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Airline Quality Research: a Student's Perspective

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Abstract

This study examines the relationship between the Airline Quality Rating (AQR) and the Airline Passenger Survey (APS) from an undergraduate student's perspective, as well as how conducting undergraduate research has influenced the student researcher. Operational performance of the U.S. airline industry has been monitored for the past 27 years by a quantitative model of metrics known as the Airline Quality Rating. These metrics include on-time flights, denied boardings, mishandled baggage, and customer complaints. As the nation's most comprehensive study of airline performance and quality, the National Airline Quality Rating (<http://airlinequalityrating.com>) sets an industry standard, providing consumers and aviation industry professionals a means to compare performance quality among U.S. airlines using objective, performance-based data. No other airline study in the country is based on performance measures.

Criteria included in the Airline Quality Rating (AQR) report are screened to meet two basic elements: (1) they must be readily obtainable from published data sources for each airline, and (2) they must be important to consumers regarding airline quality. The APS was added as a new feature of the AQR in 2008 following increased interest in the relationship between consumer perceptions and objective airline industry performance. The student researcher has gained skills related to communication and collaboration with mentors, trend and data analysis within the aviation industry, as well as gave the student valuable experience to bring to research later on in their graduate career. Results were retrieved from the April 2016 Airline Quality Rating Report and the 2016 Airline Passenger Survey.

Method

- The data for the Airline Quality Rating for all criteria is drawn from the U.S. Department of Transportation's monthly *Air Travel Consumer Report* (<http://dot.gov/airconsumer/>).
- Weights were established by surveying 65 airline industry experts regarding their opinion as to what consumers would rate as important (on a scale of 0 to 10) in judging airline quality.
- Weights reflect importance of the criteria in consumer decision-making, while signs reflect the direction of impact.
- The Airline Passenger Survey (APS) was added as a new feature of the AQR in 2008 following increased interest in the relationship between consumer perceptions and objective airline performance.
- The goal of the APS is to gather information from the flying public on airline preferences, perceived passenger-friendliness of airlines, satisfaction and perceived importance of DOT quality measures, and other relevant industry issues.

Criteria & Weights

On-Time (OT) Weight: 8.63

Denied Boarding (DB) Weight: 8.03

Mishandled Baggage (MB) Weight: 7.92

Customer Complaints (CC) Weight: 7.17

(Flight Problems, Oversales, Fares,
Ticketing, Refunds, etc.)

$$AQR = \frac{(+8.63*OT)+(-8.03*DB)+(-7.92*MB)+(-7.17*CC)}{(8.63+8.03+7.92+7.17)}$$

	2015	AQR	2014	AQR	2013	AQR	2012	AQR	2011	AQR	2010	AQR	2009	AQR	2008	AQR
Alaska	-0.80	5	-0.65	5	-0.69	5	-0.77	6	-0.79	5	-0.94	4	-1.39	11	-1.16	5
American	-1.13	10	-1.35	7	-1.10	9	-1.11	10	-1.24	10	-1.28	11	-1.25	9	-1.71	9
Delta	-0.49	3	-0.60	3	-0.59	4	-0.58	4	-0.80	6	-1.22	7	N/A	-	N/A	-
Envoy Air	-2.85	12	-2.83	12	-1.95	15	-1.78	11	-2.51	15	-2.82	16	-2.83	18	-3.12	16
ExpressJet	-1.66	9	-2.12	11	-1.76	13	-1.95	13	N/A	-	N/A	-	N/A	-	N/A	-
Frontier	-2.60	11	-1.48	8	-1.35	11	-0.78	7	-0.75	4	-1.27	9	-1.09	7	-1.31	7
Hawaiian	-0.67	4	-0.53	2	-0.59	3	-0.71	5	-0.59	2	-0.58	2	-0.40	1	-0.69	1
JetBlue	-0.44	2	-0.91	4	-0.42	2	-0.43	2	-0.60	3	-0.70	3	-0.62	3	-0.90	3
SkyWest	-1.39	7	-1.84	10	-1.84	14	-1.88	12	-1.15	9	-1.28	10	-1.57	14	-2.13	13
Southwest	-1.90	6	-1.22	6	-1.00	9	-0.81	8	-0.93	7	-1.01	5	-1.00	5	-1.23	6
Spirit	-3.18	13	N/A	-	N/A	-	N/A	-	N/A	-	N/A	-	N/A	-	N/A	-
United	-1.43	8	-1.62	9	-1.43	12	-2.18	14	N/A	-	N/A	-	N/A	-	N/A	-
Virgin America	-0.40	1	-0.30	1	-0.32	1	-0.35	1	N/A	-	N/A	-	N/A	-	N/A	-
Industry	-1.21		-1.24		-1.07		-1.11		-1.08		-1.20		-1.27		-1.63	

NOTES:
Scores and rankings for 2015 reflect the addition of Spirit to the airlines tracked.
As of January 2014, data of the merged operations of American Airlines and US Airways are combined and appear only as American Airlines.
As of January 2014, data of the merged operations of Southwest Airlines and AirTran Airlines are combined and appear only as Southwest Airlines.
American Eagle became Envoy Airlines as of April 2014.
Scores and rankings for 2012 reflect the combining of ExpressJet and Atlantic Southeast (appears as ExpressJet), the combining of United and Continental (appears as United), and the addition of Virgin America.
As of January 2010, data of the merged operations of Delta Air Lines and Northwest Airlines are combined and appear only as Delta Air Lines.
Scores and rankings for 2009 reflect the addition of Hawaiian to the airlines tracked.

Airline Quality Rating 2015

Virgin America
JetBlue
Delta
Hawaiian
Alaska
Southwest
SkyWest
United
ExpressJet
American
Frontier
Envoy Air
Spirit

Consumer Preferences 2015

Southwest
Delta
United
American
Alaska
JetBlue
Virgin America
Hawaiian
Frontier
SkyWest
Envoy
ExpressJet
Spirit

Student Background

- The student researcher, Madeline, is a candidate for her Bachelors of Science in Aviation Business Administration with a concentration in Management, expected to graduate in May 2017.
- Madeline presented research on the Airline Quality Rating at poster sessions for the Ethnographic and Qualitative Research Conference in Las Vegas, NV in 2016 and 2017, as well as the Arizona/Nevada Academy of Science Research Conference in Las Vegas, NV in 2016 and 2017.
- The student researcher was active as an officer in two of the business clubs and organizations on campus, the Aviation Business Networking Club and the American Association of Airport Executives Student Chapter, and also served as an elected representative on the Student Government Association at ERAU.
- Madeline has been accepted into the Sales Development Program at Textron Aviation when she graduates from Embry-Riddle.

Student Proficiencies After Research

- The research allowed the undergraduate student to apply communication and collaboration skills with her mentors that can be applied to her career field post-graduation.
- The student has gained skills related to trend and data analysis within the airline industry.
- The undergraduate researcher gained valuable presentation skills after attending numerous poster sessions on behalf of the university.
- Research skills that can be applied to a graduate program later in her career were also gained through this research.

Conclusions

- Airlines that have consistently performed poorly on objective quality measures are also low on consumer preference.
- The continued positive perceptions of carriers that have fallen in objective performance measures may suggest lingering consumer affiliation and loyalty.
- Future research on both the AQR and APS data seek to identify additional strategies for integrating such data. Such models and analyses will enhance researchers' ability to communicate the needs of the flying public to both airline industry and government leaders.
- Undergraduate research has proven to be beneficial in teaching the student valuable skills that can be applied to her professional career and/or graduate studies in the future.

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