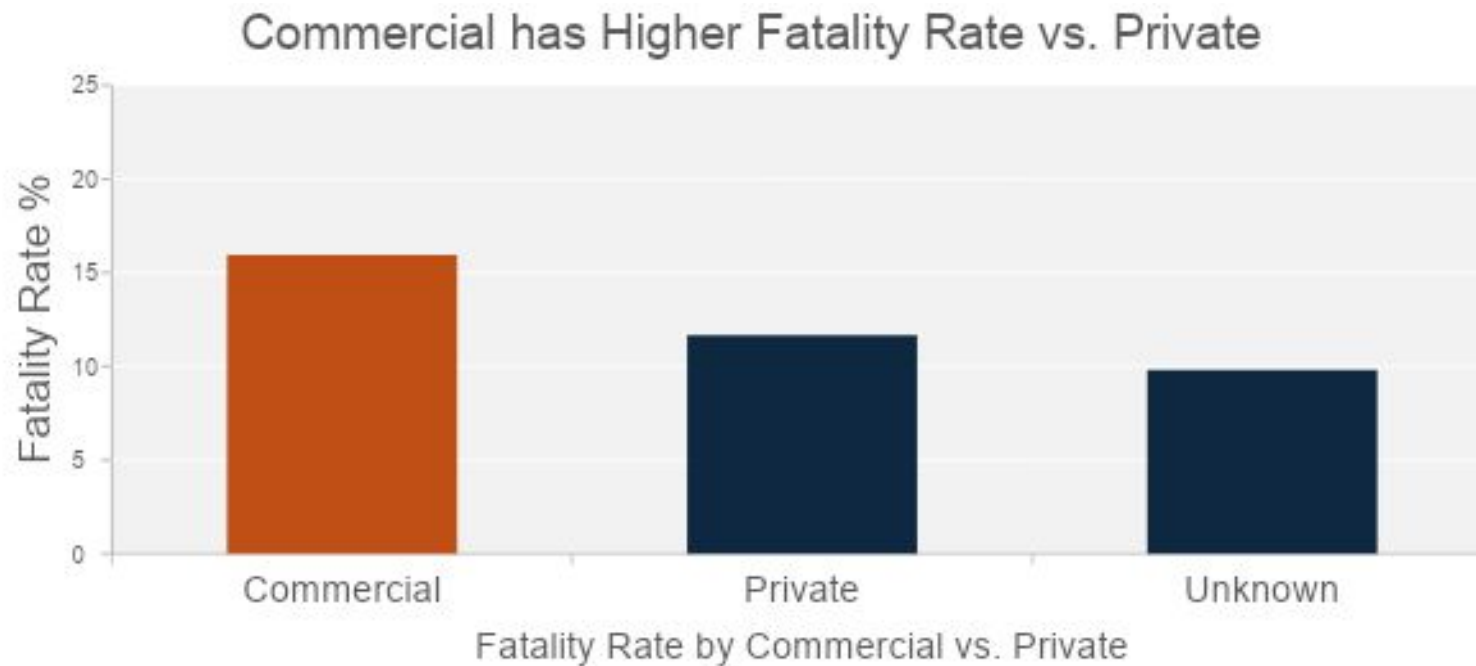
Analysis

Recommendations

Future Steps

Level 1: Focus More on Private Flights

- Going Private seems like the safer strategic option
- This reduces fatality rate by **~27%**



