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**Impact of Airline Service Quality on Overall and Female  
Passengers' Satisfaction: A Case Study of Tonga's Domestic  
Aviation Market**

*A 190.893 (120 credit) research report presented in partial fulfilment  
of the requirements for the degree of Master of Aviation at Massey  
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## Abstract

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The primary objectives of this thesis are to determine the direct impact of airline service quality on passengers' satisfaction in Tonga's domestic aviation market. The determinants of airline service quality were identified by using the SERVQUAL dimensions (assurance, empathy, reliability, responsiveness and tangibles) as measurable indicators. A survey was conducted and 205 questionnaires were collected and analysed. Empirical results obtained via the structural equation modelling (SEM) approach revealed that airline service quality has a direct impact on overall and female passengers' satisfaction. Furthermore, both overall and female passengers were mostly satisfied with the responsiveness dimension. The tangibles dimension was the dimension with the lowest level of satisfaction for overall passengers and the reliability dimension was the dimension with the lowest satisfaction for female passengers. Importantly, the research highlights the different levels of satisfaction among airline passengers in the monopolistic Tongan domestic aviation market. The findings have implications for the airline management.

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*Keywords:* Passengers' satisfaction; Female passengers' satisfaction; Structural equation modelling (SEM); Airline service quality; the SERVQUAL dimensions; Tonga's domestic aviation market

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## 1. Introduction

Bailey, Graham and Kaplan (1991) suggested that the 1978 Airline Deregulation Act changed the structure of the airline industry. The airline market became more competitive as airlines were allowed to enter the industry, a policy that protected the survival of incumbent airlines. As the airline market became competitive, the benefits of delivering outstanding service quality became important for airlines' growth. There is no secret formula: an airline's survival and success depends on the superiority of the service they provide (e.g. Anderson, Pearo, & Widener, 2008; Chow, 2014; Hussain, Nasser, & Hussain, 2015; Steven, Dong, & Dresner, 2012; Suki, 2014; Sun & Kim, 2013). Airline service quality ensures competitiveness, sustainability and profitability, which are crucial in a highly competitive business environment. The power and ability of airline service quality to engage and influence positive passenger perceptions, passenger expectations, passenger satisfaction and passenger loyalty are significant for establishing a strong airline–customer relationship. Although all the utilities are significant on their own, there is a consensus in the literature that the capability and influence of airline service quality to satisfy passengers or customers is the key to the ultimate utility, passenger loyalty (Ringle, Sarstedt, & Zimmermann, 2011). Repeat purchasing is the ideal behaviour that airlines strive to engage customers in, and although it is identifiable with loyalty, passenger satisfaction plays a vital role in achieving it. When passengers are satisfied with an airline service, they are likely to spread the word or recommend airline services when asked for advice, and, last but not least, these passengers are enticed to use the services again (Hussain *et al.*, 2015; Suki, 2014).

As airlines strive for survival, airline service quality and passenger satisfaction become critically important to all airline markets. Thus, there has been a significant body of studies related to the relationship between airline service quality and passenger satisfaction in a competitive market such as the studies of Gilbert and Wong (2003), Hussain *et al.* (2015), and Steven *et al.* (2012). The availability of information is beneficial, especially to generate and divert research to less studied areas in the airline industry. Only limited research has considered airlines that operate in a monopolistic or less competitive market, such as the study of Steven *et al.* (2012). Given the nature of a competitive or a monopolistic airline market, there is a common denominator, namely the passengers. Understanding the level of satisfaction of passengers as a result of their experiences of service quality in any airline market is critical. Although evidence has shown the impact of airline service quality on passenger satisfaction, the strength of the impact is unknown for a monopolistic market (Gilbert & Wong, 2003; Hussain *et al.*, 2015). Jones and Sasser (1995) posited that customer satisfaction is as important to monopolistic routes as it is in competitive market routes.

In addition, different perceptions of airline service quality among male and female passengers are important to airline operations. Ostrowski, O'Brien, and Gordon (1993), and Sultan and Simpson (2000) examined the relationships between airline service quality and passenger satisfaction, with a specific focus on female passengers' satisfaction. In relation to airline female passengers' expectations, Kurtulusoglu, Can, Pakdil, and Tolon (2018) suggested that there are differences in female and male expectations. Thus, airlines are encouraged to consider gender segmentation when strategizing service quality. However, there is evidence that there is a lack of consideration by airlines regarding gender preference when determining their positions in airline operations (Westwood, Pritchard, & Morgan,

2000). Reisinger and Mavondo (2008) explained that more males travel by air than females because women are more vulnerable to risk than men, which could explain the focus on males. Westwood *et al.* (2000) also noted that the airline sector in the UK are blind to different gender preferences, which can lead to passenger dissatisfaction. However, confirming the mere existence of different female preferences is not the main focus of this research. What matters is the level of airline service quality being offered in Tonga's aviation market and whether airline service quality satisfies overall and female passengers.

To understand the impact of airline service quality on overall passengers' satisfaction as well as female passengers' satisfaction in a less competitive airline market, two key components had to be identified: (1) the approach to measure the link or impact of service quality on passenger satisfaction and (2) a place or country with less competitive airline market for the study to take place. With regards to the first component and after careful consideration, the SERVQUAL model was used to measure airline service quality in this study. The SERVQUAL model of Parasuraman, Zeithaml, and Berry (1985) is a well-known tool for measuring airline service quality and has been widely used by air transport research for domestic and international aviation environments. The less competitive airline market for this research is the Kingdom of Tonga in the South Pacific.

## **1.1 Background: Tonga's aviation market**

The geographical location and formation of Tonga in the Pacific Ocean makes the existence of air operation crucial for transporting and linking islands separated by water. Tonga is the only remaining kingdom in the South Pacific and the well-known explorer Captain Cook named it "The Friendly Island". Tonga is made up of 176 islands in total, but only 36 islands are inhabited (One World Nations Online, 2018). The dispersion of the islands provides a perfect opportunity to start airline business for inter-island domestic operations. Like other South Pacific islands agreeing with the notion that domestic airlines should be operated and owned by the home country, Tonga first created an air transport service owned and operated by the government of Tonga, called Friendly Island Airways in 1986 (Guthrie, 2013; Kissling, 1989). Unfortunately, like other South Pacific islands, the Tongan government found that running a domestic airline service was not as simple as just getting an aircraft to fly. There are number of factors to consider for an airline business in Tonga, such as limited resources, limited funds, limited skills and expertise and a regulatory system that depends on system on other developed countries like New Zealand (Taumoepeau, 2010).

### ***1.1.1 Aviation Authority in the Kingdom of Tonga***

Airline operations and licensing are governed by the Civil Aviation Division of the Ministry of Infrastructure equipped with Civil Aviation Act and Rules and Regulations closely designed to reflect those of New Zealand. Initially, Tonga was under the regulatory system of New Zealand and it is very common for most aviation authorities in the South Pacific (including Tonga) to operate under the regulations of New Zealand (Taumoepeau, 2010). Such a relationship worked well, as evident from



the smooth expansion of the aviation industry from domestic to international operations in Tonga. However, this poses a challenge for Tonga, as its aviation authority has to conform to the perceptions of a foreign country (New Zealand), which might differ from local views. This was evident when the New Zealand Civil Aviation Authority was reluctant to oversee the certification of operations for Xian MA60, a turboprop-powered aircraft (Vaka'uta, 2016). Currently, the Pacific aviation body, the Pacific Aviation Safety Office, which Tonga has signed up to, oversees the regulatory capacity and sustainability of Tonga's airlines in terms of air operation technical safety.

### ***1.1.2 The Monopoly in Tongan's Domestic Airline Market***

In the Kingdom of Tonga, airline operations are operated in a monopolistic market, despite the open market policy issued by the Tongan government. Evidently, there is a market for domestic flight services in Tonga but it is unclear whether the market can comfortably support two or more domestic airlines. Friendly Island Airways was the only airline servicing the domestic market when it entered and this continued after it was renamed Royal Tongan Airline in 1991 (Guthrie, 2013). Unfortunately, it was difficult for Royal Tongan Airline to serve Tonga's domestic market when it leased an aircraft to expand international operation that strained airline finances (Taumoepeau, 2010). Royal Tongan Airline leased a Boeing B757-200 from Royal Brunei Airline at an annual cost of US\$8 million. Royal Tongan Airline was not able to meet its financial commitments because the amount of the operations required was simply too large for its small-scale business intentions and this caused financial problems for the airline. The problem not only impacted international operations to New Zealand, Fiji, Niue, Australia and Hawaii, but the problem also impacted domestic operations to Vava'u, Ha'apai and 'Eua as well as the two Niuas (Taumoepeau, 2010).

When Royal Tongan Airline went into liquidation in 2004, two privately owned airlines vied for the domestic routes: Peau Vava'u Limited and Fly Niu Airline. This duopolistic market was short lived; after a few months. The Tongan government mandated a 'one airline policy' that supported the continuation of Peau Vava'u Limited. Forsyth and King (1996) posited that one of the reasons that caused failures in the aviation industry in the South Pacific was the vague objectives of the islands' governments and their inability to support airline operations. The changeable attitude of the Tongan government showed that the government at the time did not have a clear objective and understanding of the significance of domestic airline services for Tonga (e.g. air travel demand, tourism development and economic growth). In 2006, a fire in the main town in Tonga that destroyed the main office of Peau Vava'u Limited concluded the services of the airline and the Tongan government had to assign another carrier to service the domestic market in Tonga (New Zealand Aviation News, 2011).

Real Tonga Airline is the sole airline servicing Tonga's domestic airline market, which is operated and owned by a Tongan citizen. Air Chathams of New Zealand was servicing Tonga's domestic market but their operations were terminated shortly after Real Tonga Airline entered the domestic market in 2012 (Field, 2013). In the same year, the Tongan government were concerned about increasing airfares, so they decided to open up Tonga's domestic airline market to allow the entry of other interested carriers and with the hope that airline competition would reduce airfare levels in the domestic market. Unpredictably, the Tongan government had been gifted a Xian MA60 aircraft by the Republic of the People of China during the same year (Field, 2013; Perry, 2014). Real Tonga Airline

was awarded the certificate of operation and leasing rights for the aircraft. As a result, Air Chathams from New Zealand left Tonga's domestic aviation market to protect its business interests. This confirms the notion that South Pacific islands prefer to service their own domestic aviation markets, as observed. However, while that may be the case, stable policies are required to support the desire of the people or the Tongan government who want to maintain a sustainable air operation for the island (Forsyth & King, 1996; Kissling, 1989).

## **1.2 Contributions of this research**

As mentioned above, there is lack of research on the relationship between airline service quality and passenger satisfaction in less competitive aviation markets, or on the impacts of airline service quality on female passenger satisfaction. To make contributions to the air transport literature, this study is the first to examine a less researched monopolistic aviation market in the South Pacific, namely Tonga's domestic airline market, with a focus on the relationship between airline service quality and passenger satisfaction (overall passengers' and female passengers' satisfaction). This study also contributes to the literature on female airline passengers' level of satisfaction. In terms of the practical implications, the findings of this study provide information and insights into airline management in Tonga to improve their domestic airline's service quality, which is essential to support and sustain the growth of air travel demand and tourism in Tonga's domestic aviation market and its tourism sector.

## **1.3 Research Objective and Research Questions**

To improve our understanding of the impact of airline service quality on passenger satisfaction in Tonga's domestic airline market, three research questions have been established:

- 1. Does airline service quality impact overall passengers' satisfaction in Tonga's domestic airline market?*
- 2. Does airline service quality impact female passengers' satisfaction in Tonga's domestic airline market?*
- 3. Which factor of airline service quality has the most impact on overall and female passengers' satisfaction in Tonga's domestic airline market?*

The remainder of this thesis is organised as follows: Section 2 provides a literature review of various aspects (airline service quality, customers' expectations, perceptions and satisfaction) for understanding the relationship between airline service quality and passengers' satisfaction. Section 3 outlines and justifies the methodology used, including the conceptual framework, the structural equation modelling (SEM), the SERVQUAL model and the hypotheses. Section 4 presents and

discusses the key empirical results and implications of this study. Section 5 summarises the key findings and identifies the contributions and limitations.

## 2. Literature Review

Customers' satisfaction is the key driver for an airline's survival and it is at the centre of airline service quality (Huang, 2010; Ostrowski *et al.*, 1993; Park, 2007; Park *et al.*, 2004). It is well documented in the literature that considering the different characteristics of individuals and their responses to the airline service concept is crucial in generating marketing strategies (Anderson *et al.*, 2008; Vargo & Lusch, 2008). According to Aksoy, Atilgan, and Akinci, (2003) and Sultan and Simpson (2000), customers are at the midst of any service organisation, especially in the airline industry. There is a need for airlines to understand the relationship between airline service quality and customer satisfaction in any market density, in order to promote profitable functioning of airline operations (e.g. Aksoy *et al.*, 2003; Athanassopoulous, Gounaris, & Stathakopoulos, 2001; Boulding, Kalra, Staelin, & Zeithaml, 1993; Clemes, Gan, Kao, & Choong, 2008; Cronin & Taylor, 1992; Zeithaml, Berry, & Parasuraman, 1996). To have a thorough understanding of the impact of airline service quality on passenger satisfaction, it is necessary to understand other significant relationships such as the impact of airline service quality on passengers' expectations and perceptions. In addition, it is also relevant to observe the impact of consumers' expectations and perceptions on the vital construct of passengers' satisfaction (e.g. Gilbert & Wong, 2003; Pakdil & Aydin, 2007; Park *et al.*, 2004; Sultan & Simpson, 2000; Ostrowski *et al.*, 1993; Parasuraman *et al.*, 1985; Zeithaml, Berry & Parasuraman, 1993). For a deeper understanding, it is also important to understand the social demographic differences among individuals (e.g. Aksoy *et al.*, 2003; Anderson *et al.*, 2008; Clemes *et al.*, 2008; Heskett *et al.*, 1994; Ringle *et al.*, 2011). Interestingly, Kurtulmusoglu *et al.* (2018) and Westwood *et al.* (2000) urged that airlines should look at the impact of airline service quality on the socio-demographic factors such as gender satisfaction. Airlines can benefit from understanding noticeable differences between male and female responses as a result of their experiences with key airline service quality dimensions (Aksoy *et al.*, 2003; Clemes *et al.*, 2008).

