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Drivers of Airline loyalty: Evidence from the Business Travelers in China

Abstract

This paper examines the key factors that determine business traveler loyalty towards full-service airlines in China. Based on literature review and panel interview, ten airline attributes under three categories were derived: (a) operational factors, including: safety, punctuality, and aircraft; (b) competitive factors, including: frequency of flights, schedule, frequent flyer program, ticket price, and reputation; and (c) attractive factors, including: in flight food & drinks and in flight staff service. We examined the ten airline attributes using a survey of 2000 Chinese business travelers on domestic flights, which resulted in 462 usable questionnaires. Hierarchical regression analysis reveals that reputation, in-flight service, frequent flyer program, and aircraft have the greatest influence in driving airline loyalty. Implications for airline managers and recommendations for future research are provided.

Key words: Airline loyalty, Airline Attributes, Business travelers, Reputation, Frequent flyer program, China.

Drivers of Airline loyalty: Evidence from the Business Travelers in China

1. Introduction

Passenger loyalty is fundamental to any airline aiming to maintain a stable market share and revenue stream (Chang and Hung, 2013), particularly in a turbulent market. The competitive landscape of the global airline industry has been in a constant change in recent years, with a rapid growth of low cost carriers and high-speed railways, rising fuel costs, fluctuating demand, and tighter security, safety and quality requirements. To survive and grow, airlines managers need to identify factors of their services that satisfy and retain customers (Chen, 2008). The linkage between service quality, customer satisfaction and airline performance has been well researched (Chen, 2008; Ellinger et al., 1999; Steven et al., 2012). However, research into factors driving passenger loyalty is still at its early stage, and findings so far have been inconclusive. A recent exploratory research by Chang and Hung (2013) examined passenger loyalty towards low cost carriers, yet the factors that drive business travelers' loyalty towards full-service airlines still remain underexplored. Furthermore, full-service carriers face tougher challenges than low cost carriers in the current economic climate, because they rely on business travelers for profitability, yet increasing number of business travelers have started to defect to low cost carriers (Huse and Evangelho, 2007). The business travel market is relatively concentrated and limited to a small number of people who travel frequently (Mason, 2001). Business travelers (especially those employed by large companies) are less ticket price sensitive, are less likely to choose low-cost airlines over full-service carriers (Mason, 2001), and are better acquainted with the routine of flying than leisure travelers, saving the efficiency cost of service provision (Ringle et al., 2011). Keeping business travelers happy and fostering their loyalty involves both in day-to-day interactions and a long-term perspective (Ellinger et al., 1999). Thus responding to the recent

call by Chang and Hung (2013) for more research into airline loyalty, this study aims to extend the transport research literature by investigating the factors driving business travelers' loyalty towards full-service airlines in China.

China has become the world's economic powerhouse, and its airline market is the growth engine for the global airlines industry's recovery from the 2008 economic downturn (IATA, 2013). Its business travel market is currently the 2nd largest in the world, and is still growing at the world's fastest rate (expected to be 16.8% in 2014, in comparison, the U.S. growth rate is expected to be 5.8% in the same year). China is expected to surpass the U.S. as the largest business travel market in the world by 2016 (GBTA, 2013). Unlike airline markets in the US and Europe, China's domestic air passenger market is dominated by full-service airlines, which have more than a 93% share of the market (CARNOC, 2014a). The majority shares of these big players are state-owned (Zhang et al., 2013) and include the 'Big Three' airlines, Air China, China Southern and China Eastern, and two medium-sized airlines, Hainai and Xiamen. Similar to other airlines in the global market, Chinese full-service airlines also face challenges such as rising fuel costs, falling yield, new entrants of low cost airlines, and the growing high-speed rail transport industry (Fu et al., 2012). The major battle ground for full service airlines in China is to invest in their loyal customers by attracting and retaining highly profitable business travelers, and the importance and intensity of competition of the Chinese domestic airline market makes it an ideal research context for this research.

This study contributes to a better understanding of business traveler loyalty towards full-service airlines in China and has management implications for major players the industry. Specifically,

(1) We focus on travelers' attitudinal loyalty toward specific airlines as opposed to airline choice (Espino et al., 2008; Hess et al., 2007; Suzuki, 2007). To the best of our

knowledge relatively few studies have investigated airline loyalty (e.g. Dolnicar et al., 2011; Ostrowski et al., 1993), particularly, business travelers' loyalty (Harris and Uncles, 2007).

(2) We apply a synthesized framework that organizes ten airline attributes into three categories: operational factors, competitive factors and attractive factors. To our knowledge, there is no previous study that has examined these attributes and measured their impact on business traveler loyalty. We use hierarchical regression modeling to measure the effect of each attribute and reveal those attributes that contribute most to business travelers' loyalty. Further, the model embeds three related but distinctive loyalty variables: overall satisfaction, recommendation intention, and repurchase intention.

(3) We provide advice to airlines regarding attracting and retaining loyal business customers. In the wake of a global economic recovery, rapidly growing markets like China, India and Brazil are in prime position to become major global players in the business travel market (GBTA, 2013). Results of this study highlight the importance of airline reputation, frequent flyer program (FFP), in-flight staff service, and aircraft quality for building business traveler loyalty.

The article is organized as follows. In the next section, we review relevant literature and develop hypotheses. The third section describes the research methods as well as variable measures. In the fourth section we present the empirical results of hypothesis testing and discuss the findings. We conclude with a summary of managerial implications, limitations and directions for future research.

2. Literature Review

2.1. Satisfaction and Loyalty

Customer satisfaction and loyalty are the central constructs of consumer research, as they are an indication of the success of a firm in winning and retaining customers in a competitive market including the transport and logistics sectors (Celik et al., 2013; Chen, 2008; Chou et al., 2011; Ellinger et al., 1999; Ramanathan, 2010; Steven et al., 2012). Satisfaction is well studied as a direct antecedent to loyalty, along with other influencing factors such as situational constraints and customer characteristics (Seiders et al., 2005). Satisfaction can be defined at the level of individual service attributes or at an aggregate level of experience across a series of encounters with brands or services over time (Ellinger et al., 1999). According to Oliver (1997), attribute-level satisfaction is a cognitive process of comparing the perceived performance of each individual attribute with expectations, while overall satisfaction is an affective response, or the pleasurable fulfilment of some need, desire, goal, or so forth.

Customer loyalty has been defined in a variety of ways (Dick and Basu, 1994; Jacoby and Chestnut, 1978; Oliver, 1999; Uncles et al., 2003). Jacoby and Chestnut (1978) identified more than 533 different definitions and measures of customer loyalty in their review of loyalty literature up to 1970s. The diversity of loyalty definitions still persist today, buy can can be categorized as the behavioral approach, the attitudinal approach, and the approach of a composite of both attitudes and behavior, all with an implicit temporal dimension (Jacoby and Chestnut, 1978). The behavioral approach of loyalty definition focuses on repeat purchase (Ehrenberg, 1990; Neal, 1999). Studies in air transport that follow the behavioral approach of loyalty include Chang and Hung (2013), Dolnicar et al. (2011) and Harris and Uncles (2007). In this approach, the measure of loyalty is often based on 'share of category requirements' or 'share of wallet' (Neal, 1999). Extant empirical evidence from a variety of

