

A Comprehensive Evaluation of Passengers' Satisfaction of Selected Airline Companies

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Abstract: Airline service process consists of five service subsets. Namely, reservation, check-in, on-flight services, disembarking, and baggage claim. In order to cover most of the aspects in the airline industry services, the survey was divided into five sections, where each section represents a service subset. The aim of this paper is to survey passengers of different airline companies in order to measure their satisfaction. In this paper, 30 people were surveyed, but unfortunately 7 people were eliminated from the analysis due to survey violation reasons. Since 63% of University of Miami US students come from outside Florida, and 14% of the students are international, those students will be a good population to survey as passengers, because most of them have flown in the last six months in order to reach Miami. Out of the 23 passengers 11 (48%) would return back to the same airline company they flew with because of its ticket price. Moreover, 22% would return back because of flight schedule flexibility. In addition, 17% would return back due to the airline reputation in its safety procedures. Therefore, airline companies should focus on reducing tickets fees, flight schedules, and their safety reputation in order to have the lion's share of the airline market. Overall, out of the 23 passengers 14 (61%) agree that they were satisfied with the entire service process of the airline industry. On the other hand, only 10% were dissatisfied with the entire process. From the importance/favorability grids it was obvious that the overall satisfaction by passengers for all subsets was high, which shows that airline industries are doing their utmost in providing excellent service. Although all subsets had high performance by the airline companies, some of them were with low importance to the customer. This is due to the small sample size collected as some of these subsets are obviously significant.

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1. Introduction

Every year, 600 million passengers travel through different airline companies in the US (United States Department of Transportation, 2014). This high number made civil aviation one of the most important contributors to National Gross Domestic Products (GDP). It contributes 5.4% to GDP. In order to keep this percentage high, airline companies must understand and measure passengers' satisfaction before, during, and after their flights. Therefore, the best way for airline companies is to survey passengers about the services that they provide. The aim of this survey is to measure passengers' satisfaction in five different airline companies. Namely, American, United, US Air, JetBlue, Delta Airlines. Since the airline industry services consists of several process, the survey was divided into five section. Each section represents a service subset. The subsets are booking reservations, checking-in and issuing boarding passes, on-flight services, flight disembarking, and baggage claim. 30 people were surveyed to measure their satisfaction in the airline industry service subsets. Since 63% of University of Miami US Students come from other states than Florida and 14% are international, those students will represent a good sample that represent the passenger population, because they have to fly through different

airline companies to reach Miami. Due to the time constraint the supposed sample size was not surveyed. In addition, 7 respondents were eliminated from the sample because of survey violation reasons. In this paper a brief background about the airline industry will be mentioned. Moreover, the dimensions of the survey, such as the aim, methodology, and sample size plan will be discussed. In addition, the analysis of the passengers' data will be presented, such as the table of the entire data with its mean, standard deviation, and favorability ratings. Furthermore, analysis regarding the demographics of the respondents will be stated. Finally, importance/ favorability grid regarding each service subset will be established in addition to a grid about the entire service industry.

2. Background

An airline is a company that provides air transport services for traveling passengers and freight. Airlines lease or own their aircraft with which to supply these services and may form partnerships or alliances with other airlines for mutual benefits. In the past, the airline industry was at least partly government owned. This is still true in many countries, but in the U.S. all major airlines have come to be privately held. The airline industry

can be separated into four categories by the U.S. Department of Transportation (DOT) as shown in Figure 1. Delivering high-quality service to passengers is vital for airlines survival in business. A Service quality condition affect a firm's competitive advantage by retaining customer support and with this comes market share, and ultimately profitability (Morash and Ozment, 1994). The delivery of high-quality service becomes a marketing requirement as competitive pressures increase on the airlines industry (Ostrowski et al., 1993). Passenger satisfaction is a feeling based on the service experience of a passenger's prior flight. It is not only a very important concept in marketing but also the ultimate goal for many companies. Increasing customer satisfaction can lead to enhanced profits, lower marketing expenditures, and positive word-of-mouth communication (Reichheld, 1990). It can be a significant determinant of passengers' buying behavior and vital to the long-term survival of some airlines. According to Keiningham et al (2014) there is a great deal of research examining the relationship between ordinary service failures and customer satisfaction (e.g., Smith, Bolton, and Wagner 1999). Research into service failures and satisfaction extents a variety of domains, In the case of airlines, researchers have examined the role of service failure on satisfaction (e.g., Anderson, Baggett, and Widener 2009; Bamford and Xystouri 2005; Lapre' 2011; Lapre' and Tsikriktsis 2006; McCollough, Berry, and Yadav 2000), loyalty (e.g., Zins 2001), and market share (e.g., Rhoades and Waguespack 2005).

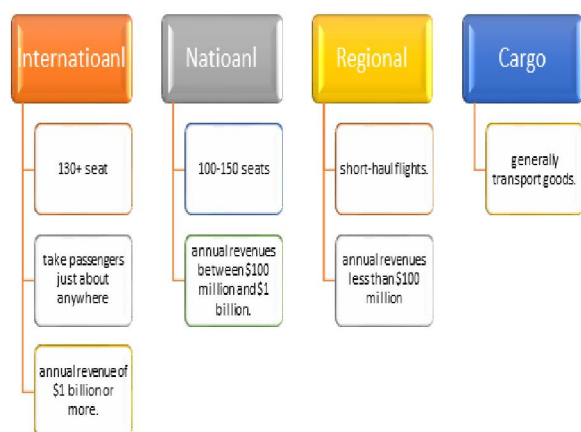


Figure 1. Categories of airline industry.

3. Market Share

Market share is the percentage of a market defined in terms of either units or revenue accounted for by a specific entity. Figure 2 shows the revenue and the market share of the Airline Companies in the domestic market from July 2013 to June 2014, according to (RITA). As seen below,

three companies are dominating the market since they have almost the same share. The companies are Delta, Southwest, and United. According to Keiningham et al (2014) both researchers and managers often assume a positive, even linear relationship between customer satisfaction and market share; as satisfaction improves, the firm must constantly win market share from its competitors. Research on the relationship between satisfaction and market share, however, has resulted in varied findings. Buzzell and Gale (1987), in their seminal study of the Profit Impact of Market Strategy (PIMS) data, found that firms offering better service had higher than-normal market share growth. Other studies show positive links between product quality, service quality, and market share (Kordupleski, Rust, and Zhorik 1993; Parasuraman, Zeithaml, and Berry 1985; Reeves and Bednar 1994). Studies by Anderson, Fornell, and Lehman (1994), Fornell (1992), Griffin and Hauser (1993), and Gronhøldt, Martensen, and Kristensen (2000), however, have all found a negative relationship between customer satisfaction and market share. Recently, a study by Rego, Morgan, and Fornell (2013) also found a negative relationship between satisfaction and market share across U.S. consumer markets, suggesting that as firms win market share and a larger group of customers, providing consumer satisfaction may become more difficult, and thus satisfaction may suffer.