### 2.1 Airline Service Quality Delivery

#### 2.1.1 Airline Service Quality vs. Airline Basic Services

The growth of customer-focused marketing has awakened the airline industry to a path of vigorous competition and innovative marketing strategies as a way of airlines enticing customers to choose their airline brand (e.g. Aksoy *et al.*, 2003; Huang, 2010; Ostrowski *et al.*, 1993; Park, 2007; Park *et al.*, 2004). It is the standard practice for airlines to implement basic services to meet the minimum requirements in order to operate and satisfy the requirements of policy makers and aviation authorities. Basic services such as a standard baggage allowance, seats availability, adequate provision of food and beverages, and legal processes for purchasing tickets, etc. (Rhoades & Waguespack, 2008). However, these basic services are being transformed as a result of consumers' feedback (Alamdari, 1999; Hussain *et al.*, 2015). Prior studies have referred to the consumer-focused services, airlines strive to achieve nowadays by transforming basic services, as airline service quality (Fick & Ritchie, 1991;

Gronroos, 1982; Parasuraman *et al.*, 1985). A classic example of a basic service being transformed when considering airline service quality is when airlines offer seats (a basic service) with a full audio and visual entertainment set (service quality). Sultan and Simpson (2000) mentioned that airlines need to rise above customers' expectations and "surprise and delight". When airline services meet or exceed customers' expectations, the airline is producing a quality service.

The creation of several elements and criteria of service quality for airline customers, unfortunately poses difficulties for customers in selecting their preferred airlines in a competitive market (Carlsson & Lofgren, 2006). Plenty of research has explored the methods by which customers select carriers and each study found the processes daunting and time-consuming, especially if there is a large service pool to choose from (Hsu & Wen, 2003; Kaynak, Kucukemiroglu, & Kara, 1994; Rezaei, Fahim, & Tavasszy, 2014; Suzuki, 2007). However, when airlines are explicit about their service intentions, it is easier for customers to eliminate vague and confusing services, which can be time-consuming, and focus on the service quality they prefer (Parasuraman *et al.*, 1985; Zeithaml *et al.*, 1993). Thus, airlines tend to focus on airline service quality dimensions and how customers perceive them to address this selection challenge. Studies have been able to identify the important dimensions that best suit an airline as a result of considering demographic preferences. Kaynak *et al.* (1994) posited that it is important for airlines to identify the service quality dimensions that have the most impact on target passengers. They found that reliability and low ticket price was the two most important criteria that passengers consider when choosing an airline. Similar results were found by O'Connell and Williams (2005), which noted that airlines should focus on improving service quality relating to reliability and lower airfares.

Multiple airline services align to form the overall service operations of an airline for passengers to experience and respond to (Namukasa, 2013; Rhoades & Waguespack, 2008). Recognising the different service areas helps airlines to easily identify areas that require improvement. These service areas comprise inflight services, which include the service flow of food and beverages, seat comfort and cleanliness, etc. and ground services which include baggage handling, the check-in counter and boarding, etc. (Sultan & Simpson, 2000). Though there are different areas in which an airline provides service quality, it is very important for the airline to reflect quality service throughout the entire organisation. Not only this will minimise service challenges such as displaying different images of the airline but will also assist with identifying service areas that require improvement (Berry, Parasuraman, & Zeithaml, 1988; Cronin *et al.*, 1992; Parasuraman *et al.*, 1985). For example, Chen and Chang (2005) examined airline service quality for ground and inflight services. For simplification, they deliberately divided airline services into two categories, ground services and inflight services. The results indicated that improvements were required for ground services, such as baggage handling, convenient flight schedules and the fairness of passenger standby procedures. For inflight services, the areas that needed improvements were seat comfort, the cabin crew's ability to handle unexpected situations, a clean and pleasant interior, inflight snack services and good cabin equipment condition. Importantly, Otrowski *et al.* (1993) stated that airlines gain a competitive advantage when they use their knowledge of the state of their service quality to make improvements (Bezerra & Gomes, 2015; Han, Ham, Yang, & Baek, 2012). The decision by an airline not to make improvements could make them fail.

### 2.1.2 Know Your Passengers

Airline managers often find it difficult to measure the impact of service quality on customers' expectations when different cultures and ethnic groups are considered (Aksoy *et al.*, 2003; Gilbert & Wong, 2003; Sultan & Simpson, 2000). With the understanding that no two customers are the same, naturally, it can be assumed that different ethnic groups, age groups and genders will be influenced differently by their perceptions of each of the airline service quality dimensions (Chou *et al.*, 2011; Han *et al.*, 2012; Huang, 2010). Therefore, it would be wise for airline managers to consider the heterogeneity of customers when they enter or operate in an airline market. Prior studies have provided important evidence, concerning the advantages of considering the heterogeneity of individuals when planning a marketing strategy (Pantouvakis & Renzi, 2016; Parasuraman, Berry, & Zeithaml, 1991). This is a challenge for airlines as they struggle to grow their business and, at the same time, they have to understand the diverse characteristics of their customers (Berry *et al.*, 1988). However, to minimise the struggle, airlines are required to consider customers' preferences and cater for them appropriately. A study undertaken by Gilbert and Wong (2003) found that different passengers at Hong Kong International Airport from different countries had different expectations. Their study found that Japanese and Chinese passengers had higher expectations for inflight entertainment than West European and North American passengers. They also found that passengers travelling via Hong Kong airport had high expectations in almost all the service dimensions (e.g. assurance, reliability and responsiveness), which supported previous literature (Clemes *et al.*, 2008; Chou *et al.*, 2011; Huang, 2010). These studies indicated that airline managers need to consider all the airline service dimensions in order to satisfy passengers and air travellers.

Furthermore, airline managers not only have to consider passengers' heterogeneity, but they must also consider unpredictable events that could impact passengers' perceptions, and make sudden changes of plan, with regards to airline service quality. The occurrence of unforeseen disastrous events for the airline industry such as tropical cyclones or terrorist attacks can cause an airline's demise but only if airlines are not careful to act. For example, Sultan and Simpson (2000) found that the airline service quality of reliability was the most important dimension for passengers' expectations, which supported Kaynak *et al.* (1994) study. In contrast, the later study of Gilbert and Wong (2003) found that assurance was the most important dimension for passengers' expectations for all ethnic groups. However, their study found no difference in passengers' expectations for the dimension of assurance with regards to different ethnic groups and purpose of travel. Chou *et al.* (2011) supported Gilbert and Wong's (2003) finding that assurance is the dimension that passengers expect the most from regarding airline service quality, especially when this dimension is associated with safety service features. Both studies mentioned that the increasing importance of assurance could be the result of the aftermath of the terrorist attacks in the US on September 11 in 2001. Airlines around the world changed their services to meet passengers' safety concerns. These unfortunate terrorist events opened consumer's eyes to prioritise the safety-related dimension after the 9/11 attack.

The successful link that exists between good delivery of airline service quality and passengers' satisfaction, depend on airlines understanding of their target passengers (Anderson *et al.*, 2008; Hussain *et al.*, 2015). For an airline to deliver a better service, the current status of service delivery must be tested. Recent research has shown that there is growing interest in the different levels of

expectation and the perceptions of airline passengers about an airline's service quality (Gilbert & Wong, 2003; Mikulic & Prebezac, 2011). This is an indication that the process of airline service quality improvement is, in fact, an ongoing process to address the differences in preferences and evolving expectations (Clemes *et al.*, 2008; Sultan & Simpson, 2000). Aksoy *et al.* (2003) found that for airlines to deliver good service quality, they must have a good grasp of passengers' needs and expectations. When airlines are unable to address passengers' needs and expectations, airlines will witness a low level of passenger satisfaction and find passengers seeking other options (Bezerra & Gomes 2015; Hussain *et al.*, 2015; Suki, 2014).

### **2.1.3 Airline service quality in the monopolistic airline market**

In a monopolistic airline market, it is common to focus and implement basic services (e.g. airline services and products) without consideration of consumer inputs. Steven *et al.* (2012) found that despite its size, an airline will benefit by operating in a less competitive market because there is no need to invest too much in customers. The customers in this type of airline market situation have no choice but to fly with the airline that monopolises the market (Toh & Higgins, 1985). However, while an airline operates in a monopolised market and seem secure with their dominant current position, arguably, they are definitely not sure about their future standing. To secure future business and growth, it is important for airlines to establish a strong presence, especially in a domestic market (Toh & Higgins, 1985). The only way to secure future growth is for airlines to consider customers' preferences by meeting their expectations. For example, Wei and Hansen (2005) found that in a less competitive market, passengers prefer increased flight frequency, in comparison to seat comfort and space. The airline must maintain flight schedules as promised to customers. Flight schedules are one aspect of the service quality dimension of reliability. The requirements of the reliability dimension in a monopolised market further indicate the necessity of airline service quality in a monopolistic market (Kaynak *et al.*, 1994; Mikulic & Prebezac, 2011; O'Connell & Williams, 2005).

In addition, Jones and Sasser (1995) suggested that airlines passengers never forget a service that does not meet their expectations, and when competition is available, passengers are likely to fly with the new airline(s) out of vengeance. They further revealed that airlines should guard and protect themselves from potential competitions by (unexpected) airline entry and other intermodal forms of transport. For example, in the case of isolated Greek islands, local airlines were unable to compete with the efficient operation of the ferry fleet (Tsekeris, 2009). As a result, the number of flights decreased tremendously. Although a monopolistic market may seemed favourable in terms of lack of competition, there is still a need for airlines operating in this market to invest in their passengers to ground a strong presence. Consequently, this should avoid future competition from not only other airlines entering the market but also eliminate competitions from other intermodal form of transports.

## **2.2 Customers' Expectations**

### ***2.2.1 Airline Service Quality Begins with Customers' Expectation***

Sultan and Simpson (2000) found that organisations cannot provide a high level of service quality without considering customers' expectation first. Pakdil and Aydin (2007) supported this notion and found that expectations are the most important starting point of consumers' reactions to a service being provided. Therefore, it is important for airlines to create a sense of customer expectations, by being clear about which services and products they should provide and make sure that consumers are aware of those services and products being provided (Sultan & Simpson, 2000). With that in mind, customers and passengers will be able to identify the services that the airline provides, which gives customers the opportunity to compare them with other airlines (Park *et al.*, 2004). Despite many empirical studies on customers' expectations of airline service quality, there are still several misconceptions or misunderstandings (e.g. Aksoy *et al.*, 2003; Gilbert & Wong, 2003; Pakdil & Aydin, 2007; Park *et al.*, 2004; Sultan & Simpson, 2000; Zeithaml *et al.*, 1993). One of these misconceptions relates to customers' tendency to have higher expectations (Hussain *et al.*, 2015; Suki, 2014). Zeithaml *et al.* (1993) mentioned that customers' high expectations are often associated with their negative experience of service quality. As a result, airlines now realise the importance of being precise about their promises and make sure they keep them accordingly (Zeithaml & Bitner, 2000; Sultan & Simpson, 2000; Gilbert & Wong, 2003; Parasuraman, Zeithaml, & Berry, 1988). Another misconception relates to the impact of customers' expectations on other customer utilities such as perceptions and satisfaction.

### ***2.2.2 Customers' Expectations Drive Passengers' Satisfaction***

Prior studies that focused on airline service quality have tended to provide a detailed understanding and explanation of the impact of customers' expectations on other aspects of service, especially its impact on passengers' satisfactions (Chou *et al.*, 2011; Gilbert & Wong, 2003; Hussain *et al.*, 2015). Recognising the increasing significance of customers' expectations in driving airline performance and profitability within the airline service quality framework is vital for passengers' satisfaction (Sultan & Simpson, 2000). Hussain *et al.* (2015) found that customers' expectations have a significant influence on passengers' satisfaction. They also explained that airline managers should be consistent with their promises in terms of the service quality that the airline offers. Airline promises create passengers' expectations. When airlines deliver on these promises, they meet passengers' expectations, which, in turn, drive passengers' satisfaction (Gilbert & Wong, 2003; Sultan & Simpson, 2000). Park *et al.* (2004) mentioned that when airline managers do not consider customers' expectations, they are likely to misinterpret information that is critical for an airline's marketing strategy. Gronroos (1982) also supported the idea that passengers' expectations are vital for passengers' satisfaction and stipulated that it is crucial for an airline to consider passengers' expectations before considering passengers' satisfaction. In contrast, the later study of Pantouvakis and Renzi (2016) on airport service quality posited that it may be safe to overlook passengers' expectations and focus on passengers' satisfaction when measuring the impact of airport service quality. They measured passengers' satisfaction before



and after services and compared them. They were able to measure passengers' satisfaction without considering customers' expectations. Thus, it is safe to say that airlines can consider the impact of airline service quality on passengers' satisfaction with or without consideration of passengers' expectations.

## **2.3 Customers' Perceptions**

### **2.3.1 Air Passengers' Perceptions**

Air passengers' perceptions or customers' perceptions are the actual views of the consumers of the services an airline provides (Sultan & Simpson, 2000; Zeithaml *et al.*, 1993). Chen, Tseng and Lin (2011) found that high passenger perceptions lead to positive predictable outcomes, such as passengers' satisfaction and passengers' loyalty (Park *et al.*, 2004). Interestingly, at the stage of passengers' perceptions, observations of airline service quality can be easily defined as either good or bad (Park, 2007; Sultan & Simpson, 2000). Because passengers have not experienced the services before, they have not made any emotional connections to the airline services and they only base their decisions on a few criteria, such as whether the airline is good or bad. As a result, passengers from different backgrounds and cultures can easily share a similar view, which often happens when passengers view the service quality offered without experiencing it (Park, 2007). For example, O'Connell and Williams (2005) noted that despite passengers coming from different continents, such as Malaysia and North America, there seemed to be no differences in passengers' perceptions of low-cost carriers' services. However, not all empirical studies reached the same conclusions that passengers' perceptions are similar despite the passengers coming from different continents and backgrounds (Pantouvakis & Renzi, 2016; Sultan & Simpson, 2000). According to Sultan and Simpson (2000), airline passengers' perceptions vary as a result of passengers' different nationalities. Their study indicated that passengers' different nationalities resulted in different perceptions regarding 20 airline service quality attributes. Pantouvakis and Renzi (2016) supported Sultan and Simpson (2000) study and found that English and Italian passengers had different perceptions of Rome Airport's service quality. Although passengers' perceptions seem to have an impact on passengers' satisfaction, there is some controversy as to whether different backgrounds and nationalities have an impact on the ways passengers perceive an airline's service quality.

### **2.3.2 Service Quality Gaps among Different Passengers**

The concept of service quality gaps is used to identify the differences between the expectations and perceptions of airline passengers. Parasuraman *et al.* (1988) suggested five service quality gaps: (1) gaps between the expectations of the client and the perceptions of the management, (2) perceptions of the management and service quality specifications, (3) specifications of quality and the delivery of service, (4) delivery of service and external communications, and (5) perceived and expected services. These service quality gaps combine to impact customers' satisfaction, as mentioned previously. Empirical studies on airline service quality and customers' satisfaction have shown service gaps for

different demographic groups as well as business-class passengers (e.g. Aksoy *et al.*, 2003; Anderson *et al.*, 2008; Clemes *et al.*, 2008; Heskett *et al.*, 1994; Kaynak *et al.*, 1994; Ringle *et al.*, 2011). For example, Gilbert and Wong (2003) found that business travellers had low expectations of inflight services compared with passengers who are travelling to visit their family. Because business travellers fly frequently, they are familiar with the services and products airlines provide, so their expectations of airline service quality are low (An & Noh, 2009). This is consistent with the study of Park (2007) and Ringle *et al.* (2011), who found that business-class passengers have low expectations of airline service quality. In contrast, the earlier study of Mason (2001) found that most business-class passengers did not find airline services equal to the value of the money spent on the trip. As a result, it does not matter if passengers are frequent travellers or not: airlines should ensure service quality is always improved and avoid falling through the service gaps.