Business Problem

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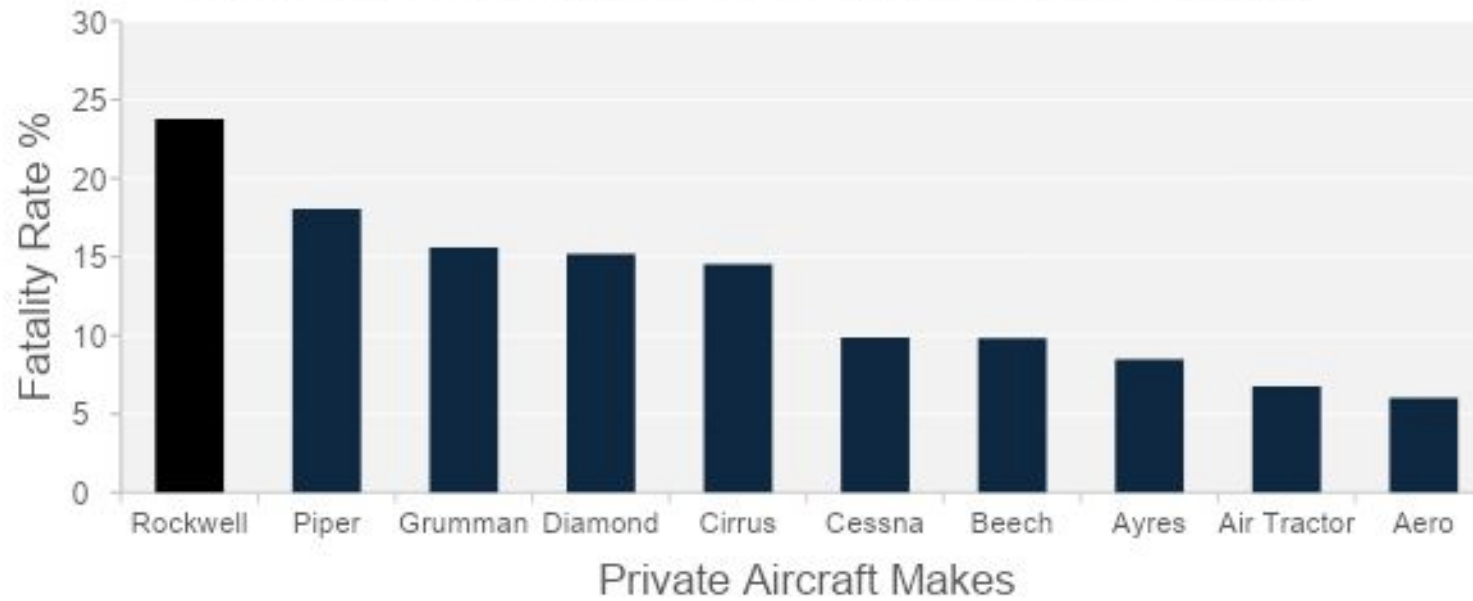
Recommendations

Future Steps

Level 2: Investigating Aircraft Makes

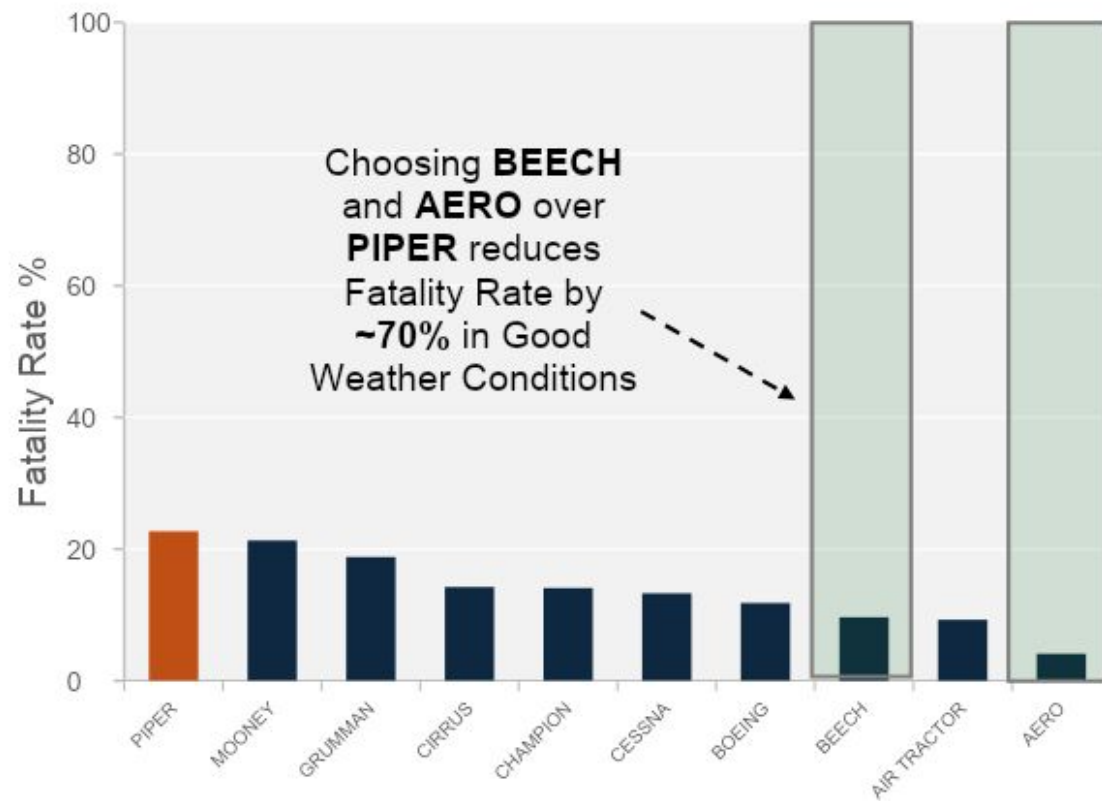
- At first glance, we want to avoid some Aircraft Makes
- To improve on our findings, we rerun the analysis by also considering **Weather Patterns**