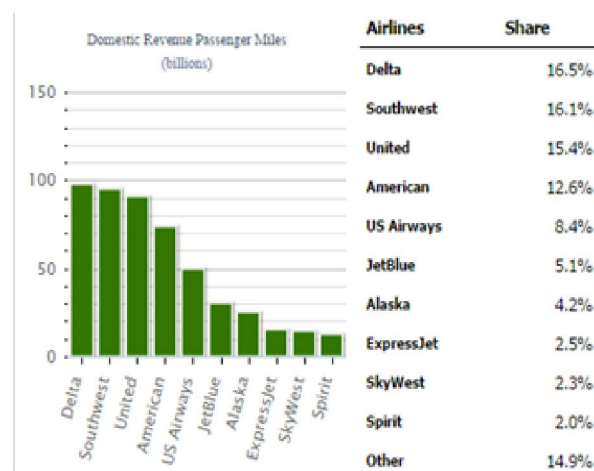


Figure 2. Airline domestic market share and revenue (July 2013 - June 2014)

4. Impact of Airline industry on US Economy

In 2012, economic activity attributed to civil aviation-related goods and services totaled \$1.5 trillion, generating 11.8 million jobs with \$459.4 billion in earnings, according to (DOT). Aviation contributed 5.4% to GDP, the value-added measure of overall U.S. economic activity. Table 1

summarizes the total impact of U.S. civil aviation on output, earnings, and jobs.

Table 1. Airline industry contribution to GDP.

Year	Output (\$Billions)	Earnings (\$Billions)	Jobs (Thousands)	Percent of GDP*
2012	1,533.8	459.4	11,790	5.4
2011	1,455.0	437.2	11,238	5.3
2010	1,354.8	407.8	10,496	5.2
2009	1,309.4	393.2	10,118	5.2
2008	1,453.5	436.9	11,237	5.6
2007	1,421.6	426.7	10,960	5.6

5. Methodology

The methodology to implement survey instrument may differ among survey developers. However, the procedures that were used in this paper consist of the following:

1. Define the purpose of the survey

Since the service in the airline industry differs in each stage, the purpose of this survey is to measure passengers' satisfaction in each stage starting from booking a reservation till baggage claim, and passengers interact with each stage of the service. Therefore, the survey will be divided into five sections, and each section represents a service subset in the airline industry. The sections are: Reservation, Check-in, On-Flight Services, Disembarking, and Baggage Claim.

2. Define the quality dimensions of the airline industry.

Each section in the airline industry service has its own quality dimensions.

- Reservation
 - Easiness to make a reservation
 - Clearness of website instructions if the passenger used it
 - Ability to make different choices, such as seat and food selection, and printing boarding passes
- Check-in
 - Friendliness and appearance of employees who check the passengers in.
 - Easiness to use kiosk if the passenger print the boarding pass him/ herself
 - Appearance and location of the counter and kiosks in the airport
- On-Flight Services

The on-flight services are divided into several sections, each has a specific quality dimensions. The Sections are:

- Flight Attendants
 - Responsiveness, appearance, and friendliness
 - Clearness of explaining safety instructions

- Food
 - Availability and varieties of food and beverages
 - Entertainment Program
 - Availability and varieties of programs, such as movies, music...etc.
 - Adequateness of programs
 - Seat
 - Seat cleanness
 - Seat comfort
 - Lavatory
 - Cleanness of toilets
 - Availability of toilets
 - WiFi and Phone
 - Availability of wifi and phones calls in the flight
 - Adequate fee
 - Disembarking
 - Smoothness of passengers flow
 - Baggage Claim
 - Baggage delivered undamaged
 - 3. Create the survey instrument by defining the dependent variables to find the correlation with the overall satisfaction
 - 4. Define the scale of answers. Likert-type response format was used in survey. Each question has five answers that the respondents could choose from. The answers are: Strongly agree, Agree, Neither Agree nor Disagree, or Disagree.
 - 5. Distribute the survey. After finalizing the design of the survey, Qualtrics survey tool of University of Miami was used in order to distribute the survey to UM students. UM Qualtrics allows to build complex surveys that fulfill a variety of research needs.
- 63% of UM students come from outside Florida - which means that most of them have flown by different domestic airline companies. Moreover, 14% of UM students are international (Niche.com Inc., 2014). Therefore, UM students represent a good sample of passengers' population. In order to get more information about passengers' satisfaction regarding the services of the airline industry, several demographics question were asked. Moreover, Demographics are used to breakdown overall survey response data into meaningful groups of respondents. Also, demographics allow to know the trend of the population regarding the airline industry services. The demographics that were used are:
- Respondents Gender (Male, or Female)
 - Marital Status (Single, or Married)
 - Age Group (18-24, 25-30, or +30)
 - Frequency of Flying (Once a year, 2-3 times a year, or Once a month)

- Income Status (> \$40K, \$40K - \$70K, \$70K - \$100K, or <\$100K)
- Travel Purpose (Business, or Pleasure)
- Seat Preference (Aisle, Middle or Window)
- Airline Company (American, United, US Airways, JetBlue, or Delta)

Sample Plan

According to University of Miami website, there are currently 15,613 enrolled students, where 85% (13,271 students) are US citizens and 15% (2,342 students) are international. Out of the 85% US students, 63% (8,361 students) come from outside Florida. Therefore, the out of state students with the international students make around 10,703 students represent the passengers population in the survey. A sample from this population could participate in the airline industry evaluation survey without making biased results, since almost all of them have flown by a domestic airline at least once in their life. Surveysystem.com was used to calculate the sample size of the Food Court using 95% confidence level and 5% as a confidence interval. Using the sample size formula, out of the 10,703 students the sample size should be 371 students. However, in this paper the focus of the study is to implement this exercise by distributing the survey to minimum of 20 respondents. The survey was distributed to 30 students from the out of state and international students at UM. However, some respondents were excluded from the analysis, as shown below in the following section.

Excluded Results

After analyzing the data we have, seven respondents were removed from the analysis out of the 30 who responded for different reasons:

- 1- Respondents put all their responses as strongly agree or agree (4's & 5's) with no change in any of their answers.
- 2- Knowing that our survey takes between 5-10 minutes; surveys done below 4 minutes were removed
- 3- Failing to answer validation questions throughout the survey (Not consistent with the answers). For example we had one respondent who answered the overall satisfaction of one sector by "N/a" while answering all other questions regarding that same sector with other responses.

Analysis

Table 2 and 3 shows the data entry of the 23 respondents for the evaluation of airline industry services survey. As seen below in the table, the demographics have some abbreviations in its results because of lack of space. The following table shows the abbreviations of demographics.

Furthermore, for the remaining questions the scale as mentioned earlier was from number 1 to

number 5, from being strongly disagree to strongly agree. However, 0's were used in the data entry for those answers which were not applicable (N/A). In addition, the mean and standard deviation was calculated of all the questions except the demographics ones. The favorable ratings (%) "4's" and "5's" were also calculated.

Table 2. Abbreviation of some data inputs

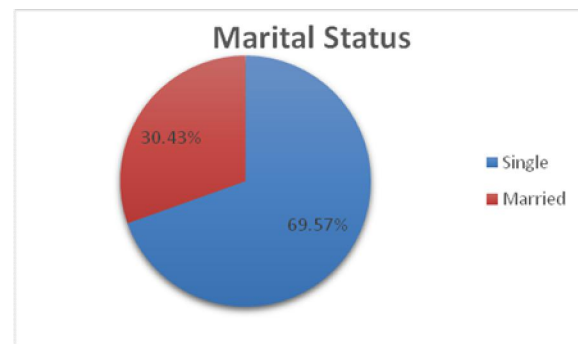
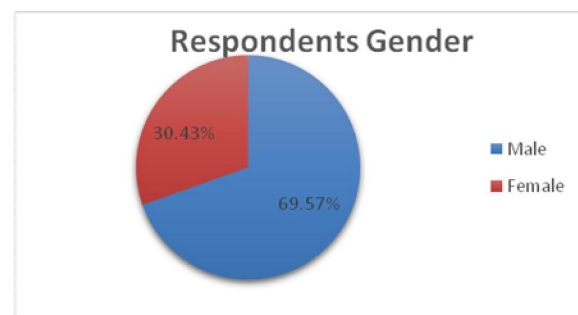
Demographics	Abbreviation	Description
Gender	M	Male
	F	Female
Status	S	Single
	M	Married
Travel Reason	B	Business
	P	Pleasure