Moreover, a body of literature has also found that airline passengers' expectations and perceptions of airline service quality dimensions vary depending on their level of education age group and gender (e.g. Aksoy *et al.*, 2003; Anderson *et al.*, 2008; Clemes *et al.*, 2008; Heskett *et al.*, 1994; Kaynak *et al.*, 1994; Ringle *et al.*, 2011; Sultan & Simpson, 2000). With regards to level of education, Pakdil and Aydin (2007) found that the higher the consumers' education level, the lower their perceptions of the airline service quality dimensions of assurance, empathy, reliability, responsiveness and tangibles. In light of the tangible dimension, this is consistent with other previous studies such as Chou *et al.* (2011), Chen and Chang (2005) and Liou, Tzeng, & Chang (2007), which revealed that the service gaps between the perceptions and expectations of passengers becomes increasingly large for the dimension of tangibles. The studies also indicated that education has a negative effect on passengers' perceptions of airline service quality. In regards to age groups, Aksoy *et al.* (2003) posited that older passengers (61+) had higher expectations than younger passengers around the age group of 30–50 for inflight comfort-related services such as seat comfort, ventilation and cleanliness. They also found that for services relate to entertainment such as internet and inflight entertainment, younger passengers had higher expectations than older passengers. Importantly, their study indicated that age has the greatest effect on passengers' expectations of airline service quality. In relation to gender, the recent study of Kurtulumusoglu *et al.* (2018) found that female passengers ranked comfort and cabin features as having the greatest impact, but not male passengers. In support of Kurtulumusoglu *et al.* (2018), Aksoy *et al.* (2003) study also found that female passengers have higher expectations than male passengers in regard to cabin features. Both studies showed that gender has an influence on passengers' expectations of airline service quality.

## **2.4 Customers' Satisfaction**

### **2.4.1 Focusing on Passengers' Satisfaction**

In the midst of prior expectations and perceptions by customers of service quality is the construct of consumers' satisfaction (Bolton & Drew, 1991). Pakdil and Aydin (2007) argued that passengers' perceptions did not reflect that of their expectations, which is why the focus on passenger satisfaction is uniformly valid. Airlines now realise the significance of keeping their passengers satisfied for

survival and profitability. Thus, airline managers have continued to upgrade airline services and products as a central requirement to ensure passengers' satisfaction and, in turn, generate long-lasting profitability (e.g. Athanassopoulous *et al.*, 2001; Boulding *et al.*, 1993; Clemes *et al.*, 2008; Cronin & Taylor, 1992; Zeithaml *et al.*, 1996). Obviously, one of the key intentions of airlines is to build a good relationship with their customers and passengers, as well as establishing a long-lasting business partnership through passenger loyalty, good recommendations by word-of-mouth, intent to re-purchase and a good corporate image in the passengers' minds (Clemes *et al.*, 2008; Hussain *et al.*, 2015). Suki (2014) mentioned that passenger satisfaction is one of vital factors that can influence the ways passengers recommend an airline's services to others. Nowadays, passengers' recommendations via word-of-mouth are becoming more influential, especially when passengers have fast and easy access to communication via phones, text messages, email and social media (Berry, 2000; Hussain *et al.*, 2015; Suki, 2014).

#### **2.4.2 Passengers' Satisfaction and Safety**

It is rather concerning that little is known about whether airline safety has an impact on passengers' satisfaction. In the airline industry, safety supersedes airline service quality in importance at every practical and managerial level. Passengers are encouraged to grasp this notion as well and use this knowledge when they choose an airline for travel (Gilbert & Wong, 2003; Ringle *et al.*, 2011). There are studies that have distinguished safety and service quality separately, like the study of Anderson *et al.* (2008), which focused on airline services only. Also, there are studies that have identified the significance of considering safety in the airline service quality model to ensure the paramount position of safety in the services airlines provide (Ringle *et al.*, 2011). In the study of Gilbert and Wong (2003), they blended airline safety attributes with the airline service quality dimension of assurance when they investigated the impact of airline service quality on passengers' expectations. They found that the dimension of assurance has an impact on passengers' satisfaction. Reisinger and Mavondo (2008) also mentioned that threats to international air travel such as terrorism have increased worldwide concerns about aviation safety. Some studies have also incorporated safety attributes in their study of airline service quality, such as Chou *et al.* (2011), Mikulic and Prebezac (2011), Namukasa (2013) and Clemes *et al.* (2008). In consensus, these studies have shown that safety in the airline industry is one of the key drivers of passengers' satisfaction. At the same time, these studies posited that, like other airline service quality dimensions, the impact of aviation safety is dependent on individual differences, such as age group, purpose of travel, gender, occupation and other demographic variables (Clemes *et al.*, 2008; Mittal & Kamakura, 2001). Take, for example, the study of Ringle *et al.* (2011), which found that safety had a much stronger impact on pleasure travellers' level of satisfaction than business travellers' level of satisfaction. In relation to occupation, Clemes *et al.* (2008) found that the semi-professional group of passengers were more concerned and satisfied with the assurance dimension of airline service quality compared with all other groups.

### **2.4.3 Gender-based Satisfaction and Airline Service Quality**

Prior studies have suggested that the link between airline service quality and passenger satisfaction highlighted the importance of passengers' characteristics such as gender on passenger satisfaction (e.g. Aksoy *et al.*, 2003; Kurtulmusoglu *et al.*, 2018; Westwood *et al.*, 2000; Oyewole, 2001; Clemes *et al.*, 2008). The significant impact of airline service quality on gender was first explored by Westwood *et al.* (2000). They noted that the growth of the businesswomen's segment in the airline market was significant and that airlines should take advantage of the opportunity. Nevertheless, they found that airline services were male-oriented and did not always address the needs of female passengers. Two studies (Clemes *et al.*, 2008; Oyewole, 2001) supported Westwood *et al.* (2000), suggesting that female passengers were less satisfied with the airline safety and security dimensions. Oyewole (2001) also suggested that the reason for this bias was because women were not considered as adventurous and at ease with travel by air as men. Nonetheless, when they compared the average gender overall satisfaction level between females and males, a significant difference was revealed.

Furthermore, the recent study of Kurtulmusoglu *et al.* (2018) specifically stressed the high importance of airline service quality features (sub-criteria) by gender (female and male) when measuring passengers' expectations and perceptions. They identified differences in service sub-criteria that had the greatest impact for females and males, respectively. Sub-criteria such as comfortable inflight seats, seat space and leg room had the greatest impact for female passengers, whereas flight schedule related sub-criteria such as the availability of flights and frequency of flights had the greatest impact for male passengers. This study supported prior studies indicating that females and males have different expectations as mentioned above (e.g. Aksoy *et al.*, 2003; Westwood *et al.*, 2000; Oyewole, 2001; Clemes *et al.*, 2008). However, Kurtulmusoglu *et al.* (2018) further examined the order of importance of the service criteria and found that there are no significant differences between females and males in regard to the order of importance for service criteria. They found that there was no significant difference for airline services and products such as cabin features, inflight services and punctuality. This is contrary to earlier studies based on passengers' expectations and perceptions, in which women had higher expectations than men regarding cabin features, inflight activities and punctuality (Aksoy *et al.*, 2003; Clemes *et al.*, 2008).

### **2.4.4 What is a Good Percentage for Passengers' Satisfaction?**

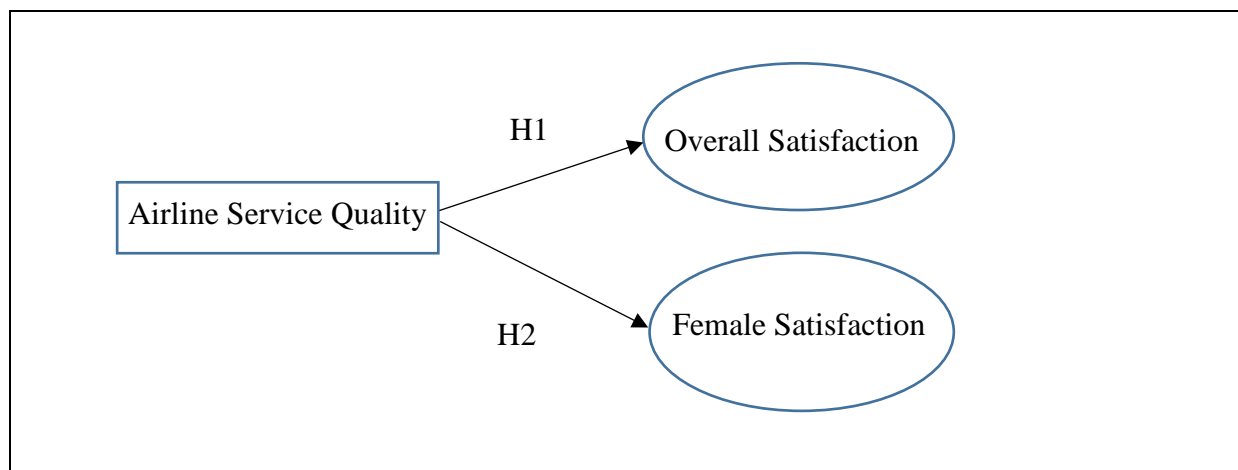
Considering the influential link between airline service quality and passengers' satisfaction, airline managers should always aim to meet or exceed their passengers' level of satisfaction (e.g. Aksoy *et al.*, 2003; Anderson *et al.*, 2008; Clemes *et al.*, 2008; Heskett *et al.*, 1994; Jones & Sasser, 1995; Ringle *et al.*, 2011). According to Jones and Sasser (1995), many airline managers (e.g. Southwest Airlines) have a misconception with regards to the percentage of overall passengers' satisfaction. Airline managers are happy with over 80% of customers being satisfied with their services and products, and they are not willing to invest in the remaining 20% of dissatisfied customers. Customer satisfaction is a vital part of modern marketing strategies and airlines are encouraged to be innovative and inclusive with their marketing strategies to sustain their business growth and operations (Basfirinci & Mitra, 2015; Chou *et al.*, 2011; Gilbert & Wong, 2003; Westwood *et al.*, 2000).

### 3. Research Design

#### 3.1 Conceptual Framework

In view of the rapidly changing airline industry, an ongoing emphasis on airline service quality is demanded by airline passengers. The airline service quality literature has highlighted different dimensions or service aspects for airlines to focus on arising from changing passenger demands and the intense nature of the air transport industry (e.g. Chou *et al.*, 2011; Huang, 2010; Ostrowski *et al.*, 1993; Park *et al.*, 2004; Sultan & Simpson, 2000). A significant body of literature on airline service quality and passengers' satisfaction have been conducted (e.g. Gilbert & Wong, 2003; Hussain *et al.*, 2015; Mikulic & Prebezac, 2011; Namukasa, 2013; Park *et al.*, 2004; Steven *et al.*, 2012; Suki, 2014). The empirical literature has also identified the significant service quality drivers of airline passengers' satisfaction (Chow, 2014; Clemes *et al.*, 2008; Namukasa, 2013). However, most of the existing studies are based on measuring passengers' expectations and perceptions of airline service quality to understand passengers' satisfaction (e.g. Basfirinci & Mitra, 2015; Hussain *et al.*, 2015; Gilbert & Wong, 2003; O'Connell & Williams, 2005; Kurtulmusoglu *et al.*, 2018; Pantouvakis & Renzi, 2016).

**Figure 1. Conceptual framework of airline service quality and passengers' satisfaction**



Ultimately, airline survival and improved performance are essentially the reasons behind this study, to ensure that airlines can deliver high-quality services in the airline market. To improve understanding of this relationship in a less competitive market, the conceptual framework in Figure 1 is proposed and applied to the monopolistic domestic market of the Kingdom of Tonga, in order to attempt to show the direct impact of airline service quality dimensions on airline passengers' satisfaction. The basis of the conceptual framework is to examine whether airline service quality has a positive impact on passengers' overall satisfaction and female passengers' satisfaction. Therefore, the conceptual framework combined two models: (i) airline service quality and overall passengers' satisfaction and

(ii) airline service quality and female passengers' satisfaction. As mentioned earlier (in the Introduction), only one domestic air carrier in Tonga offers domestic flight schedules, usually focused on servicing flights to the outer islands.

### 3.2 Structural Equation Modelling

Structural equation modelling (SEM) is a multivariate technique which combines behavioural values and structural equation values (Huang, 2010). The approach allows the measurement of a phenomenon by considering the relationships of both latent (unobserved) constructs and measured (observed) indicators (Eboli & Mazzulla, 2007; Hair, Matthews, Matthews, & Sarstedt, 2017). It is suggested that one latent construct can be measured by two or more indicators, but not more than seven (Hair, Ringle, & Sarstedt, 2011). Two SEM models have emerged as the conceptual framework shown in Figure 1. The SEM approach is used for each model to analyse the survey data gathered and to determine the relationship between airline service quality (i.e. observed measurable indicators) and overall passengers' satisfaction as well as female passengers' satisfaction (i.e. unobserved constructs) (Astrachan, Patel, & Wanzenried, 2014; Hair, Black, Babin, & Anderson, 2010; Suki, 2014). The two models are estimated separately on purpose to define the two target constructs (i.e. overall passengers and female passengers).

For Model 1, this study measured the airline service quality dimensions of overall passengers' satisfaction. For Model 2, it measured the airline service quality dimensions of female passengers' satisfaction. The data were estimated and analysed by Stata statistical software. For estimation, the mean scores of the aspects in this study, as shown in Appendix B, were obtained for five dimensions of airline service quality for Tongan's domestic airline market, including assurance, empathy, reliability, responsiveness and tangibles. This approach was necessary to ensure that the dimension aspects give a final result for each of the measurable indicators. In addition, five measurable indicators for each model were checked for normality. It should be noted that the normality check is to be carried out before the SEM analysis, which is to ensure that the dataset collected can be modelled with a normal distribution. The normality checks involve examining the kurtosis and skewness of the data (Hair *et al.*, 2010). If the skewness and kurtosis results fall below 2 and 7, respectively, then the dataset has a normal distribution (Curran, West, & Finch, 1996).