There Are Some Noticeable Aircraft Makes to Avoid!

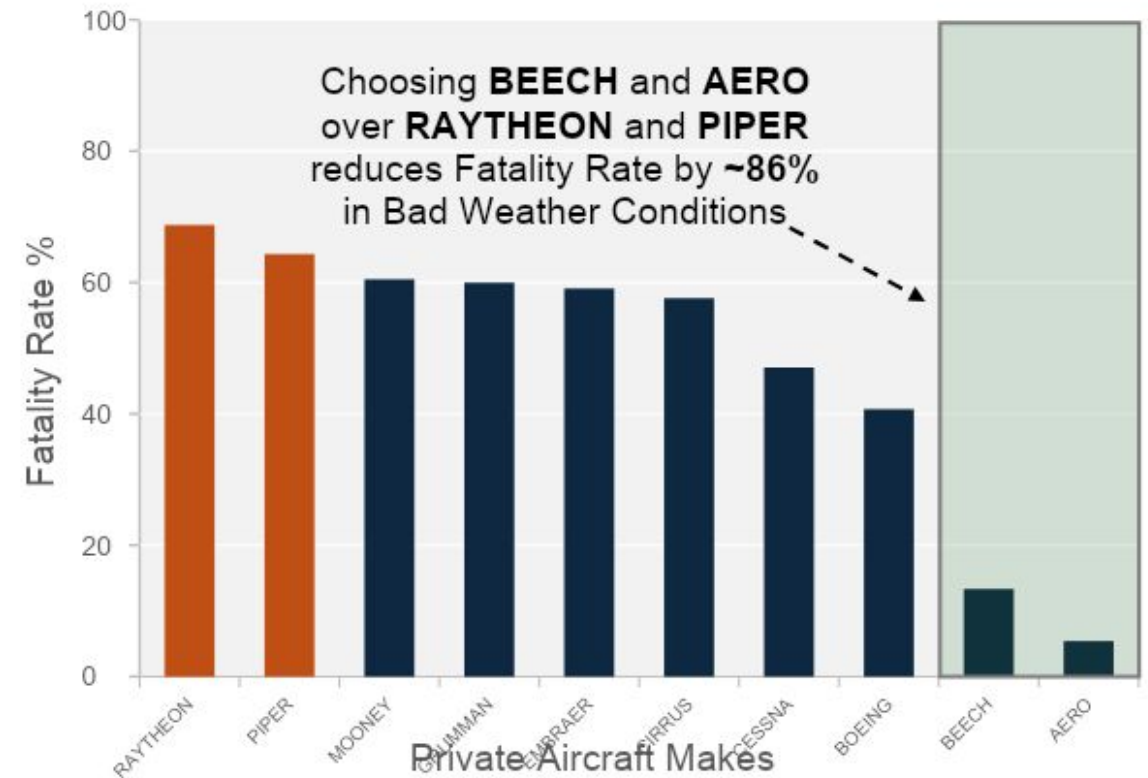


Level 2: We Recommend BEECH and AERO

Fatality Rate in Good Weather Conditions



Fatality Rate in Bad Weather Conditions



Business Problem

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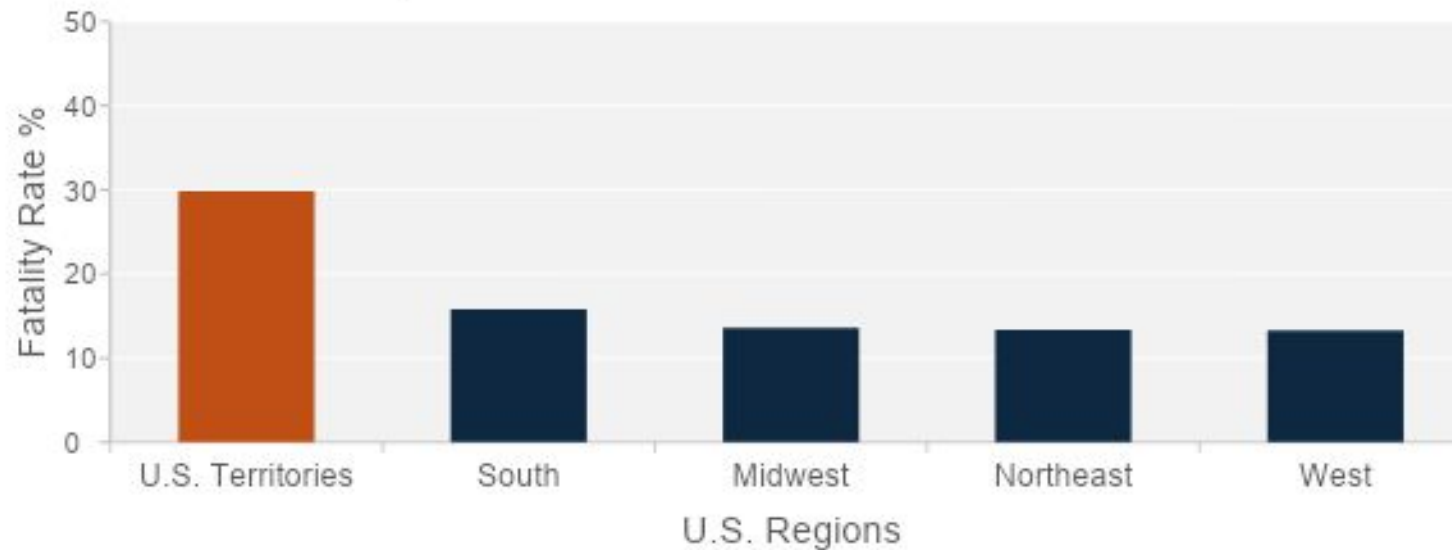
Recommendations

Future Steps

Level 3: Stick With the Heart of America... The Mainland

- Service U.S. Mainland
- Reduce the Fatality Rate by up to ~53%

Private Flights to U.S. Territories Have the Highest
Fatality Rate... STICK TO THE MAINLAND!



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Recommendations

To Prevent Negative ROI scenarios, We Recommend...

- Private Flights reduces risk of fatality by ~27%
- Investing in BEECH or AERO reduces risk of fatality by up to ~86%
- Servicing Just Mainland U.S. reduces risk of fatality by up to ~53%





Future Steps



What Needs to Be Done Next?

- Run Secondary Analysis Incorporating Successful Flights Data
- Financial Analysis of Aircraft Operations & Maintenance Costs
- Go More Granular with Model Types by Makes





Questions?