The Effect of LCCs' e-Business and e-Management Strategies by Investigating Determinants on Southern Taiwan

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Manuscript submitted February 12, 2016; accepted August 9, 2016.
doi: 10.17706/ijeeee.2016.6.3.146-161

Abstract: Budget airlines, also named as low cost carriers (LCC) in Taiwan, have had great impact in Europe, America and have stimulated new demand since the orientation of Southwest Air in 1973. The market share of LCCs has gradually increased in each region and grown particularly within Asia-Pacific. The first LCCs entered the Asian air transport market in the early 2000s; meanwhile the first budget airline commencing its business in Taiwan was *Jetstar* in 2004. Many researches were focused on the comparison between full service carriers (FSC) and LCCs; competitive strategy for FSCs to outstand the market. However, only few studies were focused on Taiwan's LCCs of their decisive determinants. Actually, none was specifically focused on passengers' perceived concept and attentive factors triggering passengers' decisions in Taiwan. In this paper, factors analysis based on customers' satisfaction to purchasing behavior was conducted. The factors were integrated other researches factors about airline satisfaction and creatively considering one factor, word of mouth (WOM) as another direct construct to motivate attention behavior. The survey was conducted with 284 valid samples by PLS-SEM, a factor construct analysis tool. The survey of LCCs about determinants was to investigate customers' perceived concepts toward LCCs in Taiwan. The result showed price is the same determinants concern for LCC. Another interesting factor was WOM can be a key factor influencing Taiwanese purchasing behavior. This study provides novel insight regarding LCC passengers' concepts and behavioral intention, as well as managerial analysis and research implications for LCCs business reference.

Key words: LCC (low cost carriers), FSC (full service carriers), word of mouth (WOM), satisfaction, intention.

1. Introduction

Low-cost carriers, also named as budget airlines, have had great impact in Europe, America and stimulated new demand [1] since the orientation of Southwest Air in 1973. The market share of LCCs has gradually increased in each region. That is to say, the increasingly competitive air travel environment has influenced consumer demand patterns [2]-[4]. Many researches focused on the comparison between full schedule carriers (FSC) and LCCs or competitive strategy for FSCs to outstand the market. Recently some investigations have been located to discuss the factors [2], [5]. Also some researchers claimed that LCC firms can ensure long-term success by developing the determinants of passenger loyalty [6]. With so many investigations, LCCs' perceived preferences are proven to be significant. However, are the Asian regions still

similar to others?

The first LCCs entered the Asian air transport market in the early 2000s. As Pearson and Merkert [7] stated that LCCs are growing particularly within Asia-Pacific. In 2001, the LCCs domain rate only 8%, and it largely came to 26.1% in 2012. In Europe market, the occupation rate is 36.6%; and 30.1% in North America. Among all, the Asia market, lately stepped in but potentially profitable also rated 24.1%. There are magnificent potential markets in Asia. Take into account as the focus is that Taiwan, set up his own LCC in this October, 2014. It means that LCCs are stepping as budding carriers. The first LCC into Taiwan market in 2004, *Jetstar Air*, encroached into the route of Taiwan vv Singapore with around USD29 sector airfare, almost half price of FSCs. In 2012 the market share in Taiwan only 3.9% (CAA, Taiwan) and until this December, 2014, there are total thirteen LCCs and operate sixteen schedule routes and the market share rounds up to 7.2%. However, few studies were focused on Asia's LCCs of their decisive determinants, especially on consumers' perceived concepts and factors really triggering consumers' decisions. In this paper, the study was specifically harvested all efforts to investigate Taiwan's consumers pattern and to realize their possible chance. To what extend LCCs can really integrate Taiwan's perceived concept and determinants. All the findings can be useful for the LCCs to promote air transportation share.

Ever since there are already plenty of studies about LCC, or airline services, or service satisfaction. However, few studies focus on LCC in Asia, even in Taiwan. Also many influencing variables have been discussed and most of them are all significant to the end. With so many constructs, organized filtering ones should be selected to be discussed as below. Therefore, in this study, we developed a relationship business model by examining people's perceived concepts and determinants people may strongly concern in Taiwan. The determinants are *Price* (FP), *Assurance* (AS), *Flight schedule* (FS), *Facility service* (FA), *Customization* (CS). We examined the above factors if with significance influence toward *Satisfaction* (SAT). While satisfaction is the concept synthesis deriving from factors to attract *Intentions* (INT) to purchase LCCs. Intention can be evaluated on half of antecedents' significant performance. Another special factor is *Word of mouth* (WOM) in which we examined the relationship with satisfaction and intention. Perceived concept is people's pre-assumption knowledge in Taiwan; while WOM is the receiving concept from outside influence. By knowing the perceived concept, LCCs or strategy deciders can conceive people's ideas and improve the enhancement via verbal propaganda. Furthermore, WOM is the influenced concept received from related friends or closed ones. The LCCs or strategy managers can make good use of WOM to promote their business in Taiwan if the relationship is significant.

Thus, this study organized a LCC business model, listed as the following: FP → SAT, AS→SAT, FS→ SAT, FA→SAT, CS→SAT, SAT→INT, SAT→WOM, WOM→INT. In the following chapter, all the determinants are reviewed and defined so that the variances can be theoretical supported.