Two components are estimated simultaneously to make up the SEM model in this study, which is known as the two-step model (measurement and structural models) (Hair *et al.*, 2010; Nazneen, Xu, & Din, 2018; Suki 2014). Model measurement estimates if the fit of the model to data is acceptable, and the structural model tests the established hypotheses (path coefficient) (Mulaik, James, Alstein, Bennet, Lind & Stilwell, 1989). Before testing the hypotheses, the acceptable fit of the data was estimated. Bentler and Yuan (1999) mentioned that this is the most critical step to determine whether the context of a model is consistent with the data. Confirmatory factor analysis was used to develop the measurement model and to check that all the data variables were acceptable for measuring the construct of each model to be studied (i.e. overall passengers' satisfaction and female passengers' satisfaction) (Astrachan *et al.*, 2014; Suki, 2014). The aim of this measurement assessment is to

establish internal reliability as well as convergent validity. Internal reliability for the constructs (or latent variables) of the SEM model (overall passengers' satisfaction and female passengers' satisfaction) were first assessed by measuring both Cronbach's  $\alpha$  and composite reliability (CR), whereby each method had different weights for the measurable indicators. Cronbach's  $\alpha$  considers the weights of measurable indicators equally, whereas CR considers weights of indicators differently (Chin, 1998; Dijkstra & Henseler, 2015). To achieve a desirable consistency without incurring any unnecessary redundancy, the value of Cronbach's  $\alpha$  should be above 0.7 but not more than 0.9 (Streiner, 2003). Streiner (2003) mentioned that when the value of Cronbach's  $\alpha$  is below 0.9, this gives an indication that the data is considered to have adequate consistency. An acceptable value of CR is above 0.7 (Nunnally & Bernstein, 1994). Once the reliability of the data has been determined, the convergent validity can be analysed. For convergent validity, the outer loadings of the measurable indicators of the airline service quality dimensions (i.e. assurance, empathy, reliability, responsiveness and tangibles) were examined by determining the average variance extracted (AVE) from the constructs (i.e. overall passengers' satisfaction and female passengers' satisfaction). Hair *et al.* (2017) suggested that adequate convergence is established when AVE is larger than 0.50, which indicates that more than half of the variance of the measurable indicators is included in the construct score.

After the measurement model was determined, the next step was to test the established hypotheses, which required the testing of the overall fit and examining the significant standardised path coefficients of the structural model (Astrachan *et al.*, 2014; Hair *et al.*, 2014). For testing the overall fit, each of the SEM models was constructed and their respective overall goodness of fit was estimated. As a result, the values or statistics of chi-square ( $\chi^2$ ), the root mean square error of approximation (RMSEA), the comparative fit index (CFI), the Tucker–Lewis index (TLI), the standardised root mean square residual (SRMR) and the coefficient of determination ( $R^2$ ) were estimated. Chen *et al.* (2008) mentioned that the  $\chi^2$  statistic should be checked first, but since this statistic is often sensitive to the sample size and model complexity, it is also important to generate other indices to assess the model's overall fit during the hypothesis testing stage. The acceptable values of the measure of fit are as follows:  $\chi^2$  must be smaller than 3.0, RMSEA should range from 0.05 to 0.08, both CFI and the TLI should be above 0.9, and SRMR must be less than 0.08 (e.g. Byrne, 2001; Hair *et al.*, 2011; Hu & Bentler, 1999; Nunnally & Bernstein, 1994; Schreiber *et al.*, 2006; Suki, 2014; Wheaton, 1987).

Once the goodness of fit was determined, the next step was to estimate if the significant standardised path coefficients were required to complete and establish the structural model (Suki, 2014). This test indicates the strength of the direct relationship between the measurable indicators and the latent constructs, thus rejecting or accepting the established hypothesis. The SEM model explores the impact of the satisfaction levels of overall and female passengers, which will be determined by this test as a result of their experience of the airline service quality dimensions in Tonga's domestic aviation market. The highest value of the coefficient of a specific airline service quality dimension with the lowest  $p$ -value will indicate the strongest relationship between passengers' satisfaction and that dimension. At the same time, the standard errors can be used to determine the critical ratio which is another way to assess a pathway's significance (Hox & Bechger, 1998; Teo, Tsai, & Yang, 2013).

### 3.3 Hypothesis Formulation

The significant relationships between airline service quality and passengers' satisfaction have been extensively studied (Ostrowski *et al.*, 1993; Park *et al.*, 2004; Sultan & Simpson, 2000). Many studies have adopted the SERVQUAL model to examine airline service quality, such as the studies of Pakdil and Aydin (2007) and Gilbert and Wong (2003). Airlines seek to deliver the best service quality to meet passengers' needs and ensure that customers are satisfied. They spend and invest resources and capital to improve the standard of airline service quality in an effort to satisfy their customers and passengers, which potentially secures future profits (An & Noh, 2009; Basfirinci & Mitra, 2015; Ostrowski *et al.*, 1993). As mentioned before (in the Introduction), the focus of prior literature had been on the competitive airline market for airline survival, profitability and sustainability. At the same time, theoretically, airlines operating in a less competitive market will also benefit from improving airline service quality (Steven *et al.*, 2012; Jones & Sasser, 1995). To date, this relationship between airline service quality and passenger satisfaction has not been fully investigated in a less competitive or monopolistic market such as Tonga's domestic aviation market. Therefore, Hypothesis 1 is established to confirm and justify the first focus of the conceptual framework:

**Hypothesis 1.** *Airline service quality has a positive impact on overall passengers' satisfaction in Tonga's domestic aviation market.*

Recent studies have demonstrated the importance for the airline management to consider socio-demographic characteristics when developing their marketing strategies, such as the study of Clemes *et al.* (2008), Basfirinci and Mitra (2015), and Bezerra and Gomes (2015). Although a large body of research has looked at the impact of airline service quality on passengers' satisfaction, there seemed to be a consensus that there is a lack of research of the impact of passenger demographics that may influence their satisfaction with airline service quality. This study represents an extension of those studies by looking at the impact of airline service quality on female passengers' satisfaction. In addition, Westwood *et al.* (2000) and Kurtulmosglu *et al.* (2018) indicated the growing number of airline female passengers and it is important to consider female passengers in airlines' strategic service planning. Therefore, Hypothesis 2 is established:

**Hypothesis 2.** *Airline service quality has a positive impact on female passengers' satisfaction in Tonga's domestic aviation market.*



### 3.4 The SERVQUAL Model

The SERVQUAL model was proposed by Parasuraman *et al.* (1985). This model is a widely used consumer evaluation scale or instrument adopted by service organisations to ensure that they provide high quality services for enticing new customers and retaining satisfied customers and thus ensure their survival (Park *et al.*, 2004). Initially, the SERVQUAL model was used to compare between customers' perceptions and customers' expectations, but now this instrument has been adjusted to test passengers' satisfaction and loyalty in recent studies. Importantly, the SERVQUAL model can be applied to the airline industry to measure airline service quality (e.g. Basfirinci & Mitra, 2015; Suki, 2014; Gilbert & Wong, 2003; Namukasa, 2013). The model has the ability to adapt to different research designs, which is appropriate for this study (Chou *et al.*, 2011; Ostrowski *et al.*, 1993; Park *et al.*, 2004; Suki, 2014). Because the SERVQUAL model can be used in any setting or location, it has become increasingly popular and it is suitable for this study to examine the relationship between airline service quality and overall passengers' satisfaction as well as female passengers' satisfaction in Tonga's domestic aviation market (Chang & Yeh, 2002; Huang, 2010; Gilbert & Wong 2003). The five airline service dimensions of the SERVQUAL model consisting of assurance, empathy, reliability, responsiveness and tangibles were used in this research to measure passengers' satisfaction (overall passengers' and female passengers' satisfaction) (Parasuraman *et al.*, 1985). Aspects of the five dimensions of the SERVQUAL model were used to measure the relationship between airline service quality and passengers' satisfaction in Tonga's domestic aviation market (Gilbert & Wong, 2003; Huang, 2010; Namukasa, 2013; Suki, 2014). Importantly, Pakdil and Aydin (2007) mentioned that the SERVQUAL measurable indicators of service quality can be adjusted to reflect the surroundings being investigated.

### 3.5 Survey Design and Data Collection

The structured questionnaire was divided into two relevant sections (see Appendix A). Section A collected the demographic information of the participants in the survey such as gender, marital status, occupation, education level, age group, employment status and purpose of last trip. Section B was developed based on previous studies of the SERVQUAL model and the airline service quality dimensions as mentioned above. The airline service quality of Tonga's domestic aviation market in this study was measured by 35 airline service quality aspects of the dimensions (e.g. Gilbert & Wong, 2003; Huang, 2010; Namukasa, 2013; Pakdil & Aydin, 2007; Parasuraman *et al.*, 1988; Park *et al.*, 2004; Suki, 2014). The design of Section B of the questionnaire was based on multiple-item measurement scales. The service aspect items of each of the airline service quality dimensions were adapted and phrased in the form of statements scored on a 5-point Likert scale (1 = very dissatisfied to 5 = very satisfied) for degree of satisfaction.

The questionnaire was pilot-tested for practicality and comprehension before the survey was conducted in Tonga and New Zealand. According to Basfirinci and Mitra (2015), a pilot test is very important to

ensure that the face validity of the measurable indicators in a study are not ambiguous and likely to cause confusion. Han *et al.* (2012), Pakdil and Aydin (2007), and Pantouvaki and Renzi (2016) also supported pilot testing. A small team of Tongan university students at Massey University in New Zealand, were involved in the pilot study, which aimed to ensure all that questions in the questionnaire were clearly understood and could be fully answered. Afterwards, minor changes to the initial version of the questionnaire were made and the final version was produced. The questionnaire was distributed and accompanied by a cover letter that explained the objective of the survey and assured the confidentiality of the participants. The questionnaire was written in two languages (English and Tongan), aiming to ensure that the participants who live in Tonga who speak and write the Tongan language could also understand and be able to complete the questionnaire.

The self-completed questionnaire (see Appendix A) was used to test the two hypotheses (see Section 3.3) by giving an evaluation of overall passengers' and female passengers' satisfactions with the airline service quality they experienced in Tonga's domestic airline market. The survey was distributed to participants who had undertaken at least one flight with the domestic airline in Tonga. Park (2007) and Basfirinci and Mitra (2015) mentioned that since passengers' satisfaction is based on passengers' feeling after their most recent experience of an airline's service, the questionnaire for this research was only distributed to those who had previously flown with the domestic carrier in Tonga. The questionnaire was distributed to a convenient sample of randomly selected (or voluntary) participants at two destinations (Tongatapu in Tonga and Palmerston North in New Zealand). These two destinations proved to be appropriate for the convenient sampling method, as the questionnaire could have been distributed to government workplaces, schools, churches, etc. Calder *et al.* (1981) stipulated (as cited in Basfirinci and Mitra, 2015) that when the focus of a study is mainly concerned with exploring the relationships among variables, the convenience samples are suitable.

Survey data were collected between October 2018 and January 2019. A total of 300 questionnaires was distributed to Tongans and non-Tongans at the above mentioned destinations who had flown on at least one domestic flight in Tonga. Of these, 245 questionnaires were collected but only 205 questionnaires were completed and usable for further data analysis. The successful collected questionnaires are more than the minimum sample size for the SEM model (more than 200) suggested by Hair *et al.* (2010) and Weston and Gore (2006). Importantly, MacCullum, Browne, and Sugawara (1996) also noted that sample size depends on the parameters the study intends to assess. With fewer parameters to assess, a smaller sample can be appropriate. Jackson (2003) also supported MacCullum *et al.* (1996) notion. It should be noted that the participants in this study were mostly of Tongan ethnicity and the rest of the participants were non-Tongan nationals for whom the English translation of the questionnaire was appropriate for them to complete regarding their perspectives of the airline service quality of Tonga's domestic aviation market.

## 4. Empirical Results

### 4.1 Demographic Characteristics

The demographic statistics of the survey participants are shown in Table 1. The sample consisted of 205 participants: 125 participants were female and 80 participants were male. Just over half of the participants were married (53.7%) and 46.3% were single. In terms of age groups, 80 of the participants were between 19 and 29 years old, 55 participants were between 30 and 39 years old, 37 participants were between 40 and 49 years old, 18 participants were between 50 and 59 years old, seven participants were 18 years old, and six participants were 60 years old or over. As for level of education, 90 of the participants were university degree holders, 70 were tertiary diploma or certificate graduates, 42 had secondary school education and the remaining three participants had below secondary level of education. With respect to occupation, 160 participants were employed, 24 were students, 11 were unemployed, eight were self-employed and only two participants were retired.

**Table 1. Demographic profiles of the survey participants (205 participants)**

<b>Demographic variables</b>	<b>Definition</b>	<b>Frequency</b>	<b>Percentage (%)</b>
<u>Gender</u>	Male	80	39.0
	Female	125	61.0
<u>Marital status</u>	Married	110	53.7
	Single	95	46.3
<u>Age (years old)</u>	18 years	7	3.4
	19–29	80	40.0
	30–39	55	26.8
	40–49	37	18.0
	50–59	18	8.8
	60 +	6	2.9
<u>Place of domicile</u>	Tonga	161	78.5
	Other	44	21.5
<u>Education level</u>	Less than secondary school	3	1.5
	Secondary school	42	20.5
	Tertiary certificate or diploma	70	34.1
	University degree or above	90	43.9
<u>Employment status</u>	Employed	160	78.0
	Retired	2	1.0
	Self-employed	8	3.9
	Unemployed	11	5.4
	Student	24	11.7

## 4.2 Descriptive Statistics

### 4.2.1 Participants' Experiences of Domestic Flight Services in Tonga

Table 2 shows the descriptive statistics of the participants' level of experience of Tonga's domestic flight services. Of those that participated, 136 participants reported that they had been a customer of the domestic airline in Tonga for more than 1 year, 16 had been a customer for more than 6 months but less than 12 months, 30 participants had approximately less than 6 months of affiliation with the domestic airline and 23 participants had made only their first purchase. With regards to participants' most recent flight, 131 participants travelled in 2018, 44 participants travelled in 2017, 14 participants travelled in 2016, nine participants travelled in 2015, four participants travelled in 2014 and only three travelled in 2013 or earlier. Regarding the participants' purpose of travel, 80 participants travelled to visit family and relatives, 73 participants travelled for business, 25 participants travelled for holiday or vacation, and nine participants each travelled for the purpose of church obligations, school and for other reasons.

**Table 2. Participants experiences of domestic flight services (205 participants)**

Experiences	Definition	Frequency	Percentage (%)
<u>As airline customer</u>	First purchase	23	11.2
	Less than six months	30	14.6
	More than six month under 12 months	16	7.8
	One year plus	136	66.3
<u>Most recent flight</u>	In 2018	131	63.9
	In 2017	44	21.5
	In 2016	14	6.8
	In 2015	9	4.4
	In 2014	4	2
	In 2013 and earlier	3	1.5
<u>Purpose of travel</u>	Visit family and relatives	80	39
	Business	73	35.6
	Church obligations	9	4.4
	School	9	4.4
	Holiday or vacation	25	12.2
	Other	9	4.4

### 4.2.2 Normality Tests of Five Measurable Indicators

Table 3 shows the statistics of five measurable indicators. The means for all measurable indicators ranged from 3.226 to 3.392, based on the Likert scale of 1 = very dissatisfied and 5 = very satisfied.

