

RESEARCH ARTICLE

Low-Cost Carrier Passenger Repurchase Intention: A Structural Equation Model Analysis

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Abstract: Low-cost carrier (LCC) aviation has exploded globally, which now represents 26% of all passenger seats, while in Southeast Asia LCC passengers have soared to 54%. The purpose of this research was, therefore, to develop and examine the accuracy of a structural equation model of the factors affecting repurchase intention of low-cost carrier passengers in Thailand. Convenience sampling was utilized to obtain a sample of 440 individuals from four Thai low-cost carriers, including Thai AirAsia, Nok Air, Thai Lion Air (Don Muang Airport-DMK), and Thai Smile Airways (Suvarnabhumi Airport-BKK) in 2016. To examine the study's five latent and 22 observed variables, a 97-item survey was used. Results from the study determined the positive and significant influences that customer satisfaction has on customer loyalty, followed by electronic service quality on customer satisfaction, and customer satisfaction on repurchase intention, respectively.

Keywords: airline passengers, aviation, budget airline, customer loyalty, customer satisfaction, electronic service quality, open skies, service quality

LCCs have revolutionized global air travel, especially in the 10-nation member community of the Association of Southeast Asian Nations (ASEAN). At the end of 2016, ASEAN had 21 LCCs, with a combined fleet of 623 aircraft, and according to the Centre for Aviation (CAPA), this fleet has expanded 50% in a three-year period (Centre for Aviation, 2016). The three major hubs for ASEAN passengers include Thailand's Suvarnabhumi Airport in Bangkok, the Philippines' Ninoy Aquino International Airport in

Manila, and Indonesia's Soekarno-Hatta International Airport in Jakarta (Kirchenbauer, 2017), which according to many have reached their design capacities.

Major regulatory reasons for the explosion in ASEAN aviation passenger traffic was the ASEAN Air Transport Integration and Liberalization Plan, which was followed by the May 20th, 2009 Manila signed ASEAN Multilateral Agreement on Air Services and the ASEAN Multilateral Agreement on the Full Liberalisation of Air Freight Services (Nothhaw,

Tungkunanan, & Manon, 2016). These multilateral air transport agreements subsequently came into force on January 1, 2010, and allowed for a less developed country's aviation sector to catch up with, and eventually compete with, more developed regional carriers. Further liberalization of ASEAN aviation took place on January 1, 2015, when the ASEAN Open Skies policy came into effect (ASEAN Briefing, 2015), bringing an end to the days of exorbitant prices and limited travel options.

As the slogan of ASEAN's largest LLC says, "Now everyone can fly," which has opened the door to affordable air travel for the masses, with over half of all airline seats sold in ASEAN now being for a LCC. In countries such as the Philippines, 70% to 80% of all airline passengers are flying on LCCs, with little business class traffic (Ocampo, 2017).

In Thailand, commercial aviation statistics are impressive, especially when it comes to the low-cost carrier market, as LCCs represented 44.9% of total passenger traffic through Thailand's six major airports in 2016, which also accounted for 54.7 million passengers out of the 122 million passengers that moved through Thai AOT (Airports of Thailand) operated airports (Kositchotethana, 2017a).

Multiple studies have confirmed that deregulation has changed the competitive nature of the aviation industry (Baker, 2013, 2014; Kim & Lee, 2011), particularly since it has been applied to low-cost carriers (LCCs) (Damuri & Anas, 2005). The ASEAN Single Aviation Market (ASEAN-SAM), which is also referred to as an ASEAN Open Sky Agreement/Policy, is the region's major aviation policy under which LCCs operate.

With these agreements, any airlines designated by an ASEAN member state can operate both passenger and cargo scheduled services between its home country and another member country's international airport. The agreement also allows for the continuation of the flight to yet a third member state without having to return home before doing so. Furthermore, the agreement stipulates there are no limitations on capacity and schedule.

Additionally, LCCs have proliferated in ASEAN since the financial crisis in 1997/1998, with AirAsia arrival to the region in 2001 leading the way. By 2008,

Singapore's Tiger Airways and Jetstar Asia, Thailand's Nok Air, One Two Go, and Indonesia's AirAsia and Lion Air were common names for budget travelers throughout the region (Tham, 2008).

Thailand's "Open Skies" History

Thailand's "Open Sky" history has been anything but smooth or easy, and has evolved in small steps. However, today in ASEAN, Thailand is the acknowledged leader for long-haul tourists from Europe and North America (Tham, 2008).

Historically however, 2003 is most probably the year one can use as the start of Thailand's "Open Sky" era (operationally), as it was then that multi-government treaties and a private business decision agreement, for the first time brought non-Thai carriers to Thailand's main international airport in Bangkok, *Don Muang* (DMK).

The first "Open Skies" event in 2003 was the agreement between the US Secretary of State and the Thai Foreign Minister allowing for air cargo services between the two countries (Embassy of the U.S. in Manila, 2003). The second event in 2003 was the first "AirAsia" inaugural flight from Malaysia to Bangkok, flying under an operating certificate issued as a joint-venture between the airline and Thailand's Shin Corporation (Tham, 2008). The third "Open Sky" event for the year, was the Multilateral Agreement on the Full Liberalization of All Cargo Air Services between Singapore, Brunei Darussalam, Cambodia, and Thailand which allowed the carriers from the four countries to operate unlimited all-cargo services between each other (Tham, 2008).

In 2003, One Two Go Airlines was founded but unfortunately banned from flying into the European Union (EU) due to safety concerns after the crash of one of its aircraft in Phuket, Thailand on September 16, 2007. One Two Go later in 2010 was rebranded as Orient Thai Airlines.

In 2004, Singapore, Brunei Darussalam, and Thailand concluded yet another multilateral agreement for passenger services, providing for unlimited direct flights between any destination in the three countries (Tham, 2008).

