

Airport Complaints



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DATASCI 200

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Speaker: Sooneui

We are group 3. Our group consisted of Carri, Emily and myself. As you can surmise from our title page, we had fun working as a group.

We worked late into the night at times, we had a setback along the way, but we worked hard and in the end we were able to accomplish everything we had planned originally.

Overall Objective/Question:

What are the various types of TSA Complaints in US Airports over the years and what complaints are the most prevalent?

Data Sources: TSA Complaints Data from US Transportation Security Administration (TSA) & Airport Codes by State 2024 data from World Population Review

Supporting Questions:

1. What are the most common complaint topics and do we see a growth pattern in these complaints over the years?
2. Are there any changes to the amount and type of complaints related to the disruption caused by COVID-19?
3. Is there any correlation between amount or type of complaints and airport sizes or airport locations?

Project Challenge : Key data mismatch between primary and secondary data set

Speaker: Sooneui

So, We set out to explore a data set containing TSA complaints from Jan 2015 to Jan 2024. These complaints were identified with the three letter airport codes in the data set. Our thought was to supplement this with the geographical information from a secondary dataset which can tell us where these airports are located.

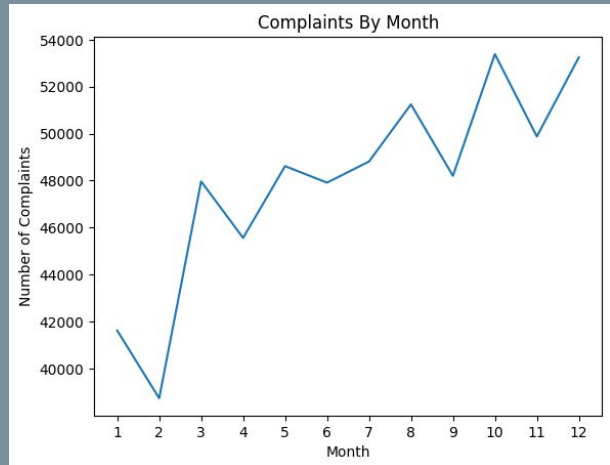
Our main question and the supporting questions are listed here and will be discussed by Carrie and Emily.

One thing I want to share is the data challenge we faced during the project. MidWay through, we realized that our 2ndary data set did not include the airports in the TSA Complaints data set. Fortunately, we were able to find another dataset in time and were able to answer all the proposed questions as originally intended.

Carrie will now share our findings:

What Month has the Highest Number of Complaints?

From 2015 - 2023, the month of February has the lowest amount of complaints throughout the year

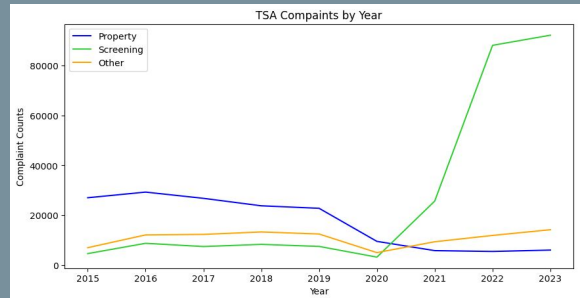


For the question: What month has the highest number of complaints, the graph on the right shows that from 2015 - 2023, the month of February has the lowest amount of complaints and throughout the year and October and December has the highest amount of complaints throughout the year. The months are pretty inconsistent but follow a upward trend as you go later in the months in the amount of complaints.

Most Common Complaint Topics & Growth Pattern Over the Years

1.	Mishandling of Passenger Property	30947
2.	Screening	28817
3.	Customer Service	28094
4.	Property - Special Handling	21847
5.	Pat Down	21155
6.	Civil Rights	18389
7.	Persons w/ Disabilities (PWD)	18288
8.	Locks	16564
9.	Expedited Passenger Screening Program	14227
10.	Lost and Found	7285

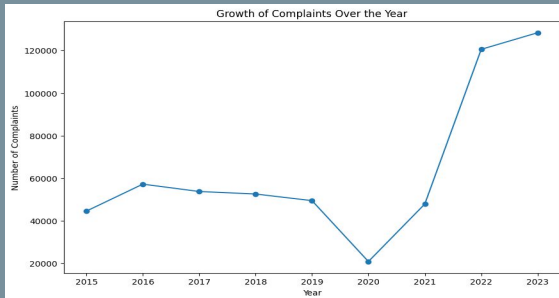
Mishandling of Passenger Property is the most common complaint following by Screening



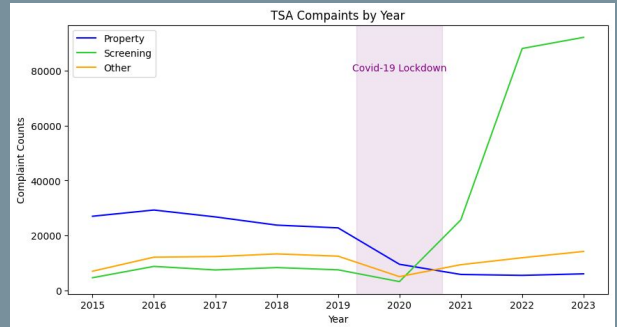
Property related complaints have lessened but Screening related complaints have drastically increased