This demonstrates that most of the participants had a positive experience (or were happy with) with their prior airline experience and the service standards of Tonga’s domestic flight services. In addition, the statistics of skewness for all measurable indicators ranged from  $-0.404$  to  $-0.626$  and the kurtosis ranged from 2.387 to 3.330. Both the statistics of skewness and kurtosis are well below the suggested values (2 and 7 respectively), which suggested that the scores presented a normal distribution for the purpose of the SEM model.

**Table 3. Statistics of five measurable indicators**

<b>Service Dimensions</b>	<b>Mean</b>	<b>Standard deviation</b>	<b>Skewness</b>	<b>Kurtosis</b>
Expected range	n/a	n/a	$\pm 3$	$\pm 8$
<b>Assurance</b>	3.392	0.756	-0.626	3.330
<b>Empathy</b>	3.256	0.757	-0.415	2.995
<b>Reliability</b>	3.254	0.844	-0.414	2.387
<b>Responsiveness</b>	3.227	0.800	-0.474	2.649
<b>Tangibles</b>	3.363	0.744	-0.404	2.955

### 4.3 Structural Equation Modelling

#### 4.3.1 Measurement Model

Table 4 shows the estimation results of the reliability and validity analyses. The table also shows the values of the unstandardized loadings of the measurement items, as well as the values of Cronbach’s  $\alpha$ , CR and AVE for each of the SEM models, respectively. The value of Cronbach’s  $\alpha$  is within the recommended threshold (above 0.7 but not more than 0.9) at 0.88 for Model 1 (overall passengers’ satisfaction) and 0.89 for Model 2 (female passengers’ satisfaction). Similarly, the values of CR for both models are greater than the suggested value (0.7), with 1.01 for the Model 1 and 1.02 for Model 2. This result indicated high reliability among the measurement items for the constructs.

For the convergent validity, the statistics of the non-standardised loadings for the measurable indicators are significant, as they passed the suggested cut-off value of 0.05. For Model 1, the dimension of responsiveness had the highest value of 1.178, followed by empathy with 1.079, assurance with 1.021, reliability with 1 and tangibles with 0.861. For Model 2, the dimension of responsiveness had the highest value of 1.264, followed by empathy with 1.153, assurance with 0.974, reliability with 1.0 and tangibles with 0.867. The values of AVE also exceeded the recommended threshold value. The AVE values of Models 1 and 2 are 1.067 and 1.126, respectively, which suggested that more than half of the variance observed in the measurable indicators were accounted for their respective constructs (i.e. overall passengers’ satisfaction and female passengers’ satisfaction). Therefore, the current data from the collected questionnaires have good convergent validity.

**Table 4 Estimation results of the reliability and validity analyses**

Constructs	Measurement indicators	Non-standardised loadings	Cronbach's $\alpha$	CR	AVE
<i>Overall passengers' satisfaction</i>					
			0.876	1.013	1.067
	Assurance	1.021			
	Empathy	1.079			
	Reliability	1.000			
	Responsiveness	1.178			
	Tangibles	0.861			
<i>Female passengers' satisfaction</i>					
			0.888	1.023	1.126
	Assurance	0.974			
	Empathy	1.153			
	Reliability	1.000			
	Responsiveness	1.264			
	Tangibles	0.867			

Notes: CR, composite reliability; AVE, average variance extracted.

#### 4.3.2 Structural Model

**Table 5. Goodness of fit for the structural models**

Models	$\chi^2$	df	$\chi^2/df$	RMSEA	CFI	TLI	SRMR	$R^2$
Recommended values	n/a	n/a	< 3.0	< 0.08	> 0.9	> 0.9	< 0.08	
<b>Model 1</b>	21.851	204	0.107	0.128	0.968	0.935	0.035	0.893
<b>Model 2</b>	14.875	124	0.12	0.126	0.972	0.944	0.038	0.916

Notes:  $\chi^2$ , chi-square; df, degree of freedom; RMSEA, root mean square error of approximation; CFI, comparative fit index; TLI, Tucker–Lewis index; SRMR, standardised root mean square residual;  $R^2$ , coefficient of determination.

As mentioned in Section 3 (Research Design), a variety of indices were used to assess the two SEM models' overall fit in this research. Table 5 shows the results:  $\chi^2$  was 21.851 for Model 1 and 14.875 for Model 2 with 204 and 124 degrees of freedom, respectively. The indices for CFI and the TLI were above the threshold of 0.90, which indicated a good fit. In the case of RMSEA, both models' values were above 0.08, indicating that the models may not perfectly fit the sample data. The index of SRMR was below the recommended value of 0.08, which also showed a good fit. The value of  $R^2$  indicated that 89% of the total variance in overall passengers' satisfaction and 92% of the total variance for

female passengers' satisfaction with Tonga's domestic aviation market explained by the measurable indicators. Overall, the indices presented in Table 5 revealed good model fit, and they are acceptable for measuring the relationship between airline service quality and passenger satisfaction in this research: in other words, the collected data showed that the survey data has a good fit and is acceptable for measuring the proposed SEM models, except for the RMSEA results.

Table 6 shows the standardised path coefficients of the structural models under investigation, which indicate the strength of the direct relationship between the five identified measurable indicators and the constructs of the two models. Figure 2 shows the SEM result for overall passengers' satisfaction. For Model 1 (overall passengers' satisfaction model), as expected, the satisfaction level for overall airline passengers is affected by all the airline service quality dimensions. This empirical finding supports Hypothesis 1, that airline service quality has a positive impact on overall passengers' satisfaction with Tonga's domestic aviation market. The dimension of responsiveness (coefficient = 0.858,  $p$ -value < 0.05) has the most impact and the dimension of tangibles (coefficient = 0.674,  $p$ -value < 0.05) has the least impact.

**Table 6. Measurable indicators' relationship with overall passengers' satisfaction and female passengers' satisfaction**

Measurement paths	Coefficients	S.E.	C.R.	$p$ -value
<i>Overall passengers' satisfaction</i>				
Assurance → OP satisfaction	0.787	0.033	23.927	0.000
Empathy → OP satisfaction	0.831	0.028	29.566	0.000
Reliability → OP satisfaction	0.690	0.042	16.639	0.000
Responsiveness → OP satisfaction	0.858	0.026	33.508	0.000
Tangibles → OP satisfaction	0.674	0.043	15.554	0.000
<i>Female passengers' satisfaction</i>				
Assurance → FP satisfaction	0.755	0.043	17.403	0.000
Empathy → FP satisfaction	0.826	0.035	23.319	0.000
Reliability → FP satisfaction	0.709	0.049	14.360	0.000
Responsiveness → FP satisfaction	0.919	0.025	37.337	0.000
Tangibles → FP satisfaction	0.719	0.049	14.637	0.000

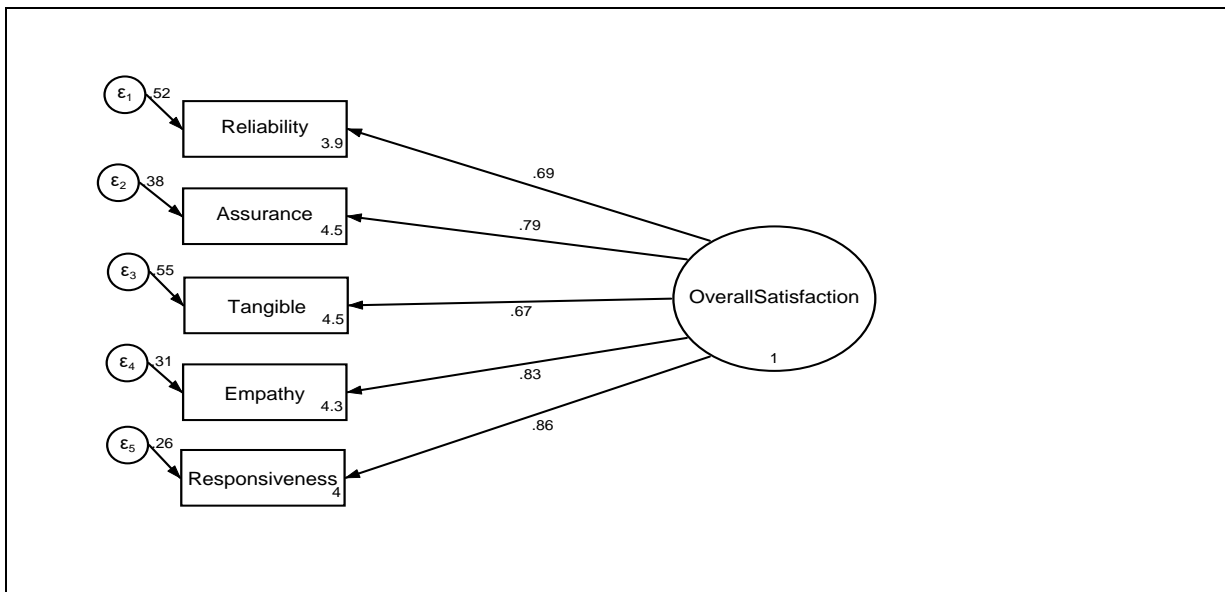
*Notes:* OP, overall passengers; FP, female passengers; S.E., standard error; CR, critical ratio.

In Model 2 (female passengers' satisfaction model), it is surprising to see similar results. The empirical results indicated that the satisfaction level among female passengers is also affected by all the airline service quality dimensions, indicating that Hypothesis 2 was sustained. Figure 3 shows the SEM result for female passengers' satisfaction. This empirical finding suggests that airline service quality has a positive impact on female passengers' satisfaction in Tonga's domestic aviation market. Again, the dimension of responsiveness (coefficient = 0.919,  $p$ -value < 0.05) had the most impact on female

passengers' satisfactions but in this model, the dimension with the least impact on female passengers' satisfaction was reliability (coefficient = 0.709,  $p$ -value < 0.05).

The CR was estimated in this study to confirm the significance of all loadings of the measurable indicators (i.e. airline service quality dimensions). The CR statistics showed that all loadings of the airline service quality dimensions were significant. The two dimensions with the lowest CR values (Tangibles in Model 1 and Reliability in Model 2) highlighted that these two dimensions have the least impact on overall and female passengers' satisfaction with Tonga's domestic airline service. As a result, this, in turn, indicated the dimensions that require improvement and the most urgent attention that the airline management should focus on.

**Figure 2. Estimation results of the structural model for overall passengers' satisfaction**



**Figure 3. Estimation results of the structural model for female passengers' satisfaction**





## **5. Discussions and Managerial Implications of the Key Findings**

### **5.1 Overall Key Findings of SEM models**

Overall, both hypotheses of overall passengers' satisfaction and female passengers' satisfaction were accepted and confirmed in their respective SEM models (see Table 6). Despite considerations of the context and the market nature of Tonga's domestic aviation market, the compelling empirical results of the SEM models revealed that all of the SERVQUAL airline service quality dimensions are significant (or important) from the perspectives of overall passengers and female passengers. The results of this research consistently supported the previous air transport literature using the SERVQUAL model, such as the studies of Basfirinci and Mitra (2015), Huang (2010), Hussain *et al.* (2015), Park *et al.* (2004), and Sultan and Simpson (2000). Importantly, the empirical findings of this study suggested that the airline service quality of Tonga's domestic aviation market has a positive and direct impact on passengers' satisfaction. More discussion of the key findings relating to overall passengers' satisfaction and female passengers' satisfaction with the airline service quality in Tonga's domestic market is presented in the following sub-sections, followed by the managerial implications of the key findings.

### **5.2 Key Findings on Overall Passengers' Satisfaction**

The results of this research indicated that the responsiveness dimension highly impacted overall passengers' satisfaction. The statistically significant coefficient estimate of responsiveness (coefficient = 0.858,  $p$ -value < 0.05) had the highest value among all of the five dimensions for overall passengers' satisfaction (see Figure 2). This implied that the responsiveness of the domestic airline in Tonga is satisfactory for overall passengers. This is further confirmed by the average scores for the different items of responsiveness aspects: "Staff offer prompt services and assistance to you", 3.07; "Staff are always available to respond to your requests", 3.12; "Staff are friendly when they serve you", 3.44; "Staff provide efficient check-in services", 3.49; "Staff offer efficient baggage handling services", 3.40 (see Appendix B). This result for overall passengers' satisfaction is congruent with the studies of Akamavi, Mohamed, Pellman, and Xu (2015); Chou *et al.* (2011); and Pakdil and Aydin (2007), which suggested that responsiveness is not the only predictor of passenger satisfaction but it is the indicator that has the strongest direct impact on passenger satisfaction. It is worthwhile to note that the aspects of responsiveness in this research highlight the satisfactory standard of service offered by employees of the airline in Tonga, which is in line with Hussain *et al.* (2015). The result also indicated that the responsiveness dimension has the most positive impact on overall passengers' satisfaction.

The results also revealed that overall passengers' satisfaction is influenced by the empathy dimension and hence the SEM model reported a high coefficient estimate for empathy (coefficient = 0.831,  $p$ -value < 0.05). The statistically significant coefficient estimate of the empathy dimension ranked it as

the second impactful dimension among all five airline service quality dimensions for overall passengers' satisfaction (see Figure 2). Similar to the responsiveness dimension, the aspects of the dimension of empathy captured overall passengers' satisfaction with high airline staff involvement. For example, the average scores for the different items were as follows: "Staff offer kind assistance and attention", 3.44; "Staff have your best interest at heart", 3.25; "Staff handle fare issues and other problems well", 3.12 (see Appendix B). This is in line with Sultan and Simpson (2000), who found that the prominent features of empathy is when airline staff have passengers' interest at heart and understand the specific requirements of airline passengers. At the same time, the empathy-related aspects are not only confined to staff service delivery; an airline must also implement service delivery to ensure that passengers' requirements are met (Nadiri, Hussain & Ekiz, 2008; Suki, 2014). This is confirmed by the average scores for empathy items: "Airline understands your specific needs and requirements", 3.23; "Airline office hours are convenient to you", 3.31; "Airline offers special flights to cater for special circumstances (church conferences, festivals and school holidays)", 3.18 (see Appendix B).