In 2007, Malaysia’s “Firefly” community airline (a subsidiary of Malaysia Airlines- MAS) came onto the scene. Its importance to the Thai and ASEAN traveler was that it soon developed routes into Thailand’s southern Koh Samui and Phuket island resorts from Penang International Airport (PEN).

Who Controls the Thai LCC Market?

Thailand’s domestic market has become a major battleground for multiple ASEAN LCCs, which in 2014 recorded an industry growth of 30% (Centre for Aviation, 2015a). During this period, Thai Lion led the charge on fare reduction, which forced the competitors, Nok Air and Thai AirAsia, to follow suite (Centre for Aviation, 2015b). Added to these LCCs today is THAI Smile, which in 2017 anticipates carrying 4.5 million passengers, up from 3.2 million passengers only a year before (Kositthothana, 2017b).

In 2016, CAPA also reported that Thai AirAsia led the market in domestic seat capacity with 28%, followed closely by Nok Air with 25%. This was followed by Thai Lion which had approximately 13%. Bangkok Airways also has a 13% share of domestic seat capacity, with Thai Airways and Thai’s regional subsidiary, Thai Smile, combined have approximately a 20% share.

Therefore, Thai AirAsia, Nok Air, Thai Lion, and Thai Smile (Table 1), were selected for the study’s focus. Two airports were selected as well, the older and

smaller, joint civilian/military airport of *Don Muang* (DMK), and the newer regional air hub, Suvarnabhumi (BKK), built in 2006 at a cost of US\$3.0 billion, which at the time was projected to be able to support a capacity of 45 million passengers a year (Allett, 2005).

Although not reaching 45 million yet, records were broken in December 2016 however, when the 30 millionth passenger was welcomed at BKK. Furthermore, the Tourist Authority of Thailand (TAT) stated that international tourism revenue for 2016 was US\$46 billion, which represented a year-on-year increase of 11.68% over 2015 (Steinmetz, 2016). As we have seen, LCCs, therefore, play a crucial role in Thailand’s economy and growth.

A survey from the American customer satisfaction index (ACSI) identified the aviation industry in 2001 as having the lowest score for customer satisfaction out of 47 industries surveyed (Baker, 2014). In 2016 fortunately, this score had risen, as passenger repurchase intention had been identified as a serious problem, and positive changes were made by the industry’s airlines (American Customer Satisfaction Index [ACSI], 2016). Krstevski and Mancheski (2016) have indicated that keeping customers is 10 times more cost effective than obtaining new ones, so research is therefore required to determine which factors affect Asian LCC passenger repurchase intention. Additionally, 2016 research has found that Asian LCCs are operating at profit margins of only 8%, which is significantly smaller than those

Table 1
Short-Haul LCC Fleet Growth From 2012 Through 2016

Airline	12/2012	12/2013	12/2014	12/2015	12/2016
Thai AirAsia*	27	35	40	45	49 (A320-200) 1 (A320neo) 2 (ATR 42/72)
Nok Air*	15	17	24	28	23 (Boeing 737) 8 (DHC-8 Dash 8)
Thai Lion Air*	N/A	2	8	20	24 (Boeing 737)
Thai Smile*					20 (Airbus A320-200)
Thai VietJet Air	N/A	N/A	N/A	3	27 (Airbus A320) 9 (Airbus A321)
Total	42	54	72	96	163

Note: * represents the LCCs selected for the study, but excludes long-haul LCCs (Thai AirAsia X and NokScoot).
Source: Centre for Aviation Fleet Database (2012–2015) as well as Internet research in 2017. Thai VietJet Air data was included in Table 1 due to the airline’s rapid expansion into the market, but which did not operate into Thailand at the time of the study.

of their western nation rivals which operate at 15% (Whitley, 2016). This therefore, makes repurchase intention analysis even more crucial.

Literature Review

E-Service Quality (ESQ)

Company digital behavior and the technological environment are increasingly having a significant impact on the way companies manage their customer relationship (Krämer, Tachilzik, & Bongaerts, 2017; Wan, 2017). Historical research on ESQ by Wolfinbarger and Gilly (2003) identified website design, fulfillment/reliability, security/privacy, and customer service as key elements in early research. Barnes and Vidgen (2002) supported this with the conclusion that usability, design, information, trust, and empathy were also important. Gefen (2002) partially embraced the RATER (SERQUAL) model and determined that responsiveness, reliability, and assurance played key roles (Zeithaml, Parasuraman, & Berry, 1990).

Information technology (IT) and e-services (electronic services) also play critical roles within the LCC aviation sector, with e-services being defined as providing services over the Internet. It is used for seat reservation, communication with customers, and sharing of information with the public. However, security and privacy issues have drawn much attention in the electronic commerce research area, and e-vendors need to adjust their online systems to convince customers that vendors and systems are trustworthy (Järveläinen, 2007).

These early pioneers supported later research by Lau, Kwek, and Tan (2011), which indicated that airline e-ticketing was comprised of five variables including ease of use, website design, assurance, responsiveness, and personalization. Therefore, from the review of the literature and theory, the following five observed variables were included in the study: ease of use (ea), efficiency (ef), personalization (per), website design (wd), and privacy (pc) (Gefen, 2002; Zeithaml et al., 1990; Krämer et al., 2017; Lau et al., 2011; Barnes & Vidgen (2002); Wolfinbarger & Gilly, 2003). This therefore led to the study's following hypothesis:

H1: E-service quality (ESQ) has a direct positive effect on customer satisfaction (CS).

Service Quality (SQ)

Service quality has become the significant strategic value adding/enhancing driver in achieving a genuine and sustainable LCC competitive advantage in a global marketplace (Curry & Gao, 2012).

Shanka (2012) measured airline service quality of Ethiopian Airlines, and used the SERVQUAL model, with its five dimensions of reliability, assurance, tangibility, empathy, and responsiveness (RATER) to measure service quality. Results supported the ACSI study regarding airline passenger dissatisfaction (American Customer Satisfaction Index [ACSI], 2016; Baker, 2014), with African travelers being very unhappy with airline reliability, with assurance having the strongest effect on a passengers' satisfaction. It was also indicated that passenger satisfaction plays an important role in enhancing passenger loyalty.