industries and country contexts consistently reveals that most customers are "polygamous", or loyal to a portfolio of brands in a product category, and that few customers are "monogamous" (100 percent loyal) or "promiscuous" (no loyalty to any brand) (Uncles et al., 2003). As critiqued by Uncles et al. (2003), the behavioral approach neglects the personal and situational factors that influence on brand choice. For example, Harris and Uncles (2007) found that for airline business travelers, although performance perceptions and punctuality of the airline have a role to play, past purchase behavior is the key driver of repeat airline patronage. This implies that repeat purchase might be driven by habit or a lack of choices (Dick and Basu, 1994), e.g. passengers have become "locked-in" to certain airlines (Harris and Uncles, 2007). Hence, repeat purchase cannot be seen as a measure of true loyalty (Dick and Basu, 1994; Oliver, 1999). Oliver (1999) defines true loyalty as deeply held customer commitment to a specific service provider, despite the factors that might induce switching to other providers. This approach of loyalty definition examines the psychological aspect of customer behavior expressed in the form of an attitude or preference, i.e. attitudinal loyalty. Oliver (1997) suggests that consumers can become loyal at each attitudinal phase from cognitive, affective, conative, to behavioral ones. Given that overall satisfaction is defined as a pleasurable fulfilment (Oliver, 1997), it can be seen as a form of affective loyalty. Conative loyalty is akin to motivation, which implies a brand-specific commitment to repurchase (Oliver, 1999). Therefore, the conative loyalty appears to be the closest to his definition of true loyalty. Thus, in addition to overall satisfaction, we adopt the two most commonly used measures of conative loyalty in this study: intention to repurchase and intention to recommend (Zeithaml et al., 1996). The two conative measures have different consequences that lead to positive firm performance. Firstly, repurchase intention directly leads to repurchase, hence customer retention and increased revenue. Secondly, recommendation intention leads to positive word of mouth, which helps enhance airline

reputation as well as recruit new passengers and therefore increase revenue. Following the apporach recommended by East et al. (2005), we treat these three loyalty measures separately as related but distinctive concepts under the umbrella term of loyalty.

2.2. Drivers of airline loyalty

Social psychology literature has established a causal link of cognition-affect-conation in attitude studies (e.g. Ajzen, 1991, Fishbein, 1967). To explore the drivers of both affective and conative loyalty, we turn to business travelers' cognitive evaluation of a set of key attributes of airline services, i.e. attribute-level performance perception or satisfaction (Oliver, 1997). Previous research into airline passenger satisfaction and loyalty has investigated the dimensions of airline service quality (Anderson et al., 2008; Costantino et al., 2013; Gilbert and Wong, 2003) and passengers' airline selection criteria (Chang and Hung, 2013; Dolnicar et al., 2011; Hess et al., 2007; Suzuki, 2007; Yoo and Ashford, 1996). A wide variety of attributes have been identified and investigated. For example, International Air Transport Association (IATA) satisfaction survey, 'AirS@t', has over 50 attributes covering nearly every aspects of airline passenger service (IATA, 2014). Airline service attributes have been proposed as service quality dimensions and selection criteria under different categorization frameworks, such as: a) 'core-peripheral' attributes, b) SERVQUAL model, and c) Kano's model.

Firstly, a service can be conceived as a bundle of attributes which can be classified as core attributes (what is delivered) and peripheral attributes (how it is delivered) (Anderson et al., 2008; Venkatesh et al., 2012). Peripheral attributes can be further subdivided further into physical and interaction attributes (Chase and Stewart, 1994; Venkatesh et al., 2012). Anderson et al. (2008) applied the core-peripheral classification of service attributes in their

study of passenger satisfaction in the US domestic airline market and found that both core and peripheral attributes are positively associated with customer satisfaction.

Secondly, the widely adopted SERVQUAL model groups the key attributes of a service into five dimensions, i.e. reliability, assurance, tangibles, empathy and responsiveness (Parasuraman et al., 1988). Researchers have applied SERVQUAL in examining airline services (e.g. Chen, 2008; Gilbert and Wong, 2003; Liou et al., 2010). Gilbert and Wong (2003) conducted a passenger survey in Hong Kong and found that safety is the number one priority for passengers, followed by on-time performance of flights, being prompt/responsive, willing to help and having a courteous attitude.

Thirdly, Kano's model (Kano et al., 1984) groups service attributes into 'must-be', 'performance' and 'excitement' factors. Kano's model has been applied in the airline setting (e.g. Gustafsson et al., 1999; Shahin and Zairi, 2009). The 'must-be' factors are the basic customer requirements which may include attributes such as safety, punctuality getting the luggage to the right place. The 'performance' factors are those that can be described as 'more is better', 'faster is better' or 'easier is better', such as the speed of check-in. The 'excitement' factors are those attributes that are beyond customers' normal expectations: their absence does not dissatisfy the customer, but their presence excites the customer (Kano et al., 1984; Shahin and Zairi, 2009).

Considering business travelers' requirements of airline services and the way they select airlines may vary between market contexts, we organized a panel of four airline experts to specify the key attributes that could influence Chinese business traveler's overall satisfaction and loyalty for this research. As a result, ten important attributes are selected, which are the grouped along the three categories: operational factors (safety, punctuality, aircraft), competitive factors (frequency of flights, schedule, FFP, ticket price, reputation) and

attractive factors (in-flight food & drinks, and in-flight staff service). Table 1 lists the definition of each attributes.

----------Insert Table 1 approximately here ----------

2.3. Operational factors

Safety, punctuality and comfortable flight are the basic requirements for an airline to operate in the market (Gilbert and Wong, 2003; Gustafsson et al., 1999; Mikulić and Prebežac, 2012; Shahin and Zairi, 2009). These are basic elements that customers expect or take for granted, and if firms do not get them right, all else may fail (Shahin and Zairi, 2009). Operational factors are comparable to 'must-be' attributes (Kano et al., 1984), 'core services' (Venkatesh et al., 2012), in-excludable or baseline services (Liou et al., 2010). In particular, as one of the key 'tangibles' in the SERVQUAL model (Parasuraman et al., 1988), aircraft are important for travel experience, and is a source of airline passenger satisfaction (Anderson et al., 2008). Information on aircraft type and model is widely available in published flight timetables. Therefore, we hypothesize:

H1. Business travelers' perception of an airline's safety is positively related to their airline loyalty.

H2. Business travelers' perception of an airline's punctuality is positively related to their airline loyalty.

H3. Business travelers' perception of an airline's aircraft quality is positively related to their airline loyalty.

2.4. Competitive factors

Competitive factors are attributes that influence passengers' choice of airlines (Hess et al., 2007; Suzuki, 2007; Yoo and Ashford, 1996), or repetition of purchase (Dolnicar et al., 2011). Prior research shows that these factors include: flight frequency, schedule, FFP, ticket price and airline reputation (Hess et al., 2007; Suzuki, 2007; Yoo and Ashford, 1996). Business travelers have higher expectations on the convenience of schedule, thus airlines provide frequent daily flights (Mason, 2000) as well as carefully managed departure and arrival times for scheduled flights (Suzuki, 2007; Yoo and Ashford, 1996). Therefore, we hypothesize:

H4. Business travelers' satisfaction of an airline's frequency of flights is positively related to their airline loyalty.

H5. Business travelers' perception of an airline's schedule convenience is positively related to their airline loyalty.

Frequent flyer programs (FFPs) are a mechanism that airlines specifically design to retain valuable customers. FFPs can spread over a wide range of rewards and air miles, which, in turn, passengers can accrue from airlines directly or through airlines partners across retailing industries. FFPs have become an essential part of every business traveler's package. Prior empirical evidence has supported that FFPs are a major factor in selecting business travelers' airline (Suzuki, 2007; Yoo and Ashford, 1996). Therefore, we hypothesize,

H6. Business travelers' satisfaction of an airline's FFP is positively related to their airline loyalty.

Ticket price or ticket fare is one of most salient economic exchange factors that a traveler will consider when selecting an airline. The success of low cost carriers demonstrates the importance of ticket price. Although the ticket fares of business travel are paid by

companies and business travelers are generally less ticket price sensitive than leisure travelers, business purchase decisions tend to be more rationale and there is a pressure to reduce costs in most companies at difficult times and in a competitive market environment. Hess et al. (2007) revealed that ticket price has been the most powerful explanatory factor in airline selection across different segments of travelers. Therefore, we hypothesize:

H7. Business travelers' satisfaction of an airline's ticket price is positively related to their airline loyalty.