2. Theoretical Background of Determinants

2.1. Determinants: Antecedents of Satisfaction

2.1.1. Price

Price, defined in Oxford Dictionary as the amount of money expected, required, or given in payment for something. Also the focused price is defined by monetary cost; that is, the value of monetary is considered to pay something expected. At the timing of expecting something, how much value is paid to gain the attraction. Undoubtedly price making becomes an essential strategy in roping in customers. LCCs, sometimes called as intruders of airline business, definitely perceive the key point to encroach the competitive and crowded air business. All the LCC flying hours are within 3 to 4 hours. Generally, the LCCs provide point-to-point service on short-haul with attractive competitive airfare [8]. Low and budget price is the strategy for the market entry to break out in an already occupied and almost balanced-arranged market.

LCCs accentuate prominently by providing aggressive pricing strategy [2], [9]-[13]. As the name, Low Cost Carriers, low airfare price, considerably surprising, turns into the main successful factor for LCCs to break through the market. Even the FSC (full schedule carriers) sense the threat and enforce to innovate new strategy for survival [1], [14].

Price, a winning determinant, becomes a sounding logo for LCCs' passengers. Coming with LCCs' entrance, the low airfare competition indeed bring some impact on travelers' choice. The increasingly competitive air travel environment has influenced consumer demand patterns [3], [4]. LCCs design the business strategy to attract the ethic group who enjoy travelling, but with limited budget. The group segmentation is composed of young adult and low-margin passengers [15]. Somehow the group is called as backpackers, a term to define as travelling addict with low budget and lack of economic capacity. Also the customer segment is viewed as "downmarket", that is an emphasis on dynamic pricing tactics. The majority group concerns most "*price*". When the essential consideration is fully achieved, the expecting satisfaction is completely met. Therefore, the hypothesis is reasonable to list as:

FP positive influence SAT

2.1.2. Assurance

Flight assurance can be viewed as flight reliability. That is an important index to value airline service. According to the report of AQR (Airline Quality Rating), the quality which meant good airline assurance is evaluated on the attributes. Those attributes include: on-time arrival, mishandled baggage, *airline safety*, passenger complaints (e.g. cancellations, delays, deviations from schedule), reservation, ticketing, and boarding problems. To sum up, the general literature indicates passengers regard of important attributes (listed key attributes related to assurance) as reliability, flight safety assurance, a beneficial frequent flyer programme to be a superior service airline [16]. Comparing with FSC, superior service is not the most concern of LCC, but *profit.* However, flight secure safety comes up the top priority for every type of airlines. Only passing the secure aviation check, the Aviation Bureau can allow the flight departure. None of passengers will risk life to be on plane. But concerning with price attraction, the assurance soon becomes important only, but not the first considering attraction. That is the hypothesis to be considered as the below.

AS influences SAT

2.1.3. Flight schedule, facility service, customization

The aviation Industry somehow has been identified as one of the more intangible service industries. Except tangible aircraft and measureable airfare price, the other related services as business strategic management are provided to enhance business profits and obtain frequent passengers. All the service images are intangible and difficult to evaluate. In order to measure intangible service, a well-known service measuring instrument was designed, SERVQUAL, proposed by Parasuraman, Zeithaml, & Berry [17]. The SERVQUAL instrument has been used by several researchers to measure airline service [17]-[19]. By summarizing the service dimensions, three dimensions were extracted respectively with different representative items. Those are Flight schedule, Facility Service and Customization.

Flight schedule can be the time slot designed by airline companies to fit passengers' requirement. More generally speaking, it is summarized as Flight Patterns that include flight schedules, flight frequencies, flight network by Gilbert & Wong [16] as convenient flights schedules and enough frequencies, availability of global alliance partners' network, non-stop flights to various destinations or expresses as on-time departure, on-time arrival, or no cancelation of flights [14]. All the indicators are focused in heightening

airline service. However, some service items might cause higher cost, like global alliances and some might not be regulated by LCCs, like convenient flight schedule. LCCs sometimes are designated in remote terminals and with non-competitive time slot by Airport Control [1]. The service might not be coped or designed.

FS negative influence SAT

Facility service refers to check-in, baggage handling service, in-flight facilities, waiting lounge [16]. The question items include clean and comfortable interior/seat, in-flight entertainment facilities and programs, availability of waiting lounges, In-flight Internet/email/fax/phone facilities [20]. It also includes updated facilities' visual appeal [17], [21], [22]. With the restricted service types by LCCs, some are exclusive. That is to say, facility service is not designed as LCCs' strategy. Actually LCCs choose a single aircraft type over all legs, frequencies and a single price per leg flown [23]. The reason to operate a single aircraft type strategy is to reduce maintenance costs and personnel training. Also there is no need to distinguish between business and leisure travelers directly. For the purpose of yield management, LCCs use yield management to maximize revenues by changing ticket prices over time, a strategy designed to attract as much of the consumer surplus as possible. However, as pre-assumption to capture satisfaction, good facility service is seemingly provided. Therefore, the construct reason might be designed as:

FA negative influence SAT

Customization including individual attention, anticipation of your travel needs refers to individual attention to passengers, understanding of passengers' specific needs, availability of loyalty programme, availability of frequent flyer programme, availability of air/accommodation packages, availability of travel related partners, e.g. hotels, car rentals [16]. Customization means to offer personal emphasized value to individual who can feel pleasant and warm [24]. Customization is designed to treat passengers as elite with privilege. Only with individual attention and care service, passengers are content with satisfaction. LCCs frankly speaking only provide single service: safely transport passengers from departing place to arrival destination. With some special individual service, like WCHR (wheel chair service) is not mandatory provided (ex. Some official notice from *Tiger Air* website). With the same possible restriction, the hypothesis might be verified as:

CS negative influence SAT

2.2. Determinate of Satisfaction and Intention: WOM (Word of Mouth)

Word of mouth refers to a flow of information about products, services, or companies from one customer to another [14]. Word of mouth represents an external source of information delivered by experienced customers or trusted customers to which passengers can confirm and be persuaded to stimulate purchasing intention. Another definition of word of mouth is the depth to which customer that obtained a certain level of satisfaction would inform other people about that particular event. As everyone says: one person will complain the bad service at least to 7 persons, and so on…. However the empirical study shows that customers with bad and good experiences will inform up to 11 and 6 people respectively. To be on the good side of effect, it is suggested that customers that have positive experiences are more willing to communicate their feelings to others than those with negative experiences. The impact of word-of-mouth with good recommendation motivates the purchasing intention. About 60% of sales to new customers are reported to be due to word-of-mouth referrals [25]. Similarly implied in organization activity, positive word-of-mouth

will result in having good sales, attracts more customers, and reduces customer runaways. Therefore the hypothesis is supposed.

WOM influences INT

2.3. Final Antecedents of Intention: Satisfaction

Satisfaction, word of mouth and purchasing intention (behavior intention) are the most discussed dimensions. As satisfaction, the complexity construct, many definitions have been discussed. Satisfaction is the outcome of buying a product or service, [26] whereby the purchase rewards and costs are compared. Also La [27] noted that customer satisfaction is an antecedent of repurchase intention. Many writers claimed that customer satisfaction may predict future repurchasing behaviors and profitability [28]-[30] Furthermore to say, satisfaction is described the cognitive comparison between the expectations that a passenger holds prior to the purchase or service experience and the actual performance of the service. Customer expectations can be either positive or negative disconfirmation [26]. Disconfirmation derived from passenger satisfaction will deliver either positive or negative communication. The relationship between satisfaction and word of mouth is that satisfied customers generate positive word-of-mouth [22]. That is to say, customer satisfaction stimulates repeat purchases and favorable word-of-mouth. In light of the above discussion, the following hypotheses are proposed:

SAT positive influence INT
SAT positive influence WOM

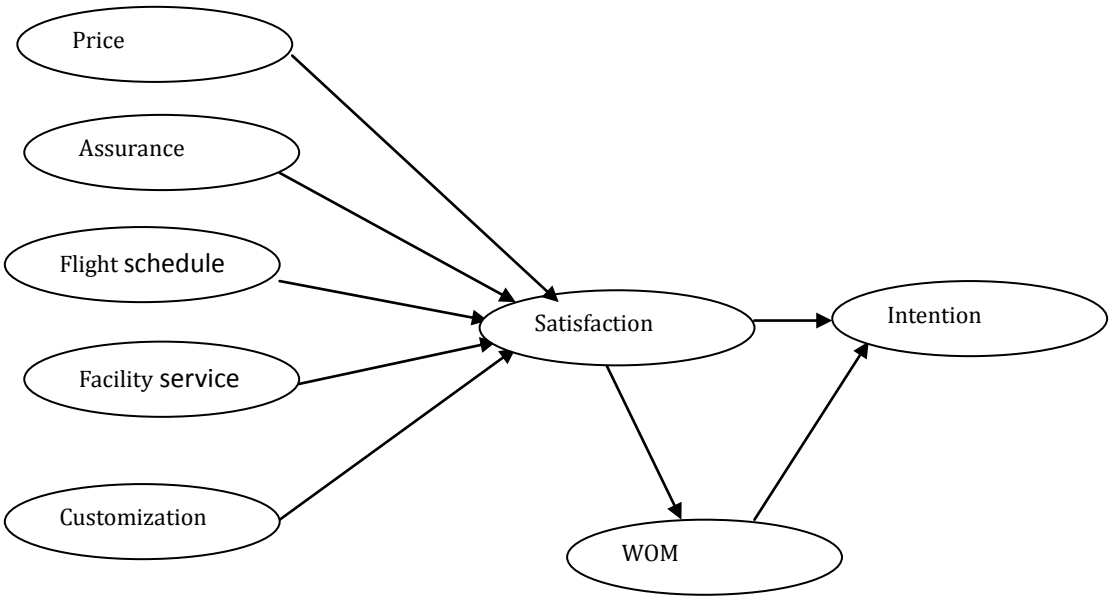

Fig. 1. A business model of LCCs determinant factors in Taiwan.

3. Empirical Study

3.1. Measurement

We examine survey to conduct eight constructs with respective items, which are modified for LCC context. There are eight constructs in this study: Price (FP), Assurance (AS), Flight schedule (FS), Facility service (FA), Customization (CS), Word of mouth (WOM), Satisfaction (SA) and Intention (INT). With the eight

constructs, the instrument, a self-completion questionnaire, contains total 26 items in the first beginning. All the items are measured on a five point Likert scale ranging from (1) strongly disagree to (5) strongly agree.