Another factor is tangibles, which are the physical equipment, facilities, personnel, and communication devices, and with LCCs, tangibles have been shown to be of the utmost importance (Lee, 2016; Kim & Lee, 2011), as well as customer responsiveness, which is the ability to quickly serve and help passengers.

From the review of the literature and theory, the following five observed variables were included in the study: tangibles (tg), empathy (em), assurance (as), reliability (rl), and responsiveness (rp) (ACSI, 2016; Baker, 2014; Chang & Chang, 2010; Curry & Gao, 2012; Shanka, 2012). This therefore led to the study's following hypotheses:

H2: Service quality (SQ) has a direct positive effect on customer satisfaction (CS).

H3: Service quality (SQ) has a direct positive effect on repurchase intention (RI).

Customer Satisfaction (CS)

Curry and Gao (2012) researched European LCCs and determined that while there was extensive literature focused on the link between service quality, satisfaction, and loyalty, there is limited research on linking and examining the impact of the LCC low-cost business models to these three constructs. The study,

however, did conclude that customer satisfaction is a much stronger driver in influencing repurchase loyalty than service quality.

Cronin and Taylor (1994) in their investigation of the SERVPERF/SERVQUAL models determined that customer satisfaction is also a post-decision customer experience, while service quality is not. This was confirmed in airline industry research, when it was determined that customer service and on-time flight operation are the most important factors in customer satisfaction for airlines (Bowen, Bowen, & Headley, 2013).

From the review of the literature and theory, the following five observed variables were included in the study: facilities (fac), process (pro), experience (ex), and communication (ct) (Bowen et al., 2013; Curry & Gao, 2012; Cronin & Taylor, 1994; Lee, 2016). This therefore led to the study's following hypothesis:

H4: Customer satisfaction (CS) has a direct positive effect on repurchase intention (RI)

Customer Loyalty (CL)

Companies must understand the wants and needs of customers, and give greater attention to brands that provide the benefits they seek (Utami, 2015). From research on LCC passenger loyalty in Asia, it was stated that frequent flyer programs and convenient booking channels could increase the passengers' loyalty toward the LCC (Chang & Hung, 2013).

Curry and Gao (2012) found LCC passengers to be somewhat cynical when it came to airline branding, and when on to state that due to the Internet, passengers are more concerned with getting "value-for-money" offers. There is a trade off when customers use a low-cost service that of the price saving against the bundled service quality improvements.

Morgan and Hunt (1994) stated that trust plays a significant role in determining commitment between customers and companies. The customers take part in sharing reliability and integrity as they do not know exactly what they will receive until the services are provided. Therefore, trust involves contact with the products that can be touched and checked—both the products and the samples. Services can only be explained and perceived from experiences which

might not meet customer requirements as service is intangible. Multiple studies citing brand value, trust, and satisfaction of brand loyalty were examined for this study and from this, it was determined that that trust, attachment, integrity, and positive word of mouth had a direct positive effect on customer loyalty (Ahrens, Coyle, & Strahilevitz, 2013; de Villiers, 2015). From the review of the literature and theory, the following four observed variables were included in the study: trust (tr), word of mouth (wm), brand preference (bp), and commitment (cm) (Ahrens et al., 2013; Chang & Hung, 2013; Curry & Gao, 2012; de Villiers, 2015; Hanaysha, 2016; Utami, 2015). This therefore led to the study's following hypotheses:

H5: Customer loyalty (CL) has a direct positive effect on repurchase intention (RI),

H6: Customer satisfaction (CS) has a direct positive effect on customer loyalty (CL).

Repurchase Intention (RI)

Various studies have identified multiple latent variables as key to LCC passenger repurchase intention. One such component is reliability which Baker (2014) defined as the ability to correctly provide the customers with services as promised without any assistance. Reliability can also be described as the ability to perform service dependably and accurately, such as punctuality, efficiency of the check-in process, and convenience and accuracy of reservations and ticketing (Kim & Lee, 2011).

Lau et al. (2011) determined that airline passenger satisfaction influenced customers' purchase intention of airline e-tickets. In another study concerning China's quickly expanding aviation sector, airline brand equity was found to have a direct effect on purchase intention, with transition cost directly influencing brand equity, so transition cost indirectly influences purchase intention in China. It was noted however, that brand works best with "traditional" carriers (Choe & Zhao, 2013).

Li (2016) also indicated that repurchase intention occurs from satisfaction and attitude, which serve as the start of customers' overall happiness. The study also showed that perceived usefulness, online customers' satisfaction and perceived enjoyment had significantly positive impacts on online customers

repurchase intention. Moreover, they discovered that compared with utilitarian factors, the hedonic factor had a stronger positive impact on repurchase intention.

From the review of the literature and theory, the following four observed variables were included in the study: attitude (at), behaviour (bh), habitual (hab), and comfortable (cf) (Chen & Hsieh, 2011; Choe & Zhao, 2013; Curry & Gao, 2012; Fu & Juan, 2016; Li, 2016).

Methods

Sample and Data Collection

Convenience sampling was conducted on passengers flying LCCs by Thai university students to obtain a sample of 440 individuals from four Thai low cost carriers (LCCs) (whose passenger list could not be obtained), including Thai AirAsia, Nok Air, Thai Lion Air (Don Muang Airport-DMK), and Thai Smile Airways (Suvarnabhumi Airport-BKK) from July to September 2016. Convenience sampling was used due to the ease of passenger selection and the ease of getting to the individual who was waiting in line to check in (permission had been previously granted by airport authorities). The advantages of this type of sampling are the availability and the quickness with which data can be gathered. The disadvantages are the risk that the sample might not represent the population as a whole, and it might be biased by volunteers.