Reputation can be defined as travelers' general impressions of overall performance of a corporation (Walsh et al., 2009). Graham and Bansal (2007) found that passengers are willing to pay more to fly on an airline with a better reputation. The results of an earlier study by Ostrowski et al. (1993) and a more recent one by Dolnicar et al. (2011) both suggest that reputation influences passenger loyalty. Therefore, we hypothesize,

H8. Business traveler's perception of an airline's reputation is positively related to their airline loyalty.

2.5. Attractive factors

Attractive factors are those attributes that are not normally expected: their absence does not dissatisfy the customer, but their provision delights the customer (Kano et al., 1984; Otto and Ritchie, 1996). Examples of attractive include in-flight services like staff interaction, telephones and a plug for laptop computers, and in-flight food and drinks, as well as champagne served on a flight that does not nromally provide in-flight catering service (Shahin and Zairi, 2009). Therefore, we hypothesize:

H9. Business traveler's perception of in-flight food and drink is positively related to their airline loyalty.

H10. Business traveler's perception of in-flight staff service is positively related to their airline loyalty.

2.6. Interaction Effects

Interaction of independent variables can also have an effect on business travelers' loyalty to airlines. An interaction effect exists when the effect of the independent variable on the dependent variable differs depending on the value of a third variable. For example, a two-way interaction may exist between inflight service and price. The effect of in-flight service on business travelers' loyalty may differ depending on their price perception. The same service may have a stronger effect on loyalty for passengers who are happy with the price than those who perceive being over-charged. To our knowledge this is the first study to examine whether interactions among airline variables predict business travelers' loyalty. Therefore, there are not theoretical grounds to develop hypotheses for all interaction dyads of airline factors. However, we can empirically test the interaction effects of the airline factors. This study contributes to theory by empirically examining the interaction effects of all dyads among the independent variables. Therefore, we hypothesize:

H11. The interactions of independent variables are positively related to business travelers' airline loyalty**.**

3. Methodology

3.1. Research design

In order to develop a robust model to test the relationships between airline attributes and business traveler loyalty, we drew our sample from Chinese business travelers in domestic flights. In-depth interviews were conducted with key decision makers prior to designing a pretest. Having obtained positive responses, invitations to participate in the research were sent to 2,000 business travelers with the support of a national frequent flyer website. A pre-survey email explaining the nature of the survey, its goals and ethical issues was also emailed to participants to increase recipient's trust in and understanding of the significance of the survey. The questionnaire was hosted by an independent commercial market research website, and the web-link was sent to customers of all the major airlines in the market which include: Air China, China Eastern Airlines, China Southern Airlines, Hainan Airlines and Xiamen Airlines. In order to include travelers who are loyal to smaller airlines, we included a category '*others, please specify*…' in the questionnaire. Screening questions filtered those who travelled for business purposes. We received 462 usable questionnaires. The response rate was 23.1%, which is considered high percentage as electronic surveys generally receive much lower response rates than traditional paper surveys (Menachemi, 2011). Table 2 presents the demographics of the sample, including their age, income, education, and travel frequency. After data collection, to ensure that the respondents were comparable to non-respondents, analyses of variances were conducted between these groups. The non-response bias was assessed by comparing demographic variables (age, education, & income) among early respondents and late respondents (Armstrong and Overton, 1977). No significant differences were found. Further, we compared demographics variables with an external source from CAAC (2010), which is the most reliable passenger

survey for business travelers in China with 23,866 respondents. Again, we found no significant differences.

----------Insert Table 2 approximately here ----------

3.2. Measures

Following the literature review and expert panel discussion, we selected ten important airline attributes as predictor variables: ticket price, schedule, frequency of flights, in-flight service, FFP, punctuality, aircraft, safety, reputation, and in-flight food and drink. The variables were measured on a 5-point scale ranging from 1 (very poor) to 5 (excellent). Passenger loyalty was measured with three separate variables: overall satisfaction (where 0=extremely dissatisfied, 10 = extremely satisfied), recommendation intention (0=very unlikely, 5= very likely) and repurchase intention (1=definitely no, 5=definitely yes). The use of different measurement scales minimizes common method variance and is as recommended by Podsakoff et al. (2003). Passenger travel frequency is measured by the number of flights during the past 12 months with a return trip counted as 2 flights. The terms used in the questionnaire are in line with those appeared in the industry passenger surveys, such as 'Civil Aviation Passenger Service Evaluation (CAPSE)' Surveys in China, and 'IATA Airs@t Surveys' in the global industry context (IATA, 2014).

As in all self-reported studies, the possibility of common method variance should be addressed. When both the outcome measure (i.e., overall satisfaction) and the ten predictor variables are self-reported on the same survey instrument, both measures share common method variance. Accordingly, there are a number of techniques that can be used to minimize

common method variance (Podsakoff et al., 2003). We use Harmon's factor test, which consists of a factor analysis of all relevant variables. Four factors emerged, with KMO .882, the first factor (which, in cases of common method variance, would account for a majority of the variance) only accounting for 25.694% of the variance. Thus, common method variance is unlikely to create bias for this sample.

3.3. Analytical Tool

Hierarchical regression analysis was chosen for analyzing the data. Hierarchical regression is a sequential process involving the entry of predictor variables into the analysis in steps. The order of variable entry into the analysis is based on theory. Typically, the first group of variables that contains control variables are entered in Step 1 followed by a group of independent variables in Step 2. When interaction effects are under question, like in this study, the products of independent variables are entered in Step 3.

Hierarchical regression is appropriate when variance on a criterion variable is being explained by predictor variables that are correlated with each other. Compared to other regression models, hierarchical regression offers a number of advantages, including better adequacy of fit, control of the unique effects of each variable in the model, and replicability. Specifically, the "control" over unique effects is achieved by calculating the change in the adjusted R^2 at each step of the analysis, thus accounting for the increment in variance after each group of variables is entered into the regression model (Pedhazur, 1997). Regarding replicability, hierarchical regression is subject to problems associated with sampling error, yet the likelihood of these problems is reduced because the sequence that a variable is entered into the regression model is determined by the researchers. Combined with a larger sample size and adequate number of predictor variables derived from theory, sampling error is

relatively lower in hierarchical regression models, thus allowing the replicability of the study in broader contexts.

Interaction terms were entered in Step 3, since they would be meaningful only after controlling for the main effects of control and dependent variables. An interaction effect exists when the effect of one independent variable on the dependent variable differs based on the value of another independent variable (Cohen and Cohen, 1983). The interpretation of interaction terms can provide meaningful insights. In Step 3, the regression coefficients of independent variables reflect conditional relationships for a specific value of each independent variable. Previous studies have examined interaction effects between independent variables and revealed important effects (e.g. Rai et al. 2012; Vlachos, 2014; Casutt et al. 2014).

Despite the superior analytical power of hierarchical regression analysis over other regression analysis for our dataset, we tested more advanced analytical methods such as Artificial Neural Networks (ANN). We trained the model with different samples. The 10-fold cross-validation with back propagation algorithms resulted in 31.66 % Correctly Classified Instances, with a Kappa value equal to 0.16 and ROC Area values below 0.5. Therefore, hierarchical regression analysis was more appropriate than sophisticated tools such as ANN for analyzing our sample data.

4. Results

4.1. Bivariate analysis

Table 3 presents the Pearson correlation analysis. The control variables (age, gender, education, and income) have low levels of correlation with the airline attributes and the three loyalty variables. Passenger travel frequency showed correlation with ticket price (r=.-.18, p<.01), in-flight staff service(r=.-.11, p<.05), punctuality (r=.-.14, p<.01), aircraft (r=.-.15, p<.01), reputation (r=.-.12, p<.05), and in-flight food (r=.-.20, p<.05).

All ten airline attributes were associated with the three loyalty variables. The highest associations were the following: in-flight staff service(r= .6, p<.01), aircraft (r= .53, p<.01), in-flight food (r= .53, p<.01), reputation (r= .52, p<.01), with overall satisfaction; reputation (r= .53, p<.01), in-flight staff service(r= .49, p<.01), aircraft (r= .47, p<.01) with recommendation intention; and reputation (r= .37, p<.01), aircraft (r= .34, p<.01), in-flight staff service(r= .34, p<.01) , and FFP (r= .34, p<.01) with repurchase intention.