Table.3 Abbreviation of some data inputs

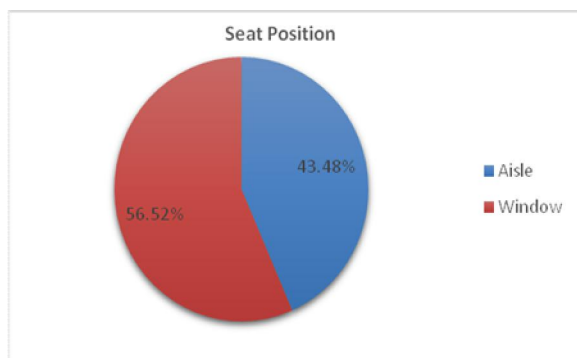
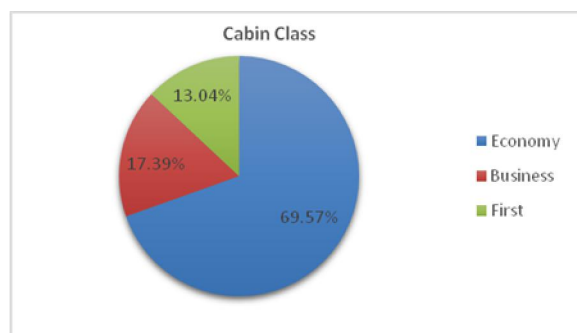
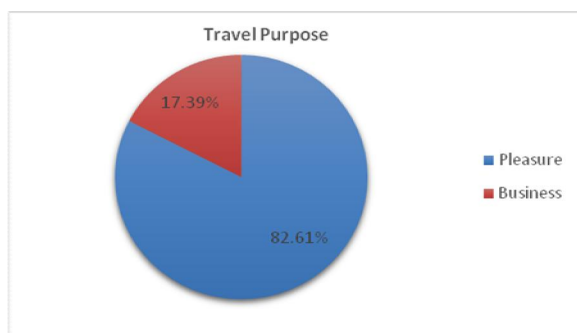
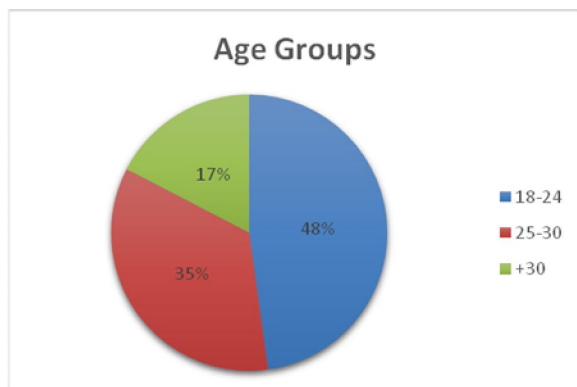
Demographics	Abbreviation	Description
Cabin	F	First
	B	Business
	E	Economy
Seat	A	Aisle
	W	Window
	M	Middle

Demographics

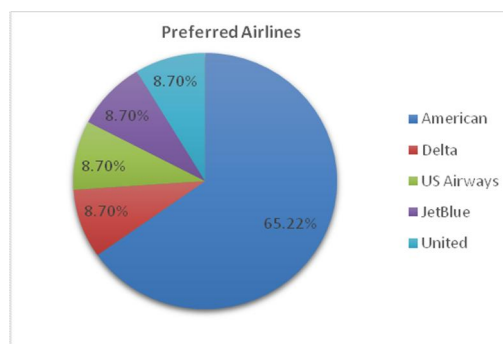
The following tables and figures represent more demographic details about the survey respondents.



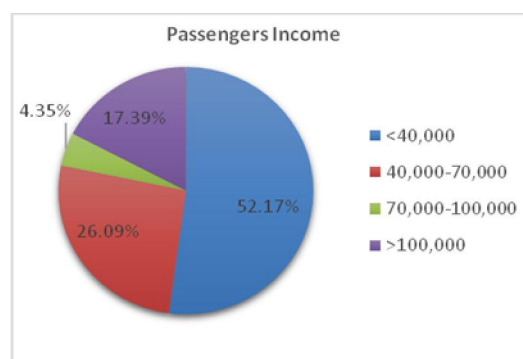
It was expected that most of the respondents will travel for pleasure reason, since all of them are students who want to visit their families outside Florida.



As seen from the figure above, no one out of the 23 respondents has chosen middle seat.



From the figure above, it is obvious that the preferred airline company is American Airline since 15 respondents (65%) out of the 23 flown mostly by it.



It was expected that most of the respondents (52%) will choose annual income of less than \$40,000, since the respondents are students.

Segments Analysis

This section shows the responses of each service subset based on the demographics. It shows the responses of different classifications, such as gender, marital status, income state, age group, seat position, travel reason, cabin class, and airline companies in different service subsets such as reservation, boarding, on-flight, disembarking, and baggage claim. Since boarding contains three different ways of issuing boarding passes – counter, online, or kiosk – its chart was drawn separately from all other service subsets in order to reduce clutter.

Gender Segment

As known from the demographics section that the numbers of males, and females who participated in the survey were 16, and 7, respectively. As seen in the figure below, 9 out of the 16 males (56%) agreed that the reservation service subset was satisfying. On the other hand, 4 out of the 7 females (57%) agreed that the reservation service subset was satisfying.

Table4. Response of gender segment in each service subset

Gender		Male		Female	
Reservation	Strongly Agree	4	25%	2	29%
	Agree	9	56%	4	57%
	Neither Agree nor Disagree	3	19%	1	14%
	Disagree	0	0%	0	0%
	Strongly Disagree	0	0%	0	0%
On-Flight	Strongly Agree	2	13%	0	0%
	Agree	8	50%	5	71%
	Neither Agree nor Disagree	5	31%	2	29%
	Disagree	1	6%	0	0%
	Strongly Disagree	0	0%	0	0%
Disembarking	Strongly Agree	5	31%	0	0%
	Agree	6	38%	5	71%
	Neither Agree nor Disagree	4	25%	0	0%
	Disagree	0	0%	1	14%
	Strongly Disagree	1	6%	1	14%
Baggage Claim	Strongly Agree	2	13%	1	14%
	Agree	8	50%	2	29%
	Neither Agree nor Disagree	4	25%	3	43%
	Disagree	2	13%	1	14%
	Strongly Disagree	0	0%	0	0%

As said earlier, in order to reduce clutter the boarding service subset will be separated from the other service subsets. As seen below, out of the 16

males 4 issued their boarding through the counters at the airport, 7 issued their boarding passes through the website, and 5 issued their boarding passes through the kiosks at the airport. For the counters users, 3 out of 4 (75%) were agreed that they had a satisfying experience. For the website users, 2 out of 7 (29%) were strongly agreed that they were happy and satisfied with issuing boarding passes online, and only 1 person strongly disagreed that he was not satisfied. For the kiosk users, 3 out of 5 (60%) agreed that they had a good experience while issuing the boarding passes through the kiosks. The table below summarizes females' satisfaction in issuing their boarding passes.