The eight main constructs in this study were operationalized using scales found in extant literature. In order to evaluate the key determinates of LCC satisfaction, we developed total 15 items respectively of five indicators (three for price, three for assurance, three for flight pattern, four for flight facility, and three for customization) from current study [17], [19], [31]. All these indicators were filtered because they better describe the characteristics of airlines business. Whilst three influenced indicators (two for word of mouth, four for satisfaction, and three for intention) are measured with respective items [14], [18], [21], [30], [32]. Table 1 shows the operationalisation of the data collection of the data collection instrument.

Table 1. Operationalisation of the Data Collection Instrument

Dimension	Item	Source
Price	(FP1) Reasonable price	[26]
(FP)	(FP2) Value for money	[18]
	(FP3) Reliable price information	
Assurance	(AS1) professional handling	[16]
(AS)	(AS2) secure safety	[31]
	(AS3) robust schedule	
Flight schedule	(FS1) connecting service	[14]
(FS)	(FS2) multi-destinations	[18]
	(FS3) flexible schedule	[16]
Facility service	(FA1) meal service	[31]
(FA)	(FA2) inflight cabin comfort	[16]
	(FA3) well-designed of website	
Customization	(CS1) Pleasant	[17]
(CS)	(CS2) Reliable	[31]
	(CS3) Timely and accurate	[19]
Word of mouth	(WOM1) Influenced my evaluation	[21]
(WOM)	(WOM2) Influenced my attitude	[14]
Satisfaction	(SAT1) alternate choice	[18]
(SAT)	(SAT2) prompt on-site queuing	[32]
	(SAT3) appealing purchasing	[30]
	(SAT4) clear website pricing list	[14]
Intention	(INT1) willing choice by low price	[18]
(INT)	(INT2) high intention possibility	[32]
	(INT3) expecting next chance	[31]

3.1.1. Factor loading as item reliability

Based on smart PLS analysis, factor loadings of respective items were extracted as Table 2 which indicated high correlations between the items and the corresponding constructs. (with factor loading > 0.6) Nevertheless, two items were deleted due to low loading. One is from the dimension of Assurance with factor loading 0.385 and the other one from the dimension of facility with 0.475. Factor loading , lower than 0.6, means substantial cross loadings or correlated error terms. The value of factor loading should be bigger than 0.50 as better credibility [33]. After items modified, the model then demonstrated a better analysis result.

3.2. Data Collection and Samples

The questionnaires were targeted to the passengers or possible passengers on LCCs. We prefer to design a simulation of LCC model. As we understand, all LCCs' operations are performed through Internet platform. No matter a passenger wants to book a flight and purchases electronic ticket, even meal added purchased from Internet. Therefore, we posted the questionnaire on the Internet platform, via m3q questionnaire website and Ptt BBS (Bulletin Board System). In order to stimulate Internet surfer's complete answers, we provide game points as a reward. After three months' collection, we finalized with 327 questionnaires and

ended with 284 usable samples.

Table 2. Statistical Summary: Factor Loading Analysis

Factor and variables	Descriptive statistics		loading
	X	Std	
Assurance			
(AS1) Employees have knowledge to answer questions	3.72	1.076	0.850
(AS2) Safety is an essential requirement	4.02	1.137	0.844
(AS3*) The LCC cannot cancel flights	4.09	1.003	*0.385*
Customization			
(CS1) Clean and comfortable interior/air conditioner/ seats	3.67	1.095	0.801
(CS2) website with informative publicities	3.72	1.105	0.795
(CS3) easy-operational website in purchasing tickets	3.89	1.028	0.802
Facility service			
(FA1) in-flight meal on purchasing demand	3.94	.957	0.651
(FA2) Individual attention and provide passengers' specific needs, like wheel-chair service	4.31	.803	0.808
(FA3*) availability of travel related partners/package	3.53	1.017	*0.475*
(FA4) availability of frequent flyer program	4.39	.765	0.837
Flight schedule			
(FS1) availability of flight transfer service	3.77	1.025	0.688
(FS2) availability of various destinations	4.25	.884	0.860
(FS3) convenient flight schedule	3.93	1.054	0.730
Price			
(PR1) Low price is priority concern	4.38	.946	0.838
(PR2) interested in bargains and promotion	4.41	.926	0.852
(PR3) when choosing a LCC, I compare prices	4.18	1.033	0.809
Satisfaction			
(SA1) an alternate wise choice when I travel	4.32	.917	0.832
(SA2) When choosing a LCC, I am happy with efficient check-in and prompt service	3.73	1.073	0.699
(SA3) I am satisfied with the appealing price and attracted by the promotion	4.07	.954	0.768
(SA4) I am satisfied with how the LCC lists out publicly the cost items	3.93	1.015	0.731
Word of mouth			
(WM1) I will choose the LCC if my friends recommend it.	3.86	1.106	0.975
(WM2) I will choose the LCC if my family and relatives recommend it.	3.85	1.097	0.966
Intention			
(INT1) I will select a LCC if the price increases.	4.00	1.115	0.829
(INT2) If any possible chance to fly with a LCC, I would like to try flying with a LCC.	4.22	1.010	0.858
(INT3) I would select the same LCC again if I am going to fly another time.	3.65	1.138	0.840

Table 3. Demographic Profile of Survey Respondents *N*=284

demographic	variables	usable cases	rate(%)
Gender	male	166	58.5
	female	118	41.5
age	20-29	164	57.7
	30-39	68	23.9
	40-49	31	10.9
	>49	21	7.4
edu	High school	11	3.9
	Univ	191	67.3
	Graduate	82	28.9
income	<20,000	59	20.8
	20,000-40,000	115	40.5
	40,000-60,000	72	25.4
	>60,000	38	13.4