----------Insert Table 3 approximately here----------

4.2. Hierarchical regression

We ran three hierarchical regressions, one for each passenger loyalty variable, i.e. overall satisfaction, repurchase intention and recommendation intention. We entered other variables in three steps and created the models. In Step 1, we entered only the control variables (passenger travel frequency, age, gender, education, and income) in the regression equation creating the control model. In Step 2, which is labeled as the independent model, we added the ten airline attributes into the regression equations. Finally, in Step 3, we entered the 45 interactions of the ten attributes into the regression equations, thus creating the interaction model. Tolerance tests showed no significant collinearity existed among variables. Collinearity was examined using the variance inflation factors (VIF). VIF values less that 10

indicate a low tolerance (Hair et al., 1995; Kutner et al., 2005; O'brien, 2007). VIF values in all regression models were less than 4 except interaction effects (Step 3) as expected since interactions were the product of combining independent variables. Further, we computed the condition indices (CI) as the square roots of the ratios of the largest eigenvalue (λ) to each successive eigenvalue $\mathrm{CI_i} = \sqrt{\frac{\lambda_{max}}{\lambda_i}}$. Values greater than 30 indicate a possible problem with collinearity and over 1,000 a problem of multicollinearity. Three variables, safety, reputation, and in-flight food had values greater than 30 in Step 2 and Step 3 of all three regression models. All interaction variables had high CI values. As a result, the regression models were robust since including independent variables that are uncorrelated and at the same time explain a significant amount of the variance of dependent variable reduces the standard error of the coefficient estimate for independent variables (York, 2012). One way of reducing collinearity is to subtract the mean from continuous independent variable. We computed new independent variables by subtracting the mean, calculated the interaction effects and then run the regression models with these transformed variables. However, collinearity was not reduced significantly and results of regression equations were not different from the original model. Therefore, we keep the independent variables as shown in Table 3 without transforming them by subtracting the mean.

Hierarchical regression results are reported in detail in three Tables, with each one having one dependent variable with all three regression models: Table 4 reports overall satisfaction, Table 5 presents recommendation intention, and Table 6 presents repurchase intention. Figure 1 depicts the results showing the beta weights of the attributes with statistically significant results.

----------Insert Table 4 approximately here----------

---------- Insert Table 5 approximately here----------

---------- Insert Table 6 approximately here----------

For the drivers of the first loyalty variable - overall satisfaction, the beta weights presented in Table 4 suggest that in-flight staff service (β=0.33, p<.001), reputation (β=0.16, p<.1), and aircraft (β=0.16, p<.1), are the most influential in predicting overall satisfaction. In-flight food (β=0.11, p<.1) and punctuality (β=0.09, p<.1) also impact on overall satisfaction, resulting in the change in adjusted R square value (ΔR^2) of .412, p<.001 (F=23.67, p<.001). This change is significantly high, showing that 41.2% of the variance of overall satisfaction can be attributed to airline attributes. Furthermore, the interaction regression model in Step 3 produced a significant yet with lower statistical power adjusted R square change (ΔR^2= .084, p<.1 (F=7.462, p<.1). The beta value of the product of frequency of flights and safety (F3 F8) is equal to 1.49, significant at p<.1. A beta value can be higher than one due to the correlation of the predictors (Deegan, 1978). In this case, the correlation of frequency of flights and safety is equal to .46, p<01 (Table 3). The control model in Step 1 produced a very low adjusted R square (R^2= 0.020). As a result, the in-flight experience (service and the quality of in-flight food, which is also influenced by aircraft), along with reputation and punctuality creates significant passenger overall satisfaction.

The second customer loyalty variable examined was recommendation (Table 5). This variable produced a further change in adjusted R square in step 2 with a high statistical power (ΔR^2= .359, p<.001), (F=18.72, p<.001). Both the control model and the interaction model produced insignificant results (R^2= 0.016 and ΔR^2 0.090 p<.001, respectively). The beta weights presented in Table 5 suggest that reputation (β=0.34, p<.001), in-flight staff service (β=0.16, p<.01), FFP (β=0.14, p<.01), and frequency of flights (β=0.10, p<.1) are influential in predicting recommendation. From the control variables, only gender (β=0.08, p<.1) had a

low effect on recommendation, which indicates that male passengers are slightly more likely to offer word of mouth recommendation.

With respect to the third loyalty variable - repurchase intention, the independent and interaction models, the airline attributes had lower impact compared to the other two loyalty variables. In particular, the change in adjusted R square was 0.180 $p<.001$ with lower statistical power ($F=7.096$, $p<.1$). Significant beta values included the variables for FFP ($\beta= 0.18$ $p<.001$), reputation ($\beta= 0.19$ $p<.01$), and aircraft ($\beta= 0.14$ $p<.1$). No control variables were found to relate to repurchase intention in all models. The control model (Step 1) produced no signification results while results in the interaction model (Step 3) were significant but with a lower correlation coefficient and statistical power ($\Delta R^2= .107$, $p<.1$), ($F= 2.86$, $p<.1$).

When synthesizing the results of the three regression models to determine whether a hypothesis is supported, we use the following rules: a) if all three estimations show significant results, we conclude that the hypothesis is strongly supported, b) if two of them are significant, we say that the hypothesis is substantially supported; and c) if only one is supported, we state that the hypothesis is weakly supported. Table 7 presents a summary of the research findings for testing each hypothesis. Based on the data presented in Table 7, we reject hypotheses H7, H5, & H1 that related ticket price, schedule, and safety with the three loyalty variables. We cannot reject hypotheses H9, H4, & H2. Specifically, findings support H2 that punctuality is positively related to overall satisfaction ($\beta=0.09$ $p<.1$). There is also support for H3, as aircraft is positively related to overall satisfaction ($\beta=0.12$ $p<.1$) and repurchase intention ($\beta=0.14$ $p<.1$). The test of H4 showed a negative relationship between frequency of flights and recommendation, but the relationship is of marginal significance ($\beta=-0.10$ $p<.1$). Regarding H6, FFP was positively related to recommendation intention ($\beta=0.14$ $p<.01$) and repurchase intention ($\beta=0.18$ $p<.001$). Considering H8, airline reputation

was found positively related to overall satisfaction (β=0.16 p<.1), recommendation intention (β=0.34 p<.001) and repurchase Intention (β=0.19 p<.01). Support was found for H9 in that in-flight food and drinks is positively related to overall satisfaction (β=0.11 p<.1). H10 was supported, i.e. in-flight staff service is positively related to overall satisfaction (β=0.33 p<.001) and recommendation intention (β=0.16 p<.01). Finally, H11 was not supported since the change in R^2 in Step 3 was lower than the change in R^2 in all three regression models, which indicates that the effect of interaction between independent variables is lower than the effect of the independent variables themselves. The above results are also depicted into a radar diagram showing airline factors with significant beta coefficients across all three loyalty variables (Figure 1).

---------- Insert Table 7 approximately here----------

---------- Insert Figure 1 approximately here----------

5. Discussion

The empirical results show that airline reputation is the only variable that is related to all three loyalty variables. Thus airline reputation can be considered as the top factor driving business traveler loyalty for full-service airlines in China. We categorize reputation as a 'competitive factor', and the survey results provided evidence that reputation is indeed a competitive factor. Prior research on reputation as a loyalty attribute is inconclusive. Our finding is in line with the results reported by Ostrowski et al. (1993), Graham and Bansal (2007), and Dolnicar et al. (2011). In contrast, reputation was not listed as an important factor in either Anderson et al.'s (2008) or Gilbert and Wong's (2003) studies.