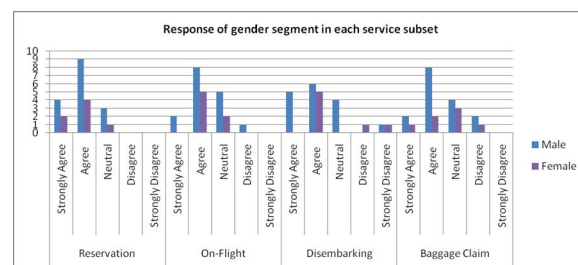


Figure 3. Response of gender segment in each service subset

Table 5. Response of gender segment in the boarding service subset

Gender	Male						Female					
	Counter		Online		Kiosk		Counter		Online		Kiosk	
Strongly Agree	0	0%	2	29%	2	40%	0	0%	2	67%	0	0%
Agree	3	75%	2	29%	3	60%	1	100%	1	33%	1	33%
Neither Agree nor Disagree	1	25%	2	29%	0	0%	0	0%	0	0%	2	67%
Disagree	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Strongly Disagree	0	0%	1	14%	0	0%	0	0%	0	0%	0	0%
Total	16						7					

Out of the 16 males 8 (50%) and out of the 7 females 5 (71%) agreed that they are satisfied with the entire process of airline industry service subsets, as seen below.

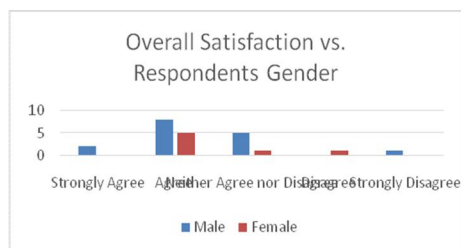


Figure 4. Overall satisfaction Vs. Respondents gender

Marital Status Segment

As known from the demographics section that the numbers of singles, and married who participated in the survey were 16, and 7, respectively. As seen in the figure below, 8 out of the 16 singles (50%) agreed

Table 6. Response of marital status segment in each service subset

Marital Status		Single		Married	
Reservation	Strongly Agree	6	38%	0	0%
	Agree	8	50%	5	71%
	Neither Agree nor Disagree	2	13%	2	29%
	Disagree	0	0%	0	0%
	Strongly Disagree	0	0%	0	0%
On-Flight	Strongly Agree	2	13%	0	0%
	Agree	9	56%	4	57%
	Neither Agree nor Disagree	4	25%	3	43%
	Disagree	1	6%	0	0%
	Strongly Disagree	0	0%	0	0%
Disembarking	Strongly Agree	5	31%	0	0%
	Agree	7	44%	4	57%
	Neither Agree nor Disagree	2	13%	2	29%
	Disagree	1	6%	0	0%
	Strongly Disagree	1	6%	1	14%
Baggage Claim	Strongly Agree	3	19%	0	0%
	Agree	8	50%	2	29%
	Neither Agree nor Disagree	3	19%	4	57%
	Disagree	2	13%	1	14%
	Strongly Disagree	0	0%	0	0%

that the reservation service subset was satisfying. On the other hand, 5 out of the 7 married people (71%) agreed that the reservation service subset was satisfying.

As seen below, out of the 16 singles 5 issued their boarding through the counters at the airport, 6 issued their boarding passes through the website, and 5 issued their boarding passes through the kiosks at the airport. For the counters users, 4 out of 5 (80%) agreed that they had a satisfying experience. For the website users, 3 out of 6 (50%) agreed that they were satisfied with issuing boarding passes online, and only 1 person strongly agreed that he was satisfied. For the kiosk users, 3 out of 5 (60%) agreed that they had a good experience while issuing the boarding

passes through the kiosks. The table below summarizes Married people satisfaction in issuing their boarding passes.

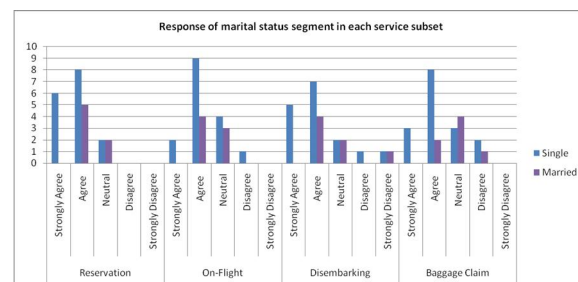


Figure 5. Response of material status segment in each service subset

Table 7. Response of marital status segment in the boarding service subset

Gender	Single						Married					
	Counter		Online		Kiosk		Counter		Online		Kiosk	
Strongly Agree	0	0%	1	17%	2	40%	0	0%	3	75%	0	0%
Agree	4	80%	3	50%	3	60%	0	0%	0	0%	1	33%
Neither Agree nor Disagree	1	20%	2	33%	0	0%	0	0%	0	0%	2	67%
Disagree	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Strongly Disagree	0	0%	0	0%	0	0%	0	0%	1	25%	0	0%
Total	16						7					

Out of the 16 singles 11 (68%) and out of the 7 married people 3 (43%) agreed that they are satisfied with the entire process of airline industry service subsets. Only 2 married people (29%) were strongly dissatisfied with entire process, as seen below.

Age Group Segment

The following table summarizes the satisfaction of different age group with each service subset.

Table 8. Response of age group segment in each service subset

Age Group		18-24		24-30		+30	
Reservation	Strongly Agree	6	55%	0	0%	0	0%
	Agree	5	45%	4	50%	4	100%
	Neither Agree nor Disagree	0	0%	4	50%	0	0%
	Disagree	0	0%	0	0%	0	0%
	Strongly Disagree	0	0%	0	0%	0	0%
On-Flight	Strongly Agree	1	9%	0	0%	1	25%
	Agree	7	64%	5	63%	1	25%
	Neither Agree nor Disagree	3	27%	2	25%	2	50%
	Disagree	0	0%	1	13%	0	0%
	Strongly Disagree	0	0%	0	0%	0	0%
Disembarking	Strongly Agree	3	27%	1	13%	1	25%
	Agree	5	45%	6	75%	0	0%
	Neither Agree nor Disagree	2	18%	0	0%	2	50%
	Disagree	1	9%	0	0%	0	0%
	Strongly Disagree	0	0%	1	13%	1	25%
Baggage Claim	Strongly Agree	3	27%	0	0%	0	0%
	Agree	4	36%	5	63%	1	25%
	Neither Agree nor Disagree	3	27%	2	25%	2	50%
	Disagree	1	9%	1	13%	1	25%
	Strongly Disagree	0	0%	0	0%	0	0%

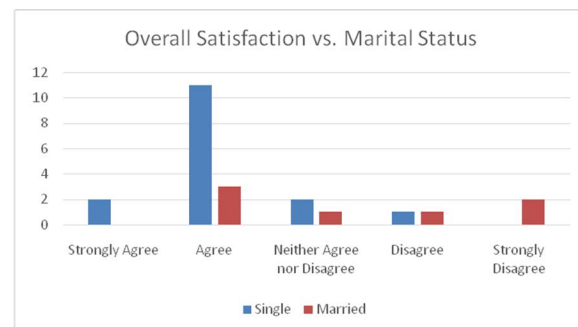


Figure 6. Overall satisfaction Vs. Material status

The following figure summarizes the previous table.