The assurance dimension also showed the positive effect on overall passengers' satisfaction, with a high statistically significant coefficient estimate (coefficient = 0.787,  $p$ -value < 0.05). In terms of the order of its positive impact on overall passengers' satisfaction, the dimension of assurance was ranked third place, as shown in Figure 2. This also supported by the average scores for the items: "The airline instils confidence in you", 3.26; "Staff have the knowledge to answer your questions and enquiries", 3.45; "Staff are consistently courteous with you", 3.39; "You feel safe when you fly with the airline", 3.34; "You feel safe when you make a transaction to purchase airline services and products", 3.25; "You trust the staff", 3.35; "You understand the in-flight safety instructions", 3.68 (Appendix B). Interestingly, the link between the assurance dimension and airline safety aspects gives this dimension importance, especially when an airline deals with airline accidents and/or the occurrence of emergency events (Gilbert & Wong, 2003; Ringle *et al.*, 2011). Studies have found that the dimension of assurance was the most important dimension for airline passengers' expectations (Clemes *et al.*, 2008; Gilbert & Wong, 2003). In light of the notion that the assurance dimension is the key dimension of airline service quality, the results of this research paint a grim picture for the airline management in Tonga, suggesting that the dimension of assurance is not of the utmost importance.

The reliability dimension has an important impact on overall passengers' satisfaction, with a statistically significant coefficient estimate (coefficient = 0.690,  $p$ -value < 0.05). The coefficient estimate puts the reliability dimension as the fourth most satisfactory dimension out of the five dimensions for overall passengers, as shown in Figure 2. In this research, the average scores for the aspects of the reliability dimension were: "The airline keeps their promises (e.g. fares, schedules, procedures)", 3.05; "Staff show a sincere interest when solving problems", 3.21; "Perform the service right the first time", 3.22; "Maintain on-time departure and arrival", 3.12; "Consistent ground services", 3.40; "Easy to communicate with contacts publicly listed (phone numbers and email addresses)", 3.35; (Appendix B). This result is not consistent with prior studies which found that the reliability dimension was the most important dimension for airline passengers' satisfaction (e.g. Bowen & Headley, 2000; Chou *et al.*, 2011; Gilbert & Wong, 2003; Hussain *et al.*, 2015; Sultan & Simpson, 2000).

Although the effect of the tangibles dimension on overall passengers' satisfaction was validated with a statistically significant coefficient estimate (coefficient = 0.674,  $p$ -value < 0.05), this dimension had the least impact on overall passengers' satisfaction (see Figure 2). The average scores of the tangible aspects indicates that passengers were less satisfied: "Modern looking aircraft", 3.12; "Aircraft interior is visually appealing (clean and tidy)", 3.45; "Staff appear smart, neat and tidy", 3.76; "Availability of waiting lounge (a comfortable space to wait for your flight)", 3.47; "The quality of food and beverages offered in-flight", 3.02; "Check-in counters are visually appealing", 3.31; "Cabin and seats are clean and legroom is sufficient", 3.36 (see Appendix B). This result suggests that overall passengers in Tonga's domestic aviation market found the tangibles dimension to be the most dissatisfactory dimension compared with other four dimensions. The result is consistent with prior studies of Chou *et al.* (2011), and Sultan and Simpson (2000), which found that passengers had low perceptions of the tangibles dimension and passengers had low expectations of the tangibles dimension.

### 5.3 Female Passengers' Satisfaction

The effects of the five airline service quality dimensions on female passengers' satisfaction were also investigated. Convincingly, all the service quality dimensions (i.e. assurance, empathy, reliability, responsiveness and tangibles) had a positive impact on female passengers' satisfaction with Tonga's domestic airline services. To have a better understanding of how the airline service quality dimensions impacted female passengers' satisfaction, it is important to consider how each of the airline service quality dimensions affected the level of female passengers' satisfaction.

The statistically significant coefficient estimate of the responsiveness dimension (coefficient = 0.919,  $p$ -value < 0.05) indicates that this dimension had the highest impact on female passengers' satisfaction among all of the five dimensions (see Figure 3). The average scores of the dimension aspects were: "Staff are friendly when they serve you", 3.42; "Airlines will tell you exactly when their services will be delayed or interrupted", 3.18; "Staff offer prompt services and assistance to you", 3.18; "Staff are always available to respond to your requests", 3.15, "Employees approach toward unexpected situations (e.g. flight delays, etc.)", 3.12; "Staff offer efficient baggage handling services", 3.34 (see Appendix B). This is a similar result to overall passengers' satisfaction and is consistent with Kurtulmusoglu *et al.* (2018), who found that the categories of responsiveness and employee competency were the two most important criteria for female passengers. This result is also consistent with the overall findings about passengers' satisfaction in the studies of Akamavi *et al.* (2015), Chou *et al.* (2011) and Pakdil and Aydin (2007).

In addition, the dimension of empathy was ranked second, with a statistically significant coefficient estimate (coefficient = 0.826,  $p$ -value < 0.05), indicating that this dimension has a positive impact on female passengers' satisfaction. The average scores of the dimension aspects were: "Staff offer kind assistance and attention", 3.42; "Airline offers special flights to cater for special circumstances (church conferences, festivals and school holidays)", 3.22; "Staff have your best interest at heart", 3.22; "Airline understands your specific needs and requirements", 3.24; "Airline office hours are convenient to you", 3.32; "Staff handle fare issues and other problems well", 3.06; "Airline provides seats that

you prefer (upon request)", 3.24 (see Appendix B). This result is similar to the overall passengers' satisfaction results discussed above. The result is consistent with the study of Suki (2014), which found that the empathy dimension strongly influenced passengers' satisfaction. More importantly, this result is also consistent with Kurtulumusoglu *et al.* (2018) regarding empathy-related criteria like employee competency ranked third out of nine criteria.

Although the dimension of assurance has a positive effect on female passengers' satisfactions and a statistically significant coefficient (coefficient = 0.755,  $p$ -value < 0.05), it was ranked third in the order of importance as shown in Figure 3. The average scores of the dimension's aspects are: "You understand the in-flight safety instructions", 3.55; "Staff have the knowledge to answer your questions and enquiries", 3.45; "You feel safe when you fly with the airline", 3.42; "The airline instils confidence in you", 3.31; "Staff are consistently courteous with you", 3.36; "You feel safe when you make a transaction to purchase airline services and products", 3.28; "You trust the staff", 3.35 (see Appendix B). This result is not in line with previous studies that have indicated that female airline passengers were more concerned with the assurance dimension (Clemes *et al.*, 2008; Westwood *et al.*, 2000). Considering the overall position of the impact of the assurance dimension on female passengers' satisfaction, the results indicated that female passengers were not highly satisfied with this service dimension in Tonga's domestic aviation market.

The impact of the tangibles dimension was the second lowest for female passengers' satisfaction (coefficient = 0.719,  $p$ -value < 0.05). Being the second least importance for female passengers' satisfaction also closely reflects the results for overall passengers' satisfaction (see Figure 3). The average scores for this dimension's aspects were: "Staff appear smart, neat and tidy", 3.76; "Aircraft interior is visually appealing", 3.57; "Availability of waiting lounge", 3.51; "Cabin and seats are clean and legroom is sufficient", 3.41; "Modern looking aircraft", 3.12; "The quality of food and beverages offered in-flight", 3.02; "Check-in counters are visually appealing", 3.28 (see Appendix B). These results are consistent with the finding for overall passengers' satisfaction in that the impact of the tangibles dimension on female passengers' satisfaction was small. This is also consistent with the previous study of Suki (2014), which found that airline tangibles were not statistically validated as being important for satisfaction. However, prior studies on female passengers have warned airlines not to overlook this dimension, as it is a key requirement for airlines. For example, although all passengers want a seat, female passengers prefer to have a comfortable spacious seat for comfort and privacy (Aksoy *et al.*, 2003; Kurtulumusoglu *et al.*, 2018; Westwood *et al.*, 2000).

In relation to the dimension of reliability, the statistically significant coefficient estimate of the dimension had the lowest value among all five dimensions for female passengers' satisfaction (coefficient = 0.709,  $p$ -value < 0.05) as shown in Figure 3. The average scores for the reliability aspects were: "The airline keeps their promises (e.g. fares, schedules, procedures)", 3.02; "Staff show a sincere interest when solving your problems", 3.17; "Perform the service right the first time", 3.27; "Maintain on-time departure and arrival", 3.16; "Consistent ground services", 3.34; "Consistent in-flight services", 3.39; "Easy to communicate with contacts publicly listed (phone numbers and email addresses)", 3.30 (see Appendix B). It is interesting that this dimension is not encouraging for Tonga's domestic airline and how it implements the reliability dimension. The result also indicated that female passengers in Tonga's domestic aviation market found the reliability dimension less satisfactory

compared with the other four airline service quality dimensions in this research. However, it also means that the reliability dimension is the most important dimension for Tonga's airline management to consider and pay attention to in order to cater for future female passengers (Sultan & Simpson, 2000). It should be noted that female passengers have higher expectations about punctuality than male passengers, which suggests that this dimension is important for female passengers (Aksoy *et al.*, 2003).

## **5.4 Managerial Implications**

### ***5.4.1 Improving Reliability is Urgent***

It is evident that overall passengers in Tonga's domestic aviation market are not quite satisfied with the dimension of reliability compared with other dimensions. The result of high expectations of this dimension among overall passengers shows how valuable reliability is to airline passengers in Tonga's domestic aviation market. Therefore, reliability is the most urgent dimension of airline service quality for the domestic airline market in Tonga to look at and make improvements. As a result, the airline management needs to focus on the reliability dimension and make improvements in areas such as maintaining operation of scheduled flight services. The urgency is further suggested by female passengers' perspectives. Similarly, Steven *et al.* (2012) suggested that the factor having the largest impact on airline passengers' satisfaction is an improvement in on-time performance as an indicator of reliability. Therefore, airline managers in Tonga should devote more effort and invest more resources to the aspects of the reliability dimension, such as keeping their promises and showing sincere interest in solving passengers' problems.

### ***5.4.2 Inspiring Front Staff to Serve Their Customers – the Responsiveness and Empathy Dimensions***

Although both overall passengers and female passengers surveyed in this research considered the responsiveness and empathy dimensions of the domestic airline in Tonga to be satisfactory – the performance and attitude of airline employees were the main positive factors. In this light, the airline management and front desk staff in Tonga's domestic airline should be enlightened by this finding of the research to ensure their passengers are always satisfied with the quality of airline services they provide, especially with resolving service breakdowns (e.g. flight delays or flight cancellations). Furthermore, managers of the domestic airline in Tonga should continue to inspire their staff (especially customer service staff) to meet and exceed customer needs, especially when answering customers' enquiries with proper responses that could improve passenger satisfaction. This suggestion is similar to that of Bitner (1990) and Sultan and Simpson (2000). Therefore, the airline management and front staff in Tonga's domestic airline must also continue to improve their understanding of passengers' needs and requirements by attending to their interests and problems, as well as offering better quality services and products to airline passengers.

#### **5.4.3 Aviation Safety is Paramount – the Assurance Dimension**

The implications of the finding for the assurance (or aviation safety) dimension for airline managers in Tonga is that they should not take this dimension lightly. The result raises an important cautionary flag or question with regards to the priority in Tonga's aviation industry – the guarantee of aviation safety. Airline managers in Tonga should seek effective and efficient ways to ensure flight safety and avoid any flight incidents and accidents happening. At the same time, airline managers need to ensure their passengers feel safe at all times by making sure they are aware of all the safety measures that the airline has undertaken to ensure flight safety. Airline passengers will feel safe when they perceive safety as a daily or routine service (Clemes *et al.*, 2008; Gilbert & Wong, 2003). In addition, airline managers in Tonga should instil confidence in passengers by ensuring their customer service staff are knowledgeable about their operations so they can answer passengers' queries and questions confidently, which relates to the assurance dimension.

#### **5.4.4 Innovate and Impress – The Tangibles Dimension**

The finding of the tangibles dimension in this research implies that airline managers in Tonga cannot afford to disregard the growing significance of the tangible attributes of airline services and products for passenger satisfaction. This is an increasingly important area in which the domestic airline in Tonga can improve their services and product quality or capitalise on by offering more purchasable supplementary services. For example, the airline should offer food and beverages to passengers for extra cost. In particular, this research found that the tangibles attributes were less satisfactory for female passengers. In order for the airline to capture more female passengers and improve their satisfaction levels, the physical appearance of certain airline services and products need to be improved, such as purchasing more modern aircraft and establishing more appealing check-in counters. Putting those improvements in place will help augment the airline's tangibles dimension.

## 6. Concluding Remarks

### 6.1 Summary

This thesis aims to investigate the impact of airline service quality SERVQUAL dimensions (i.e. assurance, empathy, reliability, responsiveness and tangibles) on overall and female passengers' satisfaction using Tonga's domestic airline market as a case study. The SEM approach was used to analyse the five-point Likert scale survey data (205 questionnaires were completed) collected in Tongatapu (Tonga) and Palmerston North (New Zealand). The key results of this study are that all of the airline service quality dimensions have a positive impact on overall and female passengers' satisfaction with Tonga's domestic aviation market, but the level of impact of each of the dimensions on passengers' satisfaction are different. Importantly, the key findings of this research coincided with other prior studies on airline service quality with a few exceptions. In addition, in order, the dimensions with the strongest positive impact on overall passengers' satisfaction are: (1) responsiveness, (2) empathy, (3) assurance, (4) reliability and (5) tangibles. In terms of the dimensions with the strongest positive impact on female passengers' satisfaction are: (1) responsiveness, (2) empathy, (3) assurance, (4) tangibles and (5) reliability.

The reliability and tangibles dimensions produced lower levels of satisfaction than the other dimensions. The least satisfactory dimension for overall passengers was tangibles and that for female passengers was reliability. These results will be a concern for the airline in Tonga, especially when female passengers' results suggested that the reliability dimension is the most dissatisfactory dimension in Tonga's domestic flight service. It is clear that both results highlighted the importance for the airline in Tonga's domestic market to position their focus on the reliability and tangibles dimensions (the dimensions with the least impact on satisfaction for overall and female passengers) to improve and increase passengers' level of satisfaction in the future.

In addition, overall and female passengers' satisfaction agreed regarding the rank of the assurance dimension. This dimension was ranked third by both overall and female passengers. The dimension was ranked third in the order of impact on passengers' satisfaction, which does not indicate that assurance was the paramount airline service quality dimension. Instead, this finding indicated that the domestic airline passengers in Tonga do not rank assurance as the most satisfying service dimension.

Furthermore, the dimensions of responsiveness and empathy were the most satisfactory dimensions or the most highly recognised dimensions for overall and female passengers. Among these two dimensions, the dimension with the greatest impact was the responsiveness dimension for both overall and female passengers' satisfaction. The result indicated that the airline in Tonga's domestic market is performing well on this dimension because passengers are not only satisfied with them but they also ranked them most impactful. However, it is worth mentioning that these two dimensions (responsiveness and empathy) seemed to share a common factor which relates to the performance of the airline service staff. This research highlighted the satisfactory quality of airline service provided by staff for overall and female passengers.

## **6.2 Contributions of This Study**

This study makes two major contributions to the air transport literature by measuring airline service quality in Tonga's domestic aviation market. The first contribution is linked to the context and the market type of this study. This study was conducted within a non-Western context and is the first study to analyse passengers' satisfaction in Tonga's domestic aviation market. The study also provides empirical evidence that paints a picture of airline service quality in the monopolistic Tongan domestic aviation market. Tonga's domestic market has one airline in operation and, more importantly, the study provides empirical evidence of the far end of the market type spectrum, namely a monopolistic market.