The sample size was determined by a formula from Levine, Berenson, & Krehbiel (2011), which confirmed that a sample of 440 was reliable. Furthermore, statistical sampling requirements for research conducted for the US National Education Association (NEA), has indicated that sample sizes larger than 380 are unnecessary (Krejcie & Morgan, 1970). Yamane (1967) and Israel (1992) have also indicated that sample sizes beyond 400 are practically irrelevant as well.

Furthermore, during the period between March to May 2016, qualitative research was conducted by use of in-depth, semi-structured, guided interviews with three individuals including an aviation school professor, an AirAsia manager, and a Thai Smile manager, which covered the following five topics:

1. Measurement of e-service quality (ESQ)
2. Measurement of service quality (SQ)
3. Measurement of customer satisfaction (CS)
4. Measurement of customer loyalty (CL).
5. Measurement of repurchase intention (RI).

For the study, Cronbach's alpha (Tavakol & Dennick, 2011) was used to evaluate the initial 30 samples which used a 7-point Likert (Matell & Jacoby, 1972) scale survey rating matrix with "7" indicating "strongly agree" and "1" indicating "strongly disagree." For the questionnaire, "4" indicated "no opinion" as shown in Table 2.

The value of alpha (α) that is considered acceptable ranges in value from 0 to 1 and may be used to describe the reliability of factors extracted from multi-point formatted questionnaires or scales, with a reliability score of 0.70 or higher being considered a reliable score by many researchers (Nunnally & Bernstein, 1994; Hair, Hult, Ringle, & Sarstedt, 2016). The correlation coefficient indicated an acceptable level of 0.77.

The Questionnaire

Questionnaire research design is an outline that is used to generate answers to research problems/questions, and is an arrangement of conditions for data collection and analysis. For this study, the researchers embraced a descriptive survey methodology designed to assess how passengers viewed their experience flying with LCC airlines in Thailand. The design employed the self-administration of a 97-item questionnaire to a sample of individuals which was aimed at finding everyone's attitudes and opinions about how the 22 observed variables impacted LCC passenger repurchase intention. Primary and secondary data were obtained, with primary data coming from data collected from the questionnaire. Secondary data was gathered from the documents, literature, websites, research articles, research reports, and academic dissertations.

Furthermore, the survey's questionnaire utilized a 7-point Likert (Matell & Jacoby, 1972) scale (Table 2) which was divided into two main parts. Part 1 consisted of seven items about the passengers' demographics, while Part 2 was divided into five sections with items concerning service quality (SQ), electronic service quality (ESQ), customer satisfaction (CS), customer

loyalty (CL), and repurchase intention (RI). There were 91 items in total.

Therefore, from the seven levels of frequency, the interpretation of these responses was calculated by using the formula: $\text{Interval} = \frac{\text{the highest score} - \text{the lowest score}}{\text{the number of interval}}$. The seven levels of frequency that were used are detailed in Table 2.

Table 2
Likert Scale Questionnaire

Mean range	Scale	Interpretation
06.17–07.00	7	Strongly Agree
05.31–06.16	6	Agree
04.45–05.30	5	Somewhat Agree
03.59–04.44	4	No Opinion
02.73–03.58	3	Somewhat disagree
01.87–02.72	2	Disagree
01.00–01.86	1	Strongly Disagree

Data Analysis

Analysis of the model was conducted at two levels. First, for a descriptive analysis, statistical means, standard deviations, and inferential statistics were calculated for all constructs (Table 5). Second, structural equation modelling (SEM) by AMOS 17.0 was used to verify multiple paths or relationships

Table 3
Summary of Latent and Observed Variables and Associated Theory

Latent variables (5)	Observed variables (22)	Knowledge Base (Theory)
(ESQ) E-Service Quality	ease of use (ea) efficiency (ef) website design (wd) privacy (pc) personalization (per)	Byambaa & Chang, 2013; Gunes, Arslan, & Yilmaz, 2015; Lau et al., 2011; Yoon, Kim, & Rhee, 2012
(SQ) Service Quality	reliability (rl) assurance (as) tangibles (tg) empathy (em) responsiveness (rp)	Archana & Subha, 2012; Ariffin, Salleh, Aziz, & Asbudin, 2010; Baker, 2013, 2014; Huang, 2009; Parida & Baksi, 2011; Rajaguru, 2016; Seyanont, 2011; Saha & Theingi, 2009
(CS) Customer Satisfaction	Facilities (fac) process (pro) Experience (ex) Communication (ct)	Azad & Shamsabadi, 2012; Bowen et al., 2013; Cronin & Taylor, 1994; Curry & Gao, 2012; de Villiers, 2015; Kadang & Sukati, 2012; Kim & Lee, 2011; Lau, 2011; Lee, 2016; Saha & Theingi, 2009; Yang, Hsieh, Li, & Yang, 2012

among the constructs of service quality (SQ), electronic service quality (ESQ), customer satisfaction (CS), customer loyalty (CL), and repurchase intention (RI) (Figure 1 and Table 3). The structural model was initially tested using all possible paths among the constructs. Following the elimination of insignificant paths, the model was then tested and analyzed in terms of the remaining paths. The goodness of fit (GFI) measurement was used to measure the level of harmony of functions (Table 6).

Results

LCC Passengers' Demographic Characteristics

For personal data (Table 4), it was found that 57.50% of the passengers were male, with 25.5% of the individuals involved in a business trip. Single travelers were also in the majority (59.5%), with those aged between 21–30 comprising 46.1% of the passengers. The LCC passengers were also well-educated, with 61.10% having a bachelor's degree or higher. Salary levels were high for Thailand where the minimum daily wage is 300 baht (\$8.38), with 54.10% having a monthly salary of 20,000 baht (\$560) or higher. The purposes of travelling were mostly for leisure (44.5%), with most passengers working in private companies (46.6%), with the majority of the passengers' fares ranging between 1,001–2,000 baht (USD\$29-USD\$58) (41.2%).