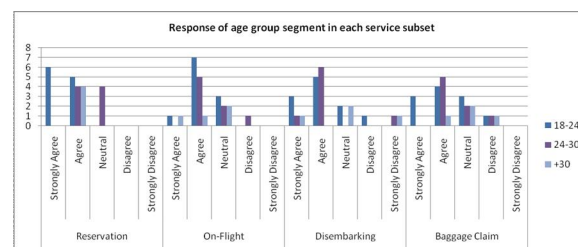


Figure 7. Response of age group segment in each service subset

Table 9 summarizes the satisfaction of different age group with the boarding service subset. As seen below, out of the 19 passengers with pleasure reason

only 5 issued their boarding through the counters at the airport, 7 issued their boarding passes through the website, and 7 issued their boarding passes through the kiosks at the airport. For the counters users, 4 out of 5 (75%) agreed that they had a satisfying experience. For the website users, 2 out of 7 (29%) agreed that they were satisfied with issuing boarding passes online, and only 1 person strongly agreed that he/ she was not satisfied. For the kiosk users, 3 out of 7 (43%) agreed that they had a good experience while issuing the boarding passes through the kiosks. Table 11 summarizes passengers with business reason satisfaction in issuing their boarding passes.

Table 10. Response of travel reason segment in each service subset

Travel Reason		Pleasure		Business	
Reservation	Strongly Agree	6	32%	0	0%
	Agree	9	47%	4	100%
	Neither Agree nor Disagree	4	21%	0	0%
	Disagree	0	0%	0	0%
	Strongly Disagree	0	0%	0	0%
On-Flight	Strongly Agree	1	5%	1	25%
	Agree	11	58%	2	50%
	Neither Agree nor Disagree	6	32%	1	25%
	Disagree	1	5%	0	0%
	Strongly Disagree	0	0%	0	0%
Disembarking	Strongly Agree	4	21%	1	25%
	Agree	10	53%	1	25%
	Neither Agree nor Disagree	3	16%	1	25%
	Disagree	1	5%	0	0%
	Strongly Disagree	1	5%	1	25%
Baggage Claim	Strongly Agree	0	0%	0	0%
	Agree	9	47%	1	25%
	Neither Agree nor Disagree	5	26%	2	50%
	Disagree	2	11%	1	25%
	Strongly Disagree	0	0%	0	0%

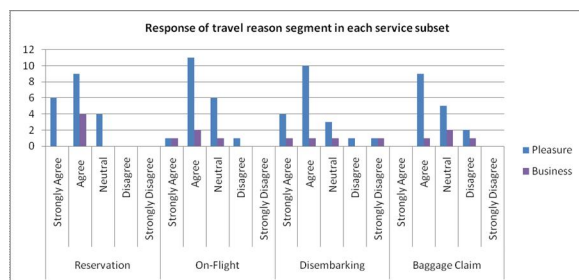


Figure 8. Response of travel reason segment in each service subset

Out of the 19 passengers with pleasure reason 10 (53%) and out of the 4 passengers with business reason 3 (75%) agreed that they are satisfied with the entire process of airline industry service subsets, as seen below.

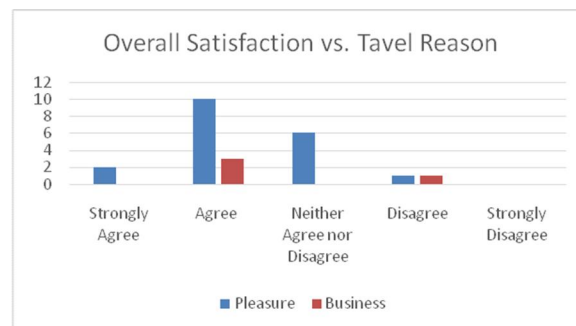


Figure 9. Overall satisfaction Vs. Travel reason

Cabin Class Segment

Table 12 shows the percentage of satisfaction for each cabin class in each service subset. Figure 10 summarizes the previous table.

Table 12. Response of cabin class segment in each service subset

Cabin Class		Economy		Business		First	
Reservation	Strongly Agree	3	19%	3	75%	0	0%
	Agree	10	63%	1	25%	2	67%
	Neither Agree nor Disagree	3	19%	0	0%	1	33%
	Disagree	0	0%	0	0%	0	0%
	Strongly Disagree	0	0%	0	0%	0	0%
On-Flight	Strongly Agree	0	0%	1	25%	1	33%
	Agree	8	50%	3	75%	2	67%
	Neither Agree nor Disagree	7	44%	0	0%	0	0%
	Disagree	1	6%	0	0%	0	0%
	Strongly Disagree	0	0%	0	0%	0	0%
Disembarking	Strongly Agree	2	13%	1	25%	2	67%
	Agree	8	50%	2	50%	1	33%
	Neither Agree nor Disagree	4	25%	0	0%	0	0%
	Disagree	1	6%	0	0%	0	0%
	Strongly Disagree	1	6%	1	25%	0	0%
Baggage Claim	Strongly Agree	2	13%	1	25%	2	67%
	Agree	7	44%	1	25%	2	67%
	Neither Agree nor Disagree	6	38%	1	25%	0	0%
	Disagree	1	6%	1	25%	1	33%
	Strongly Disagree	0	0%	0	0%	0	0%

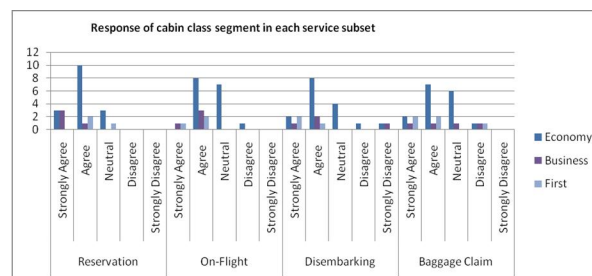


Figure 10. Response of cabin class segment in each service subset

Table 13 summarizes passengers' satisfaction in different cabin class in the boarding service subset.

Seat Position Segment

As seen in the figure below, 8 out of the 10 passengers who selected aisle seat (80%) agreed that the reservation service subset was satisfying. On the

other hand, 5 out of the 13 passengers who selected window seat (38%) strongly agreed that the reservation service subset was satisfying.

Table 14. Response of seat position segment in each service subset

Seat Position		Aisle Seat		Window Seat	
Reservation	Strongly Agree	1	10%	5	38%
	Agree	8	80%	5	38%
	Neither Agree nor Disagree	1	10%	3	23%
	Disagree	0	0%	0	0%
	Strongly Disagree	0	0%	0	0%
On-Flight	Strongly Agree	1	10%	1	8%
	Agree	5	50%	8	62%
	Neither Agree nor Disagree	4	40%	3	23%
	Disagree	0	0%	1	8%
	Strongly Disagree	1	10%	0	0%
Disembarking	Strongly Agree	3	30%	2	15%
	Agree	4	40%	7	54%
	Neither Agree nor Disagree	2	20%	2	15%
	Disagree	1	10%	0	0%
	Strongly Disagree	0	0%	2	15%
Baggage Claim	Strongly Agree	1	10%	2	15%
	Agree	3	30%	7	54%
	Neither Agree nor Disagree	4	40%	3	23%
	Disagree	2	20%	1	8%
	Strongly Disagree	0	0%	0	0%

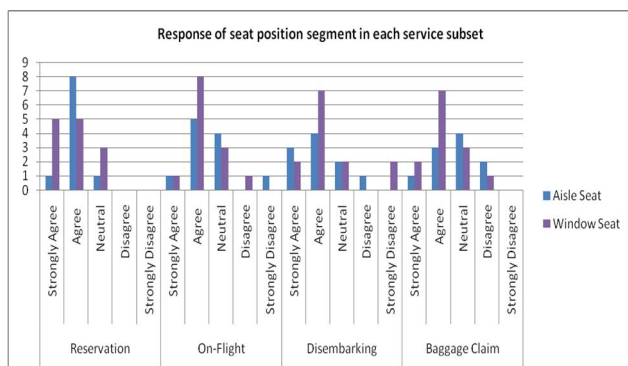


Figure 11. Response of seat position segment in each service subset

As seen in Table 15, out of the 10 passengers who selected aisle seat 3 issued their boarding through the counters at the airport, 4 issued their boarding passes through the website, and 3 issued their boarding passes through the kiosks at the airport. For the counters users, 2 out of 3 (67%) agreed that they had a satisfying experience. For the website users, 3 out of 4 (75%) strongly agreed that they were satisfied with issuing boarding passes online. For the kiosk users, all the 3 passengers agreed that they had a good experience while issuing the boarding passes through the kiosks. The table below summarizes passengers who selected window seat satisfaction in issuing their boarding passes. Out

of the 10 passengers who selected aisle seat 5 and out of the 13 passengers who selected window seat people 8 (62%) agreed that they are satisfied with the entire process of airline industry service subsets. 2 passengers who selected window seat (15%) were dissatisfied with entire process, as seen below.