The Table 3 elicits the sample demographic description. The gender compiled is not much different as

male 58.5% and female 41.5%. Somehow, the men take longer time in Internet than the women. Also the highest percentage (57.7%) of respondents is aged between 20 and 29 years old, following is the second higher rate (23.9%) of age between 30 and 39 years old. It's obliviously described the-frequent-Internet users who are young aged group. This is consistent with the studies of airline Internet users [15], [30]. The highest income rate of percentage (40.5%) is between NTD20,000 and NTD40,000. It implied the saying of the young-aged group favoring in bargain hunting value for money [30]. It doesn't only imply the age group's preferences of Internet, but also indicates the main reason to bargain with LCC; that is, money cost comparing with the income shortage. In Taiwan, the income is based on low level estimation. The social and economic development is bias to provide lower than before.

3.3. Data Analysis

Considering the limited samples size, total two hundred and eighty-four valid respondents, PLS –SEM (partial least square) was adopted for data analysis. PLS-SEM is an increasingly used data analysis method [34], [35]. The PLS 2.0 algorithm and bootstrapping for re-sampling was adopted for coefficient estimation. The hypotheses and structural model were significantly evaluated in data analysis. By the analysis of PLS-SEM, this model was conducted respectively at two aspects. First is for descriptive analysis, statistical means, standard deviations and correlations for all constructs. Secondly, the model constructs were analyzed to verify path hypothesis and relationships among the constructs.

3.3.1. Descriptive analysis

Table 4 presents the respondents overall concepts toward LCCs. Generally speaking, the responses are positive (as all on a five-point scale) from 3.76 to 4.32. Comparing with other constructs, customization, with mean score 3.76 has the least consideration, which means customization, equally as customer service, was not the considering factor for the passengers choosing LCC. Price (4.32) with highest mean score comes to the important issue for LCC. In addition, with SD 1.1 on assurance factor, it indicates that respondents tend to have extreme views about LCC assurance dimension.

Table 4. Construct Mean, SD and Correlations

Constructs	Mean	SD	1	2	3	4	5	6	7	8
1. ASSURANCE	3.87	1.11	1.000							
2. CUSTOMIZATION	3.76	1.08	0.287	1.000						
3. FACILITY SERVICE	4.21	0.84	0.472	0.405	1.000					
4. FLIGHT SCHEDULE	3.98	0.99	0.433	0.485	0.534	1.000				
5. INTENTION	3.96	1.09	0.309	0.112	0.306	0.346	1.000			
6. PRICE	4.32	0.97	0.413	0.171	0.446	0.382	0.503	1.000		
7. SATISFACTION	4.01	0.99	0.431	0.187	0.443	0.389	0.666	0.617	1.000	
8. WORD OF MOUTH	3.86	1.10	0.298	0.197	0.388	0.320	0.637	0.467	0.557	1.000

3.3.2. Correlations

Correlations among customization and assurance, intention, price, satisfaction, word of mouth dimensions revealed that the correlation was relatively weak. Secondly, facility service and flight schedule show better correlations among other constructs with about medium number > 0.40. Obviously price, satisfaction, word-of-mouth and intention have high related correlations.

3.3.3. Convergent validity

On PLS analysis, convergent validity was applied to test the consistency that multiple items present in measuring the same construct. Also unidimensionality, average variance extracted (AVE), and composite reliability (CR) are proper indicators of measuring convergent validity. For the unidimensionality, the factor loading (>0.5) and t-value (>1.96) of items must be qualified (The Table 5). As the Table 6 presented,

after deleting two items (factor loading < 0.5), all the items for the constructs were qualified for factor loading > 0.5, t-value > 1.96 [36]-[38]. Moreover, the consistency can be proven on the AVE, CR or Cronbach's α of convergent validity on the Table 6. All the constructs had the AVE values higher than 0.5 (AVE function similar to communality) and CR values higher than 0.7 (Cronbach's α values > 0.6 similar to CR function) which points out acceptable convergent validity of measurements [36], [39].

Table 5. Statistical Summary: t-Value and Reliability Analysis with N=284 (Loading < 0.6 Delete the Item)

Factor and variables	loading	*t*-value	Composite Reliability	Cronbachs Alpha
Assurance			0.847	0.639
AS1	0.850	23.918		
AS2	0.844	25.509		
Customization			0.841	0.722
CS1	0.801	6.059		
CS2	0.795	6.200		
CS3	0.802	6.031		
Facility service			0.819	0.664
FA1	0.651	11.247		
FA2	0.808	17.844		
FA4	0.837	23.522		
Flight schedule			0.806	0.649
FP1	0.688	10.230		
FP2	0.860	27.246		
FP3	0.730	11.441		
PRICE			0.872	0.780
PR1	0.838	26.169		
PR2	0.852	27.829		
PR3	0.809	28.877		
Satisfaction			0.844	0.758
SA1	0.832	36.408		
SA2	0.699	13.794		
SA3	0.768	19.296		
SA4	0.731	15.651		
Word of Mouth			0.970	0.939
WM1	0.975	175.92		
WM2	0.966	91.857		
Intention			0.880	0.795
INT1	0.829	26.838		
INT2	0.858	40.868		
INT3	0.840	22.301		