(CL) Customer loyalty	Trust (tr) Word of mouth (wm) Brand Preference (bp) Commitment (cm)	Ahrens et al., 2013; Al-Maghrabi, Dennis, & Halliday, 2011; Chang & Hung, 2013; Chang & Chang, 2010; Choe & Zhao, 2013; Chinomona, 2013; Curry & Gao, 2012; de Villiers, 2015; Duygun, 2015; Fu & Juan, 2016; Hanaysha, 2016; Li, 2016; Saadeghvaziri, Dehdashti, & Askarabad, 2013; Utami, 2015; <i>Yang et al., 2012</i>
(RI) Repurchase Intention	Attitude (at) Behaviour (bh) Comfortable (cf) Habitual (hab)	Chen & Hsieh, 2011; Kim & Lee, 2011; Saha & Theingi, 2009.

Table 4
Respondents' Personal Data

Personal Data	Number	%
1. Sex		
Male	253	57.50
Female	187	42.50
Total	440	100.00
2. Age		
Under 20 years old	29	6.60
21–30 years old	203	46.10
31–40 years old	93	21.10
41–50 years old	82	18.60
Over 50 years old	33	7.50
Total	440	100.00
3. Marital status		
Single	262	59.50
Married	112	25.50
Separated/Divorced/Widowed	66	15.00
Total	440	100.00
4. Education		
Secondary school or lower	68	15.40
Diploma/Vocational Certificate	103	23.40
Bachelor's degree	152	34.50
Higher than bachelor's degree	117	26.60
Total	440	100.00
5. Monthly income		
10,000 Baht or lower	82	18.60
10,001–20,000 Baht	120	27.30
20,001–30,000 Baht	147	33.40
Over 30,001 Baht	91	20.70
Total	440	100.00
6. Purposes of travelling		
Leisure	196	44.50
Business	112	25.50
Visiting family/relatives/friends	95	21.60
Others	37	8.40
Total	440	100.00

7. Occupation		
Student	24	5.50
Government official	45	10.20
Business person/Business owner	129	29.30
Private company employee	205	46.60
Others	37	8.40
Total	440	100.00
8. LCC used		
Air Asia	174	39.50
Nok Air	124	29.20
Lion Air	120	24.30
Thai Smile	22	7.00
Total	440	100.00

Table 5 shows the descriptive statistics (mean, standard deviation [S.D.], maximum [Max.], minimum [Min.], skewness, and kurtosis parameters) for LCC repurchase intention measured.

Table 5
Statistical Parameters for LCC Repurchase Intention

Variable	Mean	Interpretation	S.D.	Max.	Min.	Skewness	Kurtosis
Service quality (SQ)							
1. tg (Tangibles)	5.3371	Agree	.79451	6.80	2.60	-0.714	.829
2. em (Empathy)	5.4478	Agree	.94851	7.00	2.00	-0.628	.497
3. as (Assurance)	5.3922	Agree	.83443	7.00	2.80	-0.638	.256
4. rl (Reliability)	5.3994	Agree	.87223	7.00	2.00	-0.587	.493
5. rp (Responsiveness)	5.3579	Agree	.83481	7.00	2.00	-0.648	.838
E-service quality (ESQ)							
6. ea (Ease of use)	5.2665	Somewhat Agree	.94203	7.00	2.00	-.630	.378
7. ef (Efficiency)	5.3472	Agree	.71672	6.83	3.33	-.503	-.349
8. per (Personalization)	5.5360	Agree	.80001	7.00	3.33	-.510	-.415
9. wd (Website design)	5.4015	Agree	.74375	6.67	3.33	-.659	-.267
10. pc (Privacy)	5.2384	Somewhat Agree	.99879	7.00	2.00	-.656	.127
Customer Satisfaction (CS)							
11. ex (Experience)	5.1049	Somewhat Agree	1.01440	7.00	1.00	-.557	.669
12. pro (process)	5.2189	Somewhat Agree	.85113	7.00	2.25	-.474	.043
13. fac (Facilities)	5.3224	Somewhat Agree	.76611	6.80	3.20	-.315	-.588
14. ct (Communication)	5.0530		.80499	6.75	2.50	-.379	.033
Customer loyalty (CL)							
15. tr (Trust)	5.0305	Somewhat Agree	.90096	7.00	2.50	-.085	-.587
16. wm (Word of mouth)	4.7862	Somewhat Agree	.91088	6.67	2.33	-.343	-.451
17. bp (Brand Preference)	4.9367	Somewhat Agree	.90345	7.00	2.33	-.340	-.267
18. cm (Commitment)	4.8242	Somewhat Agree	.87972	6.67	2.33	-.345	-.284
Repurchase Intention (RI)							
19. at (Attitude)	5.5088	Agree	1.09006	7.00	1.00	-.766	.420
20. bh (Behaviour)	5.6616	Agree	.86935	7.00	2.50	-.854	.549
21. hab (Habitual)	5.5829	Agree	.80160	6.75	3.00	-.688	-.066
22. cf (Comfortable)	5.6348	Agree	.81811	7.00	3.00	-.651	-.078

Measures of the Model Fit

Figure 1 shows the SEM results after adjusting the model to determine the consistency of models with the empirical data. The data criteria are presented in Figure 1 and Table 5.

From the SEM analysis results, it was determined that the factors affecting LCC passenger repurchase intention in Thailand fit well and correspond with the empirical data as shown in the criteria in Table 6, and Table 7. The testing results of variable relationships are illustrated in Figure 1 and explained as follows:

- 1, Electronic service quality (ESQ) had a statistically significant direct positive effect on customer satisfaction (CS) of LCCs in Thailand as confirmed by the 0.01 level (Factor Loading=0.48**).
- 2, Service quality (SQ) had a statistically significant direct positive effect on customer satisfaction (CS) of LCCs in Thailand as confirmed by the 0.01 level (Factor Loading=0.34**).
- 3, Service quality (SQ) had a statistically significant direct positive effect on repurchase intention (RI) of LCCs in Thailand as confirmed by the 0.01 level (Factor Loading=0.21**).
- 4, Customer satisfaction (CS) had a statistically significant direct positive effect on repurchase intention (RI) of LCCs in Thailand as confirmed by the 0.01 level (Factor Loading=0.46**).
- 5, Customer loyalty (CL) had a statistically significant direct positive effect on repurchase intention (RI) of LCCs in Thailand as confirmed by the 0.01 level (Factor Loading=0.16**).
- 6, Customer satisfaction (CS) had a statistically significant direct positive effect on customer loyalty (CL) of LCCs in Thailand as confirmed by the 0.01 level (Factor Loading=0.63**).