The most common complaints are listed on the left where mishandling of passenger property has over 30,000 complaints. On the right is a graph on TSA complaints over the year where you can see a small decrease from 2019 to 2020 and a huge increase starting from 2020 and onward. Note that the complaints listed are buckets with multiple types of subjects in each. For example, the complaint of "Mishandling of Passenger Property" can consist of loss, damage, stolen, misrouting, tampering, delayed, improper handling and / or incorrect tagging of an individual's property.

Changes to the Amount and Type of Complaints by COVID-19 Travel Disruptions



From 2015 - 2023, 2019- 2020 had the least number of complaints. This could be attributed to the pandemic and the decline in traveling. As travel started to pick back up so did the rise of complaints



Property related complaints have lessened but Screening related complaints have drastically increased

From 2019 to 2020 there was a decrease in complaints due to the pandemic and stay at home order but complaints in property increased heavily when stay at home orders lifted. With new rules and regulations in place, we can see why property increase. People were more caution with their belongs and being close to others after quantining for months.

Complaints and Airport Sizes

Airports with the Most Complaints

1.	JFK	1736
2.	EWR	1679
3.	ATL	1672
4.	LAX	1670
5.	MCO	1665
6.	DEN	1639
7.	PHX	1588
8.	ORD	1579
9.	DFW	1576
10.	IAH	1540

*More complaints at larger major airports
(sum of complaint counts from 2015 - 2023)*

Airports with the Least Complaints

1.	CEF	3
2.	SLE	3
3.	WRL	3
4.	JRB	3
5.	AHN	3
6.	UTA	9
7.	GRO	9
8.	IGM	9
9.	MBL	11
10.	GDV	12

*Less complaints at smaller airports
(sum of complaint counts from 2015 - 2023)*

We also analyzed the relationships between tsa complaints and airports and found many interesting relationships.

We noticed that large major airports appeared to have more complaints than smaller airports. This aligned with what we expected since larger airports typically have more people flying and experience more traffic. These components could potentially contribute to more complaints at those airports.

Amount of Complaints and Airport Locations

States with the Most TSA Complaints

state	num_airports	num_complaints
Florida	13	67070
California	11	57216
Texas	8	42174
New York	5	34660
New Jersey	3	23945
Georgia	3	23198
Illinois	4	22877
Colorado	5	18753
Nevada	2	17516
District of Columbia	2	16816

*More complaints in states with more airports
(sum of complaint counts from 2015 - 2023)*

Airports with the Least Complaints

state	num_airports	num_complaints
Kentucky	2	1553
Alaska	3	1961
Nebraska	2	2017
Wisconsin	3	2045
New Mexico	2	2439
Connecticut	2	2555
Indiana	4	2654
South Carolina	4	3031
Louisiana	3	5420
Oregon	4	5611

*Less complaints in states with less airports
(sum of complaint counts from 2015 - 2023)*

We also thought it would be interesting to look at the relationships between airport locations and the amount of tsa complaints.

We believed that the number of complaints by state could vary dramatically depending on the number of airports in the state and whether the state is considered a popular destination.

Our complaints data did not originally include variables for airport location and number of airports, so we merged our complaints dataset with data on the number of major airports in each US State. This additional information allowed us to group complaints by state and the output was in line with what we expected, such as: states with less airports had less complaints and states with more airports had more complaints.

Type of Complaints and Airports

Property

airport	
LAX	10004
JFK	9594
MCO	8377
MIA	7180
ATL	7035

Screening

airport	
EWB	13414
DEN	11187
ATL	11076
LAX	10440
ORD	10263

Other

airport	
JFK	5365
ATL	5087
EWB	4593
MCO	4532
DFW	4217

No airport is safe from TSA complaints. There is a diversity in airports in each complaint category.

After all of our analysis of the tsa complaint data, we discovered that ultimately, no airport is safe from tsa complaints, and grouping our data into 3 major complaint categories demonstrated how each airport encounters a variety of complaints.

So being aware of the magnitude of complaints and locations with the most complaints could help with deciding your next flight.

Personal Takeaways & Highlights from this project

Sooneui: Pay attention to the data info provided by the data owner

Emily: Ensure your variables and values make logical sense

Carrie: The outcome of the COVID-19 analysis questions

Fav Group Code: `.nsmallest(int)/.nlargest(int)`

Sooneui: One take away for me is the importance of carefully reviewing the accompanying data documentation. For this project, the data owner provided multiple files. I was not sure what the differences were so we ended up re-doing the exploratory work(EDA) a couple of times, which could've been prevented if I had paid more attention to the data description provided.