Table 6. Convergent Validity

	AVE	Composite Reliability	R^2	Cronach's Alpha	Communality	Redundancy
ASSURANCE	0.735	0.847		0.639	0.735	
CUSTOMIZATION	0.639	0.841		0.722	0.639	
FACILITY SERVICE	0.604	0.819		0.664	0.604	
FLIGHT SCHEDULE	0.582	0.806		0.649	0.582	
INTENTION	0.710	0.880	0.546	0.795	0.710	0.387
PRICE	0.694	0.872		0.780	0.694	
SATISFACTION	0.576	0.844	0.439	0.758	0.576	0.253
WORD OF MOUTH	0.942	0.970	0.310	0.939	0.942	0.292

Fig. 2 shows the model algorithm result by PLS. In the reflective index, the inner constructs R^2 value (coefficient of determination) presents the construct model validity. $R^2 > 0.67$ has the empirical value and $R^2 \fallingdotseq 0.33$ means medium justification and $R^2 \fallingdotseq 0.19$ shows weak explanation for the model validity [37]. Word of mouth $R^2 = 0.310$ and Satisfaction $R^2 = 0.439$ and Intention $R^2=0.546$ are all about medium level qualified to explain the model validity. Another model construct can be testified by Redundancy analysis. The higher value of Redundancy means better model. Because GoF (Goodness of Fit) presents model

validity, the value of square root of Redundancy equals GOF (GoFsmall=0.1, GoFmedium=0.25, GoFlarge=0.36) [40]. The Intention GoF = 0.622, Satisfaction GoF = 0.50 and Word of Mouth GoF = 0.54 (on Table 6) all indicate large value as good model validity.

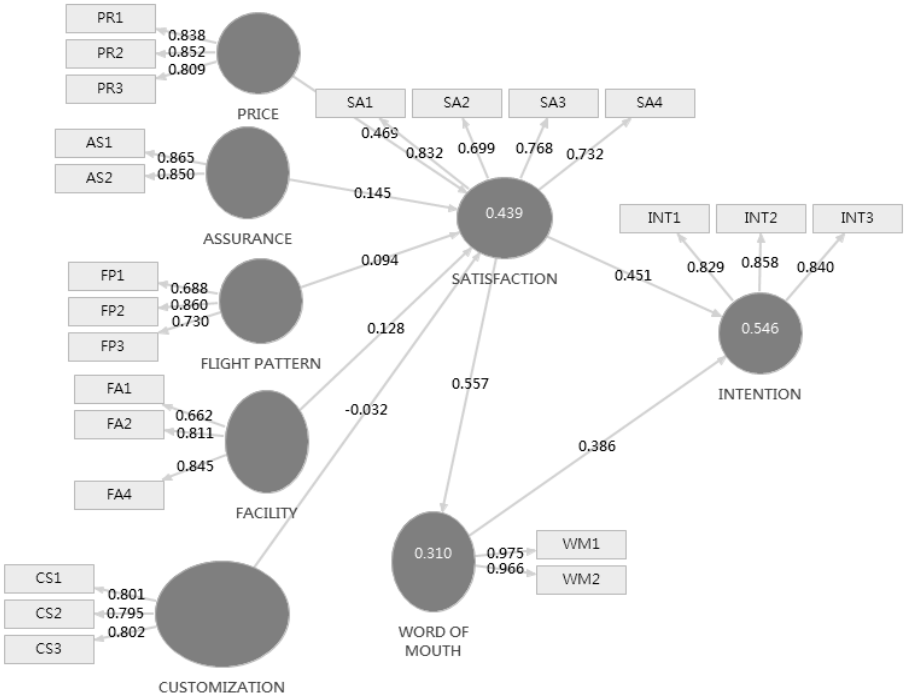

Fig. 2. Model algorithm result.

3.3.4. Discriminate validity

For the measurement of discriminate validity, the correlations between different constructs should be lower when compared with their own extracted variance values. The average variance extracted (AVE) and factor loading can be used to evaluate discriminate validity [33]. That is, the root square of AVE should be higher than the square of correlation coefficients with other constructs [39]. In Table 7, the square roots of AVEs (the block letter numbers) were all higher than the correlation coefficients with other constructs. Also the factor loading of each item should be higher on its principal constructs comparing with other loading factors on the cross loading list (In Appendix A Cross-loading factor, the block letter numbers are the own item factor loading). In all consumption, the results suggested good measurement properties for all constructs.

Table 7. Discriminate Validity (Fornell-Larcker Criterium)

	AVE	AS	CS	FA	FP	INT	PR	SAT	WM
ASSURANCE	0.735	**0.857**							
CUSTOMIZATION	0.639	0.287	**0.799**						
FACILITY	0.604	0.472	0.405	**0.777**					
FLIGHT PATTERN	0.582	0.433	0.485	0.534	**0.763**				
INTENTION	0.710	0.309	0.112	0.306	0.346	**0.842**			
PRICE	0.694	0.413	0.171	0.446	0.382	0.503	**0.833**		
SATISFACTION	0.576	0.431	0.187	0.443	0.389	0.666	0.617	**0.759**	
WORD OF MOUTH	0.942	0.298	0.197	0.388	0.320	0.637	0.467	0.557	**0.971**

3.3.5. Path analysis

After suitable measurement of convergent validity and discriminate validity, the path analysis was

applied to empirically justify the hypotheses. Table 8 shows the PLS-SEM analysis result. *P* values indicate the correlations among the constructs. As the *:t-value > 1.96, at p<0.05; **:t>2.58 at p<0.01; ***:t>3.29 at p<0.001, the results indicate that all the hypotheses were not rejected except FLIGHT PATTERN -> SATISFACTION, FACILITY -> SATISFACTION, CUSTOMIZATION -> SATISFACTION. Figure 3 shows clearer path hypotheses with t-value.