Table 6 and Table 7 show that the model corresponded to the specified criteria. Hooper, Coughlan, and Mullen (2008) have indicated that items with low multiple R² (less than 0.20), should be removed from the analysis as this is an indication of very high levels of error. Research from Hair et al. (2016) also confirmed this and has indicated that R² values should be higher than 0.25. From Table 6, goodness-of-fit (GFI) is indicated to be 0.982. Values for the adjusted goodness-of-fit statistic (AGFI) should also range between zero and one, and it is generally accepted that values of 0.90 or greater, indicate well-fitting models (Hooper et al., 2008). The adjusted goodness-of-fit statistic (AGFI) for the study in Table 6 is 0.944.

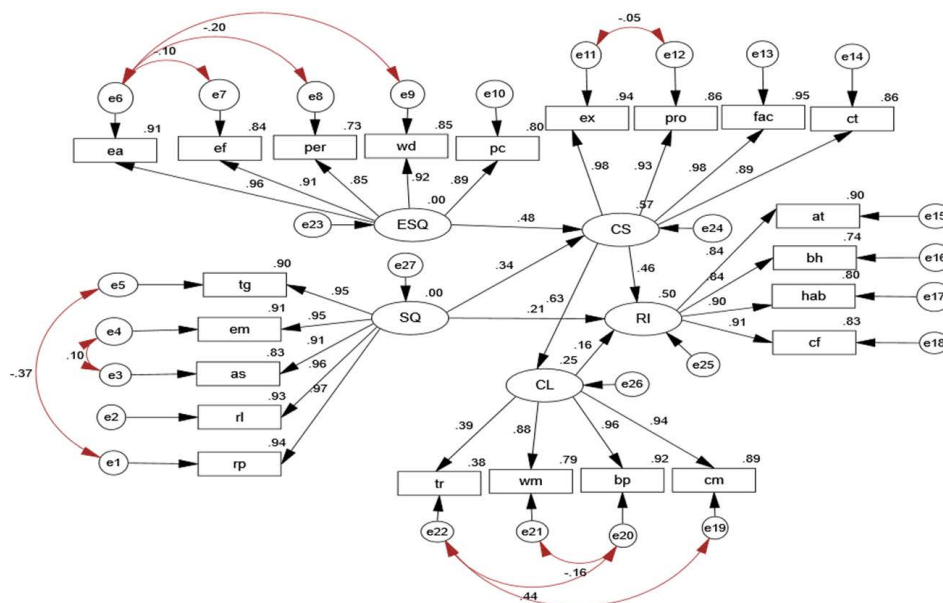


Figure 1. SEM results after adjusting factor loading and modification indices (MI).

Table 6
Model Fit Checking Index

Index	Standard	Results
CMIN/DF - relative chi-square	< 3.00 (Tabachnick & Fidell, 2007)	0.992 (p=0.499)
RMSEA - root mean square error of approximation	< 0.5 (Schumacker & Lomax, 2004)	0.000
GFI - goodness of fit	≥ 0.95 (Schumacker & Lomax, 2004) ≥ 0.90 (Hooper et al., 2008)	0.982
AGFI - adjusted goodness of fit	> 0.8 (Hooper et al., 2008)	0.944
CFI (comparative fit Index)	≥ 0.90 (Schumacker & Lomax, 2004)	0.995
IFI - incremental fit index (Bollen's IFI)	> 0.8 (Bollen, 1990)	1.000
NFI - normed fit index	> 0.5 (Hair et al., 2016)	1.000
Cronbach's Alpha	≥ 0.70 (Tavakol & Dennick, 2011)	0.77

Table 7 shows the results from the testing of the six hypotheses, which indicates the acceptance of all six hypotheses. When path analysis was considered, it was found that the most influential factors were customer satisfaction, which had a direct positive effect on customer loyalty (0.63), followed by electronic service quality which had a direct positive effect on customer satisfaction (0.48), and customer satisfaction which had a direct positive effect on repurchase intention (0.46), respectively.

For the relationship between the latent variables of personnel service quality and customer repurchase intention, it was found that service quality had a

statistically significant direct positive effect on customer repurchase intention at a standardized regression coefficient of 0.21 and a p-value of less than 0.001. Meanwhile, electronic service quality had an indirect positive effect on customer repurchase intention through customer satisfaction at a standardized regression coefficient of 0.22.

When comparing electronic service quality (ESQ) to personnel service quality (SQ), we could see that the standardized regression coefficient of ESQ was more than personnel SQ in terms of their effects on customer repurchase intention (RI).

Table 7
Hypotheses Testing Results

Hypotheses	Factor loading	p-value	Results
H1: Electronic service quality (ESQ) has a direct positive effect on customer satisfaction (CS).	0.48***	< 0.001	accept
H2: Service quality (SQ) has a direct positive effect on customer satisfaction (CS).	0.34***	< 0.001	accept
H3: Service quality (SQ) has a direct positive effect on repurchase intention (RI).	0.21***	< 0.001	accept
H4: Customer satisfaction (CS) has a direct positive effect on repurchase intention (RI),	0.46***	< 0.001	accept
H5: Customer loyalty (CL) has a direct positive effect on repurchase intention (RI),	0.16***	< 0.001	accept
H6: Customer satisfaction (CS) has a direct positive effect on customer loyalty (CL).	0.63***	< 0.001	accept

Note: *** Statistical significance level of less than 0.001

Discussion

The International Air Transport Association (IATA) has stated that in terms of seat capacity, the global low-cost carrier (LCC) industry is expanding, with LCCs holding a 26% share in the Asia-Pacific region, and an amazing 54% share in Southeast Asia including Thailand (Market Research Report Store, 2016). IATA has also determined that when a country increases its air cargo connectivity by just 1%, the country sees a 6.3% increase in the country's total trade (International Air Transport Association, 2016a). Maybe this was the impetus for Thailand's first Open Skies agreement in 2003 for air cargo operations between Thailand and the US (Embassy of the U.S. in Manila, 2003)?