FFP, aircraft, in-flight staff service are related to two of three loyalty variables, thus, there is substantial support for hypotheses H6, H3, and H10, respectively. Regarding FFP, findings are in line with results reported by Chen (2008), Dolnicar et al. (2011), and Suzuki (2007), but contrast to Gilbert and Wong's (2003) finding that FFP was not important. One interpretation of this contrasting result is that, FFP is not important for the less frequent flyers and leisure travelers (Dolnicar et al., 2011), who were the majority of Gilbert and Wong's (2003) sample. The findings in our study regarding aircraft and in-flight staff service corroborate with those of two previous studies in the US market (Anderson et al., 2008; Ostrowski et al., 1993), thus supporting the importance of the 'tangibles' and staff-customer interaction as highlighted in the SERVQUAL model (e.g. Bitner, 1990; Parasuraman et al., 1988). In contrast, other studies (e.g. Dolnicar et al., 2011; Gilbert and Wong, 2003) do not report aircraft and in-flight staff service as key airline loyalty drivers.

Punctuality and in-flight food and drinks are weakly related to only one loyalty variable (overall satisfaction), therefore there is weak and partial support to the hypothesis that these variables are related to business traveler loyalty. The reason that punctuality has

only a marginal effect on overall satisfaction is probably that it is a basic, 'operational factor' of air transportation service. Its poor performance will lead to dissatisfaction. However, when airlines are punctual in their service as expected, passengers take punctuality for granted, hence their moderate level of overall satisfaction (Kano et al., 1984; Shahin and Zairi, 2009). As a result, punctuality should be considered as an important loyalty factor. We categorize in-flight food and drinks as 'attractive factors', which, according to Otto and Ritchie (1996), have not essential provision, particularly in short-distanced domestic travel. The findings of this study showed weak and partial effect of these factors on airline loyalty, which tends to support Otto and Ritchie (1996) argument.

We find no evidence to support those hypotheses regarding the effect of price, safety, schedule, and flight frequency on airline loyalty. Ticket price is not a significant loyalty predictor, which is an important finding with strategic implications. It confirms that business travelers are not ticket price sensitive, mainly because their employers pay travel fares. Furthermore, if ticket prices are the factor driving loyalty, then passengers would be in fact loyal to price and not to the airlines (Dowling and Uncles, 1997). This could be the case in several previous studies: ticket price has been found to be a significant factor in airline selection (e.g. Hess et al., 2007; Suzuki, 2007); Chang and Hung (2013) and Dolnicar et al. (2011) found that ticket price is a key loyalty driver. Safety is a basic, 'operational factor' of air transportation service, which can be consider as similar to punctuality, in the respect that it is often taken for granted when airlines perform as expected. In contrast, Chang and Hung (2013) found that safety is a consideration of passenger loyalty towards low-cost carriers. Neither the frequency of flights nor flight schedule is found to be significant loyalty drivers. This is somewhat surprising, as we expect business travelers' to highly value time and convenience. This is probably due to our use of attitudinal measures of loyalty. The evidence of the importance of schedule convenience and flight frequency appears mainly in the airline

selection literature which uses behavioral measures (e.g. Suzuki, 2007; Yoo and Ashford, 1996). Because of their tough time requirement, the airline that business travelers fly with might not the one they like.

6. Conclusions

The pressure for full service airlines to retain business travelers has been increasing. One of the strategic tasks for airline managers is to determine the drivers of business traveler satisfaction and loyalty so that they can then focus on developing the right strategies. In this study, we apply a synthesized framework of ten airline attributes to identify their influence on three loyalty variables overall satisfaction, repurchase intention and recommendation intention. Our empirical study was set in the world's second largest civil aviation market, and the growth engine of the global airline industry, China's domestic air passenger market (IATA, 2013). Our findings reveal five important attributes that drive business traveler loyalty towards full-service airlines in China: airline reputation, in-flight staff service, FFP, aircraft, and punctuality, covering all the three categories of operational, competitive and attractive factors.

6.1. Managerial implications

The findings of this study have important implications for airline managers. First, our findings highlight the critical importance of airline reputation, which is a competitive factor: a strong and favorable reputation will enhance passenger satisfaction, increase their intentions to repurchase and to spread positive word of mouth for a company. A strong reputation can also avoid airlines from engaging in price wars, as this study also shows that price does not lead to business passenger loyalty, i.e. reputable airlines have the advantage of commanding a price premium while retaining passenger loyalty. Because reputation has to be built up over long period of time, airline managers are therefore advised to take a long term perspective by allocating resources to consistently deliver safe, reliable and enjoyable passenger experiences. Airline managers will also need to constantly monitor their airline's reputation standing, benchmark it against that of the industry's leading competitors', and actively communicate their firm's positive actions and performance to passengers and other

stakeholders. For instance, the latest CAPSE results (released on 24th April, 2014) show that, Xiamen and Hainan were the best and second best airlines in China respectively, unfortunately none of the 'Big Three' were in the top 5 quality airline list (CARNOC, 2014b): Both China Southern and Air China were ranked at No.6, and China Eastern ranked No.9. We therefore recommend that Xiamen and Hainan develop active marketing communication strategies that highlight their reputation. The 'Big Three' will need to make more efforts to improve its reputation, particularly China Eastern. Interestingly, Shanghai Airlines, which was taken over by China Eastern in 2009, was rated as No.5 best airlines. Considering that Shanghai Airlines has historically enjoyed a better reputation than China Eastern among its loyal customer base, China Eastern's strategy of keeping 'Shanghai' as a separate brand entity is a wise decision. The airline industry has recently witnessed several consolidation moves through mergers and acquisitions both within and outside China (Fan et al., 2001). Corporate reputation and customer loyalty are strategic resources that need to be redeployed to reach integration, synergy and better overall performance following a merger and acquisition transaction (Homburg and Bucerius, 2005). In most cases, it is the acquirer who redeploys its brand name to the acquired target (Capron and Hulland, 1999), as in the case of China Southern re-naming 'China Northern' to its own one after the consolidation. Yet there are many cases that rebranding of the acquired targets fail because of the resistance from the loyal customers of the acquired entity (Jaju et al., 2006). As Shanghai Airlines enjoys a better reputation than China Eastern, keeping 'Shanghai' as a separate brand name helps China Eastern to retain the loyalty of the Shanghai Airlines' passengers, and to better exploit its brand equity.

Second, in-flight staff service is the next variable that is important for customer loyalty. This is an attractive factor that offers opportunities for service differentiation (Kano et al., 1984). According to the latest CAPSE results (ranking in parentheses, same in the remaining

texts), we recommend Xiamen (1) and Hainan (4) to keep up with the good work, while we suggest that China Eastern (7) Air China (8) and China Southern (10) increase investment and management efforts to improve their cabin services. Note that Shanghai (6) outperforms China Eastern in this regard.

Third, another competitive factor, FFP is confirmed to be important for business traveler loyalty. Airlines managers may invest resources to improve the convenience of point accumulation and reward redemption, and consistently provide attractive rewards to their loyal business travelers, particularly those that have symbolic and status values, which could be particularly cost-effective. As the CAPSE report does not contain FFP information, we refer to our own data which show the order of ranking of the five airlines as: Xiamen (1), Hainan (2), China Southern (3), China Eastern (4), and Air China (5). The pattern is similar to the performance of the five airlines in other major attributes as reported by CAPSE. We therefore suggest that Xiamen and Hainan keep up the good work, while the 'Big Three' have to make some improvements.

Fourth, one basic operational factor, aircraft is related to business traveler loyalty. Updating old aircraft fleet with a new, modern one seems will be a good strategy to attract and retain more business travelers and this strategy is also cost-effective in the long term, as modern fleet are fuel-economical. Based on the latest CAPSE results, Xiamen (1) and Hainan (3) should keep up with the good work, while China Southern, Air China (both ranked No. 8) and China Eastern (10) will have to make investments to update their fleet and cabin facilities. Note that Shanghai (6) again outperforms China Eastern in this regards.