Table 8. Bootstrapping with t-Value

	Original Sample (O)	Sample Mean (M)	Standard Error (STERR)	T Statistics (|O/STERR|)	*P* Values
PRICE----------> SATISFACTION	0.469	0.471	0.066	7.079***	0.000
ASSURANCE------> SATISFACTION	0.145	0.142	0.061	2.392*	0.017
FLIGHT PATTERN-> SATISFACTION	0.094	0.097	0.080	1.176	0.240
FACILITY ----------> SATISFACTION	0.128	0.123	0.071	1.793	0.073
CUSTOMIZATION -> SATISFACTION	-0.032	-0.018	0.057	0.568	0.570
SATISFACTION ---------> INTENTION	0.451	0.456	0.068	6.623***	0.000
SATISFACTION->WORD OF MOUTH	0.557	0.557	0.045	12.308***	0.000
WORD OF MOUTH -----> INTENTION	0.386	0.383	0.062	6.215***	0.000

*:*t*-value > 1.96, p<0.05; **:*t*>2.58, p <0.01; ***:*t*>3.29, p <0.001

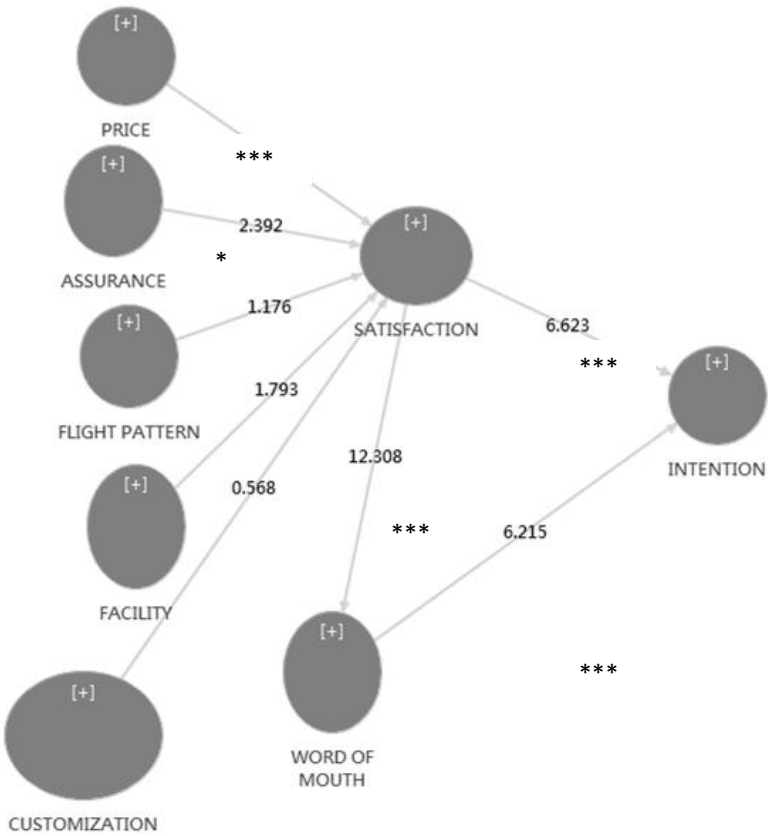

Fig. 3. Model path analysis.

In summary sort, the hypotheses test result was listed on Table 9. Price is strongly related to Satisfaction. The price of LCC has significant impact on satisfaction. Assurance also supported the impact on Satisfaction. However, flight schedule, facility service and customization were all rejected. All the above kind related to service aspects were not considered to influence satisfaction. Thus, satisfaction has significant impact on purchasing intention while satisfaction also strongly influenced word of mouth. In addition, word of mouth has obvious and significant impact on purchasing intention.

Table 9. Summary of Testing of Hypotheses

Predictor variables	Criterion variables	Hypothesized relationship	Standardized coefficient (β)
PRICE	SATISFACTION	Strongly supported	7.079***
ASSURANCE	SATISFACTION	supported	2.392*
FLIGHT PATTERN	SATISFACTION	Not supported	1.176
FACILITY	SATISFACTION	Not supported	1.793
CUSTOMIZATION	SATISFACTION	Not supported	0.568
SATISFACTION	INTENTION	Strongly supported	6.623***
SATISFACTION	WORD OF MOUTH	Strongly supported	12.308***
WORD OF MOUTH	INTENTION	Strongly supported	6.215***

4. Discussion

Aware of LCC passengers satisfaction and to stimulate purchasing intention are important for airlines strategy. The most efficient method to attain satisfaction of LCC passengers in Taiwan is through competitive airfare ticket price. As our introduction for LCC in Taiwan, LCCs just step into Taiwan for not more than 10 years and so far there are only fourteen LCCs operating business in Taiwan route. The first LCC set up by Taiwan Corporation just ran on September, 2014, named as *Tigerair*. In order to understand Taiwan market, knowing the key factors are essential. In our study, Taiwanese concern "*price*" most. The main attraction for LCC passengers is much discounted and attractive airfare ticket purchased on the Internet. Another significant influencing factor is Assurance to Satisfaction which involve about flight safety. Any aircraft damage in the Air will cause tragically tremendous casualty. Flight safety if ever there was one should be top priority.