It's no coincidence then, that the region continues to be the runaway success story of airline profitability. IATA (2016b) once again has determined that airlines in the Asia-Pacific region generated a net profit of \$7.3 billion in 2016, and on a per passenger basis, average profits are anticipated to be \$4.44 in 2017 (International Air Transport Association, 2016b). Capacity offered by the region's carriers is forecast to grow by 7.6% as well. Improved cargo performance is expected to offset rising fuel prices for many of the region's airlines, with expansion of new model airlines and progressive liberalization in the region, intensifying already strong competition (Baker, 2013, 2014; Kim & Lee, 2011).

Price sensitivity for LCC passengers was often confirmed by the research, which was consistent with research from Rajaguru (2016), which also confirmed that LCC customers' perception of value for money and service quality, and its influence on behavioral intention, was heavily influenced by money value perception and service quality.

The LCC growth reflects the increased popularity of LCC carriers, due to offering 30% lower fares than full-service carriers (FSCs), the LCCs' growing networks, added frequencies, and intense sales promotions. LCCs will continue to gather market share in the short and medium-haul routes on which budget airlines have become a more acceptable mode of air travel than FSCs (Bachman, 2016).

Furthermore, ESQ from the research was found to have a direct positive effect on LCC passenger customer satisfaction. This corresponds to airline

industry research by Gunes et al. (2015), in which it was concluded that ESQ has a direct positive effect on customer satisfaction and customer satisfaction had a direct positive effect on passenger loyalty. This is also consistent with research concerning Mongolian LCCs by Byambaa and Chang (2013), in which it was determined that ease of use, information quality, website design, and payment security interactivity, all affected customer satisfaction. Also, Lau et al. (2011) studied airline e-ticketing and the relationship between service quality and satisfaction, and concluded that ESQ, including ease of use, website design, assurance, personalization, and responsiveness all had a significant effect on customer satisfaction.

Service quality (SQ) was also found to have had a direct positive effect on Thai LCC passenger customer satisfaction. This was also confirmed by other studies, including Archana and Subha (2012), which determined that service quality had a positive effect on passenger satisfaction. *Haryono, Suharyono, Fauzi, & Suyadi, (2015) studied multiple dimensions of domestic FSC passenger characteristics at the Adisutjipto International Airport Yogyakarta (JOG) in Java, Indonesia.* From the research, it was determined that service quality had a significant effect on trust, customer satisfaction, customer delight, and repurchase intention. Further confirmation of the importance of service quality on customer repurchase intention was made by research from Parida and Baksi (2011) using the SERVQUAL model.

Customer satisfaction (CS) was also determined to have a direct positive influence on LCC passenger repurchase intention. This corresponds to Kadang and Sukati (2012) in which research confirmed that customer satisfaction had a significant effect on repurchase intention. Moreover, Azad and Shamsabadi (2012) studied airline agencies and the relationship between customer satisfaction and customer repurchase intention, and also determined that customer satisfaction had a significant direct effect on repurchase intention.

Customer loyalty (CL) also had a direct positive effect on LCC passenger repurchase intention which corresponded to Duygun (2015) which found that customer loyalty had an effect on repurchase intention. Additionally, Chinomona (2013) found that customer

loyalty had a significant positive effect on customer repurchase intention. Further research from de Villiers (2015) also found that customer satisfaction had a significant positive effect on customer loyalty.

Conclusion

From the results of the comparison between ESQ and LCC staff SQ of the sample passengers who traveled with low-cost airlines in Thailand, it was found that SQ had less effect on RI of LCC passengers in Thailand than ESQ. Therefore, the SQ must be improved.

Specifically, airline staff should focus on passenger care, giving clear answers to questions about airline services, with LCC staff focusing on increasing passengers' confidence in the carrier. Airlines should also hold seminars which are focused on building staff trust in each LCC, while also helping personnel perform their duties more effectively, which improves customer confidence in both the LCC and its staff. The result will therefore be greater customer repurchase.

Recent confirmation of the importance of SQ to LCCs has come from multiple Asian LCCs. One example is AirAsia's new passenger "premium services" which includes a Santan (coconut milk) inflight menu and catalogue, which features hot meals, savory snacks, healthy food selections, a variety of beverages, and special gift items and merchandise (Santos, 2017). Australia's Jetstar, which is a low-cost subsidiary of Qantas Airways, now offers "FlexiBiz" for business travelers, which is blurring the line between LCCs and full-service airlines (Sevagian, 2016). Another possible example of SQ implementation has come from the LCC Thai Smile Airways which has stated that to improve passenger convenience, they are changing the airline's reservation and ticketing system to increase the efficiency of booking, making it more accurate and faster (Kositchotethana, 2017c). Some might classify these new types of LCC services as "premium economy." It seems as the LCC airline matures, expands, and survives, they will eventually start to offer more 'full-service airline' type of services and options.

Concerning passenger expectations, LCCs need to accurately identify the expectations of the passengers

they offer services to. Most LCCs operate on the same routes with similar prices and capacities, so retaining passenger attraction and loyalty seems to have become a critical requirement for companies to gain a competitive advantage, as customer satisfaction is what guarantees the future of airlines (Qin, 2012). This is consistent with Indonesia's AirAsia, where it was stated that by maintaining a high level of service quality and continuously enamoring its guests with warm hospitality, the LCC was able to gain marketplace recognition (AirAsia Annual Report, 2015).