The second contribution of this study relates to a deeper understanding of the impact of airline service quality on female passengers' satisfaction. This study contributes to our understanding of female passengers' satisfactions for airline service quality, which in turn provides practical insights for airline managers as to how to improve airline service quality for this specific market segment (including Tonga's domestic airline). In particular, this study examined the measurable indicators (the five airline service quality dimensions) that could affect female passengers' satisfaction as well as how satisfied they were with the airline services provided by the airline under consideration. Thus, this study adds to the growing literature around gender-related (female) satisfaction with airline service quality, and also offers managerial implications to improve their satisfaction levels.

## **6.3 Limitations and Future Research**

Despite the important contributions to the literature and the managerial implications of this study, there are a few limitations that can be noted. The survey data of this study were collected from passengers who have travelled with the domestic airline in Tonga, and so the results of this study should be interpreted in the context of Tonga's domestic aviation market. To conduct a research in another country could give a different result. Therefore, future research on the role of airline service quality on overall and female passengers' satisfaction could examine a different context in the Pacific Island States such as Fiji, Samoa and Cook Islands, given their similar geographical locations in the Pacific and similar culture.

Another important limitation of this research concerns the conceptual model used to examine the relationship between overall and female passengers' satisfaction and airline service quality in Tonga's domestic aviation market. Though the focus of the established conceptual model was based on the construct of passengers' satisfaction with Tonga's domestic aviation market, there is always room for improvements. Improvements could be made, such as adding relevant measurable indicators for measuring the passenger satisfaction construct as well as for the airline service quality dimensions in Tonga's domestic aviation market. For example, for measuring the passenger satisfaction construct, future research could add passenger loyalty or a post-travel satisfaction construct to see whether passengers will continue to or will be willing to fly with the same airline in the future, or whether passengers would consider moving to or choosing another airline if another new airline entered Tonga's domestic aviation market. Undoubtedly, this is an important subject to research and explore



in a Tonga's monopolistic domestic aviation market, considering the growth of air travel demand and tourism activity.

## 7. References

- Alamdari, F. (1999). Airline in-flight entertainment: The passengers' perspective. *Journal of Air Transport Management*, 5(4), 203–209.
- Akamavi, R., Mohamed, E., Pellman, K., & Xu, Y. (2015). Key determinants of passenger loyalty in the low-cost airline business. *Tourism Management*, 46, 528–545.
- Aksoy, S., Atilgan, E., & Akinci, S. (2003). Airline services marketing by domestic and foreign firms: differences from the customers' viewpoint. *Journal of Air Transport Management*, 9, 343–351.
- An, M., & Noh, Y. (2009). Airline customer satisfaction and loyalty: impact of in-flight service quality. *Service Business*, 3(3), 293–307.
- Anderson, A., Pearo, L. K., & Widener, S. K. (2008). Drivers of service satisfaction: Linking customer satisfaction to the service concept and customer characteristics. *Journal of Service Research*, 10(4), 365–381.
- Astrachan, C. B., Patel, V. K., & Wanzanried, G. (2014). A comparative study of CB-SEM and PLS-SEM for theory development in family firm research. *Journal of Family Business Strategy*, 5(1), 116–128.
- Athanassopoulos, A., Gounaris, S., & Stathakopoulos, V. (2001). Behavioural responses to customer satisfaction: an empirical study. *European Journal of Marketing*, 35(5/6), 687–707.
- Bailey, E. E., Graham, D. R., & Kaplan, D. P. (1991). *Deregulating the airlines* (4th ed.). London, England: The Massachusetts Institute of Technology Press.
- Basfirinci, C., & Mitra, A. (2015). A cross cultural investigation of airlines service quality through integration of Servqual and the Kano model. *Journal of Air Transport Management*, 42, 239–248.
- Bentler, P. M., & Yuan, K. (1999). Structural equation modelling with small samples: test statistics. *Multivariate Behavioural Research*, 34(2), 181–197.
- Berry, L. L. (2000). Cultivating service brand equity. *Journal of the Academy of Marketing Science*, 28(1), 128–137.
- Berry, L. L., Parasuraman, A., & Zeithaml, V. A. (1988). The service quality puzzle. *Business Horizons*, 31(5), 35–43.
- Bezerra, G. C. L., & Gomes, C. F. (2015). The effect of service quality dimensions and passenger characteristics on passenger's overall satisfaction with an airport. *Journal of Air Transport Management*, 44(45), 77–81.
- Bitner, M. J. (1990). Evaluating service encounters: The effect of physical surroundings and employee responses. *Journal of Marketing*, 54(2), 69–82.
- Bolton, R. N., & Drew, J. H. (1991). A multistage model of customers' assessments of service quality and value. *Journal of Consumer Research*, 17(4), 375–384.

- Boulding, W., Kalra, A., Staelin, R., & Zeithaml, V. A. (1993). A dynamic process model of service quality: From expectations to behavioural intentions. *Journal of Marketing Research*, 30(1), 7–27.
- Bowen, B., & Headley, D. (2000). *Air travel consumer report: The airline quality rating*. Washington, DC: US Department of Transportation.
- Byrne, B. M. (2001). Structural equation modelling with AMOS, EQS and LISREL: Comparative approaches to testing for the factorial validity of a measuring instrument. *International Journal of Testing*, 1(1), 55–86.
- Carlsson, F., & Lofgren, A. (2006). Airline choice switching costs and frequent flyer programmes. *Applied Economics*, 38(13), 1469–1475.
- Chang, Y., & Yeh, C. (2002). A survey analysis of service quality for domestic airlines. *European Journal of Operational Research*, 139(1), 166–177.
- Chen, F., & Chang, Y. (2005). Examining airline service quality from a process perspective. *Journal of Air Transport Management*, 11(2), 79–87.
- Chen, F., Curran, P. J., Bollen, K. A., Kirby, J., & Paxton, P. (2008). An empirical evaluation of the use of field cutoff points in RMSEA test static in structural equation models. *Sociological Methods and Research*, 36(4), 462–494.
- Chen, Y., Tseng, M., & Lin. (2011). Evaluating customer perceptions on in-flight service quality. *African Journal of Business Management*, 5(7), 2854-2864.
- Chin, W. W. (1998). Issues and opinion on structural equation modelling. *MIS Quarterly*, 22(1), 7–17.
- Chou, C., Liu, L., Huan, S., Yih, J., & Han, T. (2011). An evaluation of airline service quality using the fuzzy weighted SERVQUAL method. *Applied Soft Computing*, 11, 2117–2128.
- Chow, C. K. W. (2014). Customer satisfaction and service quality in the Chinese airline industry. *Journal of Air Transport Management*, 35, 102–107.
- Clemes, M. D., Gan, C., Kao, T., & Choong, M. (2008). An empirical analysis of customer satisfaction in international air travel. *Innovative Marketing*, 4(2), 49–62.
- Cronin, J. J., & Taylor, S. A. (1992). Measuring service quality: A re-examination and extension. *Journal of Marketing*, 56(3), 55–68.
- Curran, P. J., West, S. G., & Finch, J. F. (1996). The robustness of test statistics to non-normality and specification error in confirmatory factor analysis. *Psychological Methods*, 1(1), 16-29.
- Dijkstra, T. K., & Henseler, J. (2015). Consistent partial least squares path modelling. *MIS Quarterly*, 39(2), 297–316.
- Eboli, L., & Mazzulla, G. (2007). Service quality attributes affecting customer satisfaction for bus transit. *Journal of Public Transportation*, 10(3), 21–34.
- Fick, G. R., & Ritchie, J. R. (1991). Measuring service quality in the travel and tourism industry. *Journal of Travel Research*, 30(2), 2–9.

- Field, M. (2013). *Chinese plane forces NZ airline out of Tonga*. Retrieved from [www.stuff.co.nz/world/south-pacific/8183693/Chinese-plane-forces-NZ-airline-out-of-Tonga](http://www.stuff.co.nz/world/south-pacific/8183693/Chinese-plane-forces-NZ-airline-out-of-Tonga).
- Forsyth, P., & King, J. (1996). Cooperation, competition, and financial performance in South Pacific aviation. In G. Hufbauer & C. Findlay (Eds.), *Flying high: liberalization civil aviation in the Asia Pacific* (pp. 99–118). Washington, DC: Washington Institute for International Economics.
- Gilbert, D., & Wong, R. K. C. (2003). Passenger expectations and airline services: A Hong Kong based study. *Tourism Management*, 24, 519–532.
- Gronroos, C. (1982). An applied service marketing theory. *European Journal of Marketing*, 16(7), 30–41.
- Guthrie, K. (2013). Aviation regionalism in the Pacific. *The Journal of Pacific History*, 48(3), 294–308.
- Hair, J. F., Black, W., Babin, B., & Anderson, R. (2010). *Multivariate data analysis: A global perspective*. Upper Saddle River, NJ: Pearson Education Inc.
- Hair, J. F., Matthews, L. M., Matthews, R. L., & Sarstedt, M. (2017). PLS-SEM or CB-SEM: updated guidelines on which method to use. *International Journal of Multivariate Data Analysis*, 1(2), 107–123.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139–152.
- Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least square structural equation modelling (PLS-SEM): An emerging tool in business research. *European Business Review*, 26(2), 106–121.
- Han, S., Ham, S., Yang, I., & Baek, S. (2012). Passengers, perceptions of airline lounges: Importance of attributes that determine usage and service quality measurement. *Tourism Management*, 33, 1103–1111.
- Heskett, J. L., Jones, T. O., Loveman, G. W., Sasser Jr, W. E., & Schlesinger, L. A. (1994). Putting the service–profit chain to work. *Harvard Business Review*, 94204, 164–174.
- Hox, J. J., & Bechger, T. M. (1998). An introduction to structural equation modeling. *Family Science Review*, 11, 354–373.
- Hsu, C. I., & Wen, Y. H. (2003). Determining flight frequencies on an airline network with demand–supply interactions. *Transportation Research Part E: Logistics and Transportation Review*, 39, 417–441.
- Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural Equation Modeling: A Multidisciplinary Journal*, 6(1), 1–55.
- Huang, Y. (2010). The effect of airline service quality on passengers' behavioural intentions using SERVQUAL scores: A Taiwan case study. *Journal of the Eastern Asia Society for Transportation Studies*, 8, 2330–2343.

- Hussain, R., Nasser, A. A., & Hussain, Y. K. (2015). Service quality and customer satisfaction of a UAE-based airline: An empirical investigation. *Journal of Air Transport Management*, 42, 167–175.
- Jackson, D. L. (2003). Revisiting sample size and number of parameter estimates: Some support for the N:Q hypothesis. *Structural Equation Modelling*, 10, 128–141.
- Jones, T. O., & Sasser Jnr, W. E. (1995). Why satisfied Customers defect. *Harvard Business Review*, 95606, 88–99.
- Kaynak, E., Kucukemiroglu, O., & Kara, A. (1994). Consumers' perceptions of airlines: A correspondence analysis approach in a global airline industry. *Management International Review*, 34, 235–254.
- Kissling, C. (1989). International tourism and civil aviation in the South Pacific: Issues and innovations. *Geo Journal*, 19(3), 309–315.
- Liou, J. J. H., Tzeng, G. H., & Chang, H. (2007). Airline safety measurement using a hybrid model. *Journal of Air Transport Management*, 13(4), 243–249.
- Kurtulmusoglu, F. B., Can, G. R., Pakdil, F., & Tolon, M. (2018). Does gender matter? Considering gender of service in the airline industry. *Journal of Air Transport Management*, 70, 73–82.
- MacCallum, R. C., Browne, M. W., & Sugawara, H. M. (1996). Power analysis and determination of sample size for covariance structure modelling. *Psychological Methods*, 1(2), 130–149.
- Mason, K. J. (2001). Marketing low-cost airline services to business travellers. *Journal of Air Transport Management*, 7, 103–109.
- Mikulic, J., & Prebezac, D. (2011). What drives passenger loyalty to traditional and low-cost airlines? A formative partial least squares approach. *Journal of Air Transport Management*, 17, 237–240.
- Mittal, V., & Kamakura, W. A. (2001). Moderating effect of customer characteristics. *Journal of Marketing*, 38(1), 131–142.
- Mulaik, S. A., James, L. R., Alstine, J. V., Bennett, N., Lind, S., & Stilwell, C. D. (1989). Evaluation of goodness-of-fit indices for structural equation models. *Psychological Bulletin*, 105(3), 430–445.
- Nadiri, H., Hussain, K., & Ekiz, H. (2008). An investigation on the factors influencing passengers' loyalty in the North Cyprus national airline. *The TQM Journal*, 20(3), 265–280.
- Namukasa, J. (2013). The influence of airline service on passenger satisfaction and loyalty: The case of Uganda airline industry. *The TQM Journal*, 25(5), 520–532.
- Nazneen, S., Xu, H., & Din, N. U. (2018). Cross-border infrastructure development and residents' perceived tourism impacts: A case of China–Pakistan economics. *International Journal of Tourism Research*, 2019, 1–10.
- New Zealand Aviation News. (2011). *True war bird survivor for Wanaka*. Retrieved from [www.aviationnews.co.nz/news/50/28/True-warbird-survivor-for-Wanaka-airshow](http://www.aviationnews.co.nz/news/50/28/True-warbird-survivor-for-Wanaka-airshow).
- Nunnally, J. C., & Bernstein, I. H. (1994). *Psychometric theory* (3rd ed.). New York: McGraw Hill.