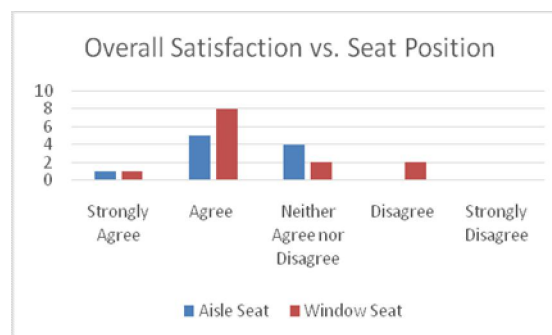


Figure 12. Overall satisfaction Vs. Seat position

Income State Segment

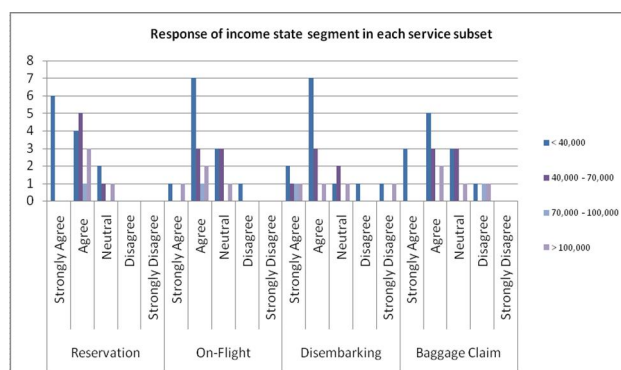


Figure 13. Response of income state segment in each service subset

Table 16 summarizes the satisfaction of different annual income group with each service subset. Figure 13 summarizes the data in Table 16.

Airline Companies Segment

Table 17 summarizes the satisfaction of different passengers with each service subset. The following figure summarizes the data in Table 17.

Passengers' overall satisfaction

As seen in the figure below, out of the 23 passengers 11 (48%) would return back to the same airline company they flew with because of its price. Moreover, 22% would return back because of flight schedule flexibility which means passengers would prefer to book their tickets based on the appropriate time for them. In addition, 17% would return back due to the airline reputation in its safety procedures.

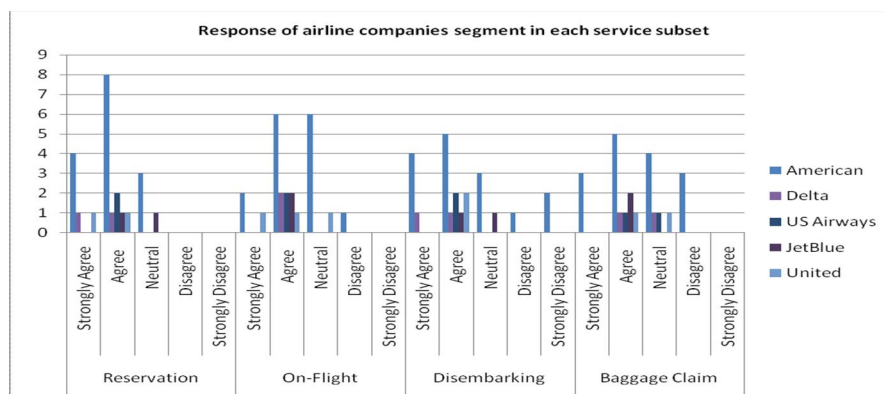


Figure 14. Response of airline companies segment in each service subset

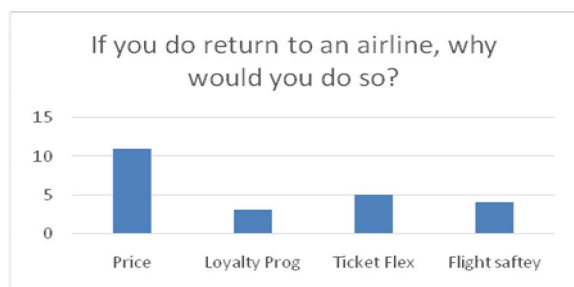


Figure 15. If you do return to an airline, why would you do so?

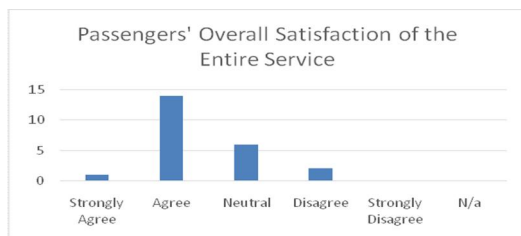


Figure 16. Passenger's overall satisfaction of the entire service

As seen below, out of the 23 passengers 14 (61%) agree that they were satisfied with the entire service process of the airline industry. On the other hand, only 10% did not agree that they were satisfied in the process. In addition, none of the passengers strongly disagreed that they were satisfied.

Importance/ Favorability Grid

An important tool for service industry practitioners that helps them not only measure the satisfaction level for service attributes but also address the importance of service attributes to the customer, is Quality Grid. It is also called Importance-performance analysis technique. IPA developed by Martilla and James (1977). The results are plotted on a two-dimensional grid. The importance of the attribute is displayed on the vertical axis while the satisfaction level is displayed on the horizontal axis. The resulting four quadrants are: *Concentrate Here*, *Keep Up the Good Work*, *Low Priority*, and *Possible Overkill*.

Table 9. Response of age group segment in the boarding service subset

Age Group	18-24						24-30				+30					
	Counter		Online		Kiosk		Counter		Online		Kiosk		Counter		Online	
Strongly Agree	0	0%	1	25%	2	50%	0	0%	2	50%	0	0%	0	0%	1	50%
Agree	3	100%	2	50%	2	50%	0	0%	1	25%	1	33%	1	100%	0	0%
Neither Agree nor Disagree	0	0%	1	25%	0	0%	1	100%	1	25%	2	67%	0	0%	0	0%
Disagree	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Strongly Disagree	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	1	50%
Total	11						8				4					

Table 11. Response of travel reason segment in the boarding service subset

Travel Reason	Pleasure						Business					
	Counter		Online		Kiosk		Counter		Online		Kiosk	
Strongly Agree	0	0%	2	29%	2	29%	0	0%	1	100%	0	0%
Agree	4	75%	2	29%	3	43%	1	100%	0	0%	1	50%
Neither Agree nor Disagree	1	25%	2	29%	2	29%	0	0%	0	0%	1	50%
Disagree	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Strongly Disagree	0	0%	1	14%	0	0%	0	0%	0	0%	0	0%
Total	19						4					