There are five exogenous variables (price, assurance, flight pattern, facility, and customization). Generally speaking, flight pattern, facility and customization can be related to service. The above can be improved to enhance passengers' satisfaction and gain their expectation, that is, accomplishments of service. Nevertheless, unlike other studies, service is highly associated with satisfaction [29]; or extension of service, service recovery, strongly enhanced passengers satisfaction than other factors [11], [16], [41], [42]. With same type of sample respondents (most of them are young and middle-aged passengers), the concerning factors summarized to be different issue. Word of mouth, satisfaction and purchasing intention are all significantly associated.

The characteristic of ethic concept in Taiwan seemingly enlightens the importance of word of mouth. Satisfaction directly influenced word of mouth with high positive inclination. Word of mouth as endogenous of satisfaction plays an important factor in influencing passengers' intention. People in Taiwan incline to believe or follow others' experiences. No matter passengers with experiences of LCCs or others' recommendation. It means that if the respondents are satisfied with LCCs, they will recommend LCCs to their friends. Otherwise, even heard from others' voluble experiences of LCCs, people are very possible to use LCCs. While satisfaction directly influenced purchasing intention, people significantly will use LCCs as their traveling facility if the satisfaction meets their expectation or if friends highly recommend LCC. Thus, viewing the whole model, Price can be regarded as indirectly influencing purchasing intention. Price significantly influenced satisfaction and then to purchasing intention. The results of this study provide useful insights into the behaviors of LCCs in Taiwan.

5. Implications, Limitations and Further Research

This study presents a different aspect and insight of LCC passengers' behavior in Taiwan. Different from others' studies with all positive factors, especially service enhancement [11], [16], [29], [42], [43], the strongest factors are *price* and *word of mouth*, and assurance is the second concern. LCC strategy deciders should put more effort in pricing strategy and competitive bargain to attract Taiwan passengers'

preferences. The marketing strategy might focus on how to propagate LCC attraction. To make good use of network or even virus-marketing, like Facebook, twitter and blog. Those are representatives of word of mouth in speeding publication.

Secondly flight safety should be LCC's another important issue. Some air flight accidents occasionally occur in Taiwan. They definitely brand traumatic memory in their life-long experience. LCC should emphasize their flight safety and guarantee to win passengers' trust. For the customized service and flight slot, LCC might not spend too much percentage of advertisement for unbalanced cost at the end.

Nevertheless, there are still some limited foundings in this study. First, the respondents might be more if we took a longer time in collecting the sample size. However, lack of network virtual gift, it became hard to gain authentic and complete respondents without gift. Secondly, in order to intimate the LCC business model, our study chose to imply the Network survey instead of paper survey form. It might lose the chance to scrutinize the respondents' facial expression and face-to-face observation. The next time researcher might consider paper survey and network survey at the same to prove better implication.

Appendix

Cross-Loadings of All Constructs

	AS	CS	FA	FP	INT	PR	SAT	WOM
AS1	**0.865**	0.329	0.398	0.407	0.314	0.316	0.378	0.351
AS2	**0.850**	0.160	0.412	0.334	0.215	0.394	0.361	0.155
CS1	0.179	**0.801**	0.316	0.391	0.044	0.091	0.121	0.155
CS2	0.212	**0.795**	0.241	0.401	0.126	0.088	0.143	0.157
CS3	0.279	**0.802**	0.397	0.375	0.092	0.209	0.174	0.160
FA1	0.382	0.352	**0.662**	0.313	0.176	0.279	0.328	0.364
FA2	0.326	0.261	**0.811**	0.449	0.206	0.283	0.332	0.208
FA4	0.388	0.328	**0.845**	0.473	0.320	0.463	0.369	0.330
FP1	0.181	0.428	0.323	**0.688**	0.209	0.236	0.205	0.217
FP2	0.356	0.312	0.455	**0.860**	0.320	0.382	0.374	0.256
FP3	0.425	0.427	0.428	0.730	0.243	0.227	0.277	0.263
INT1	0.264	0.082	0.234	0.361	**0.829**	0.447	0.545	0.523
INT2	0.275	0.131	0.365	0.266	**0.858**	0.478	0.614	0.532
INT3	0.242	0.068	0.167	0.249	**0.840**	0.343	0.520	0.556
PR1	0.337	0.108	0.373	0.275	0.372	**0.838**	0.491	0.395
PR2	0.301	0.138	0.357	0.261	0.353	**0.852**	0.520	0.385
PR3	0.393	0.178	0.385	0.414	0.527	**0.809**	0.528	0.386
SA1	0.351	0.134	0.427	0.369	0.579	0.618	**0.832**	0.450
SA2	0.297	0.146	0.233	0.190	0.371	0.342	**0.699**	0.420
SA3	0.314	0.175	0.365	0.364	0.630	0.489	**0.768**	0.438
SA4	0.354	0.110	0.282	0.211	0.383	0.367	**0.732**	0.381
WM1	0.323	0.211	0.404	0.336	0.647	0.495	0.591	**0.975**
WM2	0.250	0.169	0.346	0.282	0.585	0.405	0.481	**0.966**

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