Finally, punctuality is also factor that drives customer loyalty. As a basic operational factor, punctuality must be one of the first requirements to be fulfilled in priority to competitive and attractive factors. Flight delays have been one of the major sources of passenger complaints in China, and the civil aviation authority is determined to improve the

situation. Meeting punctuality target will not only comply with the tougher standard imposed by the authority, but will also reduce their associated costs of service recovery. According to the latest data published by Civil Aviation Administration of China (CAAC) on May 7th, 2014, the industry average of the on-time rate in March 2014 is 78.07%, which is 5.5% up over last year (CAAC, 2014). We recommend that China Eastern (2) and Xiamen (5) to keep up with the good work, and that Hainan (6), China Southern (7), and Air China (8) make some improvements in this regard.

6.2. Limitations and suggestions for future research

While our study constitutes an important step towards developing a better understanding of drivers of airline loyalty, there are several limitations in this study, which introduce opportunities for further research. First, this study focuses on attitudinal loyalty only, thus future studies can use the behavioral approach or composite approach to develop different measures of loyalty. Second, gathering empirical evidence from one source of information can create common method bias. To address this bias, we used a panel to develop the scales and increase construct validity, then produced different versions of the questionnaire to deal with the self-report problem and used the Harmon's factor test of common method bias. Still, the sampling method was not stratified and there is a limitation to generalize findings to the wider population. A recommendation for future research would also be to maintain the current design and increase sample size including travelers of both large and small airlines as well as airlines from different continents and business cultures. Interaction effects were entered into a regression model, yet the results had low statistical significance and the findings were hard to interpret. We recommend future studies include interaction effects in research designs and that academics further develop theory in this regard, since there is scarce evidence of the impact of interaction effects between airline drivers and on airline loyalty. Finally, our sample of respondents was drawn solely from

airlines in China. In other countries cultural issues may moderate customer satisfaction causing different results. Therefore, future research should examine the customer satisfaction factors in other contexts and countries which could produce a basis for cross-validation of the model.

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Table 1 Key airline attributes

Category	Attributes	Description
Operational factors	Safety	Passenger perception of airline's safety record.
	Punctuality	Passenger perception of on-time departure and arrival record.
	Aircraft	Passenger perception of aircraft quality. New, large, modern aircraft signifies a higher level of safety and comfort.
Competitive factors	Frequency of flights	Passenger perception of airline service frequency.
	Schedule	Perceived convenience of flight schedule.
	Frequent flyer program	Perceived generousness of FFP rewards and convenience of point accumulation and reward redemption.
	Ticket price	Passenger satisfaction with the fare of air travel charged by the airline.
	Reputation	Passenger's general impression of the airlines as a whole.
Attractive factors	In-flight food & drinks	Passenger perceived quality of food and drinks.
	In-flight staff service	Passenger perception of the courtesy, responsiveness of flight attendants.

Table 2 Sample Demographics

Demographics	Range	Percentage
Travel frequency	1-10	37.9
	11-50	52.6
	51+	9.5
Age	18-21	2.6
	22-25	11.7
	26-35	51.3
	36-45	27.3
	46-55	6.3
	Over 55	.9
Education		
	Below degree level	7.6
	First degree level	61.0
	Postgraduate and above	31.4
Income (CNY)*		
	Below 50K	7.8
	50-109K	26.4
	110-159K	24.9
	160-209K	11.9
	210-259K	7.6
	260K and above	21.4
Gender		
	Female	14.3
	Male	85.7

*Note: Currency is Chinese Yan (CNY). Approximately, 50K is USD 8,100. In China, income levels can be categorized as follow: Average and low income: up to CNY 50K. Middle class income, CNY 51K- 209K, High income above CNY 210K.

Table 3 Means, Standard Deviations and Correlation Matrix

Variables	Scales	Mean	Std.Deviation	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Control Variables																					
1. Travel frequency	ratio	25.13	25.92	1.00	0.09	.19**	0.03	.39**	-.18**	0.05	0.06	-.11*	0.06	-.14**	-.15**	0.02	-.12*	-.20**	-.12**	-.12**	-0.08
2. Age	1-6	3.26	0.87		1.00	-0.05	.094*	.30**	0.02	0.05	0.08	0.03	0.07	0.05	0.04	.09*	.097*	0.03	-0.02	-0.06	0.01
3. Gender (83% male , 17% female)	0,1		-			1.00	-0.06	.097*	-0.04	0.08	0.08	0.04	.107*	0.01	-0.02	0.02	0.03	-0.00	.093*	0.07	0.02
4. Education	1-3	2.24	0.58				1.00	.25**	-.10*	-0.01	-0.02	-0.06	-0.03	-0.03	-0.07	-0.01	0.01	-0.07	-0.06	-0.02	-0.02
5. Income	1-6	3.49	1.64					1.00	-.18**	0.05	.092*	-0.00	0.07	-0.05	-0.03	0.08	0.04	-0.07	-0.07	-0.05	0.02
Airline Attributes																					
6. Ticket price	1-5	3.01	0.99						1.00	.36**	.25**	.47**	.28**	.35**	.42**	.25**	.34**	.46**	.31**	.24**	.12**
7. Schedule	1-5	3.80	0.86							1.00	.69**	.31**	.35**	.36**	.42**	.48**	.44**	.28**	.20**	.15**	.13**
8. Frequency of flights	1-5	3.84	0.85								1.00	.24**	.35**	.30**	.38**	.46**	.42**	.16**	.17**	.11*	.14**
9. In-flight service	1-5	3.46	1.06									1.00	.53**	.54**	.60**	.47**	.59**	.67**	.60**	.49**	.32**
10. FFP	1-5	3.66	1.06										1.00	.33**	.42**	.37**	.43**	.41**	.34**	.38**	.32**
11. Punctuality	1-5	3.29	1.01											1.00	.72**	.53**	.60**	.54**	.48**	.37**	.25**
12. Aircraft	1-5	3.39	0.96												1.00	.63**	.69**	.60**	.53**	.47**	.34**
13. Safety	1-5	3.91	0.87													1.00	.74**	.41**	.40**	.38**	.30**
14. Reputation	1-5	3.72	0.92														1.00	.56**	.52**	.53**	.37**
15. In-flight food	1-5	3.12	1.08															1.00	.53**	.45**	.28**
Loyalty Variables																					
16. Overall Customer Satisfaction	0-10	7.43	1.94																1.00	.60**	.41**
17. Recommendation	1-5	3.93	1.10																	1.00	.55**
18. Repurchase Intention	1-5	4.25	0.99																		1.00

** Correlation is significant at the 0.01 level (2-tailed).* Correlation is significant at the 0.05 level (2-tailed)

Table 4 Hierarchical Regression Results of Airline Attributes on Overall Satisfaction