For ESQ, the study showed that there could be an improvement of facilities on board related to airline security standards, and on-board services such as WiFi and electronic devices. These findings were consistent with the president of the International Civil Aviation Organisation (ICAO), which stated recently in Singapore, the need for an effective and collaborative global response to cyber threats, as the need is critical to protect aviation related networks, infrastructure, and passengers (AIRteam, 2017).

Furthermore, when customers book seats online, confirmation messages should be sent to their mobile phones automatically. Channels of payment should be increased also, such as using banks' Easynet service. Airline office online hours' contact should be extended so that customers can contact the LCC office at any time. In case of problems or delay in check-in, solutions must be found quickly to increase competence in services and LCC competitiveness.

Future Implications

1. For Thailand and many developing nations, the importance of the LCC industry cannot be understated. From January–June 2017, Thailand's airports transited 17 million passengers internationally, creating an income of US\$26.2 billion (876 billion Baht) in which the China market was the first generator, followed by Russia and Malaysia. For 2018, central government planners have set a growth of not less than 8% in tourism revenue from these markets (*Tourism Authority of Thailand*, 2017).
2. The above numbers can be very deceiving however, as they do not reflect Thai domestic

aviation which is approximately 45% LCC airlines. Added to the international mix, airports operated by Airports of Thailand (AOT) reported 105.67 million passengers in fiscal year 2016 (Airline Network News and Analysis, 2016). This does not include passengers flying into and out of non-AOT operated airports, such as Krabi (3.69 million passengers in 2015), Udon Thani (2.21 million passengers in 2015), and Koh Samui (2.05 million passengers in 2015). To support these numbers and growth, Thailand needs airport expansion.

3. A third Bangkok metropolitan/eastern seaboard airfield has recently been identified to help in Thailand's need for quick airport expansion to deal with the ever-increasing passenger congestion. U-Tapao International Airport (also spelled Utapao and U-Taphao), is a Vietnam War era airfield located on the eastern seaboard of the Gulf of Thailand just south of the resort city of Pattaya. This joint *Thai Navy/civilian airfield has also risen in importance not only due to Thailand's need for more air passenger capacity, but also for it becoming the new economic and infrastructure hub for Thailand 4.0's new Eastern Economic Corridor (ECC)* (Jones & Pimdee, 2017). The US\$5.7 billion investment plan includes runway expansion and new aircraft hangars and maintenance facilities, which is stated to be the starting place for Thailand's push to become Asia's next major aviation hub (Bellamy, 2017). In 2014, U-Tapao was transitioned into a joint civil-military airport, which caused the number of annual passengers using the airport to jump from 168,000 in 2014, to 750,000 in 2016. Projections for 2017 are indicated to be 1.3 million, and to support this, the new US\$480 million, 20,000 square meter Terminal 2 is expected to be completed in August 2017. Already Thai Air Asia and Thai Lion Air (the top 2 LCCs in Thailand) are proposing using U-Tapao as their new hubs into new international markets such as Macau, Nanning, Nanchang, and Kuala Lumpur (Thai AirAsia), and Chengdu and Chongqing (Thai Lion Air) (Citrinot, 2017). Once again, competition is fierce, with route expansion into China appearing to be a major strategy for ASEAN LCCs operating from Thailand, which are competing for the expected 9.8 million Chinese tourists projected in 2017 (Janthong, 2017).
4. As amazing as Thailand's air passenger statistics and infrastructure plans are, the Philippines had passenger growth of approximately 10% in 2016, which is expected to grow at the same rate in 2017 (Delavin, 2017). The Philippines has the fastest-growing economy in Southeast Asia, and in 2016, its GDP (gross domestic product) was estimated at 6.4%. The only constraint in air passenger growth has been the infrastructure constraints at the capital city's Manila airport, Ninoy Aquino International Airport (NAIA). Total passengers transiting Philippine airports was 42 million, which included 22 million domestic passengers (9% growth, of which NAIA had a 90% share), and 20 million international passengers (11% growth, of which NAIA had an 80% share). As with Thailand's U-Tapao International Airport, there are also efforts to encourage the use of other alternative airports, particularly the Clark International Airport (a US Air Force run airbase until 1991) to help decongest NAIA.
5. Rapid LCC expansion has been the main driver of traffic growth and change in the Southeast Asian market according to CAPA (Delavin, 2017). Six countries had growth of at least 9%. These included Cambodia, Laos, Myanmar, the Philippines, Thailand, and Vietnam. Over the next 20 years, Boeing is forecasting a need for over 39,600 airplanes valued at more than \$5.9 trillion (Boeing, 2016). Aviation is becoming more diverse, with approximately 38% of all new airplanes being delivered to airlines based in the Asia region. Single-aisle airplanes command the largest share of new deliveries, with airlines needing over 28,100. These new airplanes will continue to stimulate growth for LCCs, with LCC carriers supporting air-travel growth by making it more affordable and

accessible, thereby meeting the emerging travel demands of the region's growing middle class.

6. There is however a dark side to AirAsia's slogan, "Now Everyone Can Fly." Data from the U.N.'s International Civil Aviation Organization (ICAO) says passenger air traffic in the Asia-Pacific region grew by 66% from 2010 to 2015, and in 2016 topped 1.3 billion passengers, more than Europe, the Middle East and Africa combined (Ramsey, 2017). Altogether, the region now comprises some 35.4% of the world's air traffic, which is more than any other single designated area. Within this, there are over 50 flight information regions and no single authority concerning standards and safety. Infrastructure is bursting at its seams, with airports in Thailand, the Philippines, and Indonesia far beyond their design capacities. Standards, however, need to be harmonized to a sufficient degree to allow cross-border enforcement cooperation in line with international requirements. This includes citing pilot-training standards and aircraft inspections in particular, as there is a huge variance in technical capacity among the ASEAN states (Ramsey, 2017).

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