Table 13. Response of cabin class segment in the boarding service subset

Cabin Class	Economy						Business						First					
	Counter		Online		Kiosk		Counter		Online		Kiosk		Counter		Online		Kiosk	
Strongly Agree	0	0%	2	29%	0	0%	0	0%	1	50%	2	100%	0	0%	1	100%	0	0
Agree	3	100%	2	29%	4	67%	0	0%	1	50%	0	0%	1	50%	0	0%	0	0
Neither Agree nor Disagree	0	0%	2	29%	2	33%	0	0%	0	0%	0	0%	1	50%	0	0%	0	0
Disagree	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
Strongly Disagree	0	0%	1	14%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%	0	0
Total	16						4						3					

Table 15. Response of seat position segment in the boarding service subset

Seat Position	Aisle						Window					
	Counter		Online		Kiosk		Counter		Online		Kiosk	
Strongly Agree	0	0%	3	75%	0	0%	0	0%	1	17%	2	40%
Agree	2	67%	1	25%	3	100%	2	100%	2	33%	1	20%
Neither Agree nor Disagree	1	33%	0	0%	0	0%	0	0%	2	33%	2	40%
Disagree	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Strongly Disagree	0	0%	0	0%	0	0%	0	0%	1	17%	0	0%
Total	10						13					

Table 16. Response of income state segment in each service subset

Income State Groups		< 40,000		40,000 - 70,000		70,000 - 100,000		> 100,000	
Reservation	Strongly Agree	6	50%	0	0%	0	0%	0	0%
	Agree	4	33%	5	83%	1	100%	3	75%
	Neither Agree nor Disagree	2	17%	1	17%	0	0%	1	25%
	Disagree	0	0%	0	0%	0	0%	0	0%
	Strongly Disagree	0	0%	0	0%	0	0%	0	0%
On-Flight	Strongly Agree	1	8%	0	0%	0	0%	1	25%
	Agree	7	58%	3	50%	1	100%	2	50%
	Neither Agree nor Disagree	3	25%	3	50%	0	0%	1	25%
	Disagree	1	8%	0	0%	0	0%	0	0%
	Strongly Disagree	0	0%	0	0%	0	0%	0	0%
Disembarking	Strongly Agree	2	17%	1	17%	1	100%	1	25%
	Agree	7	58%	3	50%	0	0%	1	25%
	Neither Agree nor Disagree	1	8%	2	33%	0	0%	1	25%
	Disagree	1	8%	0	0%	0	0%	0	0%
	Strongly Disagree	1	8%	0	0%	0	0%	1	25%
Baggage Claim	Strongly Agree	3	25%	0	0%	0	0%	0	0%
	Agree	5	42%	3	50%	0	0%	2	50%
	Neither Agree nor Disagree	3	25%	3	50%	0	0%	1	25%
	Disagree	1	8%	0	0%	1	100%	1	25%
	Strongly Disagree	0	0%	0	0%	0	0%	0	0%

Table 17. Response of airline companies segment in each service subset

Airline		American		Delta		US Airways		JetBlue		United	
Reservation	Strongly Agree	4	27%	1	50%	0	0%	0	0%	1	50%
	Agree	8	53%	1	50%	2	100%	1	50%	1	50%
	Neither Agree nor Disagree	3	20%	0	0%	0	0%	1	50%	0	0%
	Disagree	0	0%	0	0%	0	0%	0	0%	0	0%
	Strongly Disagree	0	0%	0	0%	0	0%	0	0%	0	0%
On-Flight	Strongly Agree	2	13%	0	0%	0	0%	0	0%	1	50%
	Agree	6	40%	2	100%	2	100%	2	100%	1	50%
	Neither Agree nor Disagree	6	40%	0	0%	0	0%	0	0%	1	50%
	Disagree	1	7%	0	0%	0	0%	0	0%	0	0%
	Strongly Disagree	0	0%	0	0%	0	0%	0	0%	0	0%
Disembarking	Strongly Agree	4	27%	1	50%	0	0%	0	0%	0	0%
	Agree	5	33%	1	50%	2	100%	1	50%	2	100%
	Neither Agree nor Disagree	3	20%	0	0%	0	0%	1	50%	0	0%
	Disagree	1	7%	0	0%	0	0%	0	0%	0	0%
	Strongly Disagree	2	13%	0	0%	0	0%	0	0%	0	0%

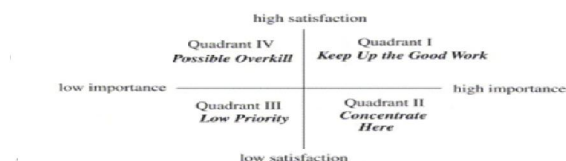


Figure 17. Importance/ Favorability grid

Because of our small sample size, the data was affected and that is shown in the Importance vs Favorability rating shown below. Also any question with a negative correlation was removed from the analysis because they are the result of the small sample size. Since our survey is about the whole airline service sector and it's divided into subsets. Different quality grids were created because in each subset there is a question about total satisfaction. So, the correlation between each question and the overall satisfaction question were calculated. Then another quality grid was calculated which called over all satisfaction. In this quality grid, the correlation between the total satisfaction in each subset and the overall satisfaction question at the end of survey.

Reservation Grid

In this grid questions 2, 3, 4, and 6 are the main questions regarding website reservations lie in top of the graph. This means that the airline company is doing an excellent job in providing these services which is very good because it has moderate importance to the consumers. On the other hand questions 5, 7 and 9 lie in lower left of the grid. This means that problems such as selecting the meal through the website doesn't have a high importance to the consumer but also means that the airline company is not performing it well. In this case, the company should consider all other sectors first then revisit these type of problems after solving their main issues.

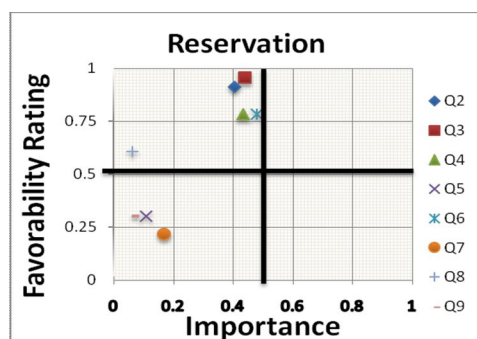


Figure 18. Reservation Importance/ favorability grid

Boarding Grids

As known, there are several ways to board such as counter, online, or kiosk boarding. That's why three

different grids for each type of the boarding processes were created.

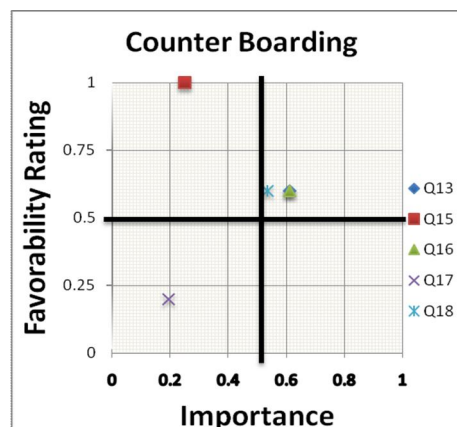


Figure 19. Counter boarding importance / favorability grid

From this grid, it's shown that most services provided in the counter boarding process are met to the standards of the customers. The only issue was the flexibility of counter personal regarding luggage weight, which falls in the lower left of the grid. As mentioned before, this should be revisited after analyzing every sector of the airline company.