	Satisfaction		
Variables	**Step 1**	**Step 2**	**Step 3**
Control variables			
Travel frequency	-0.1 -2.6**	-0.00 -0.08	0.00 0.07
Age	0.00 0.06	-0.03 -0.96	-0.04 -1.13
Gender	0.11 2.49*	0.08 2.29*	0.10 2.78**
Education	-0.0 -0.9	-0.00 -0.23	-0.01 -0.48
Income	-0.0 -0.2	-0.04 -1.15	-0.05 -1.34
Airline attributes			
Ticket price (F1)		-0.02 -0.53	0.02 0.08
Schedule (F2)		-0.05 -1.00	-0.19 -0.59
Frequency of flights (F3)		-0.03 -0.65	-0.32 -1.19
In-flight staff service (F4)		0.33 5.98***	0.30 0.78
FFP (F5)		0.00 0.02	-0.16 -0.60
Punctuality (F6)		0.09 1.70*	-0.35 -0.84
Aircraft (F7)		0.12 1.98*	0.42 0.89
Safety (F8)		0.00 0.02	-0.16 -0.45
Reputation (F9)		0.16 2.57*	-0.65 -1.41
In-flight food/drinks (F10)		0.11 2.17*	0.47 1.30
	***Interactions in* Step 3**		
F1 * F2	0.28 0.71	F3 * F9	-1.12 -1.56
F1 * F3	-0.44 -1.19	F3 * F10	0.28 0.63
F1 * F4	-0.44 -1.22	F4 * F5	0.69 2.10*
F1 * F5	0.33 1.19	F4 * F6	0.17 0.38
F1 * F6	-0.01 -0.03	F4 * F7	0.01 0.02
F1 * F7	-0.36 -0.88	F4 * F8	-0.73 -1.35
F1 * F8	0.31 0.74	F4 * F9	-0.04 -0.07
F1 * F9	0.12 0.25	F4 * F10	-0.08 -0.21
F1 * F10	0.07 0.20	F5 * F6	-0.18 -0.44
F2 * F3	0.02 0.07	F5 * F7	-0.40 -0.87
F2 * F4	0.15 0.27	F5 * F8	-0.85 -1.72*
F2 * F5	0.59 1.37	F5 * F9	0.78 1.56
F2 * F6	0.87 1.44	F5 * F10	-0.29 -0.92
F2 * F7	-0.48 -0.75	F6 * F7	-0.55 -1.45
F2 * F8	-1.03 -1.55	F6 * F8	-0.03 -0.05
F2 * F9	0.68 0.88	F6 * F9	-0.02 -0.03
F2 * F10	-0.68 -1.42	F6 * F10	0.45 1.05
F3 * F4	0.33 0.64	F7 * F8	0.05 0.09
F3 * F5	-0.28 -0.67	F7 * F9	0.88 1.40
F3 * F6	-0.04 -0.09	F7 * F10	-0.03 -0.06
F3 * F7	0.19 0.37	F8 * F9	0.83 1.26
F3 * F8	1.49 2.37*	F8 * F10	0.30 0.53
		F9 * F10	-0.55 -0.91
Results	**Step 1**	**Step 2**	**Step 3**
F Value	2.929*	23.67***	7.462*
Adjusted R^2	0.020	0.424	0.456
Δ R^2	0.031*	0.412***	0.084*

Standardized regression coefficients are reported. Within cells, the first row figures are the beta coefficients, and the second row are the t-test values, significant at *$p < 0$ .10, **p <0.01, ***p <0.001.

Table 5 Hierarchical Regression Results of Airline Attributes on Recommendation Intention

	Recommendation intention		
Variables	**Step 1**	**Step 2**	**Step 3**
Control variables			
Travel frequency	-0.1 -2.8**	-0.03 -0.81	-0.01 -0.39
Age	-0.0 -0.9	-0.08 -2.28*	-0.09 -2.25*
Gender	0.09 1.97*	0.06 1.58	0.07 1.87*
Education	-0.0 -0.2	0.01 0.44	0.01 0.26
Income	0.01 0.32	-0.02 -0.55	-0.02 -0.54
Airline attributes			
Ticket price (F1)		-0.01 -0.36	0.19 0.64
Schedule (F2)		-0.08 -1.61	-0.28 -0.82
Frequency of flights (F3)		-0.10 -2.00*	-0.79 -2.75**
In-flight staff service (F4)		0.16 2.77**	0.21 0.52
FFP (F5)		0.14 3.05**	-0.46 -1.62
Punctuality (F6)		-0.05 -0.95	-0.86 -1.99*
Aircraft (F7)		0.16 2.53*	0.74 1.51
Safety (F8)		0.00 0.12	-0.33 -0.84
Reputation (F9)		0.34 5.24***	0.81 1.66*
In-flight food/drinks (F10)		0.05 0.93	0.14 0.38
	***Interactions in* Step 3**		
F1 * F2	-0.28 -0.67	F3 * F9	-0.81 -1.07
F1 * F3	-0.23 -0.59	F3 * F10	0.28 0.59
F1 * F4	0.16 0.42	F4 * F5	0.01 0.05
F1 * F5	-0.15 -0.54	F4 * F6	-0.63 -1.28
F1 * F6	0.49 1.41	F4 * F7	0.43 0.64
F1 * F7	-0.31 -0.72	F4 * F8	0.24 0.42
F1 * F8	0.41 0.92	F4 * F9	-0.15 -0.24
F1 * F9	-0.03 -0.06	F4 * F10	0.03 0.07
F1 * F10	-0.38 -1.10	F5 * F6	0.38 0.86
F2 * F3	0.31 0.87	F5 * F7	-0.29 -0.59
F2 * F4	-0.69 -1.15	F5 * F8	-0.78 -1.52
F2 * F5	0.87 1.93*	F5 * F9	0.08 0.16
F2 * F6	-0.47 -0.74	F5 * F10	0.18 0.56
F2 * F7	0.47 0.70	F6 * F7	0.65 1.64
F2 * F8	-0.33 -0.48	F6 * F8	0.80 1.36
F2 * F9	0.41 0.51	F6 * F9	0.30 0.52
F2 * F10	-0.04 -0.09	F6 * F10	-0.40 -0.89
F3 * F4	0.55 1.01	F7 * F8	-0.92 -1.38
F3 * F5	0.68 1.53	F7 * F9	-0.63 -0.95
F3 * F6	0.12 0.22	F7 * F10	-0.14 -0.25
F3 * F7	-0.15 -0.28	F8 * F9	0.32 0.47
F3 * F8	0.53 0.80	F8 * F10	0.67 1.13
		F9 * F10	-0.55 -0.86
Results	**Step 1**	**Step 2**	**Step 3**
F Value	2.538*	18.72***	6.103*
Adjusted R^2	0.016	0.365	0.399
Δ R^2	0.027*	0.359***	0.090*

Standardized regression coefficients are reported. Within cells, the first row figures are the beta coefficients, and the second row are the t-test values, significant at *p <0 .10, **p <0.01, ***p <0.001.

Table 6 Hierarchical Regression Results of Airline Attributes on Repurchase Intention

	Repurchase Intention		
Variables	**Step 1**	**Step 2**	**Step 3**
Control variables			
Travel frequency	-0.1 -2.2*	-0.06 -1.26	-0.01 -0.37
Age	-0.0 -0.0	-0.03 -0.73	-0.00 -0.20
Gender	0.02 0.59	-0.00 -0.01	0.00 0.04
Education	-0.0 -0.6	-0.00 -0.21	0.00 0.06
Income	0.07 1.33	0.03 0.61	0.02 0.52
Airline attributes			
Ticket price (F1)		-0.06 -1.23	0.57 1.64
Schedule (F2)		-0.06 -1.08	-1.20 -3.02**
Frequency of flights (F3)		-0.01 -0.27	-0.09 -0.28
In-flight staff service (F4)		0.06 0.96	0.26 0.55
FFP (F5)		0.18 3.55***	0.19 0.57
Punctuality (F6)		-0.04 -0.75	-0.90 -1.78*
Aircraft (F7)		0.14 1.93*	1.34 2.36*
Safety (F8)		0.04 0.63	-0.31 -0.70
Reputation (F9)		0.19 2.60**	0.09 0.16
In-flight food/drinks (F10)		0.00 0.11	-0.04 -0.10
	***Interactions in* Step 3**		
F1 * F2	0.16 0.34	F3 * F9	-1.49 -1.71*
F1 * F3	-0.39 -0.86	F3 * F10	0.77 1.39
F1 * F4	0.06 0.14	F4 * F5	0.25 0.62
F1 * F5	-0.48 -1.44	F4 * F6	0.34 0.60
F1 * F6	0.50 1.24	F4 * F7	-0.20 -0.26
F1 * F7	-0.84 -1.69*	F4 * F8	-0.24 -0.36
F1 * F8	-0.20 -0.39	F4 * F9	-0.76 -1.04
F1 * F9	0.51 0.83	F4 * F10	0.32 0.65
F1 * F10	-0.27 -0.66	F5 * F6	0.15 0.30
F2 * F3	0.53 1.29	F5 * F7	-1.20 -2.13*
F2 * F4	-0.57 -0.81	F5 * F8	-0.40 -0.67
F2 * F5	1.20 2.30*	F5 * F9	0.67 1.10
F2 * F6	0.54 0.73	F5 * F10	-0.11 -0.30
F2 * F7	0.98 1.25	F6 * F7	0.19 0.42
F2 * F8	-0.68 -0.84	F6 * F8	1.08 1.59
F2 * F9	0.88 0.93	F6 * F9	-1.19 -1.77*
F2 * F10	-0.94 -1.62	F6 * F10	-0.11 -0.21
F3 * F4	0.65 1.04	F7 * F8	-1.26 -1.64
F3 * F5	-0.25 -0.49	F7 * F9	0.65 0.85
F3 * F6	-0.20 -0.33	F7 * F10	0.26 0.38
F3 * F7	-0.65 -1.04	F8 * F9	0.99 1.23
F3 * F8	1.14 1.49	F8 * F10	0.37 0.53
		F9 * F10	-0.18 -0.25
Results	**Step 1**	**Step 2**	**Step 3**
F Value	1.082	7.096***	2.860*
Adjusted R^2	0.000	0.165	0.194
Δ R^2	0.011	0.180***	0.107*

Standardized regression coefficients are reported. Within cells, the first row figures are the beta coefficients, and the second row are the t-test values, significant at *p <0 .10, **p <0.01, ***p <0.001.

