DSC 640
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Term Project Milestone 2
Slides Narrative, Design Justification, References and Sources

Slides Narrative

1. There is mixed news for the airline industry today. The airline revenue has generally tracked GDP allowing for regular seasonal sales patterns. In the past two quarters, airline revenue has fallen significantly below GDP; we understand this is in large part because the airline industry was disproportionately impacted by the coronavirus pandemic.

2. Silver lining: operational efficiencies and effective marketing have allowed us to steadily improve revenue per passenger year over year, even after adjusting for inflation.

3. Fortunately the revenue woes do not correspond to safety incidents. In this graphic we see the five recent years in which domestic airline fatalities exceeded ten. The incidents had no apparent effect on passenger numbers. This means that the issue we address is strictly one of perception. Consumer confidence in our safety record is affected by every aspect of our operation, right down to friendly customer service (Hunter & Lambert, 2016).

4. The publication of safety information does not always build confidence in the public (Fleischer, Tchetchik, & Toledo, 2015). It must be properly presented. Due to the exceptional safety of air travel, exceptions look scary. A bad year can have 50 times the deaths of the previous year. For that reason, public communications efforts should avoid e.g. annual bar charts and should instead present simple statistics aggregated over years.

5. Overall in 2002-2019, there were 180 domestic air travel deaths out of 14.9 trillion passenger miles. In the same time, there were 675,000 vehicle deaths out of 54.5 trillion vehicle miles. At an average of 1.59 passengers per car, this means air travel is 650 times safer than car travel.

6. I propose a three-pronged approach to informing popular opinion on this matter. FIrst, establish a blog presence propagating simple, aggregate safety information likely to consumer confidence based on clarified safety information. Second, produce infographics to be posted in airport terminals, corporate offices. Third, record a short presentation for dissemination on the web and social media.

Justification of design

I selected a simple slide theme to minimize distraction. The presentation is intended to communicate the discovered data as clearly as possible to construct a narrative: sales aren't great but it has nothing to do with actual safety incidents; public perception of safety is key and it is subtle; and proposed action items for a public information campaign.

The first graphic superimposes two stacked area charts. Presumably the C level suite is accustomed to viewing this sort of chart. The data series have been unified to the same units to further reduce potential for confusion. The main thrust of the visual: airline revenues have grown at comparable rates to GDP, GDP fell radically during the pandemic, and airline revenues even underperformed the GDP during the pandemic.

The second graphic communicates a strength to help reset the tone of the presentation after the first perhaps disappointing graphic: we have strengths and action can be taken.

The third graphic vividly dispels the notion that publicized safety incidents involving fatalities should meaningfully impact ridership. The vertical bars indicating "bad years" for safety do not predict declines in the ridership numbers.

The fourth graphic is meant to show that care (but not subterfuge) will be required to effectively communicate safety to the public. Without the context of total ridership as a denominator, and without scaling the y-axis appropriately, it looks like there are very dangerous years for air travel. We know that is not the case, and we aim to devise means of communicating effectively.

The final graphic is simple in geometry and color, and meant to be soothing. At the same time it is blocky, blunt, and confident. The image of the airplane juxtaposes the remarkable safety figure with the intent of forming an association: airplanes, safety, and simple certainty.

References

Fleischer, A., Tchetchik, A., and Toledo, T. (2015). Does it pay to reveal safety information? The effect of safety information on flight choice. *Transportation Research Part C: Emerging Technologies* vol 56, 210-220

Hunter, J. and Lambert, J. (2016). Do we feel safer today? The impact of smiling customer service on airline safety perception post 9–11. *J Transp Secur* no **9**. 35-56

Github

https://github.com/cabriggs/DSC640/

Data Sources

Wikipedia

- *Car miles and deaths*:
  https://en.wikipedia.org/wiki/Motor_vehicle_fatality_rate_in_U.S._by_year

Bureau of Transportation Statistics

- *Number of air passengers*
  https://www.transtats.bts.gov/Data_Elements.aspx?Data=3
- *Airline passenger miles*
  https://www.transtats.bts.gov/Data_Elements.aspx?Data=3
- *Revenue per quarter*
  https://www.transtats.bts.gov/Data_Elements_Financial.aspx?Data=7
- *Airline fatalities*
  https://www.bts.gov/content/transportation-fatalities-mode

Worldbank

- *passengers carried by country and year*
  https://data.worldbank.org/indicator/IS.AIR.PSGR?end=2019&start=1970

IMF

- *GDP*
  http://datahelp.imf.org/knowledgebase/articles/485343-where-can-i-find-gross-domestic-product-gdp-data

Bureau of Economic Analysis

- *2020 Q2 GDP*
  https://www.bea.gov/news/2020/gross-domestic-product-third-quarter-2020-advance-estimate

Other

- *Incidents by region*
  https://github.com/fivethirtyeight/data/blob/master/airline-safety/airline-safety.csv
- *country latitude and longitude coordinates*
  https://www.jasom.net/list-of-capital-cities-with-latitude-and-longitude/