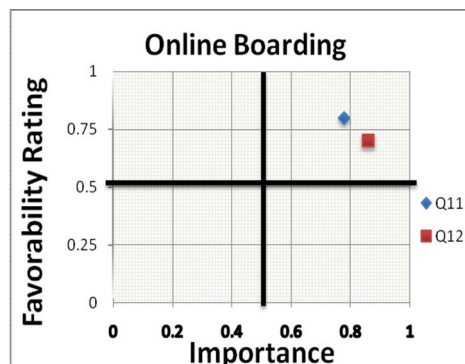


Figure 20. Online boarding importance / favorability grid

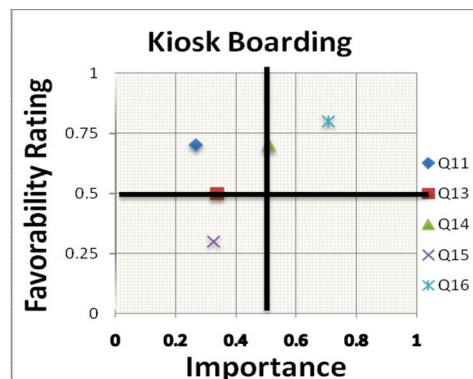


Figure 21. Kiosk boarding importance / favorability grid

This shows that both questions regarding online boarding are with high importance to the customer and performed by the airline company with highest standards, so the company should keep what they are doing because it's working great.

Services provided using the Kiosk counter vary in importance to the customer but mostly are executed properly by the airline company. There are no problems with easiness of use or time it takes to print the boarding pass. The only issue with kiosk boarding is waiting time (in line). As mentioned before, this problem should be revisited after analyzing every sector of the airline company and deciding the main problems that should be fixed.

On-Flight Grid

On flight services has the largest number of attributes, however none of the attributes are in Quadrant II which should contains the attributes that have high importance to passengers and the company has poor performance in it which is notable. On the other hand there are two attributes in Quadrant I, those attributes are very important to passengers and the airline has good performance. Any attribute that lies here is a good indication of the company's services, which means keep up the good work. Those attributes are the personnel were friendly and airline counter was easy to reach. In contrast, most of the attributes are falling in Quadrant IV, this quadrant contains the attributes that are not that important to the passengers and the company has good performance in it. So, it has its cons and pros because the company is doing exceptional service but still it wouldn't affect the company's performance since it's not important to the passengers. Then the company should switch their focus on what matters to the passengers (possible overkill). Finally, a lot of the attributes are in quadrant III that contains the attributes that are not important to the passengers and the company has poor performance in it. There is no need to focus on this quadrant.

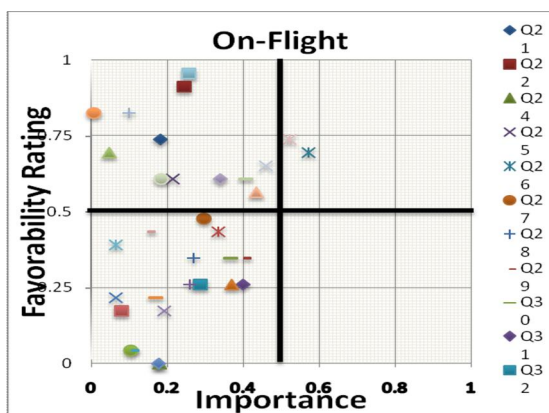


Figure 22. On-flight service importance / favorability grid

Disembarking and Baggage Claim

As shown, services within the disembarking and baggage claim process are executed properly although it has very low importance. This shows that the airline company cares about every little detail regarding customer satisfaction and try to perform services to the highest quality.

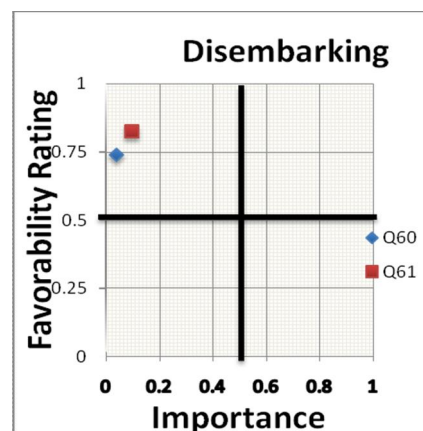


Figure 23. Disembarking importance/ favorability grid

Overall Satisfaction

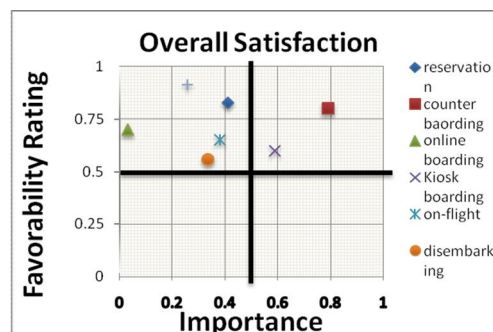


Figure 25. Overall service satisfaction importance/ favorability grid

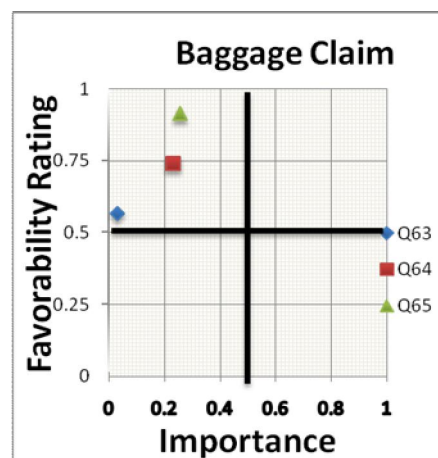


Figure 26. Baggage Claim importance/ favorability grid

This quality grid summarizes the performance of the airlines companies in all subsets. All subsets lie in quadrant I and IV. The first quadrant contains the subsets that are very important to passengers and the airline has good performance. Any attribute that lies here is a good indication of the company's services, which means keep up the good work. Those subsets are counter boarding and Kiosk boarding. On the other hand, quadrant IV that contains the subsets that are not that important to the passengers and the company has good performance in it. These subsets are reservations, online boarding, on-flight services, disembarking and baggage claim. This shows the exceptional service provided by the airline company since all subsets are performed to the highest level and not even one subset lied below standard. Moreover, these results are due to the small sample size because for sure some of these subsets are very important to the passengers but our calculations show the opposite.

Conclusion

The aim of this paper is to measure passengers' satisfaction in five different airline companies. Namely, American, United, Delta, US Air, and JetBlue Airlines. The sample was collected from University of Miami students, which represent a good population of passengers, since 63% of the students came from outside Florida, and 14% are international students. The survey was divided into five sections, and each section represents a service subsets in the airline industry. The subsets are reservation, check-in, on-flight services, disembarking, and baggage claim. The analysis was divided based on demographic questions. Out of the 23 passengers 11 (48%) would return back to the same airline company they flew with because of its ticket price. Moreover, 22% would return back because of flight schedule flexibility. In addition, 17% would return back due to the airline reputation in its safety procedures. Therefore, airline companies should focus on reducing tickets fees in order to have the lion's share of the airline market. Moreover, they should be focusing on improving their reputation in safety procedures. Overall, Out of the 23 passengers 14 (61%) agree that they were satisfied with the entire service process of the airline industry. On the other hand, only 10% did not agree that they were satisfied in the process. In addition, none of the passengers strongly agreed that they were dissatisfied. From the importance/Favorability grids it was obvious that the overall satisfaction by passengers for all subsets was high, which shows that airline industries are doing their utmost in providing excellent service. Although all subsets had high performance by the airline companies, some of them were with low importance to the customer. This is due to the small

sample size collected as some of these subsets are obviously significant.

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