Table 7 Summary of Hypotheses Test Results

Hypothesis	Overall satisfaction	Recommendation Intention	Repurchase Intention	Test Result
Operational factors				
H1. Safety → loyalty.				NS
H2. Punctuality →loyalty.	0.09*			Weakly supported
H3. Aircraft quality →loyalty.	0.12*		0.14*	Supported
Competitive factors				
H4. Frequency of flights → loyalty.		-0.10*		NS
H5. Flight schedule convenience →loyalty.				NS
H6. FFP →loyalty.		0.14**	0.18***	Supported
H7. Ticket price → loyalty.				NS
H8. Reputation → loyalty.	0.16*	0.34***	0.19**	Supported
Attractive factors				
H9. In-flight food and drink → loyalty..	0.11*			Weakly supported
H10. In-flight staff service → loyalty.	0.33***	0.16**		**S**upported

Standardized regression coefficients are reported, significant at *p <0 .10, **p <0.01, ***p <0.001. NS= Not supported.

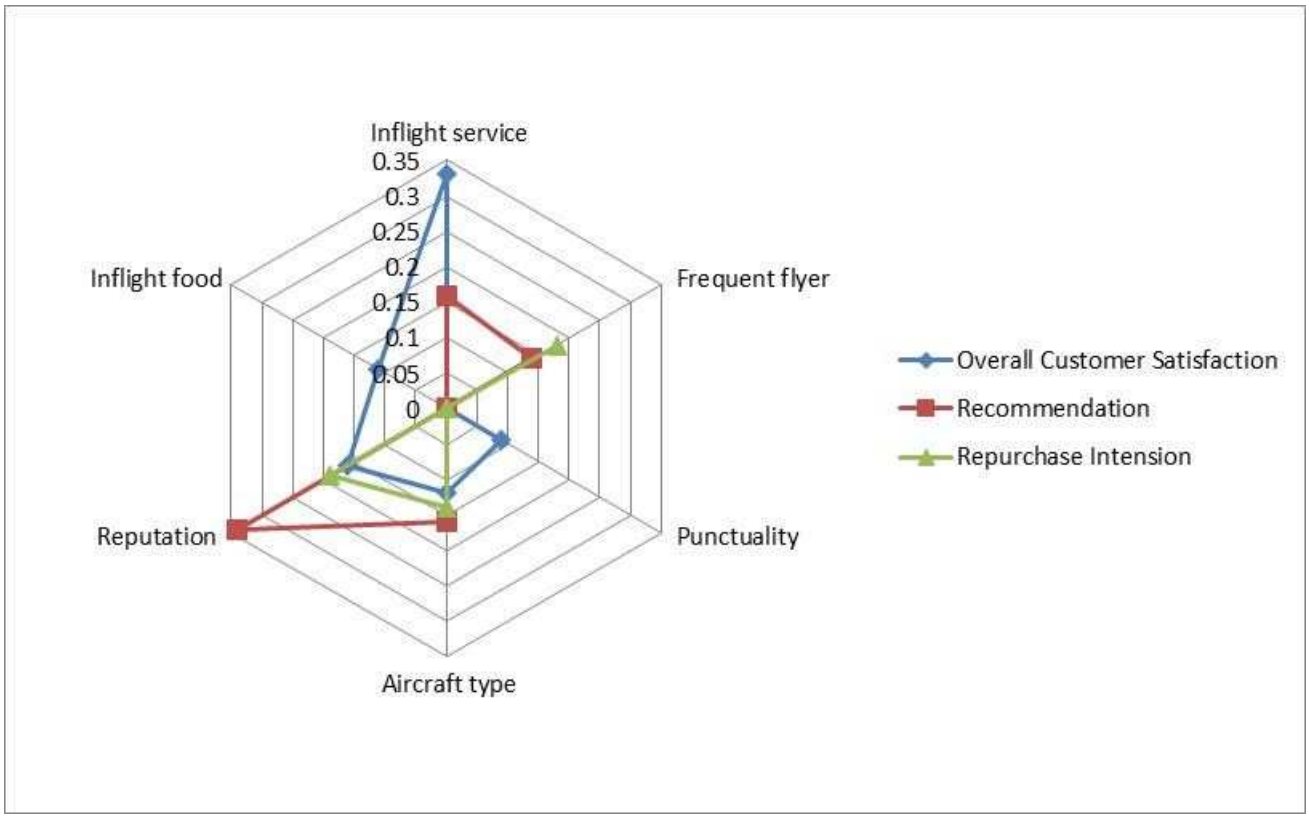

Figure 1 Airlines Loyalty Results

Appendix 1. Survey Questionnaire

Welcome to participate in this airline passenger survey. Completing this questionnaire is easy, and will take only 3-4 minutes of your time, as what you need to do is just a few clicks. Your answers will be kept as confidential and no personal identification information is required.

There are no right or wrong answers.
It is your personal experience and true opinions that really matter!

How many times have you traveled by air in the last 12 months: _____

Most of your air travel trips are for the purpose of:

○ Business
○ Tourism
○ Visiting friends and relatives
○ Other, please specify _____

What airline do you usually fly with? (please tick on one only, all the remaining questions refer to this airline).

○ Air China
○ China Southern
○ China Eastern
○ Hainan Airlines
○ Xiamen Airlines
○ Other, please specify _____

Based on your overall travel experience, how would you rate your satisfaction with this airline? (please rate from 0-10, where 0=extremely dissatisfied, and10 = extremely satisfied): _____.

Based on your overall travel experience, please rate this airline's performance with respect to following factors:

	Poor				Excellent
1. Ticket price	○	○	○	○	○
2. Convenience of flight schedule	○	○	○	○	○
3. Frequency of flights	○	○	○	○	○
4. In-flight staff service	○	○	○	○	○
5. Frequent flyer program	○	○	○	○	○

Please rate this airline's performance with respect to following factors (continued):

	Poor				Excellent
1. Fight punctuality	○	○	○	○	○
2. Aircraft	○	○	○	○	○
3. Safety record	○	○	○	○	○
4. Airline reputation	○	○	○	○	○
5. In-flight food and drinks	○	○	○	○	○

How likely are you to select this airline again for your next trip?

Very unlikely	Somewhat unlikely	Neutral	Likely	Very likely
○	○	○	○	○

Would you like to recommend this airline to your friends?

Definitely no	Possibly no	Not sure	Possibly yes	Definitely yes
○	○	○	○	○

Your age:

- ○ 18 - 21
- ○ 22 - 25
- ○ 26 - 35
- ○ 36- 45
- ○ 46- 55
- ○ 56 and more

Your gender:

- ○ Male
- ○ Female

Your education:

- ○ Secondary school and below
- ○ Vocational diploma /university degree
- ○ Postgraduate degree

Your annual income (RMB 10,000Yuan)

- ○ Below 5
- ○ 5-10
- ○ 11-15
- ○ 16-20
- ○ 21-25
- ○ 26 and more

Would you like to make additional comments?

End of Survey! Thank you very much for your support!

Now click 'submit', and you will be shown a summary of the survey results.