- O'Connell, J. F., & Williams, G. (2005). Passengers' perceptions of low cost airlines and full service carriers: A case study involving Ryanair, Aer Lingus, Air Asia and Malaysia Airline. *Journal of Air Transport Management*, 11, 259–272.
- One World Nations Online. (2018). *Tonga*. Retrieved from <https://www.nationsonline.org/oneworld/tonga.htm>
- Ostrowski, P. L., O'Brien, T. V., & Gordon, G. L. (1993). Service quality and customer loyalty in the commercial airline industry. *Journal of Travel Research*, 32(2), 16–24.
- Oyewole, P. (2001). Consumer's socio-demographic characteristics and satisfaction with services in the airline industry. *Services Marketing Quarterly*, 23(2), 61–80.
- Pakdil, F., & Aydin, O. (2007). Expectations and perceptions in airline services: An analysis using weighted SERVQUAL scores. *Journal of Air Transport Management*, 13, 229–237.
- Pantouvakis, A., & Renzi, M. F. (2016). Exploring different nationality perceptions of airport service quality. *Journal of Air Transport Management*, 52, 90–98.
- Parasuraman, A., Berry, L. L., & Zeithaml, V. A. (1991). Understanding expectations of service. *Sloan Management Review*, 32(3), 39–48.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A conceptual model of service quality and its implications for future research. *Journal of Marketing*, 49(4), 41–50.
- Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing*, 64(1), 12–40.
- Park, J. (2007). Passenger perceptions of service quality: Korean and Australian case studies. *Journal of Air Transport Management*, 13, 238–242.
- Park, J., Robertson, R., & Wu, C. (2004). The effect of airline service quality on passengers' behavioural intentions: a Korean case study. *Journal of Air Transport Management*, 10, 435–439.
- Perry, N. (2014). *China's gift causes trouble for Tonga*. Retrieved from [www.stuff.co.nz/business/10197179/Chinas-gift-causes-trouble-for-Tonga](http://www.stuff.co.nz/business/10197179/Chinas-gift-causes-trouble-for-Tonga).
- Reisinger, Y., & Mavondo, F. (2008). Cultural differences in travel risk perception. *Journal of Travel & Tourism Marketing*, 20(1), 13–31.
- Rezaei, J., Fahim, P. B. M., & Tavasszy, L. (2014). Supplier selection in the airline retail industry using a funnel methodology: Conjunctive screening method and fuzzy AHP. *Expert Systems with Applications*, 41, 8165–8179.
- Rhoades, D. L., & Waguespack, B. (2008). Twenty years of service quality performance in the US airline industry. *Managing Service Quality*, 18(1), 20–33.
- Ringle, C. M., Sarstedt, M., & Zimmermann, L. (2011). Customer satisfaction with commercial airlines: the role of perceived safety and purpose of travel. *Journal of Marketing Theory and Practice*, 19, 459–472.

- Schreiber, J. B., Nora, A., Stage, F. K., Barlow, E. A., & King, J. (2006). Reporting structural equation modelling and confirmatory factor analysis results: A review. *The Journal of Educational Research*, 99(6), 323–338.
- Steven, A. B., Dong, Y., & Dresner, M. (2012). Linkages between customer service, customer satisfaction and performance in the airline industry: Investigation of non-linearities and moderating effects. *Transportation Research Part E: Logistics and Transportation Review*, 48(2012), 743–754.
- Streiner, D. L. (2003). Being inconsistent about consistency: When coefficient alpha does and doesn't matter. *Journal of Personality Assessment*, 80(3), 217–222.
- Sultan, F., & Simpson, M. C. (2000). International service variants: airline passenger expectations and perceptions of service quality. *Journal of Services Marketing*, 14(3), 188–216.
- Sun, K., & Kim, D. (2013). Does customer satisfaction increase firm performance? An application of American Customer Satisfaction Index (ACSI). *International Journal of Hospitality Management*, 35, 68–77.
- Suki, N. M. (2014). Passenger satisfaction with airline service quality in Malaysia: A structural equation modelling approach. *Research in Transportation Business & Management*, 10, 26–32.
- Suzuki, Y. (2007). Modelling and testing the “two-step” decision process of travellers in airport and airline choices. *Transportation Research Part E: Logistics and Transportation Review*, 43, 1–20.
- Taumoepeau, S. (2010). South Pacific. In: A. Graham, A. Papatheodorou & O. Forsyth (Eds.), *Aviation and tourism: implications for leisure travel* (pp. 323–331). Burlington, VT: Ashgate.
- Teo, L., Tsai, L. T., & Yang, C. C. (2013). Applying structural equation modelling (SEM) in educational research: An introduction. In M.S Khine. (Eds.), *Application of structural equation modeling in educational research and practice*. Contemporary Approaches to Research in Learning Innovations. Rotterdam, The Netherlands: Sense Publishers.
- Toh, R., & Higgins, R. G. (1985). The impact of hub and spoke network centralization and route monopoly on domestic airline profitability. *Transportation Journal*, 24(4), 16–27.
- Tsekeris, T. (2009). Dynamic analysis of air travel demand in competitive island markets. *Journal of Air Transport Management*, 15(6), 267–273.
- Vaka'uta, K. (2016). *Tonga's MA60 flies again*. Retrieved from [www.rnz.co.nz/international/programmes/datelinepacific/audio/201811768/tonga's-ma60-flies-again](http://www.rnz.co.nz/international/programmes/datelinepacific/audio/201811768/tonga's-ma60-flies-again).
- Vargo, S. L., & Lusch, R. F. (2008). Service dominant logic; continuing the evolution. *Journal of the Academy of Marketing Science*, 36, 1–10.
- Wei, W., & Hansen, M. (2005). Impact of aircraft size and seat availability on airlines' demand and market share in duopoly markets. *Transportation Research Part E: Logistics and Transportation Review*, 41(4), 315–327.
- Westwood, S., Pritchard, A., & Morgan, N. J. (2000). Gender-blind marketing: Businesswomen's perceptions of airline services, *Tourism Management*, 21, 353–362.

Wheaton, B. (1987). Assessment of fit in over identified models with latent variables. *Method and Research*, 16, 118–154.

Weston, R., & Gore, P, A. (2006). A brief guide to structural equation modelling. *The Counseling Psychologist*, 34(5), 719–751.

Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1993). The nature and determinants of customer expectations of service. *Journal of the Academy of Marketing Science*, 21, 1–12.

Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The behavioural consequences of service quality. *Journal of Marketing*, 60(2), 31–46.

Zeithaml, V. A., & Bitner, M, J. (2000). *Services Marketing*. McGraw-Hill, Boston, Massachusetts.



## 8. Appendices

### 8.1 Appendix A

# Questionnaire

## The Impact of Airline Service Quality on Passenger Satisfaction in Tonga's Domestic Market

### Research Information

#### Research Objective

The intention of this survey is twofold: firstly, to investigate the impact of airline service quality on passenger satisfaction in Tonga and, secondly, to identify the important airline service quality dimensions in Tonga. This research also attempts to identify attributes of airline service quality dimensions that are important to passengers and would enable domestic air operations in Tonga to better meet customers' needs and expectations.

#### Project Procedures

The information you provide will remain confidential and will be treated as such for statistical analysis. Massey University will store all the information for five years, after which the information will be destroyed.

#### Participant Involvement

This survey requires only 10–15 minutes of your time to complete. You may participate in this study if you have experienced the services of domestic air operations. You can complete the survey at a time suitable for you. A drop-box is available for participants to submit the completed questionnaire.

#### Participants' Rights

Completing the questionnaire and returning it implies consent. You are not obliged to take this survey; however, if you wish to participate, you have the right not to answer any particular questions. Feel free to ask any questions at any time before and during the survey.

#### Massey University- Ethical Committee Approval Statement

Massey University Human Ethics Committee has reviewed and approved this project. If you have any concerns about the conduct of this research, please contact Dr Rochelle Stewart-Withers, Chair,

### A. Demographic Information

<b>Gender</b>	<input type="checkbox"/> Male	<input type="checkbox"/> Female
<b>Marital Status</b>	<input type="checkbox"/> Single	<input type="checkbox"/> Married
<b>Age Group</b>	<input type="checkbox"/> 18 years old and under	<input type="checkbox"/> 40-49 years old
	<input type="checkbox"/> 19-29 years old	<input type="checkbox"/> 50-59 years old
	<input type="checkbox"/> 30-39 years old	<input type="checkbox"/> 60 years old and over
<b>Nationality</b>	<input type="checkbox"/> Tonga	<input type="checkbox"/> Other

Specify if you have ticked "Other": \_\_\_\_\_

**Place of domicile** (where you normally live at)

Specify your answer: \_\_\_\_\_

**Please indicate the level of education you have completed.**

<input type="checkbox"/> Less than secondary school	<input type="checkbox"/> Tertiary certificate or diploma
<input type="checkbox"/> Secondary School	<input type="checkbox"/> University degree/s or above

**Please indicate your current employment status.**

<input type="checkbox"/> Employed	<input type="checkbox"/> Unemployed
<input type="checkbox"/> Retired	<input type="checkbox"/> Student
<input type="checkbox"/> Self-employed	

**Please indicate how long you have been a customer of domestic airline in Tonga?**

<input type="checkbox"/> This is my first purchase	<input type="checkbox"/> Less than six months
<input type="checkbox"/> Six months to a year	<input type="checkbox"/> One year or more

**Please indicate the purpose of your last travel with the domestic airline.**

<input type="checkbox"/> Visit family/ relatives	<input type="checkbox"/> School
<input type="checkbox"/> Business	<input type="checkbox"/> Holiday/vacation
<input type="checkbox"/> Church obligations	<input type="checkbox"/> Other

Specify if you have ticked "Other": \_\_\_\_\_

**Please indicate when your recent flight with domestic airline in Tonga was?**

Specify your answer: \_\_\_\_\_

## B. Impact of Airline Service Quality on Passenger Satisfaction

For each statement below, please tick the box that best describes your overall rate of level of satisfaction with your experience with the domestic airline service quality.

		Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied	
		1	2	3	4	5	
<b>Reliability</b>							
1.	The airline keeps their promises (e.g. fares, schedules, procedures)						
2.	Staff show a sincere interest when solving your problems						
3.	Perform the service right the first time						
4.	Maintain on-time departure and arrival						
5.	Consistent ground services						
6.	Consistent in-flight services						
7.	Easy to communicate with contacts publicly listed (phone numbers and email addresses)						
8.	Please order the above attributes of <b>Reliability</b> of importance to your satisfaction, putting the number of the attributes most important first and the second most important and so forth in the boxes provided.						
	Most Important	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Least Important
<b>Assurance</b>							
1.	The airline instils confidence in you						
2.	Staff have the knowledge to answer your questions and enquiries						
3.	Staff are consistently courteous with you						
4.	You feel safe when you fly with the airline						
5.	You feel safe when you make a transaction to purchase airline services and products						
6.	You trust the staff						
7.	You understand the in-flight safety instructions						
8.	Please order the above attributes of <b>Assurance</b> of importance to your satisfaction, putting the number of the attributes most important first and the second most important and so forth in the boxes provided.						
	Most Important	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Least Important
<b>Tangibles</b>							
1.	Modern looking aircraft						

		Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied
		1	2	3	4	5
2.	Aircraft interior is visually appealing (clean and tidy)					
3.	Staff appear smart, neat and tidy					
4.	Availability of waiting lounge (a comfortable space to wait for your flight)					
5.	The quality of food and beverages offered in-flight					
6.	Check-in counters are visually appealing					
7.	Cabin and seats are clean and legroom is sufficient					
<b>8. Please order the above attributes of <u>Tangibles</u> of importance to your satisfaction; putting the number of the attributes most important first and the second most important and so forth in the boxes provided.</b>						
<b>Most Important</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>Least Important</b>						
<b>Empathy</b>						
1.	Staff offer kind assistance and attention					
2.	Airline offers special flights to cater for special circumstances (church conferences, festivals and school holidays)					
3.	Staff have your best interest at heart					
4.	Airline understands your specific needs and requirements					
5.	Airline office hours are convenient to you					
6.	Staff handle fare issues and other problems well					
7.	Airline provides seats that you prefer (upon request)					
<b>8. Please order the above attributes of <u>Empathy</u> of importance to your satisfaction, putting the number of the attributes most important first and the second most important and so forth in the boxes provided.</b>						
<b>Most Important</b> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <b>Least Important</b>						
<b>Responsiveness</b>						
1.	Airline tells you exactly when their services will be delayed or interrupted					
2.	Staff offer prompt services and assistance to you					
3.	Staff are always available to respond to your requests					
4.	Employees' approach towards unexpected situations (e.g. flight delays, etc.)					
5.	Staff are friendly when they serve you					
6.	Staff offer efficient baggage handling services					
7.	Staff provide efficient check-in services					
<b>8. Please order the above attributes of <u>Responsiveness</u> of importance to your satisfaction; putting the number of the attributes most important first and the second most important and so forth in the boxes provided.</b>						

	Very Dissatisfied	Dissatisfied	Neutral	Satisfied	Very Satisfied	
	1	2	3	4	5	
Most Important	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Least Important

### C. Airline Service Quality Dimensions and Comments

Please prioritise the dimensions in order of importance to your satisfaction.  
 (1= the most important and 5= the least important)

1. **Dimensions**

Reliability    Assurance    Tangibles    Empathy    Responsiveness

2. Is there anything else you would like to add on the level of service quality of your local airline and how it can be improved? Please provide your comments below.

➤ \_\_\_\_\_

➤ \_\_\_\_\_

➤ \_\_\_\_\_

➤ \_\_\_\_\_

**Thank you for taking the time to complete this survey.**

## 8.2 Appendix B

### Average mean scores of SERVQUAL airline service dimensions

Aspects of airline service quality dimensions	Overall AMS	Female AMS
<b>Assurance</b>		
The airline instil confidence in you	3.26	3.31
Staff have the knowledge to answer your questions and enquiries	3.48	3.45
Staff are consistently courteous with you	3.39	3.36
You feel safe when you fly with the airline	3.34	3.42
You feel safe when you make a transaction to purchase airline services and products	3.25	3.28
You trust the staff	3.35	3.35
You understand the in-flight safety instructions	3.68	3.55
<b>Empathy</b>		
Staff offer kind assistance and attention	3.44	3.42
Airline offers special flights to cater for special circumstances (church conferences, festivals and school holidays)	3.18	3.22
Staff have your best interest at heart	3.25	3.22
Airline understands your specific needs and requirements	3.23	3.24
Airline office hours are convenient to you	3.31	3.32
Staff handle issues and other problems well	3.12	3.06
Airline provides seats that you prefer (upon request)	3.26	3.24
<b>Reliability</b>		
The airline keeps their promises (e.g. fares, schedule, procedures)	3.05	3.02
Staff show a sincere interest when solving your problems	3.21	3.17
Perform the service right the first time	3.22	3.27
Maintain on-time departure and arrival	3.12	3.16
Consistent ground services	3.40	3.34
Consistent in-flight services	3.43	3.39
Easy to communicate with contacts publicly listed (phone numbers and email addresses)	3.35	3.30
<b>Responsiveness</b>		
Airline tells you exactly when their services will be delayed or interrupted	2.98	3.18
Staff offer prompt services and assistance to you	3.07	3.18
Staff are always available to respond to your requests	3.12	3.15
Employees' approach towards unexpected situations (e.g. flight delays, etc.)	3.09	3.12
Staff are friendly	3.44	3.42
Staff offer efficient baggage handling services	3.4	3.34
Staff provide efficient check-in services	3.49	3.46
<b>Tangibles</b>		
Modern looking aircraft	3.12	3.12
Aircraft interior is visually appealing (clean and tidy)	3.50	3.57
Staff appear smart, neat and tidy	3.76	3.76
Availability of waiting lounge (a comfortable space to wait for your flight)	3.47	3.51
The quality of food and beverages offered in-flight	3.02	3.02
Check-in counters are visually appealing	3.31	3.28
Cabin and seats are clean and legroom is sufficient	3.36	3.40
Number of participants	205	125

Note: AMS average mean scores